Transportation Technical Report

Multnomah County | Earthquake Ready Burnside Bridge Project

Portland, OR

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Earthquake Ready Burnside Bridge Transportation Technical Report

Prepared for

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CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, as a professional transportation planner.

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Acronyms, Initialisms, and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	average daily traffic
API	Area of Potential Impact
ARTS	All Roads Transportation Safety
BAT	business access and transit
BLTS	bicycle level of traffic stress
CBD	Central Business District
CEID	Central Eastside Industrial District
CMF	crash modification factor
CSZ	Cascadia Subduction Zone
D/C	demand-to-capacity
DMV	Department of Motor Vehicles
EB	eastbound
EIS	Environmental Impact Statement
EQRB	Earthquake Ready Burnside Bridge
ETC	Enhanced Transit Corridor
FHWA	Federal Highway Administration
FO	full operation
GIS	geographic information system
HCM	Highway Capacity Manual
HCN	High Crash Network
HSM	Highway Safety Manual
HT	heavy trucks
HV	heavy volume
I-5	Interstate 5
I-84	Interstate 84
I-405	Interstate 405
LO	limited operation
LOS	level of service
MC	medium commercial
MLK	Martin Luther King, Jr.
MT	medium trucks
MV	medium volume
NB	northbound
NE	northeast
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act of 1969
NHS	National Highway System

O-D	origin and destination pairs
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OTP	Oregon Transportation Plan
PBOT	Portland Bureau of Transportation
PDO	property damage only
RTP	Regional Transportation Plan
SE	southeast
SPIS	Safety Priority Index System
TEV	total entering volume
TSP	Transportation System Plan
V/C	volume-to-capacity
VMT	vehicle miles traveled
VPH	volume per hour
VZAP	Vision Zero Action Plan
W/E	west/east
WB	westbound

Executive Summary

This Transportation Technical Report for the Earthquake Ready Burnside Bridge Project discusses transportation impacts stemming from the project, which is located near and across the Willamette River within the central city of Portland, Oregon. This report describes both the short-term impacts related to construction of the various alternative designs and the long-term impacts from the No-Build and Build Alternatives for the following topics:

- Traffic and freight operational impacts, including volumes and travel times.
- Transit ridership, travel time, and delay.
- Active Transportation impacts, including volumes and travel times.
- Safety impacts, including projected changes in crash factors and rates.

This information provides context for evaluating the proposed alternatives based on their anticipated impacts to all transportation modes in the project area and applies professional judgment to assess the level of impacts stemming from each alternative and proposed possible implementable mitigations.

Each temporary construction and permanent Build/No-Build Alternative was assessed for how performance of traffic, transit, safety, and active transportation would operate under each alternative. The analysis focused on active transportation includes a focus on bicycles, pedestrians, and e-scooters. Impacts are thus divided into those that apply during the temporary construction phase of an Earthquake Ready Burnside Bridge and those permanent impacts after construction is complete. Permanent impacts are further divided between anticipated operations prior to the next Cascadia Subduction Zone (CSZ) earthquake and how anticipated operations after a CSZ event would affect resiliency, emergency response, and recovery. Each of the temporary construction and permanent alternatives feature unique impacts to the modes analyzed in this report.

A full accounting of the impacts across the scenarios discussed in this report can be found in Appendix G of this report.

1 Introduction

As a part of the preparation of the Environmental Impact Statement (EIS) for the Earthquake Ready Burnside Bridge (EQRB) Project, this technical report has been prepared to identify and evaluate transportation within the Project's Area of Potential Impact (API). Transportation modes evaluated are automobiles, transit, freight, bicycles, and pedestrians.

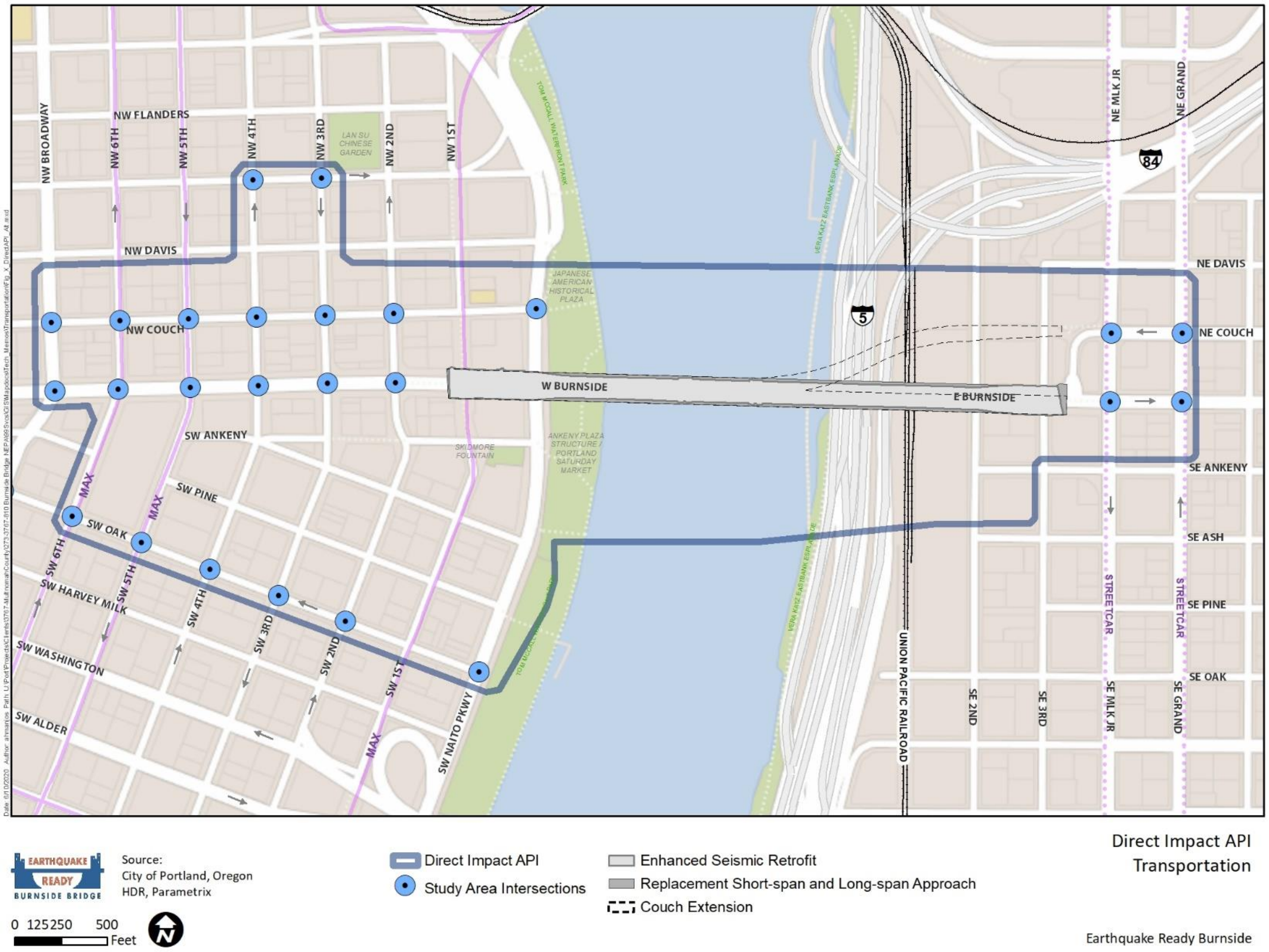
1.1 Project Location

The project area is located within the central city of Portland. The Burnside Bridge crosses the Willamette River, connecting the west and east sides of the city. The project area encompasses a one-block radius around the existing Burnside Bridge and west/east (W/E) Burnside Street, from NW/SW 3rd Avenue on the west side of the river and NE/SE Grand Avenue on the east side. Several neighborhoods surround the area, including Old Town/Chinatown, Downtown, Kerns, and Buckman. Figure 1 shows the project area.

1.2 Project Purpose

The primary purpose of the Project is to build a seismically resilient Burnside Street lifeline crossing over the Willamette River that will remain fully operational and accessible for vehicles and other modes of transportation following a major Cascadia Subduction Zone (CSZ) earthquake. The Burnside Bridge will provide a reliable crossing for emergency response, evacuation, and economic recovery after an earthquake. Additionally, the bridge will provide a long-term safe crossing with low maintenance needs. The project first developed a problem statement during the Feasibility Study phase. Following input from agencies and stakeholders, as well as additional analysis, the problem statement was revised to create a draft statement of purpose and need. The project purpose was reflected in the criteria that were used to screen alternatives during the Feasibility and early scoping phases and is reflected in the criteria that will be used to inform selection of a preferred alternative. The Evaluation Criteria were recommended by the Community Task Force and approved by the Policy Group. Federal cooperating agencies formally concurred on the purpose and need statement in May 2020.

Figure 1. Project Area



2 Project Alternatives

The Project Alternatives' design, operations, and construction assumptions are described in detail in the draft *EQRB Description of Alternatives Report*.

Briefly, the Draft EIS evaluates the No-Build Alternative and four Build Alternatives. Among the Build Alternatives there is an Enhanced Seismic Retrofit that would replace certain elements of the existing bridge and would retrofit other elements. There are three Replacement Alternatives that would completely remove and replace the existing bridge. In addition, the Draft EIS considers options for managing traffic during construction. Nomenclature for the alternatives/options are:

- No-Build Alternative
- Build Alternatives:
  - Enhanced Seismic Retrofit (Retrofit Alternative)
  - Replacement Alternative with Short-span Approach (Short-span Alternative)
  - Replacement Alternative with Long-span Approach (Long-span Alternative
  - Replacement Alternative with Couch Extension (Couch Extension Alternative)
- Construction Traffic Management Options
  - Temporary Detour Bridge Options (Temporary Bridge) includes three modal options:
    - Temporary Bridge: All modes
    - Temporary Bridge: Transit, Bicycles and Pedestrians only
    - Temporary Bridge: Bicycles and Pedestrians only
  - Full Closure (No Temporary Bridge)

3 Definitions

The following terminology will be used when discussing geographic areas in the EIS:

- **Project Area –** The area within which improvements associated with the Project Alternatives would occur and the area needed to construct these improvements. The project area includes the area needed to construct all permanent infrastructure, including adjacent parcels where modifications are required for associated work such as utility realignments or upgrades. For the EQRB Project, the project area includes approximately a one-block radius around the existing Burnside Bridge and W/E Burnside Street, from NW/SW 3rd Avenue on the west side of the river and NE/SE Grand Avenue on the east side.
- **Area of Potential Impact –** This is the geographic boundary within which physical impacts to the environment could occur with the Project Alternatives. The API is resource-specific and differs depending on the environmental topic being addressed. For all topics, the API will encompass the project area, and for some topics, the geographic extent of the API will be the same as that for the project area; for other topics (such as for transportation effects) the API will be substantially larger to account for impacts that could occur outside of the project area. The API for transportation is defined in Section 5.1.
- **Project Vicinity –** The environs surrounding the project area. The project vicinity does not have a distinct geographic boundary but is used in general discussion to denote the larger area, inclusive of the Old Town/Chinatown, Downtown, Kerns, and Buckman neighborhoods.

4 Legal Regulations and Standards

The following is a list of federal, state, and local laws, regulations, plans, and policies that may guide or inform the assessment of Project Alternatives.

4.1 Laws, Plans, Policies, and Regulations

The EQRB Project exists within a larger context of existing state, regional, and local, transportation plans and policies that are relevant in a number of ways, including consistency with previously adopted planning goals, transportation system efficiency, resiliency, safety and equity considerations and goals, and investment priorities that will inform alternatives development.

The following is a summary of state and local laws, regulations, plans, and policies that guide or inform the assessment of transportation.

4.1.1 State

- **Oregon Transportation Planning Rule.** The Transportation Planning Rule authorizes and implements Statewide Planning Goal 12: Transportation to provide and encourage a safe, convenient, and economic transportation system. The Planning Rule and Goal 12 are relevant to the EQRB Project because the rule authorizes all subsequent planning transportation efforts and sets the overarching policy goals and objectives of the statewide transportation policies, plans, and capital investments.
- **Oregon Highway Plan.** The Oregon Highway Plan (OHP) places the highest priority in state highway system investments for safety and managing and preserving the physical infrastructure. Lifeline routes (or a secure lifeline network of streets, highways, and bridges used to facilitate emergency services response and to support rapid economic recovery after a disaster) are prioritized within the OHP. The Burnside Bridge is not a state-owned bridge; therefore, these policies do not directly apply. A seismically-resilient Burnside Bridge would be a critical link within Portland's transportation system; both meeting the objective of preserving existing infrastructure and providing a lifeline route to facilitate emergency service response and support rapid economic recovery after a disaster.
- **Oregon Transportation Plan.** The Oregon Transportation Plan (OTP) is the long-range transportation system plan for the state, developed to establish an overall vision and policy foundation to guide future transportation system development and investment. The OTP has indirect relevance to the EQRB Project. A seismically resilient Burnside Bridge meets all of the goals of the OTP, such as mobility and access, economic vitality, sustainability, and safety and security by providing a critical link across the Willamette River following a major seismic event.
- **Interstate-5 (I-5) Rose Quarter Environmental Assessment.** The I-5 Rose Quarter Environmental Assessment evaluates the benefits and impacts of the Build Alternative and No-Build Alternative for the I-5 Rose Quarter Improvement Project.

The project, proposed by Oregon Department of Transportation (ODOT), would focus on improving the safety and operations on I-5 between Interstate 405 (I-405) and Interstate 84 (I-84), at the Broadway/Weidler interchange, and on adjacent surface streets. Although the I-5 Rose Quarter Improvement Project does not directly affect the Burnside Bridge, construction impacts caused by that project must be considered as they would most likely happen concurrently with construction on the Burnside Bridge, which is currently estimated to begin in 2026. Primary construction is estimated to begin on the I-5 Rose Quarter Improvement Project in 2023. It is possible that some early construction work could take place as soon as 2021; however, early construction is a low probability.

- **Blueprint for Urban Design.** The Blueprint for Urban Design was released in January of 2020 and is a primary document for roadway design on the state highway system. It follows federal guidelines and principles utilizing a performance based, context sensitive, practical design approach to provide flexibility where warranted to produce appropriate designs to accommodate all modes of transportation affecting all urban roadway users. The document encompasses the revised ODOT urban design criteria and is an interim document as the guidance within the document is planned to integrate into other ODOT design manuals, including the Highway Design Manual. Both MLK Blvd and Grand Avenue are city of Portland owned facilities that carry State Route 99E, the Blueprint for Urban Design could be instructive within this context. .

4.1.2 Regional and Local

- **2040 Regional Transportation Plan.** Metro's 2040 Regional Transportation Plan was adopted in 2018. The RTP, updated every 5 years, involves new partnerships that Metro has established, which will help focus efforts to make near-term progress on the following regional priorities: equity, Climate Smart implementation, safety, travel options, and congestion. Burnside Street has been identified as a high injury corridor, having high injury intersections, and a concentration of low income communities. EQRB Project Alternatives will seek to address safety issues on the bridge and at the bridgeheads. In addition, earthquake vulnerability, security, and emergency management have been flagged as potential risks for the region. The EQRB Project is further supported by the Emergency Transportation Routes Project mentioned in the plan; Burnside Street is marked as an existing emergency transportation route.

4.1.3 City of Portland

- **2035 Comprehensive Plan.** Policy 9.6: Transportation Strategy for People Movement, calls for the implementation of a prioritization of people movement modes by making transportation system decisions according to the following hierarchy: walking; bicycling; transit; fleets of electric, fully automated, and multiple passenger vehicles; other shared vehicles; and low or no occupancy vehicles or fossil-fueled non-transit vehicles. The EQRB Project will consider these policies when developing future Build Alternatives and any Temporary Bridge options.

- **Central City 2035 Plan.** This plan is a part of the 2035 Comprehensive Plan, focusing on the central portion of Portland, including downtown and the Central Eastside neighborhood. Volume 2B covers the updates to Portland's adopted Transportation System Plan (TSP) and covers a series of policies meant to specifically apply to the central portion of Portland. Within the framework of the 2035 Comprehensive Plan, the Burnside Bridge is designated as a Major City Traffic Street, Major Transit Priority Street, Major Emergency Response Route, and Major City Bikeway and Walkway. Burnside Bridge under this plan, functions as a primary multimodal connection between the east and west banks of the Willamette River, providing important connectivity for frequent transit routes and key active transportation facilities such as the Eastbank Esplanade, Better Naito, and the Riverfront Trail. Several projects are identified within the Plan that are within the project area for the EQRB Project, including multimodal improvements for Burnside (#20151) that are being integrated into the EQRB Project.
- **2035 Transportation System Plan.** Adopted in 2018, Portland's TSP helps implement Portland's Comprehensive Plan by providing a 20-year guide to transportation investments for the City. Projects featured in the plan are also adopted into Metro's Regional Transportation Plan (RTP). Within the framework of the TSP, Burnside Street within the project area has several designations, including: Major City Traffic Street, Major Transit Priority Street, Major Emergency Response Street, City Bikeway, and Major City Walkway within the City's Pedestrian District Overlay.
- **Vision Zero Action Plan (VZAP).** VZAP sets a goal of eliminating all traffic deaths and serious injuries by 2025. Burnside Street is one of the Top 30 High Crash Streets identified within the VZAP. In addition, Burnside Street is ranked No. 5 for the Motor Vehicle High Crash Network (HCN), No. 3 for Pedestrian HCN, and No. 3 for Bicycle HCN. Various actions proposed to address safety factors may also be in line with the EQRB Project such as how marked pedestrian and bicycle crossings or transit stops are installed and operated, as will safe-guarding vulnerable users in work zones during construction.
- **Central City in Motion Plan.** Portland's Central City is the cultural and economic hub of the state and needs a transportation network that supports constant, daily movement. The Central City in Motion Plan serves as the City's guide to employ current streets as effectively as possible through smart investments in all travel modes, designed to maximize streets, manage growth, increase safety, provide options for all, and promote freight and support business. The Burnside Bridge has been identified as a point of congestion and delay for TriMet and an area that would benefit from Central City in Motion investments in transit priority, as well as investments in crossing improvements and protected bikeways.
- **Willamette River Greenway Plan.** This is Portland's plan for restoring the banks of the Willamette River to allow city residents to access and recreate along the Willamette River. The Plan designates land use and transportation connections to the riverbank greenway to create a comprehensive and regional vision for the Willamette River. Within the Plan, the Burnside Bridge is designated as a primary connection to the greenway and requires a new or redesigned bridge structures to go through the City's Design Commission review. Originally passed in 1987, the Plan is in the process of being updated under The River Plan framework.

- **Enhanced Transit Corridors Plan and Rose Lane Project.** The Enhanced Transit Corridors Plan (ETC) was adopted in 2018 with support and coordination for implementation shared between PBOT, TriMet, and Metro The purpose of the plan is to determine what the City and Region must do to help more people move through the limited space on its streets, in a way that connects them with all the opportunities that make up a good life according to the Plan. In February of 2020, the City of Portland adopted the Rose Lane Project, which seeks to speed implementation of the ETC Plan on City of Portland owned facilities. Primarily, this means prioritizing transit and creating opportunities for quicker, more reliable service. Bus Line 20 (Burnside/Stark) has been selected by TriMet as a priority for upgrading to frequent service, or every 15 minutes, which must be considered. Enhancements on the approach used by buses for certain bridges, including the Burnside Bridge, have also been flagged as a priority improvement. This plan also recommends that transit speed and reliability improvements be considered in any plan or project to physically improve streets that carry transit lines and, at the very least, do not unnecessarily harm transit speed and reliability. The ETC Plan includes improvements along MLK Blvd and Grand Avenue for both streetcar and bus service that have been targeted for construction by 2021 under the Rose Lane Project. Portland Streetcar service on these two streets will increase to 12-minute headways from the current 15 to 20 minute headways today.
- **PedPDX.** PedPDX is Portland’s citywide pedestrian plan, which prioritizes sidewalk and crossing improvements and other investments to make walking safer and more comfortable. Locations on and around the Burnside Bridge have been identified as areas with mid to high equity needs. In addition, some areas of Burnside Street have been identified as areas with mid to mid-high crash history and/or risk factors. Burnside Street is also identified as being an area with very high pedestrian network demand. A large portion of Burnside Street (including the bridge itself) has been identified as a Tier 2 pedestrian network prioritization area. The PedPDX plan identifies Tiers 1 through 3 as investment priorities; thus, the project area is considered a citywide top priority for pedestrian improvements.

4.2 Design Standards

At a minimum, the bridge retrofit and replacement alternatives will be designed to current city, county, state, and national standards as applicable for the features and components of the alternative. Bridges and structures will be designed for a minimum 75-year design life with consideration given to aspects suitable for 100-year design life. For a full accounting of relevant design standards please refer to the EQRB Bridge Design Criteria Report. The analysis of federal, state, and local regulations and standards are summarized below based on Burnside Street’s National Highway System (NHS) classification as a Principal Arterial:

- **Federal –** At the federal level, several standards apply to the Project, including standards sourced from the American Association of State Highway and Transportation Officials (AASHTO), specifically regarding minimum radius, stopping sight distance, and super-elevations.

- **State –** The Mobility Procedures Manual, Traffic Control Plan Design Manual, the Highway Design Manual, and the Oregon NHS Standards from ODOT apply based on the Burnside Bridge's NHS designation.
- **Local –** City of Portland and Multnomah County standards apply to the EQRB Project. Classification designations for the relevant segment of Burnside Street are from the City of Portland's TSP. A number of standards, including design speed, vertical clearance, Americans with Disabilities Act (ADA), bicycle, and pedestrian facilities standards are sourced at the local level and shared between the City of Portland, Multnomah County, and a number of collaborative working groups convened to coordinate on design solutions for capital projects where jurisdictional overlap may exist. The City of Portland's Pedestrian Design Guide, which identifies sidewalk corridor requirements, will be updated in 2020/2021 to reflect the adopted PedPDX plan.

5 Affected Environment

5.1 Area of Potential Impact

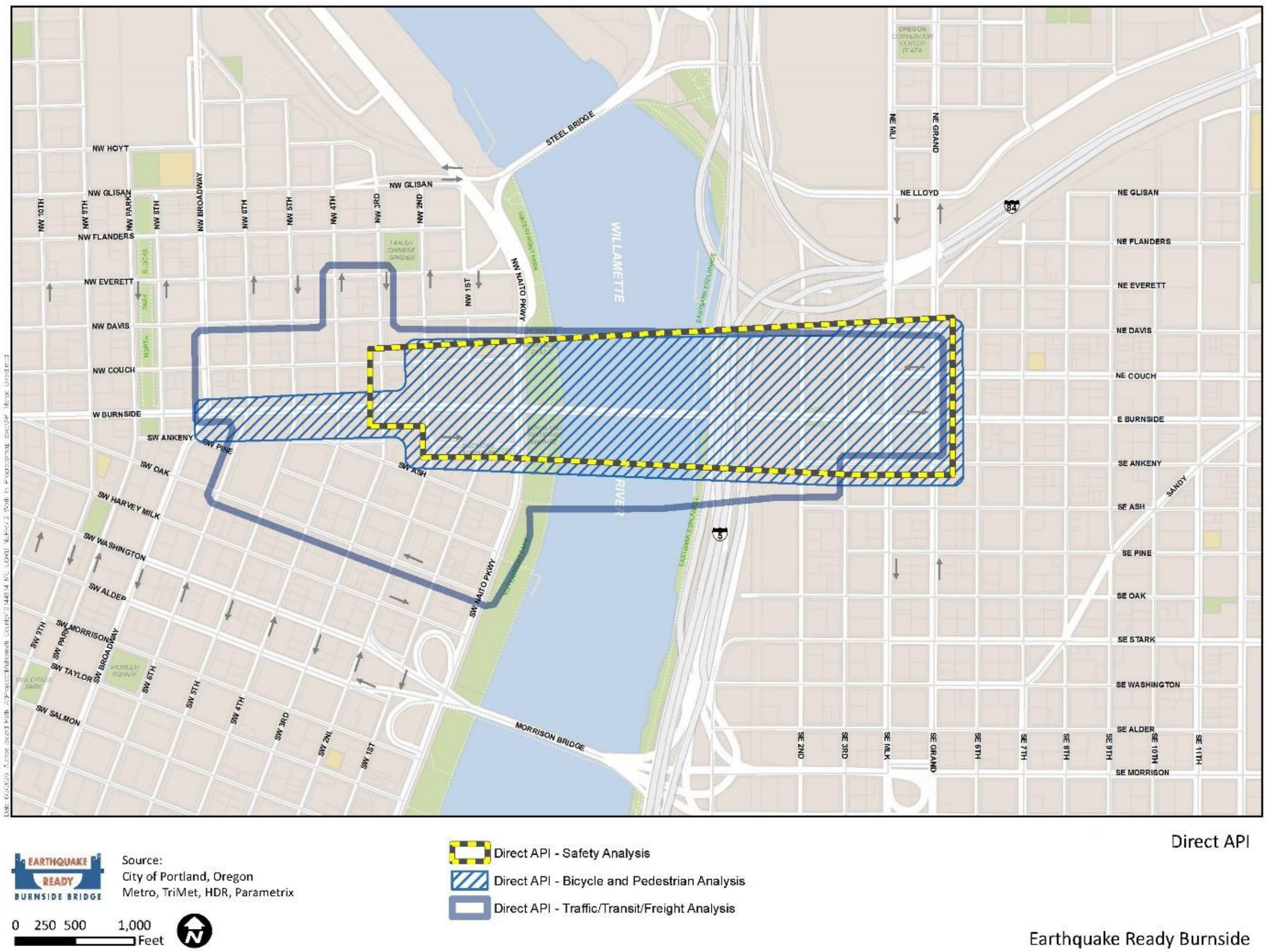
For the Transportation Technical Report, multiple topic-specific API boundaries are used for various analyses. This section defines the Direct and Indirect APIs used, and outlines how they are applied throughout the report.

In general, many transportation impacts will occur within the project area. However, many indirect and secondary transportation impacts have the potential to occur further afield. For example, construction of the various Burnside Bridge Alternatives will affect traffic flows and transit operations across the Willamette River on multiple bridges. Such impacts are captured within the Indirect APIs described in this section.

5.1.1 Direct Areas of Potential Impact

The direct areas of potential impact are used to describe direct effects that are caused by a given action or design incorporated as part of the Build and No-Build Alternatives. Figure 2 depicts the three direct API boundaries used for the report. The Direct APIs for this report include a combined API for traffic, transit, and freight, an API for active (bicycle and pedestrian) transportation, and an API for safety. The rationale for the different direct API are provided below. As part of the construction phase of this project, designated detour routes for traffic, bicycles, and pedestrians will be determined at a later date. These detour routes have the potential to extend beyond the Direct API.

Figure 2. Direct Areas of Potential Impact



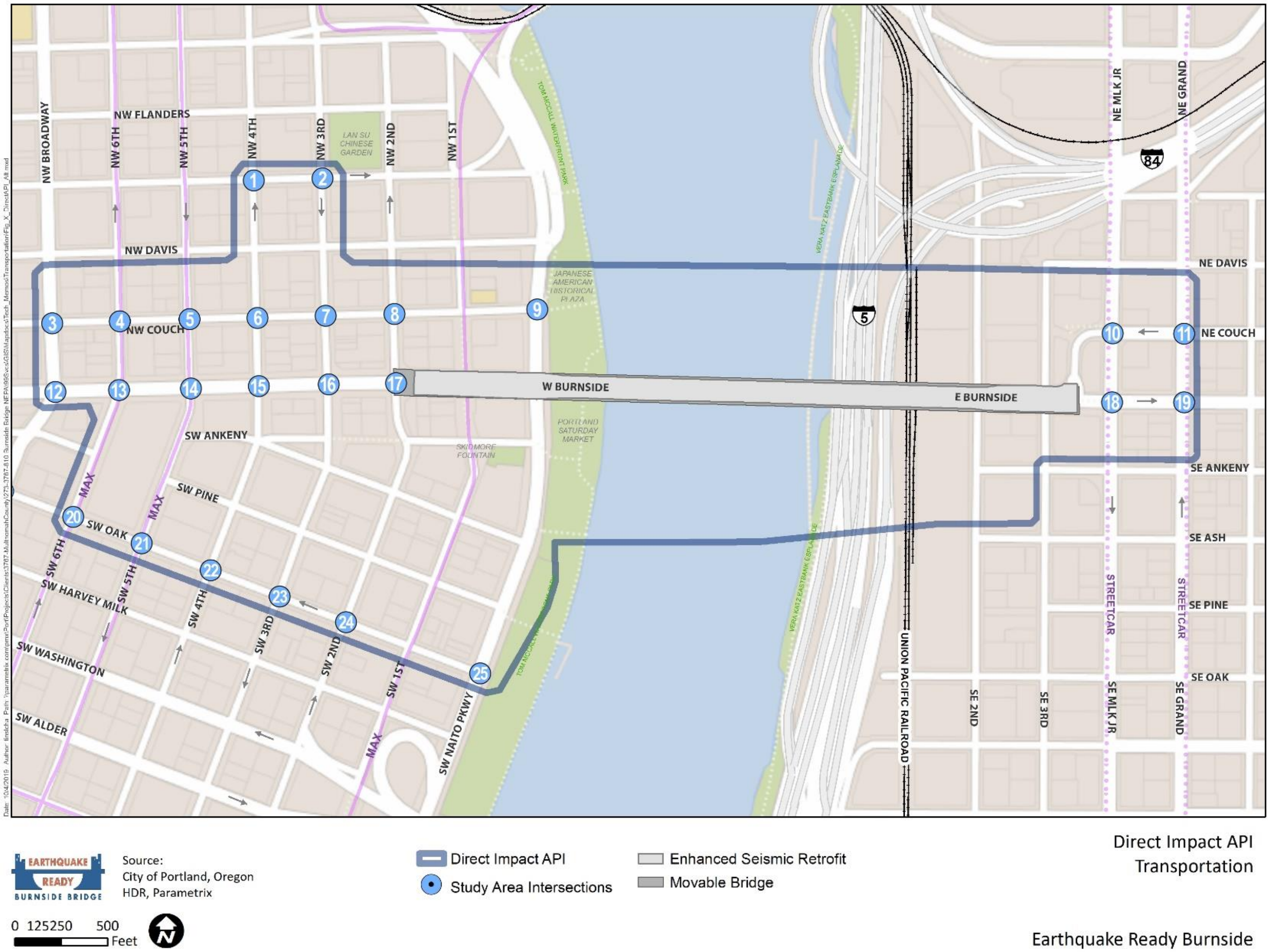
Traffic, Transit, and Freight Direct API

The traffic, transit, and freight direct API is the largest of the three direct API boundaries. The API allows for impacts to be considered to the freight rail traffic that is under the bridge on the east bank of the river. The boundary also allows direct impacts to transit operations to be considered as TriMet bus lines 12, 19, and 20, TriMet MAX Blue and Red Lines, along with Portland Streetcar Loops A and B are captured within the boundary. For traffic, the API encompasses a number of study intersections in downtown Portland for which queuing and turning movement analysis was conducted. The traffic, transit, and freight direct API is used to examine existing traffic operations within Section 5.3.1 and 5.3.2 of this report as well as traffic operations analysis of the No-Build and Build Alternatives found in Section 7.2.

The study intersections featured within the Direct API include the following and are depicted on Figure 3:

1. NW Everett Street and NW 4th Avenue
2. NW Everett Street and NW 3rd Avenue
3. NW Couch Street and NW Broadway
4. NW Couch Street and NW 6th Avenue
5. NW Couch Street and NW 5th Avenue
6. NW Couch Street and NW 4th Avenue
7. NW Couch Street and NW 3rd Avenue
8. NW Couch Street and NW 2nd Avenue
9. NW Couch Street and NW Naito Parkway
10. NE Couch Street and NE MLK Blvd
11. NE Couch Street and NE Grand Avenue
12. W Burnside Street and Broadway
13. W Burnside Street and 6th Avenue
14. W Burnside Street and 5th Avenue
15. W Burnside Street and 4th Avenue
16. W Burnside Street and 3rd Avenue
17. W Burnside Street and 2nd Avenue
18. E Burnside Street and SE MLK Blvd
19. E Burnside Street and SE Grand Avenue
20. SW Oak Street and SW 6th Avenue
21. SW Oak Street and SW 5th Avenue
22. SW Oak Street and SW 4th Avenue
23. SW Oak Street and SW 3rd Avenue
24. SW Oak Street and SW 2nd Avenue
25. SW Oak Street and SW Naito Parkway

Figure 3. Traffic Study Intersections



Bicycle and Pedestrian Direct API

The bicycle and pedestrian direct API featured on Figure 2 includes the bicycling and walking routes that would be impacted by the permanent No-Build and Build Alternatives. The boundary is primarily designed to capture direct bicycle and pedestrian access onto and across the Burnside Bridge, including connections from the Vera Katz Eastbank Esplanade and Tom McCall Waterfront Park. The walking environment includes sidewalks, crossings, and ramps on the Burnside Bridge and the streets providing direct connection to the bridge as well as the stairway, ramp, and ADA accesses from the bridge to the street, transit, and trail networks below. The bicycling environment includes bike facilities on the bridge itself and those providing connections to and from the bridge and the bikeway network on either side of the bridge.

The API is used in conjunction with the existing transportation assessment found in Section 5.3.3 as well as the future Build Alternatives analysis found in Sections 7.2.1 and 7.2.2.

Safety Direct API

The transportation team selected the direct impact area for safety, featured on Figure 2, to include direct effects related to the permanent condition; i.e., intersections directly connected to the Burnside Bridge Alternatives that could have changed safety conditions for auto traffic, pedestrians, and bicycle riders.

5.1.2 Areas of Potential Indirect Impact

The areas of potential indirect impact are primarily concerned with potential impacts during the construction phase of the project. Construction-related impacts are expected to occur farther afield from the Burnside Bridge compared to the direct impacts as construction logistics would potentially change traffic patterns, transit routes, and active transportation access points that would have wider dispersed effects but are still reasonably foreseeable. Figure 4 depicts the three Indirect API boundaries used for this report. Both the safety API and the bicycle and pedestrian API encompass street and intersection specific analysis further explained below.

Figure 4. Areas of Potential Indirect Impact

Traffic, Transit, and Freight Indirect API

The Build and No-Build Alternatives would have the same traffic capacity and general lane configuration as the existing conditions of the Burnside Bridge; therefore, indirect impacts, which would be more removed in time and space, are not anticipated. The primary concern of traffic impacts are indirect impacts during the temporary construction period. To include construction-related origin and destination travel time impacts for traffic as described in Section 6.3.1, the indirect boundary extends far afield from the Burnside Bridge on both riverbanks. The boundary on the east side of the River extends to 24th Avenue in the east, NE Broadway in the north, and SE Taylor Avenue in the south. On the west side of the river, the boundary extends south to SW Morrison and in the west to include Broadway.

Indirect transit impacts during the construction phase are also able to be captured within the direct API by considering wider ranging impacts to ridership and potential delays for a wider range of transit routes not captured within the Direct API.

As shown on Figure 4, the boundary north and south along the Willamette River primarily includes analysis of construction-related impacts affecting the following Willamette River Bridges: Fremont Bridge, Broadway Bridge, Steel Bridge, Burnside Bridge, Morrison Bridge, Hawthorne Bridge, Marquam Bridge, Tilikum Bridge, and Ross Island Bridge.

Bicycle and Pedestrian Indirect API

The bicycle and pedestrian Indirect API is shown on Figure 4. The Indirect Impact Area assesses the temporary impact of construction on the streets, bikeways, and pedestrian facilities that have been identified as potential detour routes for bikes and pedestrians. Methods of analysis conducted using this API are outlined in Section 6.3.1 with the results of the analysis for the temporary conditions found in Section 7.4.

Construction of the bridge could last 3.5 to 6.5 years, depending on the alternative and whether or not there is a temporary bridge. For construction scenarios where the Burnside Bridge is closed and there is no temporary replacement crossing, bike and pedestrian trips will need to either change modes or shift to another bridge. The indirect API incorporates potential detour routes that could be used to detour pedestrians and bicyclists from the bridgeheads to the Steel and Morrison Bridges.

Construction will also close the section of the Vera Katz Eastbank Esplanade underneath the Burnside Bridge for 18 to 30 months depending on the scenario. The indirect API incorporates potential detour routes that could be used to detour pedestrians and bicyclists to the west side of the Willamette River and back via the Morrison and Steel Bridges or staying on the eastside, routing them through the Central Eastside Industrial District. Recreational impacts of this closure are addressed in the *EQRB Parks & Recreation Technical Report* (Multnomah County 2021a).

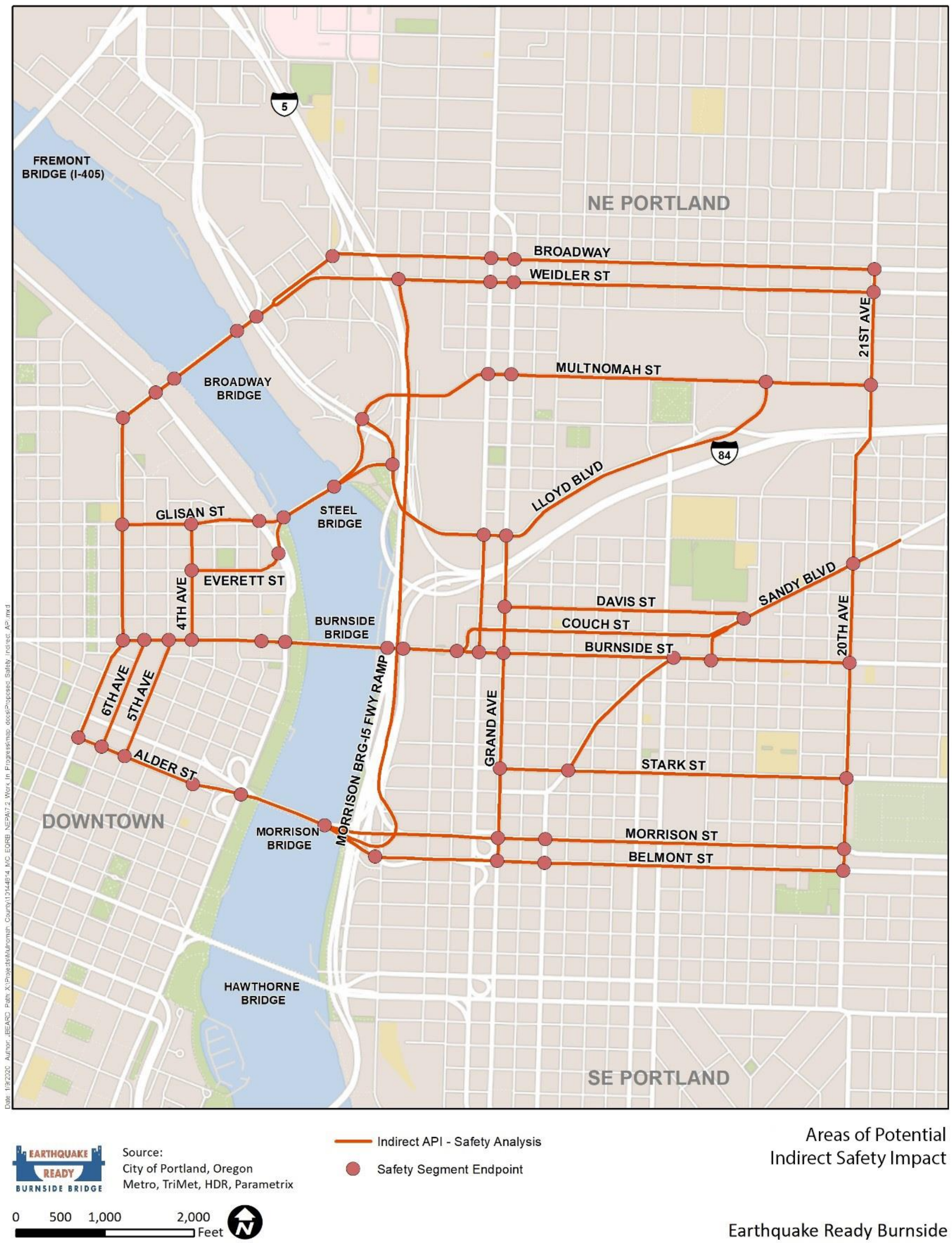
Construction will also require construction staging under the west side of the bridge, which will close that section of the Waterfront Pathway during the period of construction. The Portland Bureau of Transportation's (PBOT) Better Naito Forever project is scheduled for construction in 2020 (prior to the bridge construction) and will formalize pedestrian and bike facilities along Naito Parkway that will provide an alternative route around the closure of the Waterfront Pathway.

Safety Indirect API

The safety indirect impact area, featured on Figure 4, is similar to the traffic indirect impact area, as the No-Build and Build Alternatives have the same auto capacity, and similar capacity and cross sections for other modes. However, the safety indirect API does not extend to cover the same set of bridges featured in the traffic API.

The indirect impact area, where impacts are anticipated to be further removed in time and space, is selected based on the potential safety impacts during construction. Thus, the safety analysis is focused on specific routes where those impacts are anticipated. Figure 5, shown below, highlights those routes. All modes have access to the routes shown on Figure 5 with or without a temporary bridge, capacities of a temporary bridge, if provided, varying. Information on analysis conducted within the indirect API can be found in Section 6.3.2 and analysis of the impacts found throughout Section 7.4.

Figure 5. Routes Analyzed within the Areas of Potential Indirect Safety Impact



Potential traffic diversion routes around construction closures of the Burnside Bridge were tested to review the safety indirect API. Figure 6 and Figure 7 show the traffic catchments that primarily use the Burnside Bridge currently for westbound and eastbound trips, respectively, and the routes that they are assumed to use to access the bridge.

These areas and routes were developed through a “catchment” mapping technique that used Google Maps’ driving directions algorithm and tested different origins to identify the areas that were directed to the Burnside Bridge and their recommended routes to access the bridge to get to destinations on the other side of the Willamette River. Although alternative routes are possible, the routes shown offer the shortest travel time and are likely to attract the majority of trips from these areas.

Figure 7 shows that on the eastside of the Willamette River, the traffic from the area generally bound by I-84, E 60th Avenue, and SE Stark Street (the area shown in orange) is directed to E Burnside Street/NE Couch Street and the Burnside Bridge to cross the river. If the Burnside Bridge was closed, traffic from the northern part of this area would likely re-route north to the Steel or Broadway Bridges and could result in a change in direction of traffic on the north-south collector streets (e.g., a change from southbound to northbound on NE 21st Avenue) and an increase in traffic on NE Lloyd Boulevard and NE Broadway. Traffic from the southern part of this area would likely re-route south to the Morrison Bridge and could result in a change in direction of traffic on the north-south collector streets (e.g., southbound rather than northbound on SE 28th Avenue) and an increase in traffic on SE Sandy Boulevard, SE Stark Street, and SE Morrison Street.

Traffic from the area between SE Stark Street and approximately SE Madison Street (the area shown in blue) is directed to SE Morrison Street and the Morrison Bridge to cross the river, or if the destination on the west side of the river is further north, some traffic is directed to SE Grand Avenue and then to NE Couch Street to cross via the Burnside Bridge. If the Burnside Bridge is closed, traffic currently using the Morrison Bridge would likely continue to do so and any traffic that currently turns onto SE Grand Avenue is likely to continue directly over the Morrison Bridge. This would result in a decrease in northbound traffic on SE Grand Avenue and an increase in traffic on the Morrison Bridge.

Traffic from the area south of SE Madison Street (the area shown in green) is directed to the Hawthorne Bridge to cross the river, or if the destination on the west side of the river is further north, some traffic is directed to SE Grand Avenue and then to either the Morrison or Burnside Bridges. If the Burnside Bridge is closed, traffic currently using the Hawthorne and Morrison Bridges would likely continue to do so and any traffic that currently turns onto NE Couch Street to use the Burnside Bridge would likely continue directly over the Hawthorne Bridge or turn off SE Grand Avenue at SE Morrison Street and use the Morrison Bridge. This would result in a decrease in northbound traffic on SE Grand Avenue and an increase in traffic on the Hawthorne and Morrison Bridges, but no change in traffic on streets in the Hawthorne Corridor.

Figure 7 shows the traffic catchment on the west side of the river that is currently directed to the Burnside Bridge traveling eastbound. If the Burnside Bridge was closed, traffic from the areas north of W Burnside Street would likely re-route to the Steel or Broadway Bridges and this scenario could result in a change in direction or reduction in traffic on the north-south collector streets (e.g., NW 11th Avenue) and an increase in traffic on east-west streets such as NW Everett Street and NW Lovejoy Street to access these bridges. It could also result in an increase in traffic on NE Weidler Street, NE Lloyd Boulevard, and NE Martin Luther King Jnr Boulevard as traffic reconnects with its destinations on the east side of the river.

Traffic from the areas south of W Burnside Street would likely re-route to the Morrison or Hawthorne Bridges if the Burnside Bridge was closed. This could result in a reduction in traffic on the north-south collector streets (e.g., SW 4th Avenue) and an increase in traffic on east-west streets such as SW Madison Street and SW Alder Street to access these bridges. It would also result in an increase in traffic on SE Grand Avenue as traffic reconnects with its destinations on the east side of the river.

These findings further support the area identified as the Safety Indirect API of the project.

Figure 6. Potential Westbound Traffic Diversion Routes During Burnside Bridge Closures.

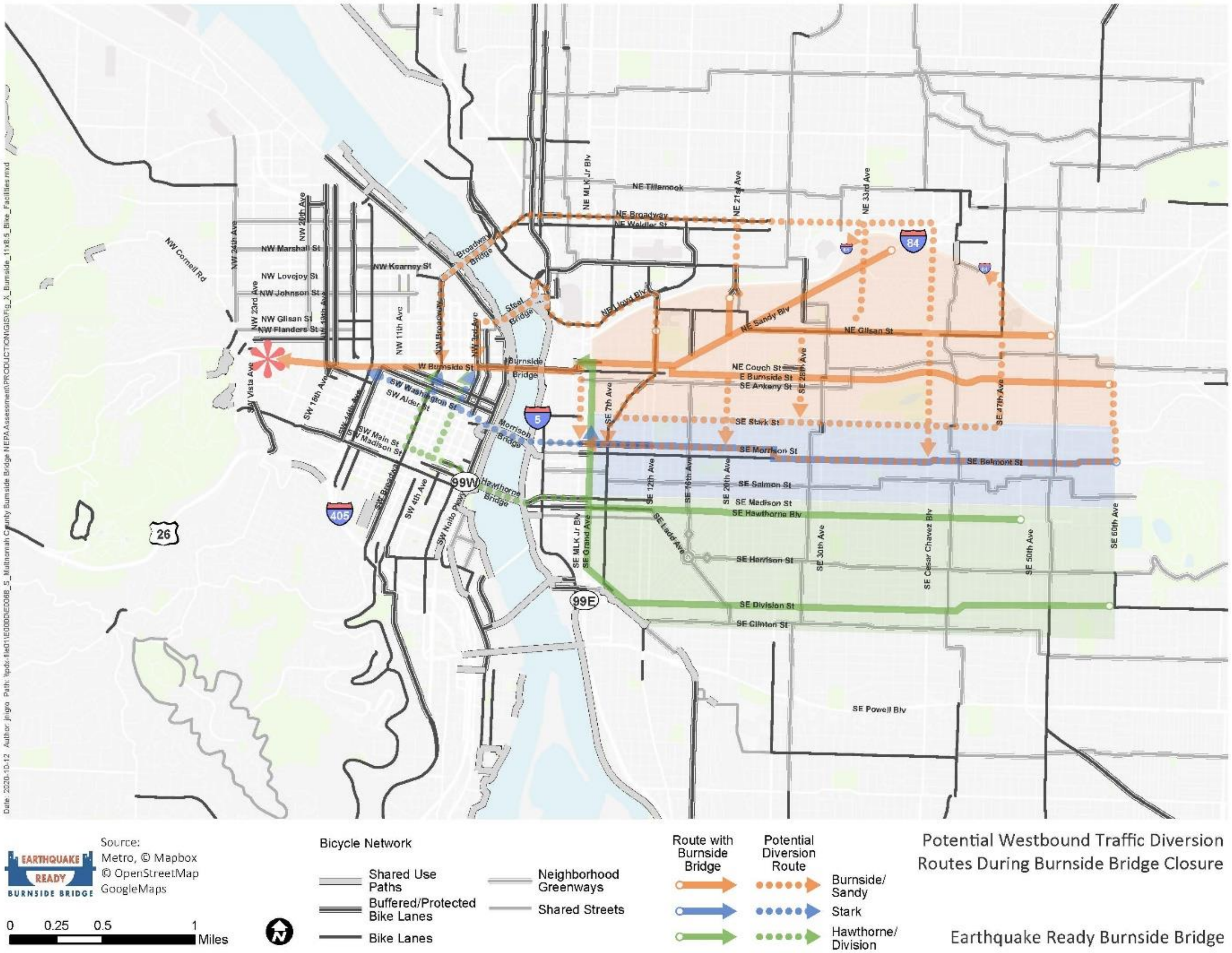
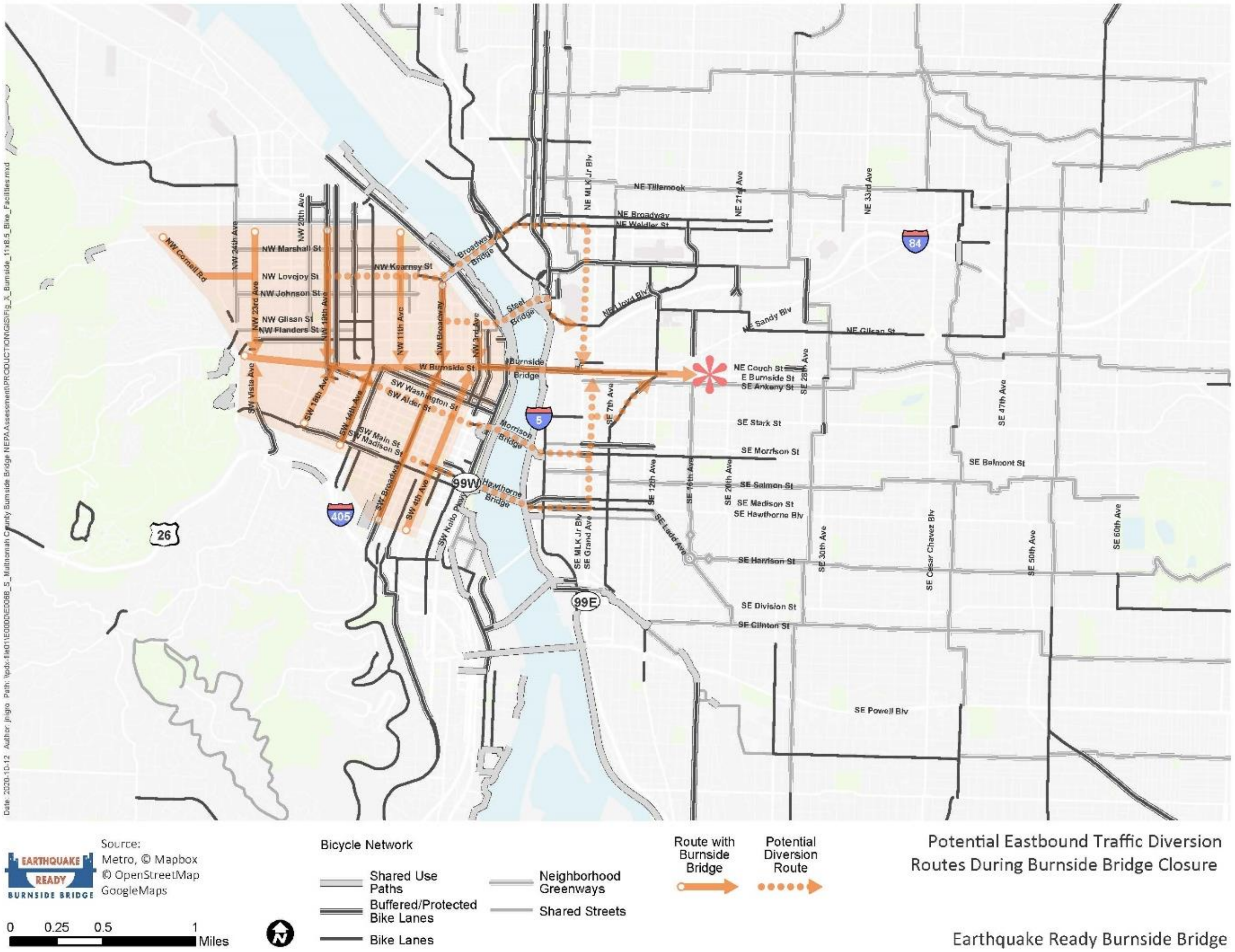


Figure 7. Potential Eastbound Traffic Diversion Routes During Burnside Bridge Closures.



5.2 Resource Identification and Evaluation Methods

5.2.1 Published Resources and Databases

Several data sources were used in the analysis of data for this report. Table 1 covers the databases utilized and the agency responsible for housing and maintaining the data.

Table 1. List of Data Resources

Organization	Data Resources	Sources
City of Portland	Traffic Counts Program	https://www.portlandoregon.gov/transportation/article/180473
	Bicycle Counts Program	https://www.portlandoregon.gov/transportation/44671
	Pedestrian Counts Program	https://www.portlandoregon.gov/transportation/article/259235
Crash Modification Factors Clearinghouse	Crash Factors	http://www.cmfclearinghouse.org/
Metro	RLIS Live	http://rlisdiscovery.oregonmetro.gov/?resourceID=3
	Trip Based Travel Model	https://www.oregonmetro.gov/modeling-services
Multnomah County	Traffic Counts Program	https://multco.us/roads/master-road-list
ODOT	Traffic Counts	https://www.oregon.gov/ODOT/Data/Pages/Traffic-Counting.aspx
	Traffic Crashes	https://www.oregon.gov/ODOT/Data/Pages/Crash.aspx https://www.oregon.gov/odot/Engineering/Docs_TrafficEng/CRF-Appendix.pdf
TREC	Transportation Data Portal	https://portal.its.pdx.edu/home
TriMet	Transit Ridership	https://trimet.org/about/performance.htm
OpenStreetMap	Map Data	https://www.openstreetmap.org/
Portland Streetcar	Crash and Operations Data	https://portlandstreetcar.org/

5.2.2 Field Visits and Surveys

Several field visits and surveys were conducted, including information collected for the inventory of the existing bicycle network and collection of traffic tube counts across the Burnside Bridge.

5.3 Existing Conditions

Section 5.3 covers the existing conditions within the project area as of 2019. Below is a summary of the key findings explored in more depth throughout this section:

5.3.1 Traffic/Freight

- All of the study intersections meet City standards and operate at a level of service (LOS) D or better.
- The intersection at Burnside and MLK Blvd is the worst functioning intersection in the project area, operating at an F in the PM Peak, representing 85 seconds of delay.
- The Burnside Bridge carries 35,000 average daily traffic (ADT), the third most heavily trafficked surface bridge into downtown after the Ross Island and Morrison Bridges.

5.3.2 Transit

- The Burnside Bridge operates as an important east-west connection for transit vehicles across the Willamette River.
- Recent and planned additions of a bus only lane in the eastbound direction over the bridge span, business access transit (BAT) lanes and ETC/Rose Lane related improvements at either end of the bridge make the Burnside Bridge an efficient corridor for transit during peak travel times in the eastbound direction, minimizing delays across the bridge.

5.3.3 Active Transportation

- The Burnside Bridge is a critical connection for bicycle, pedestrian, and e-scooter users.
- A typical May day sees 1,750 bicycle and e-scooter and 1,400 pedestrian trips across the bridge.
- There are numerous instances of sub-standard bicycle and pedestrian infrastructure, including crossings, curb-ramps, turning-movement conflicts, and bike lanes that would benefit from an update under the permanent Build Alternatives.
- While the bridge span features low stress bicycle infrastructure, at either end of the bridge bicycle users face high stress streets that can act as a barrier to a large portion of bicycle users.

5.3.4 Safety

- The Burnside Bridge is identified as a high priority crash corridor by Portland's Vision Zero Plan.
- The majority of serious injury and fatal crashes involve vulnerable bridge users (those crossing the bridge as pedestrians, bicyclists, or on e-scooters. All fatalities within the project area were pedestrians.

- There is a high concentration of crashes at the intersections of Burnside with MLK Blvd and Grand Avenue, and at the intersections of Couch Street with MLK Blvd and Grand Avenue.
- Of vehicle-only crashes, 91 percent are property damage only or Injury C crashes.

5.3.5 Roadway and Freight Network

The Burnside Bridge sits in the heart of the Central City of Portland and plays an important role in the multimodal network of the region. Burnside Street extends from Washington County to the City of Gresham and connects to other major east/west and north/south infrastructure. Multiple City of Portland classifications apply to Burnside Street, including Major City Traffic Street, Major City Walkway, Major Transit Priority Street, Major City Bikeway, and Civic Main Street.

The existing bridge cross section is based on the Enhanced Transit Corridor cross section. ETC is a PBOT plan adopted in 2018 in coordination with TriMet and Metro, to create a region-wide through a data driven approach. ETC is being applied to a number of corridors with improved transit operations achieved through a combination of Business Access and Transit lanes, bus and streetcar prioritization, and other improvements that intend to remove transit bottlenecks from the transportation network. ETC implementation has not yet been fully realized, and planned changes are described below. The City of Portland has also passed the Rose Lane Project which aims to build onto the ETC framework on focuses only on City owned facilities. The Rose Lane Project was adopted in February 2020 and generally intends to quicken the implementation of ETC concepts on City streets

The current cross section for the bridge was put in place in 2019 and extends from W 2nd Avenue on the Westside to E MLK Blvd on the eastside. The bridge span cross section is made up of two westbound motor vehicle lanes, two eastbound motor vehicle, one eastbound bus only lane, buffered bike lanes with flexible delineators in each direction, and sidewalks in each direction (Figure 8).

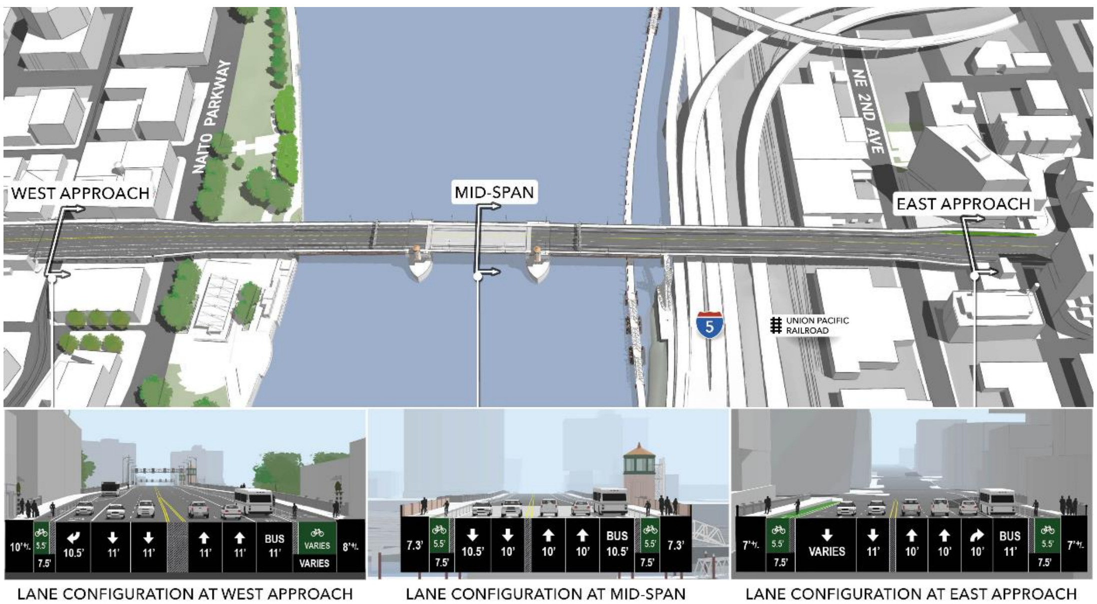
At the west end of the bridge span, the Burnside Bridge connects back to the surface street network at the intersection with 2nd Avenue. Here, the cross section in the westbound direction involves two general purpose motor vehicle lanes, a protected bicycle lane, and a combined right turn and bus lane. In the eastbound direction, there are two general purpose motor vehicle lanes, the beginning of the BAT lane, and a protected bicycle lane that varies in width but is generally wider than 10 feet to allow for easy passing in the uphill section of the bridge span.

At the east end of the bridge, the bridge span meets the surface network at the intersection of MLK Blvd. As the bridge span approaches the intersection in the eastbound direction, it features two general purpose motor vehicle lanes, a right turn lane, a bus only lane, and a bike lane. Closer to the intersection in the eastbound direction, both the bus only lane and the bike lane crossover the right turn lane using a mixing zone. This allows right turning vehicles and buses proceeding straight through the intersection to avoid conflict at the intersection.

The City of Portland has plans to extend the ETC cross section past the bridge span as part of the Rose Lane Project through phased implementation. The first extension will happen eastward from MLK Blvd and Burnside to 12th Avenue and will include the installation of a bicycle signal at intersection of Burnside and MLK Blvd for eastbound bicycles. The second phase of expansion will include westbound Couch Street from 12th Avenue to MLK Blvd, eastbound Burnside from 12th Avenue past 20th Avenue, and along W. Burnside in both directions from W 23rd Avenue to W 2nd Avenue. The time frame for these extensions are currently unknown but likely to occur before construction begins for the EQRB Project.

EQRB is responsible for replacing the signal located at Burnside and MLK Blvd and will adhere to the previously planned ETC bicycle signal in the eastbound direction. The details of the design have not been developed for the National Environmental Policy Act of 1969 (NEPA); however, protected pedestrian and bike phases and other signal changes will be explored during final design.

Figure 8. Existing Conditions Cross Section Based on Enhanced Transit Corridors



Note: Existing bridge ends include turning lanes, public parking, and bus storage areas (not all conditions shown above).

The following section summarizes the existing multimodal conditions within the direct and indirect impact API for the EQRB Project.

Data Collection

New count data were collected on Wednesday, May 15, 2019, a time when school was in session, when no major events were occurring, and many months before a 2020 stay-at-home order stemming from the COVID-19 outbreak affected daily traffic patterns. Turning movement counts were collected for the 25 study intersections, shown on Figure 3, during the AM (7:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak periods for all modes.

Daily 24-hour roadway classification counts were collected by video for all modes of transportation on the following roadways and multiuse paths:

- Willamette River Bridges: Broadway Bridge, Steel Bridge, Burnside Bridge, Morrison Bridge, Hawthorne Bridge, Ross Island Bridge, and Tilikum Crossing
- Naito Parkway north of Burnside Bridge
- Tom McCall Waterfront Park Trail north of Burnside Bridge
- Vera Katz Eastbank Esplanade south of Burnside Bridge

The 24-hour roadway classification counts included vehicles, motorcycles, buses, trains, medium and heavy trucks, pedestrians, bicycles, and e-scooters where applicable. Transit data was collected separately by TriMet and provided to the consultant team.

In addition, 24-hour volume and classification counts on the I-405 Fremont and I-5 Marquam Bridges were obtained from ODOT to supplement the local Willamette River Bridges crossing counts.

Historical intersection and roadway counts were also reviewed and compared with the May 2019 counts due to construction on the Burnside Bridge in support of the Burnside Maintenance Project impacting traffic patterns and volumes. Historical counts from PBOT for the years 2012 to 2018 were collected for the Willamette River Bridges.

Traffic Volumes

Individual AM and PM peak hours were determined for each corridor: NW Everett Street, SW Oak Street, and the combined corridor of NW/NE Couch Street and W/E Burnside Street within the Direct API. The AM and PM peak hours for each corridor is as follows:

- Couch/Burnside Street: 8:00-9:00 AM and 4:35-5:35 PM
- Everett Street: 7:50-8:50 AM and 4:50-5:50 PM
- Oak Street: 8:00-9:00 AM and 4:40-5:40 PM

These overall AM and PM peak hours were determined by summing up the turning movement counts for each study intersection within each corridor and selecting the largest combined peak hour interval. The turning movement counts for the overall peak hour were then used for each intersection instead of the individual intersection peak hour.

As described above, the Burnside Bridge was under construction during the May 2019 traffic counts and the lane configurations during the May 2019 counts consisted of one eastbound lane and two westbound lanes. The cross section analyzed as part of this report are based on the ETC cross section of two westbound motor vehicle lanes, two eastbound motor vehicle lanes, and one eastbound BAT lane; the 2019 traffic counts were adjusted to account for the revised lane configurations using professional judgment. These adjustments used the May 2019 traffic counts as well as historical counts from the Burnside Bridge and the other Willamette River Bridges to determine daily and peak hour volumes across all of the Willamette River Bridges under the revised Burnside Bridge lane configurations. The overall ADT across the Willamette River Bridges was estimated using historical growth rates and then the volume was redistributed to each of the bridges based on the historical counts.

Next, intersection turning movement volume adjustments were applied to eastbound and westbound volumes, with minor adjustments on the northbound and southbound movements to balance northbound and southbound flows. The intersection volumes were then balanced between study intersections so that any differences in volumes between adjacent intersections aligned with possible trip generators, including business driveways, parking lots, etc. See Appendix A for estimated traffic volumes using each of the Willamette River Bridges included in the indirect impact area for both the daily and peak hour periods as well as the peak hour volumes at the study intersections. The 24-hour roadway classification counts for the Willamette River Bridges and the historical intersection and roadway counts used to adjust the volumes are also summarized in Appendix A.

Table 2 displays ADT estimates for the Burnside Bridge along with all the bridges within the indirect impact API so that future impacts on traffic volumes may be studied as a result of the EQRB Project. In addition to showing ADT volumes, Table 2 summarizes the medium and heavy volumes as well as percentages of the total ADT counts. The Burnside Bridge is estimated to carry a total of 35,000 vehicles per day, with 19,000 eastbound and 16,000 westbound vehicles. At 35,000 ADT, the Burnside Bridge is the third busiest non-interstate bridge in the Central City area, surpassed by the Morrison Bridge with a total of 50,000 ADT and the Ross Island Bridge with a total ADT of 71,250. Across all the bridges inside the indirect impact API, there is a total 521,300 ADT (including I-5 and I-405), with the Burnside Bridge representing 6.7 percent of that daily volume crossing the Willamette River on area bridges.

As a percentage of ADT, the Burnside Bridge has 1.3 percent medium volume (MV) trucks and 2.1 percent heavy volume (HV) trucks total. The percentage of medium trucks and heavy trucks are similar to the other non-interstate bridges within the indirect impact area (Table 2). Medium trucks range between 10,000 and 26,000 pounds while heavy trucks range from 26,000 to 31,000 pounds.

Table 2. Daily Vehicle Volumes on Area Bridges 2019

Average Daily Traffic (ADT), Medium trucks (MV): Classes 5-7, Heavy trucks (HV): Classes 4, 8-13

Vehicle Average Daily Traffic Counts															
Bridges	Eastbound					Westbound					Total				
	ADT	MV	%	HV	%	ADT	MV	%	HV	%	ADT	MV	%	HV	%
Fremont	69,100					73,950					143,050	5,680	4.0	5,880	4.1
Broadway	14,000	170	1.2	175	1.3	14,500	215	1.5	110	0.8	28,500	385	1.4	285	1.0
Steel	7,500	135	1.8	350	4.7	5,500	70	1.3	370	6.7	13,000	205	1.6	720	5.5
Burnside	19,000	240	1.3	375	2.0	16,000	210	1.3	350	2.2	35,000	450	1.3	725	2.1
Morrison	22,500	265	1.2	145	0.6	27,500	365	1.3	240	0.9	50,000	630	1.3	385	0.8
Hawthorne	15,500	180	1.2	340	2.2	15,000	190	1.3	340	2.3	30,500	370	1.2	680	2.2
Marquam	78,500					71,500					150,000	4,425	3.0	10,275	6.9
Ross Island	32,250	585	1.8	370	1.2	39,000	690	1.8	480	1.2	71,250	1,275	1.8	850	1.2

Source: Traffic counts conducted by Key Data Network and historical counts provided by ODOT and City of Portland

Freight Volumes

Total freight volumes across all eight bridges in Table 2 was approximately 33,000 medium and heavy trucks each day. Freight volumes on the Burnside Bridge over the day totaled 450 medium and 725 heavy freight vehicles in both directions. The six surface street bridges carry a total of 21 percent of reported freight volumes in Table 2, while the two freeway bridges (Marquam and Freemont) carry the majority of freight traffic at a combined 79 percent. This pattern indicates that the two freeway bridges represent important regional freight connections while the surface bridges act as important local connections for freight traffic to the larger regional network of freight routes.

The Burnside Bridge makes up 3.5 percent of freight traffic reported in Table 2 while freight volumes represent 3.4 percent of total ADT traveling over the Burnside Bridge. The Burnside Bridge's share of freight over the eight bridges is representative of the other surface bridges, as the share of freight ranges from 2 percent for the Broadway Bridge to 6.4 percent for the Ross Island Bridge. Freight traffic makes up 8.1 percent of traffic on the I-405 Fremont Bridge, 9.8 percent on the I-5 Marquam Bridge, and 7.1 percent on the Steel Bridge.

Operational Analysis

Traffic operational analysis was performed using the Synchro/SimTraffic 10 studio suite combining the modeling capabilities of Synchro and the micro-simulation and animation capabilities of SimTraffic. Synchro is a macroscopic analysis and optimization software application. Synchro supports the Highway Capacity Manual's (HCM) 6th Edition, 2010 and 2000 for signalized intersections, unsignalized intersections, and roundabouts. Synchro's signal optimization routine allows the user to weight specific phases, thus providing users more options when developing signal timing plans. SimTraffic is a powerful, easy-to-use traffic simulation software application. With SimTraffic, individual vehicles are modeled and displayed traversing a street network.

Intersection traffic operations and 95th percentile queuing were evaluated based on SimTraffic models developed to understand the true impact of traffic congestion and closely spaced intersection interactions. Synchro/SimTraffic models were developed for existing year (2019) for both AM and PM peak periods. Existing signal timing plans were obtained from the City of Portland and were used in the existing Synchro/SimTraffic models.

Level of Service, Queuing, and Delay

LOS is a measure for evaluating traffic capacity and quality of service of roadways and intersections. LOS is a function of control delay, which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS is measured on a scale ranging from A to F, in which A represents freely flowing traffic and F represents severe congestion. LOS ratings are based on the average delay experienced at the intersection. LOS for unsignalized intersections is based on the worst stop-controlled movement; whereas, at signalized movements, the total delay for all movements is used to determine LOS. For unsignalized intersections, Table 3 lists the worst movement on which LOS is based.

The City of Portland operational standard for LOS is LOS D for signalized intersections, meaning LOS E or worse is considered operating worse than standard. For unsignalized intersections, the City's operational standard is LOS E, meaning LOS F is considered operating worse than standard.

Intersection delay is the measure of total time added to a vehicle's travel time as it moves through an intersection and includes control delay, deceleration delay, queue move-up delay, stopped delay, and final acceleration delay.

Estimates for 95th percentile queuing help provide a more complete assessment of how an intersection is operating in congested conditions. The 95th percentile queue is provided for this analysis and is defined to be the queue length (in feet) that has only a 5 percent probability of being exceeded during the analysis time period.

Table 3 displays intersection total entering volume (TEV), intersection delay (in seconds), LOS for each of the study intersections, and worst movement if the intersection is unsignalized for both the AM and PM peak periods. SimTraffic output sheets are included in Appendix B. For a description of methods used to calculate these measures, see Section 6.

Table 3. Delay and Level of Service Existing Conditions

Volume per hour (vph), Level of service (LOS), eastbound (EB), westbound (WB)

Intersection, Approach, Movement		Signalized or Unsignalized	AM Peak Hour (8:00 – 9:00 AM)				PM Peak Hour (4:30 – 5:30 PM)			
			TEV	Delay(s)	LOS	Worst Movement (if Unsignalized)	TEV	Delay(s)	LOS	Worst Movement (if Unsignalized)
1	NW Everett Street and NW 4th Avenue	Signalized	605	9	A	—	1,085	10	B	—
2	NW Everett Street and NW 3rd Avenue	Signalized	730	7	A	—	1,270	8	A	—
3	NW Couch Street and NW Broadway	Signalized	910	25	C	—	1,160	24	C	—
4	NW Couch Street and NW 6th Avenue	Signalized	300	10	B	—	375	11	B	—
5	NW Couch Street and NW 5th Avenue	Signalized	280	9	A	—	440	12	B	—
6	NW Couch Street and NW 4th Avenue	Unsignalized	440	11	B	EB	615	20	C	EB
7	NW Couch Street and NW 3rd Avenue	Unsignalized	605	18	C	WB	755	30	D	WB
8	NW Couch Street and NW 2nd Avenue	Unsignalized	675	18	C	EB	665	30	D	EB
9	NW Couch Street and NW Naito Parkway	Signalized	1,150	15	B	—	1,500	10	B	—
10	NE Couch Street and NE MLK Blvd	Signalized	2,715	17	B	—	3,245	19	C	—
11	NE Couch Street and NE Grand Avenue	Signalized	2,845	17	B	—	2,705	13	B	—
12	W Burnside Street and Broadway	Signalized	2,830	13	B	—	2,950	19	B	—
13	W Burnside Street and 6th Avenue	Signalized	2,370	5	A	—	2,360	13	B	—
14	W Burnside Street and 5th Avenue	Signalized	2,355	5	A	—	2,455	13	B	—
15	W Burnside Street and 4th Avenue	Signalized	2,500	12	B	—	2,895	15	B	—
16	W Burnside Street and 3rd Avenue	Signalized	2,570	8	A	—	2,820	12	B	—
17	W Burnside Street and 2nd Avenue	Signalized	2,725	10	B	—	3,040	15	B	—
18	E Burnside Street and SE MLK Blvd	Signalized	2,170	25	C	—	3,695	32	C	—
19	E Burnside Street and SE Grand Avenue	Signalized	2,430	17	B	—	3,320	16	B	—
20	SW Oak Street and SW Broadway	Signalized	765	8	A	—	845	8	A	—

Table 3. Delay and Level of Service Existing Conditions

Volume per hour (vph), Level of service (LOS), eastbound (EB), westbound (WB)

Intersection, Approach, Movement		Signalized or Unsignalized	AM Peak Hour (8:00 – 9:00 AM)				PM Peak Hour (4:30 – 5:30 PM)			
			TEV	Delay(s)	LOS	Worst Movement (if Unsignalized)	TEV	Delay(s)	LOS	Worst Movement (if Unsignalized)
21	SW Oak Street and SW 6th Avenue	Signalized	445	9	A	—	540	11	B	—
22	SW Oak Street and SW 5th Avenue	Signalized	435	9	A	—	420	10	B	—
23	SW Oak Street and SW 4th Avenue	Signalized	755	11	B	—	925	10	B	—
24	SW Oak Street and SW 3rd Avenue	Signalized	655	10	B	—	775	11	B	—
25	SW Oak Street and SW 2nd Avenue	Signalized	790	11	B	—	710	12	B	—
26	SW Oak Street and SW Naito Parkway	Signalized	1,355	15	B	—	1,645	9	A	—

Source: Parametrix

All study intersections operate within City LOS standards of LOS D.

Using the SimTraffic models, an analysis of the 95th percentile queue length was conducted, which means that for 95 percent of all signal cycles at an intersection, queuing will not exceed the stated queue length. The 95th percentile queuing analysis is summarized in Table 4. Many of the queue lengths are less than 200 feet and are within the existing storage length between intersections. Some intersection approaches have queue lengths that exceed the existing storage length and back into an adjacent intersection. These approaches are highlighted in red in Table 4. The largest queue length is at E Burnside Street and SE MLK Blvd. (Intersection #18), which has a queue length in the eastbound approach of 670 feet during the PM peak hour. The 95th percentile queues shown in Table 4 are for the critical movement on each approach. For more details on individual lane group queuing information, see Appendix C.

Table 4. 95th Percentile Queuing Existing Conditions

			AM Peak Hour	PM Peak Hour
	Intersection, Approach, Movement	Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
1	NW Everett Street and NW 4th Avenue	Signalized		
	Northbound approach		70	140
	Eastbound approach		140	190
2	NW Everett Street and NW 3rd Avenue	Signalized		
	Southbound approach		130	180
	Eastbound approach		90	180
3	NW Couch Street and NW Broadway	Signalized		
	Northbound approach		70	140
	Southbound approach		270	250
	Eastbound approach		70	220
	Westbound approach		150	160
4	NW Couch Street and NW 6th Avenue	Signalized		
	Northbound approach		100	100
	Eastbound approach		70	160
	Westbound approach		90	80
5	NW Couch Street and NW 5th Avenue	Signalized		
	Southbound approach		60	150
	Eastbound approach		50	140
	Westbound approach		90	110
6	NW Couch Street and NW 4th Avenue	Unsignalized		
	Northbound approach		60	140
	Eastbound approach		60	160

Table 4. 95th Percentile Queuing Existing Conditions

			AM Peak Hour	PM Peak Hour
	Intersection, Approach, Movement	Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
	Westbound approach		80	140
7	NW Couch Street and NW 3rd Avenue	Unsignalized		
	Southbound approach		70	240
	Eastbound approach		60	120
	Westbound approach		150	160
8	NW Couch Street and NW 2nd Avenue	Unsignalized		
	Northbound approach		90	100
	Eastbound approach		60	120
	Westbound approach		90	160
9	NW Couch Street and NW Naito Parkway	Signalized		
	Northbound approach		390	320
	Southbound approach		140	130
	Eastbound approach		110	180
10	NE Couch Street and NE MLK Blvd	Signalized		
	Southbound approach		240	270
	Westbound approach		210	180
11	NE Couch Street and NE Grand Avenue	Signalized		
	Northbound approach		120	130
	Westbound approach		230	230
12	W Burnside Street and Broadway	Signalized		
	Northbound approach		90	180
	Southbound approach		200	250
	Eastbound approach		200	220
	Westbound approach		70	240
13	W Burnside Street and 6th Avenue	Signalized		
	Northbound approach		130	140
	Eastbound approach		160	220
	Westbound approach		60	200
14	W Burnside Street and 5th Avenue	Signalized		
	Southbound approach		100	200
	Eastbound approach		100	150
	Westbound approach		150	220

Table 4. 95th Percentile Queuing Existing Conditions

			AM Peak Hour	PM Peak Hour
Intersection, Approach, Movement		Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
15	W Burnside Street and 4th Avenue	Signalized		
	Northbound approach		190	200
	Eastbound approach		200	180
	Westbound approach		150	210
16	W Burnside Street and 3rd Avenue	Signalized		
	Southbound approach		180	210
	Eastbound approach		60	180
	Westbound approach		230	230
17	W Burnside Street and 2nd Avenue	Signalized		
	Northbound approach		240	240
	Eastbound approach		160	230
	Westbound approach		240	340
18	E Burnside Street and SE MLK Blvd	Signalized		
	Southbound approach		130	180
	Eastbound approach		390	670
19	E Burnside Street and SE Grand Avenue	Signalized		
	Northbound approach		240	240
	Eastbound approach		80	140
20	SW Oak Street and SW Broadway	Signalized		
	Southbound approach		120	120
	Westbound approach		120	120
21	SW Oak Street and SW 6th Avenue	Signalized		
	Northbound approach		130	180
	Westbound approach		70	40
22	SW Oak Street and SW 5th Avenue	Signalized		
	Southbound approach		90	120
	Westbound approach		140	120
23	SW Oak Street and SW 4th Avenue	Signalized		
	Northbound approach		160	210
	Westbound approach		170	160
24	SW Oak Street and SW 3rd Avenue	Signalized		
	Southbound approach		140	310

Table 4. 95th Percentile Queuing Existing Conditions

			AM Peak Hour	PM Peak Hour
	Intersection, Approach, Movement	Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
	Westbound approach		170	170
25	SW Oak Street and SW 2nd Avenue	Signalized		
	Northbound approach		210	200
	Westbound approach		130	170
26	SW Oak Street and SW Naito Parkway	Signalized		
	Northbound approach		250	260
	Southbound approach		180	310

Source: Parametrix
Note. Queue lengths highlighted in red exceed the available storage length.

5.3.6 Transit Network

The Burnside Bridge functions as an important east/west transit corridor in the Portland region and connects into the streetcar network at the bridge's eastern approach and the MAX light-rail network on the bridge's western approach. For regional context, Metro's travel model calculates that transit makes up 3.4 percent of all trips in the entire Portland Metro region. More significantly, transit makes up 25.4 percent of all trips to and from the Portland Metro central business district (CBD). For the existing conditions inventory of transit, an analysis of transit service levels, routes, transit stops, rider activity, and major social service and cultural destinations was conducted and is included below. Figure 9 features the transit network along and adjacent to the EQRB Project. At the time of this report, an eastbound bus only lane runs across the bridge deck. The bus only lane allows transit vehicles to bypass queuing vehicles that span across the eastbound lanes of the bridge due to congestion at the intersection of E. Burnside and MLK Blvd. The eastbound bus only lane is planned to be extended in the form of a BAT lane from MLK Blvd to E. 12th with an expected implementation in 2021.

A similar westbound bus only lane is planned to run across the bridge deck but there is currently no fixed time frame for implementation. The project is currently in the planning phase with no determined date of construction at this time. However, it is likely that the project could be constructed prior to the start of construction of the EQRB Project. As such, a qualitative analysis of the likely impacts is below.

The City of Portland is also developing a project known as the Rose Lane Project that will aim to install BAT lanes across a network of streets throughout central Portland. At the time of this report, the exact extent, design, and implementation dates are not determined. It is possible that certain portions of the Rose Lane Network could be implemented before construction of the EQRB Project commences. Thus, a short qualitative analysis is provided in the sections below.

Transit Service

Three TriMet bus lines (12, 19, and 20) are routed over the Burnside Bridge.

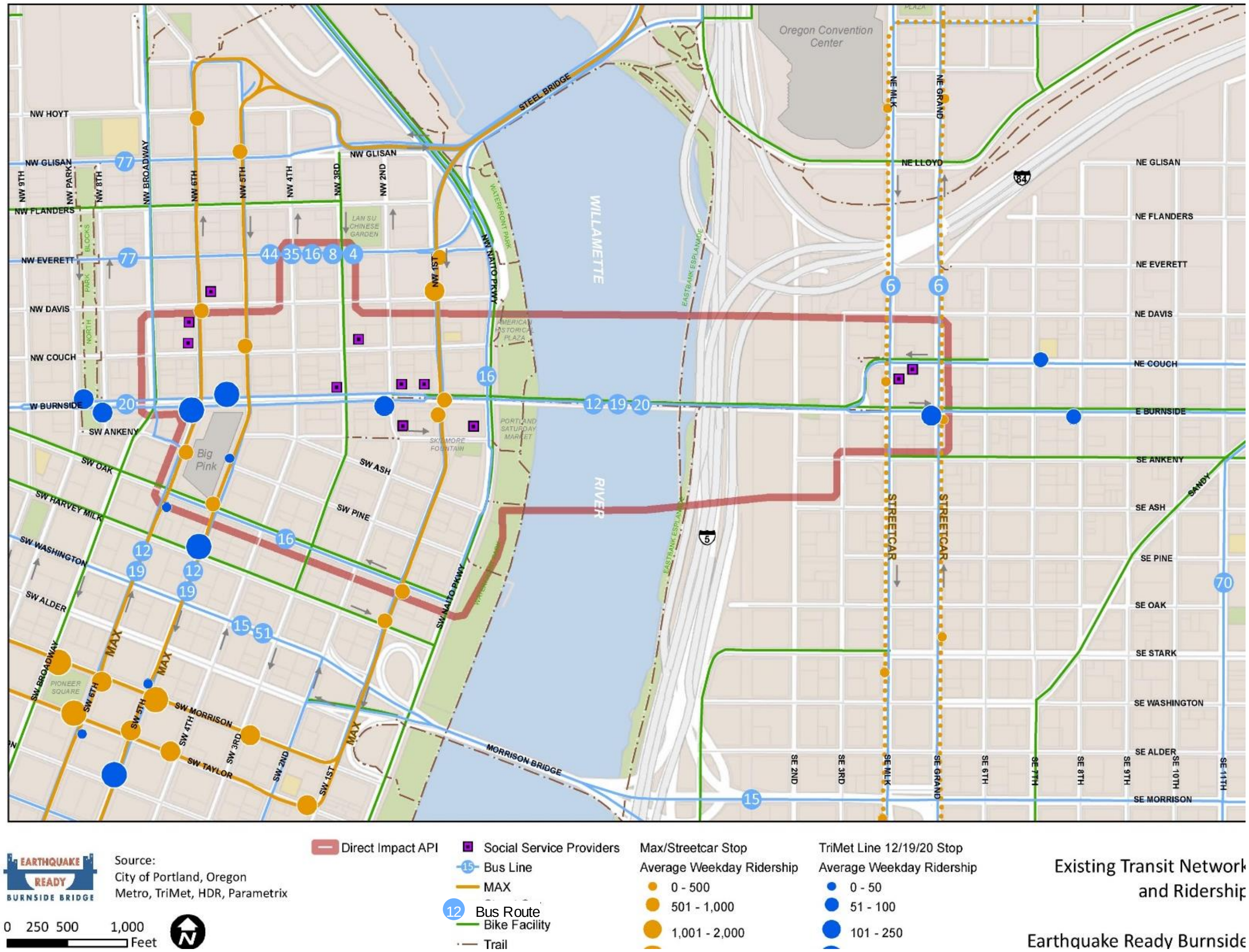
- Route 12 is a frequent service line with headways of 15 minutes or less that runs 7 days a week between the hours of 5:00 AM and 1:30 AM during normal weekday service. To the northeast, the route connects the Central City along Sandy Boulevard with the Parkrose Transit Center. To the southwest, the route connects the Central City along Barbur Boulevard to the Barbur and Tigard Transit Centers.
- Route 19 is a frequent service route with headways as low as 11 minutes during peak periods. The line runs 7 days a week between the hours of 6:00 AM and 1:00 AM. To the northeast, the route connects the Central City along Sandy Boulevard and Glisan Street to the Gateway Transit Center. To the southeast, the route connects the Central City along Powell Boulevard and Woodstock to Reed College and Mt. Scott.
- Route 20 is a frequent service route and features 7 days a week, 24-hour service with headways as low as 11 minutes during peak periods. To the east, the route connects the Central City along Burnside Street and Stark Street to Mt. Hood Community College and the Gresham Central Transit Center. To the west, the route connects along Burnside Street and Barnes Road to the Sunset and Beaverton Transit Centers.

Bus Route 6 is another important frequent service route that, while not routed over the Burnside Bridge, provides service to the Direct API. The route travels north and south along MLK Blvd and Grand Avenue before using the Madison and Hawthorne Bridges to access the Portland CBD. In the near future, route 6 will be increased to 12 minute service and benefit from the application of BAT lanes along MLK Blvd and Grand Avenue in the vicinity of the Burnside Bridge.

Both east and west bridgeheads feature important regional and circulator transit service in the form of the MAX light-rail on the west side of the Willamette River and the streetcar on the east side of the Willamette River.

- MAX Red and Blue Lines are both frequent service lines, running every 15 minutes for 7 days a week. Both lines run north/south along 1st Avenue through downtown with a stop directly under the Burnside Bridge on 1st Avenue. The Blue Line connects the Central City to Lloyd Center, Gateway Transit Center, and downtown Gresham in the east and Beaverton and Hillsboro in the west. The Red Line connects the Central City with Lloyd Center, Gateway Transit Center, and the Portland International Airport in the east and with Beaverton in the west.
- The Portland Streetcar loops A and B run north/south along MLK Blvd and Grand Avenue in Portland's Central Eastside and create a circulator loop with Downtown Portland. Both lines run 7 days a week with weekday schedules running from 5:30 AM to 11:30 and weekend schedules running from 7:30 AM to 10:30 PM. The streetcar service operates in mixed traffic with headways every 15 to 20 minutes. As part of a City of Portland led Rose Lane Project, MLK Blvd and Grand Avenue will receive priority treatments in 2021 for streetcars in the form of BAT lanes along the length of the right lane. Streetcar frequencies are also planned to be increased to 12-minute headways. These updates are not reflected in the existing condition figures reported in the next several pages.

Figure 9. Existing Transit Network



Transit Ridership

Table 5 displays the daily boarding figures within the Direct API and for the entire length of each transit line that traverses the affected area. The direct API features a total of 12 bus routes, 5 MAX lines, and 2 streetcar loops that traverse the area with a total of 21 transit stops within the API. Approximately 23,000 transit riders board routes within the API on an average weekday, with 3,000 of those boardings coming during the PM Peak hour.

The stops inside the direct impact API feature lower boarding numbers compared with stops just beyond the direct impact API. The Skidmore Fountain stop for the Blue and Red Lines exists directly under the Burnside Bridge on NW 1st Avenue with average weekday ridership of 1,437. The MAX Blue and Red Lines feature the most ridership activity in the immediate area, with boardings reaching above 22,000 for both lines with the majority of the activity taking place along Morrison Street and Taylor Street once the MAX lines turn west off of 1st Avenue. The bus lines feature boarding numbers between 1,200 and 2,900 on average, with most of the activity taking place along W Burnside Street several blocks to the west of the bridgehead, with a large amount of activity taking place at the base of the U.S. Bancorp Tower.

A total of 259,000 average daily transit riders cross through the direct API among all of the bus, MAX, and streetcar routes. 34,000 of these boardings occur during the PM Peak Hour.

Table 5. Boarding at Transit Stops

Transit Service	Daily Boardings within Direct API	PM Peak Hour Boardings within Direct API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Bus				
6	662	86	7.150	933
8*			10.012	1.355
9*			8,700	1,155
12	2,566	280	11,051	1,058
15*			7,279	892
19	1,895	296	7,486	1,076
20	2,138	337	10,507	1,486
35*			6,365	1,088
71*			7,057	934
72*			9,867	1,123
75*			10,879	1,224
77*			3,171	1,091

Table 5. Boarding at Transit Stops

Transit Service	Daily Boardings within Direct API	PM Peak Hour Boardings within Direct API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Max				
Blue/Red	9.402	1.213	93.519	13.574
Green/Yellow/Orange	9,268	808	54,431	6,408
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)				
Streetcar	422	47	8,236	422

Sources: TriMet, Metro
*Lines do not have stops within the API

Transit Travel Times

Travel times for TriMet buses over the Burnside Bridge are reported in Table 6.

Table 6. Existing Transit Travel Times

Travel Time reported in minutes between W 5th Avenue and E Grand Avenue

	Existing Conditions		
Direction (Bus Lines 12, 16, 20)	**Travel Distance (miles)**	**Travel Times (min)**	**Avg Transit Speeds (mph)**
Eastbound (PM Peak)	0.71	7.7	4.7
Westbound (AM Peak)	0.74	2.8	12.5

Source: Parametrix

Table 7 displays Streetcar operating speeds and travel times along select segments of the Portland Streetcar Loops A and B. These reported speeds will be used to compare expected delay impacts to the Portland Streetcar related to the construction scenarios.

Table 7. Existing Portland Streetcar Segment Level Operating Speeds and Travel Times

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Eastbound A Loop					
Broadway Bridge	2,100	10.0	2.4	5.0	4.8
Larrabee to Benton	270	8.0	4.0	4.0	8.0
Benton to Weidler	255				
Broadway/Weidler to Vancouver	460				
Vancouver to Williams	260				
Williams to Victoria	270				
Victoria to 2nd	515				
2nd to MLK	515				
MLK Blvd to Grand Avenue	260				
Length–Subtotal	**2,805**				
Lloyd/MLK Blvd to Everett	530	6.5	2.3	6.8	2.2
Everett to Davis	270				
Davis to Couch	260				
Couch to Burnside	260				
Length–Subtotal	**1,320**				
Westbound B Loop					
Burnside/Grand Avenue to Couch	260	5.5	6.2	5.0	6.9
Couch to Everett	530				
Everett to Lloyd	530				
Length–Subtotal	**1,320**				
Grand Avenue to MLK	260	4.5 (-1.0)	7.6 (+1.4)	4.5 (+0.5)	7.6 (+0.7)
MLK Blvd to 2nd	515				
2nd to Victoria	515				
Victoria to Williams	270				
Williams to Vancouver	260				
Vancouver to Flint	230				
Flint to Weidler	190				
Weidler to Benton	260				
Benton to Larrabee	270				
Larrabee to on-ramp	250				
Length–Subtotal	**3,020**				
Broadway Bridge	2,100	8.0	3.0	10.0	2.4

Westbound BAT Lane

The City of Portland is developing plans for a westbound BAT lane across the Burnside Bridge span as part of the Rose Lane Project implementation of the ETC Plan. The BAT lane would start at W 23rd Avenue in the west and run beyond the NE Couch Street and E Burnside Street couplet that ends at E 14th Avenue in the east. On the bridge span itself, the westbound BAT lane would start at the intersection of Couch Street/MLK Blvd and run across the whole of the bridge until 2nd Avenue. To install the BAT, a general purpose travel lane will have to be removed in the westbound direction, removing vehicle capacity to make room for the BAT lane. The EQRB Project will continue to monitor the City's development and evaluation of the westbound BAT lane across the Burnside Bridge to incorporate more quantitative analysis if and when the project becomes reasonable and foreseeable.

The likely impacts from installing a Westbound BAT lane would include:

- Decreased delay of westbound TriMet buses across the Burnside Bridge and into downtown.
- Improved efficiency and reliability of bus routes 12, 19, and 20. This is likely to attract new ridership leading to increased ridership for these routes.
- For vehicle traffic, the removal of a full lane of traffic over the Burnside Bridge would decrease westbound capacity by 700 to 900 vehicles per hour.
- The surface network bridges across the Willamette River could experience a slight increase in traffic volumes as motor vehicles divert away from using the Burnside Bridge due to reduced vehicle capacity.

Rose Lane Project

The City of Portland is in the process, at the time of this report, of developing a network of enhanced transit lanes across the city. The Rose Lane Project is currently planned for deployment over the next 5 years; however, a final determination of the construction dates of each individual Rose Lane project is not currently set. The Rose Lanes would prioritize transit on a network of arterials and collectors across the City of Portland, reallocating auto capacity to install BAT lanes and spot specific treatments at intersections to speed up transit service. The aim of these lanes is to increase the efficiency and speed at which transit can operate.

Plans for the Rose Lanes include implementation of BAT lanes on a number of streets within the EQRB Project API, including: East and West Burnside, MLK Blvd, Grand Avenue, and Couch Street. The EQRB Project will continue to monitor the City's development and evaluation of the Rose Lane Project to incorporate more quantitative analysis if and when the project becomes reasonable and foreseeable.

The likely impacts from implementation of the Rose Lane Projects would likely include:

- Decreased delay for a number of TriMet bus routes and Portland Streetcar.
- Improved efficiency and reliability of transit, likely leading to increased ridership.

- Reallocating a number of general purpose motor vehicle lanes across the Portland surface street network would likely shift vehicle traffic patterns and travel times. The City of Portland is currently examining these impacts.
- Overall vehicle capacities for the roadways with Rose Lane Project treatments would decrease.

Major Trip Generators and Social Services

The central location of the Burnside Bridge in the region means that many important cultural and social service destinations are adjacent to the EQRB Project. Figure 9 features important social services within or near the direct API as well as large generators such as the U.S. Bancorp Tower (Big Pink), the Oregon Convention Center a quarter of a mile north on MLK Blvd, the Saturday Market at the base of the Burnside Bridge on the west side along Naito Parkway, and Tom McCall Riverfront Park. The Old Town neighborhood just to the north of Burnside Street also serves as a cultural district, with many concert venues, restaurants, and clubs that create a late night crowd in the area.

Many social service providers are located in Old Town along Burnside Street and provide overnight shelter, transitional housing, food kitchens, medical clinics, and job outreach services from organizations such as Central City Concern, The Portland Rescue Mission, Salvation Army, Mercy Corps, and Multnomah County Crisis Assessment and Treatment Center. For more information on vital social services in the area, and the potential impacts to such services resulting from the EQRB Project, refer to the *EQRB Social/Neighborhood Technical Report* (Multnomah County 2021b) and the *EQRB Environmental Justice and Equity Technical Report* (Multnomah County 2021c).

5.3.7 Active Transportation

The Burnside Bridge is a critical connection in the City's pedestrian and bicycle network. It is identified in the City of Portland's 2035 TSP as a Major City Bikeway and a Major City Walkway. For regional context, Metro's travel model calculates that bicycle trips make up 3.1 percent of all trips and pedestrian trips make up 7.1 percent of all trips in the entire Portland Metro region. More significantly, bicycles make up 7 percent and pedestrians make up 6.3 percent of all trips to and from the Portland Metro CBD.

As of February 2020, the cross section of the bridge included buffered bike lanes with flexible delineators to separate bicyclists from adjacent traffic in both directions and sidewalks on both sides of the bridge.

Data Collection

Active transportation users, including pedestrians, bicyclists, and e-scooter riders, were counted as part of the classification counts conducted by video for a 24-hour period on Wednesday, May 15, 2019. Count locations included the Willamette River Bridges: Broadway Bridge, Steel Bridge, Burnside Bridge, Morrison Bridge, Hawthorne Bridge, Ross Island Bridge, and Tilikum Crossing; Naito Parkway north of the Burnside Bridge; Tom McCall Waterfront Park Trail north of the Burnside Bridge; and the Vera Katz Eastbank Esplanade south of the Burnside Bridge. Appendix I includes tables showing the hourly pedestrian, bike, and e-scooter volumes and a daily profile for each count location.

Active Transportation Volumes

Bicycle and e-scooter volumes were compared to historic counts on the Willamette River Bridges, where these were available, and in some cases found that the May 15, 2019 counts were up to 40-percent lower than previous counts. There are a number of possible reasons for this difference. Firstly, the Burnside Bridge was under construction at the time of the counts and the lane configurations were temporarily reconfigured to support the construction of the Burnside Bridge Maintenance Project. Similarly, the Tilikum Bridge was undergoing maintenance during most of May 2019, which included closure of the south side and north side pathways at different times and bicyclists and pedestrians were routed to the opposite sides of the bridge during this work. As well, it was raining for part of the day on the count day of Wednesday May 15, 2019.

To account for the poor weather on the count day, the 2019 active transportation counts were adjusted based on trends observed at the Hawthorne Bridge permanent bicycle counter and using professional judgment. Figure 12 shows bicycle and e-scooter volumes recorded by the permanent counter on the Hawthorne Bridge and compares them against average temperatures observed in May 2019. It shows that bicycle and e-scooter volumes tend to be lower when temperatures are high (above 80-degrees F) or low (below 70-degrees F). Lower temperature days also included a number of days with precipitation, which also influences bicycling and e-scooter demand.

The permanent counter recorded 4,393 bicycle and e-scooter trips on Wednesday May 15, 2019 compared to an average of 5,753 bicycle and e-scooter trips for all weekdays in May 2019. The weekday average is 31 percent higher than the recorded volume on May 15 and as such a growth factor of 31 percent was applied at all of the count locations to reflect a more typical May weekday. May is typically the peak month for bicyclist volumes as shown on Figure 10.

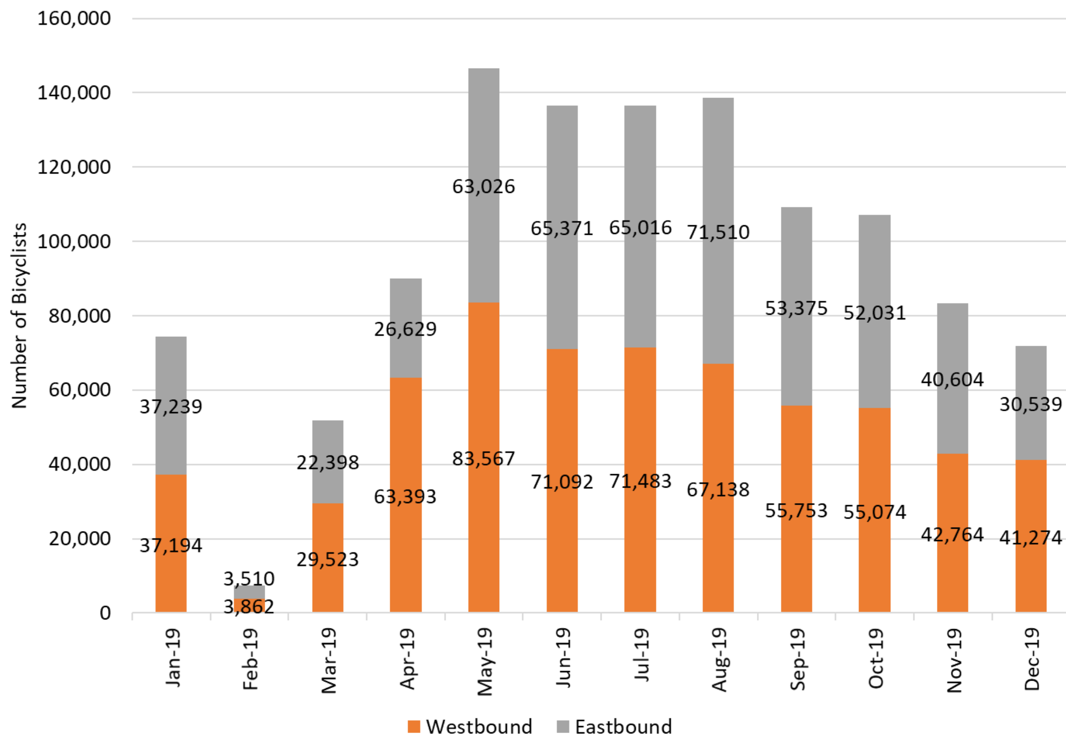
Adjusted 2019 bicycle and e-scooter volumes are shown on Figure 12 at each of the count locations. This shows that the Burnside Bridge may have carried in the order of 1,750 bicycle and e-scooter trips on a typical May weekday in 2019.

As described, there was also construction on the Burnside Bridge during 2018 and 2019 that may have impacted bicycling volumes. Historic daily bicycle count volumes for the Burnside Bridge are shown on Figure 11 along with the adjusted 2019 volumes described above. Counts taken at different times of the year are difficult to compare; however, the volumes counted on the bridge between 2015 and 2017 were all around 2,400 bicyclists per day so it is reasonable to conclude that construction may have suppressed bicycle volumes counted on the bridge in 2019 and that volumes could have been as high as 2,400 bicyclists per day.

The same set of historic and permanent bridge counts was not available to determine if the same variations were observed in the pedestrian counts. However, it could be expected that the rainy weather on the count day suppressed pedestrian demand and as such the counted volumes were also factored by 31 percent (the same as for bicycle and e-scooter volumes) to reflect expected conditions on a typical May 2019 weekday.

Adjusted 2019 pedestrian volumes are shown on Figure 13 at each of the count locations. This shows that the Burnside Bridge currently carries approximately 1,400 pedestrian trips on a typical May weekday.

Figure 10. Monthly Bicycle Volumes Recorded at the Permanent Counter on the Hawthorne Bridge in 2019



Source: PBOT

Figure 11. Comparison of Historic Burnside Bridge Bicycle Counts

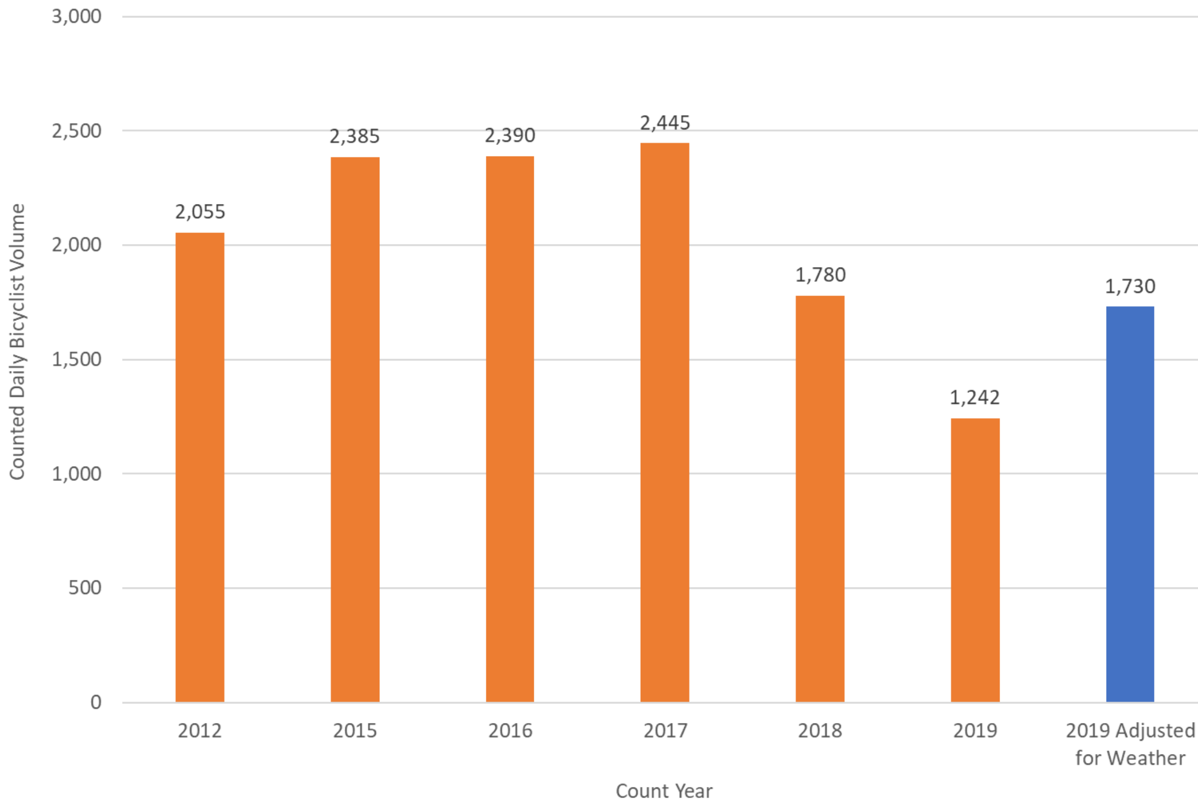
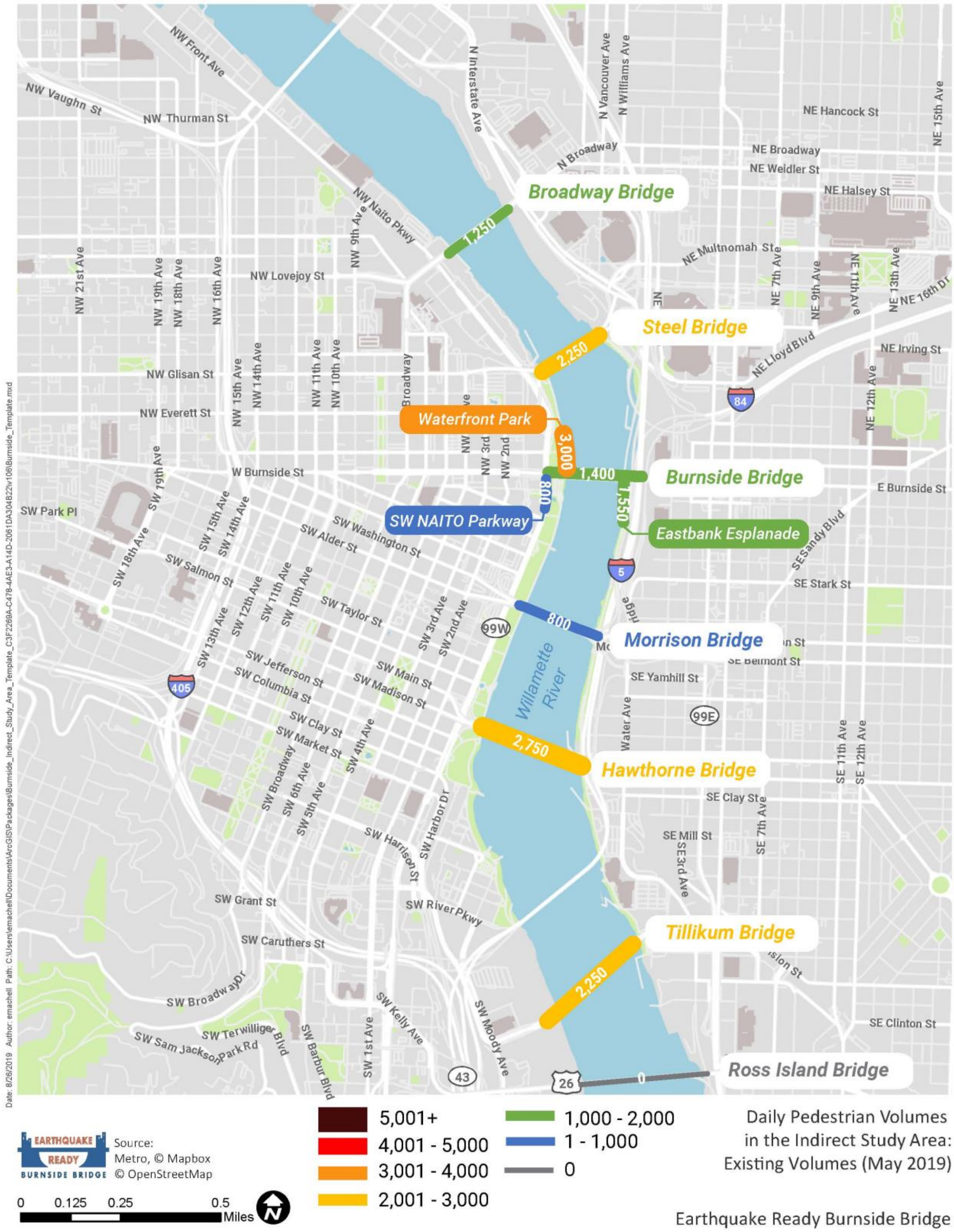


Figure 12. Daily Weekday Bicycle and E-Scooter Volumes (May 2019)

Figure 13. Daily Weekday Pedestrian Volumes (May 2019)



Beyond their commuting functions, the Willamette River Bridges, the Vera Katz Eastbank Esplanade, and the Tom McCall Waterfront Park Trail also serve recreational users. Both of these facilities have a shared responsibility between PBOT and Portland Parks and Recreation. These users are captured in the weekday count volumes but are difficult to separate out from commuter and utilitarian trips. Weekend counts were not conducted, but a comparison of weekend volumes recorded by the permanent counter on the Hawthorne Bridge in May 2019 show that the average Saturday bicycle and e-scooter volumes are approximately 40-percent of the average weekday volumes and the average Sunday bicycle and e-scooter volumes are approximately 37-percent of the average weekday volumes.[1]

Network Assessment

The active transportation (walking and bicycling) element of the transportation analysis included an inventory of pedestrian and bicycling facilities in the direct API to identify the current level of access and any deficiencies in the existing networks. For pedestrians, this included assessing the presence and width of the sidewalk network, the location of curb ramps, the condition of crossings, and stairway and ramp access to facilities underneath the bridge. For bicyclists, a bicycle level of traffic stress (BLTS) analysis was conducted to rate the existing network and identify any gaps in the network.

Pedestrian Network Assessment

The direct API is within a Pedestrian District, as identified in PedPDX, the City of Portland's Pedestrian Plan. The project team conducted an inventory of existing pedestrian facilities in the study area to establish baseline conditions for access and circulation. The inventory used available geographic information system (GIS) data, aerial photos, and information collected in the field.

Existing pedestrian facilities in the direct API are shown on Figure 14, including the presence and width of sidewalks, the location of curb ramps, and stairway locations. Figure 14 shows the location, type, and conditions of existing pedestrian crossings.

Sidewalks

Figure 14 shows the location and widths of sidewalks in the direct API. The City's Pedestrian Design Guide requires that sidewalks in a Pedestrian District be 15-feet wide to provide adequate room for the four sidewalk zones (i.e., the curb, furnishing, pedestrian travel, and frontage zones) and to accommodate expected demands.

Gaps and deficiencies in the sidewalk network include:

- Missing sidewalks on the following street segments:
  - West side of SE and NE 2nd Avenue.
  - Both sides of the NE Davis Street right-of-way from NE 2nd Avenue to NE 3rd Avenue.
  - East side of Naito Parkway, which will be addressed as part of the PBOT Better Naito Forever Project.

[1] The Sunday average includes volumes recorded on Memorial Day on May 27, 2019.

- Numerous sidewalks under the City's 15-foot width requirement for a Pedestrian District, including:
    - Sidewalks along Burnside Street on the segment of the structure that will be replaced, i.e., between W 2nd Avenue and E MLK Blvd, which is generally between 5 feet and 12 feet wide.
    - The majority of the other sidewalks in the direct API that are not on the structure to be replaced.

The project will upgrade any noncompliant sidewalks along the reconstructed span, i.e., along Burnside Street between W 2nd Avenue and E MLK Blvd.

Curb Ramps

Figure 14 shows the location of curb ramps in the direct API. A comprehensive assessment of ADA curb ramp compliance was not conducted; however, locations that had missing or obviously nonstandard curb ramps, were missing tactile strips, or had other obvious deficiencies were identified on Figure 14.

The project will upgrade any noncompliant curb ramps along the reconstructed span, i.e., along Burnside Street between W 2nd Avenue and E MLK Blvd.

The City of Portland is currently undertaking a project to inspect and verify ADA compliance of all existing curb ramps in the City and as such, additional locations may be identified during the design phase that will need to be mitigated by the project.

Stairways

On the west side of the river, there are stairways on the north and south sides of the bridge to provide pedestrian access to the Skidmore Fountain MAX station and 1st Avenue. There is currently no access from the bridge to Tom McCall Waterfront Park.

On the east side of the river, there are stairs on the south side of the Burnside Bridge providing pedestrian access to the Vera Katz Eastbank Esplanade. There is no equivalent stairway to the Vera Katz Eastbank Esplanade on the north side of the bridge. However, there are stairs on the north side of the bridge further east to provide pedestrian access to NE 3rd Avenue.

There are currently no accessible ramps or elevators at any of these stairway locations; the project will need to address ADA access at these locations.

Crossings

Existing pedestrian crossing conditions are shown on Figure 15 and include:

- The location of signalized intersections and any closed or missing crosswalks at signalized intersections.
- Signalized intersection locations with pedestrian crossings where permissive left turn phases run simultaneously with the pedestrian phase (note that most signalized intersections have pedestrian crossings where vehicle right turns run simultaneously with the pedestrian phase – these are not shown).
- Unsignalized marked crossing locations.
- The location of major transit stops, including MAX and streetcar stations and TriMet bus stops.

Figure 14. Existing Pedestrian Network

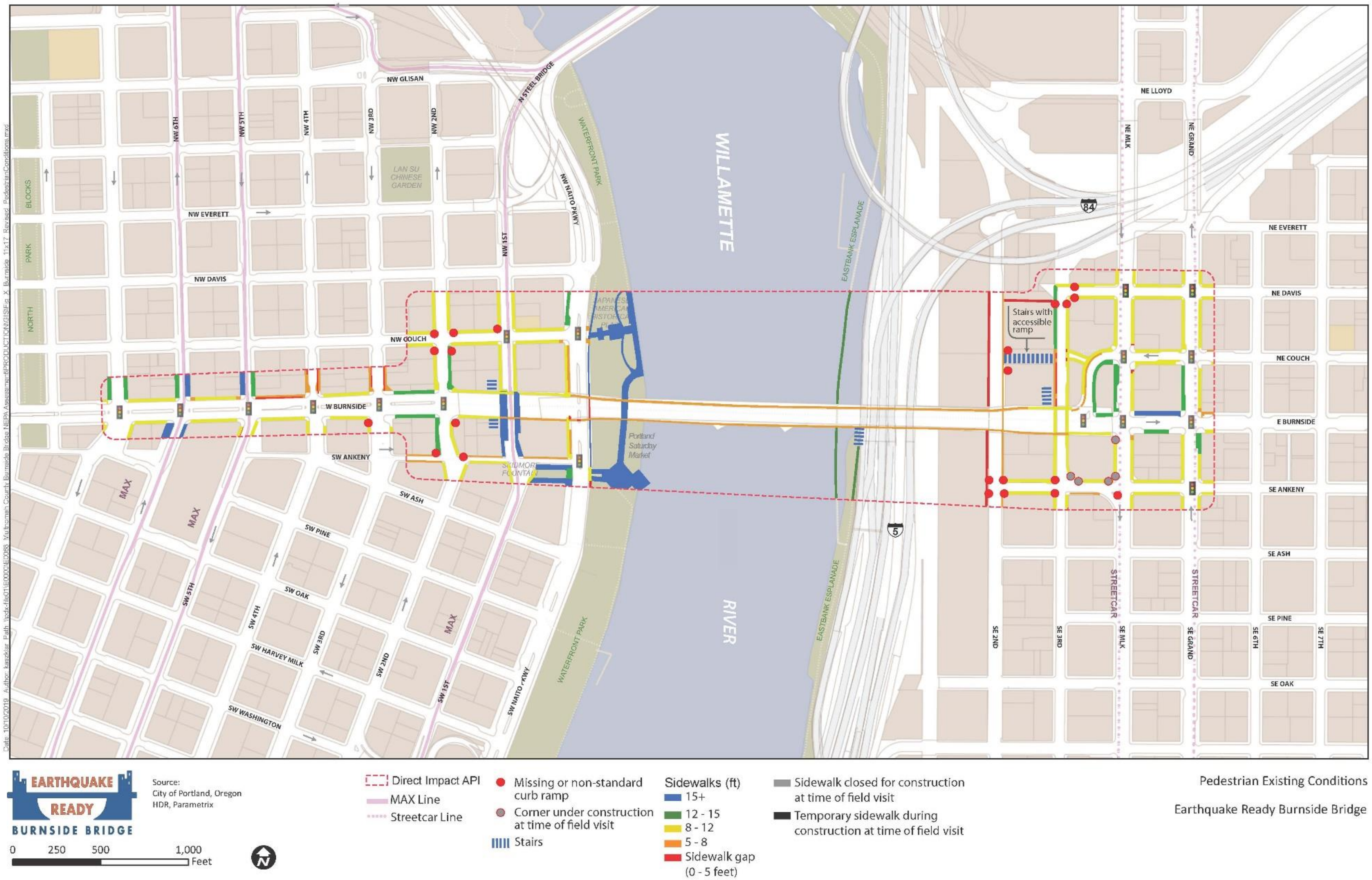


Figure 15. Pedestrian Crossing Conflicts

Burnside Street, on either side of the bridge, as well as MLK Blvd and Grand Avenue are all identified in PedPDX as Tier 2 locations prioritized for improving crossing gaps and deficiencies. All of the intersections along these streets that are within the bike and pedestrian direct API are signalized intersections with the exception of the SE MLK Blvd and Ankeny Street intersection, which is identified for signalization as a capital improvement project by the City of Portland irrespective of this project (Section 7.2.1).

On the west side of the river, the crossing on the east leg of the W Burnside Street and 2nd Avenue intersection is closed and will be re-opened as part of this project.

Existing unsignalized crossings within the direct API were evaluated using the National Cooperative Highway Research Program (NCHRP) 562 methodology and PBOT's unsignalized crossing guidelines that consider vehicle volumes, vehicle speeds, the number of lanes, and the presence of a median to determine the appropriate crossing type. The evaluation results are included in Appendix J and summarized in Table 8. It shows that a number of unsignalized crossings in the direct API are recommended for upgrade based on existing conditions, including:

- NW Couch Street and 2nd Avenue: upgrade the existing crosswalks on the north and south legs of the intersection to an "active or enhanced" crossing. This could include high-visibility signs and markings, curb extensions or median islands, and/or rectangular rapid flashing beacons.
- Upgrading all approaches with unmarked crossings to include crosswalks.

Table 8. Unsignalized Pedestrian Crossing Assessment - Existing Conditions

Intersection, Approach		Existing Crossing Type	Recommended Crossing Type
1	NW Couch Street and NW 2nd Avenue		
	South	Crosswalk	Active or Enhanced
	North	Crosswalk	Active or Enhanced
	West	Unmarked	Crosswalk
	East	Unmarked	Crosswalk
2	SW Ankeny Street and SW 2nd Avenue		
	South	Crosswalk	Crosswalk
	North	Crosswalk	Crosswalk
	East	Unmarked	Crosswalk
3	SW Ankeny Street and SW 1st Avenue		
	South	Unmarked	N/A (MAX only)
	North	Unmarked	N/A (MAX only)
	West	Unmarked	Crosswalk
	East	Unmarked	Crosswalk

Table 8. Unsignalized Pedestrian Crossing Assessment - Existing Conditions

Intersection, Approach		Existing Crossing Type	Recommended Crossing Type
4	NE Davis Street and NE 3rd Avenue		
	South	Unmarked	Crosswalk
	North	Unmarked	N/A (Driveway)
	West	Unmarked	N/A (Driveway)
	East	Unmarked	Crosswalk
5	SE Ankeny Street and SE 2nd Avenue		
	South	Unmarked	Crosswalk
	North	Unmarked	Crosswalk
	West	Unmarked	N/A (Driveway)
	East	Unmarked	Crosswalk
6	SE Ankeny Street and SE 3rd Avenue		
	South	Unmarked	Crosswalk
	North	Unmarked	Crosswalk
	West	Unmarked	Crosswalk
	East	Unmarked	Crosswalk

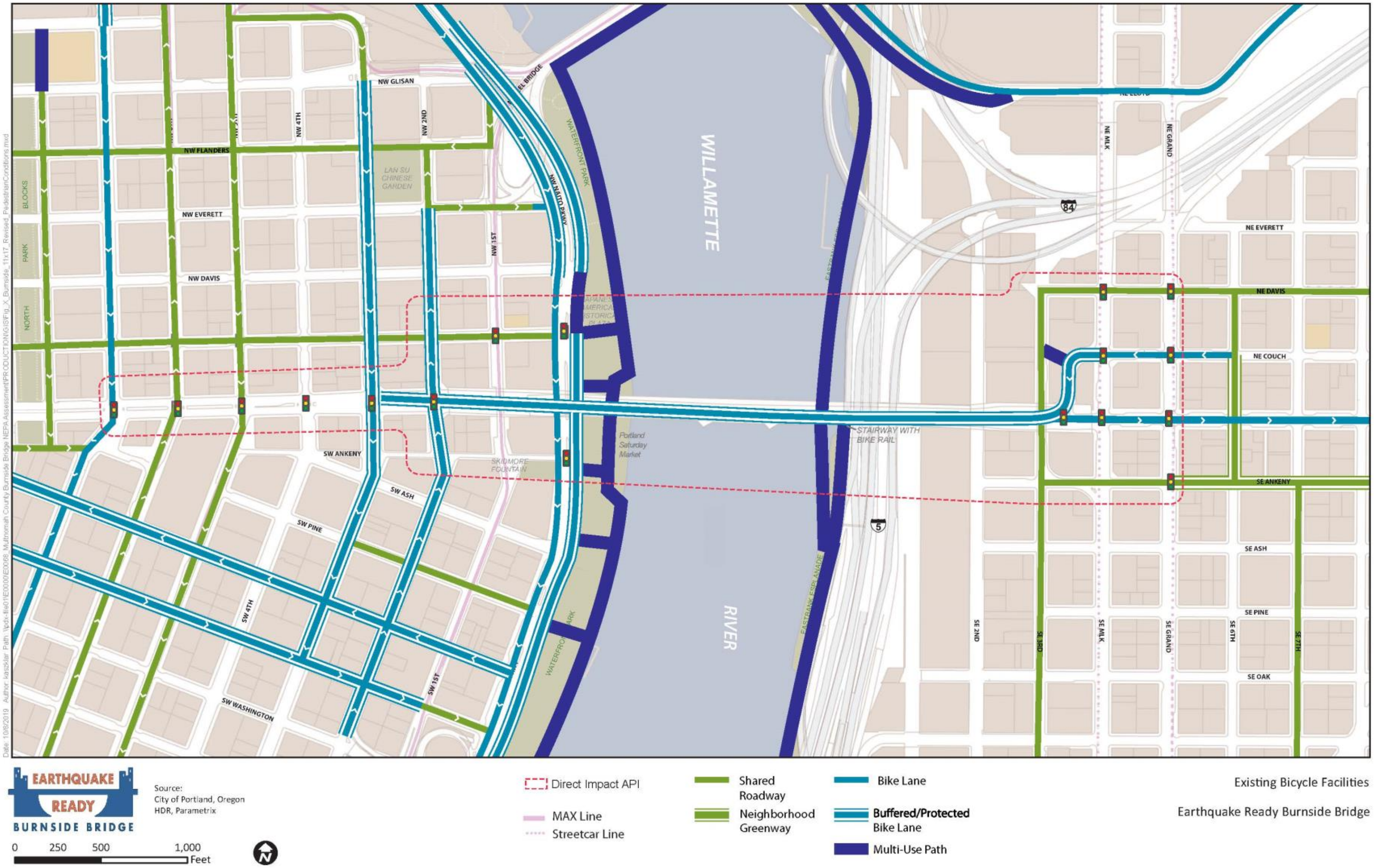
Bicycling Network Assessment

The project team conducted an inventory of existing bicycling facilities in the study area using available GIS data, aerial photos, and information collected in the field. Existing bike facilities are shown on Figure 16 and include:

- **Multiuse pathways:** facilities shared with pedestrians and fully separated from moving traffic. This category includes the Vera Katz Eastbank Esplanade and the Waterfront Trail.
- **Buffered, protected, or wide bike lanes:** including bike lanes separated or protected from traffic using painted buffers, flexible delineators, or parked vehicles. This category includes facilities on the Burnside Bridge, NW/SW Naito Parkway, NW/SW 2nd Avenue, and NW/SW 3rd Avenue as well as wide bike lanes on SW Oak Street and SW Harvey Milk Street.
- **Conventional bike lanes:** This category includes facilities on the W/E Burnside Street approaches to the bridge and on NW/SW Broadway.
- **Low-stress neighborhood greenways:** low-volume streets where bikes share the street with generally lower speed traffic. These typically include signage and shared lane markings to designate the facility and may have traffic calming or other treatments to improve comfort. This category includes SE Ankeny Street and NE/SE 6th Avenue.

- **Low-stress shared roadways:** low-volume streets where bikes share the street with generally low speed traffic. However, these streets do not have any of the specific treatments of a neighborhood greenway. This category includes NW Couch Street, NW Flanders Street, NW/SW 5th Avenue, NW/SW 6th Avenue, NE/SE 3rd Avenue, NE Davis Street, and SE 7th Avenue.
- **Stairway bike rail:** although there is no elevator or ramp access to the Burnside Bridge from the Vera Katz Eastbank Esplanade, there is a functional bike rail (a metal channel) placed next to the stairs on the south side of the bridge to assist bicyclists wanting to push their bike up the stairs.

Figure 16. Existing Bicycle Network



A BLTS analysis was conducted for all major bicycle facilities in the study area (Figure 17). The analysis is described in Section 6.2.8 and measures the expected comfort or stress for an average rider of a given street or street network.

The BLTS analysis scores streets on a scale from 1 to 4, with BLTS 1 and 2 generally considered low stress, BLTS 3 as medium stress, and BLTS 4 considered high stress.

The analysis shows that there are several multilane, high-speed roadways with no or minimal bike facilities in the study area. The least comfortable facilities for bicyclists are on W Burnside Street, west of 2nd Avenue (BLTS rating 4), where there are no bike facilities and bicyclists are required to mix with three fast-moving, high-volume traffic lanes.

Neighborhood greenways such as SE Ankeny Street and NE/SE 6th Street as well as many of the lower stress shared streets such as NW Couch Street, NE/SE 3rd Avenue, NE Davis Street, and SE 7th Avenue are relatively comfortable facilities (BLTS 3) and support the network filling in gaps between the major protected bikeways.

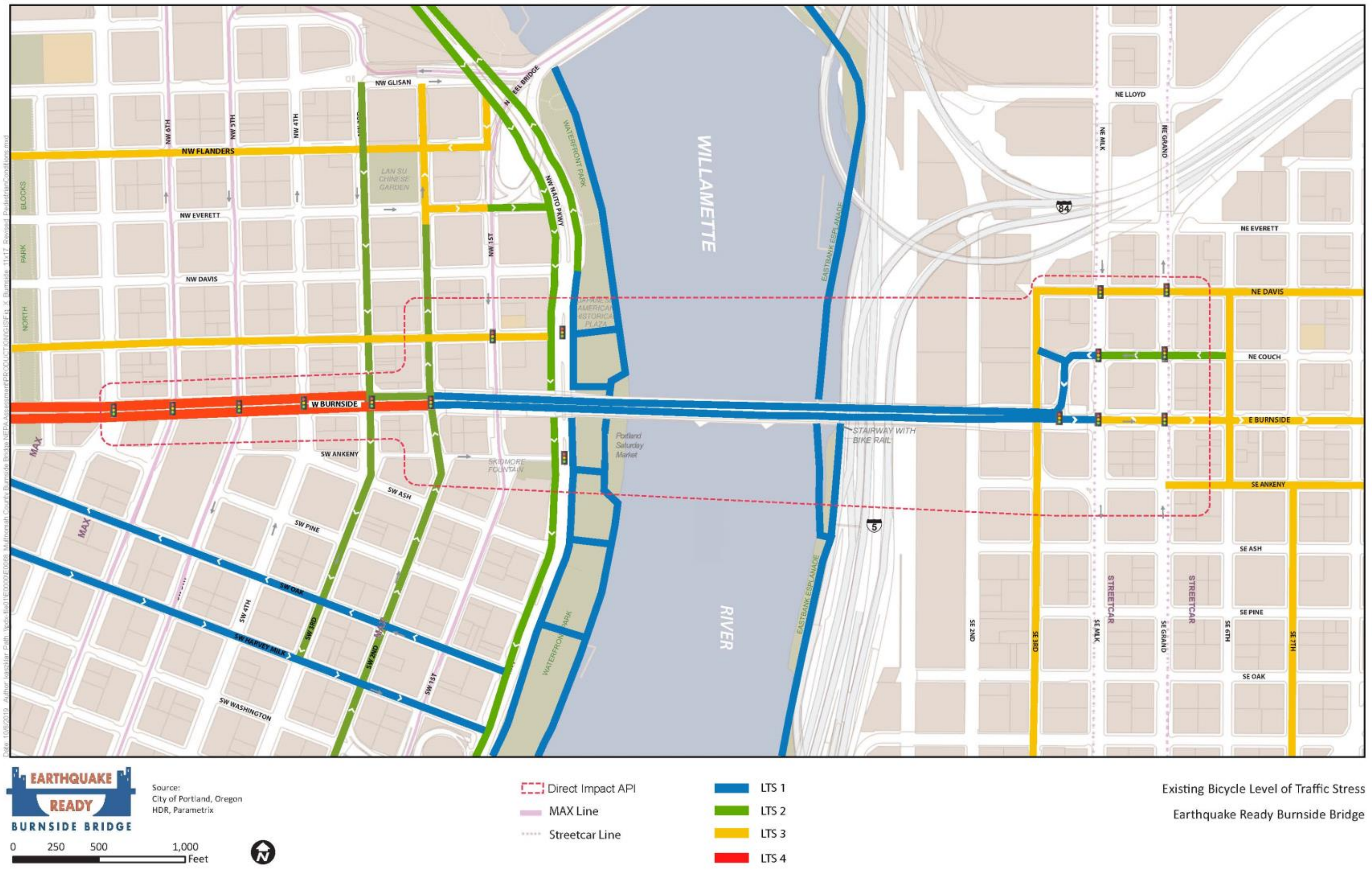
The study area also has a good base network of comfortable (BLTS 2) and very comfortable (BLTS 1) bikeways. This includes the Burnside Bridge span, the Vera Katz Eastbank Esplanade, Better Naito, the Waterfront Trail (all BLTS 1), NW/SW Naito Parkway, NW/SW 2nd and 3rd Avenues, SW Oak Street, SW Harvey Milk Street, and NE Couch Street east of the curves (all BLTS 2).

The City of Portland's target design user is defined in City Policy 9.21, which establishes the City's intended bikeway network to be designed so that it is safe, comfortable, and accessible to people of all ages and abilities. This corresponds to users of BLTS 1 facilities and the project will be designed to meet this criteria and tie into the existing low-stress bikeway network at the bridge's connection points. Policy 9.2.0 also establishes that Portland is to create conditions that make bicycling more attractive than driving for most trips of approximately 3 miles or less. A network of streets rated with a BLTS of 1 helps to support this policy.

Bicycling conditions for the bridge approaches to and from the three terminal intersections at either end of the bridge were also assessed. Existing conditions at these intersections includes:

- E Burnside Street and MLK Blvd: the eastbound approach to the intersection includes three through (traffic) lanes and a right turn lane with the bike lane transitioning from curbside across the right turn lane to be between the outside through lane and the right turn lane at the signal.
- NE Couch Street and MLK Blvd: the westbound departure from the intersection includes two traffic lanes and a curbside bike lane that just west of the intersection is elevated onto an intermediate-level bike lane between the roadway and sidewalk grades.
- W Burnside Street and 2nd Avenue: the westbound approach to the intersection includes a transition zone as it approaches the bus stop just to the east of 1st Avenue. Buses can pull to the curb and right turning traffic may cross the bicycle lane to enter a right-turn lane that is carried through to the intersection. The right-turn lane is to the right of the bike lane at the intersection.

Figure 17. Existing Bicycle Level of Traffic Stress



5.3.8 Rail Network

The Burnside Bridge crosses over a heavy rail line on the east bank of the Willamette River owned and operated by the Union Pacific Railroad (Figure 2). The tracks run north/south adjacent to I-5 and are an important link for industrial imports and exports in the region. The Union Pacific mainline connects two major rail switching yards in the Portland area; The Albina Yards approximately 1.5 miles north of the Burnside Bridge and the Brooklyn Rail Yard approximately 2.25 miles to the south.

5.3.9 Safety Analysis

Within the Project API covering the Burnside Bridge and the bridge approaches on both east and west banks of the Willamette River, Burnside Street is characterized by a heavy concentration of multimodal traffic flowing in and out of downtown Portland. The Burnside Bridge is a key east-west connector, not just of auto traffic, but of active transportation, transit, and freight. This convergence of traffic creates the potential for crashes, especially rear-end and turning-movement crashes.

The urban setting and relation of the Burnside Bridge within the larger context of adjacent arterial corridors creates unique crash profiles and safety concerns on three separate areas of the API: 1) the bridge span itself; 2) W Burnside Street through downtown; and 3) the east bridge approach where both NE Couch Street and E Burnside Street cross MLK Blvd and Grand Avenue.

A combination of qualitative and quantitative analysis were used to evaluate safety within the safety API. The safety analysis focused on crash incidents that involved vehicles, bicyclists, and pedestrians. Data was obtained from ODOT for the most recent 7-year period between 2011 and 2017. A 7 year time frame was chosen to be able to capture and analyze a number of fatalities within the Project API. Oregon Driver and Motor Vehicle division (DMV) provides ODOT with crash data after the DMV collates driver and police reports and records of any driver violations or suspensions. Crash data are coded into the crash database, which includes general data regarding the vehicle involved, crash type, location, conditions, errors, and other related information.

Existing Conditions Safety Analysis Methodology

The safety analysis summarizes total crashes at each study intersection and across the Burnside Bridge and reports the crashes by type, severity, mode, and time of day. The analysis also includes a detailed look at crashes that occur during bridge lifts. The analysis relies on data collected and categorized according to the methodology outlined in the ODOT Motor Vehicle Traffic Crash Analysis and Code Manual. Additional data was collected from Portland Streetcar regarding incidents that involved the Streetcar.

The ODOT Manual categorizes crashes in multiple ways to provide a detailed level of context on each crash incident. The following categories of crash data are included and analyzed in this section (not all categories of crash statistics from the ODOT crash manual are explored in this report):

- **Character of Road** – This field provides details on where a crash takes place on a roadway. For example, an alleyway, driveway transition, straight road, curve, or merge lane.
- **Location of Impact** – This field provides information on where the first harmful incident occurred in relation to the roadway. For example, within the left lane, a turn lane, or specific quadrant of an intersection.
- **Crash Type** – This field identifies the first harmful event type. When the event is a collision with another motor vehicle the field also describes the intended path of travel for the striking vehicle in relation to the vehicle that was struck. For example, 'same direction - one stopped' indicates a rear end crash. The field can also indicate a vehicle striking a nonmotorized vehicle or inanimate objects such as a fixed object road sign or tree.
- **Collision Type** – This field indicates the angle or direction of the impact between a vehicle and the first impact. For example, angle, head-on, or turning movement.
- **Crash Severity** – This indicates the severity of injury sustained as a result of the crash. Injuries reported from each crash are classified by severity and comprise five major types: Fatality, Injury A, Injury B, Injury C, and Property Damage Only (PDO). Fatalities are crashes that result in death; Injury A types are classified as serious or major injuries, Injury B types are classified as moderate injuries, Injury C types are classified as minor injuries, and PDO types are crashes that result in no injuries, with damage only to the vehicles involved in the crash.
- **Weather Condition** – This field reports the atmospheric conditions at the time of the crash, e.g., rain, clear, snow, etc.
- **Road Surface Conditions** – This indicates whether the roadway at the time of the crash was dry, wet, or icy.
- **Light Condition** – This indicates the ambient light levels at the time of the crash including daylight, dusk, dark, or dark with streetlights.
- **Crash Level Event** – This indicates any contributing factors for a crash. Factors captured here can vary widely, including the indication of work zones, texting, adverse weather, or pedestrian in roadway.
- **Crash Level Cause** – This indicates the circumstances most responsible for the crash occurrence and can include factors such as speeding, aggressive driving, illness or heart attack, not yielding the right-of-way, or making an improper turn.

Injuries reported from each crash are classified by severity and comprise five major types: Fatality, Injury A, Injury B, Injury C, and PDO. Fatalities are crashes that result in death; Injury A types are classified as serious or major injuries, Injury B types are classified as moderate injuries, Injury C types are classified as minor injuries, and PDO types are crashes that result in no injuries, with damage only to the vehicles involved in the crash.

Portland Vision Zero

Portland's Vision Zero Action Plan was also consulted in compiling this report. The Action Plan was completed in 2016 and designates both roadway corridors and intersections as high priority locations for future safety interventions. The Vision Zero Plan primarily focuses on those crashes that involve serious injuries, fatalities, and vulnerable roadway users, including cyclists, pedestrians, and those using mobility devices.

Within the EQRB Project's API, Burnside Street has already been identified within the framework of Vision Zero work as a High Crash Corridor, ranked among the top 30 most dangerous streets in Portland. Additionally, the intersections where W Burnside Street crosses 2nd Avenue and 3rd Avenue in downtown are designated High Crash Intersections for pedestrians while the intersection of NE Couch and NE Grand Avenue is a designated High Crash intersection for bicyclists. ODOT uses a ranking system, SPIS (Safety Priority Index System), for ranking locations by their crash histories. SPIS covers crash statistics for OR 99E; however, the portion of OR 99E along Grand Avenue/MLK Blvd that is within the API is not ranked by SPIS.

Total Crash Incidents by Travel Mode

Using the collected crash data, a summary can be found in Table 9. The total number of crashes are broken out by mode of travel and section of the API. In total, 517 individual crash incidents were recorded in the 7-year period analyzed. Two-thirds of crashes occurred on the East Burnside portion of the API; 24 percent took place along the West Burnside portion of the API. 10 percent of the crashes occurred on the Bridge span itself 80 percent of which were motor vehicle only incidents.

Incidents involving bicyclists represent 5.9 percent of total crashes and pedestrian-involved crashes represent 6.1 percent and the remaining 8 percent were spread amongst buses, commercial vehicles, motorcycles, trains, and other/unknown. Crashes involving bicycles and pedestrians are concentrated in different locations. The majority, 63 percent, of crashes involving bicycles occurred on the Eastside while the majority, 48 percent, of crashes involving pedestrians occurred on the Westside. Pedestrian crashes represented a relatively high level of total crashes on the Bridge span itself, equaling a fifth of all crashes on the Bridge span.

The mode categorized as Train in the statistics includes the MAX light-rail and the Portland Streetcar. There were no reported crashes involving MAX within the API, eight crashes involving the Portland Streetcar within the API, representing 1.5 percent of total crashes within the API. All of the Portland Streetcar-related crashes were minor, involving no injuries and only property damage. These crashes took place at or approaching intersections and involved cars turning across tracks into the path of the streetcar, rear ends into the streetcar, or cars running red lights and running into the streetcar.

The other/unknown category includes a wide range of vehicle types including heavy construction equipment, parking enforcement vehicles, golf carts, street cleaners, forklifts, and more. A total of 30 crashes involving vehicles categorized as 'other' occurred within the API, representing 5.9 percent of crashes within the API.

Table 9. Crash Incidents by Travel Mode

	West Burnside	Burnside Bridge	East Burnside	Total
Vehicle	90	39	279	408
Bicycle	8	3	19	30
Bus	1	0	1	2
Commercial Vehicle	0	0	5	5
Motorcycle	0	0	3	3
Other/Unknown*	8	2	20	30
Pedestrian	15	10	6	31
Train (Streetcar/MAX)	0	0	8	8
Total	122	54	341	517

Source: 2011-2017 data from ODOT Crash Data System, Portland Streetcar
*Other may include heavy construction equipment, parking enforcement, golf carts, street sweepers, forklifts, backhoes, mail vehicles, lawnmowers, snowplows, road graders.

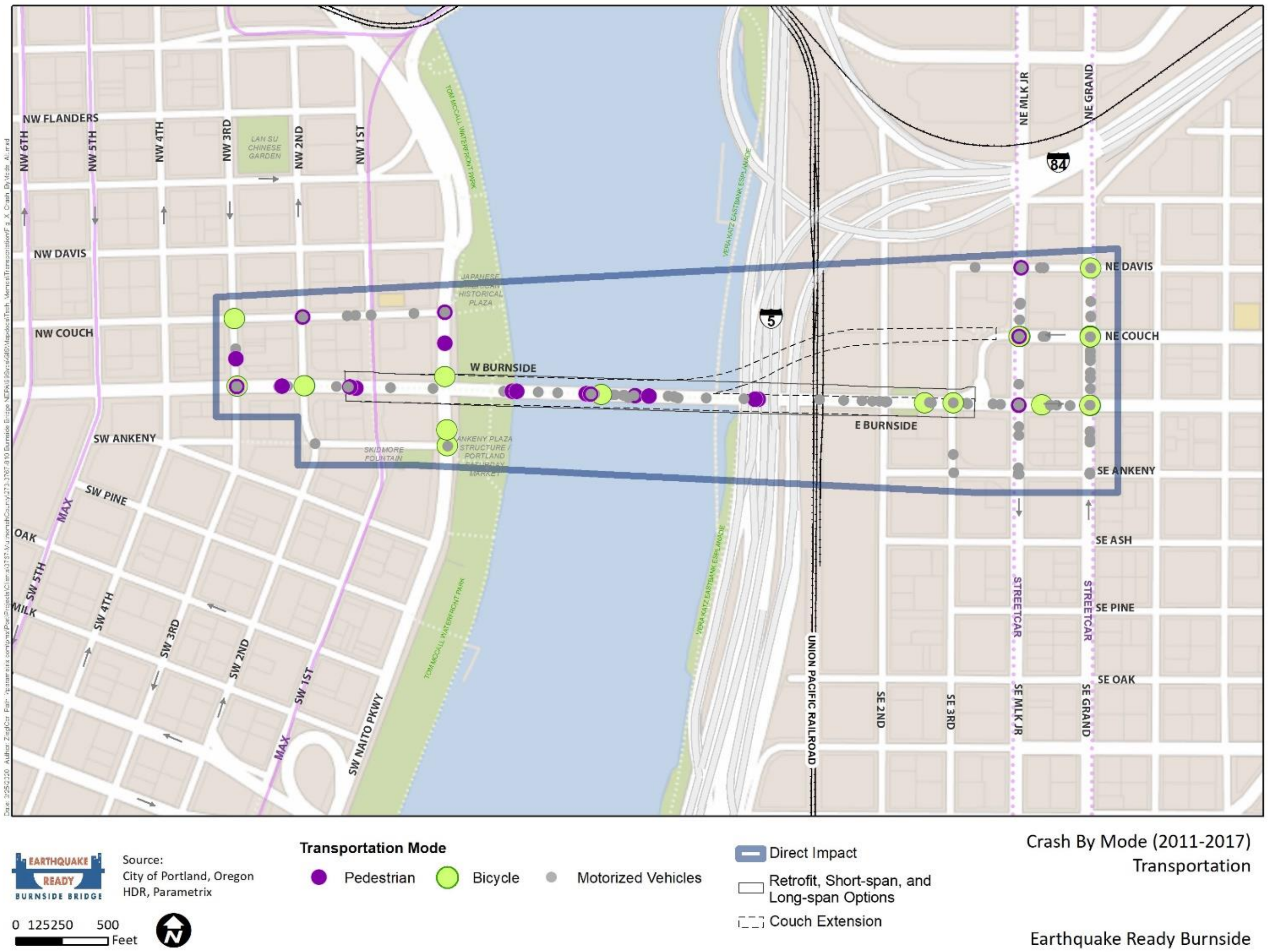
Crash Locations

Figure 18 shows the locations of all recorded crashes within the direct API and study intersections based on the mode involved between 2011 and 2017. The majority of crashes within the API occurred at intersections, representing 78 percent of total crashes. Intersection crashes are highly concentrated at the intersections where Couch and Burnside cross MLK Blvd and Grand Avenue. Together, these four intersections account for 47 percent of all crashes within the API.

The bridge span itself accounts for a relatively low number of crashes within the API. Only 54 crashes, or 10.5 percent, occurred on the bridge span, with the highest density of these taking place near the center of the bridge. Of the 54 crashes on the bridge span, 39 were automobile only, 3 involved bicycles, and 10 involved pedestrians. The other two crashes involved vehicles combined into the “other” category 75 percent of all crashes occurring on the bridge span occurred in the westbound direction.

The analysis found that there is a high concentration of pedestrian-involved crashes at and near the intersections of Burnside Street/NW 2nd Avenue and Burnside Street/NW 3rd Avenue. Bicycle-involved crashes are greatest at the intersection of NE Couch Street/NE Grand Avenue, where 11 bicycle involved crashes occurred, 10 of which involved turning movements. No particular pattern or concentration of crashes involving the Portland Streetcar was apparent from the collected crash statistics.

