REVISED ACTIVE TRANSPORTATION SUPPLEMENTAL TECHNICAL REPORT

Oregon Department of Transportation December 5, 2023



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Executive Summary

This technical report **presents revisions to the 2022 Active Transportation Supplemental Technical Report, which supplemented** the 2019 Active Transportation Technical Report (ODOT 2019) with an evaluation of the active transportation impacts of the Revised Build Alternative. This **Revised** Active Transportation Supplemental Technical Report concentrates on how highway cover changes and multimodal improvements of the Revised Build Alternative impact active transportation in the area compared to the No-Build Alternative. This report does not include analysis of updates to mainline I-5 because active transportation users do not use mainline I-5 facilities. **Revisions to the 2022 Active Transportation Supplemental Technical Report are based on comments on the I-5 Rose Quarter Improvement Project Supplemental Environmental Assessment and subsequent refinements to the project design and are shown in bold text.**

There are small and inconsequential changes in the regulatory framework from what was analyzed in the 2019 Active Transportation Technical Report. Impacts of the No-Build Alternative are the same as reported in the 2019 Active Transportation Technical Report. Generally, construction impacts of the Revised Build Alternative are similar to the Build Alternative as reported in the 2019 Active Transportation Technical Report. The construction of the Revised Build Alternative would still require the demolition of all existing I-5 overcrossings in the API.

Long Term and Operational impacts include:

- Upgraded, physically separated and raised bicycle facilities and shorter intersection crossings along NE Broadway and NE Weidler Street that benefit east-west traveling pedestrians, **people with disabilities**, and cyclists.
- Upgraded, physically separated and raised bicycle facilities and shorter intersection crossings on portions of N Vancouver Avenue and N Williams Avenue that benefit north-south traveling pedestrians, **people with disabilities**, and cyclists.
- A N Hancock Street connection over I-5 which would increase connectivity in the northwest portion of the API.
- Design changes that would alter Level of Traffic Stress (LTS) conditions for cyclists, pedestrians, and people with disabilities in the API. These impacts are both positive and negative, but not substantial. However, they are different from impacts in both the Build and No-Build Alternatives as evaluated in the 2019 Active Transportation Technical Report.
- Build Clackamas Crossing for cyclists, pedestrians and people with disabilities crossing I-5 providing a direct connection from Lloyd District to Moda Center. Compared to that described in the 2019 Active Transportation Report, the Clackamas Crossing is proposed



with two potential additional connections: 1) a connection running parallel to N Williams Avenue and landing at the southeast corner of the intersection of N Williams Avenue and N Weidler Street and 2) a connection to the Garden Garage

Indirect Impacts include:

- Reduction of intersection complexity; upgraded intersections along new or reconstructed streets on the expanded cover, and accessible wayfinding signage for all users could improve pedestrian convenience, comfort, and safety. Collectively, these enhancements could make walking more practical and attractive. People with disabilities would also encounter fewer barriers in these areas. Additional building capacity provided by the cover **would** generate more active transportation use in the cover area compared to the No-Build Alternative.
- Expanded cover space in the Revised Build Alternative would give pedestrians, **people with disabilities**, and cyclists greater connectivity compared to the No-Build Alternative.
- Additional building capacity provided by the cover **could** generate more active transportation use in the cover area compared to the No-Build Alternative.

Cumulative Impacts

The cumulative impacts of the Revised Build Alternative would be similar to what was
reported in the 2019 Active Transportation Technical Report. The Revised Build Alternative
would include upgraded physically separated and raised bicycle facilities with shorter
intersection crossings along NE Broadway and NE Weidler Street which would be enhanced
compared to No-Build Alternative.



1.0 INTRODUCTION

The I-5 Rose Quarter Improvement Project (Project) Environmental Assessment (EA) was released in February 2019. The Federal Highway Administration (FHWA) published a Finding of No Significant Impact (FONSI) and Revised EA (REA) for the Build Alternative on November 6, 2020. Since the issuance of the FONSI, the Oregon Department of Transportation (ODOT) has made changes to the design of the proposed Build Alternative to create a Revised Build Alternative and re-evaluated the changes in the context of the FONSI/REA. At the conclusion of the re-evaluation, FHWA and ODOT agreed that the design changes require additional analyses beyond what was presented in the REA, and FHWA rescinded the FONSI on January 18, 2022. **ODOT prepared a Transportation Safety Supplemental Technical Report, which was published** with the I-5 Rose Quarter Improvement Project Supplemental Environmental Assessment (SEA) on November 15, 2022. In response to public comments received on the SEA, ODOT refined the design of the Revised Build Alternative. This Revised Transportation Safety Supplemental Technical Report reflects changes to the evaluation of the Transportation Safety impacts based on those design refinements, which are described below in Section 2.0. All updated information is shown in bold text.

2.0 BUILD ALTERNATIVE DESIGN CHANGES

Changes to the Build Alternative include modification to the highway cover design and changes associated with advancements in other elements of the project design, some of which require expansion of the Project Area. This section describes the highway cover design changes and design changes that resulted from advancements in project engineering **and comments on the SEA**. The evaluation of these changes is presented in Section 6.2 of this supplemental technical report.

2.1 DESIGN PROCESS

Through 2021, ODOT facilitated an Independent Highway Cover Assessment, as directed by the Oregon Transportation Commission, that engaged the Project's advisory committees and community members in a series of collaborative workshops to explore the design opportunities for the highway cover. The purpose of the Independent Highway Cover Assessment was to understand **partner** goals and objectives within the Project Area, generate potential highway cover scenarios, and assess the impacts and benefits of these scenarios. The Independent Highway Cover Assessment team worked directly with local community members from the historic Albina neighborhood to understand how the highway cover design concepts might best serve the historic Albina community. The Project's Historic Albina Advisory Board (HAAB),



Executive Steering Committee (ESC) and the Community Oversight Advisory Board (COAC) also provided input as part of the Independent Highway Cover Assessment process. These sessions explored potential opportunities for economic development in the Albina community and the highway cover design concepts.

In July 2021, Oregon Governor Brown convened a series of meetings with Project **partners** and community organizations to discuss the design concepts developed in the Independent Highway Cover Assessment. In August 2021, the HAAB—as supported by the ESC and the COAC, and through the Governor-led process—recommended "Hybrid 3" as the preferred highway cover design concept (Figure 1). The Hybrid 3 highway cover design concept represents a proposed community solution to maximize developable space on a single highway cover. The Hybrid 3 highway cover design concept maintains the commitment for the Project to create opportunities for the local community to grow wealth through business ownership and long-term career prospects through the Project's Disadvantaged Business Enterprise and workforce program. Following the community and **partner** recommendations, in September 2021, the Oregon Transportation Commission directed ODOT to advance further evaluation of the Hybrid 3 highway cover design concept, with conditions related to the Project's funding process and other technical analyses.

In January 2022, Governor Brown entered into a Letter of Agreement with the City of Portland, Metro, and Multnomah County that demonstrated their shared understanding and collective support for the Hybrid 3 concept as part of the Project. The Letter of Agreement specifically highlights the desire to connect the Lower Albina neighborhood, create buildable space, and enhance wealth-generating opportunities for the community, while simultaneously addressing the area's transportation needs. Additionally, the Letter of Agreement supports the development of a process to define the future development vision for what could ultimately be built on top of the highway cover upon Project completion - this process is referred to as a Community Framework Agreement. The Letter of Agreement states that the City of Portland will lead a Community Framework Agreement process and that it should be between the City of Portland, ODOT, other state agencies and local jurisdictions as necessary, with the participation of organizations that represent the Albina community and Black residents. Any future real estate or open space development on top of the cover would require executing long-term air rights and lease agreements, and that any such actions or decisions are subject at all times to applicable local, state, and federal laws including but not limited to land use and NEPA processes.

In June 2022, ODOT and the City of Portland executed an Intergovernmental Agreement (IGA), building upon the January 2022 Letter of Agreement. The IGA further states that the City will lead the future highway cover land use, programming and development processes and development of a Community Framework Agreement, in consultation with the ODOT to ensure



the highway, local streets and resulting land parcels within the Project are coordinated. As such, ODOT would construct the highway cover as part of the Project and the City of Portland would lead the process to define what is ultimately built on the new land created by the Project's highway cover. In the IGA, both ODOT and the City agreed that ODOT will retain ownership of the highway cover structure and the new developable area created on the highway cover structure upon Project completion.

FHWA and ODOT released the I-5 Rose Quarter Improvement SEA on November 15, 2022. In response to comments on the SEA, ODOT refined the design of the Revised Build Alternative. The sections below describe the highway cover design changes and the design changes that resulted from advancements in project engineering and comments on the SEA and are incorporated into the Revised Build Alternative.





Figure 1 Hybrid 3 Highway Cover Design Concept with Ramp Reconfiguration



2.2 PROJECT AREA

The Project Area is defined as the area within which improvements are proposed, including where permanent modifications to adjacent parcels may occur and where potential temporary impacts from construction activities could result. As Project design information advanced, some changes required expansion of the Project Area presented in the REA and FONSI. In total, approximately 8.7 acres would be added to the Project Area. The changes are as follows, with letter references to the areas shown in Figure 2:

- A: Utility conflicts with Light Rail Transit (LRT) along NE Holladay Street between N Interstate Avenue and NE Martin Luther King Jr. Boulevard required expanding the Project Area by 1.9 acres to include additional overhead utility relocations (label A in Figure 2).
- B: An existing parking lot (known as Aegean Lot) south of N Interstate Avenue and the Broadway Bridge may be used for contractor staging during construction and is added to the Project Area (label B, Figure 2). ODOT identified this 4.3-acre construction staging area for contractor use based on its location, size, and suitability recognizing that, because of the urban setting and high-density land development in the construction area, it would be difficult for a construction contractor to find the space needed near or next to the project work areas for equipment staging, material storage, and the required co-location space for the contractor/construction personnel. This location meets all of the Project requirements: large level open space, proximity to the project work areas, and access for staging/storage of materials and equipment. Any materials stored in the area and site runoff would be subject to the same regulations as required throughout the project site.
- C: The southern end of the Project Area is expanded by 2.4 acres to include the portion of I-5 south of the Burnside Bridge proposed for a retrofit of the existing bridge rail, restriping the existing freeway, and installation of new guide signs (label C, Figure 2).
- D: At the northernmost end of the Project Area, a 1.1-acre area of ODOT right of way along the I-5 shoulders is now included in the Project Area for fiber optic conduit (label D, Figure 2).



Figure 2 Previous and Current Project Area.





2.3 I-5 MAINLINE IMPROVEMENTS CHANGES

The Build Alternative included relocation of the I-5 southbound **entrance** ramp at N Wheeler Avenue to N/NE Weidler Street at N Williams Avenue via the new Weidler/Broadway/Ramsay highway cover, construction of auxiliary lanes and full shoulders (12 feet in width) on I-5 between I-405 and I-84 in both directions, and associated improvements to I-5 through the Project Area. The Revised Build Alternative includes the following changes to those elements of the Build Alternative:

- Move the I-5 southbound exit ramp termini from N Broadway to N Wheeler Avenue/ N Williams Avenue/N Ramsay Way (westbound) and NE Weidler Street (eastbound). The exit ramp would divide westbound traffic from eastbound traffic as seen in Figure 3, with a single lane connection at N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way and single lane bridge (flyover) over I-5 to connect with NE Weidler Street.
- Reduce the freeway median shoulder through the entire Project Area, from 12 feet to 8 feet (4 to 5 feet within highway cover). The outside shoulder width of 12 feet remains unchanged.
- Relocate Noise Wall 24 from N Commercial Avenue near Harriet Tubman Middle School to attach to Walls 1 and 2 along the east edge of I-5.
- Keep the I-5 southbound entrance ramp from N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way on the existing alignment rather than relocate it to parallel N Williams Avenue.
- On I-5 south of the Burnside Bridge: retrofit existing bridge rail, restripe freeway in both the northbound and southbound directions, and install new guide signs on an existing sign structure in the southbound direction.





Figure 3 I-5 SB Exit Ramp: Traffic Splitting Eastbound from Westbound Traffic



2.4 HIGHWAY COVER CHANGES

The Build Alternative included the construction of two highway cover structures over I-5 for roadway crossings and other purposes. The Revised Build Alternative, based on Hybrid 3 (see Figure 1), includes the following changes to the highway covers:

- Provide one continuous highway cover over I-5 rather than separate covers at the existing N Flint Avenue, NE Weidler Street, NE Broadway, N Williams Avenue, and the N Vancouver Avenue overcrossings.
- Expand the limits of the highway cover by approximately 35 feet to the west and approximately 400 feet to the north.
- Design and construct the highway cover to accommodate multi-story buildings. Due to span length and site constraints, design would constrain building size, location, type, and use on portions of the cover (Figure 4). Generally, buildings up to three stories could be accommodated throughout the highway cover. Buildings of up to six stories could be accommodated where span lengths are shorter than 80 feet with strict design constraints.









Future development on the highway cover would follow a community process according to the City-led Community Framework Agreement, as described in Section 2.1. ODOT anticipates this process could continue past completion of cover construction.

As part of the Project, ODOT anticipates programming interim uses on the highway cover for the time period between Project completion and when the City-led development process would be implemented. Upon Project completion, the added surface space created by the highway cover over I-5 could provide an opportunity for new and modern bicycle facilities, making the area more connected, walkable and bike friendly. It could also provide opportunity for various potential types of public spaces, to be precisely determined during the Project's final design phase and through robust community engagement, consisting of one or more of the following types of uses:

- Landscaped areas for **accessible**, active, and passive recreation and/or to provide a buffer, backdrop and visual comfort, such as gardens, lawns or planter beds.
- Accessible plazas and hardscaped open space for active and passive recreation, such as courts, plazas, splash pads, picnic areas, and community gathering spaces.
- Accessible interpretive signage, historical markers, landmarks and other areas of historical recognition and narrative such as art pieces and other historical signage/kiosks and pavement focused on the historic Albina community.
- Temporary and lightweight vertical features to support episodic, mobile commercial activities such as **accessible** food market shed, eating pavilion, food carts, or picnic venues.

These features may be removed upon implementation of the development determined by the community process or may be incorporated into that development.

2.5 RELATED LOCAL SYSTEM MULTIMODAL IMPROVEMENTS CHANGES

The Revised Build Alternative includes the following changes to local system multimodal improvements to accommodate the Hybrid 3 design concept and subsequent design refinements (see Figure 5 below):

- Construct the accessible Clackamas Bicycle and Pedestrian Crossing (a.k.a. Clackamas Crossing):
 - » Realign the crossing to the south to accommodate the flyover to NE Weidler Street
 - » Relocate the western termination point of the crossing to the triangle of land framed by N Center Court Street, NE Wheeler Avenue, and N Ramsay Way.



- » Provide the following connections to the crossing (to be confirmed in the final design phase):
 - / From the southeast corner of the intersection of N Williams Avenue and N Weidler Street that spans over N Wheeler Avenue and connects to the crossing, and
 - / From the Garden Garage, which is attached to the Moda Center
- » Construct wider sidewalks and bike lanes at sidewalk level and physically separated from the roadway with a curb and provide protected bike signal phases at multiple intersections along NE Broadway and NE Weidler Street.
- Connect N Flint Avenue across I-5 from NE Tillamook Street to N Hancock Street and terminate it at N Broadway.
- Remove the NE Hancock Street overcrossing of I-5 from N Williams Avenue to N Dixon Street as proposed in the Build Alternative. NE Hancock Street would be extended across I-5 and reconnect to NE Hancock Street west of N Flint Avenue as part of the expanded highway cover. Permitted traffic modes and roadway profile to be determined during design.
- Remove the two-way cycle track on N Williams Avenue between NE Hancock Street and NE Broadway and a two-way bicycle and pedestrian path between NE Broadway and N Ramsay Way from the design and instead convert the on-road bike lane to a protected bike lane, with a transition to the existing on-road bike lane at or near NE Hancock Street (to be confirmed in the final design phase).