Figure 18. Crash Locations by Mode



Source: 2011-2017 data from ODOT Crash Data System

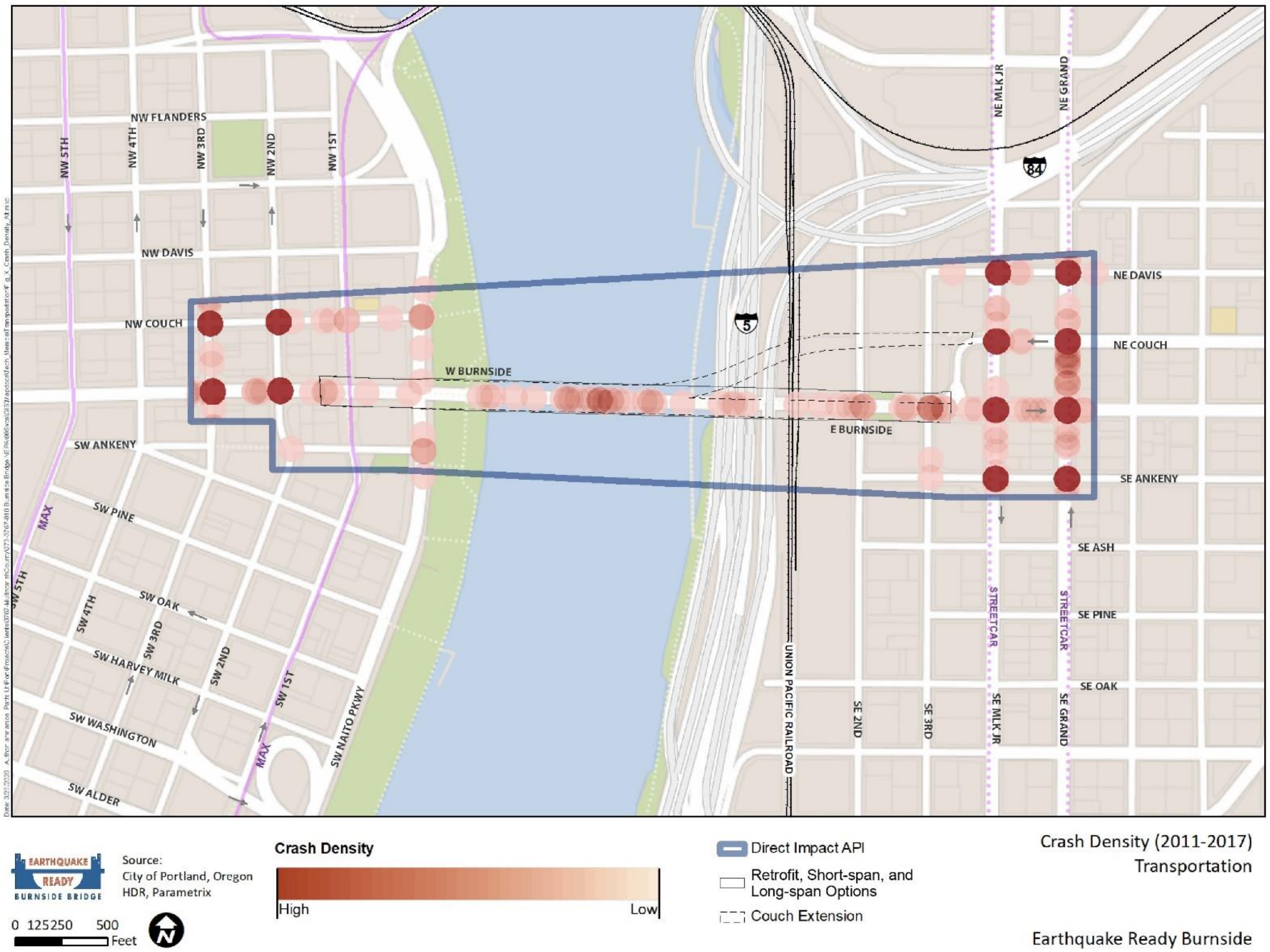
Table 10 shows the intersections with the highest concentration of crash incidents. A crash density analysis of all crashes was also conducted, shown as a map on Figure 19. The analysis shows that the four worst intersections in terms of total number of crash incidents are the four intersections where Burnside Street, Couch Street, Grand Avenue, and MLK Blvd all cross. Appendix D has a full accounting of crashes at study intersections broken down by the mode involved and collision type.

Table 10. Top 10 High-Crash Intersections

ID	Intersection	Ped	Bike	Auto	Commercial	Motor-cycle	Other	Total
11	NE Couch St/MLK Blvd	1	3	69	2	1	5	81
10	NE Couch St/Grand Ave	1	11	49	1	1	4	68
18	E Burnside St/MLK Blvd	1		44			3	46
19	E Burnside St/Grand Ave	1	3	35		1	3	43
16	W Burnside St/3rd Ave	5	1	30			2	38
17	W Burnside St/2nd Ave	3	2	27			4	36
	NE Davis St/Grand Ave		1	16			1	18
	NE Davis St/MLK Blvd	2		13				15
	SE Ankeny St/MLK Blvd			13			1	14
	SE Ankeny St/Grand Ave			12				12

Source: 2011-2017 data from ODOT Crash Data System

Figure 19. Crash Density

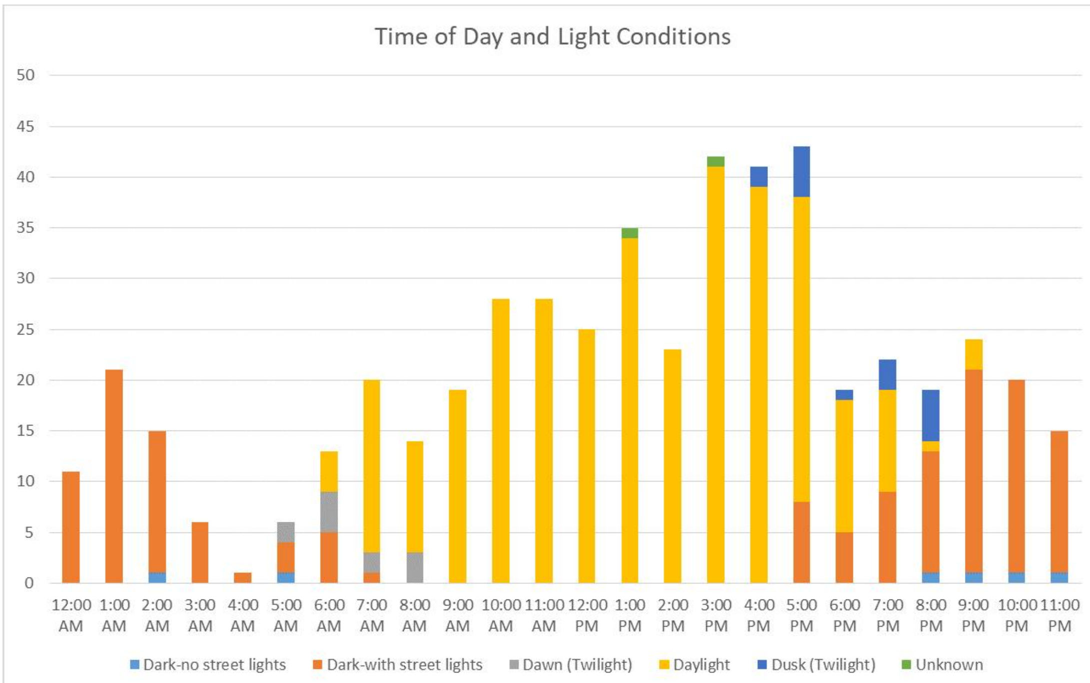


Source: 2011-2017 data from ODOT Crash Data System

Time of Day

A crash analysis by the time of day the crash occurred is shown on Figure 20. The analysis shows several– the lowest peak occurs during morning commute, after which crashes subside before rising throughout the midday before peaking at a high point during the PM peak commute from 3 PM until 5 PM. Finally, another small spike occurs around 1 AM. Fully 64 percent of crashes occurred during the daylight hours.

Figure 20. Crash by Time of Day and Light Condition (2011–2017)



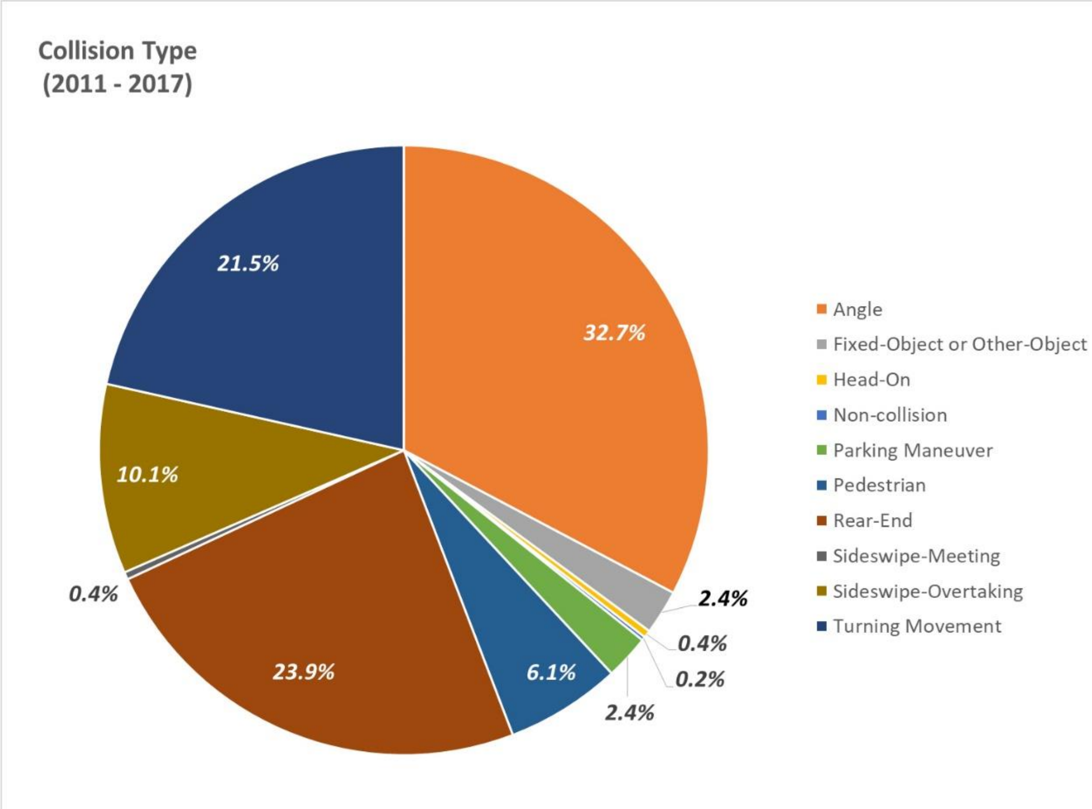
Source: 2011-2017 data from ODOT Crash Data System

Collision and Crash Type

Figure 21 shows the total crash incidents broken out by the type of collision for the whole API area. Collision type refers to the direction or angle of impact between vehicles based on their intended path of travel. Pedestrians are included in this category but not bicyclists. The largest share of crashes involved angle crashes, representing 33 percent of all crashes while turning movement collisions represent 22 percent of crashes. These types of incidents overwhelmingly occur at intersections or where driveways enter a roadway and involve either a vehicle turning from one roadway to another, or two vehicles crossing paths at an intersection.

Rear-end collisions and sideswipe collisions represent 24 percent and 10 percent of total crashes respectively. These two collision types often occur approaching an intersection, as traffic slows and vehicles come to a stop or as vehicles change lanes. A very small portion of crashes, 0.8 percent, involve head-on collisions or sideswipe-meeting collision where vehicles are traveling in opposite directions.

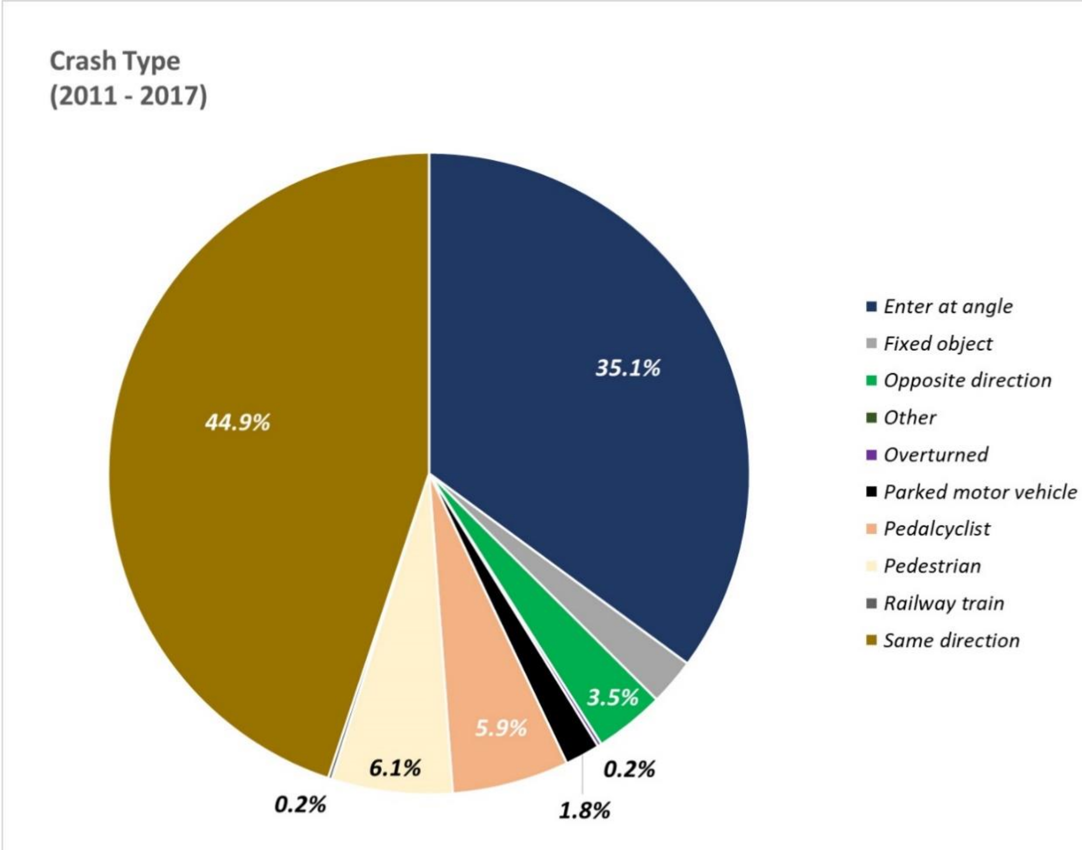
Figure 21. Collision Type (2011–2017)



Source: 2011-2017 data from ODOT Crash Data System

Figure 22 shows crashes by crash type. Crash type identifies the first impact event that occurred during a crash. Bicyclists are included in this category, but not pedestrians. The majority of crashes, 45 percent, occurred between two vehicles moving in the same direction. These types of crashes included rear-ends, side-swipes, and crashes that occur while changing lanes. Thirty-five percent of crashes are categorized as enter-at-angle, which indicate that the vehicles that collided were traveling at angles to one another, usually at an intersection where turning movements or right-angle crashes are more likely to occur.

Figure 22. Crash Type (2011 - 2017)



Source: 2011-2017 data from ODOT Crash Data System

Crash Cause

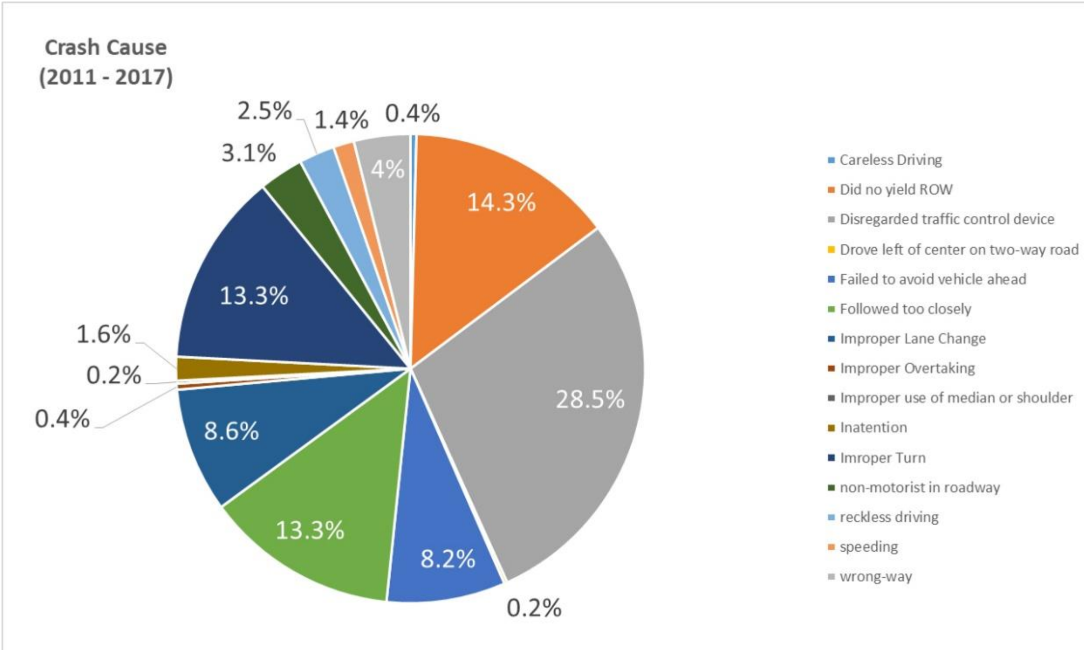
Crash cause indicates the single factor that is determined to be most responsible for the occurrence of a crash. Figure 23, below, shows the breakdown of causes for all crashes collected for the API. The majority of crashes occurred because of a motorist disregarding a traffic control device (28.5 percent) followed by failing to yield the right-of-way (14 percent), improper turning movement (13 percent), and following too closely (13 percent).

The following summarizes the major crash contributing factors by mode:

- **Automobile Crashes** – 30 percent of all automobile-only crashes occurred because a vehicle disregarded a traffic control device. This was followed by both following too closely and improper turning movement, both making up 15 percent of crashes.
- **Bicycle Crashes –** Approximately 2/3 of crashes involving bicycles occur when a motor vehicle failed to yield the right-of-way (62 percent). The next two most significant causes are disregarding a traffic signal at 19 percent and non-motorist illegally in the roadway at 8 percent.
- **Pedestrian Crashes** – Crashes involving pedestrians were evenly split between two causes: non-motorist illegally in the roadway at 43 percent and motorist failing to yield the right-of-way at 40 percent. Crashes for the former category occurred almost

exclusively on roadway segments away from intersections, while the latter occurred almost exclusively at intersections.

Figure 23. Crash Cause (2011 - 2017)



Source: 2011-2017 data from ODOT Crash Data System

Crash Severity

Crash severity relates to the type of injuries sustained during a crash incident. Table 11 shows crash severity based on the mode of travel involved. Injuries reported from each crash are classified by severity and comprise five major types: Fatality, Injury A, Injury B, Injury C, and PDO. Fifty-four percent of crashes-involved property damage. PDO crashes are predominately concentrated among automobile-only crashes, making up 60 percent of all automobile-only crashes. PDO crashes also make up all of the crashes involving the Portland Streetcar.

A similar pattern exists for the Injury C and Injury B crashes. Of the 267 crashes designated as Injury C crashes, 80 percent were automobile crashes. Injury B crashes total 65, or 12 percent of total crashes. Of the Injury B crashes, 52 percent were automobile involved. At the Injury B level of crash severity, an increasing proportion of incidents begin to involve bicyclists and pedestrians. Whereas only one PDO crash involved a bicyclist, 26 percent of Injury B incidents were bicyclists and 17 percent involved pedestrians. Altogether, Injury B, C, and PDO crashes make up 98 percent of all crashes in the API area.

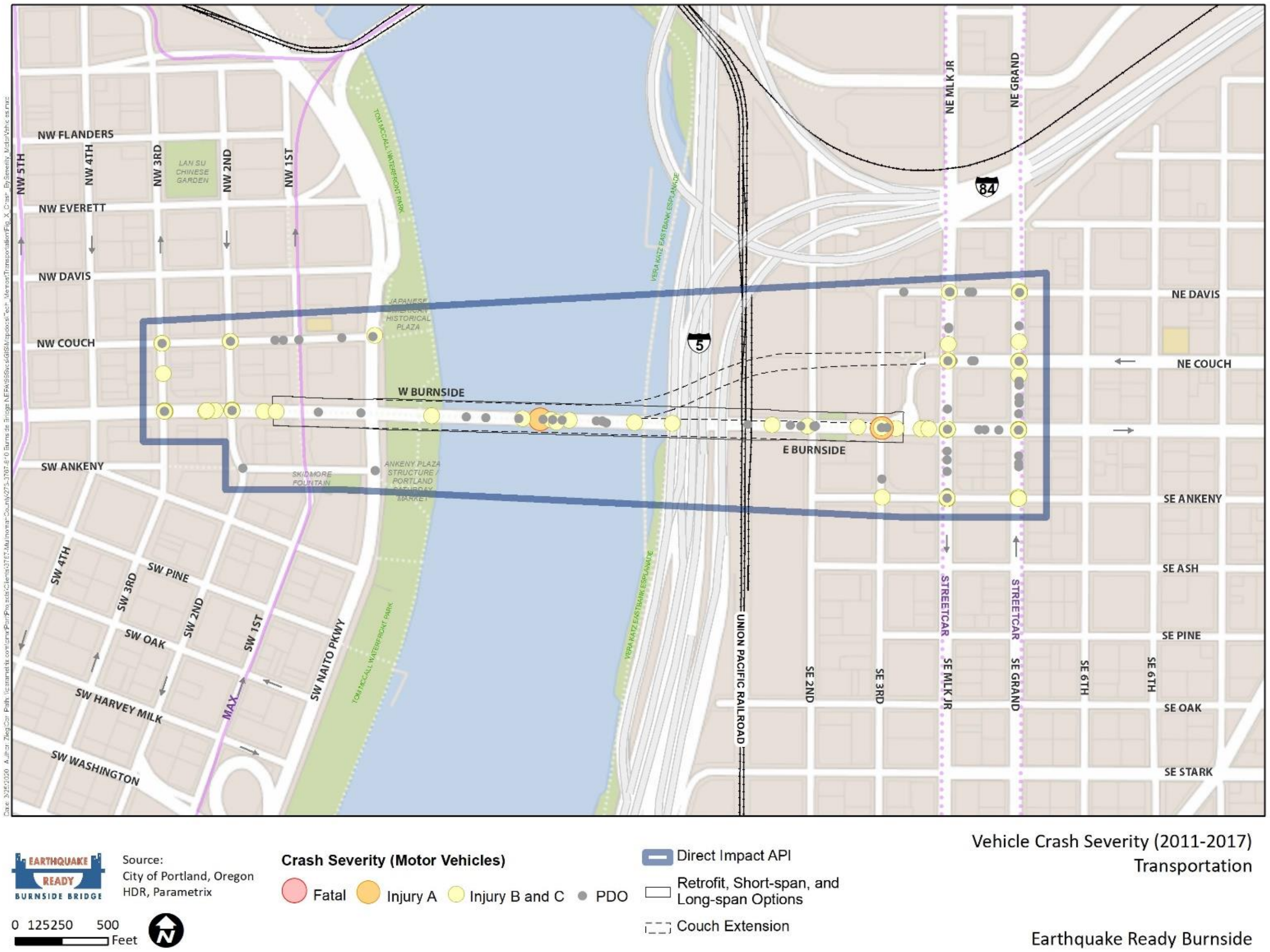
Table 11. Crash by Mode and Severity

Mode	Fatality	Injury A	Injury B	Injury C	PDO	Total
Automobile	0	2	34	130	242	408
Bicycle	0	3	17	9	1	30
Bus	0	0	0	1	1	2
Commercial Vehicle	0	0	0	0	5	5
Motorcycle	0	0	2	1	0	3
Other/Unknown	0	0	1	7	22	30
Pedestrian	4	3	11	13	0	31
Train	0	0	0	0	8	8
Total	4	8	65	161	279	

Source: 2011-2017 data from ODOT Crash Data System

As the most vulnerable users of Portland's transportation facilities, pedestrians and bicyclists comprise the largest proportion of both Fatal and Injury A crashes. Pedestrians make up all of the fatalities and 38 percent of the Injury A crashes. Meanwhile, bicyclists make up 38 percent of Injury A crashes and a high number of the Injury B crashes. Crashes involving both pedestrians and bicyclists are broken out and examined in the next section.

Figure 24. Automobile Crashes by Severity



Source: 2011-2017 data from ODOT Crash Data System

Figure 25. Bicycle and Pedestrian Crashes by Severity

Source: 2011-2017 data from ODOT Crash Data System

Figure 24, above, shows the location of automobile crashes mapped by severity. There were no automobile only fatalities and two Injury A crashes. Two Injury A crashes occurred on the Burnside Bridge. The first in the middle of the span when a car improperly changing lanes struck another vehicle going the same direction, the second occurred near the intersection with NE Couch and occurred when a vehicle being driven recklessly lost control and overturned, careening into other vehicles and causing a small pile-up as other vehicles rear-ended vehicles that had come to a stop. Considering the high concentration of crashes at the intersection on the east side of the API, there were no automobile-only, serious injury crashes at the intersections of Couch and Burnside with MLK Blvd and Grand Avenue. Of the 78 percent of total crashes that occurred at intersections, only 4 were Injury A; 3 of those involved bicyclists.

Figure 25 shows the location of pedestrian and bicycle crashes. The analysis shows that, as the severity of the injuries increases, bicyclists and pedestrians become a larger proportion of total crashes. People walking and biking are much more vulnerable and exposed to severe injuries. There were a total of eight Injury A designated crashes in the API. Of those, bicyclists and pedestrians each represent 38 percent of Injury A crashes. Only two automobile crashes resulted in Injury A severity crashes, representing less than 0.5 percent of all automobile crashes. This compares to Injury A crashes for bicyclists and pedestrians, which represent 10 percent for both of these active modes.

Four crashes involved fatalities, all of which resulted in the death of a pedestrian being hit by a motor vehicle. These incidents are examined in more detail below.

Bicycle Crashes

There were 30 bicycle-involved crashes, making up 6 percent of total crashes within the API in the 7-year period examined. The majority of these were concentrated in the Injury B and C categories, making up 87 percent of total bicycle-involved crashes. There were three Injury A crashes, representing 7 percent of all bicycle-involved crashes.

Bicycle crashes were heavily concentrated at intersections, with 25 crashes occurring at intersections, representing 83 percent of all bicycle-involved crashes. Eighty percent of crashes involved turning movements or angled crashes as vehicles traveled through intersections. Approximately half of these occurred because the motor vehicle failed to yield the right-of-way. The highest concentration of these occurred at the intersection of Couch Street/Grand Avenue, where 11 crashes took place, 10 of which involved an automobile performing a turning movement. The Couch Street/Grand Avenue intersection has a high rate of turning conflict between modes, as the bike lane is to the right of right-turning vehicles and the majority of bicyclists go straight on Couch Street to approach the Burnside Bridge heading west, while a high proportion of vehicles turn right onto Grand Avenue to head north and merge onto I-84.

No bicyclists died as a result of a traffic crash within the API. There were three Injury A crashes involving bicyclists; one right-hook incident at the intersection of NE Couch/Grand Avenue where a driver failed to yield the right-of-way, one at the intersection of NE Couch/MLK Blvd involving a driver disregarding a traffic signal, and one right-hook incident at the intersection of E Burnside/Grand Avenue where a driver failed to yield the right-of-way.

Pedestrian Crashes and Fatalities

There were 31 pedestrian-involved crashes, making up 6 percent of total crashes within the API in the 7-year period examined, but as the most vulnerable, pedestrians experienced 38 percent of all Injury A crashes and 100 percent of fatal crashes. Of the 31 pedestrian-involved crashes, 24 were Injury B or C crashes, representing 77 percent of total pedestrian crashes. A total of three Injury A crashes and four fatalities made up the remaining incidents.

Contributing factors to the pedestrian-involved crashes include drivers that failed to yield and pedestrians that were illegally in the roadway, each with 15 crashes categorized as such. The remaining crash occurred when a driver suffered a health emergency and lost control of the vehicle. The majority of these crashes also occurred outside of daylight hours, with 75 percent occurring at dawn, dusk, or at night. This is the opposite of the bicycle crashes, which predominately occurred during daylight hours. Nearly 60 percent of pedestrian-involved crashes took place at intersections, with two thirds of these happening on the downtown side of the API. Of these crashes at intersections, 60 percent involved a right or left turning vehicle. No single intersection stood out as a large proportion of pedestrian crashes; rather, most intersections had one or two crashes involving pedestrians. Of the crashes that took place at intersections, 60 percent involved vehicles not yielding the right-of-way or disregarding traffic signals. There were eight pedestrian incidents that took place on the Burnside Bridge span. Of these, seven involved pedestrians illegally in the roadway.

There were three Injury A crashes involving pedestrians, with all of these occurring in the downtown portion of the API, with two occurring at the intersection of Burnside/2nd Avenue and one at the intersection of Burnside/3rd Avenue. Two of the Injury A crashes involved a vehicle not yielding the right-of-way and one involved a pedestrian illegally in the roadway.

Fatalities

Four pedestrians were killed by automobiles within the API, highlighted on Figure 25. Below is a summary of each of the pedestrian fatalities, including two that occurred on the Burnside Bridge span:

- One fatality occurred in March of 2015 on Naito at the Intersection of Naito Parkway/NW Couch Street at 10:00 AM in rainy conditions. The crash involved a 61-year-old male crossing Naito Parkway in the crosswalk and a right-turning truck that failed to yield the right-of-way. The driver claimed not to see the pedestrian crossing the street in the crosswalk.
- One fatality on the Burnside Bridge span took place in September 2012 at 2:00 AM when a 44-year-old female was illegally in the roadway and was struck by a passenger vehicle heading westbound. It was determined that the pedestrian had been drinking and had stumbled into the roadway.
- One fatality on the Burnside Bridge span occurred in June of 2015 at 2:00 PM when the driver of a motor vehicle, a 59-year-old male, suffered a medical emergency, causing him to lose control of the vehicle and jump the curb. The vehicle struck two people, resulting in an A type injury to a 35-year-old female and killing a 36-year-old male.

- One fatality occurred in September of 2017 at 6:00 AM at the intersection of MLK Blvd and NE Davis. An 89-year-old man walking south on MLK Blvd was struck by a motor vehicle. The crash involved two motor vehicles, one of which failed to obey the traffic light at Davis, striking into a vehicle legally entering the intersection and causing the vehicles to subsequently hit the pedestrian.

Bridge Lifts Analysis

A primary design element of the existing Burnside Bridge is the structure's movable center span, consisting approximately of a 235-foot section with two bascule arms that lift the bridge deck in a vertical direction. Bridge lifts take place on average once per day and depending on the time of day of the bridge lift, can have considerable consequences for traffic in the immediate vicinity.

A log of bridge lift occurrences kept by Multnomah County were examined in relation to the crash data from ODOT to find if there were any crashes that took place during bridge lifts. In the 7 years of crash data examined, a total of 39 incidents occurred on the bridge span itself. Multnomah County had logs of bridge lifts that covered 29 of those 39 incidents. Two crashes (less than 7 percent of analyzed crashes) were associated with times when the central span of the Burnside Bridge was lifted. Both crashes occurred in the westbound direction and involved rear-end collisions with two or more vehicles. While the two crashes occurred at the same time as a bridge lift, the correlation and causation between the bridge lift and the crashes shouldn't be seen as absolute, rather the bridge lift should be seen as a contributing factor amongst a number of other factors such as rain, daylight available, speeding, and spacing between vehicles.

6 Impact Assessment Methodology and Data Sources

6.1 Data Collection

6.1.1 Auto and Freight

New count data were collected on Wednesday, May 15, 2019, a time when school was in session and when no major events were occurring. Turning movement counts were collected for the 25 study intersections, shown on Figure 3 during the AM (7:00 to 9:00 AM) and PM (4:00 to 600 PM) peak periods for all modes.

Daily 24-hour classification counts were also collected by video for all modes of transportation on the following roadways and multiuse paths:

- Willamette River Bridges: Broadway Bridge, Steel Bridge, Burnside Bridge, Morrison Bridge, Hawthorne Bridge, Ross Island Bridge, and Tilikum Crossing
- Naito Parkway north of Burnside Bridge
- Tom McCall Waterfront Park Trail north of Burnside Bridge
- Vera Katz Eastbank Esplanade south of Burnside Bridge

The 24-hour roadway classification counts included vehicles, motorcycles, buses, trains, medium and heavy trucks, pedestrians, bicycles, and e-scooters where applicable. Transit data was collected separately by TriMet and provided to the consultant team.

In addition, 24-hour traffic volume and classification counts on the I-405 Fremont and the I-5 Marquam Bridges was obtained from ODOT to supplement the local Willamette River Bridge crossing counts.

Historical intersection and roadway counts were also reviewed and compared with the May 2019 counts due to construction on the Burnside Bridge in support of the Burnside Maintenance Project impacting traffic patterns and volumes. Historical counts from PBOT for the years 2012 to 2018 were collected for the Willamette River Bridges.

Twenty-four hour traffic volumes were collected across the Willamette River, Fremont, and Marquam Bridges to measure the short-term and long-term impacts of the EQRB Project. Given the mix of local roads and freeways and the varied channelization, the roads connecting to the bridges were not studied.

6.1.2 Crash Data

The crash data was collected, stored, and reported according to ODOT's Motor Vehicle Traffic Crash Analysis and Code Manual. Data from ODOT was used in this report covering the years 2011 through 2017. Legally reportable motor vehicle crashes are those involving death, bodily injury, damage to personal property in excess of $1,500; or damage to any vehicle over $1,500, and any vehicle towed from the scene as a result of damage. Drivers are required to file an Accident and Insurance Report Form with the DMV within 72 hours of a traffic crash.

Crash types refer to the intended path of travel of the striking vehicle, in relation to the first vehicle (or person, bicycle, or fixed object) that was struck such as entering at an angle, entering from the opposite direction, or fixed object. Collision type refers to the angle or direction of impact between vehicles based on their intended path of travel such as angle, head-on, rear-end, or sideswipe. Crash type summaries are important to determine possible causes of crashes and if solutions can be implemented to solve or limit these types of crashes. Additional data was collected from the Portland Streetcar to verify crash statistics that involved the Portland Streetcar.

6.1.3 Transit Data

Existing transit service levels, routing, ridership, plan designations, bus stop locations, and rider activity in the corridor are summarized in Section 5.3. The Existing Condition section provides context to understand potential impacts of the Build and No-Build Alternatives. The project team obtained weekday ridership data in the form of on/offs at each bus stop from TriMet, as of March 2019. This analysis uses data and plans provided by Multnomah County, TriMet, Metro, the City of Portland, and ODOT to assess existing and future-year transit conditions in the study area qualitatively. Streetcar travel times along the eastside A and B loops were also collected to help understand potential travel time delay from the construction scenarios.

6.1.4 Active Transportation

Volumes for bicycles, pedestrians, and e-scooters were collected alongside other traffic counts.

6.2 Long-term Impact Assessment Methods

Long-term impacts are considered to be permanent, reasonably foreseeable impacts related to the No-Build and Build Alternatives.

6.2.1 Modeling Scenarios

The traffic impact assessment makes use of modeling scenarios based on mid-span, cross sections, and capacity for automobiles. The modeling scenarios are further explained and compared in Appendix F. Each of the scenarios below take into consideration reasonably foreseeable projects in the region that would be constructed by the model year. Appendix H provides a project list that are reflected in the modeling efforts taken from Metro and City of Portland transportation plans. The scenarios referenced throughout this report are:

- **Scenario A:** Existing Conditions (2019). This scenario examines the transportation network as it existed in 2019 with the ETC cross sections of the Burnside Bridge as explained at the beginning of Section 5.3.2.
- **Scenario B:** Future No-Build (2045). This scenario examines the transportation impacts in 2045 where the existing Burnside Bridge has not been replaced or

retrofitted. However, reasonably foreseeable projects in the region and vicinity of the bridge have been accounted for within this scenario.

- **Scenario C:** Future Build for all future Build Alternatives (2045). This scenario examines the transportations impacts in 2045 resulting from the replacement or retrofitting of the current Burnside Bridge. Because of the similarities between the anticipated No-Build and Build cross sections in 2045, many of the modeling outputs are similar between this scenario and Scenario B. Reasonably foreseeable projects in the region and vicinity of the bridge have also been accounted for within this scenario.

Temporary Conditions Scenarios

- **Scenario D:** Temporary Bridge, All Modes (2019). This scenario models transportation impacts resulting from a Temporary Bridge being constructed throughout the construction phase of the EQRB Project. The temporary bridge modeled in Scenario D allows all modes of transportation access to the bridge. However, due to width constraints of such a temporary structure the bridge will allow only a single general purpose travel lane in each direction across the bridge span, reducing overall capacity of the temporary bridge and mixing vehicle and transit traffic together in both directions.
- **Scenario E:** Temporary Bridge, All Modes and I-5 Rose Quarter Closures (2019). Scenario E is similar to Scenario D; however, it adds a possible directional closure along I-5 due to the I-5 Rose Quarter Project led by ODOT. The purpose of this scenario is to explore worst case impacts stemming from additional traffic being routed onto surface streets within the vicinity of the Burnside Bridge that would result from a directional closure of I-5.
- **Scenario F:** Temporary Bridge, Transit, Bicycle, and Pedestrian-only (2019). Scenario F models transportation impacts resulting from a temporary bridge being constructed throughout the construction phase that precludes general vehicle traffic. The temporary bridge would still allow transit and active modes to access the bridge. Thus, vehicle traffic desiring to cross the Willamette River would need to reroute to one of the other bridges.
- **Scenario G:** Temporary Bridge, Bike/Ped Only (2019). Scenario G models transportation impacts resulting from a temporary bridge being constructed throughout the construction phase that only service bicycle and pedestrian users. Thus, vehicle traffic and transit vehicles would need to reroute to one of the other bridges.
- **Scenario H:** Full Closure (2019). Scenario H explores impacts during the construction phase in which no temporary bridge is constructed. This would result in all modes of traffic wanting to cross the Willamette River that formerly used the Burnside Bridge to divert to other bridges or forego trips.
- **Scenario I:** Full Closure and I-5 Rose Quarter Closures (2019). Scenario I is similar to Scenario H; however, it adds a possible directional closure along I-5 due to the I-5 Rose Quarter Project led by ODOT. The purpose of this scenario is to explore worst case impacts stemming from additional traffic being routed onto surface streets

within the vicinity of the Burnside Bridge that would result from a directional closure of I-5.

For the purposes of modeling auto traffic, Scenario B Future No-Build and Scenario C Future Build are functionally equivalent, because they have the same capacities. Auto traffic capacity is the same for all future build alternatives; therefore, one modeling scenario exists for all future build alternatives. Temporary conditions scenarios are described in more detail under Section 6.3.

6.2.2 Traffic Operations Software

Intersection traffic operations and 95th percentile queuing were evaluated based on SimTraffic models developed to understand the true impact of traffic congestion and closely spaced intersection interactions. Synchro/SimTraffic models were developed for existing year (2019) and future year (2045) No-Build and Build conditions. AM and PM peak hours were analyzed for all analysis scenarios. Existing signal timing plans were obtained from the City of Portland and were used in the existing Synchro/SimTraffic models. For the future year (2045) analysis, the signal timing plans were optimized for both the No-Build and Build scenarios. The existing intersection lane configurations assumed the current lane configurations except for those across the Burnside Bridge, which were assumed to be the configuration planned to follow the Burnside Bridge Maintenance Project.

6.2.3 Future Traffic Demand

A combination of the Metro and PBOT travel demand models were used to forecast future demand (horizon year 2045) to evaluate No-Build and Build Alternatives. Metro's travel demand model was used for the initial three steps (trip generation, trip distribution, and mode choice) of the 4-step process; then, PBOT's model was used for the fourth step of volume development (trip assignment). This process used the strengths of each model for this specific study area as PBOT's travel demand model is calibrated at a finer detail in the Portland CBD versus Metro's model, which is calibrated on larger screen-line areas. The City of Portland verified land use and employment forecasts to be utilized in Metro's travel demand models based on the adopted plans supporting the City of Portland 2035 Comprehensive Plan.

Metro and PBOT maintain travel demand models for existing (year 2015) and future conditions (year 2040). The volume growth from the 2015 base year and 2040 future regional travel demand models was used to identify an annual growth rate using a straight-line growth method. This growth rate was then applied to the 5-year increment between 2040 and 2045 to define the demand model for the project's horizon year. The modeled demand growth between the 2015 base year and 2045 future year was added to the existing traffic counts to establish the 2045 demand used for the operations analysis. This procedure is consistent with the National Cooperative Highway Research Program Report 765 methodology.

The combined travel demand model approach also accounts for peak spreading, which is when traffic demand exceeds capacity, and the resulting traffic demand is served over a longer peak duration (temporal spreading). Peak spreading is likely to occur by the forecast year of 2045, and Metro's travel demand model includes temporal adjustments that account for peak spreading and are then reflected in the forecast demand sets.

6.2.4 Traffic Operations

The operational criteria, standards, and software used for the analysis of intersection operations are presented below. For the purposes of this report, the future year traffic operations under both the No-Build and Build Alternatives are functionally equivalent based on facilities and their capacity; thus, the data are presented for the No-Build Alternative and cross referenced under the Build Alternative.

Operational Criteria

Transportation engineers have established various targets for measuring traffic capacity and quality of service of roadways at intersections. Two typical measures, LOS and 95th percentile queuing, are used in this analysis.

Level of Service

LOS is a measure for evaluating traffic capacity and quality of service of roadways and intersections (Section 5.3.5).

The LOS at the signalized intersections is defined in terms of average intersection delay. Delay is dependent on two factors: 1) the capacity of the intersection as defined by the number of lanes, lane widths, pedestrian volumes, and other features; and 2) signal timing. Capacity, delay, and LOS are calculated for each traffic movement or group of traffic movements at an intersection. The weighted average delay across all traffic movements determines the overall LOS for a signalized intersection.

The LOS at unsignalized intersections that are stop-controlled on one or two approaches are also defined in terms of delay, but only for the worst stop-controlled approach, which is typically the minor street. For unsignalized intersections that are stop-controlled on each approach, the average intersection delay is reported.

It should be noted that at signalized intersections, some movements, particularly side street approaches or left-turns onto side streets, may experience longer delays because they receive only a small portion of the effective green time during a signal cycle.

95th Percentile Queuing

Queuing estimates help provide a more complete assessment of how an intersection is operating in congested conditions. The 95th percentile queue is provided for this analysis and is defined to be the queue length (in vehicles) that has only a 5 percent probability of being exceeded during the analysis time period.

Operational Standards

The operational standards that were applied to the study area intersections were based on the City of Portland LOS standards of LOS D for signalized intersections and LOS E for unsignalized intersections.

6.2.5 Freight Operations

Freight operations are analyzed alongside auto operations as described above. Freight demand for the No-Build and Build Alternatives are compared.

6.2.6 Transit Operations

Existing Conditions Assessment

Using existing available data, the project team prepared a high-level, qualitative narrative and tabular summary of the study area's existing fixed-route transit environment. This assessment included the following:

- Existing bus, streetcar, and light-rail routing, service levels (e.g., days of service, span of service, frequencies), and route-level ridership provided by TriMet and Portland Streetcar, Inc.
- Existing average daily on/offs at study area transit stops provided by TriMet and Portland Streetcar, Inc.
- Existing average daily ridership figures for each route passing through the study area.
- Major transit user generators and destinations based on existing land use data and outreach to social service providers in the direct impact area.

Future Conditions Assessment

Assessment of transit ridership during future conditions relies on Metro's 2040 Travel Demand Model, grown to the 2045 model year as previously described, and are reported for the year 2045. The 2045 model year considers all projects included on Metro's 2040 funded list of projects found in the RTP. Transit ridership is reported by daily average ridership for each of the effected transit lines within the project area and additionally reported for each line as a whole, rather than transit ridership within the direct impact area.

There are several key projects and inputs built into the Metro's future model year that affects overall transit ridership projections. Inputs built into the model are as follows:

- Increased central city density will lower car ownership and raise transit ridership in the Portland Core.
- Parking costs within the Portland Core will rise faster than the overall rate of inflation. The increased cost of parking is assumed to transition mode share away from single occupancy vehicles and toward transit.
- The roadway mix within the Portland Core, based on the RTP project list, will reallocate roadway space away from general purpose lanes and toward a more balanced multimodal mix, encouraging more walking, biking, and transit trips in the Portland Core.

Specific transit projects taken from the RTP project list are reflected in the Metro Future year and assumed impacts on transit ridership are as follows:

- The MAX Red Line will be extended from its current western terminus to a new end point at the Hillsboro Fairground Complex, approximately 8 miles to the west of the line's current terminus.
- The MAX Yellow/Orange Line will be extended north, across the Columbia River to a new terminus in Washington at Clark College, approximately 3 miles to the north of the line's current terminus.
- The MAX SW Corridor line will be completed and interlined with the Green Line. As of this report, the SW Corridor MAX extension plans to add approximately 11 miles of new service to the MAX network.
- The Portland Streetcar will add an extension between Montgomery Park in the west and the Hollywood Transit Center in the east, representing approximately 5 miles of a new streetcar line.

The 2045 model year includes a high-level implementation of the City of Portland's Enhanced Transit Network Plan, which is functionally similar to the updated plan for implementation represented by the Rose Lane Plan adopted in February of 2020. The City of Portland's Rose Lane Project that will aim to install BAT lanes across a network of streets throughout central Portland. At the time of this report, the exact extent, design, and implementation dates are not determined. It is likely that the majority of the proposed Rose Lane network will be implemented by the future year date. Thus, given uncertainty of final design, the report relies on a qualitative analysis of the impacts from implementing the Rose Lane Project.

Temporary Construction Assessment

The transit base year is presented as 2019, based on Metro's Travel Demand Model. The regional government, Metro, in charge of producing macro level model outputs for traffic forecasts, keeps a limited number of model years in 5 year increments; 2015 base year inputs are calibrated to be relevant through 2020. The base inputs that go into the model prior to running trip generation, i.e. households, employment, population distributions, income levels, etc. are all based on the 2015 model calibrated to cover a five year time span. From an operations perspective, the transit and transportation network reflect 2020 operations and reflect all roadway projects and configurations within the region up to 2020, including the Eastbound BAT lane across the Burnside Bridge.

2019 was used as the base year for several reasons:

1. Construction on the bridge occurred throughout 2019, reducing the capacity of the Burnside Bridge and changing operational aspects of transit over the bridge that would have affected reporting of transit ridership and travel times. Thus, 2020 operational configurations for the roadways were used in conjunction with the 2015 base model inputs to represent the 2019 base model year.
2. 2015 base inputs covering the 2019 base model year are consistent across all model scenarios for travel demand models used by both Metro and PBOT. In discussions with local agencies, including Multnomah County, Metro, and the City of Portland using these numbers was deemed acceptable as the main

concern is the relative difference compared to the base inputs and relative impacts to transit across the various scenarios.

Transit ridership is reported by daily average ridership for each of the affected transit lines in the vicinity of the Burnside Bridge and are reported for each line as a whole, rather than transit ridership at each stop location within the direct impact area. Travel times are reported for transit lines 12, 19, and 20 covering the extent of travel from W 5th Street to E Grand Avenue. Metro's travel model outputs for traffic operations are additionally used and post processed to report expected roadway segment level delays, which are the result of construction-related delay. This post processed data is used to qualitatively identify areas where increased traffic congestion due to the Burnside Bridge construction could have an impact on transit operations for both the Portland Streetcar and TriMet bus routes. In addition to the above analysis, City of Portland's Rose Lane Project is qualitatively evaluated in relation to the construction year assessment.

For the purposes of reporting transit impacts during construction, the full closure scenario and the bike/ped only scenario are functionally equivalent as in both cases, transit routes across the Burnside Bridge would need to be rerouted.

6.2.7 Future Active Transportation Volumes

Metro's Regional Travel Demand Model was used to compare the relative difference in volumes between scenarios. Those factors were applied to existing volumes to develop future-year active transportation volume forecasts.

Metro's model determines transportation demand, by mode, which would travel between different zones. For vehicular traffic, this is assigned to the street network coded into the model. For bicycling trips, Metro uses its Enhanced Bicycle Routing Tool to account for different travel route choices and assigns these trips to the bicycle network, which includes both on-street facilities and off-street trails. The Enhanced Bicycle Routing Tool operates at the macro, travel demand level, and although it considers the presence of a bicycle facility, it does not consider the width or protection of that facility.

The model was run for the existing base condition as well as for the No-Build, Build, and Construction scenarios. The resultant link volumes were compared to link volumes in the base model to develop factors that were applied to the 2019 Daily Bicycle and E-Scooter Volumes (Figure 12) to develop Future No-Build, Future Build, and During Construction bicycle and e-scooter volumes.

The Regional Travel Demand Model does not assign walking trips to a network. Therefore, the project team took the walking trip origin-destination matrices from the various model runs and identified which zone-to-zone pairs would cross the Willamette River. A method was created in GIS to assign these trips to the Broadway, Steel, Burnside, Morrison, and Hawthorne Bridges based on the shortest walking path between zones. This produced pedestrian model link volumes on the bridges for the No-Build, Build, and Construction scenarios that were compared to link volumes on the bridges in the base model run to develop factors that were applied to the 2019 Daily Pedestrian Volumes (Figure 26) to develop Future No-Build, Future Build, and During Construction pedestrian volumes. For the construction scenario where the Burnside Bridge is closed, Figure 26 shows how pedestrian trips that would have used the Burnside Bridge were rerouted to the Steel and Morrison Bridges. This was based on the new shortest path between those trips' origin and destination zones.

6.2.8 Active Transportation Assessment

The active transportation assessment included an inventory of pedestrian and bicycling facilities in the direct API to assess the current level of access and identify any deficiencies in the existing and future networks. For pedestrians, this included assessing the sidewalk network, the location of curb ramps, the condition of crossings, and stairway and ramp accesses to facilities underneath the bridge. For bicyclists, a BLTS analysis was conducted to rate the existing network and identify any gaps in the network.

The project team used data and plans provided by Multnomah County, TriMet, Metro, ODOT, and the City of Portland to identify reasonably foreseeable future-year projects that defined the Future No Build active transportation conditions in the study area.

The following inputs were applied for this assessment:

- **Design User:** People traveling on foot and bicycle fall under many typologies based on age, ability, confidence level, and other factors, and thus have varying needs and preferences regarding active transportation infrastructure. For this analysis, the project team used the perspective of the following "design users":
    - **Pedestrian:** The City's goals for transportation support the vision of a city in which people of all ages and abilities can safely walk within any neighborhood and to key destinations (such as employment and schools) – the design user is any pedestrian. Designs must suit the needs of people walking and rolling, regardless of age or ability.
    - **Bicycle:** City Policy 9.21 establishes the City's intended users of the bikeway network as people of all ages and abilities. Therefore, the design user is a bicyclist who would feel comfortable only on BLTS 1 category facilities.

Pedestrian Network Assessment

The project team conducted an inventory of the existing pedestrian network in the bike and pedestrian direct API using readily available GIS data, aerial photos, and field observations. The inventory and network assessment included:

- **Sidewalks:** Noting the presence and width of sidewalks and identifying any gaps in the network or where sidewalks are not built to the standards outlined in PedPDX – the City's Pedestrian Design Guide.
- **Curb Ramps:** Noting existing and future ramp locations and identifying any missing or nonstandard curb ramps. The City of Portland is also undertaking a project to inspect and verify ADA compliance of all existing curb ramps in the City and as such additional locations that are not currently compliant may be identified during the design phase.
- **Stairways, Ramps, and Elevators:** Noting existing connections from the bridge to facilities underneath the bridge, including the Skidmore Fountain MAX station and 1st Avenue, the Vera Katz Eastbank Esplanade, and E 3rd Avenue and how these will

be changed and updated in the future. These facilities were assessed to identify any circulation issues and their ability to provide ADA-compliant access.

- **Crossings:** Noting the location of signalized and unsignalized crossings and comparing them to the City's recommended crossing spacing standards outlined in PedPDX to identify any missing or recommended crossings. Signalized crossings were inventoried to identify where they currently operate at the same time as permitted turning phases (i.e., where there are conflicts between turning vehicles and pedestrians). Unsignalized crossings were evaluated using the NCHRP 562 methodology and PBOT's unsignalized crossing guidelines that consider vehicle volumes, vehicle speeds, the number of lanes, and the presence of a median to determine the appropriate crossing type.

Bicycle Level of Traffic Stress Analysis

The project team conducted an inventory of the existing bicycling network in the bike and pedestrian direct API using readily available GIS data, aerial photos, and field observations. The assessment identified any gaps and deficiencies in the network.

A BLTS analysis was conducted for all major bicycle facilities in the study area. The analysis measured the expected comfort or stress of a given street for the average rider and was based on several street and traffic characteristics, including:[2]

- Traffic speed (posted or prevailing)
- Travel lanes per direction
- ADT
- On-street parking presence and width
- Bike facility presence, type, and width
- Centerline presence

The BLTS analysis scores streets on a scale from 1 to 4, with BLTS 1 and 2 generally considered low stress, BLTS 3 as medium stress, and BLTS 4 considered high stress. The level of stress was compared between the No-Build and Build Alternatives.

[2] The methodology is adapted from criteria published by Dr. Peter Furth, Ph.D. and the Mineta Transportation Institute.

Figure 26. Pedestrian Re-routing during Burnside Bridge Closure

Walking routes between the following TAZs currently use the Burnside Bridge. During bridge closure, they will use either the Morrison Bridge or Steel Bridge instead, as follows:

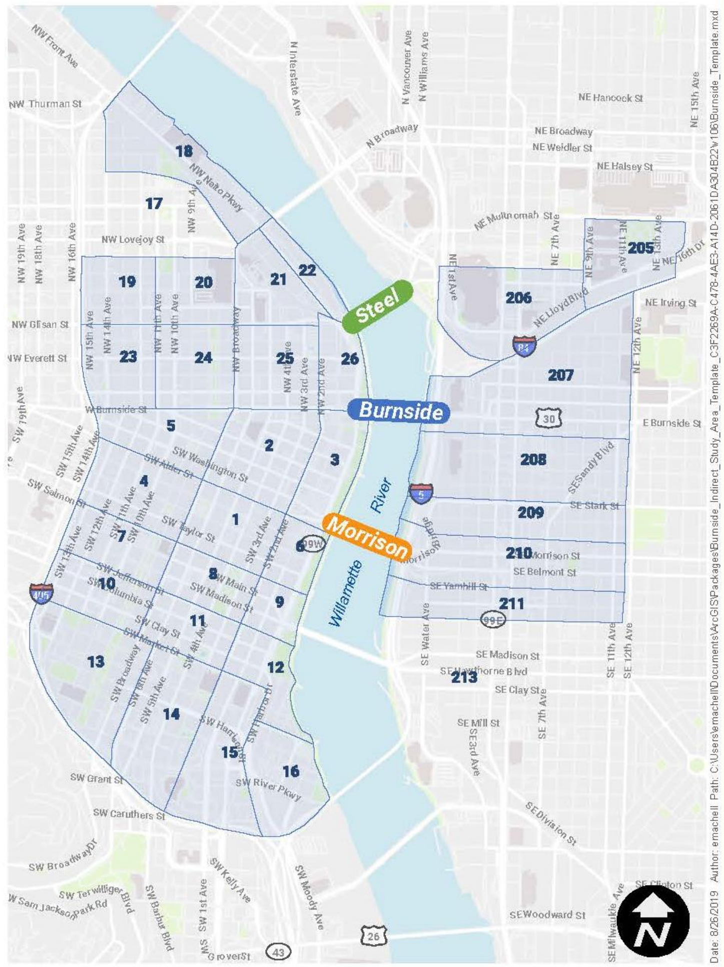
New bridge Routing by TAZ Origin/Destination

To/from Eastside TAZs (columns); To/from (Westside TAZs) (rows)

	205	206	207	208	209	210	211
1	-	S	M	-	-	-	-
2	-	S	S	M	-	-	-
3	-	S	S	M	-	-	-
4	-	S	M	-	-	-	-
5	-	S	S	M	-	-	-
6	S	M	M	-	-	-	-
7	-	S	M	-	-	-	-
8	-	S	M	-	-	-	-
9	-	S	M	-	-	-	-
10	-	S	M	-	-	-	-
11	-	S	M	-	-	-	-
12	S	M	M	-	-	-	-
13	-	S	M	-	-	-	-
14	-	S	M	-	-	-	-
15	S	M	M	-	-	-	-
16	S	M	M	-	-	-	-
18	-	-	-	S	S	-	-
19	-	-	-	S		-	-
20	-	-	-	S	M	-	-
21	-	-	-	S	S	-	-
22	-	-	-	S	S	M	M
23	-	-	S	M	-	-	-
24	-	-	S	M	-	-	-
25	-	-	S	S	M	-	-
26	-	-	S	S	M	M	-

S — Journey re-routed to the Steel Bridge
M — Journey re-routed to the Morrison Bridge

TAZ Key Map



Source: Metro, © Mapbox, © OpenStreetMap

6.2.9 Safety

The safety analysis presents findings of a comprehensive evaluation of current traffic safety issues throughout the study area by defining the extent of the problems and the underlying factors. The safety analysis focuses on crash data for vehicles, bicyclists, and pedestrians. Crash data are obtained from ODOT for the most recent 7-year period between 2011 and 2017. A typical safety analysis study period is the most recent 3 or 5 calendar years of data. In this case, 7 calendar years of data were used to account for recent changes in the network (i.e., the Couch Curve) and to include fatal crashes that occurred within the last 7 years. The DMV Oregon Driver and Motor Vehicle Services Division provides ODOT with crash data after the DMV collates driver and police reports and records of any driver violations or suspensions. Crash data are coded into the crash database, which includes general data regarding the vehicle involved, crash type, location, conditions, causes of crash, and other related information.

Existing Conditions Assessment

The existing conditions safety analysis evaluates safety conditions within the direct impact area (Figure 27), including the Burnside Bridge. The safety analysis documents all crashes by type, severity, mode, and time of day. The safety analysis for the Project is conducted using 2011 to 2017 crash data provided by ODOT.

Per ODOT's Motor Vehicle Traffic Crash Analysis and Code Manual, crash types refer to the intended path of travel of the striking vehicle, in relation to the first vehicle (or person, bicycle, or fixed object) that was struck, such as entering at an angle, entering from the opposite direction, or fixed-object. Collision type refers to the angle or direction of impact between vehicles based on their intended path of travel, such as angle, head-on, rear-end, or sideswipe. Crash type summaries are important to determine possible causes of crashes and if solutions can be implemented to solve or limit these types of crashes.

Injuries reported from each crash are classified by severity: Fatality, Injury A, Injury B, Injury C, and PDO. The safety analysis lists crashes of all severity levels and includes a detailed focus on the severity of pedestrian and bicycle crashes and on fatal and serious injury crashes. Low-severity crashes are summarized at a high-level and are not a focus of analysis.

Future Conditions Assessment

For future condition analysis, locations within the safety direct API are evaluated for potential change in crash frequency or severity if, from the No-Build to the Build condition, there is a change in roadway cross sectional features (e.g., lane width, type of bicycle lane separation, sidewalk width, etc.), or there is a change in pedestrian or bicycle volumes. Traffic capacity under the No-Build and Build conditions are the same; therefore, traffic volumes do not change and there is no impact on crash frequency or severity. The safety analysis provides an estimate of change relative to the No-Build condition.

Under alternatives where there is no change in cross sectional features or pedestrian or bicycle volume, no safety impact analysis is conducted for the locations within the safety direct API because no difference exists between the No-Build and Build Alternatives.

Under alternatives where the Build Alternative includes a change in cross sectional feature or a change in pedestrian or bicycle volume, the potential change in crash frequency or severity associated with the change is estimated using crash modification factors (CMF) if a CMF exists for the given circumstance, or using a qualitative assessment of safety conditions if CMFs are not available. The CMFs were acquired from the ODOT All Roads Transportation Safety resources or from the Federal Highway Administration (FHWA) CMF Clearinghouse. Where a specific CMF was not available, a qualitative assessment of risks and the proposed configuration was conducted.

When multiple treatments are being used in the same place, the safety effect is estimated by multiplying the CMF values. The HSM urges caution when multiplying more than three CMFs to estimate safety performance because it is possible to over-estimate safety benefits of treatments. Therefore, to avoid over-stating the potential safety benefits of the combination of proposed treatments on the bridge, the safety benefit is estimated by multiplying the three largest CMFs.

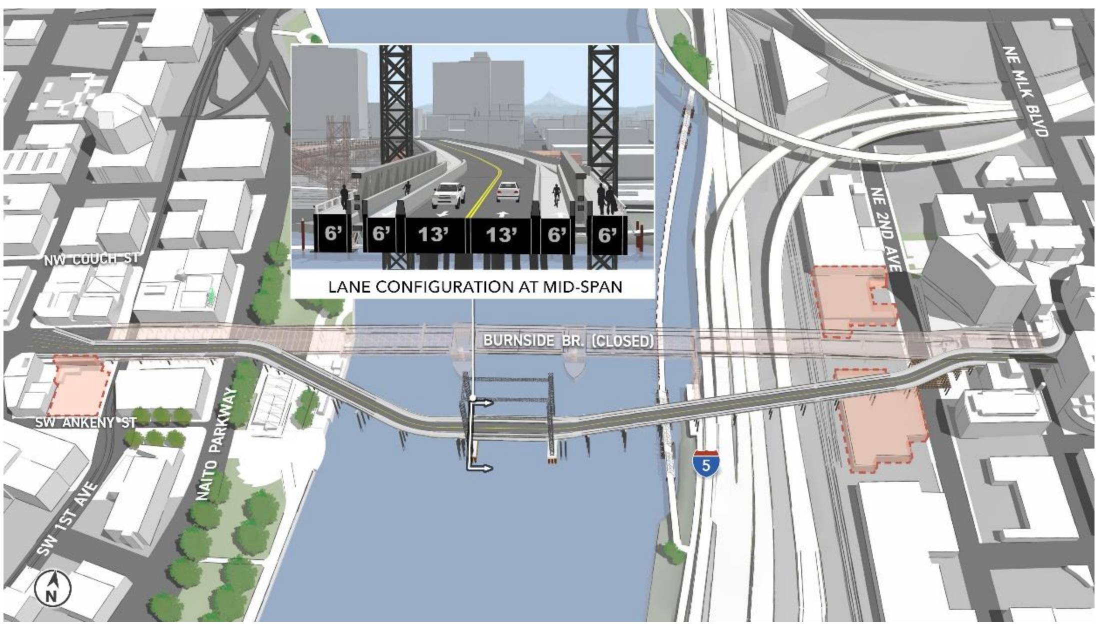
6.3 Short-term Impact Assessment Methods

Short-term direct impacts to transportation could arise from construction impacts on study area roadways or nearby facilities.

The proposed construction scenarios include either fully closing the Burnside Bridge or constructing a temporary Burnside Bridge to accommodate a portion of the Burnside Bridge traffic. This analysis was completed for the AM and PM peak periods only, which is when demand for facilities are at their greatest; therefore, impacts would also be the greatest. Some of the proposed construction scenarios include the possibility that construction of the Burnside Bridge could coincide with construction of the I-5 Rose Quarter Project resulting in closures to I-5 during the AM and PM peak periods. The proposed construction scenarios are as follows:

- **Scenario D: Temporary Bridge, All Modes** - one general purpose travel lane for automobiles and transit in each direction with a bike lane and sidewalk in each direction. This scenario assumes any closure of I-5 would be outside of peak periods.

Figure 27. Temporary Cross Section, Scenarios D, E, and F*



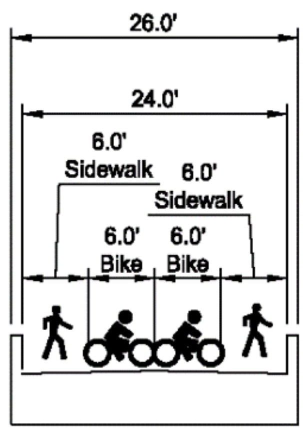
*The cross section for Scenarios D, E, and F are functionally equivalent

- **Scenario E: Temporary Bridge, All Modes and I-5 Rose Quarter Closures** - one general purpose travel lane for automobiles and transit in each direction with a bike lane and sidewalk in each direction. This scenario evaluates the possibility of complete closure of I-5 in the northbound direction during the peak period for the construction of the I-5 Rose Quarter Project, concurrent with the full closure of the

Burnside Bridge for the purposes of understanding the magnitude of potential impacts.

- **Scenario F: Temporary Bridge, Transit, Bicycles, and Pedestrians-only** - one travel lane in each direction for transit only with a bike lane and sidewalk in each direction.
- **Scenario G: Temporary Bridge, Bike/Ped Only** - a temporary bridge with pedestrian and bicycle facilities only.

Figure 28. Temporary Cross Section, Scenario G



- **Scenario H: Full Closure**—Full closure of the Burnside Bridge during the duration of construction. This scenario assumes any closure of I-5 would be outside of peak periods.
- **Scenario I: Full Closure and I-5 Rose Quarter Closures**—Concurrent full closure of the Burnside Bridge and the potential closure of I-5 in the northbound direction during the peak period for the construction of the I-5 Rose Quarter Project.

The year 2019 was used for the short-term impact assessment to allow for a more direct comparison to existing conditions. By excluding the impacts of future growth rates and future projects, the team is better able to isolate impacts related to temporary conditions.

6.3.1 Multimodal Assessment during Construction

A multimodal assessment was completed to understand potential diversion during construction and whether the project would recommend a temporary Burnside Bridge structure during construction. The assessment analyzed existing 2019 traffic volumes and travel time information for all modes of transportation between different origin and destination (O-D) pairs within the study area for the different construction scenarios. Metro and the City of Portland’s travel demand models were used to determine how auto, transit, bike, and pedestrian demands are forecast to shift for all scenarios. The existing count volumes were post-processed using travel demand volume forecasts, volume-to-capacity (V/C) ratios, and current travel times for all modes of transportation to develop multimodal volumes and estimated travel times for a selection of sample travel path between different O-D pairs.

V/C ratio is a measure for evaluating traffic capacity and represents the sufficiency of an intersection or roadway segment to accommodate vehicular demand. V/C is used for existing traffic operations while demand-to-capacity (D/C) is used for all future traffic operations forecasts. Both the V/C and D/C measure the level of congestion on a roadway compared to the roadway's design capacity; however, the D/C is derived from future demand volume forecasts compared to V/C's observed traffic volumes. If the V/C or D/C ratios for an intersection or roadway segment exceeds 1.0, the intersection or roadway segment is over capacity.

Auto

Travel times for auto traffic were estimated for each of the construction scenarios, except for the Temporary Bridge scenarios where only transit or non-motorized traffic are permitted on the Burnside Bridge (Scenarios F and G), as these scenarios are functionally equivalent to the Full Closure Scenarios H and I for vehicle traffic. Auto travel times were estimated between four O-D pairs on each side of the river. These four O-D pairs were chosen based on the travel patterns of people who typically use the Burnside Bridge to cross the river. The origins and destinations are purposefully close to the bridge to replicate typical travel decision points. Using Google Maps, two to four different routes were chosen for traveling between these four O-D pairs in both the eastbound and westbound directions. These routes include the following:

Eastbound Direction (see Figure 29 to see travel paths between O-D pairs)

O-D Pair A-B: W Burnside Street/Broadway to NE Multnomah Street/ NE 21st Avenue

- A-B1. Broadway Bridge Route
- A-B2. Steel Bridge Route
- A-B3. Burnside Bridge Route
- A-B4. Morrison Bridge Route

O-D Pair A-C: W Burnside Street/Broadway to NE Sandy Boulevard/NE 22nd Avenue

- A-C1. Steel Bridge Route
- A-C2. Burnside Bridge Route
- A-C3. Morrison Bridge Route

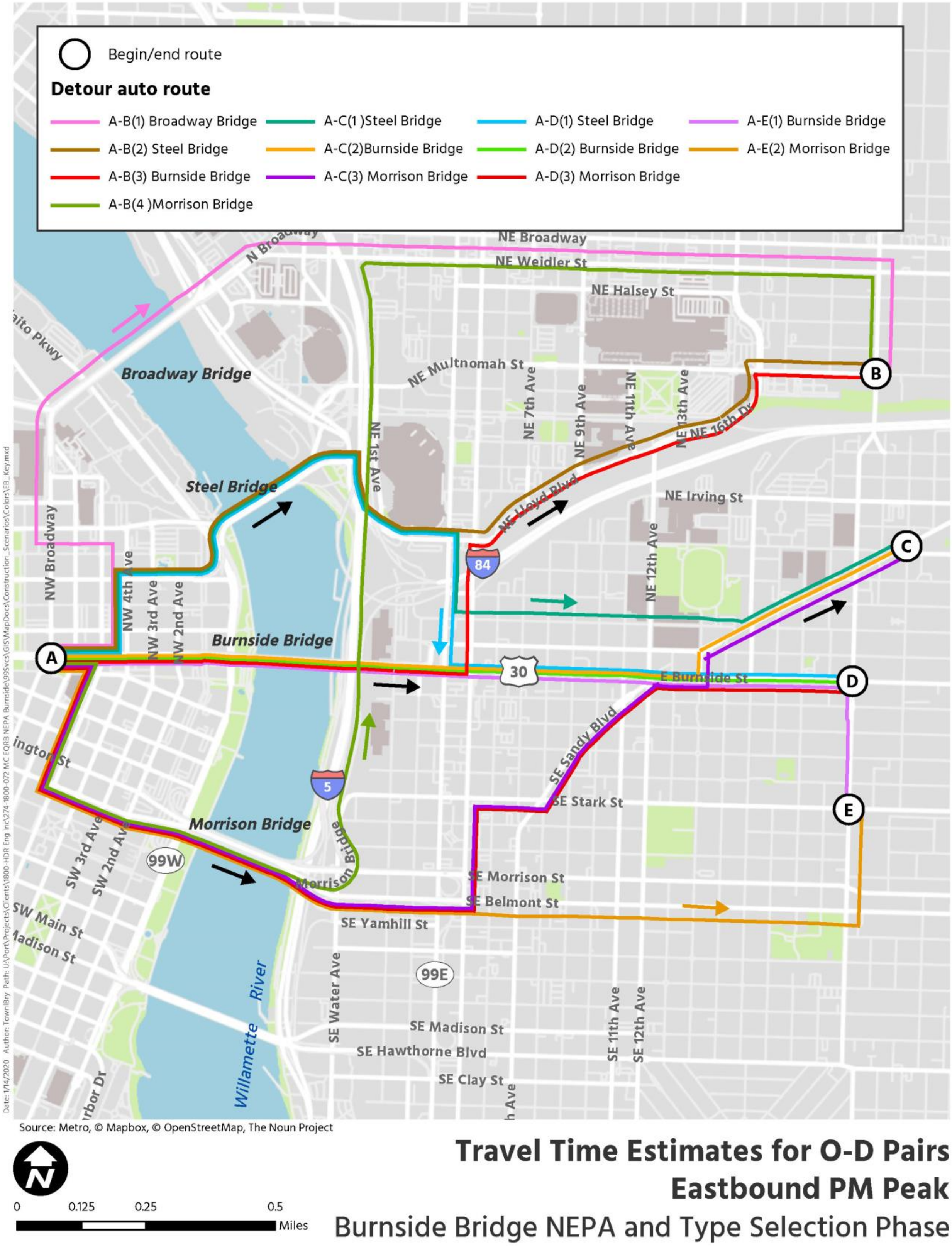
O-D Pair A-D: W Burnside Street/Broadway to E Burnside Street/NE 20th Avenue

- A-D1. Steel Bridge Route
- A-D2. Burnside Bridge Route
- A-D3. Morrison Bridge Route

O-D Pair A-E: W Burnside Street/Broadway to SE Stark Street/SE 20th Avenue

- A-E1. Burnside Bridge Route
- A-E2. Morrison Bridge Route

Figure 29. Eastbound PM Peak O-D Pairs



Westbound Direction (see Figure 30 to see travel paths between O-D pairs)

O-D Pair B-A: NE Multnomah Street/NE 21st Avenue to W Burnside Street/Broadway

B-A1. Broadway Bridge Route

B-A2. Steel Bridge Route

B-A3. Burnside Bridge Route

O-D Pair C-A: NE Sandy Boulevard/NE 22nd Avenue to W Burnside Street/Broadway

C-A1. Steel Bridge Route

C-A2. Burnside Bridge Route

C-A3. Morrison Bridge Route

O-D Pair D-A: E Burnside Street/NE 20th Avenue to W Burnside Street/Broadway

D-A1. Broadway Bridge Route

D-A2. Steel Bridge Route

D-A3. Burnside Bridge Route

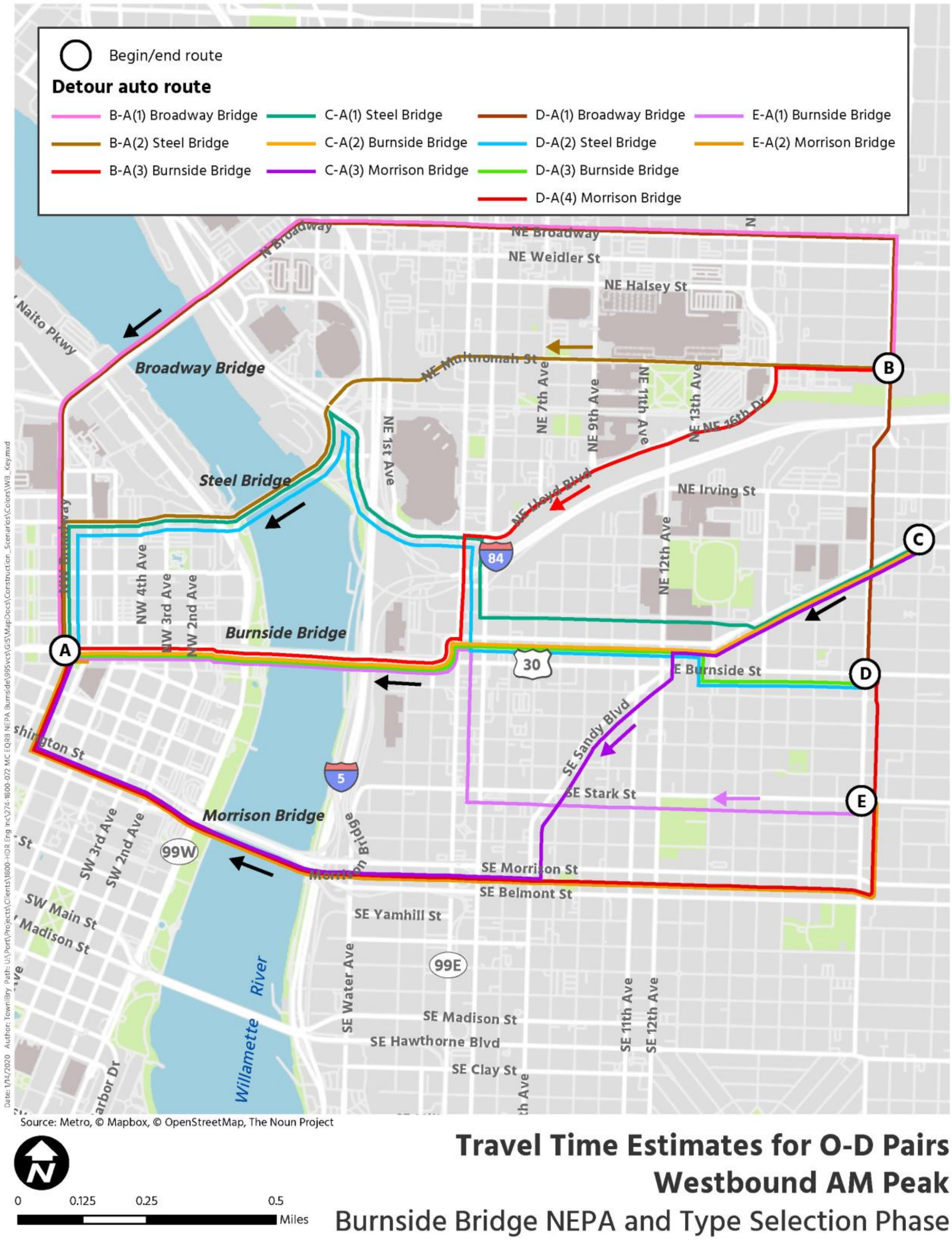
D-A4. Morrison Bridge Route

O-D Pair E-A: SE Stark Street/SE 20th Avenue to W Burnside Street/Broadway

E-A1. Burnside Bridge Route

E-A2. Morrison Bridge Route

Figure 30. Westbound AM Peak O-D Pairs



Traffic Volumes

Metro and PBOT travel demand model plots for traffic demand and D/C ratios were post-processed for each of the construction scenarios. This demand represents the demand volume for each bridge during the peak hour. Demand and D/C ratios were used as a starting point to determine traffic diversion from the Burnside Bridge to adjacent bridges under the different construction scenarios. Adjustments were required to account for over-capacity conditions on adjacent bridges and roads approaching the adjacent bridges. The demand and D/C ratio plots were compared to baseline travel time information to determine what, if any, adjustments need to be made to traffic demand. Demand adjustments were first made for the Willamette River Bridges between the Fremont Bridge and Ross Island Bridge. The demand adjustments made to the bridges were then distributed through the local roadway network to determine final adjusted demand along the routes listed above.

Travel Times

Current observed travel times were summarized using Google Maps to establish the baseline travel times along each route. Metro and PBOT travel demand model produce estimated travel times, but the travel times provided for the travel demand models are high level and lack congestion that exists during existing AM and PM peak periods. The travel time estimates provided by Google Maps more closely represent existing conditions, so Google Maps was used instead of the travel demand model plots for this travel time analysis. Travel times from Google Maps were summarized for the peak directions: the westbound direction for the AM peak hour, and the eastbound direction for the PM peak hour. Focusing on the dominant flow of direction captured the greatest extent of potential impacts.

Congestion conditions were also recorded from Google Maps along each route. Using the baseline travel times and the congestion conditions from Google Maps, baseline travel speeds were calculated for various segments along each route. Segments that typically experience free flow conditions have higher travel speeds; segments that experience congestion have lower travel speeds.

Travel times were then estimated for each route under each construction scenario using the adjusted demand described above. The baseline travel times collected from Google Maps were inflated based on the expected increase in demand and the estimated impact on congestion and travel speed for each segment. If the demand along a segment are expected to increase significantly compared to existing conditions, then the segment is expected to become more congested and the travel speed would decrease. If the demand along a segment are not expected to change significantly from existing conditions, then the travel speed along that segment would not change unless congestion from an adjacent segment was expected to back into that segment. Travel speeds for each segment were assigned based on existing travel speeds calculated from the baseline travel times. Total travel times for each route were calculated based on the assigned travel speeds for each segment along that route.

Transit

Impacts to transit were summarized using model outputs provided by Metro using Metro's regional travel demand model base year (2015). Impacts were reported in two ways: First, using average transit boardings for 17 transit lines that are within the direct and indirect API areas. Second, transit times and total transit distance traveled was reported for those transit lines that traverse the Burnside Bridge (12, 19, and 20). Travel times and distance were reported for trips occurring between W 5th Avenue and E Grand Avenue to reflect the difference in travel time and distances resulting from the different construction scenarios and temporary detours. These travel times are based on Metro's regional travel demand model with additional segment level traffic demand and operational speed inputs from Parametrix.

For impacts to the Portland Streetcar during temporary construction scenarios, average daily boarding for Loops A and B were reported for the entirety of the lines as well as within the Direct API for transit. In addition to the ridership numbers reported, segments of the A and B loops were examined for potential delays caused from added traffic congestion. For this analysis, the following steps were conducted:

- Streetcar stop arrival time data from May 2019 was provided by Portland Streetcar. Where applicable, this data was used to calculate existing streetcar travel times.
- Existing streetcar speeds were calculated using the segment length and collected travel times. Existing streetcar speeds were estimated across the Broadway Bridge based on discussions and coordination with Portland Streetcar staff.
- An overall existing streetcar travel time was calculated. This was compared to the overall existing auto travel time to get the existing dwell time.
- The existing dwell time was added to each of the overall auto travel times calculated for the four construction scenarios to get a "target" streetcar travel time for each of the 4 construction scenarios.
- Using these "target" streetcar travel times, streetcar speeds were estimated for each of the four construction scenarios.

Active Transportation

The major active transportation (bike and pedestrian) impacts during construction would occur during periods where the Burnside Bridge, Vera Katz Eastbank Esplanade, and/or Waterfront Trail are closed.

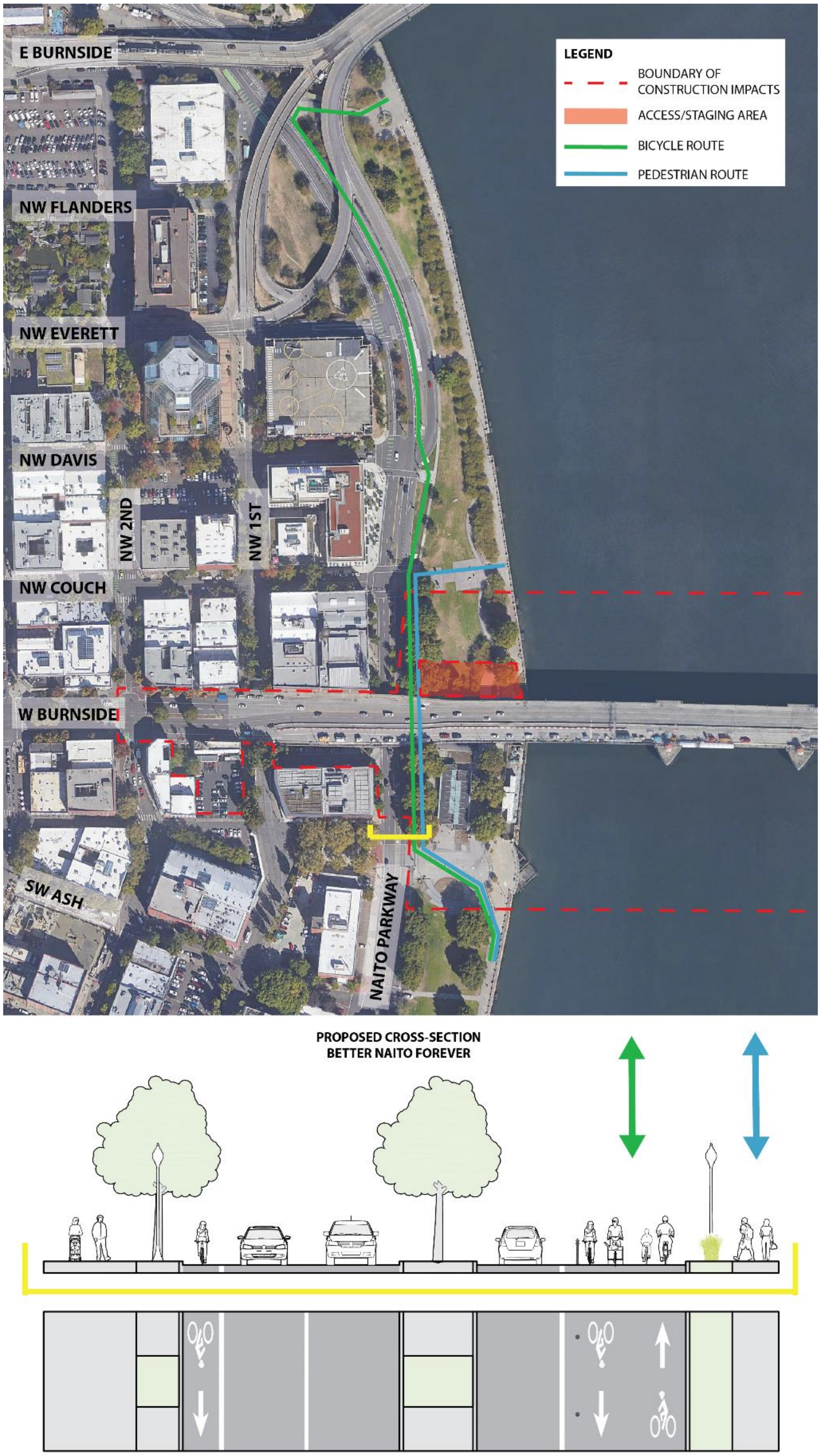
For periods when the Burnside Bridge is closed (and if there is no temporary bridge provided for active transportation users), then bicyclists and pedestrians that would have crossed the Burnside Bridge will either switch modes or divert their trip to another bridge – most likely the Steel or Morrison Bridges. There are numerous potential diversion routes depending on where these trips start and end. However, the project team identified two diversion routes for bicyclists and two for pedestrians that could be signed for people that come across the construction at one side of the bridge and want to get back to the other side of the bridge (or they may leave the route to access their destination along the way). The additional travel distance and duration imposed by these diversions was estimated from bicycling and walking time estimates included in Google Maps.

Bike, e-scooter, and pedestrian volumes crossing the downtown bridges for these scenarios were calculated from factors developed by comparing Metro's demand model runs to the base scenario and then applying these factors to 2019 base volumes.

Periods when the Vera Katz Eastbank Esplanade will be closed under the Burnside Bridge would impact commuter and recreational bicyclists, runners, pedestrians, and others using the facility. Commuters may switch modes or divert their trip around the closure. Recreational users may switch to another route, may turn around at the closure, and others may not make the trip. These impacts are difficult to quantify. However, the project team identified potential diversion routes for bicyclists and pedestrians around the closure and calculated their additional travel distance and duration.

During the construction phase the section of the Tom McCall Waterfront Park Trail directly under the Burnside Bridge will be closed for staging and other construction purposes. Commuter and recreational bicyclists, runners, pedestrians, and others would be diverted to Naito Parkway and the improved bicycling and pedestrian facilities that will be provided by the City of Portland's Better Naito Forever Project as shown on Figure 31. This route is minimally out-of-distance and is not expected to have major impacts on usage and volumes. While there will be short-term lane closures and periods of traffic flagging, pedestrian and bicycling access will be maintained along the Naito corridor throughout the project.

Figure 31. Pedestrian and Bicyclist Diversion around Construction Staging on West Side of Burnside Bridge



6.3.2 Safety Assessment during Construction

Auto Safety

An auto safety assessment of the construction scenarios was conducted to assess the potential impacts of traffic diverting to different routes in the project area. The assessment was conducted using a planning level application of the Predictive Method for Urban Arterials in the AASHTO Highway Safety Manual (HSM), which considers basic geometric and exposure-related variables such as traffic volume, number of lanes, presence of sidewalks or bike lanes, one-way or two-way streets, and street type. In this planning-level analysis, detailed inputs such as horizontal curves or small variations in lane width were not considered. As such, the results of the analysis provided relative changes in crash frequency and severity due to traffic flow under different construction scenarios as compared to predicted crash frequency and severity under the existing conditions scenario. Changes in predicted crash frequency were evaluated for the entire safety indirect API and for individual road segments.

This analysis does not predict absolute crash frequency or crash types and only considers motor vehicle crashes. Pedestrian and bicyclist safety during construction is evaluated in the subsequent section.

Build Alternatives and Construction Scenarios Considered

This assessment considered four Build Alternatives: Enhanced Seismic Retrofit, Replacement Alternative with Short-span approach, Replacement Alternative with Long-span Approach, and Replacement Alternative with Couch Extension. For the safety assessment during construction, the only difference between the Build Alternatives was the construction duration required for each, shown in Table 12. The Short-span, Long-span, and Replacement with Couch Extension Alternatives all have the same construction period and therefore are considered the same in this analysis.

Table 12. Construction Duration for Build Alternatives

Build Alternative	Construction Duration without Temporary Bridge (years)	Construction Duration with Temporary Bridge (years)
Enhanced Seismic Retrofit	3.5	5
Replacement, Short-span	4.5	6
Replacement, Long-span	4.5	6
Replacement with Couch Extension	4.5	6

For the Enhanced Seismic Retrofit, Replacement Alternative with Short-span Approach, and Replacement Alternative with Long-span Approach, the following six proposed construction scenarios were considered in the safety assessment:

- **Scenario D:** Temporary Bridge, All Modes with two general-purpose traffic lanes and concurrent staged construction on I-5 for Rose Quarter.
- **Scenario E:** Temporary Bridge, All Modes with two general-purpose traffic lanes and concurrent directional closure on I-5 for Rose Quarter.

- **Scenario F:** Temporary Burnside Bridge, Transit, Bicycles and Pedestrians-only featuring transit lanes and active transportation facilities and concurrent staged construction on I-5 for Rose Quarter.
- **Scenario G:** Temporary Bridge, Bike/Ped-only with only pedestrian and bicyclist facilities and concurrent staged construction on I-5 for Rose Quarter.
- **Scenario H:** Full Closure (No temporary Bridge) and concurrent staged construction on I-5 for Rose Quarter.
- **Scenario I:** Full Closure (No temporary Bridge) and concurrent directional closure on I-5 for Rose Quarter.

While Scenario F and Scenario G both have a temporary bridge, the bridge would not have facilities for motor vehicle traffic. Motor vehicle traffic would be diverted to the same routes with the same traffic volumes for both scenarios, as they both assume concurrent staged construction on I-5 for Rose Quarter as well. These two scenarios are considered the same from a motor vehicle safety perspective and were analyzed as one construction scenario in this assessment.

Crash Prediction Model Development

Six crash prediction models were developed for the existing conditions scenario and the five construction scenarios. The existing conditions crash prediction model estimates crashes based on existing traffic volumes (escalated by one percent annually to the construction start year and subsequent construction years), travel routes, and roadway cross sectional characteristics to provide a baseline crash prediction for comparison against the various construction scenario predictions.

Overall, the relative construction impacts influence safety by:

1. Redirecting traffic volumes and alternate routes throughout the area of indirect impact as a result of:
    a. Closing the Burnside Bridge with or without a temporary bridge, and
    b. Directional closure of I-5 or staged construction for the Rose Quarter Project
2. The time of construction necessary for:
    a. Installing/not installing a temporary bridge at Burnside, and
    b. Retrofit versus Short-span and Long-span Alternatives Bridge Construction

These impacts were accounted for in each of the construction scenario models, shown in Table 13. While a temporary bridge is constructed under Scenario F-G, the bridge would not accommodate vehicular traffic. Therefore, the traffic volumes and routes for Scenario F, G, and H were the same, though their respective construction durations were different.

Table 13. Models Developed for Safety Assessment during Construction

Construction Scenario Model	Temporary Bridge			Staged Construction or Directional Closure on I-5 for Rose Quarter Construction	Construction Duration for Enhanced Seismic Retrofit / Long-span and Short-span Alternatives (years)
	Bridge with General Purpose Traffic Lanes	Bridge with no General-Purpose Traffic Lanes	No Temporary Bridge		
Scenario D	X			Staged Construction	5/6
Scenario E	X			Directional Closure	5/6
Scenario F-G		X		Staged Construction	5/6
Scenario H			X	Staged Construction	3.5/4.5
Scenario I			X	Directional Closure	3.5/4.5

Volumes were provided for the year 2019 and escalated to the 2024 construction start year by a growth factor of 1 percent annually. Volumes were then escalated further with the same growth rate of 1 percent annually from 2024 to the end of the respective construction duration for each scenario and build alternative.

The roadways included in this assessment were the same as the detour routes used in the traffic operations analysis. The resulting safety indirect API is shown in within Section 5.1.2. Changes in crash frequency in the entire indirect safety API were identified as well as individual road segments with the highest increases in predicted crash frequency.

Crash Prediction Evaluations

Statewide calibration factors were not applied to the crash prediction models to adjust to local conditions. Since the prediction evaluation did not include a full application of the model, the calibration factors would not have added anything useful to the outputs. As such, the models may over-predict or under-predict absolute crash frequency and severity specific to Oregon roads.

The assessment evaluates construction scenarios by the relative increase in crash frequency, due solely to the construction impacts, compared to the existing conditions model. Because the crash prediction outputs were not calibrated to local conditions, predicted crash frequencies are reported as ranges. The following legend was used for changes in crash frequency for the safety indirect API cumulatively:

- — = Crash frequency approximates do not change
- ↑ = Crash frequency increases by 5-24 crashes

A single red arrow indicates crash frequency slightly increases compared to existing conditions. A double arrow and triple arrow indicate crashes increase moderately and moderately-high, respectively. A quadruple arrow indicates a high increase in crash frequency. The safety analysis showing these impacts are provided in Section 7.4.3.

Changes in predicted crash frequency for individual road segments are tabulated using the following frequency categories:

- — = Crash frequency approximately does not change
- ↑ = Crash frequency increases by 5-6 crashes
- ↑↑ = Crash frequency increases by 10-14 crashes
- ↑↑↑ = Crash frequency increases by 15-24 crashes
- ↑↑↑↑ = Crash frequency increases by 25 or more crashes

Evaluation of Existing Active Transportation System

The project team explored the potential safety impacts to the existing active transportation system from traffic diverting around construction closures of the Burnside Bridge. The analysis considered:

- The impact of traffic diversion on existing active transportation users on the major street network, and
- The potential for traffic to divert onto the local street network to avoid congested conditions on the major street network and its potential impact on active transportation users on the local street and neighborhood greenway networks.

The impacts of traffic diversion on existing active transportation users on the major street network were assessed by calculating the expected vehicle-miles-traveled (VMT) on each street segment identified in the Safety Indirect API and comparing the differences between existing conditions and each of the construction scenarios. VMT was calculated by multiplying the length of each segment (in miles) by the expected daily traffic volume on each segment. The 2019 peak hour volume (Appendix A) was converted to the average daily traffic using a conversion factor calculated from the Portland Bureau of Transportation Traffic Count website.[3] Segment VMTs were then aggregated to calculate the total VMT on streets with different types of bikeways for each scenario. This helps to contextualize the changes. For example, a change in VMT on a separated bikeway will have less impact than a change in VMT on a street where bicyclists share the roadway with vehicles. The change in VMT was then compared between scenarios to determine the scale of the potential impact. VMT is used as a representative measure of exposure for existing active transportation users so an increase in exposure was considered to have a negative impact on active transportation user safety and vice versa.

The potential for traffic to divert onto the local street network to avoid congestion on the major street network was assessed by identifying major street network segments that are expected to exceed a V/C ratio of 0.90 and where this represents a significant increase from existing conditions. These segments were considered to have the most potential for traffic to divert onto the local street network to avoid congestion. Potential diversion routes around congested segments were considered in terms of their directness and potential travel time savings to determine which were feasible routes for diverted traffic

[3] https://pdx.maps.arcgis.com/apps/webappviewer/index.html?id=7ce8d1f5053141f1bc0f5bd7905351e6

and a qualitative assessment made about the potential impact on the local street and neighborhood greenway networks.

Bicyclist and Pedestrian Safety

As traffic volume and/or vehicle speed increases on any street, unless physically separated from motorized traffic, crash risk for pedestrians and cyclists (either frequency or severity) also increases. The potential detour routes identified for pedestrians and cyclists to get around construction closures were evaluated in detail (Section 7.4.2). An exposure analysis was used to measure the additional safety risk to bicyclists and pedestrians during periods when the Vera Katz Eastbank Esplanade and the Burnside Bridge are closed (without a temporary bridge). The detour routes for the Burnside Bridge closure expected to be used by these modes are shown on Figure 57 and Figure 58 for bicyclists and pedestrians, respectively. For the Vera Katz Eastbank Esplanade closure, the bicyclist and pedestrian detour routes are shown on Figure 59 and Figure 60, respectively.

The impacts on bicyclists were calculated using a BLTS analysis. This method compares the length of time a bicyclist is exposed to different levels of traffic stress between the closure and non-closure scenarios. For example, existing conditions show bicyclists traveling westbound from E Burnside Street and E 6th Avenue to W Burnside Street and W 6th Avenue spend one minute on a BLTS 2 facility (NE Couch Street), three minutes on a BLTS 1 facility (Burnside Bridge), and two minutes on a BLTS 3 facility (NW Couch Street). Multiplying the duration and level of traffic stress together and summing the product results in a BLTS Exposure of 11 BLTS-minutes. A higher BLTS-minutes score indicates a higher level of bicyclist stress.

The impacts on pedestrians were evaluated using an exposure point method that assigned one point to signalized crossings of minor streets, two points to signalized crossings of major streets, three points to unsignalized crossings of minor streets, and four points to unsignalized crossings of major streets. For example, the current route between E Burnside Street and 6th Avenue and W Burnside Street and 6th Avenue includes one signalized crossing of a minor road approach and seven signalized crossings of major road approaches, equaling a total of 15 exposure points. This point score method is rudimentary but captures the additional risk pedestrians face when crossing unsignalized crossings compared to signalized crossings; it makes some distinction between minor and major street crossings to reflect higher traffic volumes and speeds on major streets. With this method, a higher point score indicates a higher level of exposure to crash risk for pedestrians.

6.4 Indirect Impact Assessment Methods

Indirect impacts related to the EQRB Project are anticipated relative to impacts during construction (Section 6.3). The future No-Build and Build Alternatives would provide the same capacity in the permanent condition; therefore, indirect impacts related to the permanent condition are not anticipated. Indirect impacts were used to evaluate broader transportation implications for all modes during construction. The indirect impact area includes an analysis of impacts extending between the following Willamette River

Bridges: Fremont, Broadway, Steel, Burnside, Morrison, Hawthorne, Marquam, Tilikum, and Ross Island.

6.5 Cumulative Impact Assessment Methods

The cumulative impacts analysis considers the project's impacts combined with other past, present, and reasonably foreseeable future actions. Because transportation impacts typically occur on a broader, system-wide scale, the project team considered actions within and immediately beyond the project area. The travel demand model is based on the reasonably foreseeable future network, including projects that are planned and programmed as well as population, employment, and land use forecasts. As such, the model is a type of cumulative impacts analysis. The analysis of potential cumulative transportation impacts examined the long-term operational impacts for the future network, as well as the combined impacts of the proposed actions together with other reasonably foreseeable construction projects.

7 Environmental Consequences

7.1 Introduction

Environmental consequences for transportation are described and differentiated by modes, including roadway and freight, transit, walking and biking, and freight rail. Safety is documented for all modes.

The description of long-term impacts is divided into pre-earthquake impacts, based on each alternative's footprint and its day-to-day operations as well as impacts that would occur after the next CSZ earthquake, including how each alternative affects resiliency, emergency response, and long-term recovery.

Long-term impacts are considered to be permanent, reasonably foreseeable impacts related to the No-Build and Build Alternatives. Because the No-Build and Build Alternatives would have essentially the same capacity and cross sections for motor vehicles and transit, impacts for traffic, transit, and freight are the same for all alternatives. However, the outcomes for walking, biking, and safety could vary among alternatives due to specific design differences for these modes.

Because the future No-Build and Build Alternatives would provide the same capacity in the permanent condition, long-term indirect impacts are not anticipated. Indirect impacts, which are further removed in time and space, are anticipated during construction. The indirect impact area includes an analysis of impacts extending between the following Willamette River Bridges: Fremont, Broadway, Steel, Burnside, Morrison, Hawthorne, Marquam, Tilikum, and Ross Island.

7.2 Pre-earthquake Impacts

This section describes the effects of the No-Build, Build, and temporary conditions on the multimodal transportation network prior to a CSZ earthquake.

7.2.1 No-Build

Section 7.2.1 explores the No-Build Alternative in the 2045 future year. Below is a summary of the key findings explored in more depth throughout this section:

Traffic/Freight

- Average daily vehicle demand in 2045 are projected to decrease by 1,000 vehicles a day as Portland and the Metro region invest in transit, active transportation, and density in the core increases.
- Traffic operations are projected to moderately improve, with the majority of intersections within the project area operating at LOS A and B and all study intersections to operate within City LOS standards except for NW Couch and NW 3rd Avenue.
- Future traffic projections estimate that freight will likely continue to operate at or near similar levels as under the current conditions.

Transit

- Total ridership for lines 12, 19, and 20 crossing the Burnside Bridge will double by 2045.
- Travel times for transit vehicles crossing the Burnside Bridge are anticipated to stay within +/- 6 percent of current travel time.

Active Transportation

- A number of planned upgrades within the project area will substantially improve the bicycle and pedestrian environments, resulting in an active transportation network leading to the bridge that is more comfortable and better connected.
- Bicycle and pedestrian daily volumes across the Burnside Bridge are projected to increase by 70 and 95 percent, respectively.

Safety

- Under a No-Build Alternative, limited changes to the present infrastructure of the bridge would result in crash factors little changed from todays. A modest decrease in traffic volumes crossing the Burnside Bridge would slightly decrease exposure rates to potential crashes, likely creating a small improvement in anticipated crashes.

Traffic Demand and Intersection Analysis

The overall AM and PM peak hours were determined for each study corridor: NW Everett Street, and the combined corridor of NW/NE Couch Street and W/E Burnside Street. The AM and PM peak hours for each corridor are as follows:

- Couch/Burnside Street: 8:00-9:00 AM and 4:35-5:35 PM
- Everett Street: 7:50-8:50 AM and 4:50-5:50 PM

The Burnside Bridge is estimated to carry a total of 34,000 vehicles per day in the 2045 future year, a decrease of 1,000 vehicles compared to the Existing Conditions and representing a decrease of 2.8 percent overall. The projected decrease in average daily traffic demand is the result of assumed future conditions developed by Metro, the City of Portland, and TriMet and built into Metro and PBOT's transportation demand models reflecting substantial bike, pedestrian, and transit investments in the central city. General inputs in the future 2045 model assume an increase in people living in downtown and close-in Portland, above inflation increases to the price of parking in downtown, and increased frequency and quality of transit service, which combine to produce a mode-shift away from auto travel. Vehicles traveling in the eastbound direction are predicted to total 18,500 per day with 15,500 vehicles per day in the westbound direction. AM peak hour volumes reach 2,370 vehicles while the PM peak hour volumes reach 2,605, both slight decreases compared to the existing 2019 conditions.

Table 14 displays ADT estimates for the No-Build Alternative.

Table 14. No-Build Average Daily Demand Across the Burnside Bridge, 2045

Average Daily Traffic (ADT), eastbound (EB), westbound (WB)

	2045 Daily Demand			2045 AM Peak Demand			2045 PM Peak Demand		
	ADT Demand	EB	WB	AM Peak Demand	EB	WB	PM Peak Demand	EB	WB
Burnside Bridge	34,000	18,500	15,500	2,370	970	1,400	2,605	1,495	1,110
Percentage of Total ADT	—	54.3%	45.7%	6.9%	—	—	7.7%	—	—

Source: Parametrix

Table 15 displays intersection TEV, intersection delay (in seconds), LOS for each of the study intersections, and worst movement if the intersection is unsignalized for both the AM and PM peak hours.

Synchro and SimTraffic output worksheets are included in Appendix B. For a description of methods used to calculate these measures, see Section 6.

The roadway channelization for the 2045 future year is similar to the 2019 existing conditions, with a few modifications:

- Reduced NW Everett Street to one through lane, with a right-turn lane between NW 4th Avenue and NE 3rd Avenue
- Reduced SW Broadway to two lanes
- Reduced MLK Blvd to three lanes
- Reduced Grand Avenue to three lanes

To confirm, Naito Parkway continues to have one northbound lane as was modelled under existing 2019 conditions.

Table 15. No-Build Traffic Operations

volume per hour (vph), level of service (LOS)

Intersection, Approach, Movement		Signalized or Unsignalized	No-Build Conditions							
			AM Peak Hour				PM Peak Hour			
			TEV (vph)	Delay(s)	LOS	Worst Movement (if Unsignalized)	TEV (vph)	Delay(s)	LOS	Worst Movement (if Unsignalized)
1	NW Everett Street and NW 4th Avenue	Signalized	615	11	B	—	1,005	21	C	—
2	NW Everett Street and NW 3rd Avenue	Signalized	660	6	A	—	1,230	11	B	—
3	NW Couch Street and NW Broadway	Signalized	775	13	B	—	1,190	23	C	—
4	NW Couch Street and NW 6th Avenue	Signalized	285	10	B	—	340	11	B	—
5	NW Couch Street and NW 5th Avenue	Signalized	240	10	B	—	430	11	B	—
6	NW Couch Street and NW 4th Avenue	Unsignalized	395	9	A	EB	555	24	C	EB
7	NW Couch Street and NW 3rd Avenue	Unsignalized	590	21	C	WB	840	52	F	EB
8	NW Couch Street and NW 2nd Avenue	Unsignalized	710	22	C	WB	685	28	D	WB
9	NW Couch Street and NW Naito Parkway	Signalized	1,145	17	B	—	1,510	10	B	—
10	NE Couch Street and NE MLK Blvd	Signalized	2,455	15	B	—	2,835	19	B	—
11	NE Couch Street and NE Grand Avenue	Signalized	2,550	20	C	—	2,735	15	B	—
12	W Burnside Street and Broadway	Signalized	2,430	11	B	—	2,755	16	B	—
13	W Burnside Street and 6th Avenue	Signalized	2,175	5	A	—	2,155	10	B	—
14	W Burnside Street and 5th Avenue	Signalized	2,150	5	A	—	2,265	9	A	—
15	W Burnside Street and 4th Avenue	Signalized	2,335	11	B	—	2,625	15	B	—
16	W Burnside Street and 3rd Avenue	Signalized	2,440	9	A	—	2,740	14	B	—
17	W Burnside Street and 2nd Avenue	Signalized	2,670	9	A	—	2,920	12	B	—
18	E Burnside Street and SE MLK Blvd	Signalized	2,025	19	B	—	3,220	20	C	—

Table 15. No-Build Traffic Operations

volume per hour (vph), level of service (LOS)

Intersection, Approach, Movement		Signalized or Unsignalized	No-Build Conditions							
			AM Peak Hour				PM Peak Hour			
			TEV (vph)	Delay(s)	LOS	Worst Movement (if Unsignalized)	TEV (vph)	Delay(s)	LOS	Worst Movement (if Unsignalized)
19	E Burnside Street and SE Grand Avenue	Signalized	2,240	19	B	—	2,855	17	B	—
20	SW Oak Street and SW Broadway	Signalized	430	7	A	—	715	7	A	—
21	SW Oak Street and SW 6th Avenue	Signalized	345	11	B	—	475	12	B	—
22	SW Oak Street and SW 5th Avenue	Signalized	295	10	B	—	340	11	B	—
23	SW Oak Street and SW 4th Avenue	Signalized	650	8	A	—	850	11	B	—
24	SW Oak Street and SW 3rd Avenue	Signalized	475	11	B	—	770	11	B	—
25	SW Oak Street and SW 2nd Avenue	Signalized	700	10	B	—	715	12	B	—
26	SW Oak Street and SW Naito Parkway	Signalized	1,255	14	B	—	1,515	9	A	—

Source: Parametrix

All study intersections are anticipated to operate within City LOS standards with the exception of NW Couch Street and NW 3rd Avenue (Intersection #7), which is forecast to operate at LOS F during the PM peak. The TEV is forecast to decrease between existing 2019 conditions and the future year 2045 for many intersections due to the reasons summarized previously. As demand decreases for the critical movements, the delay decreases, and intersection operations improve.

The 95th percentile queuing analysis is summarized in Table 16. Many of the queue lengths are less than 200 feet and are within the existing storage length between intersections. Some intersection approaches have queue lengths that exceed the existing storage length and back into an adjacent intersection. These approaches are highlighted in red in the table below.

Similar to the LOS and delay results, some intersections are expected to have queue lengths that are shorter in the future year 2045 than in the existing 2019 conditions. The PM peak hour eastbound queue length at E Burnside Street and SE MLK Blvd (Intersection #18) is 670 feet in 2019 and 260 feet in 2045. This is due to the improved intersection operations and increased overall green time for the eastbound approach, which reduces the forecast 95 percentile queue length.

The 95th percentile queues shown in Table 16 are for the critical movement on each approach.

Table 16. 2045 No-Build Queuing

			No-Build and Build Conditions	
			AM Peak Hour	PM Peak Hour
	Intersection, Approach, Movement	Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
1	NW Everett Street and NW 4th Avenue	Signalized		
	Northbound approach		130	190
	Eastbound approach		220	270
2	NW Everett Street and NW 3rd Avenue	Signalized		
	Southbound approach		120	160
	Eastbound approach		90	230
3	NW Couch Street and NW Broadway	Signalized		
	Northbound approach		70	110
	Southbound approach		180	220
	Eastbound approach		110	260
	Westbound approach		130	110
4	NW Couch Street and NW 6th Avenue	Signalized		
	Northbound approach		90	90
	Eastbound approach		60	100

Table 16. 2045 No-Build Queuing

			No-Build and Build Conditions	
			AM Peak Hour	PM Peak Hour
	Intersection, Approach, Movement	Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
	Westbound approach		80	70
5	NW Couch Street and NW 5th Avenue	Signalized		
	Southbound approach		50	100
	Eastbound approach		60	100
	Westbound approach		70	80
6	NW Couch Street and NW 4th Avenue	Unsignalized		
	Northbound approach		80	130
	Eastbound approach		60	120
	Westbound approach		70	50
7	NW Couch Street and NW 3rd Avenue	Unsignalized		
	Southbound approach		80	290
	Eastbound approach		60	110
	Westbound approach		150	180
8	NW Couch Street and NW 2nd Avenue	Unsignalized		
	Northbound approach		80	90
	Eastbound approach		70	100
	Westbound approach		110	120
9	NW Couch Street and NW Naito Parkway	Signalized		
	Northbound approach		420	340
	Southbound approach		130	130
	Eastbound approach		80	110
10	NE Couch Street and NE MLK Blvd	Signalized		
	Southbound approach		230	240
	Westbound approach		210	170
11	NE Couch Street and NE Grand Avenue	Signalized		
	Northbound approach		130	110
	Westbound approach		250	260
12	W Burnside Street and Broadway	Signalized		
	Northbound approach		90	150
	Southbound approach		200	220

Table 16. 2045 No-Build Queuing

			No-Build and Build Conditions	
			AM Peak Hour	PM Peak Hour
	Intersection, Approach, Movement	Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
	Eastbound approach		190	150
	Westbound approach		60	210
13	W Burnside Street and 6th Avenue	Signalized		
	Northbound approach		130	130
	Eastbound approach		160	210
	Westbound approach		50	160
14	W Burnside Street and 5th Avenue	Signalized		
	Southbound approach		80	190
	Eastbound approach		80	130
	Westbound approach		170	150
15	W Burnside Street and 4th Avenue	Signalized		
	Northbound approach		200	200
	Eastbound approach		190	140
	Westbound approach		120	170
16	W Burnside Street and 3rd Avenue	Signalized		
	Southbound approach		190	230
	Eastbound approach		80	150
	Westbound approach		230	230
17	W Burnside Street and 2nd Avenue	Signalized		
	Northbound approach		240	230
	Eastbound approach		170	220
	Westbound approach		220	220
18	E Burnside Street and SE MLK Blvd	Signalized		
	Southbound approach		120	170
	Eastbound approach		300	260
19	E Burnside Street and SE Grand Avenue	Signalized		
	Northbound approach		260	250
	Eastbound approach		50	100
20	SW Oak Street and SW Broadway	Signalized		
	Southbound approach		120	170

Table 16. 2045 No-Build Queuing

			No-Build and Build Conditions	
			AM Peak Hour	PM Peak Hour
	Intersection, Approach, Movement	Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)
	Westbound approach		80	100
21	SW Oak Street and SW 6th Avenue	Signalized		
	Northbound approach		130	180
	Westbound approach		50	40
22	SW Oak Street and SW 5th Avenue	Signalized		
	Southbound approach		100	100
	Westbound approach		90	110
23	SW Oak Street and SW 4th Avenue	Signalized		
	Northbound approach		170	240
	Westbound approach		100	90
24	SW Oak Street and SW 3rd Avenue	Signalized		
	Southbound approach		120	160
	Westbound approach		130	110
25	SW Oak Street and SW 2nd Avenue	Signalized		
	Northbound approach		170	180
	Westbound approach		140	90
26	SW Oak Street and SW Naito Parkway	Signalized		
	Northbound approach		260	240
	Southbound approach		180	170

Source: Parametrix
Note: Queue lengths highlighted in red exceed the available storage length.

Freight

2045 freight demand on the Burnside Bridge during the PM peak hour are predicted to total 20 medium and heavy freight vehicles, making up a total of 1.5 percent of total vehicle demand traveling over the Burnside Bridge during the PM peak. Peak truck hour occurs between 10:00 AM and 11:00 AM, during which time a total of 61 medium and heavy fright vehicles cross the Burnside Bridge, representing 6 percent of total vehicle demand during that time frame. Table 17 displays freight truck numbers for the No-Build Alternative in 2045.

Daily vehicle demand crossing the Burnside Bridge are anticipated to decrease by 1,000 vehicles by 2045, representing a 2.8 percent decrease over current levels. Given this decrease crossing the Burnside Bridge, congestion impacts to freight movement is likely to hold steady moving into the future model year. Across the project area where traffic demand, congestion, LOS, and queueing were modeled, a large number of intersections operate at higher LOS levels compared to the current year due to infrastructure investments throughout the downtown Portland area. As described in the previous section on traffic operations, this improved operations will help to speed freight movement and deliveries within the project area and throughout downtown.

Table 17. 2045 No-Build Average Daily Demand Across the Burnside Bridge

Eastbound (EB), westbound (WB), medium truck (MT), heavy truck (HT), medium commercial (MC)

Burnside Street														
Direction	Start Point	End Point	Speeds	Peak Demand	No. of Cars	% of Cars	No. of MT	% of MT	No. of HT	% of HT	No. of Bus	% of Bus	No. of MC	% of MC
PM Peak Vehicular Hour (5:00 - 6:00 PM)														
EB	2nd Avenue	Couch Street	25	1,495	1,453	97.2	12	0.8	1	0.1	24	1.6	4	0.3
EB	Couch Street	MLK Blvd	10	1,505	1,463	97.2	12	0.8	2	0.1	24	1.6	5	0.3
EB	MLK Blvd	Grand Avenue	10	1,390	1,351	97.2	11	0.8	1	0.1	22	1.6	4	0.3
WB	Couch Street	2nd Avenue	35	1,110	1,080	97.3	7	0.6	0	0.0	21	1.9	2	0.2
Peak Truck Hour (10:00 – 11:00 AM)														
EB	2nd Avenue	Couch Street	25	895	846	94.5	23	2.6	3	0.3	22	2.5	1	0.1
EB	Couch Street	MLK Blvd	25	905	855	94.5	24	2.6	3	0.3	23	2.5	1	0.1
EB	MLK Blvd	Grand Avenue	25	835	789	94.5	22	2.6	3	0.3	21	2.5	1	0.1
WB	Couch Street	2nd Avenue	25	665	626	94.2	32	2.9	2	0.2	24	2.2	6	0.5

Source: Parametrix

Transit

Under the No-Build Alternative, TriMet transit service is expected to stay the same within the Project API. Bus lines 12, 19, and 20 run across the Burnside Bridge with an eastbound business and transit lane. Daily ridership for the three lines crossing the Burnside Bridge totals 59,781 with 11,070 on line 12, 12,216 on line 19, and 36,495 on line 20 in the 2045 future year projection. Table 18 displays the daily ridership numbers for each of these lines as well as the off peak and PM peak travel times in both directions. Travel times are reported in minutes for the time it takes to travel in a bus from W 5th Avenue to E Grand Avenue.

Ridership between the three lines is projected to double between the 2015 base year and 2045, with the greatest increase in ridership experienced along line 20, which is expected to see a 250 percent increase. Transit ridership is assumed to increase due to increased density in downtown and close-in Portland neighborhoods, above inflation increases in parking costs, and large investments to transit service that result in increased frequency and higher quality service. Transit travel times are expected to stay relatively stable between the base year and 2045. A slight improvement in transit operational speeds and travel times of less than 10 percent is expected in both directions as traffic demand decrease slightly in the future year.

Table 18. No-Build Transit Ridership

Transit Service	Daily Boardings within API	PM Peak Hour Boardings within API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Bus				
6			21.379	2.706
8*			9.964	1.270
9*			15.413	1.825
12	5,600	675	11,068	1,287
15*			20,659	2,480
19	3,652	527	12,213	1,633
20	10,065	1,119	36,471	4,102
35*			23,305	3,160
71*			5,253	714
72*			20,651	2,155
75*			26,539	3,080
77*			15,379	2,180

Table 18. No-Build Transit Ridership

Transit Service	Daily Boardings within API	PM Peak Hour Boardings within API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
MAX				
Blue/Red	22,620	2,936	197,164	28,160
Green/Yellow/Orange	22,315	2,896	202,353	27,778
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)				
Streetcar	1,838	1,119	27,955	3,164

Source: Metro
*Lines do not stop within the API

Table 19. No-Build Transit Travel Times

Travel Time reported in minutes between W 5th Avenue and E Grand Avenue

Direction (Bus Lines 12, 16, 20)	2045 No-Build				
	Travel Distance (miles)	Travel Times (min)	Travel Time Change (%)	Avg Transit Speeds (mph)	Transit Speed Change (%)
Eastbound (PM Peak)	0.71	7.1	-7.8	5.0	6.4
Westbound (AM Peak)	0.74	2.6	-7.1	13.5	8.0

Source: Parametrix

Portland Streetcar Loops A and B are predicted to increase in daily ridership, as shown on Table 18, to 27,955 average daily boardings by 2045. This figure represents a 240 percent increase over current ridership. This assumes that by 2045, a new Streetcar extension will be constructed between Montgomery Park in the west and the Hollywood Transit Center in the east. The build alternatives of the Burnside Bridge are being designed with a future Streetcar running across the bridge in mind with roadway geometries that will make future streetcar projects easier to integrate into the bridge. The No-Build scenario doesn’t feature the same forethought of design for streetcar integration into the bridge deck, making any streetcar extensions planned for completion by 2045 work within the existing roadway geometries.

Active Transportation

The active transportation network under the No-Build includes capital improvement projects planned by PBOT and other agencies. The active transportation network changes are shown on Figure 32 and include:

- An extension of the bike lanes on W Burnside Street from W 3rd Avenue to W 4th Avenue.
- An extension of buffered bike lanes on SW 2nd and 3rd Avenues.
- The creation of a northbound buffered or protected bike lane on NW/SW 4th Avenue.

- A northbound contraflow bike lane on SW Broadway between SW Harvey Milk Street and W Burnside Street.
- An at-grade crossing of NW Flanders Street at NW Naito Parkway.
- A southbound protected bike lane on the east side of SE MLK Blvd to connect E Burnside Street to SE Ankeny Street.
- An upgraded signal at MLK Blvd and E Burnside that includes a bike signal for eastbound cyclists.
- An extension of the SE 7th Avenue bikeway to connect to the new Earl Blumenauer Bicycle and Pedestrian Bridge.
- New signalized traffic control at:
  - MLK Blvd and Ankeny Street
  - MLK Blvd, SE Grand Avenue, and Washington Street
  - MLK Blvd, SE Water Avenue, and Yamhill Street
- Sidewalk and curb ramp improvements from redevelopment in the area (not shown on Figure 32).

The future No-Build network would result in changes to the BLTS as shown on Figure 33. In general, the planned capital improvements would result in a more comfortable and connected bike network on both the east and west sides of the Burnside Bridge. Under the future No-Build Alternative, the bike facilities on the Burnside Bridge would be the same as existing, i.e., buffered bike lanes with flexible delineators to separate bicyclists from adjacent traffic in both directions. These facilities are rated as BLTS 1.

In terms of pedestrian accessibility, redevelopment and planned capital improvement projects would address some pedestrian deficiencies in the No-Build condition, including sidewalks and ramps. The planned City projects to signalize intersections (listed above) would improve the comfort and safety of crossings. The Better Naito Forever Project would address the sidewalk gaps on the east side of Naito Parkway. However, the other existing pedestrian deficiencies identified in the bike and pedestrian direct API remain under this scenario.

Daily bicycle, e-scooter, and pedestrian volumes were calculated for the 2045 No-Build Alternative and are shown on Figure 34 and Figure 35. Daily bicycle and e-scooter volumes on the Burnside Bridge are expected to increase by approximately 70 percent from 1,750 trips per day in 2019 to 2,950 trips per day in 2045. Daily pedestrian volumes on the Burnside Bridge are expected to increase by approximately 95 percent from 1, 400 trips per day in 2019 to 2,750 trips per day in 2045.

Figure 32. Future No-Build Planned Active Transportation Improvements

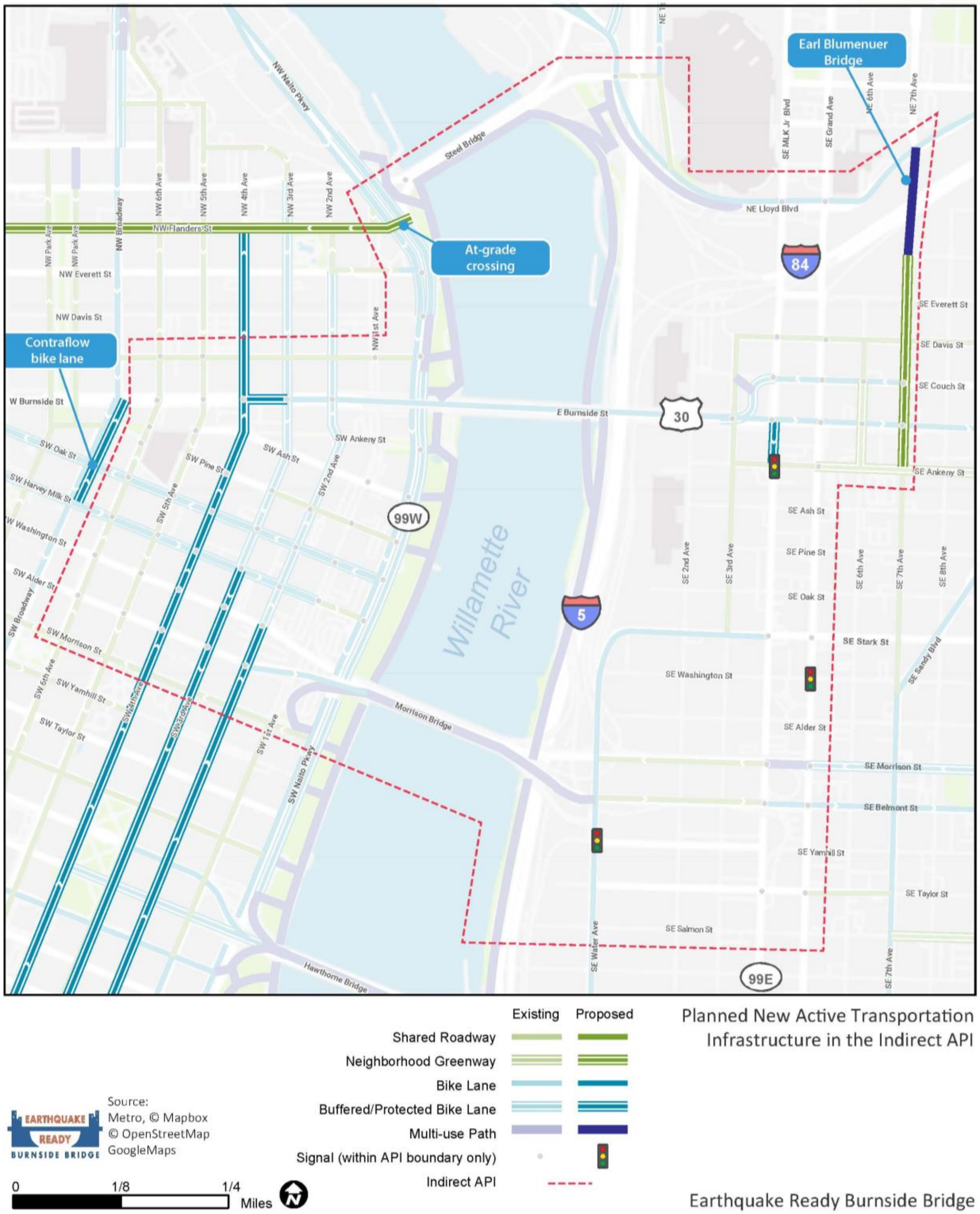


Figure 33. No-Build Future Network Bicycle Level of Traffic Stress

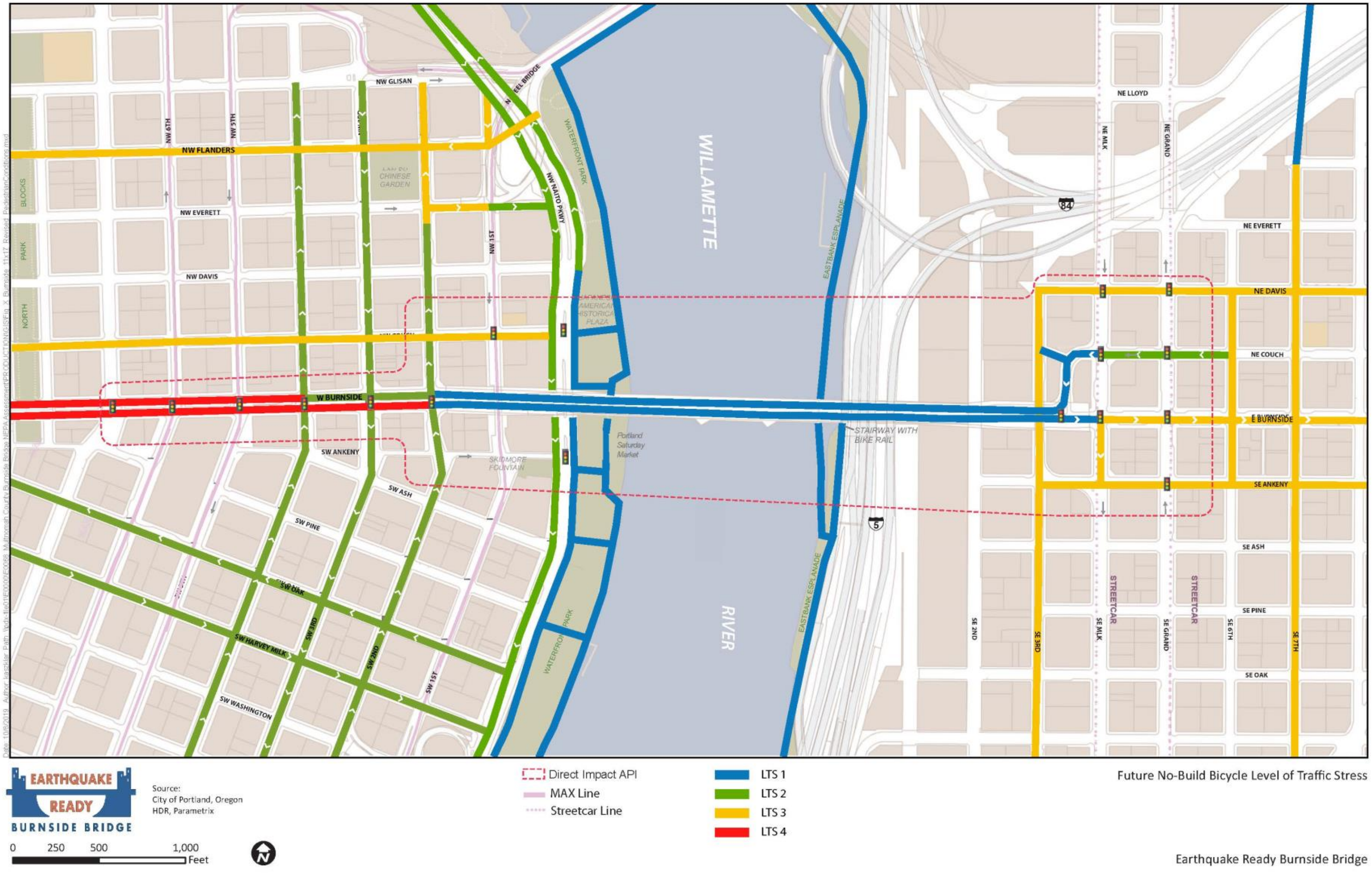


Figure 34. No-Build Daily Bicycle Volumes (2045)

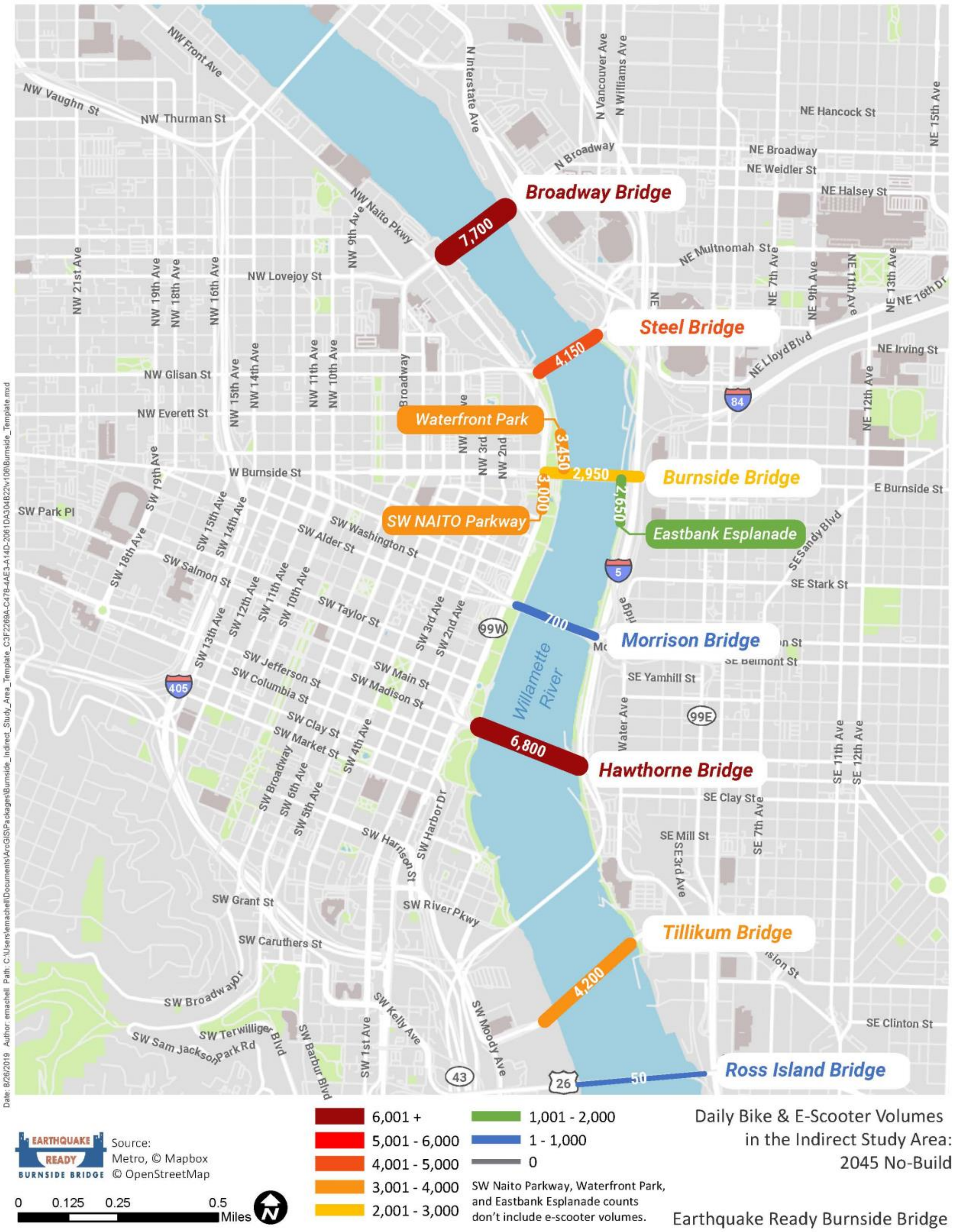
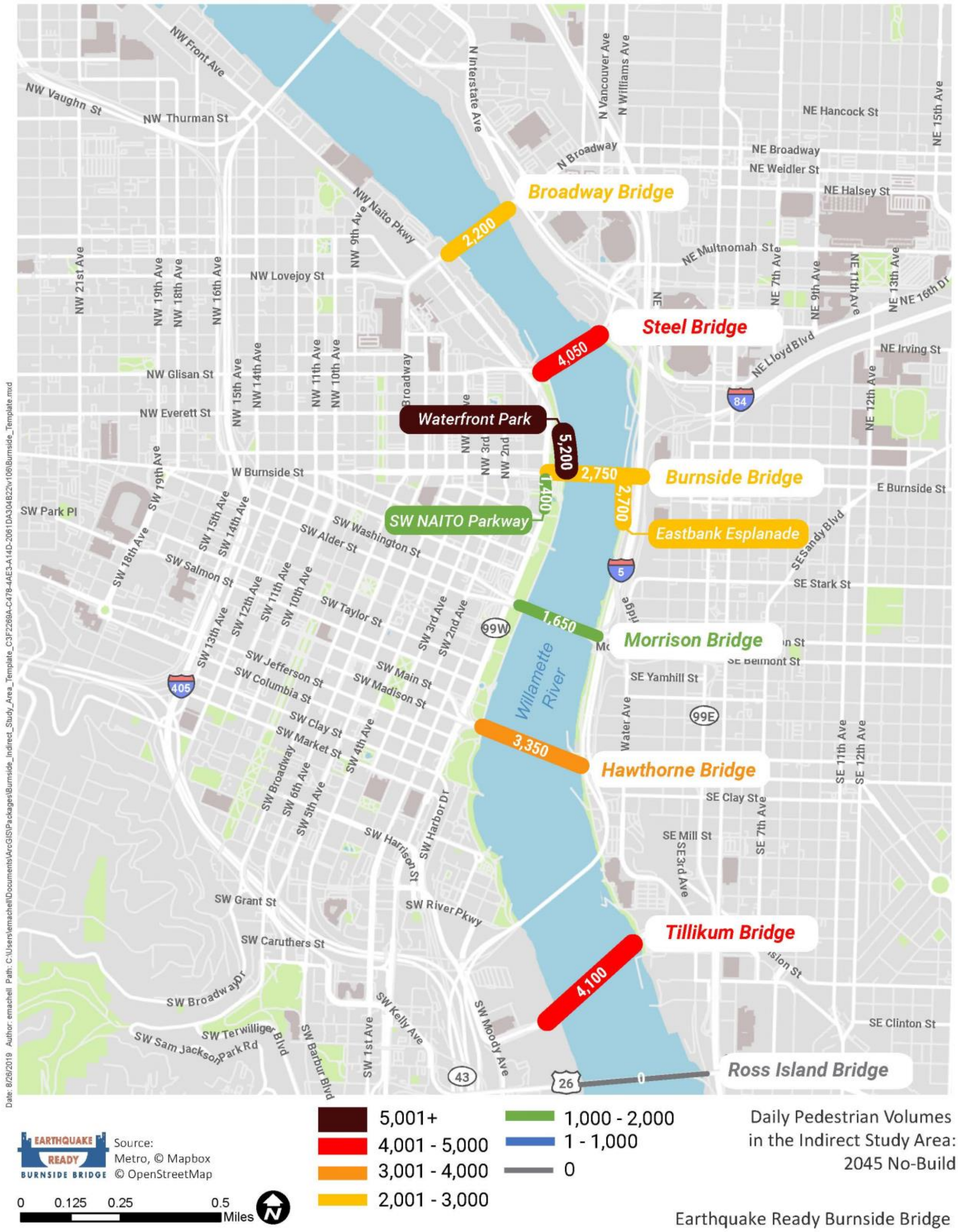


Figure 35. No-Build Daily Pedestrian Volumes (2045)



Rail Network

Under the No-Build Alternative, Union Pacific mainline rail operations would not be impacted in any way by the continued existence of the Burnside Bridge. The bridge crosses over the heavy rail line on the Eastbank of the Willamette River owned and operated by the Union Pacific Railroad. The tracks run north/south adjacent to I-5 and are an important link for industrial imports and exports in the region. The Union Pacific mainline connects two major rail switching yards in the Portland area; the Albina Yards approximately 1.5 miles north of the Burnside Bridge and the Brooklyn Rail Yard approximately 2.25 miles to the south.

Access

Under the No-Build Alternative, access to buildings and streets in the immediate vicinity to the Burnside Bridge would be unchanged.

Safety Analysis

The safety analysis focuses on the relative differences between the future No-Build and Build condition. Therefore, there is no summary of future No-Build crash frequency or severity. However, it is estimated that without any changes to the Burnside Bridge or surrounding facilities there would be limited changes from the crash conditions identified under the existing conditions scenario. Further, it is estimated that traffic volumes may decrease by approximately 2.8 percent per day between the base year and the 2045 future model year. As traffic volumes are the major variable in predicting crash frequency or severity, a similar or slightly improved condition in the No-Build Alternative as compared to existing conditions is a conservative estimate.

7.2.2 Build Alternatives

Section 7.2.2 explores the Build Alternative in the 2045 future year. Many of the future 2045 conditions are similar to the No-Build Alternative described in the previous Section, 7.2.1. Under normal operations, all of the Build Alternatives provide access across the bridge for the same transportation modes present today. Additionally, all Build Alternatives are designed with a design speed of 25 miles per hour over the bridge span as well as being designed to accommodate a future potential streetcar service expansion across the Burnside Bridge first identified in Portland's Streetcar System Concept Plan adopted in 2009.

Below is a summary of the key findings explored in more depth throughout this section:

Traffic/Freight

- Roadway capacities and operations are identical between the Build and No-Build Alternatives.
- Average daily vehicle demand in 2045 are projected to decrease by 1,000 vehicles a day as Portland and the Metro region invest in transit, active transportation, and density in the core increases.
- Traffic operations are projected to moderately improve, with the majority of intersections within the project area operating at LOS A and B and all study

intersections to operate within City LOS standards except for NW Couch and NW 3rd Avenue.

Transit

- Transit operations and transit service are identical between the Build and No-Build Alternatives.
- Total ridership for lines 12, 19, and 20 crossing the Burnside Bridge will double by 2045.
- Travel times for transit vehicles crossing the Burnside Bridge are anticipated to stay within +/- 6 percent of current travel time.

Active Transportation

- A number of planned upgrades within the project area will substantially improve the bicycle and pedestrian environments, resulting in an active transportation network leading to the bridge that is more comfortable and better connected.
- Planned bicycle and pedestrian improvements on the bridge span, across all Build Alternatives, aim to provide more separation between modes while providing a more comfortable and safer experience for bicycle and pedestrian users of the bridge. Bicycle and pedestrian daily volumes across the Burnside Bridge are projected to increase by 70 and 95 percent, respectively.

Safety

- All Build Alternatives improve safety compared to the existing conditions and No-build Alternative.
- Overall, the Short-span and Long-span Alternatives feature the greatest predicted crash reduction factors of all the alternatives. Both reduce all crashes by a predicted 8 percent while reducing bicycle specific crashes by 63 percent.

Similarities between the Build and No-Build Alternatives

As mentioned under Section 7.1, the future No-Build and Build Alternatives would provide the same capacity in the permanent condition; therefore, transportation indirect impacts related to the permanent condition are not anticipated.

Long-term impacts are considered to be permanent, reasonably foreseeable impacts related to Build Alternatives. For multimodal transportation analysis, because the capacity and cross section facilities are the same for the No-Build and Build Alternatives, impacts are therefore the same between the two for most multimodal topics. From a traffic operations standpoint, the Replacement Alternative with Couch Extension only changes the geometry of where the Couch and Burnside couplet come together on the bridge and does not have an impact on operations. The exceptions to this are walking, biking, and safety impacts in some cases because specific design details could create different outcomes for these topics.

Details within sub-sections of 7.2.2 relate to all of the following Build Alternatives, unless called out specifically:

- Enhanced Seismic Retrofit (Retrofit Alternative)
- Replacement Alternative with Short-span Approach (Short-span Alternative)
- Replacement Alternative with Long-span Approach (Long-span Alternative)
- Replacement Alternative with Couch Extension (Couch Extension Alternative)

Traffic Demand and Intersection Analysis

Traffic demand and intersection operations are expected to be the same under the Build Alternative as they are under the No-Build Alternative due to the functionally equivalent nature of traffic operations in both alternatives (Table 14).

Level of Service, Queuing, and Delay

LOS, queuing, and delay measures are expected to be the same under the Build Alternative as they are under the No-Build Alternative due to the functionally equivalent nature of traffic operations in both alternatives (Table 15 and Table 16).

Freight

Freight operations are expected to be the same under the No-Build and Build Alternatives due to the functionally equivalent nature of both alternatives. See the freight information above in Section 7.2.1 for additional details.

Daily vehicle demand crossing the Burnside Bridge are anticipated to decrease by 1,000 vehicles by 2045, representing a 2.8 percent decrease over current levels. Given this decrease crossing the Burnside Bridge, congestion impacts to freight movement is likely to hold steady moving into the future model year. Across the project area where traffic demand, congestion, LOS, and queueing were modeled, a large number of intersections operate at higher LOS levels compared to the current year due to infrastructure investments throughout the downtown Portland area. As described in the previous section on traffic operations, this improved operation will help to speed freight movement and deliveries within the project area and throughout downtown.

Transit

Under the Build Alternative, TriMet transit service is expected to stay the same within the Project API. Bus lines 12, 19, and 20 run across the Burnside Bridge with an eastbound business and transit lane that will not see major changes to operations outside increased service frequencies for lines 12 and 20. The Portland Streetcar and bus line 6 that run north and south along MLK Blvd and Grand Avenue will also not experience operational changes due to the Build Alternatives. See the transit information above in Section 7.2.1 for details.

At the time of this report, it is not clear if upgrade to signals within the vicinity of either bridgehead will be included in the project. Analysis of signal timing, including traffic and transit operations, will be reserved for work during the final design phase of the project. As such, analysis within the report assumes that no upgrades for transit priority are currently planned and signal timing along Burnside and at the bridgeheads is the same as currently programed.

Active Transportation

Under the Build Alternatives, there would be a number of changes to the active transportation network that would impact conditions for pedestrians and bicyclists. In terms of pedestrian accessibility, the Build scenarios would upgrade sidewalks, ramps, stairways, and crossings along the bridge and at its terminal points and along any routes that are required as alternatives to closed network segments (e.g., the NE 3rd Avenue/NE Davis Street/NE MLK Blvd route in the Replacement Alternative with Couch Extension). The Replacement Alternatives would also upgrade and make the bike facilities on the bridge more comfortable by adding physical protection from traffic. These changes are described below.

Sidewalks

There would be no change to bike and pedestrian facilities under the Enhanced Seismic Retrofit.

The Replacement Alternative with Short-span and Long-span Approaches, and the Replacement Alternative with Couch Extension would include enhanced bike and pedestrian facilities on the Burnside Bridge that would consist of an 18-foot wide section featuring a sidewalk-level bicycle lane with a separated sidewalk on both sides of the bridge separated from motor vehicle traffic by a physical barrier. This would address an existing gap in the City's Pedestrian District standards that requires sidewalks to be at least 15 feet wide.

For the Replacement Alternative with Couch Extension, the existing pedestrian and bike connection on the Couch Street alignment between NE 3rd Avenue and Couch Street would be removed to accommodate the extension of the Couch Street couplet. Bike and pedestrian traffic would be re-routed along NE 3rd Avenue to NE Davis Street and/or SE Ankeny Street and onto MLK Blvd to access the Burnside Bridge. This would result in an additional 0.15 mile of out-of-distance travel for pedestrians and bicyclists and require upgrades of the sidewalks along this route on the east side of NE 3rd Avenue, the south side of NE Davis Street, and the west side of MLK Blvd.

Curb Ramps

For all Build Alternatives, the project will upgrade any noncompliant curb ramps along the reconstructed span, i.e., along Burnside Street between W 2nd Avenue and E MLK Blvd.

For the Replacement Alternative with Couch Extension, the closure of the existing pedestrian and bike connection on the Couch Street alignment between NE 3rd Avenue and Couch Street would require reconstruction of the curb ramps at the NE 3rd Avenue and Davis Street intersection.

The City of Portland is currently undertaking a project to inspect and verify ADA compliance of all existing curb ramps in the City and as such will identify locations requiring upgrade during the design phase.

Stairways and ADA Access

On the west side of the river, the stairway on the south side of the bridge will be replaced with a stair and ramp assembly to provide pedestrian and ADA access to SW 1st Avenue and the Skidmore Fountain MAX station. This will provide direct and convenient access from the bridge deck to MAX service and provide a more comfortable and improved ADA connection.

The stairway on the north side of the bridge to the MAX station will be replaced with a new stairway and the sidewalk circling the block, including W Burnside Street, NW 2nd Avenue, and NW Couch Street will be used to provide ADA access to the Skidmore Fountain MAX station and 1st Avenue. An elevator at this location was considered and dismissed by the Multimodal Working Group based on security and operational concerns. A ramp alternative was also considered but would need to wrap around the block along NW 1st Avenue and onto NW Couch Street. This has historical building impacts, operational concerns for the adjacent buildings, and infrastructure impacts on the MAX station. It would also result in travel distances almost equivalent to circling the block and hence was dismissed as an alternative.

On the east side of the river, the access provided on the south side of the Burnside Bridge will be determined as part of final design and options could include replacing the existing stairway with bike rail (a groove in stairs that makes taking a bike up or down stairs easier) or providing a ramp and stairs to provide ADA access to the Vera Katz Eastbank Esplanade. The latter would require extending the current landing on the spur of the Vera Katz Eastbank Esplanade as shown on the schematic on Figure 36. An elevator was considered at this location and dismissed by the Multimodal Working Group based on security and operational concerns. The ADA compliant ramp option would provide the best access between the bridge deck and the esplanade below. The stairs with a bike rail would require less space compared with a ramp and likely be less expensive, but the access benefits would be lessened. Adding an elevator along with stairs would provide ADA access but would likely be the most expensive and add operational and maintenance costs that the other options would forego.

A ramp and stairway was also considered for the north side of the bridge, but would result in a much larger footprint, increased cost, and Portland Parks raised concerns about security for users that would need to be addressed given the landing would not be on the main pathway. The Multimodal Working Group dismissed the need for this connection based on these concerns.

Having only a connection on the south side of the bridge for bicyclists could result in some out-of-direction bicycling movements on the south side of the Burnside Bridge. For northbound bicyclists on the Vera Katz Eastbank Esplanade that know there is no connection on the northside of the bridge, there are options to use the Hawthorne or Morrison Bridges to cross the river before getting to the Burnside Bridge or the Steel Bridge if they are going further north. For bicyclists on the east side of the river trying to access the Vera Katz Eastbank Esplanade, there are surface street options including the NE 7th Avenue neighborhood greenway and the Congressman Earl Blumenauer Bicycle and Pedestrian Bridge to get to the Steel Bridge or SE Ankeny Street and 3rd Avenue to access the Eastbank Esplanade south of the Burnside Bridge. Nevertheless, there could be some bicyclists that ride westbound on the south side of the Burnside Bridge to or from the ramp structure. This could cause conflicts with eastbound bicyclists and pedestrians using the south side of the bridge and should be addressed as part of final design.

The stairs on the north side of the bridge further east provide pedestrian access to NE 3rd Avenue and will be reconnected under all of the Build Alternatives.

Pedestrian Crossings

The crosswalk on the east leg of the W Burnside Street and 2nd Avenue intersection will be reopened under all build alternatives.

Bicycling Network

The bike network under the Enhanced Seismic Retrofit is shown on Figure 37; the network under the Replacement Alternative with Short-span Approach is shown on Figure 38, and the network under the Replacement Alternative with Couch Extension is shown on Figure 39.