Figure 5 Major Local System Multimodal Design Changes



To accommodate I-5 southbound traffic exiting at N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way, ODOT is considering two design options, both of which are evaluated in this report (Figure 6):

- 2-way Ramsay Design Option Convert N Ramsay Way between N Center Court Street and NE Wheeler Avenue from an eastbound one-way facility to a two-way facility.
- 2-way Wheeler Design Option Construct a new northbound travel lane on NE Wheeler Avenue between N Broadway and N Ramsay Way and maintain the three existing southbound travel lanes between N Weidler Street and N Ramsay Way.

Both design options also include a left turn movement from the I-5 southbound exit ramp to southbound N Williams Avenue. This movement was previously accommodated via N Wheeler Avenue/ N Vancouver Avenue between N Broadway and N Ramsay Way.





Figure 6 Design Options for I-5 SB Exit Ramp: Traffic Heading West



3.0 REGULATORY FRAMEWORK

There are differences in the regulatory framework from what was evaluated in the 2019 Active Transportation Technical Report. Some policies and regulations have not changed since the writing of the 2019 Active Transportation Technical Report including:

- ADA Guidance
- Oregon Transportation Plan
- Oregon Bicycle and Pedestrian Plan
- Oregon Highway Plan
- ODOT Highway Design Manual
- Division 51: Access Management Rules

Plans and guidance that have not changed since the writing of the 2019 Active Transportation Technical Report include:

- TriMet Service Enhancement Plan
- City of Portland Comprehensive Plan
- City of Portland Protected Bicycle Lane Planning and Design Guidance
- Go Lloyd
- National Association of City Transportation Officials (NACTO) Urban Street Design Guide

Since the writing of the 2019 Active Transportation Technical Report there have been updates to the Policy on Geometric Design of Highways and Streets 6th edition which was updated to the 7th edition in 2018 (AASHTO 2011), City of Portland TSP (City of Portland 2020) and the Metro RTP (Metro 2018). There are no major changes in the Policy on Geometric Design of Highways and Streets 7th edition that would influence the Project. The 2014 Metro Regional Transportation Plan (RTP) evaluated in the 2019 Active Transportation Technical Report was updated in 2018. No additional projects were added with the RTP update within the API (Metro 2018).

The 2018 Transportation System Plan (TSP) evaluated in the 2019 Active Transportation Technical Report was updated in March of 2020 (City of Portland 2020). TSP project 20113 which would enhance existing bicycle lanes and improve pedestrian/bicycle crossings along the NE Broadway and NE Weidler Street was carried over from the 2018 TSP to the 2020 TSP. There were no major project additions to the TSP within the Project API since the 2019 Active Transportation Technical Report; however, two pedestrian roadway classifications changed between the 2018 TSP and the updated 2020 TSP, including NE Clackamas Street, originally



classified as a Neighborhood Walkway, was updated to a Major City Walkway classification, and N Ramsay Way (N Winning Way) and N Larrabee Avenue which were both updated from City Walkway to Major City Walkway (see Figure 7 for updated pedestrian roadway classifications). The extension (bridge crossing) and upgrade of NE Clackamas Street was identified in the updated 2020 TSP (project 20204) under the assumption that the Clackamas Bicycle and Pedestrian Bridge would be incorporated as a part of the Build Alternative. The Revised Build Alternative **would include the Clackamas Crossing as described in section 2.5.**

Portland's Citywide Pedestrian Plan (PedPDX) was published in 2019, after the 2019 Active Transportation Technical Report was written. The 2020 TSP update explicitly defers to PedPDX to address pedestrian network needs, priorities, classifications, and policies. PBOT **completed** the **3-Year Status Report which provides an update on the work completed since 2019 PedPDX adoption and establishes** prioritizations **for sidewalk and crossing gaps.** PedPDX defines the City's pedestrian network, including areas designated as pedestrian districts (PBOT 2019). The majority of the project area is within the Central City pedestrian district. See Figure 7 below for updated pedestrian street classifications.

The mission of PedPDX is to ensure that walking is a safe, accessible, and attractive experience for everyone in Portland by putting pedestrians at the forefront of City policy, investments, and design. The goals of PedPDX are to make Portland active transportation more equitable and inclusive, safer, more comfortable and inviting, and to improve the health of people and the environment.

In May 2022, PBOT adopted a new Pedestrian Design Guide that updates the City of Portland's original 1998 Pedestrian Design Guide. The purpose of the Pedestrian Design Guide is to create a coherent set of standards and guidelines to promote a walkable city. It provides sidewalk design criteria, including minimum widths, street tree requirements, corners, and crossings (PBOT 2022). The Pedestrian Design Guide uses Street Design Classification for sidewalk corridor requirements that **would** apply to the Project.

Portland City Council adopted PBOT's ADA Title II Public Right of Way Transition Plan in July 2021. The plan provides a framework to bring public right of way and PBOT programs into compliance with the Americans with Disabilities Act (ADA) (PBOT 2021). In 2023, a new rule for ADA guidance has been issued for Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way.





Figure 7 Pedestrian Street Network Classification

Source: PedPDX: Portland's Citywide Pedestrian Plan (City of Portland 2019)

4.0 METHODOLOGY AND DATA SOURCES

The methodology and data sources are the same as those described in the 2019 Active Transportation Technical Report.



5.0 AFFECTED ENVIRONMENT

There are slight differences in the affected environment from what was evaluated in the 2019 Active Transportation Technical Report. There are additional bicycle share bicycle corral locations in the expanded project area included at the Oregon Convention Center and Leftbank Annex. The pedestrian classification status of N Ramsay Way (N Winning Way) and N Larrabee Avenue were both updated from City Walkway to Major City Walkway as a part of the adoption of PedPDX. The southern and northern crosswalks that cross N Benton Avenue at the N Benton Avenue/ N Broadway intersection are now striped as a continental crossing as opposed to a marked crosswalk as displayed in the 2019 Active Transportation Technical Report.

In June 2019, the City of Portland adopted PedPDX, Portland's citywide pedestrian plan. PedPDX aims to ensure walking is safe, accessible, and comfortable for all by putting pedestrians at the forefront of City policy, investments, and design. PedPDX establishes prioritization of pedestrian needs based on equity, safety, and pedestrian demand. The plan scores demand priority by street segment on a scale from 1 to 10 (1-2 being the lowest demand/priority, 9-10 being the highest demand/priority). Any roadways in the API that scored above the lowest scoring category (1-2) **for the equity, safety, and pedestrian demand in PedPDX** are identified **next**. For equity needs, the majority of the streets in the project area scored between 5-6, which means most API streets have average equity needs. For safety needs, NE Broadway and NE Weidler Street scored 3-4 (lower priority) west of N Williams Avenue but scored 7-8 (high priority) east of N Williams Avenue. Pedestrian demand was scored highest (9-10) on NE Broadway, NE Weidler Street, N Ramsay Way (N Winning Way), and on N Williams Avenue and N Vancouver Avenue south of NE Broadway. NE Flint Avenue scored 6-7 for pedestrian demand (higher demand), and N Williams Avenue and N Vancouver Avenue were scored 5-6 (average demand) north of NE Broadway.

PedPDX creates a tiered system for project implementation/ prioritization based on the scoring for equity, safety, and pedestrian demand. Tier 1 projects are highest priority and Tier 5 projects are lowest priority. NE Broadway and NE Weidler Street are Tier 2 priority, N Ramsay Way (N Winning Way) is Tier 3 priority, N Williams Avenue and N Vancouver Avenue are Tier **3 and 4** priority, and NE Flint Avenue is Tier 4 priority. Crossing deficiencies at priority intersections are scored from Tier 1 (highest priority) to Tier 3 (lowest priority). The crossing at **N** Wheeler Avenue/ N Williams Avenue **/ N Ramsay Way** (formerly NE Wheeler Avenue) & N Vancouver Avenue at the new southbound ramp terminal is identified as a Tier 3 priority intersection.

PBOT completed the 3-Year Status Report which provides an update on the work completed since the 2019 PedPDX adoption. The 3-Year Status Report identifies sidewalk and crossing gap prioritization based on Tier 1 (Highest Priority) through Tier 5 (Lowest Priority) scoring



(PBOT, 2023). One sidewalk gap was identified on the roadway within the API: NE Lloyd Boulevard between NE Oregon Street and I-5. NE Flint Avenue, NE Vancouver Avenue, and NE Williams Avenue north of NE Broadway were identified as segments with crossing gap priorities Tier 3 and 4, while N Williams Avenue south of N Ramsay Way is identified as Tier 3. The City of Portland identified other sidewalk gaps within the API in addition to those identified and prioritized in the PedPDX report including N Williams between Multnomah and Ramsay, west side of Williams between Broadway and Hancock, and Hancock west of Flint Avenue.