Figure 36. Future Build Stairway and Elevator Connection to the Vera Katz Eastbank Esplanade

Figure 37. Future Build Bicycle Network – Enhanced Seismic Retrofit

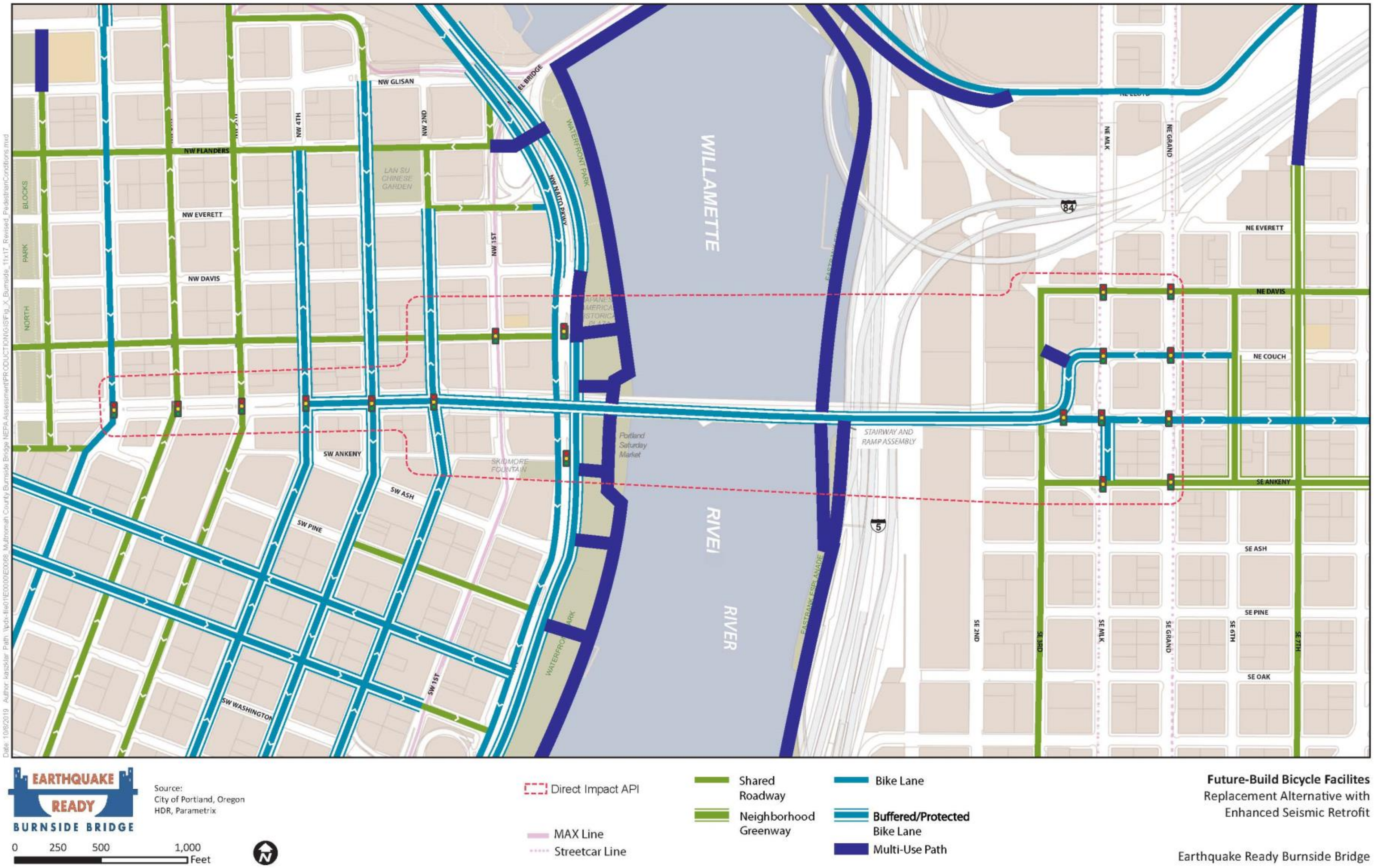


Figure 38. Future Build Bicycle Network – Replacement Alternative with Short-span and Long-span

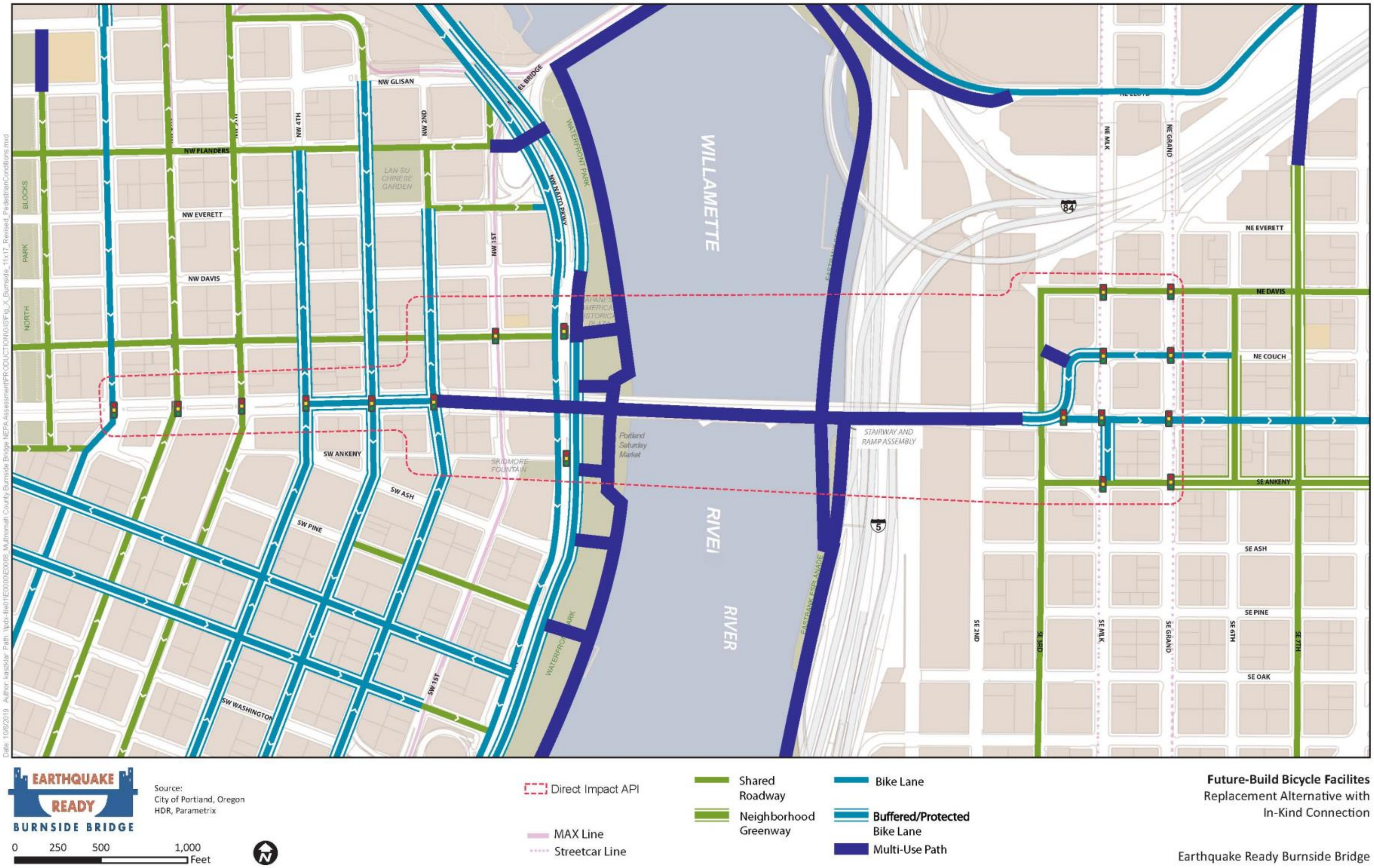


Figure 39. Future Build Bicycle Network – Replacement Alternative with Couch Extension

The Enhanced Seismic Retrofit will result in bicycling facilities similar to existing conditions, i.e., buffered bike lanes with flexible delineators to separate bicyclists from adjacent traffic in both directions. The BLTS for this scenario is shown on Figure 40.

The Replacement Alternative with Short-span and Long-span Approach would reconstruct the Burnside Bridge with an 18-foot multiuse pathway on both sides of the bridge separated from motor vehicle traffic by a physical barrier. The BLTS for this scenario is shown on Figure 41. Although the BLTS 1 rating is the same as for the Enhanced Seismic Retrofit, the added protection offered by the physical barrier and the bikeway being at sidewalk level would be more comfortable for the average bicyclist than an on-street bike lane separated by paint and flexible delineators.

The Replacement Alternative with Couch Extension would also reconstruct the Burnside Bridge with an 18-foot-wide section featuring a sidewalk-level bicycle lane with a separated sidewalk on both sides of the bridge separated from motor vehicle traffic by a physical barrier. It also adds approximately 0.15 mile of out-of-distance travel to bicyclists trying to access the bridge from E 3rd Avenue. Bike traffic going to the bridge would be re-routed along NE 3rd Avenue to NE Davis Street and then to a southbound protected bike lane in place of on-street parking on the west side of NE MLK Blvd between NE Davis Street and NE Couch Street. This combination of facilities is less comfortable for bicyclists than the existing connection. The BLTS for this scenario is shown on Figure 42.

Active Transportation Volumes

Daily bicycle, e-scooter, and pedestrian volumes are expected to be the same as for the 2045 No-Build Alternative, i.e., an expected 70 percent increase in existing Burnside Bridge bike trips and a 95 percent increase in pedestrian trips between 2019 and 2045.

Table 20 summarizes the differences in bike and ped volumes and BLTS for key segments of the active transportation network comparing existing (2019) conditions to the 2045 No-Build and Build Alternatives.

Table 20. Active Transportation Volume and BLTS Comparison

	2019 Existing			2045 No-Build			2045 Build		
Link	BLTS	Bike Vol	Ped Vol	BLTS	Bike Vol	Ped Vol	BLTS	Bike Vol	Ped Vol
Burnside Bridge	1	1.750	1.400	1	2.950	2.750	1	2.950	2.750
W Burnside Street	4	—	—	3	—	—	3	—	—
E Burnside Street	3	—	—	3	—	—	3	—	—
NE Couch Street	2	—	—	2	—	—	2	—	—
Better Naito / Waterfront Trail	1	3,750	3,800	1	6,450	6,600	1	6,450	6,600
Vera Katz Eastbank Esplanade	1	1,500	1,550	1	2,650	2,700	1	2,650	2,700

Source: Toole Design

Figure 40. Future Build Bicycle Level of Traffic Stress – Enhanced Seismic Retrofit

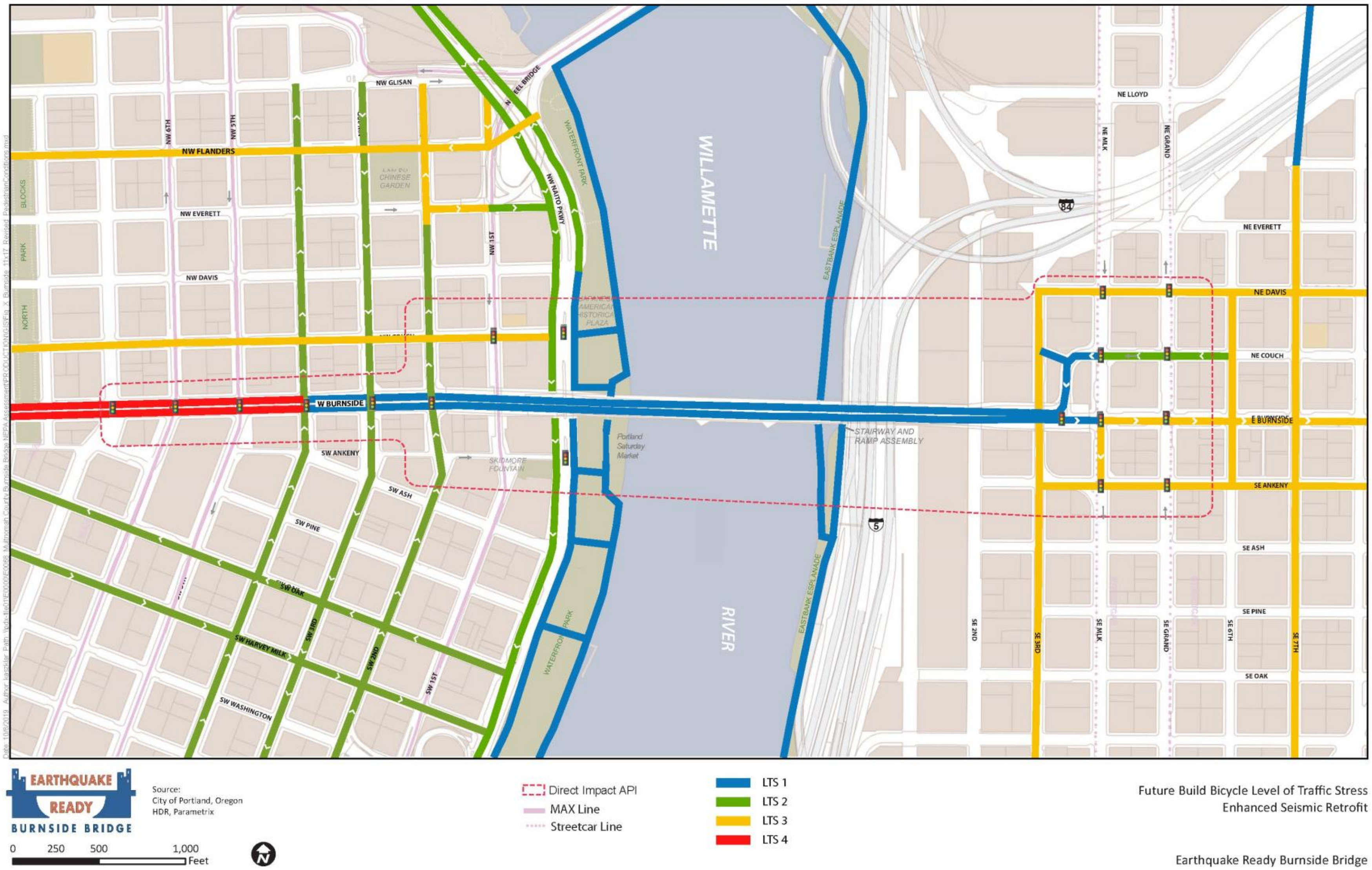


Figure 41. Future Build Bicycle Level of Traffic Stress – Replacement Alternative with Short-span and Long-span

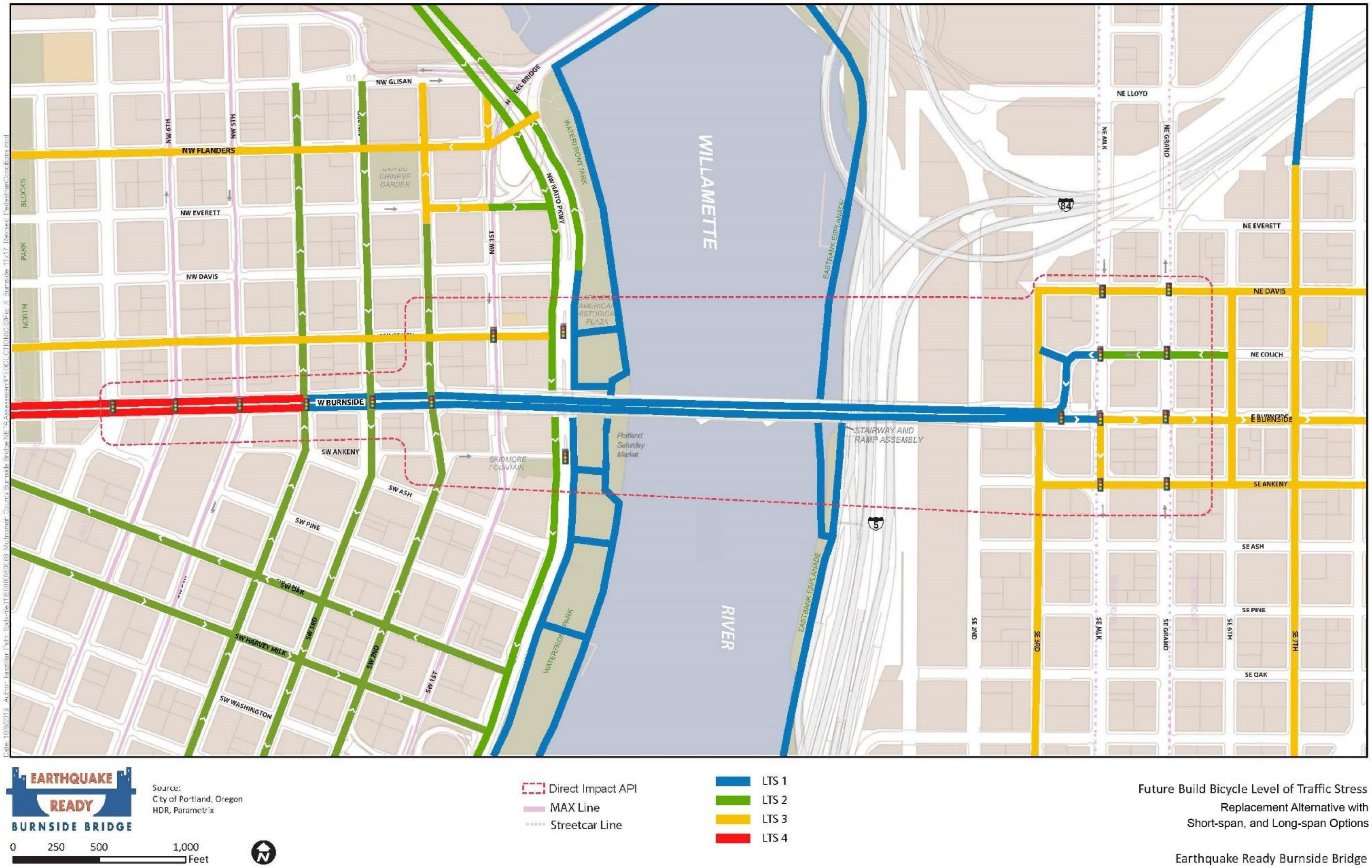
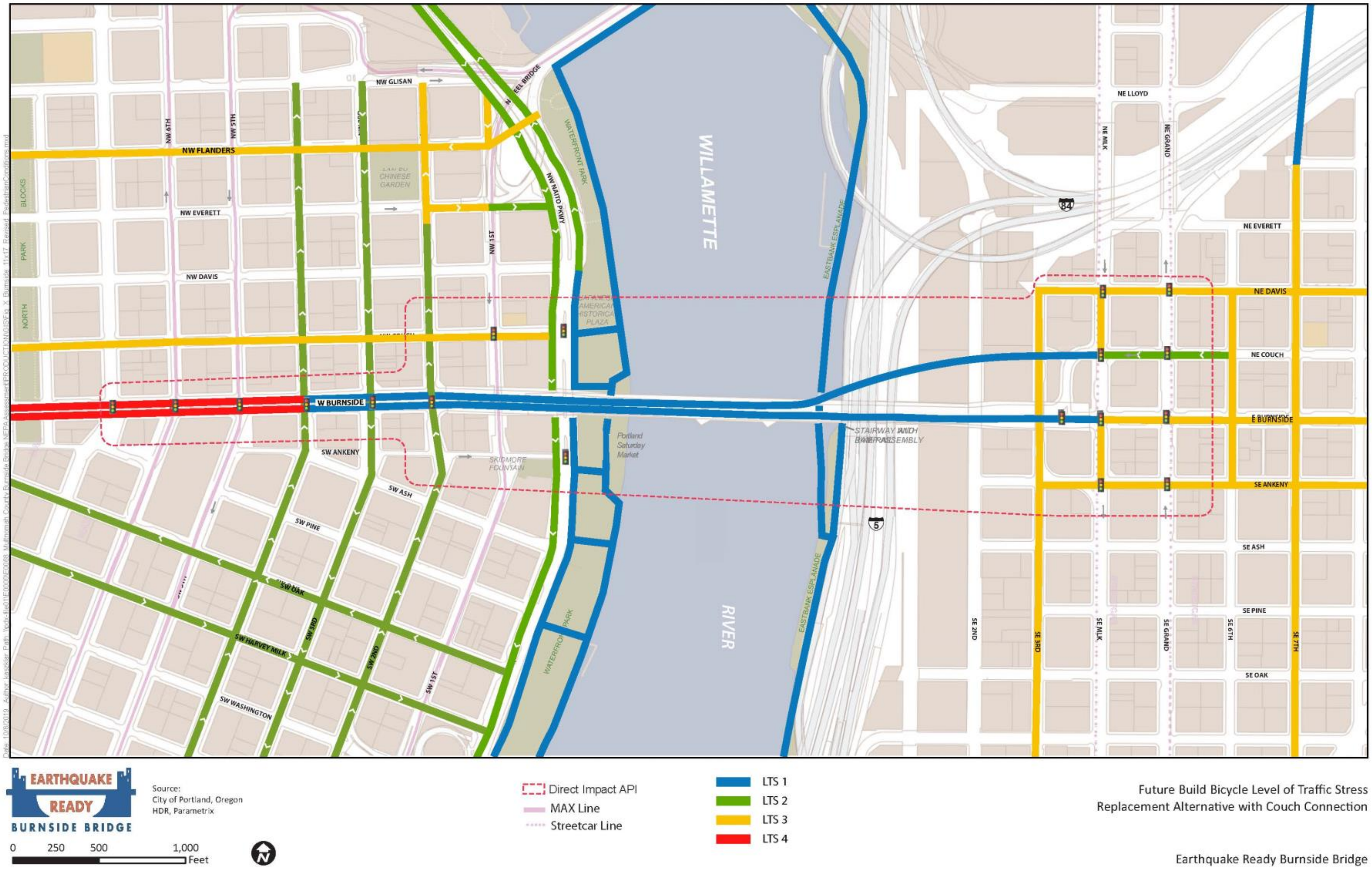


Figure 42. Future Build Bicycle Level of Traffic Stress – Replacement Alternative with Couch Extension



Rail Network

Under all build scenarios, including the Enhanced Seismic Retrofit, Replacement Alternative with Short-span Approach, Replacement Alternative with Long-span Approach, and Replacement Alternative with Couch Extension build options, rail operations are left untouched, resulting in Union Pacific mainline rail operations that are materially the same across all build alternatives. All build options cross over the heavy rail line on the east bank of the Willamette River owned and operated by the Union Pacific Railroad. The tracks run north/south adjacent to I-5 and continue to function as an important link for industrial imports and exports in the region.

Access

Access at both of the east and west bridge landings is impacted across all of the Build Alternatives. Table 21 and Table 22 outline the different permanent access impacts to business, right-of-way, and parking. Across all of the Build Alternatives, impacts to access on the western bridgehead are similar, with impacts to four pedestrian access points and one parking lot. All of these permanent access impacts occur under the bridge. See Figure 43 for details on the access impacts at the western bridgehead.

On the eastern bank of the Willamette River, variations between Build Alternatives occur, as the Replacement Alternative with Couch Extension is substantially different compared to the two other Build Alternatives. The Enhanced Seismic Retrofit, Replacement Alternative with Short-span Approach, and Replacement Alternative with Long-span Approach do not have impacts to access on the eastern landing of the Burnside Bridge. The Replacement Alternative with Couch Extension, whereby Couch is extended past its current terminus just west of MLK Blvd, would see a number of impacts to pedestrian access, right-of-way, and parking. Because of the elevation challenges of extending Couch over both NE 2nd and NE 3rd Avenues, 3rd Avenue would need to be lowered to allow enough clearance between the bridge and vehicles driving along 3rd Avenue under the Replacement Alternative with Couch Extension. Pedestrian access to Block 75 and the Slate apartment building to the north of Couch would have a number of doorways that would need to be realigned with the new street elevation of NE 3rd Avenue. See Figure 44 for details on the access impacts at the eastern bridgehead.

Table 21. Access Impacts: Anticipated Door Closures*

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent Closures

Door ID No.	East or West	Property	Door Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
13	West	City of Portland (under bridge)	Garage	Permanent Closure	Permanent Closure	Permanent Closure	
14	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	
15	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	
16	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	
17	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	
Source: Parametrix							

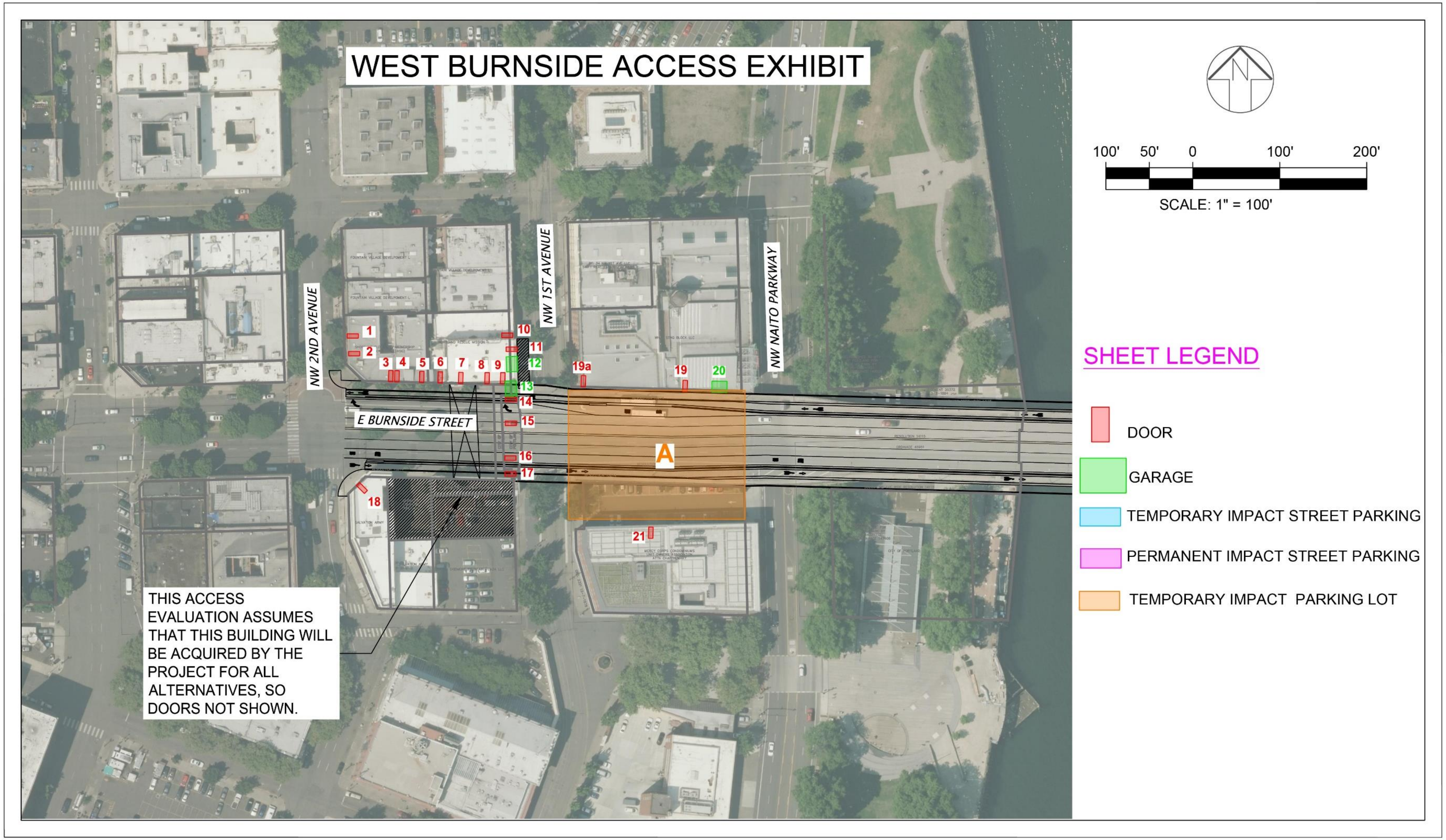
*The University of Oregon space underneath the bridge would be permanently closed

Table 22. Access Impacts: Anticipated Parking Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent Closures

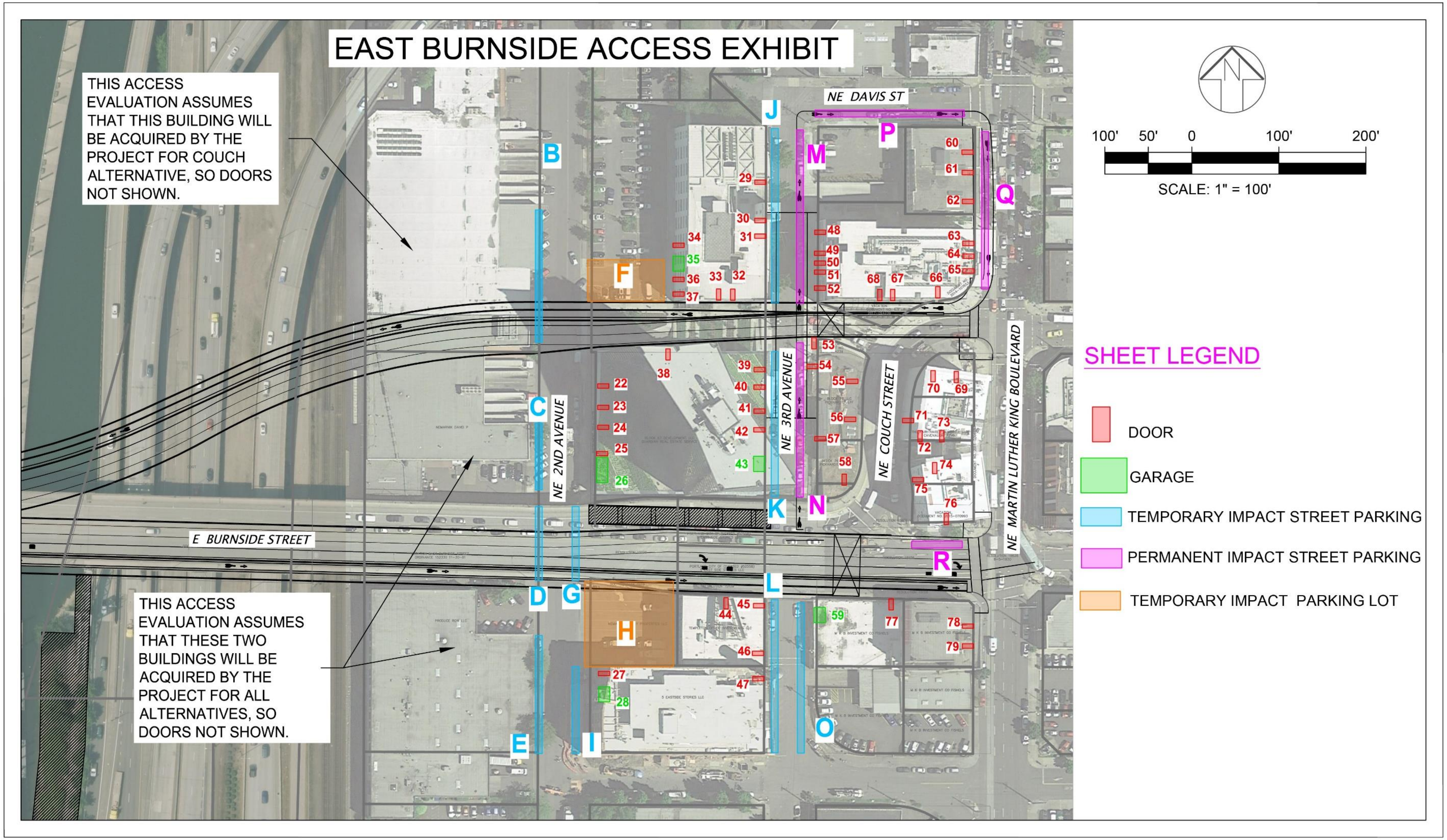
Parking ID Letter	East or West	Property	Parking Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
N, M, P, O	East	Right-of-Way, 3rd Avenue	Street	Long-term	long-term	Permanent Closure	For Bike Lane
R	East	Right-of-Way, Burnside Street	Street	None	Permanent Closure	Permanent Closure	For Roadway

Figure 43. West Burnside Access Exhibit*



*The University of Oregon space underneath the bridge would be permanently closed.

Figure 44. East Burnside Access Exhibit



7.2.3 Replacement Alternative with Couch Extension

Many of the impacts for the Couch Extension alternative are identical to the other Build Alternatives as discussed in 7.2.2. Below are the few differences of the Couch Extension, including specific active transportation and access impacts.

Direct

Freight

No direct impacts to freight related to the Replacement Alternative with Couch Extension are anticipated. Direct impacts related to freight are captured within the No-Build impact analysis.

Transit

No direct impacts to transit related to the Replacement Alternative with Couch Extension are anticipated. Direct impacts related to transit are captured within the No-Build impact analysis.

Active Transportation

For the Replacement Alternative with Couch Extension, the existing pedestrian and bike facility on the Couch Street alignment between NE 3rd Avenue and Couch Street would be removed to accommodate the extension of the Couch Street couplet. Bike and pedestrian traffic that would have used this connection would be re-routed along NE 3rd Avenue to NE Davis Street and onto MLK Blvd to access the Burnside Bridge. This would result in an additional 0.15 mile of out-of-distance travel for pedestrians and bicyclists.

This network change would require improvements to the ramps at the 3rd Avenue and MLK Blvd intersections with SE Ankeny Street and NE Davis Street to ensure ADA-accessible routes to the Burnside Bridge and for bicyclists. A southbound protected bike lane would be provided in place of on-street parking on the west side of NE MLK Blvd between NE Davis Street and NE Couch Street.

Rail Network

No direct impacts to the rail network related to the Replacement Alternative with Couch Extension are anticipated. Direct impacts related to rail network are captured within the No-Build impact analysis.

Access

The Replacement Alternative with Couch Extension requires additional access impacts due to the extension of Couch Street on the eastern bridgehead as its own bridge span that meets the main bridge span once over the Willamette River. This would have additional impacts compared to the other build alternatives to access and parking on E 3rd Avenue, Davis Street, and MLK Blvd, along with increased impacts to building and business access in the immediate area. Table 23 and Table 24 present the specific impacts while Figure 43 and Figure 44 provide a map of the impacts described in the tables below.

Table 23. Access Impacts: Anticipated Door Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent Closures

Door ID No.	East or West	Property	Door Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
13	West	City of Portland (under bridge)	Garage	Permanent Closure	Permanent Closure	Permanent Closure	None
14	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	None
15	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	None
16	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	None
17	West	City of Portland (under bridge)	Pedestrian	Permanent Closure	Permanent Closure	Permanent Closure	None
32	East	Bridgehead Development LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 26' higher than extg at door, possibly open to path under bridge?
33	East	Bridgehead Development LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 26' higher than extg at door, possibly open to path under bridge?
49	East	Block 75 LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 1' higher than extg at door
50	East	Block 75 LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 2' higher than extg at door

Table 23. Access Impacts: Anticipated Door Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent Closures

Door ID No.	East or West	Property	Door Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
51	East	Block 75 LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 2' higher than extg at door
52	East	Block 75 LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 2' higher than extg at door
66	East	Block 75 LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 2' higher than extg at door
67	East	Block 75 LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 4' higher than extg at door
68	East	Block 75 LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 4' higher than extg at door

Source: Parametrix

Table 24. Permanent Access Impacts: Anticipated Parking Closures

Short-Term (a few weeks), Long-Term (six months to a few years)

Parking ID Letter	East or West	Property	Parking Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
M	East	Right-of-Way, 3rd Avenue	Street	None	None	Permanent Closure	For Bike Lane
N	East	Right-of-Way, 3rd Avenue	Street	Long-term	Long-term	Permanent Closure	For Bike Lane
P	East	Right-of-Way, Davis Street	Street	None	None	Permanent Closure	For Bike Lane
Q	East	Right-of-Way, MLK Blvd	Street	None	None	Permanent Closure	For Bike Lane
R	East	Right-of-Way, Burnside Street	Street	None	Permanent Closure	Permanent Closure	For Roadway

Indirect

No permanent, indirect impacts are anticipated for transportation related to the Replacement Alternative with Couch Extension.

7.2.4 Safety Analysis across All Build Alternatives

The relative difference in crash frequency and severity between the No-Build and each Build Alternative is evaluated if there is a change in cross sectional feature (e.g., lane width, bicycle lane type/width, presence of parking) or if there is a change in pedestrian or bicycle volume/travel route at any of the locations within the safety direct API. The potential impact of the change is estimated using crash modification factors from either the ODOT All Roads Transportation Safety (ARTS) resources or the FHWA Crash Modification Factor Clearinghouse. CMFs are multiplicative factors that reflect the estimated change in crash frequency or severity associated with a particular safety treatment. For example, from the ODOT ARTS resources, the CMF to install green bike lanes at conflict points is 0.61. This indicates that the frequency of bicyclist crashes with the treatment is estimated to be 61 percent of the estimated bicyclist crashes without the treatment. In other words, a 39 percent reduction in the frequency of bicyclist crashes is expected with this treatment.

Bridge Segments

The relative differences between the No-Build and Build Alternatives are evaluated by identifying any change in geometric conditions between the alternatives. To do this, the study corridor is analyzed in three sections of the bridge: west approach, mid-span, and east approach. Figure 45 presents the bridge sections and the cut lines representing the cross sections considered for the analysis. For each section, an average of the geometric parameters is considered to estimate the CMFs for each treatment.

The CMFs for various changes in features (i.e., treatments) for each of the Build Alternatives are identified and summarized in Table E1 in Appendix E. Part A: Chapter 3: Fundamentals of the first edition HSM recommends considering the safety effects of no more than three CMFs per location and to apply CMFs that are considered to address independent safety issues. Based on this guidance, Table E2 in Appendix E shows the CMFs applied in the analysis. Where multiple CMFs were possible, the most conservative, independent CMFs were selected. ODOT ARTS and the FHWA CMF Clearinghouse do not have CMFs reflecting the potential change in crash frequency or severity associated with the combined sidewalk and bicycle facility in several alternatives. As such these are not reflected in Table 25, below; however, the qualitative effects are provided in the text after each table.

Figure 45. Burnside Bridge Sections for Safety Analysis

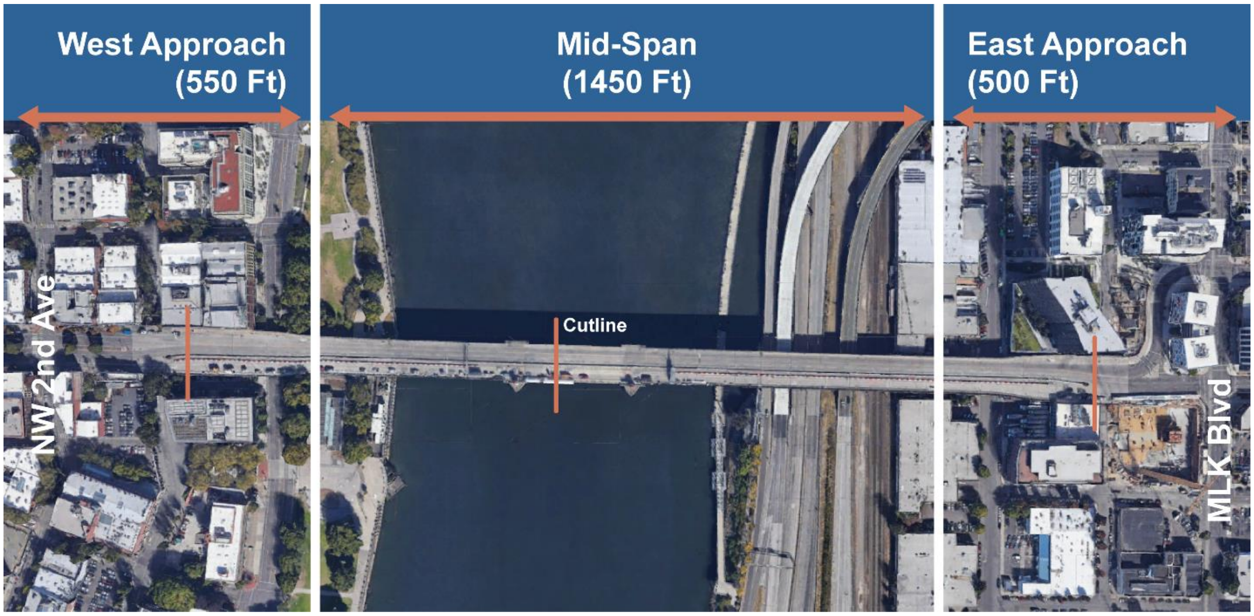
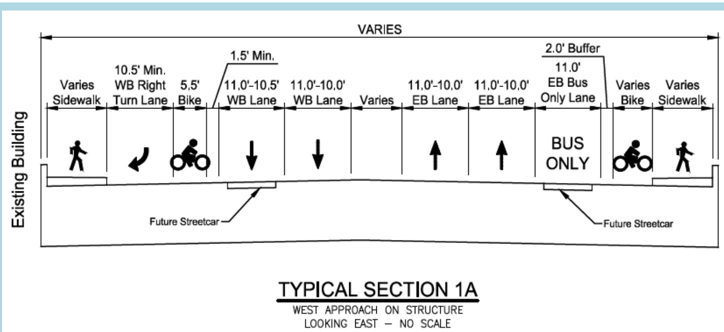
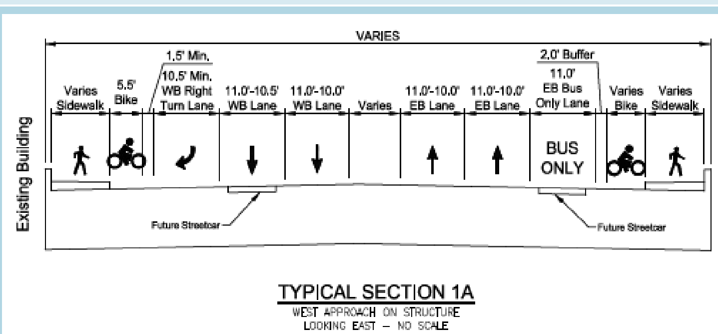


Table 25 presents final CMFs for the west approach of the bridge for the No-Build Alternative and each of the Build Alternatives. The CMFs for the No-Build Alternative are 1.00 because there are no changes in geometry and hence no additional safety benefits.

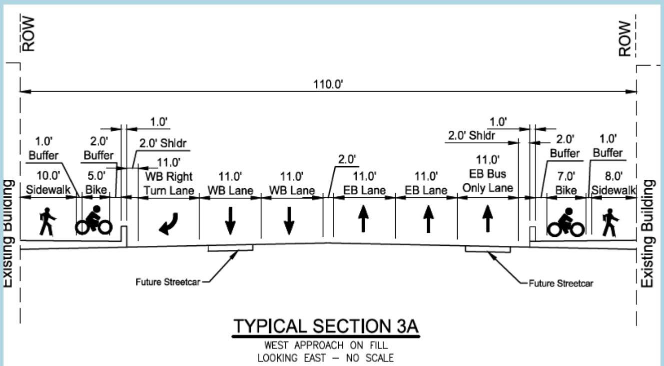
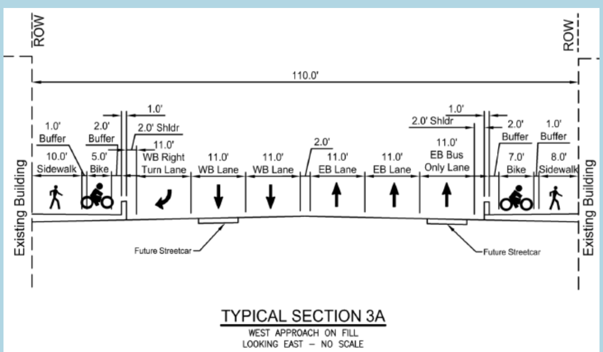
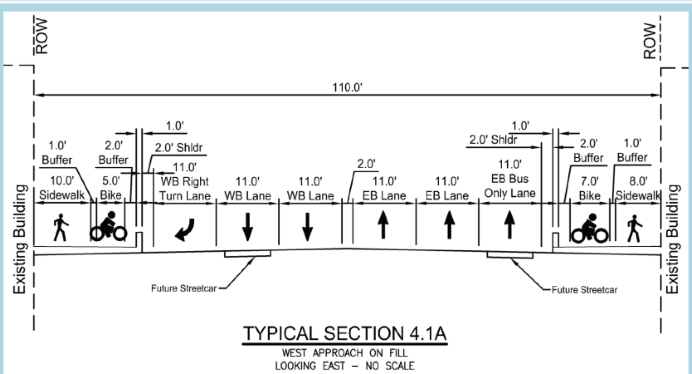
Table 25. CMFs for West Approach

<table>
<tr><th>No-Build and Build Alternatives</th><th>CMFs for All Crashes</th><th>CMFs for Bicyclists Crashes</th></tr>
<tr><td>Existing/No-Build (550 feet)</td><td></td><td></td></tr>
<tr><td>


</td><td>1.00</td><td>1.00</td></tr>
<tr><td>Enhanced Retrofit (550 feet)</td><td></td><td></td></tr>
<tr><td>


</td><td>0.73</td><td>0.93</td></tr>
</table>

Table 25. CMFs for West Approach

No-Build and Build Alternatives	CMFs for All Crashes	CMFs for Bicyclists Crashes
Replacement Alternative with Short-span Approach (550 feet)		
	0.89	0.34
Replacement Alternative with Long-span Approach (550 feet)		
	0.89	0.34
Replacement Alternative with Couch Extension (550 feet)		
	0.89	0.34

As shown in Table 25, the following safety benefits apply to motor vehicle crashes for each of the build alternatives:

- In the Enhanced Seismic Retrofit, approximately 27 percent reduction in all crashes on the west approach of the bridge is anticipated because of the following treatments:
    - Removing the on-street parking on both sides of the roadway.
    - Providing separate westbound bike lanes.
    - Providing wider lane width.
- Replacement Alternative with Short-span, Long-span, and Couch Extension alternatives, approximately 11 percent reduction in crashes are anticipated because of the safety benefits from the following treatments:
    - Removing the on-street parking on both sides of the roadway.
    - Providing separate westbound bike lanes.
    - Providing 2 feet of shoulders.
    - Providing wider lane width.

The Replacement Alternative with Short-span Approach, Replacement Alternative with Long-span Approach, and Replacement Alternative with Couch Extension have four treatments with safety benefits. As required by the HSM, only three independent CMFs can be multiplied together. To be conservative, the three largest CMFs are applied (i.e., shoulder CMF = 0.92, wider bike lanes CMF = 0.98 and wider lane width CMF = 0.99). However, all three of these alternatives also include removing on-street parking, which has a CMF of 0.75. As such, it is possible that there is a greater reduction in crash frequency for the Replacement Alternative with Short-span Approach, Replacement Alternative with Long-span Approach, and Replacement Alternative with Couch Extension than the Enhanced Seismic Retrofit.

There are also additional safety benefits associated with common treatments that do not have CMFs:

- Widening of sidewalks on the segment improves pedestrian safety and comfort because of the increase in separation between pedestrians and vehicles. As pedestrian comfort increases, an increase in walking trips may occur. In addition, the concrete barrier will provide additional security for the pedestrians.

The greatest safety benefits related to vehicle/bicycle crashes come from the physical separation between the bike lane and traffic lane. Using the crash analysis conducted for this report, between 2011 and 2017 there were 12 fatality and Injury A crashes in the direct API and of these four occurred on the Burnside Bridge. Of the crashes on the Burnside Bridge two were fatality crashes and two Injury A crashes. Based on the crash reports for these, there were two crashes where the severity could have been reduced or avoided all together if a physical barrier had been present.

- **Enhanced Seismic Retrofit —** 7 percent fewer vehicle/bicycle crashes are anticipated for this build alternative because of:
    - Providing wider bike lanes.

- Providing separate westbound bike lanes.

- **Replacement Alternative** with Short-span Approach — approximately 66 percent fewer vehicle/bicycle crashes are anticipated because of the following safety benefits:
  - Providing wider bike lanes.
  - Providing 2 feet of shoulders.
  - Providing a physical barrier between the bike lane and the traffic lane. The CMF is taken from the ODOT ARTS crash modification factor resources. This CMF is based on safety effectiveness research on bicycle facilities separated from traffic by a physical barrier (e.g., parked cars or a curb). As this is a raised barrier on a segment without driveway access or intersections, the reduction in vehicle/bicycle crashes may be higher than estimated here.
- **Replacement Alternative with Long-span Approach** — approximately 66 percent fewer vehicle/bicycle crashes are anticipated. The treatments are as follows:
  - Providing wider bike lanes.
  - Providing 2 feet of shoulders.
  - Providing a physical barrier between the bike lane and the traffic lane.
- **Replacement Alternative with Couch Extension** — approximately 66 percent fewer vehicle/bicycle crashes are anticipated because of the following treatments:
  - Providing wider bike lanes.
  - Providing 2 feet of shoulders.
  - Providing a physical barrier between the bike lane and the traffic lane.

Table 26 presents the final CMFs for the mid-span of the bridge for each of the Build Alternatives. This section of the bridge is approximately 1,450 feet except for the Replacement Alternative with Couch Extension, which is approximately 750 feet because of the couplet.

Table 26. CMFs for Mid-Span of the Burnside Bridge

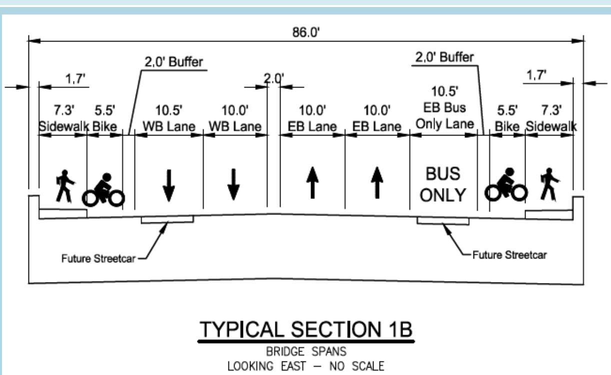
No-Build and Build Alternatives	CMFs for All Crashes	CMFs for Bicyclists Crashes
Existing		
	1.00	1.00

Table 26. CMFs for Mid-Span of the Burnside Bridge

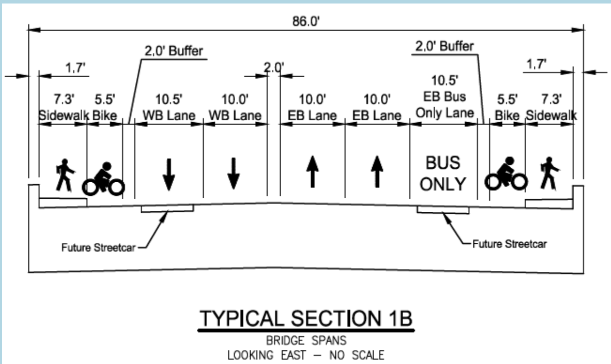
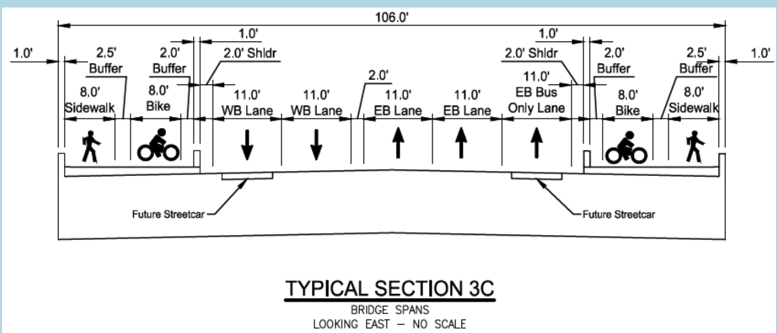
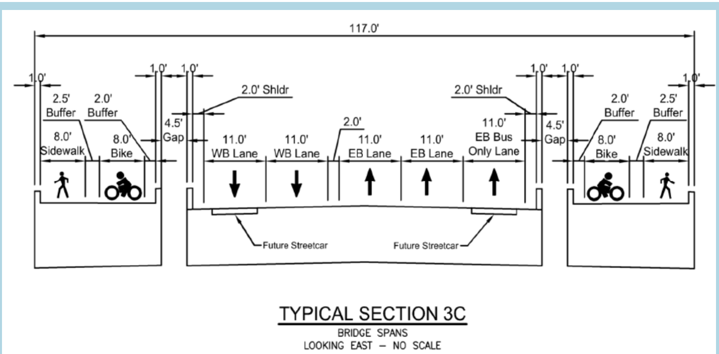
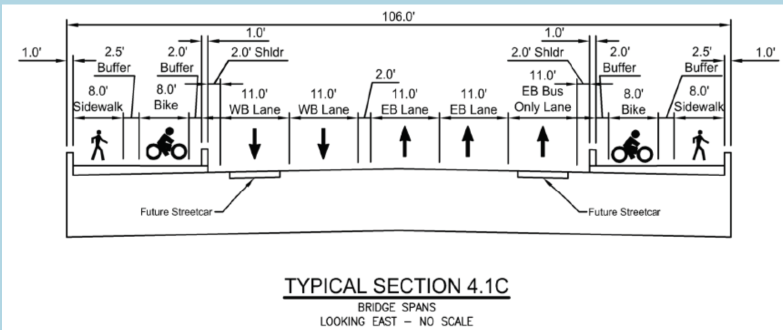
No-Build and Build Alternatives	CMFs for All Crashes	CMFs for Bicyclists Crashes
Enhanced Seismic Retrofit (1450 feet)		
	1.00	1.00
Replacement Alternative with Short-span Approach (1450 feet)		
	0.93	0.38
Replacement Alternative with Long-span Approach (1450 feet)		
 A span of 400 feet at the center of the section has 13 feet of bike lanes and a foot of physical barrier between the bike and traffic lanes.	0.93	0.38

Table 26. CMFs for Mid-Span of the Burnside Bridge

No-Build and Build Alternatives	CMFs for All Crashes	CMFs for Bicyclists Crashes
Replacement Alternative with Couch Extension (750 feet)		
	0.93	0.38

As shown in Table 26, it is anticipated there would be approximately 7 percent fewer motor vehicle crashes on the mid-span of the bridge under Replacement Alternative with Short-span Approach, Replacement Alternative with Long-span Approach, and Replacement Alternative with Couch Extension. This is due to providing shoulders on both sides of the roadway.

There are also additional common safety benefits associated with treatments that do not have CMFs:

- Widening of sidewalks on the segment. Sidewalks provide pedestrian safety and comfort because of the increase in separation between pedestrians and vehicles. As pedestrian comfort increases, an increase in walking trips may occur. In addition, the concrete barrier will provide additional security for the pedestrians.

The safety benefits for the vehicle/bicycle crashes are summarized below:

- **Enhanced Seismic Retrofit** — there are no safety benefits for the motor vehicle and bicyclist crashes anticipated for the Enhanced Seismic Retrofit because of the same geometric condition as the No-Build Alternative.
- **Replacement Alternative with Short-span, Long Span, or Couch Extension** — 62 percent fewer vehicle/bicycle crashes are anticipated because of:
  - Providing wider bike lanes.
  - Providing two feet of shoulders.
  - Providing a physical barrier between the bike lane and the traffic lane. The CMF is taken from the ODOT ARTS crash modification factor resources. This CMF is based on safety effectiveness research on bicycle facilities separated from traffic by a physical barrier (e.g., parked cars or a curb). As this is a raised barrier on a segment without driveway access, the reduction in vehicle/bicycle crashes may be higher than calculated here.

Table 27 presents the final CMFs for the east approach of the bridge for each of the build alternatives. This section of the bridge is approximately 500 feet long except for the Replacement Alternative with Couch Extension, which is an approximate 1,200 foot section of the bridge.

Table 27. CMFs for East Approach of the Burnside Bridge

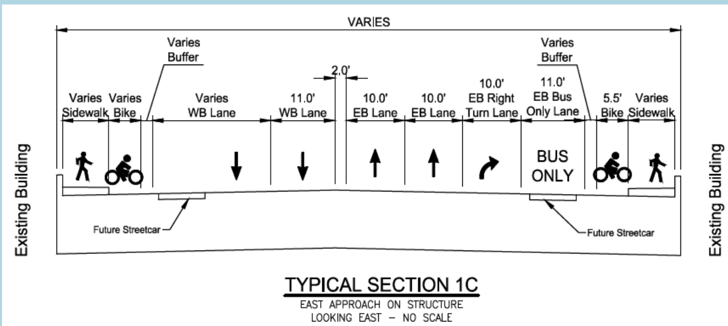
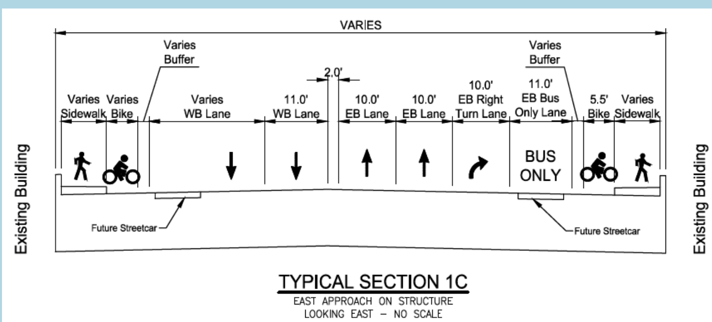
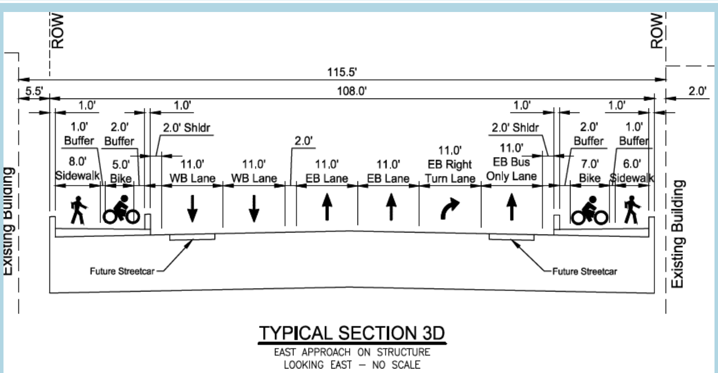
<table>
<tr><th>No-Build and Build Alternatives</th><th>CMFs for All Crashes</th><th>CMFs for Bicyclists Crashes</th></tr>
<tr><td>Existing</td><td></td><td></td></tr>
<tr><td>
</td><td>1.00</td><td>1.00</td></tr>
<tr><td>Enhanced Seismic Retrofit (500 feet)</td><td></td><td></td></tr>
<tr><td>
</td><td>0.99</td><td>1.00</td></tr>
<tr><td>Replacement Alternative with Short-span Approach (500 feet)</td><td></td><td></td></tr>
<tr><td>
</td><td>0.91</td><td>0.36</td></tr>
</table>

Table 27. CMFs for East Approach of the Burnside Bridge

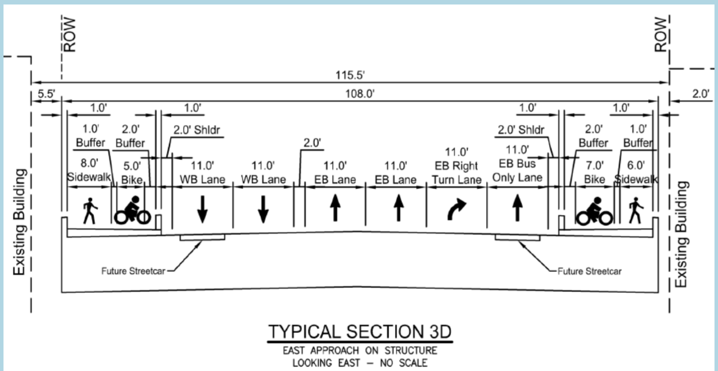
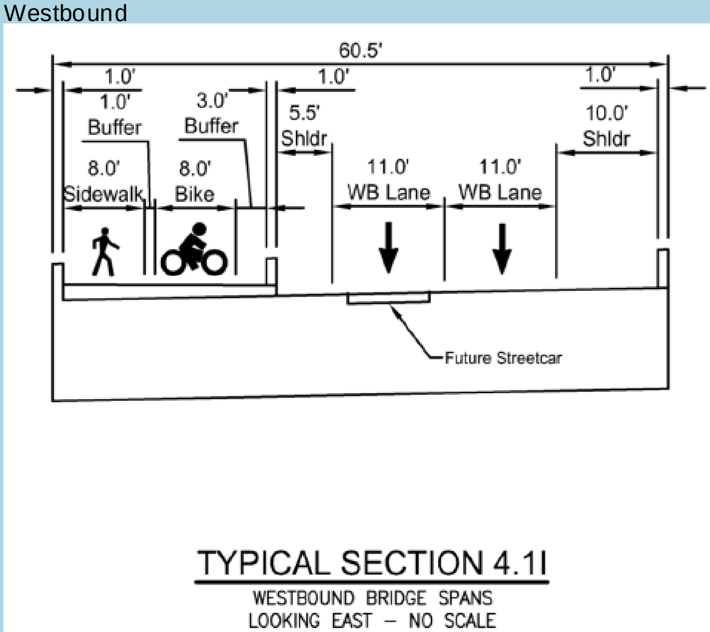
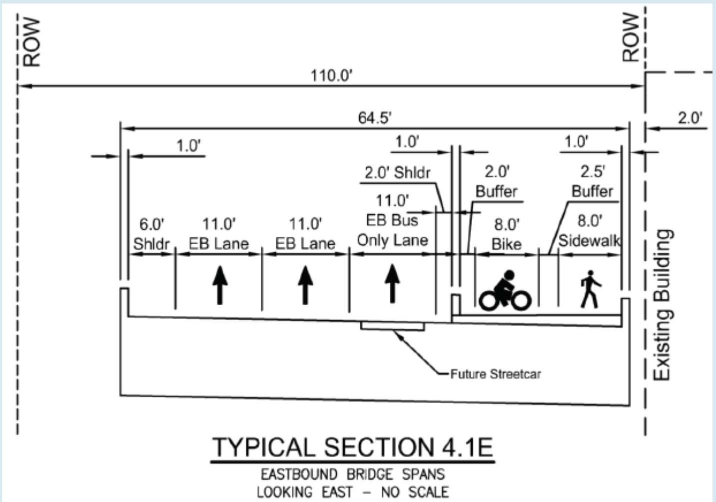
No-Build and Build Alternatives	CMFs for All Crashes	CMFs for Bicyclists Crashes
Replacement Alternative with Long-span Approach (500 feet)		
	0.91	0.36
Replacement Alternative with Couch Extension (1200 feet)		
Westbound 	No quantifiable CMF for the couplet identified	0.38

Table 27. CMFs for East Approach of the Burnside Bridge

No-Build and Build Alternatives	CMFs for All Crashes	CMFs for Bicyclists Crashes
Eastbound 	No quantifiable CMF for the couplet identified	0.38

As shown in Table 27, it is anticipated there would be approximately 9 percent fewer motor vehicle crashes on the east span of the bridge under Replacement Alternative with Short-span Approach, and Replacement Alternative with Long-span Approach. This is due to providing shoulders on both the sides of the roadway.

It was not possible to provide a CMF for the Replacement Alternative with Couch Extension scenario as a CMF for converting a short two-way section to a one-way couplet is not available. Additionally, one-way and two-way streets have different safety characteristics. However, there are benefits that should be noted:

- Wider bike lanes separated with a physical barrier from the regular traffic.
- Shoulders would be provided on both sides of the roads.

Some common additional safety benefits that do not have quantifiable CMFs are:

- Provision of dedicated eastbound bus-only lane, which would increase transit reliability and transit travel time on streets.
- Provision of wider sidewalks. This would provide safer sidewalks because of more separation between the traffic and the pedestrians. Walking trips would increase as pedestrian comfort increases.

The safety benefits for the vehicle/bicycle crashes vary by build alternatives. The treatments in the build alternatives contributing to safety benefits are as follows:

- **Enhanced Seismic Retrofit** — would have similar geometric conditions as the No-Build Alternative, hence no safety benefits for the bicyclist crashes for this alternative.

- **Replacement Alternative with Long-span, Short-span, and Couch Extension Approaches** — 64 percent fewer vehicle/bicycle crashes are anticipated because of:
    - Providing wider bike lanes.
    - Providing 2 feet of shoulders.
    - Providing a physical barrier between the bike lane and the traffic lane.

One CMF for each Build Alternative was calculated by estimating a weighted average value based on the length of each bridge section. The CMFs presented from Table 25 to Table 27 for each section of the bridge was given a weighting equal to the percentage length of the section. Table 28 presents a summary of final CMFs for all crashes and bicycle-vehicle crashes for each Build Alternative. As mentioned earlier, the CMF for the Replacement Alternative with Couch Extension is not quantifiable, a conservative value of 1.00 was assumed for estimating the final CMF.

Table 28. Summary of CMFs for Each Build Alternative

Build Alternatives	Proposed Treatment	All Crash CMF	Bicycle-Vehicle Crash CMF
Enhanced Retrofit	• Prohibit on-street parking at the west approach • Increase bike lane width, provide bike lanes at the west approach	0.94 6% reduction	0.98 2% reduction
Replacement, Short-span	• Prohibit on-street parking at the west approach • Provide shoulder • Increase bike lane width, physical barrier between the bike and traffic lanes	0.92 8% reduction	0.37 63% reduction
Replacement, Long-span	• Prohibit on-street parking at the west approach • Provide shoulder • Increase bike lane width, wider physical barrier between the bike and traffic lanes • Wider bike lanes at the center of this section	0.92 8% reduction	0.37 63% reduction
Replacement with Couch Extension	• Prohibit on-street parking at the west approach • Provide shoulder • Increase bike lane width, physical barrier between the bike and traffic lanes • Couch Extension *(No CMF, *assumed CMF = 1, qualitative assessment only)*	0.95* 5% reduction	0.37 63% reduction

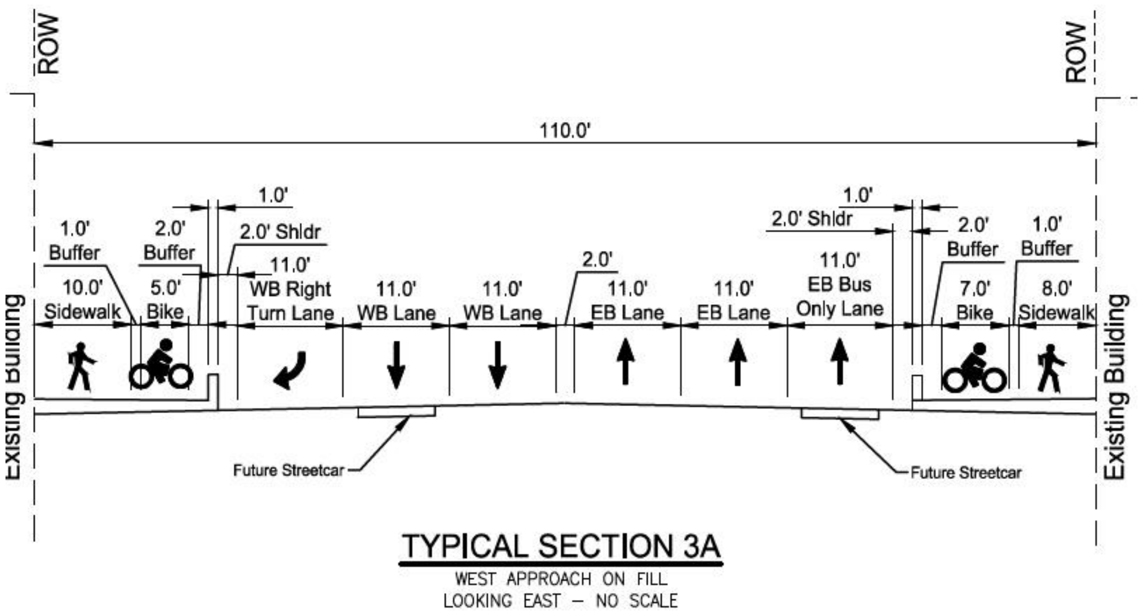
As shown in Table 28, the CMFs for all crashes range from 0.92 to 0.95, which is a 5 percent to 8 percent reduction of crashes. Thus, all three build alternatives are forecast to have slightly fewer crashes than the Retrofit Alternative. There is not a significant difference in safety performance among the Build Alternatives. The CMFs for bicycle-vehicle crashes range from 0.37 to 0.98. A 2 percent reduction in vehicle-bicycle crashes is estimated in the Retrofit Alternative. A 63 percent reduction in vehicle-bicycle crashes is estimated for other Build Alternatives. The higher reduction in bicycle-vehicle crashes is due to providing physical barrier for the bicycle lanes and providing a shoulder between the bike lane and traffic lane. The improvements in pedestrian and bicyclist safety will lower the injury levels since they are the most vulnerable road users prone to higher injury severity when involved in a crash.

Intersections

The intersections in the safety direct API are shown on Figure 46. The intersections likely to be affected by the proposed geometric changes in the Build Alternatives are:

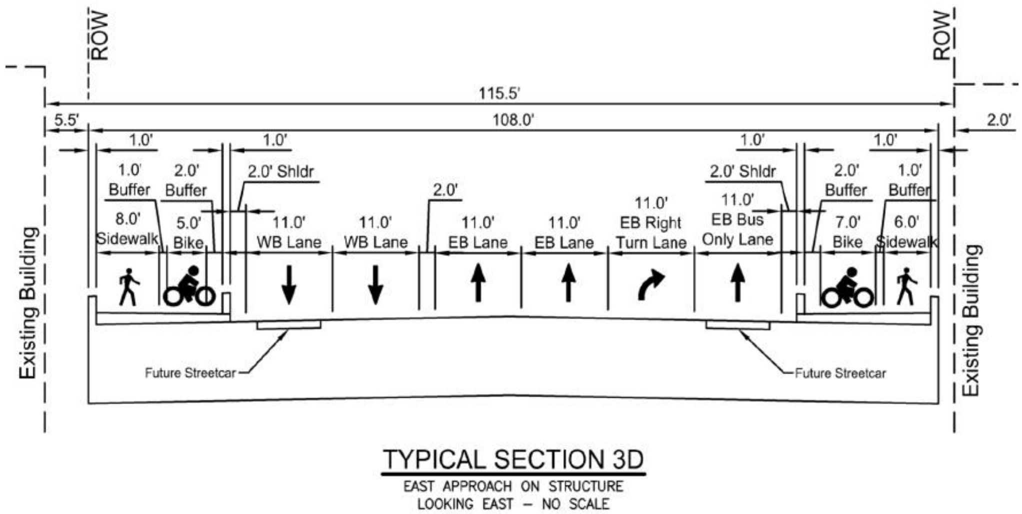
- **NW 2nd Avenue and Burnside Street – Westbound Approach —** All of the Build Alternatives would have a separate westbound bike lane between the sidewalk and westbound right turn lane. This would create a conflict point between westbound right-turning vehicles and westbound through bicycles. Figure 46 presents the cross section of the east leg of the intersection for the Short-span Alternative. The cross section is similar to the Long-span and Replacement Alternative with Couch Extension. The Retrofit Alternative has a similar cross section but without the physical barrier between the bike and traffic lanes.

Figure 46. Westbound of NW 2nd Avenue and Burnside Street intersection in the Short-span Alternative (Looking East)



- **East Burnside Street and MLK** Blvd **– East Approach —** all of the Build Alternatives would have a bike lane between the sidewalk and the bus lane in the eastbound direction. The eastbound right turn lane is next to the bus lane. As such, there would be conflict points between eastbound right-turning vehicles and eastbound through buses and bicycles. The existing protected signal phase for buses and bicycles will eliminate this conflict. Figure 47 shows the cross section of the west leg of the intersection for the Replacement Alternative for Long-span Approach. Other build alternatives have a similar cross section for the eastbound direction.

Figure 47. Eastbound of East Burnside Street and MLK Blvd Intersection in the Long-span Alternative (Looking East)



No-Build

The above-mentioned safety analysis is based on the changes in geometric conditions in the build alternative compared to the No-Build. There are no changes in the traffic volume between the build alternatives and No-Build. A change in bicyclist and pedestrian volume due to change in their route is anticipated for the Replacement Alternative with Couch Extension. The pedestrians and bicyclists will be rerouted from NE 3rd Avenue to NE Davis Street to NE MLK Blvd to go westbound on the bridge, a separated bike lane is proposed along this route. This route will not conflict with vehicular traffic, thus improves safety.

Cyclists traveling from eastbound Burnside Bridge to southbound NE 3rd Avenue will turn right from the bridge onto southbound MLK Blvd via separated bicycle facility on the east side of MLK Blvd between Burnside Street and SW Ankeny. The intersection of SW Ankeny Street/MLK Blvd is currently unsignalized but is identified for signalization as a capital improvement project by the City of Portland irrespective of this project. This connection and signalization will improve bicycle circulation and safety in this area for No-Build as well as any of the build alternatives.

7.3 Post-earthquake Impacts

This section describes the effects of a potential CSZ earthquake on the performance of the Build and No-Build alternatives, providing a qualitative assessment of the conditions that would exist after a CSZ earthquake.

All of the scenarios described in this section use a single earthquake scenario. On any given day, it is possible that a CSZ earthquake exceeding 8.0 magnitude could strike the region and cause several minutes of shaking, causing widespread damage throughout Multnomah County[4] as well as the rest of western Oregon and Washington. A CSZ

[4] Multnomah County Natural Hazards Mitigation Plan, 3.10, https://multco.us/file/65292/download

earthquake is predicted to make every river crossing into downtown Portland unusable and any other infrastructure not built to updated CSZ seismic standards would be substantially damaged.[5]

Information regarding a CSZ earthquake scenario throughout this section comes from a number of sources, including:

- City of Portland's Earthquake Response Appendix
- Multnomah County's Natural Hazard Mitigation Plan
- Oregon Resiliency Plan
- EQRB Seismic Design Criteria Report
- EQRB Description of Alternatives

For all of the Build Alternatives, the bridge is being designed so that it may be used immediately after a CSZ event for emergency response and recovery operations.[6] The information presented in this section assumes a standard of seismic resiliency for the future Burnside Bridge that comes from the Seismic Design Criteria Report.

The EQRB Project's primary purpose is to deliver a bridge that is seismically resilient and provides a lifeline crossing over the Willamette River in the event of a CSZ earthquake. It is the intent, therefore, that the bridge provide a reliable crossing for emergency response, evacuation, and economic recovery after a 1000-year earthquake event. The relevant seismic design criteria that are the basis of all three build alternatives can be found in the Seismic Design Criteria Report. The bridge would be designed for a minimum 100-year design life and would meet all current and applicable city, county, state, and national design and safety standards.[7]

The future Build Alternatives use two primary performance levels in the design of the options:

- **Performance Level 1 (FO):** Full Operation (full functionality). Damage sustained is negligible. Essentially elastic for all primary structural components, movable spans remain operable to open and close. Only minimal, superficial repairs and maintenance activities will be required post-earthquake without interruption to traffic. All traffic modes are able to use the bridge, including river navigation, immediately after the earthquake.
- **Performance Level 2 (LO):** Limited Operation (limited functionality). Damage sustained is minimal. Limited inelastic behavior to substructure components; the bridge allows for emergency vehicles (after inspection and removal of debris). Movable components may not be operable without repairs. Damage is repairable but may impact traffic. Limited permanent deformation may occur.[8]

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[5] Description of Alternatives: Earthquake Ready Burnside Bridge Project, 4.

[6] Ibid, 10.

[7] Ibid, 10.

[8] Seismic Design Criteria Report: Earthquake Ready Burnside Bridge, 4. https://multco.us/file/85426/download

The project-specific seismic performance requirements, expressed in terms of allowable damage, are further defined in Section 3.2.1 and 3.2.2 of the Seismic Design Criteria Report.

7.3.1 No-Build Alternative

The information in this section summarizes the anticipated impacts from a CSZ event where the Burnside Bridge has not been replaced with a new or retrofitted bridge.

Traffic

Under the No-Build Alternative, in a CSZ post-earthquake scenario the Burnside Bridge is not anticipated to survive in a functional manner even given the Phase I seismic retrofit the bridge has previously received.[9] Major portions of the bridge structure and decking would fail, falling as debris and blocking north-south travel along Naito Parkway and SW 1st Avenue on the west end of the bridge. Bridge debris would obstruct all modes of transportation, blocking over one billion dollars in transportation infrastructure that relies on the bridge. On the east bank of the river, the collapsed bridge would sever and block I-5, I-84, 1st, 2nd, and 3rd avenues SE.[10] On the east bank of the river, the collapsed bridge would sever and block I-5, I-84, 1st, 2nd, and 3rd avenues SE. With other bridges out of service, Portland would be divided by the Willamette River, leaving tens of thousands stranded. Emergency responders would be unable to cross the river to aid victims, fight fires, address other emergencies, or facilitate evacuation.

Traffic in the region and immediately adjacent to the Burnside Bridge and all other bridges would come to a standstill. Debris, abandoned cars and collapsed or damaged bridges, overpasses and structures would likely block navigation of streets and major highways for between 6 to 12 months,[11] requiring that people turn to walking and biking as their main forms of transportation in the immediate and mid-term aftermath of a major CSZ event.

Freight

As described above, in the No-Build Alternative in a CSZ post-earthquake scenario the Burnside Bridge would collapse, severing the east/west connection across the Willamette River. Along with the failing of the majority of other bridges crossing the Willamette, freight movement and access to central Portland would be severely impacted and likely cut off for several months as cleanup efforts ramped up. Businesses that rely on freight deliveries would not be able to receive deliveries and any freight moving in and out of Central Portland would be geared toward emergency supplies and equipment to aid in the recovery in a post-earthquake situation.

[9] City of Portland Earthquake Response Appendix, 5. https://www.portlandoregon.gov/pbem/article/382005

[10] Ibid, 7.

[11] Multnomah County Natural Hazards Mitigation Plan, 3.23, https://multco.us/file/65292/download

Transit

Transit service would experience significant impacts in the event of a major CSZ earthquake under the No-Build Alternative, resulting in transit service becoming significantly fragmented or completely shut down, leaving transit riders with few options. With the Burnside Bridge down, along with major damage or complete failure to the majority of bridges in Portland, this would lead to an almost complete shutdown of TriMet transit service within the central city.[12] Bus routes normally crossing the Burnside Bridge (lines 12, 19, and 20) would have no route to travel to connect the east and west sides of the Willamette River. These bus routes' normal detour route, across the Steel Bridge, would likely also face significant structural failure and cease to offer an alternative detour route over the Willamette River.

Besides the transit routes disrupted from normal operations across the Burnside Bridge, the structural failure of the bridge would result in significant blockage of the TriMet Blue and Red MAX Lines that are routed under the bridge along NW 1st Avenue. The Portland Streetcar would also likely face operational challenges after an earthquake, as the Broadway Bridge would experience severe structural damage that would not allow the Streetcar to continue operations. An earthquake would also likely impact rail tracks for both the MAX and Streetcar as ground cracking could lead to misalignment of rail tracks. Additionally, regional train service provided by Amtrak and routed along the Union Pacific mainline tracks that are under the Burnside Bridge on the east side of the river, and connecting Portland to Seattle, Vancouver, Salem, and Eugene, would likely be blocked from normal operations.

Rail Network

Under the No-Build Alternative in a CSZ post-earthquake scenario there would be significant impacts to rail operations. The Union Pacific mainline rail line runs directly under the Burnside Bridge. In a situation after an 8+ CSZ earthquake, large amounts of debris from the failing of the structural integrity of the Burnside Bridge would fall onto the tracks and block rail operations. Debris would likely block operations for many months and be complicated by the need to clear out debris along the rail tracks resulting from the failing of other bridges, such as the Steel and Hawthorne Bridges.

Active Transportation

Active transportation would experience significant impacts in the event of a major CSZ earthquake under the No-Build Alternative. However, these modes are some of the most resilient because they do not rely on sophisticated vehicle technology or specifically-designed infrastructure. However, a major CSZ event could significantly disrupt bike and pedestrian networks and movements on either side of the river. If the event were to cause major damage or complete failure of the Burnside Bridge (and other downtown bridges), then there would be no alternative for these modes to cross the river. However, these modes may be the quickest to respond through access to temporary bridges or other river crossing services.

[12] Description of Alternatives: Earthquake Ready Burnside Bridge Project, 7.

Indirect Impacts

Without the provision of a seismically resilient Burnside Bridge, recovery throughout the Portland region would be slowed and less efficient compared to the Build Alternative. A non-functional Burnside Bridge would hamper the movement of EMS supplies, people, and the removal of debris. With much of the infrastructure allowing for the crossing of the Willamette River out of service in the aftermath of a CSZ event, movement of goods and people would slow with the region effectively cut in half. Ultimately, the region would suffer a slower rebuilding phase while suffering long-term job losses and the possible loss of population.

7.3.2 Build Alternatives

The conditions after a CSZ event would be significantly different with a seismically resilient Burnside Bridge. The impacts would be similar among all of the build alternatives would be similar to each other, as described below. The Long-Span, Short-span, and Couch Extension are generally identical across topics addressed within the Post-earthquake section of this report.

Traffic

All of the build alternatives would result in a Burnside Bridge that is designed to be functional in the immediate aftermath of a CSZ event. Thus, the Burnside Bridge would likely be the only bridge to remain operational after a major CSZ earthquake in the downtown Portland area; the Tilikum Bridge would be left standing, but the approaches could sustain substantial damage that would result in full operations over the Tilikum to be suspended for some time. The vast majority of transportation infrastructure can be expected to experience major interruptions for between 6 to 12 months before a minimum level of service is restored. In the immediate aftermath of such an event, traffic would likely come to a halt as debris and abandoned vehicles block the approaches leading to the bridge. A seismically-resilient Burnside Bridge would also likely be the only lifeline between the two banks of the river in downtown Portland, thus becoming a crucial link for emergency services in the immediate aftermath.

Across much of the Portland region, traffic would come to a standstill in much of the Portland region following the immediate aftermath of a CSZ event. Much of the region's major transportation facilities would be severely damaged and unpassable, and even streets and highways that experience little physical damage would likely have debris and abandoned cars blocking passage for vehicle traffic. In this scenario, a functional Burnside Bridge left operational would experience little traffic as too many failures across the region's transportation infrastructure would likely contribute to a system in complete standstill. The bridge would thus serve an important regional connection, allowing the facilitation of rescue efforts, emergency services, and the movement of people out of downtown in the immediate aftermath.

Priority use of the bridge would be for evacuation and other emergency services and recovery efforts. It is anticipated that the bridge traffic after initial debris clearing would first consist of emergency responders engaging in rescue and debris clearing operations, followed by vehicles hauling emergency supplies such as water, food, fuel, and materials/equipment and personnel needed to make emergency repairs on critical utilities and facilities. Private cars would likely have difficulty reaching the bridge due to ground transportation damage such as fallen debris, damaged utilities, roadway and bridge/overpass damage. Pedestrian and bicycle use may be a common mode of travel for residents immediately following the earthquake.[13]

As the time frame extends out several weeks to a couple of months following a CSZ earthquake, the Burnside Bridge would be the main connection across the Willamette River in central Portland. Other bridge connections would likely remain closed as inspections and repairs take many months – even years. As recovery proceeds, normal day-to-day life would slowly return and regional travel needs would return, albeit at lower levels resulting from large portions of the population being displaced and large portions of the region's transportation network continuing to be unusable. Thus, the Burnside Bridge would be an important connection allowing for the return of economic activity, speeding recovery, and allowing travel across the region to return.

After the initial debris clearing and rescue operations (approximately 2 weeks), the bridge may be prioritized for emergency responders, for vehicles evacuating refugees, for trucks removing debris that is blocking roads or posing additional hazards, as well as for emergency maintenance. It is likely that federal agency and military trucks, heavy equipment, and personnel would be transported to the region in this time frame. A major CSZ earthquake is expected to cause heavy damage and long-term closure of I-5, I-84 and I-405, freight rail, and MAX light-rail service. Even with the majority of bridges closed and under inspection and repair within this time frame, traffic on the Burnside Bridge would be light, as normal day-to-day life in Portland would not have been restored.

As the time horizon reaches 6 to 12 months after a CSZ event, more daily traffic would occur as Portland returns to some semblance of normal life. Traffic levels would likely still be light as many people are expected to be displaced from their homes in the event of a CSZ earthquake and offices and businesses would slowly reopen. Within 12 months, the Burnside Bridge would no longer be the only lifeline connection across the Willamette in the downtown area, as more bridges are initially repaired to a minimum level of operations, demand pressures placed on the Burnside Bridge would be relieved and help bring normal life back to Portland.

Freight

The build alternatives would greatly benefit the movement of freight in the aftermath of a CSZ earthquake. As the seismically-resilient Burnside Bridge could be the only bridge left operating in Central Portland, the bridge would become a lifeline between the east and west banks of the Willamette River and would thus become a key point for the movement of freight and supplies in Portland.

In the immediate aftermath of an earthquake, most, if not all movement of freight traffic would likely come to a halt. The Burnside Bridge would become the key route for transporting supplies for rescue and recovery efforts in the downtown area. Even in a scenario where the Burnside Bridge is left operational, debris would likely block large portions of Portland's surface street network, while other important regional freight connections would likely fail and be blocked such as I-5, I-405, I-84, and Highway 30.

[13] Description of Alternatives: Earthquake Ready Burnside Bridge Project, 10.

Freight movement would likely take the form of moving key supplies into Portland to support first responders and cleanup and recovery efforts. Vehicles would likely focus on hauling emergency supplies such as water, food, fuel, and materials/equipment and personnel needed to make emergency repairs on critical utilities and facilities. . Having an operational Burnside Bridge would aid in the speed of cleanup and recovery and make solving logistical problems in a region dissected by a major river easier.

The build alternatives would allow for a faster recovery in freight movement, as emergency services, recovery efforts, and freight logistics could rely on an east-west bridge connection over the Willamette River to speed the movement of goods and recovery throughout the wider Portland region.

As the time horizon reaches 6 to 12 months after a CSZ event, debris is cleaned off of streets and regional connections are opened back up, the movement of freight would again become possible, but much of the movement of freight would likely continue to be focused on bringing in supplies, with the focus turning to rebuilding rather than cleanup. Key supplies that would need to be brought in during this stage are likely to be construction-related equipment.

Transit

The build alternatives would benefit the ability to move people through the Portland region. In the immediate aftermath of a CSZ earthquake event, movement of transit vehicles would likely halt, as debris and the failing of bridges across the Willamette River would make surface streets mostly impassable. Critically for TriMet, the Broadway, Morrison, Steel, and Tilikum Bridges are expected to experience heavy damage, blocking the flow of bus and MAX service for much of the region.

In a CSZ post-earthquake scenario, there would be significant regional impacts to TriMet transit service. Overall, 19 TriMet bus routes, 5 MAX routes, and two Portland Streetcar loops cross the Willamette River using one of the six bridges over the Willamette River that connect to surface streets. Only three of these routes, bus lines 12, 19, and 20, cross the Willamette River using the Burnside Bridge. In the immediate aftermath of a CSZ earthquake, the majority of regional transit service, including MAX, Portland Streetcar, and bus lines would likely stop functioning and transit vehicles would likely be used to shuttle survivors away from central Portland and other hazardous areas.

In this scenario, the Burnside Bridge becomes a lifeline, not only for the flow of emergency services and the movement of supplies for recovery efforts, but it would function for weeks and perhaps months as the only reliable east-west connection in Central Portland. In the immediate aftermath, the Burnside Bridge could be a critical link in providing a route for TriMet buses to act as a way to move large numbers of people out of downtown depending on the level of destruction and debris.

In the weeks following an earthquake event, it is likely that vehicle traffic would remain low and people would need to walk and bike more to avoid debris and blocked services. This would mean that bus transit service could become a key component in moving people around a metro region left devastated by a major earthquake. As recovery proceeds, the Burnside Bridge would act as the lifeline link that allows TriMet service to redeploy and reroute regional service. The Portland Streetcar would also likely face operational challenges after an earthquake, as the Broadway Bridge would experience severe structural damage that would not allow the Streetcar to continue operations. An earthquake would also likely impact rail tracks for both the MAX and Streetcar as ground cracking could lead to misalignment of rail tracks. With MAX service down and other bridges not operational, TriMet would likely run bus bridges, temporary bus routes running between major MAX stops, to allow MAX service to continue even in the event of interruptions to service at specific locations.

As recovery efforts proceed over the weeks and months following a CSZ earthquake, transit service would likely have to be significantly rerouted on a regional basis. With the Burnside Bridge likely to be the only functioning bridge downtown, many of TriMet's bus routes would have to be rerouted across the bridge, leading to additional travel times and exacerbating already unreliable service in the aftermath of an earthquake. Portland Streetcar, which crosses the Willamette River over the Broadway and Tilikum Bridges, would also likely not operate in the immediate aftermath and only slowly resume limited operations once the Tilikum Bridge was operational again. With both the Steel and Tilikum Bridges nonfunctioning, bus bridges would need to cross the Burnside Bridge if TriMet plans to have functioning regional MAX service on either side of the Willamette River.

Rail Network

Under the Enhanced Seismic Retrofit in a CSZ post-earthquake scenario, there would be significant impacts to rail operations, even if the impact does not come from the Burnside Bridge itself. With the upgrades to the Burnside Bridge represented by the build alternatives, there would likely be little debris from the bridge falling on the Union Pacific mainline rail line running under the Burnside Bridge. However, rail operations would still be significantly impacted by blockages elsewhere as debris resulting from the failing of buildings and other bridges crossing over the Union Pacific tracks would present significant blockages to rail operations, resulting in the suspension of operations likely for months.

Active Transportation

With the build alternatives, the Burnside Bridge would likely be the only usable bridge after a major CSZ event. In the immediate aftermath of such an event, there would likely be impacts to the bike and pedestrian network as a result of debris and damage. Providing emergency response or escaping downtown or the east side on foot or using a bicycle or similar device may be a more readily-available and rapid emergency response method.

These modes would be the most easily available to residents as they slowly return to normal life during the initial debris clearing and rescue operations (approximately 2 weeks) – where the road network would be prioritized for emergency responders and during the long-term recovery and rebuilding period (months and years).

Indirect Impacts

The provision of a Burnside Bridge engineered to be seismically resilient, recovery throughout the Portland region would be faster and more efficient compared to the No-Build Alternative. A standing Burnside Bridge would allow for the movement of EMS supplies, people, the removal of debris. This would ultimately set-up the region for a quicker rebuilding phase while avoiding long-term loss of jobs and population that can happen when critical infrastructure does not survive an earthquake event.

Indirect Impacts to the Union Pacific mainline rail connection would be significant under a CSZ earthquake scenario. Even with a Burnside Bridge that remains intact and operational, bridge failures elsewhere in the region would leave large amounts of debris blocking rail traffic on the Union Pacific tracks. Regional rail movement of freight and north-south Amtrak service connection Portland to Seattle and Eugene would see large impacts as traffic would come to a standstill.

Active Transportation

Under the Enhanced Seismic Retrofit in a CSZ post-earthquake scenario, there would be significant regional impacts to the active transportation network. Major damage or destruction of the other downtown bridges would make the Burnside Bridge a critical link for the movement of people and goods between the east and west sides of the Willamette River. Bike and pedestrian movements on the Burnside Bridge would be critical in providing immediate emergency response as well as moving residents across the river during the recovery and rebuilding efforts.

7.4 Construction Impacts

7.4.1 Temporary Conditions Scenarios

- Scenario D: Temporary Bridge, All Modes (2019). This scenario models transportation impacts resulting from a Temporary Bridge being constructed throughout the construction phase of the EQRB Project. The temporary bridge modeled in Scenario D allows all modes of transportation access to the bridge. However, due to width constraints of such a temporary structure the bridge will allow only a single general purpose travel lane in each direction across the bridge span, reducing overall capacity of the temporary bridge and mixing vehicle and transit traffic together in both directions.
- Scenario E: Temporary Bridge, All Modes and I-5 Rose Quarter Closures (2019). Scenario E is similar to Scenario D; however, it adds a possible directional closure along I-5 due to the I-5 Rose Quarter Project led by ODOT. The purpose of this scenario is to explore worst case impacts stemming from additional traffic being routed onto surface streets within the vicinity of the Burnside Bridge that would result from a directional closure of I-5.
- Scenario F: Temporary Bridge, Transit, Bicycles, and Pedestrians Only (2019). Scenario F models transportation impacts resulting from a temporary bridge being constructed throughout the construction phase that precludes general vehicle traffic. The temporary bridge would still allow transit and active modes to access the bridge. Thus, vehicle traffic desiring to cross the Willamette River would need to reroute to one of the other bridges.
- Scenario G: Temporary Bridge, Bike/Ped Only (2019). Scenario G models transportation impacts resulting from a temporary bridge being constructed

throughout the construction phase that only service bicycle and pedestrian users. Thus, vehicle traffic and transit vehicles would need to reroute to one of the other bridges.

- Scenario H: Full Closure (2019). Scenario H explores impacts during the construction phase in which no temporary bridge is constructed. This would result in all modes of traffic wanting to cross the Willamette River that formerly used the Burnside Bridge to divert to other bridges or forego trips.
- Scenario I: Full Closure and I-5 Rose Quarter Closures (2019). Scenario I is similar to Scenario H; however, it adds a possible directional closure along I-5 due to the I-5 Rose Quarter Project led by ODOT. The purpose of this scenario is to explore worst case impacts stemming from additional traffic being routed onto surface streets within the vicinity of the Burnside Bridge that would result from a directional closure of I-5.

For the purposes of modeling auto traffic, Scenario B Future No-Build and Scenario C Future Build are functionally equivalent, because they have the same capacities. Auto traffic capacity is the same for all future build alternatives; therefore, one modeling scenario exists for all future build alternatives. Temporary conditions scenarios are described in more detail under Section 6.3.

7.4.2 Full Closure (No Temporary Bridge)

Section 7.4.1 explores the impacts related to a full closure of the Burnside Bridge during the construction phase. Below is a summary of the key findings explored in more depth throughout this section:

Traffic/Freight

- The approximately 35,000 daily trips crossing the Willamette River over the Burnside Bridge face substantial out-of-direction travel without a temporary bridge during the construction period.
- The remaining bridges would face increased congestion, often in the range of 10 to 20 percent higher D/C ratios.
- Travel times across the remaining bridges would likewise experience increases, some routes by as much as 40 percent.

Transit

- Transit riders, especially on lines bus 12, 19, and 20, would experience substantial out-of-direction travel due to a full closure of the Burnside Bridge. Out-of-direction travel would double travel times across the Willamette River between bridgeheads on each side of the river.
- Bus lines 12, 19, and 20 are predicted to lose 5 percent of their ridership during the construction phase. The majority these transit riders would switch to other transit routes that are more convenient during the construction period.
- Overall, transit ridership for lines passing through the project area will hold steady in the face of a Burnside Bridge closure.

- The Portland Streetcar will likely face additional delays along MLK Blvd and Grand Avenue as additional congestion on those streets slows traffic flow by between 10 and 20 percent.

Active Transportation

- Construction-related closures of the Vera Katz Eastbank Esplanade would impact bicycle and pedestrian users of that trail throughout the construction period. This would force users to detour around construction, adding out-of-direction travel for users. Users would either have to detour to the west bank of the Willamette river or route along the street network on the east bank. Alternatively, users may forgo trips along the Willamette River all together.
- Potential detour routes for those active users would add approximately 8 minutes for cyclists and about 15 minutes for pedestrians.

Safety

Safety impacts for the Full Closure construction scenario are found in Section 7.4.4.

- Crashes during the construction phase are assumed to be a function of VMT within the area studied. The crash frequency is not predicted to substantively change compared to existing conditions.
- Forgoing the construction of a temporary bridge shortens the construction time-horizon and thus reduces the increase in total crash frequency and the fatal and injury crash frequency predicted in temporary bridge scenarios.
- The directional closure of I-5 transfers vehicle demand from facilities with generally lower overall crash rates to facilities with generally higher crash rates.

Auto Demand and Travel Times

For a description of the methods used to analyze construction impacts to demand and travel times, see Section 6.

A full closure of the Burnside Bridge during construction (Scenario H) would displace approximately 35,000 daily vehicle trips over the Burnside Bridge and require those trips to shift to other routes and other modes. A full closure of the Burnside Bridge would displace 1,575 westbound vehicles in the AM peak hour and 1,700 eastbound vehicles in the PM peak hour. Table 29 and Table 30 show the impacts to traffic demand and D/C ratios across the Willamette River Bridges.

Table 31 and Table 32 show the impacts to travel times along 12 different routes resulting from this construction scenario.

Table 29. Traffic Demand and D/C Ratios – Westbound AM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario H	D/C ratio Scenario H	Demand Difference	D/C ratio Difference
Fremont	6,140	0.88	6,520	0.93	*+380*	*+0.05*
Broadway	1,925	1.07	2,110	1.17	*+185*	*+0.10*
Steel	990	1.10	1,085	1.21	*+95*	*+0.11*
Burnside	1,575	0.79	0	—	*-1,575*	—
Morrison	3,195	0.89	3,820	1.06	*+625*	*+0.17*
Hawthorne	1,850	1.03	1,955	1.09	*+105*	*+0.06*
Marquam	5,680	0.81	5,800	0.82	*+120*	*+0.01*
Ross Island	3,260	1.02	3,325	1.04	*+65*	*+0.02*

Source: Parametrix
*Figures reported in red are those D/C ratios above 1.0

Table 30. Traffic Demand and D/C Ratios – Eastbound PM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario H	D/C ratio Scenario H	Demand Difference	D/C ratio Difference
Fremont	5,760	0.82	6,135	0.88	*+375*	*+0.06*
Broadway	1,710	0.95	1,885	1.05	*+175*	*+0.10*
Steel	970	1.08	1,080	1.20	*+110*	*+0.12*
Burnside	1,700	0.85	0	0.00	*-1,700*	-
Morrison	2,315	0.64	3,115	0.86	*+800*	*+0.22*
Hawthorne	2,090	1.16	2,155	1.20	*+65*	*+0.04*
Marquam	6,195	0.88	6,320	0.90	*+125*	*+0.02*
Ross Island	3,630	1.13	3,680	1.15	*+50*	*+0.02*

Source: Parametrix
*Figures reported in red are those D/C ratios above 1.0

Table 31. Travel Times – Westbound AM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario H	Travel Time Difference
Multnomah/21st to Burnside/Broadway				
B-A1	Broadway Bridge	11.0	15.5	*+4.5*
B-A2	Steel Bridge	11.0	14.0	*+3.0*
B-A3	Burnside Bridge	9.0	(Burnside Bridge closed)	-

Table 31. Travel Times – Westbound AM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario H	Travel Time Difference
Sandy/22nd to Burnside/Broadway				
C-A1	Steel Bridge	12.0	15.0	*+3.0*
C-A2	Burnside Bridge	8.5	(Burnside Bridge closed)	-
C-A3	Morrison Bridge	11.5	20.5	*+9.0*
Burnside/20th to Burnside/Broadway				
D-A1	Broadway Bridge	15.0	20.5	*+5.5*
D-A2	Steel Bridge	13.0	16.0	*+3.0*
D-A3	Burnside Bridge	9.0	(Burnside Bridge closed)	
D-A4	Morrison Bridge	13.0	22.0	*+9.0*
Stark/20th to Burnside/Broadway				
E-A1	Burnside Bridge	10.0	(Burnside Bridge closed)	-
E-A2	Morrison Bridge	12.0	21.0	*+9.0*

Source: Parametrix

Table 32. Travel Times – Eastbound PM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario H	Travel Time Difference
Burnside/Broadway to Multnomah/21st				
A-B1	Broadway Bridge	19.0	25.0	*+6.0*
A-B2	Steel Bridge	16.5	22.0	*+5.5*
A-B3	Burnside Bridge	16.5	(Burnside Bridge closed)	-
A-B4	Morrison Bridge	21.5	32.0	*+10.5*
Burnside/Broadway to Sandy/22nd				
A-C1	Steel Bridge	19.0	24.5	*+5.5*
A-C2	Burnside Bridge	16.0	(Burnside Bridge closed)	-
A-C3	Morrison Bridge	19.0	25.5	*+6.5*
Burnside/Broadway to Burnside/20th				
A-D1	Steel Bridge	18.0	23.5	*+5.5*
A-D2	Burnside Bridge	13.0	(Burnside Bridge closed)	-
A-D3	Morrison Bridge	16.5	23.5	*+7.0*

Table 32. Travel Times – Eastbound PM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario H	Travel Time Difference
Burnside/Broadway to Stark/20th				
A-E1	Burnside Bridge	16.0	(Burnside Bridge closed)	-
A-E2	Morrison Bridge	14.0	22.0	*+8.0*

Source: Parametrix

During the AM peak hour, westbound routes across the Morrison Bridge would experience the largest impact on travel times with an increase of 9 minutes, while westbound routes traveling across the Broadway Bridge and Steel Bridge would experience an increase of 3 to 5.5 minutes. Westbound routes traveling across the Burnside Bridge would be required to reroute to a different bridge. These routes would experience an increase of 5 to 11 minutes by switching to the Steel Bridge or Morrison Bridge.

During the PM peak hour, eastbound routes across the Morrison Bridge would experience the largest impact on travel times with an increase of 6.5 to 10.5 minutes, while eastbound routes traveling across the Broadway Bridge and Steel Bridge would experience an increase of 5.5 to 6 minutes. Eastbound routes traveling across the Burnside Bridge would be required to reroute to a different bridge. These routes would experience an increase of 5.5 to 10.5 minutes by switching to the Steel Bridge or Morrison Bridge.

The travel times for all construction scenarios and routes are illustrated on Figure 48 through Figure 55.

Figure 48. Travel Times Estimates O-D Pair B-A – Westbound AM Peak Hour

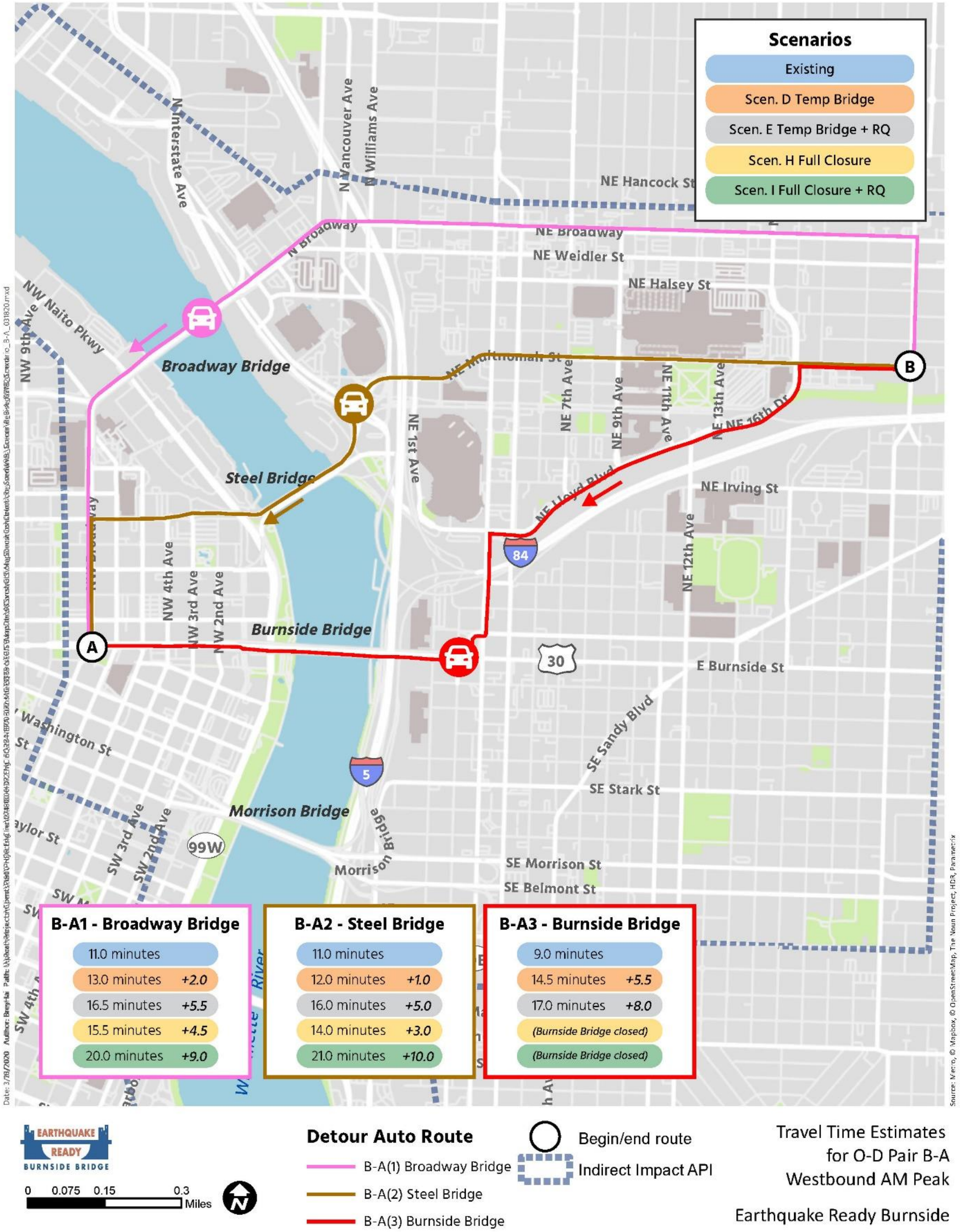


Figure 49. Travel Times Estimates O-D Pair C-A – Westbound AM Peak Hour

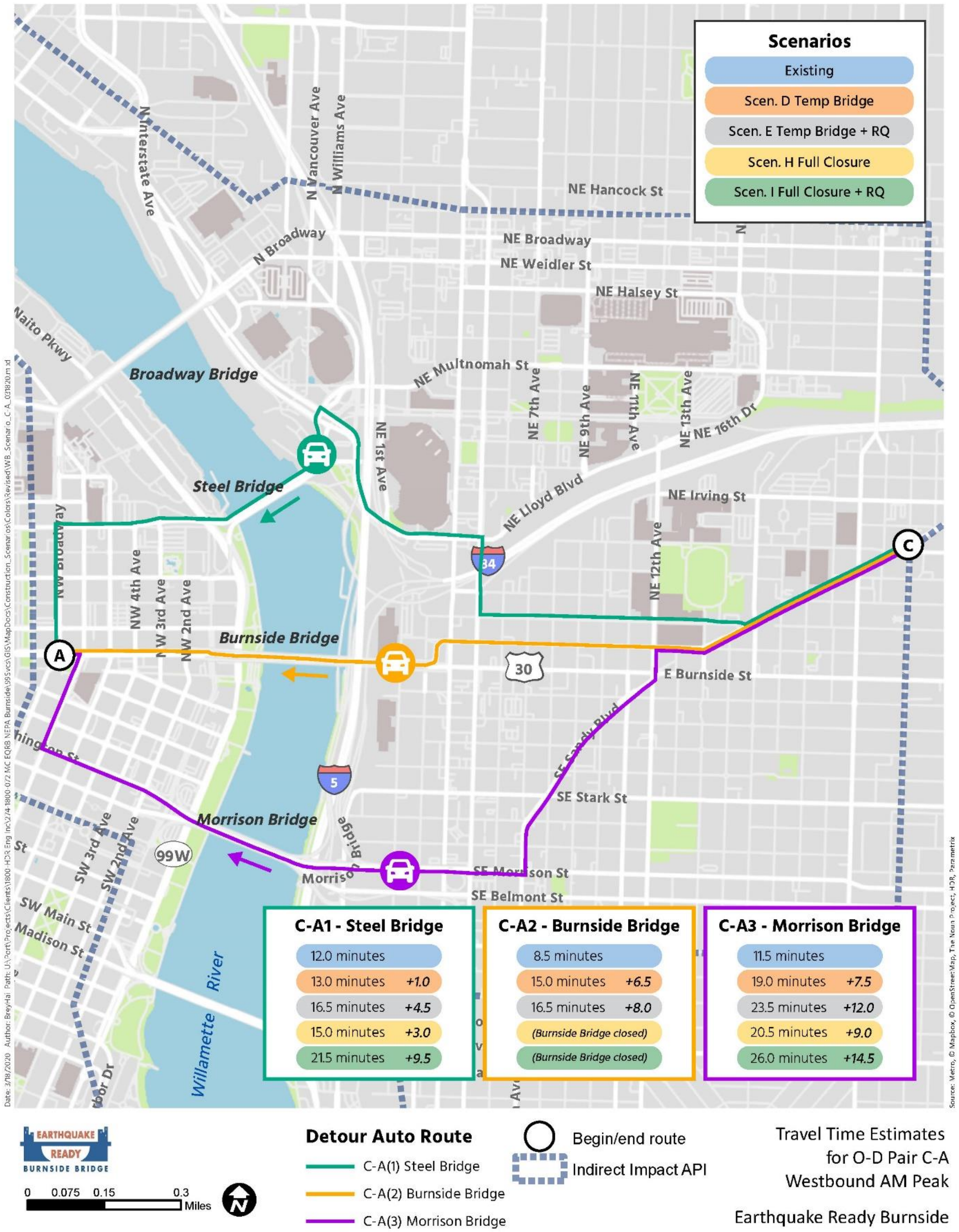


Figure 50. Travel Times Estimates O-D Pair D-A – Westbound AM Peak Hour

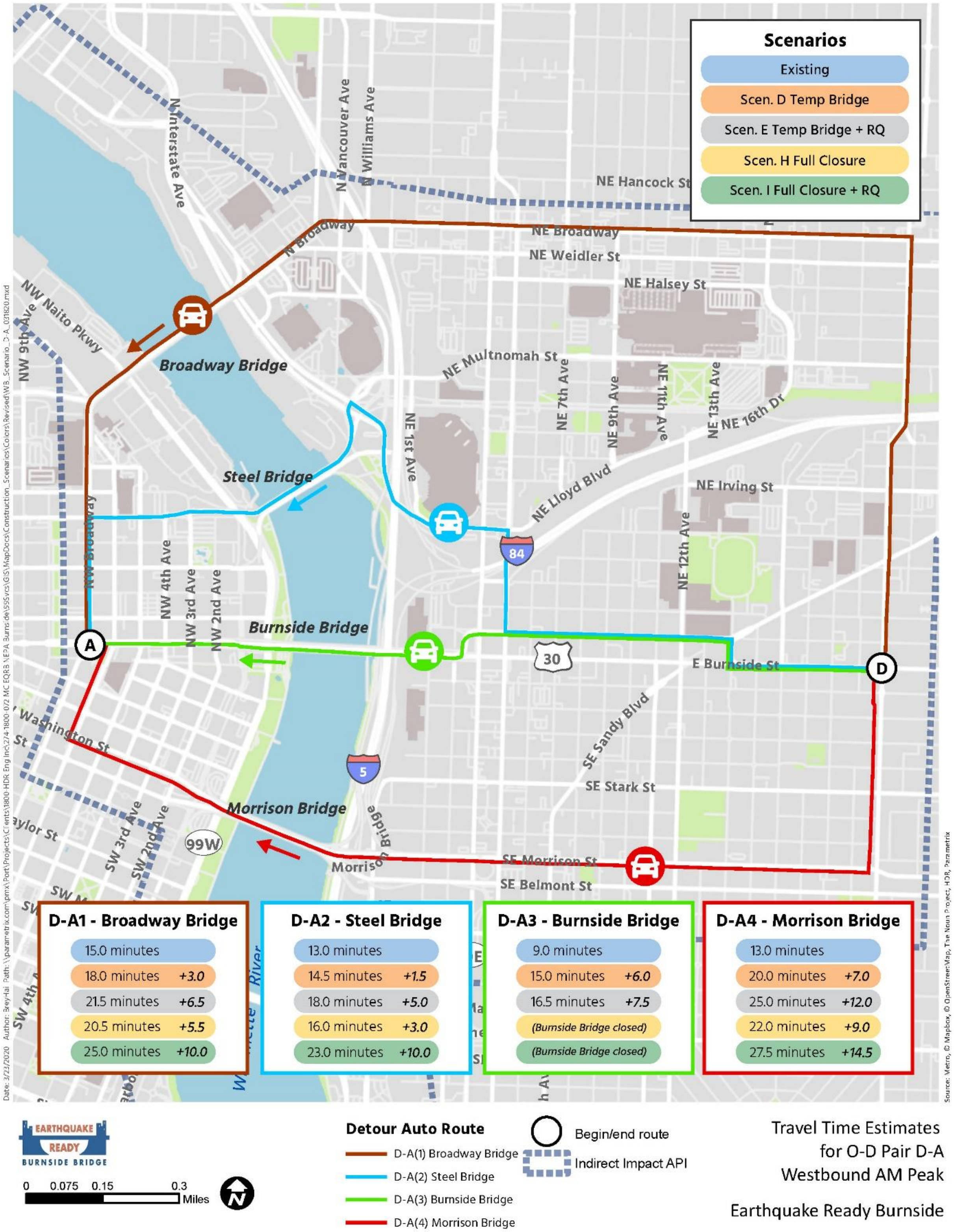


Figure 51. Travel Times Estimates O-D Pair E-A – Westbound AM Peak Hour

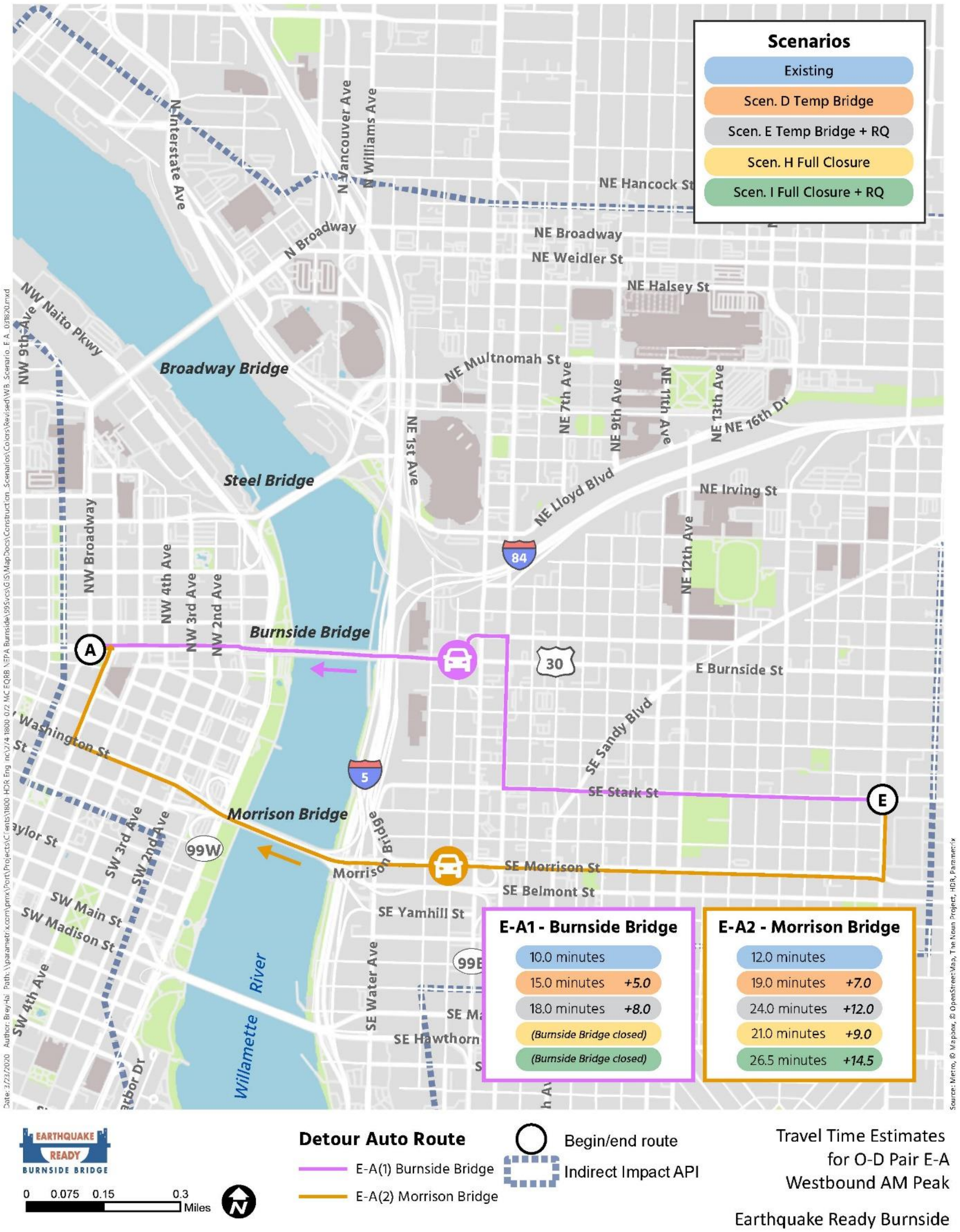


Figure 52. Travel Times Estimates O-D Pair A-B – Eastbound PM Peak Hour

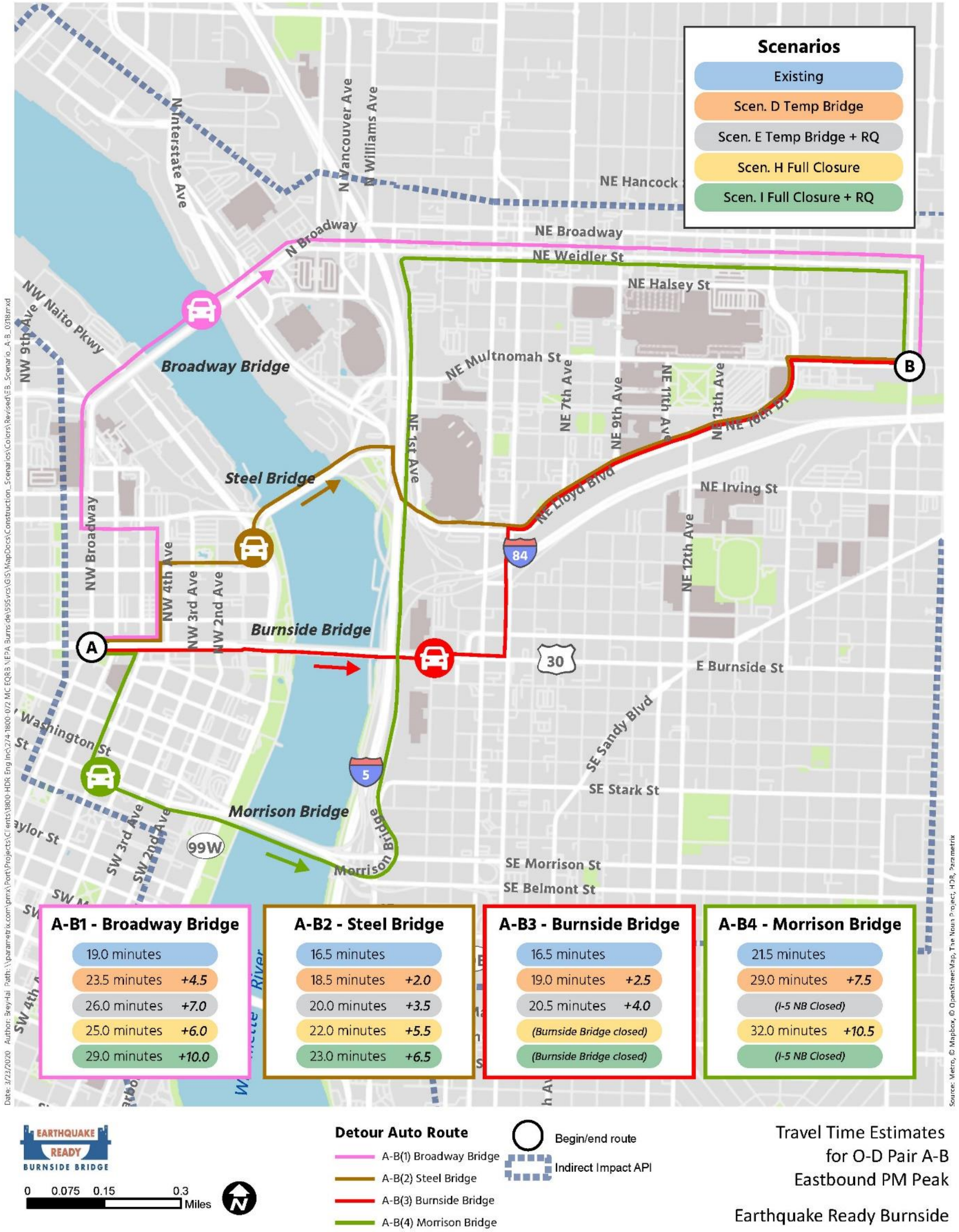


Figure 53. Travel Times Estimates O-D Pair A-C – Eastbound PM Peak Hour

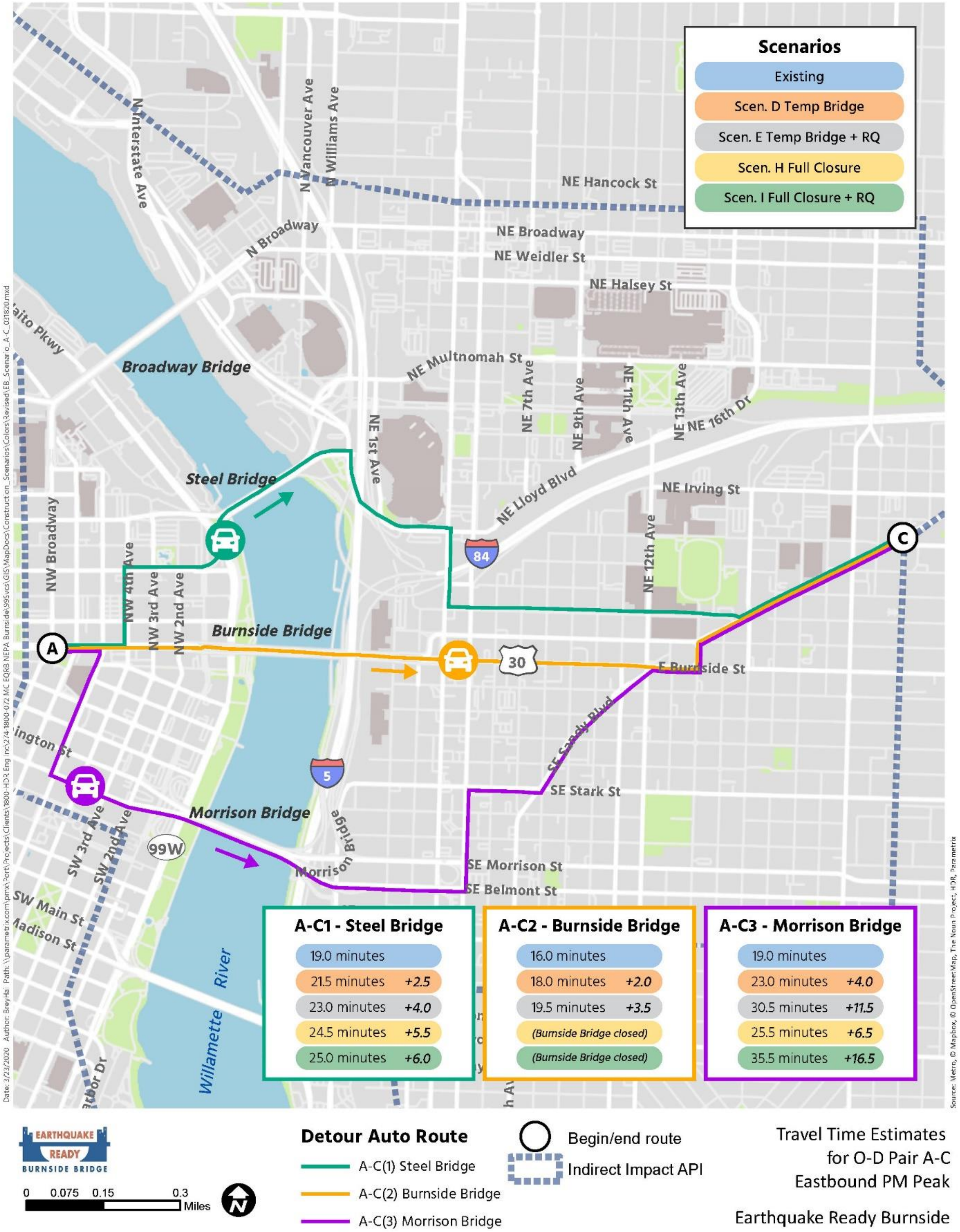


Figure 54. Travel Times Estimates O-D Pair A-D – Eastbound PM Peak Hour

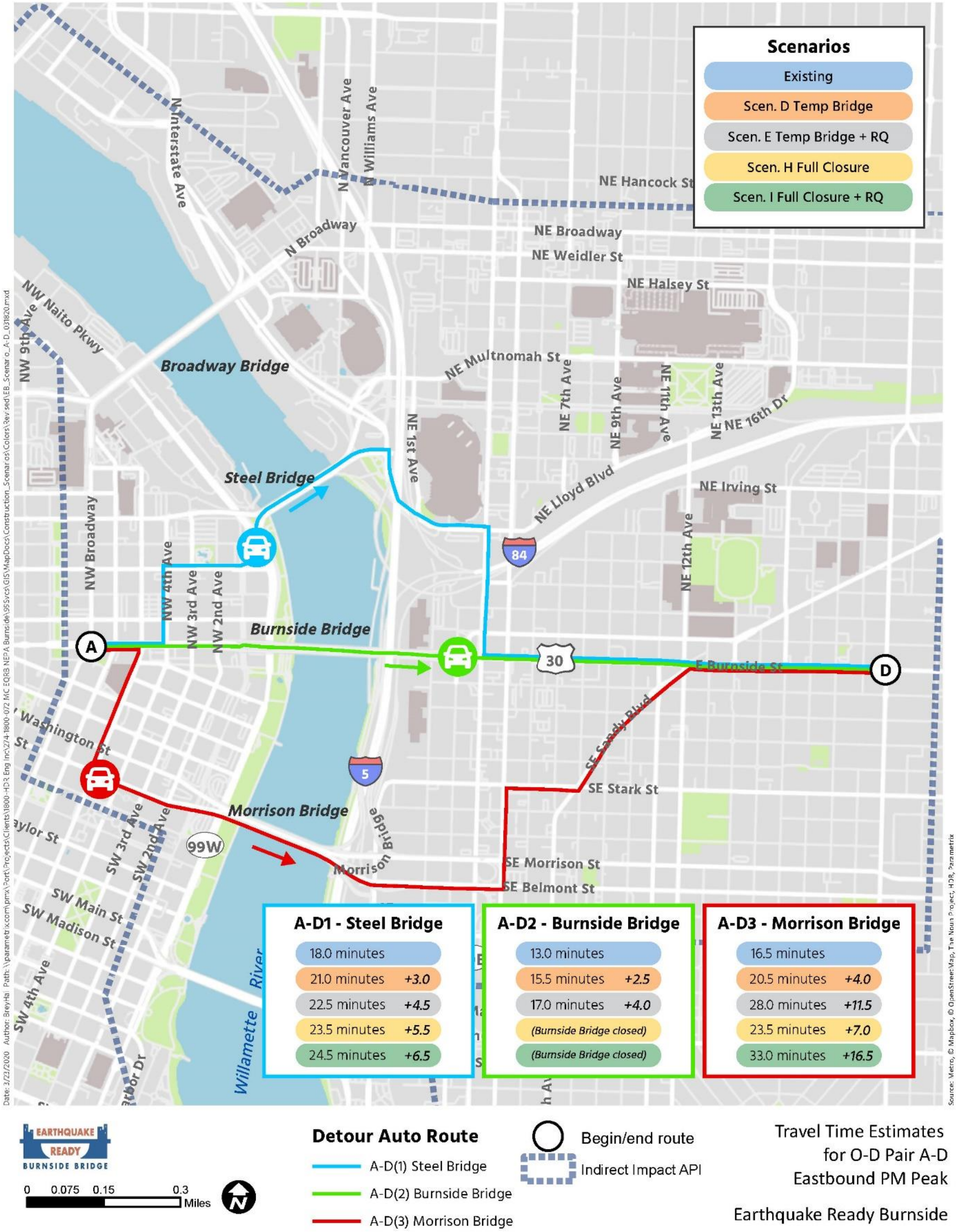
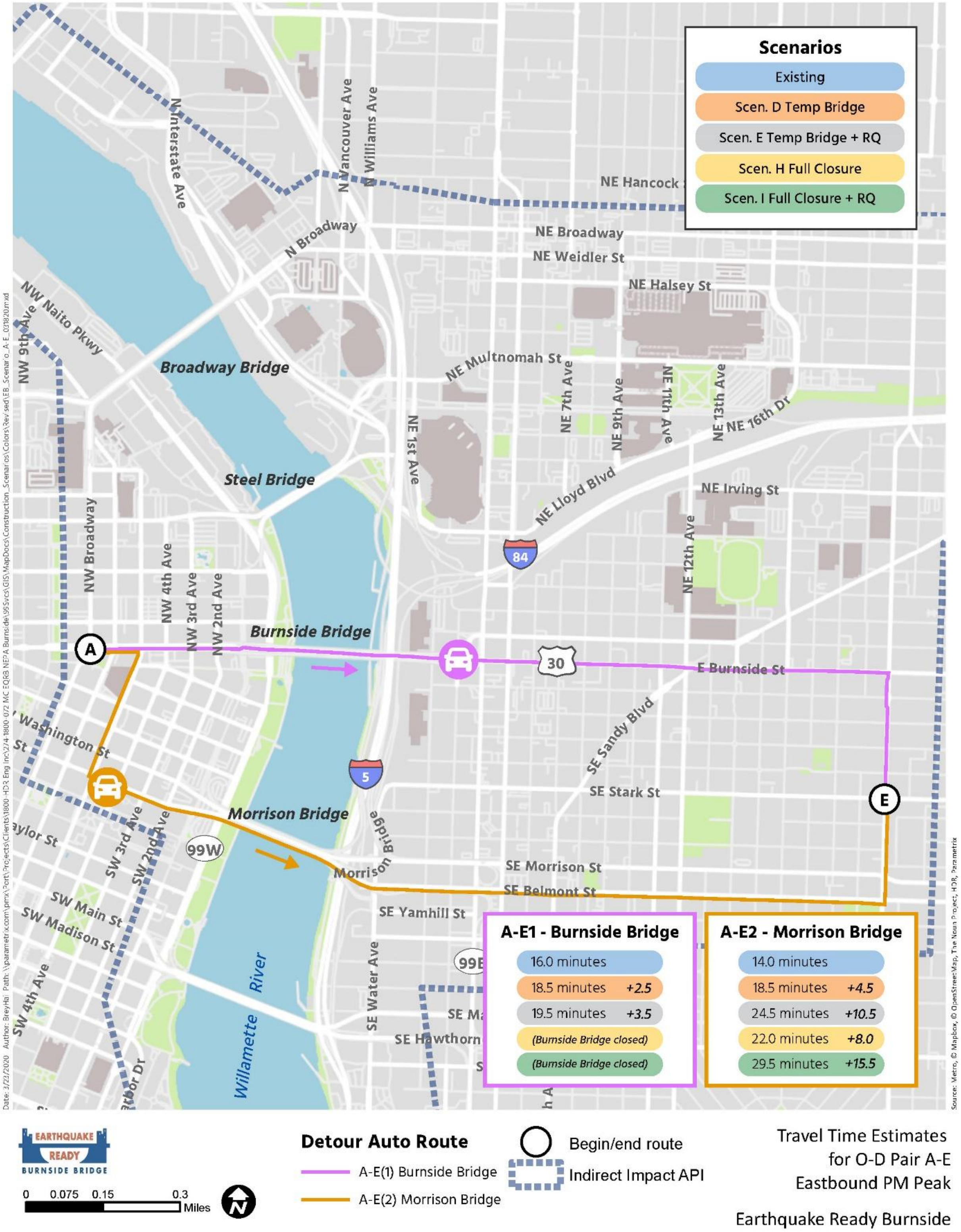


Figure 55. Travel Times Estimates O-D Pair A-E – Eastbound PM Peak Hour



Full Closure and I-5 Rose Quarter Closure Scenario

For a description of the methods used to analyze construction impacts to volumes and travel times, see Section 6.

A full closure of the Burnside Bridge during construction that coincides with construction of the I-5 Rose Quarter project, including closures of I-5 during the peak periods (Scenario I) would displace the current 35,000 daily vehicle trips over the Burnside Bridge. Additional vehicle trips that are avoiding I-5 closures associated with the I-5 Rose Quarter construction would also be displaced. A full closure of the Burnside Bridge that coincides with an I-5 northbound closure would displace 2,435 westbound/southbound vehicles from the Burnside Bridge and Fremont Bridge (I-405) in the AM peak hour and 3,315 eastbound/northbound vehicles from the Burnside Bridge and Marquam Bridge (I-5) in the PM peak hour. Table 33 and Table 34 show the impacts to traffic demand and D/C ratios across the Willamette River Bridges.

Table 35 and Table 36 show the impacts to travel times along 12 different routes resulting from this construction scenario.

Multiple optional routes will be available for pedestrians or cyclists to use during construction. The full extent of these options was not evaluated; however, as traffic demand and/or speed increases on any street, crash risk for pedestrians and cyclists (either frequency or severity) also increases.

Table 33. Traffic Demand and D/C Ratios - Westbound AM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario I	D/C ratio Scenario I	Demand Difference	D/C ratio Difference
Fremont	6,140	0.88	5,280	0.75	*-860*	*-0.13*
Broadway	1,925	1.07	2,290	1.27	*+365*	*+0.20*
Steel	990	1.10	1,195	1.32	*+205*	*+0.22*
Burnside	1.575	0.79	0	-	*-1.575*	—
Morrison	3.195	0.89	4.175	1.16	*+980*	*+0.27*
Hawthorne	1,850	1.03	2,215	1.23	*+365*	*+0.20*
Marquam	5,680	0.81	6,050	0.86	*+370*	*+0.05*
Ross Island	3,260	1.02	3,410	1.06	*+150*	*+0.04*

Source: Parametrix
*Figures reported in red are those D/C ratios above 1.0

Table 34. Traffic Demand and D/C Ratios - Eastbound PM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario I	D/C ratio Scenario I	Demand Difference	D/C ratio Difference
Fremont	5,760	0.82	7,025	1.01	*+1,265*	*+0.19*
Broadway	1,710	0.95	2,055	1.14	*+345*	*+0.19*
Steel	970	1.08	1.100	1.23	*+130*	*+0.15*
Burnside	1,700	.85	0	-	*-1,700*	—

Table 34. Traffic Demand and D/C Ratios - Eastbound PM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario I	D/C ratio Scenario I	Demand Difference	D/C ratio Difference
Morrison	2,315	0.64	3,665	1.02	*+1,350*	*+0.38*
Hawthorne	2,090	1.16	2,215	1.23	*+125*	*+0.07*
Marquam	6,195	0.88	4,580	0.65	*-1,615*	*-0.23*
Ross Island	3,630	1.13	3,730	1.17	*+100*	*+0.04*

Source: Parametrix
*Figures reported in red are those V/C ratios above 1.0

Table 35. Travel Times - Westbound AM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario I	Travel Time Difference
Multnomah/21st to Burnside/Broadway				
B-A1	Broadway Bridge	11.0	20.0	*+9.0*
B-A2	Steel Bridge	11.0	21.0	*+10.0*
B-A3	Burnside Bridge	9.0	(Burnside Bridge closed)	-
Sandy/22nd to Burnside/Broadway				
C-A1	Steel Bridge	12.0	21.5	*+9.5*
C-A2	Burnside Bridge	8.5	(Burnside Bridge closed)	-
C-A3	Morrison Bridge	11.5	26.0	*+14.5*
Burnside/20th to Burnside/Broadway				
D-A1	Broadway Bridge	15.0	25.0	*+10.0*
D-A2	Steel Bridge	13.0	23.0	*+10.0*
D-A3	Burnside Bridge	9.0	(Burnside Bridge closed)	-
D-A4	Morrison Bridge	13.0	27.5	*+14.5*
Stark/20th to Burnside/Broadway				
E-A1	Burnside Bridge	10.0	(Burnside Bridge closed)	-
E-A2	Morrison Bridge	12.0	26.5	*+14.5*

Source: Parametrix

Table 36. Travel Times - Eastbound PM Peak Hour

NB = northbound

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario I	Travel Time Difference
Burnside/Broadway to Multnomah/21st				
A-B1	Broadway Bridge	19.0	29.0	*+10.0*
A-B2	Steel Bridge	16.5	23.0	*+6.5*
A-B3	Burnside Bridge	16.5	(Burnside Bridge closed)	-
A-B4	Morrison Bridge	21.5	(I-5 NB Closed)	
Burnside/Broadway to Sandy/22nd				
A-C1	Steel Bridge	19.0	25.0	*+6.0*
A-C2	Burnside Bridge	16.0	(Burnside Bridge closed)	-
A-C3	Morrison Bridge	19.0	35.5	*+16.5*
Burnside/Broadway to Burnside/20th				
A-D1	Steel Bridge	18.0	24.5	*+6.5*
A-D2	Burnside Bridge	13.0	(Burnside Bridge closed)	-
A-D3	Morrison Bridge	16.5	33.0	*+16.5*
Burnside/Broadway to Stark/20th				
A-E1	Burnside Bridge	16.0	(Burnside Bridge closed)	-
A-E2	Morrison Bridge	14.0	29.5	*+15.5*

Source: Parametrix

During the AM peak hour, westbound routes across the Morrison Bridge would experience the largest impact on travel times with an increase of 14.5 minutes, while westbound routes traveling across the Broadway Bridge and Steel Bridge would experience an increase of 9 to 11 minutes. Westbound routes traveling across the Burnside Bridge would be required to reroute to a different bridge. These routes would experience an increase of 12 to 16.5 minutes by switching to the Broadway Bridge, Steel Bridge, or Morrison Bridge.

During the PM peak hour, eastbound routes across the Morrison Bridge experience the largest increase in travel times with an increase of 15.5 to 16.5 minutes, while eastbound routes traveling across the Broadway Bridge and Steel Bridge would experience an increase of 6 to 10 minutes. Eastbound routes traveling across the Burnside Bridge would be required to reroute to a different bridge. These routes would experience an increase of 6.5 to 13.5 minutes by switching to the Steel Bridge or Morrison Bridge.

The travel times for all construction scenarios and routes are illustrated on Figure 48 through Figure 55.

Freight

In a Full Closure of Burnside Bridge scenario, freight movement in and out of downtown would be impacted with increased congestion, detour routes, and extended travel times in and out of the downtown Portland area. The displacement of 35,000 daily vehicle crossings of the Burnside Bridge would have serious implications for traffic flows and congestion on adjacent bridges crossing over the Willamette River. The existing 2019 daily freight traffic over the Burnside Bridge is 1,175 heavy and medium trucks, representing 3.4 percent of all traffic demand. These trucks would have to route around a closed Burnside Bridge and depending on their destination, likely detour onto the Broadway, Steel, or Morrison bridges. Impacts on freight demand and travel times would be similar to those on auto trips, as described above.

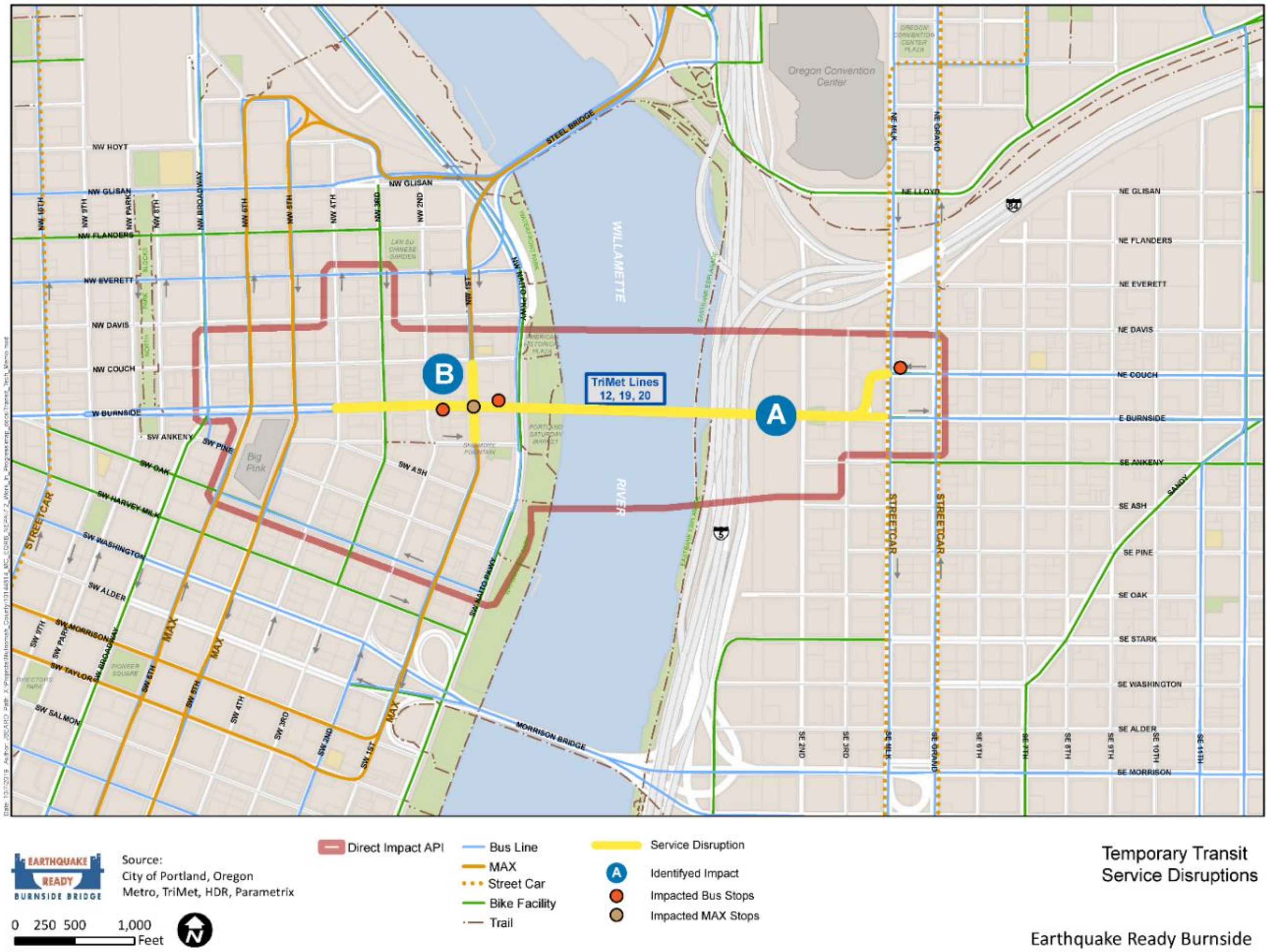
Full Closure and I-5 Rose Quarter Closure Scenario

In a full closure and I-5 Rose Quarter closure scenario, freight movement would be further impacted as compared to the full closure of the Burnside Bridge. Detouring traffic from the partial closer of the I-5 corridor through the Rose Quarter would add additional levels of traffic and congestion onto surface streets, tipping many to D/C ratios above 1.0 and those already above 1.00 far above the street's intended capacities. Impacts on freight demand and travel times would be similar to those on auto trips, as described above.

Transit

Under the temporary construction scenario involving full closure of the Burnside Bridge, transit lines in the vicinity would experience service disruptions, including MAX Red and Blue Lines. Figure 56 shows the extent of the affected area. Transit ridership and travel time information is presented below as well, including for both a full closure of the Burnside Bridge during construction and for a scenario where both a full closure of the Burnside Bridge and construction of the I-5 Rose Quarter expansion project occurs simultaneously.

Figure 56. Temporary Construction Transit Service Disruptions



A. Impact A would involve full closure of the bridge deck, impacting bus lines 12, 19, and 20. These lines would be rerouted over the Steel Bridge. Information about the detour is included in the mitigation segment of this report. Several bus stops serving lines 12, 19 and 20 would be closed, including the bus stops at NE Couch and MLK Blvd (stop ID 13330), W Burnside just to the east of NW 1st on the bridge deck (stop ID 689), and the bus stop at W Burnside and SW 2nd Avenue (ID 9526). Under a full closure of the Burnside Bridge, it is assumed that these bus lines would be impacted throughout the full extent of construction.

B. Impact B involves impacts to the MAX Red and Blue Lines. As these lines route under the Burnside Bridge along W 1st Avenue. The Replacement Alternative with Short-span and Long-span Approaches, Seismic Retrofit, and Replacement Alternative with Couch Extension would all impact MAX Red and Blue Line operations. The Enhanced Seismic Retrofit would require four separate, 2-week closures for a total of 8 weeks, while the Replacement Alternatives would require seven separate, 2-week closures for a total of 14 weeks. A full list of stop closures and the full extent of route impacts is still being considered.

In response to impact A outlined above, TriMet bus lines would need to be rerouted to the Steel Bridge impacting the routes and travel times of the 12, 19, and 20 bus lines. Bus routes would end up traveling an additional 0.62 mile in the eastbound direction and 0.72 mile in the westbound direction due to the detours, almost doubling the length of the route between either end of the Burnside Bridge and more than doubling the travel time.

In response to impact B outlined above, TriMet MAX Red and Blue Lines would operate a temporary bus bridge to be able to connect the MAX lines between the west bank and east bank of the Willamette River. The bus bridge is likely to operate from the Rose Quarter Transit Center in the east, to the MAX stop at Yamhill and 1st Avenue in the west, a distance of approximately 1.25 miles. Details of the exact closing for each of the construction scenarios and durations of closings can be found in the *EQRB Construction Approach Technical Report* (Multnomah County 2021d).

The Portland Streetcar would not experience direct service disruptions resulting from a full closure of the Burnside Bridge. However, congestion-related impacts from vehicle rerouting along MLK Blvd, Grand Avenue, and Broadway Street are presented below.

Routes, Ridership, Travel Times

For the full closure of the Burnside Bridge, ridership on the three TriMet bus lines that cross the Burnside Bridge (12, 19, and 20) are predicted to experience declines of approximately 500 riders for the full extent of their routes, representing approximately 5 percent of these route's total ridership. Overall ridership across the TriMet system is predicted to hold steady, with other bus routes picking up riders to compensate for the declines predicted on routes 12, 19, and 20. Table 37 shows the changes to transit ridership resulting from the full closure scenario.

Ridership on the MAX lines and the Portland Streetcar running along MLK Blvd and Grand Avenue are all predicted to see their ridership hold steady in the face of the closing of the Burnside Bridge.