6.0 ENVIRONMENTAL CONSEQUENCES

6.1 NO-BUILD ALTERNATIVE

6.1.1 Direct Impacts

The No-Build Alternative would have the same direct impacts as described in the 2019 Active Transportation Technical Report. Updates in plans described in the Affected Environment section above would not influence the No-Build Alternative impacts.

6.1.2 Indirect Impacts

The No-Build Alternative would have the same indirect impacts as described in the 2019 Active Transportation Technical Report.

6.2 REVISED BUILD ALTERNATIVE

Project impacts related to active transportation are different from those disclosed in the 2019 Active Transportation Technical Report. This section describes the direct, indirect, and cumulative impacts of the Revised Build Alternative compared to the Build and No-Build Alternatives.

6.2.1 Direct Impacts

This section evaluates short-term construction and long-term operational impacts of the Revised Build Alternative and compares them to the Build and No-Build Alternatives. The No-Build Alternative would not require active transportation detours or construction delays because construction of Project improvements would not occur. Reference Appendix A for further information on location and detail of project developments under the Revised Build Alternative.



Short Term (Construction Impacts)

The construction of the Revised Build Alternative would require the demolition of all existing I-5 overcrossings in the API, as was required for the Build Alternative. Construction activity impacts to active transportation users are described below.

Broadway/Weidler/Williams

The demolition of the NE Broadway and NE Williams Avenue structures over I-5 are required for the Revised Build Alternative. The demolition of the bridges would require cyclists and pedestrians to be detoured from normal routes of travel and **could** cause delays in this area during construction. Because the existing NE Broadway structure is tied to the NE Williams Avenue structure, both would need to be demolished at the same time. Under the Revised Build Alternative, the highway cover would be built north of N Broadway, prior to demolition. This would allow pedestrians and westbound cyclists to use the highway cover as a shoofly detour¹ around the demolished bridge on a temporary structure, whereas the Build Alternative required diversion to parallel streets and the NE Weidler Street temporary detour bridge. There **could** be times when the sidewalk on one side of NE Broadway is closed during construction, requiring pedestrians to use the other side of the bridge. During this time, N Williams Avenue would be closed to all traffic and active transportation users would be detoured to **NE** Victoria Avenue.

The demolition of the NE Weidler Street structure is still required in the construction of the Project. The highway cover would be built north of NE Weidler Street, prior to demolition. This would require pedestrians and eastbound cyclists to use the highway cover as a shoofly detour to go around the demolished bridge which would delay travel for cyclists and pedestrians during construction. It is likely that the sidewalk on one side of NE Weidler Street would be closed during construction. Pedestrians would be routed to the sidewalk on the opposite side of the road through the shoofly detour.

Vancouver/Flint/Hancock

Similar to the Build Alternative, the Revised Build Alternative would require demolition of the N Vancouver Avenue and N Flint Avenue structures over I-5, which would require rerouting and potential delay for cyclists and pedestrians during construction. The Revised Build Alternative highway cover would include an I-5 crossing at NE Hancock from N Flint Avenue to N Vancouver Avenue.

Moda Center

The east side of N Williams Avenue (formerly known as N Wheeler Avenue) between NE Multnomah Avenue and N Ramsay Way (N Winning Way) along the Moda Center would be

¹ A "shoofly" is a short temporary detour constructed to carry traffic around a construction work zone.



reconstructed. There is no existing sidewalk on the east side of N Williams Avenue, so pedestrian movement along the west side of N Williams Avenue would be maintained on the existing west sidewalk as opposed to the Build Alternative construction diversion to NE 2nd Avenue or Interstate Avenue. Southbound bicycle movements would be maintained in the existing configuration (southbound bicycle lane), without having to detour as proposed in Build Alternative construction design. Northbound bicycles would be able to utilize the existing bicycle lane on N Williams Avenue, though there **could** be short disruptions to the northbound bicycle lane during construction. Cyclists would be required to share the northbound bus-only lane if the northbound bicycle lane is disrupted which would temporarily require additional cyclist interaction with buses.

N Williams Avenue between NE Ramsay Way and NE Weidler Street would be closed for an extended duration (multi-year period) due to construction of the I-5 southbound **exit ramp**. Pedestrians would be rerouted to N Vancouver Avenue **and local access for pedestrians primarily to Madrona Studios would be maintained on the west side of N Williams Avenue between N/NE Weidler Street and N Ramsay Way except for limited durations for sidewalk reconstruction.** Northbound cyclists would also be rerouted in this section of N Williams Avenue. The exact detour route has not yet been determined, but it would likely require northbound cyclists to take the NE 2nd Avenue/Rodney Avenue Greenway north, turn west on Tillamook Street, and then turn north onto N Williams Avenue. This detour would temporarily increase northbound cyclist and southbound pedestrian delay using N Williams.

Other Areas

Unlike the Build Alternative, the Revised Build Alternative would not require closure of the Eastbank Esplanade.

Long Term and Operational Impacts

Direct active transportation impacts under the Revised Build Alternative as compared to the No-Build and Build Alternatives would include the following (see Figure 5 above for major design changes under the Revised Build Alternative):

Broadway/Weidler/Williams/Vancouver

The Revised Build Alternative **for both design options** would include upgraded, physically separated and raised bicycle facilities and shorter intersection crossings along NE Broadway and NE Weidler Street **with the exception of the crossing across the I-5 southbound and northbound right turn lanes at NE Weidler Street which would be longer due to the addition of a second right turn**. The upgraded bicycle facilities would enhance cyclist separation from traffic compared to the bicycle lanes under the Build Alternative, which were designed to be separated but not raised. See Figure 8 and Figure 9 below for concept designs of cross sections



showing active transportation facilities along NE Broadway and NE Weidler Street between N Vancouver Avenue and N Williams Ave, and between N Williams Avenue and N Victoria Avenue for the Revised Build and Build Alternatives. **Similar to the 2019 Active Transportation Technical Report, the Revised Build Alternative would include the Clackamas Crossing, which would establish a low stress parallel route to N/NE Broadway/ N/NE Weidler Street and a direct connection between Lloyd District and the Moda Center.**

The Revised Build Alternative **under both design options** would accommodate cyclists traveling northbound on N Williams Avenue on a northbound raised and protected bicycle facility on the east side of N Williams Avenue from N Ramsay Way to the **entrance ramp** at the intersection of N Williams Avenue and N Broadway. Cyclists would transition to the existing bicycle facilities on the west side of Williams at a signalized intersection at NE Hancock Street. The Revised Build Alternative does not include the two-way cycle track on N Williams Avenue between NE Hancock Street and NE Broadway, nor does it include the two-way bicycle and pedestrian path between NE Broadway and N Ramsay Way (N Winning Way) as designed in the Build Alternative. However, even without the two-way cycle track pedestrian and cyclist movements under the Revised Build Alternative would be improved compared to the No-Build Alternative and would be similar to those design under the Build Alternative. **Options for bicycle facilities on N Williams Avenue including locations will be further evaluated during design with PBOT.**

The Revised Build Alternative would close the gap in sidewalks along the east side of N Williams Avenue between Multnomah Street and N Ramsay Way and provide protected bicycle lanes in the northbound direction As a result, pedestrian and cyclist movements under the Revised Build Alternative would be improved compared to the No-Build Alternative and similar to the design under the Build Alternative.

In the Revised Build Alternative **under both design options**, southbound cyclists would travel on a protected bicycle facility on the west side of N Vancouver Avenue from NE Hancock Street to N Broadway. These bicycle facilities on N Vancouver Avenue would enhance cyclist safety and separation from traffic compared to the No-Build and similar to the design under the Build Alternative. Southbound cyclists on N Vancouver Avenue would be subject to less traffic stress and intersection complexity due to the relocation of the I-5 **southbound exit ramp** at the intersection of N Vancouver Avenue and N Broadway under the Revised Build Alternative compared to the Build and No-Build Alternatives. **In the 2-way Ramsay Way Design Option**, a **southbound right turn for N Vancouver Avenue would be protected to eliminate conflicts with the right turn traffic. In the 2-way Wheeler Design Option, the right turn movement would not be allowed**, **similar to the No-Build Alternative**.

Under the Revised Build Alternative, the I-5 southbound exit ramp would be reconfigured from the existing ramp to N Broadway to an exit ramp that provides a connection to N Wheeler



Avenue/ N Williams Avenue/ N Ramsay Way for westbound traffic and a connection to NE Weidler Street for eastbound traffic. Crosswalks at all intersections in the study area would be provided. Crosswalks that are closed in the No-Build and that would be opened with the Revised Build Alternative include: north leg at N/NE Broadway/ N Williams Avenue (protected crossing against westbound right turns) and south (permissive crossing with Leading Pedestrian Interval) and east (running with northbound phase without conflicting turning movements) legs at N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way). Section 6.2.2.2 of the Traffic Analysis Technical report includes a list of design assumptions for pedestrian and bicycle crossings.

Under the Revised Build Alternative there would be **protected** bicycle crossings with exclusive turning lanes at the following intersections:

- Eastbound at N Weidler Street and N Vancouver Avenue in both 2-way Ramsay and 2-way Wheeler design options
- Southbound at N Broadway and N Vancouver Avenue in 2-way Ramsay Design Option
- Eastbound and Westbound at N Broadway and N Larrabee Avenue (also in No-Build Alternative)
- Westbound at N/NE Broadway and N Williams Avenue (also in the No-Build Alternative)

The current design assumption is that a traffic signal is needed at N Williams Avenue and NE Hancock Street to accommodate a diagonal bicycle crossing. Options for transitions to tie into existing bicycle facility north of N Broadway will be further evaluated during design.

The additional bicycle signals **in both design options** at the intersections of NE Weidler Street and N Vancouver Avenue (eastbound), N Williams Avenue and NE Hancock Street (northbound), **and at N Broadway and N Vancouver Avenue in the 2-way Ramsay Design Option** would create a safer and more comfortable experience for eastbound, **southbound**, and northbound cyclists traversing the cover area.

Vancouver/Flint/Hancock

The Revised Build Alternative would provide a direct multimodal NE Hancock Street extension traversing I-5 to existing N Flint Avenue as a part of the expanded highway cover. This design feature would improve east-west bicycle and pedestrian connections in the northern portion of the cover area compared to the No-Build Alternative. With the new multimodal NE Hancock Street connection, additional vehicles are anticipated on N Flint Avenue, which would increase conflicts with bicycles due to the shared facility. Similar to the N/NE Hancock/ NE Dixon connection in the Build Alternative, this route provides a multimodal connection that allows users to cross I-5 without needing to cross ramp terminal intersections.



Moda Center

The Portland Green Loop as outlined in the Central City 2035 Plan is a six-mile linear park connecting cyclists and pedestrians to destinations around the city center. The Clackamas **Crossing is an** east-west connection in the loop that would cross I-5 and connect NE 6th Avenue and NE 7th Avenue to the Broadway Bridge. The Clackamas **Crossing** is included in the Revised Build Alternative and would provide a direct connection between the Lloyd District and the Moda Center. Additional connections to the Clackamas Crossing to be confirmed during design refinement include: a connection to the southeast corner of N Weidler Street and N Williams Avenue and a connection to Garden Garage. The Revised Build Alternative would include upgraded physically separated and raised bicycle facilities with shorter intersection crossings along NE Broadway and NE Weidler Street which would be enhanced compared to the separated bicycle lanes as designed in the Build Alternative. The No-Build Alternative would also include enhanced bicycle lanes and improved pedestrian/bicycle crossings along NE Weidler Street and NE Broadway per TSP project 20113 (City of Portland 2020). N Ramsay Way does not currently have bicycle facilities. Both Revised Build design options would construct separated two-way bicycle facilities on the north side of N Ramsay Way between N/NE Wheeler Avenue/ N Williams Avenue and N Center Court Street and on the south side between N Center Court Street and N Flint Avenue. Design details of these bicycle facilities will be further evaluated during design in coordination with PBOT.

Sidewalk gap closures on N Wheeler Avenue/N Williams Avenue (formerly NE Wheeler **Avenue**) would substantially improve walking connections in the Moda Center's vicinity (see Affected Environment Section of the 2019 Active Transportation Technical Report for more information on existing sidewalk gaps in the cover area). The continued presence of gaps elsewhere, similar to the No-Build Alternative, would diminish pedestrian convenience, comfort, and safety by forcing foot traffic to either cross to the other side of a street to reach a sidewalk or walk within the roadway.

The relocation of the I-5 southbound **exit ramp from N Broadway to** the intersections of N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way and to NE Weidler Street under the Revised Build Alternative would increase the **crossing** length for northbound cyclists and pedestrians on N Williams Avenue and for eastbound cyclists and pedestrians on NE Weidler Street compared to the Build and No-Build Alternatives. However, signal operations for these intersections would be such that those conflicts would be minimized. For example, at the NE Weidler Street/ NE Victoria Avenue intersection, the northbound dual right turns would have a protected phase so conflicts with the eastbound bicycle and pedestrian crossings would be removed. Options for bicycle facilities and transition along N Williams Avenue will be further evaluated during design in coordination with PBOT. In addition, the Clackamas Crossing would provide a parallel route to NE Broadway and NE Weidler Street that avoids



conflicts with ramp terminal intersections similar to Build Alternative. The Clackamas Crossing would be particularly beneficial during events. See the Revised Transportation Safety Technical Report for the analysis of safety information.

Figure 8 Cross Section Comparison of NE Broadway Under the Build Alternative and Revised Build Alternative





Figure 9 Cross Section Comparison of NE Weidler Street Under the Build Alternative and Revised Build Alternative





Consistency with PedPDX

Overall, the highway cover included in the Revised Build Alternative would enhance pedestrian connectivity in the API by adding new connections to the street grid over Interstate 5 and expanding the sidewalk network on these new streets. New connections would include the east-west sidewalks on NE Hancock Street. The Revised Build Alternative would maintain the north-south sidewalks on N Flint Avenue. The Revised Build Alternative would also make pedestrian and bicycle improvements along NE Broadway and NE Weidler Streets, which are both identified as high priority corridors (Tier 2) in the PedPDX plan. All transportation design elements under the Revised Build Alternative are in accordance with the goals and objectives identified in PedPDX including:

- Making the Project Area more equitable and inclusive by improving connections in the Albina Neighborhood
- Creating safer pedestrian facilities that separate users from traffic
- Creating a more comfortable and connected pedestrian network on the expanded highway cover
- New and improved facilities on the expanded cover space **to** increase opportunities for walking and biking **and** promote healthier people and a healthier environment

The Revised Build Alternative would be consistent with most strategies identified in PedPDX. The expanded cover, upgrade of bicycle and pedestrian facilities along NE Broadway and NE Weidler Street, and the changes to the N Flint Avenue overcrossing, would be consistent with the following strategies outlined in PedPDX:

- Address gaps in the pedestrian priority network
- Improve visibility of pedestrians at crossings
- Improve pedestrian safety at crossings

More detailed street-design level strategies outlined in PedPDX would be addressed in a later design stage, including:

- Provide opportunities for an interesting and enjoyable pedestrian experience
- Provide adequate street lighting for pedestrians
- Manage vehicle speeds and improve driver awareness
- Work with developers, residents, and property owners to provide pedestrian improvements, address public safety and security concerns for people walking on city sidewalks
- Use education and outreach to help Portlanders keep themselves safe while walking



• Include wayfinding signage for any crosswalk closures, and ensure wayfinding signage is accessible to all users, including those who are blind or low vision, people who use lower profile mobility devices, people who are deaf and hard of hearing, and others

The relocation of the I-5 southbound exit ramp from N Broadway to the N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way intersection and to NE Weidler Street would increase traffic turning volumes at those intersections compared to the No-Build Alternative. To minimize potential conflicts at those intersections that could increase safety risk to pedestrians and cyclists crossing the I-5 ramp terminals, the Revised Build Alternative includes signal operations that would reduce turning conflicts with bicycles and pedestrians by providing protected crossings. For example, at the intersection of NE Weidler Street/ NE Victoria Avenue, the northbound right turns would be allowed only during a protected phase as compared to the No-Build conditions in which the northbound right turns yield to eastbound cyclist and pedestrians. Other traffic calming measures and modification to signal operations will be coordinated with the City during the design phase of the Project. Section 6.2.2.2 of the Traffic Analysis Supplemental Technical Report provides a list of the Revised Build Alternative protected bicycle and pedestrian crossings and pedestrian crossings with Lead Pedestrian Interval signal timing.