Table 37. Anticipated Transit Impacts due to Full Closure

Daily Boardings for Transit Lines Impacted by Construction Alternatives

Transit Service	Daily Boardings within API	PM Peak Hour Boardings within API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Bus				
6			7,311	951
8*			9.949	1.341
9*			8.795	1.172
12	1.207	126	10.509	987
15*			7.459	916
19	870	128	7.047	1.008
20	1.222	201	10.015	1.423
35			6,347	1,085
71*			7,150	951
72*			10,039	1,150
75*			10,988	1,243
77*			6,636	1,125
MAX				
Blue/Red	9.221	1.269	94.031	13.698
Green/Yellow/Orange	5,353	603	54,586	6,505
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)				
Streetcar	363	45	8,267	962

Source: Metro

*The Yellow and Orange line operate as a single transit line

Travel times across the Willamette River increase between W. 5th Avenue and E. Grand Avenue at E. Burnside as a result of closing the Burnside Bridge. The detour for buses 12, 19 and 20 approximately doubles the length of the trip across the River, having buses route across the Steel Bridge. AM westbound travel times are over 10 minutes, an increase of 279 percent while PM eastbound travel are over 17 minutes, an increase of 126 percent. The full closure scenarios have the largest impacts on bus operations of the scenarios examined. .

The Portland Streetcar could see potential impacts to travel times and ridership based on the displacement of traffic away from the Burnside Bridge. The most likely affected lines would be the A and B loops. Table 38 shows modeled Streetcar operating speeds and travel times along select portions of the A and B Loops.

Table 38. Full Closure Portland Streetcar Segment Level Operating Speeds and Travel Times

Earthquake Ready Burnside – Travel Time Estimates

Travel Path	Link Length (ft)	AM Peak Speed (mph)	AM Peak Travel Time (min)	PM Peak Speed (mph)	PM Peak Travel Time (min)
Eastbound A Loop					
Broadway Bridge	2,100	8.5 (-1.5)	2.8 (+0.4)	4.0 (-1.0)	6.0 (+1.2
Larrabee to Benton	270	7.0 (-1.0)	4.6 (+0.6)	4.0 (± 0.0)	8.0 (± 0.0)
Benton to Weidler	255				
Broadway/Weidler to Vancouver	460				
Vancouver to Williams	260				
Williams to Victoria	270				
Victoria to 2nd	515				
2nd to MLK	515				
MLK Blvd to Grand Avenue	260				
Length–Subtotal	**2,805**				
Lloyd/MLK Blvd to Everett	530	9.0 (+2.5)	1.7 (-0.50)	4.3 (-2.5)	3.5 (+1.3)
Everett to Davis	270				
Davis to Couch	260				
Couch to Burnside	260				
Length–Subtotal	**1,320**				
Westbound B Loop					
Burnside/Grand Avenue to Couch	260	12.0 (+6.0)	1.3 (+0.5)	12.0 (-2.0)	1.3 (-0.2)
Couch to Everett	530				
Everett to Lloyd	530				
Length–Subtotal	**1,320**				
Grand Avenue to MLK	260	4.5 (-1.0)	7.6 (+1.4)	4.5 (+0.5)	7.6 (+0.7)
MLK Blvd to 2nd	515				
2nd to Victoria	515				
Victoria to Williams	270				
Williams to Vancouver	260				
Vancouver to Flint	230				
Flint to Weidler	190				
Weidler to Benton	260				
Benton to Larrabee	270				
Larrabee to on-ramp	250				

Table 38. Full Closure Portland Streetcar Segment Level Operating Speeds and Travel Times

Earthquake Ready Burnside – Travel Time Estimates

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Length–Subtotal	**3,020**				
Broadway Bridge	2,100	6.5 (+1.5)	4.3 (+1.3)	7.5 (-2.5)	3.2 (+0.8)

Peak period demand is predicted to increase by ten percent over the Broadway Bridge, resulting in congestion of over 1.1 D/C, which would affect streetcar operations. As Table 38, above shows, Portland Streetcar speeds over the Broadway Bridge will slow by 15 percent. There is one segment where speeds and travel times will improve under this construction scenario. This is the AM eastbound segment for the A loop from Lloyd/MLK Blvd to Burnside where operating speeds increase by nearly 40 percent. This is likely to less traffic on MLK Blvd traveling to the Burnside Bridge to cross the Willamette River.

Full Closure and I-5 Rose Quarter Closure Scenario

Directional closures of I-5 in the Rose Quarter are expected to impact transit operations in the area of the Broadway Bridge, Broadway and Weidler Couplet, and the MLK Blvd and Grand Avenue connections to the Burnside Bridge as traffic diverts from I-5 and finds alternative routes on the surface street network.

Ridership for TriMet bus lines 12, 19, and 20 in the event of a full closure of the Burnside Bridge and the simultaneous construction of the I-5 Rose Quarter is shown below in Table 39. The simultaneous nature of these two projects would result in only a negligible difference in ridership for routes 12, 19, and 20 compared to only a full closure of the Burnside Bridge. The differences for these three lines are less than half a percentage point.

Across all transit lines reported, ridership actually is expected to see an increase in average daily transit riders compared with just a full closure of the Burnside Bridge The increase is predicted to be in the range of 0.4 percent, representing approximately 1,100 additional transit riders.

The Portland Streetcar would not experience direct service disruptions resulting from a full closure of the Burnside Bridge. However, congestion-related impacts from vehicle rerouting along MLK Blvd, Grand Avenue, and Broadway Street are presented below.

Table 39. Full Closure + I-5 Rose Quarter Closure Transit Ridership Impacts

Daily Boardings for Transit Lines Impacted by Construction Alternatives

Transit Service	Daily Boardings within API	PM Peak Hour Boardings within API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Bus				
6			7,242	942
8*			9.918	1.337
9*			8.829	1.177
12	1.204	126	10.484	985
15*			7.507	922
19	865	127	7.010	1.003
20	1.222	201	10.012	1.423
35			6,250	1,068
71*			7,195	957
72*			10,188	1,167
75*			11,147	1,261
77*			6,516	1,105
MAX				
Blue/Red	9.265	1.275	94.479	13.763
Green/Yellow/Orange	5.416	610	55.230	6.582
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)				
Streetcar	363	45	8,269	962

Source: Metro
*The Yellow and Orange Lines operate as a single transit line

Table 40 shows the travel times for the full closure + I-5 Rose Quarter construction scenario. The detour for buses 12, 19, and 20 approximately doubles the length of the trip across the river, having buses route across the Steel Bridge. AM westbound travel times are over 15 minutes, an increase of 450 percent, while PM eastbound travel are over 17 minutes, an increase of 129 percent. The full closure scenarios have the largest impact on bus operations of the scenarios examined.

The Portland Streetcar could see potential impacts to travel times and ridership based on the displacement of traffic away from the Burnside Bridge. The most likely affected lines would be the A and B loops. Under this scenario, the Broadway Bridge experiences congestion of over 1.1 D/C in both the AM and PM peak hours. For both the AM and PM peaks, traffic demand on the Broadway Bridge increase by approximately 17 percent over the 2015 base case. This increase in demand is likely to impact streetcar operations.

Elsewhere along the A and B loop, segment-specific demand is expected to increase due to rerouting of traffic near the I-5 ramps with Broadway and Weidler. Within several blocks of the I-5 ramps are expected to experience the largest demand increases, with westbound AM Peak between William and Flint Avenues predicted to be between 50 and 60 percent higher. The eastbound PM peak between Vancouver and Victoria Avenues are predicted to be between 14 and 30 percent higher. As traffic flows away from the I-5 ramps in the Rose Quarter, traffic impacts lesson as vehicles disperse across the surface street network.

The segment of Grand Avenue between Couch Street and Lloyd are also expected to experience demand increases between 30 and 50 percent. The completion of BAT lanes in the northbound direction along this segment of Grand Avenue should limit the impact of increased traffic demand on streetcar and bus service.

Table 40. Full Closure + I-5 Rose Quarter Closure Transit Travel Time Impacts

Travel Time reported in minutes between W 5th Avenue and E Grand Avenue using the Steel Bridge as the bus detour.

Direction (Bus Lines 12, 16, 20)	Full Closure + I-5 Rose Quarter Closure				
	Travel Distance (miles)	Travel Times (min)	Travel Time Change (%)	Avg Transit Speeds (mph)	Transit Speed Change (%)
Eastbound (PM Peak)	1.32	17.6	129	5.3	-31
Westbound (AM Peak)	1.36	15.4	450	6.0	-52

Source: Parametrix

The Portland Streetcar could see potential impacts to travel times and ridership based on the displacement of traffic away from the Burnside Bridge. The most likely affected lines would be the A and B loops. Table 41 shows modeled streetcar operating speeds and travel times along select portions of the A and B Loops. The combination of construction on the Burnside Bridge and I-5 Rose Quarter will have large impacts on streetcar operations on the east side of the Willamette River.

Table 41. Full Closure + I-5 Rose Quarter Closure Portland Streetcar Segment Level Operating Speeds and Travel Times

<table>
<tr><th rowspan="2">Travel Path</th><th rowspan="2">Link Length (ft)</th><th colspan="2">AM Peak</th><th colspan="2">PM Peak</th></tr>
<tr><th>Speed (mph)</th><th>Travel Time (min)</th><th>Speed (mph)</th><th>Travel Time (min)</th></tr>
<tr><td colspan="6">Eastbound A Loop</td></tr>
<tr><td>Broadway Bridge</td><td>2,100</td><td>7.5 (-2.5)</td><td>3.2 (+0.8)</td><td>4.0 (-1.0)</td><td>6.0 (+1.2)</td></tr>
<tr><td>Larrabee to Benton</td><td>270</td><td rowspan="6">6.5 (-1.5)</td><td rowspan="6">4.9 (+0.9)</td><td rowspan="6">3.2 (-0.8)</td><td rowspan="6">10.0 (+2.0)</td></tr>
<tr><td>Benton to Weidler</td><td>255</td></tr>
<tr><td>Broadway/Weidler to Vancouver</td><td>460</td></tr>
<tr><td>Vancouver to Williams</td><td>260</td></tr>
<tr><td>Williams to Victoria</td><td>270</td></tr>
</table>

Table 41. Full Closure + I-5 Rose Quarter Closure Portland Streetcar Segment Level Operating Speeds and Travel Times

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Victoria to 2nd	515				
2nd to MLK	515				
MLK Blvd to Grand Avenue	260				
Length–Subtotal	**2.805**				
Lloyd/MLK Blvd to Everett	530	8.5 (+2.0)	1.8 (-0.5)	4.5 (-2.3)	3.3 (+1.1)
Everett to Davis	270				
Davis to Couch	260				
Couch to Burnside	260				
Length–Subtotal	**1,320**				
Westbound B Loop					
Burnside/Grand Avenue to Couch	260	6.0 (-12.0)	2.5 (+1.7)	8.0 (-2.0)	1.9 (+0.4)
Couch to Everett	530				
Everett to Lloyd	530				
Length–Subtotal	**1.320**				
Grand Avenue to MLK	260	3.5 (-2.0)	9.8 (+3.6)	4.0 (-1.0)	8.6 (+1.7)
MLK Blvd to 2nd	515				
2nd to Victoria	515				
Victoria to Williams	270				
Williams to Vancouver	260				
Vancouver to Flint	230				
Flint to Weidler	190				
Weidler to Benton	260				
Benton to Larrabee	270				
Larrabee to on-ramp	250				
Length–Subtotal	**3,020**				
Broadway Bridge	2,100	5.0 (-3.0)	4.8 (+1.8)	6.5 (-3.5)	3.7 (+1.3)

As Table 41 shows, Portland Streetcar speeds over the Broadway Bridge will slow by 25 percent, representing the biggest impact to the streetcar over the Broadway Bridge of any of the scenarios modeled. There is one segment where speeds and travel times will improve under this construction scenario: the AM eastbound segment for the A loop from Lloyd/MLK Blvd to Burnside where operating speeds increase by 30 percent. This is likely due to less traffic on MLK Blvd traveling to the Burnside Bridge to cross the Willamette River.

Active Transportation

Construction of the bridge could last 3.5 to 6.5 years, depending on the scenario. During construction, active transportation would be impacted with periods where the Vera Katz Eastbank Esplanade and the Waterfront Trail are closed at the Burnside Bridge. Also, if there is no temporary bridge, the Burnside Bridge itself would be closed and active transportation users looking to cross the river would either switch modes or need to divert their trip to another bridge – most likely the Steel or Morrison Bridges. A temporary bridge would help to minimize mode switches and maintain biking and walking levels.

Figure 57 shows potential routes that could be used to detour bicyclists from the bridgeheads to the Steel and Morrison Bridges during periods where the Burnside Bridge will be closed. It also shows the associated impacts on travel distance and times. Considering the westbound direction, from potential detour routes from the E Burnside Street and 6th Avenue intersection to the W Burnside Street and 6th Avenue intersection include:

- Morrison Bridge Route: Trips starting and/or ending south of Burnside Street could be diverted to a route along SE Ankeny Street, SE 3rd Avenue, SE Stark Street, SE Water Street, the Morrison Bridge, SW Naito Parkway, and either SW Harvey Milk Street (eastbound) or SW Oak Street (westbound).
    - This would result in an additional 1 mile and 8 minutes to this trip.[14] However, this route can be impacted by trains at the at-grade rail crossing on SE Stark Street and may add delay to bicyclists having to wait for trains to pass.
- Steel Bridge Route: Trips starting and/or ending north of Burnside Street could be diverted to a route along NE 7th Avenue, the future Earl Blumenauer Bridge, NE Lloyd Boulevard, the Steel Bridge, SW Naito Parkway or the Waterfront Trail, and NW Couch Street.
    - This would result in an additional 0.8 miles and 7 minutes to this trip.

Similarly, if the Burnside Bridge is closed, pedestrian trips would need to divert to the Steel or Morrison Bridges. There are any number of routes that a pedestrian could take to access these bridges; however, Figure 58 shows possible routes that could be used to detour pedestrians during times that the Burnside Bridge is closed. It also shows the additional impacts on trip distance and time. Considering the westbound direction, potential detour routes from the E Burnside Street and 6th Avenue intersection to the W Burnside Street and 6th Avenue intersection include:

- Morrison Bridge Route: Trips starting and/or ending south of Burnside Street could be diverted to a route along SE Grand Avenue and/or SE MLK Blvd, SE Yamhill Street, the Morrison Bridge, SW Alder Street, and SW 6th Avenue.
    - This would result in an additional 0.8 miles and 18 minutes to this trip.[15] However, this route can be impacted by trains at the at-grade rail crossing on SE Yamhill Street and may add delay to pedestrians having to wait for trains to pass.

[14] Time estimate based on estimates derived from Google Maps.

[15] Time estimate based on estimates derived from Google Maps.

- Steel Bridge Route: Trips starting and/or ending north of Burnside Street could be diverted to a route along NE Grand Avenue, NE Lloyd Boulevard, the Steel Bridge, SW Naito Parkway or the Waterfront Trail, and NW Couch Street.
    - This would result in an additional 0.6 miles and 14 minutes to this trip.

Figure 57. Potential Bicycling Detour Routes during Closure of the Burnside Bridge

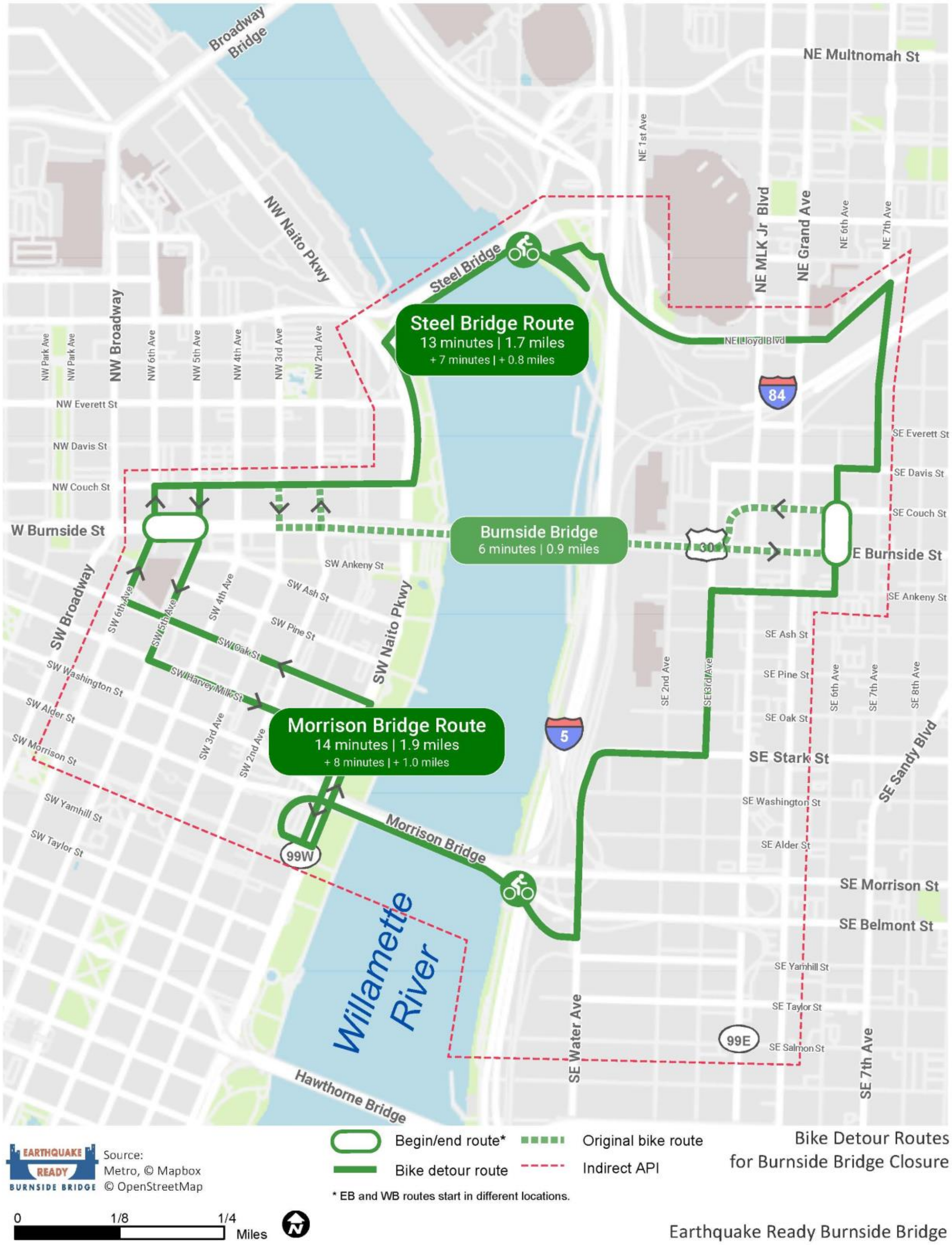
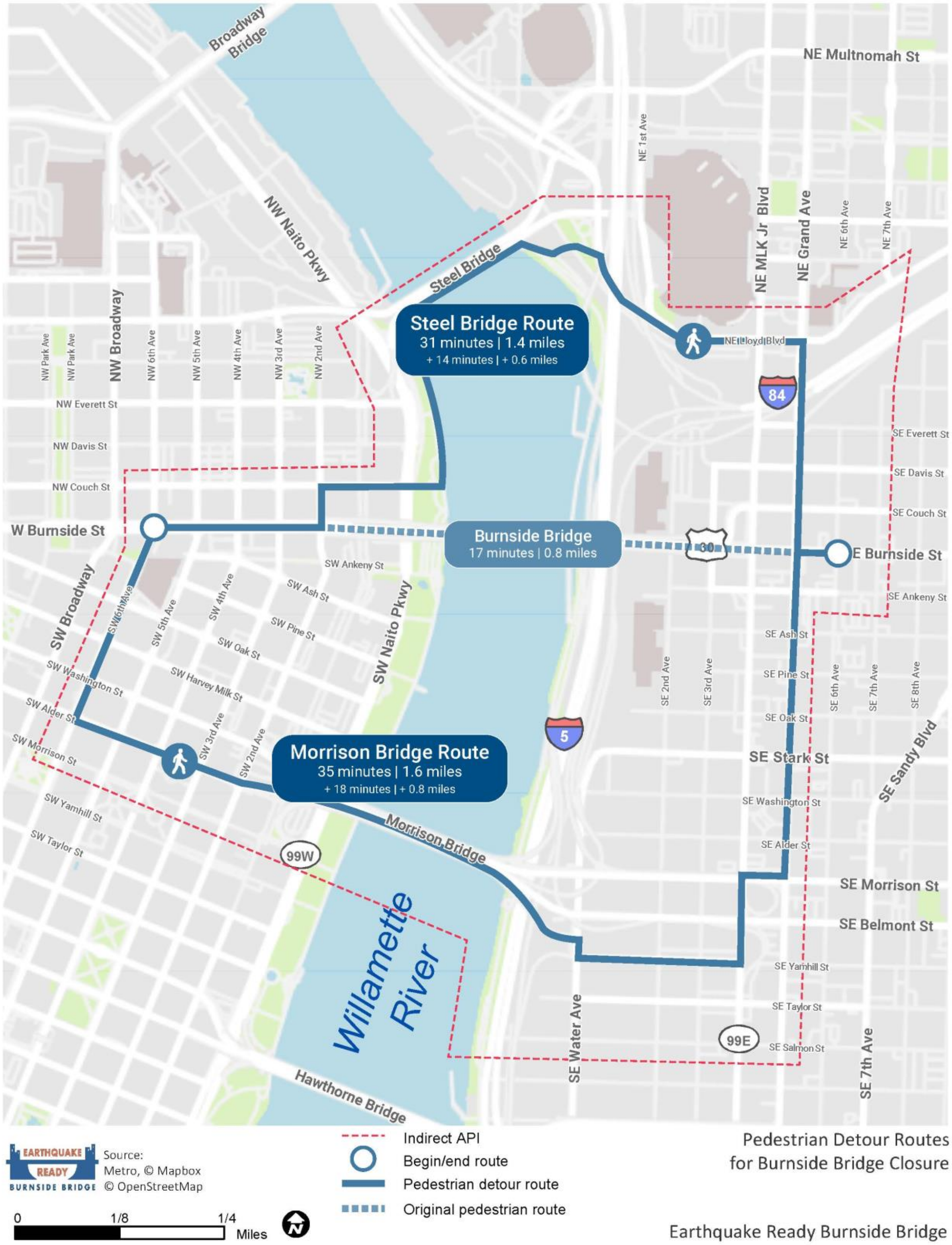


Figure 58. Potential Pedestrian Detour Routes during Closure of the Burnside Bridge



Construction will also close the section of the Vera Katz Eastbank Esplanade underneath the Burnside Bridge for 18 to 30 months depending on the alternative. For periods when the section of the Vera Katz Eastbank Esplanade at the Burnside Bridge is closed, the impacts would be felt by commuter and recreational bicyclists, runners, pedestrians, and other users. Recreational users may switch to another route, may turn around at the closure, or may not make the trip. Impacts to the recreational function of the Vera Katz Eastbank Esplanade are described in more detail in the *EQRB Parks & Recreation Technical Report* (Multnomah County 2021a).

Commuters may switch modes or divert their trip around the closure. Figure 59 shows potential routes that could be used to detour bicyclists around the closure. The shortest detour route is for bicyclists to cross the river using the Morrison Bridge and then to use Naito Parkway and cross back to the east side of the river at the Steel Bridge. This alternative route is contained to BLTS 1 facilities and adds an extra 0.4 miles and 5 minutes to a trip that is diverted from the Vera Katz Eastbank Esplanade at SE Salmon Street and reconnects with the Vera Katz Eastbank Esplanade at the east side of the Steel Bridge. If bicyclists choose to stay on the east side of the river, a potential detour route is via Water Avenue, Stark Street, 3rd Avenue, Ankeny Street or Davis Street, 7th Avenue, and Lloyd Boulevard to connect back to the top of the Steel Bridge. This alternative route is a combination of BLTS 2 and 3 facilities and adds an extra 0.9 mile and 12 minutes to the trip. However, this route can be impacted by trains at the at-grade crossing on Stark Street and may add delay to bicyclists having to wait for trains to pass.

Pedestrians could take a number of routes to divert around the closure; however, Figure 60 shows two potential detour routes considering the shortest paths on the east and west sides of the river. The shortest detour route for a trip from the Vera Katz Eastbank Esplanade at SE Salmon Street to the east side of the Steel Bridge is for pedestrians to cross the river using the Morrison Bridge and then use Naito Parkway and/or the Waterfront Trail to cross back to the east side of the river at the Steel Bridge. This alternative route adds an extra 0.4 miles and 10 minutes to this trip. Trips that may have used the stairs at the Burnside Bridge may be better served by a detour route that stays on the east side; one potential detour route is along SE Salmon Street, then along SE MLK Blvd and/or SE Grand Avenue to reconnect with E Burnside Street or to continue along SE MLK Blvd or SE Grand Avenue and to use NE Lloyd Boulevard to reconnect with the Vera Katz Eastbank Esplanade further north. This alternative route adds an extra 0.6 miles and 15 minutes to this trip.

Construction will also require staging under the west side of the bridge, which will close that section of the Waterfront Pathway during the period of construction. PBOT's Better Naito Forever project is scheduled for construction in 2020 (prior to the bridge construction) and will formalize pedestrian and bike facilities along Naito Parkway and provide an alternative route around the closure of the Waterfront Pathway (Figure 61). This route is minimally out-of-distance and is not expected to have major impacts on usage and volumes.

Bike and pedestrian volumes for the bridges and key links in the indirect API are shown on Figure 59 and Figure 60. These are based on results from Metro's Regional Demand Model, which shows that the expected impact of not providing a temporary bridge is an approximate 2 percent reduction in bicyclists crossing the Willamette River and 19 percent fewer pedestrians compared to providing a temporary bridge.

Full Closure of I-5 Rose Quarter Scenario

As previously noted, construction phase of the I-5 Rose Quarter project is expected to overlap with the construction of the EQRB project. The I-5 Rose Quarter project may temporarily close lanes on I-5, reducing capacity along the freeway corridor and placing additional vehicle traffic onto the surface streets in the area of the Burnside Bridge. For this reason, the report explores impacts related to a simultaneous, directional-closure of I-5 alongside impacts related to construction work on the Burnside Bridge. It is the project team's understanding that Rose Quarter project construction would not close any of the active transportation connections to and across the Willamette River. In fact, given that other modes would be more affected by that project's construction, it is likely that some trips would shift to bicycling and walking. This is reflected in Metro's Travel Demand Model and in the daily bike volumes and pedestrian volumes calculated for this scenario shown on Figure 62 and Figure 63, respectively.

There are not expected to be any changes to detour routes, bicycle level of traffic stress, or other metrics as a result of this scenario.

Figure 59. Potential Bicycling Detour Routes during Closure of the Vera Katz Eastbank Esplanade

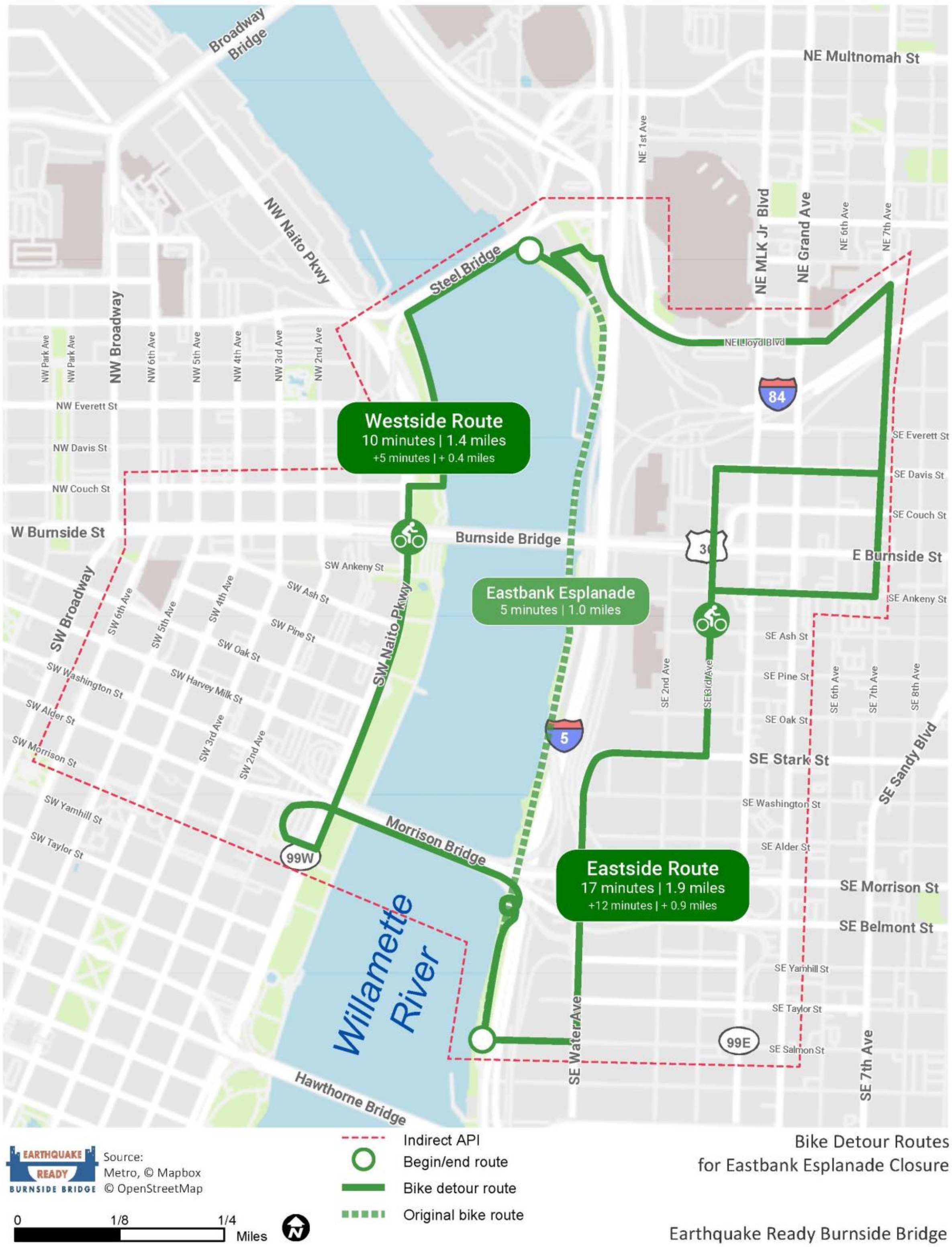


Figure 60. Potential Pedestrian Detour Routes during Closure of the Vera Katz Eastbank Esplanade

Figure 61. Westside Detours during Construction

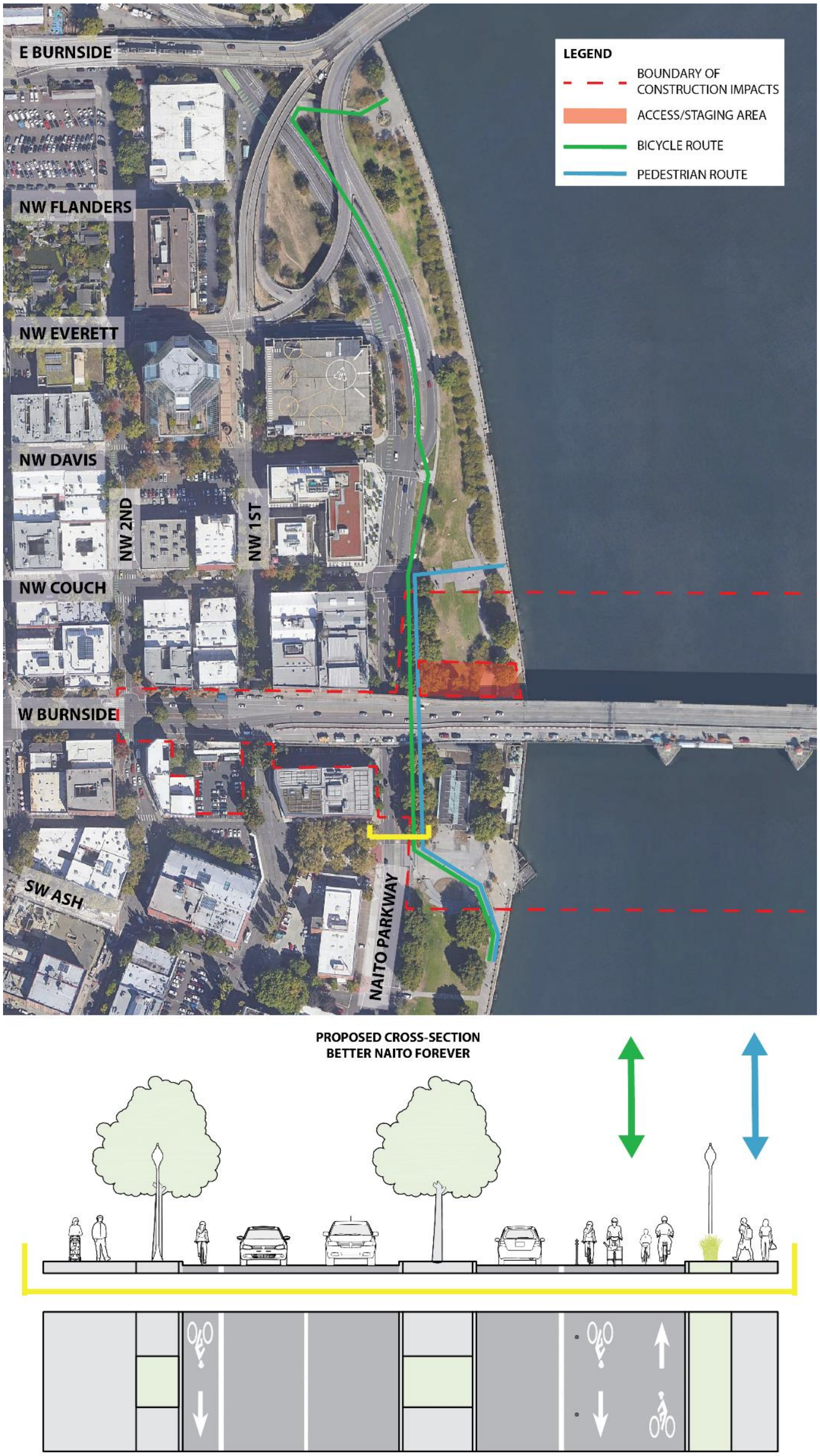


Figure 62. Daily Bike and E-Scooter Volumes in the Indirect Study Area: Full Closure

Figure 63. Daily Pedestrian Volumes in the Indirect Study Area: Full Closure

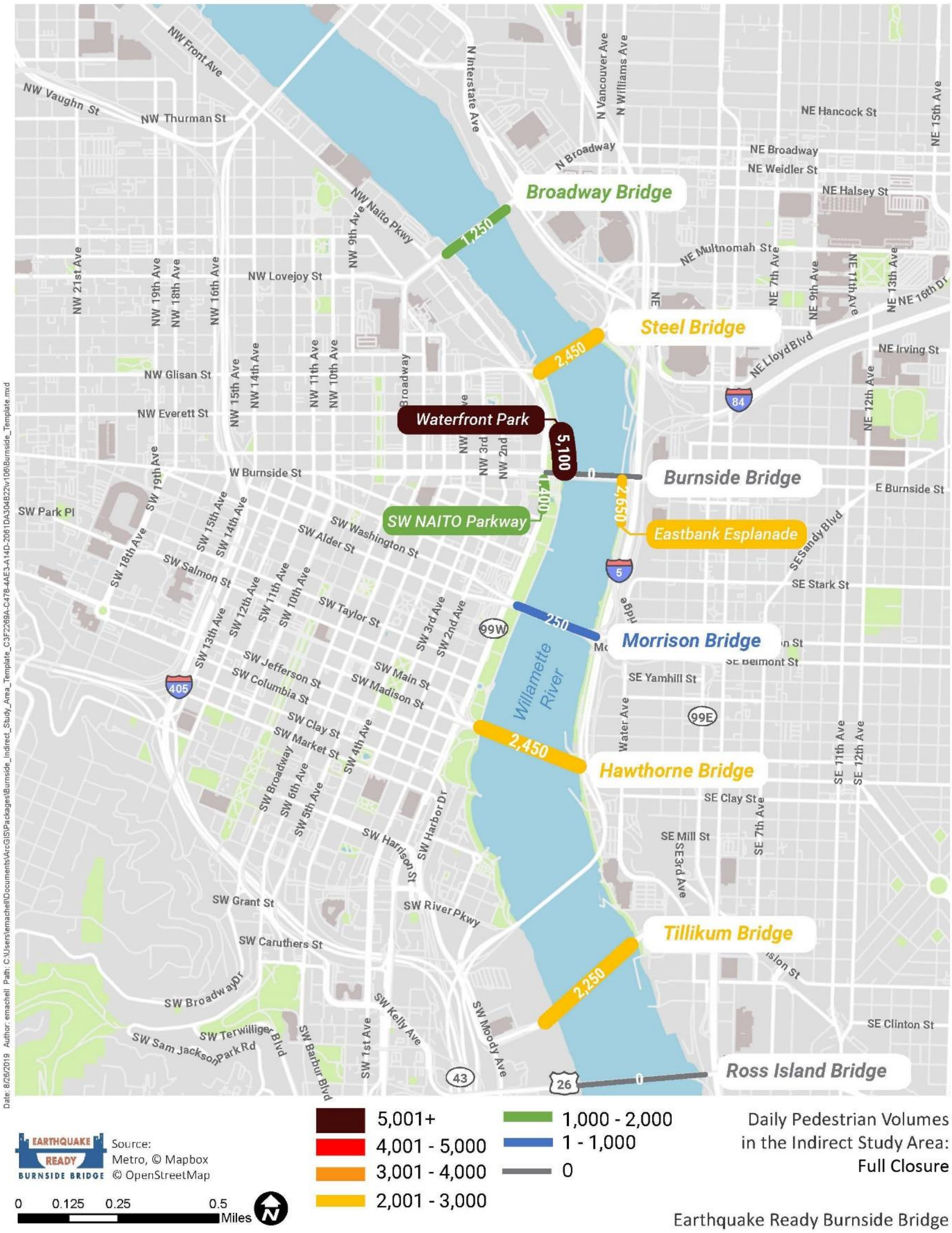
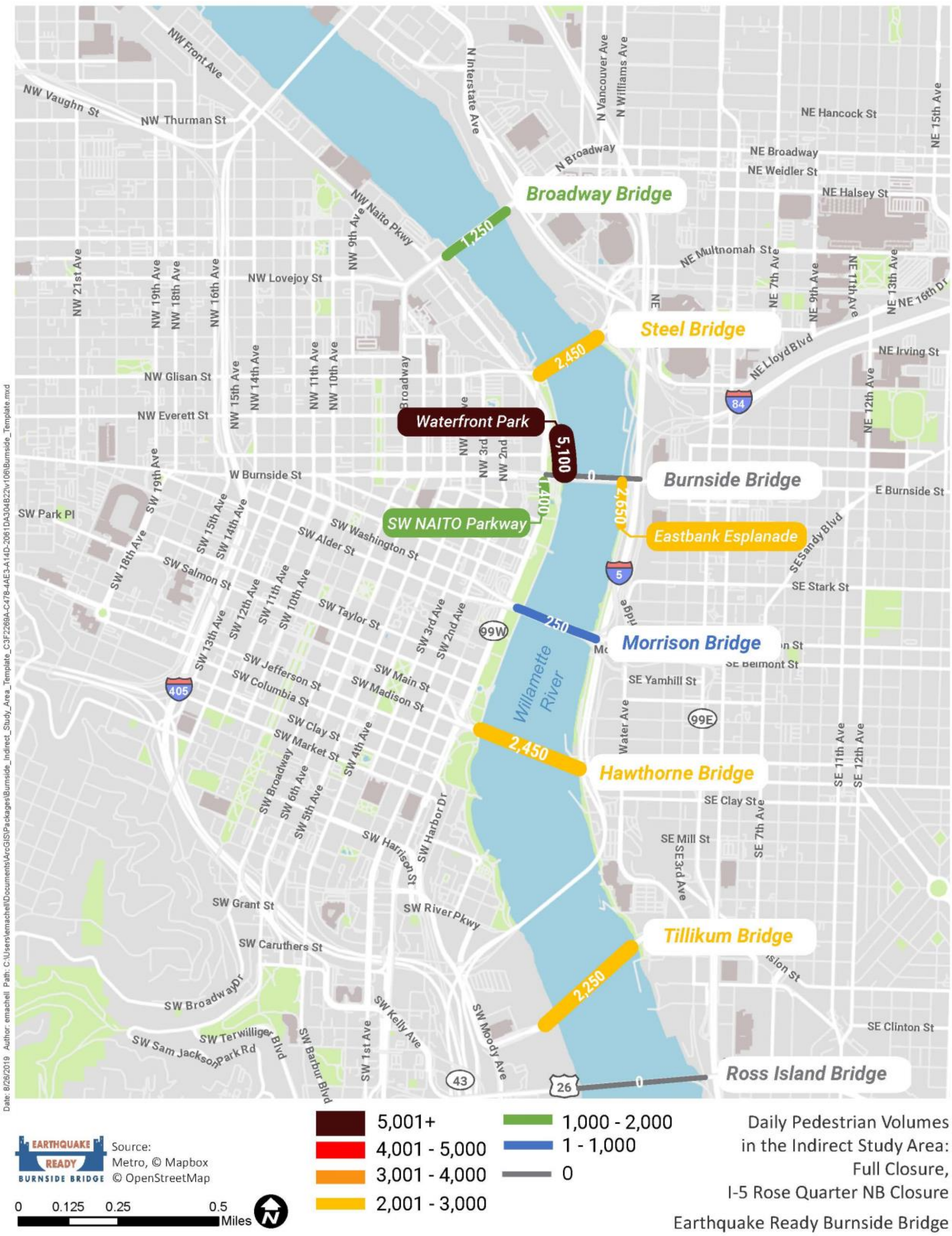


Figure 64. Daily Bike and E-Scooter Volumes in the Indirect Study Area: Full Closure, I-5 Rose Quarter NB Closure

Figure 65. Daily Pedestrian Volumes in the Indirect Study Area: Full Closure, I-5 Rose Quarter NB Closure



Rail Network

There would be no impacts to the Union Pacific mainline rail under the Burnside Bridge under the temporary closure of Burnside Bridge during construction.

Access

Temporary impacts to access are shown below in Table 42 and Table 43. The tables display impacts to private property, right-of-way, and ADA access resulting from each of the build alternatives. For a visual display of the temporary impacts, please refer to the East and West Access Exhibits found in Section 7.2.2.

Table 42. Access Impacts: Anticipated Door Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent

Door ID No.	East or West	Property	Door Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
3	West	Shoreline Bldg LTD Partnership	Pedestrian	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction
4	West	Shoreline Bldg LTD Partnership	Pedestrian	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction
5	West	Shoreline Bldg LTD Partnership	Pedestrian	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction
6	West	Portland Rescue Mission	Garbage/ Recycling	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction (still need to provide break in roadway barrier to allow access at this door)
7	West	Portland Rescue Mission	Pedestrian	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction
8	West	Portland Rescue Mission	Pedestrian (onto bridge)	None	Temp Closure, Long-Term	Temp Closure, Long-Term	Bridge construction
9	West	Portland Rescue Mission	Pedestrian (onto bridge)	Temp Closure, Short-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Bridge construction
10	West	Portland Rescue Mission	Pedestrian	Temp Closure, Short-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Staging for bridge construction
11	West	Portland Rescue Mission	Pedestrian	Temp Closure, Short-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Staging for bridge construction
12	West	Portland Rescue Mission	Garage	Temp Closure, Short-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Staging for bridge construction
18	West	Salvation Army	Pedestrian	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction
19	West	White Stag	Pedestrian (onto bridge)	Temp Closure, Long-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Bridge construction

Table 42. Access Impacts: Anticipated Door Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent

Door ID No.	East or West	Property	Door Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
19a	West	White Stag	Pedestrian (under bridge)	Temp Closure, Long-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Bridge construction
20	West	White Stag	Garage (under bridge)	Temp Closure, Short-Term	Temp Closure, Short-Term	Temp Closure, Short-Term	Bridge construction. Ongoing short term (hours) closures throughout duration of the project.
21	West	Mercy Corps Condominiums	Pedestrian	Temp Closure, Long-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Staging for bridge construction
30	East	Bridgehead Development LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
31	East	Bridgehead Development LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
32	East	Bridgehead Development LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 26' higher than extg at door, possibly open to path under bridge?
33	East	Bridgehead Development LLC	Pedestrian	None	None	Permanent Closure	New sidewalk 26' higher than extg at door, possibly open to path under bridge?
34	East	Bridgehead Development LLC	Pedestrian	None	None	None	None
35	East	Bridgehead Development LLC	Garage	None	None	Temp Closure, Short-Term	None
36	East	Bridgehead Development LLC	Pedestrian	None	None	Temp Closure, Short-Term	None
37	East	Bridgehead Development LLC	Pedestrian	None	None	Temp Closure, Short-Term	None

Table 42. Access Impacts: Anticipated Door Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent

Door ID No.	East or West	Property	Door Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
38	East	Block 67 Development (Yard Apts)	Pedestrian	None	None	Temp Closure, Long-Term	Bridge construction
39	East	Block 67 Development (Yard Apts)	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
40	East	Block 67 Development (Yard Apts)	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
41	East	Block 67 Development (Yard Apts)	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
44	East	Templeton Office Investments LLC	Pedestrian (onto bridge)	Temp Closure, Long-Term	Temp Closure, Long-Term	Temp Closure, Long-Term	Bridge construction
45	East	Templeton Office Investments LLC	Pedestrian	Temp Closure, Short-Term	Temp Closure, Short-Term	Temp Closure, Short-Term	Bridge construction
48	East	Block 75 LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
53	East	Block 76 LLC (Side Yard)	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
54	East	Block 76 LLC (Side Yard)	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
59	East	5 MLK RPO LLC	Garage	Temp Closure, Short-Term	Temp Closure, Short-Term	Temp Closure, Short-Term	Bridge construction
60	East	Union Arms LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction

Table 42. Access Impacts: Anticipated Door Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent

Door ID No.	East or West	Property	Door Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
61	East	Union Arms LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
62	East	Union Arms LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
63	East	Block 75 LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
64	East	Block 75 LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
65	East	Block 75 LLC	Pedestrian	None	None	Temp Closure, Short-Term	Sidewalk construction
76	East	The Fair-Haired Dumbbell LLC	Pedestrian	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction
77	East	5 MLK RPO LLC	Pedestrian	None	Temp Closure, Short-Term	Temp Closure, Short-Term	Sidewalk construction

Source: Parametrix

Table 43. Temporary Access Impacts: Anticipated Parking Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent

Parking ID Letter	East or West	Property	Parking Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
A	West	Mercy Corps, White Stag, Others?	Lot	Long-term	Long-term	Long-term	Staging for bridge construction
B	East	Right-of-Way, 2nd Avenue	Street	None	None	Long-term	Staging for bridge construction
C	East	Right-of-Way, 2nd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction
D	East	Right-of-Way, 2nd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction
E	East	Right-of-Way, 2nd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction
F	East	Bridgehead Development LLC	Lot	None	None	Long-term	Staging for bridge construction
G	East	Right-of-Way, 2nd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction
H	East	Nemarnik Family Properties, LLC	Lot	Long-term	Long-term	Long-term	Staging for bridge construction
I	East	Right-of-Way, 2nd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction
J	East	Right-of-Way, 3rd Avenue	Street	None	None	Long-term	Staging for bridge construction
K	East	Right-of-Way, 3rd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction
L	East	Right-of-Way, 3rd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction
N	East	Right-of-Way, 3rd Avenue	Street	Long-term	Long-term	Permanent Closure	For Bike Lane

Table 43. Temporary Access Impacts: Anticipated Parking Closures

Short-Term (a few weeks), Long-Term (six months to a few years), and Permanent

Parking ID Letter	East or West	Property	Parking Type	Anticipated Closure Due to Enhanced Retrofit	Anticipated Closure Due to Short-span and Long-span Replacement	Anticipated Closure Due to Replacement Alternative with Couch Extension	Notes
O	East	Right-of-Way, 3rd Avenue	Street	Long-term	Long-term	Long-term	Staging for bridge construction

Source: Parametrix

7.4.3 Temporary Bridge

Section 7.4.2 explores the impacts related to the provision of a temporary Burnside Bridge during the construction phase. Below is a summary of the key findings for a temporary bridge serving all modes explored in more depth throughout this section.

Traffic/Freight

- A temporary bridge for all travel modes would be able to accommodate approximately 2/3 of existing vehicle trips over the Burnside Bridge, reducing the negative congestion impacts to other bridges crossing the Willamette River
- Bridges other than the Burnside Bridge would still experience congestion increases, but the magnitude would be lower compared to the full closure option. D/C increases would be in line of 2 to 3 percent, with the largest increases on the Morrison Bridge at 8 percent.
- Travel times across the Willamette River will increase, generally by between 5 and 15 percent. This reflects increases that are generally half as much compared with the Full Closure option.

Transit

- Transit would be able to continue to use the Burnside Bridge, removing out-of-direction and travel time delays compared with the Full Closure option. Travel time increases for bus lines 12, 19, and 20 would be more in line with 15 to 35 percent increases instead of doubling under the Full Closure option.
- Transit ridership for bus lines 12, 19, and 20 would decrease by between 1 and 2 percent compared with existing conditions.
- The Portland Streetcar would experience smaller travel time delays compared to the Full Closure option as fewer vehicles would detour along MLK Blvd and Grand Avenue.

Active Transportation

- Bicycle and pedestrian impacts would be held to a minimum if a temporary bridge is provided throughout the construction period. Pedestrian volumes over the bridge are predicted to stay steady while bicycle volumes would decrease by only 3 percent.
- A temporary bridge would significantly reduce out-of-direction travel associated with the Full Closure option.
- The Vera Katz Eastbank Esplanade would still experience closures throughout the construction period, resulting in the need for detours, out-of-direction travel, and possible foregone trips.

Safety

Safety impacts for the Full Closure construction scenario are found in Section 7.4.4.

- Crashes during the construction phase are assumed to be a function of VMT within the area studied. The crash frequency is not predicted to substantively change compared to existing conditions.
- In the assumed worst case construction scenario of the Rose Quarter involving a directional closure of I-5, crash frequencies will increase by less than 25 crashes on surface streets within the study area.
- The directional closure of I-5 transfers vehicle volumes from facilities with generally lower overall crash rates to facilities with generally higher crash rates.

Auto Demand and Travel Times

Temporary Bridge – All Modes

For a description of the methods used to analyze construction impacts to demand and travel times, see Section 6.

A Temporary Bridge during construction (Scenario D as defined at the beginning of section 7.4) would be able to accommodate a portion of the current 35,000 daily vehicle trips over the Burnside Bridge. The proposed Temporary Bridge would include one general purpose lane in each direction. A temporary bridge during construction would displace 565 westbound vehicles from the Burnside Bridge in the AM peak hour and 710 eastbound vehicles from the Burnside Bridge in the PM peak hour. Table 44 and Table 45 show the impacts to traffic demand and D/C ratios across the Willamette River Bridges.

Table 46 and Table 47 show the impacts to travel times along 12 different routes resulting from this construction scenario.

Table 44. Traffic Demand and D/C Ratios - Westbound AM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario D	D/C ratio Scenario D	Demand Difference	D/C ratio Difference
Fremont	6,140	0.88	6,225	0.89	+85	+0.01
Broadway	1,925	1.07	1,975	1.10	+50	+0.03
Steel	990	1.10	1,015	1.13	+25	+0.03
Burnside	1,575	0.79	1,010	1.13	-565	+0.34
Morrison	3,195	0.89	3,505	0.97	+310	+0.08
Hawthorne	1,850	1.03	1,900	1.05	+50	+0.02
Marquam	5,680	0.81	5,705	0.82	+25	+0.01
Ross Island	3,260	1.02	3,280	1.02	+20	0.00

Source: Parametrix
*Figures in red indicate D/C ratios over 1.0

Table 45. Traffic Demand and D/C Ratios - Eastbound PM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario D	D/C ratio Scenario D	Demand Difference	D/C ratio Difference
Fremont	5,760	0.82	5,925	0.85	+165	+0.03
Broadway	1,710	0.95	1,700	0.95	-10	0.00
Steel	970	1.08	1,020	1.14	+50	+0.06
Burnside	1,700	0.85	990	1.10	-710	+0.25
Morrison	2,315	0.64	2,765	0.77	+450	+0.13
Hawthorne	2,090	1.16	2,100	1.17	+10	+0.01
Marquam	6,195	0.88	6,225	0.89	+30	+0.01
Ross Island	3,630	1.13	3,645	1.14	+15	+0.01

Source: Parametrix
*Figures in red indicate D/C ratios over 1.0

Table 46. Travel Times - Westbound AM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario D	Travel Time Difference
Multnomah/21st to Burnside/Broadway				
B-A1	Broadway Bridge	11.0	13.0	*+2.0*
B-A2	Steel Bridge	11.0	12.0	*+1.0*
B-A3	Burnside Bridge	9.0	14.5	*+5.5*
Sandy/22nd to Burnside/Broadway				
C-A1	Steel Bridge	12.0	13.0	*+1.0*
C-A2	Burnside Bridge	8.5	15.0	*+6.5*
C-A3	Morrison Bridge	11.5	19.0	*+7.5*
Burnside/20th to Burnside/Broadway				
D-A1	Broadway Bridge	15.0	18.0	*+3.0*
D-A2	Steel Bridge	13.0	14.5	*+1.5*
D-A3	Burnside Bridge	9.0	15.0	*+6.0*
D-A4	Morrison Bridge	13.0	20.0	*+7.0*
Stark/20th to Burnside/Broadway				
E-A1	Burnside Bridge	10.0	15.0	*+5.0*

Table 46. Travel Times - Westbound AM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario D	Travel Time Difference
E-A2	Morrison Bridge	12.0	19.0	*+7.0*

Source: Parametrix

Table 47. Travel Times - Eastbound PM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario D	Travel Time Difference
Burnside/Broadway to Multnomah/21st				
A-B1	Broadway Bridge	19.0	23.5	*+4.5*
A-B2	Steel Bridge	16.5	18.5	*+2.0*
A-B3	Burnside Bridge	16.5	19.0	*+2.5*
A-B4	Morrison Bridge	21.5	29.0	*+7.5*
Burnside/Broadway to Sandy/22nd				
A-C1	Steel Bridge	19.0	21.5	*+2.5*
A-C2	Burnside Bridge	16.0	18.0	*+2.0*
A-C3	Morrison Bridge	19.0	23.0	*+4.0*
Burnside/Broadway to Burnside/20th				
A-D1	Steel Bridge	18.0	21.0	*+3.0*
A-D2	Burnside Bridge	13.0	15.5	*+2.5*
A-D3	Morrison Bridge	16.5	20.5	*+4.0*
Burnside/Broadway to Stark/20th				
A-E1	Burnside Bridge	16.0	18.5	*+2.5*
A-E2	Morrison Bridge	14.0	18.5	*+4.5*

Source: Parametrix

During the AM peak hour, westbound routes across the Burnside Bridge and Morrison Bridge would experience the largest impact on travel times with an increase of 5.5 to 7.5 minutes, while westbound routes traveling across the Broadway Bridge and Steel Bridge would experience an increase of 1 to 3 minutes.

During the PM peak hour, eastbound routes across the Morrison Bridge experience the largest increase in travel times with an increase of 4.5 to 7.5 minutes, while eastbound routes traveling across the Broadway Bridge and Steel Bridge would experience an increase of 2 to 4.5 minutes.

The travel times for all construction scenarios and routes are illustrated on Figure 48 through Figure 55.

Temporary Bridge, All Modes and I-5 Rose Quarter Closure Scenario

For a description of the methods used to analyze construction impacts to demand and travel times, see Section 6.

A temporary Burnside Bridge that coincides with construction of the I-5 Rose Quarter Project, including closures of I-5 during the peak periods (Scenario E) would be able to accommodate a portion of the current 35,000 daily vehicle trips over Burnside Bridge. However, additional vehicle trips that are avoiding construction and the associated congestion along the I-5 through the Rose Quarter would be also be displaced. The proposed temporary Burnside Bridge would include one general purpose lane in each direction.

A temporary Burnside Bridge that coincides with an I-5 northbound closure would displace 1,455 westbound/southbound vehicles from the Burnside Bridge and I-405 Fremont Bridge in the AM peak hour and 2,415 eastbound/northbound vehicles from the Burnside Bridge and I-5 Marquam Bridge in the PM peak hour. Table 48 and Table 49 show the impacts to traffic demand and D/C ratios across the Willamette River Bridges.

Table 50 and Table 51 show the impacts to travel times along 12 different routes resulting from this construction scenario.

Table 48. Traffic Demand and D/C Ratios – Westbound AM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario E	D/C ratio Scenario E	Demand Difference	D/C ratio Difference
Fremont	6,140	0.88	5,180	0.74	*-960*	*-0.14*
Broadway	1,925	1.07	2,085	1.16	*+160*	*+0.09*
Steel	990	1.10	1,070	1.19	*+80*	*+0.09*
Burnside	1,575	0.79	1,080	1.20	*-495*	*+0.41*
Morrison	3,195	0.89	3,875	1.08	*+680*	*+0.19*
Hawthorne	1,850	1.03	2,070	1.15	*+220*	*+0.12*
Marquam	5,680	0.81	5,975	0.85	*+295*	*+0.04*
Ross Island	3,260	1.02	3,280	1.03	*+20*	*+0.01*

Source: Parametrix
*Figures in red indicate V/C ratios over 1.0

Table 49. Traffic Demand and D/C Ratios - Eastbound PM Peak Hour*

Bridge	Volume Existing	V/C ratio Existing	Demand Scenario E	D/C ratio Scenario E	Demand Difference	D/C ratio Difference
Fremont	5,760	0.82	6,935	0.99	*+1,175*	*+0.17*
Broadway	1,710	0.95	1,955	1.09	*+245*	*+0.14*
Steel	970	1.08	1,080	1.20	*+110*	*+0.12*
Burnside	1,700	0.85	1,065	1.18	*-635*	*+0.33*
Morrison	2,315	0.64	3,105	0.86	*+790*	*+0.22*
Hawthorne	2,090	1.16	2,155	1.19	*+65*	*+0.03*
Marquam	6,195	0.88	4,415	0.63	*-1,780*	*-0.25*
Ross Island	3,630	1.13	3,660	1.15	*+30*	*+0.02*

Source: Parametrix
*Figures in red indicate D/C ratios over 1.0

Table 50. Travel Times - Westbound AM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario E	Travel Time Difference
Multnomah/21st to Burnside/Broadway				
B-A1	Broadway Bridge	11.0	16.5	*+5.5*
B-A2	Steel Bridge	11.0	16.0	*+5.0*
B-A3	Burnside Bridge	9.0	17.0	*+8.0*
Sandy/22nd to Burnside/Broadway				
C-A1	Steel Bridge	12.0	16.5	*+4.5*
C-A2	Burnside Bridge	8.5	16.5	*+8.0*
C-A3	Morrison Bridge	11.5	23.5	*+12.0*
Burnside/20th to Burnside/Broadway				
D-A1	Broadway Bridge	15.0	21.5	*+6.5*
D-A2	Steel Bridge	13.0	18.0	*+5.0*
D-A3	Burnside Bridge	9.0	16.5	*+7.5*
D-A4	Morrison Bridge	13.0	25.0	*+12.0*
Stark/20th to Burnside/Broadway				
E-A1	Burnside Bridge	10.0	18.0	*+8.0*
E-A2	Morrison Bridge	12.0	24.0	*+12.0*

Source: Parametrix

Table 51. Travel Times - Eastbound PM Peak Hour

Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario E	Travel Time Difference
Burnside/Broadway to Multnomah/21st				
A-B1	Broadway Bridge	19.0	26.0	*+7.0*
A-B2	Steel Bridge	16.5	20.0	*+3.5*
A-B3	Burnside Bridge	16.5	20.5	*+4.0*
A-B4	Morrison Bridge	21.5	(I-5 NB closed)	-
Burnside/Broadway to Sandy/22nd				
A-C1	Steel Bridge	19.0	23.0	*+4.0*
A-C2	Burnside Bridge	16.0	19.5	*+3.5*
A-C3	Morrison Bridge	19.0	30.5	*+11.5*
Burnside/Broadway to Burnside/20th				
A-D1	Steel Bridge	18.0	22.5	*+4.5*
A-D2	Burnside Bridge	13.0	17.0	*+4.0*
A-D3	Morrison Bridge	16.5	28.0	*+11.5*
Burnside/Broadway to Stark/20th				
A-E1	Burnside Bridge	16.0	19.5	*+3.5*
A-E2	Morrison Bridge	14.0	24.5	*+10.5*

Source: Parametrix

During the AM peak hour, westbound routes across the Morrison Bridge would experience the largest impact on travel times with an increase of 12 minutes, while westbound routes traveling across the Burnside Bridge would experience an increase of 7.5 to 8 minutes and westbound routes traveling across the Broadway Bridge and Steel Bridge would experience an increase of 4.5 to 6.5 minutes.

During the PM peak hour, eastbound routes across the Morrison Bridge experience the largest increase in travel times with an increase of 10.5 to 11 minutes, while eastbound routes traveling across the Burnside Bridge, Broadway Bridge, and Steel Bridge would experience an increase of 3.5 to 7 minutes.

The travel times for all construction scenarios and routes are illustrated on Figure 48 through Figure 55.

Freight

In a temporary Burnside Bridge scenario, freight movement in and out of downtown would be impacted with increased congestion, detour routes, and extended travel times in and out of the downtown Portland area. The existing daily freight traffic over the Burnside Bridge is 1,175 heavy and medium trucks, representing 3.4 percent of all traffic demand. A portion of these trucks would likely be displaced from Burnside Bridge and depending on their destination, likely detour onto the Broadway Bridge, Steel Bridge, or Morrison Bridge. Impacts on freight demand and travel times would be similar to those on auto trips, as discussed above.

Transit

Under the temporary construction scenario with a temporary bridge over the Willamette River, TriMet transit bus lines 12, 19, and 20 would continue to route over the temporary bridge. Transit ridership and travel time information is presented below for a temporary bridge allowing all traffic. Data are further presented in the event of the I-5 Rose Quarter project taking place simultaneously.

Transit lines in the vicinity would experience service disruptions, including MAX Red and Blue Lines as these lines route under the Burnside Bridge along W 1st Avenue. The Replacement Alternative with Short-span and Long-span Approaches, Enhanced Seismic Retrofit, and Replacement Alternative with Couch Extension would all impact MAX Red and Blue Line operations. The Enhanced Seismic Retrofit would require four separate, 2-week closures for a total of 8 weeks, while the Replacement Alternative with Short-span and Long-span Approaches would require seven separate, 2-week closures for a total of 14 weeks. A full list of stop closures and the full extent of route impacts is still being analyzed. A bus bridge will operate to lessen the impacts of the service disruptions and further described in the mitigation section of this report.

The Portland Streetcar would not experience direct service disruptions resulting from a full closure of the Burnside Bridge. However, congestion-related impacts from vehicle rerouting along MLK Blvd, Grand Avenue, and Broadway Street are presented below.

Routes, Ridership, Travel Times

Under the temporary provision of a bridge opening to all modes, ridership on the three TriMet bus lines that cross the Burnside Bridge, the 12, 19, and 20 are expected to experience slight declines of between 1 to 2 percent below current conditions. Table 52, below, shows the changes to transit ridership resulting from the construction of a temporary bridge during construction. Compared with the full closure option shown in Table 52, the Temporary Bridge option has a lower impact on TriMet ridership on bus lines 12, 19, and 20; predicting decrease of between 1 and 2 percent vs 4 to 6 percent for a full closure scenario.

Table 52. Anticipated Transit Impacts due to Temporary Bridge

Daily Boardings for Transit Lines Impacted by Construction Alternatives

Transit Service	Daily Boardings within Direct API	PM Peak Hour Boardings within Direct API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Bus				
6			7,190	938
8*			9,989	1,351
9*			8.743	1.163
12	2.448	271	10.907	1.036
15*			7.352	904
19	1.795	283	7.342	1.054
20	2.033	324	10.373	1.464
35			6.355	1.086
71*			7,087	940
72*			9,919	1,134
75*			10,926	123
77*			6,542	1,109
MAX				
Blue/Red	9.953	1.387	93.980	13.669
Green/Yellow/Orange	5.762	658	54.401	6.481
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)				
Streetcar	435	49	8,168	960

Source: Metro
*The Yellow and Orange line operate as a single transit line

Table 53 shows the travel times across the Willamette River between W. 5th and E. Grand Avenue for the temporary bridge scenarios. Buses 12, 19 and 20 will continue to use the Burnside Bridge. AM westbound travel times are over 8 minutes, an increase of 200 percent while PM eastbound travel are over 10 minutes, an increase of 32 percent. Compared with the full closure option, a temporary bridge would significantly speed up travel times for lines 12, 19, and 20 across the Willamette River.

Table 53. Travel Times Temporary Bridge

Travel Time reported in minutes between W 5th Avenue and E Grand Avenue using the Steel Bridge as the detour route

Direction (Bus Lines 12, 16, 20)	Temporary Bridge – All Modes				
	Travel Distance (miles)	Travel Times (min)	Travel Time Change (%)	Avg Transit Speeds (mph)	Transit Speed Change (%)
Eastbound (PM Peak)	0.71	10.2	32	4.7	0
Westbound (AM Peak)	0.74	8.4	200	6.8	-46

Source: Parametrix

The Portland Streetcar is expected to experience small delays on operations of loops A and B on the eastside of the Willamette River. Table 54 displays predicted operating speeds and travel times along selected portions of the A and B loop.

Under the Temporary Bridge scenario, the Broadway Bridge experiences congestion of over 1.1 D/C in both the AM and PM peak hours. Demand on the Broadway Bridge would hold relatively constant, only predicted to decrease by one percent in the eastbound direction and 2.5 percent in the westbound direction. Along the remaining segments of the Broadway/Weidler A and B loops, traffic demand hold relatively steady at between plus or minus three percent, this is likely to not have a large impact on Streetcar operations.

Table 54. Portland Streetcar Segment Level Operating Speeds and Travel Times with a Temporary Bridge

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Eastbound A Loop					
Broadway Bridge	2,100	9.0 (-1.0)	2.7 (+0.4)	4.5 (-0.5)	5.3 (+0.5)
Larrabee to Benton	270	7.0 (-1.0)	4.6 (+0.6)	4.0 (± 0.0)	8.0 (± 0.0)
Benton to Weidler	255				
Broadway/Weidler to Vancouver	460				
Vancouver to Williams	260				
Williams to Victoria	270				
Victoria to 2nd	515				
2nd to MLK	515				
MLK Blvd to Grand Avenue	260				
Length–Subtotal	**2.805**				
Lloyd/MLK Blvd to Everett	530	6.5 (± 0.0)	2.3 (± 0.0)	4.5 (-2.3)	3.3 (+1.1)
Everett to Davis	270				

Table 54. Portland Streetcar Segment Level Operating Speeds and Travel Times with a Temporary Bridge

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Davis to Couch	260				
Couch to Burnside	260				
Length–Subtotal	**1,320**				
Westbound B Loop					
Burnside/Grand Avenue to Couch	260	15.0 (-3.0)	1.0 (+0.2)	10.0 (± 0.0)	1.5 (± 0.0)
Couch to Everett	530				
Everett to Lloyd	530				
Length–Subtotal	**1,320**				
Grand Avenue to MLK Blvd	260	5.0 (-0.5)	6.9 (+0.7)	4.5 (-0.5)	7.6 (+0.7)
MLK Blvd to 2nd	515				
2nd to Victoria	515				
Victoria to Williams	270				
Williams to Vancouver	260				
Vancouver to Flint	230				
Flint to Weidler	190				
Weidler to Benton	260				
Benton to Larrabee	270				
Larrabee to on-ramp	250				
Length–Subtotal	**3,020**				
Broadway Bridge	2,100	7.5 (-0.5)	3.2 (+0.2)	10.0 (± 0.0)	2.4 (± 0.0)

Temporary Bridge, All Modes and I-5 Rose Quarter Closure Scenario

Ridership for TriMet bus lines 12, 19, and 20 in the event of a temporary Burnside Bridge and the simultaneous construction of the I-5 Rose Quarter project would result in decreases in ridership slightly larger when compared to Burnside Bridge construction that does not coincide with the I-5 Rose Quarter Project. Decreases in ridership range from 156 to 181 fewer daily boardings. Compared with non-concurrent construction of the two projects, ridership decreases by an additional 0.3 to 0.5 percentage points. Table 55 shows impacts to affected TriMet transit lines do to this scenario. Ridership numbers are reported for the full extent of each of the transit lines.

Across all seventeen transit routes, the Temporary Bridge + I-5 Rose Quarter scenario results in the highest daily ridership at 255,187. This compares with 254,031 for the Temporary Bridge scenario for an increase of 1,156 riders or 0.5 percent.

Table 55. Temporary Bridge + I-5 Rose Quarter Closure Transit Ridership Impacts

Daily Boardings for Transit Lines Impacted by Construction Alternatives

Transit Service	Daily Boardings within Direct API	PM Peak Hour Boardings within Direct API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Bus				
6			7,133	931
8*			9.966	1.348
9*			8.775	1.167
12	2.440	270	10.870	1.032
15*			7.410	911
19	1.787	282	7.308	1.049
20	2.029	323	10.351	1.461
35			6,252	1,068
71*			7,120	944
72*			10,071	1,151
75*			11,071	125
77*			6,441	1,092
MAX				
Blue/Red	10.010	1.395	94.513	13.747
Green/Yellow/Orange	5.819	664	54.940	6.545
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)				
Streetcar	434	49	8,155	958

Source: Metro
*The Yellow and Orange line operate as a single transit line

Table 56 shows the travel times across the Willamette River between W 5th and E Grand Avenue for the temporary bridge scenarios. Buses 12, 19, and 20 will continue to use the Burnside Bridge. AM westbound travel times are over 10 minutes, an increase of 261 percent, while PM eastbound travel are 10 minutes, an increase of 30 percent. Compared with the full closure option, a temporary bridge would significantly speed up travel times for lines 12, 19, and 20 across the Willamette River.

The Streetcar Loops A and B would experience more impacts in the case of I-5 Rose Quarter closures compared to the scenario without Rose Quarter-related closures of I-5. This scenario will result in expected traffic demand on the Broadway Bridge to increase in both the AM and PM peaks by 8 and 14 percent respectively. Between the Broadway Bridge and Grand Avenue, AM Peak demand is expected to increase by between 7 and

45 percent, with the largest increase experienced between Vancouver and Flint Avenues. During the PM Peak period, demand between the Broadway Bridge and Grand Avenue are expected to generally increase by between 5 and 38 percent. The largest increase would be between Williams and Victoria Avenues. However, decreases of approximately 15 percent are expected between Victoria and Grand Avenue.

Traffic demand is also modeled along MLK Blvd and Grand Avenue between Burnside and Lloyd Blvd where Streetcar Loops A and B run. During the AM Peak period, traffic demand heading south on MLK Blvd are expected to decrease by between 16 and 30 percent, with the largest decrease at the bridgehead. In the PM peak period, traffic demand travelling north on Grand Avenue are expected to increase by between 21 and 51 percent. The increases expected in the PM peak are likely to impact streetcar operations along Grand Avenue.

Table 56. Temporary Bridge + I-5 Rose Quarter Closure Transit Travel Time Impacts

Travel Time reported in minutes between W 5th Avenue and E Grand Avenue using the Steel Bridge as the Detour Route

Direction (Bus Lines 12, 16, 20)	Temporary Bridge – All Modes				
	Travel Distance (miles)	Travel Times (min)	Travel Time Change (%)	Avg Transit Speeds (mph)	Transit Speed Change (%)
Eastbound (PM Peak)	0.71	10.0	30	5.3	13
Westbound (AM Peak)	0.74	10.1	261	6.7	-46

Source: Parametrix

The Portland Streetcar is expected to experience delays and slowdowns in operations due to the concurrent construction of the Burnside Bridge and I-5 Rose Quarter. Table 54 below, shows the expected impacts on portions of the A and B loop of the Streetcar on the eastside of the Willamette River.

Table 57. Portland Streetcar Segment Level Operating Speeds and Travel Times with a Temporary Bridge + I-5 Rose Quarter

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Eastbound A Loop					
Broadway Bridge	2,100	9.0 (-1.0)	2.7 (+0.4)	4.5 (-0.5)	5.3 (0.5)
Larrabee to Benton	270	7.0 (-1.0)	4.6 (+0.6)	4.0 (± 0.0)	8.0 (± 0.0)
Benton to Weidler	255				
Broadway/Weidler to Vancouver	460				
Vancouver to Williams	260				
Williams to Victoria	270				
Victoria to 2nd	515				

Table 57. Portland Streetcar Segment Level Operating Speeds and Travel Times with a Temporary Bridge + I-5 Rose Quarter

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
2nd to MLK Blvd	515				
MLK Blvd to Grand Avenue	260				
Length–Subtotal	**2,805**				
Lloyd/MLK Blvd to Everett	530	6.5 (± 0.0)	2.3 (± 0.0)	4.5 (-2.3)	3.3 (+1.1)
Everett to Davis	270				
Davis to Couch	260				
Couch to Burnside	260				
Length–Subtotal	**1,320**				
Westbound B Loop					
Burnside/Grand Avenue to Couch Street	260	15.0 (-3.0)	1.0 (+0.2)	10.0 (± 0.0)	1.5 (± 0.0)
Couch to Everett	530				
Everett to Lloyd	530				
Length–Subtotal	**1.320**				
Grand Avenue to MLK	260	5.0 (-0.5)	6.9 (+0.7)	4.5 (-0.5)	7.6 (+0.7)
MLK Blvd to 2nd	515				
2nd to Victoria	515				
Victoria to Williams	270				
Williams to Vancouver	260				
Vancouver to Flint	230				
Flint to Weidler	190				
Weidler to Benton	260				
Benton to Larrabee	270				
Larrabee to on-ramp	250				
Length–Subtotal	**3.020**				
Broadway Bridge	2,100	7.5 (-0.5)	3.2 (+0.2)	10.0 (± 0.0)	2.4 (± 0.0)

Active Transportation

During construction, if there is a temporary bridge that allows active transportation modes, then there would be little impact on pedestrian travel conditions. As a result, pedestrian volumes on the downtown bridges would be expected to be the same as during the base condition, as shown in Table 58.

Bicycle volumes on the Burnside Bridge are expected to be slightly lower (approximately 3 percent) than the base condition. This would be a result of the slightly less comfortable conditions for bicyclists on the Burnside Bridge, but is not a significant decrease. Interestingly, on the Steel and Morrison Bridges, Metro's regional model suggests that bicycling would be a more attractive option under the Temporary Bridge scenario, perhaps as a result of increases in motor vehicle delay influencing shifts to active transportation modes. As such, daily bike volumes are expected to increase on these bridges under the Temporary Bridge scenarios, as shown in Table 59.

I-5 Rose Quarter Directional Closure Scenario

It is the project team's understanding that all active transportation connections to and across the Willamette River would be maintained during the Rose Quarter Project and as such there is no expected change in pedestrian volumes under this scenario and a slight increase in bike volumes using the Steel Bridge (potentially as a result of lane closures on Broadway/Weidler diverting some bicyclists from the Broadway Bridge to the Steel Bridge).

Table 58. Pedestrian Volumes – Comparison of Temporary Bridge with All Modes Allowed

Average Weekday Trips

Link	Base	Temporary Bridge All Modes	Temporary Bridge All Modes – Full Closure of I-5 Rose Quarter
Steel Bridge	2,250	2,250	2,250
Burnside Bridge	1,400	1,400	1,400
Morrison Bridge	800	800	800

Source: Toole Design

Table 59. Bike Volumes – Comparison of Temporary Bridge with All Modes Allowed

Average Weekday Trips

Link	2019 Base	2019 Temporary Bridge All Modes	2019 Temporary Bridge All Modes – Full Closure of I-5 Rose Quarter
Steel Bridge	3,200	3,900	3,950
Burnside Bridge	1,750	1,700	1,700
Morrison Bridge	500	650	650

Source: Toole Design

Transit, Bicycle, and Pedestrian Only Temporary Bridge

This section covers impacts related to the provision of a temporary bridge serving only transit and active transportation users. Generally, impacts to traffic and freight will be identical to the Full Closure option while many of the active transportation and safety impacts will be similar to the All Modes Temporary option. Below is a summary of the key findings explored throughout this section:

Traffic/Freight

- The approximately 35,000 crossing the Willamette River using the Burnside Bridge face significant out-of-direction travel without a temporary bridge during the construction period.
- The remaining bridges would face increased congestion, often in the range of 10 to 20 percent higher D/C ratios.
- Travel times across the remaining bridges would likewise experience increases, generally within a range of 5 to 10 percent. The biggest increase occurs over the Broadway Bridge with a 40 percent increase in O-D pairs travel times.

Transit

- Transit would be able to use the temporary Burnside Bridge. Travel times across the Willamette River would improve for bus lines 12, 19, and 20 by between 10 and 25 percent.
- Transit ridership for bus lines 12, 19, and 20 would decrease by less than 2 percent.
- While a temporary bridge without vehicle traffic would speed up transit vehicles over the bridge, out-of-direction travel and added vehicle congestion on roads leading to the temporary bridge would slow transit vehicles getting to the bridge span and this limits the benefits of a temporary bridge for transit users.
- The Portland Streetcar would experience similar travel delays as those expected with the full closure construction option. However, streetcar operations would improve along the two blocks of MLK Blvd and Grand Avenue at the eastside Burnside bridgehead.

Active Transportation

- Bicycle and pedestrian impacts would be minimal if a temporary bridge is provided throughout the construction period. In the case of a temporary bridge that carries transit, a minor portion of bicycle and pedestrian trips are expected to switch to transit trips.
- A temporary bridge would significantly reduce out-of-direction travel associated with the Full Closure option.
- The Vera Katz Eastbank Esplanade would still experience closures throughout the construction period, resulting on the need for detours, out-of-direction travel, and possible foregone trips.

Safety

Safety impacts for the Full Closure construction scenario are found in Section 7.4.4.

- Crashes during the construction phase are assumed to be a function of VMT within the area studied. Crash frequency is not predicted to substantively change compared to existing conditions.

- In the assumed worst case construction scenario of the Rose Quarter involving a directional closure of I-5, crash frequencies would increase by less than 25 crashes on surface streets within the study area.
- The directional closure of I-5 transfers vehicle volumes from facilities with generally lower overall crash rates to facilities with generally higher crash rates.

Auto Demand and Travel Times

Under the scenario involving a temporary bridge that is only open to buses, bikes, and pedestrians, the impacts to traffic would be identical to the impacts described under the full closure scenario in Section 7.4.2.

Freight

Under the scenario involving a temporary bridge that is only open to buses, bikes, and pedestrians the impacts to freight would be identical to the impacts described under the full closure scenario in Section 7.4.2.

Transit

Under the construction scenario involving a temporary bridge limited to bus, bike, and pedestrians only, TriMet bus lines 12, 19, and 20 would continue to be routed over the temporary Burnside Bridge.

Routes, Ridership, Travel Times

Under the temporary provision of a bridge that excludes auto traffic, ridership on the three TriMet bus lines that cross the Burnside Bridge (lines 12, 19, and 20) are predicted to experience minor decreases in ridership compared to the base case of between 1 and 2 percent. Several lines, including lines 15 and 77 are predicted to experience ridership increases above 1 percent. Table 60 shows the changes to transit ridership resulting from both temporary construction scenarios.

When compared to the full closure option, an additional 1,051 daily boardings are predicted to occur between lines 12, 19, and 20 that cross the Burnside Bridge, representing a 4 percent increase in ridership over the full closure option. Within the Direct API, ridership at stops for lines 12, 19, and 20 are higher for the Temporary Bridge scenario by 51 percent, 52 percent, and 40 percent when compared with the full closure scenario.

The Portland Streetcar could see potential impacts to travel times and ridership based on the displacement of traffic away from the Burnside Bridge. The most likely affected lines would be the A and B loops. Peak period demand is predicted to increase by 10 percent over the Broadway Bridge, resulting in congestion of over 1.1 D/C, which would affect streetcar operations. For portions of the A and B loop for which segment level traffic demand was modeled, much of the segments show increases in demand. For the PM peak period, eastbound streetcar operations along Broadway, including the Broadway Bridge until 7th Avenue, would travel along streets with demand between 3 and 10 percent higher compared with the 2015 base case volumes. During the AM Peak, westbound streetcar operations along the same segments would experience predicted vehicle demand between 4 and 11 percent higher than the 2015 base case.

An exception to the demand increases is along MLK Blvd within several blocks north of Burnside where demand experiences a decrease of approximately 25 percent in the AM Peak. Demand along MLK Blvd directly at the bridgehead are expected to fall to nearly zero.

Table 60. Anticipated Impacts for Ridership due to Transit, Bicycle, and Pedestrian Only Scenario

Daily Boardings for Transit Lines Impacted by Construction Alternatives

Transit Service	Daily Boardings within API	PM Peak Hour Boardings within API	Daily Ridership for Full Extent	PM Peak Hour Boardings Full Extent
Bus				
6			7.190	938
8*			9.989	1.351
9*			8.743	1.163
12	2.448	271	10.907	1.036
15*			7,352	904
19	1,795	283	7,342	1,054
20	2,033	324	10,373	1,464
35			6,355	1,086
71*			7,087	940
72*			9,919	1,134
75*			10,926	123
77*			6,542	1,109
MAX				
Blue/Red	9,953	1,387	93,980	13,669
Green/Yellow/Orange	5,762	658	54,401	6,481
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)				
Streetcar	435	49	8,168	960

Source: Metro
*The Yellow and Orange line operate as a single transit line

Travel times across the Willamette River experience decrease during the PM peak hour. Travel times are reported as the modeled time it takes transit vehicles to go between W 5th Avenue at Burnside on the western bank of the Willamette and E Grand Avenue at Burnside on the eastern bank.

Table 61 shows the travel times across the Willamette River between W. 5th and E. Grand Avenue for the temporary bridge scenarios. Buses 12, 19 and 20 will continue to use the Burnside Bridge. AM westbound travel times are 2.1 minutes, a decrease of -68 percent while PM eastbound travel times are 2.1 minutes, a decrease of -25 percent.

Compared with the full closure option, a temporary bridge would significantly speed up travel times for lines 12, 19, and 20 across the Willamette River.

While travel times as reported between W 5th Avenue and E Grand Avenue decrease, it is very likely that transit vehicles will experience additional delays from auto congestion outside of these bounds. With a Burnside Bridge closed to normal vehicle traffic, congestion caused by traffic diverting to other bridges is likely to impact transit operations leading up to the Burnside bridgeheads on either bank of the river.

When travel times for this scenario are compared with the temporary scenario that includes vehicle traffic, travel times are significantly faster. Eastbound travel times improve by 43 percent, going while in the westbound direction, travel times improve by 25 percent.

Table 61. Travel Times Transit, Bicycle, and Pedestrian Only Temporary Bridge

Distance reported in miles; time reported in minutes.

Direction (Bus Lines 12, 16, 20)	Transit, Bicycle, and Pedestrian Only Temporary Bridge				
	Travel Distance (miles)	Travel Times (min)	Travel Time Change (%)	Avg Transit Speeds (mph)	Transit Speed Change (%)
Eastbound (PM Peak)	0.71	2.5	-68	13.3	138
Westbound (AM Peak)	0.74	2.1	-25	17.3	38

Source: Parametrix

The Portland Streetcar is predicted to experience travel time impact based on the displacement of traffic away from the Burnside Bridge. The most likely affected lines would be the A and B loops, Table 62 shows modeled travel speeds along select portions of these lines. Overall, travel speeds along roadway segments on Broadway, Weidler, MLK Blvd, and Grand Avenue decrease in the case of a temporary Burnside Bridge that prohibits auto traffic.

Table 62. Travel Speed Estimates with a Transit, Bicycle, and Pedestrian Only Temporary Bridge Temporary Bridge

Earthquake Ready Burnside – Travel Time Estimates

<table>
<tr><th rowspan="2">Travel Path</th><th rowspan="2">Link Length (ft)</th><th colspan="2">AM Peak</th><th colspan="2">PM Peak</th></tr>
<tr><th>Speed (mph)</th><th>Travel Time (min)</th><th>Speed (mph)</th><th>Travel Time (min)</th></tr>
<tr><td colspan="6">Eastbound A Loop</td></tr>
<tr><td>Broadway Bridge</td><td>2.100</td><td>8..5 (-1.5)</td><td>2.8 (+0.4)</td><td>4.0 (-1.0)</td><td>6.0 (+1.2)</td></tr>
<tr><td>Larrabee to Benton</td><td>270</td><td rowspan="6">7.0 (-1.0)</td><td rowspan="6">4.6 (+0.6)</td><td rowspan="6">4.0 (± 0.0)</td><td rowspan="6">8.0 (± 0.0)</td></tr>
<tr><td>Benton to Weidler</td><td>255</td></tr>
<tr><td>Broadway/Weidler to Vancouver</td><td>460</td></tr>
<tr><td>Vancouver to Williams</td><td>260</td></tr>
<tr><td>Williams to Victoria</td><td>270</td></tr>
</table>

Table 62. Travel Speed Estimates with a Transit, Bicycle, and Pedestrian Only Temporary Bridge Temporary Bridge

Earthquake Ready Burnside – Travel Time Estimates

Travel Path	Link Length (ft)	AM Peak		PM Peak	
		Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Victoria to 2nd	515				
2nd to MLK	515				
MLK Blvd to Grand Avenue	260				
Length–Subtotal	**2,805**				
Lloyd/MLK Blvd to Everett	530	9.0 (+2.5)	1.7 (-0.5)	4.3 (-2.5)	3.5 (+1.3)
Everett to Davis	270				
Davis to Couch	260				
Couch to Burnside	260				
Length–Subtotal	**1,320**				
Westbound B Loop					
Burnside/Grand Avenue to Couch	260	12.0 (+6.0)	1.3 (+0.5)	12.0 (-2.0)	1.3 (-0.2)
Couch to Everett	530				
Everett to Lloyd	530				
Length–Subtotal	**1,320**				
Grand Avenue to MLK	260	4.5 (-1.0)	7.6 (+1.4)	4.5 (+0.5)	7.6 (+0.7)
MLK Blvd to 2nd	515				
2nd to Victoria	515				
Victoria to Williams	270				
Williams to Vancouver	260				
Vancouver to Flint	230				
Flint to Weidler	190				
Weidler to Benton	260				
Benton to Larrabee	270				
Larrabee to on-ramp	250				
Length–Subtotal	**3,020**				
Broadway Bridge	2,100	6.5 (+1.5)	4.3 (+1.3)	7.5 (-2.5)	3.2 (+0.8)

Peak period traffic demand along the A and B loops are predicted to increase by ten percent over the Broadway Bridge, resulting in congestion of over 1.1 DC which would affect streetcar operations. The majority of segments modeled for loops A and B are expected to experience slowdowns in operational speeds and thus increased travel times.

Transit in the Case of a Temporary Bicycle and Pedestrian Only Bridge

In the event of the construction of a temporary bridge that allows only bicycle and pedestrian traffic, impacts on transit for TriMet bus lines 12, 19, and 20 will be identical in nature to the Full Closure scenario explored in Section 7.4.1 of this report.

Active Transportation

During construction, if there is a temporary bridge that allows bikes, pedestrians, and transit but not automobiles, then transit travel times are likely to improve (see above) and be more competitive; therefore, some bicycling and pedestrian trips could convert to transit. Table 63 and Table 64 show that approximately 200 daily pedestrian trips and 100 daily bike trips are expected to convert to transit compared to the Temporary Bridge scenario that allows all modes.

Table 63. Pedestrian Volumes – Comparison of Temporary Bridge Options

Average Weekday Trips

Link	2019 Base	2019 Temporary Bridge All Modes	2019 Transit, Bicycle, and Pedestrian Only Temporary Bridge
Steel Bridge	2,250	2,250	2,250
Burnside Bridge	1,400	1,400	1,200
Morrison Bridge	800	800	750

Source: Toole Design

Table 64. Bike Volumes – Comparison of Temporary Bridge Options

Average Weekday Trips

Link	2019 Base	2019 Temporary Bridge All Modes	2019 Transit, Bicycle, and Pedestrian Only Temporary Bridge
Steel Bridge	3,200	3,900	3,850
Burnside Bridge	1,750	1,700	1,600
Morrison Bridge	500	650	650

Source: Toole Design

I-5 Rose Quarter Directional Closure Scenario

It is the project team’s understanding that all active transportation connections to and across the Willamette River would be maintained during the Rose Quarter Project; as such, there is no expected change to the bike and pedestrian travel conditions and volumes described under the scenario above.

7.4.4 Construction Impacts on Safety

Section 7.4.3 explores the safety-related impacts on vehicles, bicycles, and pedestrians that are anticipated from the temporary construction scenarios.

Auto Safety

The methodology for the auto safety assessment of construction impacts is detailed in Section 6.3.2. This subsection shows and evaluates the results of the assessment.

Construction of a temporary bridge at Burnside allows for more direct travel paths for pedestrians, cyclists, and motor vehicles and therefore lowers the overall exposure distance for travelers. However, the time of construction is also increased and extends the number of years the area is impacted.

The most likely construction scenario for the Rose Quarter Project is staged construction along I-5. However, Rose Quarter construction may implement a directional closure of I-5, where traffic is prohibited from using one side of the freeway. The directional closure of I-5 decreases the VMT as the travelers select shorter routes on the non-freeway facilities. However, average crash rates in Oregon are lower on freeways than on non-freeways, particularly for high severity crashes.[16] The directional closure of I-5, therefore, redirects traffic from facility types with generally lower average crash rates to facilities with generally higher average crash rates.

The Short-span and Long-span Alternatives requires an additional year of construction over the Enhanced Seismic Retrofit Alternative. The Short-span and Long-span Alternatives prolong the period in which traffic is impacted. All construction scenarios are analyzed for both the Enhanced Seismic Retrofit Alternative and Short-span and Long-span Alternatives.

Safety Assessment Results – Staged Construction on I-5 for Rose Quarter

The results of the safety analysis for construction impacts with staged Rose Quarter construction are shown in Table 65. Traffic volumes for the construction scenario include some network changes such as the proposal to reduce the number of lanes on NE Broadway and NE Weidler Street.

Without a temporary bridge (Scenario H), the crash frequency is not predicted to substantively change compared to no-build conditions, for both the Enhanced Seismic Retrofit and Replacement In-kind Build Alternatives. Constructing a temporary bridge with and without general-purpose traffic lanes (Scenario D and Scenario F-G) is also predicted to not result in a substantive change crash frequency as compared to no-build conditions.

[16] *2017 State Highway Crash Rate Tables.* Oregon Department of Transportation. August 2019. https://www.oregon.gov/ODOT/Data/Documents/Crash_Rate_Tables_2017.pdf

Table 65. Construction Impacts to Safety with Staged Rose Quarter Construction, 2024-2029

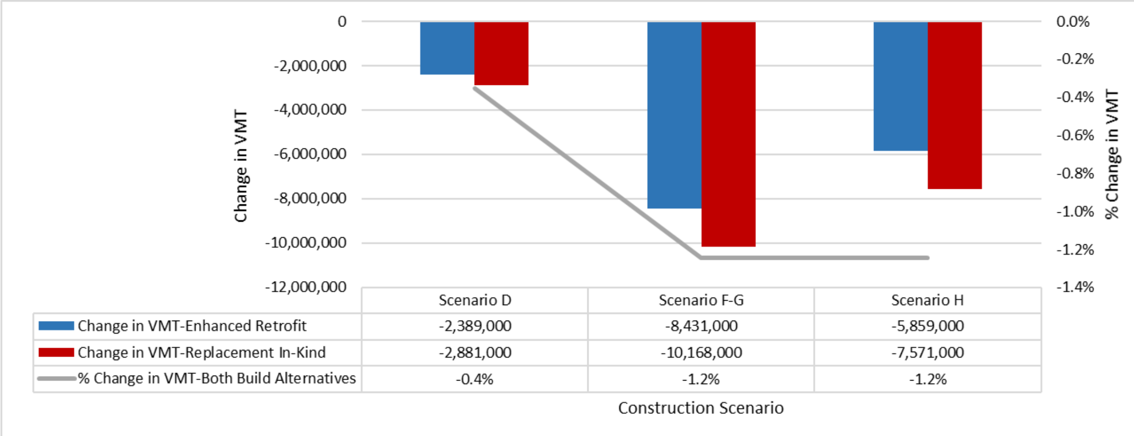
Construction Scenario	Construction Period (years)	Change in Predicted Total Crash Frequency from No-Build Scenario	Change in Predicted Fatal and Injury Crash Frequency from No-Build Scenario
Enhanced Seismic Retrofit			
Scenario D: With a temporary bridge and general-purpose traffic lanes, staged construction for I-5 Rose Quarter	5	—	—
Scenario F-G: With a temporary bridge and no general-purpose traffic lanes, staged construction for I-5 Rose Quarter	5	—	—
Scenario H: Without a temporary bridge, staged construction for I-5 Rose Quarter	3.5	—	—
Replacement In-kind (Short-span, Long-span), Replacement with Couch Extension			
Scenario D: With a temporary bridge, staged construction for I-5 Rose Quarter	6	—	—
Scenario F-G: With a temporary bridge and no general-purpose traffic lanes, staged construction for I-5 Rose Quarter	6	—	—
Scenario H: Without a temporary bridge, staged construction for I-5 Rose Quarter	4.5	—	—

- = Crash frequency approximately does not change

↑ = Crash frequency increases by 5-24 crashes

Figure 66 shows the change in VMT and the percentage change in VMT on the safety indirect API network for construction scenarios compared to the no-build conditions scenario. The total construction period VMT for Scenario F-G and Scenario H are approximately 1.2 percent less than the no-build conditions scenario. In Scenario D, the construction period VMT is forecast to be approximately 0.4 percent less than no-build conditions. The predicted changes in crashes under Scenario D, Scenario F-G, and Scenario H correspond with the changes in VMT under these scenarios.

Figure 66. Change in VMT Compared to No-Build Conditions Scenario, Staged Construction for Rose Quarter Project



Safety Assessment Results – Directional Closure on I-5 for Rose Quarter

The changes in predicted crashes, under a directional closure of I-5 for Rose Quarter construction scenario are shown in Table 66. Overall, the order of magnitude estimated change in crash frequency is less than 25 crashes in total for the construction period for any of the temporary bridge options with directional closure of I-5 during the construction period.

Table 66. Construction Impacts to Safety with Directional Closure of I-5 for Rose Quarter Construction, 2024-2029

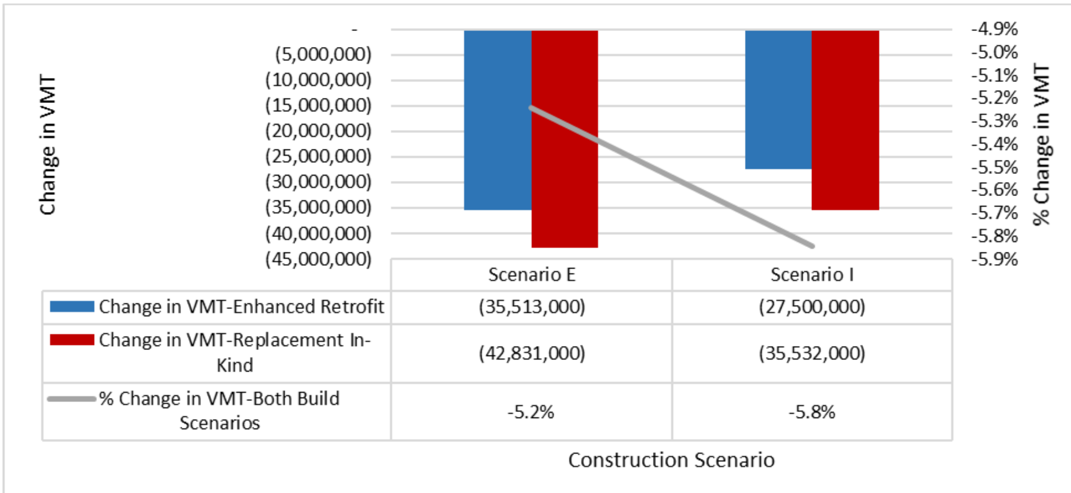
Construction Scenario	Construction Period (years)	Change in Predicted Total Crash Frequency from No-Build Scenario	Change in Predicted Fatal and Injury Crash Frequency from No-Build Scenario
Enhanced Seismic Retrofit			
Scenario E: With a temporary bridge, directional closure for I-5 Rose Quarter	5	↑	↑
Scenario I: Without a temporary bridge, directional closure for I-5 Rose Quarter	3.5	↑	↑
Replacement In-kind (Short-span, Long-span), Replacement with Couch Extension			
Scenario E: With a temporary bridge, directional closure for I-5 Rose Quarter	6	↑	↑
Scenario I: Without a temporary bridge, directional closure for I-5 Rose Quarter	4.5	↑	↑

\- = Crash frequency approximately does not change

↑ = Crash frequency increases by 5-24 crashes for the construction period

Figure 67 shows the change in VMT for Scenario E and Scenario I compared to the no-build conditions scenario. VMT decreases by approximately 5.2 percent and 5.8 percent under Scenario E and Scenario I, respectively. The crashes are predicted to increase even though the VMT decreases. This is because the traffic is redirected to shorter routes on the non-freeway facilities, which observe higher crash rates than freeway facility types. Changes in predicted crash frequency under these scenarios correspond with changes in VMT.

Figure 67. Change in VMT Compared to No-Build Conditions Scenario, Directional Closure of I-5 for Rose Quarter Project



High Priority Crash Segments

As a result of construction, traffic volumes would increase on many roads within the safety indirect API compared to no-build conditions. These roads may benefit from implementing countermeasures to mitigate negative impacts to safety due to the increased volumes. Table 67 shows the roads with the highest increases in crash frequency for each construction scenario considered in the analysis. For all scenarios, SW Alder Street-Morrison Bridge-SE Morrison Street is predicted to have the highest estimated increase in crashes (total and fatal or injury). SW/NW Broadway-Broadway Bridge-NE Broadway is predicted to have high increase in crash frequency for scenarios E, F-G, H. A map of the road segments can be found in the safety indirect API, shown previously in Section 5.1.2. The crash frequency categories for high priority crash segments are as follows:

- \- = Crash frequency approximately does not change
- ↑ = Crash frequency increases by 5-9 crashes
- ↑↑ = Crash frequency increases by 10-14 crashes
- ↑↑↑ = Crash frequency increases by 15-24 crashes
- ↑↑↑↑ = Crash frequency increases by 25 or more crashes

Table 67. Roads with Highest Increases in Crash Frequency Due to Construction Impacts

Road Segment	Change in Predicted Total Crash Frequency from No-Build Scenario for Enhanced Retrofit / Replacement In-kind	Change in Predicted Fatal and Injury Crash Frequency from No-Build Scenario for Enhanced Retrofit / Replacement In-kind
	Scenario D	
SW Alder Street-Morrison Bridge-SE Morrison Street	↑↑ / ↑↑↑	↑ / ↑
SE Belmont Street	↑↑ / ↑↑	- / ↑
SW/NW Broadway-Broadway Bridge-NE Broadway	- / -	- / -
NE Weidler Street	- / -	- / -
I-5	- / -	- / -
	Scenario E	
NE Multnomah Street	↑↑↑↑ / ↑↑↑↑	↑↑ / ↑↑
SW Alder Street-Morrison Bridge-SE Morrison Street	↑↑↑↑ / ↑↑↑↑	↑↑ / ↑↑
SE Belmont Street	↑↑↑↑ / ↑↑↑↑	↑ / ↑↑
SW/NW Broadway-Broadway Bridge-NE Broadway	↑↑↑ / ↑↑↑	↑ / ↑
SE/NE Grand Avenue	↑↑↑ / ↑↑↑	↑ / ↑
SE 20th Avenue - NE 21st Avenue	↑↑↑ / ↑↑↑	↑ / ↑
	Scenario F-G	
SW Alder Street-Morrison Bridge-SE Morrison Street	↑↑↑↑ / ↑↑↑↑	↑↑ / ↑↑
SW/NW Broadway-Broadway Bridge-NE Broadway	↑↑↑ / ↑↑↑	↑ / ↑
NE Weidler Street	- / ↑	- / -
SE Belmont Street	↑↑ / ↑↑	- / ↑
I-5	↑ / ↑	- / -
	Scenario H	
SW Alder Street-Morrison Bridge-SE Morrison Street	↑↑↑ / ↑↑↑↑	↑ / ↑↑
SW/NW Broadway-Broadway Bridge-NE Broadway	↑↑ / ↑↑	- / -
SE Belmont Street	↑ / ↑↑	- / -
NE Weidler Street	- / -	- / -

Table 67. Roads with Highest Increases in Crash Frequency Due to Construction Impacts

Road Segment	Change in Predicted Total Crash Frequency from No-Build Scenario for Enhanced Retrofit / Replacement In-kind	Change in Predicted Fatal and Injury Crash Frequency from No-Build Scenario for Enhanced Retrofit / Replacement In-kind
I-5	- / ↑	- / -
NE Multnomah Street	↑ / ↑	- / -
Scenario I		
SW Alder Street-Morrison Bridge-SE Morrison Street	↑↑↑↑ / ↑↑↑↑	↑↑ / ↑↑↑
SW/NW Broadway-Broadway Bridge-NE Broadway	↑↑↑ / ↑↑↑↑	↑ / ↑
SE Belmont Street	↑↑↑ / ↑↑↑↑	↑ / ↑↑
NE Multnomah Street	↑↑↑↑ / ↑↑↑↑	↑ / ↑↑
SE/NE Grand Avenue	↑↑↑ / ↑↑↑	↑ / ↑
SE 20th Avenue - NE 21st Avenue	↑↑ / ↑↑↑	- / ↑

- = Crash frequency approximately does not change
↑ = Crash frequency increases by 5-9 crashes
↑↑ = Crash frequency increases by 10-14 crashes
↑↑↑ = Crash frequency increases by 15-24 crashes
↑↑↑↑ = Crash frequency increases by 25 or more crashes

Construction Impacts on Safety Summary

Under the staged construction of Rose Quarter, Scenario D, Scenario F-G, and Scenario H , it is estimated that the total crash frequency and fatal/injury crash frequency due to construction impacts would not change substantially from the estimated crash frequency of no-build conditions (Table 65). This is regardless of whether a temporary bridge is constructed or which build alternative is used.

A directional closure of I-5 for Rose Quarter construction is predicted to increase crash frequency by less than 25 crashes over the construction period for all of the bridge scenarios (Table 66). In this Rose Quarter construction condition, the shortest construction period would have the least safety impacts.

Regardless of the construction scenario (Table 67), certain road segments are predicted to experience increased crash frequency due to construction impacts:

- SW Alder Street-Morrison Bridge-SE Morrison Street
- SW/NW Broadway-Broadway Bridge-NE Broadway
- SE/NE Grand Avenue
- SE Belmont Street

- NE Multnomah Street (Scenario E, and I only)
- SE 20th Avenue - NE 21st Avenue (Scenario E, and I only)

Bicyclist and Pedestrian Safety

This subsection shows the results of the pedestrian and bicyclist safety analysis for construction impacts. The methodology for the analysis is detailed in Section 6.3.2. Multiple routes will be available for pedestrians and bicyclists to use during construction. The full extent of these options was not evaluated; however, as traffic volume and/or speed increases on any street, crash risk for pedestrians and cyclists (either frequency or severity) also increases. However, there will be detour routes signed for pedestrians and bicyclists that come upon construction to get around potential closures of the Burnside Bridge and the Vera Katz Eastbank Esplanade. These routes were evaluated for their comparative safety risk to evaluate the potential impact of the construction scenario without a temporary bridge for pedestrians and bicyclists.

The results of the bicycling safety analysis during construction are shown in Table 68 along with the change in travel time for bicyclists using various facility types on the designated detour routes around the Burnside Bridge and the Vera Katz Eastbank Esplanade closures.

Not providing a temporary Burnside Bridge (Scenarios H and I) requires bicyclists to detour using the Steel Bridge or Morrison Bridge. It is assumed that 55 percent of bicyclists will utilize the Steel Bridge detour route while 45 percent will utilize the Morrison Bridge route. Detouring around the Burnside Bridge increases the BLTS-minutes score from 11.5 to 27, mostly due to an overall increased total travel time (from 7 minutes to 13-14 minutes) and additional travel time (2 to 5 minutes) on neighborhood greenways, which are shared with vehicular traffic.

Closing the Vera Katz Eastbank Esplanade will require bicyclists to detour across the Morrison Bridge or through the Central Eastside Industrial District (CEID). It is assumed that 80 percent of bicyclists will use the Morrison Bridge detour route while 20 percent will use the CEID detour route. Detouring around the Vera Katz Eastbank Esplanade increases the BLTS-minutes score from 5 to 17. Interestingly, the detour across the Morrison Bridge to the west side of the river and back via the Steel Bridge can be completed all on BLTS 1 facilities; however, the route through the CEID is mostly via on-street facilities increasing exposure to traffic.

Table 68. Bicyclist Level of Traffic Stress due to Construction Impacts by Scenario

Construction Scenario	BLTS-minutes Score	Change in Minutes Traveled on Facility Type: Off-Street Pathway	Change in Minutes Traveled on Facility Type: Bike Lane	Change in Minutes Traveled on Facility Type: Neighborhood Greenway	Change in Minutes Traveled on Facility Type: Shared Street
Burnside Bridge Detour					
Scenarios D, E, F, & G: Temporary Burnside Bridge with pedestrian and bicyclist facilities	11.5	0 (no change from existing)			
Scenarios H & I: No temporary Burnside Bridge (55% detour to Steel Bridge and 45% to Morrison Bridge)	27	Steel: +5, Morrison: +4	Steel: -1, Morrison: -1	Steel: +2, Morrison: +5	Steel: 0, Morrison: -1
Vera Katz Eastbank Esplanade Detour					
Vera Katz Eastbank Esplanade open	5	0 (no change from existing)			
Vera Katz Eastbank Esplanade Closed (80% detour to Morrison Bridge and 20% to CEID)	17	Morrison: +5, CEID: -5	Morrison: 0, CEID: +8	Morrison: 0, CEID: +8	Morrison: 0, CEID: +1

The results of the pedestrian safety during construction analysis are shown in Table 69. It shows the pedestrian intersection crossing risk scores and the change in number of required crossings by intersection approach type along the detour routes.

The crossing risk with a temporary Burnside Bridge in place (Scenarios D, E, F, and G) is a risk score of 15. For Scenarios H and I, where a temporary bridge is not constructed, pedestrians will be detoured to the north via the Steel Bridge or to the south via the Morrison Bridge. This analysis assumes 55 percent and 45 percent of pedestrians will use the Steel Bridge and Morrison Bridge routes, respectively. These detours increase the pedestrian crossing risk score from 15 to 40, mostly due to the 11 additional unsignalized minor road approaches that pedestrians are required to cross when using the Morrison Bridge route.

Closing the Vera Katz Eastbank Esplanade will require pedestrians to detour across the Morrison Bridge or through the CEID. It is assumed that 80 percent and 20 percent of pedestrians will use the Morrison Bridge and CEID routes, respectively. These detours increase the pedestrian crossing risk score from 1 to 11, mostly due to the 13 additional unsignalized minor road approaches that pedestrians need to cross using the CEID detour route.

Table 69. Pedestrian Intersection Crossing Risk Score Due to Construction Impacts by Scenario

Construction Scenario	Pedestrian Intersection Crossing Risk Score	Change in Intersection Approach Crossings			
		Signalized Minor (weight=1)	Signalized Major (weight=2)	Unsignalized Minor (weight=3)	Unsignalized Major (weight=4)
Burnside Bridge Detour					
Scenarios D, E, F, & G: Temporary Burnside Bridge with pedestrian and bicyclist facilities	15	0 (no change from existing)			
Scenarios H & I: No temporary Burnside Bridge (55% detour to Steel Bridge and 45% to Morrison Bridge)	40	Steel: 0, Morrison: 0	Steel: +4, Morrison: +3	Steel: +1, Morrison: +11	Steel: 0, Morrison: +1
Vera Katz Eastbank Esplanade Detour					
Vera Katz Eastbank Esplanade open	1	- (no change from existing)			
Vera Katz Eastbank Esplanade Closed (80% detour to Morrison Bridge and 20% to CEID)	11	Morrison: -1, CEID: +1	Morrison: +1, CEID: +3	Morrison: 0, CEID: +13	Morrison: 0, CEID: 0

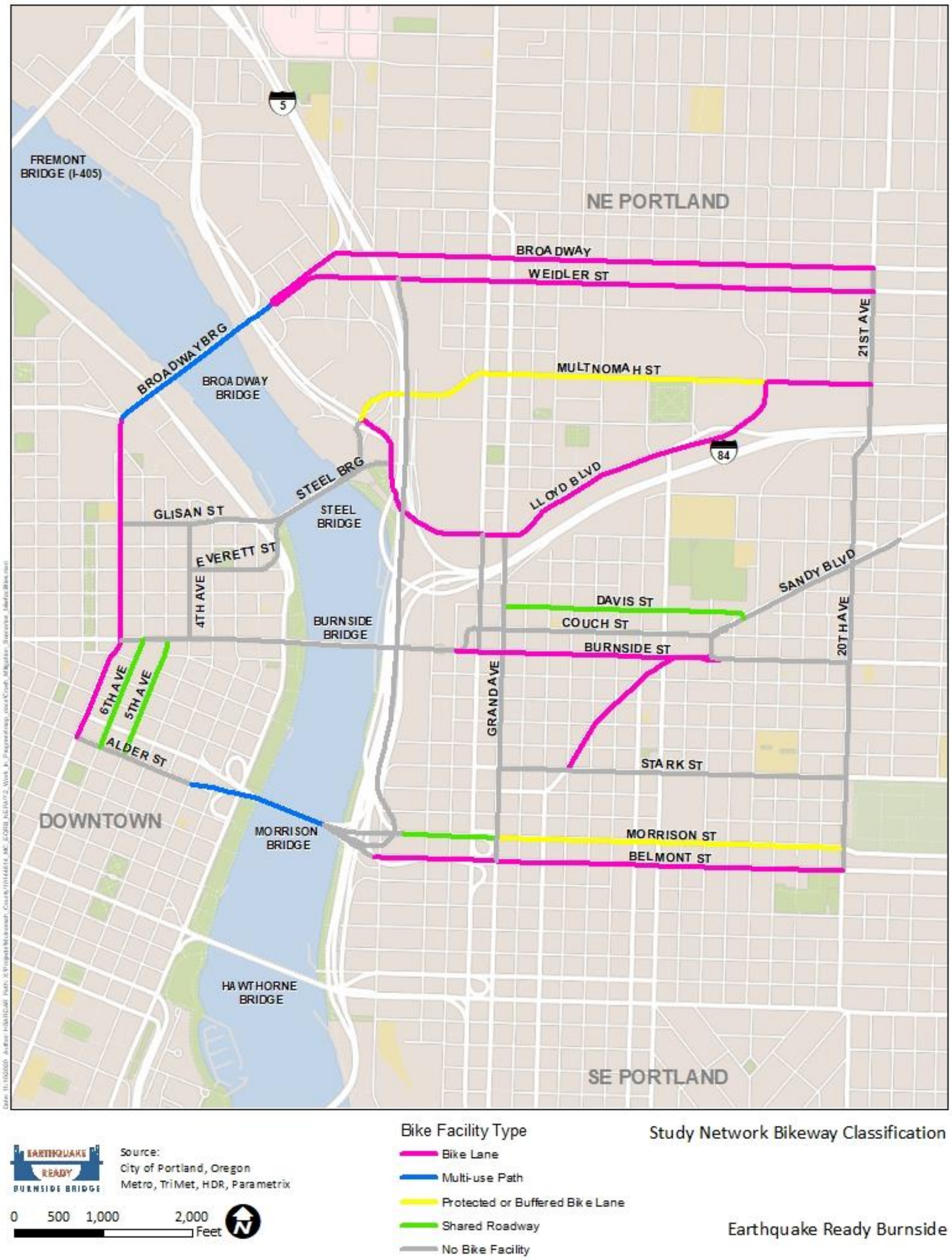
Potential Safety Impacts of Traffic Diversion on Active Transportation

The project team explored the potential safety impacts of traffic diverting around construction closures of the Burnside Bridge on the existing active transportation system. The analysis was completed by comparing the change in VMT on the major street bikeway network within the Safety Indirect API, with VMT acting as a measure of exposure that impacts safety for existing active transportation users. The comparison also includes evaluating the change in V/C ratio on the major street network to determine where traffic may potentially divert onto the local street network to avoid congestion and where this could impact the neighborhood greenway system.

Impact of Traffic Diversion on Major Street Bikeways

Traffic diverting around construction closures of the Burnside Bridge will result in a change in traffic volumes on many of the streets in the Safety Indirect API and will therefore change the exposure characteristics for pedestrians and bicyclists using those streets. The indirect API major street network is shown on Figure 68 along with the bikeway classification of each of these streets. Expected traffic diversion routes around construction closures of the Burnside Bridge were described in Section 5.1.

Figure 68. Study Network Bikeway Classification.



The methodology for calculating changes in exposure on the major street network is described in Section 6.3. VMT was used as a representative measure of exposure and potential safety impact on active transportation users and was compared between the different construction scenarios. The analysis accounts for the different construction timelines that result from the bridge type, use, and configuration of a temporary bridge, and the impacts resulting from a potential directional closure on I-5 for Rose Quarter construction. The VMT exposure comparison is broken down by bikeway classification in Table 70 and Table 71 for the Enhanced Seismic Retrofit and Replacement In-Kind bridge types, respectively.

Table 70. Vehicle-Miles-Traveled on the Bikeway Network by Construction Scenario - Enhanced Seismic Retrofit

	Total VMT (per million)						
	Enhanced Seismic Retrofit						
	W/O Temp Bridge - 3.5 Years			With Temp Bridge - 5 Years			
Bike Facility	**Existing**	**Scenario H**	**Scenario I**	**Existing**	**Scenario D**	**Scenario E**	**Scenario F-G**
Bike Lane	135	142	157	195	199	220	204
Multi-use Path^	—	—	—	—	—	—	—
No Bike Facility	258	240	198	371	362	297	345
Protected or Buffered Bike Lane	25	27	31	36	37	44	39
Shared Roadway	29	30	28	42	43	42	43
Total (All Streets)^	**447**	**439**	**414**	**644**	**641**	**603**	**631**
Total (Bikeways)*	**189**	**199**	**216**	**273**	**279**	**306**	**286**

^ Multi-use paths are separated from traffic and therefore not considered in VMT calculations.

* Removes streets with no bike facility.

Table 71. Vehicle-Miles-Traveled on the Bikeway Network by Construction Scenario - Replacement In-Kind

Bike Facility	Total VMT (per million)						
	Replacement In-Kind/ Replacement In-Kind, Long-Span Option						
	W/O Temp Bridge - 4.5 Years			With Temp Bridge - 6 Years			
	Existing	Scenario H	Scenario I	Existing	Scenario D	Scenario E	Scenario F-G
Bike Lane	175	183	203	235	240	265	246
Multi-use Path^	—	—	—	—	—	—	—
No Bike Facility	333	310	255	447	436	359	416
Protected or Buffered Bike Lane	32	35	40	44	44	53	47
Shared Roadway	37	38	36	50	51	50	52
Total (All Streets)^	**577**	**566**	**534**	**776**	**771**	**727**	**761**
Total (Bikeways)*	**244**	**256**	**279**	**329**	**335**	**368**	**345**

^ Multi-use paths are separated from traffic and therefore not considered in VMT calculations.

* Removes streets with no bike facility.

Table 72 and Table 73 show the percentage of VMT increase or decrease compared to the base (existing) conditions on streets with different bikeway types for the different construction scenarios. Table 72 compares scenarios for the Enhanced Seismic Retrofit bridge type and Table 73 compares scenarios for the Replacement In-Kind bridge type. All construction scenarios are compared against base conditions, which is the existing VMT multiplied by the anticipated duration of construction for that scenario.

Table 72. Percentage Change in Vehicle-Miles-Traveled on the Major Street Bikeway Network - Enhanced Seismic Retrofit (Compared to Existing Conditions Multiplied by Construction Duration)

Bike Facility	Percentage Change in VMT (compared to Existing Conditions Multiplied by Duration of Construction)						
	Enhanced Seismic Retrofit						
	W/O Temp Bridge - 3.5 Years (%)			With Temp Bridge - 5 Years (%)			
	Existing	Scenario H	Scenario I	Existing	Scenario D	Scenario E	Scenario F-G
Bike Lane	—	5	16	-	2	13	5
Multi-use Path^	—	—	—	—	—	—	—
No Bike Facility	—	-7	-23	—	-2	-20	-7
Protected or Buffered Bike Lane	—	7	24	—	2	21	7
Shared Roadway	—	3	-4	—	2	0	3
Total (All Streets)^	—	**-2**	**-8**	—	**-1**	**-6**	**-2**
Total (Bikeways)*	—	**5**	**14**	—	**2**	**12**	**5**

^ Multi-use paths are separated from traffic and therefore not considered in VMT calculations.
* Removes streets with no bike facility.

Table 73. Percentage Change in Vehicle-Miles-Traveled on the Major Street Bikeway Network - Replacement In-Kind (Compared to Existing Conditions Multiplied by Construction Duration)

Bike Facility	Percentage Change in VMT (compared to Existing Conditions Multiplied by Construction Duration)						
	Replacement In-Kind/ Replacement In-Kind, Long-Span Option						
	W/O Temp Bridge - 4.5 Years (%)			With Temp Bridge - 6 Years (%)			
	Existing	Scenario H	Scenario I	Existing	Scenario D	Scenario E	Scenario F-G
Bike Lane	—	5	16	—	2	13	5
Multi-use Path^	—	—	—	—	—	—	—
No Bike Facility	—	-7	-23	—	-2	-20	-7
Protected or Buffered Bike Lane	—	7	24	—	2	21	7
Shared Roadway	—	3	-4	—	2	0	3
Total (All Streets)^	—	**-2**	**-8**	—	**-1**	**-6**	**-2**
Total (Bikeways)*	**—**	**5**	**14**	**—**	**2**	**12**	**5**

^ Multi-use paths are separated from traffic and therefore not considered in VMT calculations.
* Removes streets with no bike facility.

Table 70 through Table 73 show that:

- For the Enhanced Seismic Retrofit (Table 70 and Table 72):
  - The base condition is the 3.5-year no-build scenario and results in an exposure of 189 million VMT on the bikeway network.
  - With no temporary bridge, exposure on the bikeway network increases by 5 percent to 199 million VMT (Scenario H). If there is a directional closure on I-5 for the Rose Quarter Construction project, exposure on the bikeway network would increase by 14 percent to 216 million VMT (Scenario I).
  - For the temporary bridge scenarios, the construction period is longer (5 years instead of 3.5 years) and the base exposure would increase to 273 million VMT on the bikeway network.
  - With a temporary bridge that includes general purpose traffic lanes (Scenario D), the exposure on the bikeway network would increase by 2 percent (to 279 million VMT) compared to the 5-year base condition. This increases by 12 percent with a directional closure on I-5 for the Rose Quarter Construction project (Scenario E).

  - With a temporary bridge that does not include general purpose traffic lanes (Scenarios F and G), the exposure would increase by 5 percent (to 286 million VMT) compared to the 5-year base condition.
- For the Replacement In-Kind, including the Long-Span Option (Table 72 and Table 73):
  - The base condition is the 4.5-year no-build scenario and results in an exposure of 244 million VMT on the bikeway network.
  - With no temporary bridge, exposure on the bikeway network increases by 5 percent to 256 million VMT (Scenario H). If there is a directional closure on I-5 for the Rose Quarter Construction project, exposure on the bikeway network would increase by 14 percent to 279 million VMT (Scenario I).
  - For the temporary bridge scenarios, the construction period is longer (6 years instead of 3.5 years) and the base exposure would increase to 329 million VMT on the bikeway network.
  - With a temporary bridge that includes general purpose traffic lanes (Scenario D), the exposure on the bikeway network would increase by 2 percent (to 335 million VMT) compared to the 6-year base condition. This increases by 12 percent with a directional closure on I-5 for the Rose Quarter Construction project (Scenario E).
  - With a temporary bridge that does not include general purpose traffic lanes (Scenarios F and G), the exposure would increase by 5 percent (to 345 million VMT) compared to the 6-year base condition.
- In terms of the change of exposure on different bikeway types, the change depended on the scenario. Compared to the no-build base scenario:
  - Exposure increased on streets with the following types of bikeways:
    - Protected or buffered bike lanes: VMT increased between 2 percent and 24 percent.
    - Bike lanes: VMT increased between 2 percent and 16 percent.
    - Shared roadways: VMT changes ranged from a decrease of 4 percent to an increase of 3 percent.
  - Exposure decreased on streets with no bike facility with VMT reductions ranging between a decrease of 2 percent and 23 percent.

Based on this analysis, Scenario D - providing a temporary bridge that includes general purpose traffic lanes - results in the smallest increase in VMT exposure on the major street active transportation network, increasing exposure by approximately 2 percent.

Scenario H – providing no temporary bridge; and Scenarios F-G – providing a temporary bridge that does not include general purpose traffic lanes increases VMT exposure by approximately 5 percent and are the next best performing options.

Scenarios E and I, which include directional closures on I-5 for the Rose Quarter Construction project with and without a temporary bridge, respectively, increase VMT exposure by 12 percent to 14 percent and are the poorest performing options.

Impact on Local Streets and Neighborhood Greenways

In addition to assessing the change in exposure from traffic diverting around construction closures of the Burnside Bridge, the project team also reviewed D/C ratios along the major street network in the Safety Indirect API to determine where there could be potential for traffic to cut through the local street network and bypass congested conditions.

Segments where there was an increase in the D/C ratio from the base condition and where the projected D/C ratio exceeded 0.90 were considered to have the highest potential for cut-through traffic. These are shown for the westbound AM peak hour and the eastbound PM peak hour in Table 74 and Table 75.

Table 74 shows that for the AM peak, the D/C ratios on the following segments are expected to increase beyond the 0.90 threshold and could encourage traffic to divert onto parallel streets. This only occurs during Scenarios E, F, G, and I. Parallel streets were considered for these segments:

- **NE Broadway between NE Larrabee Street and NE Weidler Street**: the only way around this segment is if westbound vehicles turn right onto N Ross Avenue, left onto N Dixon Street, left onto N Larrabee Avenue, and then right to rejoin the Broadway Bridge. NE Larrabee Avenue is part of the bikeway network.
- **SE 20th Avenue between SE Stark Street and SE Belmont Street**: there are a number of local streets that provide alternatives to SE 20th Avenue including SE 16th Avenue, which is a designated neighborhood greenway.

Table 74. Segments with Increased Demand-to-Capacity Ratios exceeding 0.90 – Westbound AM Peak

Segment	From	To	Demand-to-Capacity Ratio				
			Westbound AM Peak				
			Existing	Scenario D	Scenario E	Scenario H	Scenario F,G,I
NE Broadway	NE Larrabee St	NE Weidler St	0.50	0.75	0.91	0.78	0.97
SE 20th Ave	SE Stark St	SE Belmont St	0.52	0.63	0.93	0.59	1.05

Table 75 shows that for the PM peak, the D/C ratios on the following segments are expected to increase beyond the 0.90 threshold and could encourage traffic to divert onto parallel streets. Parallel streets were considered for these segments:

- **SE 20th Avenue between SE Stark Street and SE Belmont Street:** there are a number of local streets that provide alternatives to SE 20th Avenue, including SE 16th Avenue, which is a designated neighborhood greenway.
- **SE Alder Street between SW Broadway and SE 2nd Avenue**: there are a number of other eastbound streets downtown that traffic could use along with the SW 3rd

Avenue/SW 4th Avenue couplet to access the Morrison Bridge. The closest of these is SW Harvey Milk Street, which has a wide striped bike lane.

- **SE Belmont Street between SE Martin Luther King Jr. Boulevard and SE 20th Avenue**: an alternative to this route is for eastbound traffic to take the slip lane off the bridge onto SE MLK Blvd and then turn left onto SE Taylor Street, which is a designated neighborhood greenway, east to SE 7th Avenue. SE Taylor Street continues beyond SE 7th Avenue and between SE Grand Avenue and SE 20th Avenue includes seven stop signs and a traffic circle.
- **SE Sandy Boulevard between SE 12th Avenue and SE Stark Street**: given that SE Sandy Boulevard is a diagonal street in the grid, there are few direct alternatives. Nevertheless, traffic could turn left from SE Sandy Boulevard to head north on SE 7th, 8th, 9th, or 10th Avenues and then turn right onto E Burnside Street. Traffic could also use SE Ankeny Street, but would need to turn back onto or cross SE Sandy Boulevard and it is more direct to use E Burnside Street. None of the north-south streets are designated neighborhood greenways. SE Ankeny Street is a designated neighborhood greenway.
- **SE Stark Street between SE Grand Avenue and SE Sandy Boulevard**: there are several east-west streets connecting this two- to three-block segment, including SE Washington Street or SE Alder Street. Neither of these streets are designated neighborhood greenways.
- **E Burnside Street between NE 14th Avenue and NE 20th Avenue**: the most immediate parallel streets include SE Ankeny Street and NE Couch Street. The former is a neighborhood greenway; however, it includes speed humps and a traffic diverter at SE 15th Avenue, which makes it less appealing to cut-through traffic. NE Couch Street requires eastbound vehicles to go through the NE 14th Avenue/NE Sandy Boulevard signal complex to access it; however, it is a shared roadway (lower traffic street) that provides a continuous connection to NE 20th Avenue.
- **NE Weidler Street between NE Larrabee Street and NE 21st Avenue**: most alternative routes around these segments are circuitous and discontinuous. For example, it is 50 percent further to use N Larrabee Avenue, N Winning Way, and N Williams Avenue to get around congestion in that four-block sub-segment of N Weidler Street. The Lloyd Center breaks up the street grid further east; NE Halsey Street offers a somewhat continuous alternative between NE MLK Blvd and NE 15th Street. NE Multnomah Street is continuous out to NE 26th Avenue; however, it is quite out of distance. N Larrabee Avenue, N Williams Avenue, and NE Multnomah Street are all part of the bikeway network.

Table 75. Segments with Increased Demand-to-Capacity Ratios exceeding 0.90 – Eastbound PM Peak

Segment	From	To	Demand-to-Capacity Ratio – Eastbound PM Peak: Existing	Scenario D	Scenario E	Scenario H	Scenario F,G,I
SE 20th Ave	SE Stark St	SE Belmont St	0.52	0.63	0.93	0.59	1.05
SW Alder St	SW Broadway	SW 2nd Ave	0.75	1.11	1.47	1.23	1.87
SE Belmont St	SE MLK Blvd	SE 20th Ave	0.81	0.95	1.11	0.94	1.19
SE Sandy Blvd	SE 12th Ave	SE Stark St	0.65	0.73	1.09	0.68	1.16
SE Stark St	SE Grand Ave	SE Sandy Blvd	0.87	1.00	1.30	0.92	1.47
E Burnside St	NE 14th Ave	NE 20th Ave	0.89	0.86	0.88	0.88	0.96
NE Weidler St	NE Larrabee St	NE 21st Ave	0.72	1.02	1.11	1.04	1.04

7.4.5 Potential Off-site Staging Areas

The construction contractor may use one or more off-site staging areas outside the bridge study area to store and and/or assemble materials that would then be transported by barge to the construction site. Off-site staging could occur with any of the alternatives. Whether, where, and how to use such sites will be the choice of the contractor; therefore, the actual site or sites cannot be known at this time. Given this uncertainty, detailed analysis of impacts are not possible at this time. To address this uncertainty, the project has identified four possible sites that represent a much broader range of potential sites where off-site staging might occur. While the contractor might choose to use one of these or any other site, it is assumed that because of regulatory and time constraints on the contractor, any site they choose would need to be already developed with road and river access. It is also assumed that the contractor will be responsible for any relevant permitting and/or mitigation that may be required for their chosen use of a site. The Draft EIS is identifying the types of impacts that could occur from off-site staging, based on the above assumptions. This analysis is not intended to “clear” any specific site, but rather to ensure disclosure of the general types of impacts based on the sample sites.

No analysis of the potential off-site staging areas are included in the Transportation Technical Report. The off-site staging of materials will have a limited impact on the overall operation of traffic, transit, and active modes.

7.5 Cumulative Effects

Cumulative transportation effects can result from the impacts of the EQRB Project combined with the impacts of other reasonably foreseeable actions. Much of the analysis above already integrates cumulative transportation effects. The analysis of long-term traffic impacts in Section 7.2 is based on the regional travel demand model which evaluates the project's impacts together with the impacts from all planned and programmed future transportation improvements and population and employment growth.

Short-term cumulative impacts are possible due to the potential overlapping timing of construction of the EQRB Project and the I-5 Rose Quarter Project. Construction activities of the two projects could have temporary impacts on some of the same transportation facilities. The analysis of construction phase impacts in Section 7.4 considers the potential for such cumulative impacts for auto travel times, and potential greater pedestrian and bicycle negative safety impacts due to greater exposure to vehicle volumes.

7.6 Compliance with Laws, Regulations, and Standards

Regulations and standards are addressed in Section 4 of the document.

7.7 Conclusion

7.7.1 Long-term Impacts

The No-Build Alternative would have no appreciable impacts on traffic, transit, and active modes. However, the No-Build Alternative would leave the Portland area without a usable Willamette River crossing after a major CSZ event, thus having a negative effect on the region's readiness, resiliency, and ability to recover and increasing the risks associated with a CSZ event.

All Build Alternatives, along with the No-Build, prior to a CSZ event, result in transportation operation outcomes that are substantially similar, providing little that distinguishes each of the Alternatives from an operations standpoint. The biggest difference between the Alternatives is found among the predicted safety outcomes, whereby the designs of the Replacement Alternative with Short-span and Long-span Approaches provide the greatest improvement to safety outcomes.

7.7.2 Temporary Construction Alternatives

- The Full Closure Scenario has the largest impact on traffic operations, displacing 35,000 daily trips to other bridges or other modes. This would increase congestion on the other Willamette River crossings by between 10 and 20 percent and increase travel times by up to 40 percent along some possible detour routes.
- The Full Closure Scenario across all Build Alternatives has the smallest increase in predicted crashes resulting from the shortened construction phase.

- The Full Closure Scenario displaces the most active transportation users, leading to the largest amount of out-of-direction travel.
- The Full Closure Scenario would lead to the most travel delay and ridership decreases for the bus lines 12, 19, and 20. Additionally, the Portland Streetcar would face the largest amount of delay due to added traffic congestion along the A and B loops out of all temporary construction scenarios.
- All Temporary bridge options provide the same level of access and facilities for active transportation modes. The biggest difference between the temporary options for active mode users is around safety, where the temporary scenarios, involving no temporary bridge, with the shortest construction phase results in the least amount of predicted crash exposures for bicyclists and pedestrians.
- The Temporary Bridge Scenario D, while resulting in a bridge that carries only 2/3 of existing daily traffic over the Burnside Bridge, would minimize the impacts from detoured vehicle trips to other Willamette River crossings. Other bridges can expect increases in D/C ratio averaging between 2 and 3 percent under this scenario, with the largest increase of 8 percent expected on the Morrison Bridge.
- Transit is predicted to operate most efficiently during the Temporary Bridge Scenario E. Transit delays would decrease across the temporary bridge but still face some delays along route segments leading to the Burnside bridgeheads due to out-of-direction traffic congestion. Scenario E results in the lowest displacement of transit users to other modes.

8 Mitigation Measures

Potential mitigation measures to address permanent and temporary impacts during construction were identified as part of this study. The mitigations outlined in this section are constrained to each of the topic-specific Direct API boundaries unless otherwise specified such as with the designated modal detour routes. The majority of the mitigations proposed below are aimed at the temporary construction time frame, thus much of this section focuses on mitigations within the temporary construction scenarios. Such mitigations meant to address temporary construction conditions may result in permeant installations, such as with traffic calming and safety measures at intersections.

Few negative impacts were found for the permanent Build condition because transportation facilities (auto, transit, pedestrian and bicycle) are either the same or improved for each mode in the permanent condition.

Mitigation measures are proposed during construction for all of the alternatives and vary primarily depending on how traffic is handled during the construction phase. These construction-phase mitigation measures are listed by transportation mode (i.e., traffic, freight, transit, and active transportation). A summary of the proposed construction-phase mitigation measures is provided in Table 76. Construction-related mitigations are organized as follows:

- Mitigations common across all Temporary Bridge Scenarios.
- Additional mitigations for specific Temporary Bridge Scenarios.
- Mitigations common across all No Temporary Bridge Scenarios.
- Additional mitigations for specific No Temporary Bridge Scenarios.

Table 76 Summary of Proposed Construction-phase Mitigation Measures

For all alternatives

Mode	Temporary Bridge (All Modes)	Temporary Bridge (Transit, Bicycle, and Pedestrian Only)	Temporary Bridge (Bicycle and Pedestrian Only)	Full Closure (No Temporary Bridge)
Traffic and Freight	Develop a maintenance of traffic plan to designate and sign detour a route for traffic seeking to cross the Willamette River			
Traffic and Freight	Temporary traffic calming within the Traffic Direct API			
Transit	N/A	N/A	Temporary bus stops closures within the Transit Direct API	
Transit	Max bus bridge caused by closure of the Max Station serving the Red and Blue Lines.			
Transit	TriMet led outreach and communications for service disruptions.			

Table 76 Summary of Proposed Construction-phase Mitigation Measures

For all alternatives

Mode	Temporary Bridge (All Modes)	Temporary Bridge (Transit, Bicycle, and Pedestrian Only)	Temporary Bridge (Bicycle and Pedestrian Only)	Full Closure (No Temporary Bridge)
Transit	Rose Lane BAT lanes to maintain operating times for Streetcar and buses along MLK Blvd and Grand Avenue within the Transit Direct API encompassing the intersections of Burnside/MLK Blvd, Burnside/Grand Avenue, Couch/MLK Blvd, and Couch/Grand Avenue.			
Transit	Bus prioritization at temporary bridgehead at both the east and west banks of the Willamette River, including potential queue jumps and signal timing.			N/A
Transit	N/A	Rerouting additional bus lines to the Burnside Bridge.	Rerouting bus lines #12, 19, and 20 to the Steel Bridge.	
Transit	Free or subsidized TriMet passes to Social Service agency clients (See Environmental Justice and Equity Report).			
Active Transportation	Traffic calming measures in either: (1) places where bikeways don't have separated facilities within the Bicycle and Pedestrian Direct API, or (2) on select neighborhood greenway streets immediately adjacent to the dedicated bicycle / pedestrian detour routes.			
Active Transportation	Specify and sign/mark detour routes to the Steel Bridge to the north, and to either the Morrison or Hawthorne Bridge to the south.			
Safety	Low-cost safety countermeasures at intersections within the Direct API or on select neighborhood greenway streets immediately adjacent to the dedicated bicycle / pedestrian detour routes. Examples: traffic signal backplates, right-turn or left-turn traffic calming, protected left-turn lane where left turn lane already exists, and temporary traffic signal phasing to separate pedestrians and bicyclists from turning motor vehicles.			

8.1 All Permanent Build Alternatives

The following mitigations are proposed for all of the permanent Build Alternatives proposed through the EQRB process.

8.1.1 Traffic

The permanent alternatives include the Replacement alternative with Short-span Approach, Replacement Alternative with Long-span Approach, Enhanced Seismic Retrofit, and Replacement Alternative with Couch Extension. Analysis demonstrates no permanent impacts relating to traffic, freight, or transit; therefore, no mitigations are recommended. However, the potential for a bicycle-related mitigation, stemming from the EQRB Project, may be needed at the intersection of W Burnside and NW 2nd Avenue to include signal phasing to better separate bikes and pedestrians from right-turning vehicle traffic in the westbound direction. Such a mitigation will be further developed in the final design phase.

8.1.2 Active Transportation

A new bicycle connection from the Inner Eastside Industrial District onto the bridge for westbound bicycle traffic is proposed. The new connection is proposed for the Replacement Alternative with Couch Extension to route bicycle users to the bridge span using a low stress and lower conflict route along 3rd Avenue under the Burnside Bridge, Davis Street, and MLK Blvd. The routing is proposed as stated due to the Alternative's proposed removal of the existing pedestrian and bicycle connection via the plaza at Couch and 3rd Avenue. The upgrades are meant to improve safety and accessibility for bicycle users, especially those vulnerable populations, including houseless populations, which cross the bridge regularly to access social services on either side of the bridge. The final design would provide bicycle and pedestrian route upgrades to these streets along the proposed route.

8.1.3 Safety

All of the permanent bridge alternatives feature physical barriers between traffic lanes and active users. This physical separation improves safety and security for pedestrians and cyclists. In addition, this report recommends posting a 25 miles per hour speed limit on the Burnside Bridge to be consistent with the 25 mile per hour design speed that the build option is already committed too. Reducing the posted speed limit from 35 miles per hour to 25 miles per hour may, depending on the road design and degree of driver compliance, result in lower travel speeds. In the event of a crash, lower travel speed at impact will reduce injury severity of a crash.

Further, as the project proceeds into final design it is recommended that the traffic signals within the safety direct API be updated to include reflective backplates, traffic signal phasing to separate pedestrians and cyclists from both left- and right-turning vehicles; and right turn and left turn traffic calming to reduce motor vehicle turning speeds and increase driver visibility of pedestrians and cyclists.

8.2 Temporary Bridge Scenarios for All Alternatives

The following mitigations address only the Temporary Bridge scenarios. The below mitigations would also apply to the scenario involving a Temporary Bridge, no additional mitigations would be proposed for the Directional Closure of I-5 Rose Quarter.

8.2.1 Mitigations Common to All Temporary Bridge Scenarios

The below mitigations are common across all Temporary Bridge scenarios.

Traffic

With all Temporary Bridge scenarios, modal capacity is reduced across the river. Therefore, under these options, congestion is expected to increase on major arterial streets adjacent to and leading to the Burnside Bridge and the other bridges crossing the Willamette River. A Maintenance of Traffic Plan would be developed to designate and sign a detour route for traffic seeking to cross the Willamette River. Such a detour would include streets outside of the Direct API.

Freight

Freight would experience the same increases in general levels of congestion as described for vehicles under this scenario. No freight-specific mitigations are recommended; however, traffic specific mitigations will help to mitigate impacts to freight movement in the area as well.

Transit

Several transit-related mitigations within the Direct API are proposed:

- During all of the construction scenarios featuring a temporary bridge, construction would disrupt MAX Blue and Red Line service as outlined in the *EQRB Construction Approach Technical Report* (Multnomah County 2021d). To mitigate impacts to service disruptions, a temporary bus bridge would operate to connect MAX service across the Willamette River. The extents of the bus bridge would operate approximately 1.25 miles from the Rose Quarter Transit Center to the Yamhill and 1st Avenue stop. For more information and specifics on construction-related disruptions and the bus bridge, refer to the *EQRB Construction Approach Technical Report* (Multnomah County 2021d).
- Work with TriMet to coordinate outreach and communications explaining service disruptions throughout the construction process.
- The City of Portland is in the process of implementing BAT lanes on the entire length of the MLK Blvd and Grand Avenue couplet, including the portions of MLK Blvd and Grand Avenue that are within the Direct API. This report recommends studying the operations of transit vehicles using the BAT lanes along MLK Blvd and Grand Avenue to monitor their effectiveness and work with both TriMet and Portland Streetcar to optimize transit operations within the Direct API throughout the construction period of the project.
- Provide bus prioritization at each end of the temporary bridge span along the approaches to the bridge to allow for transit vehicles to move across the Willamette River faster and reduce impacts from traffic congestion and delays on transit operations of the bus lines 12, 19, and 20.
- All of the Temporary Bridge options result in an amount of out-of-direction travel, especially for vulnerable community members. The *EQRB Environmental Justice and Equity Technical Report* (Multnomah County 2021c) recommends providing free or subsidized transit passes to mitigate impacts to these communities. Refer to the above referenced report for more information on the mitigation.

Active Transportation

With all Temporary Bridge scenarios, capacity is reduced for vehicular modes. Therefore, increased traffic volumes and congestion are expected on major arterial streets. Congested conditions may result in increased exposure to crash risk for bicyclists and pedestrians on these streets and increases the potential for cut-through traffic onto adjacent neighborhood greenways, which are traffic-calmed streets with no separate bicycle facilities that are prioritized for active transportation. This report recommends improved separation between modes (see below) and for additional traffic calming measures along neighborhood greenways in the immediate vicinity of the bridge to reduce conflicts and potential crash risk for bicyclists and pedestrians, who are the most vulnerable to severe injury and fatal crashes accessing the temporary bridge.

During the construction phase, the Vera Katz Eastbank Esplanade will be temporarily closed for periods of time, blocking north and south travel between the Steel Bridge and the Hawthorne Bridge. This report recommends establishing and signing a detour route for continued north-south travel as well as continued access onto the temporary Burnside Bridge. Such a detour would include streets outside of the Direct API.

The closure of the Vera Katz Eastbank Esplanade would also have impacts on recreational users. This is addressed in the *EQRB Parks and Recreational Technical Report* (Multnomah County 2021a).

Safety

Under all of the Temporary Bridge scenarios and/or Rose Quarter construction scenarios, the following low-cost safety countermeasures would be deployed at the intersections in the direct API:

- Traffic signal reflective backplates.
- Protected only left-turn phasing, where a left-turn lane already exists.
- Traffic signal phasing to separate pedestrians and bicyclists and turning motor vehicles.
- Right-turn and left-turn traffic calming to reduce motor vehicle turning speeds and increase driver visibility of pedestrians and cyclists.

These features would also be included in the final design of the preferred alternative.

8.2.2 Mitigation Specific to a Transit, Bicycle, and Pedestrian Only Temporary Bridge

The mitigation for a Bus/Bike/Pedestrian Only Temporary Bridge would be the same as described above for the Temporary Bridge accommodating all modes. No additional mitigations would be proposed for the Directional Closure of I-5 Rose Quarter.

8.2.3 Mitigation Specific to a Bicycle and Pedestrian Only Temporary Bridge Scenario

The following mitigations are specific to a Bike/Ped only Temporary Bridge and are in addition to those mitigations proposed for all Temporary Bridge Scenarios. No additional mitigations would be proposed for the Directional Closure of I-5 Rose Quarter.

Traffic

It is expected that under this scenario, even though the temporary bridge would be available for bicycle and pedestrian modes, it would increase congestion on major arterial streets adjacent to and leading to the Burnside Bridge and the other bridges crossing the Willamette River. As such, specific detour routes should be planned to direct vehicles around the Burnside Bridge closure and routed across other bridges across the Willamette River. Designated or signed detour routes will not explicitly direct travelers on major transit streets where the additional detoured traffic volumes could significantly delay transit operations, including the Steel Bridge and the Rose Quarter Transit Center. Such detour routes could include streets outside of the Direct API.

Freight

Freight would experience the same increases in general levels of congestion as described for vehicles under this scenario. No freight-specific mitigations are recommended.

Transit

It is expected that under this scenario, several transit-related mitigations may be warranted. These include the following actions:

- Detour routes for lines 12, 19, and 20 away from the closed bridge and over the Steel Bridge, as seen on Figure 69. TriMet will close several bus stops near the construction zone due to either construction or the detouring of bus routes 12, 19, and 20. These closures would likely include the bus stops at NE Couch and MLK Blvd (ID 13330), W Burnside just to the east of NW 1st on the bridge deck (ID 689), and the bus stop at W Burnside and SW 2nd Avenue (ID 9526). Final decisions on stop closures and possible temporary stops will occur during the final design phase of the project.
- Consider temporary closure of the Steel Bridge to all vehicles except buses and LRT during Burnside Bridge construction. This was suggested by some stakeholders as a potential measure for reducing the impacts of the No Temporary Bridge option on transit travel times and ridership. This mitigation would need further outreach and analysis as closing the Steel Bridge to non-transit vehicles has the potential to cause significant impacts to vehicular traffic and freight by lengthening their travel times to other bridges and increasing congestion for all on both sides of the river.[17] Travel impacts due to full closure of the Burnside Bridge could be exacerbated by construction of other regional transportation projects, such as the I-5 Rose Quarter project, anticipated to take place in the same timeframe as EQRB construction. Although the potential for cumulative temporary traffic impacts has been analyzed for the Draft EIS, the construction timing and assumptions of these projects are likely to evolve as they advance through project development. It will be important to monitor and evaluate those changes so as to understand and address any changes in the potential for concurrent impacts to all travel modes.
- A transit management plan that will consider tools such as transit priority, dedicated travel lanes or other bus route and streetcar mitigation measures, would be

[17] Discussions with those receiving frequent and large freight deliveries like Broadway Toyota and/or creating event traffic such as the MODA and Convention centers would be necessary to pursue this option further.

developed by the Burnside Bridge project in cooperation with TriMet, PBOT, and the other projects to develop detour routes and inform final mitigation decisions.

- With the Burnside Bridge closed, coordination with TriMet will be required to assess the impact to bus routes that cross other bridges. If it is found that diverted traffic has a significant delaying effect on bus operations, routing additional bus lines over the temporary Burnside Bridge will be investigated.
- The potential closure of the Steel Bridge to all but buses and LRT during Burnside Bridge construction was suggested by some stakeholders as a measure to consider for mitigating the impacts of the Full Closure option on transit travel times and transit ridership. However, the anticipated impacts of the Full Closure option on transit ridership are small, whereas closing the Steel Bridge to traffic for 3.5 to 4.5 years at the same time that the Burnside Bridge is also closed, has the potential to cause significant impacts to traffic and freight congestion and travel times, as well as increase GHG and other emissions due to the increased congestion.