The Revised Build Alternative would also improve pedestrian spacing by shortening distance between pedestrian crossings at those corridors identified in PedPDX with pedestrian crossing gaps. The extension of N/ NE Hancock Avenue connecting to N Flint Avenue would create intersections with crossings improving the pedestrian crossing spacing along N Flint Avenue and N Vancouver Avenue. Also, as indicated above there are pedestrian crossings that under the No-Build Alternative are closed and under the Revised Build Alternative would be open including the north leg of the N/NE Broadway/ N Williams Avenue intersection and south and east leg of the N Wheeler Avenue/ N Williams Avenue / N Ramsay Way intersection, improving pedestrian crossing spacing along N Williams Avenue.

PedPDX presents a series of strategies and actions **to implement** improvements to the identified system deficiencies. The proposed Revised Build Alternative is consistent with the strategies and actions as presented in PedPDX. The Revised Build Alternative **will be** designed to improve **the** identified deficiencies in the cover area as defined in PedPDX and would enhance the overall pedestrian network in the cover area.

PBOT's 2022 Pedestrian Design Guide serves as a key implementation tool for the policies in PedPDX. The Revised Build Alternative would be consistent with the design requirements for pedestrian facilities as outlined in the Guide or would be coordinated with PBOT to request exceptions as needed.



6.2.2 Level of Traffic Stress (LTS) Condition Comparison

According to the ODOT Analysis Procedure Manual, LTS is a data driven, multi-variate calculation that "quantifies the perceived safety issue of being in close proximity to vehicles whether on a spacing distance or speed basis" (ODOT **2023**). Table 1 and Table 2 below, respectively, show the pedestrian and bicycle LTS scores for the Revised Build **2-way Ramsay Design Option, Revised Build 2-way Wheeler Design Option**, Build, and No-Build Alternatives at selected intersections. Figure 10 below shows the project intersections covered in Table 1 and Table 2. Pedestrian and bicycle LTS scores for the No-Build and Revised Build alternatives in selected roadway segments are shown in Table 3 and Table 4, respectively. Figure 11 shows the roadway segments included in the LTS analysis.

LTS scores for both walking and bicycling range from "1" to "4," with LTS 1 representing the best possible score (representing relatively lower-stress conditions). The tolerable stress level for biking and walking is LTS 2, and anything exceeding LTS 2 should be identified as unfavorable for biking and walking conditions. For more information on LTS scoring, see the 2019 Active Transportation Technical Report and ODOT Analysis Procedure Manual (ODOT 2020).

Overall, differences in pedestrian LTS conditions in the Revised Build Alternative **for both design options** are both improved and diminished, but not substantial. However, they are different from impacts in both the Build and No-Build Alternatives as evaluated in the 2019 Active Transportation Technical Report. The **removal** of the southbound **exit ramp leg at the intersection of N Broadway/** N Vancouver Avenue would improve LTS conditions at this intersection compared to the Build and No-Build Alternatives. Conversely, the relocation of the southbound ramp would worsen LTS conditions at the intersections of **N** Wheeler Avenue/ N Williams Avenue**/ N Ramsay Way and NE Weidler Street/ NE Victoria Avenue** compared to the Build Alternative and would have **no change in LTS as compared** to the No-Build Alternative. To **reduce** the safety risk to pedestrians crossing the I-5 ramp terminals, additional traffic calming measures and modification to signal operations will be coordinated with the City during the design phase of the Project.




Figure 10 Project Intersections



Table	1 Intersection-Level Pedestrian	LTS comparisor	า		
	Intersection	No-Build Alternative Pedestrian LTS Score	Build Alternative Pedestrian LTS Score	Revised Build Alternative Pedestrian LTS Score – 2-Way Ramsay	Revised Build Alternative Pedestrian LTS Score – 2-Way Wheeler
1	N Broadway & N Benton Avenue	3	3	3	3
2	N Broadway & N Larrabee Avenue	3	3	3	3
3	N Broadway & N Vancouver Avenue	3	3	1	1
4	N Weidler Street & N Vancouver Avenue ¹	2	2	2	2
5	N/NE Broadway & N Williams Avenue	3	3	2	2
6	N/NE Weidler Street & N Williams Avenue	1	3	2	2
7	N Williams Avenue & N/NE Hancock Street	3	1	1	1
8	N Vancouver Avenue & N Hancock Street	NA	1	1	1
9	N Hancock Street & N Flint Avenue	3	1	1	1
10	NE Broadway & NE 2 nd Avenue ¹	2	2	2	2
11	NE Weidler Street & NE 2 nd Avenue ¹	2	2	2	2
12	NE Broadway & NE Victoria Avenue ¹	2	2	2	2
13	NE Weidler Street & NE Victoria Avenue	2	1	2	2



14	Intersection N Wheeler Avenue/	No-Build Alternative Pedestrian LTS Score 3	Build Alternative Pedestrian LTS Score 1	Revised Build Alternative Pedestrian LTS Score – 2-Way Ramsay 3	Revised Build Alternative Pedestrian LTS Score – 2-Way Wheeler 3
	N W illiams Avenue/ N Ramsay Way				
15	N Ramsay Way & N Center Court Street	2	2	2	2
16	N Ramsay Way & N Flint Avenue	4	3	2	3

Source: ODOT, Spring 2018. Notes: LTS = Level of Traffic Stress NB= Northbound SB= Southbound

¹ Pedestrian LTS levels for the Build and No-Build Alternatives at **these** intersections were updated from what was **previously** reported in the 2019 Active Transportation Technical Report to **account for at least one crossing with** permissive left turns **allowed** which was not taken into account under the previous LTS analysis. The scores for these intersections were reported as LTS 1 in the 2019 Active Transportation Technical Report but are instead LTS 2. The conditions for all Alternatives would be similar at both intersections.

Most analyzed intersections operate at Bicycle LTS 1 for the Revised Build, Build, and No-Build Alternatives due to the presence of dedicated bicycle facilities, signalized traffic control, and low intersection complexity **with the exception of the unsignalized intersection of N Ramsay Way and N Flint Avenue which resulted in Bicycle LTS 2 under the No-Build Alternative.** See Table 2 below for Bicycle LTS conditions under the Revised Build Alternative compared to the LTS scores of the Build and No-Build Alternatives. Refer to Figure 10 above for a map of API intersections.

Tab	Table 2 Intersection-Level Bicycle LTS comparison									
			Build Alternative Bicycle LTS	Revised Build Alternative Bicycle LTS Score –	Revised Build Alternative Bicycle LTS Score –					
	Intersection	Score	Score	2-Way Ramsay	2-Way Wheeler					
1	N Broadway & Benton Avenue	1	1	1	1					
2	N Broadway & N Larrabee Avenue	1	1	1	1					

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	Intersection		Build Alternative Bicycle LTS Score	Revised Build Alternative Bicycle LTS Score – 2-Way Ramsay	Revised Build Alternative Bicycle LTS Score – 2-Way Wheeler
3	N Broadway & N Vancouver Avenue	1	1	1	1
4	N Weidler Street & N Vancouver Avenue	1	1	1	1
5	N/NE Broadway & N Williams Avenue	1	1	1	1
6	N/NE Weidler Street & N Williams Avenue	1	1	1	1
7	N Williams Avenue & N/NE Hancock Street	1	1	1	1
8	N Vancouver Avenue & N Hancock Street	NA	1	1	1
9	NE Broadway & NE 2nd Avenue	1	1	1	1
10	NE Weidler Street & NE 2nd Avenue	1	1	1	1
11	NE Broadway & NE Victoria Avenue	1	1	1	1
12	NE Weidler Street & NE Victoria Avenue	1	1	1*	1*
13	N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way	1	1	1	1
14	N Ramsay Way & N Center Court Street	1	1	1	1
15	N Ramsay Way & N Flint Avenue	2	1	1	1
Source	e: ODOT, Spring 2018.				

Source: ODOT, Spring 2018. Notes: LTS = Level of Traffic Stress

NB= Northbound

SB= Southbound

* Note that the Revised Build scenario would provide signalization of the northbound dual right turns, improving protection for cyclist crossing right turn lanes compared to the No-Build scenario.



Figure 11 Project Segments



	Segment	No-Build Alternative Pedestrian LTS Score	Revised Build Alternative Pedestrian LTS Score – 2-Way Ramsay	Score –
1	N Flint: Hancock to Broadway	2	2	2
2	Broadway: Flint to Wheeler	2	2	2
3	Broadway: Wheeler to Ross	2	2	2
4	Broadway: Ross to Benton	2	2	2
5	Broadway: Benton to Larabee	2	2	2
6	Vancouver: Hancock to Broadway	4	2	2
7	Vancouver: Broadway to Weidler	2	2	2
8	Vancouver: Weidler to N Center Court Street	2	2	2
9	Vancouver: N Center Court Street t Ramsay Way	02	2	2
10	Williams: Ramsay Way to bicycle lane end (SB)	2	2	2
11	Williams: Ramsay Way to Weidler	2	1	1
12	Williams: Weidler to Broadway	4	1	1
13	Williams: Broadway to Hancock	4	2	2
14	Williams: Hancock to San Rafael	2	2	2
15	Hancock: Victoria to Williams	2	2	2
16	2nd: Broadway to Weidler	2	2	2
17	Weidler: 2nd to 1st	2	2	2
18	Weidler: 1st to Victoria	2	2	2
19	Weidler: Victoria to Williams	4	4	4
20	Broadway: Williams to Victoria	2	2	2
21	Broadway: Victoria to 1st	2	2	2
22	Broadway: 1st to 2nd	2	2	2
23	Weidler: Vancouver to Wheeler	2	2	2
24	Weidler: Wheeler to Ross	2	2	2
25	Weidler: Ross to Benton	2	2	2

Table 3 Segment-Level Pedestrian LTS comparison

	Segment	No-Build Alternative Pedestrian LTS Score	Revised Build Alternative Pedestrian LTS Score – 2-Way Ramsay	Score –
26	Weidler: Benton to Larrabee	2	2	2
27	Williams: bicycle lane end to Multnomah (SB)	2	2	2
28	Williams: Multnomah to Ramsay Way (NB)	4	2	2
29	Broadway: Williams to Vancouver	4	2	2
30	Weidler: Williams to Vancouver	2	2	2
31	Broadway: Vancouver to Flint	2	2	2
32	Weidler: Ross to Flint	-	2	2
33	Hancock: Williams to Vancouver	-	2	2
34	Ramsay: Wheeler to Center	2	2	2
35	Ramsay: Center to Flint	3	1	1

Source: ODOT, Spring 2018. Notes: LTS = Level of Traffic Stress NB= Northbound SB= Southbound



	Segment	No-Build Alternative Bicycle LTS Score	Revised Build Alternative Bicycle LTS Score – 2-Way Ramsay	Revised Build Alternative Bicycle LTS Score – 2-Way Wheeler
1	N Flint: Hancock to Broadway	1	1	1
2	Broadway: Flint to Wheeler	1	1	1
3	Broadway: Wheeler to Ross	1	1	1
4	Broadway: Ross to Benton	1	1	1
5	Broadway: Benton to Larabee	1	1	1
6	Vancouver: Hancock to Broadway	1	1	1
7	Vancouver: Broadway to Weidler	1	1	1
8	Vancouver: Weidler to N Center Court Street	3	1	1
9	Vancouver: N Center Court Street to Ramsay Way	3	1	1
10	Williams: Ramsay Way to bicycle lane end (SB)	2 ¹	2	2
11	Williams: Ramsay Way to Weidler	3	1	1
12	Williams: Weidler to Broadway	3	1	1
13	Williams: Broadway to Hancock	3	1	1
14	Williams: Hancock to San Rafael	1	1	1
15	Hancock: Victoria to Williams	1	1	1
16	2nd: Broadway to Weidler	1	1	1
17	Weidler: 2nd to 1st	1	1	1
18	Weidler: 1st to Victoria	1	1	1
19	Weidler: Victoria to Williams	1	1	1
20	Broadway: Williams to Victoria	4	1	1
21	Broadway: Victoria to 1st	1	1	1
22	Broadway: 1st to 2nd	1	1	1
23	Weidler: Vancouver to Wheeler	3	2	2
24	Weidler: Wheeler to Ross	1	1	1
25	Weidler: Ross to Benton	1	1	1
26	Weidler: Benton to Larrabee	1	1	1

Table 4 Segment-Level Bicycle LTS comparison



	Segment	No-Build Alternative Bicycle LTS Score	Revised Build Alternative Bicycle LTS Score – 2-Way Ramsay	Revised Build Alternative Bicycle LTS Score – 2-Way Wheeler
27	Williams: bicycle lane end to Multnomah (SB)	4	4	4
28	Williams: Multnomah to Ramsay Way (NB)	1	1	1
29	Broadway: Williams to Vancouver	1	1	1
30	Weidler: Williams to Vancouver	1	1	1
31	Broadway: Vancouver to Flint	1	1	1
32	Weidler: Ross to Flint	-	3	3
33	Hancock: Williams to Vancouver	-	1	1
34	Ramsay: Wheeler to Center	4	3	3
35	Ramsay: Center to Flint	3	1	1

Source: ODOT, Spring 2018.

Notes: LTS = Level of Traffic Stress

¹ The No-Build Alternative scenario previously analyzed as part of the 2019 Active Transportation Technical Report was updated to reflect existing on-street parking that would remain unmodified in all scenarios.

NB= Northbound SB= Southbound

Overall, the majority of pedestrian and bicycle segment LTS conditions remain the same between the No-Build and Revised Build Alternatives, and where a difference would occur, more segments would provide improved LTS conditions. Pedestrian segment LTS conditions would improve under the Revised Build in the following segments:

• 6 Vancouver: Hancock to Broadway

- 11 Williams: Ramsay Way to Weidler
- 12 Williams: Weidler to Broadway
- 13 Williams: Broadway to Hancock
- 28 Williams: Multnomah to Ramsay Way (NB)
- 29 Broadway: Williams to Vancouver
- 35 Ramsay: Center to Flint

Bicycle segment LTS conditions would improve under the Revised Build in the following segments:

- 8 Vancouver: Weidler to N Center Court Street
- 9 Vancouver: N Center Court Street to Ramsay Way



- 11 Williams: Ramsay Way to Weidler
- 12 Williams: Weidler to Broadway
- 13 Williams: Broadway to Hancock
- 20 Broadway: Williams to Victoria
- 23 Weidler: Vancouver to Wheeler
- 34 Ramsay: Wheeler to bicycleCenter Court
- 35 Ramsay: Center to Flint

6.2.3 Route-Based Conditions Assessment

The Project team qualitatively assessed conditions along the same five primary travel routes² that were identified in the 2019 Active Transportation Technical Report based upon route directness, intersection quality, ramp terminal avoidance, separation from motor vehicle traffic, grades, and bicycle delay³. Differences in design would slightly alter some travel routes, but overall, pedestrians and cyclists under the Revised Build Alternative would utilize the same corridors as the No-Build Alternative as evaluated in the 2019 Active Transportation Technical Report. Under the Revised Build Alternative, pedestrians and cyclists would utilize the Clackamas **Crossing** used in the Build Alternative along the following east-west routes:

- Broadway Bridge to/ from Lloyd District
- Broadway Bridge to/ from Broadway/ Weidler corridor immediately east of I-5 interchange
- Steel Bridge/ Eastbank Esplanade to/ from Broadway/ Weidler corridor immediately east of I-5 interchange

Table 5 presents a detailed summary of the Revised Build Alternative's performance for each primary travel route, including color-coded cells denoting its performance relative to the primary **travel** route in the No-Build Alternative. Green cells denote improvement compared to the No-Build Alternative, while red cells show degradation compared to the No-Build Alternative. Darker colors represent more substantial differences, while lighter colors represent more minimal differences. Grey cells highlight cases where the Build and No-Build Alternatives have similar impacts. Key findings are summarized below.