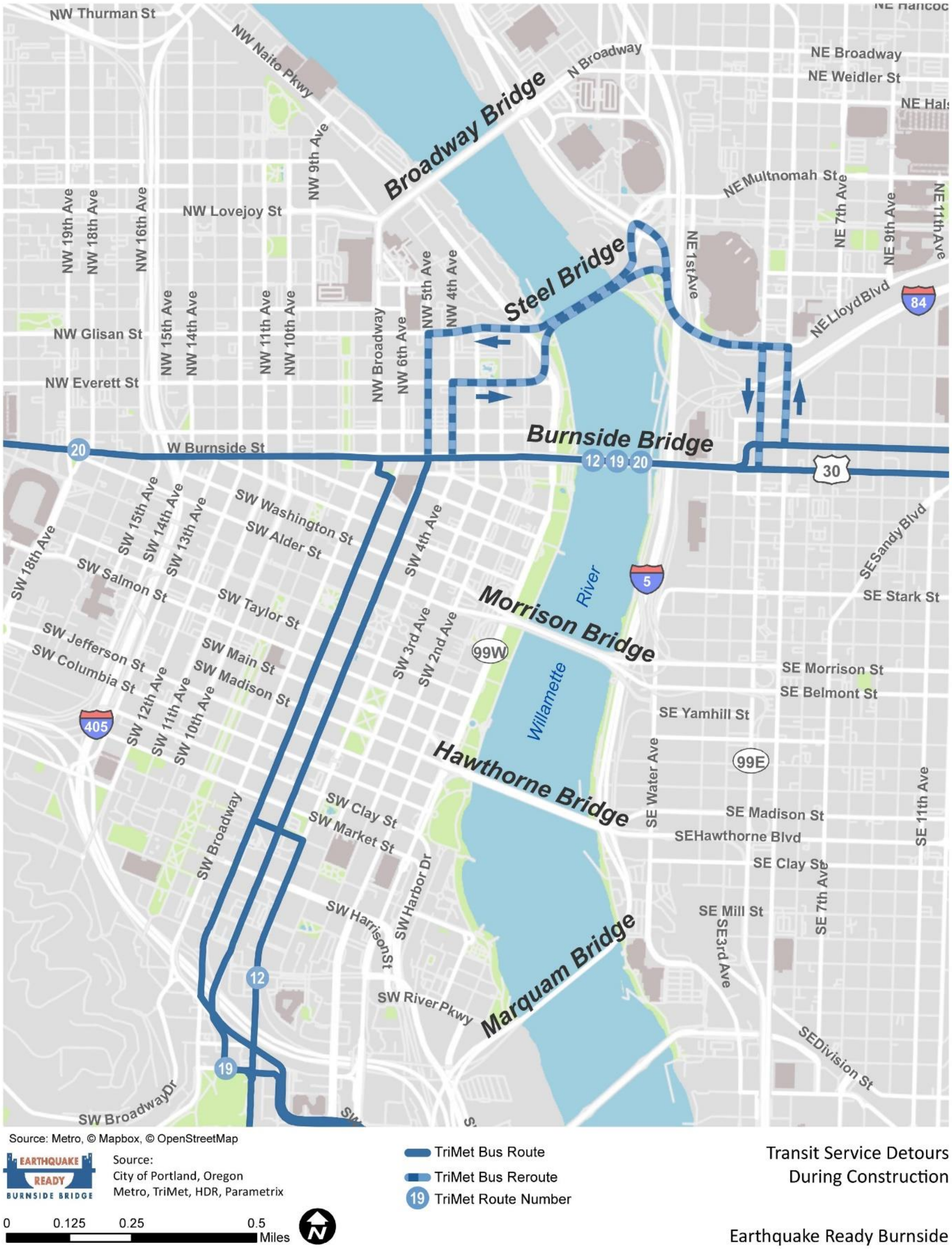
Active Transportation

There are no additional potential mitigation measures beyond those described in the section "Potential Mitigation Common to All Temporary Bridge Scenarios."

Safety

There are no additional safety related mitigation measures under this construction scenario and Temporary Bridge scenario.

Figure 69. Transit Service Detours during Construction



8.3 Full Closure of Burnside Bridge Scenario (No Temporary Bridge)

The temporary full closure analysis addresses two scenarios: 1) the full closure of the Burnside Bridge, and 2) the full closure of the Burnside Bridge and the simultaneous construction and directional closure of I-5 through the Rose Quarter. The potential mitigation is the same for both scenarios. The below mitigations apply to all scenarios involving the absence of a temporary bridge. No additional mitigations would be proposed for the Directional Closure of I-5 Rose Quarter.

Traffic

It is expected that under this scenario, increased congestion would occur on major arterial streets adjacent to and leading to the Burnside Bridge and the other bridges crossing the Willamette River. Specific detour routes would be planned to direct vehicles around the Burnside Bridge closure and routed across other bridges across the Willamette River. Signed detour routes would seek to avoid major transit streets where the additional detoured traffic volumes could significantly delay transit operations, including the Steel Bridge and the Rose Quarter Transit Center. Such detour routes would include streets outside of the Direct API.

Freight

Freight would experience the same increases in general levels of congestion as described for vehicles under this scenario. No freight-specific mitigations are recommended.

Transit

It is expected that under this scenario, several transit-related mitigations may be warranted. These include the following recommended actions:

- Detour routes for lines 12, 19, and 20 away from the closed bridge and over the Steel Bridge, as seen on Figure 69. Work with TriMet to monitor and assess the need for spot treatments of bus prioritization along the detour route to assist in speeding up the routes through additional congestion represented in this scenario.
- TriMet will close several bus stops near the construction zone due to either construction or the detouring of bus routes 12, 19, and 20. These closures would likely include the bus stops at NE Couch and MLK Blvd (ID 13330), W Burnside just to the east of NW 1st on the bridge deck (ID 689), and the bus stop at W Burnside and SW 2nd Avenue (ID 9526). Under a full closure of the Burnside Bridge, it is assumed that these bus lines would be impacted throughout the full extent of construction. Final decisions on stop closures and possible temporary stops will occur during the final design phase of the project.
- Construction during this Full Closure construction scenario will disrupt MAX Blue and Red Line service as outlined in the *EQRB Construction Approach Technical Report* (Multnomah County 2021d). To mitigate impacts to service disruptions, TriMet is planning on operating a temporary bus bridge using the Steel Bridge connecting

disrupted MAX service across the Willamette River. The extent of the bus bridge will run approximately 1.25 miles from the Rose Quarter Transit Center to the Yamhill and 1st Avenue stop. For more information and specifics on construction-related disruptions and the bus bridge, please refer to the *EQRB Construction Approach Technical Report* (Multnomah County 2021d). Work with TriMet to coordinate outreach and communications for service disruptions.

- The City of Portland is in the process of implementing BAT lanes on the entire length of the MLK Blvd and Grand Avenue couplet, including the portions of MLK Blvd and Grand Avenue that are within this project's Direct API. This report recommends studying the operations of transit vehicles using the BAT lanes along MLK Blvd and Grand Avenue to monitor their effectiveness and work with both TriMet and Portland Streetcar to ensure the lanes optimal transit operation within the Direct API throughout the construction period of the project. With the Burnside Bridge closed, work with TriMet to assess the impact to bus routes that cross other bridges.
- The full closure scenario results in a significant amount of out-of-direction travel, especially for vulnerable community members. The *EQRB Environmental Justice and Equity Technical Report* (Multnomah County 2021c) recommends providing free or subsidized transit passes to mitigate impacts to these communities. Please refer to the above referenced report for more information on the mitigation.

Active Transportation

Under this scenario, the bridge will be closed to all modes during construction. This report recommends establishing and signing a detour route to ensure bicyclists and pedestrians can use an alternative bridge to cross the river. The bridge closure is also expected to increase traffic volumes and congestion on major arterial streets, which will increase the exposure to crash risk for bicyclists and pedestrians on these streets and increase the potential for cut-through traffic on adjacent neighborhood greenways, including the Ankeny Street Greenway. To mitigate the latter, it is recommended that traffic calming measures be considered on Ankeny Street within the Direct API.

During the construction phase, the Vera Katz Eastbank Esplanade will be temporarily closed for periods of time, blocking north and south travel between the Steel Bridge and the Hawthorne Bridge. This report recommends establishing and signing a detour route to ensure continued north-south travel. Such a detour would include streets outside of the Direct API.

The closure of the Vera Katz Eastbank Esplanade will also have impacts on recreational users. This is addressed in the *EQRB Parks & Recreational Technical Report* (Multnomah County 2021a).

Safety

There are no additional safety-related mitigation measures under this construction scenario and Temporary Bridge scenario.

9 Contacts and Coordination

Project work would include an extensive public involvement and agency coordination effort, including local jurisdictions and neighborhoods within the project area.

At the appropriate time, agencies and organizations would be notified of the intent to prepare an EIS through the Federal Register and other project outreach activities. Interested organizations would have the opportunity to review and comment on the transportation analysis through the course of the Project, including during the public comment period for the Draft EIS.

During the impacts analysis, the following agencies have been and would continue to be contacted for data and other information related to transportation:

- Metro Regional Government
- ODOT
- City of Portland, Bureau of Transportation and Bureau of Parks and Recreation
- TriMet
- Portland Streetcar, Inc.

10 Preparers

Name	Professional Affiliation	Education	Years of Experience
Lewis Kelley	HDR, Inc.	M.S. Urban and Regional Planning	8
Sumi Malik	HDR, Inc.	M.S. Urban and Regional Planning	16
Adrian Witte, PE	Toole Design	M.S. Civil Engineering	19
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Beth Wemple	HDR Inc.	B.S. in Civil Engineering and M.S.	27

11 References

Multnomah County

2021a EQRB Parks & Recreation Technical Report. https://multco.us/earthquake-ready-burnside-bridge/project-library

2021b EQRB Social/Neighborhood Technical Report. https://multco.us/earthquake-ready-burnside-bridge/project-library

2021c EQRB Environmental Justice and Equity Technical Report. https://multco.us/earthquake-ready-burnside-bridge/project-library

2021d EQRB Construction Approach Technical Report. https://multco.us/earthquake-ready-burnside-bridge/project-library

Appendix A. Daily and Peak Hour Counts

Earthquake Ready Burnside Bridge
Peak Hour Turn Movements (vph)

Intersection, Approach, Movement	AM Peak Hour Raw Existing	AM Peak Hour Adjustments	AM Peak Hour Balancing	AM Peak Hour Rounded Existing 2019	PM Peak Hour Raw Existing 2019	PM Peak Hour Adjustments	PM Peak Hour Balancing	PM Peak Hour Rounded Existing 2019
1 NW Everett Street and NW 4th Avenue	538	619	-15	605	993	1,092	-5	1,085
Northbound	165	190	35	225	350	385	-5	380
left	0	0		0	0	0		0
through	113	130	30	160	195	215		215
right	52	60	5	65	155	171	-5	165
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	373	429	-50	380	643	707	0	705
left	46	53	5	60	29	32		30
through	327	376	-55	320	614	675		675
right	0	0		0	0	0		0
Westbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
2 NW Everett Street and NW 3rd Avenue	660	759	-30	730	1,152	1,267	0	1,270
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	292	336	10	345	383	421	10	430
left	88	101		100	128	141		140
through	204	235	10	245	255	281	10	290
right	0	0		0	0	0		0
Eastbound	368	423	-40	385	769	846	-10	840
left	0	0		0	0	0		0
through	243	279	-10	270	530	583		585
right	125	144	-30	115	239	263	-10	255
Westbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
3 NW Couch Street and NW Broadway	816	885	10	910	976	1,104	50	1,160
Northbound	82	88	10	100	167	178	10	190
left	7	11		10	11	16		15
through	68	68	10	80	143	143	10	155
right	7	9		10	13	19		20
Southbound	619	632	-5	630	589	606	30	635
left	10	13		15	19	27		25
through	589	589	-5	585	553	553	30	585
right	20	30		30	17	25		25
Eastbound	33	42	5	50	147	212	0	215
left	0	0	5	5	23	33		35
through	11	14		15	47	68		70
right	22	28		30	77	111		110
Westbound	82	123	0	130	73	109	10	120
left	35	53		55	22	33	5	40
through	32	48		50	33	49	5	55
right	15	23		25	18	27		25
4 NW Couch Street and NW 6th Avenue	209	257	40	300	286	366	5	375
Northbound	127	140	25	165	143	157	10	170
left	26	39	5	45	26	39		40
through	100	100	20	120	115	115	15	130
right	1	1		0	2	3	-5	0
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	31	40	0	40	80	115	0	115
left	0	0		0	3	4		5
through	31	40		40	77	111		110
right	0	0		0	0	0		0
Westbound	51	77	15	95	63	94	-5	90
left	0	0		0	0	0		0
through	46	69	15	85	56	83	-5	80
right	5	8		10	7	10		10
5 NW Couch Street and NW 5th Avenue	202	251	30	280	341	429	10	440
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	97	99	10	110	169	177	10	185
left	8	10		10	18	26		25
through	89	89	10	100	151	151	10	160
right	0	0		0	0	0		0
Eastbound	27	35	0	35	79	114	0	115
left	0	0		0	0	0		0
through	22	28		30	59	85		85
right	5	6		5	20	29		30
Westbound	78	117	20	135	93	139	0	140
left	17	26		25	29	43		45
through	61	92	20	110	64	95		95
right	0	0		0	0	0		0
6 NW Couch Street and NW 4th Avenue	355	429	10	440	539	635	-15	615
Northbound	267	303	15	315	424	467	-20	445
left	58	87		85	62	92	-10	80
through	187	187	15	200	333	333	-10	325
right	22	28		30	29	42		40
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	29	37	0	40	77	111	0	110
left	10	13		15	22	32		30
through	19	24		25	55	79		80
right	0	0		0	0	0		0
Westbound	59	89	-5	85	38	57	5	60
left	0	0		0	0	0		0
through	43	65	-5	60	28	42	5	45
right	16	24		25	10	15		15
7 NW Couch Street and NW 3rd Avenue	464	550	60	605	642	735	25	755
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	304	319	35	350	480	498	10	505
left	21	27		25	28	40		40
through	266	266	35	300	441	441	10	450
right	17	26		25	11	16		15
Eastbound	42	54	0	55	84	121	0	120
left	0	0		0	0	0		0
through	23	30		30	52	75		75
right	19	24		25	32	46		45
Westbound	118	178	25	200	78	116	15	130
left	81	122	20	140	55	82	5	85
through	37	56	5	60	23	34	10	45
right	0	0		0	0	0		0

Earthquake Ready Burnside Bridge
Peak Hour Turn Movements (vph)

Intersection, Approach, Movement	AM Peak Hour Raw Existing	AM Peak Hour Adjustments	AM Peak Hour Balancing	AM Peak Hour Rounded Existing 2019	PM Peak Hour Raw Existing 2019	PM Peak Hour Adjustments	PM Peak Hour Balancing	PM Peak Hour Rounded Existing 2019
8 NW Couch Street and NW 2nd Avenue	449	556	115	675	425	552	110	665
Northbound	363	436	120	555	301	371	100	475
left	91	137	20	155	42	63	15	80
through	178	178	90	270	146	146	75	220
right	94	121	10	130	113	163	10	175
Southbound	5	6	-10	0	0	0	0	0
left	2	3	-5	0	0	0		0
through	3	3	-5	0	0	0		0
right	0	0		0	0	0		0
Eastbound	35	45	10	55	75	108	10	115
left	13	17		15	22	32		30
through	22	28	10	40	53	76	10	85
right	0	0		0	0	0		0
Westbound	46	69	-5	65	49	73	0	75
left	0	0		0	0	0		0
through	32	48	-5	45	33	49		50
right	14	21		20	16	24		25
9 NW Couch Street and NW Naito Parkway	1,072	1,127	25	1,150	1,775	1,862	-360	1,500
Northbound	564	581	0	580	675	679	-80	600
left	34	51		50	9	13		15
through	530	530		530	666	666	-80	585
right	0	0		0	0	0		0
Southbound	398	405	0	405	943	957	-295	660
left	0	0		0	0	0		0
through	385	385		385	915	915	-300	615
right	13	20		20	28	42	5	45
Eastbound	110	141	25	165	157	226	15	240
left	23	30	10	40	52	75	5	80
through	0	0		0	0	0		0
right	87	112	15	125	105	151	10	160
Westbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
10 NE Couch Street and NE Martin Luther King Jr. Boulevard	2,019	2,601	115	2,715	2,800	3,283	-35	3,245
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	1,120	1,248	145	1,390	2,041	2,152	25	2,175
left	0	0		0	0	0		0
through	866	866	135	1,000	1,815	1,815	60	1,875
right	254	382	10	390	226	337	-35	300
Eastbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	899	1,353	-30	1,325	759	1,131	-60	1,070
left	138	208	10	220	157	234		235
through	761	1,145	-40	1,105	602	897	-60	835
right	0	0		0	0	0		0
11 NE Couch Street and NE Grand Avenue	2,335	2,809	35	2,845	2,240	2,654	50	2,705
Northbound	1,562	1,646	10	1,655	1,561	1,642	95	1,735
left	166	250		250	165	246		245
through	1,396	1,396	10	1,405	1,396	1,396	95	1,490
right	0	0		0	0	0		0
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	773	1,163	25	1,190	679	1,012	-45	970
left	0	0		0	0	0		0
through	698	1,050	25	1,075	583	869	-45	825
right	75	113		115	96	143		145
12 W Burnside Street and Broadway	2,138	2,793	35	2,830	2,234	3,007	-65	2,950
Northbound	81	92	-5	90	164	184	-15	170
left	0	0		0	0	0		0
through	43	43	-5	40	118	118	-5	115
right	38	49		50	46	66	-10	55
Southbound	610	664	5	670	623	696	40	735
left	108	139		140	88	127	-10	115
through	457	457	5	460	465	465	50	515
right	45	68		70	70	104		105
Eastbound	637	819	0	815	587	845	10	860
left	0	0		0	0	0		0
through	585	752		750	547	788	10	800
right	52	67		65	40	58		60
Westbound	810	1,219	35	1,255	860	1,281	-100	1,185
left	0	0		0	2	3	-5	0
through	774	1,165	30	1,195	808	1,204	-95	1,110
right	36	54	5	60	50	75		75
13 W Burnside Street and 6th Avenue	1,693	2,339	30	2,370	1,691	2,432	-70	2,360
Northbound	117	129	10	140	158	183	-5	175
left	22	33		35	45	67	-10	55
through	91	91	10	100	107	107	10	115
right	4	5		5	6	9	-5	5
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	736	946	-5	945	700	1,008	-10	1,000
left	2	3	-5	0	0	0		0
through	734	943		945	700	1,008	-10	1,000
right	0	0		0	0	0		0
Westbound	840	1,264	25	1,285	833	1,241	-55	1,185
left	0	0		0	0	0		0
through	799	1,202	20	1,220	800	1,192	-60	1,130
right	41	62	5	65	33	49	5	55
14 W Burnside Street and 5th Avenue	1,674	2,315	35	2,355	1,776	2,541	-80	2,455
Northbound	1	1	0	0	0	0	0	0
left	0	0		0	0	0		0
through	1	1		0	0	0		0
right	0	0		0	0	0		0
Southbound	102	106	20	130	182	202	35	235
left	10	13		15	44	63	5	70
through	90	90	25	115	137	137	30	165
right	2	3	-5	0	1	1		0
Eastbound	711	914	15	930	712	1,025	0	1,025
left	0	0		0	0	0		0
through	613	788	10	800	636	916		915
right	98	126	5	130	76	109		110
Westbound	860	1,294	0	1,295	882	1,314	-115	1,195
left	11	17	-5	10	11	16	-5	10
through	849	1,278	5	1,285	870	1,296	-110	1,185
right	0	0		0	1	1		0

Earthquake Ready Burnside Bridge
Peak Hour Turn Movements (vph)

Intersection, Approach, Movement	AM Peak Hour Raw Existing	AM Adjustments	AM Balancing	AM Rounded Existing 2019	PM Peak Hour Raw Existing 2019	PM Adjustments	PM Balancing	PM Rounded Existing 2019
15 W Burnside Street and 4th Avenue	1,865	2,571	-70	2,500	2,179	3,054	-160	2,895
Northbound	320	391	15	405	704	891	-30	860
left	96	144	5	150	181	270	-30	240
through	146	146	10	155	300	300		300
right	78	100		100	223	321		320
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	657	844	-20	825	696	1,002	-10	990
left	28	36		35	39	56		55
through	629	808	-20	790	657	946	-10	935
right	0	0		0	0	0		0
Westbound	888	1,336	-65	1,270	779	1,161	-120	1,045
left	0	0		0	0	0		0
through	797	1,199	-55	1,145	690	1,028	-75	955
right	91	137	-10	125	89	133	-45	90
16 W Burnside Street and 3rd Avenue	1,887	2,542	30	2,570	2,091	2,916	-100	2,820
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	350	384	80	465	512	607	-25	580
left	78	100	5	105	154	222	20	240
through	249	249	70	320	303	303	-20	285
right	23	35	5	40	55	82	-25	55
Eastbound	705	906	-30	875	866	1,247	0	1,250
left	0	0		0	0	0		0
through	627	806	-30	775	790	1,138	-20	1,120
right	78	100		100	76	109	20	130
Westbound	832	1,252	-20	1,230	713	1,062	-75	990
left	0	0		0	1	1		0
through	832	1,252	-20	1,230	710	1,058	-70	990
right	0	0		0	2	3	-5	0
17 W Burnside Street and 2nd Avenue	1,922	2,681	40	2,725	2,093	3,006	30	3,040
Northbound	254	321	35	360	348	452	105	555
left	108	163	5	170	95	142	10	150
through	104	104	25	130	123	123	65	190
right	42	54	5	60	130	187	30	215
Southbound	1	2	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	1	2		0	0	0		0
Eastbound	680	874	5	880	924	1,331	25	1,360
left	0	0		0	0	0		0
through	680	874	5	880	922	1,328	30	1,360
right	0	0		0	2	3	-5	0
Westbound	987	1,485	0	1,485	821	1,223	-100	1,125
left	0	0		0	0	0		0
through	745	1,121	-60	1,060	648	966	-125	840
right	242	364	60	425	173	258	25	285
18 E Burnside Street and SE Martin Luther King Jr. Boulevard	1,896	2,147	25	2,170	3,038	3,604	95	3,695
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	1,168	1,211	10	1,220	1,982	2,083	30	2,110
left	152	195	-5	190	230	331		330
through	1,016	1,016	15	1,030	1,752	1,752	30	1,780
right	0	0		0	0	0		0
Eastbound	728	935	15	950	1,056	1,521	65	1,585
left	0	0		0	0	0		0
through	563	723	15	740	866	1,247	30	1,275
right	165	212		210	190	274	35	310
Westbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
19 E Burnside Street and SE Grand Avenue	2,113	2,349	80	2,430	2,736	3,308	15	3,320
Northbound	1,400	1,433	65	1,500	1,637	1,725	-10	1,715
left	0	0		0	0	0		0
through	1,284	1,284	65	1,350	1,436	1,436	-10	1,425
right	116	149		150	201	289		290
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	713	916	15	930	1,099	1,583	25	1,605
left	234	301	5	305	216	311		310
through	479	616	10	625	883	1,272	25	1,295
right	0	0		0	0	0		0
Westbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
20 SW Oak Street and SW Broadway	663	762	0	765	765	842	0	845
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	510	587	0	590	577	635	0	635
left	0	0		0	0	0		0
through	498	573		575	550	605		605
right	12	14		15	27	30		30
Eastbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	153	176	0	175	188	207	0	210
left	100	115		115	144	158		160
through	53	61		60	44	48		50
right	0	0		0	0	0		0
21 SW Oak Street and SW 6th Avenue	405	466	-15	445	475	523	20	540
Northbound	243	279	-15	265	300	330	10	340
left	38	44		45	50	55		55
through	205	236	-15	220	250	275	10	285
right	0	0		0	0	0		0
Southbound	1	1	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	1	1		0	0	0		0
Eastbound	1	1	0	0	0	0	0	0
left	1	1		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	160	184	0	180	175	193	10	200
left	0	0		0	1	1		0
through	132	152		150	128	141		140
right	28	32		30	46	51	10	60

Intersection, Approach, Movement	AM Peak Hour: Raw Existing	AM Peak Hour: Adjustments	AM Peak Hour: Balancing	AM Peak Hour: Rounded Existing 2019	PM Peak Hour: Raw Existing 2019	PM Peak Hour: Adjustments	PM Peak Hour: Balancing	PM Peak Hour: Rounded Existing 2019
22 SW Oak Street and SW 5th Avenue	353	406	30	435	387	426	0	420
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	145	167	30	195	208	229	0	225
left	0	0		0	0	0		0
through	144	166	30	195	206	227		225
right	1	1		0	2	2		0
Eastbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	208	239	0	240	179	197	0	195
left	36	41		40	15	17		15
through	172	198		200	164	180		180
right	0	0		0	0	0		0
23 SW Oak Street and SW 4th Avenue	709	815	-60	755	782	860	65	925
Northbound	513	590	-50	540	637	701	55	755
left	89	102		100	85	94		95
through	424	488	-50	440	552	607	55	660
right	0	0		0	0	0		0
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	196	225	-10	215	145	160	10	170
left	0	0		0	0	0		0
through	131	151		150	90	99		100
right	65	75	-10	65	55	61	10	70
24 SW Oak Street and SW 3rd Avenue	493	567	85	655	653	718	55	775
Northbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Southbound	266	306	65	375	488	537	35	575
left	0	0		0	0	0		0
through	233	268	55	325	448	493	25	520
right	33	38	10	50	40	44	10	55
Eastbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	227	261	20	280	165	182	20	200
left	58	67		65	60	66	20	85
through	169	194	20	215	105	116		115
right	0	0		0	0	0		0
25 SW Oak Street and SW 2nd Avenue	650	748	40	790	652	717	-5	710
Northbound	525	604	0	605	552	607	0	605
left	153	176	-20	155	115	127		125
through	372	428	20	450	437	481		480
right	0	0		0	0	0		0
Southbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Eastbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0
Westbound	125	144	40	185	100	110	-5	105
left	0	0		0	0	0		0
through	99	114	25	140	72	79	-5	75
right	26	30	15	45	28	31		30
26 SW Oak Street and SW Naito Parkway	1,177	1,354	0	1,355	1,712	1,883	-240	1,645
Northbound	733	843	0	845	673	740	-45	695
left	112	129		130	28	31	5	35
through	621	714		715	645	710	-50	660
right	0	0		0	0	0		0
Southbound	442	508	0	510	1,039	1,143	-195	950
left	0	0		0	0	0		0
through	403	463		465	1,003	1,103	-200	905
right	39	45		45	36	40	5	45
Eastbound	2	2	0	0	0	0	0	0
left	0	0		0	0	0		0
through	1	1		0	0	0		0
right	1	1		0	0	0		0
Westbound	0	0	0	0	0	0	0	0
left	0	0		0	0	0		0
through	0	0		0	0	0		0
right	0	0		0	0	0		0

VEHICLE ADTs															
	Eastbound					Westbound					Total				
Bridges	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*
Fremont				69,100	69,100				73,950	73,950				143,050	143,050
Broadway	12,330	11,500	13,500	14,101	14,000	13,030	10,500	14,200	14,460	14,500	25,360	22,000	27,700	28,561	28,500
Steel	6,959	7,724	9,408	7,052	7,500	6,219	9,560	5,478	4,899	5,500	13,178	17,284	14,886	11,951	13,000
Burnside	17,501	18,924	16,913	14,539	19,000	14,302	15,557	11,869	10,797	16,000	31,803	34,481	28,782	25,336	35,000
Morrison	19,493	23,661	21,310	24,105	22,500	22,776	28,927	26,646	28,967	27,500	42,269	52,588	47,956	53,072	50,000
Hawthorne	12,661	14,000	15,000	15,496	15,500	14,380	15,266	13,435	14,824	15,000	27,041	29,266	28,435	30,320	30,500
Marquam				78,500	78,500				71,500	71,500				150,000	150,000
Ross Island	31,300	32,680	32,500	32,197	32,250	36,202	35,777	37,000	38,990	39,000	67,502	68,457	69,500	71,187	71,250
TOTAL (except Fremont, Marquam)	**100,244**	**108,489**	**108,631**	**107,490**	**110,750**	**106,909**	**115,587**	**108,628**	**112,937**	**117,500**	**207,153**	**224,076**	**217,259**	**220,427**	**228,250**
TOTAL (Steel, Burnside, Morrison)	43,953	50,309	47,631	45,696	49,000	43,297	54,044	43,993	44,663	49,000	87,250	104,353	91,624	90,359	98,000
TOTAL (ALL)				255,090	258,350				258,387	262,950				513,477	521,300

VEHICLE AM Peak															
	Eastbound					Westbound					Total				
Bridges	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*
Fremont				4,400	4,400				5,450	5,450				9,850	9,850
Broadway	630	590	798	819	750	1,050	975	1,609	1,292	1,250	1,680	1,565	2,407	2,111	2,000
Steel	384	473	575	351	415	500	1,002	499	491	500	884	1,475	1,074	842	915
Burnside	853	933	889	759	975	1,393	1,472	1,067	996	1,500	2,246	2,405	1,956	1,755	2,475
Morrison	1,049	1,199	1,071	851	1,150	2,478	3,026	2,501	2,729	2,850	3,527	4,225	3,572	3,580	4,000
Hawthorne	603	675	750	802	750	1,620	1,723	1,368	1,656	1,650	2,223	2,398	2,118	2,458	2,400
Marquam				5,690	5,690				4,810	4,810				10,500	10,500
Ross Island	1,627	1,688	1,750	1,766	1,700	3,169	3,215	3,400	3,519	3,400	4,796	4,903	5,150	5,285	5,100
TOTAL (except Fremont, Marquam)	**5,146**	**5,558**	**5,833**	**5,348**	**5,740**	**10,210**	**11,413**	**10,444**	**10,683**	**11,150**	**15,356**	**16,971**	**16,277**	**16,031**	**16,890**
TOTAL (Steel, Burnside, Morrison)	2,286	2,605	2,535	1,961	2,540	4,371	5,500	4,067	4,216	4,850	6,657	8,105	6,602	6,177	7,390
TOTAL (ALL)				15,438	15,830				20,943	21,410				36,381	37,240

VEHICLE PM Peak															
	Eastbound					Westbound					Total				
Bridges	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*	2012	2015 *Broadway Construction*	2018 *Burnside Construction*	2019 *Burnside Construction*	2019 *Adjusted*
Fremont				3,800	3,800				4,300	4,300				8,100	8,100
Broadway	1,390	1,450	1,497	1,482	1,550	1,010	1,000	1,101	1,401	1,150	2,400	2,450	2,598	2,883	2,700
Steel	906	977	1,154	990	1,000	570	1,056	542	519	530	1,476	2,033	1,696	1,509	1,530
Burnside	2,047	1,932	1,481	1,110	1,600	1,085	1,126	844	807	1,200	3,132	3,058	2,325	1,917	2,800
Morrison	2,282	2,714	2,504	2,898	2,800	1,408	1,739	1,551	1,837	1,675	3,690	4,453	4,055	4,735	4,475
Hawthorne	1,532	1,750	1,975	2,065	1,950	1,080	1,127	1,026	1,175	1,140	2,612	2,877	3,001	3,240	3,090
Marquam				3,500	3,500				3,900	3,900				7,400	7,400
Ross Island	3,195	3,048	3,300	2,689	3,000	2,495	2,348	2,550	2,466	2,700	5,690	5,396	5,850	5,155	5,700
TOTAL (except Fremont, Marquam)	**11,352**	**11,871**	**11,911**	**11,234**	**11,900**	**7,648**	**8,396**	**7,614**	**8,205**	**8,395**	**19,000**	**20,267**	**19,525**	**19,439**	**20,295**
TOTAL (Steel, Burnside, Morrison)	5,235	5,623	5,139	4,998	5,400	3,063	3,921	2,937	3,163	3,405	8,298	9,544	8,076	8,161	8,805
TOTAL (ALL)				18,534	19,200				16,405	16,595				34,939	35,795

City of Portland, Bureau of Transportation
Traffic Count Export

Row	LocationDesc	Bound	StartDate	StartDay	EndDate	EndDay		ADT	AM Peak	PM Peak	Comment
ST JOHNS BRIDGE											
1	ST JOHNS BRIDGE W of SYRACUSE ST	EB	6/14/2012	THU	6/15/2012	FRI	2012	13,134	1,034	1,168	
3	ST JOHNS BRIDGE W of SYRACUSE ST	EB	11/30/2015	MON	12/2/2015	WED	2015	14,458	1,068	1,469	
5	ST JOHNS BRIDGE W of SYRACUSE ST	EB	9/11/2018	TUE	9/13/2018	THU	2018	14,597	928	1,348	
		EB					**2012 to 2018**	0.90	1.11	0.87	
		EB					**2015 to 2018**	0.99	1.15	1.09	
	ST JOHNS BRIDGE	EB					2019				
2	ST JOHNS BRIDGE W of SYRACUSE ST	WB	6/14/2012	THU	6/15/2012	FRI	2012	16,409	1,045	1,621	
4	ST JOHNS BRIDGE W of SYRACUSE ST	WB	11/30/2015	MON	12/2/2015	WED	2015	13,418	1,403	1,156	
6	ST JOHNS BRIDGE W of SYRACUSE ST	WB	9/11/2018	TUE	9/13/2018	THU	2018	14,370	1,430	1,168	
		WB					**2012 to 2018**	1.14	0.73	1.39	
		WB					**2015 to 2018**	0.93	0.98	0.99	
	ST JOHNS BRIDGE	WB					2019				
I-405/FREMONT BRIDGE											
	I-405/FREMONT BRIDGE	EB									
	I-405/FREMONT BRIDGE	WB									
BROADWAY BRIDGE											
	BROADWAY BRIDGE	EB					2012	12,330	630	1,390	source: HDR Traffic Management Plan
	BROADWAY BRIDGE	EB	5/31/2018 (PM)		6/6/2018 (AM)		2018		798	1,497	PBOT portal
	BROADWAY BRIDGE	EB					2019	14,101	819	1,482	
	BROADWAY BRIDGE	WB					2012	13,030	1,050	1,010	source: HDR Traffic Management Plan
	BROADWAY BRIDGE	WB	5/31/2018 (PM)		6/6/2018 (AM)		2018		1,609	1,101	
	BROADWAY BRIDGE	WB					2019	14,460	1,292	1,401	
STEEL BRIDGE											
	STEEL BRIDGE	EB				**Average**	2012	6,959	384	906	
1	STEEL BRIDGE W of N MULTNOMAH ST / N OREGON ST	EB	11/17/2015	TUE	11/20/2015	FRI	2015	7,724	473	977	BROADWAY BR CONST
3	STEEL BRIDGE W of N MULTNOMAH ST / N OREGON ST	EB	9/11/2018	TUE	9/13/2018	THU	2018	9,408	575	1,154	BURNSIDE BR CONSTRUCTION
	STEEL BRIDGE	EB					2019	7,052	351	990	
	STEEL BRIDGE	WB				**Average**	2012	6,219	500	570	
2	STEEL BRIDGE W of N MULTNOMAH ST / N OREGON ST	WB	11/17/2015	TUE	11/20/2015	FRI	2015	9,560	1,002	1,056	BROADWAY BR CONST
4	STEEL BRIDGE W of N MULTNOMAH ST / N OREGON ST	WB	9/11/2018	TUE	9/13/2018	THU	2018	5,478	499	542	BURNSIDE BR CONSTRUCTION
	STEEL BRIDGE	WB					2019	4,899	491	519	
BURNSIDE BRIDGE											
1	BURNSIDE BRIDGE E of 2ND AVE	EB	2/8/2011	TUE	2/11/2011	FRI	2011	16,234	779	1,953	
	BURNSIDE BRIDGE	EB				**Average**	2012	17,501	853	2,047	
7	BURNSIDE BRIDGE E of 2ND AVE	EB	11/17/2015	TUE	11/20/2015	FRI	2015	18,924	933	1,932	BROADWAY BR CONST
9	BURNSIDE BRIDGE E of 2ND AVE	EB	8/22/2016	MON	8/24/2016	WED	2016	17,060	859	1,783	
11	BURNSIDE BRIDGE E of 2ND AVE	EB	9/26/2018	WED	9/28/2018	FRI	2018	16,913	889	1,481	CONSTRUCTION / LANES CLOSED
	BURNSIDE BRIDGE	EB	5/15/2019	WED	5/15/2019	WED	2019	14,539	759	1,110	
2	BURNSIDE BRIDGE E of 2ND AVE	WB	2/8/2011	TUE	2/11/2011	FRI	2011	13,272	1,286	1,091	
	BURNSIDE BRIDGE	WB				**Average**	2012	14,302	1,393	1,085	
8	BURNSIDE BRIDGE E of 2ND AVE	WB	11/17/2015	TUE	11/20/2015	FRI	2015	15,557	1,472	1,126	BROADWAY BR CONST

City of Portland, Bureau of Transportation
Traffic Count Export

Row	LocationDesc	Bound	StartDate	StartDay	EndDate	EndDay		ADT	AM Peak	PM Peak	Comment
10	BURNSIDE BRIDGE E of 2ND AVE	WB	8/22/2016	MON	8/24/2016	WED	2016	13,149	1,279	951	
12	BURNSIDE BRIDGE E of 2ND AVE	WB	9/26/2018	WED	9/28/2018	FRI	2018	11,869	1,067	844	CONSTRUCTION / LANES CLOSED
	BURNSIDE BRIDGE	WB	5/15/2019	WED	5/15/2019	WED	2019	10,797	996	807	
MORRISON BRIDGE											
	MORRISON BRIDGE	EB				**Average**	2012	19,493	1,049	2,282	
1	MORRISON BRIDGE E of SW MORRISON BRG-WASHINGTON ST	EB	11/4/2014	TUE	11/7/2014	FRI	2014	22,213	1,137	2,626	
3	MORRISON BRIDGE E of SW MORRISON BRG-WASHINGTON ST	EB	11/17/2015	TUE	11/20/2015	FRI	2015	23,661	1,199	2,714	BROADWAY BR CONST
5	MORRISON BRIDGE E of SW MORRISON BRG-WASHINGTON ST	EB	9/11/2018	TUE	9/13/2018	THU	2018	21,310	1,071	2,504	BURNSIDE BR CONSTRUCTION
	MORRISON BRIDGE	EB					2019	24,105	851	2,898	
	MORRISON BRIDGE	WB				**Average**	2012	22,776	2,478	1,408	
2	MORRISON BRIDGE E of SW MORRISON BRG-WASHINGTON ST	WB	11/4/2014	TUE	11/7/2014	FRI	2014	27,042	3,000	1,706	
4	MORRISON BRIDGE E of SW MORRISON BRG-WASHINGTON ST	WB	11/17/2015	TUE	11/20/2015	FRI	2015	28,927	3,026	1,739	BROADWAY BR CONST
6	MORRISON BRIDGE E of SW MORRISON BRG-WASHINGTON ST	WB	9/11/2018	TUE	9/13/2018	THU	2018	26,646	2,501	1,551	BURNSIDE BR CONSTRUCTION
	MORRISON BRIDGE	WB					2019	28,967	2,729	1,837	
HAWTHORNE BRIDGE											
	HAWTHORNE BR	EB				**Average**	2012	12,661	603	1,532	
6	HAWTHORNE BR W of BIKEPATH	EB	12/1/2015	TUE	12/4/2015	FRI	2015	17,986	957	2,154	
	HAWTHORNE BR	EB					2019	15,496	802	2,065	
	HAWTHORNE BR	WB					2012	14,380	1,620	1,080	
	HAWTHORNE BR					**Average**	2015	15,266	1,723	1,127	
	HAWTHORNE BR	WB	9/25/2018	WED	9/27/2018	FRI	2018	13,435	1,368	1,026	
	HAWTHORNE BR	WB					2019	14,824	1,656	1,175	
I-5/MARQUAM BRIDGE											
	I-5/MARQUAM BRIDGE	EB									
	I-5/MARQUAM BRIDGE	WB									
ROSS ISLAND BRIDGE											
	ROSS ISLAND BR	EB				**Average**	2012	31,300	1,627	3,195	
6	ROSS ISLAND BR W of ROSS ISLAND BRG-MCLOUGHLIN BLV RA	EB	11/30/2015	MON	12/2/2015	WED	2015	32,680	1,688	3,048	
8	ROSS ISLAND BR W of ROSS ISLAND BRG-MCLOUGHLIN BLV RA	EB	9/11/2018	TUE	9/12/2018	WED	2018	20,807	1,170	1,925	
	ROSS ISLAND BR	EB					2019	32,197	1,766	2,689	
		WB				**Average**	2012	36,202	3,169	2,495	
7	ROSS ISLAND BR W of ROSS ISLAND BRG-MCLOUGHLIN BLV RA	WB	11/30/2015	MON	12/2/2015	WED	2015	35,777	3,215	2,348	
	ROSS ISLAND BR	WB					2019	38,990	3,519	2,466	
SELLWOOD BRIDGE											
3	SE TACOMA ST W of 6TH AVE	EB	6/6/2011	MON	6/7/2011	TUE	2011	13,142	818	1,451	
		EB				**Average**	2012	14,215	812	1,427	
2	SE TACOMA ST W of 6TH AVE	EB	7/25/2017	TUE	7/28/2017	FRI	2017	13,385	763	1,205	
9	SE TACOMA ST W of SE 6TH AVE	EB	9/11/2018	TUE	9/13/2018	THU	2018	13,171	767	1,288	
		WB				**Average**	2012	14,219	1,416	1,081	
8	SE TACOMA ST W of 6TH AVE	WB	7/25/2017	TUE	7/28/2017	FRI	2017	14,219	1,325	979	
10	SE TACOMA ST W of SE 6TH AVE	WB	9/11/2018	TUE	9/12/2018	WED	2018	13,711	1,603	938	

K-D-N
KEY DATA NETWORK

Broadway Bridge EB

	1	2	3	4	5	6	7	8	9	10	11	12	13		South Sidewalk			
5/22/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	25	1	0	0	0	0	0	0	0	0	0	0	26	0	3	0	3
12:15 AM	0	10	4	0	0	0	0	0	0	0	0	0	0	14	1	3	0	4
12:30 AM	0	7	7	2	0	0	0	0	0	0	0	0	0	16	0	1	0	1
12:45 AM	0	8	3	0	1	0	0	0	0	0	0	0	0	12	0	0	0	0
1:00 AM	0	7	4	0	1	0	0	0	0	0	0	0	0	12	1	0	0	1
1:15 AM	0	7	3	0	0	0	0	0	0	0	0	0	0	10	0	1	0	1
1:30 AM	0	6	6	0	0	0	0	0	0	0	0	0	0	12	0	1	0	1
1:45 AM	0	8	5	0	0	0	0	0	0	0	0	0	0	13	0	1	2	3
2:00 AM	1	3	4	0	1	0	0	0	0	0	0	0	0	9	0	0	0	0
2:15 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	8	1	0	0	1
2:30 AM	0	4	4	0	0	0	0	0	0	0	0	0	0	8	1	2	0	3
2:45 AM	0	6	2	0	2	0	0	0	0	0	0	0	0	10	1	1	0	2
3:00 AM	0	2	5	0	0	0	0	0	0	0	0	0	0	7	2	0	0	2
3:15 AM	0	5	3	0	0	0	0	0	0	0	0	0	0	8	1	0	0	1
3:30 AM	0	1	2	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0
3:45 AM	0	4	8	0	2	0	0	0	0	0	0	0	0	14	1	0	0	1
4:00 AM	1	7	3	0	1	1	0	0	0	0	0	0	0	13	1	0	0	1
4:15 AM	0	6	8	0	2	0	0	0	0	0	0	0	0	16	1	0	0	1
4:30 AM	0	8	6	0	1	0	0	0	0	0	0	0	0	15	1	1	0	2
4:45 AM	0	12	4	1	0	0	0	0	0	0	0	0	0	17	0	2	0	2
5:00 AM	0	10	6	0	0	0	0	0	0	0	0	0	0	16	1	0	0	1
5:15 AM	0	13	3	0	0	0	0	0	0	0	0	0	0	16	1	1	0	2
5:30 AM	0	32	7	1	0	0	0	0	0	0	0	0	0	40	3	1	0	4
5:45 AM	1	35	10	0	0	0	0	0	0	0	0	0	0	46	4	4	1	9
6:00 AM	0	50	12	1	0	0	0	0	0	0	0	0	0	63	2	3	0	5
6:15 AM	0	45	11	1	1	0	0	0	0	0	0	0	0	58	1	2	0	3
6:30 AM	0	72	18	2	1	0	0	0	0	1	0	0	0	94	2	2	0	4
6:45 AM	1	100	21	2	0	0	0	0	0	0	0	0	0	124	2	3	0	5
7:00 AM	1	92	18	2	2	0	0	0	0	0	0	0	0	115	5	3	0	8
7:15 AM	0	158	41	2	0	0	0	1	0	0	0	0	0	202	5	4	0	9
7:30 AM	1	144	37	4	0	0	0	0	0	0	0	0	0	186	4	7	0	11
7:45 AM	1	178	38	4	0	0	0	0	0	0	0	0	0	221	10	8	0	18
8:00 AM	2	186	19	3	0	0	0	0	0	0	0	0	0	210	5	10	0	15
8:15 AM	0	167	17	5	2	0	0	0	0	0	0	0	0	191	7	13	1	21
8:30 AM	2	133	28	4	5	0	0	0	0	0	0	0	0	172	4	13	2	19
8:45 AM	0	153	32	4	1	0	0	0	0	0	0	0	0	190	2	14	0	16
9:00 AM	0	130	28	3	3	1	0	0	0	0	0	0	0	165	3	4	0	7
9:15 AM	1	119	25	3	4	0	0	0	0	0	0	0	0	152	3	2	1	6
9:30 AM	1	111	25	1	5	0	0	0	0	0	0	0	0	143	5	4	0	9
9:45 AM	0	116	22	2	3	0	0	0	0	0	0	0	0	143	4	4	0	8
10:00 AM	1	119	26	1	2	0	0	0	0	0	0	0	0	149	2	6	1	9
10:15 AM	0	129	34	1	1	0	0	0	0	0	0	0	0	165	1	6	1	8
10:30 AM	2	126	41	1	0	0	0	0	0	0	0	0	0	170	3	4	0	7
10:45 AM	0	119	34	3	0	2	0	0	0	0	0	0	0	158	2	5	0	7
11:00 AM	0	132	30	2	5	1	0	0	0	0	0	0	0	170	3	3	0	6
11:15 AM	0	129	35	1	5	0	0	0	0	0	0	0	0	170	5	8	1	14
11:30 AM	0	154	41	2	6	0	0	0	0	0	0	0	0	203	2	3	0	5
11:45 AM	0	151	29	1	3	0	0	0	0	0	0	0	0	184	11	6	0	17
12:00 PM	0	154	33	1	4	0	0	0	0	0	0	0	0	192	9	8	0	17
12:15 PM	0	151	38	1	2	0	0	0	0	0	0	0	0	192	4	11	0	15
12:30 PM	2	146	24	2	2	0	0	0	0	0	0	0	0	176	9	10	0	19
12:45 PM	0	132	39	1	1	0	0	0	0	0	0	0	0	173	4	13	1	18
1:00 PM	0	150	40	0	3	1	0	0	0	0	0	0	0	194	10	12	0	22
1:15 PM	1	153	32	1	2	1	0	0	0	0	0	0	0	190	2	16	1	19
1:30 PM	2	154	38	4	3	0	0	0	0	0	0	0	0	201	6	11	1	18
1:45 PM	0	166	29	2	2	0	0	0	0	0	0	0	0	199	4	8	0	12
2:00 PM	2	187	39	1	3	2	0	1	0	0	0	0	0	235	0	11	0	11
2:15 PM	1	204	39	1	4	5	0	0	0	0	0	0	0	254	13	14	1	28
2:30 PM	0	206	43	3	6	0	0	0	0	0	0	0	0	258	6	22	0	28
2:45 PM	0	204	35	2	5	0	0	0	0	0	0	0	0	246	8	17	0	25
3:00 PM	2	250	55	3	8	2	0	0	0	0	0	0	0	320	7	34	0	41
3:15 PM	0	252	38	7	4	1	0	0	0	0	0	0	0	302	11	39	0	50
3:30 PM	2	269	38	5	4	1	0	0	0	0	0	0	0	319	10	30	1	41
3:45 PM	4	310	59	6	5	0	0	0	0	0	0	0	0	384	8	57	0	65
4:00 PM	4	305	40	5	2	0	0	0	0	0	0	0	0	356	8	54	0	62
4:15 PM	7	320	29	7	2	0	0	0	0	0	0	0	0	365	8	49	1	58
4:30 PM	2	336	30	5	4	0	0	0	0	0	0	0	0	377	6	77	1	84
4:45 PM	2	292	35	7	4	0	0	0	0	0	0	0	0	340	6	92	6	104
5:00 PM	1	346	40	4	2	0	0	0	0	1	0	0	0	394	18	105	0	123
5:15 PM	3	301	40	4	0	0	0	0	0	0	0	0	0	348	14	141	1	156
5:30 PM	2	286	34	9	1	0	0	1	0	0	0	0	0	333	10	93	2	105
5:45 PM	3	280	50	5	4	0	0	0	0	0	0	0	0	342	5	103	3	111
6:00 PM	1	272	33	3	1	0	0	0	0	0	0	0	0	310	9	110	8	127
6:15 PM	2	259	33	3	3	0	0	0	0	0	0	0	0	300	12	76	2	90
6:30 PM	0	268	26	7	1	0	0	0	0	0	0	0	0	302	7	47	1	55
6:45 PM	1	197	15	0	1	0	0	0	0	0	0	0	0	214	6	44	0	50
7:00 PM	3	191	20	2	1	1	0	0	0	0	0	0	0	218	5	29	7	41
7:15 PM	1	161	10	1	0	0	0	0	0	0	0	0	0	173	2	40	2	44
7:30 PM	0	137	15	2	0	0	0	0	0	0	0	0	0	154	8	35	1	44
7:45 PM	1	155	14	1	0	0	0	0	0	0	0	0	0	171	7	31	2	40
8:00 PM	1	111	28	0	0	0	0	0	0	0	0	0	0	140	3	26	2	31
8:15 PM	2	94	15	0	0	0	1	0	0	0	0	0	0	112	11	17	2	30
8:30 PM	0	91	12	1	0	0	0	0	0	0	0	0	0	104	6	11	0	17
8:45 PM	1	96	20	0	0	0	0	0	0	0	0	0	0	117	5	15	0	20
9:00 PM	1	81	30	2	0	0	0	0	0	0	0	0	0	114	9	17	0	26
9:15 PM	1	91	31	0	0	0	1	0	0	0	0	0	0	124	2	10	0	12
9:30 PM	2	86	23	0	1	0	0	0	0	0	0	0	0	112	0	6	0	6
9:45 PM	2	75	23	1	0	0	0	0	0	0	0	0	0	101	0	5	0	5
10:00 PM	0	91	22	0	0	0	0	0	0	0	0	0	0	113	1	5	0	6
10:15 PM	0	64	14	1	0	0	0	0	0	0	0	0	0	79	4	8	1	13
10:30 PM	0	40	10	1	0	0	0	0	0	0	0	0	0	51	1	7	0	8
10:45 PM	0	51	8	0	0	0	0	0	0	0	0	0	0	59	1	7	0	8
11:00 PM	0	50	9	0	1	0	0	0	0	0	0	0	0	60	1	5	0	6
11:15 PM	0	37	6	2	1	0	0	0	0	0	0	0	0	46	0	4	0	4
11:30 PM	0	38	1	0	0	0	0	0	0	0	0	0	0	39	3	3	0	6
11:45 PM	0	32	5	1	0	0	0	0	0	0	0	0	0	38	1	6	0	7
Total	75	11565	2114	173	147	20	2	3	0	2	0	0	0	14101	404	1750	57	2211
	0.53%	82.02%	14.99%	1.23%	1.04%	0.14%	0.01%	0.02%	0.00%	0.01%	0.00%	0.00%	0.00%		18.27%	79.15%	2.58%	

K-D-N
KEY DATA NETWORK

Broadway Bridge WB

	1	2	3	4	5	6	7	8	9	10	11	12	13		North Sidewalk			
5/22/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	18	3	0	0	1	0	0	0	0	0	0	0	22	0	1	0	1
12:15 AM	0	15	3	2	0	0	0	0	0	0	0	0	0	20	2	2	0	4
12:30 AM	0	21	3	0	0	0	0	0	0	0	0	0	0	24	0	2	1	3
12:45 AM	0	15	3	0	1	0	0	0	0	0	0	0	0	19	3	1	0	4
1:00 AM	0	13	1	0	0	0	0	0	0	0	0	0	0	14	0	1	0	1
1:15 AM	0	12	2	0	2	0	0	0	0	0	0	0	0	16	1	1	0	2
1:30 AM	0	3	2	0	0	1	0	0	0	0	0	0	0	6	0	1	0	1
1:45 AM	0	21	5	0	0	1	0	0	0	0	0	0	0	27	0	0	0	0
2:00 AM	1	6	2	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
2:15 AM	0	12	2	0	1	0	0	0	0	0	0	0	0	15	0	0	0	0
2:30 AM	0	9	3	0	1	0	0	0	0	0	0	0	0	13	0	0	0	0
2:45 AM	0	5	3	0	0	1	0	0	0	0	0	0	0	9	0	0	0	0
3:00 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	8	2	1	0	3
3:15 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	1
3:30 AM	0	11	1	0	1	0	0	0	0	0	0	0	0	13	0	2	0	2
3:45 AM	0	9	2	0	0	1	0	0	0	0	0	0	0	12	1	1	0	2
4:00 AM	0	10	3	0	0	0	0	0	0	0	0	0	0	13	0	1	0	1
4:15 AM	0	5	2	0	1	0	0	0	0	0	0	0	0	8	0	1	0	1
4:30 AM	0	6	3	0	2	0	0	0	0	0	0	0	0	11	0	4	0	4
4:45 AM	0	33	9	1	0	0	0	0	0	0	0	0	0	43	0	5	0	5
5:00 AM	0	15	7	0	1	1	0	0	0	0	0	0	0	24	0	3	0	3
5:15 AM	0	24	16	1	2	1	0	0	0	0	0	0	0	44	3	10	0	13
5:30 AM	0	41	20	1	2	2	0	0	0	0	0	0	0	66	3	15	0	18
5:45 AM	1	61	27	2	1	0	0	0	0	0	0	0	0	92	5	23	0	28
6:00 AM	1	71	23	1	0	0	0	1	0	0	0	0	0	97	3	19	0	22
6:15 AM	0	57	39	1	2	0	0	0	0	0	0	0	0	99	5	42	0	47
6:30 AM	1	116	54	1	3	0	0	0	0	0	0	0	0	175	6	47	0	53
6:45 AM	2	129	34	0	3	0	0	0	0	0	0	0	0	168	5	47	1	53
7:00 AM	1	119	44	3	3	1	0	0	0	0	0	0	0	171	5	52	0	57
7:15 AM	0	169	52	3	9	1	0	1	0	0	0	0	0	235	2	96	0	98
7:30 AM	1	214	42	3	3	0	1	1	0	0	0	0	0	265	6	117	1	124
7:45 AM	6	243	52	2	5	1	0	0	0	0	0	0	0	309	9	147	6	162
8:00 AM	3	267	57	1	4	2	0	0	0	0	0	0	0	334	3	135	0	138
8:15 AM	10	240	33	1	9	1	0	0	0	1	0	0	0	295	12	130	1	143
8:30 AM	1	271	33	1	10	0	0	1	0	0	0	0	0	317	8	148	0	156
8:45 AM	6	296	39	1	4	0	0	0	0	0	0	0	0	346	4	153	0	157
9:00 AM	1	247	34	2	4	0	0	0	0	0	0	0	0	288	9	106	1	116
9:15 AM	5	190	30	2	7	0	1	0	0	0	0	0	0	235	7	71	0	78
9:30 AM	2	216	29	2	6	0	0	0	0	0	0	0	0	255	3	48	1	52
9:45 AM	0	230	20	1	4	1	0	0	0	0	0	0	0	256	5	44	0	49
10:00 AM	1	210	23	2	3	0	0	0	0	0	0	0	0	239	4	40	0	44
10:15 AM	2	162	27	2	3	0	1	0	0	0	0	0	0	197	43	34	0	77
10:30 AM	0	160	27	2	2	0	0	0	0	0	0	0	0	191	6	32	0	38
10:45 AM	3	149	27	1	4	1	0	1	0	0	0	0	0	186	3	28	0	31
11:00 AM	0	157	22	2	1	0	0	0	0	0	0	0	0	182	1	18	0	19
11:15 AM	3	190	32	0	1	0	0	0	0	0	0	0	0	226	9	12	0	21
11:30 AM	2	176	22	2	3	0	0	0	0	0	0	0	0	205	9	46	1	56
11:45 AM	2	176	32	1	8	0	0	0	0	0	0	0	0	219	8	20	1	29
12:00 PM	1	175	29	2	2	0	0	0	0	0	0	0	0	209	11	25	0	36
12:15 PM	1	141	34	2	5	0	0	0	0	0	0	0	0	183	13	20	0	33
12:30 PM	2	145	31	0	3	0	0	0	0	0	0	0	0	181	11	25	3	39
12:45 PM	3	189	38	1	6	0	0	0	0	0	0	0	0	237	8	31	0	39
1:00 PM	1	157	24	1	3	0	0	0	0	0	0	0	0	186	15	11	0	26
1:15 PM	2	150	18	1	2	0	0	0	0	0	0	0	0	173	5	10	2	17
1:30 PM	1	175	20	1	0	0	0	0	0	0	0	0	0	197	7	25	0	32
1:45 PM	0	157	17	3	4	0	0	0	0	0	0	0	0	181	9	15	0	24
2:00 PM	0	164	16	2	2	0	0	0	0	0	0	0	0	184	11	9	1	21
2:15 PM	1	159	20	1	5	0	0	1	0	0	0	0	0	187	9	28	2	39
2:30 PM	1	159	25	1	5	0	0	0	0	0	0	0	0	191	5	14	1	20
2:45 PM	3	171	25	2	2	0	0	0	0	0	0	0	0	203	7	22	1	30
3:00 PM	1	198	22	0	0	0	0	0	0	0	0	0	0	221	7	23	0	30
3:15 PM	2	241	21	2	3	0	0	0	0	0	0	0	0	269	8	21	0	29
3:30 PM	1	244	22	2	2	0	0	0	0	0	0	0	0	271	9	18	0	27
3:45 PM	3	264	27	1	1	0	0	0	0	0	0	0	0	296	5	10	0	15
4:00 PM	3	334	43	3	5	0	0	0	0	0	0	0	0	388	5	17	1	23
4:15 PM	1	303	39	1	6	0	0	1	0	0	0	0	0	351	18	28	2	48
4:30 PM	1	323	31	1	2	0	1	0	0	0	0	0	0	359	12	21	0	33
4:45 PM	3	270	27	2	0	1	0	0	0	0	0	0	0	303	9	16	0	25
5:00 PM	2	249	30	2	1	0	0	0	0	0	0	0	0	284	18	15	1	34
5:15 PM	2	263	23	1	0	0	0	0	0	0	0	0	0	289	12	30	0	42
5:30 PM	2	241	31	3	2	0	0	1	0	0	0	0	0	280	15	26	1	42
5:45 PM	4	254	21	2	0	0	0	0	0	0	0	0	0	281	9	31	0	40
6:00 PM	1	190	27	3	0	0	0	0	0	0	0	0	0	221	14	27	0	41
6:15 PM	0	192	18	1	2	0	0	0	0	0	0	0	0	213	14	27	0	41
6:30 PM	1	172	10	1	2	0	0	0	0	0	0	0	0	186	7	19	1	27
6:45 PM	0	158	12	1	0	0	0	0	0	0	0	0	0	171	8	23	0	31
7:00 PM	1	119	14	1	0	0	0	0	0	0	0	0	0	135	5	11	1	17
7:15 PM	2	114	11	1	3	0	1	0	0	0	0	0	0	132	5	14	0	19
7:30 PM	0	100	14	1	0	0	0	0	0	0	0	0	0	115	2	21	0	23
7:45 PM	2	139	12	1	0	0	0	0	0	0	0	0	0	154	5	8	0	13
8:00 PM	0	105	21	0	1	0	0	1	0	0	0	0	0	128	7	7	0	14
8:15 PM	3	100	12	1	1	0	0	0	0	0	0	0	0	117	10	10	0	20
8:30 PM	2	77	6	0	0	0	1	0	0	0	0	0	0	86	6	9	0	15
8:45 PM	0	81	18	0	0	0	0	0	0	0	0	0	0	99	5	9	1	15
9:00 PM	0	104	10	1	0	0	0	0	0	0	0	0	0	115	3	4	0	7
9:15 PM	1	85	9	0	0	0	0	0	0	0	0	0	0	95	3	3	0	6
9:30 PM	1	91	9	1	0	0	0	0	0	0	0	0	0	102	3	4	0	7
9:45 PM	0	90	7	1	2	0	0	0	0	0	0	0	0	100	1	2	0	3
10:00 PM	3	56	6	0	1	0	0	0	0	0	0	0	0	66	1	2	0	3
10:15 PM	0	62	5	1	0	0	0	0	0	0	0	0	0	68	2	3	0	5
10:30 PM	0	45	5	0	1	0	0	0	0	0	0	0	0	51	3	2	0	5
10:45 PM	0	38	3	0	0	0	0	0	0	0	0	0	0	41	0	3	0	3
11:00 PM	0	39	1	1	1	0	0	0	0	0	0	0	0	42	0	1	0	1
11:15 PM	1	34	2	0	0	0	0	0	0	0	0	0	0	37	2	1	0	3
11:30 PM	0	32	3	1	1	0	0	0	0	0	0	0	0	37	1	2	0	3
11:45 PM	1	20	1	0	0	0	0	0	0	0	0	0	0	22	0	0	1	1
Total	115	12202	1819	98	192	18	6	9	0	1	0	0	0	14460	541	2410	33	2984
	0.80%	84.38%	12.58%	0.68%	1.33%	0.12%	0.04%	0.06%	0.00%	0.01%	0.00%	0.00%	0.00%		18.13%	80.76%	1.11%	

KEY DATA NETWORK

Steel Bridge EB

	1	2	3	4	5	6	7	8	9	10	11	12	13			South Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Max Train	Total	Ped	Bike	E-Scooter	Total
12:00 AM	4	10	0	2	0	0	0	0	0	0	0	0	0	4	16	0	0	0	0
12:15 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
12:30 AM	0	7	0	3	1	0	0	0	0	0	0	0	0	1	11	0	0	0	0
12:45 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	2	8	0	0	0	0
1:00 AM	0	6	2	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
1:15 AM	0	7	2	0	0	0	0	0	0	0	0	0	0	0	9	1	2	0	3
1:30 AM	0	4	0	1	0	0	0	0	0	0	0	0	0	0	5	1	1	0	2
1:45 AM	0	4	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
2:00 AM	0	11	1	0	0	0	0	0	0	0	0	0	0	0	12	1	0	0	1
2:15 AM	0	5	0	0	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0
2:30 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
2:45 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	5	7
3:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
3:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
3:30 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1
3:45 AM	0	2	0	0	1	1	0	0	0	0	0	0	0	0	4	0	0	0	0
4:00 AM	0	3	1	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0
4:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
4:30 AM	0	3	3	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0
4:45 AM	0	5	0	1	0	0	0	0	0	0	0	0	0	2	6	3	0	0	3
5:00 AM	0	4	2	1	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
5:15 AM	0	5	2	0	1	0	0	0	0	0	0	0	0	2	8	1	0	0	1
5:30 AM	0	9	6	3	1	0	0	0	0	0	0	0	0	4	19	5	2	0	7
5:45 AM	0	14	3	3	1	0	0	0	0	0	0	0	0	3	21	0	0	0	0
6:00 AM	0	19	4	3	0	0	0	0	0	0	0	0	0	3	26	2	0	1	3
6:15 AM	0	16	10	3	0	0	0	0	0	0	0	0	0	4	29	3	3	0	6
6:30 AM	0	26	10	3	1	0	0	0	0	0	0	0	0	5	40	2	3	0	5
6:45 AM	0	35	14	6	0	0	0	0	0	0	0	0	0	4	55	2	3	0	5
7:00 AM	1	40	13	5	0	0	0	0	0	0	0	0	0	4	59	3	5	0	8
7:15 AM	0	73	6	5	1	0	0	0	0	0	0	0	0	4	85	0	2	0	2
7:30 AM	0	67	19	5	0	0	0	0	0	0	0	0	0	6	91	6	14	0	20
7:45 AM	0	66	18	7	2	1	0	0	0	0	0	0	0	4	94	5	13	0	18
8:00 AM	0	65	11	4	1	0	0	0	0	0	0	0	0	4	81	2	12	1	15
8:15 AM	0	45	12	4	1	1	0	0	0	0	0	0	0	6	63	0	12	0	12
8:30 AM	1	74	14	5	0	0	0	0	0	0	0	0	0	6	94	4	16	0	20
8:45 AM	0	65	10	5	1	1	0	0	0	0	0	0	0	5	82	0	5	3	8
9:00 AM	0	63	19	3	1	0	0	0	0	0	0	0	0	3	86	2	11	0	13
9:15 AM	0	43	9	4	2	0	0	0	0	0	0	0	0	4	58	3	7	0	10
9:30 AM	0	40	10	6	0	0	0	0	0	0	0	0	0	5	56	1	3	0	4
9:45 AM	1	42	9	4	0	0	0	0	0	0	0	0	0	4	56	1	3	0	4
10:00 AM	0	26	7	4	1	0	0	0	0	0	0	0	0	3	38	4	7	1	12
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	2	7
10:30 AM	0	83	26	5	3	0	0	0	0	0	0	0	0	6	117	4	2	0	6
10:45 AM	1	51	8	4	4	0	0	0	1	0	0	0	0	6	69	1	3	0	4
11:00 AM	0	52	30	5	1	1	0	0	0	0	0	0	0	5	89	1	3	0	4
11:15 AM	0	62	14	5	5	0	0	1	0	0	0	0	0	3	87	6	12	0	18
11:30 AM	0	47	17	2	0	0	0	0	0	0	0	0	0	4	66	19	8	1	28
11:45 AM	0	45	13	4	2	1	1	0	0	0	0	0	0	5	66	2	0	0	2
12:00 PM	0	51	19	3	3	0	0	0	0	0	0	0	0	4	76	6	2	0	8
12:15 PM	0	66	18	7	3	0	0	0	0	0	0	0	0	3	94	6	2	0	8
12:30 PM	1	73	14	3	2	0	0	0	0	0	0	0	0	5	93	7	0	0	7
12:45 PM	0	56	13	4	3	0	0	0	0	0	0	0	0	4	76	4	0	0	4
1:00 PM	0	60	17	3	1	1	0	0	0	0	0	0	0	4	82	3	3	3	9
1:15 PM	1	59	8	4	4	1	1	1	0	0	0	0	0	4	79	0	2	1	3
1:30 PM	0	75	17	4	1	0	0	2	0	0	0	0	0	5	99	3	2	0	5
1:45 PM	0	75	20	5	3	0	0	0	0	0	0	0	0	4	103	2	2	0	4
2:00 PM	0	86	22	4	4	0	0	2	0	0	0	0	0	3	118	1	0	0	1
2:15 PM	0	57	14	5	7	1	0	0	0	0	0	0	0	4	84	3	1	1	5
2:30 PM	1	122	27	6	4	0	0	0	0	0	0	0	0	4	160	2	0	0	2
2:45 PM	1	102	25	5	4	1	0	0	0	0	0	0	0	4	138	1	0	0	1
3:00 PM	1	146	39	4	3	1	0	2	0	0	0	0	0	4	196	4	0	0	4
3:15 PM	0	117	34	5	2	0	0	1	0	0	0	0	0	3	159	2	1	2	5
3:30 PM	0	161	29	8	2	0	0	0	0	0	0	0	0	5	200	1	4	1	6
3:45 PM	0	184	46	6	3	0	0	0	0	0	0	0	0	4	239	2	4	1	7
4:00 PM	1	224	50	6	4	0	0	0	0	0	0	0	0	4	285	2	3	1	6
4:15 PM	1	163	28	5	4	0	0	0	0	0	0	0	0	5	201	1	6	0	7
4:30 PM	0	171	27	10	3	0	0	0	0	0	0	0	0	3	211	1	4	0	5
4:45 PM	2	180	26	4	5	0	0	0	0	0	0	0	0	5	217	3	10	0	13
5:00 PM	0	249	26	4	2	0	0	0	0	0	0	0	0	3	281	2	6	0	8
5:15 PM	1	207	18	6	1	0	0	0	0	0	0	0	0	6	233	0	13	4	17
5:30 PM	1	223	17	8	2	0	0	0	0	0	0	0	0	4	251	1	7	0	8
5:45 PM	1	190	22	10	2	0	0	0	0	0	0	0	0	5	225	0	6	0	6
6:00 PM	0	230	23	6	3	0	0	0	0	0	0	0	0	5	262	1	8	0	9
6:15 PM	1	132	20	5	1	0	0	0	0	0	0	0	0	4	159	1	4	1	6
6:30 PM	0	117	13	6	1	0	0	0	0	0	0	0	0	5	137	6	4	0	10
6:45 PM	0	87	5	4	1	0	0	0	0	0	0	0	0	4	97	0	6	1	7
7:00 PM	0	65	1	5	0	0	0	0	0	0	0	0	0	5	71	0	1	0	1
7:15 PM	0	38	6	5	0	0	0	0	0	0	0	0	0	4	49	2	1	0	3
7:30 PM	1	47	4	4	0	0	0	0	0	0	0	0	0	4	56	2	2	0	4
7:45 PM	0	45	6	3	0	0	0	0	0	0	0	0	0	4	54	0	2	1	3
8:00 PM	0	34	3	3	0	0	0	0	0	0	0	0	0	3	40	0	2	0	2
8:15 PM	0	29	10	3	1	0	0	0	0	0	0	0	0	6	43	2	1	0	3
8:30 PM	0	42	5	3	1	0	0	0	0	0	0	0	0	4	51	3	0	0	3
8:45 PM	0	41	6	4	1	0	0	0	0	0	0	0	0	4	52	1	0	0	1
9:00 PM	0	27	5	4	0	0	0	0	0	0	0	0	0	4	36	1	0	3	4
9:15 PM	0	25	3	2	1	0	0	0	0	0	0	0	0	4	31	1	0	0	1
9:30 PM	0	36	4	4	0	0	0	0	0	0	0	0	0	3	44	2	0	1	3
9:45 PM	0	27	4	1	0	0	0	0	0	0	0	0	0	4	32	1	0	0	1
10:00 PM	0	16	3	2	1	0	0	0	0	0	0	0	0	1	22	1	0	0	1
10:15 PM	0	20	0	1	0	0	0	0	0	0	0	0	0	1	21	3	1	2	6
10:30 PM	1	22	2	4	1	0	0	0	0	0	0	0	0	5	30	1	2	0	3
10:45 PM	0	14	2	1	0	0	0	0	0	0	0	0	0	4	17	2	1	0	3
11:00 PM	0	19	3	2	0	0	0	0	0	0	0	0	0	3	24	0	1	0	1
11:15 PM	0	15	2	0	0	0	0	0	0	0	0	0	0	3	17	0	1	0	1
11:30 PM	0	14	6	3	1	0	0	0	0	0	0	0	0	2	24	0	0	0	0
11:45 PM	1	12	2	0	0	0	0	0	0	0	0	0	0	1	15	0	1	0	1
Total	24	5527	1041	320	116	11	2	9	2	0	0	0	0	309	7052	176	272	37	485
	0.34%	78.37%	14.76%	4.54%	1.64%	0.16%	0.03%	0.13%	0.03%	0.00%	0.00%	0.00%	0.00%	4.38%		36.29%	56.08%	7.63%	

KEY DATA NETWORK

Steel Bridge WB

	1	2	3	4	5	6	7	8	9	10	11	12	13			North Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Max Train	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	10	1	0	0	0	0	0	0	0	0	0	0	1	11	2	0	0	2
12:15 AM	0	6	1	3	0	0	0	0	0	0	0	0	0	1	10	1	0	0	1
12:30 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	3	0	0	3
12:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
1:00 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	2	0	2
1:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	1
1:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
1:45 AM	0	4	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0
2:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	0	2
2:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	2
2:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0
3:30 AM	0	2	1	0	0	1	0	0	0	0	0	0	0	0	4	2	0	0	2
3:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:00 AM	0	6	0	0	1	0	0	0	0	0	0	0	0	1	7	0	1	0	1
4:15 AM	0	3	3	0	0	0	0	0	0	0	0	0	0	2	6	1	0	0	1
4:30 AM	0	6	0	0	0	0	0	0	0	0	0	0	0	1	6	1	0	0	1
4:45 AM	1	10	1	1	0	0	0	0	0	0	0	0	0	3	13	0	0	0	0
5:00 AM	0	1	1	1	0	1	0	0	0	0	0	0	0	1	4	1	0	0	1
5:15 AM	0	11	0	2	1	0	0	0	0	0	0	0	0	3	14	4	0	0	4
5:30 AM	0	13	3	1	1	0	0	0	0	0	0	0	0	3	18	6	1	0	7
5:45 AM	0	17	0	5	0	0	0	0	0	0	0	0	0	4	22	1	0	0	1
6:00 AM	0	29	3	2	0	1	0	0	0	0	0	0	0	5	35	0	0	0	0
6:15 AM	0	26	5	4	0	0	0	0	0	0	0	0	0	4	35	0	1	0	1
6:30 AM	0	30	3	3	0	0	0	0	0	0	0	0	0	5	36	1	0	1	2
6:45 AM	0	43	3	7	1	0	0	0	0	0	0	0	0	4	54	2	2	0	4
7:00 AM	0	46	4	6	0	0	0	0	0	0	0	0	0	4	56	0	1	0	1
7:15 AM	0	75	5	6	2	0	0	0	0	0	0	0	0	4	88	1	1	0	2
7:30 AM	1	83	8	7	0	0	0	0	0	0	0	0	0	5	99	5	2	1	8
7:45 AM	2	88	18	5	3	0	0	0	0	0	0	0	0	5	116	4	1	0	5
8:00 AM	1	76	31	8	1	0	0	0	0	0	0	0	0	5	117	3	2	0	5
8:15 AM	0	90	25	6	1	0	0	0	0	0	0	0	0	5	122	2	0	0	2
8:30 AM	1	100	6	5	3	0	0	0	0	0	0	0	0	5	115	5	0	0	5
8:45 AM	0	102	23	5	0	0	0	1	0	0	0	0	0	5	131	1	1	0	2
9:00 AM	0	90	27	3	3	0	0	0	0	0	0	0	0	4	123	7	1	0	8
9:15 AM	0	72	21	3	2	0	0	1	0	0	0	0	0	4	99	0	3	0	3
9:30 AM	0	49	10	6	1	0	0	0	0	0	0	0	0	4	66	4	1	0	5
9:45 AM	0	51	16	3	1	1	0	0	0	0	0	0	0	4	72	2	0	1	3
10:00 AM	0	39	20	3	2	0	0	0	0	0	0	0	0	2	64	4	1	0	5
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
10:30 AM	0	64	20	5	0	0	0	0	0	0	0	0	0	6	89	5	2	1	8
10:45 AM	0	51	11	6	0	0	0	0	0	0	0	0	0	7	68	3	1	0	4
11:00 AM	1	50	12	5	3	0	0	0	0	0	0	0	0	5	71	3	0	0	3
11:15 AM	0	33	10	2	2	0	0	0	0	0	0	0	0	4	47	1	2	0	3
11:30 AM	1	54	10	3	0	1	0	0	0	0	0	0	0	3	69	2	0	0	2
11:45 AM	0	44	3	5	1	1	0	0	0	0	0	0	0	4	54	4	1	0	5
12:00 PM	0	48	20	2	2	0	0	0	0	0	0	0	0	5	72	2	1	0	3
12:15 PM	0	37	9	5	0	2	0	0	0	0	0	0	0	5	53	5	0	0	5
12:30 PM	0	56	11	4	3	0	0	0	0	0	0	0	0	3	74	3	1	0	4
12:45 PM	0	53	12	4	1	0	0	0	0	0	0	0	0	4	70	2	0	0	2
1:00 PM	1	58	5	4	1	0	0	0	0	0	0	0	0	4	69	1	0	0	1
1:15 PM	0	43	11	4	1	0	0	0	0	0	0	0	0	3	59	4	0	0	4
1:30 PM	0	39	16	3	2	0	0	0	0	0	0	0	0	5	60	0	0	0	0
1:45 PM	1	45	11	6	0	0	0	0	0	0	0	0	0	4	63	4	0	0	4
2:00 PM	0	49	11	4	0	0	0	0	0	0	0	0	0	4	64	2	0	0	2
2:15 PM	0	51	19	5	1	0	0	0	0	0	0	0	0	4	76	4	0	0	4
2:30 PM	0	52	20	4	2	0	0	0	0	0	0	0	0	4	78	1	0	0	1
2:45 PM	0	45	15	5	2	1	0	0	0	0	0	0	0	4	68	3	0	1	4
3:00 PM	0	82	16	9	1	1	0	0	0	0	0	0	0	4	109	2	0	0	2
3:15 PM	0	74	17	6	0	0	0	0	0	0	0	0	0	2	97	2	1	0	3
3:30 PM	0	92	25	7	2	0	0	0	0	0	0	0	0	4	126	2	0	0	2
3:45 PM	0	59	10	4	0	0	0	0	0	0	0	0	0	4	73	2	0	0	2
4:00 PM	1	96	19	11	0	0	0	0	0	0	0	0	0	4	127	8	1	0	9
4:15 PM	1	81	28	8	0	0	0	0	0	0	0	0	0	4	118	2	0	1	3
4:30 PM	0	70	27	8	2	0	0	0	0	0	0	0	0	5	107	1	0	0	1
4:45 PM	0	95	33	9	1	0	0	0	0	0	0	0	0	4	138	1	0	0	1
5:00 PM	0	105	35	8	0	0	0	0	0	0	0	0	0	4	148	1	0	0	1
5:15 PM	0	96	8	5	0	0	0	0	0	0	0	0	0	5	109	2	0	0	2
5:30 PM	0	100	18	6	0	0	0	0	0	0	0	0	0	4	124	1	1	0	2
5:45 PM	0	110	19	7	0	0	0	0	0	0	0	0	0	4	136	2	2	0	4
6:00 PM	0	70	20	4	0	0	0	0	0	0	0	0	0	5	94	2	0	1	3
6:15 PM	1	56	13	5	0	0	0	0	0	0	0	0	0	5	75	1	0	0	1
6:30 PM	0	38	6	3	0	0	0	0	0	0	0	0	0	4	47	3	0	0	3
6:45 PM	0	37	8	3	0	0	0	0	0	0	0	0	0	4	48	1	1	0	2
7:00 PM	0	27	2	5	0	0	0	0	0	0	0	0	0	4	34	0	1	0	1
7:15 PM	0	29	4	3	0	0	0	0	0	0	0	0	0	4	36	2	0	1	3
7:30 PM	0	27	3	2	0	0	0	0	0	0	0	0	0	4	32	1	0	0	1
7:45 PM	0	20	2	3	0	0	0	0	0	0	0	0	0	4	25	3	0	0	3
8:00 PM	0	26	3	3	0	0	0	0	0	0	0	0	0	5	32	0	1	0	1
8:15 PM	0	25	6	4	0	0	0	0	0	1	0	0	0	4	36	1	0	0	1
8:30 PM	0	14	3	2	0	0	0	0	0	0	0	0	0	4	19	4	1	0	5
8:45 PM	0	19	3	2	0	0	0	0	0	0	0	0	0	4	24	2	0	0	2
9:00 PM	0	19	2	3	0	0	0	0	0	0	0	0	0	3	24	1	0	0	1
9:15 PM	0	13	2	3	0	0	0	0	0	0	0	0	0	4	18	3	1	0	4
9:30 PM	0	13	3	2	0	0	0	0	0	0	0	0	0	1	18	4	1	0	5
9:45 PM	0	16	2	3	0	0	0	0	0	0	0	0	0	4	21	0	0	0	0
10:00 PM	0	14	4	3	1	0	0	0	0	0	0	0	0	2	22	1	0	0	1
10:15 PM	0	12	2	3	0	0	0	0	0	0	0	0	0	3	17	1	0	0	1
10:30 PM	0	12	2	1	0	0	0	0	0	0	0	0	0	1	15	2	0	0	2
10:45 PM	0	16	0	2	1	0	0	0	0	0	0	0	0	5	19	1	0	0	1
11:00 PM	0	12	2	2	0	0	0	0	0	0	0	0	0	1	16	1	1	0	2
11:15 PM	0	17	4	2	0	0	0	0	0	0	0	0	0	2	23	4	1	0	5
11:30 PM	0	7	0	1	0	0	0	0	0	0	0	0	0	3	8	1	0	0	1
11:45 PM	0	5	1	2	0	0	0	0	0	0	0	0	0	2	8	2	0	0	2
Total	13	3675	818	326	53	11	0	2	0	1	0	0	0	303	4899	184	47	8	239
	0.27%	75.02%	16.70%	6.65%	1.08%	0.22%	0.00%	0.04%	0.00%	0.02%	0.00%	0.00%	0.00%	6.18%		76.99%	19.67%	3.35%	

KEY DATA NETWORK

Steel Bridge Lower Pedestrian and Bike Crossing

	EB				WB				Combined			
5/15/2019	Ped	Bike	E-Scooter	Total	Ped	Bike	E-Scooter	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	3	0	3	0	3	0	3	0	6	0	6
12:15 AM	0	2	0	2	4	0	0	4	4	2	0	6
12:30 AM	2	0	0	2	4	1	0	5	6	1	0	7
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	2	0	0	2	0	0	0	0	2	0	0	2
1:15 AM	1	0	0	1	1	0	0	1	2	0	0	2
1:30 AM	1	1	0	2	0	0	0	0	1	1	0	2
1:45 AM	0	0	0	0	1	1	0	2	1	1	0	2
2:00 AM	3	0	0	3	0	0	0	0	3	0	0	3
2:15 AM	0	10	0	10	0	0	0	0	0	10	0	10
2:30 AM	0	1	0	1	0	0	0	0	0	1	0	1
2:45 AM	1	0	0	1	0	2	0	2	1	2	0	3
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	1	1	0	0	0	0	0	0	1	1
3:30 AM	0	0	0	0	1	0	0	1	1	0	0	1
3:45 AM	0	0	2	2	0	1	0	1	0	1	2	3
4:00 AM	1	0	0	1	0	0	0	0	1	0	0	1
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	1	0	0	1	1	0	0	1
4:45 AM	1	0	0	1	1	2	0	3	2	2	0	4
5:00 AM	0	4	0	4	1	1	0	2	1	5	0	6
5:15 AM	2	5	0	7	0	4	0	4	2	9	0	11
5:30 AM	1	0	0	1	8	2	0	10	9	2	0	11
5:45 AM	12	3	0	15	6	10	0	16	18	13	0	31
6:00 AM	14	1	0	15	8	17	0	25	22	18	0	40
6:15 AM	11	3	0	14	12	16	0	28	23	19	0	42
6:30 AM	11	6	0	17	7	26	0	33	18	32	0	50
6:45 AM	7	7	0	14	13	24	0	37	20	31	0	51
7:00 AM	18	5	0	23	10	34	0	44	28	39	0	67
7:15 AM	9	4	0	13	7	35	1	43	16	39	1	56
7:30 AM	15	9	0	24	15	49	0	64	30	58	0	88
7:45 AM	12	5	0	17	7	53	1	61	19	58	1	78
8:00 AM	10	12	0	22	7	49	0	56	17	61	0	78
8:15 AM	9	7	0	16	12	72	0	84	21	79	0	100
8:30 AM	8	13	0	21	9	58	0	67	17	71	0	88
8:45 AM	9	4	0	13	3	56	3	62	12	60	3	75
9:00 AM	4	7	0	11	6	28	0	34	10	35	0	45
9:15 AM	9	1	0	10	8	19	1	28	17	20	1	38
9:30 AM	6	5	0	11	7	16	0	23	13	21	0	34
9:45 AM	9	5	0	14	3	16	0	19	12	21	0	33
10:00 AM	2	2	0	4	3	8	0	11	5	10	0	15
10:15 AM	1	6	0	7	6	8	0	14	7	14	0	21
10:30 AM	12	11	0	23	9	16	0	25	21	27	0	48
10:45 AM	88	4	0	92	5	5	0	10	93	9	0	102
11:00 AM	14	2	0	16	5	10	0	15	19	12	0	31
11:15 AM	1	4	0	5	3	5	0	8	4	9	0	13
11:30 AM	9	6	0	15	9	5	0	14	18	11	0	29
11:45 AM	29	13	0	42	13	11	0	24	42	24	0	66
12:00 PM	31	11	0	42	21	10	0	31	52	21	0	73
12:15 PM	42	22	0	64	18	16	0	34	60	38	0	98
12:30 PM	37	14	0	51	28	7	0	35	65	21	0	86
12:45 PM	22	4	0	26	21	9	0	30	43	13	0	56
1:00 PM	15	7	0	22	13	3	0	16	28	10	0	38
1:15 PM	10	9	0	19	13	8	0	21	23	17	0	40
1:30 PM	7	14	0	21	12	5	0	17	19	19	0	38
1:45 PM	13	5	0	18	9	6	0	15	22	11	0	33
2:00 PM	7	6	2	15	9	8	0	17	16	14	2	32
2:15 PM	14	2	0	16	7	4	0	11	21	6	0	27
2:30 PM	10	7	0	17	3	2	0	5	13	9	0	22
2:45 PM	13	16	0	29	6	9	0	15	19	25	0	44
3:00 PM	6	14	0	20	12	7	0	19	18	21	0	39
3:15 PM	15	11	2	28	7	6	0	13	22	17	2	41
3:30 PM	9	19	1	29	7	4	0	11	16	23	1	40
3:45 PM	9	30	0	39	13	0	0	13	22	30	0	52
4:00 PM	7	25	3	35	5	10	0	15	12	35	3	50
4:15 PM	8	60	3	71	7	10	0	17	15	70	3	88
4:30 PM	22	60	0	82	5	11	0	16	27	71	0	98
4:45 PM	10	71	0	81	10	14	0	24	20	85	0	105
5:00 PM	11	54	0	65	8	5	0	13	19	59	0	78
5:15 PM	10	78	0	88	6	5	0	11	16	83	0	99
5:30 PM	13	87	1	101	3	9	0	12	16	96	1	113
5:45 PM	19	65	0	84	11	7	0	18	30	72	0	102
6:00 PM	5	48	0	53	6	7	0	13	11	55	0	66
6:15 PM	10	43	1	54	2	9	0	11	12	52	1	65
6:30 PM	11	31	0	42	3	7	0	10	14	38	0	52
6:45 PM	12	25	0	37	4	3	0	7	16	28	0	44
7:00 PM	10	23	0	33	4	6	1	11	14	29	1	44
7:15 PM	19	23	0	42	7	1	1	9	26	24	1	51
7:30 PM	7	13	0	20	3	7	0	10	10	20	0	30
7:45 PM	2	16	0	18	4	2	0	6	6	18	0	24
8:00 PM	2	15	0	17	4	2	0	6	6	17	0	23
8:15 PM	5	10	0	15	4	2	0	6	9	12	0	21
8:30 PM	6	5	0	11	6	0	0	6	12	5	0	17
8:45 PM	6	11	0	17	5	1	0	6	11	12	0	23
9:00 PM	2	10	0	12	3	1	0	4	5	11	0	16
9:15 PM	1	4	0	5	0	0	0	0	1	4	0	5
9:30 PM	6	7	0	13	1	0	0	1	7	7	0	14
9:45 PM	1	8	0	9	5	0	0	5	6	8	0	14
10:00 PM	8	3	0	11	0	1	0	1	8	4	0	12
10:15 PM	1	4	0	5	2	0	0	2	3	4	0	7
10:30 PM	3	3	0	6	0	2	0	2	3	5	0	8
10:45 PM	2	0	0	2	2	2	0	4	4	2	0	6
11:00 PM	0	2	0	2	0	1	0	1	0	3	0	3
11:15 PM	0	5	0	5	2	0	0	2	2	5	0	7
11:30 PM	3	2	0	5	2	3	0	5	5	5	0	10
11:45 PM	0	3	0	3	0	0	0	0	0	3	0	3
Total	826	1176	16	2018	538	895	8	1441	1364	2071	24	3459
	40.93%	58.28%	0.79%		37.34%	62.11%	0.56%		39.43%	59.87%	0.69%	

K-D-N
KEY DATA NETWORK

Burnside Bridge EB

	1	2	3	4	5	6	7	8	9	10	11	12	13		South Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	38	3	0	0	0	0	0	0	0	0	0	0	41	4	3	1	8
12:15 AM	1	49	2	0	0	0	0	0	0	0	0	0	0	52	5	5	0	10
12:30 AM	0	36	4	2	0	0	0	0	0	0	0	0	0	42	8	2	0	10
12:45 AM	0	43	4	1	0	0	0	0	0	0	0	0	0	48	7	2	0	9
1:00 AM	1	34	2	0	0	0	0	1	0	0	0	0	0	38	3	0	0	3
1:15 AM	0	25	6	0	0	0	0	0	0	0	0	0	0	31	0	0	0	0
1:30 AM	0	24	6	1	0	0	0	0	0	0	0	0	0	31	0	1	0	1
1:45 AM	0	25	1	0	0	0	0	0	0	0	0	0	0	26	0	1	0	1
2:00 AM	0	35	3	1	1	0	0	0	0	0	0	0	0	40	1	5	0	6
2:15 AM	0	35	5	0	0	0	0	0	0	0	0	0	0	40	3	2	0	5
2:30 AM	0	28	2	0	0	0	0	0	0	0	0	0	0	30	2	2	0	4
2:45 AM	0	19	2	0	0	0	0	0	0	0	0	0	0	21	2	2	0	4
3:00 AM	0	18	2	1	0	0	0	0	0	0	0	0	0	21	2	0	0	2
3:15 AM	0	12	1	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0
3:30 AM	0	10	3	0	1	0	0	0	0	0	0	0	0	14	1	1	0	2
3:45 AM	0	15	1	0	0	0	0	0	0	0	0	0	0	16	5	2	0	7
4:00 AM	0	11	4	1	1	0	0	0	0	0	0	0	0	17	1	0	1	2
4:15 AM	0	4	1	0	1	0	0	0	0	0	0	0	0	6	2	0	0	2
4:30 AM	0	9	5	0	2	0	0	0	0	0	0	0	0	16	2	0	0	2
4:45 AM	0	17	1	1	1	0	0	0	0	0	0	0	0	20	0	1	0	1
5:00 AM	1	9	2	1	3	0	0	0	0	0	0	0	0	16	4	0	0	4
5:15 AM	0	14	1	1	0	0	0	0	0	0	0	0	0	16	2	2	1	5
5:30 AM	0	25	4	3	0	0	0	1	0	0	0	0	0	33	0	1	1	2
5:45 AM	0	35	8	3	1	0	0	0	0	0	0	0	0	47	2	2	0	4
6:00 AM	0	40	10	0	1	0	0	0	0	0	0	0	0	51	3	1	0	4
6:15 AM	0	46	11	4	3	0	0	0	0	0	0	0	0	64	1	3	0	4
6:30 AM	0	64	26	3	0	0	0	0	0	0	0	0	0	93	5	2	0	7
6:45 AM	0	92	20	3	1	1	0	0	1	0	0	0	0	118	0	2	0	2
7:00 AM	0	92	24	4	4	0	0	1	0	0	0	0	0	125	1	3	0	4
7:15 AM	0	125	26	6	0	1	0	0	1	0	0	0	0	159	13	1	0	14
7:30 AM	0	130	27	6	3	0	0	0	0	0	0	0	0	166	18	3	0	21
7:45 AM	1	113	31	5	4	2	0	1	0	0	0	0	0	157	17	6	1	24
8:00 AM	0	158	30	5	0	0	0	0	0	0	0	0	0	193	5	3	1	9
8:15 AM	1	184	40	7	8	0	0	0	0	0	0	0	0	240	11	2	1	14
8:30 AM	0	118	17	6	2	0	0	0	0	0	0	0	0	143	15	7	0	22
8:45 AM	1	145	25	6	5	1	0	0	0	0	0	0	0	183	9	3	0	12
9:00 AM	2	145	37	7	5	0	0	0	0	1	0	0	0	197	15	2	2	19
9:15 AM	1	132	30	3	1	0	0	0	0	0	0	0	0	167	10	8	0	18
9:30 AM	1	167	36	4	5	1	0	1	0	0	0	0	0	215	4	4	1	9
9:45 AM	0	125	28	2	2	0	0	0	0	0	0	0	0	157	4	1	0	5
10:00 AM	0	101	26	2	1	0	0	0	0	0	0	0	0	130	6	0	1	7
10:15 AM	1	115	30	6	6	2	1	0	0	0	0	0	0	161	8	1	0	9
10:30 AM	0	145	34	4	3	1	0	1	0	0	0	0	0	188	3	3	0	6
10:45 AM	0	133	31	4	3	0	0	1	0	0	0	0	0	172	2	3	1	6
11:00 AM	0	145	31	3	3	0	0	1	0	0	0	0	0	183	14	1	0	15
11:15 AM	0	166	36	2	3	0	0	0	0	0	0	0	0	207	7	2	1	10
11:30 AM	0	171	41	3	4	0	0	0	0	0	0	0	0	219	4	2	0	6
11:45 AM	0	160	55	3	4	0	0	0	0	0	0	0	0	222	3	13	1	17
12:00 PM	1	139	38	4	3	0	0	0	0	0	0	0	0	185	1	4	0	5
12:15 PM	0	160	47	4	6	0	0	0	0	0	0	0	0	217	2	5	0	7
12:30 PM	2	190	35	2	5	0	0	2	0	0	0	0	0	236	14	9	0	23
12:45 PM	0	171	37	3	4	0	0	0	0	0	0	0	0	215	6	6	0	12
1:00 PM	2	213	27	3	2	0	0	0	0	0	0	0	0	247	12	10	0	22
1:15 PM	1	166	52	6	5	0	0	0	0	0	0	0	0	230	7	3	0	10
1:30 PM	0	211	47	3	5	0	0	0	0	0	0	0	0	266	4	6	0	10
1:45 PM	0	199	43	3	2	0	0	0	0	0	0	0	0	247	12	11	0	23
2:00 PM	0	208	51	4	4	1	0	0	0	0	0	0	0	268	5	12	0	17
2:15 PM	1	192	47	3	2	1	0	0	0	0	0	0	0	246	7	11	1	19
2:30 PM	2	200	47	2	3	0	0	1	0	0	0	0	0	255	8	6	0	14
2:45 PM	1	240	49	3	6	1	0	0	0	0	0	0	0	300	7	9	1	17
3:00 PM	1	239	44	4	2	0	0	1	0	0	0	0	0	291	16	6	0	22
3:15 PM	0	195	49	3	3	0	0	1	0	0	0	0	0	251	5	4	1	10
3:30 PM	0	246	46	4	4	0	0	0	0	0	0	0	0	300	7	10	1	18
3:45 PM	1	257	31	5	5	0	0	1	0	0	0	0	0	300	7	8	1	16
4:00 PM	2	222	41	4	4	0	0	0	0	0	0	0	0	273	3	15	3	21
4:15 PM	0	213	44	5	2	0	0	0	0	0	0	0	0	264	8	18	0	26
4:30 PM	0	233	44	5	2	0	0	1	0	0	0	0	0	285	4	20	1	25
4:45 PM	1	240	35	4	1	0	0	0	0	0	0	0	0	281	14	20	0	34
5:00 PM	2	237	34	5	1	0	0	1	0	0	0	0	0	280	13	23	0	36
5:15 PM	2	232	26	6	4	0	0	0	0	0	0	0	0	270	17	37	1	55
5:30 PM	1	222	29	4	1	0	0	0	0	0	0	0	0	257	10	34	0	44
5:45 PM	1	242	27	5	2	0	0	0	0	0	0	0	0	277	17	27	2	46
6:00 PM	2	229	31	4	3	0	0	0	0	0	0	0	0	269	4	18	0	22
6:15 PM	3	230	29	3	3	0	0	0	0	0	0	0	0	268	6	17	4	27
6:30 PM	3	259	35	4	1	0	0	0	0	0	0	0	0	302	4	17	0	21
6:45 PM	0	219	20	4	0	0	0	0	0	0	0	0	0	243	9	12	1	22
7:00 PM	0	180	18	4	0	0	0	0	0	0	0	0	0	202	15	15	0	30
7:15 PM	0	194	22	2	0	0	0	0	0	0	0	0	0	218	9	18	0	27
7:30 PM	3	170	20	3	1	0	0	0	0	0	0	0	0	197	7	8	0	15
7:45 PM	0	139	19	1	0	0	0	0	0	0	0	0	0	159	6	9	1	16
8:00 PM	0	156	14	2	1	0	0	0	0	0	0	0	0	173	12	5	0	17
8:15 PM	1	113	21	2	0	0	0	0	0	1	0	0	0	138	6	11	0	17
8:30 PM	1	122	13	1	0	0	0	0	0	0	0	0	0	137	7	7	0	14
8:45 PM	2	113	4	3	0	0	0	0	0	0	0	0	0	122	9	3	0	12
9:00 PM	0	117	7	2	0	0	0	0	0	0	0	0	0	126	3	4	0	7
9:15 PM	2	114	13	2	0	0	0	0	0	0	0	0	0	131	11	4	1	16
9:30 PM	0	120	13	3	0	0	0	0	0	0	0	0	0	136	4	5	0	9
9:45 PM	0	81	10	2	0	0	0	0	0	0	0	0	0	93	6	4	1	11
10:00 PM	0	124	14	1	0	0	0	1	0	0	0	0	0	140	6	1	1	8
10:15 PM	0	87	9	2	0	0	0	0	0	0	0	0	0	98	2	3	1	6
10:30 PM	1	86	8	2	1	0	0	0	0	0	0	0	1	99	8	3	0	11
10:45 PM	0	94	8	2	0	0	0	0	0	0	0	0	0	104	2	0	0	2
11:00 PM	0	78	13	2	0	0	0	0	0	0	0	0	0	93	4	5	1	10
11:15 PM	0	109	18	1	0	0	0	0	0	0	0	0	0	128	2	4	0	6
11:30 PM	1	69	9	1	0	0	0	0	0	0	0	0	0	80	5	3	0	8
11:45 PM	1	52	0	4	0	0	0	0	0	0	0	0	0	57	4	5	0	9
Total	52	11904	2113	265	170	12	1	17	2	2	0	0	1	14539	591	605	37	1233
	0.36%	81.88%	14.53%	1.82%	1.17%	0.08%	0.01%	0.12%	0.01%	0.01%	0.00%	0.00%	0.01%		47.93%	49.07%	3.00%	

Burnside Bridge WB

	1	2	3	4	5	6	7	8	9	10	11	12	13		North Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	27	0	0	0	0	0	0	0	0	0	0	0	27	3	0	0	3
12:15 AM	0	25	0	2	0	0	0	0	0	0	0	0	0	27	4	2	0	6
12:30 AM	0	20	0	1	1	0	0	0	0	0	0	0	0	22	3	0	0	3
12:45 AM	0	14	1	0	0	0	0	0	0	0	0	0	0	15	4	1	0	5
1:00 AM	0	16	1	0	0	0	0	0	0	0	0	0	0	17	2	0	0	2
1:15 AM	0	16	2	1	0	0	0	0	0	0	0	0	0	19	0	0	0	0
1:30 AM	0	12	5	1	1	0	0	0	0	0	0	0	0	19	1	1	0	2
1:45 AM	0	12	2	0	0	0	0	0	0	0	0	0	0	14	1	0	0	1
2:00 AM	0	7	0	0	1	0	0	0	0	0	0	0	0	8	0	1	0	1
2:15 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	10	1	0	0	1
2:30 AM	0	9	2	1	0	0	0	0	0	0	0	0	0	12	0	0	0	0
2:45 AM	1	2	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
3:00 AM	0	11	0	0	2	1	0	0	0	0	0	0	0	14	3	0	0	3
3:15 AM	0	6	0	1	0	2	0	0	0	0	0	0	0	9	1	1	1	3
3:30 AM	0	3	0	0	1	0	0	0	0	0	0	0	0	4	2	2	0	4
3:45 AM	0	8	2	0	1	1	0	0	0	0	0	0	0	12	0	0	0	0
4:00 AM	0	6	0	0	1	1	0	0	0	0	0	0	0	8	0	3	0	3
4:15 AM	0	7	3	0	0	0	0	0	0	0	0	0	0	10	0	3	0	3
4:30 AM	0	13	5	1	0	1	0	0	0	0	0	0	0	20	0	2	0	2
4:45 AM	1	17	6	1	3	0	0	0	0	0	0	0	0	28	1	0	0	1
5:00 AM	0	11	3	0	1	0	0	0	0	0	0	0	0	15	0	0	0	0
5:15 AM	0	19	13	4	1	0	0	0	0	0	0	0	0	37	1	2	0	3
5:30 AM	3	36	11	3	0	0	0	0	0	0	0	0	0	53	3	4	0	7
5:45 AM	0	51	8	2	1	0	0	0	1	0	0	0	0	63	4	9	0	13
6:00 AM	0	61	36	2	1	0	0	0	0	0	0	0	0	100	6	5	0	11
6:15 AM	1	66	41	3	1	0	0	0	0	0	0	0	0	112	1	4	0	5
6:30 AM	0	84	44	3	5	0	0	1	0	0	0	0	0	137	4	10	1	15
6:45 AM	0	97	54	3	4	1	0	0	0	0	0	0	0	159	5	13	0	18
7:00 AM	0	125	55	4	3	0	0	0	0	0	0	0	0	187	7	5	0	12
7:15 AM	0	166	30	5	4	0	0	0	0	0	0	0	0	205	3	21	0	24
7:30 AM	1	180	59	5	2	0	0	0	0	0	0	0	0	247	7	20	0	27
7:45 AM	0	110	42	5	3	0	0	1	0	0	0	0	0	161	10	37	1	48
8:00 AM	3	195	58	4	3	0	1	1	0	0	0	0	0	265	13	26	1	40
8:15 AM	2	168	69	5	3	0	0	0	0	0	0	0	0	247	13	37	0	50
8:30 AM	2	180	46	4	2	0	0	0	0	0	0	0	0	234	13	34	0	47
8:45 AM	0	195	46	4	3	0	0	1	1	0	0	0	0	250	14	30	1	45
9:00 AM	1	153	57	2	5	0	0	0	0	0	0	0	0	218	11	34	0	45
9:15 AM	0	141	55	5	3	0	0	0	0	0	0	0	0	204	8	24	0	32
9:30 AM	1	156	24	2	2	1	0	0	0	0	0	0	0	186	2	18	0	20
9:45 AM	0	136	37	4	4	1	0	0	0	0	0	0	0	182	3	14	2	19
10:00 AM	0	120	33	5	5	0	0	0	0	0	0	0	0	163	7	11	2	20
10:15 AM	0	104	36	3	2	0	0	0	0	0	0	0	0	145	4	11	1	16
10:30 AM	1	104	45	3	9	0	0	0	0	0	0	0	0	162	13	10	0	23
10:45 AM	2	95	52	3	2	0	0	1	0	0	0	0	0	155	0	4	0	4
11:00 AM	2	93	37	3	5	0	0	0	0	0	0	0	0	140	4	7	1	12
11:15 AM	0	98	38	3	0	0	0	0	0	0	0	0	0	139	1	7	0	8
11:30 AM	1	123	46	3	3	0	0	0	0	0	0	0	0	176	10	10	1	21
11:45 AM	1	101	48	3	3	0	0	0	0	0	0	0	0	156	7	9	0	16
12:00 PM	1	92	58	4	6	0	0	0	0	0	0	0	0	161	8	4	4	16
12:15 PM	1	95	27	1	3	1	0	0	0	0	0	0	0	128	7	8	1	16
12:30 PM	1	101	43	4	0	0	0	0	0	0	0	0	0	149	7	5	1	13
12:45 PM	0	96	53	3	1	0	0	0	0	0	0	0	0	153	4	12	1	17
1:00 PM	1	86	55	2	2	0	0	0	0	0	0	0	0	146	10	5	0	15
1:15 PM	0	100	43	3	4	0	0	0	0	0	0	0	0	150	6	6	0	12
1:30 PM	1	111	45	3	1	0	0	0	0	0	0	0	0	161	5	17	0	22
1:45 PM	4	103	49	3	5	0	0	0	0	0	0	0	0	164	4	5	0	9
2:00 PM	0	107	44	3	1	0	0	0	0	0	0	0	0	155	4	4	0	8
2:15 PM	0	102	27	4	0	0	0	0	0	0	0	0	0	133	8	6	1	15
2:30 PM	0	104	38	3	0	0	0	0	0	0	0	0	0	145	4	2	1	7
2:45 PM	0	105	37	3	2	0	0	0	0	0	0	0	0	147	5	4	1	10
3:00 PM	1	102	42	3	2	0	0	0	0	0	0	0	0	150	5	3	2	10
3:15 PM	1	129	35	3	2	0	0	0	0	0	0	0	0	170	6	6	0	12
3:30 PM	0	117	43	3	2	0	0	0	0	0	0	0	0	165	5	14	1	20
3:45 PM	0	149	31	3	1	0	0	0	0	0	0	0	0	184	7	11	0	18
4:00 PM	0	148	38	4	3	0	0	0	0	0	0	0	0	193	11	5	0	16
4:15 PM	0	143	29	4	0	0	0	0	0	0	0	0	0	176	4	4	0	8
4:30 PM	1	147	40	3	1	0	0	0	0	0	0	0	0	192	9	8	1	18
4:45 PM	0	188	33	4	1	0	0	0	0	0	0	0	0	226	6	4	1	11
5:00 PM	0	172	38	3	0	0	0	0	0	0	0	0	0	213	7	11	0	18
5:15 PM	1	146	34	5	0	0	0	0	0	0	0	0	0	186	20	5	0	25
5:30 PM	3	159	34	4	1	0	0	0	0	0	0	0	0	201	9	4	0	13
5:45 PM	1	139	17	3	0	0	0	0	0	0	0	0	0	160	3	6	1	10
6:00 PM	0	151	24	3	1	0	0	0	0	0	0	0	0	179	6	3	0	9
6:15 PM	0	146	25	4	0	0	0	0	0	0	0	0	0	175	4	7	1	12
6:30 PM	0	110	28	2	0	0	0	0	0	0	0	0	0	140	3	0	1	4
6:45 PM	0	95	16	3	0	0	0	0	0	0	0	0	0	114	6	2	0	8
7:00 PM	1	82	14	2	0	0	0	0	0	0	0	0	0	99	8	3	0	11
7:15 PM	0	89	8	2	0	0	0	0	0	0	0	0	0	99	4	6	0	10
7:30 PM	2	82	18	3	1	0	0	0	0	0	0	0	0	106	4	3	0	7
7:45 PM	0	76	12	2	0	0	0	0	0	0	0	0	0	90	5	1	1	7
8:00 PM	1	90	11	2	0	0	0	0	0	0	0	0	0	104	4	1	1	6
8:15 PM	1	73	8	2	0	0	0	0	0	0	0	0	0	84	0	2	0	2
8:30 PM	0	77	7	1	0	0	0	1	0	0	0	0	0	86	3	3	0	6
8:45 PM	0	60	6	3	0	0	0	0	0	0	0	0	0	69	5	1	1	7
9:00 PM	0	65	4	1	0	0	0	0	0	0	0	0	0	70	6	2	0	8
9:15 PM	0	72	4	3	0	0	0	0	0	0	0	0	0	79	2	1	0	3
9:30 PM	0	83	10	0	0	0	0	0	0	0	0	0	0	93	2	0	0	2
9:45 PM	0	53	4	1	0	0	0	0	0	0	0	0	0	58	1	0	0	1
10:00 PM	0	61	5	2	0	0	0	0	0	0	0	0	0	68	5	1	0	6
10:15 PM	0	46	3	1	0	0	0	0	0	0	0	0	0	50	8	4	1	13
10:30 PM	0	42	0	1	0	0	0	0	0	0	0	0	0	43	9	1	0	10
10:45 PM	0	49	0	3	0	0	0	0	0	0	0	0	0	52	3	3	3	9
11:00 PM	1	49	0	0	0	0	0	0	0	0	0	0	0	50	1	1	0	2
11:15 PM	0	32	0	2	0	0	0	0	0	0	0	0	0	34	3	1	0	4
11:30 PM	0	23	0	1	0	0	0	0	0	0	0	0	0	24	4	0	0	4
11:45 PM	0	25	0	1	0	0	0	0	0	0	0	0	0	26	5	0	1	6
Total	46	8080	2294	227	131	10	1	6	2	0	0	0	0	10797	465	637	38	1140
	0.43%	74.84%	21.25%	2.10%	1.21%	0.09%	0.01%	0.06%	0.02%	0.00%	0.00%	0.00%	0.00%		40.79%	55.88%	3.33%	

K-D-N
KEY DATA NETWORK

Morrison Bridge EB

South Sidewalk

5/15/2019	1 Motor cycle	2 Cars & Trailers	3 2 Axle Long	4 Buses	5 2 Axle 6 Tire	6 3 Axle Single	7 4 Axle Single	8 <5 Axl Double	9 5 Axle Double	10 >6 Axl Double	11 <6 Axl Multi	12 6 Axle Multi	13 >6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	52	21	1	0	0	0	0	0	0	0	0	0	74	0	0	0	0
12:15 AM	0	44	17	0	0	0	0	0	0	0	0	0	0	61	0	0	0	0
12:30 AM	0	44	11	1	1	0	0	0	0	0	0	0	0	57	0	0	0	0
12:45 AM	0	28	17	0	0	0	0	0	0	0	0	0	0	45	0	0	0	0
1:00 AM	1	42	21	0	0	0	0	0	0	0	0	0	0	64	0	1	0	1
1:15 AM	0	20	14	1	0	0	0	0	0	0	0	0	0	35	0	0	0	0
1:30 AM	0	20	12	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0
1:45 AM	1	35	16	0	0	0	0	0	0	0	0	0	0	52	0	0	0	0
2:00 AM	0	49	10	0	0	0	0	0	0	0	0	0	0	59	0	1	0	1
2:15 AM	0	29	12	0	0	0	0	0	0	0	0	0	0	41	0	0	0	0
2:30 AM	0	42	10	0	2	0	0	0	0	0	0	0	0	54	0	0	0	0
2:45 AM	0	21	6	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0
3:00 AM	1	12	2	0	1	0	0	0	0	0	0	0	0	16	0	0	0	0
3:15 AM	0	11	6	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0
3:30 AM	0	12	7	0	1	0	0	0	0	0	0	0	0	20	0	0	0	0
3:45 AM	1	13	10	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0
4:00 AM	0	25	5	1	1	0	0	0	0	0	0	0	0	32	1	0	0	1
4:15 AM	0	19	9	0	1	1	0	0	0	0	0	0	0	30	0	0	0	0
4:30 AM	0	39	14	1	0	0	0	0	0	0	0	0	0	54	0	0	0	0
4:45 AM	0	34	9	0	0	0	0	0	0	0	0	0	0	43	1	0	0	1
5:00 AM	0	36	9	1	1	0	0	0	0	0	0	0	0	47	1	0	0	1
5:15 AM	0	34	9	1	0	1	0	0	0	0	0	0	0	45	5	0	0	5
5:30 AM	0	44	9	1	1	0	0	1	0	0	0	0	0	56	2	0	0	2
5:45 AM	0	52	19	0	0	0	0	0	0	0	0	0	0	71	4	0	0	4
6:00 AM	0	66	12	1	2	0	0	0	1	0	0	0	0	82	3	1	0	4
6:15 AM	0	114	53	2	4	1	0	0	0	0	0	0	0	174	6	3	0	9
6:30 AM	0	74	34	1	1	1	0	0	0	0	0	0	0	111	2	1	0	3
6:45 AM	0	140	21	1	2	0	0	0	0	0	0	0	0	164	5	2	0	7
7:00 AM	0	135	12	1	3	0	0	0	0	0	0	0	0	151	5	4	0	9
7:15 AM	0	122	14	1	3	1	0	0	0	0	0	0	0	141	8	7	0	15
7:30 AM	0	139	17	2	2	0	0	0	0	1	0	0	0	161	14	9	1	24
7:45 AM	1	182	33	0	2	2	0	0	0	0	0	0	0	220	7	12	0	19
8:00 AM	0	171	25	3	3	1	0	0	0	0	0	0	0	203	11	3	0	14
8:15 AM	1	166	23	1	4	0	0	0	0	0	0	0	0	195	23	8	0	31
8:30 AM	0	142	34	3	5	2	0	0	0	0	0	0	0	186	13	10	0	23
8:45 AM	0	172	47	1	6	1	0	0	0	0	0	0	0	227	6	15	0	21
9:00 AM	0	185	18	2	3	0	0	0	0	0	0	0	0	208	3	6	1	10
9:15 AM	0	166	22	4	4	1	1	0	1	0	0	0	0	199	7	9	0	16
9:30 AM	1	175	35	1	4	0	0	0	1	0	0	0	0	217	3	2	2	7
9:45 AM	0	167	31	1	5	1	0	0	0	0	0	0	0	205	7	7	0	14
10:00 AM	0	183	33	2	5	1	0	0	0	0	0	0	0	224	4	3	1	8
10:15 AM	0	176	53	2	4	0	0	0	0	0	0	0	0	235	7	4	2	13
10:30 AM	2	184	34	1	9	0	0	1	1	0	0	0	0	232	1	3	0	4
10:45 AM	1	213	48	1	5	1	0	0	0	0	0	0	0	269	9	6	0	15
11:00 AM	1	181	51	1	3	1	0	1	0	0	0	0	0	239	8	2	1	11
11:15 AM	1	223	63	3	7	1	0	3	0	0	0	0	0	301	85	4	1	90
11:30 AM	0	211	63	4	7	1	0	0	0	0	0	0	0	286	8	3	1	12
11:45 AM	2	250	67	2	7	1	0	0	0	0	0	0	0	329	7	3	1	11
12:00 PM	2	229	70	3	4	0	0	0	0	0	0	0	0	308	9	7	0	16
12:15 PM	1	242	51	1	6	0	0	0	1	0	0	0	0	302	9	4	1	14
12:30 PM	0	234	44	2	3	0	0	0	0	0	0	0	0	283	4	2	1	7
12:45 PM	0	225	50	0	4	1	0	0	0	0	0	0	0	280	7	3	0	10
1:00 PM	2	266	56	2	4	1	0	0	0	0	0	0	0	331	10	7	1	18
1:15 PM	1	301	48	3	4	0	0	0	0	0	0	0	0	357	2	1	1	4
1:30 PM	1	303	58	1	5	1	0	0	1	0	0	0	0	370	6	1	0	7
1:45 PM	2	296	88	2	6	0	0	0	1	0	0	0	0	395	5	8	1	14
2:00 PM	0	358	67	1	8	1	1	0	0	0	0	0	0	436	6	1	0	7
2:15 PM	0	288	90	1	8	1	1	0	1	0	0	0	0	390	7	4	0	11
2:30 PM	3	399	89	1	4	0	0	0	0	0	0	0	0	496	12	7	2	21
2:45 PM	1	405	77	1	7	0	0	0	0	0	0	0	0	491	4	4	0	8
3:00 PM	1	420	95	3	8	0	0	0	0	0	0	0	0	527	10	5	0	15
3:15 PM	1	483	120	3	2	0	0	0	0	0	0	0	0	609	7	5	1	13
3:30 PM	1	482	128	3	8	0	0	0	1	0	0	0	0	623	11	10	0	21
3:45 PM	1	454	123	2	6	0	0	3	0	0	0	0	0	589	6	8	1	15
4:00 PM	0	541	97	2	10	0	0	0	0	0	0	0	0	650	14	4	4	22
4:15 PM	0	603	112	3	5	0	0	2	0	0	0	0	0	725	10	18	3	31
4:30 PM	6	595	98	3	2	0	0	0	0	0	0	0	0	704	4	12	0	16
4:45 PM	1	606	75	3	3	0	0	0	0	0	0	0	0	688	11	10	1	22
5:00 PM	4	648	65	2	3	0	0	1	0	0	0	0	0	723	12	18	3	33
5:15 PM	3	568	69	1	6	0	0	0	0	0	0	0	0	647	9	11	2	22
5:30 PM	0	728	99	8	5	0	0	0	0	0	0	0	0	840	14	7	2	23
5:45 PM	4	488	54	3	2	0	0	0	1	0	0	0	0	552	12	16	1	29
6:00 PM	5	555	60	3	4	0	0	0	0	0	0	0	0	627	8	12	1	21
6:15 PM	2	554	56	3	2	0	0	0	0	0	0	0	0	617	3	5	0	8
6:30 PM	2	472	58	1	4	0	0	0	0	0	0	0	0	537	3	4	3	10
6:45 PM	2	367	54	1	0	0	0	0	1	0	0	0	0	425	3	2	2	7
7:00 PM	0	263	38	1	2	0	0	0	0	0	0	0	0	304	4	2	2	8
7:15 PM	2	222	20	1	1	0	0	0	0	0	0	0	0	246	5	1	1	7
7:30 PM	1	221	29	2	0	0	0	0	0	0	0	0	0	253	7	1	0	8
7:45 PM	0	234	25	2	0	0	0	0	0	0	0	0	0	261	3	1	1	5
8:00 PM	0	235	38	0	0	0	0	0	0	0	0	0	0	273	1	1	0	2
8:15 PM	0	185	13	1	1	0	0	0	0	0	0	0	0	200	2	2	0	4
8:30 PM	2	184	16	1	1	0	0	0	0	0	0	0	0	204	3	0	0	3
8:45 PM	0	187	32	1	2	0	0	0	0	0	0	0	0	222	2	1	1	4
9:00 PM	2	180	33	1	0	0	0	1	0	0	0	0	0	217	10	0	0	10
9:15 PM	2	137	29	0	1	0	0	0	0	0	0	0	0	169	6	3	0	9
9:30 PM	0	122	28	1	0	2	0	0	1	0	0	0	0	154	2	1	0	3
9:45 PM	0	121	38	1	0	0	0	0	0	0	0	0	0	160	1	0	0	1
10:00 PM	0	136	25	1	0	0	0	0	0	0	0	0	0	162	3	1	0	4
10:15 PM	0	120	22	2	0	0	0	0	0	0	0	0	0	144	0	1	0	1
10:30 PM	1	108	19	0	1	0	0	0	0	0	0	0	0	129	2	2	0	4
10:45 PM	0	78	10	1	1	0	0	0	0	0	0	0	0	90	2	0	0	2
11:00 PM	1	86	23	0	0	0	0	0	0	0	0	0	0	110	2	0	0	2
11:15 PM	0	84	17	2	0	0	0	0	0	0	0	0	0	103	0	1	0	1
11:30 PM	1	79	22	0	0	0	0	0	0	0	0	0	0	102	0	0	0	0
11:45 PM	1	53	11	0	0	0	0	0	0	0	0	0	0	65	1	0	1	2
Total	73	19839	3757	129	252	26	3	13	12	1	0	0	0	24105	540	343	48	931
	0.30%	82.30%	15.59%	0.54%	1.05%	0.11%	0.01%	0.05%	0.05%	0.00%	0.00%	0.00%	0.00%		58.00%	36.84%	5.16%	

K-D-N
KEY DATA NETWORK

Morrison Bridge WB

	1	2	3	4	5	6	7	8	9	10	11	12	13		North Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	61	7	0	0	0	0	0	0	0	0	0	0	68	0	0	0	0
12:15 AM	0	47	2	1	0	0	0	0	0	0	0	0	0	50	2	0	0	2
12:30 AM	0	30	6	0	1	0	0	0	0	0	0	0	0	37	0	0	0	0
12:45 AM	0	46	2	0	1	1	0	0	0	0	0	0	0	50	0	0	0	0
1:00 AM	0	33	6	0	0	0	0	0	0	0	0	0	0	39	0	0	0	0
1:15 AM	0	36	2	1	0	0	0	0	0	0	0	0	0	39	0	0	0	0
1:30 AM	0	22	2	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0
1:45 AM	0	25	3	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0
2:00 AM	0	23	0	0	0	0	0	0	0	0	0	0	0	23	1	0	0	1
2:15 AM	0	21	2	0	1	0	0	0	0	0	0	0	0	24	0	0	0	0
2:30 AM	0	16	2	0	1	0	0	0	0	0	0	0	0	19	0	0	0	0
2:45 AM	0	18	5	0	2	2	0	0	0	0	0	0	0	27	1	0	0	1
3:00 AM	1	14	1	0	0	1	0	0	0	0	0	0	0	17	0	0	0	0
3:15 AM	0	9	1	0	2	0	0	0	0	0	0	0	0	12	1	0	0	1
3:30 AM	0	16	13	0	3	1	0	0	0	0	0	0	0	33	0	0	0	0
3:45 AM	0	15	6	0	3	0	0	0	0	0	0	0	0	24	0	0	0	0
4:00 AM	0	23	10	0	1	0	0	0	0	0	0	0	0	34	0	0	0	0
4:15 AM	1	21	4	2	0	1	0	0	0	0	0	0	0	29	0	0	0	0
4:30 AM	0	58	31	0	1	0	0	1	2	1	0	0	0	94	2	0	0	2
4:45 AM	0	80	25	0	4	0	0	1	0	0	0	0	0	110	0	0	0	0
5:00 AM	0	81	36	1	3	1	0	0	0	0	0	0	0	122	1	0	0	1
5:15 AM	1	148	59	1	9	0	0	0	0	1	0	0	0	219	0	0	0	0
5:30 AM	3	246	69	3	2	0	0	0	0	0	0	0	0	323	0	0	0	0
5:45 AM	0	303	87	7	9	0	0	0	0	0	0	0	0	406	2	0	0	2
6:00 AM	5	310	72	4	4	0	0	0	0	0	0	0	0	395	1	0	0	1
6:15 AM	1	350	54	6	4	1	0	0	0	1	0	0	0	417	2	0	0	2
6:30 AM	0	347	58	4	4	0	0	1	1	1	0	0	0	416	0	0	0	0
6:45 AM	1	451	56	6	5	0	0	0	1	1	0	0	0	521	0	0	0	0
7:00 AM	3	438	85	12	5	0	0	1	0	1	0	0	0	545	0	0	0	0
7:15 AM	3	562	57	7	15	1	0	0	0	0	0	0	0	645	0	0	0	0
7:30 AM	8	514	59	11	7	1	0	0	1	0	0	0	0	601	0	0	0	0
7:45 AM	6	570	107	6	8	2	0	0	1	0	0	0	0	700	1	0	0	1
8:00 AM	3	572	115	6	5	1	0	0	0	0	0	0	0	702	0	0	0	0
8:15 AM	0	561	97	7	16	0	0	0	1	0	0	0	0	682	0	0	0	0
8:30 AM	1	547	68	4	23	1	0	0	1	0	0	0	0	645	0	0	0	0
8:45 AM	2	494	100	7	15	2	0	1	0	0	0	0	0	621	0	0	0	0
9:00 AM	0	563	59	5	11	1	0	0	0	0	0	0	0	639	0	0	0	0
9:15 AM	0	530	35	3	10	2	0	0	0	0	0	0	0	580	1	0	0	1
9:30 AM	0	448	58	2	13	2	0	0	0	0	0	0	0	523	0	0	0	0
9:45 AM	0	393	64	1	6	1	0	0	1	0	0	0	0	466	0	0	0	0
10:00 AM	0	360	69	2	6	1	0	2	1	0	0	0	0	441	0	0	0	0
10:15 AM	1	320	77	3	5	0	0	0	0	0	0	0	0	406	3	0	0	3
10:30 AM	1	326	84	2	5	1	0	0	0	0	0	0	0	419	0	0	0	0
10:45 AM	0	344	68	1	8	0	0	2	0	1	0	0	0	424	1	1	0	2
11:00 AM	1	292	63	2	7	0	1	1	0	0	0	0	0	367	1	0	0	1
11:15 AM	1	295	53	4	4	0	0	0	0	0	0	0	0	357	0	0	0	0
11:30 AM	1	322	56	2	4	0	0	0	1	0	0	0	0	386	3	1	0	4
11:45 AM	1	316	60	1	8	0	0	0	0	0	0	0	0	386	2	0	0	2
12:00 PM	1	279	56	4	6	1	0	1	0	0	0	0	0	348	0	0	0	0
12:15 PM	1	332	47	3	8	1	0	1	1	0	0	0	0	394	1	0	0	1
12:30 PM	1	359	57	1	3	2	0	0	1	0	0	0	0	424	1	0	0	1
12:45 PM	1	363	53	1	8	2	0	0	1	0	0	0	0	429	0	1	0	1
1:00 PM	1	320	52	3	5	0	0	0	0	0	0	0	0	381	3	1	0	4
1:15 PM	1	349	71	2	8	2	0	1	0	0	0	0	0	434	0	0	0	0
1:30 PM	0	319	86	4	5	3	0	0	1	0	0	0	0	418	2	0	0	2
1:45 PM	1	305	74	3	4	1	0	0	0	0	0	0	0	388	0	0	0	0
2:00 PM	0	330	91	2	2	0	0	1	1	0	0	0	0	427	0	0	0	0
2:15 PM	1	289	65	2	1	2	0	0	0	0	0	0	0	360	2	1	0	3
2:30 PM	1	322	75	4	7	1	1	0	0	0	0	0	0	411	3	0	0	3
2:45 PM	1	283	90	1	2	0	0	0	1	1	0	0	0	379	2	0	0	2
3:00 PM	0	281	61	3	2	0	0	0	0	0	0	0	0	347	2	0	1	3
3:15 PM	3	287	70	4	1	0	0	0	0	0	0	0	0	365	2	0	0	2
3:30 PM	0	282	70	4	5	0	0	0	0	0	0	0	0	361	0	0	0	0
3:45 PM	0	368	65	3	4	0	0	1	1	0	0	0	0	442	1	1	0	2
4:00 PM	0	371	65	4	1	0	0	0	0	0	0	0	0	441	1	0	0	1
4:15 PM	0	370	50	3	2	0	0	0	0	0	0	0	0	425	0	0	0	0
4:30 PM	1	341	54	4	1	0	0	0	0	0	0	0	0	401	1	0	0	1
4:45 PM	0	358	68	1	2	0	0	0	0	0	0	0	0	429	1	0	0	1
5:00 PM	1	432	56	5	2	0	0	0	0	0	0	0	0	496	2	0	0	2
5:15 PM	0	399	59	2	1	0	0	0	0	0	0	0	0	461	0	0	0	0
5:30 PM	0	396	53	1	1	0	0	0	0	0	0	0	0	451	1	0	0	1
5:45 PM	2	351	51	4	1	1	0	0	0	0	0	0	0	410	0	0	0	0
6:00 PM	0	345	37	1	0	0	0	0	0	0	0	0	0	383	0	0	0	0
6:15 PM	0	328	30	2	2	0	0	0	0	0	0	0	0	362	0	0	0	0
6:30 PM	0	273	27	1	1	0	0	0	0	0	0	0	0	302	3	0	0	3
6:45 PM	1	307	40	1	1	0	0	0	0	0	0	0	0	350	1	0	0	1
7:00 PM	1	258	37	2	0	0	0	0	0	0	0	0	0	298	0	0	0	0
7:15 PM	0	226	22	2	0	0	0	0	1	0	0	0	0	251	1	0	0	1
7:30 PM	1	246	26	1	0	0	0	1	0	0	0	0	0	275	0	0	0	0
7:45 PM	0	203	28	1	1	0	0	0	0	0	0	0	0	233	1	0	0	1
8:00 PM	0	214	7	0	0	0	0	0	0	0	0	0	0	221	2	0	0	2
8:15 PM	0	219	10	2	1	0	0	0	0	0	0	0	0	232	5	0	0	5
8:30 PM	1	191	15	0	0	0	0	0	0	0	0	0	0	207	3	0	0	3
8:45 PM	1	184	14	0	2	0	0	0	0	0	0	0	0	201	0	0	0	0
9:00 PM	1	196	28	1	1	1	0	0	0	0	0	0	0	228	2	0	0	2
9:15 PM	0	169	8	0	2	1	0	0	0	1	0	0	0	181	0	0	0	0
9:30 PM	0	140	14	0	1	0	0	0	0	0	0	0	0	155	0	0	0	0
9:45 PM	1	143	8	1	1	0	0	0	0	0	0	0	0	154	0	0	0	0
10:00 PM	1	147	10	0	1	0	0	0	0	0	0	0	0	159	1	0	0	1
10:15 PM	0	173	15	1	0	0	0	0	0	0	0	0	0	189	1	0	0	1
10:30 PM	0	118	9	1	2	0	0	0	0	0	0	0	0	130	2	0	0	2
10:45 PM	0	130	12	0	0	0	0	0	0	0	0	0	0	142	0	0	0	0
11:00 PM	0	91	8	1	0	0	0	0	0	0	0	0	0	100	0	0	0	0
11:15 PM	2	83	6	1	1	0	0	0	0	0	0	0	0	93	1	0	0	1
11:30 PM	0	74	12	1	0	0	0	0	0	0	0	0	0	87	0	0	0	0
11:45 PM	0	67	10	0	0	0	0	0	0	0	0	0	0	77	1	0	0	1
Total	72	24228	4027	212	340	42	2	16	19	9	0	0	0	28967	74	6	1	81
	0.25%	83.64%	13.90%	0.73%	1.17%	0.14%	0.01%	0.06%	0.07%	0.03%	0.00%	0.00%	0.00%		91.36%	7.41%	1.23%	

K-D-N
KEY DATA NETWORK

Hawthorne Bridge EB

	1	2	3	4	5	6	7	8	9	10	11	12	13		South Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	15	0	3	0	0	0	0	0	0	0	0	0	18	3	1	0	4
12:15 AM	0	11	0	0	0	0	0	0	0	0	0	0	0	11	1	1	0	2
12:30 AM	0	13	0	3	0	0	0	0	0	0	0	0	0	16	2	2	0	4
12:45 AM	1	5	0	0	0	0	0	0	0	0	0	0	0	6	0	2	0	2
1:00 AM	0	10	1	0	1	0	0	0	0	0	0	0	0	12	3	0	0	3
1:15 AM	0	5	1	0	0	0	0	0	0	0	0	0	0	6	1	0	0	1
1:30 AM	0	6	0	1	1	0	0	0	0	0	0	0	0	8	1	0	0	1
1:45 AM	0	10	0	1	0	0	0	0	0	0	0	0	0	11	1	1	0	2
2:00 AM	0	14	0	0	0	0	0	0	1	0	0	0	0	15	1	1	0	2
2:15 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
2:30 AM	0	6	1	0	0	0	0	0	0	0	0	0	0	7	0	4	0	4
2:45 AM	0	6	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
3:00 AM	0	3	0	0	0	0	0	0	1	0	0	0	0	4	0	0	0	0
3:15 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
3:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	4
3:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:00 AM	0	6	0	0	1	0	0	0	0	0	0	0	0	7	0	2	0	2
4:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
4:30 AM	0	9	0	0	0	0	0	0	0	0	0	0	0	9	1	0	0	1
4:45 AM	0	9	1	0	0	0	0	0	0	0	0	0	0	10	1	2	0	3
5:00 AM	0	10	3	0	0	0	0	0	0	0	0	0	0	13	1	1	0	2
5:15 AM	0	10	0	2	0	0	0	0	0	0	0	0	0	12	2	1	0	3
5:30 AM	0	20	4	3	0	0	0	0	0	0	0	0	0	27	1	3	0	4
5:45 AM	0	33	4	1	1	1	0	0	0	0	0	0	0	40	2	2	0	4
6:00 AM	0	40	7	3	0	0	0	0	0	0	0	0	0	50	7	1	0	8
6:15 AM	0	67	11	2	0	0	0	0	0	1	0	0	0	81	7	4	0	11
6:30 AM	0	78	12	4	0	0	0	0	0	0	0	0	0	94	13	4	0	17
6:45 AM	0	98	11	4	2	1	0	0	0	0	0	0	0	116	14	4	0	18
7:00 AM	0	117	10	4	1	0	0	0	0	0	0	0	0	132	12	5	0	17
7:15 AM	0	122	12	5	1	1	0	0	0	0	0	0	0	141	13	5	0	18
7:30 AM	0	150	13	4	2	0	0	0	1	0	0	0	0	170	7	19	1	27
7:45 AM	1	149	13	7	2	1	0	0	0	0	0	0	0	173	16	8	0	24
8:00 AM	0	187	13	8	3	1	0	0	0	0	0	0	0	212	18	8	0	26
8:15 AM	0	179	17	8	3	0	0	0	0	0	0	0	0	207	19	8	0	27
8:30 AM	0	164	19	8	3	0	0	0	0	0	0	0	0	194	10	6	0	16
8:45 AM	0	159	19	5	3	3	0	0	0	0	0	0	0	189	14	8	0	22
9:00 AM	0	98	20	5	3	0	1	0	0	0	0	0	0	127	6	5	0	11
9:15 AM	0	131	22	3	3	0	0	0	0	0	0	0	0	159	14	12	1	27
9:30 AM	0	116	16	5	3	0	0	0	0	0	0	0	0	140	7	6	1	14
9:45 AM	0	117	15	3	4	0	1	0	0	0	0	0	0	140	6	8	0	14
10:00 AM	0	116	15	6	3	0	0	0	0	1	0	0	0	141	10	8	0	18
10:15 AM	0	114	11	4	2	0	0	0	0	0	0	0	0	131	6	3	0	9
10:30 AM	0	105	17	4	5	0	0	0	0	0	0	0	0	131	8	6	0	14
10:45 AM	1	144	15	4	5	1	0	0	0	0	0	0	0	170	14	19	0	33
11:00 AM	0	140	20	4	6	2	0	0	0	0	0	0	0	172	12	4	1	17
11:15 AM	0	166	12	4	4	0	0	0	0	0	0	0	0	186	17	10	0	27
11:30 AM	2	152	17	3	2	0	0	0	0	0	0	0	0	176	17	2	0	19
11:45 AM	2	151	24	4	3	0	0	0	0	0	0	0	0	184	22	15	0	37
12:00 PM	1	145	18	5	5	0	0	0	0	0	0	0	0	174	18	18	0	36
12:15 PM	0	152	24	4	3	1	1	0	0	0	0	0	0	185	30	17	0	47
12:30 PM	2	176	21	5	2	0	1	0	1	0	0	0	0	208	20	11	0	31
12:45 PM	1	125	18	3	3	1	1	0	0	0	0	0	0	152	27	12	0	39
1:00 PM	0	169	29	4	2	0	0	0	0	0	0	0	0	204	64	13	1	78
1:15 PM	0	147	18	4	4	1	0	0	0	0	0	0	0	174	14	11	1	26
1:30 PM	0	168	29	4	3	1	1	0	0	0	0	0	0	206	8	18	0	26
1:45 PM	2	163	25	4	7	0	0	0	0	0	0	0	0	201	10	12	0	22
2:00 PM	1	203	29	5	5	0	0	0	0	0	0	0	0	243	7	12	0	19
2:15 PM	2	200	30	5	3	0	0	0	0	0	0	0	0	240	16	12	1	29
2:30 PM	1	283	36	6	2	1	0	0	0	0	0	0	0	329	9	26	0	35
2:45 PM	1	310	35	4	2	1	1	1	0	0	0	0	0	355	5	11	6	22
3:00 PM	1	329	47	6	8	1	0	0	0	0	0	0	0	392	12	18	1	31
3:15 PM	0	347	59	8	3	0	0	0	0	0	0	0	0	417	5	25	4	34
3:30 PM	1	371	45	7	7	0	0	0	0	0	0	0	0	431	15	49	1	65
3:45 PM	2	407	40	5	3	0	0	0	0	0	0	0	0	457	14	56	1	71
4:00 PM	4	400	42	5	3	0	0	0	0	0	0	0	0	454	21	73	3	97
4:15 PM	5	451	36	7	3	0	0	0	0	0	0	0	0	502	16	92	0	108
4:30 PM	1	456	60	7	2	0	0	0	0	0	0	0	0	526	19	107	0	126
4:45 PM	7	441	40	7	0	0	0	0	0	0	0	0	0	495	46	104	4	154
5:00 PM	3	446	22	7	3	0	0	0	0	0	0	0	0	481	15	120	1	136
5:15 PM	1	485	19	9	4	0	0	0	0	0	0	0	0	518	20	177	5	202
5:30 PM	2	477	35	6	1	0	0	0	0	0	0	0	0	521	16	142	1	159
5:45 PM	1	502	35	5	2	0	0	0	0	0	0	0	0	545	12	111	0	123
6:00 PM	1	430	33	4	2	0	0	0	0	0	0	0	0	470	7	88	0	95
6:15 PM	0	339	25	11	2	0	0	0	0	0	0	0	0	377	5	80	0	85
6:30 PM	0	305	14	3	0	0	0	0	0	0	0	0	0	322	4	52	0	56
6:45 PM	0	252	18	6	1	0	0	0	0	0	0	0	0	277	20	37	2	59
7:00 PM	0	188	6	4	0	0	0	0	0	0	0	0	0	198	9	41	0	50
7:15 PM	1	121	7	2	1	0	0	0	0	0	0	0	0	132	7	17	0	24
7:30 PM	1	179	7	6	1	0	0	0	0	0	0	0	0	194	8	27	1	36
7:45 PM	0	126	7	1	0	0	0	0	0	0	0	0	0	134	9	13	0	22
8:00 PM	0	120	5	6	0	0	0	0	0	0	0	0	0	131	6	18	0	24
8:15 PM	1	96	6	2	0	0	0	0	0	0	0	0	0	105	1	10	0	11
8:30 PM	0	109	0	4	0	0	0	0	0	0	0	0	0	113	9	12	0	21
8:45 PM	0	101	0	2	0	0	0	0	0	0	0	0	0	103	4	10	0	14
9:00 PM	0	88	3	4	0	0	0	0	0	0	0	0	0	95	2	20	0	22
9:15 PM	0	71	0	2	0	0	0	0	0	0	0	0	0	73	7	12	0	19
9:30 PM	0	67	0	3	0	0	0	0	0	0	0	0	0	70	4	6	0	10
9:45 PM	0	63	1	2	0	0	0	0	0	0	0	0	0	66	0	6	1	7
10:00 PM	0	103	2	3	0	0	0	0	0	0	0	0	0	108	1	9	0	10
10:15 PM	0	53	0	1	0	0	0	0	0	0	0	0	0	54	0	7	0	7
10:30 PM	0	42	0	3	0	0	0	0	0	0	0	0	0	45	1	10	0	11
10:45 PM	0	29	0	0	0	0	0	0	0	0	0	0	0	29	0	2	0	2
11:00 PM	0	29	0	3	0	0	0	0	0	0	0	0	0	32	1	4	0	5
11:15 PM	0	27	0	0	0	0	0	0	0	0	0	0	0	27	4	5	0	9
11:30 PM	1	31	1	3	0	0	0	0	0	0	0	0	0	36	2	1	0	3
11:45 PM	0	25	0	0	0	0	0	0	0	0	0	0	0	25	0	2	0	2
Total	51	13622	1305	332	154	18	7	1	4	2	0	0	0	15496	861	1940	38	2839
	0.33%	87.91%	8.42%	2.14%	0.99%	0.12%	0.05%	0.01%	0.03%	0.01%	0.00%	0.00%	0.00%		30.33%	68.33%	1.34%	

K-D-N
KEY DATA NETWORK

Hawthorne Bridge WB / North Sidewalk

	1	2	3	4	5	6	7	8	9	10	11	12	13		North Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	15	0	0	0	0	0	0	0	0	0	0	0	15	0	1	0	1
12:15 AM	0	9	0	3	0	0	0	0	0	0	0	0	0	12	1	0	0	1
12:30 AM	0	11	0	0	0	0	0	0	0	0	0	0	0	11	1	0	0	1
12:45 AM	0	15	0	0	1	1	0	0	0	0	0	0	0	17	0	0	0	0
1:00 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	1
1:15 AM	0	11	0	1	0	0	0	0	0	0	0	0	0	12	0	0	0	0
1:30 AM	0	8	0	1	0	0	0	0	0	0	0	0	0	9	2	1	0	3
1:45 AM	0	7	1	0	0	0	0	0	0	0	0	0	0	8	1	0	0	1
2:00 AM	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
2:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
2:30 AM	0	6	3	0	0	0	0	0	0	0	0	0	0	9	1	3	0	4
2:45 AM	0	7	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
3:00 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	5	0	1	0	1
3:15 AM	0	8	0	0	2	0	0	0	0	0	0	0	0	10	0	0	0	0
3:30 AM	0	4	0	0	3	1	0	0	0	0	0	0	0	8	0	3	0	3
3:45 AM	1	8	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
4:00 AM	0	8	2	0	1	1	0	0	0	0	0	0	0	12	1	1	0	2
4:15 AM	0	11	1	0	0	0	0	0	0	0	0	0	0	12	0	1	0	1
4:30 AM	0	13	7	0	0	0	0	0	0	0	0	0	0	20	0	5	0	5
4:45 AM	1	22	4	1	0	0	0	0	0	0	0	0	0	28	4	6	0	10
5:00 AM	0	18	8	0	0	0	0	0	0	0	0	0	0	26	0	6	0	6
5:15 AM	0	37	14	3	2	0	0	0	0	0	0	0	0	56	2	10	0	12
5:30 AM	1	64	18	1	2	0	0	0	0	0	0	0	0	86	6	12	0	18
5:45 AM	1	86	26	3	2	0	0	0	1	0	0	0	0	119	10	11	0	21
6:00 AM	0	85	16	4	5	0	0	0	0	0	0	0	0	110	16	24	1	41
6:15 AM	2	153	19	4	0	0	0	0	0	0	0	0	0	178	20	21	1	42
6:30 AM	0	197	13	4	3	1	0	0	0	0	0	0	0	218	18	44	2	64
6:45 AM	3	250	24	5	6	2	0	0	0	0	0	0	0	290	19	47	0	66
7:00 AM	2	356	28	4	2	0	0	0	1	0	0	0	0	393	10	76	2	88
7:15 AM	2	331	25	9	1	1	1	0	0	0	0	0	0	370	17	83	0	100
7:30 AM	1	394	36	5	5	0	2	0	0	0	0	0	0	443	21	98	0	119
7:45 AM	1	367	29	9	6	0	0	0	0	0	0	0	0	412	24	142	2	168
8:00 AM	0	370	19	10	4	1	0	0	0	0	0	0	0	404	30	103	0	133
8:15 AM	3	358	24	8	4	0	0	0	0	0	0	0	0	397	24	163	2	189
8:30 AM	2	372	35	5	8	0	0	0	0	0	0	0	0	422	18	155	0	173
8:45 AM	1	323	39	6	7	0	0	0	0	0	0	0	0	376	23	142	1	166
9:00 AM	0	239	22	3	2	0	0	0	1	0	0	0	0	267	15	99	0	114
9:15 AM	0	200	27	6	7	0	0	0	1	0	0	0	0	241	11	62	1	74
9:30 AM	0	166	39	3	2	0	0	0	0	0	0	0	0	210	11	52	2	65
9:45 AM	0	175	39	6	2	0	0	1	0	0	0	0	0	223	11	40	1	52
10:00 AM	1	130	32	4	8	1	0	0	0	0	0	0	0	176	7	31	0	38
10:15 AM	0	138	18	5	3	0	0	0	0	0	0	0	0	164	10	26	0	36
10:30 AM	0	153	15	4	3	0	0	0	0	0	0	0	0	175	5	16	1	22
10:45 AM	1	146	17	3	1	1	0	0	0	0	0	0	0	169	15	13	0	28
11:00 AM	0	157	13	6	3	0	0	0	1	0	0	0	0	180	13	12	1	26
11:15 AM	1	171	14	4	3	0	0	0	0	0	0	0	0	193	35	25	0	60
11:30 AM	0	176	12	3	4	0	0	0	0	0	0	0	0	195	37	15	0	52
11:45 AM	0	140	20	2	5	0	0	0	0	0	0	0	0	167	26	12	1	39
12:00 PM	1	154	26	4	3	0	0	0	0	0	0	0	0	188	57	9	0	66
12:15 PM	0	139	26	4	5	0	0	0	0	0	0	0	0	174	41	13	0	54
12:30 PM	0	150	25	7	4	1	0	0	0	0	0	0	0	187	43	17	1	61
12:45 PM	0	160	26	5	2	0	0	0	0	0	0	0	0	193	35	24	0	59
1:00 PM	0	148	32	3	2	0	0	0	0	0	0	0	0	185	24	13	0	37
1:15 PM	1	175	26	4	4	1	0	0	0	0	0	0	0	211	21	8	0	29
1:30 PM	0	203	19	4	6	1	0	0	0	0	0	0	0	233	16	14	0	30
1:45 PM	0	174	21	3	1	0	0	0	0	0	0	0	0	199	6	12	0	18
2:00 PM	0	186	12	5	2	0	0	0	1	0	0	0	0	206	13	7	0	20
2:15 PM	0	184	27	4	2	0	0	0	0	0	0	0	0	217	8	11	0	19
2:30 PM	0	185	33	3	0	0	0	0	0	0	0	0	0	221	12	12	0	24
2:45 PM	0	164	22	6	4	2	0	0	0	0	0	0	0	198	6	12	1	19
3:00 PM	1	192	31	9	1	0	0	1	0	0	0	0	0	235	16	4	0	20
3:15 PM	0	192	22	5	0	0	0	0	0	0	0	0	0	219	7	14	0	21
3:30 PM	0	221	32	4	3	0	0	0	0	0	0	0	0	260	26	22	1	49
3:45 PM	1	211	35	5	2	0	0	0	0	0	0	0	0	254	37	20	1	58
4:00 PM	2	294	30	8	1	0	0	0	0	0	0	0	0	335	35	10	3	48
4:15 PM	0	284	33	5	4	0	0	0	0	0	0	0	0	326	39	24	6	69
4:30 PM	1	206	22	5	1	0	0	0	0	0	0	0	0	235	43	23	1	67
4:45 PM	2	241	20	6	2	0	0	0	0	0	0	0	0	271	40	24	3	67
5:00 PM	0	256	36	5	1	0	0	0	0	0	0	0	0	298	22	13	0	35
5:15 PM	1	276	23	5	2	0	0	0	0	0	0	0	0	307	20	10	0	30
5:30 PM	2	232	19	5	0	0	0	0	0	0	0	0	0	258	18	6	0	24
5:45 PM	0	207	12	7	2	0	0	0	0	0	0	0	0	228	14	7	0	21
6:00 PM	0	176	14	6	1	0	0	0	0	0	0	0	0	197	15	3	0	18
6:15 PM	0	200	9	4	1	0	0	0	0	0	0	0	0	214	14	9	0	23
6:30 PM	1	172	4	4	0	0	0	0	0	0	0	0	0	181	17	1	0	18
6:45 PM	0	149	9	4	0	0	0	0	0	0	0	0	0	162	16	7	0	23
7:00 PM	0	120	8	4	1	0	0	0	0	0	0	0	0	133	22	2	0	24
7:15 PM	2	120	8	3	1	0	0	0	0	0	0	0	0	134	5	8	1	14
7:30 PM	0	102	1	3	2	0	0	0	0	0	0	0	0	108	21	3	0	24
7:45 PM	0	87	11	4	0	0	0	0	0	0	0	0	0	102	8	6	0	14
8:00 PM	0	80	8	3	0	0	0	0	0	0	0	0	0	91	4	2	0	6
8:15 PM	0	82	7	3	0	0	0	0	0	0	0	0	0	92	4	2	0	6
8:30 PM	0	100	3	2	0	0	0	0	0	0	0	0	0	105	2	1	0	3
8:45 PM	0	91	8	3	0	0	0	0	0	0	0	0	0	102	3	6	0	9
9:00 PM	0	76	7	3	0	0	0	0	0	0	0	0	0	86	1	2	0	3
9:15 PM	0	80	7	4	0	0	0	0	0	0	0	0	0	91	4	3	0	7
9:30 PM	1	82	8	0	0	0	0	0	0	0	0	0	0	91	4	6	0	10
9:45 PM	0	73	6	3	0	0	0	1	0	0	0	0	0	83	4	3	1	8
10:00 PM	0	61	1	1	0	0	0	0	1	0	0	0	0	64	2	0	0	2
10:15 PM	0	54	0	3	0	0	0	0	0	0	0	0	0	57	3	1	0	4
10:30 PM	0	37	0	0	1	0	0	0	0	0	0	0	0	38	1	0	2	3
10:45 PM	0	41	5	3	0	0	0	0	0	0	0	0	0	49	0	3	0	3
11:00 PM	1	32	6	1	1	0	0	0	0	0	0	0	0	41	0	1	0	1
11:15 PM	0	26	2	3	0	0	0	0	0	0	0	0	0	31	3	1	0	4
11:30 PM	0	29	5	0	0	0	0	0	0	0	0	0	0	34	0	1	0	1
11:45 PM	0	20	2	3	0	0	0	0	0	0	0	0	0	25	3	0	0	3
Total	41	12854	1408	323	169	16	3	3	7	0	0	0	0	14824	1221	1962	39	3222
	0.28%	86.71%	9.50%	2.18%	1.14%	0.11%	0.02%	0.02%	0.05%	0.00%	0.00%	0.00%	0.00%		37.90%	60.89%	1.21%	

K-D-N
KEY DATA NETWORK

Tillikum Bridge EB

	1	2	3	4	5	6	7	8	9	10	11	12	13		
5/15/2019	Motorcycle	Cars & Trailers	2 Axle Long	Bus	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Max Train	Total
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
4:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
5:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
6:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
6:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
6:45 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
7:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
7:30 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
7:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
8:00 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
8:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
8:30 AM	0	0	2	2	0	0	0	0	0	0	0	0	0	2	6
8:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
9:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
9:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
9:30 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	2	5
9:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
10:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
10:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
10:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
10:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
11:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
11:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	3	4
11:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
12:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
12:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
12:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
12:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
1:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
1:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
1:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
1:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
2:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
2:15 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
2:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
3:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
3:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
3:30 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
3:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
4:00 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	6
4:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
4:30 PM	0	0	0	5	0	0	0	0	0	0	0	0	0	1	6
4:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	4	7
5:00 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	1	5
5:15 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	6
5:30 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	6
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
6:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
6:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	3
6:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
6:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
7:00 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
7:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
7:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
7:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
8:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
8:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
8:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
9:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
9:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
9:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
9:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
10:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
10:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
10:30 PM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3
10:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
11:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	5	146	0	0	0	0	0	0	0	0	0	128	279
	0.00%	0.00%	1.79%	52.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	45.88%	

South Sidewalk

	Ped	Bike	E-Scooter	Total
12:00 AM	1	0	0	1
12:15 AM	0	0	0	0
12:30 AM	2	0	0	2
12:45 AM	0	0	0	0
1:00 AM	0	1	0	1
1:15 AM	0	0	0	0
1:30 AM	0	0	0	0
1:45 AM	0	0	0	0
2:00 AM	0	1	0	1
2:15 AM	0	0	0	0
2:30 AM	0	0	0	0
2:45 AM	0	0	0	0
3:00 AM	0	0	0	0
3:15 AM	0	0	0	0
3:30 AM	0	0	0	0
3:45 AM	0	1	0	1
4:00 AM	0	0	0	0
4:15 AM	0	0	0	0
4:30 AM	0	0	0	0
4:45 AM	1	0	0	1
5:00 AM	2	1	0	3
5:15 AM	3	1	0	4
5:30 AM	3	0	0	3
5:45 AM	2	1	0	3
6:00 AM	5	1	0	6
6:15 AM	9	2	0	11
6:30 AM	8	2	0	10
6:45 AM	3	3	0	6
7:00 AM	7	0	0	7
7:15 AM	9	5	0	14
7:30 AM	10	13	0	23
7:45 AM	4	7	0	11
8:00 AM	4	5	0	9
8:15 AM	4	0	0	4
8:30 AM	8	9	0	17
8:45 AM	7	2	0	9
9:00 AM	10	3	0	13
9:15 AM	10	7	0	17
9:30 AM	2	4	0	6
9:45 AM	7	3	0	10
10:00 AM	8	3	0	11
10:15 AM	4	5	0	9
10:30 AM	5	5	0	10
10:45 AM	11	1	0	12
11:00 AM	4	6	0	10
11:15 AM	19	7	0	26
11:30 AM	14	9	0	23
11:45 AM	4	6	0	10
12:00 PM	7	10	0	17
12:15 PM	13	10	0	23
12:30 PM	25	6	1	32
12:45 PM	11	4	0	15
1:00 PM	16	7	0	23
1:15 PM	24	0	0	24
1:30 PM	6	5	0	11
1:45 PM	3	3	0	6
2:00 PM	5	7	0	12
2:15 PM	2	13	0	15
2:30 PM	3	11	0	14
2:45 PM	5	8	1	14
3:00 PM	4	19	0	23
3:15 PM	7	25	0	32
3:30 PM	12	15	0	27
3:45 PM	9	23	1	33
4:00 PM	9	27	3	39
4:15 PM	10	47	0	57
4:30 PM	8	43	0	51
4:45 PM	4	46	0	50
5:00 PM	5	41	0	46
5:15 PM	38	59	0	97
5:30 PM	14	49	1	64
5:45 PM	6	36	0	42
6:00 PM	4	32	0	36
6:15 PM	4	22	0	26
6:30 PM	4	32	0	36
6:45 PM	5	32	1	38
7:00 PM	2	15	0	17
7:15 PM	7	15	0	22
7:30 PM	7	15	0	22
7:45 PM	3	15	0	18
8:00 PM	6	5	0	11
8:15 PM	6	5	0	11
8:30 PM	2	11	0	13
8:45 PM	6	4	0	10
9:00 PM	1	7	0	8
9:15 PM	1	6	0	7
9:30 PM	0	4	0	4
9:45 PM	0	1	0	1
10:00 PM	2	1	0	3
10:15 PM	3	1	0	4
10:30 PM	0	1	0	1
10:45 PM	0	2	0	2
11:00 PM	0	1	0	1
11:15 PM	2	0	0	2
11:30 PM	0	1	0	1
11:45 PM	0	0	0	0
Total	501	856	8	1365
	36.70%	62.71%	0.59%	

KEY DATA NETWORK

Tillikum Bridge WB

	1	2	3	4	5	6	7	8	9	10	11	12	13		
5/15/2019	Motorcycle	Cars & Trailers	2 Axle Long	Bus	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Max Train	Total
12:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
12:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
5:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
5:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
6:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
6:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
6:30 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	6
6:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
7:00 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	6
7:15 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	3	6
7:30 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
7:45 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	2	6
8:00 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	1	5
8:15 AM	0	0	0	4	0	0	0	0	0	0	0	0	0	3	7
8:30 AM	0	0	1	3	0	0	0	0	0	0	0	0	0	2	6
8:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
9:00 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
9:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
9:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
9:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
10:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
10:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
10:30 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
10:45 AM	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
11:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	3	4
11:15 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
11:45 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
12:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	3	4
12:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
12:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
12:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
1:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
1:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
1:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
1:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
2:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	3	4
2:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
2:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
2:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
3:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
3:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
3:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
4:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
4:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	1	4
5:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
5:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
5:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	2	5
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
6:15 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	3	6
6:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
6:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
7:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
7:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
7:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
7:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
8:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
8:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	3	4
8:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	2	4
8:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
9:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
9:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
9:45 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	2	4
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	3	5
10:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
10:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	2	3
11:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	2
11:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	3
11:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	2	143	0	0	0	0	0	0	0	0	0	127	272
	0.00%	0.00%	0.74%	52.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	46.69%	

North Sidewalk

Time	Ped	Bike	E-Scooter	Total
12:00 AM	0	0	0	0
12:15 AM	0	0	0	0
12:30 AM	0	0	0	0
12:45 AM	0	0	0	0
1:00 AM	0	0	0	0
1:15 AM	0	0	0	0
1:30 AM	0	0	0	0
1:45 AM	0	0	0	0
2:00 AM	0	0	0	0
2:15 AM	0	0	0	0
2:30 AM	0	0	0	0
2:45 AM	0	0	0	0
3:00 AM	0	0	0	0
3:15 AM	0	0	0	0
3:30 AM	0	0	0	0
3:45 AM	0	1	0	1
4:00 AM	0	0	0	0
4:15 AM	0	0	0	0
4:30 AM	0	1	0	1
4:45 AM	0	0	0	0
5:00 AM	0	6	0	6
5:15 AM	1	8	0	9
5:30 AM	3	9	0	12
5:45 AM	9	6	0	15
6:00 AM	20	10	0	30
6:15 AM	16	24	0	40
6:30 AM	9	28	0	37
6:45 AM	15	24	1	40
7:00 AM	5	23	0	28
7:15 AM	23	32	0	55
7:30 AM	21	50	0	71
7:45 AM	7	65	0	72
8:00 AM	8	38	0	46
8:15 AM	12	50	0	62
8:30 AM	22	47	0	69
8:45 AM	9	55	0	64
9:00 AM	12	28	0	40
9:15 AM	38	22	0	60
9:30 AM	26	19	0	45
9:45 AM	5	12	0	17
10:00 AM	4	15	1	20
10:15 AM	14	11	0	25
10:30 AM	60	10	1	71
10:45 AM	13	5	0	18
11:00 AM	50	13	0	63
11:15 AM	14	10	0	24
11:30 AM	64	16	0	80
11:45 AM	27	5	0	32
12:00 PM	77	11	0	88
12:15 PM	32	7	0	39
12:30 PM	24	13	1	38
12:45 PM	39	5	0	44
1:00 PM	117	10	0	127
1:15 PM	34	7	0	41
1:30 PM	9	1	0	10
1:45 PM	8	6	0	14
2:00 PM	18	7	0	25
2:15 PM	7	1	0	8
2:30 PM	6	5	0	11
2:45 PM	14	3	0	17
3:00 PM	6	3	0	9
3:15 PM	15	7	0	22
3:30 PM	10	5	0	15
3:45 PM	12	7	0	19
4:00 PM	12	11	1	24
4:15 PM	11	4	0	15
4:30 PM	14	14	0	28
4:45 PM	6	7	2	15
5:00 PM	8	6	0	14
5:15 PM	25	7	0	32
5:30 PM	30	4	0	34
5:45 PM	9	1	0	10
6:00 PM	7	7	0	14
6:15 PM	5	8	0	13
6:30 PM	10	6	0	16
6:45 PM	2	5	0	7
7:00 PM	7	0	0	7
7:15 PM	8	1	0	9
7:30 PM	10	5	0	15
7:45 PM	8	3	0	11
8:00 PM	7	5	0	12
8:15 PM	6	0	0	6
8:30 PM	70	4	0	74
8:45 PM	8	4	0	12
9:00 PM	4	1	0	5
9:15 PM	5	1	0	6
9:30 PM	0	0	0	0
9:45 PM	1	0	0	1
10:00 PM	0	1	0	1
10:15 PM	1	0	0	1
10:30 PM	0	1	0	1
10:45 PM	2	1	0	3
11:00 PM	0	0	0	0
11:15 PM	1	0	0	1
11:30 PM	0	0	0	0
11:45 PM	1	0	0	1
Total	1213	848	7	2068
	58.66%	41.01%	0.34%	

K-D-N
KEY DATA NETWORK

Ross Island Bridge EB

	1	2	3	4	5	6	7	8	9	10	11	12	13		South Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	49	8	1	1	0	0	0	0	0	0	0	0	59	0	0	0	0
12:15 AM	1	52	3	2	1	0	0	0	1	0	0	0	0	60	0	0	0	0
12:30 AM	0	35	4	2	0	0	0	0	0	0	0	0	0	41	0	0	0	0
12:45 AM	1	37	4	2	1	0	0	0	0	0	0	0	0	45	0	0	0	0
1:00 AM	0	43	6	2	0	0	0	0	0	0	0	0	0	51	0	0	0	0
1:15 AM	0	26	9	0	1	0	0	0	0	0	0	0	0	36	0	0	0	0
1:30 AM	0	40	6	2	0	0	0	0	1	0	0	0	0	49	0	0	0	0
1:45 AM	0	17	5	0	0	0	0	0	0	0	0	0	0	22	0	0	0	0
2:00 AM	0	18	4	1	0	0	0	0	0	0	0	0	0	23	0	0	0	0
2:15 AM	0	26	2	0	2	0	0	0	0	0	0	0	0	30	0	0	0	0
2:30 AM	0	27	4	0	3	1	0	0	0	0	0	0	0	35	0	0	0	0
2:45 AM	0	20	6	1	1	1	0	0	0	0	0	0	0	29	0	0	0	0
3:00 AM	0	17	3	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0
3:15 AM	0	14	7	0	0	0	0	0	1	0	0	0	0	22	0	0	0	0
3:30 AM	0	28	9	1	2	1	0	0	1	0	0	0	0	42	0	0	0	0
3:45 AM	0	25	5	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0
4:00 AM	0	18	6	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0
4:15 AM	0	32	6	0	0	0	0	0	0	0	0	0	0	38	0	0	0	0
4:30 AM	0	29	5	0	0	0	1	0	1	0	0	0	0	36	0	0	0	0
4:45 AM	1	47	18	1	5	0	0	1	0	1	0	0	0	74	0	0	0	0
5:00 AM	0	45	15	0	0	1	0	0	0	0	0	0	0	61	0	0	0	0
5:15 AM	0	68	30	0	0	0	0	0	0	0	0	0	0	98	0	0	0	0
5:30 AM	1	110	35	1	2	1	0	0	1	0	0	0	0	151	0	0	0	0
5:45 AM	0	130	30	0	3	2	0	0	0	0	0	0	0	165	0	0	0	0
6:00 AM	0	129	42	2	7	3	0	0	2	0	0	0	0	185	0	0	0	0
6:15 AM	0	173	55	1	7	3	0	0	0	0	0	0	0	239	0	0	0	0
6:30 AM	0	219	53	1	6	1	0	0	0	0	0	0	0	280	0	0	0	0
6:45 AM	2	290	61	2	3	4	0	0	1	0	0	0	0	363	0	0	0	0
7:00 AM	0	274	55	3	1	4	0	1	0	0	0	0	0	338	0	0	0	0
7:15 AM	0	317	74	4	7	0	1	0	2	0	0	0	0	405	0	0	0	0
7:30 AM	1	359	72	7	1	0	1	0	1	1	0	0	0	443	0	0	0	0
7:45 AM	1	329	61	4	4	2	0	0	2	0	0	0	0	403	0	0	0	0
8:00 AM	0	342	98	10	10	4	0	0	0	0	0	0	0	464	0	0	0	0
8:15 AM	0	276	126	8	5	3	0	0	2	0	0	0	0	420	0	0	0	0
8:30 AM	1	336	71	8	5	2	1	1	1	0	0	0	1	427	0	0	0	0
8:45 AM	0	320	101	11	8	5	0	0	0	0	0	0	0	445	0	0	0	0
9:00 AM	2	328	119	8	11	4	1	1	0	0	0	0	0	474	0	0	0	0
9:15 AM	0	257	90	4	7	3	0	1	3	1	0	0	0	366	0	0	0	0
9:30 AM	2	274	74	7	11	3	0	1	2	0	0	0	0	374	0	0	0	0
9:45 AM	1	262	113	2	11	1	0	1	3	0	0	0	0	394	0	0	0	0
10:00 AM	2	317	66	3	14	2	0	1	3	0	0	0	0	408	0	0	0	0
10:15 AM	1	312	52	1	11	2	3	0	2	0	0	0	0	384	0	0	0	0
10:30 AM	0	307	76	1	17	0	1	1	1	0	0	0	0	404	0	0	0	0
10:45 AM	0	294	98	9	11	1	0	2	3	0	0	0	0	418	0	0	0	0
11:00 AM	1	285	64	2	8	2	0	0	3	0	0	0	0	365	0	0	0	0
11:15 AM	1	303	104	5	8	2	0	0	1	0	0	0	0	424	0	0	0	0
11:30 AM	2	316	93	1	7	4	0	0	2	0	0	0	0	425	0	0	0	0
11:45 AM	0	359	66	1	9	4	0	2	1	0	0	0	0	442	0	0	0	0
12:00 PM	0	359	79	3	9	3	0	1	0	0	0	0	0	454	0	0	0	0
12:15 PM	0	379	86	0	9	4	0	0	1	0	0	0	0	479	0	0	0	0
12:30 PM	0	363	105	3	4	10	0	1	1	0	0	0	0	487	0	0	0	0
12:45 PM	0	359	87	2	9	3	0	0	1	0	0	0	0	461	0	0	0	0
1:00 PM	0	346	107	2	7	3	0	1	2	0	0	0	0	468	0	0	0	0
1:15 PM	0	362	94	1	9	3	0	0	1	0	0	0	0	470	0	0	0	0
1:30 PM	0	398	70	5	10	3	0	1	2	0	0	0	0	489	0	0	0	0
1:45 PM	0	401	96	3	7	2	0	0	1	0	0	0	0	510	0	0	0	0
2:00 PM	2	390	95	1	4	8	0	0	1	1	0	0	0	502	0	0	0	0
2:15 PM	2	428	87	7	5	2	0	1	3	0	0	0	0	535	0	0	0	0
2:30 PM	1	461	88	5	11	1	0	0	2	0	0	0	1	570	0	0	0	0
2:45 PM	5	457	125	3	10	2	0	2	1	0	0	0	0	605	0	0	0	0
3:00 PM	2	496	94	4	7	1	0	0	0	0	0	0	0	604	0	0	0	0
3:15 PM	3	486	106	1	13	0	0	1	3	0	0	0	0	613	0	0	0	0
3:30 PM	1	454	113	4	9	3	0	1	1	0	0	0	0	586	0	0	0	0
3:45 PM	2	443	125	7	14	3	0	0	2	0	0	0	0	596	0	0	0	0
4:00 PM	4	538	108	0	6	0	1	0	2	0	0	0	0	659	0	0	0	0
4:15 PM	2	506	76	3	6	0	2	0	3	0	0	0	0	598	0	0	0	0
4:30 PM	5	550	72	8	7	1	0	0	0	0	0	0	0	643	0	0	0	0
4:45 PM	7	553	84	2	2	1	0	0	2	0	0	0	0	651	0	0	0	0
5:00 PM	1	578	85	3	3	0	0	0	0	0	0	0	0	670	0	0	0	0
5:15 PM	2	619	60	0	6	0	0	0	0	0	0	0	0	687	0	0	0	0
5:30 PM	1	573	69	5	2	0	0	1	0	0	0	0	0	651	0	0	0	0
5:45 PM	1	554	77	3	5	0	0	0	0	0	0	0	0	640	0	0	0	0
6:00 PM	1	627	69	6	6	1	0	0	1	0	0	0	0	711	0	0	0	0
6:15 PM	1	576	63	4	1	0	0	0	3	0	0	0	0	648	0	0	0	0
6:30 PM	2	540	52	8	2	0	0	0	1	0	0	0	0	605	0	0	0	0
6:45 PM	2	534	66	6	8	0	0	0	0	0	0	0	0	616	0	0	0	0
7:00 PM	3	476	46	5	5	1	0	0	1	0	0	0	0	537	0	0	0	0
7:15 PM	0	397	38	4	0	0	0	0	1	0	0	0	0	440	0	0	0	0
7:30 PM	1	384	32	3	2	1	0	0	0	0	0	0	0	423	0	0	0	0
7:45 PM	0	356	26	3	1	0	0	0	0	0	0	0	0	386	0	0	0	0
8:00 PM	1	290	33	1	5	1	0	0	0	0	0	0	0	331	0	0	0	0
8:15 PM	0	313	20	4	1	0	0	0	0	0	0	0	0	338	0	0	0	0
8:30 PM	0	262	31	0	3	1	0	0	1	0	0	0	0	298	0	0	0	0
8:45 PM	1	272	31	1	1	0	0	0	0	0	0	0	0	306	0	0	0	0
9:00 PM	1	278	41	3	5	0	0	0	0	0	0	0	0	328	0	0	0	0
9:15 PM	1	263	30	1	1	1	0	0	0	0	0	0	0	297	0	0	0	0
9:30 PM	0	264	31	2	3	0	0	0	0	0	0	0	0	300	0	0	0	0
9:45 PM	0	247	23	0	1	0	0	0	0	0	0	0	0	271	0	0	0	0
10:00 PM	1	213	22	1	2	0	0	0	0	0	0	0	0	239	0	0	0	0
10:15 PM	1	127	47	1	1	2	0	0	0	0	0	0	0	179	0	0	0	0
10:30 PM	0	148	19	3	4	1	0	0	1	0	0	0	0	176	0	0	0	0
10:45 PM	0	114	23	2	1	0	0	0	0	0	0	0	0	140	0	0	0	0
11:00 PM	2	125	16	2	1	0	0	0	0	0	0	0	0	146	0	0	0	0
11:15 PM	0	100	11	2	0	1	1	0	0	0	0	0	0	115	0	0	0	0
11:30 PM	1	94	23	4	1	0	0	0	0	0	0	0	0	123	0	0	0	0
11:45 PM	0	70	11	1	3	0	0	0	0	0	0	0	0	85	0	0	0	0
Total	81	26054	5106	263	443	129	13	23	79	4	0	0	2	32197	0	0	0	0
	0.25%	80.92%	15.86%	0.82%	1.38%	0.40%	0.04%	0.07%	0.25%	0.01%	0.00%	0.00%	0.01%					

K-D-N
KEY DATA NETWORK

Ross Island Bridge WB

	1	2	3	4	5	6	7	8	9	10	11	12	13		North Sidewalk			
5/15/2019	Motor cycle	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total	Ped	Bike	E-Scooter	Total
12:00 AM	0	45	11	0	1	0	1	0	0	0	0	0	0	58	0	0	0	0
12:15 AM	2	47	11	2	0	0	0	1	0	0	0	0	0	63	0	0	0	0
12:30 AM	0	33	5	0	0	0	0	1	0	0	0	0	0	39	0	0	0	0
12:45 AM	0	26	6	0	0	0	0	0	1	0	0	0	1	34	0	0	0	0
1:00 AM	0	31	9	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0
1:15 AM	0	17	7	0	0	0	0	0	0	0	0	0	0	24	0	0	0	0
1:30 AM	0	21	8	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0
1:45 AM	0	16	5	0	1	0	0	0	1	0	0	0	0	23	0	0	0	0
2:00 AM	0	26	9	0	1	0	0	0	0	0	0	0	0	36	0	0	0	0
2:15 AM	1	33	6	0	2	0	0	0	0	0	0	0	0	42	0	0	0	0
2:30 AM	0	21	7	0	0	0	0	0	0	0	0	0	0	28	0	0	0	0
2:45 AM	0	28	9	0	1	0	1	0	0	0	0	0	0	39	0	0	0	0
3:00 AM	0	8	2	0	4	0	0	0	1	0	0	0	0	15	0	0	0	0
3:15 AM	0	22	9	0	2	0	0	0	1	0	0	0	0	34	0	0	0	0
3:30 AM	0	27	12	1	2	0	0	0	0	2	0	0	0	44	0	0	0	0
3:45 AM	0	31	7	1	2	0	0	0	0	0	0	0	0	41	0	0	0	0
4:00 AM	0	36	10	2	2	1	0	0	1	0	0	0	0	52	0	0	0	0
4:15 AM	1	56	13	1	0	0	0	0	0	1	0	0	0	72	0	0	0	0
4:30 AM	0	69	22	2	1	1	0	0	0	0	0	0	0	95	0	0	0	0
4:45 AM	1	104	37	2	1	0	0	0	1	0	0	0	0	146	0	0	0	0
5:00 AM	0	147	37	3	1	3	0	0	1	0	0	0	0	192	0	1	0	1
5:15 AM	0	238	57	7	4	1	0	0	3	0	0	0	0	310	0	0	0	0
5:30 AM	2	346	58	1	3	0	1	0	0	2	0	0	0	413	0	0	0	0
5:45 AM	2	341	87	2	5	2	0	0	0	1	0	0	0	440	0	0	0	0
6:00 AM	1	379	61	8	6	4	0	0	2	1	0	0	0	462	0	1	0	1
6:15 AM	1	511	127	7	4	3	0	0	4	2	0	0	0	659	1	0	0	1
6:30 AM	1	651	109	8	7	2	0	0	4	1	0	0	0	783	0	0	0	0
6:45 AM	2	716	106	9	4	0	0	0	3	0	0	0	1	841	0	1	0	1
7:00 AM	3	724	130	6	11	4	1	0	1	0	0	0	0	880	0	0	0	0
7:15 AM	0	697	134	7	9	6	2	0	1	1	0	0	0	857	0	0	0	0
7:30 AM	1	759	133	4	18	1	0	0	5	1	1	0	0	923	0	1	0	1
7:45 AM	0	732	99	6	14	3	2	1	2	0	0	0	0	859	0	3	0	3
8:00 AM	2	609	102	3	20	1	2	0	2	0	0	0	0	741	0	0	0	0
8:15 AM	1	673	94	5	22	2	1	1	3	0	0	0	0	802	0	1	0	1
8:30 AM	5	615	116	2	17	9	1	1	0	0	0	0	0	766	0	0	0	0
8:45 AM	2	626	114	5	14	1	2	1	6	1	0	0	0	772	0	1	0	1
9:00 AM	0	616	115	3	10	4	2	0	0	0	0	0	0	750	0	0	0	0
9:15 AM	3	507	105	4	17	3	0	0	0	0	0	0	0	639	0	1	0	1
9:30 AM	3	478	124	5	16	3	0	0	1	0	0	0	0	630	1	1	0	2
9:45 AM	0	553	103	4	13	4	0	1	4	0	0	0	0	682	1	0	0	1
10:00 AM	2	492	91	4	16	5	2	0	1	3	0	0	0	616	0	1	0	1
10:15 AM	0	381	81	3	11	2	0	0	1	0	0	0	1	480	0	0	0	0
10:30 AM	0	440	91	5	8	3	0	0	1	0	0	0	0	548	1	0	0	1
10:45 AM	1	415	105	3	12	4	0	2	4	0	0	0	0	546	1	1	0	2
11:00 AM	1	387	74	5	10	4	0	1	2	0	0	0	0	484	0	0	0	0
11:15 AM	1	436	84	2	10	7	1	2	6	0	0	0	0	549	0	0	0	0
11:30 AM	1	372	73	6	9	4	0	0	2	0	0	0	0	467	0	0	0	0
11:45 AM	1	399	119	2	11	2	0	1	4	0	0	0	0	539	0	0	0	0
12:00 PM	0	403	91	3	10	7	0	0	1	0	0	0	0	515	1	0	0	1
12:15 PM	0	410	104	5	14	1	0	0	1	0	0	0	0	535	0	0	0	0
12:30 PM	0	456	81	3	10	4	0	0	2	0	0	0	0	556	0	0	0	0
12:45 PM	3	324	176	26	7	4	0	0	5	0	0	0	0	545	0	0	0	0
1:00 PM	0	367	152	3	5	6	0	0	1	0	0	0	0	534	0	0	0	0
1:15 PM	0	419	96	6	10	4	0	1	0	0	0	0	0	536	0	0	0	0
1:30 PM	1	440	132	2	7	1	0	0	3	0	0	0	0	586	0	0	0	0
1:45 PM	2	420	165	11	6	2	0	2	2	1	0	0	0	611	0	0	0	0
2:00 PM	2	379	101	8	6	2	0	1	0	0	0	0	0	499	0	0	0	0
2:15 PM	1	425	105	7	9	4	1	0	1	0	0	0	0	553	0	0	0	0
2:30 PM	0	389	145	4	8	4	0	1	0	0	0	0	0	551	0	0	0	0
2:45 PM	0	435	142	7	7	3	0	2	0	1	0	0	0	597	0	0	0	0
3:00 PM	1	417	168	9	8	0	0	1	2	0	0	0	0	606	0	0	0	0
3:15 PM	1	446	210	7	7	3	0	1	0	1	0	0	0	676	0	0	0	0
3:30 PM	1	424	146	10	3	1	0	0	1	0	0	0	0	586	1	0	0	1
3:45 PM	1	439	107	5	5	0	0	0	0	1	0	0	1	559	0	0	0	0
4:00 PM	3	500	130	6	2	2	0	0	0	1	0	1	0	645	0	0	0	0
4:15 PM	0	474	129	3	1	0	0	1	1	2	0	0	1	612	0	0	0	0
4:30 PM	1	414	199	7	8	1	0	1	0	0	0	0	0	631	0	0	0	0
4:45 PM	2	405	138	4	2	0	0	0	0	0	0	0	0	551	0	1	0	1
5:00 PM	1	436	141	2	3	1	0	0	0	0	0	0	0	584	0	0	0	0
5:15 PM	2	369	140	1	3	0	0	0	2	0	0	0	0	517	0	0	0	0
5:30 PM	2	471	127	3	1	1	0	0	0	2	0	0	0	607	0	3	0	3
5:45 PM	0	395	143	3	3	1	0	1	3	0	0	0	0	549	0	0	0	0
6:00 PM	0	392	145	1	2	1	0	0	0	0	0	0	0	541	0	0	0	0
6:15 PM	1	332	115	1	3	1	0	0	1	0	0	0	0	454	0	0	0	0
6:30 PM	3	385	85	4	2	0	0	0	0	2	0	0	0	481	0	1	0	1
6:45 PM	1	363	60	1	1	0	0	0	0	0	0	0	0	426	0	0	0	0
7:00 PM	1	263	65	2	4	0	0	0	1	0	0	0	0	336	0	1	0	1
7:15 PM	2	296	84	2	5	0	0	0	1	0	0	1	0	391	0	0	0	0
7:30 PM	0	280	64	0	0	1	0	0	3	0	0	0	0	348	0	1	0	1
7:45 PM	0	287	33	1	3	1	0	0	1	0	0	0	0	326	0	0	0	0
8:00 PM	0	235	35	1	2	2	0	0	0	0	0	0	0	275	0	0	0	0
8:15 PM	0	281	33	1	2	2	0	0	1	0	0	0	0	320	0	0	0	0
8:30 PM	0	287	33	3	1	1	0	0	0	0	0	0	0	325	0	0	0	0
8:45 PM	0	267	40	2	1	1	1	0	0	0	0	0	0	312	0	0	0	0
9:00 PM	0	265	77	1	1	2	0	1	0	0	0	0	0	347	0	1	0	1
9:15 PM	1	239	31	0	1	0	0	0	0	0	0	0	1	273	0	0	0	0
9:30 PM	0	168	38	2	1	2	0	0	2	0	0	0	0	213	0	0	0	0
9:45 PM	0	195	22	0	3	2	0	0	0	0	0	0	0	222	0	0	0	0
10:00 PM	0	153	21	1	0	2	0	0	0	0	0	0	0	177	0	0	0	0
10:15 PM	1	150	20	0	1	0	0	0	0	0	0	0	1	173	1	0	0	1
10:30 PM	2	181	21	1	1	1	0	0	0	0	0	0	0	207	0	0	0	0
10:45 PM	0	120	13	0	0	1	0	0	0	0	0	0	0	134	0	0	0	0
11:00 PM	1	85	15	1	0	4	0	0	0	0	0	0	0	106	0	0	0	0
11:15 PM	0	104	16	0	1	0	0	0	0	0	0	0	0	121	0	0	0	0
11:30 PM	0	77	17	2	1	0	0	0	0	0	0	0	0	97	0	0	0	0
11:45 PM	0	52	6	0	0	0	1	0	0	0	0	0	1	60	0	0	0	0
Total	78	30451	7291	312	503	165	22	26	104	27	1	2	8	38990	8	21	0	29
	0.20%	78.10%	18.70%	0.80%	1.29%	0.42%	0.06%	0.07%	0.27%	0.07%	0.00%	0.01%	0.02%		27.59%	72.41%	0.00%	

Appendix B. SimTraffic Operations Worksheets

1: NW 4th Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2
Total Del/Veh (s)	8.6	8.2	8.1	8.1	7.5	7.7	8.4	7.9	9.0	8.4	8.1

1: NW 4th Ave & NW Everett St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.9	7.9	9.9	9.3	10.4	8.5	10.6	11.7	9.1	11.1	9.9

2: NW 3rd Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.2	4.5	4.1	4.7	4.5	5.0	3.4	4.3	4.1	4.8	4.4

2: NW 3rd Ave & NW Everett St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	9.0	8.7	7.4	7.2	8.9	9.5	10.9	8.9	9.5	8.9	8.9

3: NW Broadway & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1
Total Del/Veh (s)	17.5	11.3	23.9	27.7	22.4	17.2	23.7	23.8	23.1	12.8	21.0

3: NW Broadway & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	29.7	31.6	27.7	29.6	31.8	29.2	29.0	29.3	31.6	33.1	30.7

3: NW Broadway & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.3	5.6	4.6	4.6	4.0	3.5	5.3	3.7	6.1	4.1	4.6

3: NW Broadway & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.7	0.2	2.4	2.9	0.4	0.9	3.1	5.8	9.0	3.5	3.0
Total Del/Veh (s)	22.8	16.6	30.6	35.2	18.4	22.5	26.7	32.8	37.3	31.4	27.5

4: NW 6th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Del/Veh (s)	11.6	12.8	12.0	12.4	16.8	10.9	12.7	13.0	13.4	10.3	12.6

4: NW 6th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.2	13.3	10.7	12.2	11.3	10.4	11.0	11.9	11.8	13.1	11.8

4: NW 6th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.2	9.1	7.8	8.2	8.8	7.0	11.4	8.3	10.0	10.6	9.1

4: NW 6th Ave & NW Couch St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2
Total Del/Veh (s)	5.0	7.6	3.7	6.7	6.0	5.3	6.3	9.7	5.8	3.5	5.9

5: NW 5th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.5	5.8	6.3	7.5	8.7	6.3	6.7	8.1	6.8	5.9	7.0

5: NW 5th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.4	6.5	6.9	8.0	8.5	6.7	7.3	7.2	7.1	8.1	7.5

5: NW 5th Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1
Total Del/Veh (s)	8.6	6.9	8.5	7.9	7.9	8.5	7.2	9.5	9.0	7.2	8.1

5: NW 5th Ave & NW Couch St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	1.0	0.2	0.3	0.2	0.1	0.4	1.0	0.9	0.1	0.5
Total Del/Veh (s)	14.5	15.6	18.8	16.7	13.7	18.0	19.3	20.6	19.4	15.0	16.7

6: NW 4th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.5	8.2	9.3	11.1	10.3	12.5	9.6	11.9	8.1	10.4	10.5

6: NW 4th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.3	8.4	9.5	8.9	9.7	8.9	8.2	9.0	8.3	9.7	9.0

6: NW 4th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.0	2.0	1.5	1.9	2.6	1.9	1.9	1.8	1.7	1.9	1.9

7: NW 3rd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.7	13.2	12.6	13.2	14.0	15.4	12.3	12.5	13.5	12.3	13.2

7: NW 3rd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.7	0.0	0.1
Total Del/Veh (s)	16.4	14.0	14.0	20.8	23.5	18.7	17.2	17.6	17.9	18.1	18.0

7: NW 3rd Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.2	2.3	2.1	2.0	2.4	2.0	2.4	2.7	2.0	2.0	2.2

8: NW 2nd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.7	16.5	19.7	17.5	16.2	15.5	18.9	19.3	23.4	14.0	17.9

8: NW 2nd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	11.7	10.9	17.2	14.4	20.0	12.2	13.0	25.4	16.6	10.8	15.5

8: NW 2nd Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	2.7	2.8	3.6	3.9	3.0	2.6	2.6	2.6	3.1	3.0

9: NW Naito Pkwy & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	14.6	10.8	10.0	13.1	9.3	10.6	9.8	10.8	14.6	11.0	11.4

9: NW Naito Pkwy & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	19.5	19.4	19.5	19.5	20.6	19.8	19.3	20.4	20.7	20.8	19.9

9: NW Naito Pkwy & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.7	9.4	8.2	7.8	8.5	8.0	8.1	9.6	8.6	8.4	8.4

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.4	0.1	0.2	0.1	0.1	0.5	0.0	0.4	0.1	0.2	0.2
Total Del/Veh (s)	10.4	10.7	10.6	10.7	10.9	10.7	10.9	11.7	9.7	10.2	10.6

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	7.1	10.6	1.2	1.9	8.1	3.8	3.0	4.8	3.0	2.6	4.7
Total Del/Veh (s)	23.6	25.4	21.5	22.4	23.5	22.1	21.8	23.6	23.5	23.1	23.1

11: NE Grand Ave & NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	29.4	75.0	44.9	106.9	130.0	69.0	12.7	109.0	23.5	52.7	65.9
Total Del/Veh (s)	31.3	34.0	31.5	34.5	34.5	32.2	29.4	33.9	29.3	31.0	32.2

11: NE Grand Ave & NE Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.0	5.9	6.6	6.7	6.2	6.5	7.5	7.0	6.6	6.2	6.6

12: SW Broadway/NW Broadway & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	8.5	8.9	8.4	9.7	8.2	8.9	9.2	8.6	8.5	8.8	8.8

12: SW Broadway/NW Broadway & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.3	2.2	2.3	2.1	2.0	2.5	2.0	2.0	2.5	2.3	2.2

12: SW Broadway/NW Broadway & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.5	1.1	0.6	0.3	0.7	0.3	0.3	0.5	0.5	0.8	0.6
Total Del/Veh (s)	13.9	13.8	13.5	12.1	12.7	15.1	11.6	13.1	15.8	12.8	13.6

12: SW Broadway/NW Broadway & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Total Del/Veh (s)	38.1	39.0	40.5	40.5	37.8	39.0	35.2	40.7	41.9	42.2	39.4

13: SW 6th Ave/NW 6th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.3	6.7	7.2	6.2	6.7	6.5	6.7	7.1	6.7	6.7	6.7

13: SW 6th Ave/NW 6th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.4	2.0	2.1	2.4	1.9	2.4	2.0	2.0	1.9	2.0	2.1

13: SW 6th Ave/NW 6th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.1	12.5	11.3	14.2	9.5	11.1	11.0	10.6	12.6	10.8	11.5

13: SW 6th Ave/NW 6th Ave & W Burnside St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	42.5	35.2	45.8	52.8	50.8	37.4	26.9	42.3	55.5	41.1	43.2

14: SW 5th Ave/NW 5th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.3	3.8	4.4	5.2	4.6	4.6	4.1	4.7	4.0	3.9	4.4

14: SW 5th Ave/NW 5th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	3.9	3.6	3.7	3.5	4.0	4.0	3.8	3.8	4.1	4.1	3.9

14: SW 5th Ave/NW 5th Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	29.4	25.7	30.8	28.9	25.9	27.4	19.2	29.4	27.0	31.1	27.7

14: SW 5th Ave/NW 5th Ave & W Burnside St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.5	1.0	0.2	0.4	1.9	0.4	0.1	3.5	1.0	0.7	1.1
Total Del/Veh (s)	25.4	20.3	19.3	22.3	27.5	21.5	19.8	27.3	19.0	20.7	22.3

15: SW 4th Ave/NW 4th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	14.4	16.2	14.4	14.2	16.0	14.8	14.1	14.3	14.0	14.8	14.7

15: SW 4th Ave/NW 4th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.0	7.1	6.9	6.9	7.2	6.9	6.7	7.0	7.1	6.8	7.0

15: SW 4th Ave/NW 4th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.9	0.2	0.1	1.0	0.1	0.3	0.0	0.2	0.0	0.3
Total Del/Veh (s)	17.5	17.6	17.8	16.6	18.5	19.7	16.5	17.9	17.3	18.0	17.7

16: SW 3rd Ave/NW 3rd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.3	1.8	2.1	2.0	1.9	2.1	2.2	2.2	2.3	2.2	2.1

16: SW 3rd Ave/NW 3rd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	6.2	6.1	5.8	5.8	6.0	5.9	5.9	6.1	5.6	6.1	6.0

16: SW 3rd Ave/NW 3rd Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.1
Total Del/Veh (s)	22.1	22.7	25.9	24.3	25.0	25.6	24.5	22.6	26.3	24.6	24.4

17: SW 2nd Ave/NW 2nd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.2	7.7	7.5	7.9	7.6	7.2	6.8	7.9	8.3	8.1	7.6

17: SW 2nd Ave/NW 2nd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.2	7.9	7.5	7.3	7.1	8.4	7.7	7.9	8.5	8.7	7.8

17: SW 2nd Ave/NW 2nd Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	22.2	18.5	18.8	19.7	21.1	20.5	23.2	22.5	20.8	24.4	21.2

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St EB, Performance by run

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.7	25.6	27.9	22.8	23.2	20.0	23.0	21.8	26.2	26.2	23.6

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St SB, Performance by run

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.8	6.3	5.3	6.7	6.5	6.1	6.8	6.8	6.1	5.9	6.3

19: SE Grand Ave/NE Grand Ave & E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.5	3.8	4.7	3.7	4.3	4.0	4.6	4.4	4.5	3.9	4.2

19: SE Grand Ave/NE Grand Ave & E Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	3.5	1.5	1.7	1.5	1.5	1.7	1.9	1.9	2.3	1.9	1.9
Total Del/Veh (s)	25.8	24.6	24.1	23.9	25.3	25.0	24.8	24.5	23.9	24.7	24.7

20: SW Broadway & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.2	16.6	13.6	12.7	11.3	14.9	13.3	14.1	16.4	12.6	13.9

20: SW Broadway & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.0	5.2	5.2	5.9	6.6	5.9	6.2	5.8	6.2	5.9	5.9

21: SW 6th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.7	5.2	4.9	5.0	4.9	4.3	3.8	4.6	5.6	5.7	5.0

21: SW 6th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2
Total Del/Veh (s)	10.2	11.0	11.6	11.5	11.5	11.2	12.4	12.3	11.8	11.3	11.5

21: SW 6th Ave & SW Oak St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	18.2	14.3	16.9	13.5	16.8	13.1	16.8	18.0	18.0	18.7	16.4

22: SW 5th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.8	8.9	10.3	9.7	8.9	8.6	9.8	9.5	8.0	9.4	9.2

22: SW 5th Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.7	6.7	7.3	8.5	7.2	7.7	8.5	8.4	7.9	9.0	7.9

22: SW 5th Ave & SW Oak St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.1	0.1	0.1	0.1	0.1	1.9	0.1	0.1	0.1	0.4
Total Del/Veh (s)	24.0	24.5	28.5	26.8	43.1	30.8	29.2	38.3	33.3	22.2	30.1

23: SW 4th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	19.8	20.0	18.3	15.6	17.5	18.7	16.6	19.4	18.2	19.5	18.4

23: SW 4th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	8.0	8.8	7.5	7.2	8.1	8.3	6.8	8.5	7.8	9.0	8.0

24: SW 3rd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	12.0	13.0	12.5	12.4	10.3	11.6	10.1	13.3	13.0	11.8	12.1

24: SW 3rd Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.7	9.2	9.2	9.4	7.8	9.4	8.9	9.5	8.7	9.9	9.2

25: SW 2nd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	10.2	11.0	9.1	8.8	8.8	9.3	10.1	10.3	8.6	9.5

25: SW 2nd Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total Del/Veh (s)	10.0	11.7	10.6	11.0	10.9	10.7	11.4	11.9	11.6	10.6	11.0

26: SW Naito Pkwy & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	9.9	11.8	19.0	5.7	13.0	10.6	4.7	10.6	6.2	5.6	9.8
Total Del/Veh (s)	16.1	17.0	18.4	16.5	17.6	16.5	16.1	17.9	16.8	16.2	16.9

26: SW Naito Pkwy & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.3	12.7	12.4	12.2	11.4	12.2	13.1	12.7	14.3	12.5	12.7

28: NE Couch Street SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.7	2.2	3.5	2.0	2.3	1.9	2.4	2.3	3.1	2.8	2.4

29: Burnside Bridge EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.4	3.2	18.4	2.9	2.9	2.9	4.1	2.8	11.6	4.2	5.6

29: Burnside Bridge WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.5	0.9	1.6	0.8	1.0	0.6	1.0	0.8	1.4	1.2	1.0

1201: SW Broadway WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1
Total Del/Veh (s)	0.5	2.1	0.9	0.3	0.2	0.7	0.3	0.7	0.3	0.2	0.7

1201: SW Broadway SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

1801: Burnside Bridge/E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	4.4	18.4	1.8	3.0	1.5	4.8	1.7	14.3	6.7	5.8

1801: Burnside Bridge/E Burnside St SW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	2.5	5.5	1.9	2.7	1.4	2.8	1.7	4.9	3.7	2.8

2700: E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.5	4.5	0.1	1.1	0.0	0.9	0.3	0.0	18.5	10.3	3.7
Total Del/Veh (s)	5.0	15.0	25.9	9.8	12.8	6.4	15.1	9.3	22.1	20.7	14.2

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	6.4	12.6	8.1	14.8	18.6	10.5	3.0
Total Del/Veh (s)	45.8	47.6	53.3	48.5	48.1	46.5	47.6

Total Network Performance By Run

Run Number	7	8	9	Avg
Denied Del/Veh (s)	16.2	6.7	8.9	10.6
Total Del/Veh (s)	49.4	52.9	50.7	49.2

1: NW 4th Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	9.1	8.1	8.8	8.6	8.6	8.0	9.3	9.4	9.0	9.4	8.8

2: NW 3rd Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	6.4	6.5	5.5	5.8	6.5	7.0	7.0	6.4	6.5	6.7	6.5

3: NW Broadway & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.2	0.2	1.7	2.0	0.3	0.7	2.2	4.2	6.0	2.4	2.1
Total Del/Veh (s)	21.4	17.1	26.9	30.8	18.9	20.8	24.7	29.1	31.9	27.7	25.0

4: NW 6th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.4	10.9	8.4	9.8	10.3	8.4	10.6	10.4	10.4	10.4	10.0

5: NW 5th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Total Del/Veh (s)	9.6	8.3	9.0	9.5	9.3	8.8	9.2	10.0	9.1	8.9	9.2

6: NW 4th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	3.6	3.7	4.1	4.5	4.2	3.6	4.1	3.6	4.3	4.0

7: NW 3rd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Total Del/Veh (s)	7.6	6.4	6.6	9.2	10.7	8.4	7.7	8.2	8.3	8.0	8.2

8: NW 2nd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	4.8	5.8	5.8	6.6	4.9	5.0	6.3	5.8	4.7	5.5

9: NW Naito Pkwy & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.0	15.0	14.8	14.9	15.1	15.0	14.3	15.6	15.9	15.5	15.1

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	3.8	5.4	0.7	1.0	4.2	2.2	1.5	2.6	1.5	1.4	2.5
Total Del/Veh (s)	17.1	18.1	15.9	16.5	17.4	16.4	16.3	17.6	16.6	16.6	16.9

11: NE Grand Ave & NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	12.4	32.7	18.9	46.4	55.3	29.2	5.3	46.7	9.7	22.6	28.0
Total Del/Veh (s)	17.1	18.2	17.0	18.8	18.2	17.2	16.6	18.4	16.0	16.9	17.4

12: SW Broadway/NW Broadway & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	13.1	12.8	13.6	14.2	12.6	13.2	12.4	13.7	14.0	13.5	13.3

13: SW 6th Ave/NW 6th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.0	5.0	5.2	5.3	4.6	4.9	4.8	4.9	5.0	4.9	4.9

14: SW 5th Ave/NW 5th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.5	4.9	5.4	5.6	5.6	5.4	4.8	5.8	5.3	5.4	5.4

15: SW 4th Ave/NW 4th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.1
Total Del/Veh (s)	11.4	12.2	11.4	11.3	12.4	12.0	11.1	11.4	11.4	11.6	11.6

16: SW 3rd Ave/NW 3rd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Total Del/Veh (s)	7.9	7.8	8.1	7.6	8.3	8.3	8.3	8.0	8.6	8.1	8.1

17: SW 2nd Ave/NW 2nd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.9	9.8	9.5	9.5	9.6	10.2	10.2	10.4	10.6	11.2	10.1

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St Performance by run num

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.7	14.5	15.4	13.8	13.7	12.3	13.9	13.4	15.0	14.7	13.8

19: SE Grand Ave/NE Grand Ave & E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	2.1	0.9	1.1	0.9	0.9	1.1	1.2	1.2	1.4	1.2	1.2
Total Del/Veh (s)	17.7	16.6	16.9	16.0	17.2	16.9	17.1	16.7	16.6	16.8	16.8

20: SW Broadway & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.7	8.5	7.3	7.4	7.8	8.0	7.8	7.8	8.5	7.6	7.8

21: SW 6th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	8.9	8.7	8.9	9.2	9.4	8.5	9.7	9.5	10.0	9.9	9.3

22: SW 5th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	8.3	9.3	9.5	8.2	8.4	9.8	9.3	8.5	9.4	8.9

23: SW 4th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1
Total Del/Veh (s)	12.1	12.6	11.2	9.9	11.4	11.8	9.9	11.9	11.3	12.2	11.4

24: SW 3rd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	10.7	10.8	10.6	10.7	8.9	10.3	9.4	11.1	10.5	10.7	10.4

25: SW 2nd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	9.6	11.4	10.7	10.5	10.4	10.2	10.9	11.5	11.2	10.1	10.7

26: SW Naito Pkwy & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	6.0	7.1	11.9	3.4	7.7	6.7	2.8	6.4	3.7	3.4	5.9
Total Del/Veh (s)	15.0	15.3	16.2	14.8	15.1	14.9	14.8	15.8	15.8	14.7	15.2

28: NE Couch Street Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.7	2.2	3.5	2.0	2.3	1.9	2.4	2.3	3.1	2.8	2.4

29: Burnside Bridge Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.2	1.8	8.3	1.6	1.7	1.5	2.2	1.5	5.5	2.4	2.8

1201: SW Broadway Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	1.2	1.0	0.9	0.9	0.9	0.9	1.0	0.9	0.9	1.0

1801: Burnside Bridge/E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	3.2	10.5	1.9	2.8	1.4	3.6	1.7	8.6	4.8	4.0

2700: E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.5	4.5	0.1	1.1	0.0	0.9	0.3	0.0	18.5	10.3	3.7
Total Del/Veh (s)	5.0	15.0	25.9	9.8	12.8	6.4	15.1	9.3	22.1	20.7	14.2

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	6.4	12.6	8.1	14.8	18.6	10.5	3.0
Total Del/Veh (s)	45.8	47.6	53.3	48.5	48.1	46.5	47.6

Total Network Performance By Run

Run Number	7	8	9	Avg
Denied Del/Veh (s)	16.2	6.7	8.9	10.6
Total Del/Veh (s)	49.4	52.9	50.7	49.2

1: NW 4th Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	9.5	9.0	9.6	10.7	9.7	9.9	10.0	9.0	9.9	9.7

1: NW 4th Ave & NW Everett St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.1	10.0	10.6	11.5	11.1	10.5	12.9	11.3	11.2	11.1

2: NW 3rd Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.7	6.0	6.5	6.1	6.2	6.0	7.9	6.5	5.9	6.4

2: NW 3rd Ave & NW Everett St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2
Total Del/Veh (s)	9.8	10.6	9.7	10.8	10.3	11.0	9.4	9.2	9.8	10.1

3: NW Broadway & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	2.8	0.4	0.5	0.2	0.8	0.6	2.1	0.3	0.5	0.9
Total Del/Veh (s)	43.1	41.2	43.2	35.0	42.6	41.2	61.3	47.9	33.6	43.3

3: NW Broadway & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.1	0.4	0.1
Total Del/Veh (s)	35.4	62.6	60.3	48.3	40.3	39.8	35.7	41.8	39.4	45.3

3: NW Broadway & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.4	5.8	5.9	3.6	3.9	4.6	7.5	4.4	5.4	5.1

3: NW Broadway & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.4	0.8	0.4	1.0	0.6	3.4	0.4	0.5	0.8
Total Del/Veh (s)	11.4	14.0	22.4	13.8	27.2	16.0	34.9	14.6	20.0	19.3

4: NW 6th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.7	14.1	14.1	11.9	15.2	12.8	14.4	15.8	12.5	13.8

4: NW 6th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.4	21.5	12.0	12.7	10.6	13.8	9.6	11.8	10.2	12.8

4: NW 6th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	8.0	6.3	7.9	8.3	7.7	10.3	8.4	6.7	8.0

4: NW 6th Ave & NW Couch St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.3	0.1	0.1	0.3	0.1	0.2	0.3	0.1	0.2
Total Del/Veh (s)	6.3	9.3	6.9	6.5	7.0	7.3	7.6	6.0	6.4	7.0

5: NW 5th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	8.3	10.6	12.6	8.0	8.7	10.9	9.4	8.2	8.6	9.5

5: NW 5th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1	0.0	0.2
Total Del/Veh (s)	10.1	13.5	23.6	9.1	10.5	9.8	10.3	11.1	9.7	11.9

5: NW 5th Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.6	0.1	0.4	0.2	0.2	0.2	0.2	0.3
Total Del/Veh (s)	11.3	11.4	23.3	11.5	15.4	11.4	10.2	9.9	9.5	12.8

5: NW 5th Ave & NW Couch St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2
Total Del/Veh (s)	17.7	23.2	18.5	20.1	16.0	19.7	17.1	17.9	17.9	19.0

6: NW 4th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total Del/Veh (s)	19.9	20.0	15.3	19.6	18.6	23.1	21.3	23.2	22.1	20.3

6: NW 4th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.6	17.7	14.1	13.7	12.1	16.4	21.0	18.7	17.5	16.1

6: NW 4th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.4	3.0	3.3	2.8	3.1	3.3	3.3	3.9	3.6	3.3

7: NW 3rd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.0	35.1	36.6	25.9	19.3	25.4	24.4	23.3	39.5	27.5

7: NW 3rd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	23.3	40.9	35.1	35.9	25.6	24.1	26.5	28.2	25.6	29.5

7: NW 3rd Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.9	2.6	4.9	2.9	2.8	3.9	5.7	3.9	2.7	3.6

8: NW 2nd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	28.9	33.6	24.1	21.6	35.3	29.9	37.1	34.4	22.1	29.6

8: NW 2nd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	15.7	17.5	18.9	20.0	26.9	15.5	18.4	16.1	18.8	18.8

8: NW 2nd Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.5	3.6	3.9	3.5	5.0	3.6	4.0	3.0	3.0	3.7

9: NW Naito Pkwy & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	19.3	17.9	16.0	17.4	20.5	18.4	18.6	22.5	22.3	19.3

9: NW Naito Pkwy & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.7	12.0	9.9	10.3	9.3	11.6	9.5	10.3	10.3	10.4

9: NW Naito Pkwy & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.3	6.6	6.2	6.4	5.7	7.5	6.0	6.8	7.5	6.7

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.4	10.7	8.8	9.7	10.8	10.2	10.8	10.3	9.9	10.2

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	4.2	9.0	3.8	6.2	8.8	7.9	9.5	4.7	6.9	6.8
Total Del/Veh (s)	22.6	24.6	22.2	24.2	24.4	24.0	25.1	23.6	25.8	24.1

11: NE Grand Ave & NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	3.8	3.3	2.6	2.6	4.7	5.3	3.5	2.0	7.9	4.0
Total Del/Veh (s)	26.6	25.5	23.5	24.7	27.9	26.5	26.1	24.8	24.6	25.6

11: NE Grand Ave & NE Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.3	5.4	5.0	5.4	5.2	4.7	5.3	5.2	5.2	5.2

12: SW Broadway/NW Broadway & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.3	0.3	0.5	0.2	0.2	0.2	0.2	0.3
Total Del/Veh (s)	9.3	11.1	10.9	11.7	10.0	10.7	9.9	9.4	10.1	10.3

12: SW Broadway/NW Broadway & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Total Del/Veh (s)	9.6	10.2	11.5	10.1	9.7	11.1	12.5	10.7	12.2	10.9

12: SW Broadway/NW Broadway & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	26.5	23.1	21.9	23.4	20.9	22.0	21.6	23.8	27.0	23.4

12: SW Broadway/NW Broadway & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.3	0.3	0.3	0.7	0.8	0.4	0.3	0.3	0.4
Total Del/Veh (s)	34.5	38.5	40.0	39.1	46.5	38.0	47.5	34.9	42.2	40.1

13: SW 6th Ave/NW 6th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2
Total Del/Veh (s)	11.7	12.3	12.2	14.0	12.1	12.4	12.9	11.8	11.2	12.3

13: SW 6th Ave/NW 6th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.6	0.1	0.1	0.2	0.3	0.1	0.2	0.2
Total Del/Veh (s)	11.3	10.6	15.3	10.1	9.6	15.1	20.7	13.1	18.4	13.9

13: SW 6th Ave/NW 6th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	14.2	12.9	11.9	13.4	16.6	15.9	13.1	13.2	11.9	13.7

13: SW 6th Ave/NW 6th Ave & W Burnside St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	35.7	44.2	41.0	70.5	37.5	32.3	44.4	48.0	51.7	42.3

14: SW 5th Ave/NW 5th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Total Del/Veh (s)	8.1	8.2	8.1	7.8	8.0	8.4	7.9	7.8	8.3	8.0

14: SW 5th Ave/NW 5th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.1
Total Del/Veh (s)	7.4	6.2	14.5	5.9	7.1	11.2	21.7	8.1	13.7	10.8

14: SW 5th Ave/NW 5th Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.2	0.1
Total Del/Veh (s)	35.3	46.4	51.5	34.1	41.0	46.0	41.5	36.3	32.9	40.7

14: SW 5th Ave/NW 5th Ave & W Burnside St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	1.9	7.2	1.5	0.8	2.1	0.7	1.6	0.5	0.8	1.9
Total Del/Veh (s)	21.7	37.8	31.1	32.2	29.8	28.6	26.4	25.8	32.9	29.2

15: SW 4th Ave/NW 4th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Del/Veh (s)	11.0	10.6	10.0	9.7	10.4	10.3	10.9	10.8	10.3	10.4

15: SW 4th Ave/NW 4th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	10.4	9.2	19.0	9.0	11.0	13.7	28.8	10.0	10.3	13.6

15: SW 4th Ave/NW 4th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	2.5	3.2	2.5	2.9	2.3	3.1	2.8	2.3	2.2	2.6
Total Del/Veh (s)	20.2	23.0	20.9	22.0	22.5	22.0	23.2	23.3	22.8	22.2

16: SW 3rd Ave/NW 3rd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.1	5.0	5.3	4.9	4.7	5.1	5.6	4.7	4.4	5.0

16: SW 3rd Ave/NW 3rd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.1
Total Del/Veh (s)	7.5	8.8	14.6	7.9	7.2	10.1	21.3	7.6	7.4	10.3

16: SW 3rd Ave/NW 3rd Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.3	0.3	0.2	0.4	0.4	0.1	0.1	0.2
Total Del/Veh (s)	29.0	29.9	29.8	29.3	29.1	29.8	35.5	31.8	29.5	30.4

17: SW 2nd Ave/NW 2nd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1
Total Del/Veh (s)	11.3	11.0	10.9	11.4	12.0	12.0	13.4	11.0	12.3	11.7

17: SW 2nd Ave/NW 2nd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Del/Veh (s)	9.4	9.4	13.9	10.5	8.7	11.2	26.1	8.3	9.5	12.0

17: SW 2nd Ave/NW 2nd Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.4	0.4	0.2	0.6	0.5	0.3	0.3	0.7	0.4
Total Del/Veh (s)	23.5	26.4	27.6	25.4	27.4	25.0	29.4	25.9	26.2	26.3

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St EB, Performance by run

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.4	18.1	16.9	19.5	19.0	20.1	20.7	17.2	19.9	18.9

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St SB, Performance by run

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.4	12.6	11.1	12.2	12.0	11.3	11.1	11.9	10.5	11.7

19: SE Grand Ave/NE Grand Ave & E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.9	6.9	6.8	7.6	6.3	6.7	7.4	6.6	6.7	7.0

19: SE Grand Ave/NE Grand Ave & E Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	1.7	2.2	3.2	3.3	1.8	1.3	3.0	2.4	4.0	2.5
Total Del/Veh (s)	23.8	24.0	24.1	24.8	22.8	23.1	23.9	23.7	25.2	23.9

20: SW Broadway & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.4	16.2	14.2	18.5	15.7	13.7	14.4	15.9	16.0	15.6

20: SW Broadway & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.3	5.6	5.5	5.1	5.8	5.7	5.1	5.8	5.5	5.5

21: SW 6th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.5	3.4	4.4	3.7	2.9	6.2	3.9	3.4	4.9	4.0

21: SW 6th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.3	0.6	0.3	0.5	0.3	0.4	0.5	0.3	0.4
Total Del/Veh (s)	12.2	14.6	14.9	14.7	13.4	13.8	14.4	14.6	12.8	13.9

21: SW 6th Ave & SW Oak St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	18.6	14.6	13.3	16.3	16.8	21.9	24.2	16.3	21.8	18.5

22: SW 5th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.4	9.8	10.7	10.4	10.4	10.1	10.5	11.3	9.3	10.3

22: SW 5th Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.9	10.1	9.4	8.1	9.3	9.5	9.3	8.3	10.3	9.2

22: SW 5th Ave & SW Oak St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	3.5	0.1	0.1	0.1	0.1	0.1	0.1	0.5
Total Del/Veh (s)	40.3	27.5	34.3	38.9	25.5	34.4	48.2	36.4	37.2	35.6

23: SW 4th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.9	8.5	9.8	7.8	9.4	8.8	7.6	8.7	8.3	8.5

23: SW 4th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total Del/Veh (s)	10.0	9.8	9.7	9.0	9.5	10.5	10.3	10.2	10.3	9.9

24: SW 3rd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.7	13.1	11.0	11.2	10.3	8.5	12.2	11.8	13.2	11.3

24: SW 3rd Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Total Del/Veh (s)	10.9	10.8	11.7	11.8	11.6	11.4	11.2	10.7	12.6	11.4

25: SW 2nd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0
Total Del/Veh (s)	9.5	7.3	7.8	6.8	9.6	9.0	8.3	9.3	10.3	8.7

25: SW 2nd Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3
Total Del/Veh (s)	11.7	11.8	11.5	13.1	11.6	11.9	12.2	13.1	12.4	12.1

26: SW Naito Pkwy & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	2.2	1.5	1.8	1.8	2.1	2.1	2.3	1.4	1.7	1.9
Total Del/Veh (s)	11.4	10.6	10.3	10.4	11.9	9.9	11.4	10.1	9.3	10.6

26: SW Naito Pkwy & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	7.5	6.8	6.9	6.9	7.6	6.9	8.3	7.0	7.6	7.3

28: NE Couch Street SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	2.7	2.4	2.9	2.6	3.0	3.8	2.4	3.0	2.8

30: Burnside Bridge EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.6	11.6	5.3	21.3	8.7	9.0	44.1	4.5	32.3	16.0

30: Burnside Bridge WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.5	1.6	1.4	1.6	1.6	2.0	2.0	1.3	1.8	1.7

1201: SW Broadway WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.5	0.2	0.3
Total Del/Veh (s)	1.5	0.9	0.3	0.8	1.2	0.5	1.2	1.4	1.8	1.0

1201: SW Broadway SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

1701: W Burnside St/Burnside Bridge EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.9	1.8	1.7	1.7	1.8	1.7	1.9	1.8	1.9	1.8

1701: W Burnside St/Burnside Bridge WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.6	5.6	5.1	5.5	5.5	6.2	7.0	5.0	5.6	5.7

1801: Burnside Bridge/E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	7.6	2.5	9.4	5.9	8.5	17.2	2.2	12.7	7.9

1801: Burnside Bridge/E Burnside St SW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.7	6.7	4.5	6.9	7.0	8.5	8.9	4.7	8.0	6.8

2700: E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.0	0.0	0.1	0.2	0.0	5.9	0.0	0.1	0.8
Total Del/Veh (s)	12.7	14.4	8.3	17.5	14.7	18.5	24.2	7.5	18.0	15.1

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	1.9	2.8	2.0	2.3	2.8	2.6	4.0
Total Del/Veh (s)	50.5	53.5	53.2	54.0	53.1	55.0	70.5

Total Network Performance By Run

Run Number	7	9	Avg
Denied Del/Veh (s)	1.8	2.9	2.6
Total Del/Veh (s)	49.3	58.2	55.3

1: NW 4th Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	10.1	9.3	10.0	10.9	10.1	10.1	11.0	9.9	10.3	10.2

2: NW 3rd Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	7.7	7.6	7.6	7.7	7.5	7.6	8.4	7.4	7.1	7.6

3: NW Broadway & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.6	0.3	0.6	0.3	0.7	0.4	2.2	0.3	0.4	0.6
Total Del/Veh (s)	18.3	23.1	27.6	19.8	27.5	21.0	35.5	21.5	21.9	24.0

4: NW 6th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.4	13.6	10.0	10.1	10.8	10.7	11.1	11.0	9.4	10.8

5: NW 5th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.6	0.1	0.2	0.1	0.1	0.1	0.1	0.2
Total Del/Veh (s)	10.7	13.0	20.2	10.9	12.2	11.5	10.7	10.7	10.3	12.2

6: NW 4th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.6	8.1	6.7	6.6	6.6	8.3	8.1	8.5	8.5	7.7

7: NW 3rd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	14.2	14.8	12.0	9.2	10.8	11.3	11.3	12.6	11.6

8: NW 2nd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.6	10.6	9.4	8.8	12.7	10.0	10.5	10.4	8.0	10.0

9: NW Naito Pkwy & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.8	10.7	9.2	10.0	9.8	11.1	9.7	10.9	11.3	10.4

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	2.8	6.0	2.6	4.2	5.8	5.2	6.2	3.1	4.6	4.5
Total Del/Veh (s)	18.5	20.0	17.8	19.5	19.8	19.3	20.1	19.2	20.4	19.4

11: NE Grand Ave & NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	1.4	1.2	0.9	0.9	1.7	2.0	1.3	0.7	2.7	1.4
Total Del/Veh (s)	13.0	12.6	11.6	12.3	13.6	12.8	12.9	12.2	11.9	12.5

12: SW Broadway/NW Broadway & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.2
Total Del/Veh (s)	16.8	18.6	19.1	18.7	19.7	18.8	20.9	17.0	19.9	18.9

13: SW 6th Ave/NW 6th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.3	0.4	0.2	0.1	0.1	0.2	0.1	0.1	0.2
Total Del/Veh (s)	12.0	11.8	13.7	12.2	11.7	14.2	16.8	12.8	14.9	13.4

14: SW 5th Ave/NW 5th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1
Total Del/Veh (s)	10.3	10.9	15.4	9.4	10.8	13.3	17.8	10.6	13.5	12.5

15: SW 4th Ave/NW 4th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.8	1.0	0.8	0.9	0.7	0.9	0.9	0.7	0.7	0.8
Total Del/Veh (s)	13.6	13.9	16.6	13.1	14.3	15.0	20.9	14.3	14.0	15.1

16: SW 3rd Ave/NW 3rd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	10.8	11.4	13.8	11.2	10.7	12.2	17.4	11.3	10.6	12.2

17: SW 2nd Ave/NW 2nd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1
Total Del/Veh (s)	12.7	13.1	15.0	13.6	13.7	14.0	21.1	12.6	13.9	14.5

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St Performance by run num

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.0	14.9	13.6	15.3	15.0	15.1	15.5	14.1	14.5	14.8

19: SE Grand Ave/NE Grand Ave & E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.9	1.1	1.6	1.6	0.9	0.6	1.5	1.2	2.1	1.3
Total Del/Veh (s)	15.8	15.7	15.6	16.2	14.7	15.0	15.7	15.6	16.5	15.6

20: SW Broadway & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.9	8.1	7.5	8.4	8.2	7.4	7.3	8.2	7.9	7.9

21: SW 6th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2
Total Del/Veh (s)	9.7	10.6	10.9	10.8	10.0	12.1	11.6	11.2	10.7	10.8

22: SW 5th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.0	10.3	10.5	9.3	10.0	10.3	10.5	10.0	11.0	10.2

23: SW 4th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	9.6	9.6	9.7	8.8	9.5	10.2	9.8	9.9	9.9	9.7

24: SW 3rd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0
Total Del/Veh (s)	10.8	11.4	11.6	11.6	11.3	10.7	11.4	11.0	12.8	11.4

25: SW 2nd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Total Del/Veh (s)	11.4	11.2	11.0	12.2	11.3	11.5	11.6	12.5	12.1	11.6

26: SW Naito Pkwy & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	1.0	0.7	0.8	0.8	0.9	0.9	1.0	0.6	0.7	0.8
Total Del/Veh (s)	9.2	8.4	8.3	8.4	9.4	8.2	9.6	8.3	8.3	8.7

28: NE Couch Street Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	2.7	2.4	2.9	2.6	3.0	3.8	2.4	3.0	2.8

30: Burnside Bridge Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	7.6	3.8	13.5	5.8	6.1	26.6	3.2	19.6	10.2

1201: SW Broadway Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1
Total Del/Veh (s)	1.1	1.0	0.8	1.0	1.1	0.9	1.1	1.0	1.2	1.0

1701: W Burnside St/Burnside Bridge Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.4	3.4	3.1	3.3	3.3	3.6	4.1	3.2	3.5	3.4

1801: Burnside Bridge/E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.1	7.2	3.3	8.4	6.4	8.5	13.7	3.3	10.6	7.4

2700: E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	9	Avg
Denied Del/Veh (s)	0.3	0.0	0.0	0.1	0.2	0.0	5.9	0.0	0.1	0.8
Total Del/Veh (s)	12.7	14.4	8.3	17.5	14.7	18.5	24.2	7.5	18.0	15.1

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	1.9	2.8	2.0	2.3	2.8	2.6	4.0
Total Del/Veh (s)	50.5	53.5	53.2	54.0	53.1	55.0	70.5

Total Network Performance By Run

Run Number	7	9	Avg
Denied Del/Veh (s)	1.8	2.9	2.6
Total Del/Veh (s)	49.3	58.2	55.3

1: NW 4th Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.6	0.4	0.5	0.6	0.5	0.5	0.9	0.7	0.5	0.6	0.6
Total Del/Veh (s)	10.4	9.0	10.8	10.1	9.4	10.7	11.2	10.8	11.4	10.2	10.4

1: NW 4th Ave & NW Everett St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.4	10.0	12.5	11.8	12.4	11.5	10.9	10.9	10.7	10.8	11.3

2: NW 3rd Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.4	3.9	3.7	3.7	4.1	3.4	3.4	3.7	3.9	3.5	3.7

2: NW 3rd Ave & NW Everett St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Total Del/Veh (s)	8.4	9.4	7.7	7.8	8.4	7.6	10.1	7.9	7.2	8.2	8.3

3: NW Broadway & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.2	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.2
Total Del/Veh (s)	23.9	21.3	23.8	25.0	27.5	23.7	23.0	32.1	27.5	23.3	25.3

3: NW Broadway & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	27.4	28.4	28.7	27.0	25.4	29.7	28.6	25.4	27.2	25.0	27.6

3: NW Broadway & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.8	5.4	5.1	4.2	4.8	2.8	4.6	3.4	3.1	3.9	4.2

3: NW Broadway & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.4	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	11.4	12.7	8.5	11.3	11.2	10.2	8.6	6.0	5.9	6.8	9.3

4: NW 6th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.3	12.2	9.4	11.3	10.5	8.2	12.0	9.5	10.2	11.0	10.5

4: NW 6th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Del/Veh (s)	12.9	12.0	12.8	14.3	12.0	14.4	12.9	13.4	13.6	11.8	13.1

4: NW 6th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.3	9.4	8.9	7.8	8.9	10.2	9.2	6.0	9.5	5.8	8.7

4: NW 6th Ave & NW Couch St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.6	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2
Total Del/Veh (s)	7.0	7.3	9.6	7.5	5.8	4.8	4.3	7.8	10.7	9.1	7.6

5: NW 5th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.0	5.7	7.9	9.2	7.6	8.3	7.6	7.9	8.3	9.6	7.7

5: NW 5th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.5	7.9	6.0	6.4	5.8	6.5	4.6	4.6	7.5	7.4	6.3

5: NW 5th Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Total Del/Veh (s)	9.3	9.3	7.7	5.8	11.1	8.0	8.0	6.9	7.1	9.7	8.3

5: NW 5th Ave & NW Couch St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	1.2	0.2	0.4	1.2	0.2	0.1	0.4	0.2	0.4
Total Del/Veh (s)	19.3	16.3	22.8	15.2	15.2	25.0	18.6	22.1	18.8	19.3	18.9

6: NW 4th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.6	8.4	8.8	8.4	10.6	9.7	9.9	11.8	7.2	7.9	9.2

6: NW 4th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.5	5.5	8.5	6.6	7.0	7.4	7.2	7.2	8.0	8.1	7.2

6: NW 4th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.2	1.7	1.9	1.9	2.1	2.4	1.8	1.7	1.8	2.1	2.0

7: NW 3rd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	14.9	12.1	10.3	12.2	12.0	13.4	18.6	14.8	19.5	16.0	14.3

7: NW 3rd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.7	15.2	15.0	22.6	30.1	20.0	26.0	27.1	20.0	17.4	21.3

7: NW 3rd Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.3	1.6	2.4	2.9	2.8	2.2	3.3	2.8	2.8	1.7	2.5

8: NW 2nd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	22.6	26.9	19.4	16.5	16.9	23.7	17.3	20.0	17.4	18.3	20.0

8: NW 2nd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	31.1	22.5	15.9	22.7	23.6	18.0	21.1	21.4	20.8	23.5	22.0

8: NW 2nd Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.8	2.4	2.3	2.8	3.1	2.6	2.1	2.9	2.5	2.4	2.6

9: NW Naito Pkwy & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.7	7.3	7.1	7.4	5.6	5.3	8.3	6.0	6.6	6.7	6.9

9: NW Naito Pkwy & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	24.3	24.8	26.1	25.7	24.0	25.8	24.9	26.6	22.7	25.9	25.1

9: NW Naito Pkwy & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.3	8.6	8.4	9.8	8.4	7.9	9.1	8.8	9.0	8.5	8.8

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.4	0.2	0.1	0.1	0.2	0.1	0.4	0.1	0.1	0.2
Total Del/Veh (s)	9.8	9.8	11.1	7.6	9.8	10.6	9.3	11.1	10.6	7.7	9.8

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.6	0.5	0.7	1.3	0.4	0.6	0.8	0.8	0.5	0.3	0.7
Total Del/Veh (s)	21.6	21.0	21.4	22.3	20.2	20.6	21.1	21.1	21.4	20.7	21.1

11: NE Grand Ave & NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	74.5	43.1	74.2	31.9	43.7	15.0	57.0	113.6	217.7	19.9	71.1
Total Del/Veh (s)	33.7	33.4	33.1	33.3	32.7	29.5	35.7	34.7	33.6	29.0	32.9

11: NE Grand Ave & NE Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.7	7.3	7.7	5.2	7.1	6.7	6.1	9.5	7.3	6.8	7.1

12: SW Broadway/NW Broadway & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	8.0	8.6	8.7	8.4	8.3	9.3	8.6	8.8	8.4	8.7	8.6

12: SW Broadway/NW Broadway & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.0	2.0	1.8	2.0	1.8	2.1	1.9	2.6	1.7	2.1	2.0

12: SW Broadway/NW Broadway & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	2.1	1.1	2.5	1.6	0.9	1.5	0.9	1.1	1.0	1.4
Total Del/Veh (s)	10.0	18.3	11.0	14.0	14.6	9.2	16.2	14.4	15.4	10.6	13.5

12: SW Broadway/NW Broadway & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.1
Total Del/Veh (s)	37.3	37.2	36.6	36.4	38.3	36.1	34.0	33.3	32.5	37.1	35.8

13: SW 6th Ave/NW 6th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.0	5.9	7.7	7.2	6.7	6.4	7.3	6.2	6.5	6.7	6.8

13: SW 6th Ave/NW 6th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.0	2.0	1.9	1.7	1.7	1.9	1.5	1.7	1.7	2.0	1.8

13: SW 6th Ave/NW 6th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.3	12.7	11.2	9.1	11.4	11.5	11.2	11.7	12.8	11.1	11.5

13: SW 6th Ave/NW 6th Ave & W Burnside St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	45.7	40.9	47.7	44.8	48.2	43.4	64.1	26.6	53.1	51.6	45.3

14: SW 5th Ave/NW 5th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.5	4.3	4.2	4.1	4.1	3.4	4.0	4.1	4.0	4.6	4.0

14: SW 5th Ave/NW 5th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	4.6	3.8	4.1	4.3	4.5	4.4	4.8	4.7	4.8	4.4

14: SW 5th Ave/NW 5th Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	22.8	26.1	26.3	23.8	28.9	25.9	24.0	19.6	22.7	21.9	24.5

14: SW 5th Ave/NW 5th Ave & W Burnside St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.7	1.4	0.7	0.8	2.4	1.4	1.6	0.2	0.6	1.0
Total Del/Veh (s)	19.2	20.8	26.9	25.6	17.7	24.0	17.5	25.8	25.6	21.6	22.5

15: SW 4th Ave/NW 4th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1
Total Del/Veh (s)	13.7	14.0	14.7	13.4	13.0	15.4	13.5	14.6	13.7	13.8	14.0

15: SW 4th Ave/NW 4th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.4	6.1	6.3	6.2	6.2	6.4	5.7	6.0	6.7	6.0	6.1

15: SW 4th Ave/NW 4th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.1	0.4	0.2	0.3	0.1	0.2	0.3	0.1	0.3	0.2
Total Del/Veh (s)	16.6	18.4	16.6	17.7	19.5	19.1	16.0	17.6	17.8	19.3	17.9

16: SW 3rd Ave/NW 3rd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.4	2.3	2.1	2.5	2.3	1.9	2.2	2.1	2.1	2.2	2.2

16: SW 3rd Ave/NW 3rd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	6.6	6.1	6.9	7.2	6.4	6.8	7.0	6.5	6.4	6.5	6.7

16: SW 3rd Ave/NW 3rd Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.3	0.3	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1
Total Del/Veh (s)	24.7	24.1	25.1	25.8	27.2	23.0	24.6	25.9	26.5	26.5	25.3

17: SW 2nd Ave/NW 2nd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.4	6.8	7.1	7.0	7.1	6.2	6.8	7.3	7.0	7.3	6.9

17: SW 2nd Ave/NW 2nd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.1	6.5	7.6	8.3	7.2	6.4	6.0	7.3	7.4	6.6	7.0

17: SW 2nd Ave/NW 2nd Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.0	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.1
Total Del/Veh (s)	21.9	18.7	22.5	18.0	20.8	17.6	19.4	17.2	18.0	18.3	19.3

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St EB, Performance by run

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	19.6	16.8	21.1	22.1	17.0	19.3	17.8	15.8	17.4	17.6	18.5

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St SB, Performance by run

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	8.6	9.2	8.4	8.8	8.5	9.9	9.6	9.6	8.2	8.9

19: SE Grand Ave/NE Grand Ave & E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.8	2.9	2.8	2.5	2.5	2.5	2.4	2.8	2.5	2.8	2.7

19: SE Grand Ave/NE Grand Ave & E Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	3.6	2.4	2.7	2.6	4.3	2.5	3.0	5.0	3.2	7.0	3.6
Total Del/Veh (s)	27.4	28.5	26.8	26.2	26.0	26.2	26.3	28.5	28.0	29.5	27.3

20: SW Broadway & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.0	5.8	8.4	8.0	8.0	9.3	10.0	11.0	10.5	8.5	9.1

20: SW Broadway & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.2	6.3	4.8	5.9	4.8	5.5	5.8	6.2	6.6	6.0	5.8

21: SW 6th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	5.8	5.3	5.2	6.5	5.9	4.7	6.7	3.8	5.0	5.1	5.4

21: SW 6th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.3
Total Del/Veh (s)	12.3	11.5	11.1	12.3	11.8	13.6	12.6	11.8	13.2	11.0	12.1

21: SW 6th Ave & SW Oak St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.2
Total Del/Veh (s)	17.6	15.4	18.3	15.8	12.7	17.3	12.2	16.9	16.1	12.2	15.6

22: SW 5th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.5	8.5	8.3	7.4	10.0	10.1	9.1	10.2	8.4	9.1	8.9

22: SW 5th Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.4	10.9	10.2	7.9	9.2	9.5	9.3	7.9	9.2	7.3	9.2

22: SW 5th Ave & SW Oak St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	20.9	21.1	27.6	31.1	24.1	23.1	29.5	35.0	36.2	30.8	26.8

23: SW 4th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.4	12.5	9.6	8.8	11.2	10.2	10.1	12.1	10.9	13.5	11.3

23: SW 4th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	8.4	8.0	7.2	8.0	7.7	7.2	8.0	7.6	8.2	7.8	7.8

24: SW 3rd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.1	14.3	13.2	14.4	13.8	15.8	15.6	17.0	16.6	17.1	15.5

24: SW 3rd Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.4	7.7	7.9	9.1	9.1	10.0	9.1	9.9	9.6	8.8	9.0

25: SW 2nd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	10.3	9.4	9.6	9.5	8.1	8.8	10.2	10.4	9.4	10.4	9.6

25: SW 2nd Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	11.3	10.6	10.6	9.8	10.3	11.2	10.0	10.6	10.9	10.3	10.6

26: SW Naito Pkwy & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	3.5	3.5	2.8	2.8	2.0	4.4	1.9	3.1	3.1	4.2	3.2
Total Del/Veh (s)	13.8	14.6	15.2	15.2	15.3	15.8	13.9	14.4	14.3	16.1	14.9

26: SW Naito Pkwy & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.9	13.4	13.3	13.4	13.2	11.2	11.8	13.8	12.8	13.2	12.9

28: NE Couch Street SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	0.9	1.0	1.1	1.0	0.9	0.7	1.0	1.1	0.7	0.9

30: Burnside Bridge EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	2.5	2.9	6.9	2.7	2.9	2.5	2.6	3.4	2.7	3.2

30: Burnside Bridge WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.7	0.7	0.7	1.1	0.8	0.6	0.5	0.7	0.9	0.6	0.7

1201: SW Broadway WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Total Del/Veh (s)	0.4	3.1	0.2	2.5	0.2	0.1	0.3	1.8	1.3	0.5	1.1

1201: SW Broadway SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	0.9	1.0	0.9	1.0	1.0	1.0	0.9	1.0	1.0	1.0

1801: Burnside Bridge/E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.1	0.7	1.3	5.8	1.0	0.9	0.9	0.8	2.7	0.9	1.6

1801: Burnside Bridge/E Burnside St SW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.4	1.1	1.4	2.7	1.7	1.1	0.8	1.2	2.2	1.2	1.5

2700: E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.2	2.7	8.2	12.5	4.3	5.3	4.6	3.2	6.2	4.5	5.7

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	11.5	6.9	11.3	5.3	7.0	3.1	8.6
Total Del/Veh (s)	45.6	44.3	46.5	47.6	44.8	44.3	43.9

Total Network Performance By Run

Run Number	7	8	9	Avg
Denied Del/Veh (s)	17.3	33.1	4.2	10.9
Total Del/Veh (s)	45.7	45.7	43.6	45.3

1: NW 4th Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.4	0.2	0.3	0.4	0.3	0.3	0.6	0.5	0.3	0.4	0.4
Total Del/Veh (s)	10.7	9.4	11.5	10.8	10.6	11.0	11.1	10.8	11.1	10.4	10.8

2: NW 3rd Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	5.5	6.1	5.2	5.4	5.6	5.2	6.0	5.3	5.1	5.3	5.5

3: NW Broadway & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
Total Del/Veh (s)	13.9	14.7	12.7	13.9	14.9	13.7	12.6	11.2	10.9	10.3	12.9

4: NW 6th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	10.4	10.2	10.0	10.2	9.6	10.5	10.2	8.6	10.8	8.7	10.0

5: NW 5th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	9.9	9.9	10.0	8.5	8.9	10.3	8.8	9.1	10.0	10.8	9.5

6: NW 4th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.9	3.1	3.6	3.2	3.8	3.7	3.6	3.7	3.5	3.6	3.6

7: NW 3rd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	7.1	6.8	9.9	11.5	7.9	11.0	10.9	9.6	7.0	9.1

8: NW 2nd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.9	5.7	5.2	6.7	6.5	6.0	6.1	6.5	6.1	6.4	6.3

9: NW Naito Pkwy & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	16.9	16.9	17.7	17.8	16.4	17.6	17.5	17.9	15.8	17.7	17.3

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.5	0.4	0.7	0.2	0.4	0.4	0.6	0.3	0.2	0.4
Total Del/Veh (s)	15.1	14.8	15.7	14.3	14.4	15.0	14.7	15.5	15.5	13.5	14.8

11: NE Grand Ave & NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	37.0	21.3	35.9	16.0	21.5	7.2	27.7	56.1	110.9	9.3	34.9
Total Del/Veh (s)	20.0	20.1	20.0	19.1	19.6	17.7	20.3	21.8	20.3	17.3	19.6

12: SW Broadway/NW Broadway & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	11.5	12.0	11.2	11.5	11.7	11.7	11.1	10.7	10.4	11.3	11.3

13: SW 6th Ave/NW 6th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.1	4.8	5.2	4.7	5.1	4.8	4.9	4.4	4.8	5.1	4.9

14: SW 5th Ave/NW 5th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.0	5.6	5.2	5.0	5.4	5.2	5.3	5.4	5.3	5.5	5.3

15: SW 4th Ave/NW 4th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1
Total Del/Veh (s)	10.4	11.2	11.1	10.8	11.3	12.0	10.4	11.1	11.2	11.4	11.1

16: SW 3rd Ave/NW 3rd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	8.8	8.5	8.8	9.8	9.2	8.7	9.2	9.1	9.2	8.8	9.0

17: SW 2nd Ave/NW 2nd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.6	8.9	10.3	9.7	9.8	8.5	8.8	9.2	9.3	9.1	9.3

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St Performance by run nun

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.8	12.5	14.9	15.2	12.8	13.7	13.7	12.5	13.3	12.8	13.5

19: SE Grand Ave/NE Grand Ave & E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	2.4	1.6	1.8	1.6	2.7	1.6	2.0	3.3	2.1	4.5	2.4
Total Del/Veh (s)	19.0	19.5	18.7	17.8	17.6	18.3	18.1	19.6	19.3	19.9	18.8

20: SW Broadway & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.0	6.2	5.5	6.3	5.6	6.3	6.7	7.3	7.5	6.6	6.5

21: SW 6th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2
Total Del/Veh (s)	11.4	10.5	11.0	11.6	10.5	11.9	10.9	10.4	11.7	9.6	10.9

22: SW 5th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.4	10.2	9.7	8.2	10.3	10.3	9.8	9.9	9.4	8.7	9.6

23: SW 4th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	9.4	8.8	7.6	8.1	8.3	7.7	8.4	8.5	8.7	8.9	8.4

24: SW 3rd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.2	9.9	9.6	10.6	10.6	11.9	11.0	12.1	11.6	11.9	11.2

25: SW 2nd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	11.0	10.2	10.3	9.7	9.7	10.5	10.0	10.5	10.5	10.3	10.3

26: SW Naito Pkwy & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.9	1.9	1.5	1.5	1.1	2.6	1.1	1.7	1.7	2.4	1.8
Total Del/Veh (s)	13.3	14.1	14.3	14.4	14.3	13.8	13.0	14.2	13.6	14.8	14.0

28: NE Couch Street Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	0.9	1.0	1.1	1.0	0.9	0.7	1.0	1.1	0.7	0.9

30: Burnside Bridge Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.5	1.4	1.6	3.5	1.6	1.6	1.4	1.5	1.9	1.5	1.8

1201: SW Broadway Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.8	1.4	0.8	1.3	0.8	0.8	0.8	1.1	1.0	0.9	1.0

1801: Burnside Bridge/E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.3	0.9	1.4	4.0	1.4	1.0	0.8	1.0	2.4	1.0	1.5

2700: E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.2	2.7	8.2	12.5	4.3	5.3	4.6	3.2	6.2	4.5	5.7

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	11.5	6.9	11.3	5.3	7.0	3.1	8.6
Total Del/Veh (s)	45.6	44.3	46.5	47.6	44.8	44.3	43.9

Total Network Performance By Run

Run Number	7	8	9	Avg
Denied Del/Veh (s)	17.3	33.1	4.2	10.9
Total Del/Veh (s)	45.7	45.7	43.6	45.3

1: NW 4th Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	9.4	17.6	29.6	23.1	6.7	83.7	6.4	13.1	42.3	10.8	24.8
Total Del/Veh (s)	23.3	24.2	26.7	25.8	24.6	28.4	22.3	25.7	27.0	24.0	25.2

1: NW 4th Ave & NW Everett St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.9	11.1	13.8	11.5	13.3	12.0	10.5	13.0	15.2	11.6	12.6

2: NW 3rd Ave & NW Everett St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.8	10.7	12.5	12.5	12.8	12.9	11.5	13.3	13.0	12.1	12.4

2: NW 3rd Ave & NW Everett St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	9.4	8.2	9.2	10.0	8.5	8.3	9.4	9.1	9.8	8.8	9.1

3: NW Broadway & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	38.9	13.4	1.5	0.5	13.0	11.1	4.8	4.1	3.7	4.5	9.7
Total Del/Veh (s)	83.4	54.0	54.9	48.1	66.3	67.5	55.4	57.2	42.3	58.1	59.2

3: NW Broadway & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	27.7	35.4	30.5	24.3	31.5	25.0	42.8	42.4	38.9	41.3	33.8

3: NW Broadway & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	4.2	4.6	3.7	4.3	5.1	3.5	5.4	2.8	3.6	6.0	4.3

3: NW Broadway & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	1.8	0.5
Total Del/Veh (s)	21.5	13.1	14.5	12.7	9.9	9.1	11.6	6.9	8.5	19.9	12.8

4: NW 6th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.7	11.8	14.4	11.9	15.2	12.9	13.3	13.5	14.6	10.8	13.4

4: NW 6th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.1	13.4	14.5	12.5	14.7	10.0	13.5	13.7	11.7	10.0	12.8

4: NW 6th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.7	6.9	7.6	6.5	9.5	7.1	6.5	8.0	7.1	7.4	7.6

4: NW 6th Ave & NW Couch St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.2	0.2	0.1	0.2	0.6	0.1	0.2	0.1	0.2
Total Del/Veh (s)	6.6	8.4	6.1	7.4	4.1	9.0	6.5	5.9	7.9	9.5	7.4

5: NW 5th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1
Total Del/Veh (s)	11.2	9.9	10.5	8.4	10.7	11.4	9.1	8.9	9.7	8.9	9.9

5: NW 5th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.0	13.2	8.5	9.6	7.2	8.8	8.0	8.3	10.0	10.2	9.3

5: NW 5th Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
Total Del/Veh (s)	11.5	15.7	13.5	9.6	9.3	8.9	11.6	8.8	12.4	11.0	11.3

5: NW 5th Ave & NW Couch St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.4	0.2	0.2	0.1	0.2	0.1	0.1	1.0	0.3
Total Del/Veh (s)	17.9	24.6	14.6	18.4	15.6	17.0	18.3	16.9	15.5	16.4	17.5

6: NW 4th Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1
Total Del/Veh (s)	36.8	19.2	21.5	23.5	24.0	23.2	19.1	20.7	16.9	32.3	24.1

6: NW 4th Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.5	12.9	10.2	7.0	10.3	6.4	10.8	8.8	8.7	6.9	9.1

6: NW 4th Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.7	3.0	3.1	3.2	2.8	2.5	3.2	3.4	3.3	4.0	3.2

7: NW 3rd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	50.0	15.4	39.1	19.3	25.7	24.0	23.5	47.7	29.2	17.2	29.4

7: NW 3rd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	29.5	0.1	4.2	0.0	5.2	0.0	2.9	34.6	3.0	0.4	8.5
Total Del/Veh (s)	89.7	21.8	82.8	27.0	66.3	21.7	52.5	67.4	60.0	26.2	51.9

7: NW 3rd Ave & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	21.3	5.4	22.9	9.5	27.4	6.0	15.4	30.5	12.2	6.1	15.8

8: NW 2nd Ave & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.3	29.8	22.3	20.5	26.0	27.4	23.9	21.6	24.5	14.0	23.0

8: NW 2nd Ave & NW Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	38.7	34.0	24.9	22.7	43.8	25.4	24.4	22.4	26.1	17.2	28.1

8: NW 2nd Ave & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.1	3.3	3.0	2.8	3.7	3.3	3.0	2.4	3.6	2.2	3.0

9: NW Naito Pkwy & NW Couch St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1
Total Del/Veh (s)	12.9	12.6	11.7	8.4	10.4	12.9	9.3	9.9	13.6	10.2	11.3

9: NW Naito Pkwy & NW Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.6	0.4	0.3	0.6	0.3	0.3	0.3	0.3	0.6	0.2	0.4
Total Del/Veh (s)	13.8	12.1	13.2	12.8	12.6	12.4	12.3	11.0	13.5	12.3	12.6

9: NW Naito Pkwy & NW Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.1	7.2	6.6	7.1	7.2	6.8	6.8	6.7	6.4	7.5	7.0

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.2	12.5	9.7	10.3	10.6	10.7	9.2	11.2	10.8	9.4	10.5

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	2.1	3.3	1.1	1.6	3.3	5.1	13.7	3.4	5.0	1.4	4.0
Total Del/Veh (s)	23.9	23.3	22.3	24.0	24.0	27.0	28.0	22.9	25.6	23.1	24.4

11: NE Grand Ave & NE Couch St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	26.3	48.2	5.9	8.7	10.2	40.4	8.1	8.9	6.2	3.8	17.0
Total Del/Veh (s)	32.6	34.3	29.1	29.1	30.3	32.9	30.0	30.7	30.7	27.9	30.8

11: NE Grand Ave & NE Couch St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.6	5.3	5.6	5.5	6.0	6.5	5.2	5.6	5.9	5.4	5.7

12: SW Broadway/NW Broadway & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	9.5	9.1	8.8	9.1	8.1	8.5	10.0	9.8	7.8	10.3	9.1

12: SW Broadway/NW Broadway & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1
Total Del/Veh (s)	10.2	9.7	9.0	9.0	8.5	8.9	9.0	8.2	8.7	7.7	8.9

12: SW Broadway/NW Broadway & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.8	0.5	0.0	0.4	0.0	0.6	0.0	0.2	0.0	0.1	0.3
Total Del/Veh (s)	25.4	21.1	21.7	21.5	23.8	19.2	21.9	24.9	25.6	19.7	22.6

12: SW Broadway/NW Broadway & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.9	0.6	0.2	0.4	0.2	0.2	0.2	0.1	0.1	0.5	0.3
Total Del/Veh (s)	43.6	36.7	35.8	36.7	30.7	32.6	35.2	31.1	29.3	39.1	35.1

13: SW 6th Ave/NW 6th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.0	0.2	0.1	0.1	0.2	0.1	0.1
Total Del/Veh (s)	11.3	10.3	10.4	10.7	10.1	10.7	11.4	10.9	10.9	11.0	10.8

13: SW 6th Ave/NW 6th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.3	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1
Total Del/Veh (s)	13.1	10.7	6.3	8.9	8.2	6.9	8.3	6.6	8.9	4.9	8.3

13: SW 6th Ave/NW 6th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.6	12.4	13.2	14.1	14.4	12.6	13.0	12.3	12.6	14.4	13.2

13: SW 6th Ave/NW 6th Ave & W Burnside St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Total Del/Veh (s)	35.6	31.6	52.5	53.9	48.2	43.7	46.9	51.9	49.2	39.9	47.9

14: SW 5th Ave/NW 5th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	7.4	7.4	7.2	7.0	8.3	7.7	7.1	7.3	7.3	7.5

14: SW 5th Ave/NW 5th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.2	5.7	4.1	4.4	3.7	3.7	4.4	4.2	4.9	3.4	4.8

14: SW 5th Ave/NW 5th Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.2	0.0	0.1
Total Del/Veh (s)	39.3	42.2	41.4	38.1	33.1	39.9	35.2	29.9	36.9	40.2	37.5

14: SW 5th Ave/NW 5th Ave & W Burnside St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.9	1.1	2.1	0.1	2.0	0.1	0.1	0.1	2.1	0.3	0.9
Total Del/Veh (s)	24.9	25.1	27.1	24.1	25.2	26.1	31.1	32.9	31.1	26.1	27.5

15: SW 4th Ave/NW 4th Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.5	11.5	11.0	11.9	12.5	11.8	11.6	12.0	12.5	12.3	12.0

15: SW 4th Ave/NW 4th Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.2	10.2	8.3	10.1	9.6	9.2	10.3	11.4	9.9	9.0	10.1

15: SW 4th Ave/NW 4th Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	8.4	2.7	3.8	3.9	8.0	2.6	3.1	2.3	1.8	1.3	3.8
Total Del/Veh (s)	23.3	24.1	24.4	25.7	23.9	24.0	23.6	22.4	22.7	25.2	23.9

16: SW 3rd Ave/NW 3rd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.3	3.8	4.9	4.2	3.7	4.3	5.1	4.9	4.9	4.5	4.5

16: SW 3rd Ave/NW 3rd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	9.7	9.6	9.3	8.8	9.9	8.9	10.0	8.6	10.1	9.0	9.4

16: SW 3rd Ave/NW 3rd Ave & W Burnside St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.7	0.4	0.9	0.8	0.1	0.4	0.7	0.8	0.6	0.3	0.7
Total Del/Veh (s)	38.5	30.6	39.6	32.5	33.7	29.8	36.4	39.9	34.7	32.8	34.9

17: SW 2nd Ave/NW 2nd Ave & W Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.1
Total Del/Veh (s)	10.9	9.1	9.4	9.3	8.9	8.8	9.7	10.3	9.1	8.1	9.4

17: SW 2nd Ave/NW 2nd Ave & W Burnside St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.1	9.2	8.4	10.1	9.1	8.8	8.6	8.4	8.6	8.3	9.0

17: SW 2nd Ave/NW 2nd Ave & W Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	23.6	25.7	23.6	22.8	25.2	24.2	23.4	23.6	24.8	25.5	24.2

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St EB, Performance by run

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1
Total Del/Veh (s)	18.4	18.9	16.9	17.3	17.3	15.9	19.0	19.8	18.3	18.1	18.0

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St SB, Performance by run

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.8	11.7	10.5	11.6	11.7	11.6	11.3	12.0	10.9	12.5	11.5

19: SE Grand Ave/NE Grand Ave & E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.3	5.3	5.8	5.6	5.8	6.0	5.7	5.6	5.3	5.3	5.6

19: SE Grand Ave/NE Grand Ave & E Burnside St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	3.8	1.9	2.7	2.3	2.1	7.6	3.1	2.1	3.1	3.1	3.2
Total Del/Veh (s)	27.3	27.3	28.5	26.1	26.5	31.3	28.2	26.8	27.6	27.1	27.7

20: SW Broadway & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.1	15.1	15.0	11.3	10.1	12.0	10.2	10.3	11.5	9.9	11.7

20: SW Broadway & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.6	5.7	6.1	6.3	7.3	5.9	5.5	5.7	6.0	6.6	6.2

21: SW 6th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.1	4.3	4.8	5.1	4.0	4.8	4.4	3.9	4.0	4.4	4.4

21: SW 6th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.6	0.3	0.2	0.3	0.8	0.5	0.2	0.3	0.3	0.5	0.4
Total Del/Veh (s)	15.1	14.3	13.8	14.4	14.2	12.8	12.6	12.9	14.7	13.1	13.8

21: SW 6th Ave & SW Oak St NW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.5	0.1	0.2	0.1	0.2	0.1	0.1	0.2
Total Del/Veh (s)	18.6	16.9	16.5	16.6	21.6	26.1	17.0	19.2	13.8	17.4	18.5

22: SW 5th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.0	13.9	12.4	14.4	14.9	13.9	12.4	13.7	13.4	14.2	13.6

22: SW 5th Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.3	9.5	7.8	7.6	7.7	8.5	10.5	7.6	7.7	8.6	8.6

22: SW 5th Ave & SW Oak St SE, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Total Del/Veh (s)	37.1	46.1	20.4	30.0	24.3	19.8	33.1	48.7	29.0	43.7	35.1

23: SW 4th Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.5	8.8	7.0	8.2	9.3	7.4	8.4	7.7	11.4	7.1	8.3

23: SW 4th Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.4	0.5	0.4	0.5	0.6	0.4	0.6	0.4	0.5	0.4	0.5
Total Del/Veh (s)	11.4	11.3	10.1	10.5	12.2	10.3	11.1	11.4	10.7	11.1	11.0

24: SW 3rd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	8.9	7.9	7.3	7.6	8.9	9.7	8.8	7.4	8.2	8.3	8.3

24: SW 3rd Ave & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	13.5	12.4	11.9	12.1	12.3	12.3	11.9	12.4	12.1	12.1	12.3

25: SW 2nd Ave & SW Oak St WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.5	9.7	8.0	7.4	8.1	9.5	9.7	10.2	9.4	8.9	9.2

25: SW 2nd Ave & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2
Total Del/Veh (s)	12.5	10.7	11.9	12.3	13.0	12.4	13.0	13.2	11.6	11.1	12.2

26: SW Naito Pkwy & SW Oak St NB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.6	1.2	1.1	1.2	0.8	1.4	1.3	1.2	1.1	1.2	1.2
Total Del/Veh (s)	10.0	11.4	9.1	9.6	10.0	10.5	11.9	10.9	9.9	9.8	10.3

26: SW Naito Pkwy & SW Oak St SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1
Total Del/Veh (s)	8.4	9.1	7.4	8.1	9.4	9.6	9.0	8.9	8.0	9.7	8.8

28: NE Couch Street SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.3	2.3	1.8	2.2	2.0	1.8	2.0	2.2	2.4	1.7	2.1

30: Burnside Bridge EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.7	4.2	4.7	4.2	3.7	4.0	4.6	4.8	4.3	4.1	4.3

30: Burnside Bridge WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.2	0.9	1.1	1.1	1.0	0.9	1.2	1.2	1.2	0.9	1.1

1201: SW Broadway WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Total Del/Veh (s)	1.1	1.0	0.5	0.5	0.4	1.6	0.2	1.4	1.9	0.5	0.9

1201: SW Broadway SB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	0.9	0.9	1.0	0.9	1.0	1.0	1.0	0.9	0.9	1.0

1701: W Burnside St/Burnside Bridge EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.7	1.5	1.7	1.4	1.4	1.5	1.7	1.7	1.5	1.4	1.5

1701: W Burnside St/Burnside Bridge WB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.1	5.1	4.9	4.9	5.1	4.2	5.0	5.1	5.4	4.6	4.9

1801: Burnside Bridge/E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.3	1.7	2.4	1.7	1.5	1.8	2.0	2.5	2.7	1.7	2.1

1801: Burnside Bridge/E Burnside St SW, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.3	2.9	3.7	3.6	3.0	2.7	3.8	4.2	4.5	2.7	3.6

2700: E Burnside St EB, Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.2	5.6	6.2	4.9	4.7	4.8	6.9	8.6	7.5	5.3	6.2

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	6.1	7.4	3.5	3.3	3.2	11.3	4.1
Total Del/Veh (s)	58.9	53.4	52.5	51.2	53.0	52.0	53.6

Total Network Performance By Run

Run Number	7	8	9	Avg
Denied Del/Veh (s)	3.3	4.8	2.1	4.9
Total Del/Veh (s)	54.2	52.8	50.6	53.3

1: NW 4th Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	6.0	11.7	19.7	15.1	4.2	55.9	4.1	8.4	27.1	6.9	16.1
Total Del/Veh (s)	19.9	19.8	22.4	20.9	20.5	23.0	18.0	21.1	22.8	19.5	20.8

2: NW 3rd Ave & NW Everett St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Del/Veh (s)	11.7	9.8	11.4	11.6	11.4	11.4	10.8	11.8	11.9	11.0	11.3

3: NW Broadway & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	9.0	3.0	0.5	0.2	3.1	2.6	1.2	1.0	0.8	1.9	2.3
Total Del/Veh (s)	31.8	22.0	22.2	19.2	24.0	22.5	22.1	19.7	16.2	27.0	22.7

4: NW 6th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.4	10.2	10.8	9.6	12.0	9.9	10.3	10.8	10.3	9.3	10.6

5: NW 5th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Total Del/Veh (s)	11.5	14.3	11.9	10.3	9.8	10.7	10.6	9.6	11.4	10.8	11.1

6: NW 4th Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total Del/Veh (s)	11.0	7.1	7.4	7.3	6.9	7.3	7.0	6.9	5.8	10.3	7.7

7: NW 3rd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	4.8	0.0	0.7	0.0	0.8	0.0	0.5	5.9	0.5	0.1	1.4
Total Del/Veh (s)	36.1	9.3	34.1	13.4	33.5	10.7	22.6	38.8	21.4	10.8	23.2

8: NW 2nd Ave & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.6	11.8	9.8	8.5	13.8	10.3	9.6	8.7	10.4	6.5	10.2

9: NW Naito Pkwy & NW Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.3	0.1	0.2
Total Del/Veh (s)	11.2	10.1	10.3	10.0	9.9	10.1	9.5	9.0	10.6	10.0	10.1

10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.2	1.9	0.6	0.9	2.0	3.0	8.0	2.0	2.8	0.8	2.3
Total Del/Veh (s)	17.9	18.6	16.8	18.1	18.5	20.2	20.2	17.9	19.0	17.3	18.5

11: NE Grand Ave & NE Couch St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	10.2	19.4	2.2	3.3	3.8	15.1	3.1	3.3	2.4	1.4	6.5
Total Del/Veh (s)	16.1	17.0	14.4	14.6	15.0	16.4	14.6	15.1	15.7	13.9	15.3

12: SW Broadway/NW Broadway & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.4	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2
Total Del/Veh (s)	19.3	17.3	16.5	16.8	14.7	15.5	16.5	15.2	14.8	17.3	16.4

13: SW 6th Ave/NW 6th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
Total Del/Veh (s)	12.5	10.9	9.0	10.5	10.1	9.3	10.3	9.2	10.4	8.7	10.1

14: SW 5th Ave/NW 5th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	11.7	10.1	9.2	8.7	8.0	9.0	8.9	8.4	9.5	9.0	9.2

15: SW 4th Ave/NW 4th Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	2.4	0.7	1.1	1.0	2.2	0.7	0.9	0.7	0.5	0.4	1.1
Total Del/Veh (s)	15.9	14.4	13.7	14.9	14.6	14.2	14.6	14.8	14.5	14.7	14.6

16: SW 3rd Ave/NW 3rd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.5	0.1	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.2
Total Del/Veh (s)	15.3	12.6	15.8	13.2	13.5	12.7	15.3	15.2	14.5	13.5	14.2

17: SW 2nd Ave/NW 2nd Ave & W Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	13.1	12.2	11.7	12.2	12.2	11.7	12.0	12.0	11.7	11.5	12.0

18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St Performance by run nun

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Del/Veh (s)	14.3	15.1	13.6	14.3	14.2	13.6	14.9	15.7	14.4	15.1	14.5

19: SE Grand Ave/NE Grand Ave & E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	1.9	0.9	1.4	1.2	1.1	4.0	1.5	1.1	1.6	1.6	1.6
Total Del/Veh (s)	16.5	16.4	17.2	16.0	16.8	19.2	16.8	16.5	16.6	16.6	16.9

20: SW Broadway & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.5	7.6	7.9	7.3	7.9	7.3	6.6	6.7	7.2	7.2	7.3

21: SW 6th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.4	0.2	0.2	0.2	0.5	0.3	0.2	0.2	0.2	0.3	0.3
Total Del/Veh (s)	12.6	11.5	11.6	12.1	12.2	11.9	10.9	10.6	11.6	11.5	11.7

22: SW 5th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.9	12.3	9.8	10.9	11.0	10.7	11.8	10.8	10.5	11.8	11.2

23: SW 4th Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.3	0.4	0.3	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4
Total Del/Veh (s)	11.0	11.0	9.7	10.2	11.9	9.9	10.8	10.8	10.8	10.6	10.7

24: SW 3rd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Total Del/Veh (s)	12.4	11.5	10.8	11.2	11.6	11.7	11.1	11.0	11.1	11.2	11.4

25: SW 2nd Ave & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Del/Veh (s)	12.2	10.5	11.2	11.6	12.0	11.8	12.4	12.6	11.2	10.6	11.6

26: SW Naito Pkwy & SW Oak St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.7	0.5	0.5	0.5	0.4	0.6	0.6	0.5	0.4	0.5	0.5
Total Del/Veh (s)	9.0	10.0	8.1	8.7	9.6	10.0	10.2	9.7	8.8	9.7	9.4

28: NE Couch Street Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.3	2.3	1.8	2.2	2.0	1.8	2.0	2.2	2.4	1.7	2.1

30: Burnside Bridge Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.2	2.8	3.2	2.9	2.5	2.7	3.2	3.3	3.0	2.8	3.0

1201: SW Broadway Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0
Total Del/Veh (s)	1.0	0.9	0.9	0.9	0.8	1.1	0.8	1.0	1.2	0.8	0.9

1701: W Burnside St/Burnside Bridge Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.1	3.1	3.0	3.0	3.0	2.7	3.1	3.2	3.2	2.7	3.0

1801: Burnside Bridge/E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.2	2.2	2.9	2.6	2.2	2.2	2.8	3.2	3.5	2.2	2.7

2700: E Burnside St Performance by run number

Run Number	1	10	2	3	4	5	6	7	8	9	Avg
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.2	5.6	6.2	4.9	4.7	4.8	6.9	8.6	7.5	5.3	6.2

Total Network Performance By Run

Run Number	1	10	2	3	4	5	6
Denied Del/Veh (s)	6.1	7.4	3.5	3.3	3.2	11.3	4.1
Total Del/Veh (s)	58.9	53.4	52.5	51.2	53.0	52.0	53.6

Total Network Performance By Run

Run Number	7	8	9	Avg
Denied Del/Veh (s)	3.3	4.8	2.1	4.9
Total Del/Veh (s)	54.2	52.8	50.6	53.3

Appendix C. SimTraffic Queuing Worksheets

Intersection: 1: NW 4th Ave & NW Everett St

Movement	EB	EB	NB	NB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	163	120	86	116
Average Queue (ft)	83	48	30	58
95th Queue (ft)	137	95	68	100
Link Distance (ft)	209	209	465	465
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: NW 3rd Ave & NW Everett St

Movement	EB	EB	SB	SB
Directions Served	T	TR	LT	T
Maximum Queue (ft)	69	117	150	89
Average Queue (ft)	17	48	76	26
95th Queue (ft)	52	93	130	66
Link Distance (ft)	199	199	207	207
Upstream Blk Time (%)			0	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: NW Broadway & NW Couch St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	85	180	91	250	225
Average Queue (ft)	32	81	26	172	116
95th Queue (ft)	71	151	72	267	240
Link Distance (ft)	198	199	170	203	203
Upstream Blk Time (%)		0		18	7
Queuing Penalty (veh)		0		0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: NW 6th Ave & NW Couch St

Movement	EB	WB	NB	NW
Directions Served	LT	TR	LT	>
Maximum Queue (ft)	87	113	133	120
Average Queue (ft)	26	44	47	29
95th Queue (ft)	69	91	99	82
Link Distance (ft)	199	177	164	106
Upstream Blk Time (%)		0	0	0
Queuing Penalty (veh)		0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: NW 5th Ave & NW Couch St

Movement	EB	WB	SB	SE
Directions Served	TR	<LT	LT	>
Maximum Queue (ft)	73	111	69	155
Average Queue (ft)	16	46	26	63
95th Queue (ft)	52	86	59	135
Link Distance (ft)	177	210	191	118
Upstream Blk Time (%)				2
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NW 4th Ave & NW Couch St

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	77	101	69	68
Average Queue (ft)	28	43	23	15
95th Queue (ft)	63	80	58	50
Link Distance (ft)	210	205	170	170
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: NW 3rd Ave & NW Couch St

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	71	184	93	82
Average Queue (ft)	31	80	29	18
95th Queue (ft)	60	148	71	56
Link Distance (ft)	205	200	466	466
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NW 2nd Ave & NW Couch St

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	68	106	112	104
Average Queue (ft)	32	44	43	42
95th Queue (ft)	61	87	84	87
Link Distance (ft)	200	461	168	168
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: NW Naito Pkwy & NW Couch St

Movement	EB	NB	NB	SB	SB	B900	B900
Directions Served	LR	L	T	T	TR	T	T
Maximum Queue (ft)	145	125	431	127	88	90	4
Average Queue (ft)	61	55	271	91	33	19	0
95th Queue (ft)	114	124	387	137	74	63	3
Link Distance (ft)	461		808	41	41	98	98
Upstream Blk Time (%)				24	5	0	
Queuing Penalty (veh)				0	0	0	
Storage Bay Dist (ft)		100					
Storage Blk Time (%)		1	29				
Queuing Penalty (veh)		4	14				

Intersection: 10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St

Movement	WB	WB	SB	SB	SB	SB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	206	208	229	210	195	226
Average Queue (ft)	132	120	196	150	69	163
95th Queue (ft)	211	203	227	222	169	241
Link Distance (ft)	187	187	182	182	182	182
Upstream Blk Time (%)	2	1	25	4	1	17
Queuing Penalty (veh)	12	7	0	0	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: NE Grand Ave & NE Couch St

Movement	WB	WB	NB	NB	NB	NB
Directions Served	T	TR	LT	T	T	T
Maximum Queue (ft)	242	237	141	122	110	96
Average Queue (ft)	207	204	65	52	48	44
95th Queue (ft)	227	231	116	94	86	82
Link Distance (ft)	185	185	189	189	189	189
Upstream Blk Time (%)	60	56	0	0	0	
Queuing Penalty (veh)	0	0	0	0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 12: SW Broadway/NW Broadway & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	T	R	TR	LT	TR
Maximum Queue (ft)	194	179	75	82	75	52	96	201	204
Average Queue (ft)	121	88	26	31	26	10	45	178	165
95th Queue (ft)	195	158	61	72	62	38	90	195	203
Link Distance (ft)	170	170	170	161	161		69	170	170
Upstream Blk Time (%)	2	1					5	32	17
Queuing Penalty (veh)	0	0					4	108	57
Storage Bay Dist (ft)						60			
Storage Blk Time (%)					1	0			
Queuing Penalty (veh)					1	1			

Intersection: 13: SW 6th Ave/NW 6th Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	NB	NB	NW
Directions Served	T	T	T	T	R	LT	R>	>
Maximum Queue (ft)	170	177	72	86	30	117	164	86
Average Queue (ft)	84	90	18	21	4	50	50	18
95th Queue (ft)	143	159	49	57	20	98	126	64
Link Distance (ft)	161	161	138	138		435	435	134
Upstream Blk Time (%)	0	1	0	0				
Queuing Penalty (veh)	2	4	0	0				
Storage Bay Dist (ft)					100			
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 14: SW 5th Ave/NW 5th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	SB	SE
Directions Served	T	T	R	<	T	T	LT	>
Maximum Queue (ft)	112	130	81	104	181	183	125	145
Average Queue (ft)	45	42	20	21	72	81	52	60
95th Queue (ft)	91	97	57	73	142	153	103	134
Link Distance (ft)	138	138			188	188	175	104
Upstream Blk Time (%)	0	0			0	0	0	5
Queuing Penalty (veh)	0	1			1	1	0	0
Storage Bay Dist (ft)			100	100				
Storage Blk Time (%)		1	0	1	2			
Queuing Penalty (veh)		1	0	8	0			

Intersection: 15: SW 4th Ave/NW 4th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	B1500	B1500
Directions Served	L	T	T	T	T	R	LT	T	R	T	T
Maximum Queue (ft)	121	202	198	176	181	113	181	122	95	92	18
Average Queue (ft)	36	136	140	69	84	20	124	58	40	9	1
95th Queue (ft)	89	195	195	134	146	63	192	118	76	48	13
Link Distance (ft)		188	188	170	170		108	108	108	494	494
Upstream Blk Time (%)		1	1	0	0		17	1	0		
Queuing Penalty (veh)		5	6	1	3		28	1	0		
Storage Bay Dist (ft)	100					100					
Storage Blk Time (%)	1	21			6	0					
Queuing Penalty (veh)	2	7			8	0					

Intersection: 16: SW 3rd Ave/NW 3rd Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	LT	T	R
Maximum Queue (ft)	80	94	58	212	218	184	184	110
Average Queue (ft)	15	26	8	134	153	114	104	35
95th Queue (ft)	51	64	31	215	228	175	163	90
Link Distance (ft)	170	170		181	181	180	180	
Upstream Blk Time (%)				1	3	1	1	
Queuing Penalty (veh)				9	16	2	1	
Storage Bay Dist (ft)			100					100
Storage Blk Time (%)		0	0				10	0
Queuing Penalty (veh)		0	0				4	0

Intersection: 17: SW 2nd Ave/NW 2nd Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	NB	NB	B1700	B1700
Directions Served	T	T	T	T	R	LT	TR	T	T
Maximum Queue (ft)	170	176	245	260	177	250	199	62	22
Average Queue (ft)	99	106	126	152	75	148	83	3	1
95th Queue (ft)	151	161	221	243	142	239	164	31	20
Link Distance (ft)	181	181	348	348	348	199	199	662	662
Upstream Blk Time (%)	0	0				3	0		
Queuing Penalty (veh)	1	1				8	0		
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St

Movement	EB	EB	EB	SB	SB	SB	SB
Directions Served	T	T	>	<T	T	T	T
Maximum Queue (ft)	151	142	156	161	138	98	78
Average Queue (ft)	114	101	120	74	47	34	17
95th Queue (ft)	151	148	153	134	99	75	54
Link Distance (ft)	58	58	58	194	194	194	194
Upstream Blk Time (%)	33	24	77	0			
Queuing Penalty (veh)	104	76	244	0			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 19: SE Grand Ave/NE Grand Ave & E Burnside St

Movement	EB	EB	EB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	T	TR
Maximum Queue (ft)	99	68	74	251	242	216	200
Average Queue (ft)	30	24	23	223	204	106	74
95th Queue (ft)	75	53	57	239	244	200	149
Link Distance (ft)	128	128	128	203	203	203	203
Upstream Blk Time (%)	0			43	11	1	0
Queuing Penalty (veh)	0			0	0	0	0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 20: SW Broadway & SW Oak St

Movement	WB	SB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	150	134	138	127
Average Queue (ft)	71	62	67	48
95th Queue (ft)	123	116	120	108
Link Distance (ft)	200	207	207	207
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 21: SW 6th Ave & SW Oak St

Movement	WB	WB	NB	NW	NW
Directions Served	T	R	LT	R	>
Maximum Queue (ft)	97	65	156	128	93
Average Queue (ft)	28	10	72	40	18
95th Queue (ft)	71	41	131	101	64
Link Distance (ft)	226	226	188	144	144
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 22: SW 5th Ave & SW Oak St

Movement	WB	SB	SB	SE
Directions Served	<LT	T	R	>
Maximum Queue (ft)	171	107	138	82
Average Queue (ft)	81	38	33	17
95th Queue (ft)	138	84	92	61
Link Distance (ft)	204	521	521	108
Upstream Blk Time (%)	0			0
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 23: SW 4th Ave & SW Oak St

Movement	WB	NB	NB	NB
Directions Served	TR	LT	T	T
Maximum Queue (ft)	192	185	86	78
Average Queue (ft)	99	97	24	29
95th Queue (ft)	169	162	62	64
Link Distance (ft)	222	206	206	206
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 24: SW 3rd Ave & SW Oak St

Movement	WB	SB	SB
Directions Served	LT	T	TR
Maximum Queue (ft)	186	134	164
Average Queue (ft)	97	60	84
95th Queue (ft)	170	119	140
Link Distance (ft)	209	491	491
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: SW 2nd Ave & SW Oak St

Movement	WB	NB	NB
Directions Served	TR	LT	T
Maximum Queue (ft)	156	218	177
Average Queue (ft)	68	135	57
95th Queue (ft)	127	209	129
Link Distance (ft)	472	203	203
Upstream Blk Time (%)		1	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 26: SW Naito Pkwy & SW Oak St

Movement	NB	NB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	125	239	178	196
Average Queue (ft)	89	208	97	113
95th Queue (ft)	147	253	158	176
Link Distance (ft)		200	498	498
Upstream Blk Time (%)		24		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	100			
Storage Blk Time (%)	4	33		
Queuing Penalty (veh)	26	43		

Intersection: 28: NE Couch Street

Movement	SB	SB
Directions Served	TR	R
Maximum Queue (ft)	70	101
Average Queue (ft)	5	13
95th Queue (ft)	39	62
Link Distance (ft)	188	188
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 29: Burnside Bridge

Movement	EB	EB	WB
Directions Served	T	T	T
Maximum Queue (ft)	88	143	5
Average Queue (ft)	14	33	0
95th Queue (ft)	95	151	5
Link Distance (ft)	1854	1854	94
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1201: SW Broadway

Movement	WB	SB	SB
Directions Served	R	T	T
Maximum Queue (ft)	39	5	10
Average Queue (ft)	2	0	0
95th Queue (ft)	18	5	7
Link Distance (ft)	145	69	69
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1801: Burnside Bridge/E Burnside St

Movement	EB	EB	EB	SW	SW
Directions Served	T	T	T	R	R
Maximum Queue (ft)	84	145	88	161	169
Average Queue (ft)	8	42	34	63	84
95th Queue (ft)	54	151	99	165	190
Link Distance (ft)	94	94	94	102	102
Upstream Blk Time (%)	1	12	9	3	7
Queuing Penalty (veh)	2	38	27	21	49
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2700: E Burnside St

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	158	117	191
Average Queue (ft)	58	35	106
95th Queue (ft)	146	99	220
Link Distance (ft)	92	92	92
Upstream Blk Time (%)	5	1	46
Queuing Penalty (veh)	14	4	144
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 1125

Intersection: 1: NW 4th Ave & NW Everett St

Movement	EB	EB	NB	NB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	207	210	99	148
Average Queue (ft)	121	103	38	73
95th Queue (ft)	189	181	84	138
Link Distance (ft)	209	209	465	465
Upstream Blk Time (%)	4	4		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: NW 3rd Ave & NW Everett St

Movement	EB	EB	SB	SB
Directions Served	T	TR	LT	T
Maximum Queue (ft)	172	205	198	126
Average Queue (ft)	52	101	104	35
95th Queue (ft)	124	180	178	103
Link Distance (ft)	199	199	207	207
Upstream Blk Time (%)	0	4	2	2
Queuing Penalty (veh)	0	15	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: NW Broadway & NW Couch St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	216	170	144	218	219
Average Queue (ft)	133	75	50	150	90
95th Queue (ft)	222	158	137	252	209
Link Distance (ft)	198	199	170	203	203
Upstream Blk Time (%)	13	1	8	17	3
Queuing Penalty (veh)	0	1	16	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: NW 6th Ave & NW Couch St

Movement	EB	WB	NB	NW
Directions Served	<LT	TR	LT	>
Maximum Queue (ft)	184	85	121	121
Average Queue (ft)	68	35	45	32
95th Queue (ft)	160	78	96	90
Link Distance (ft)	199	177	164	106
Upstream Blk Time (%)	9			1
Queuing Penalty (veh)	10			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: NW 5th Ave & NW Couch St

Movement	EB	WB	SB	SE
Directions Served	TR	<LT	LT	>
Maximum Queue (ft)	120	135	148	140
Average Queue (ft)	58	57	66	58
95th Queue (ft)	136	109	149	117
Link Distance (ft)	177	210	191	118
Upstream Blk Time (%)	9	0	10	1
Queuing Penalty (veh)	10	0	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NW 4th Ave & NW Couch St

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	126	85	109	129
Average Queue (ft)	73	51	50	59
95th Queue (ft)	157	137	128	140
Link Distance (ft)	210	205	170	170
Upstream Blk Time (%)	10	8	10	10
Queuing Penalty (veh)	11	5	22	22
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: NW 3rd Ave & NW Couch St

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	137	174	204	163
Average Queue (ft)	57	77	68	56
95th Queue (ft)	121	158	214	238
Link Distance (ft)	205	200	466	466
Upstream Blk Time (%)	1	7	2	5
Queuing Penalty (veh)	1	9	6	13
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NW 2nd Ave & NW Couch St

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	154	128	99	114
Average Queue (ft)	60	54	34	43
95th Queue (ft)	122	163	74	96
Link Distance (ft)	200	461	168	168
Upstream Blk Time (%)	0		0	0
Queuing Penalty (veh)	0		0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: NW Naito Pkwy & NW Couch St

Movement	EB	NB	NB	SB	SB	B900	B900
Directions Served	LR	L	T	T	TR	T	T
Maximum Queue (ft)	202	95	345	120	106	110	53
Average Queue (ft)	94	18	167	102	49	37	3
95th Queue (ft)	183	63	316	132	96	96	32
Link Distance (ft)	461		808	41	41	98	98
Upstream Blk Time (%)				26	10	3	2
Queuing Penalty (veh)				0	0	0	0
Storage Bay Dist (ft)		100					
Storage Blk Time (%)		0	10				
Queuing Penalty (veh)		0	1				

Intersection: 10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St

Movement	WB	WB	SB	SB	SB	SB
Directions Served	LT	T	T	T	T	TR
Maximum Queue (ft)	188	184	211	209	213	205
Average Queue (ft)	110	95	182	179	164	169
95th Queue (ft)	179	172	268	265	228	234
Link Distance (ft)	187	187	181	181	181	181
Upstream Blk Time (%)	7	8	50	23	15	23
Queuing Penalty (veh)	39	42	0	0	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: NE Grand Ave & NE Couch St

Movement	WB	WB	NB	NB	NB	NB
Directions Served	T	TR	LT	T	T	T
Maximum Queue (ft)	222	212	131	103	82	78
Average Queue (ft)	197	181	64	44	38	31
95th Queue (ft)	219	232	134	78	72	70
Link Distance (ft)	185	185	189	189	189	189
Upstream Blk Time (%)	34	23	7	0		
Queuing Penalty (veh)	0	0	33	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 12: SW Broadway/NW Broadway & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	T	R	TR	LT	TR
Maximum Queue (ft)	197	193	64	177	177	83	167	201	213
Average Queue (ft)	148	99	19	148	153	36	98	167	159
95th Queue (ft)	217	185	53	235	244	96	176	234	249
Link Distance (ft)	177	177	177	161	161		78	170	170
Upstream Blk Time (%)	12	3		11	12		23	27	19
Queuing Penalty (veh)	0	0		65	74		39	102	72
Storage Bay Dist (ft)						60			
Storage Blk Time (%)					21	4			
Queuing Penalty (veh)					16	21			

Intersection: 13: SW 6th Ave/NW 6th Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	NB	NB	NW
Directions Served	T	T	T	T	R	LT	R>	>
Maximum Queue (ft)	207	207	148	153	124	162	195	95
Average Queue (ft)	165	138	98	108	30	73	54	23
95th Queue (ft)	221	220	194	201	109	133	143	74
Link Distance (ft)	161	161	138	138		435	435	134
Upstream Blk Time (%)	17	7	5	8	0			0
Queuing Penalty (veh)	84	32	32	48	0			0
Storage Bay Dist (ft)					100			
Storage Blk Time (%)				22				
Queuing Penalty (veh)				13				

Intersection: 14: SW 5th Ave/NW 5th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	SB	SE
Directions Served	T	T	R	<	T	T	LT	>
Maximum Queue (ft)	161	170	117	112	193	185	183	151
Average Queue (ft)	89	79	28	20	102	111	129	66
95th Queue (ft)	152	149	78	76	211	221	203	145
Link Distance (ft)	138	138			191	191	175	104
Upstream Blk Time (%)	10	1	0		3	3	14	7
Queuing Penalty (veh)	51	3	0		17	18	28	0
Storage Bay Dist (ft)			100	100				
Storage Blk Time (%)		4	0	1	14			
Queuing Penalty (veh)		4	1	6	1			

Intersection: 15: SW 4th Ave/NW 4th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	B1500	B1500	B1500
Directions Served	L	T	T	T	T	R	LT	T	R	T	T	T
Maximum Queue (ft)	114	168	175	167	201	145	188	166	173	176	89	106
Average Queue (ft)	54	104	92	82	117	38	154	100	104	73	46	40
95th Queue (ft)	112	179	159	180	213	121	206	168	189	314	265	221
Link Distance (ft)		191	191	170	170		108	108	108	494	494	494
Upstream Blk Time (%)		10	0	5	17		37	14	11	10	0	
Queuing Penalty (veh)		50	2	27	89		89	35	27	23	0	
Storage Bay Dist (ft)	100					100						
Storage Blk Time (%)	11	17			16	10						
Queuing Penalty (veh)	53	9			14	48						

Intersection: 16: SW 3rd Ave/NW 3rd Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	LT	T	R
Maximum Queue (ft)	171	181	117	190	197	189	194	110
Average Queue (ft)	80	91	30	137	148	159	133	50
95th Queue (ft)	161	177	95	223	229	211	199	116
Link Distance (ft)	170	170		181	181	180	180	
Upstream Blk Time (%)	0	1		7	14	11	10	
Queuing Penalty (veh)	2	5		36	71	32	29	
Storage Bay Dist (ft)			100					100
Storage Blk Time (%)		4	0				23	10
Queuing Penalty (veh)		6	0				12	14

Intersection: 17: SW 2nd Ave/NW 2nd Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	NB	NB	B1700	B1700
Directions Served	T	T	T	T	R	LT	TR	T	T
Maximum Queue (ft)	209	224	274	298	148	227	242	47	78
Average Queue (ft)	155	163	152	174	56	136	139	26	29
95th Queue (ft)	236	243	333	338	126	226	243	161	173
Link Distance (ft)	181	181	360	360	360	199	199	662	662
Upstream Blk Time (%)	6	8	10	10		10	3		
Queuing Penalty (veh)	39	54	38	37		26	7		
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St

Movement	EB	EB	EB	SB	SB	SB	SB
Directions Served	T	T	>	<T	T	T	T
Maximum Queue (ft)	153	148	151	184	172	145	122
Average Queue (ft)	119	116	116	111	87	76	60
95th Queue (ft)	158	159	157	183	158	139	118
Link Distance (ft)	58	58	58	194	194	194	194
Upstream Blk Time (%)	43	42	71	0	0	0	
Queuing Penalty (veh)	229	223	375	1	0	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 19: SE Grand Ave/NE Grand Ave & E Burnside St

Movement	EB	EB	EB	NB	NB	NB	NB
Directions Served	L	T	T	T	T	T	TR
Maximum Queue (ft)	122	138	144	249	226	221	226
Average Queue (ft)	47	87	88	220	203	107	117
95th Queue (ft)	100	142	144	235	242	209	226
Link Distance (ft)	134	134	134	203	203	203	203
Upstream Blk Time (%)	0	1	1	46	18	1	4
Queuing Penalty (veh)	1	4	4	0	0	0	0
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 20: SW Broadway & SW Oak St

Movement	WB	SB	SB	SB
Directions Served	LT	T	T	TR
Maximum Queue (ft)	139	126	131	115
Average Queue (ft)	68	59	66	53
95th Queue (ft)	118	112	123	106
Link Distance (ft)	200	182	182	182
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 21: SW 6th Ave & SW Oak St

Movement	WB	WB	NB	NW	NW
Directions Served	T	R	LT	R	>
Maximum Queue (ft)	52	64	201	130	81
Average Queue (ft)	14	11	104	41	15
95th Queue (ft)	43	41	179	101	58
Link Distance (ft)	226	226	188	144	144
Upstream Blk Time (%)			1	0	0
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 22: SW 5th Ave & SW Oak St

Movement	WB	SB	SB	SE
Directions Served	<LT	T	R	>
Maximum Queue (ft)	141	129	155	99
Average Queue (ft)	63	53	45	21
95th Queue (ft)	123	114	115	71
Link Distance (ft)	204	375	375	107
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 23: SW 4th Ave & SW Oak St

Movement	WB	NB	NB	NB
Directions Served	TR	LT	T	T
Maximum Queue (ft)	130	211	149	141
Average Queue (ft)	77	124	56	67
95th Queue (ft)	161	208	150	131
Link Distance (ft)	222	206	206	206
Upstream Blk Time (%)	9	10	9	
Queuing Penalty (veh)	15	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 24: SW 3rd Ave & SW Oak St

Movement	WB	SB	SB	B1600	B1600
Directions Served	LT	T	TR	T	T
Maximum Queue (ft)	165	210	228	55	22
Average Queue (ft)	89	112	128	11	9
95th Queue (ft)	168	303	309	88	79
Link Distance (ft)	209	491	491	217	217
Upstream Blk Time (%)	9	5	6	3	3
Queuing Penalty (veh)	18	10	11	7	7
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 25: SW 2nd Ave & SW Oak St

Movement	WB	NB	NB
Directions Served	TR	LT	T
Maximum Queue (ft)	132	214	174
Average Queue (ft)	72	123	74
95th Queue (ft)	266	203	141
Link Distance (ft)	472	203	203
Upstream Blk Time (%)	7	9	0
Queuing Penalty (veh)	6	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 26: SW Naito Pkwy & SW Oak St

Movement	NB	NB	SB	SB	B2601	B2601
Directions Served	L	T	T	TR	T	T
Maximum Queue (ft)	119	219	219	222	81	81
Average Queue (ft)	40	174	122	129	21	21
95th Queue (ft)	103	258	290	306	229	226
Link Distance (ft)		200	498	498	808	808
Upstream Blk Time (%)		14	3	4	2	2
Queuing Penalty (veh)		0	12	14	7	7
Storage Bay Dist (ft)	100					
Storage Blk Time (%)	7	18				
Queuing Penalty (veh)	43	6				

Intersection: 28: NE Couch Street

Movement	SB	SB
Directions Served	TR	R
Maximum Queue (ft)	159	167
Average Queue (ft)	42	63
95th Queue (ft)	143	163
Link Distance (ft)	191	191
Upstream Blk Time (%)	8	8
Queuing Penalty (veh)	44	45
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 30: Burnside Bridge

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	360	375	10	16
Average Queue (ft)	98	110	8	12
95th Queue (ft)	414	430	53	81
Link Distance (ft)	1864	1864	99	99
Upstream Blk Time (%)			8	8
Queuing Penalty (veh)			45	45
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1201: SW Broadway

Movement	WB
Directions Served	R
Maximum Queue (ft)	105
Average Queue (ft)	20
95th Queue (ft)	89
Link Distance (ft)	141
Upstream Blk Time (%)	8
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 1701: W Burnside St/Burnside Bridge

Movement	EB	WB	WB
Directions Served	T	T	T
Maximum Queue (ft)	4	193	198
Average Queue (ft)	0	169	170
95th Queue (ft)	4	1045	1046
Link Distance (ft)	360	1864	1864
Upstream Blk Time (%)		8	8
Queuing Penalty (veh)		46	46
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1801: Burnside Bridge/E Burnside St

Movement	EB	EB	EB	SW	SW
Directions Served	T	T	T	R	R
Maximum Queue (ft)	154	157	89	184	171
Average Queue (ft)	63	77	50	129	140
95th Queue (ft)	171	193	125	200	197
Link Distance (ft)	99	99	99	95	95
Upstream Blk Time (%)	11	18	9	18	23
Queuing Penalty (veh)	58	94	47	99	130
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2700: E Burnside St

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	185	176	169
Average Queue (ft)	126	115	106
95th Queue (ft)	211	196	217
Link Distance (ft)	92	92	92
Upstream Blk Time (%)	23	19	44
Queuing Penalty (veh)	123	99	233
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 4013

Intersection: 1: NW 4th Ave & NW Everett St

Movement	EB	NB
Directions Served	LT	TR
Maximum Queue (ft)	231	152
Average Queue (ft)	133	73
95th Queue (ft)	218	132
Link Distance (ft)	209	458
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: NW 3rd Ave & NW Everett St

Movement	EB	EB	SB	SB
Directions Served	T	R	LT	T
Maximum Queue (ft)	116	91	150	69
Average Queue (ft)	39	33	65	17
95th Queue (ft)	88	70	118	51
Link Distance (ft)	211	211	207	207
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: NW Broadway & NW Couch St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	128	159	88	206	152
Average Queue (ft)	51	69	25	95	39
95th Queue (ft)	106	127	70	178	106
Link Distance (ft)	198	199	170	203	203
Upstream Blk Time (%)				1	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: NW 6th Ave & NW Couch St

Movement	EB	WB	NB	NW
Directions Served	LT	TR	LT	>
Maximum Queue (ft)	72	104	113	121
Average Queue (ft)	22	40	40	32
95th Queue (ft)	59	84	89	93
Link Distance (ft)	199	177	164	106
Upstream Blk Time (%)			0	1
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: NW 5th Ave & NW Couch St

Movement	EB	WB	SB	SE
Directions Served	TR	<LT	LT	>
Maximum Queue (ft)	69	93	66	155
Average Queue (ft)	19	34	21	63
95th Queue (ft)	55	73	51	132
Link Distance (ft)	177	210	191	118
Upstream Blk Time (%)				2
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NW 4th Ave & NW Couch St

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	76	79	136
Average Queue (ft)	29	35	28
95th Queue (ft)	63	65	84
Link Distance (ft)	210	217	168
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: NW 3rd Ave & NW Couch St

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	74	180	100	71
Average Queue (ft)	32	80	31	19
95th Queue (ft)	62	150	79	58
Link Distance (ft)	217	200	465	465
Upstream Blk Time (%)		1		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NW 2nd Ave & NW Couch St

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	74	153	96	107
Average Queue (ft)	33	58	37	43
95th Queue (ft)	65	114	75	84
Link Distance (ft)	200	461	168	168
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: NW Naito Pkwy & NW Couch St

Movement	EB	NB	NB	SB	SB	B900	B900
Directions Served	LR	L	T	T	TR	T	T
Maximum Queue (ft)	102	125	436	125	94	92	14
Average Queue (ft)	42	62	286	88	36	15	1
95th Queue (ft)	75	133	418	132	77	57	11
Link Distance (ft)	461		808	41	41	98	98
Upstream Blk Time (%)				23	6	0	0
Queuing Penalty (veh)				0	0	0	0
Storage Bay Dist (ft)		100					
Storage Blk Time (%)		1	30				
Queuing Penalty (veh)		5	15				

Intersection: 10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St

Movement	WB	WB	SB	SB	SB
Directions Served	LT	T	T	T	TR
Maximum Queue (ft)	197	198	232	205	224
Average Queue (ft)	123	114	194	136	142
95th Queue (ft)	209	201	224	214	226
Link Distance (ft)	187	187	183	183	183
Upstream Blk Time (%)	2	1	16	2	6
Queuing Penalty (veh)	11	7	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: NE Grand Ave & NE Couch St

Movement	WB	WB	NB	NB	NB
Directions Served	T	TR	LT	T	T
Maximum Queue (ft)	246	247	148	129	99
Average Queue (ft)	218	216	63	41	32
95th Queue (ft)	236	246	125	104	86
Link Distance (ft)	197	197	189	189	189
Upstream Blk Time (%)	58	55	0	0	
Queuing Penalty (veh)	0	0	0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: SW Broadway/NW Broadway & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	T	R	TR	LT	TR
Maximum Queue (ft)	189	153	64	81	63	58	96	183	181
Average Queue (ft)	112	67	20	26	21	9	43	162	125
95th Queue (ft)	186	129	52	64	53	38	90	202	187
Link Distance (ft)	170	170	170	161	161		69	170	170
Upstream Blk Time (%)	2	0					5	13	2
Queuing Penalty (veh)	0	0					4	33	5
Storage Bay Dist (ft)						60			
Storage Blk Time (%)					1	0			
Queuing Penalty (veh)					0	0			

Intersection: 13: SW 6th Ave/NW 6th Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	NB	NB	NW
Directions Served	T	T	T	T	R	LT	R>	>
Maximum Queue (ft)	161	187	68	84	42	106	174	89
Average Queue (ft)	78	86	14	18	3	45	52	23
95th Queue (ft)	134	159	45	53	23	89	129	71
Link Distance (ft)	161	161	138	138		435	435	134
Upstream Blk Time (%)	0	1		0				0
Queuing Penalty (veh)	1	3		0				0
Storage Bay Dist (ft)					100			
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 14: SW 5th Ave/NW 5th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	SB	SE
Directions Served	T	T	R	<	T	T	LT	>
Maximum Queue (ft)	97	118	77	92	182	193	88	142
Average Queue (ft)	37	35	14	18	86	100	38	58
95th Queue (ft)	77	84	49	65	155	172	78	132
Link Distance (ft)	138	138			188	188	175	104
Upstream Blk Time (%)	0	0	0		0	0		3
Queuing Penalty (veh)	0	0	0		1	1		0
Storage Bay Dist (ft)			100	100				
Storage Blk Time (%)		1	0	1	3			
Queuing Penalty (veh)		1	0	3	0			

Intersection: 15: SW 4th Ave/NW 4th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	B1500	B1500
Directions Served	L	T	T	T	T	R	LT	T	R	T	T
Maximum Queue (ft)	107	196	194	118	143	86	182	124	92	71	21
Average Queue (ft)	18	129	134	54	66	12	124	65	36	8	1
95th Queue (ft)	69	189	188	104	121	49	195	125	72	42	13
Link Distance (ft)		188	188	170	170		108	108	108	494	494
Upstream Blk Time (%)		1	1		0		15	1	0		
Queuing Penalty (veh)		4	4		1		26	2	0		
Storage Bay Dist (ft)	100					100					
Storage Blk Time (%)	0	18			4	0					
Queuing Penalty (veh)	1	3			5	0					

Intersection: 16: SW 3rd Ave/NW 3rd Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	LT	T	R
Maximum Queue (ft)	90	131	71	215	221	185	176	110
Average Queue (ft)	17	33	10	138	157	133	100	39
95th Queue (ft)	65	84	40	213	230	191	162	96
Link Distance (ft)	170	170		181	181	180	180	
Upstream Blk Time (%)	0	0		1	3	2	0	
Queuing Penalty (veh)	0	0		8	17	5	0	
Storage Bay Dist (ft)			100					100
Storage Blk Time (%)		0	0				9	0
Queuing Penalty (veh)		0	0				4	0

Intersection: 17: SW 2nd Ave/NW 2nd Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	B1701	NB	NB	B1700	B1700
Directions Served	T	T	T	T	R	T	LT	TR	T	T
Maximum Queue (ft)	178	186	211	257	174	8	249	202	52	12
Average Queue (ft)	96	110	103	134	77	0	146	84	3	0
95th Queue (ft)	155	167	187	221	144	7	240	168	28	13
Link Distance (ft)	181	181	348	348	348	1854	199	199	662	662
Upstream Blk Time (%)	0	0		0			3	0		
Queuing Penalty (veh)	0	2		0			9	1		
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	>	<T	T	T
Maximum Queue (ft)	145	145	149	144	126	114
Average Queue (ft)	96	105	118	80	62	47
95th Queue (ft)	151	151	153	124	110	92
Link Distance (ft)	62	62	62	194	194	194
Upstream Blk Time (%)	18	23	55	0		
Queuing Penalty (veh)	59	73	178	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 19: SE Grand Ave/NE Grand Ave & E Burnside St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	L	T	T	T	T	TR
Maximum Queue (ft)	12	50	57	252	245	237
Average Queue (ft)	1	18	16	222	204	162
95th Queue (ft)	7	41	45	239	248	261
Link Distance (ft)	134	134	134	202	202	202
Upstream Blk Time (%)				42	13	10
Queuing Penalty (veh)				0	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 20: SW Broadway & SW Oak St

Movement	WB	SB	SB
Directions Served	LT	T	TR
Maximum Queue (ft)	92	138	137
Average Queue (ft)	42	49	59
95th Queue (ft)	76	108	116
Link Distance (ft)	200	207	207
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: SW 6th Ave & SW Oak St

Movement	WB	WB	NB	NW	NW
Directions Served	T	R	LT	R	>
Maximum Queue (ft)	44	62	153	141	72
Average Queue (ft)	9	13	73	36	14
95th Queue (ft)	34	46	132	100	53
Link Distance (ft)	226	226	188	144	144
Upstream Blk Time (%)			0	0	0
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 22: SW 5th Ave & SW Oak St

Movement	WB	SB	SB	SE
Directions Served	<LT	T	R	>
Maximum Queue (ft)	108	102	137	78
Average Queue (ft)	47	31	33	17
95th Queue (ft)	87	76	97	59
Link Distance (ft)	204	521	521	108
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 23: SW 4th Ave & SW Oak St

Movement	WB	NB	NB	NB
Directions Served	TR	LT	T	T
Maximum Queue (ft)	120	191	112	73
Average Queue (ft)	49	103	25	26
95th Queue (ft)	96	168	71	61
Link Distance (ft)	222	206	206	206
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 24: SW 3rd Ave & SW Oak St

Movement	WB	SB	SB
Directions Served	LT	T	TR
Maximum Queue (ft)	160	112	130
Average Queue (ft)	74	48	72
95th Queue (ft)	132	97	117
Link Distance (ft)	209	491	491
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: SW 2nd Ave & SW Oak St

Movement	WB	NB	NB
Directions Served	TR	LT	T
Maximum Queue (ft)	159	188	119
Average Queue (ft)	74	112	42
95th Queue (ft)	135	170	89
Link Distance (ft)	472	203	203
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 26: SW Naito Pkwy & SW Oak St

Movement	NB	NB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	125	233	182	197
Average Queue (ft)	79	186	99	117
95th Queue (ft)	138	263	161	181
Link Distance (ft)		200	498	498
Upstream Blk Time (%)		11		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	100			
Storage Blk Time (%)	3	24		
Queuing Penalty (veh)	15	31		

Intersection: 28: NE Couch Street

Movement	SB	SB
Directions Served	TR	R
Maximum Queue (ft)	20	65
Average Queue (ft)	0	4
95th Queue (ft)	10	30
Link Distance (ft)	200	200
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 30: Burnside Bridge

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	34	46
Average Queue (ft)	3	6
95th Queue (ft)	41	60
Link Distance (ft)	1854	1854
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1201: SW Broadway

Movement	WB	SB
Directions Served	R	T
Maximum Queue (ft)	51	4
Average Queue (ft)	4	0
95th Queue (ft)	27	4
Link Distance (ft)	145	69
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1801: Burnside Bridge/E Burnside St

Movement	EB	EB	EB	SW	SW
Directions Served	T	T	T	R	R
Maximum Queue (ft)	15	30	58	135	162
Average Queue (ft)	1	5	10	32	54
95th Queue (ft)	11	51	49	106	145
Link Distance (ft)	94	94	94	102	102
Upstream Blk Time (%)		1	2	1	2
Queuing Penalty (veh)		4	5	4	14
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2700: E Burnside St

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	105	110	166
Average Queue (ft)	19	28	67
95th Queue (ft)	73	84	166
Link Distance (ft)	92	92	92
Upstream Blk Time (%)	0	1	16
Queuing Penalty (veh)	1	2	52
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 623

Intersection: 1: NW 4th Ave & NW Everett St

Movement	EB	NB
Directions Served	LT	TR
Maximum Queue (ft)	258	232
Average Queue (ft)	219	111
95th Queue (ft)	270	194
Link Distance (ft)	209	458
Upstream Blk Time (%)	36	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: NW 3rd Ave & NW Everett St

Movement	EB	EB	SB	SB
Directions Served	T	R	LT	T
Maximum Queue (ft)	228	176	189	109
Average Queue (ft)	143	66	96	24
95th Queue (ft)	231	122	162	70
Link Distance (ft)	211	211	207	207
Upstream Blk Time (%)	2	0	0	
Queuing Penalty (veh)	7	1	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: NW Broadway & NW Couch St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	TR
Maximum Queue (ft)	230	132	152	224	184
Average Queue (ft)	169	54	41	122	64
95th Queue (ft)	255	108	108	218	154
Link Distance (ft)	198	199	170	203	203
Upstream Blk Time (%)	24	0	0	4	1
Queuing Penalty (veh)	0	0	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: NW 6th Ave & NW Couch St

Movement	EB	WB	NB	NW
Directions Served	<LT	TR	LT	>
Maximum Queue (ft)	139	86	107	117
Average Queue (ft)	52	32	38	33
95th Queue (ft)	104	70	87	90
Link Distance (ft)	199	177	164	106
Upstream Blk Time (%)			0	1
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: NW 5th Ave & NW Couch St

Movement	EB	WB	SB	SE
Directions Served	TR	<LT	LT	>
Maximum Queue (ft)	127	105	132	153
Average Queue (ft)	47	40	50	59
95th Queue (ft)	97	81	98	122
Link Distance (ft)	177	210	191	118
Upstream Blk Time (%)	0			1
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: NW 4th Ave & NW Couch St

Movement	EB	WB	NB
Directions Served	LT	TR	LTR
Maximum Queue (ft)	154	51	157
Average Queue (ft)	60	22	58
95th Queue (ft)	117	49	125
Link Distance (ft)	210	217	168
Upstream Blk Time (%)	0		0
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: NW 3rd Ave & NW Couch St

Movement	EB	WB	SB	SB
Directions Served	TR	LT	LT	TR
Maximum Queue (ft)	139	185	300	265
Average Queue (ft)	56	89	129	81
95th Queue (ft)	113	178	289	241
Link Distance (ft)	217	200	465	465
Upstream Blk Time (%)	0	3		
Queuing Penalty (veh)	0	3		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: NW 2nd Ave & NW Couch St

Movement	EB	WB	NB	NB
Directions Served	LT	TR	LT	TR
Maximum Queue (ft)	117	158	75	95
Average Queue (ft)	50	64	25	44
95th Queue (ft)	95	122	60	85
Link Distance (ft)	200	461	168	168
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: NW Naito Pkwy & NW Couch St

Movement	EB	NB	NB	SB	SB	B900	B900
Directions Served	LR	L	T	T	TR	T	T
Maximum Queue (ft)	140	124	385	113	109	112	36
Average Queue (ft)	63	37	199	95	53	29	2
95th Queue (ft)	114	93	335	132	102	87	20
Link Distance (ft)	461		808	41	41	98	98
Upstream Blk Time (%)				24	10	1	0
Queuing Penalty (veh)				0	0	0	0
Storage Bay Dist (ft)		100					
Storage Blk Time (%)		0	13				
Queuing Penalty (veh)		1	4				

Intersection: 10: NE Martin Luther King Jr Blvd & NE Couch Street/NE Couch St

Movement	WB	WB	SB	SB	SB
Directions Served	LT	T	T	T	TR
Maximum Queue (ft)	188	180	220	206	211
Average Queue (ft)	111	97	198	189	170
95th Queue (ft)	174	165	206	219	239
Link Distance (ft)	187	187	182	182	182
Upstream Blk Time (%)	0	0	43	17	15
Queuing Penalty (veh)	1	1	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: NE Grand Ave & NE Couch St

Movement	WB	WB	NB	NB	NB
Directions Served	T	TR	LT	T	T
Maximum Queue (ft)	236	231	131	139	120
Average Queue (ft)	212	197	62	56	54
95th Queue (ft)	232	255	111	103	103
Link Distance (ft)	197	197	189	189	189
Upstream Blk Time (%)	43	28	0	0	0
Queuing Penalty (veh)	0	0	0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: SW Broadway/NW Broadway & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	T	T	R	T	T	R	TR	LT	TR
Maximum Queue (ft)	194	177	52	186	196	85	158	204	208
Average Queue (ft)	130	78	17	141	153	53	83	164	154
95th Queue (ft)	202	150	46	207	212	110	151	215	219
Link Distance (ft)	177	177	177	161	161		78	170	170
Upstream Blk Time (%)	2	0		5	7		13	19	10
Queuing Penalty (veh)	0	0		30	41		19	67	37
Storage Bay Dist (ft)						60			
Storage Blk Time (%)					21	1			
Queuing Penalty (veh)					27	5			

Intersection: 13: SW 6th Ave/NW 6th Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	NB	NB	NW
Directions Served	T	T	T	T	R	LT	R>	>
Maximum Queue (ft)	206	196	156	162	108	166	170	97
Average Queue (ft)	140	117	68	87	16	64	51	23
95th Queue (ft)	207	186	147	156	69	127	126	72
Link Distance (ft)	161	161	138	138		435	435	134
Upstream Blk Time (%)	5	2	1	2	0			0
Queuing Penalty (veh)	21	7	7	11	0			0
Storage Bay Dist (ft)					100			
Storage Blk Time (%)				9	0			
Queuing Penalty (veh)				5	0			

Intersection: 14: SW 5th Ave/NW 5th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	SB	SE
Directions Served	T	T	R	<	T	T	LT	>
Maximum Queue (ft)	160	163	102	90	160	168	185	151
Average Queue (ft)	72	66	23	19	69	81	121	65
95th Queue (ft)	119	128	70	68	137	151	188	135
Link Distance (ft)	138	138			191	191	175	104
Upstream Blk Time (%)	0	0	0		0	0	4	5
Queuing Penalty (veh)	1	1	0		1	1	8	0
Storage Bay Dist (ft)			100	100				
Storage Blk Time (%)		2	0	0	2			
Queuing Penalty (veh)		1	1	1	0			

Intersection: 15: SW 4th Ave/NW 4th Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	B1500	B1500
Directions Served	L	T	T	T	T	R	LT	R	T	T
Maximum Queue (ft)	110	174	167	188	190	142	211	170	328	55
Average Queue (ft)	51	89	93	75	92	25	178	80	119	3
95th Queue (ft)	98	141	140	147	166	86	204	142	278	60
Link Distance (ft)		191	191	182	182		106	106	493	493
Upstream Blk Time (%)		0	0	0	1		51	5	0	
Queuing Penalty (veh)		1	0	1	3		178	16	0	
Storage Bay Dist (ft)	100					100				
Storage Blk Time (%)	3	7			9	0				
Queuing Penalty (veh)	10	4			9	0				

Intersection: 16: SW 3rd Ave/NW 3rd Ave & W Burnside St

Movement	EB	EB	EB	WB	WB	SB	SB	SB
Directions Served	T	T	R	T	T	LT	T	R
Maximum Queue (ft)	175	177	114	200	199	225	217	110
Average Queue (ft)	69	78	21	141	159	194	149	45
95th Queue (ft)	145	149	72	217	226	229	222	110
Link Distance (ft)	182	182		181	181	180	180	
Upstream Blk Time (%)	0	0		2	4	32	4	
Queuing Penalty (veh)	0	1		10	18	111	15	
Storage Bay Dist (ft)			100					100
Storage Blk Time (%)		2	0				22	0
Queuing Penalty (veh)		3	0				12	1

Intersection: 17: SW 2nd Ave/NW 2nd Ave & W Burnside St

Movement	EB	EB	WB	WB	WB	NB	NB	B1700	B1700
Directions Served	T	T	T	T	R	LT	TR	T	T
Maximum Queue (ft)	211	230	220	246	156	228	241	9	14
Average Queue (ft)	135	144	103	132	56	125	140	0	1
95th Queue (ft)	210	219	190	218	115	204	220	7	10
Link Distance (ft)	181	181	360	360	360	199	199	662	662
Upstream Blk Time (%)	2	3				1	2		
Queuing Penalty (veh)	14	23				2	5		
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 18: SE Martin Luther King Jr Blvd/NE Martin Luther King Jr Blvd & E Burnside St

Movement	EB	EB	EB	SB	SB	SB
Directions Served	T	T	>	<T	T	T
Maximum Queue (ft)	163	166	155	184	185	169
Average Queue (ft)	133	132	119	111	97	84
95th Queue (ft)	155	150	162	167	158	147
Link Distance (ft)	70	70	70	194	194	194
Upstream Blk Time (%)	39	41	53	0	0	0
Queuing Penalty (veh)	198	207	265	1	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 19: SE Grand Ave/NE Grand Ave & E Burnside St

Movement	EB	EB	EB	NB	NB	NB
Directions Served	L	T	T	T	T	TR
Maximum Queue (ft)	105	123	120	248	235	229
Average Queue (ft)	34	56	60	220	210	153
95th Queue (ft)	77	103	100	233	241	248
Link Distance (ft)	127	127	127	202	202	202
Upstream Blk Time (%)	0	0	0	46	17	6
Queuing Penalty (veh)	0	1	1	0	0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 20: SW Broadway & SW Oak St

Movement	WB	SB	SB
Directions Served	LT	T	TR
Maximum Queue (ft)	128	169	194
Average Queue (ft)	54	81	101
95th Queue (ft)	99	151	170
Link Distance (ft)	200	182	182
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: SW 6th Ave & SW Oak St

Movement	WB	WB	NB	NW	NW
Directions Served	T	R	LT	R	>
Maximum Queue (ft)	47	44	204	120	69
Average Queue (ft)	11	10	104	42	16
95th Queue (ft)	36	36	177	100	55
Link Distance (ft)	226	226	188	144	144
Upstream Blk Time (%)			1	0	
Queuing Penalty (veh)			0	0	
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 22: SW 5th Ave & SW Oak St

Movement	WB	SB	SB	SE
Directions Served	<LT	T	R	>
Maximum Queue (ft)	139	112	137	93
Average Queue (ft)	62	43	43	19
95th Queue (ft)	114	89	104	65
Link Distance (ft)	204	375	375	107
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 23: SW 4th Ave & SW Oak St

Movement	WB	NB	NB
Directions Served	TR	LT	T
Maximum Queue (ft)	118	229	208
Average Queue (ft)	48	153	80
95th Queue (ft)	87	236	166
Link Distance (ft)	234	207	207
Upstream Blk Time (%)		3	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 24: SW 3rd Ave & SW Oak St

Movement	WB	SB	SB
Directions Served	LT	T	TR
Maximum Queue (ft)	133	175	179
Average Queue (ft)	65	87	101
95th Queue (ft)	109	150	158
Link Distance (ft)	209	491	491
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: SW 2nd Ave & SW Oak St

Movement	WB	NB	NB
Directions Served	TR	LT	T
Maximum Queue (ft)	115	209	168
Average Queue (ft)	48	119	78
95th Queue (ft)	92	187	141
Link Distance (ft)	472	203	203
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 26: SW Naito Pkwy & SW Oak St

Movement	NB	NB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	120	224	189	190
Average Queue (ft)	36	152	104	110
95th Queue (ft)	84	242	167	171
Link Distance (ft)		200	498	498
Upstream Blk Time (%)		4		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	100			
Storage Blk Time (%)	0	14		
Queuing Penalty (veh)	0	6		

Intersection: 28: NE Couch Street

Movement	SB	SB
Directions Served	TR	R
Maximum Queue (ft)	83	120
Average Queue (ft)	10	25
95th Queue (ft)	56	90
Link Distance (ft)	203	203
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 30: Burnside Bridge

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	30	26
Average Queue (ft)	1	1
95th Queue (ft)	17	18
Link Distance (ft)	1864	1864
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1201: SW Broadway

Movement	WB	SB
Directions Served	R	T
Maximum Queue (ft)	77	4
Average Queue (ft)	7	0
95th Queue (ft)	43	0
Link Distance (ft)	141	78
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1701: W Burnside St/Burnside Bridge

Movement	EB	WB
Directions Served	T	T
Maximum Queue (ft)	2	11
Average Queue (ft)	0	0
95th Queue (ft)	2	6
Link Distance (ft)	360	1864
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 1801: Burnside Bridge/E Burnside St

Movement	EB	EB	EB	SW	SW
Directions Served	T	T	T	R	R
Maximum Queue (ft)	130	115	80	170	172
Average Queue (ft)	21	20	9	86	110
95th Queue (ft)	86	82	51	176	205
Link Distance (ft)	99	99	99	95	95
Upstream Blk Time (%)	1	1	0	4	8
Queuing Penalty (veh)	4	4	1	21	46
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2700: E Burnside St

Movement	EB	EB	EB
Directions Served	T	T	T
Maximum Queue (ft)	182	172	149
Average Queue (ft)	102	100	50
95th Queue (ft)	190	185	138
Link Distance (ft)	92	92	92
Upstream Blk Time (%)	11	11	10
Queuing Penalty (veh)	53	56	48
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 1665

Appendix D. Existing Intersection Crash Data

Collision Type by Mode and Location	Fatality	Injury A	Injury B	Injury C	PDO	Grand Total
E BURNSIDE ST @ GRAND AVE		**1**	**3**	**8**	**19**	**31**
Automobile			**1**	**7**	**17**	**25**
Angle				3	4	7
Fixed-Object or Other-Object			1			1
Rear-End				2	4	6
Sideswipe-Overtaking				1		1
Turning Movement				1	9	10
Bicycle		**1**	**1**	**1**		**3**
Turning Movement		1	1	1		3
Motorcycle			**1**			**1**
Turning Movement			1			1
Other/Unknown					**2**	**2**
Angle					2	2
E BURNSIDE ST @ MLK/UNION			**6**	**18**	**12**	**36**
Automobile			**6**	**16**	**11**	**33**
Angle			6	6	3	15
Rear-End				7	2	9
Sideswipe-Overtaking					1	1
Turning Movement				3	5	8
Other/Unknown				**1**	**1**	**2**
Angle				1		1
Turning Movement					1	1
Pedestrian				**1**		**1**
E BURNSIDE ST @ NE 3RD AVE				**1**	**1**	**2**
Automobile				**1**	**1**	**2**
Angle				1		1
Rear-End					1	1
E BURNSIDE ST @ NE COUCH ST		**1**	**1**			**2**
Automobile		**1**				**1**
Non-collision		1				1
Bicycle			**1**			**1**
Turning Movement			1			1
E BURNSIDE ST @ NE GRAND AVE			**1**		**1**	**2**
Automobile					**1**	**1**
Rear-End					1	1
Pedestrian			**1**			**1**
E BURNSIDE ST @ NE MLK/UNION				**3**	**3**	**6**
Automobile				**3**	**2**	**5**
Angle				1	1	2
Rear-End				1	1	2
Sideswipe-Overtaking				1		1
Other/Unknown					**1**	**1**
Sideswipe-Overtaking					1	1
E BURNSIDE ST @ SE GRAND AVE				**1**	**8**	**9**
Automobile				**1**	**7**	**8**
Rear-End				1	4	5
Sideswipe-Overtaking					3	3
Other/Unknown					**1**	**1**
Sideswipe-Overtaking					1	1

Collision Type by Mode and Location	Fatality	Injury A	Injury B	Injury C	PDO	Grand Total
E BURNSIDE ST @ SE MLK/UNION					**1**	**1**
Automobile					**1**	**1**
Turning Movement					1	1
NE COUCH ST @ E BURNSIDE ST					**1**	**1**
Automobile					**1**	**1**
Fixed-Object or Other-Object					1	1
NE COUCH ST @ NE GRAND AVE		**1**	**14**	**20**	**29**	**64**
Automobile			**5**	**18**	**24**	**47**
Angle			5	12	15	32
Rear-End				3	3	6
Sideswipe-Overtaking				2		2
Turning Movement				1	6	7
Bicycle		**1**	**7**	**2**	**1**	**11**
Sideswipe-Overtaking				1		1
Turning Movement		1	7	1	1	10
Bus					**1**	**1**
Angle					1	1
Motorcycle			**1**			**1**
Angle			1			1
Other/Unknown					**3**	**3**
Angle					2	2
Turning Movement					1	1
Pedestrian			**1**			**1**
NE COUCH ST @ NE MLK/UNION		**1**	**12**	**27**	**40**	**80**
Automobile			**10**	**22**	**36**	**68**
Angle			10	13	19	42
Fixed-Object or Other-Object				1	1	2
Rear-End				5		5
Sideswipe-Overtaking					4	4
Turning Movement				3	12	15
Bicycle		**1**	**1**	**1**		**3**
Angle		1	1	1		3
Commercial Motor Vehicle					**2**	**2**
Angle					1	1
Turning Movement					1	1
Motorcycle				**1**		**1**
Angle				1		1
Other/Unknown			**1**	**2**	**2**	**5**
Angle			1		2	3
Rear-End				1		1
Turning Movement				1		1
Pedestrian				**1**		**1**
NE DAVIS ST @ NE GRAND AVE			**2**	**7**	**9**	**18**
Automobile			**1**	**7**	**8**	**16**
Angle			1	3	7	11
Rear-End				1		1
Turning Movement				3	1	4
Bicycle			**1**			**1**
Turning Movement			1			1

Collision Type by Mode and Location	Fatality	Injury A	Injury B	Injury C	PDO	Grand Total
Other/Unknown					**1**	**1**
Turning Movement					1	1
NE DAVIS ST @ NE MLK/UNION	**1**		**1**	**1**	**12**	**15**
Automobile				**1**	**12**	**13**
Angle				1	1	2
Fixed-Object or Other-Object					1	1
Rear-End					4	4
Sideswipe-Overtaking					2	2
Turning Movement					4	4
Pedestrian	**1**		**1**			**2**
NE GRAND AVE @ NE COUCH ST					**1**	**1**
Automobile					**1**	**1**
Turning Movement					1	1
NE MLK/UNION @ E BURNSIDE ST					**1**	**1**
Commercial Motor Vehicle					**1**	**1**
Sideswipe-Overtaking					1	1
NW COUCH ST @ NW 1ST AVE					**2**	**2**
Automobile					**2**	**2**
Fixed-Object or Other-Object					1	1
Sideswipe-Overtaking					1	1
NW COUCH ST @ NW 2ND AVE		**1**		**7**	**3**	**11**
Automobile				**5**	**3**	**8**
Angle				2	1	3
Parking Maneuver					1	1
Rear-End				2		2
Turning Movement				1	1	2
Other/Unknown				**1**		**1**
Angle				1		1
Pedestrian		**1**		**1**		**2**
NW COUCH ST @ NW 3RD AVE			**1**	**6**	**5**	**12**
Automobile				**4**	**5**	**9**
Angle				1	4	5
Rear-End				2		2
Sideswipe-Meeting					1	1
Turning Movement				1		1
Bicycle				**2**		**2**
Angle				1		1
Turning Movement				1		1
Pedestrian			**1**			**1**
NW COUCH ST @ NW NAITO/FRONT	**1**			**1**	**2**	**4**
Automobile				**1**	**2**	**3**
Rear-End					2	2
Turning Movement				1		1
Pedestrian	**1**					**1**
SE ANKENY ST @ SE 3RD AVE				**1**		**1**
Automobile				**1**		**1**
Angle				1		1

Collision Type by Mode and Location	Fatality	Injury A	Injury B	Injury C	PDO	Grand Total
SE ANKENY ST @ SE GRAND AVE				**6**	**6**	**12**
Automobile				**6**	**6**	**12**
Angle				3	1	4
Rear-End				2	3	5
Sideswipe-Overtaking					1	1
Turning Movement				1	1	2
SE ANKENY ST @ SE MLK/UNION			**3**	**2**	**8**	**13**
Automobile			**3**	**2**	**7**	**12**
Angle			1	1	1	3
Rear-End					1	1
Sideswipe-Overtaking					1	1
Turning Movement			2	1	4	7
Other/Unknown					**1**	**1**
Sideswipe-Overtaking					1	1
SE ASH ST @ SE GRAND AVE					**1**	**1**
Train					**1**	**1**
Turning Movement					1	1
SW ANKENY ST @ SW 2ND AVE					**1**	**1**
Automobile					**1**	**1**
Rear-End					1	1
SW ANKENY ST @ SW NAITO/FRONT			**1**		**2**	**3**
Automobile					**2**	**2**
Rear-End					1	1
Turning Movement					1	1
Bicycle			**1**			**1**
Sideswipe-Overtaking			1			1
W BURNSIDE ST @ 2ND AVE		**1**	**3**	**8**	**18**	**30**
Automobile			**1**	**7**	**15**	**23**
Angle			1	2	1	4
Parking Maneuver					1	1
Rear-End				3	11	14
Sideswipe-Overtaking				1	1	2
Turning Movement				1	1	2
Bicycle			**1**			**1**
Angle			1			1
Other/Unknown					**3**	**3**
Rear-End					2	2
Turning Movement					1	1
Pedestrian		**1**	**1**	**1**		**3**
W BURNSIDE ST @ NW 2ND AVE			**1**	**1**	**3**	**5**
Automobile					**3**	**3**
Angle					1	1
Sideswipe-Overtaking					1	1
Turning Movement					1	1
Bicycle			**1**			**1**
Turning Movement			1			1
Other/Unknown				**1**		**1**
Parking Maneuver				1		1

Collision Type by Mode and Location	Fatality	Injury A	Injury B	Injury C	PDO	Grand Total
W BURNSIDE ST @ NW 3RD AVE		**1**	**3**	**11**	**18**	**33**
Automobile			**1**	**10**	**17**	**28**
Angle			1	6	6	13
Fixed-Object or Other-Object					1	1
Rear-End				2	5	7
Sideswipe-Overtaking					2	2
Turning Movement				2	3	5
Bicycle			**1**			**1**
Turning Movement			1			1
Other/Unknown					**1**	**1**
Turning Movement					1	1
Pedestrian		**1**	**1**	**1**		**3**
W BURNSIDE ST @ SW 2ND AVE					**1**	**1**
Automobile					**1**	**1**
Parking Maneuver					1	1
W BURNSIDE ST @ SW 3RD AVE				**3**	**1**	**4**
Automobile				**1**	**1**	**2**
Rear-End				1		1
Sideswipe-Overtaking					1	1
Pedestrian				**2**		**2**
Grand Total	**2**	**7**	**52**	**132**	**209**	**402**

Appendix E. Safety Analysis of Build Alternatives

Safety Analysis of Build Alternatives

Table E1 summarizes the list of Crash Modification Factors (CMFs) used for the safety analysis of the Build Alternatives. CMFs for each treatment were identified from the FHWA CMF Clearinghouse or the Oregon Department of Transportation All Road Transportation Safety online crash modification factor resources.

Table E1: List of CMFs

No	Treatment	Crash Type	Source	CMF ID	Rating	Notes
1	Traffic lane width	All Crashes (KABCO)	CMF Clearinghouse	CMF ID: 8691	3-star	This CMF is a function of existing and proposed lane width. On a multilane roadway, average lane width was used
2	Bike lane width	All Crashes (KABCO)	CMF Clearinghouse	CMF ID: 8699	3-star	This CMF is a function of existing and proposed bike lane width. Average CMF of eastbound and westbound bike lanes was used
3	Bike lane width	Vehicle-Bike Crashes (KABCO)	CMF Clearinghouse	CMF ID: 8692	3-star	This CMF is a function of existing and proposed bike lane width. Average CMF of eastbound and westbound bike lanes was used
4	Shoulder	All Crashes (KABCO)	CMF Clearinghouse	CMF ID: 8711	3-star	This CMF is a function of existing and proposed shoulder width
5	Shoulder	Vehicle-Bike Crashes (KABCO)	CMF Clearinghouse	CMF ID: 8715	3-star	This CMF is a function of existing and proposed shoulder width
6	Prohibit on-street parking	All Crashes (KABC)	CMF Clearinghouse	CMF ID: 4574	5-star	CMF for all crashes of all severity types was calculated by using the weighted average of the current KABC and O type crashes
7	Prohibit on-street parking	All Crashes (O)	CMF Clearinghouse	CMF ID: 4575	5-star	
8	Physical barrier between bike and traffic lanes	Vehicle-Bike Crashes (Injury type)	ODOT ARTS	BP 19	NA	This CMF is applicable to injury type crashes. Since most of the bicyclist crashes are injury type (currently 98%), this CMF is assumed to be applicable to all vehicle-bicyclist crashes

There were some common treatments among the build alternatives for which CMFs are not available, they are:

- Provision of wider sidewalks on the segment. Sidewalk provides pedestrian safety and comfort because of the increase in separation between pedestrians and vehicles. An increase in pedestrian comfort would lead to an increase in pedestrian trips.
- Converting bi-directional roadway of the bridge to a one-way couplet of one-directional eastbound and westbound roadway. A CMF is not available for converting a short two-way section to one-way couplet, and one-way and two-way streets have different safety characteristics. ODOT ARTS resources provide a CMF of 0.53 for creating a complete couplet system; however, the safety benefit is mostly from the intersections since there would be less conflicting travel patterns. This CMF was not applied as it does not seem applicable to this context.

The CMFs in Table E1 were applied as appropriate to each section (i.e., west approach, mid-span, and east approach) for each build alternative. Table E2 presents the CMF values for each treatment identified in the build alternatives for the three sections of the bridge. The CMFs were identified for all crashes and vehicle-bicyclist crashes independently. If a study presents CMF applicable only to vehicle-bicyclist crashes, it was not incorporated in the CMF for all crashes.

Part A: Chapter 3: “Fundamentals” of the first edition of the HSM recommends considering the safety effects of no more than three independent and conservative CMFs per location. The CMFs for changing bike lane width, changing average lane width, installing shoulder, and prohibiting on-street parking are independent treatments. The final CMF is the multiplicative value of three independent treatments per location. In Table E2, there are four treatments identified in the In-kind Replacement, In-kind Replacement Long-span, and Replacement with Couch Extension Build Alternatives for the west approach section of the bridge. The most conservative combination of the CMFs was applied in the project analysis.

Table E2: Summary of CMFs for the Treatments Proposed in Build Alternatives

Section of the Bridge	Treatments	Build Alternatives			
		Enhanced Retrofit	In-kind Replacement	In-kind Replacement Long-span	Replacement with Couch Extension
West Approach / West End *500 feet*	**All Crashes**				
	Average width of the lanes	1.00	0.99	0.99	0.99
	Bike lane width	0.97	0.98	0.98	0.98
	Shoulder	NA	0.92	0.92	0.92
	Prohibit on-street parking	0.75	0.75	0.75	0.75
	Final CMF	**0.73**	**0.89**[1]	**0.89**[1]	**0.89**[1]
	Bike-Vehicle Crashes				
	Bike lane width	0.93	0.94	0.94	0.94
	Shoulder	NA	0.87	0.87	0.87
	Physical barrier between bike and traffic lanes	NA	0.41	0.41	0.41
	Final CMF	**0.93**	**0.34**	**0.34**	**0.34**
Mid-span *1,450 feet*	**All Crashes**				
	Average width of the lanes	1.00	0.99	0.99	0.99
	Bike lane width	1.00	1.02	1.02	1.02
	Shoulder	NA	0.92	0.92	0.92
	Final CMF	**1.00**	**0.93**	**0.93**	**0.93**[2]
	Bike-Vehicle Crashes				
	Bike lane width	1.00	1.06	1.06	1.06
	Shoulder	NA	0.87	0.87	0.87
	Physical barrier between bike and traffic lanes	NA	0.41	0.41	0.41
	Final CMF	**1.00**	**0.38**	**0.38**[4]	**0.38**[2]
East Approach / East End *500 feet*	**All Crashes**				
	Average width of the lanes	0.99	0.99	0.99	No quantifiable CMF for the Couplet
	Bike lane width	1.00	1.00	1.00	
	Shoulder	NA	0.92	0.92	
	Final CMF	**0.99**	**0.91**	**0.91**	**NA**[3]

Table E2: Summary of CMFs for the Treatments Proposed in Build Alternatives

Section of the Bridge	Treatments	Build Alternatives			
		Enhanced Retrofit	In-kind Replacement	In-kind Replacement Long-span	Replacement with Couch Extension
	Bike-Vehicle Crashes				
	Bike lane width	1.00	1.01	1.01	1.06
	Shoulder	NA	0.87	0.87	0.87
	Physical barrier between bike and traffic lanes	NA	0.41	0.41	0.41
	Final CMF	**1.00**	**0.36**	**0.36**	**0.38**[3]

Note:
1. A maximum of three treatment CMFs are multiplied to get the final CMF. The three most conservative and independent CMFs were used.
2. Replacement with Couch Extension build alternative is approximately 750 feet because of the couplet.
3. Replacement with Couch Extension build alternative is approximately 1200 feet because of the couplet.
4. The midspan section of the In-kind Replacement Long-span build alternative has a 6.5 foot wide of physical barrier between the bike and traffic lanes except for 400 feet of the bridge section with a one-foot wide barrier.

Appendix F. Travel Demand Model Scenarios

	Transportation Scenarios								
		Permanent (2045)		Temporary Bridge (2019)				Full Closure (2019)	
	Base (2019)	**Future No-Build**	**Future Build**	**GP/Transit + Bike/Ped**	**GP/Transit + Ped/Bike**	**Transit + Bike/Ped**	**Bike/Ped**	**Full Closure**	**Full Closure**
Measure of Effectiveness	**(A)** **• 2 Westbound GP lanes + bike/ped facilities** **• 2 Eastbound GP lanes + 1 Eastbound Transit lane + bike/ped facilities**	**(B)** **• 2 Westbound GP lanes + bike/ped facilities** **• 2 Eastbound GP lanes + 1 Eastbound Transit lane + bike/ped facilities** **• Reasonably Foreseeable Projects included**	**(C)** **• 2 Westbound GP lanes + bike/ped facilities** **• 2 Eastbound GP lanes + 1 Eastbound Transit lane + bike/ped facilities** **• Reasonably Foreseeable Projects included**	**(D)** **• 1 GP lane in each direction + Bike/Ped facilities in each direction** **• RQ Project Reasonable Closures**** **• Broadway/Weidler Reorg***	**(E)** **• 1 GP lane in each direction + Bike/Ped facilities in each direction** **• RQ Project I-5 Weekday Closures*** **• Broadway/Weidler Reorg***	**(F)** **• 1 Transit Lane + Bike/Ped in each direction** **• RQ Project Reasonable Closures**** **• Broadway/Weidler Reorg***	**(G)** **• Bike/Ped only in each direction** **• RQ Project Reasonable Closures**** **• Broadway/Weidler Reorg***	**(H)** **• No Temporary Bridge** **• RQ Project Reasonable Closures**** **• Broadway/Weidler Reorg***	**(I)** **• No Temporary Bridge** **• RQ Project I-5 Weekday Closures*** **• Broadway/Weidler Reorg***
Direct Impact Area									
Study Intersections Volumes	x	x	x						
Study Intersections LOS/Delay/95% Queuing	x	x	x						
Transit Daily Boardings	x	x	x	x	x	x	x	x	x
Bike/Ped Demand/Volumes	x	x	x						
Bike/Ped LTS	x	x	x						
Safety/CMF	x	x	x	x	x	x	x	x	x
Indirect Impact Area									
Auto Demand/Volumes on all Bridges	x	x	x	x	x	x		x	x
Bike/Ped Demand/Volumes on all Bridges	x	x	x	x	x	x	x	x	x
Safety/CMF	x	x	x						
Safety/HSM				x	x	x	x	x	x
Safety/Bike/Ped	x	x	x	x	x	x	x	x	x
Travel Times (Specific O-D pairs) - Auto	x			x	x	x	x	x	x
Travel Times (Segment) - Transit	x	x	x	x	x	x	x	x	x
Travel Times (Specific O-D pairs) - Bikes	x			x	x	x	x	x	x
Travel Times (Specific O-D pairs) - Peds	x			x	x	x	x	x	x

*RQ Project I-5 Weekday Closures - complete closure of Northbound or Southbound I-5 between I-84 and I-405 during weekday peak periods for Rose Quarter Project.
**RQ Project Reasonable Closures - reasonably closure scenario based on 15% design which assumes I-5 closures would only occur on nights and weekends for Rose Quarter Project.
*** Broadway/Weidler Reorg - Roadway reorganization of existing cross-section based on City of Portland design.
GP - General Purpose Lane
NOTE: For Ped/Bike calculations each model run will also come with zone-to-zone trips by mode

Appendix G. Scenario Impacts Summary Tables

Appendix G: Scenario Impact Summary Tables

Topic: Traffic Delay and Level of Service																		
Existing Conditions + No-Build/Build Conditions																		
Volume per hour (vph), Level of service (LOS), eastbound (EB), westbound (WB)																		
			Existing Conditions								No-Build/Build Conditions							
Intersection, Approach, Movement		Signalized or Unsignalized	AM Peak Hour (8:00 – 9:00 AM)				PM Peak Hour (4:30 – 5:30 AM)				AM Peak Hour				PM Peak Hour			
			TEV	Delay(s)	LOS	Worst Movement (if Unsignalized)	TEV	Delay(s)	LOS	Worst Movement (if Unsignalized)	TEV (vph)	Delay(s)	LOS	Worst Movement (if Unsignalized)	TEV (vph)	Delay(s)	LOS	Worst Movement (if Unsignalized)
1	NW Everett Street and NW 4th Avenue	Signalized	605	9	A	—	1,085	10	B	—	615	11	B	—	1,005	21	C	—
2	NW Everett Street and NW 3rd Avenue	Signalized	730	7	A	—	1,270	8	A	—	660	6	A	—	1,230	11	B	—
3	NW Couch Street and NW Broadway	Signalized	910	25	C	—	1,160	24	C	—	775	13	B	—	1,190	23	C	—
4	NW Couch Street and NW 6th Avenue	Signalized	300	10	B	—	375	11	B	—	285	10	B	—	340	11	B	—
5	NW Couch Street and NW 5th Avenue	Signalized	280	9	A	—	440	12	B	—	240	10	B	—	430	11	B	—
6	NW Couch Street and NW 4th Avenue	Unsignalized	440	11	B	EB	615	20	C	EB	395	9	A	EB	555	24	C	EB
7	NW Couch Street and NW 3rd Avenue	Unsignalized	605	18	C	WB	755	30	D	WB	590	21	C	WB	840	52	F	EB
8	NW Couch Street and NW 2nd Avenue	Unsignalized	675	18	C	EB	665	30	D	EB	710	22	C	WB	685	28	D	WB
9	NW Couch Street and NW Naito Parkway	Signalized	1,150	15	B	—	1,500	10	B	—	1,145	17	B	—	1,510	10	B	—
10	NE Couch Street and NE MLK Blvd	Signalized	2,715	17	B	—	3,245	19	C	—	2,455	15	B	—	2,835	19	B	—
11	NE Couch Street and NE Grand Avenue	Signalized	2,845	17	B	—	2,705	13	B	—	2,550	20	C	—	2,735	15	B	—
12	W Burnside Street and Broadway	Signalized	2,830	13	B	—	2,950	19	B	—	2,430	11	B	—	2,755	16	B	—
13	W Burnside Street and 6th Avenue	Signalized	2,370	5	A	—	2,360	13	B	—	2,175	5	A	—	2,155	10	B	—
14	W Burnside Street and 5th Avenue	Signalized	2,355	5	A	—	2,455	13	B	—	2,150	5	A	—	2,265	9	A	—
15	W Burnside Street and 4th Avenue	Signalized	2,500	12	B	—	2,895	15	B	—	2,335	11	B	—	2,625	15	B	—
16	W Burnside Street and 3rd Avenue	Signalized	2,570	8	A	—	2,820	12	B	—	2,440	9	A	—	2,740	14	B	—
17	W Burnside Street and 2nd Avenue	Signalized	2,725	10	B	—	3,040	15	B	—	2,670	9	A	—	2,920	12	B	—
18	E Burnside Street and SE MLK Blvd	Signalized	2,170	25	C	—	3,695	32	C	—	2,025	19	B	—	3,220	20	C	—
19	E Burnside Street and SE Grand Avenue	Signalized	2,430	17	B	—	3,320	16	B	—	2,240	19	B	—	2,855	17	B	—
20	SW Oak Street and SW Broadway	Signalized	765	8	A	—	845	8	A	—	430	7	A	—	715	7	A	—
21	SW Oak Street and SW 6th Avenue	Signalized	445	9	A	—	540	11	B	—	345	11	B	—	475	12	B	—
22	SW Oak Street and SW 5th Avenue	Signalized	435	9	A	—	420	10	B	—	295	10	B	—	340	11	B	—
23	SW Oak Street and SW 4th Avenue	Signalized	755	11	B	—	925	10	B	—	650	8	A	—	850	11	B	—
24	SW Oak Street and SW 3rd Avenue	Signalized	655	10	B	—	775	11	B	—	475	11	B	—	770	11	B	—
25	SW Oak Street and SW 2nd Avenue	Signalized	790	11	B	—	710	12	B	—	700	10	B	—	715	12	B	—
26	SW Oak Street and SW Naito Parkway	Signalized	1,355	15	B	—	1,645	9	A	—	1,255	14	B	—	1,515	9	A	—
Source: Traffic counts conducted by Key Data Network and historical counts provided by ODOT and City of Portland																		

Topic: Traffic 95th Percentile Queueing
Existing Conditions + No-Build/Build Conditions

			Existing Conditions		No-Build and Build Conditions	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Intersection, Approach, Movement		Signalized or Unsignalized	95th Queue Length (ft.)	95th Queue Length (ft.)	95th Queue Length (ft.)	95th Queue Length (ft.)
1	NW Everett Street and NW 4th Avenue	Signalized				
	Northbound approach		70	140	130	190
	Eastbound approach		140	190	220	270
2	NW Everett Street and NW 3rd Avenue	Signalized				
	Southbound approach		130	180	120	160
	Eastbound approach		90	180	90	230
3	NW Couch Street and NW Broadway	Signalized				
	Northbound approach		70	140	70	110
	Southbound approach		270	250	180	220
	Eastbound approach		70	220	110	260
	Westbound approach		150	160	130	110
4	NW Couch Street and NW 6th Avenue	Signalized				
	Northbound approach		100	100	90	90
	Eastbound approach		70	160	60	100
	Westbound approach		90	80	80	70
5	NW Couch Street and NW 5th Avenue	Signalized				
	Southbound approach		60	150	50	100
	Eastbound approach		50	140	60	100
	Westbound approach		90	110	70	80
6	NW Couch Street and NW 4th Avenue	Unsignalized				
	Northbound approach		60	140	80	130
	Eastbound approach		60	160	60	120
	Westbound approach		80	140	70	50
7	NW Couch Street and NW 3rd Avenue	Unsignalized				
	Southbound approach		70	240	80	290
	Eastbound approach		60	120	60	110
	Westbound approach		150	160	150	180
8	NW Couch Street and NW 2nd Avenue	Unsignalized				
	Northbound approach		90	100	80	90
	Eastbound approach		60	120	70	100
	Westbound approach		90	160	110	120

9	NW Couch Street and NW Naito Parkway	Signalized				
	Northbound approach		390	320	420	340
	Southbound approach		140	130	130	130
	Eastbound approach		110	180	80	110
10	NE Couch Street and NE MLK Blvd	Signalized				
	Southbound approach		240	270	230	240
	Westbound approach		210	180	210	170
11	NE Couch Street and NE Grand Avenue	Signalized				
	Northbound approach		120	130	130	110
	Westbound approach		230	230	250	260
12	W Burnside Street and Broadway	Signalized				
	Northbound approach		90	180	90	150
	Southbound approach		200	250	200	220
	Eastbound approach		200	220	190	150
	Westbound approach		70	240	60	210
13	W Burnside Street and 6th Avenue	Signalized				
	Northbound approach		130	140	130	130
	Eastbound approach		160	220	160	210
	Westbound approach		60	200	50	160
14	W Burnside Street and 5th Avenue	Signalized				
	Southbound approach		100	200	80	190
	Eastbound approach		100	150	80	130
	Westbound approach		150	220	170	150
15	W Burnside Street and 4th Avenue	Signalized				
	Northbound approach		190	200	200	200
	Eastbound approach		200	180	190	140
	Westbound approach		150	210	120	170
16	W Burnside Street and 3rd Avenue	Signalized				
	Southbound approach		180	210	190	230
	Eastbound approach		60	180	80	150
	Westbound approach		230	230	230	230
17	W Burnside Street and 2nd Avenue	Signalized				
	Northbound approach		240	240	240	230
	Eastbound approach		160	230	170	220
	Westbound approach		240	340	220	220

18	E Burnside Street and SE MLK Blvd	Signalized				
	Southbound approach		130	180	120	170
	Eastbound approach		390	670	300	260
19	E Burnside Street and SE Grand Avenue	Signalized				
	Northbound approach		240	240	260	250
	Eastbound approach		80	140	50	100
20	SW Oak Street and SW Broadway	Signalized				
	Southbound approach		120	120	120	170
	Westbound approach		120	120	80	100
21	SW Oak Street and SW 6th Avenue	Signalized				
	Northbound approach		130	180	130	180
	Westbound approach		70	40	50	40
22	SW Oak Street and SW 5th Avenue	Signalized				
	Southbound approach		90	120	100	100
	Westbound approach		140	120	90	110
23	SW Oak Street and SW 4th Avenue	Signalized				
	Northbound approach		160	210	170	240
	Westbound approach		170	160	100	90
24	SW Oak Street and SW 3rd Avenue	Signalized				
	Southbound approach		140	310	120	160
	Westbound approach		170	170	130	110
25	SW Oak Street and SW 2nd Avenue	Signalized				
	Northbound approach		210	200	170	180
	Westbound approach		130	170	140	90
26	SW Oak Street and SW Naito Parkway	Signalized				
	Northbound approach		250	260	260	240
	Southbound approach		180	310	180	170

Source: Parametrix

Note. Queue lengths highlighted in red exceed the available storage length.

Topic: Traffic Volumes and D/C Ratios

Existing Conditions + Scenarios D, E, H, I*‡

Westbound AM Peak Hour										
Bridges	Existing		Scenario D: Temporary Bridge All Modes		Scenario E: Temporary Bridge All Modes + I-5 RQ		Scenario H: Full Closure		Scenario I: Full Closure + I-5 RQ	
	Existing Volumes	V/C ratio Existing	Demand Scenario D	D/C ratio Scenario D	Demand Scenario E	D/C ratio Scenario E	Demand Scenario H	D/C ratio Scenario H	Demand Scenario I	D/C ratio Scenario I
Fremont	6,140	0.88	6,225	0.89	5,180	0.74	6,520	0.93	5,280	0.75
Broadway	1,925	1.07	1,975	1.1	2,085	1.16	2,110	1.17	2,290	1.27
Steel	990	1.1	1,015	1.13	1,070	1.19	1,085	1.21	1,195	1.32
Burnside	1,575	0.79	1,010	1.13	1,080	1.2	0	—	0	-
Morrison	3,195	0.89	3,505	0.97	3,875	1.08	3,820	1.06	4,175	1.16
Hawthorne	1,850	1.03	1,900	1.05	2,070	1.15	1,955	1.09	2,215	1.23
Marquam	5,680	0.81	5,705	0.82	5,975	0.85	5,800	0.82	6,050	0.86
Ross Island	3,260	1.02	3,280	1.02	3,280	1.03	3,325	1.04	3,410	1.06

*Scenario G is identical to Scenario H

‡Scenario F is identical to Scenario H

Eastbound PM Peak Hour										
Bridges	Existing		Scenario D: Temporary Bridge All Modes		Scenario E: Temporary Bridge All Modes + I-5 RQ		Scenario H: Full Closure		Scenario I: Full Closure + I-5 RQ	
	Volume Existing	V/C ratio Existing	Demand Scenario D	D/C ratio Scenario D	Demand Scenario E	D/C ratio Scenario E	Demand Scenario H	D/C ratio Scenario H	Demand Scenario I	D/C ratio Scenario I
Fremont	5,760	0.82	5,925	0.85	6,935	0.99	6,135	0.88	7,025	1.01
Broadway	1,710	0.95	1,700	0.95	1,955	1.09	1,885	1.05	2,055	1.14
Steel	970	1.08	1,020	1.14	1,080	1.2	1,080	1.2	1,100	1.23
Burnside	1,700	0.85	990	1.1	1,065	1.18	0	0	0	-
Morrison	2,315	0.64	2,765	0.77	3,105	0.86	3,115	0.86	3,665	1.02
Hawthorne	2,090	1.16	2,100	1.17	2,155	1.19	2,155	1.2	2,215	1.23
Marquam	6,195	0.88	6,225	0.89	4,415	0.63	6,320	0.9	4,580	0.65
Ross Island	3,630	1.13	3,645	1.14	3,660	1.15	3,680	1.15	3,730	1.17

*Scenario G is identical to Scenario H

‡Scenario F is identical to Scenario H

Topic: OD Pair Vehicle Travel Times

Existing Conditions + Scenarios D, E, H, I*‡

Westbound AM Peak Hour						
Route No.	**Route Title**	**Travel Time (min) Existing**	**Travel Time (min) Scenario D**	**Travel Time (min) Scenario E**	**Travel Time (min) Scenario H**	**Travel Time (min) Scenario I**
Multnomah/21st to Burnside/Broadway						
B-A1	Broadway Bridge	11	13	16.5	15.5	20
B-A2	Steel Bridge	11	12	16	14	21
B-A3	Burnside Bridge	9	14.5	17	(Burnside Bridge closed)	(Burnside Bridge closed)
Sandy/22nd to Burnside/Broadway						
C-A1	Steel Bridge	12	13	16.5	15	21.5
C-A2	Burnside Bridge	8.5	15	16.5	(Burnside Bridge closed)	(Burnside Bridge closed)
C-A3	Morrison Bridge	11.5	19	23.5	20.5	26
Burnside/20th to Burnside/Broadway						
D-A1	Broadway Bridge	15	18	21.5	20.5	256
D-A2	Steel Bridge	13	14.5	18	16	23
D-A3	Burnside Bridge	9	15	16.5	(Burnside Bridge closed)	(Burnside Bridge closed)
D-A4	Morrison Bridge	13	20	25	22	275.5
Stark/20th to Burnside/Broadway						
E-A1	Burnside Bridge	10	15	18	(Burnside Bridge closed)	(Burnside Bridge closed)
E-A2	Morrison Bridge	12	19	24	21	26.5

*Scenario G is identical to Scenario H

‡Scenario F is identical to Scenario H

Topic: OD Pair Vehicle Travel Times

Existing Conditions + Scenarios D, E, H, I*‡

Eastbound PM Peak Hour						
Route No.	Route Title	Travel Time (min) Existing	Travel Time (min) Scenario D	Travel Time (min) Scenario E	Travel Time (min) Scenario H	Travel Time (min) Scenario I
Burnside/Broadway to Multnomah/21st						
A-B1	Broadway Bridge	19	23.5	26	25	296
A-B2	Steel Bridge	16.5	18.5	20	22	23
A-B3	Burnside Bridge	16.5	19	20.5	(Burnside Bridge closed)	(Burnside Bridge closed)
A-B4	Morrison Bridge	21.5	29	(I-5 NB closed)	32	(I-5 NB Closed)
Burnside/Broadway to Sandy/22nd						
A-C1	Steel Bridge	19	21.5	23	24.5	25
A-C2	Burnside Bridge	16	18	19.5	(Burnside Bridge closed)	(Burnside Bridge closed)
A-C3	Morrison Bridge	19	23	30.5	25.5	354.5
Burnside/Broadway to Burnside/20th						
A-D1	Steel Bridge	18	21	22.5	23.5	242.5
A-D2	Burnside Bridge	13	15.5	17	(Burnside Bridge closed)	(Burnside Bridge closed)
A-D3	Morrison Bridge	16.5	20.5	28	23.5	331
Burnside/Broadway to Stark/20th						
A-E1	Burnside Bridge	16	18.5	19.5	(Burnside Bridge closed)	(Burnside Bridge closed)
A-E2	Morrison Bridge	14	18.5	24.5	22	298.5

*Scenario G is identical to Scenario H

‡Scenario F is identical to Scenario H

Topic: Transit Boardings, Ridership within Direct API
Existing Conditions + Scenarios D, E, F, H, I*

Transit Mode	Daily Boardings within Direct API						PM Peak Hour Boardings within API					
Line	Existing	D	E	F	H	I	Existing	D	E	F	H	I
Bus												
6	662						86					
8*												
9*												
12	2,566	2,448	2,440	2,448	1,207	1,204	280	271	270	271	126	126
15*												
19	1,895	1,795	1,787	1,795	870	865	296	283	282	283	128	127
20	2,138	2,033	2,029	2,033	1,222	1,222	337	324	323	324	201	201
35*												
71*												
72*												
75*												
77*												
Max												
Blue/Red	9,402	9,953	10,010	9,953	9,221	9,265	1,213	1,387	1,395	1,387	1,269	1,275
Green/Yellow/Orange	9,268	5,762	5,819	5,762	5,353	5,416	808	658	664	658	603	610
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)												
Streetcar	422	435	434	435	363	363	47	49	49	49	45	45

*Scenario G is identical to Scenario H

Topic: Transit Boardings, Full Extent of Reported Line
Existing Conditions + Scenarios D, E, F, H, I*

Transit Mode	Daily Ridership For Full Extent						PM Peak Hour Boardings Full Extent					
Line	Existing	D	E	F	H	I	Existing	D	E	F	H	I
Bus												
6	7,150	7190	7133	7190	7311	7242	933	938	931	938	951	942
8*	10,012	9989	9966	9989	9949	9918	1355	1351	1348	1351	1341	1337
9*	8,700	8743	8775	8743	8795	8829	1155	1163	1167	1163	1172	1177
12	11,051	10907	10870	10907	10509	10484	1058	1036	1032	1036	987	985
15*	7,279	7352	7410	7352	7459	7507	892	904	911	904	916	922
19	7,486	7342	7308	7342	7047	7010	1076	1054	1049	1054	1008	1003
20	10,507	10373	10351	10373	10015	10012	1486	1464	1461	1464	1423	1423
35*	6,365	6355	6252	6355	6347	6250	1088	1086	1068	1086	1085	1068
71*	7,057	7087	7120	7087	7150	7195	934	940	944	940	951	957
72*	9,867	9919	10071	9919	10039	10188	1123	1134	1151	1134	1150	1167
75*	10,879	10926	11071	10926	10988	11147	1224	123	125	123	1243	1261
77*	3,171	6542	6441	6542	6636	6516	1091	1109	1092	1109	1125	1105
Max												
Blue/Red	93,519	93,980	94,513	93,980	94,031	94,479	13,574	13,669	13,747	13,669	13,698	13,763
Green/Yellow/Orange	54,431	54,401	54,940	54,401	54,586	55,230	6,408	6,481	6,545	6,481	6,505	6,582
Streetcar (A and B Loop along MLK Blvd/Grand Avenue)												
Streetcar	8,236	8,168	8,155	8,168	8,267	8,269	422	960	958	960	962	962

*Scenario G is identical to Scenario H

Topic: Bus Line Travel Time and Distance
Existing Conditions + Scenarios D, E, F, H, I**
Distancs and times reported between W 5th Ave and E Grand Ave

Direction (Line 12, 19, 20)	Existing Conditions			2045 No-Build/Build			Scenario D: Temporary Bridge All Modes		
	Travel Distance (miles)	Travel Times (min)	Transit Speeds (mph)*	Travel Distance (miles)	Travel Times (min)	Transit Speeds (mph)*	Travel Distance (miles)	Travel Times (min)	Transit Speeds (mph)*
Eastbound (PM Peak)	0.71	7.7	4.7	0.71	7.1	5	0.71	10.2	4.7
Westbound (AM Peak)	0.74	2.8	12.5	0.74	2.6	13.5	0.74	8.4	6.8

Direction (Line 12, 19, 20)	Scenario E: Temporary Bridge All Modes + I-5 RQ			Scenario F: Temporary Bridge Transit/Bike/Ped			Scenario H: Full Closure			Scenario I: Full Closure + I-5 RQ		
	Travel Distance (miles)	Travel Times (min)	Transit Speeds (mph)*	Travel Distance (miles)	Travel Times (min)	Transit Speeds (mph)*	Travel Distance (miles)	Travel Times (min)	Transit Speeds (mph)*	Travel Distance (miles)	Travel Times (min)	Transit Speeds (mph)*
Eastbound (PM Peak)	0.71	10.0	5.3	0.71	2.5	13.3	1.32	17.4	5.5	1.32	17.6	5.3
Westbound (AM Peak)	0.74	10.1	6.7	0.74	2.1	17.3	1.36	10.6	8.0	1.36	15.4	6.0

**Scenario G is identical to Scenario H

Streetcar Travel Time Estimates A Loop AM and PM Peak Times
Existing Conditions + Scenarios D, E, F, H, I*

		AM Peak Hour (8-9 AM)										PM Peak Hour (4:30-5:30 PM)									
		Streetcar - A Loop																			
		Existing		Scenario D Temp Bridge		Scenario E Temp + RQ		Scenario H Full Closure		Scenario I Full + RQ		Existing		Scenario D Temp Bridge		Scenario E Temp + RQ		Scenario H Full Closure		Scenario I Full + RQ	
Travel Path	Link Length (ft)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Broadway Bridge	2100	10.0	2.4	9.0	2.7	8.5	2.8	8.5	2.8	7.5	3.2	5.0	4.8	4.5	5.3	4.0	6.0	4.0	6.0	4.0	6.0
Larrabee to Benton	270	8.0	0.4	7.0	0.4	6.5	0.5	7.0	0.4	6.5	0.5	4.0	0.8	4.0	0.8	3.5	0.9	4.0	0.8	3.2	1.0
Benton to Weidler	255		0.4		0.4		0.4		0.4		0.4		0.7		0.7		0.8		0.7		0.9
Broadway/Weidler to Vancouver	460		0.7		0.7		0.8		0.7		0.8		1.3		1.3		1.5		1.3		1.6
Vancouver to Williams	260		0.4		0.4		0.5		0.4		0.5		0.7		0.7		0.8		0.7		0.9
Williams to Victoria	270		0.4		0.4		0.5		0.4		0.5		0.8		0.8		0.9		0.8		1.0
Victoria to 2nd	515		0.7		0.8		0.9		0.8		0.9		1.5		1.5		1.7		1.5		1.8
2nd to MLK	515		0.7		0.8		0.9		0.8		0.9		1.5		1.5		1.7		1.5		1.8
MLK to Grand	260		0.4		0.4		0.5		0.4		0.5		0.7		0.7		0.8		0.7		0.9
	2805																				
Lloyd/MLK to Everett	530	6.5	0.9	6.5	0.9	6.0	1.0	9.0	0.7	8.5	0.7	6.8	0.9	4.5	1.3	4.5	1.3	4.3	1.4	4.5	1.3
Everett to Davis	270		0.5		0.5		0.5		0.3		0.4		0.5		0.7		0.7		0.7		0.7
Davis to Couch	260		0.5		0.5		0.5		0.3		0.3		0.4		0.7		0.7		0.7		0.7
Couch to Burnside	260		0.5		0.5		0.5		0.3		0.3		0.4		0.7		0.7		0.7		0.7
	1320																				

*Scenario G is identical to Scenario H

Streetcar Travel Time Estimates B Loop AM and PM Peak Times
Existing Conditions + Scenarios D, E, F, H, I*

		AM Peak Hour (8-9 AM)										PM Peak Hour (4:30-5:30 PM)									
		Streetcar - B Loop																			
		Existing		Scenario D Temp Bridge		Scenario E Temp + RQ		Scenario H Full Closure		Scenario I Full + RQ		Existing		Scenario D Temp Bridge		Scenario E Temp + RQ		Scenario H Full Closure		Scenario I Full + RQ	
Travel Path	Link Length (ft)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)	Speed (mph)	Travel Time (min)
Burnside/Grand to Couch	260	18	0.2	15	0.2	10	0.3	12	0.2	6	0.5	10	0.3	10	0.3	8	0.4	12	0.2	8	0.4
Couch to Everett	530		0.3		0.4		0.6		0.5		1.0		0.6		0.6		0.8		0.5		0.8
Everett to Lloyd	530		0.3		0.4		0.6		0.5		1.0		0.6		0.6		0.8		0.5		0.8
	1320																				
Grand to MLK	260	5.5	0.5	5	0.6	3.7	0.8	4.5	0.7	3.5	0.8	5	0.6	4.5	0.7	4	0.7	4.5	0.7	4	0.7
MLK to 2nd	515		1.1		1.2		1.6		1.3		1.7		1.2		1.3		1.5		1.3		1.5
2nd to Victoria	515		1.1		1.2		1.6		1.3		1.7		1.2		1.3		1.5		1.3		1.5
Victoria to Williams	270		0.6		0.6		0.8		0.7		0.9		0.6		0.7		0.8		0.7		0.8
Williams to Vancouver	260		0.5		0.6		0.8		0.7		0.8		0.6		0.7		0.7		0.7		0.7
Vancouver to Flint	230		0.5		0.5		0.7		0.6		0.7		0.5		0.6		0.7		0.6		0.7
Flint to Weidler	190		0.4		0.4		0.6		0.5		0.6		0.4		0.5		0.5		0.5		0.5
Weidler to Benton	260		0.5		0.6		0.8		0.7		0.8		0.6		0.7		0.7		0.7		0.7
Benton to Larrabee	270		0.6		0.6		0.8		0.7		0.9		0.6		0.7		0.8		0.7		0.8
Larrabee to On-Ramp	250		0.5		0.6		0.8		0.6		0.8		0.6		0.6		0.7		0.6		0.7
	3020																				
Broadway Bridge	2100	8.0	3.0	7.5	3.2	6.0	4.0	5.5	4.3	5.0	4.8	10.0	2.4	10.0	2.4	8.0	3.0	7.5	3.2	6.5	3.7

Topic: Safety Crash Modification Factors

Existing Conditions, Enhanced Retrofit, Short-span, Long-span, and Couch Extension

Buil Alternatives	West Approach		Mid-Span		East Approach		Bridge Average	
	All Crashes	Bicycle Crashes	All Crashes	Bicycle Crashes	All Crashes	Bicycle Crashes	All Crashes	Bicycle Crashes
Existing	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Enhanced Retrofit	0.73	0.93	1.00	1.00	0.99	1.00	0.94	0.98
Short-span	0.89	0.34	0.93	0.38	0.91	0.36	0.92	0.37
Long-Span	0.89	0.34	0.93	0.38	0.91	0.36	0.92	0.37
Couch Extension	0.89	0.34	0.93	0.38	N/A	0.38	0.95	0.37

Topic: Construction Impacts on Safety

Scenarios D, E, F, G, H, I

Scenario	Δ Total Crash Frequency from Base	Δ Fatal and Injury Crashes from Base	Δ Total Crash Frequency from Base	Δ Fatal and Injury Crashes from Base
	Enhanced Seismic Retrofit		Enhanced Seismic Retrofit w/ I-5 RQ	
Scenario D	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario E	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario F	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario G	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario H	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario I	-	-	+ 5-24 crashes	+ 5-24 crashes
	Short-span and Long-Span		Short-span and Long-Span w/ I-5 RQ	
Scenario D	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario E	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario F	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario G	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario H	-	-	+ 5-24 crashes	+ 5-24 crashes
Scenario I	-	-	+ 5-24 crashes	+ 5-24 crashes

Topic: Bicycle and Pedestrian Volumes

Scenarios D, E, F, G, H, I

Daily Volumes

	Existing Conditions		No-Build/Build Alternatives		Scenario D: Temporary Bridge All Modes		Scenario E: Temporary Bridge All Modes + I-5 RQ		Scenario F: Temporary Bridge Transit/Bike/Ped		Scenario H: Full Closure		Scenario I: Full Closure + I-5 RQ	
	Bicycle & E-Scooters	Pedestrians	Bicycle & E-Scooters	Pedestrians	Bicycle & E-Scooters	Pedestrians	Bicycle & E-Scooters	Pedestrians	Bicycle & E-Scooters	Pedestrians	Bicycle & E-Scooters	Pedestrians	Bicycle & E-Scooters	Pedestrians
Broadway Bridge	5,550	1,250	7,700	220							6,550	1,250	6,650	1,250
Steel Bridge	3,200	2,250	4,150	4,050	3,900	2,250	3,950	2,250	3,850	2,250	4,850	2,450	4,700	2,450
Burnside Bridge	1,750	1,400	2,950	2,750	1,700	1,400	1,700	1,400	1,600	1,200	0	0	0	0
Morrison Bridge	500	800	700	1,650	650	800	650	800	650	750	850	250	850	250
Hawthorne Bridge	5,200	2,750	6,800	3,350							6,450	2,450	6,500	2,450
Tillikum Bridge	2,250	2,250	4,200	4,100							1,850	2,250	1,900	2,250
Rose Island	50	0	50	0							50	0	50	0
Waterfront Park	2,000	3,000	3,450	5,200							3,350	5,100	3,400	5,100
SW Naito Parkway	1,750	800	3,000	1,400							3,050	1,400	3,100	1,400
Eastbank Esplanade	7,500	1,550	2,650	2,700							0	2,650	0	2,650

Appendix H. Future Year Travel Model Project List

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Milwaukie	Milwaukie	10095	Railroad Ave Capacity Improvements	Pedestrian aspect: construct multiuse path. Public transit aspect: Provide bus service to extend to Clackamas Town Center and points east. Project improves bicycle and pedestrian access to public transit and equity priority areas.	2018-2027
Wilsonville	Wilsonville	11777	French Prairie Drive Pathway	Construct 10 foot wide shared use path, removing bicycles and pedestrians from vehicle travel lane.	2018-2027
Clackamas County	NCPRD	10085	Lake Oswego Oak Grove Bike Ped Bridge Over the Willamette River	Improve safety and mobility for bicyclists and pedestrians by constructing a bike/pedestrian crossing over the Willamette River connecting Lake Oswego and Oak Grove at a location to be determined through future studies.	2018-2027
Oregon City	Oregon City	10123	Willamette Falls Shared-Use Path	Add a shared-use path along the Willamette River. (TSP S3)	2018-2027
Gladstone	Metro	10151	Trolley Trail Bridge Environmental/Engineering	Regional trail would connect the proposed regional Trolley Trail to the Clackamas River Trail via an existing railroad bridge spanning the Clackamas River.	2018-2027
West Linn	West Linn	10129	Willamette River Greenway Trail	Paved trail running parallel to the Willamette River from Willamette Park at the mount of the Tualatin River eventually to the Lake Oswego City Limits facilitating connection to the Willamette River Trail with neighboring cities as part of the Metro Region.	2018-2027
Clackamas County	ODOT	10018	82nd Ave. Bike and Ped Safety Improvements	Improve safety for bike and pedestrian system by completing gaps and implementing proven safety counter measures at identified locations within the corridor. Improve ADA accessibility.	2018-2027
Clackamas County	ODOT	10024	McLoughlin Blvd. Improvement	Improve safety for bicyclist and pedestrians by adding bikeways, pedestrian facilities, fill sidewalk gaps, add transit supportive elements, improve ADA accessibility, and implementing proven safety counter measures.	2018-2027
Happy Valley	Happy Valley	10081	122nd/129th Improvements	Project will build sidewalk on the east side of SE 129th Avenue and widen the existing pavement through the curves north of SE Mountain Gate Road and south of SE Scott Creek Lane. The widening will allow for bike lanes on both sides of SE 129th Avenue by re-striping the road. A retaining wall of varying height will be constructed behind the proposed sidewalk.	2018-2027
Milwaukie	Milwaukie	10094	Lake Road Sidewalks	Fill in sidewalk gaps on both sides of street.	2018-2027
Milwaukie	Milwaukie	10096	37th Ave Sidewalks	Fill in sidewalk gaps on both sides of street to increase pedestrian safety and to improve accessibility in equity priority areas.	2018-2027

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Milwaukie	Milwaukie	10099	Group 1-Monroe St Neighborhood Greenway	Designate Monroe St as a Neighborhood Greenway and install traffic-calming improvements and fill sidewalk gaps on both sides of street. Traffic-calming improvements and completed sidewalk sections will increase bicycle and pedestrian safety. Intersection improvements to improve safety of crossing at Linwood Ave and Monroe St. Improves bicycle and pedestrian network in an equity priority area.	2018-2027
Clackamas County	Clackamas County	10102	Linwood Ave	Add bikeways. Linwood Ave / Monroe St intersection improvements. Add curbs/sidewalks, improve horizontal alignments, add ADA accessibility features, add stormwater features.	2018-2027
Milwaukie	Milwaukie	10112	Ochoco St Sidewalks	Construct sidewalks, reconstruct bridge over Johnson Creek.	2018-2027
Milwaukie	Milwaukie	10113	Group 2--Pedestrian and Bicycle Improvements in Island Station	Kronberg Park Trail = Construct multiuse path to connect Kellogg Creek Bridge to safe crossing of Hwy 99E. Committed.	2018-2027
Oregon City	Oregon City	10125	Molalla Avenue Bike & Pedestrian Improvements, Phase 3	Streetscape improvements including widening sidewalks, sidewalk infill, ADA accessibility, bike lanes, reconfigure travel lanes, add bus stop amenities. (TSP W74, B37, W34)	2018-2027
Oregon City	Oregon City	11184	Main Street Bike & Pedestrian Improvements	Construct streetscape improvements from 10th Street to 15th Street. Construct separated multi- use path or sidewalks and bike lanes from 15th Street to Agnes Avenue. (TSP D90, W3, B3, B4, S1)	2018-2027
Oregon City	Clackamas County	11187	Abernethy Road Bike & Pedestrian Improvements	Add a bike lane to the south side. A shared-use path will be added on the north side. (TSP B8, S2)	2018-2027
SMART	SMART	11343	Bus stop access improvements	Design & construct a variety of improvements to enhance access to transit including bus stops, bus shelters (with solar or conventional lighting), bus pull-outs, ADA improvements at stops, interactive kiosks, etc.	2018-2027
Clackamas County	Clackamas County	11494	Monroe St	Add bikeways, pedways and traffic calming and safety measures, improve ADA accessibility, improve stormwater, increase access to transit and access to employment for historically marginalized community. Combines two projects from 2014 RTP.	2018-2027
Clackamas County	Clackamas County	11503	Jennings Ave	Implement proven safety counter measures by widening to 2-lane urban minor arterial standard with bikeway and pedway infill, improvements to ADA accessibility and stormwater facilities. Phase II of project that is currently underway.	2018-2027
Clackamas County	Clackamas County	11504	Oak Grove Blvd	Fill gaps in pedways and bikeways.	2018-2027

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Clackamas County	Clackamas County	11520	Courtney Ave	Fill gaps in pedways and bikeways, improve intersection safety, increase access to employment, transit access and ADA accessibility.	2018-2027
Clackamas County	Clackamas County	11522	97th Ave / Mather Rd	Add bikeways, pedways along project length, add eastbound left turn lanes at Mather Rd / Summers Ln, provide ADA accessibility improvements as necessary.	2018-2027
Clackamas County	Clackamas County	11525	Courtney Ave	Construct pedway / complete gaps on the south side; add bikeways, improve ADA access, increase transit accessibility, improve access to employment.	2018-2027
Milwaukie	Milwaukie	11533	Bicycle and Pedestrian Overpass over Railroad Ave	Establish a dedicated bicycle and pedestrian connection across Railroad Ave and the railroad tracks.	2018-2027
Milwaukie	Milwaukie	11535	Group 6--Sidewalk & Pedestrian Safety Projects (part 1)	Harmony Rd Sidewalks = Fill in sidewalk gaps on both sides of street. Logus Rd Sidewalks = Fill in sidewalk gaps on both sides of street. International Way Sidewalks = Fill in sidewalk gaps on both sides of street. Brookside Dr Sidewalks = Fill in sidewalk gaps on both sides of street. River Rd Sidewalks = Fill in sidewalk gaps on both sides of street. Group 6 projects improve pedestrian safety and access to equity priority areas.	2018-2027
Milwaukie	Milwaukie	11541	Group 7--Bicycle Infrastructure Improvements	Oatfield Rd Bike Lanes = Fill in gaps in existing bicycle network with bike lanes. Harrison St Bike Lanes = Fill in gaps in existing bicycle network with bike lanes (cost included with Harrison St road widening project). International Way Bicycle Facilities = Construct bike lanes or other bike facilities. Group 7 projects improve safety and bicycle connectivity to equity priority areas.	2018-2027
Wilsonville	Wilsonville	11554	I-5 Walking and Biking Bridge	Construct bike/pedestrian bridge over I-5 to connect Town Center area with businesses and neighborhoods west of I-5.	2018-2027
Lake Oswego	Lake Oswego	11607	Bonita Rd Sidewalks and Bike Lanes	1,300' long, 5.5' sidewalks and 6' bike lanes on both sides. Widening of roadway involves tree removals and loss of on-street parking. Continuation of improvements toward I-5 expected to be incorporated into SW Corridor project.	2018-2027
Milwaukie	Milwaukie	11621	Intersection Curb Ramp Improvements (Milwaukie)	Install curb ramps at all intersections with sidewalks to improve safety and connectivity in equity priority areas.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Milwaukie	Milwaukie	11625	43rd Ave Bike Lanes & Pedestrian Improvements	Fill in sidewalk gaps on both sides of street. Fill in gaps in existing bicycle network with bike lanes. Improve bicycle and pedestrian access in equity priority areas.	2018-2027
Milwaukie	Milwaukie	11671	Linwood Ave Sidewalks (south)	Fill in sidewalk gaps on both sides of street. Sidewalk will improve pedestrian access to equity priority area.	2018-2027
West Linn	ODOT	11746	OR 43 Multimodal Improvements -Arbor Dr. to Mary S. Young Park	Construction of multimodal transportation improvements on OR 43 (N. West Linn city limits to Mary S. Young Park) in accordance with 2016 TSP and 2016 Highway 43 Concept Plan, optimizing traffic flow at major intersections and improving ped/bike safety.	2018-2027
West Linn	West Linn	11747	Willamette Falls Drive Multimodal Improvements - 10th St. to Tualatin River	Provide bike lanes/cycle tracks and sidewalks. This will provide a direct connection between downtown Willamette Main Street area and South city limits.	2018-2027
Clackamas County	Clackamas County	11774	Johnson Creek Blvd and Bell Ave Intersection Safety Improvements (TSAP)	Improve intersection of Johnson Creek Blvd and Bell Ave to improve intersection safety by implementing proven safety counter measures for bicyclist and pedestrians as identified in county Transportation Safety Action Plan and improve ADA accessibility. No change in intersection capacity.	2018-2027
Milwaukie	Milwaukie	11954	Group 6 - Sidewalk & Pedestrian Safety Projects (Part 2)	Fill in sidewalk gaps on Ochoco St King Rd Blvd Treatments = Install street boulevard treatments: widen sidewalks and improve crossings. Group 6 projects improve will improve pedestrian access to equity priority areas.	2018-2027
Happy Valley	Happy Valley	10070	East Mount Scott/Scouter Mountain Trail Loop	Build loop trail from Clatsop street to Highway 212/Clackamas River. Connects Springwater Corridor, Mt. Talbert, Scouters Mountain Nature Park, and the Clackamas River. Partners include City of Portland and City of Happy Valley. In addition, will improve facilities in an Equity Priority Area.	2028-2040
Wilsonville	Wilsonville	10092	Ice Age Tonquin Trail (Segments 1, 2, 3 and 4)	Shared use path with some on-street portions consistent with Metro Ice Age Tonquin Trail Master Plan. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Wilsonville	Wilsonville	10133	French Prairie Bicycle/Pedestrian/Emergency Bridge	New bicycle/pedestrian/emergency vehicle only bridge crossing the Willamette River. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Oregon City	Oregon City	10148	Oregon City Loop Trail, Phase 1	Regional trail would generally follow the Oregon City UGB on a collection of local roads, through new development, along Power line right-of- way, and down the bluff to link up with the Promenade in downtown Oregon City. (TSP S23, S26, C17, S30, C21, S33, C22, C23, S34, C27, FF10, FF15, FF16) The project or a portion of the project is outside the designated urban growth boundary.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Oregon City	Oregon City	10149	Beaver Lake Shared-Use Trail	Add a shared-use path on the east side of the Holly Lane extension between Loder Road and Meadow Lane and on the north side of the Meyers Road extension between the Holly Lane extension and the UGB. (TSP S16, S19)	2028-2040
Oregon City	Oregon City	11186	Willamette River Shared-Use Path	Add a shared-use path along the railroad grade. Rehabilitate existing boardwalk between South 2nd Street and Hedges Street (TSP Project S37).	2028-2040
Oregon City	Oregon City	11546	Meyers/Beavercreek Shared-Use Path	Regional trail would generally follow the Power line alignment, beginning at the Oregon City Loop Trail, meander through a collection of residential neighborhoods on and off a collection of local roads, and into a essential Oregon City Business core area. (TSP S22)	2028-2040
Oregon City	Oregon City	11549	Newell Creek Canyon/Beavercreek Road Shared-Use Path	Add a shared-use path on the east side of the Holly Lane extension between Maple Lane and Loder and on the south/east side of the Loder Road extension between Glen Oak Road and the Holly Lane extension. Install enhanced pedestrian crossings at Maple Lane.	2028-2040
Wilsonville	Wilsonville	11555	Boeckman Creek Trail	Construct multi-use trail along Boeckman Creek with connections to parks.	2028-2040
Clackamas County	NCPRD	11616	North Clackamas Regional Park Trail	Construct multi-use path through existing park from the intersection of Harmony Rd and Linwood Ave to the North Clackamas Aquatic Center including ADA improvements as necessary.	2028-2040
Clackamas County	Clackamas County	11668	Sunrise Multi- use path Phase II	Improve safety for bicyclist and pedestrians by constructing a new multi use path from 122nd Ave to 172nd paralleling the Sunrise Phase 2 project.	2028-2040
Clackamas County	Clackamas County	11767	I-205 Multiuse Path from OR 224 to OR 212	Improve safety for bicyclists and pedestrians by filling a gap of approximately 1 mile in the I-205 Multi-use path and implementing proven safety counter measures, as well as creating connections to other regional multi-use paths and implementing ADA accessibility improvements as necessary.	2028-2040
Gladstone	Metro	11886	Trolley Trail Bridge Phase I	First phase of construction of the Trolley Trail Bridge between Gladstone and the Oregon City Willamette River Trail.	2028-2040
Clackamas County	Clackamas County	10003	Harmony Road Improvements	Add bikelanes and sidewalks where needed, including safety treatments at intersections and ADA accessibility improvements as necessary.	2028-2040
Clackamas County	Clackamas County	10009	Fuller Rd. Improvements	Add pedestrian facilities, turn lanes, on-street parking, central median and landscaping, improve pedestrian treatments at intersections and improve ADA accessibility.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Clackamas County	ODOT	10014	82nd Ave. Multi-Modal Improvements	Improve safety for bicyclists and pedestrians by implementing proven safety counter measures, widening to add sidewalks, lighting, central median, planting strips and landscaping.	2028-2040
Clackamas County	Clackamas County	10022	82nd Drive Bike and Pedestrian Improvements	Improve safety for bicyclists and pedestrians by implementing proven safety counter measures and filling gaps in bikeways and pedestrian facilities.	2028-2040
Clackamas County	Clackamas County	10029	Stafford Rd Improvements	Add paved shoulders and turn lanes at major intersections. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Clackamas County	Clackamas County	10043	Borland Rd from Tualatin to Stafford Rd	Add paved shoulders and turn lanes at major intersections. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Oregon City	Oregon City	10047	Holcomb Boulevard Bike & Pedestrian Improvements	Complete sidewalk and bike lane gaps on both sides, improve street lighting, add four enhanced street crossings, install a speed warning system near Winston Drive and smooth out the curve near Long View Way. (TSP W6, W11, W12, W13, B9, B12, D16, C3, C4, C5, C6)	2028-2040
Clackamas County	Clackamas County	10050	Johnson Rd., Clackamas Rd., McKinley Rd.	Bikeway and pedestrian facilities infill, including safety treatments at intersections, stormwater improvements, and ADA accessibility improvements.	2028-2040
Milwaukie	Milwaukie	10097	Group 5--Stanley Avenue Neighborhood Greenway Improvements	Stanley Ave Neighborhood Greenway = Pedestrian aspect: Fill in sidewalk gaps on both sides of street. Bicycle aspect: Designate as a "neighborhood greenway" and install traffic- calming improvements. Stanley Ave Connectivity at King Rd = Enhance connection along Stanley Ave at King Rd. Stanley Ave Connectivity at Monroe St = Enhance connection along Stanley Ave at Monroe St. Group 5 projects increase connectivity and bicycle and pedestrian safety in an equity priority area.	2028-2040
West Linn	ODOT	10127	OR 43 Multimodal Improvements - Holly St. to Mary S. Young State Park	Improve roadway with widening, turn lanes, street trees, signal interconnections, cycle tracks, and sidewalks.	2028-2040
West Linn	West Linn	10128	Willamette Falls Drive Multimodal Improvements - Hwy. 43 to 10th St.	Provide bike lanes/cycle tracks and sidewalks. This will provide a direct connection between commercial areas (including Downtown Oregon City).	2028-2040
Lake Oswego	Lake Oswego	11082	Carman Dr. sidewalks &/ bike lanes	4,200' long widening for 6' wide bike lanes, 6' wide separated concrete sidewalks along 80% of length, both sides. Continuation of improvements toward I-5 expected to be incorporated into SW Corridor project.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Clackamas County	Clackamas County	11499	River Rd	Improve safety on known high crash corridor by implementing proven safety counter measures, adding bicycle and pedestrian facilities including ADA accessibility features and improvements to stormwater.	2028-2040
Clackamas County	Clackamas County	11500	River Rd	Improving safety on known high crash corridor by implementing proven safety counter measures, filling gaps in bikeways and pedways networks including improvements to ADA accessibility and stormwater as necessary.	2028-2040
Clackamas County	Clackamas County	11501	Concord Rd	Fill gaps in bike and ped facilities as necessary including improvements to stormwater facilities and ADA accessibility. Main project segments are from Trolley Trail to McLoughlin Blvd, and from Harold Rd to Oatfield Rd.	2028-2040
Clackamas County	Clackamas County	11506	Clackamas Rd	Fill gaps in bikeways and pedestrian facilities including improvements to stormwater facilities and ADA accessibility as needed.	2028-2040
Milwaukie	Milwaukie	11534	Lake Rd Bike Lanes	Fill in gaps in existing bicycle network with bike lanes. Improves safety and connectivity for cyclists in an equity priority area.	2028-2040
Tualatin	Clackamas County	11553	Borland Road from 65th Avenue to Tualatin city limits	Upgrade to urban standards and fill sidewalk gaps. Project includes PE, ROW, Environmental and Construction. Add paved shoulders and turn lanes at major intersections.	2028-2040
Lake Oswego	Lake Oswego	11612	Goodall Rd Pathway	3,000’ long, 6’ wide asphalt shoulder pathway on both sides of road. R/W needed for stormwater swale. Completes a connection.	2028-2040
Clackamas County	NCPRD	11617	North Clackamas Regional Parks Trail	Construct multi-use path from OR 213 to Linwood Ave through existing park, including ADA accessibility improvements as necessary.	2028-2040
Milwaukie	Milwaukie	11622	Group 10--19th Avenue Neighborhood Greenway Improvements	19th Ave and Sparrow St Neighborhood Greenway = Designate as a “neighborhood greenway” and install traffic-calming improvements. Project will improve bicycle and pedestrian network in an equity priority area and increase safety for cyclists and pedestrians. This would connect the south end of Kellogg Creek Trail to River Rd.	2028-2040
Oregon City	Oregon City	11626	Maple Lane Road Bike & Pedestrian Improvements	Boulevard improvements including widening sidewalks, sidewalk infill, ADA accessibility, bike lanes, reconfigure travel lanes, add bus stop amenities. Intersection improvements (roundabouts) at Holly Lane & Walnut Grove Way. (TSP D37, D38, D84, W23, B21, C9)	2028-2040
Oregon City	Oregon City	11627	Division Street Bike & Pedestrian Improvements	Boulevard improvements including widening sidewalks, sidewalk infill, ADA accessibility, bike lanes, add bus stop amenities. (TSP D80, W70, B60)	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
West Linn	West Linn	11748	Ostman Road/Blankenship Road Improvements	Provide congestion relief, address safety issues, and improve bike/ped connectivity.	2028-2040
West Linn	West Linn	11754	Salamo Bike and Ped Project	Provide bike lanes/cycle tracks and sidewalks. Project will allow for connection with existing bike/ped facilities on a high traffic arterial and encourage alternative modes of transportation.	2028-2040
West Linn	West Linn	11755	Rosemont Rd./Carriage Way Multimodal Project	Includes construction of multimodal improvements to including turn lanes, sidewalks, and bike lanes.	2028-2040
West Linn	West Linn	11756	Sunset Bike and Ped Project	Provide bike lanes/cycle tracks and sidewalks. Project will allow for connection with exsiting bike/ped facilities.	2028-2040
Oregon City	Oregon City	11760	Linn Avenue Pedestrian Improvements	Construct Linn Avenue pedestrian improvements including sidewalk infill or multi- use path for safety and to connect pedestrian generators. (TSP D19, FF24, FF27, W62, W63, W77, W78, C19, C28, C31, C32, S52)	2028-2040
Clackamas County	Clackamas County	11772	Clackamas Industrial Area Bike/Ped Improvements (TSAP)	Improve intersection of 106th and OR 212, and Jennifer Drive and 122nd Ave to facilitate bike and pedestrian safety per county adopted TSAP, and provide ADA accessibility improvements as needed. Also improve intersection geometry to facilitate truck access to industrial park.	2028-2040
Lake Oswego	Lake Oswego	11936	Stafford Road Improvements	6,000' long, 6' bike lanes and 8' pedestrian facilities on each side of the roadway. Modification to intersections, installation of retaining walls and stormwater improvements required for widening.	2028-2040
Lake Oswego	Various	10087	Lake Oswego to Portland Trail	3.15 mile multi-use pathway adjacent to existing Willamette Shore (rail) Line. Connects Lake Oswego to Portland at Sellwood Bridge. Part of the Willamette River Greenway Trail. Full construction cost to be shared by all agency partners. Initial costs shown for planning, engineering, and possible acquisitions.	2028-2040
Portland	Portland	10338	Alderwood Path	Construct a multi-use path on the west side of Alderwood to separate pedestrians and bicyclists from motor vehicle traffic.	2018-2027
Port of Portland	Port of Portland	10368	PIC Ped/Bike Network	Construct bike and pedestrian facilities as shown in the CS/PIC Plan District.	2018-2027
Portland	Portland	11785	Naito Parkway Corridor Improvements	Provide separated pedestrian and bicycle facilities along the east side of Naito Parkway. Add or upgrade crossings at Montgomery, Clay, Jefferson, Main, Davis, and Everett. Improve pedestrian and bicycle access across Naito, including detection and signal timing adjustments where appropriate. Signalize the top of the ramp from Naito to Hawthorne Bridge to improve traffic flow.	2018-2027
Portland	Portland	10159	Springwater Gap Trail	Construct trail-with-rail multi-use path between Linn and 19th to fill in the "Springwater Gap."	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Gresham	Gresham	10436	Wy'East Way/Max Path - Cleveland to Hogan: Construct Multi-Use Path	Construct new shared use path.	2018-2027
Gresham	Gresham	10437	Gresham/Fairview Trail - Halsey to Sandy: Construct Multi-Use Path	Construct Gresham/Fairview Trail between Halsey and Sandy. This ultimately connects the regional trail between the Springwater Trail and Marine Dr. Trail.	2018-2027
Gresham	Gresham	11602	Gresham/Fairview Trail - Sandy to Marine (Phase V): New Multi- Use Path	Construct the final phase of the Gresham/Fairview Trail between Sandy Blvd. and Marine Dr. This ultimately connects the Springwater Trail to Marine Drive Trail.	2018-2027
Portland	Portland	11640	North Portland Greenway Segment 1	Construct the North Slough Bridge to fill the last remaining gap in Segment 1 of the N Portland Greenway Trail.	2018-2027
Portland	Portland	11641	North Portland Greenway Segment 2	Build a multi-use trail connecting Chimney Park, Pier Park, Baltimore Woods, Cathedral Park, and St Johns.	2018-2027
Portland	ODOT	11647	I-205 Undercrossing	Sidewalk infill and bike lanes on 92nd from Tillamook to Halsey. Multi-use path along Halsey frontage road, underneath I-205, and connecting to I-205 Path in Gateway Green. Project connects the planned Sullivan's Gulch Trail to the I-205 Path.	2018-2027
Portland	Portland	11741	North Portland Greenway Trail: Columbia Blvd Bridge	Construct a pedestrian/bicycle bridge over Columbia Blvd and adjacent connections. Connects North Portland Greenway Trail segments 1 and 2.	2018-2027
Portland	Portland	11850	I-84 Path Extension	Construct a multi-use path using existing bridge from I-205 Path to NE Fremont St and along the south side of NE Fremont St connecting to I-84 Path at 122nd. Project includes neighborhood greenway connection on Fremont Ct and 115th.	2018-2027
Port of Portland	Port of Portland	12075	40 Mile Loop: Blue Lake Park to Sundial Road	1.7 mile mixed use trail.	2018-2027
Multnomah County	Multnomah County	11673	Troutdale Road Pedestrian Improvement	Troutdale Road improvements: Add pedestrian facility between 21st and Stark where there isn't one currently; to address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Multnomah County	Multnomah County	11674	Troutdale Road Bike Improvements	Troutdale Road improvements: bike facility between Buxton and Stark st where there isn't currently one. To address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Portland	Portland	10182	St Johns Connected Centers Project	Enhance pedestrian connectivity and access to transit, improve safety, improve sub-standard streets, add lighting and crossings, and construct bikeway connections within and around St Johns Town Center.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	10184	Foster Rd Corridor Improvements	Improve sidewalks, lighting, crossings, bus shelters & benches on Foster and improve pedestrian crossing at Foster/82nd intersection to benefit pedestrian access to transit. Add bicycle facilities.	2018-2027
Portland	Portland	10186	Lents Town Center Improvements, Phase 2	Enhance bike facilities and implement Lents Town Center Business District Transportation Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, and street lighting.	2018-2027
Portland	Portland	10189	SW Capitol Hwy Corridor Improvements	Improve SW Capitol Highway from SW Multnomah Boulevard to SW Taylors Ferry Road to include a continuous sidewalk(s), safe crossings and bicycle access along the corridor. Project is the last unimproved phase of the the 1996 Capitol Highway Plan.	2018-2027
Portland	Portland	10203	Outer Glisan Corridor Improvements, Segment 2	Retrofit street with new traffic signals, bicycle facilities, improved pedestrian facilities and crossings, street lighting, and other safety and access improvements.	2018-2027
Portland	Portland	10219	N Argyle Corridor Improvements	Design and implement pedestrian and bicycle facilities on N Argyle from N Columbia Blvd to N Denver Ave. Construct safety and connectivity improvements at the Columbia, Brandon, and Denver intersections.	2018-2027
Portland	Portland	10220	Seventies Greenstreet and Bikeway	Develop a combined pedestrian greenway and bike boulevard including crossing improvements from Killingsworth to Springwater.	2018-2027
Portland	Portland	10232	Flanders Neighborhood Greenway	Neighborhood greenway from 24th to Steel Bridge, including new ped/bike bridge over I- 405 and new at-grade crossing of Naito Parkway. This project will be coordinated with ODOT to address potential impacts to the I-405 interchanges, overcrossings, and ramps.	2018-2027
Portland	Portland	10271	SE 92nd Ave Safety Improvements	Design and implement bicycle facilities between Holgate and Woodstock. Fill sidewalk gaps between Stark and Clatsop. Upgrade or add crosswalks, ADA ramps, and curb extensions or islands in the 2- and 3-lane sections.	2018-2027
Portland	Portland	10279	Beaverton-Hillsdale Hwy Corridor Improvements	Enhance existing bikeways, build new sidewalks, improve crossings, and enhance access to transit.	2018-2027
Portland	Portland	10284	Outer Taylors Ferry Safety Improvements, Segment 1	Widen shoulder to provide bicycle climbing lane and construct a walkway for pedestrian travel and access to transit.	2018-2027
Portland	Portland	10289	Inner Division Corridor Improvements	Design and implement multimodal corridor improvements including pedestrian lighting, new and enhanced crossings, new or modified signals, and transit stop upgrades. Enhance existing bicycle facilities from 60th to 82nd.	2018-2027
Portland	Portland	10307	Inner Holgate Corridor Safety Improvements	Design and implement bicycle facilities, apply crosswalk spacing and lighting standards, and apply design treatments for slower motor vehicle speeds.	2018-2027

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Portland	Portland	10311	Mason Neighborhood Greenway	Design and implement a neighborhood greenway on Mason and Skidmore from Michigan to 81st, and install separated bike lanes on Prescott from 81st to I-205. Construct sidewalk infill on Prescott from Sandy to 92nd.	2018-2027
Portland	Portland	10319	Stark/Washington Multimodal Improvements	Build protected bike lanes, pedestrian crossings, and transit improvements in and around the Stark/Washington couplet in Gateway Regional Center, as identified in the Growing Transit Communities Plan.	2018-2027
Portland	Portland	10320	NE Halsey Safety and Access to Transit	Construct high-priority safety and access to transit improvements along the Halsey corridor, as identified in the Growing Transit Communities Plan. Elements include bicycle facilities on Halsey/82nd overpass, improvements to existing path under Halsey overpass west of MAX station and neighborhood greenway connection to Tillamook, and a multi-use path along Jonesmore and Halsey from 82nd to 92nd. Project provides an alternate route for the Sullivan's Gulch Trail that avoids UP right-of- way.	2018-2027
Portland	Portland	10321	Outer Stark Safety and Access to Transit	Construct priority pedestrian and bicycle access to transit improvements in the Outer Stark corridor, as identified in the Growing Transit Communities Plan. Elements include improved pedestrian crossings, enhanced bikeways, transit stop improvements, transit priority improvements, lighting upgrades, and roadway design changes to improve traffic safety.	2018-2027
Portland	Portland	10341	Columbia Blvd Corridor Improvements	Improve safety and access by filling high-priority sidewalk gaps, adding pedestrian crossings, and employing safety countermeasures to reduce motor vehicle crashes. Design and implement a protected bikeway or multi-use path along Columbia Blvd from Burgard to Portsmouth to fill a gap in the bikeway network.	2018-2027
Multnomah County	Multnomah County	10385	Reconstruct Halsey St. with Improvements	Widen Halsey St to 3 lane minor arterial with center turn lane/median, sidewalk and bicycle lanes, - to improve safety of road for bicyclists and pedestrians and to reduce conflicts. Consistent with Halsey Street Conceptual Design Plan; to address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Gresham	Gresham	10425	1st Street - 242nd to 257th: Complete Buildout	Brings to standards, adds pedestrian, bicycle facilities.	2018-2027
Gresham	Gresham	10440	Division - Gresham/Fairview Trail to Wallula/212th: Sidewalks, Bike Lanes	Retrofit street to add bicylce facilities, sidewalks, and explore other multimodal facilities and connections.	2018-2027

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Gresham	Gresham	10459	Burnside - 172nd, 197th, Glisan, Stark Intersections: Safety Corridor Improvements	Improve sidewalks, lighting, crossings, bus shelters, benches.	2018-2027
Gresham	Gresham	10502	Citywide: Bike Wayfinding Signs	Add directional signs to bike network.	2018-2027
Gresham	Gresham	10509	Safe Walking Routes (Missing Links)	Construct all missing links within the city (other than what is done incrementally through annual CIP allocations and through development as it happens).	2018-2027
Portland	Portland	11131	SW Vermont St Ped/Bike Improvements	Construct multi-modal street improvements including bicycle and pedestrian facilities.	2018-2027
Portland	Portland	11316	Lents Area Connected Centers Project, Phase 1	Construct pedestrian and bicycle improvements to build out the active transportation network in and around Lents Town Center and other nearby Neighborhood Centers.	2018-2027
Portland	Portland	11320	60th MAX Station Area Improvements	Construct priority pedestrian and bicycle access to transit improvements in the 60th Ave MAX Station Area, as identified in the Growing Transit Communities Plan. Improve traffic safety on NE Halsey St.	2018-2027
Portland	Portland	11351	SW Multnomah Blvd Ped/Bike Improvements, Phase 2	Provide separated pedestrian and bicycle facilities, along with stormwater management facilities.	2018-2027
Gresham	Gresham	11374	Division Corridor - City Limits to Cleveland Station: Pedestrian and Bicycle Enhancements	Pedestrian and Bicycle improvements that support access to the Division Transit Project.	2018-2027
Portland	Portland	11560	Central City Multimodal Safety Improvements, Phase 1	Strategy that identifies multi-modal safety improvements and prioritizes and constructs investments in the Portland Central City.	2018-2027
Portland	ODOT	11564	Portland OR99W/ Barbur Blvd Area: Sidewalk Infill Projects	Sidewalk infill on SW 26th Ave (Taylors Ferry - I- 5), SW 24th/25th Ave (Multnomah - Spring Garden), SW Custer Dr (Capitol Hill - 13th), SW Capitol Hill Rd (Barbur - Moss), and SW 40th Ave (Huber - Wilbard). Include an enhanced pedestrian crossing at SW 40th & Huber.	2018-2027
Portland	Portland	11566	Connected Cully, Phase 1	Improve transportation and safety needs while positioning public lands to meet local economic and community development needs. The project will calm traffic, fill in the missing sidewalks along transit routes, and increase walking and bicycling by creating new north/south connections to schools.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	ODOT	11567	Downtown I-405 Pedestrian Safety and Operational Improvements	Improve pedestrian and bike access from NW Portland to Central City across I-405. Improves traffic operations for I-405 off-ramp.	2018-2027
Multnomah County	Multnomah County	11599	ATP Project Implementation	Implementation of recommendations from Active Transportation Plan, including safe routes to school projects and other bike/ped improvements in areas of high need. To address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Portland	Portland	11636	NE Multnomah Protected Bikeway	Construct permanent improvements to the NE Multnomah St protected bikeway, including pedestrian islands and transit islands.	2018-2027
Portland	Portland	11645	Sullivan's Crossing Pedestrian/Bicycle Bridge	Construct a pedestrian/bicycle bridge across Interstate 84 connecting the Lloyd District to the Central Eastside Industrial District.	2018-2027
Portland	Portland	11646	Broadway/Weidler Corridor Improvements, Phase 1	Enhance existing bike lanes and improve pedestrian/bicycle crossings. Add traffic signals, improve signal timing, improve transit stops, and construct streetscape improvements.	2018-2027
Gresham	Gresham	11689	Eastman - Division to Powell: Bike and Ped Safety Improvements	Eastman & 25th pedestrian crossing and Eastman bikelane/stormwater improvements {Division - Powell}.	2018-2027
Gresham	Gresham	11699	Main - Division to 5th: Improve Pedestrian Access to MAX	Ped to MAX project, improve pedestrian access to light rail transit.	2018-2027
Portland	Portland	11786	Water Ave Corridor Improvements	Remove rails from roadway, repair pavement, build sidewalks, and enhance existing bikeway.	2018-2027
Portland	Portland	11804	Cully to Columbia Connector	Upgrade Cully Blvd to include curbs, drainage, sidewalks, and bike lanes. Improve safety for all modes at railroad crossing.	2018-2027
Portland	Portland	11806	NE Prescott Safety Improvements	Construct bicycle facilities, sidewalks, and crossing improvements for pedestrian and bicycle safety and to improve access to transit.	2018-2027
Portland	Portland	11816	Inner E Burnside Ped/Bike Improvements	Improve multimodal safety and access along the E Burnside corridor, including new/improved bikeways, crossings, roadway safety redesign, and transit improvements.	2018-2027
Portland	Portland	11819	Reedway Ped/Bike Overcrossing	Construct a pedestrian/bicycle overcrossing of McLoughlin Blvd, light rail, and railroad tracks.	2018-2027
Portland	Portland	11821	Sixties Neighborhood Greenway	Design and implement a neighborhood greenway, with traffic calming and enhanced crossings as needed.	2018-2027
Portland	Portland	11823	Outer Holgate Ped/Bike Improvements	Construct sidewalks and crossing improvements to facilitate pedestrian travel and access to transit. Enhance existing bicycle facilities and extend bicycle facilities from 130th to 136th.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	11838	Inner Hawthorne Multimodal Corridor Improvements	Construct an eastbound protected bikeway with transit islands to improve pedestrian and bicycle safety and comfort as well as transit operational efficiency. Explore feasibility of eastbound bus-only lane as part of project design.	2018-2027
Portland	Portland	11842	N Willamette Blvd Bikeway	Add a neighborhood greenway from Interstate to Rosa Parks and from Richmond to Reno, enhance existing bikeway from Rosa Parks to Ida, extend bikeway to Richmond, and provide a parallel neighborhood greenway on Princeton through the University Park neighborhood. Incorporate pedestrian safety and access to transit improvements throughout the project.	2018-2027
Portland	Portland	11843	N Interstate Ave Bikeway Improvements	Enhance and extend existing bikeway to improve safety and access.	2018-2027
Portland	Portland	11845	Connected Cully, Phase 2	Construct priority pedestrian and bicycle network improvements within and connecting to the Cully Neighborhood Center.	2018-2027
Portland	Portland	11846	Killingsworth/Interstate Connected Centers Project, Phase 1	Construct priority pedestrian and bicycle network improvements within and connecting to the Killingsworth / Interstate Town Center and nearby Neighborhood Centers.	2018-2027
Portland	Portland	11847	Outer Alberta Neighborhood Greenway	Design and implement a neighborhood greenway, including connection through or around Sacajawea Park.	2018-2027
Portland	Portland	11851	Halsey/Weidler Safety and Access to Transit	Construct the Halsey/Weidler area active transportation improvements identified in the Growing Transit Communities Plan to provide safe access to schools and transit.	2018-2027
Portland	Portland	11853	NW District Connected Centers Project	Construct high-priority bikeways, pedestrian improvements, and transit priority treatments in and around the NW District Town Center.	2018-2027
Portland	Portland	11855	Jade & Montavilla Connected Centers Project	Construct multi-modal improvements on key pedestrian and bicycle routes within and connecting to the Jade District and Montavilla Neighborhood Centers.	2018-2027
Portland	Portland	11856	Brentwood-Darlington Safe Routes to School	Sidewalk infill behind existing curb on SE Duke St and SE Flavel St from 52nd Ave to 82nd Ave. Construct a neighborhood greenway on Knapp and Ogden from 52nd to 87th, with traffic calming and crossing improvements.	2018-2027
Portland	Portland	11857	82nd Ave MAX Station Area Improvements	Construct priority pedestrian and bicycle access to transit improvements in the 82nd Ave MAX Station Area, as identified in the Growing Transit Communities Plan.	2018-2027
Portland	Portland	11858	E Burnside Safety and Access to Transit	Construct priority pedestrian and bicycle safety and access to transit improvements in the E Burnside corridor, as identified in the Growing Transit Communities Plan.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	11859	Division-Midway Connected Centers Project Phase 1	Construct priority pedestrian and bicycle network improvements within and connecting to Division-Midway Town Center and nearby neighborhood centers, including projects identified in the Division-Midway Neighborhood Street Plan and the Growing Transit Communities Plan.	2018-2027
Portland	Portland	11861	Hillsdale Town Center Pedestrian Connection	Construct sidewalk infill on SW Beaverton- Hillsdale Highway between Dosch and Hillsdale Town Center and on Dosch from Beaverton Hillsdale Highway to Flower.	2018-2027
Portland	Portland	11862	Terwilliger Bikeway Gaps	Design and implement bicycle facilities to fill in gaps in the Terwilliger Bikeway.	2018-2027
Portland	Portland	11940	NE Killingsworth Safety Improvements	Upgrade pedestrian crossings and transit stops to improve safety and access to transit. Include streetscape improvements at major activity centers.	2018-2027
Portland	Portland	12091	SW 30th/Hume/31st Pedestrian and Bike Improvements	Construct a pedestrian walkway and bicycle facilities.	2018-2027
Portland	ODOT	11198	Portland to Milwaukie Trail	Construct a shared-use path along SE McLoughlin Blvd from 17th Ave to the Springwater Corridor Trail. This project will be coordinated with ODOT to determine the alignment along McLoughlin Blvd.	2028-2040
Portland	ODOT	11814	NW Bridge Ave Multi-use Path	Construct a multi-use path along Bridge Avenue between both St Helens Rd intersections.	2028-2040
Gresham	Gresham	10069	East Buttes Powerline Trail - Springwater to Clackamas Greenway: New Multi-Use Path	Build trail linking Gresham and the Clackamas River.	2028-2040
Portland	Portland	10206	Marine Dr Trail Gaps	Construct remaining gaps in the Marine Dr Trail, including two gaps in the Bridgeton area and one from 112th Ave to 122nd Ave.	2028-2040
Portland	Portland	10234	Columbia Slough Trail Gaps	Close gaps in Columbia Slough Trail: North Slough to North Portland Rd; Vancouver to NE Elrod; NE Elrod to NE 47th Ave; I-205 to approx. NE 128th; NE 145th to 158th, Delta Park Trail.	2028-2040
Portland	Portland	10354	Red Electric Trail	Provide east-west route for pedestrians and cyclists in SW Portland that connects and extends the existing Fanno Creek Greenway Trail to Willamette Park.	2028-2040
Gresham	Gresham	11074	East Buttes Loop Trail - Springwater Trail to Rodlun: New Multi-Use Path	Construct new shared use trail (12' wide pervious asphalt).	2028-2040
Portland	Portland	11642	North Portland Greenway Segment 3	Build a multi-use trail connecting the Cathedral Park with Swan Island via University of Portland and Willamette Cove.	2028-2040
Portland	Portland	11643	North Portland Greenway Segment 4	Build a multi-use trail connecting Waud Bluff Trail to N Going Street through Swan Island.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	11644	North Portland Greenway Segment 5	Build a multi-use trail along the Albina Yard connecting Swan Island to the Rose Quarter.	2028-2040
Portland	ODOT	11792	Upper I-405 Trail	Design and implement a pedestrian and bicycle connection along the I-405 off-ramp to 4th & Lincoln. Supports future Green Loop project.	2028-2040
Portland	Portland	11808	Sullivan's Gulch Trail: Jonesmore Segment	Construct a multi-use trail for pedestrians and bicycles along Broadway and Jonesmore adjacent to the I-84 sound wall, with an improved crossing of 74th Avenue. Provide neighborhood greenway bikeway connections west to 62nd & Hancock and east to 92nd & Schuyler.	2028-2040
Portland	Portland	11813	Cross-Levee Trail	Construct a multi-use path, with crossing improvements at Sandy, Airport Way, and Marine Dr.	2028-2040
Portland	ODOT	11831	US 26 Multi-use Path	Design and implement a multi-use path.	2028-2040
Portland	Portland	10204	Gateway Pacific St Streetscape Improvements	Construct streetscape improvements including wider sidewalks, lighting, street trees, center turn lane, bike lanes, and new signals.	2028-2040
Portland	Portland	10205	Gateway 99th/96th Streetscape Improvements	Construct streetscape improvements including wider sidewalks, lighting, street trees, center turn lane, bike lanes, and new signals.	2028-2040
Portland	Portland	10222	Flavel Dr Roadway Improvements	Fully improve street from SE 45th to Clatsop Street with travel lanes, curbs, swales, sidewalks, and separated in-roadway bicycle facilities from 52nd to Clatsop.	2028-2040
Portland	Portland	10268	Hollywood Town Center Safety Improvements	Implement multimodal safety improvements including traffic signals, restriping, improved pedestrian crossings, and connections to transit center.	2028-2040
Portland	Portland	10273	Inner Capitol Hwy Corridor Improvements	Construct sidewalks, crossing improvements for access to transit, and bike improvements, and install left turn lane at the Capitol/Burlingame intersection.	2028-2040
Portland	Portland	10280	Sunset Blvd Ped/Bike Improvements	Construct a pedestrian walkway and climbing bike lane.	2028-2040
Portland	Portland	10286	Markham School Pedestrian/Bicycle Overpass	Construct pedestrian path and bridge over Barbur Blvd. and I-5 to connect SW Alfred and SW 52nd to the rear of Markham School.	2028-2040
Portland	ODOT	10287	West Portland Connected Centers Project	Construct high-priority bikeways, pedestrian improvements, and transit priority treatments in and around West Portland Town Center.	2028-2040
Portland	Portland	10294	N Killingsworth Streetscape Improvements	Design and implement streetscape improvements to enhance sidewalks, lighting, crossings, transit stops, and signals.	2028-2040
Portland	Portland	10305	Middle Holgate Bikeway	Design and implement bicycle facilities.	2028-2040
Portland	Portland	10306	Holgate Blvd Corridor Improvements	Reconstruct pavement structure and stormwater drainage facilities, improve corner curb ramps to ADA standards, improve pedestrian crossings, and add bicycle facilities.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	ODOT	10309	SW Macadam Ped/Bike Improvements	Improve pedestrian and bicycle crossings of Macadam and connections to the Willamette Greenway Trail.	2028-2040
Portland	Portland	10312	Eastside MAX Station Pedestrian Improvements	Retrofit existing streets along eastside MAX and at intersecting streets to include better sidewalks and crossings, curb extensions, bus shelters, and benches at 122nd, 148th, and 162nd stations.	2028-2040
Gresham	Gresham	10422	Division - 257th/Kane to City Limits: Complete Buildout	Improve to community street standards, including bike lanes.	2028-2040
Portland	Portland	11197	Swan Island Active Transportation Improvements	Improve access and mobility on Swan Island by constructing the recommended bikeway and trail network in the Portland Bicycle Plan for 2030, including an improved bikeway connection from Basin to Going Ct.	2028-2040
Portland	Portland	11632	North Hayden Island Drive	Construct a multi-use path on one side of N Hayden Island Dr, and install pedestrian/bicycle crossing improvements.	2028-2040
Gresham	Gresham	11676	181st - I-84 to San Rafael: Pedestrian Improvements (Complete Sidewalks)	Complete sidewalk connections on 181st from I- 84 to San Rafael.	2028-2040
Gresham	Gresham	11680	17th - Kane to East City Limit: Bike/Ped Improvements	17th Ave: Kane to Gresham east city boundary Bike/Ped Improvements.	2028-2040
Portland	Portland	11780	Fields Park Pedestrian / Bicycle Bridge	Construct a pedestrian/bicycle bridge over the railroad tracks.	2028-2040
Portland	Portland	11784	NW Marshall Pedestrian/Bicycle Bridge	Construct a pedestrian/bicycle bridge over the railroad tracks, potentially connecting to Broadway Bridge.	2028-2040
Portland	ODOT	11787	I-405 South Portland Crossing Improvements	Improve opportunities for people walking and bicycling to cross I-405 on Harbor Dr, Naito Pkwy, 1st, 4th, 5th, 6th, and Broadway.	2028-2040
Portland	Portland	11790	NW 13th Ave Ped/Bike Bridge	Construct a pedestrian and bicycle bridge over the railroad tracks to connect the North Pearl District to Naito and the waterfront.	2028-2040
Portland	Portland	11795	Post Office Blocks Transportation Improvements, Phase 2	Extend the Green Loop through the Broadway Corridor redevelopment site from North Park Blocks to Broadway Bridge. Enhance existing bike lanes along Broadway and Lovejoy viaducts.	2028-2040
Portland	Portland	11803	NE 82nd Ave Ped/Bike Improvements, Phase 2	Construct pedestrian and bicycle facilities.	2028-2040
Portland	Portland	11805	Killingsworth/Interstate Connected Centers Project, Phase 2	Construct priority pedestrian and bicycle network improvements within and connecting to the Killingsworth / Interstate Town Center and nearby Neighborhood Centers.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	11817	Foster Rd Corridor Improvements, Phase 2	Construct remaining elements from the Foster Rd Transportation and Streetscape Plan, including curb extensions along the corridor and roadway widening at 82nd/Foster in order to extend bike lanes through intersection.	2028-2040
Portland	Portland	11818	Inner Milwaukie Streetscape Improvements	Design and implement streetscape improvements to enhance sidewalks, lighting, crossings, transit stops, and signals.	2028-2040
Portland	Portland	11822	Thorburn / Gilham Safety Improvements	Design and implement a pedestrian walkway, improved crossings, and traffic calming elements.	2028-2040
Portland	Portland	11824	Division-Midway Connected Centers Project, Phase 2	Construct priority pedestrian and bicycle network improvements within and connecting to Division-Midway Town Center and nearby neighborhood centers.	2028-2040
Portland	Portland	11825	SW Pomona/64th Ped/Bike Improvements	Construct sidewalks and bicycle facilities.	2028-2040
Portland	Portland	11829	Slavin Rd Ped/Bike Improvements	Build a pedestrian and bicycle connection on Slavin Road from Barbur to Corbett, and construct an improved pedestrian/bicycle crossing of Barbur at the Capitol Hwy on-ramp.	2028-2040
Portland	ODOT	11830	Multnomah Viaduct Safety Improvements	Construct new bicycle and pedestrian facilities at or parallel to Multnomah Blvd viaduct crossing I-5.	2028-2040
Portland	Portland	11832	Central City Multimodal Safety Improvements, Phase 2	Construct high-priority bikeways, pedestrian improvements, and transit priority treatments in the Central City, identified through the Central City Multimodal Project planning phase.	2028-2040
Portland	Portland	11837	Cascade Station Trail	Construct a multi-use path connecting Cascade Station to Alderwood via Glass Plant Rd, and add eastbound bike lane to Alderwood underneath I-205.	2028-2040
Portland	Portland	11883	Outer Taylors Ferry Safety Improvements, Segment 2	Widen shoulder to provide bicycle climbing lane and construct a walkway for pedestrian travel and access to transit.	2028-2040
Multnomah County	Multnomah County	11975	Bike/Ped Improvements	Implement bike and pedestrian improvements on all WRBs consistent with the projects being identified in the City of Portland Central City in Motion. To address safety and reduce crashes the project will use proven safety countermeasures.	2028-2040
Portland	Portland	12009	Lents Area Connected Centers Project, Phase 2	Construct pedestrian and bicycle improvements to build out the active transportation network in and around Lents Town Center and other nearby Neighborhood Centers.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
THPRD	THPRD	11967	Westside Regional Trail Segment #19	To design and construct 12' wide regional multi- use trail segment in a utility corridor connecting THPRD trails to the Portland trail systems. The road separated facility will complete a gap and provide safety by removing vehicluar conflict, increased access to jobs and 2040 centers, safe routes to schools, and serve areas with marginalized communities. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
THPRD	THPRD	11945	Bethany Creek Community Trail #2	Short, yet significant 12' wide multi-use trail segment connecting new urban area residents to the Waterhouse community trail, and Westside and Rock Creek Regional Trails in a utility corridor and buffered bike-way. The road separated facility will complete a gap in the trail network, provide safety, increased access to jobs and 2040 centers, and serve areas with marginalized communities.	2028-2040
Tigard	Tigard	12008	Red Rock Creek Greenway	New trail parallel along Red Rock Ck in the Triangle from Near Dartmouth/217 to I-5.	2028-2040
TriMet	To be determined	11043	Access: Pedestrian Facilities: Phase 1	Sidewalks, crosswalks and ADA improvements to transit stops and stations.	2018-2027
TriMet	TriMet	11411	Access: Bike & Ride Facilities: Phase 1	Provide secure bike parking facilities and enhancements at TriMet stations and stops.	2018-2027
Sherwood	Sherwood	10701	Cedar Creek Trail	Project development, design and construction of 3 main segments of the Ice Age Tonquin Trail. Segment 1 is from SW Oregon St/Murdock Rd roundabout west through Old Town Sherwood into the Cedar Creek Corridor to SW Pacific Highway. Segment 2 is from SW Pacific Highway to SW Edy Road. Segment 3 is from SW Edy Road to SW Roy Rogers Rd. Segment 1 is in design/construction phase. This RTP project covers design & construction of phases 1 & 2 and is a candidate to partner w/ phase 4 north along Roy Rogers to newly developed areas in partnership w/ Metro and Washington County.	2018-2027
Forest Grove	To be determined	10806	Council Creek Regional Trail (East-West)	Multi-use trail from the end of the Westside MAX light-rail line in Hillsboro, through Washington County, the City of Cornelius, and extending into the City of Forest Grove, with an additional short trail south in Cornelius. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
THPRD	THPRD	10810	Westside Trail (Regional) Segment #14	To design and construct a regional trail multi- use segment. The trail may increase safety by creating 12' wide trail/sidewalk connecting to a road separated facility near high injury corridors and high injury intersections. Completing the trail gap increases access to jobs in a marginalized area.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
THPRD	THPRD	11211	Bridge crossing of Hwy. 26 by the Westside Trail	Off-street bike/pedestrian bridge over Highway 26 eliminating out of direction bike/ped. trips along major arterials considered high injury corridors. The crossing will provide increase access to transit, jobs, 2040 Centers, and create safe routes to schools and serve marginalized communities.	2018-2027
THPRD	THPRD	12043	Beaverton Creek Trail (Regional) Seg. #3 & #4	Design and construct a 12' wide regional, mulit- use trail segment connecting the THPRD Nature Park to the planned trail at SW Hocken Blvd which reaches the Beaverton Transit Center. The off-street facility increases safety by providing an alternate route to high injury corridors/intersections. Completing the trail gap increases access to jobs and 2040 Centers, and is located near histrionically marginalized communities.	2018-2027
Tigard	Tigard	12088	Fanno Creek Trail Gap (Bonita to Durham Park)	Complete regional trail gap.	2018-2027
Washington County	Washington County	10584	Alexander St. Improvements	Add sidewalks, lighting, streetscape features, bike boulevard treatments, signal at 185th Ave, turn lanes at major intersections.	2018-2027
Washington County	Washington County	10608	Aloha-Reedville Pedestrian Improvements	Sidewalk infill, pedestrian crossings, accessways, ped/bike bridges over creeks, at-grade ped/bike crossings of Portland and Western Railroad.	2018-2027
Beaverton	Beaverton	10636	Millikan Way Multimodal Improvements	Add turn lanes as needed, bike lanes and sidewalks, signalize as warranted.	2018-2027
Beaverton	Beaverton	10646	Hall Boulevard and Watson Avenue Intersection Improvements	Reconstruct intersections to improve comfort and safety for pedestrian. New elements may include curb extensions, lighting, landscaping, ADA ramp upgrades, and benches.	2018-2027
Beaverton	Beaverton	10663	Hall Boulevard Bike Lanes Phase 1	Construct bike lanes and turn lanes.	2018-2027
Beaverton	Beaverton	10664	Watson Avenue Bike Lanes	Construct bike lanes.	2018-2027
Beaverton	Beaverton	10667	155th Avenue Bike Lanes	Construct bike lanes.	2018-2027
Beaverton	Beaverton	10669	Hall Boulevard Bike Lanes Phase 2	Construct bike lanes and turn lanes.	2018-2027
Beaverton	Beaverton	10670	Denney Road Bike Lanes and Sidewalks	Construct bike lanes, sidewalks, and turn lanes where needed.	2018-2027
Beaverton	Beaverton	10672	Western Avenue Bike Lanes	Construct bike lanes.	2018-2027
Sherwood	ODOT	10706	OR 99W Pedestrian Improvements	Pedestrian upgrades. Completes pedestrian links along 99W from north to south end of city limits. Includes ADA upgrades as required at intersection and local connections. Assumes bike lanes already provided along OR 99W (SW Pacific Highway).	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Tualatin	Tualatin	10714	105th Avenue Bike and Pedestrian Improvements	To enhance pedestrian and bicycle safety: install active transportation improvements around the curves at SW 105th/SW Blake St/SW 108th Avenue.	2018-2027
Tualatin	Tualatin	10745	Nyberg Creek Greenway Trail - East	Shared Use Path with boardwalk sections through wetland/natural areas. Trail will provide access to nature and jobs for communities of color, and English language learners.	2018-2027
Tigard	Tigard	10760	Tigard Town Center Pedestrian Improvements	Improve sidewalks, lighting, crossings, bus shelters and benches throughout the Town Center including: Highway 99W, Hall Blvd, Main Street, and neighborhood streets.	2018-2027
Hillsboro	ODOT	10849	Downtown Hillsboro Regional Center Multi-modal and Safety Improvements	Improve pedestrian and bicycle facilities, safety, and access to jobs, social services, transit, and businesses in the Hillsboro Downtown Regional Center; special attention to pedestrian and bicycle access across Hwy 8 one-way couplet (Oak St and Baseline St).	2018-2027
Hillsboro	Hillsboro	11138	206th Ave Bike/Ped Gaps	Complete missing sidewalks and bike lanes.	2018-2027
Hillsboro	Hillsboro	11153	Golden Rd Bike/Ped Improvements	Construct sidewalks and buffered bike lanes.	2018-2027
Tigard	Tigard	11227	Neighborhood Trails & Regional Trail Connections	Construct high priority neighborhood trails to regional trails, sidewalks & transit.	2018-2027
Cornelius	Cornelius	11245	Davis Street Sidewalks and Bike Signage	Add sidewalks on south side of this collector street. Also add bike markings (sharrows) and bike signage.	2018-2027
Cornelius	Cornelius	11249	19th/20th Avenue	Improve to collector standards by building out sidewalk gaps, creating bike facilities, and improving rail crossing.	2018-2027
Washington County	ODOT	11440	TV Hwy (and Canyon Rd) Corridor Safety and Access to Transit	Bus stop improvements, ADA improvements, sidewalk infill, enhanced pedestrian crossings, signal priority, queue jumps.	2018-2027
Washington County	Washington County	11448	198th Ave. Improvements - South	Add sidewalks, bike lanes, lighting, turn lanes at major intersections.	2018-2027
King City	ODOT	11692	King City Sidewalk Infill	Add sidewalks.	2018-2027
Beaverton	Beaverton	11888	Access to Transit Sidewalk Infill	Construct sidewalk where missing on arterials and collectors near transit (MAX stations and bus stops). Specific locations to be determined. This project is funded through Washington County's MSTIP 3e program.	2018-2027
Washington County	Washington County	11916	Springville Rd	Improve south side from 2 lanes to 3 lanes with bike lanes and sidewalks.	2018-2027

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Cornelius	Cornelius	11917	S. 29th Boulevard Connection	Construct new collector into Cornelius SE UGB expansion area.	2018-2027
Washington County	Washington County	11922	School Access Improvement Projects	Add sidewalks, neighborhood bikeways, signage, crossings.	2018-2027
Tigard	Tigard	12000	Tigard Safe Routes to School Projects	Pedestrian upgrades, new sidewalks, new bike lanes, sidewalk infill on Tigard Streets facilitating walking and biking to school.	2018-2027
Tigard	Tigard	12001	Hunziker St Sidewalks	Add sidewalk and bike lane on north side of Hunziker from current sidewalk end (near 7585 Hunziker) to 72nd Ave.	2018-2027
Tigard	Tigard	12002	Bull Mountain Rd Sidewalks	Complete gaps in sidewalks and bike lanes from Benchview Terrace (Tigard City Limits) to Hwy 99W.	2018-2027
Tigard	Tigard	12005	121st Ave Complete Street - phase 1	Build complete street with bicycle and pedestrian facilities from Tippit Pl to Whistler Lp (N)	2018-2027
Tigard	Tigard	12006	121st Ave Complete Street - phase 2	Build complete street with bicycle and pedestrian facilities from Walnut to N Dakota.	2018-2027
Tigard	Tigard	12017	Tigard St/Tiedeman Ave Intersection Improvement	Install a traffic signal, turn lanes, sidewalks, and bike lanes, or a roundabout.	2018-2027
Washington County	Washington County	12053	Blanton (198th to 209th)	Add sidewalks and turn lanes as needed.	2018-2027
Washington County	Washington County	10607	Sunset TC Station Community Pedestrian Improvements	Sidewalks, pedestrian crossings, accessways, ped/bike bridges over creeks.	2028-2040
Sherwood	ODOT	10707	OR 99W Regional Trail Crossing	Constructs separated grade crossing for Cedar Creek Trail (regional trail system) under SW Pacific Hwy (OR 99W). The $15.9M cost estimate includes raising highway grades to provide for open undercrossing coupled with stream enhancements to create a more open and natural undercrossing w/ adjacent natural stream. This will improve downstream conveyance during large storm events, as well as connect wildlife corridors currently bisected by SW Pacific Highway.	2028-2040
Tualatin	Tualatin	10744	Tualatin River Pathway	Fill in system gaps from eastern city limits to western city limits.	2028-2040
Tigard	Tigard	10766	Regional Trail Gap Closure	Infill gaps in regional trail network. Affected trails include Fanno Creek, Washington Square Loop and Westside Trails.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
THPRD	THPRD	10811	Beaverton Creek Trail (Regional) Seg. #1 & #2	To design and construct a 12' wide regional multi-use trail segment in a greenway, connecting the City of Hillsboro to the THPRD Nature Park. The off-street facility increases safety by providing an alternate route to high injury corridors/intersections. Completing the trail gap increases access to jobs, transit, and is located with in historically marginalized communities.	2028-2040
Hillsboro	Hillsboro	10850	Beaverton Creek Trail	Design and construct Hillsboro segment of multi- use trail.	2028-2040
Hillsboro	Hillsboro	10851	Rock Creek Trail Extension	Design and construct multi-use trail; connect to existing segments of Rock Creek Trail.	2028-2040
THPRD	THPRD	11405	Westside Trail (Regional) Seg. 15 -17	To design and construct 12' wide paved, multi- use regional trail segments with in a utility corridor. The road separated facility will provide safety, increased access to jobs and 2040 centers, safe routes to schools, and serve areas with marginalized communities.	2028-2040
Hillsboro	Hillsboro	11461	Reedville Trail (North Segment)	Construct multi-use trail along BPA Pearl-Keeler power line corridor.	2028-2040
Hillsboro	Hillsboro	11462	Reedville Trail (South Segment)	Construct multi-use trail along BPA Pearl-Keeler power line corridor	2028-2040
Hillsboro	Hillsboro	11483	Tualatin Valley Trail (Turf-to-Surf Trail)	Construct South Hillsboro/Reedville segment of Tualatin Valley Trail along south side of Portland & Western Railroad corridor.	2028-2040
Washington County	N/A	11484	Westside Trail: Segment 2	Multi-use trail following BPA powerline.	2028-2040
Hillsboro	Hillsboro	11485	Crescent Park Greenway	Multi-use trails and bike/ped crossings connecting North Hillsboro industrial area, Hillsboro stadium, Fred Meyer shopping center, Rock Creek Trail, Oregon Electric Railway Trail and Cornelius Pass Road multi-use path; provide low stress alternative to Evergreen corridor; part of larger Crescent Park Greenway plan.	2028-2040
Hillsboro	Hillsboro	11889	Bronson Creek Trail	Design and construct Hillsboro segment of multi-use trail.	2028-2040
Hillsboro	Washington County	11913	Oregon Electric Railway Trail US 26 Crossing at Cornelius Pass Rd	Construct US 26 trail over-crossing near Cornelius Pass Rd interchange; include connecting trail segments at either end to connect to Cornelius Pass Rd multi-use path and Rock Creek Trail ("Power Line Trail") at Rock Creek Blvd.	2028-2040
King City	King City	11947	Westside Trail: Segment 1	Multi-use trail following BPA powerline.	2028-2040
Tigard	ODOT	12003	Hall Blvd/Fanno Creek Bridge	Replace bridge with new bridge meeting current standards with sidewalks and bike lanes.	2028-2040
Washington County	Washington County	10577	Scholls Ferry Improvements	Widen roadway from two to three lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	10585	Johnson St. Improvements	Add sidewalks, bike lanes, lighting.	2028-2040
Washington County	Washington County	10586	197th/198th Ave. Improvements	Add sidewalks, bike lanes, lighting, turn lanes at major intersections.	2028-2040

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Washington County	Washington County	10589	95th Ave. Ped/Bike Connection	Pedestrian/bicycle pathway, lighting, bridge over Johnson Creek.	2028-2040
Washington County	Washington County	10609	Science Park Drive Bike Lanes	Complete 3,600 feet of bike lanes in town center.	2028-2040
Washington County	Washington County	10610	Saltzman Road Bike Lanes	Complete 950 feet of bike lanes in town center.	2028-2040
Washington County	Washington County	10611	Locust Avenue Bike Lanes and Sidewalks	Completes 1650 feet of bike lanes and missing sidewalks in regional center.	2028-2040
Washington County	Washington County	10612	Greenburg Road	Completes 5-lane roadway and 3400 feet of bike lanes and sidewalks in regional center.	2028-2040
Washington County	Washington County	10613	Cornell Road Bike Lanes	Completes 1750 feet of bike lanes in town center.	2028-2040
Washington County	Washington County	10614	Butner Road Bike Lanes	Completes 7800 feet of bike lanes to transit corridor.	2028-2040
Beaverton	Beaverton	10628	Center Street Multimodal Improvements	Add turn lanes where needed and construct sidewalk on the south side of the 113th Avenue and Cabot Street.	2028-2040
Beaverton	Beaverton	10631	141st Avenue/142nd Avenue Realignment	Realign intersection of 141st Avenue/142nd Avenue/Tualatin Valley Highway and add signals and turn lanes as warranted. Construct sidewalk and bike lanes on 142nd Avenue (Tualatin Valley Highway to Farmington Road). The intersection realignment of 141st Avenue/142nd Avenue/Farmington Road will be complete fall 2017.	2028-2040
Beaverton	Beaverton	10634	Cedar Hills Boulevard Multimodal Improvements (Walker Road to Farmington Road)	Construct bike lanes, sidewalk, and turn lanes where needed.	2028-2040
Beaverton	Beaverton	10665	6th Avenue Bike Lanes	Construct bike lanes.	2028-2040
Beaverton	Beaverton	10668	Farmington Road Bike Lanes	Construct bike lanes.	2028-2040
Tualatin	Tualatin	10741	95th Avenue Bike Lanes	To improve safety in this employment area, add bike lanes to this section of roadway.	2028-2040
Tigard	Tigard	10749	Washington Square Regional Center Pedestrian Improvements	Improve sidewalks, lighting, crossings, bus shelters, and benches in the Washington Square area.	2028-2040
Forest Grove	ODOT, Forest Grove	10779	OR 8/Pacific/19th Corridor Safety and Complete Street Improvement	Retrofit the street with a boulevard design from B Street to Cornelius City Limits including wider sidewalks, curb extensions, safer street crossings, bus shelters and benches.	2028-2040
Cornelius	ODOT	10805	TV Highway Pedestrian Infill	Build out sidewalk gaps on TV Hwy. in Cornelius.	2028-2040
Washington County	Washington County	11089	92nd Avenue Pedestrian Improvements	Completes 3800 feet of sidewalk improvements to transit corridor.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Hillsboro	Hillsboro	11163	Sunrise Ln Bike/Ped Improvements	Widen roadway to provide bike/ped facilities.	2028-2040
Hillsboro	Hillsboro	11165	15th Ave Bike/Ped Improvements	Complete sidewalk gaps and construct bike facilities.	2028-2040
Hillsboro	Hillsboro	11166	25th Ave Bike/Ped Gaps	Complete bike lane and sidewalk gaps.	2028-2040
Tigard	Tigard	11221	Tigard Bikeway Improvements	Make spot improvements on key low-volume, low speed through-routes to facilitate bike & pedestrian travel; identify them as bike/pedestrian routes.	2028-2040
Tigard	Tigard	11226	Pedestrian Improvements	Fill gaps in sidewalk & pedestrian network.	2028-2040
Washington County	Washington County	11239	Washington County Neighborhood Bikeways (Ph. 1)	12 miles of neighborhood bikeways (bike boulevards) on low-traffic streets throughout unincorporated urban Washington County, including enhanced at-grade crossings of arterials.	2028-2040
Tualatin	Tualatin	11426	65th Ave.	To improve safety for residents and employees, add a share use path on one side of this roadway section.	2028-2040
Tualatin	Tualatin	11428	Martinazzi	To improve safety for employees and residents, add bike lanes on this section of roadway.	2028-2040
Tualatin	Tualatin	11431	Norwood Street Sidewalks and Bike Lanes	Add sidewalks and bike lanes, upgrade to urban standards.	2028-2040
Tualatin	Tualatin	11433	Saum Creek Greenway	Construct a shared-use path.	2028-2040
Washington County	ODOT	11441	TV Highway Safe Access and Enhanced Transit Corridor	Enhanced station access, lighting, bus stop enhancements, intersection safety, queue jumps and signal preemption.	2028-2040
Washington County	Washington County	11465	Metzger Area Sidewalks and Bikeways	Washington Dr. sidewalks (Taylor's Ferry to Hall), Accessways, Oak St. sidewalks/bike lanes (Hall to 72nd).	2028-2040
Washington County	Washington County	11468	Washington County Pedestrian Arterial Crossings	Construct 10 enhanced at-grade pedestrian crossings of 170th Avenue, 185th Avenue, Baseline Road, Murray Boulevard, Cornell Road and Walker Road.	2028-2040
Washington County	Washington County	11481	Garden Home Rd Improvements	Improvements to enhance safety, and bike / ped accessibility.	2028-2040
Washington County	Washington County	11578	80th Ave	Add sidewalks, bike lanes, lighting, turn lanes at major intersections.	2028-2040
Hillsboro	Hillsboro	11933	Safe Routes to School Projects (Hillsboro)	Implement Safe Routes to School projects around Hillsboro area Title I schools.	2028-2040
Tualatin	Washington County	11961	Boones Ferry Road	To improve safety for residents, employees and transit users: provide mid-block crossings, buffered bike lane or shared use path.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Tualatin	Tualatin	11963	Nyberg Creek Greenway Trail- West	Shared Use Path with boardwalk sections over wetland/natural areas. Path crosses under I-5 at Nyberg Creek and will improve access to shopping, jobs and transit for communities of color, English language learners and low income residents.	2028-2040
THPRD	THPRD	11966	North Johnson Creek Trail	Design and construct a 10'-12' wide paved, multi-use community trail segments connecting a high density area to Max lightrail, 2040 Centers, jobs, and other regionally connected trail systems. The trail is planned to be largely off-street provding safe, alternative routes by reducing/eliminating the need to use high injury corridors along NW Barnes Road and NW Cedar Hills Blvd.	2028-2040
Forest Grove	Washington County	11973	Gales Creek Road Improvement	To enhance the pedestrian safety by connecting gaps, improve bike lane safety, some storm drainage and road improvements.	2028-2040
Beaverton	Beaverton	12051	Baseline Road Bike Lanes	Restripe or construct bike lanes.	2028-2040
Beaverton	Beaverton	12052	173rd Avenue Bikeway	Restriping (removing center turn lane) or construction of protected bike lane.	2028-2040
Washington County	Washington County	12055	Rosa Road Sidewalks	Add sidewalks between 198th Ave. and Farmington Rd.	2028-2040
Washington County	Washington County	12056	Division St (149th to 167th) Sidewalks	Add sidewalks between 149th Ave and 167th Ave.	2028-2040
Washington County	Washington County	12057	Oak St (Butternut to 179th) Sidewalks	Add sidewalks between Butternut Dr and 179th Ave.	2028-2040
Washington County	Washington County	12058	Miller Hill Rd (Farmington to Gassner) Bike Lanes and Sidewalks	Add bike lanes, sidewalks and turn lanes where appropriate.	2028-2040
Washington County	Washington County	12059	Meadow Dr/Downing St (Murray to Walker) Bike Lanes and Sidewalks	Add bike lanes, sidewalks and turn lanes where appropriate.	2028-2040
Washington County	Tigard	12060	Locust St (Hall Blvd to Greenburg)	Add bike lanes, sidewalks and turn lanes where appropriate.	2028-2040
Washington County	Washington County	12061	185th Ave (Farmington to Gassner)	Add bike lanes, sidewalks, and turn lanes where appropriate.	2028-2040
Washington County	Washington County	12062	Alexander St (192nd to 209th) Bike Lanes and Sidewalks	Add bike lanes, sidewalks and turn lanes where appropriate.	2028-2040
Washington County	Washington County	12065	Taylors Ferry (65th Ave to Washington Dr)	Add bike lanes, sidewalks, and turn lanes where appropriate.	2028-2040
Washington County	Washington County	12067	Rigert Rd (185th Ave to 170th Ave) Bike Lanes and Sidewalks	Add bike lanes, sidewalks and turn lanes where appropriate.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Washington County	Washington County	12068	Rigert Rd (170th Ave to 155 Ave) Bike Lanes	Add bike lanes, and turn lanes where appropriate.	2028-2040
Washington County	Washington County	12069	Gassner Rd (Grabhorn Rd to 185th Ave) Bike Lanes and Sidewalks	Add bike lanes, sidewalks and turn lanes where appropriate.	2028-2040
THPRD	THPRD	12072	South Johnson Creek Trail Seg. 5	Construct a 10' wide community trail to provide road separated connections with in the community.	2028-2040
Wilsonville	Wilsonville	11764	Boones Ferry Road Extension	Construct 3-lane section with bike lanes and sidewalk.	2028-2040
West Linn	TBD	12090	Willamette Falls Locks Repair Project	Capital improvements needed to repair and reopen the Willamette Falls Locks to support freight transportation, tourism and recreation activities. The project includes structural and electrical repairs, seismic upgrades, and other elements.	2028-2040
Portland	Portland	10218	Burgard-Lombard Street Improvements	Construct roadway improvements, including pedestrian and bicycle facilities.	2018-2027
Portland	Portland	10337	Marine Dr & 33rd Intersection Improvements	Signalize intersection to improve freight operations.	2018-2027
Portland	Portland	10340	Cornfoot Rd Corridor Improvements	Improve roadway and intersections to improve freight operations. Construct a multi-use path on the north side of Cornfoot Rd to separate pedestrians and bicyclists from motor vehicle traffic. Install guardrails where needed.	2018-2027
Port of Portland	Port of Portland	10363	SW Quad Access	Provide street access from 33rd Ave. into SW Quad.	2018-2027
Portland	Portland	10375	Cathedral Park Quiet Zone	Address rail switching noise related to the Toyota operations at T-4 by improving multiple public rail crossings in the St. Johns Cathedral Park area.	2018-2027
Port of Portland	Portland	10379	Marine Dr. Improvement Phase 2	Construct rail overcrossing on Marine Dr.	2018-2027
Multnomah County	Multnomah County	10394	Replace RR Over-crossing on 223rd Ave.	Reconstruct railroad bridge on 223rd Ave, 2000' north of I-84 to accommodate wider travel lanes, sidewalks and bike lanes; to address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Gresham	Gresham	10445	181st @ Glisan: Intersection Improvements	Optimize intersection w/signal upgrades and turn radii improvements.	2018-2027
Gresham	Gresham	10446	181st @ Burnside: Optimize Intersection, Improve Transit Design	Optimize intersection operation. Transit/Enhanced Transit Corridor supportive project.	2018-2027
Gresham	Gresham	10495	181st @ Halsey: Improve Intersection w/Turn Lanes	Add 2nd LT lane to N & S legs, add RT lane to EB WB SB.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Port of Portland	Port of Portland	11208	T4 Modernization	Renovate operation areas at T4 to create intermodal processing areas. Rail spur relocation and expansion, grain elevator demolition, wharf removal.	2018-2027
Port of Portland	UPRR	11355	Barnes to Terminal 4 Rail	Improve Rail Access to Terminal 4.	2018-2027
Port of Portland	BNSF	11357	Terminal 6 Rail Support Yard Improvements	Increase Terminal 6 rail capacity.	2018-2027
Portland	Portland	11568	St. Johns Truck Strategy Phase II	Address pedestrian safety, bicycle safety and neighborhood livability impacts associated with cut-through truck traffic on N St Louis Ave and N Fessenden St. Construct pedestrian crossing safety and traffic calming improvements, such as curb extensions and median islands, as outlined in the St Johns Truck Strategy Phase II.	2018-2027
Portland	Portland	11570	Columbia/Alderwood Intersection Improvements	Improve intersection and install traffic signal at Columbia & Alderwood.	2018-2027
Port of Portland	Port of Portland	11649	T2 Redevelopment	Construct rail, rail scale, and crane modernization.	2018-2027
Port of Portland	UPRR	11651	T2 Track Reconfiguration and Siding	Construct rail loops and support siding.	2018-2027
Port of Portland	UPRR	11652	Bonneville Rail Yard Build Out	Construct two interior yard tracks at Bonneville Yard and complete the double track lead from the wye at the east end of the yard to UP Barnes Yard.	2018-2027
Port of Portland	UPRR	11653	Ramsey Yard Utilization	Connect the existing set out track along the west side of the main lead with the industrial lead near the south end to provide a location to store a unit train.	2018-2027
Port of Portland	Portland	11659	Rivergate Blvd. Overcrossing	Relieve a congestion point in Rivergate Industrial Area, improve rail access to Terminal 5.	2018-2027
Port of Portland	Troutdale	11743	Troutdale Airport Master Plan Transportation Improvements	Implement transporation improvements developed as part of the Troutdale Airport Master Plan.	2018-2027
Portland	Portland	11799	Suttle Rd Freight Street Improvements	Improve Suttle Rd to meet Freight District Street standards, separate rail and truck movements, provide pedestrian access to nearby bus line, and enable future T6 entrance Port project.	2018-2027
Portland	Portland	11800	Columbia Blvd Pedestrian Overpass Replacement	Replace the pedestrian overpass near George Middle School with either an at-grade crossing or a higher overpass to enable the use of Columbia Blvd as an over-dimensional freight route.	2018-2027
Portland	Portland	11841	Central Eastside Access and Circulation Improvements	Improve access and circulation in the Central Eastside by adding new signals and crossings at Hawthorne & Clay ramp, Salmon & Grand, Salmon & MLK, Washington & Grand, Washington & MLK, Ankeny & Sandy, 16th & Irving, and modifying signals at Stark & Grand, Clay & Grand, and Mill & MLK.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	12004	Columbia Blvd Freight Improvements: Project Development	Alternatives analysis and project development to identify preferred street and intersection modifications to improve freight reliability and access to industrial properties.	2018-2027
Portland	ODOT	11802	N Portland Rd over Columbia Slough Bridge Replacement	Replace the weight-restricted N. Portland Road bridge over the Columbia Slough to enable the use of N. Portland Road as an over-dimensional freight route and include a connection for the Columbia Slough Trail.	2028-2040
Portland	Portland	10331	Columbia Blvd / Railroad Bridge Replacement	Replace the existing fracture critical Columbia Blvd bridge (#078) over railroad tracks with a new structure, and perform seismic upgrades on parallel bridge (#078A).	2028-2040
Portland	Portland	10376	Columbia Blvd Freight Improvements: Design/Construction	Construct street and intersection modifications to improve freight reliability and access to industrial properties.	2028-2040
Gresham	Gresham	10496	181st @ I-84: Study Freight Mobility and Transit Design Improvements	Freight mobility improvements subject to refinement study. Transit/Enhanced Transit Corridor supportive project.	2028-2040
Port of Portland	Port of Portland	11207	T6 Modernization	Provide improvements to container terminal including crane electronics and stormwater improvements.	2028-2040
Port of Portland	Port of Portland	11306	T6 Second Entrance from Marine Drive	Construct 2nd entrance from Marine Drive and internal rail overcrossing to Terminal 6.	2028-2040
Port of Portland	Port of Portland	11307	T6 Suttle Road entrance	Access to the east end of Terminal 6 off the terminus of Suttle Road.	2028-2040
Port of Portland	Port of Portland	11654	Time Oil Road Reconstruction	Reconstruct Time Oil Road.	2028-2040
Portland	Portland	11801	Columbia Blvd Railroad Undercrossing Improvement	Lower the Columbia Blvd undercrossing at the UP Railroad Bridge just west of I-5 to enable the use of Columbia Blvd as an over-dimensional freight route.	2028-2040
Wilsonville	Washington County	10588	Grahams Ferry Road Improvements	Widen Grahams Ferry Road to 3 lanes, add bike/pedestrian connections to regional trail system and fix (project development only) undersized railroad overcrossing.	2028-2040
ODOT	ODOT	12092	Bridge Rehabilitation & Repair	Projects to repair or rehabilitate bridges, such as painting, joint repair, bridge deck repair, seismic retrofit, etcetera, that do not add motor vehicle capacity.	2018-2040
ODOT	ODOT	12093	Culvert Replacement & Repair	Repair and replacement of culverts that have or are in danger of failure, do not provide adequate drainage or are a habitat barrier to Threatened & Endangered species that do not add motor vehicle capacity.	2018-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
ODOT	ODOT	12094	Highway Pavement Maintenance	Pavement rehabilitation/repair projects includes overlays, slurry seals, full pavement replacement, and other minor roadway improvements (curb and gutters, adding/widening shoulders) that do not add motor vehicle capacity.	2018-2040
ODOT	ODOT	12095	Safety & Operations Projects	Projects to improve safety or operational efficiencies such as pedestrian crossings of arterial roads, railroad crossing repairs, slide and rock fall protections, illumination, signals and signal operations systems, that do not add motor vehicle capacity.	2018-2040
Cities and counties	Cities and counties	12098	Local Roadway Operations, Maintenance and Preservation	Local road maintainence, rehabilitation and repair activities, including fixing potholes, replacing pavement, and other maintenance that do not add motor vehicle capacity.	2018-2040
Oregon City	Clackamas County	10026	Beavercreek Road Improvements, Phase 3A	Widen to 3 lanes with sidewalks and bike lanes. (TSP D81 & D82)	2018-2027
Happy Valley	Clackamas County	10033	172nd Ave & 190th Connector (Phase 1 - Design)	Phase 1 design work to widen 172nd to 5 lanes; construct connector between 172nd and 190th Ave using adopted alignment; project includes bike lanes, sidewalks and continuous left turn lane; last connector in n/s freight route alternative to I-205 between I-84 and Hwy-212.	2018-2027
Happy Valley	Clackamas County	10037	162nd Ave.	Widen 162nd Ave. from two-lane road to include continuous left turn lane, sidewalks and bike lanes; connect mixed-use residential zone (multifamily) to urban center and government services.	2018-2027
Happy Valley	Clackamas County	10041	162nd Ave. Extension South Phase 1	Extend 162nd Ave from Rock Creek Blvd to Hwy- 212; construct new, 3 lane roadway with continuous left turn lane, sidewalks, bike lanes, intersection improvements at Hwy. 212/162nd on all four approaches. Project terminates at industrial employment sector. In addition, will improve safety on on a High Injury Corridor.	2018-2027
Happy Valley	Clackamas County	10076	SE Sunnyside Rd East Extension	Construct new 5 lane road with continuous left turn lane, sidewalks, bike lanes and traffic signals.	2018-2027
Happy Valley	Happy Valley	10084	King Rd.	Realign intersection to include roundabout in lieu of four-way stop. Project will facilitate vehicular traffic and movement on regional multi-use, on-street trail.	2018-2027
Oregon City	ODOT	10144	Hwy 99E & I-205 SB Interchange Access	Dual left turn lanes on 99E approach to SB I-205 ramp, ramp widening to accommodate approach. (Closely related to TSP D75, D76 but not actually these projects)	2018-2027
Wilsonville	Wilsonville	10156	Boeckman Rd. at Boeckman Creek	Widen Boeckman Road to 3 lanes with bike lanes, sidewalks and connections to regional trail system and install bridge. The road has had a serious injury. A vertical curve has limited sight distance causing reduces emergency response times. The installation of buffered bike lane and complete sidewalks will remove conflicts that exist on the current two lane road.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Happy Valley	Happy Valley	11135	Rock Creek Blvd. improvements	Construct new 5 lane road from Sunrise Corridor Rock Creek interchange to 162nd Ave; Widen existing alignment of Rock Creek Blvd to five lanes from 162nd to 177th Ave. Facility improvements include continuous left turn lane, sidewalks, bike lanes and traffic signals. In addition, will improve safety on on a High Injury Corridor.	2018-2027
Oregon City	Oregon City	11182	Molalla Avenue Roundabout	Reconfigure intersection for safety and LOS into roundabout. (TSP D30)	2018-2027
Oregon City	Oregon City	11183	Linn/Leland/Meyers Road Roundabout	Reconstruct intersection for safety and capacity improvements into a roundabout. (TSP D34)	2018-2027
Milwaukie	Milwaukie	11540	Group 8--Street Connectivity & Intersection Improvement Projects	Harrison St and King Rd Connection = Enhance connection between King Rd and Harrison St at 42nd Ave. Intersection Improvements at 42nd Ave and King Rd = Enhance intersection function. Intersection Improvements at 42nd Ave and Harrison St = Signalize intersection to facilitate dominant traffic flow. Intersection Improvements at Johnson Creek Blvd and Linwood Ave = Improve safety of crossing at intersection. Intersection Pedestrian Signal Improvements City-wide - committed. Traffic-Calming Improvements on River Rd at Lark St = Install traffic-calming measures such as a permanent speed-warning sign and/or roundabout.	2018-2027
Oregon City	Oregon City	11544	Meyers Road Extension (West)	Construct new 3 lane roadway, sidewalks, buffered bike lanes, WB right turn lane and center turn lanes to serve adjacent Clackamas Community College & underdeveloped industrial properties. (TSP D46)	2018-2027
Lake Oswego	Lake Oswego	11608	3rd Street Reconstruction	450' long, 60' wide roadway reconstruction. 12' travel lanes, 8' parking lanes, 10' sidewalks.	2018-2027
Lake Oswego	Lake Oswego	11609	4th Street Reconstruction	450' long, 60' wide roadway reconstruction. 12' travel lanes, 8' parking lanes, 10' sidewalks.	2018-2027
Oregon City	ODOT	11758	OR 213 & Beavercreek Road WB Right-Turn Merge Lane	Addition of a Westbound Right-Turn Free Flow Acceleration Lane on Hwy 213 Northbound, approximately 1,300 feet in length.	2018-2027
Clackamas County	Clackamas County	11763	Johnson Creek Blvd/79th Ave Intersection (TSAP)	Construct new signalized intersection at the intersection of Johnson Creek Blvd and either 79th Ave or 80th Place and implement proven safety counter measures at high injury location identified in county Transportation Safety Action Plan, including bike/ped and ADA accessibility improvements as necessary.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Wilsonville	Wilsonville	11773	Stafford Road Urban Upgrade	Widen road to 3 lane section with sidewalks and buffered bike lanes which will remove pedestrians from the vehicle travel lane. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
Oregon City	ODOT	11891	OR 99E & I-205 NB Interchange Access	Dual left turn lanes on 99E approach to NB I-205 ramp, ramp widening to accomodate approach, dual left turn lanes from off-ramp on to Hwy 99E SB, signal modifications. (Closely related to TSP D75, D76 but not actually these projects).	2018-2027
Lake Oswego	Lake Oswego	11935	Lakeview Boulevard Improvements	3,500' long widening for two 14' shared use lanes with an 8' sidewalk on one side separated by stormwater planter and curb.	2018-2027
Oregon City	Oregon City	12089	Willamette Falls Legacy Project Internal Roadways	Construct new roadways to support the Willamette Falls Legacy Project and Riverwalk, consisting of Main Street, Water Street, 4th Avenue, 3rd Street, and Railroad Street, including sidewalks.	2018-2027
Milwaukie	Milwaukie	10000	Linwood/Harmony Rd./ Lake Rd. Intersection	Railroad crossing and intersection improvements based on further study of intersection operations including bikeways and pedestrian facilities to be undertake jointly by the City of Milwaukie and the County.	2028-2040
Clackamas County	Clackamas County	10002	Johnson Creek Blvd. Improvements	Implement proven safety counter measures and widen to 3 lanes with bikeways and pedestrian facilities from 55th Ave to 82nd Ave to improve safety, improving freight access to industrial area and increasing accessibility for historically marginalized communities.	2028-2040
Happy Valley	Clackamas County	10040	162nd Ave. Extension North	Extend 162nd Ave from Clatsop to Hagen, including two through lanes, left turn lanes, sidewalks, bike lanes and traffic signals. Project creates direct connection between circuitous bike/ped parkways, travel alternative to 172nd Ave arterial.	2028-2040
Oregon City	ODOT	10118	McLoughlin Blvd Bike & Pedestrian Improvements (excluding Viaducts)	Complete boulevard design improvements. (TSP D74 & S3) Viaducts have been moved to a separate project due to costs.	2028-2040
Oregon City	ODOT	10119	OR 213 & Redland, Phase 2	Add third through lane in both northbound & southbound directions. This is Phase 2 of the completed Jughandle Project. (TSP D79)	2028-2040
Wilsonville	Wilsonville	10132	Boeckman Rd./I-5 Overcrossing Improvements	Widen Boeckman Road bridge over I-5 to 4 lanes. Add bike/pedestrian connections to regional trail system. Road has had a serious crash. Bikes and pedestrians travel on the road adjacent to freight in existing conditions.	2028-2040
Oregon City	ODOT	10140	OR 213 Widening	Add one Southbound through lane and one Northbound through lane, bike lanes, and sidewalks. (TSP D77, W31)	2028-2040

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Lake Oswego	Lake Oswego	11081	Boones Ferry Rd bike lanes	3,500' long widening includes retaining walls above and below the roadway grade for bike lanes, sidewalks, and intermittent turn lanes.	2028-2040
Happy Valley	Clackamas County	11346	162nd Ave. Extension South Phase 2	Extend 162nd Ave from 157th Ave to Rock Creek Blvd by constructing new, 3 lane roadway with continuous left turn lane, sidewalks, bike lanes, traffic signals and bridge over Rock Creek. Project improves access to Rock Creek Employment Center and industrial sector.	2028-2040
Clackamas County	Clackamas County	11514	82nd Drive/Strawberry Lane Intersection	Improve safety at a key intersection on a high crash corridor by implementing proven safety counter measures, installing a traffic signal and turn lanes on eastbound and northbound approaches, improve ADA accessibility as necessary.	2028-2040
Milwaukie	ODOT	11537	Group 4--Pedestrian Improvements at Hwy 224	Intersection Improvements at Hwy 224 and 37th Ave = Consolidate the two northern legs of 37th Ave and International Way into one leg at Hwy 224. Intersection Improvements at Hwy 224 and Oak St = Add left-turn lanes and protected signal phasing on Oak St approaches. Study of Pedestrian Crossings on Hwy 224 = Examine alternatives for improving pedestrian crossings at five intersections along Hwy 224 (Harrison St, Monroe St, Oak St, 37th Ave, Freeman Way). Intersection Improvements at Hwy 224 and Oak St = Improve pedestrian crossing. Intersection Improvements at Hwy 224 and 37th Ave = Improve pedestrian crossing. Hwy 224 Crossing Improvements at Oak and Washington St = Improve intersection crossing safety for bicyclists at Washington St and Oak St. Intersection Improvements at Hwy 224 and	2028-2040
Milwaukie	ODOT	11539	Intersection Improvements at McLoughlin Blvd and River Rd	Consolidate a single access point for the area at Bluebird St with full intersection treatment and signalization or add second northbound left- turn lane at River Rd. This project improves safety and reduces congestion in an equity priority area.	2028-2040
Milwaukie	Milwaukie	11542	Harrison St Capacity Improvements	Widen to standard three lane cross section.	2028-2040
Oregon City	Oregon City	11545	Holly Lane Extension (North)	Construct new 3 lane roadway, sidewalks, bike lanes, turn lanes to serve UGB expansion area. The project or a portion of the project is outside the designated urban growth boundary. (TSP D57)	2028-2040
Wilsonville	Wilsonville	11557	Brown Road Extension Phase 2	New connection between Wilsonville Road/ Brown Road intersection and Kinsman Road.	2028-2040

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Wilsonville	ODOT	11765	Boones Ferry Road Urban Upgrade Phase 1	Widen to 3 lanes and construct bike lanes and sidewalks. Existing road has had two serious injuries. Project will create left turn pockets to reduce minor crashes. Complete sidewalk will remove pedestrian conflict from roadway.	2028-2040
Wilsonville	ODOT	11778	Boones Ferry Road Urban Upgrade Phase 2	Widen to 3-lane urban section with buffered bike lanes. Existing road has had two serious injuries. Project will create left turn pockets to reduce minor crashes. Complete sidewalk will remove pedestrian conflict from roadway.	2028-2040
Clackamas County	Clackamas County	12038	Beavercreek Rd Phase 3	Widen to four lanes and complete bike lane and sidewalks on both sides.	2028-2040
West Linn	Clackamas County	12073	Stafford Rd./Childs Rd. Intersection Improvements	Installation of traffic circle at existing intersection to improve traffic circulation and safety. Project was identified through the Clackamas County Road Safety Audit. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
West Linn	Clackamas County	12074	Stafford Rd./Rosemont Rd. Improvements	Addition of paved shoulders per the Clackamas County Active Transportation Plan. Addition of turn lanes at major intersections. Project identified through Clackamas County Road Safety Audit. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Clackamas County	Clackamas County	10054	65th/Elligsen/Stafford Intersection Roundabout	Implement proven safety counter measure, a roundabout, at a high crash intersection identified in the county adopted TSAP.	2028-2040
Gresham	Gresham	10512	Hogan - Powell to Burnside: Boulevard Design + Intersection Improvements	Improve to boulevard standards with center median, planter strip, and new sidewalk. Intersection improvements at Burnside and Powell. Multi-use path on west side from Wy'East Way path end to Powell Blvd. Bike lane east side between Powell and Burnside.	2018-2027
Portland	ODOT	10164	South Portal Intersection Improvements	Improve the South Portal to the North Macadam District (intersection of Bancroft, Hood, and Macadam) to address safety and capacity issues. Includes new extension of Lowell St.	2018-2027
Portland	Portland	10180	Sandy Blvd Corridor Safety Improvements	Design and implement multimodal corridor improvements including pedestrian lighting, new and enhanced crossings, new or modified signals, transit stop upgrades, bicycle improvements, access management, and roadway design changes to improve traffic safety.	2018-2027
Portland	Portland	10208	Columbia/MLK Intersection Improvements, Phase 1	Intersection and signalization improvements with right turn lane.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	10250	W Burnside Corridor Improvements	Design and construct boulevard improvements including pavement reconstruction, wider sidewalks, curb extensions, safer crossings, new traffic signals, and traffic management.	2018-2027
Portland	ODOT	10259	Inner Powell Blvd Corridor Improvements: Local Contribution to State-owned Arterial	Retrofit existing street with multimodal safety improvements including enhanced pedestrian and bicycle crossings, pedestrian and bike activated signals, median islands with trees, redesign of selected intersections, and stormwater management facilities.	2018-2027
Portland	Portland	10272	Capitol/Vermont/30th Intersection Improvements	Realign the Capitol/Vermont/30th intersection and provide sidewalks, bike lanes, and drainage improvements.	2018-2027
Portland	Portland	10290	Outer Division Corridor Safety Improvements	Design and implement multimodal corridor improvements including pedestrian lighting, new and enhanced crossings, new or modified signals, transit stop upgrades, enhanced bicycle facilities, access management, and roadway design changes to improve traffic safety.	2018-2027
Portland	ODOT	10299	N Lombard Corridor Improvements: Local Contribution to State-owned Arterial	Design and implement transportation improvements including signal upgrades, lane reconfiguration, enhanced crossings, in-roadway and/or parallel bikeways, and pedestrian improvements along the corridor. Improve pedestrian safety and accessibility of the crossing of I-5. Project will coordinate with ODOT to identify locations and design treatments.	2018-2027
Portland	Portland	10302	NE MLK Jr Blvd Corridor Improvements	Multimodal safety, access, and capacity improvements including ITS infrastructure, signal timing upgrades, pedestrian crossings, access management, and transit priority.	2018-2027
Portland	Portland	10303	Outer Capitol Hwy Corridor Improvements	Safety improvements that include a road reorganization, curb extensions, medians, improved crossings, enhanced bike lanes, left turn pockets and improved signal timing.	2018-2027
Portland	Portland	10315	Cesar Chavez Corridor Improvements	Repair street, upgrade sidewalks, and add pedestrian/bicycle crossing improvements. Upgrade signals and make striping changes to improve traffic safety and transit operations.	2018-2027
Portland	Portland	10318	Outer Glisan Corridor Improvements, Segment 1	Retrofit street with new traffic signals, bicycle facilities, improved pedestrian facilities and crossings, street lighting, and other safety and access improvements.	2018-2027
Portland	Portland	10326	Gateway Local Street Improvements, Phase 1	High priority local street and pedestrian improvements in regional center.	2018-2027
Portland	Portland	10329	Marine Dr. & 122nd Intersection Improvements	Signalize intersection.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	10330	NE 148th Ave Corridor Improvements	Widen roadway to three lanes, with pedestrian and bicycle facilities and crossings, from Airport Way to Sacramento St. Construct safety and access to transit improvements from Sacramento to Powell, including sidewalk infill, enhanced bike lanes, and crossings. Supports future bus service along the corridor.	2018-2027
Portland	Portland	10335	NE 42nd/47th Ave Bridge & Corridor Improvements	Replace the weight-restricted NE 42nd Ave Bridge (#075) over NE Portland Hwy and the adjacent railway, and add pedestrian and bicycle facilities to the bridge and the roadway from Killingsworth to Columbia. This project will remove the weight restriction, improve vertical clearance for over-dimensional freight, and provide pedestrian and bicycle facilities.	2018-2027
Portland	Portland	10336	Columbia & Cully Intersection Improvements	Reconstruct intersection to provide signalization, left turn pockets, enhancing turning radii and improving circulation for trucks serving expanding air cargo facilities south of Portland.	2018-2027
Port of Portland	Port of Portland	10358	Airport Way Terminal Entrance Roadway Relocation	Modify Airport Way at Terminal entrance to direct to efficiently route drivers to intended destinations.	2018-2027
Port of Portland	Port of Portland	10362	82nd Ave./Airport Way Grade Separation	Grade-separate Eastbound Airport Way over 82nd Avenue.	2018-2027
Multnomah County	Multnomah County	10382	Reconstruct Stark St. to arterial standards	Reconstruct Stark St. to minor arterial standards by widening the existing 2 lanes to provide for 4 traffic lanes, a continuous left-turn lane, bike lanes, sidewalks, and intersection improvements; to address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Multnomah County	Multnomah County	10388	Reconstruct 223rd Ave.	Reconstruct 223rd Avenue to 2 travel lanes, center turn lane/median, sidewalks and bicycle lanes. Context sensitive design through area known as Old Town Fairview; to address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Multnomah County	Multnomah County	10389	Reconstruct 223rd Ave.	Improve 223rd Ave to major collector standards including 2 travel lanes, center turn lane/median, sidewalks, bicycle lanes; to address safety and reduce crashes the project will use proven safety countermeasures. Replacement of RR bridge not included in this proposal (10394).	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Multnomah County	Multnomah County	10399	Reconstruct Sandy Blvd.	Reconstruct Sandy Blvd to minor arterial standards with bike lanes, sidewalks and drainage improvements, utilizing recommendations from TGM grant. Addition of bike lanes and sidewalks will improve safety of this area and reduce conflict among modes. To address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027
Multnomah County	Multnomah County	10412	Morrison Bridge Rehabilitation - Phase 1	Painting river span and bascule.	2018-2027
Gresham	Gresham	10443	Sandy - 181st to 202nd: Multimodal Improvements	Widens Sandy Blvd. to 5 lanes and adds new sidewalk, multi-use path, bike lanes from 181st to 202nd Ave.	2018-2027
Gresham	Gresham	10454	181st - Glisan to Yamhill: Complete Buildout w/Boulevard Design	Complete boulevard design improvements.	2018-2027
Gresham	Gresham	10473	223rd @ Stark: Add Turn Lanes	Add EB and NB RT lanes and 2nd NB and SB LT lanes.	2018-2027
Gresham	Gresham	10505	Civic Neighborhood Transit-Oriented Development: Construct 16th and Norman Streets	Support construction of future streets (multimodal) extending 16th St. and Norman.	2018-2027
Gresham	Gresham	10511	Hogan @ Stark: Add Turn Lanes	Add right turn lanes on all approaches and second northbound and southbound left turns.	2018-2027
Gresham	Gresham	10533	190th - 30th to Cheldelin: Complete Buildout	Improve existing road to major arterial standards, signalize 190th @ Giese, Butler, Richey, Cheldelin.	2018-2027
Gresham	Gresham	11096	Cleveland - Burnside to Stark: Complete Buildout	Reconstructs street from Stark to Burnside, with two travel lanes, center turn lane, bike lane, and sidewalk.	2018-2027
Multnomah County	Multnomah County	11128	Morrison Bridge Rehabilitation - Phase 2	Painting structural rehab on the west approach, bent cap rehab on east approach, motor, brake, and electrical power rehab, operator house improvements (BCIP 5,8,9).	2018-2027
Multnomah County	Multnomah County	11129	Earthquake Ready Burnside Bridge Phase 1	ERBB Nepa Phase. Earthquake ready burnside will increase safety of people and structures during and after an earthquake. Project will also use proven safety countermeasures to ensure safety of users.	2018-2027
Port of Portland	Multnomah County	11190	Sundial Road Improvements	Construct signal and turn lanes at Graham Road/Sundial Road intersection. Complete sidewalk gaps on Sundial Road.	2018-2027
Multnomah County	Multnomah County	11373	NE 238th Drive Freight and Multimodal Improvements	Construct southbound travel lanes with passing lane and northbound travel lane. Add bike and pedestrian facilities on both northbound and southbound sides; to address safety and reduce crashes the project will use proven safety countermeasures.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Multnomah County	Multnomah County	11376	Earthquake Ready Burnside Bridge Phase 2	ERBB Design and ROW Phase. Earthquake ready burnside will increase safety of people and structures during and after an earthquake. Project will also use proven safety countermeasures to ensure safety of users.	2018-2027
Port of Portland	Port of Portland	11656	Airport Way Terminal Entrance Rdwy	Add one inbound lane at entrance to terminal loop roadway.	2018-2027
Port of Portland	Port of Portland	11657	Terminal Deplaning Rdwy Expansion	Add one loading lane and one through lane on terminal lower roadway.	2018-2027
Port of Portland	Port of Portland	11658	Terminal Enplaning Rdwy Expansion	Add one lane on the approach and one lane on the exit to the terminal upper roadway.	2018-2027
Gresham	Gresham	11682	181st - Stark to I-84: Rockwood Safety Corridor (Enhance Safety)	Safety corridor: 181st/Rockwood {I-84 - Stark}.	2018-2027
Gresham	Gresham	11698	5th - Main to Cleveland: Complete Buildout	Construct to collector cross section consistent with the Green Shared Street designation per the Downtown Plan.	2018-2027
ODOT	ODOT	11742	Powell, SE (I-205 to 174th) Multi-Modal Improvements, Phase 2	Widen Street to 3-4 lanes (inclusive of center turn lane) with sidewalks, buffered bikelanes or other enhanced bike facility, and enhanced pedestrian/bicycle crossings. Phase 2 includes all segments except phase 1 (RTP # 11648): 116th to 136th.	2018-2027
Portland	ODOT	11781	I-405 / Glisan Traffic Improvements	Make improvements on city streets near the I- 405 SB Exit Ramp to reduce the queue on the exit ramp.	2018-2027
Portland	ODOT	11810	Outer Sandy Blvd Corridor Improvements: Local Contribution to State-owned Arterial	Widen street to three lanes with a sidewalk and bike lanes from 141st Ave to Portland City Limits. Improve safety for all modes in the Parkrose main street segment.	2018-2027
Portland	Portland	11811	NE Airport Way Safety and Access to Transit	Construct priority pedestrian and bicycle access to transit improvements in the Airport Way corridor, as identified in the Growing Transit Communities Plan.	2018-2027
Portland	Portland	11840	Post Office Blocks Transportation Improvements, Phase 1	Extend Johnson and Park Streets through the Post Office Blocks redevelopment site. Add traffic signals at 9th/Everett and 9th/Glisan.	2018-2027
Portland	ODOT	11844	82nd Ave Corridor Safety Improvements: Local Contribution to State-owned Arterial	Design and implement multimodal improvements to sidewalks, crossings, transit stops, striping, and signals to enhance ped/bike safety, access to transit, and transit operations. Project will coordinate with ODOT to identify locations and design treatments.	2018-2027
Portland	Portland	11848	NE 162nd Ave Corridor Improvements	Widen roadway with pedestrian and bicycle facilities and crossings, from Sandy Blvd to I-84.	2018-2027
Portland	Portland	11849	Outer Halsey Corridor Improvements	Construct sidewalks and crossings, enhance bicycle facilities, and redesign roadway to reduce crashes.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	11852	NE 158th Ave Corridor Improvements	Widen roadway and fill gaps in center turn lane, bicycle facilities, curbs, and sidewalks to improve safety and access to transit.	2018-2027
Portland	Portland	11854	SE Hawthorne Blvd Corridor Safety Improvements	Improve safety for all modes, including roadway redesign, crossings, and transit improvements.	2018-2027
Portland	Portland	11860	Outer Foster Corridor Safety Improvements	Improve safety and access by filling high-priority sidewalk gaps, adding pedestrian crossings, enhancing safety of existing bike lanes, and employing safety countermeasures to reduce motor vehicle crash severity.	2018-2027
Portland	Portland	11864	Marine/Lombard Corridor Safety Improvements	Safety project to reduce run off road crashes and enhance pedestrian crossings.	2018-2027
Portland	ODOT	11865	NE Lombard Corridor Safety Improvements	Construct safety improvements to reduce rear end and lane departure crashes, including improvements at Lombard/11th rail crossing to address crash history. Upgrade existing bicycle facilities east of 11th Ave and extend an in- roadway or parallel bikeway along the corridor west of 11th Ave. Project will coordinate with ODOT to identify locations and design treatments.	2018-2027
Portland	ODOT	11866	Outer Killingsworth Corridor Safety Improvements	Safety project to reduce rear end crashes and pedestrian crashes. Includes upgrades to pedestrian crossings, transit stops, and bicycle facilities. Project will coordinate with ODOT to identify locations and design treatments.	2018-2027
Portland	Portland	11943	NE Broadway Corridor Improvements, Phase 2	Construct traffic signals, enhanced crossings, transit priority treatments, and traffic safety improvements. Provide an enhanced bikeway along the corridor, within or parallel to the roadway.	2018-2027
Portland	Portland	11959	W Burnside/Couch Corridor Improvements, Phase 1	Construct transportation improvements including pavement reconstruction, traffic signals, turn lanes, curb extensions, bicycle network improvements, and crossing improvements.	2018-2027
Multnomah County	Multnomah County	12077	Hawthorne Bridge Rehabilitation Phase 2	Deck rehabilitation on bridge approaches.	2018-2027
Portland	Portland	12085	SE 162nd Ave Corridor Improvements	Construct safety and access to transit improvements from Stark to Powell to support bus service, including enhanced bike lanes and crossings.	2018-2027
Portland	Portland	10166	Burnside/Skyline Intersection Improvements	Construct intersection improvements at both legs of the double intersection to improve safety for all modes.	2028-2040
Portland	Portland	10171	W Burnside/Couch Corridor Improvements, Phase 2	Implements a one-couplet design including new traffic signals, widened sidewalks, curb extensions, bike lanes, on-street parking and street trees. This project will be coordinated with ODOT to address potential impacts to the I- 405 interchanges, overcrossings and ramps.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	ODOT	10235	Ross Island Bridgehead Improvements	Reconstruct Naito Pkwy as two-lane road w/bike lanes, sidewalks, left turn pockets, & on- street parking. Includes realignment/regrading at intersecting streets; removal of Barbur tunnel, Ross Is Br ramps, Arthur/Kelly viaduct & Grover ped bridge. This project will be coordinated with ODOT and with the Southwest Corridor Project, and will consider impacts to ODOT facilities including Naito Parkway and the Ross Island Bridge.	2028-2040
Portland	Portland	10237	Southern Triangle Access Improvements	Improve vehicle access to the Southern Triangle district from eastbound Powell Blvd, and improve vehicle access from CEID to westbound Powell and southbound I-5.	2028-2040
Portland	Portland	10242	Interstate-Larrabee Overpass	Remove the existing weight-restricted, low- clearance, poor-condition Interstate to Larrabee southbound flyover ramp (Bridge #153) and replace with a new overpass including a multi- use path to connect the future N Portland Greenway Trail to the Broadway Bridge. Assess the costs and benefits of providing vehicle access on the new structure as part of project development.	2028-2040
Portland	Portland	10243	NE 12th Ave Bridge Replacement	Replace the existing fracture critical and seismically deficient 12th Ave bridge (Bridge #025) over I-84 and railroad tracks with a new structure. Provide multimodal transportation improvements on the new structure.	2028-2040
Portland	Portland	10274	B-H Hwy/Bertha/Capitol Hwy Improvements	Redesign intersection to improve safety.	2028-2040
Portland	Portland	10328	Gateway Local Street Improvements, Phase 2	High priority local street and pedestrian improvements in regional center.	2028-2040
Multnomah County	Multnomah County	10386	Glisan St. Multi-modal Improvements	Reconstruct Glisan Street to provide multimodal connection between Gresham-Fairview Trail and Salish Ponds Natural Area. Include bike lanes, sidewalks, two travel lanes in each direction, and on-street parking. 4 lanes. Design green- street treatment for drainage improvements, including Fairview Creek culvert replacement. South side of Glisan St is in Gresham, north is City of Fairview. To address safety and reduce crashes the project will use proven safety countermeasures.	2028-2040
Multnomah County	Multnomah County	10401	Reconstruct Marine Dr.	Reconstruct Marine Drive between Intelachen and the frontage roads in Troutdale.	2028-2040
Multnomah County	Multnomah County	10406	Reconstruct Stark St. to arterial standards	Reconstruct road to arterial standards with 1 travel lanes in each direction, center turn lane/median, sidewalks and bicycle lanes; to address safety and reduce crashes the project will use proven safety countermeasures.	2028-2040
Multnomah County	Multnomah County	10413	Hawthorne Bridge Rehabilitation	Strengthen load capacity (BCIP14), mechanical upgrade (BCIP 17), replace mechanical and ropes (BCIP19).	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Gresham	Gresham	10417	Hogan - Palmquist to Rugg: Complete Buildout (to arterial standards)	Complete project development and construct new principal arterial connection with multi-use path.	2028-2040
Gresham	Gresham	10421	Burnside - 181st to 197th: Construct Boulevard Improvements	Complete boulevard improvements (rain gardens, sidewalk enhancements, lighting, etc.)	2028-2040
Gresham	Gresham	10429	Powell Valley Rd. - Burnside to 282nd: Complete Buildout	Improve Powell Valley to complete build out, with sidewalks and bike lanes.	2028-2040
Gresham	Gresham	10431	190th/Highland - 11th to 30th: Complete Buildout	Reconstruct and widen street to five lanes with sidewalks and bike lanes. Widen and determine the appropriate cross-section for Highland Drive and Pleasant View Drive from Powell Boulevard to 190th Ave.	2028-2040
Gresham	Gresham	10433	Division - Kelly to Burnside: Boulevard Improvements	Complete boulevard design improvements.	2028-2040
Gresham	Gresham	10447	162nd - Glisan to Halsey: Complete Buildout	Complete build-out to five lanes with enhanced bike lanes and crossings plus EB RT at Glisan. Focus is on safety and access to transit improvements to support future frequent service transit.	2028-2040
Gresham	Gresham	10450	202nd/Birdsdale - Division and Stark Intersections: Add Turn Lanes	Division: SB, EB turn lanes. At Stark: add 2nd NB LT lane and exclusive RT lane.	2028-2040
Gresham	Gresham	10460	174th - Giese to Jenne: New Road with Ped, Bike Facilities	Construction of new roadway that adds n/s capacity in vicinity of 174/Jenne. This facility may have one or two travel lanes in each direction and a median/turn lane which will be primarily a median, with left turn pockets at the intersection of the New Road/Giese.	2028-2040
Gresham	Gresham	10462	Butler - 190th to Towle: Complete Buildout	Improve Butler Rd. in new alignment to minor arterial standards, at intersection, add northbound and westbound turn pockets and signalize.	2028-2040
Gresham	Gresham	10463	Foster - Jenne to 172nd: New Roadway, Bike/Ped Facilities	New north extension of Foster.	2028-2040
Gresham	Gresham	10464	Giese - 182nd to 172nd: Road, Bike, Ped Extension	New ext. of Giese Rd. to Foster Road.	2028-2040
Gresham	Gresham	10465	172nd - Giese to Foster: Complete Buildout	Upgrade street to urban standards w. sidewalks, bikelanes.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Gresham	Gresham	10466	172nd - Cheldelin to Foster: Complete Buildout	Upgrade street to urban standards w. sidewalks, bikelanes, and add roundabout or traffic signal at 172nd/Foster.	2028-2040
Gresham	Gresham	10468	Giese - 182nd to 190th: Complete Buildout	Upgrade street to urban standards w. sidewalks, bikelanes.	2028-2040
Gresham	Gresham	10469	Foster in Pleasant Valley @ Kelley Creek: Bridge Crossing	Construct bridge crossing of Foster Rd. in Pleasant Valley area.	2028-2040
Gresham	Gresham	10471	Butler - Binford to Rodlun: Extend Road and Bridge Crossing	Construct new Butler road extension and bridge crossing.	2028-2040
Gresham	Gresham	10472	Eastman @ Division: Turn Lane Additions or Other Design Treatment	Add 2nd NB and SB LT lanes or consider other intersection design treatments.	2028-2040
Gresham	Gresham	10494	162nd @ Stark: EB + SB Right Turns	Add new exclusive southbound and eastbound right turns at Stark.	2028-2040
Gresham	Gresham	10497	181st @ Stark and Sandy Intersections: Add Turn Lanes	At Sandy: Northbound right turn, 2nd westbound left turn. Overlap eastbound right turn. At Stark, add 2nd left turn lane on east and west legs.	2028-2040
Gresham	Gresham	10498	182nd - Powell and Division Intersections: Add Turn Lanes and Transit Supportive Design	At Division: add second westbound left turn lane (TIF P1). At Powell, add northbound and southbound double left turn lanes (TIF P2 and TSP8).At Powell add SB and NB lanes. Transit/Enhanced Transit Corridor supportive project.	2028-2040
Gresham	Gresham	10503	Burnside @ Powell: Eliminate Turn Lanes	At Powell: eliminate EB and WB left turn lanes.	2028-2040
Gresham	Gresham	10527	Hogan - Powell to Palmquist: Complete Buildout	Improve to arterial standards.	2028-2040
Port of Portland	Port of Portland	11209	Airport Way East Terminal Access Link Roadway	Construct Airport Way East Terminal access link roadway. Facilitates direct East Terminal Access, preventing failure of Main Terminal Roadway.	2028-2040
Gresham	Gresham	11683	Halsey - 162nd to 181st: Safety Corridor	Safety corridor: Halsey {162nd-181st}: Enhance bike/ped, lighting, mid-block crossings, etc.	2028-2040
Multnomah County	Multnomah County	11684	Safety corridor: Cherry Park/257th {Cherry Park - Division}	Safety corridor: Cherry Park/257th from Cherry Park to Division street; to address safety and reduce crashes the project will use proven safety countermeasures.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Gresham	Gresham	11687	Powell @ Eastman: Left Turn Lane Addition	Powell and Eastman {add an additional southbound left turn}.	2028-2040
Portland	Portland	11782	North Portal Street Improvements	Improve access into the northern end of the North Macadam District by improving SW Corbett and SW Sheridan Street, including their connections with SW Kelly Way, SW Harbor Drive, and SW River Parkway.	2028-2040
Portland	ODOT	11788	SW Broadway Traffic Improvements	Make improvements on SW Broadway and/or other city streets to reduce the vehicle queue on the I-405 SB Exit Ramp that connects to SW Broadway.	2028-2040
Portland	Portland	11789	Vista Bridge Renovation	Renovate the structurally deficient Vista Bridge (Bridge #036).	2028-2040
Portland	Portland	11793	SE Yamhill /Taylor Couplet	Improve traffic safety and capacity by converting Yamhill and Taylor to couplet operation between Water and Grand Ave, including new traffic signals at Yamhill / MLK, Yamhill / Grand, and Taylor / Water. As part of the project, reconfigure the ramp from Belmont viaduct to MLK.	2028-2040
Portland	Portland	11797	Burgard St Viaduct Replacement	Replace the existing N Burgard St Viaduct (#001) over the UPRR tracks. Completes one element of the larger Barnes to T4 Port project.	2028-2040
Portland	Portland	11807	NE 33rd Ave Bridge Replacement	Replace the existing seismically vulnerable 33rd Ave bridge (#009) over railroad tracks and provide pedestrian and bicycle facilities on the new structure. Improve and signalize the intersection of 33rd & Columbia, and remove the seismically vulnerable, fracture critical ramp over Columbia (#009A). Project design will consider freight movement needs, consistent with policies, street classification(s) and uses.	2028-2040
Portland	Portland	11812	NE 105th/Holman Corridor Improvements	Improve roadway and add pedestrian and bicycle facilities to enhance multimodal safety and access along 105th and Holman. Construct a roadway connection on NE Killingsworth from 102nd to 105th to improve connectivity for all modes.	2028-2040
Portland	ODOT	11815	NW St Helens Rd Corridor Safety Improvements	Design and implement pedestrian and bicycle facilities and improve traffic safety for all modes.	2028-2040
Portland	Portland	11820	Tacoma Main Street Improvements	Implement boulevard design based on Tacoma Main Street study recommendations and incorporate McLoughlin Neighborhoods Project recommendations.	2028-2040
Portland	Portland	11827	SW Terwilliger Corridor Improvements, Segment 1	Construct sidewalks and bicycle facilities. Redesign intersection of Terwilliger & Boones Ferry to improve safety for all modes.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	11828	Capitol Hwy Bridge Seismic Retrofit	Retrofit existing seismically vulnerable bridge over Barbur (#139) and semi-viaduct along hillside (#140) to ensure emergency response and economic recovery in the event of an earthquake.	2028-2040
Portland	Portland	11869	Moody Ave Extension	Extend SW Moody Ave and the streetcar line from Bancroft to Hamilton Ct to improve circulation and transit access within the South Waterfront Neighborhood.	2028-2040
Portland	ODOT	11877	Columbia/MLK Intersection Improvements, Phase 2	Intersection and signalization improvements with a dedicated northbound right turn lane, a second dedicated southbound left turn lane, wider sidewalks adjacent to the roadway, and improvements to the geometry of the existing southbound through/right turn lane.	2028-2040
Portland	Portland	11884	Capitol Hwy / Bertha Blvd Bridge Replacement	Replace existing weight-restricted bridge over Bertha Blvd (#081) with a new structure with improved vertical clearance.	2028-2040
Portland	Portland	11885	Capitol Hwy / Multnomah Blvd Bridge Replacement	Replace existing weight-restricted bridge over Multnomah Blvd (#082) with a new structure.	2028-2040
Multnomah County	Multnomah County	11902	Broadway Bridge Rehabilitation 2	Electrical/structural upgrade to gates (BCIP12), fix pavement and update drainage, restripe (BCIP13); replace lighting (BCIP16).	2028-2040
Multnomah County	Multnomah County	11958	Morrison Bridge Rehabilitation - Phase 3	Reconstruction of road pavement sections, drainage, and striping (BCIP11)	2028-2040
Multnomah County	Multnomah County	12084	Hawthorne, Burnside, and Broadway Control Systems Rehabilitation	Rehabilitation control systems on three bridges.	2028-2040
Tigard	Tigard	11997	River Terrace Blvd	New street and trail through new River Terrace Development.	2018-2027
Washington County	Washington County	10546	170th Ave. Improvements	Widen roadway to 4 lanes with left turn lanes at major intersections, sidewalks, and bike lanes or cycle tracks.	2018-2027
Washington County	Washington County	10550	185th Avenue Improvement	Widen 185th Ave from two to five lanes with bike lanes and sidewalks to address congestion and address safety. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
Hillsboro	Washington County	10553	209th Ave Widening and Improvements, Phase 1	Widen roadway from two/three lanes to five lanes; improve from rural to urban standard with bike facilities and sidewalks; improve intersections and railroad crossing; new signals at Blanton and Kinnaman; project to serve South Hillsboro UGB area.	2018-2027
Washington County	Washington County	10558	Cornell Rd. Improvements	Widen from two to three lanes with bike lanes and sidewalks, realign 107th.	2018-2027
Washington County	ODOT	10560	Farmington Rd. Improvements	Widen roadway from 2/3 lanes to 4 lanes with turn lanes at major intersections, bike lanes, sidewalks, access management, realignment of Rosa/179th intersection.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Washington County	Washington County	10561	Jenkins Rd. Improvements	Widen roadway from three to five lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	10564	Kaiser Improvements	Widen from two to three lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	10565	Springville Rd. Improvements	Widen from 2 to five lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	10566	Springville Rd. Improvements	Widen from two to three lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	10568	Tualatin-Sherwood Rd. Improvements	Widen from three to five lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	10575	West Union Rd.	Widen from two to five lanes with bike lanes and sidewalks. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
Washington County	Washington County	10587	Cornelius Pass Rd. Improvements	Widen to five lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	10590	Tonquin Rd. Improvements	Realign and widen to three lanes with bike lanes and sidewalks and street lighting.	2018-2027
Washington County	Washington County	10592	205th Ave. Improvements	Widen road to 5 lanes with bike lanes and sidewalks. Widen bridge over Beaverton Creek to four lanes with bike lanes and sidewalks.	2018-2027
Beaverton	Beaverton	10620	Millikan Way Extension	Complete sidewalk gaps and add on-street bike sharrows between Watson and Lombard. Realign Millikan between Watson and Hall. Construct new two-lane collector street from Lombard to 114th Avenue with bike lanes, sidewalks and street trees.	2018-2027
Beaverton	Beaverton	10625	Rose Biggi Avenue Street Extension	Construct new two lane collector street with on- street bikeway, on-street parking, sidewalks, and street trees.	2018-2027
Beaverton	Beaverton	10633	Allen Boulevard Multimodal Improvements (OR Highway 217 to Western Avenue)	Add turn lanes, traffic signals, bike lanes, sidewalks and street trees.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Sherwood	To be determined	10674	Oregon-Tonquin Intersection Improvements	Reconstruct and realign three leg intersection with a roundabout (partial two-lane roundabout) approx 400 feet northeast of existing roundabout at SW Oregon St & Murdock Rd. ROW, PE, design & construction. Potential for signal in-lieu of dual-roundabout system if better for development and once SW 124th Ave project is completed. If roundabout, project will include rapid flashing beacons at new roundabout and retrofit of adjacent roundabout to meet MUTCD suggestions for pedestrian crossings at roundabouts. This is currently a Washington County facility but would likely become Sherwood's upon completion of project to TSP standards	2018-2027
Sherwood	To be determined	10680	Elwert-99W-Sunset Intersection Improvements	Relocate Kruger Rd intersection 600' northeast along Elwert Rd. Construct roundabout at Elwert-Kruger-Cedar Brook. Widen Sunset Blvd approach. Reconstruct 99W intersection and replace signal. PE, design, ROW acquisition, and construction. Reconstruct widen SW Elwert Rd north to SW Hadley St.. Final alignment and signals vs. roundabouts to be determined soon with pending Sherwood High School relocation and required annexation.	2018-2027
Sherwood	Sherwood	10681	Elwert Road Improvements	Construct arterial status roadway between new roundabout (~800' NW of Pacific Hwy) and SW Edy Rd.	2018-2027
Sherwood	Sherwood	10682	Brookman Road Improvements	Construct new arterial status roadway between OR 99W and SW Ladd Hill Road. Project development, ROW, PE, design & construction. ROW width to accommodate either 5-lane arterial w/ bike lanes or 3-lane arterial w/ multi- use path integrated with landscaping and sidewalks on both sides. Multi-use path may be widened to 16' or 20' for to accommodate both bicycles & pedestrians with no on-street bike lanes.	2018-2027
Sherwood	Sherwood	10692	Edy Rd Improvments	Reconstruct road to 3-lane collector standards w/ sidewalks and bike lanes. Partial Washington County jurisdictions and assumed to become City's jurisdiction upon completion of project.	2018-2027
Sherwood	Sherwood	10699	Oregon Street Improvements	Widen existing substandard 2-lane road (no sidewalks, no median) to a 3-lane collector meeting current TSP standards (8' sidewalks, 5' landscape strip, 12' travel, 14' median, 12' travel, 5' landscape, 8' sidewalks, plus 2 on- street bike lanes or 4' added to each 8' sidewalk). On-street bike lanes vs. 2 multi-use paths TBD with future development.	2018-2027

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List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Sherwood	Sherwood	10702	Edy-Borchers Intersection Improvements	Improve intersection capacity and safety. Possible roundabout 400' west of Borchers. Flashing beacons will be added at roundabout crosswalks or ped signals will be added if traffic signal is deemed better treatment as area develops. Project will restrict Borchers movements to right-in/right-out. Can be combined with east end of RTP project no. 10692.	2018-2027
Tualatin	Tualatin	10709	Sagert	Signalize intersection and improve grades on Sagert at Martinazzi to enhance intersection safety in an equity priority area.	2018-2027
Tualatin	Tualatin	10715	Herman	To improve safety and add active transportation options: Upgrade this road section to urban stadards with sidewalks, bicycle lanes and curbs/gutters.	2018-2027
Tualatin	Tualatin	10716	Myslony	Reconstruct/widen from 112th to 124th to fill system, includes bridge. Improve the intersection of 124th and Myslony.	2018-2027
Tigard	Tigard	10748	Greenburg Road Improvements - N Dakota to Cascade	Widen Greenburg Road to include a second northbound lane, bike lanes, better sidewalks, ADA retrofits, and intersection geometry improvements from Hwy 217 to North Dakota St and add a second left turn lane from Tiedeman Ave onto Northbound Greenburg Rd.	2018-2027
Tigard	Tigard	10755	72nd Ave. Improvements - 99W to Hunziker	Build complete street (with bike lanes sidewalks) as determined by conceptual design phase; Likely to be 3-lane section from Hwy 99W to Clinton St; 5-lane section from Clinton St to Hunziker St.	2018-2027
Tigard	Tigard	10768	Upper Boones Ferry Road (I-5 to Durham Road) Complete Street and Intersection Improvements	Widen Upper Boones Ferry Rd to five lanes with bike lanes and sidewalks from Interstate 5 through Durham Road, including additional turn lanes at intersections with Sequoia Pkwy, 72nd Ave, and Durham Rd.	2018-2027
Tigard	ODOT	10770	OR 99W Intersection Improvements (PE)	Project development phase: Provide increased capacity and safety improvements at priority intersections by adding turn and/or auxiliary lanes, improved sidewalks and bike lanes, pedestrian crossings, and access management from I-5 to Durham Road. See 2035 Tigard TSP Project #66 for specific improvements.	2018-2027
Forest Grove	Forest Grove	10784	David Hill Road Improvement	Improve David Hill Road west of Thatcher Road to collector road standards to improve pedestrian and bicycle safety and improve multimodal access from nearby neighborhoods to community park.	2018-2027
Cornelius	Cornelius	10802	29th Avenue Traffic Signals and Crossing Gates	Install traffic signals at intersection of Hwy 8 and 29th Avenue and install crossing gates and signals at S. 29th railroad crossing between Baseline and Alpine Streets.	2018-2027
Hillsboro	Hillsboro	10818	Century Blvd Extension and Improvements (Baseline to Lois)	Construct and widen roadway including bridge across Rock Creek to three lanes with bike/ped facilities; realign north leg of intersection at Lois to match south leg.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Hillsboro	Hillsboro	10820	Brookwood Ave Improvements	Widen to two lanes with onstreet parking and sidewalks from Alexander to Davis; widen to three lanes with bike/ped facilities from Davis to Oakhurst (UGB).	2018-2027
Hillsboro	Hillsboro	10821	Huffman St Extension, Phase 1	Construct five-lane road with bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	10822	Starr Blvd Reconstruction and Improvements, Phase 1	Construct three-lane road with bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	10825	Amberglen Pkwy Extension	Extend three-lane road with bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	10826	Jackson School Rd Turn Lanes and Bike/Ped Improvements	Widen roadway to add center turn lane, raised cycletracks, and complete missing sidewalks; improve bridge across Glencoe Creek; new roundabout at Harewood; new pedestrian crossings at various intersections.	2018-2027
Hillsboro	Hillsboro	10837	Cherry Dr Extension	Extend Cherry Dr in Orenco Station from current terminus to Ray Circle.	2018-2027
Hillsboro	Hillsboro	10838	Davis Rd Turn Lanes and Bike/Ped Improvements	Widen roadway to add center turn lane and bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	10839	Century Blvd Turn Lanes and Bike Lanes (Witch Hazel)	Widen roadway to add center turn lane and bike lanes.	2018-2027
Wilsonville	Wilsonville	10853	Garden Acres Road Extension	Construct three lane road extension with sidewalks and cycle track and reconstruct/reorient Day Road/Grahams Ferry Road/Garden Acres Road intersection.	2018-2027
Hillsboro	Hillsboro	11137	TV Hwy & Century Blvd Intersection Improvements	Add second northbound and southbound through lane (maintain northbound and southbound left-turn lane); add eastbound bus bay; improve rail crossing; add bike facilities on Century Blvd from TV Hwy to Alexander.	2018-2027
Hillsboro	Hillsboro	11147	Schaaf Rd Reconstruction	Reconstruct rural gravel road to three-lane roadway with bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	11169	Cornell Rd & 25th Ave Intersection Improvements	Widen 25th Ave to provide double southbound left-turn lanes and second northbound through lane.	2018-2027
Hillsboro	Washington County	11170	Cornell Rd & Brookwood Pkwy and Cornell & 48th Ave Intersection Improvements	Widen Cornell to provide double left-turn lanes in both eastbound and westbound at Brookwood intersection; and double eastbound left-turn lanes at 48th.	2018-2027
Tigard	Tigard	11217	McDonald Street Improvements	Widen roadway to a 3-lane complete street (with sidewalks, bike lanes, and center turn lanes where appropriate) and crossing enhancements at some locations.	2018-2027
Tigard	ODOT	11220	Hall Blvd. Improvements - Locust to Durham	Widen to 3 lanes with sidewalks and bike lanes, turn lanes as appropriate, safety improvements, and paving. Could combine with County/ODOT project from Greenburg to Locust.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Tigard	ODOT	11223	Hall/Hunziker/Scoffins Intersection Realignment	Realign offset intersection to cross intersection to alleviate congestion and safety issues.	2018-2027
Washington County	Washington County	11233	Walker Rd. Improvements	Widen from two to five lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	11236	Cedar Hills Boulevard Multimodal Improvements (Celeste Lane to Butner Road)	Widen to five lanes thru Barnes to address safety and reduce crashes, turn lane improvements at US 26, signalize US 26 EB, continuous bike lanes and sidewalks through interchange area. (Improvements at US 26 EB ramps complete by 2018)	2018-2027
Hillsboro	Hillsboro	11272	Kinnaman Rd Extension	Construct three-lane roadway extension with bike/ped facilities through future South Hillsboro development; include new roundabout at Century and new signals at Cornelius Pass Rd, 209th Ave, and two intersecting future neighborhood streets.	2018-2027
Hillsboro	Hillsboro	11273	Blanton Street Extension	Construct three-lane east-west roadway extension with bike/ped facilities through future South Hillsboro development including new signals at Cornelius Pass Rd, 209th Ave, and three intersecting streets through South Hillsboro town center.	2018-2027
Hillsboro	Hillsboro	11274	Century Blvd Extension (South Hillsboro)	Construct three-lane roadway with bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	11275	Walker Rd Extension and Realignment	Construct five-lane roadway extension with bike/ped facilities; realign intersections of Walker & Stucki and Walker & Amberwood/Amberglen Pkwy.	2018-2027
Hillsboro	Hillsboro	11277	194th Ave/Amberglen Pkwy Extension and Realignment	Construct two-/three-lane extension with bike/ped facilities to form new alignment of Amberglen Pkwy & Walker Rd intersection.	2018-2027
Hillsboro	Washington County	11284	Farmington Rd Widening and Bike/Ped Improvements, Phase 1	Widen roadway from two to five lanes with bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	11363	Gibbs Dr Extension	Construct three-lane roadway with bike/ped facilities.	2018-2027
Hillsboro	Hillsboro	11364	Starr Blvd Reconstruction and Improvements, Phase 2	Construct three-lane road with bike/ped facilities.	2018-2027
Beaverton	ODOT	11379	Canyon Road Multimodal Improvement	Project to include a landscaped median for access control, enhanced midblock pedestrian crossings, turn lanes, street trees, lighting, ADA ramp upgrades, and sidewalk reconstruction.	2018-2027
Hillsboro	Hillsboro	11383	New North-South Collector (North Hillsboro)	Construct three-lane roadway with bike/ped facilities.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Hillsboro	Hillsboro	11385	67th Ave Railroad Crossing Closure, Turn Lanes and Bike/Ped Improvements	Improve roadway to urban collector standard with turn lanes, bike lanes, and sidewalks from Alexander to new Century/Kinnaman intersection; close off intersection with TV Hwy and railroad, reclassify segment from Alexander to dead-end at TV Hwy as local street.	2018-2027
Sherwood	Sherwood	11404	Baler Way Extension	Extend SW Baler Way (3-lane collector) between SW Tualatin-Sherwood Road and SW Langer Farms Parkway, possibly SW Pacific Highway depending upon results of widening of SW Tualatin-Sherwood Road project by Washington County.	2018-2027
Tigard	Tigard	11407	Ash Avenue Extension	Extend Ash Avenue across the railroad tracks from Burnham to Commercial Street.	2018-2027
Tualatin	Tualatin	11417	Blake Street Extension	Extend Blake Street to create an east-west connection between 115th and 124th. Install signal at Blake and 124th. New road section will provide an alternative route for industrial traffic on the high injury corridor: Tualatin/Sherwood Road.	2018-2027
Tualatin	Tualatin	11421	Tualatin Rd	Signalize intersection at 115th and eliminate free right-turn on Tualatin Road, consider roundabout.	2018-2027
Tualatin	Washington County	11422	Boones Ferry Road	Improve traffic capacity through the addition of turn lanes and increased stacking distance on northbound or southbound Boones Ferry to Tualatin-Sherwood Road.	2018-2027
Tualatin	Tualatin	11430	Helenius	Uprgrade to urban standards.	2018-2027
Washington County	Washington County	11451	Saltzman Rd	Widen to three lanes with bike lanes and sidewalks.	2018-2027
Washington County	Washington County	11458	Shackelford Rd	Build new 3 lane road with bike/ped facilities, storm drainage, street lighting to serve North Bethany.	2018-2027
Washington County	Washington County	11459	Shackelford Rd	Build new 3 lane road with bike/ped facilities, storm drainage, street lighting to serve North Bethany.	2018-2027
Washington County	Washington County	11463	Thompson Rd Realignment	Realign as 3 lane arterial to address safety and reduce crashes, with sidewalks, bike and street lighting.	2018-2027
Washington County	Washington County	11470	Basalt Creek Parkway	Extend new 5 lane Arterial with bike lanes, sidewalks and street lighting.	2018-2027
Washington County	Washington County	11477	Kaiser	Widen from 2 to three lanes with sidewalks, bike lanes, street lighting, and community features	2018-2027
Washington County	Washington County	11486	Roy Rogers Rd.	Widen to five lanes with bike lanes and sidewalks. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Forest Grove	ODOT	11661	OR 47/ Martin Road Intersection Improvements	Construct improvement (e.g. roundabout) at Highway 47 intersection with Holladay Street extension, Martin Road and 23rd Avenue extension. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
Forest Grove	ODOT	11662	OR 47/ B St. Intersection Improvements	Construct intersection improvements (e.g. lighting and improved traffic control) to address safety issues at high crash intersection. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
Forest Grove	ODOT	11667	OR 47/ Fernhill-Maple St. Intersection Improvements	Construct intersection improvements to address safety issues at high crash intersection and improve access to employment area and regional recreational facility.	2018-2027
Hillsboro	Washington County	11752	209th Ave Widening and Improvements, Phase 2	Widen roadway from two/three lanes to five lanes including bridge across Butternut Creek; improve from rural to urban standard with bike facilities and sidewalks; improve intersections including new roundabout at McInnis and new signals at Butternut Creek Pkwy, Deline, and Vermont; project to serve South Hillsboro UGB area.	2018-2027
Hillsboro	Hillsboro	11890	Huffman St Extension, Phase 2	Construct five-lane road with bike/ped facilities.	2018-2027
Beaverton	Beaverton	11892	Barrows Road Extension at South Cooper Mountain	Construct new three lane collector street with bike lanes, sidewalks, street trees, and lighting.	2018-2027
Beaverton	Beaverton	11893	New North-South Collector Road at South Cooper Mountain	Construct three lane collector road with bike lanes, sidewalk, street trees and lighting.	2018-2027
Beaverton	Beaverton	11895	Farmington Road/Cedar Hills Boulevard Intersection Improvements	Construct southbound double left turn lanes and southbound right turn lane. Restripe southbound through lanes as side-by-side left turn lanes. Construct second eastbound left turn lane.	2018-2027
Beaverton	Beaverton	11897	Cedar Hills Boulevard/Jenkins Road Intersection Improvements	Widen Jenkins to five lanes and construct southbound and eastbound double left turn lanes, southbound right turn lane, westbound right turn channel. Modify signal for eastbound and westbound protected phasing.	2018-2027
Washington County	Washington County	11903	Roy Rogers Rd.	Widen roadway to 5 lanes, includes sidewalks and bike lanes.	2018-2027
Hillsboro	Hillsboro	11909	Hidden Creek Dr Extension	Construct two-lane roadway extension with bike/ped facilities	2018-2027
Washington County	Washington County	11914	Roy Rogers Rd	Widen roadway to 4-5 lanes, includes sidewalks and bike lanes. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
Washington County	Washington County	11915	Scholls Ferry Rd	Widen roadway to 5 lanes, includes sidewalks and bike lanes. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Cornelius	Cornelius	11918	S. Alpine Street Extension	Extend S. Alpine St. as a collector street to the eastern UGB boundary.	2018-2027
Washington County	Washington County	11919	Tile Flat Rd	Interim 3-lane and north side pedestrian/bicycle improvements. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
Hillsboro	Washington County	11920	Cornelius Pass Rd Extension, Phase 2	Construct five-lane extension with bike/ped facilities; intersection improvements; new signals at Blanton, Kinnaman, McInnis, Butternut Creek, Deline, and Vermont; bridge at Butternut Creek; creek crossings at Gordon Creek and south tributary of Butternut Creek.	2018-2027
Tigard	Tigard	11995	Wall St (Hunziker to Tech Center)	Construct new street with sidewalks and bike lanes from Hunziker Road (along Wall Street) to Tech Center Drive to improve freight access and connectivity to Tigard Triangle.	2018-2027
Tigard	Tigard	11996	Fanno Creek Bridges Upgrades	Existing old bridges have deteriorated and are nearing end-of-life. Replace with new bridges meeting current standards including sidewalks and bike lanes.	2018-2027
Tigard	Tigard	11998	Tiedeman Ave Complete Street	Build complete street with sidewalks and bike lanes on both sides of the street from Fanno Creek to Greenburg Rd. Construct traffic signal or roundabout at Tigard St / Tiedeman Ave intersection; Dual left turn lanes approaching Greenburg Road (may be build by Greenburg Rd project); Possible efficiency improvements at Tiedeman/North Dakota St intersection.	2018-2027
Wilsonville	Wilsonville	11243	Day Road Improvements	Widen street from 3 to 5 lanes with buffered bike lanes, sidewalks and street lighting. Improve structural integrity for increased freight traffic and provide congestion relief. Sidewalk infill and creation of Tonquin Trail multi-use path spur will reduce pedestrian and vehicle conflicts. Bike buffers will reduce bicycle and freight conflicts.	2028-2040
Washington County	Washington County	10545	OR 10: Oleson Rd. Improvement Ph. 1	Realign Oleson Rd. 500 feet to east and reconfigure Oleson intersections with OR10 and Scholls Ferry Rd. to address safety and reduce crashes.	2028-2040
Washington County	Washington County	10548	174th Ave. Improvements	Add turn lanes, bike lanes and sidewalks	2028-2040
Washington County	Washington County	10549	Cornell @ 143rd Improvements	Realign 143rd with Science Park Dr. @ Cornell as a 4-way signalized intersection.	2028-2040
Washington County	Washington County	10559	Cornell Improvements	Widen Cornell from three to five lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	10563	Kaiser/143rd Ave. Improvements	Widen from two to three lanes with bike lanes and sidewalks.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Washington County	Washington County	10567	Taylors Ferry Extension	Construct new two lane extension with bike lanes and sidewalks	2028-2040
Washington County	Washington County	10569	Walker Rd. Improvements	Widen from two to five lanes to address congestion and safety, reduce crashes, with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	10571	West Union Rd. Improvements	Widen to five lanes from 185th to Laidlaw and from two to three lanes from Laidlaw to 143rd Ave, with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	10578	Merlo/158th Improvements	Widen roadway to five lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	10579	Barnes Rd. Improvements	Widen to five lanes with bike lanes and sidewalks. Add double turn lanes.	2028-2040
Washington County	Washington County	10582	185th Ave. Improvements	Widen to five lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	10591	Glencoe Rd. Improvements	Widen to three lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	10593	Kinnaman Rd. Improvements	Reconstruct with sidewalks, bike lanes and turn lanes at major intersections; consolidate offset intersection at 198th Ave.	2028-2040
Washington County	ODOT	10595	Hall Blvd. Improvements	Widen to five lanes with bike lanes and sidewalks.	2028-2040
Beaverton	Beaverton	10618	Cedar Hills Boulevard/Dawson Way/Westgate Drive Intersection Realignment	Construct realignment of Dawson/Westgate at Cedar Hills Boulevard and add turn lanes at intersections. Construct sidewalks on Westgate Drive. Install on-street bikeway (sharrows) on Westgate Drive and Dawson Way.	2028-2040
Beaverton	Beaverton	10619	Crescent Street Extension	Construct new two lane collector with on-street bikeway (sharrows), sidewalks, street trees, and lighting. To be constructed by private development starting in 2017.	2028-2040
Beaverton	Beaverton	10621	Broadway Street Extension	Construct new two lane collector street with bike lanes, sidewalks, and street trees.	2028-2040
Beaverton	Beaverton	10623	Hall Boulevard Street Extension	Construct new four lane street (2 lane boulevard design if all other Regional Center street connections are complete) with bike lanes, sidewalks, and street trees.	2028-2040
Beaverton	Beaverton	10624	120th Avenue Extension	Construct new street with bike lanes, sidewalks, street trees, and turn lanes and signals as needed.	2028-2040
Beaverton	Beaverton	10626	115th Avenue Extension	Construct 2 lane street with bike and pedestrian improvements.	2028-2040
Beaverton	Beaverton	10635	125th Avenue Extension	Construct new street with bike lanes, sidewalks, street trees and turn lanes and signals as needed.	2028-2040
Beaverton	Beaverton	10638	Davies Road Extension	Construct new two lane collector street with turn lanes, bike lanes, sidewalks, and street trees.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Sherwood	Sherwood	10691	Sherwood Blvd Improvements	Reonstruct road to 3-lane arterial standards. Median/turn lane, landscape strip, ADA compliant sidewalks. Reconstruct intersection at 3rd St to increase capacity. Assume SW Century Drive improved by development and/or local funds. Cost estimate assumes utilities already underground and existing ROW widths are adequate for low-speed road. Note two public schools along this stretch of SW Sherwood Blvd. Adds bike lanes to existing road w/ 2 14' wide lanes and 14' median-turn lane.	2028-2040
Sherwood	Sherwood	10693	Ladd Hill Road Improvements	Widen SW Ladd Hill Road to 3-lane collector street standards between SW Sunset Blvd and UGB southern boundary, potentially between SW Brookman Rd improvements.	2028-2040
Tualatin	Tualatin	10718	Herman	Reconstruction: Widen to 3-lanes from Cipole to 124th.	2028-2040
Tualatin	Tualatin	10738	Teton	To improve safety and add active transportation improvements in an employment corridor: Widen Teton to three lanes and add bike lanes. Add right-turn lanes from NB Teton to WB T/S Road. Signalize the intersection of Teton/Tualatin Rd. Add SB turn-pocket at Teton/Avery and signalize intersection.	2028-2040
Tigard	Tigard	10746	Washington Square Connectivity Improvements	Increase local street connections at Washington Square Center based on recommendations in regional center plan.	2028-2040
Tigard	ODOT	10751	OR 217 Overcrossing - Beveland to Hunziker	Realign Hunziker Road to meet Hampton Street at 72nd Ave, remove existing 72nd/Hunziker Road intersection, provide bicycle, pedestrian and transit facilities. Project to be refined based on SW Corridor High Capacity Transit recommendations.	2028-2040
Forest Grove	Forest Grove	10773	Thatcher Road Improvement	Improve Thatcher Road to arterial design standards and improve intersection with Gales Creek Road.	2028-2040
Forest Grove	ODOT	10774	23rd Avenue Extension	Intersection improvement with connections to Martin Road intersection improvement.	2028-2040
Forest Grove	ODOT	10780	OR 47/ Pacific Avenue Intersection Improvements	Construct intersection improvement to add a west-bound left turn lane and an eastbound right turn lane.	2028-2040
Cornelius	Forest Grove	10795	Holladay Street Extension - West	Construct new collector.	2028-2040
Hillsboro	Hillsboro	10819	Century Blvd Turn Lanes and Bike/Ped Gaps (Baseline to Alder)	Complete gaps in roadway to provide continuous center turn lane with sidewalk and bike lanes.	2028-2040
Hillsboro	Hillsboro	10823	Amberwood Dr Turn Lanes and Bike/Ped Improvements	Widen roadway to three lanes and complete bike/ped gaps.	2028-2040
Hillsboro	Hillsboro	10828	Edgeway Dr Extension	Extend existing three-lane road with bike/ped facilities.	2028-2040
Hillsboro	Hillsboro	10829	Wilkins St Extension	Extend three-lane road with bike/ped facilities.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Hillsboro	Hillsboro	10831	Century Blvd Extension and Over-Crossing (North Hillsboro)	Construct three-lane road including US 26 overpass with bike/ped facilites; connect existing segments to provide new north-south connectivity.	2028-2040
Hillsboro	Washington County	10836	Evergreen Rd Widening and Bike/Ped Improvements	Widen roadway from three to five lanes, complete missing sidewalks, and upgrade to buffered bike lanes.	2028-2040
Washington County	Washington County	11045	185th Avenue/MAX Grade Separation	Grade separate 185th Avenue/Baseline Road intersection and MAX line.	2028-2040
Hillsboro	Washington County	11140	Brookwood Pkwy Widening	Widen roadway to five lanes (two through lanes in each direction with left-turn lane at intersections) with bike/ped facilities.	2028-2040
Tigard	Tigard	11224	North Dakota/ Tiedeman Realignment	Realign one street to meet the other west of the railroad	2028-2040
Tigard	Tigard	11225	Downtown Circulation Plan Implementation	Acquire ROW, construct streets and streetscape improvements in downtown Tigard.	2028-2040
Tigard	Tigard	11229	Walnut Street Improvements	Build complete street with sidewalks and bike lanes on both sides and ped crossing improvements; may include turn lane approaching Hwy 99W.	2028-2040
Hillsboro	Hillsboro	11276	Stucki Ave Extension and Realignment	Construct five-lane roadway extension with bike/ped facilities; realign intersection of Walker & Stucki.	2028-2040
Hillsboro	Washington County	11285	Farmington Rd Widening and Bike/Ped Improvements, Phase 2	Widen roadway to five lanes with bike/ped facilities; new signal at 209th Ave.	2028-2040
Forest Grove	ODOT, Forest Grove	11380	Yew St / Adair St Intersection Improvements	Construct intersection improvements at Yew Street/Adair and Yew Street/Baseline to improve safety.	2028-2040
Hillsboro	Hillsboro	11384	Murphy Rd Construction	Construct new three-lane roadway with bike/ped facilities; new signals at Cornelius Pass Rd and at 209th Ave.	2028-2040
Hillsboro	Washington County	11386	198th Ave Widening and Bike/Ped Improvements	Widen roadway to five lanes (two through in each direction plus center turn lane) with bike/ped facilities; also see project 11390 - intersection improvements at TV Hwy & 198th	2028-2040
Hillsboro	Hillsboro	11387	Meek Rd Improvements, Phase 1	Widen and improve roadway to three lanes with bike/ped facilities.	2028-2040
Hillsboro	Hillsboro	11388	30th Ave Construction	Construct three-lane industrial collector with bike/ped facilities.	2028-2040
Hillsboro	ODOT	11390	TV Hwy & 198th Ave Intersection Improvements	Construct second westbound left-turn lane, second northbound through lane, southbound right-turn lane; modify traffic signal; also see project 11386 - widening of 198th.	2028-2040
Hillsboro	Hillsboro	11394	Century Blvd Turn Lanes and Bike/Ped Improvements (South Hillsboro)	Widen roadway to three lanes with bike/ped facilities, include roundabout at Kinnaman, and crossing at Butternut Creek and culvert south of Rosa.	2028-2040
Tualatin	Tualatin	11419	Boones Ferry Road	Uprgrade to urban standards and add sidewalks.	2028-2040
Tualatin	Tualatin	11423	Avery	Upgrade to urban standards.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Washington County	Washington County	11452	Scholls Ferry Rd. Improvements	Realign curves to improve safety and reduce crashes. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Washington County	Washington County	11464	Jenkins Rd. Improvements	Widen from 3 lanes to 5 lanes with bike lanes, sidewalks and street lighting.	2028-2040
Washington County	Washington County	11466	Laidlaw Improvements	Straighten curves, widen to 3 lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	11471	Laidlaw Improvements	Widen to three lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	11476	Saltzman Rd	Widen to three lanes with bike lanes and sidewalks.	2028-2040
Washington County	Washington County	11480	185th Avenue	Widen from two lanes to three lanes with bike lanes and sidewalks - interim improvement.	2028-2040
Washington County	Washington County	11487	Boones Ferry Improvements	Widen from 3 lanes to 5 lanes with bike lanes, sidewalks and street lighting.	2028-2040
Wilsonville	ODOT	11489	Boones Ferry / I-5 off ramp improvements	Construct second right-turn lane.	2028-2040
Washington County	Washington County	11577	Beef Bend Rd	Widen to three lanes with bike lanes and sidewalks.The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Washington County	Washington County	11581	Thompson Rd	Widen to three lanes with bike lanes and sidewalks.	2028-2040
Tigard	ODOT	11666	OR 99W Intersection Improvements (CON)	Construction phase: Provide increased capacity and safety improvements at priority intersections by adding turn and/or auxiliary lanes, improved sidewalks and bike lanes, pedestrian crossings, and access management from I-5 to Durham Road. See 2035 Tigard TSP Project #66 for specific improvements.	2028-2040
Washington County	ODOT	11739	Hall Blvd. Improvements	Widen to 2/3-lane cross section with bike lanes and sidewalks.	2028-2040
Hillsboro	Washington County	11753	209th Ave Widening and Improvements, Phase 3	Widen roadway from two/three lanes to five lanes; improve from rural to urban standard with bike facilities and sidewalks; improve culvert at Rosedale Creek; improve intersections including new signals at Murphy and Rosedale; project to serve South Hillsboro UGB.	2028-2040
Beaverton	Beaverton	11896	Hall Boulevard/Allen Boulevard Intersection Improvements	Construct eastbound and westbound right turn lanes, and northbound and southbound double left turn lanes.	2028-2040
Beaverton	Beaverton	11898	Farmington Road/Hocken Avenue Intersection Improvements	Construct southbound double left turn lanes.	2028-2040
Beaverton	Beaverton	11899	Nora Road/Beard Road Extension and Multimodal Improvements	Construct new two lane collector from 170th Avenue to Moonstone Street with bike lanes, sidewalks, street trees, lighting, and turn lanes where needed. Construct turn lanes, bike lanes, and sidewalks where needed from Moonstone Street to Murray Boulevard.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Hillsboro	Hillsboro	11905	25th Ave Turn Lanes and Bike/Ped Improvements	Widen roadway from two to three lanes (one through lane in each direction and center turn lane) with bike/ped facilities.	2028-2040
Hillsboro	Hillsboro	11906	25th Ave Extension	Construct three-lane roadway with bike/ped facilities; realign intersection at Evergreen to avoid airport clear zone.	2028-2040
Hillsboro	Washington County	11907	Jackson School Rd Improvements	Improve roadway from rural to urban standard and widen to three lanes with bike/ped facilities. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Hillsboro	Hillsboro	11908	47th Ave, Ihly Wy Bike/Ped and Safety Improvements	Widen and improve roadway to two-lane collector including bike/ped facilities; improve bridge and culvert at Dawson Creek to address flooding issue; connect to proposed Hidden Creek Dr extension at 47th Ave.	2028-2040
Hillsboro	Hillsboro	11910	Meek Rd Improvements, Phase 2	Improve Meek Rd to address safety for industrial access to/from Jackson School Rd. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Hillsboro	Hillsboro	11911	Rosedale Rd Turn Lanes and Bike/Ped Improvements	Widen to three lanes with bike/ped facilities; intersection improvements including new roundabout at Cornelius Pass Rd and new signal at 209th Ave; box culverts at Rosedale Creek east and west crossings.	2028-2040
Hillsboro	Washington County	11921	Cornelius Pass Rd Extension, Phase 3	Construct five-lane extension with bike/ped facilites; signal at Murphy; roundabout at Rosedale	2028-2040
Hillsboro	Hillsboro	11932	Hillsboro Safety Action Projects	Implement projects as identified in the Hillsboro Transportation Safety Action Plan to improve safety at locations with high fatal and/or serious crashes.	2028-2040
Forest Grove	ODOT	11948	OR 47 at David Hill Road Intersection Roundabout Improvement	Add an additional second circulating lane to the existing roundabout to provide separation for northbound left turning and through traffic as well as a separate lane for southbound turns.	2028-2040
Forest Grove	ODOT	11950	OR 47 at Purdin Road/Verboort Road Intersection Roundabout Improvement	Add a northbound right turn slip lane on the south leg of the roundabout and a southbound right turn slip lane on the south leg of the roundabout to the overall roundabout intersection. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Tualatin	Washington County	11962	Grahams Ferry Road	Upgrade SW Grahams Ferry Road to roadway standards betweeen SW Ibach Road and Helenius Road.	2028-2040
Sherwood	Sherwood	12044	Langer Farms Parkway Extension	Extends SW Langer Farms Parkway (3-lane collector street) west across OR 99W to serve undeveloped land within city limits and UGA expansion areas. Road extension is likely to loop around back to OR 99W due to environ. constraints between SW Roy Rogers Rd. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Sherwood	To be determined	12045	Edy-Elwert Intersection Improvements	Reconstruct Edy/Elwert intersection and approach roads to arterial standards (roundabout or signal, elevate roadway to increase site distance, etc.).	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Sherwood	Sherwood	12046	Tonquin Area East-West Collector	Construct 3-lane collector status road between SW 124th Avenue and SW Tonquin Road through the Tonquin employment area to serve recent UGB annexation area.	2028-2040
Sherwood	To be determined, (	12047	Brookman Road Intersection Realignment	Realigns and relocates the SW Brookman Road intersection with SW Pacific Highway (OR 99W) to accommodate the expansion of SW Brookman Road for future development.	2028-2040
Washington County	Washington County	12066	175th Ave (Kemmer Rd to Rigert Rd)	Add bike lanes, sidewalks and turn lanes where appropriate.	2028-2040
ODOT	ODOT	10890	OR 212/224 Sunrise Hwy Phase 2: SE 122nd to SE 172nd (PE, ROW)	Conduct preliminary engineering (PE) and acquire right-of-way (ROW) on phase 2 of the OR 212/224 Sunrise Corridor from I-205 to SE 172nd Ave consistent with the Final Environmental Impact Statement (FEIS)/Record of Decision (ROD).	2018-2027
West Linn	ODOT	11242	I-205 / 10th Street Improvements	Construct a long-term interchange improvement to provide congestion relief, address safety issues, and improve bike/ped connectivity.	2018-2027
ODOT	ODOT	11350	OR 224 Milwaukie Expressway improvements	Construct a third westbound lane on Milwaukie Expressway (Hwy-224) from I-205 to Rusk Rd.	2018-2027
ODOT	ODOT	11585	I-205 Abernethy Bridge (PE and ROW)	Widen bridge to address recurring bottlenecks on the bridge.	2018-2027
ODOT	ODOT	11586	I-205 Southbound and Northbound widening (PE, ROW)	Widen highway to address recurring bottlenecks. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
ODOT	ODOT	11904	I-205 Southbound and Northbound widening (CON)	Widen Interstate 205 by one lane in both directions to address recurring bottlenecks. Construction (CON) phase. The project or a portion of the project is outside the designated urban growth boundary.	2018-2027
ODOT	ODOT	11969	I-205 Abernethy Bridge (CON)	Widen both directions of the I-205 Abernethy Bridge and approaches to address recurring bottlenecks on the bridge. Install Active Traffic Management (ATM) on northbound and southbound I-205. Preliminary Engineering (PE) and Right-of-Way (ROW) phase.	2018-2027
ODOT	ODOT	11981	I-205 Northbound Auxiliary Lane, Sunrise Expressway Entrance to Sunnybrook	Provide I-205 NB auxiliary lane between Sunrise Expressway entrance ramp and the Sunnyside Road/Sunnybrook Blvd interchange exit ramp.	2018-2027
ODOT	ODOT	11301	OR 212/224 Sunrise Hwy Phase 2: SE 122nd to SE 172nd (CON)	Construct (CON) Phase 2 of the OR 212/224 Sunrise corridor, consisting of a 4-lane roadway from SE 122nd Ave to SE 172nd Ave, consistent with the FEIS/ROD.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
ODOT	ODOT	11990	I-5 Southbound: Wilsonville Rd to Wilsonville-Hubbard Hwy	Add an auxiliary lane on I-5 from Wilsonville Road to the Wilsonville-Hubbard Highway, including improvements to the Boone Bridge. PE, ROW and Construction Phases. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
ODOT	ODOT	11305	I-205 Active Traffic Management	Construct improvements to address recurring bottlenecks on I-205. Specific improvements as identified in operational analysis, Mobility Corridor analysis, refinement planning and Active Traffic Management Atlas.	2018-2027
ODOT	ODOT	10867	I-5 from I-405 to I-84 (Rose Quarter/Lloyd District) PE, NEPA, ROW	Conduct preliminary engineering and National Environmental Policy Act review, and right of way work to improve safety and operations on I- 5, connection between I-84 and I-5, and multimodal access to and connectivity between the Lloyd District and Rose Quarter.	2018-2027
ODOT	ODOT	11176	I-5 from I-405 to I-84 (Rose Quarter/Lloyd District) Construction	Construct improvements to enhance safety and operations on I-5, connection between I-84 and I-5, and multimodal access to and connectivity between the Lloyd District and Rose Quarter.	2018-2027
ODOT	ODOT	11304	I-5 South Operational Improvements	Construct improvements to address recurring bottlenecks on I-5 south of the central city. Specific improvements as identified in operational analysis, Mobility Corridor analysis and refinement planning.	2018-2027
ODOT	ODOT	11370	I-205 Northbound Auxiliary Lane Powell to I-84	Design and construct an auxiliary lane on northbound I-205 from Powell Blvd to the I-84 interchange.	2018-2027
ODOT	ODOT	10893	I-5 Columbia River Bridge	Replace I-5/Columbia River bridges and improve interchanges on I-5. Project adds protected/buffered bikeways, cycletracks and a new trail/multiuse path or extension.	2028-2040
ODOT	ODOT	11984	I-5 Southbound Truck Climbing Lane	I-5 Truck Climbing Lanes SB (Marquam to Multnomah Blvd). Preliminary Engineering (PE) and Right-of-Way (ROW) and Construction (CON) phases.	2028-2040
ODOT	ODOT	11986	OR 217 Northbound Auxiliary Lane 99W to Scholls Ferry (CON)	Extend OR 217 Northbound (NB) auxiliary lane from OR 99W to Scholls Ferry. Construction (CON) phase.	2018-2027
ODOT	ODOT	11987	OR 217 Southbound Auxiliary Lane Beaverton Hillsdale Hwy to 99W (CON)	Extend Southbound (SB) auxiliary lane from Beaverton-Hillsdale Hwy to OR 99W. Build collector/distributor road from Allen Blvd to Denny Rd. Construction Phase	2018-2027
ODOT	ODOT	12019	OR 217 Northbound Auxiliary Lane 99W to Scholls Ferry (PE, ROW)	Extend OR 217 Northbound (NB) auxiliary lane from OR 99W to Scholls Ferry. ROW and PE phase.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Hillsboro	ODOT	11393	US 26 Widening - Brookwood to Cornelius Pass	Widen US 26 from four to six lanes.	2028-2040
ODOT	ODOT	11402	I-5 Northbound: Auxiliary Lane Extension Nyberg to Lower Boones Ferry	Extend existing auxiliary lane.	2028-2040
ODOT	ODOT	11988	OR 217 Southbound Braided Ramps Beaverton-Hillsdale Hwy to Allen Blvd	Design and construct braided ramps on southbound OR 217 at Canyon Rd and Beaverton Hillsdale Hwy.	2028-2040
ODOT	ODOT	11989	I-5 Northbound Braided Ramps I-205 to Nyberg	Replace the inside merge at I-205 entrance by constructing braided ramps.	2028-2040
TriMet	TriMet	12029	ETC: 82nd Ave/Killingsworth Enhanced Transit Project	Capital construction of regional enhanced transit project. Project will coordinate with ODOT to identify locations and design treatments.	2018-2027
TriMet	TriMet	10909	HCT: Division Transit Project: Project Development	The Division Transit Project will improve travel between Downtown Portland, Southeast and East Portland and Gresham with easier, faster and more reliable bus service.	2018-2027
TriMet	N/A	11319	Streetcar: Montgomery Park Extension	Extend streetcar from NW Lovejoy/Northrup to Montgomery Park.	2018-2027
TriMet	Portland	11590	HCT: Division Transit Project: Capital Construction	The Division Transit Project will improve travel between Downtown Portland, Southeast and East Portland and Gresham with easier, faster and more reliable bus service.	2018-2027
Portland	Portland	11761	Portland Central City Portals Transit Enhancements	Construct transit priority treatments to reduce transit delay and improve transit reliability and travel times.	2018-2027
Portland	Portland	11783	Portland Streetcar Operational Improvements	Design and construct improvements along NE Grand Avenue and/or other shared Streetcar/Bus corridors to add transit capacity. Construct Lloyd District turnback(s).	2018-2027
Portland	ODOT	11863	ETC: 82nd Ave Enhanced Transit Corridor	Construct safety and access to transit improvements and transit priority treatments to reduce transit delay and improve transit reliability and travel times. Project will coordinate with ODOT to identify locations and design treatments.	2018-2027
Portland	ODOT	11867	ETC: SE Powell Blvd Enhanced Transit Corridor	Construct safety and access to transit improvements and transit priority treatments to reduce transit delay and improve transit reliability and travel times. Project will coordinate with ODOT to identify locations and design treatments.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	11868	ETC: 122nd Ave Enhanced Transit Corridor	Construct safety and access to transit improvements and transit priority treatments to reduce transit delay and improve transit reliability and travel times.	2018-2027
TriMet	TriMet	12027	ETC: NE MLK Jr Blvd Enhanced Transit Project	Capital construction of regional enhanced transit project.	2018-2027
TriMet	TriMet	12028	ETC: NE Sandy Blvd Enhanced Transit Project	Capital construction of regional enhanced transit project.	2018-2027
TriMet	TriMet	12031	ETC: SE Hawthorne/Foster Enhanced Transit Project	Capital construction of regional enhanced transit project.	2018-2027
TriMet	TriMet	12050	HCT: Central City Capacity Analysis (PD & PE)	A study to analyze Central City transit capacity and identify preferred options to address transit bottlenecks, delays, layover needs and improve transit reliability, travel times and regional mobility. Include analysis of a potential tunnel option.	2018-2027
TriMet	TriMet	10902	HCT: Portland to Vancouver	Transit service from Expo Center to Vancouver, WA.	2028-2040
TriMet	ODOT	10921	HCT: Steel Bridge Transit Bottleneck	Address transit bottleneck at the Steel Bridge and Rose Quarter.	2028-2040
TriMet	N/A	11102	Streetcar: Broadway-Weidler to Hollywood Extension	Extend streetcar along NE Broadway/Weidler corridor to Hollywood Town Center.	2028-2040
Portland	Portland	11833	ETC: Inner North Portland Enhanced Transit Corridor	Construct safety and access to transit improvements and transit priority treatments to reduce transit delay and improve transit reliability and travel times on Vancouver, Williams, Mississippi, and Albina.	2028-2040
Portland	Portland	11834	ETC: SE Hawthorne/50th Ave Enhanced Transit Corridor	Construct safety and access to transit improvements and transit priority treatments to reduce transit delay and improve transit reliability and travel times.	2028-2040
Portland	Portland	11835	ETC: Cesar Chavez Blvd Enhanced Transit Corridor	Construct safety and access to transit improvements and transit priority treatments to reduce transit delay and improve transit reliability and travel times.	2028-2040
Portland	Portland	11836	ETC: N/NE Lombard St Enhanced Transit Corridor	Construct safety and access to transit improvements and transit priority treatments to reduce transit delay and improve transit reliability and travel times.	2028-2040
TriMet	TriMet	12030	ETC: East Burnside/SE Stark Enhanced Transit Project	Capital construction of regional enhanced transit project.	2028-2040
TriMet	TriMet	10907	HCT: Southwest Corridor: Project Development	Project Development through ROW acquisition/early construction for High Capacity Transit project between Portland and Tualatin via Tigard.	2018-2027

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
TriMet	TriMet	10922	HCT: MAX Red Line Improvements Project: Capital Construction	Capital construction to enable extension of Red Line service to the Hillsboro Airport/Fair Complex Station and improve reliability of the entire MAX light rail system. Project includes double-tracking and a new inbound Red Line station at Gateway Transit Center, double- tracking at Portland Airport, upgrades to signals and switches along the alignment, and purchase of new light rail vehicles needed to operate the extension and needed storage capacity at Ruby Junction to house the new vehicles.	2018-2027
TriMet	TriMet	11587	HCT: Southwest Corridor: Capital Construction	Capital Construction of High Capacity Transit project between Portland and Tualatin via Tigard.	2018-2027
TriMet	TriMet	12083	HCT: MAX Red Line Improvements Project: Project Development	Project development to enable extension of Red Line service to the Hillsboro Airport/Fair Complex Station and improve reliability of the entire MAX light rail system. Project includes double-tracking and a new inbound Red Line station at Gateway Transit Center, double- tracking at Portland Airport, upgrades to signals and switches along the alignment, and purchase of new light rail vehicles needed to operate the extension and needed storage capacity at Ruby Junction to house the new vehicles.	2018-2027
TriMet	TriMet	12032	ETC: SW Beaverton-Hillsdale Hwy Enhanced Transit Project	Capital construction of regional enhanced transit project. Project will coordinate with ODOT to identify locations and design treatments.	2028-2040
TriMet	To be determined	11331	Access: Bus Stop Amenities: Phase 1	Bus stop and right of way improvements to support expansion of services and amenities.	2018-2027
Hillsboro	ODOT	10846	Tualatin Valley Highway Transit Priority and Multimodal Safety Improvements	Transit and multimodal improvements: add westbound "Busines Access and Transit (BAT)" lane; provide bike/ped improvements and transit improvements such as signal priority, bus pull-outs, and shelters; safety and lighting improvements.	2028-2040
Hillsboro	TriMet	11381	Transit Stop Enhancements (Hillsboro)	Provide citywide improvements to transit stops including landing pads, shelters, and other amenities.	2028-2040
TriMet	TriMet	11589	ETC: Tualatin Valley Enhanced Transit Project	Capital construction of regional enhanced transit project.	2028-2040
Tigard	ODOT, Tigard	12012	Transit Access and Signal Priority Improvements (Tigard)	Access to transit and other improvements such as improved stations and station access; possible queue jumps and signal preemption.	2028-2040
Washington County	Washington County	12063	ETC: Line 48 (Cornell/Barnes) Enhanced Transit Project	Capital construction of regional Enhanced Transit project.	2028-2040
Washington County	Washington County	12064	ETC: Line 52 (185th/Farmington) Enhanced Transit Project	Capital construction of regional Enhanced Transit project.	2028-2040

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SMART	SMART	11109	Bus Replacements - including Alternative Fuel Vehicles	Purchase buses to replace those that are out of date, unreliable or inoperable. Replacements buses could include alternative fuel vehicles or autonomous vehicles.	2018-2027
SMART	SMART	11112	Wilsonville SMART Fleet Services Facility Phase II	Completion of fleet maintenance facility consisting of previously designed and planned Phase II - back lot and employee parking expansion.	2018-2027
TriMet	TriMet	11035	Bus: Powell bus garage expansion	Expand bus operations, maintenance and storage facility to accommodate larger fleet. $20 m of this cost will come from Division Transit Project.	2018-2027
TriMet	TriMet	11038	Bus: Center Street bus garage expansion	Improvements at Center Street Bus Garage.	2018-2027
TriMet	TriMet	12037	Bus: North Downtown Transit Mall Terminal	Terminal in northern portion of downtown Portland for bus layover.	2018-2027
TriMet	TriMet	10927	Operating Capital: Information Technology Phase 1	Communication System.	2018-2027
TriMet	TriMet	10928	Operating Capital: Fleet Vehicles Phase 1	Replacement and/or expansion of buses, articulated buses, light rail and LIFT vehicles.	2018-2027
TriMet	TriMet	11041	Bus: 4th Bus Base	Land acquisition and construction of a 4th bus base.	2018-2027
TriMet	N/A	11334	Operating Capital: Safety & Security Phase 1	Safety enhancements, CCTV, Transit Police.	2018-2027
TriMet	TriMet	11335	Operating Capital: Equipment and Facilities Phase 1	Additional maintence costs to support existing bus system including ongoing bus purchases as needed to maintain and update fleet.	2018-2027
TriMet	TriMet	12080	Bus: Low-No Zero Emissions Bus Project	Low-No Bus Pilot.	2018-2027
TriMet	TriMet	12081	Bus: Electrification of Bus Fleet: Phase 1	Electrifying the bus fleet.	2018-2027
TriMet	TriMet	10998	Operating Capital: Information Technology Phase 2	Communication Systems.	2028-2040
TriMet	TriMet	10999	Operating Capital: Fleet Vehicles Phase 2	Replacement and/or expansion of buses, articulated buses, light rail and LIFT vehicles.	2028-2040
TriMet	TriMet	11016	Operating Capital: Safety & Security Phase 2	Safety enhancements, CCTV, Transit Police.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
TriMet	TriMet	11338	Operating Capital: Equipment and Facilities Phase 2	Equipment and facilities to support system replacement, refurbishment, and growth.	2028-2040
SMART	SMART	11107	SMART Service from Wilsonville to downtown Portland	Add service hours and route for service to Downtown Portland.	2018-2027
SMART	SMART	11108	SMART Service for Wilsonville Developing Areas	Additional service hours for new services and related bus stop and ROW improvements for the developing areas of Wilsonville; such as, the areas of Coffee and Basalt Creek, Villebois, and Frog Pond.	2018-2027
SMART	SMART	11327	SMART Commuter Bus Service to Neighboring Communities	Additional service hours for new services and related bus stop and ROW improvements to neighboring communities; such as, Salem, Tigard, Tualatin, Sherwood, Woodburn, Portland, etc.	2018-2027
SMART	SMART	11328	SMART Service to Clackamas Town Center and Oregon City	Additional Service hours for new services and related bus stop and ROW improvements.	2018-2027
SMART	SMART	11994	SMART Weekend Service Expansion	Additional service hours for in-town and intercity services.	2018-2027
SMART	SMART	12097	SMART Operations	Operations of transit services, such as drivers, security, facilities and rolling stock maintenance.	2018-2040
TriMet	TriMet	12096	TriMet Operations	Operations of transit services, such as drivers, security, facilities and rolling stock maintenance.	2018-2040
Metro	Metro	10855	Regional TOD Investments for 2018-2027	The core program activity is to provide financial incentives for TOD projects to increase transit ridership, stimulate private development of mixed-use buildings that would otherwise not proceed, and increase affordable housing opportunities in high cost and gentrifying neighborhoods through land acquisition and project investments.	2018-2027
Metro	Metro	11977	Regional TOD Investments for 2028-2040	The core program activity is to provide financial incentives for TOD projects to increase transit ridership, stimulate private development of mixed-use buildings that would otherwise not proceed, and increase affordable housing opportunities in high cost and gentrifying neighborhoods through land acquisition and project investments.	2028-2040
SMART	SMART	11531	Vanpool Services	Development of Vanpool Program to augment transportation options for commuters in Wilsonville	2018-2027
Portland	Portland	11127	Portland Safe Routes to School, Phase 1	Safe routes to school projects serving Title 1 schools within the City of Portland.	2018-2027
Gresham	Gresham	11269	Citywide: Bike Sharing	Provide funding to implement bikes for loan or rent.	2018-2027

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Multnomah County	Multnomah County	12018	TDM and TSMO in East Multnomah County	Car and Vanpool incentives, TMAs, Shuttles, support programs, and targeted outreach to reduce single occupant vehicle travel.	2018-2027
Portland	Portland	11779	Portland Safe Routes to School, Phase 2	Safe routes to school projects serving Title 1 schools within the City of Portland.	2028-2040
Portland	Portland	12078	Portland Citywide TDM Strategy	Develop and implement a citywide Transportation Demand Management (TDM) strategy to reduce motor vehicle trip demand.	2028-2040
TriMet	TriMet	10988	Access: Park & Ride Facilities: Phase 1	Additions or modifications to existing Park & Ride lots.	2018-2027
Metro	Metro	11054	Regional Travel Options Activities for 2018-2027	Metro awards grant funding, coordinates marketing efforts, and provides technical assistance and evaluation to agencies and organizations to encourage people to make fewer auto trips. RTO-funded activities include worksite and college information programs that make transit, bicycling, walking and ridesharing easier to use.	2018-2027
Metro	To be determined	12021	Regional Safe Routes to School Program for 2018-2027	Through the Regional Travel Options program, funding is allocated to school districts and other partners to implement ongoing educational programs in schools that encourage children to walk and bicycle to school.	2018-2027
Metro	Metro	12010	Regional Travel Options Activities for 2028-2040	Metro awards grant funding, coordinates marketing efforts, and provides technical assistance and evaluation to agencies and organizations to encourage people to make fewer auto trips. RTO-funded activities include worksite and college information programs that make transit, bicycling, walking and ridesharing easier to use	2028-2040
Metro	To be determined	12022	Regional Safe Routes to School Program for 2028-2040	Through the Regional Travel Options program, funding is allocated to school districts and other partners to implement ongoing educational programs in schools that encourage children to walk and bicycle to school.	2028-2040
Washington County	Washington County	11928	Transportation Demand Management Phase 1	Implement strategies to reduce single occupancy vehicle trip rates by people commuting to and from work locations in Washington County. Demand management strategies include employer, neighborhood, and school outreach; targeted outreach aligned with new transit service or infrastructure investments; community events; and more.	2018-2027
Cornelius	Cornelius	10807	Cornelius Park & Ride	Build park & ride facilities at 10th and 26th Avenue.	2028-2040

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Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Washington County	Washington County	11929	Transportation Demand Management Phase 2	Implement strategies to reduce SOV trip rates for commute trips in Washington County. Demand management strategies include employer, neighborhood, and school outreach; targeted outreach aligned with new transit service or infrastructure investments; community events; and more.	2028-2040
Clackamas County	Clackamas County	11762	Sunnyside Road Adaptive Signal Control Phase II	Install adaptive signal control at major intersections from 132nd Ave to 172nd Ave and upgrade ADA accessibility features as necessary.	2018-2027
Clackamas County	Clackamas County	11766	Johnson Creek/Linwood Ave ITS Improvements	Implement proven safety counter measures by adding intelligent transportation system improvements at the intersection of Johnson Creek Blvd and Linwood Ave to provide warnings and special phasing for bicyclists and pedestrians. Include ADA accessibility improvements as necessary.	2018-2027
Lake Oswego	Lake Oswego	11934	City-wide Traffic Signal/ITS Improvements	Deploy traffic responsive signal timing & traffic management equipment for better routing of multi-modal traffic. Install traffic signals, communications, ped and vehicle detection components, and perform controller upgrades to align with County ITS plan.	2018-2027
Portland	Portland	10174	Going to the River ITS	Signal-timing project to improve access to and from Swan Island Industrial area.	2018-2027
Portland	Portland	10198	122nd Ave Corridor ITS Improvements	Install ITS infrastructure (communication network, enhanced bus detection, truck priority detection, Bluetooth detection, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system consistent with our policies of moving people and goods more effectively.	2018-2027
Portland	Portland	10213	Airport Way ITS	Install ITS infrastructure (communication network, enhanced bus detection, truck priority detection, Bluetooth detection, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system consistent with our policies of moving people and goods more effectively.	2018-2027
Portland	Portland	10301	Sandy Blvd ITS	Install ITS infrastructure (communication network, enhanced bus detection, truck priority detection, Bluetooth detection, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system consistent with our policies of moving people and goods more effectively.	2018-2027
Portland	Portland	10342	Columbia Blvd Corridor ITS Improvements	Corridor ITS Improvements to improve freight operations. Communications infrastructure including closed circuit TV cameras, truck priority detection, variable message signs for remote monitoring and control of traffic flow for six signals.	2018-2027

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	10373	Rivergate ITS	Install ITS infrastructure (communication network, enhanced bus detection, truck priority detection, Bluetooth detection, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system consistent with our policies of moving people and goods more effectively.	2018-2027
Gresham	Gresham	11255	Division - City Limit to 190th: ACM Signal Upgrades	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions. Transit/Enhanced Transit Corridor supportive project.	2018-2027
Gresham	Gresham	11261	181st/182nd - Glisan to Powell: ACM with Transit Priority Treatment	Includes the ACM project with transit signal priority added to traffic signals along a facility.	2018-2027
Gresham	Gresham	11262	181st - Glisan to I-84: ACM with Adaptive Signal Timing and Transit Priority Treatment	Provide real time and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.Transit/Enhanced Transit Corridor supportive project.	2018-2027
Gresham	Gresham	11264	US 26 - Portland to Gresham: Roadside Travel Time Information	Provide real time traveler information on westbound US 26 for different routes (arterial and freeway) between Portland and Gresham.	2018-2027
Portland	Portland	11562	Swan Island ITS	Signal-timing project to improve access to and from Swan Island Industrial area. Install ITS communication infrastructure including advance notification systems for rail blockage and CCTV cameras to monitor truck and rail traffic in the South Rivergate Industrial District.	2018-2027
Portland	ODOT	11839	Water/Yamhill Traffic Signal	Construct traffic signal at Water/Yamhill to improve safety and capacity at freeway off- ramp.	2018-2027
Portland	Portland	10264	Central City Traffic Transportation System Management	Implement Central City TSM improvements to arterials.	2028-2040

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Portland	Portland	10266	I-405 Corridor ITS Improvements	ITS improvements at six signals between Clay and Glisan including communications infrastructure; closed circuit TV cameras, variable message signs for remote monitoring and control of traffic flow.	2028-2040
Portland	Portland	10327	Gateway Regional Center TSM	Implement a comprehensive traffic management plan throughout the regional center to reduce cut-through traffic on residential streets and improve traffic flow on regional streets. Project includes utility improvements.	2028-2040
Portland	Portland	10346	Marine Drive ITS	Install ITS infrastructure (communication network, enhanced bus detection, truck priority detection, Bluetooth detection, CCTV cameras, and vehicle /pedestrian detectors). These ITS devices allow us to provide more efficient and safe operation of our traffic signal system consistent with our policies of moving people and goods more effectively.	2028-2040
Gresham	Gresham	11252	Halsey - 162nd to 181st: Arterial Corridor Management w/Transit Signal Priority	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	2028-2040
Gresham	Gresham	11253	Stark - 162nd to 190th: Arterial Corridor Management, Signal Upgrades	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	2028-2040
Gresham	Gresham	11256	Division - Birdsdale to US 26: Adaptive Signals + Transit Priority	Includes the ACM with both adaptive signal timing and transit priority treatment.	2028-2040

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Multnomah County	Multnomah County	11299	257th/Kane Dr.: Arterial Corridor Management (ACM) w/ Adaptive Signal Timing	Install upgraded traffic signal controllers, establish communications to the central traffic signal system, provide arterial detection (including bicycle detection where appropriate) and routinely update signal timings. Provide realtime and forecasted traveler information on arterial roadways including current roadway conditions, congestion information, travel times, incident information, construction work zones, current weather conditions and other events that may affect traffic conditions.	2028-2040
Multnomah County	Multnomah County	11300	238th/242nd Ave/Hogan Dr.: ACM with Adaptive Signal Timing	Improve arterial corridor operations by expanding traveler information and upgrading traffic signal equipment and timings and making intersection improvements to lanes - Includes the ACM project with signal systems that automatically adapt to current arterial roadway conditions.	2028-2040
Portland	Portland	11791	NW Northrup Traffic Signals	Construct traffic signals along Northrup at 11th, 12th, 13th, 14th, and 16th to improve traffic flow and transit operations.	2028-2040
Portland	Portland	11794	Grand/MLK Lloyd District Traffic Signals	Construct traffic signals along Grand/MLK couplet in the Lloyd District.	2028-2040
Portland	Portland	11796	Going St Connected/Automated Vehicle Connection	Design and construct a Connected/Automated Vehicle connection between Swan Island and I- 5.	2028-2040
Portland	ODOT	11826	Barbur Blvd ITS	Install ITS infrastructure (communication network, enhanced bus detection and queue jumps, truck priority detection, Bluetooth detection, CCTV cameras, and vehicle/pedestrian detectors).	2028-2040
Portland	Portland	12086	Portland Arterial Network TSM Improvements	Implement Transportation System Management (TSM) improvements on arterial streets to better manage traffic flow and provide greater priority to transit and freight movement.	2028-2040

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Metro	Metro	11104	Regional TSMO Program Investments for 2018-2027	Implement and maintain Transportations System Management and Operations (TSMO) investments used by multiple agencies (e.g., Central Signal System, traffic signal priority, data communications and archiving) and coordinate response to crashes. The regional program also includes strategy planning (e.g., periodic TSMO Strategy updates), coordination of activities for TransPort subcommittee to TPAC, updates to the blueprints for agency software and hardware systems (ITS Architecture), improving traveler information with live-streaming data for connected vehicle and mobile information systems (TripCheck Traveler Information Portal Enhancement), and improving “big data” processing (PSU PORTAL) to support analyzing performance measures.	2018-2027
Metro	To be determined	12024	Regional TSMO Corridors Priority Investments for 2018- 2027	Through the regional TSMO program, provide funding for operators to work together to deploy safe, integrated corridor management with advanced technology in regional mobility corridors including decision support systems, real-time traveler information on route choice and estimated travel time that uses a variety of data sensors, software and systems (e.g., smart mobility hubs, internet of things, connected and automated vehicles). This also includes deployment of innovative technology systems, automated corridor management, and other active traffic management strategies.	2018-2027
ODOT	ODOT	11584	Active Traffic Management (ATM) & Connected & Automated Vehicles (CAV) Region-wide Phase 1	Deploy ATM recommendations from the ODOT Active Traffic Management Strategy. Specific projects to be determined. Deploy Connected, Automated and Electric Vehicle strategies.	2028-2040
Metro	Metro	12013	Regional TSMO Program Investments for 2028-2040	Implement and maintain Transportations System Management and Operations (TSMO) investments used by multiple agencies (e.g., Central Signal System, traffic signal priority, data communications and archiving) and coordinate response to crashes. The regional program also includes strategy planning (e.g., periodic TSMO Strategy updates), coordination of activities for TransPort subcommittee to TPAC, updates to the blueprints for agency software and hardware systems (ITS Architecture), improving traveler information with live-streaming data for connected vehicle and mobile information systems (TripCheck Traveler Information Portal Enhancement), and improving “big data” processing (PSU PORTAL) to support analyzing performance measures.	2028-2040

Future Year Travel Model Project List

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Metro	To be determined	12025	Regional TSMO Corridors Priority Investments for 2028- 2040	Through the regional TSMO program, provide funding for operators to work together to deploy safe, integrated corridor management with advanced technology in regional mobility corridors including decision support systems, real-time traveler information on route choice and estimated travel time that uses a variety of data sensors, software and systems (e.g., smart mobility hubs, internet of things, connected and automated vehicles). This also includes deployment of innovative technology systems, automated corridor management, and other active traffic management strategies.	2028-2040
Washington County	Washington County	10605	Washington County ITS (Phase 1)	Install advanced traffic management systems including adaptive signals, retrofit ADA ramps at traffic signals, communications, dynamic messaging signs, and surveillance and management equipment.	2018-2027
Beaverton	Beaverton	10642	Adaptive Traffic Signal Systems	New signals and signal upgrades.	2018-2027
Beaverton	ODOT, Beaverton	11894	Farmington Road/Beaverton-Hillsdale Highway Transportation System Management	Combine and or close approximately 100 driveways, and upgrade/add approximately 19 adaptive traffic signals.	2018-2027
Washington County	ODOT	11454	Jackson School Road Traffic Signal	Signalize ramp intersections. The project or a portion of the project is outside the designated urban growth boundary.	2028-2040
Washington County	Washington County	11475	Washington County ITS (Phase 2)	Install advanced traffic management systems including adaptive signals, retrofit ADA ramps at traffic signals, communications, dynamic messaging signs, and surveillance and management equipment.	2028-2040
Hillsboro	Hillsboro	11931	Communications (ITS) Projects	Install fiber, ITS, and other communications equipment and devices for improved signal coordination.	2028-2040
Metro	Metro	11103	Regional MPO Activities for 2018-2027	System planning, topical planning, and activities that Metro must conduct for the period 2018- 2027 in order to remain certified as an metropolitan planning organization (MPO) by the federal government and be eligible to receive and distribute federal transportation dollars.	2018-2027

List A: Constrained Project List from the 2018 Metro Regional Transporation Plan Project

Nominating Agency	Primary Facility Owner	RTP ID	Project Name	Description	Time Period
Metro	Metro	11664	Corridor Investment Areas Activities for 2018-2027	The RTP identifies mobility corridors and future high capacity transit capital investments needed to support the 2040 Growth Concept. Corridor investment areas activities focus on aligning investments around specific outcomes to support local and regional goals in locations with multijurisdictional interests. Investment areas activities include completing corridor refinement planning and developing multimodal projects in major transportation corridors identified in the RTP as well as developing shared investment strategies to align local, regional and state investments in economic investment areas that support the region's growth economy. Activities include ongoing involvement in local and regional transit and roadway project conception, funding, and design. Metro provides assistance to local jurisdictions for the development of specific projects as well as corridor-based programs identified in the RTP	2018-2027
Metro	Metro	11745	Regional MPO Activities for 2028-2040	System planning, topical planning, and activities that Metro must conduct for the period 2028- 2040 in order to remain certified as an metropolitan planning organization (MPO) by the federal government and be eligible to receive and distribute federal transportation dollars.	2028-2040
Metro	Metro	11964	Corridor Investment Areas Activities for 2028-2040	The RTP identifies mobility corridors and future high capacity transit capital investments needed to support the 2040 Growth Concept. Corridor investment areas activities focus on aligning investments around specific outcomes to support local and regional goals in locations with multijurisdictional interests. Investment areas activities include completing corridor refinement planning and developing multimodal projects in major transportation corridors identified in the RTP as well as developing shared investment strategies to align local, regional and state investments in economic investment areas that support the region's growth economy. Activities include ongoing involvement in local and regional transit and roadway project conception, funding, and design. Metro provides assistance to local jurisdictions for the development of specific projects as well as corridor-based programs identified in the RTP	2028-2040

List B: City of Portland Project List

City Plan	Street	Change to Transit	Planned Street Changes	Start Location	End Location	Time Period	Included in RTP Constrained List?
Central City In Motion	SW 4th Ave	None	SW College	Reduce by one travel lane	NW Flanders	Complete by 2025	No
Central City In Motion	SW Broadway	None	W Burnside	Reduce by one travel lane	SW Clay	Complete by 2025	No
Central City In Motion	SW 3rd	None	SW Stark	Reduce by one travel lane	SW Salmon	Completed 2015	No
Central City In Motion	SW 2nd	None	SW Salmon	Reduce by one travel lane	SW Washington	Completed 2016	No
Central City In Motion	SW Naito	None	SW Madison	Reduce by one NB travel lane	NW Couch	Seasonally since 2015, permenant 2020	Yes, not described as lane reduction
Central City In Motion	SW 12th	None	SW Montgomery	Reduce by one travel lane	SW Stark	Complete by 2029	No
Central City In Motion	SW 17th	None	W Burnside	Reduce by one travel lane	SW Salmon	Complete by 2020	No
Central City In Motion	NW 14th	None	NW Everett	Reduce by one travel lane	NW Flanders	Complete by 2025	No
Central City In Motion	SW Alder	None	W Burnside	Reduce by one travel lane	SW 14th	Complete by 2019	No
Central City In Motion	SW Taylor	None	SW Naito	Reduce by one travel lane	SW 14th	Complete by 2025	No
Central City In Motion	SW Salmon	None	SW 13th Ave	Reduce by one travel lane	SW Naito	Complete by 2025	No
Central City In Motion/ETC	SW Jefferson	BAT	SW Naito	Reduce by one travel lane	SW 18th	14th to 18th complete. Naito to 14th complete by 2029	No
Central City In Motion	SW Columbia	None	SW 18th	Reduce by one travel lane	SW Naito	Complete by 2029	No
Central City In Motion/ETC	Burnside	BAT	NW Park Ave	Reduce by one EB travel lane	NW 4th Ave	Complete by 2020	Yes, not described as lane reduction
Central City In Motion/ETC	Burnside	BAT	W 4th Ave	Reduce by one EB travel lane	E MLK Jr	Complete by 2025	No
Central City In Motion/ETC	Burnside	BAT	E MLK Jr	Reduce by one EB travel lane	E 12th Ave	Complete by 2021	No
Central City In Motion	SE 11th	None	NE Ankeny	Reduce by one SB travel lane	Milwaukie	Complete by 2029	No
Central City In Motion	SE 12th	None	Milwaukie	Reduce by one NB travel lane	E Burnside	Complete by 2029	No
Central City In Motion/ETC	SE Hawthorne	BAT	SE Grand	Reduce by one travel lane	SE 12th	Complete by 2025	Yes
Central City In Motion/ETC	MLK	BAT	NE Schuyler St	Reduce by one travel lane	SE Hawthorne Blvd	Complete by 2025	Yes, not described as lane reduction

List B: City of Portland Project List

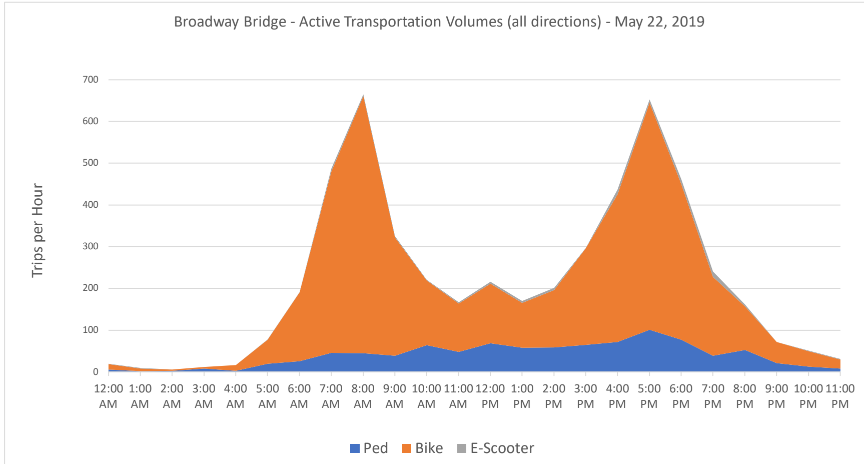
City Plan	Street	Change to Transit	Planned Street Changes	Start Location	End Location	Time Period	Included in RTP Constrained List?
Central City In Motion/ETC	Grand	BAT	SE Hawthorne Blvd	Reduce by one travel lane	NE Schuyler St	Complete by 2025	Yes, not described as lane reduction
Central City In Motion	NE Weidler Street	None	NE 7th Ave	Reduce by one travel lane, outside Rose Qtr	Broadway Bridge	Complete by 2025	Yes, not described as lane reduction
Central City In Motion	NE Broadway	None	Broadway Bridge	Reduce by one travel lane, outside Rose Qtr	NE 7th Ave	Complete by 2025	Yes, not described as lane reduction
Central City In Motion/ETC	NW Everett	BAT	NW Broadway	Reduce by one travel lane	Steel Bridge	Complete by 2020	Yes
Central City In Motion	SE Clay	None	SE Grand Ave	Eliminate EB travel lane	SE Ladd Ave	Complete by 2029	No
Central City In Motion/ETC	SW Madison St	BAT	SW 4th Ave	Add a BAT lane; keep two vehicle lanes	SW 2nd Ave	completed in 2019	No
Central City In Motion	NE Lloyd Blvd	None	NE Oregon	Reduce by one travel lane in each direction	NE Multnomah	Complete by 2025	No

Appendix I. Active Transportation Count Volume Profiles

Broadway Bridge - Active Transportation Volumes (all directions) - May 22, 2019

Combined - Hourly Active Transportation Volumes

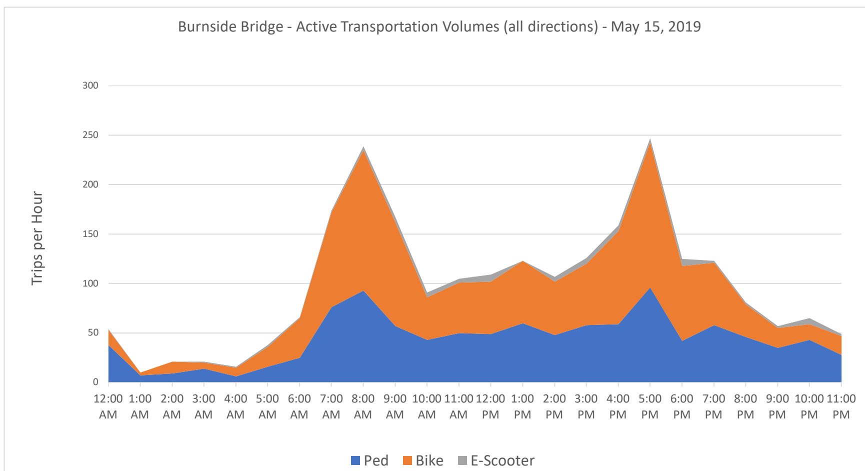
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	6	13	1	20
1:00 AM	2	6	2	10
2:00 AM	3	3	0	6
3:00 AM	8	4	0	12
4:00 AM	3	14	0	17
5:00 AM	20	57	1	78
6:00 AM	26	165	1	192
7:00 AM	46	434	7	487
8:00 AM	45	616	4	665
9:00 AM	39	283	3	325
10:00 AM	64	155	2	221
11:00 AM	48	116	3	167
12:00 PM	69	143	4	216
1:00 PM	58	108	4	170
2:00 PM	59	137	6	202
3:00 PM	65	232	1	298
4:00 PM	72	354	11	437
5:00 PM	101	544	8	653
6:00 PM	77	373	12	462
7:00 PM	39	189	13	241
8:00 PM	53	104	5	162
9:00 PM	21	51	0	72
10:00 PM	13	37	1	51
11:00 PM	8	22	1	31
	945	4160	90	5195
	18.19%	80.08%	1.73%	



Burnside Bridge - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

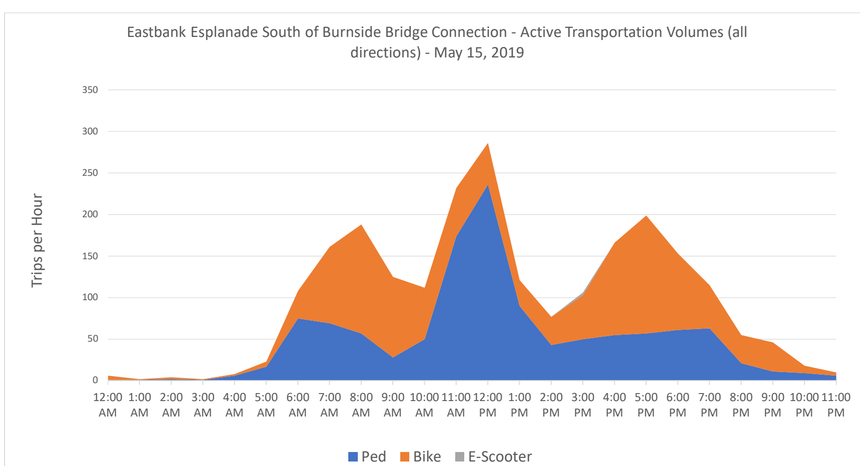
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	38	15	1	54
1:00 AM	7	3	0	10
2:00 AM	9	12	0	21
3:00 AM	14	6	1	21
4:00 AM	6	9	1	16
5:00 AM	16	20	2	38
6:00 AM	25	40	1	66
7:00 AM	76	96	2	174
8:00 AM	93	142	4	239
9:00 AM	57	105	5	167
10:00 AM	43	43	5	91
11:00 AM	50	51	4	105
12:00 PM	49	53	7	109
1:00 PM	60	63	0	123
2:00 PM	48	54	5	107
3:00 PM	58	62	6	126
4:00 PM	59	94	6	159
5:00 PM	96	147	4	247
6:00 PM	42	76	7	125
7:00 PM	58	63	2	123
8:00 PM	46	33	2	81
9:00 PM	35	20	2	57
10:00 PM	43	16	6	65
11:00 PM	28	19	2	49
	1056	1242	75	2373
	44.50%	52.34%	3.16%	



Eastbank Esplanade South of Burnside Bridge Connection - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

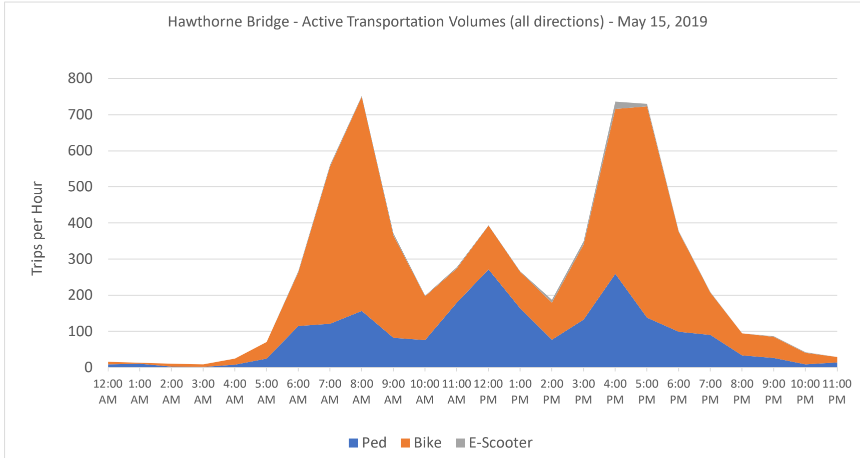
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	1	5	0	6
1:00 AM	1	1	0	2
2:00 AM	2	2	0	4
3:00 AM	1	1	0	2
4:00 AM	6	2	0	8
5:00 AM	17	6	0	23
6:00 AM	75	33	0	108
7:00 AM	69	92	0	161
8:00 AM	57	131	0	188
9:00 AM	28	97	0	125
10:00 AM	50	62	0	112
11:00 AM	174	58	0	232
12:00 PM	236	50	0	286
1:00 PM	90	31	0	121
2:00 PM	43	34	0	77
3:00 PM	50	53	3	106
4:00 PM	55	111	0	166
5:00 PM	57	142	0	199
6:00 PM	61	92	0	153
7:00 PM	63	52	0	115
8:00 PM	21	34	0	55
9:00 PM	11	35	0	46
10:00 PM	9	9	0	18
11:00 PM	6	4	0	10
	1183	1137	3	2323
	50.93%	48.95%	0.13%	



Hawthorne Bridge - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

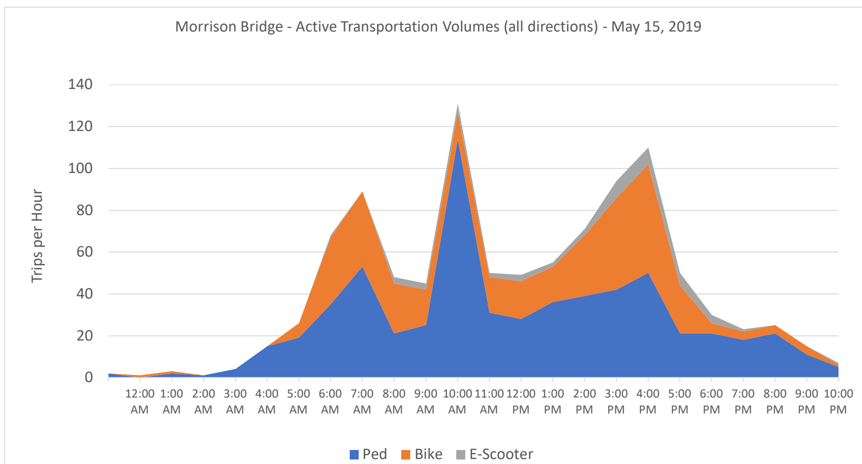
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	8	7	0	15
1:00 AM	10	2	0	12
2:00 AM	2	8	0	10
3:00 AM	1	7	0	8
4:00 AM	7	17	0	24
5:00 AM	24	46	0	70
6:00 AM	114	149	4	267
7:00 AM	120	436	5	561
8:00 AM	156	593	3	752
9:00 AM	81	284	6	371
10:00 AM	75	122	1	198
11:00 AM	179	95	3	277
12:00 PM	271	121	1	393
1:00 PM	163	101	2	266
2:00 PM	76	103	8	187
3:00 PM	132	208	9	349
4:00 PM	259	457	20	736
5:00 PM	137	586	7	730
6:00 PM	98	277	2	377
7:00 PM	89	117	2	208
8:00 PM	33	61	0	94
9:00 PM	26	58	2	86
10:00 PM	8	32	2	42
11:00 PM	13	15	0	28
	2082	3902	77	6061
	34.35%	64.38%	1.27%	



Morrison Bridge - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

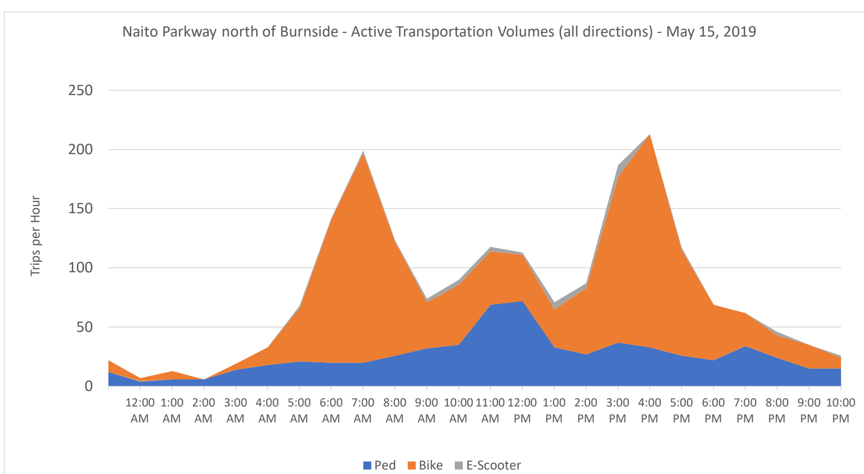
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	2	0	0	2
1:00 AM	0	1	0	1
2:00 AM	2	1	0	3
3:00 AM	1	0	0	1
4:00 AM	4	0	0	4
5:00 AM	15	0	0	15
6:00 AM	19	7	0	26
7:00 AM	35	32	1	68
8:00 AM	53	36	0	89
9:00 AM	21	24	3	48
10:00 AM	25	17	3	45
11:00 AM	114	13	4	131
12:00 PM	31	17	2	50
1:00 PM	28	18	3	49
2:00 PM	36	17	2	55
3:00 PM	39	29	3	71
4:00 PM	42	44	8	94
5:00 PM	50	52	8	110
6:00 PM	21	23	6	50
7:00 PM	21	5	4	30
8:00 PM	18	4	1	23
9:00 PM	21	4	0	25
10:00 PM	11	4	0	15
11:00 PM	5	1	1	7
	614	349	49	1012
	60.67%	34.49%	4.84%	



Naito Parkway north of Burnside - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

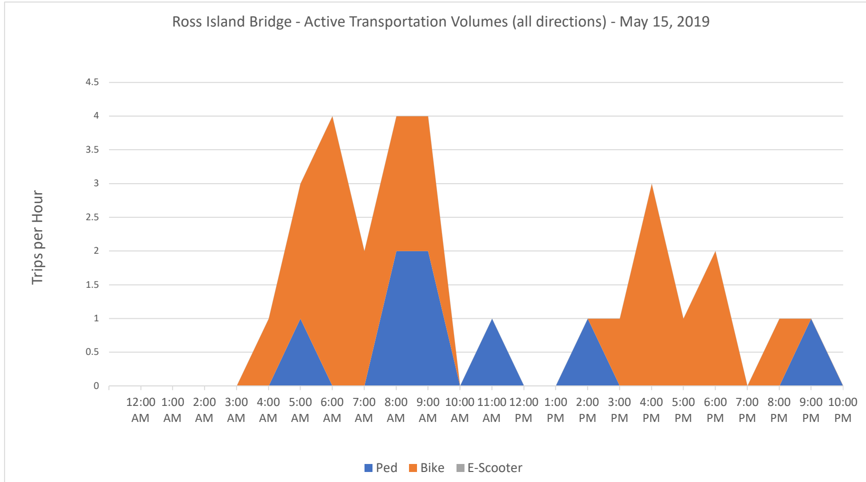
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	12	10	0	22
1:00 AM	4	3	0	7
2:00 AM	6	7	0	13
3:00 AM	6	0	0	6
4:00 AM	14	5	0	19
5:00 AM	18	15	0	33
6:00 AM	21	45	2	68
7:00 AM	20	121	1	142
8:00 AM	20	177	2	199
9:00 AM	26	96	1	123
10:00 AM	32	39	3	74
11:00 AM	35	51	4	90
12:00 PM	69	45	4	118
1:00 PM	72	39	2	113
2:00 PM	33	32	6	71
3:00 PM	27	56	4	87
4:00 PM	37	140	10	187
5:00 PM	33	180	0	213
6:00 PM	26	89	2	117
7:00 PM	22	47	0	69
8:00 PM	34	28	0	62
9:00 PM	24	19	3	46
10:00 PM	15	20	0	35
11:00 PM	15	9	2	26
	621	1273	46	1940
	32.01%	65.62%	2.37%	



Ross Island Bridge - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

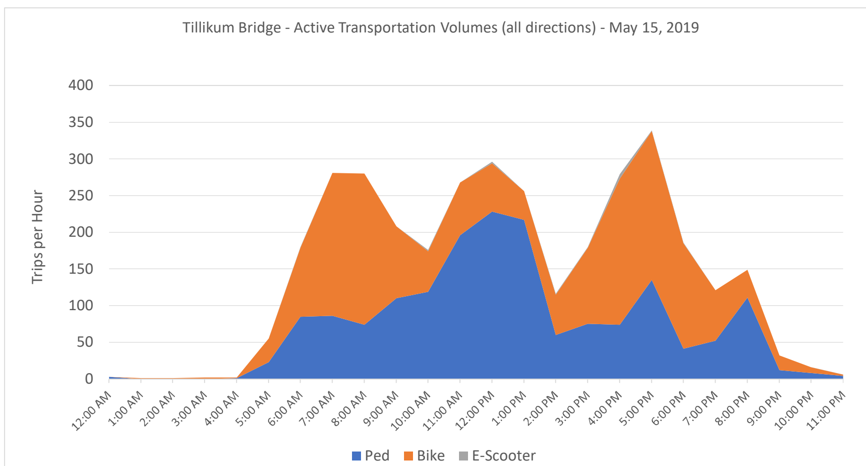
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	0	0	0	0
1:00 AM	0	0	0	0
2:00 AM	0	0	0	0
3:00 AM	0	0	0	0
4:00 AM	0	0	0	0
5:00 AM	0	1	0	1
6:00 AM	1	2	0	3
7:00 AM	0	4	0	4
8:00 AM	0	2	0	2
9:00 AM	2	2	0	4
10:00 AM	2	2	0	4
11:00 AM	0	0	0	0
12:00 PM	1	0	0	1
1:00 PM	0	0	0	0
2:00 PM	0	0	0	0
3:00 PM	1	0	0	1
4:00 PM	0	1	0	1
5:00 PM	0	3	0	3
6:00 PM	0	1	0	1
7:00 PM	0	2	0	2
8:00 PM	0	0	0	0
9:00 PM	0	1	0	1
10:00 PM	1	0	0	1
11:00 PM	0	0	0	0
	8	21	0	29
	27.59%	72.41%	0.00%	



Tillikum Bridge - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

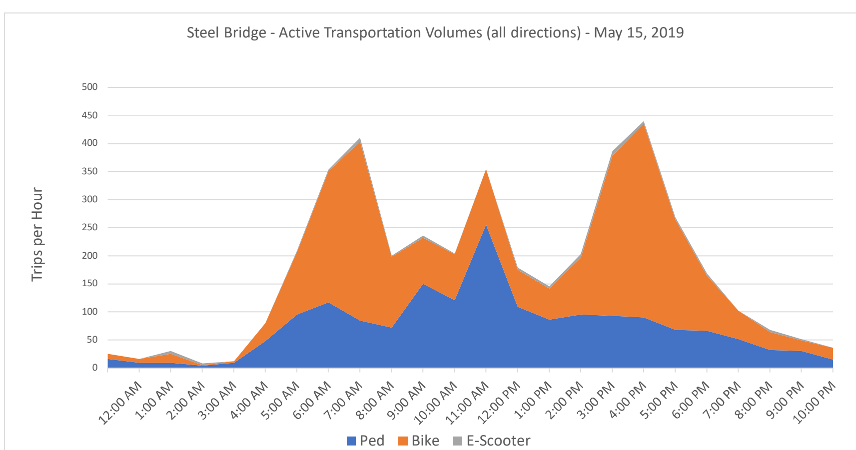
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	3	0	0	3
1:00 AM	0	1	0	1
2:00 AM	0	1	0	1
3:00 AM	0	2	0	2
4:00 AM	1	1	0	2
5:00 AM	23	32	0	55
6:00 AM	85	94	1	180
7:00 AM	86	195	0	281
8:00 AM	74	206	0	280
9:00 AM	110	98	0	208
10:00 AM	119	55	2	176
11:00 AM	196	72	0	268
12:00 PM	228	66	2	296
1:00 PM	217	39	0	256
2:00 PM	60	55	1	116
3:00 PM	75	104	1	180
4:00 PM	74	199	6	279
5:00 PM	135	203	1	339
6:00 PM	41	144	1	186
7:00 PM	52	69	0	121
8:00 PM	111	38	0	149
9:00 PM	12	20	0	32
10:00 PM	8	8	0	16
11:00 PM	4	2	0	6
	1714	1704	15	3433
	49.93%	49.64%	0.44%	



Steel Bridge - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

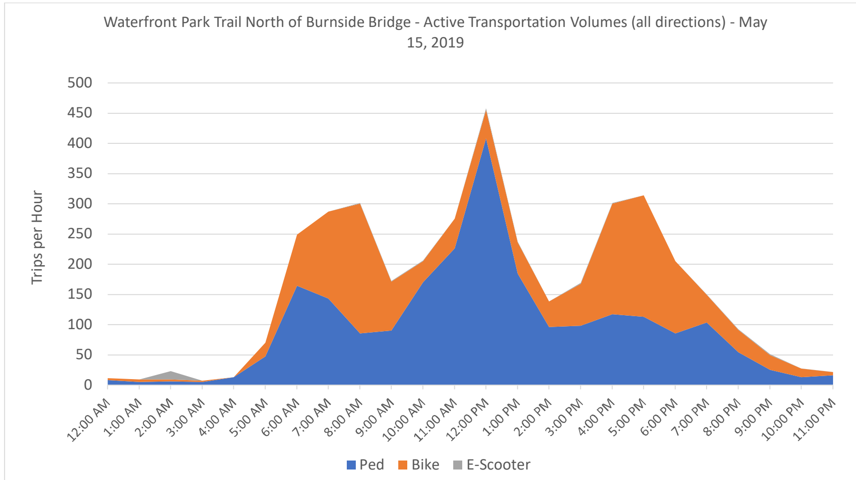
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	16	9	0	25
1:00 AM	9	7	0	16
2:00 AM	9	16	5	30
3:00 AM	4	1	3	8
4:00 AM	9	3	0	12
5:00 AM	48	32	0	80
6:00 AM	95	112	2	209
7:00 AM	117	233	3	353
8:00 AM	84	319	7	410
9:00 AM	72	126	2	200
10:00 AM	150	82	4	236
11:00 AM	121	82	1	204
12:00 PM	255	99	0	354
1:00 PM	109	66	4	179
2:00 PM	86	55	4	145
3:00 PM	95	101	7	203
4:00 PM	93	285	8	386
5:00 PM	90	345	5	440
6:00 PM	68	196	4	268
7:00 PM	66	98	4	168
8:00 PM	51	51	0	102
9:00 PM	32	32	4	68
10:00 PM	30	19	2	51
11:00 PM	15	21	0	36
	1724	2390	69	4183
	41.21%	57.14%	1.65%	



Waterfront Park Trail North of Burnside Bridge - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

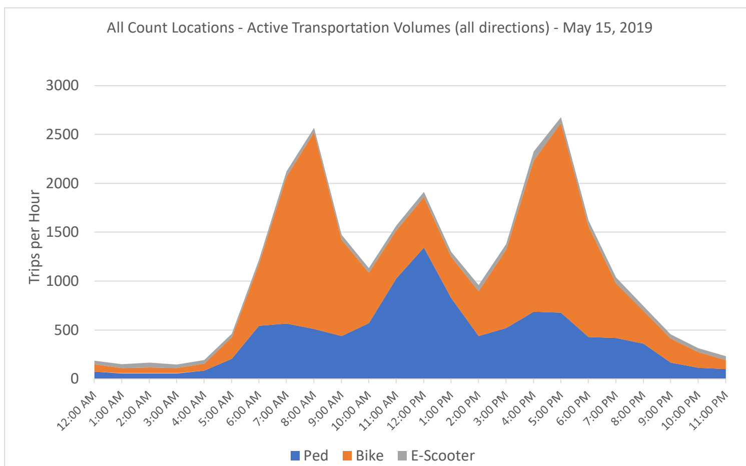
5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	8	3	0	11
1:00 AM	5	4	0	9
2:00 AM	6	3	14	23
3:00 AM	5	2	0	7
4:00 AM	13	0	0	13
5:00 AM	47	23	0	70
6:00 AM	164	85	0	249
7:00 AM	143	144	0	287
8:00 AM	85	215	1	301
9:00 AM	90	81	1	172
10:00 AM	170	35	1	206
11:00 AM	226	49	0	275
12:00 PM	408	47	3	458
1:00 PM	184	52	1	237
2:00 PM	96	42	0	138
3:00 PM	98	69	2	169
4:00 PM	117	183	1	301
5:00 PM	113	201	0	314
6:00 PM	85	120	0	205
7:00 PM	103	46	1	150
8:00 PM	54	37	1	92
9:00 PM	25	24	2	51
10:00 PM	13	14	0	27
11:00 PM	16	5	0	21
	2274	1484	28	3786
	60.06%	39.20%	0.74%	



All Count Locations - Active Transportation Volumes (all directions) - May 15, 2019

Combined - Hourly Active Transportation Volumes

5/15/2019	Ped	Bike	E-Scooter	Total
12:00 AM	76	74	37	187
1:00 AM	58	55	38	151
2:00 AM	58	60	50	168
3:00 AM	58	54	36	148
4:00 AM	85	73	36	194
5:00 AM	206	221	37	464
6:00 AM	544	632	44	1220
7:00 AM	566	1507	50	2123
8:00 AM	512	2011	46	2569
9:00 AM	440	986	50	1476
10:00 AM	572	516	48	1136
11:00 AM	1031	490	50	1571
12:00 PM	1343	520	52	1915
1:00 PM	829	423	48	1300
2:00 PM	440	459	62	961
3:00 PM	522	802	56	1380
4:00 PM	690	1544	92	2326
5:00 PM	678	1939	60	2677
6:00 PM	429	1134	59	1622
7:00 PM	421	561	56	1038
8:00 PM	362	338	43	743
9:00 PM	169	243	43	455
10:00 PM	116	160	39	315
11:00 PM	101	92	40	233
	10306	14894	1172	26372
	39.08%	56.48%	4.44%	



Appendix J. Unsignalized Pedestrian Crossing Analysis Worksheets

Intersection, Approach		Leg	Crossing Width - ft.	Volumes - AM(PM)				Existing Crossing Type	Recommended Crossing Type	Notes
				2019 - Bikes/Peds	2019 - Cars	2045 - Bikes/Peds	2045 - Cars			
1	NW Couch Street and NW 2nd Avenue									
	Northbound approach	South Leg	45	95 (170)	860 (750)	97 (173)	985 (860)	Crosswalk	Active or Enhanced	Existing volumes trigger AorE
	Southbound approach	North Leg	45	95 (86)	860 (750)	97 (87)	985 (860)	Crosswalk	Active or Enhanced	Existing volumes trigger AorE
	Eastbound approach	West Leg	36	136 (98)	490 (580)	138 (100)	435 (510)	Unmarked	Crosswalk	Existing volumes trigger XC
	Westbound approach	East Leg	36	42 (50)	490 (580)	43 (51)	435 (510)	Unmarked	Crosswalk	Existing volumes trigger XC
2	SW Ankeny Street and SW 2nd Avenue									
	Northbound approach	South Leg	25	95 (170)	395 (493)	97 (173)	410 (520)	Crosswalk	Crosswalk	Existing volumes trigger XC
	Southbound approach	North Leg	40	95 (86)	415 (513)	97 (87)	440 (540)	Crosswalk	Crosswalk	Existing volumes trigger XC
	Eastbound approach	*West Leg*	*n/a*	136 (98)	*n/a*	138 (100)	*n/a*	*n/a*	*n/a*	n/a
	Westbound approach	East Leg	18	42 (50)	40 (40)	43 (51)	40 (40)	Unmarked	Crosswalk	Existing volumes trigger XC
3	SW Ankeny Street and SW 1st Avenue									
	Northbound approach	South Leg	30	95 (170)	*n/a*	97 (173)	*n/a*	Unmarked	*n/a*	No cars on 1st - MAX Only
	Southbound approach	North Leg	40	95 (86)	*n/a*	97 (87)	*n/a*	Unmarked	*n/a*	No cars on 1st - MAX Only
	Eastbound approach	West Leg	18	136 (98)	10 (20)	138 (100)	10 (20)	Unmarked	Crosswalk	EB cars only Existing volumes trigger XC
	Westbound approach	East Leg	14	42 (50)	10 (20)	43 (51)	10 (20)	Unmarked	Crosswalk	EB cars only Existing volumes trigger XC
4	NE Davis Street and NE 3rd Avenue									
	Northbound approach	South Leg	36	29 (73)	289 (283)	30 (74)	303 (297)	Unmarked	Crosswalk	Existing volumes trigger XC
	Southbound approach	*North Leg*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*Driveway*		Driveway Access
	Eastbound approach	*West Leg*	*26 - n/a?*	*n/a*	*n/a*	*n/a*	*n/a*	*Driveway*		Driveway Access
	Westbound approach	East Leg	36	20 (24)	321 (314)	20 (24)	337 (330)	Unmarked	Crosswalk	Existing volumes trigger XC
5	SE Ankeny Street and SE 2nd Avenue									
	Northbound approach	South Leg	52	29 (73)	142 (207)	27 (40)	149 (217)	Unmarked	Crosswalk*	*No sidewalk on west side of 2nd Existing volumes trigger XC
	Southbound approach	North Leg	52	45 (39)	142 (207)	46 (40)	149 (217)	Unmarked	Crosswalk*	*No sidewalk on west side of 2nd Existing volumes trigger XC
	Eastbound approach	*West Leg*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*		Driveway Access; no sidewalk
	Westbound approach	East Leg	36	20 (24)	99 (104)	20 (24)	104 (117)	Unmarked	Crosswalk	Existing volumes trigger XC
6	SE Ankeny Street and SE 3rd Avenue									
	Northbound approach	South Leg	35	29 (73)	142 (207)	30 (74)	149 (217)	Unmarked	Crosswalk	Existing volumes trigger XC
	Southbound approach	North Leg	35	45 (39)	142 (207)	46 (40)	149 (217)	Unmarked	Crosswalk	Existing volumes trigger XC
	Eastbound approach	West Leg	30	26 (34)	99 (104)	27 (35)	104 (117)	Unmarked	Crosswalk	Existing volumes trigger XC
	Westbound approach	East Leg	36	20 (24)	99 (104)	20 (24)	104 (117)	Unmarked	Crosswalk	Existing volumes trigger XC

Intersection	Data Inputs	AM PEAK HOUR								PM PEAK HOUR								NOTES
		Existing 2019				Future No-Build 2045				Existing 2019				Future No-Build 2045				
1. NW Couch Street and NW 2nd Avenue ***North-South: 2nd East-West: Couch***	Approach	***NB***	SB	***EB***	WB	***NB***	SB	***EB***	WB	***NB***	SB	***EB***	WB	***NB***	SB	***EB***	WB	
	Major Street																	
	Minor Street or Location																	
	Data Collection Date																	
	Peak Hour																	
	Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*20*	20	*20*	20	*20*	20	*20*	20	*20*	20	*20*	20	*20*	20	*20*	20	
	Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	
	Peak-hour pedestrian volume (ped/h), V_p	***95***	95	***136***	42	***96.9***	***96.9***	***138.72***	***42.84***	***170***	86	***98***	50	***173.4***	***87.72***	***99.96***	***51***	Assume 2% growth
	Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	***860***	860	***490***	490	***985***	985	***435***	435	***750***	750	***580***	580	***860***	860	***510***	510	Volumes provided by Parametrix
	Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	*No*	No	
	If YES - % rate of reduction (up to 50%)	*n/a*	n/a	*n/a*	n/a	*n/a*	n/a	*n/a*	n/a	*n/a*	n/a	*n/a*	n/a	*n/a*	n/a	*n/a*	n/a	
	Pedestrian crossing distance, curb to curb (ft), L	***45***	45	***36***	36	***45***	45	***36***	36	***45***	45	***36***	36	***45***	45	***36***	36	
	Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*3.5*	3.5	*3.5*	3.5	*3.5*	3.5	*3.5*	3.5	*3.5*	3.5	*3.5*	3.5	*3.5*	3.5	*3.5*	3.5	
	Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*3*	3	*3*	3	*3*	3	*3*	3	*3*	3	*3*	3	*3*	3	*3*	3	
	Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/V), Vmaj-d	***860***	*860*	***490***	*490*	***985***	*985*	***435***	*435*	***750***	*750*	***580***	*580*	***860***	*860*	***510***	*510*	
	Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*High*	High	*High*	High	*High*	High	*High*	High	*High*	High	*High*	High	*High*	High	*High*	High	
	TREATMENT									Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	
2. SW Ankeny Street and SW 2nd Avenue ***North-South: 2nd East-West: Ankeny***	Approach	***NB***	***SB***	EB	WB	***NB***	***SB***	EB	WB	***NB***	***SB***	EB	WB	***NB***	***SB***	EB	WB	
	Major Street																	
	Minor Street or Location																	
	Data Collection Date																	
	Peak Hour																	
	Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*20*	*20*	20	20	*20*	*20*	20	20	*20*	*20*	20	20	*20*	*20*	20	20	
	Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*No*	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	
	Peak-hour pedestrian volume (ped/h), V_p	***95***	95	***136***	42	***96.9***	***96.9***	***138.72***	***42.84***	***170***	86	***98***	50	***173.4***	***87.72***	***99.96***	***51***	Assume same volumes as NW 2nd/Couch intersection since it's best available and seems like a similar area for ped traffic
	Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*270*	*250*	0	40	*280*	*260*	0	40	*506*	*486*	0	40	*560*	*530*	0	40	Volumes come from PBOT data at SW 2nd and Pine: PM: https://www.portlandmaps.com/scripts/tmc.cfm?SW%202ND%20AVE%20-%20SW%20PINE%20ST%20PM%2001-20-2016.pdf AM: https://www.portlandmaps.com/scripts/tmc.cfm?SW%202ND%20AVE%20-%20SW%20PINE%20ST%20AM%2002-03-2016.pdf Assumes the NB Thru, EB L, and WB R vols would all continue north to Ankeny and not additional traffic added from Ash. Assume 20 NB right turns onto Ankeny; Assume 20 WB right turns onto 2nd
		395	***415***	0	40	***410***	***440***	0	40	***493***	***513***	0	40	***520***	***540***	0	40	Volumes come from PBOT data at SW 2nd and Burnside: PM: https://www.portlandmaps.com/scripts/tmc.cfm?W%20BURNSIDE%20ST%20-%20SW%202ND%20AVE%20PM%2010-27-2016.pdf AM: https://www.portlandmaps.com/scripts/tmc.cfm?W%20BURNSIDE%20ST%20-%20SW%202ND%20AVE%20AM%2009-28-2016.pdf Assumes all NB vols at Burnside are going through 2nd/Ankeny; Assume 20 NB right turns onto Ankeny; Assume 20 WB right turns onto 2nd Assume 5% increase for future conditions
	Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*No*	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	
	If YES - % rate of reduction (up to 50%)	*n/a*	*n/a*	n/a	n/a	*n/a*	*n/a*	n/a	n/a	*n/a*	*n/a*	n/a	n/a	*n/a*	*n/a*	n/a	n/a	
	Pedestrian crossing distance, curb to curb (ft), L	***25***	***40***	n/a	18	***25***	***40***	n/a	18	***25***	***40***	n/a	18	***25***	***40***	n/a	18	
	Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*3.5*	*3.5*	3.5	3.5	*3.5*	*3.5*	3.5	3.5	*3.5*	*3.5*	3.5	3.5	*3.5*	*3.5*	3.5	3.5	
	Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*3*	*3*	3	3	*3*	*3*	3	3	*3*	*3*	3	3	*3*	*3*	3	3	
	Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/V), Vmaj-d	***270***	***250***	*0*	*40*	***280***	***260***	*0*	*40*	***506***	***486***	*0*	*40*	***560***	***530***	*0*	*40*	
	Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*High*	*High*	High	High	*High*	*High*	High	High	*High*	*High*	High	High	*High*	*High*	High	High	
	TREATMENT									Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	

Intersection	Data Inputs	AM PEAK HOUR								PM PEAK HOUR								NOTES
		Existing 2019				Future No-Build 2045				Existing 2019				Future No-Build 2045				
3. SW Ankeny Street and SW 1st Avenue *North-South: 1st* *East-West: Ankeny*	Approach	NB	*SB*	EB	WB	NB	*SB*	EB	WB	NB	*SB*	EB	WB	NB	*SB*	EB	WB	
	Major Street																	
	Minor Street or Location																	
	Data Collection Date																	
	Peak Hour																	
	Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	20	*20*	20	20	20	*20*	20	20	20	*20*	20	20	20	*20*	20	20	
	Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	No	*No*	No	No	No	*No*	No	No	No	*No*	No	No	No	*No*	No	No	
	Peak-hour pedestrian volume (ped/h), V_p	***95***	95	***136***	42	***96.9***	***96.9***	***138.72***	***42.84***	***170***	86	***98***	50	***173.4***	***87.72***	***99.96***	***51***	Assume same volumes as NW 2nd/Couch intersection since it's best available and seems like a similar area for ped traffic
	Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	n/a	*n/a*	0	10	n/a	*n/a*	0	10	n/a	*n/a*	0	20	n/a	*n/a*	0	20	Volumes are informed guesses based on lack of network connections and using the data from the east side which are streets I'm familiar with for comparison. May be a weekend peak due to Saturday Market, but that's paired with extreme pedestrian peak and general activity so is likely irrelevant Assume that there are 10 WB vehicles during AM peak Assume that there are 20 WB vehicles during PM peak Assume no increase for future scenario
	Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	No	*No*	No	No	No	*No*	No	No	No	*No*	No	No	No	*No*	No	No	
	If YES - % rate of reduction (up to 50%)	n/a	*n/a*	n/a	n/a	n/a	*n/a*	n/a	n/a	n/a	*n/a*	n/a	n/a	n/a	*n/a*	n/a	n/a	
	Pedestrian crossing distance, curb to curb (ft), L	? n/a	*40*	18 - n/a?	n/a	? n/a	*40*	18 - n/a?	n/a	? n/a	*40*	18 - n/a?	n/a	? n/a	*40*	18 - n/a?	n/a	
	Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	3.5	*3.5*	3.5	3.5	3.5	*3.5*	3.5	3.5	3.5	*3.5*	3.5	3.5	3.5	*3.5*	3.5	3.5	
	Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	3	*3*	3	3	3	*3*	3	3	3	*3*	3	3	3	*3*	3	3	
	Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/V), Vmaj-d	*n/a*	***n/a***	*0*	*10*	*n/a*	***n/a***	*0*	*10*	*n/a*	***n/a***	*0*	*20*	*n/a*	***n/a***	*0*	*20*	
	Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	High	*High*	High	High	High	*High*	High	High	High	*High*	High	High	High	*High*	High	High	
	TREATMENT									Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	
4. NE Davis Street and NE 3rd Avenue *North-South: 3rd* *East-West: Davis*	Approach	*NB*	SB	EB	*WB*	*NB*	SB	EB	*WB*	*NB*	SB	EB	*WB*	*NB*	SB	EB	*WB*	
	Major Street																	
	Minor Street or Location																	
	Data Collection Date																	
	Peak Hour																	
	Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*20*	20	20	*20*	*20*	20	20	*20*	*20*	20	20	*20*	*20*	20	20	*20*	
	Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	*No*	
	Peak-hour pedestrian volume (ped/h), V_p	***29***	*45*	*26*	***20***	***29.58***	***45.9***	***26.52***	***20.4***	***73***	*39*	*34*	***24***	***74.46***	***39.78***	***34.68***	***24.48***	Assumes 60% of average ped volumes for MLK/Grand @ Couch, Burnside intersections Assumes 2% growth
	Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	***289***	DW	DW	***321***	***303***	DW	DW	***337***	***283***	DW	DW	***314***	***297***	DW	DW	***330***	Assume 90% of E-W traffic is coming to/from N-S; remaining 10% coming from driveways Assume 5% growth for future traffic
	Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	*No*	*No*	No	No	*No*	
	If YES - % rate of reduction (up to 50%)	*n/a*	n/a	n/a	*n/a*	*n/a*	n/a	n/a	*n/a*	*n/a*	n/a	n/a	*n/a*	*n/a*	n/a	n/a	*n/a*	
	Pedestrian crossing distance, curb to curb (ft), L	***36***	n/a	25 - n/a?	***36***	***36***	n/a	25 - n/a?	***36***	***36***	n/a	25 - n/a?	***36***	***36***	n/a	25 - n/a?	***36***	
	Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*3.5*	3.5	3.5	*3.5*	*3.5*	3.5	3.5	*3.5*	*3.5*	3.5	3.5	*3.5*	*3.5*	3.5	3.5	*3.5*	
	Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*3*	3	3	*3*	*3*	3	3	*3*	*3*	3	3	*3*	*3*	3	3	*3*	
	Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/V), Vmaj-d	***289***	*DW*	*DW*	***321***	***303***	*DW*	*DW*	***337***	***283***	*DW*	*DW*	***314***	***297***	*DW*	*DW*	***330***	
	Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*High*	High	High	*High*	*High*	High	High	*High*	*High*	High	High	*High*	*High*	High	High	*High*	
	TREATMENT									Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	

Intersection	Data Inputs	AM PEAK HOUR								PM PEAK HOUR								NOTES
		Existing 2019				Future No-Build 2045				Existing 2019				Future No-Build 2045				
5. SE Ankeny Street and SE 2nd Avenue *North-South: 2nd* *East-West: Ankeny*	Approach	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	
	Major Street																	
	Minor Street or Location																	
	Data Collection Date																	
	Peak Hour																	
	Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
	Peak-hour pedestrian volume (ped/h), V_p	29	45	26	20	29.58	45.9	26.52	20.4	73	39	34	24	74.46	39.78	34.68	24.48	Assumes 60% of average ped volumes for MLK/Grand @ Couch, Burnside intersections Assumes 2% growth
	Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	142	142	98.6666667	98.6666667	149	149	104	104	207	207	111.666667	111.666667	217	217	117	117	Opted to not make assumptions about turning movements and kept things simple Assume 5% growth for future traffic
	Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
	If YES - % rate of reduction (up to 50%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Pedestrian crossing distance, curb to curb (ft), L	52	52	n/a	36	52	52	n/a	36	52	52	n/a	36	52	52	n/a	36	
	Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
	Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/V), Vmaj-d	142	142	98.6666667	98.66667	149	149	104	104	207	207	111.666667	111.6667	217	217	117	117	
	Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	
	TREATMENT									Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	
6. SE Ankeny Street and SE 3rd Avenue *North-South: 3rd* *East-West: Ankeny*	Approach	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	
	Major Street																	
	Minor Street or Location																	
	Data Collection Date																	
	Peak Hour																	
	Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
	Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
	Peak-hour pedestrian volume (ped/h), V_p	29	45	26	20	29.58	45.9	26.52	20.4	73	39	34	24	74.46	39.78	34.68	24.48	Assumes 60% of average ped volumes for MLK/Grand @ Couch, Burnside intersections Assumes 2% growth
	Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	142	142	98.6666667	98.6666667	149	149	104	104	207	207	111.666667	111.666667	217	217	117	117	Same assumptions as Ankeny/2nd, but including the EB approach
	Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	
	If YES - % rate of reduction (up to 50%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Pedestrian crossing distance, curb to curb (ft), L	35	35	30	36	35	35	30	36	35	35	30	36	35	35	30	36	
	Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
	Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/V), Vmaj-d	142	142	98.66667	98.66667	149	149	104	104	207	207	111.6667	111.6667	217	217	117	117	
	Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	
	TREATMENT									Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	Crosswalk	