³ For definitions of the scoring criteria see section 4.3.2 of the 2019 Active Transportation Technical Report



² For the five primary travel routes, see Figure 21 and Figure 22 of the 2019 Active Transportation Technical Report.

						Criteria*		
	Mode	Direction of Travel	Route Directness	Intersection Quality	Ramp Terminal Avoidance	Separation from Motor Vehicle Traffic	Grades	Bicycle Delay
Broadway Bridge to/from Williams/Vancouver corridor and Tillamook Neighborhood Greenway	Bicycling	Eastbound	Relatively direct route with minimal out-of-direction travel. Length of route = 5,500 feet. No change from the primary No-Build Route. (=)	All six study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes through one ramp terminal intersections (=)	Physical separation on Broadway and Weidler (protected bicycle lanes); delineated separation on Williams (buffered bicycle lane) (=)	Moderate uphill grade with a maximum grade of 5% on Weidler (Matching Existing). N Williams Avenue would have gradual uphill grades not exceeding 2%. (=)	The route passes through the following additional signalized intersection, compared to the No-Build route: • Hancock and Williams (-)
		Westbound	Direct route with no out-of- direction travel. Length of route = 5,000 feet. (+)	All four study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes through no ramp terminal intersections (=)	Delineated separation on Vancouver between N Hancock and N Broadway (separated/protected bicycle lane); Delineated separation on portion of Flint to be reconstructed (buffered/protected bicycle lane); physical separation on Broadway (separated/protected bicycle lane) (+)	Users would utilize new bicycle facilities along N Vancouver Avenue. Moderate downhill grades on N Vancouver Avenue with a maximum grade of 4% south of the cover and up to 5% (increase of 2%-3%) on the cover. On this route, Broadway would have moderate downhill grade of approximately 4% (matching existing conditions). (-)	No change (=)
	Walking	Eastbound	Direct route with no out-of- direction travel. Length of route = 5,540 feet. No change from the primary No-Build Route. (=)	Three of five study intersections (through which the route passes) yield PLTS scores representing less favorable conditions for the target design user (=)	Route passes through no ramp terminal intersections (=)	Physical separation (sidewalks) along street corridors (=)	Users would not encounter excessive climbing/descending beyond the total elevation difference between the Broadway Bridge and Williams/Vancouver/Tillamook (=)	N/A (criterion does not apply) (=)
		Westbound	Direct route with no out-of- direction travel. Length of route = 5,000 feet. No change from the primary No-Build Route. (=)	All study intersections (through which the route passes) yield PLTS scores representing favorable conditions for the target design user (+)	Route passes through no ramp terminal intersections (=)	Physical separation (sidewalks) along street corridors. Wider sidewalks, and improved pedestrian crossings (new markings, updated pedestrian signals) on N Vancouver Avenue (+)	Users would not encounter excessive climbing/descending beyond the total elevation difference between the Broadway Bridge and Williams/Vancouver/Tillamook (=)	N/A (criterion does not apply) (=)
Broadway Bridge to/from Lloyd		Eastbound	Relatively indirect route, with some out-of-direction travel necessary (to traverse I-5). Length of route = 3,890 feet. Difference of +320 feet. (-)	All four study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes through no ramp terminal intersections (+)	Physical separation on Broadway and Weidler (protected bicycle lanes); delineated separation on Larrabee (conventional bicycle lane); Physical separation on Ramsay Way, physical separation between Williams and 2nd (Clackamas Crossing) no separation on 2nd (neighborhood greenway); (+)	Moderate uphill and downhill grades with no excessively steep slopes; in order to access the Clackamas Crossing , users would encounter some additional climbing/descending of 5% or less (beyond the total elevation difference between the Broadway Bridge and Lloyd). (-)	The route would no longer have to pass through the following three signalized intersections: • Wheeler/Williams/Ramsa • Weidler and Victoria • Weidler and 2 nd (++)
	Bicycling	Westbound	Relatively indirect route, with some out-of-direction travel necessary (to traverse I-5). Length of route = 3,890 feet. Difference of -70 feet from the primary No- Build Route (+)	Both study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes through no ramp terminal intersections (+)	No separation on Clackamas; physical separation (Clackamas Crossing) between 2nd and Wheeler; physical separation on Ramsay; delineated separation on Larrabee (conventional bicycle lane); physical separation on Broadway (protected bicycle lane) (=)	Moderate uphill and downhill grades with no excessively steep slopes; in order to access the Clackamas Crossing , users would encounter some additional climbing/descending of 5% or less (beyond the total elevation difference between Lloyd and the Broadway Bridge). (-)	The route would no longer have to pass through the following two signalized intersections: • Wheeler/Williams/Ramsa • Weidler and 2 nd (++)

Table 5 Route-Based Conditions Assessment, Revised Build Alternative



						Criteria*		
'	Mode	Direction of Travel	Route Directness	Intersection Quality	Ramp Terminal Avoidance	Separation from Motor Vehicle Traffic	Grades	Bicycle Delay
		Eastbound	Relatively indirect route, with some out-of-direction travel necessary (to traverse I-5). Length of route = 3,890 feet. Difference of +40 feet from the primary No- Build Route. (-)	All study intersections (through which the route passes) yield PLTS scores representing favorable conditions for the target design user (+)	Route passes through no ramp terminal intersections (+)	Physical separation (sidewalks) along street corridors; physical separation (Clackamas Crossing) between Wheeler and 2 nd ; sidewalks along Broadway and Weidler would be upgraded protected bicycleway and crossing enhancements. (++)	Moderate uphill and downhill grades with no excessively steep slopes; in order to access the Clackamas Crossing , users would encounter some additional climbing/descending of 5% or less (beyond the total elevation difference between the Broadway Bridge and Lloyd). (=)	N/A (criterion does not apply) (=)
	Walking	Westbound	Relatively indirect route, with some out-of-direction travel necessary (to traverse I-5). Length of route = 3,890 feet. Difference of +40 feet from the primary No- Build Route. (-)	All study intersections (through which the route passes) yield PLTS scores representing favorable conditions for the target design user (=)	Route passes through no ramp terminal intersections (+)	Physical separation (sidewalks) along street corridors; physical separation (Clackamas Crossing) between 2nd and Wheeler ; sidewalks along Broadway and Weidler would be upgraded in tandem with implementation of planned protected bicycleway and crossing enhancements. (+)	Moderate uphill and downhill grades with no excessively steep slopes; in order to access the Clackamas Crossing , users would encounter some additional climbing/descending of 5% or less (beyond the total elevation difference between Lloyd and the Broadway Bridge). (=)	N/A (criterion does not apply) (=)
	Bicycling	Eastbound	Direct route with no out-of- direction travel. Length of route = 2,800 feet. No change from the primary No-Build Route. (=)	All six study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes through one ramp terminal intersection (=)	Physical separation on Broadway and Weidler (protected bicycle lanes). (=)	Moderate downhill and/or relatively flat grades, with no excessively steep slopes; users would not encounter excessive climbing/descending beyond the total elevation difference between the Broadway/Weidler corridor (east of I-5) and the Broadway Bridge (=)	No change (=)
Broadway Bridge to/from Broadway/Weidler corridor immediately		Westbound	Direct route with no out-of- direction travel. Length of route = 2,920 feet. No change from the primary No-Build Route. (=)	All six study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes one ramp terminal intersections (+)	Physical separation on Broadway and Weidler (protected bicycle lanes) (=)	Moderate downhill and/or relatively flat grades, with no excessively steep slopes; users would not encounter excessive climbing/descending beyond the total elevation difference between the Broadway/Weidler corridor (east of I-5) and the Broadway Bridge (=)	No change (=)
east of I-5 interchange	Walking	Eastbound	Direct route with some out- of-direction travel. Length of route = 3,375feet. Difference of +315 feet from the primary No- Build Route. (-)	Two of six study intersections (through which the route passes) yield PLTS scores representing less favorable conditions for the target design user (=)	Route passes through one ramp terminal intersection (=)	 Primary Travel Route: Physical separation (sidewalks) along street corridors; sidewalks along Broadway and Weidler could be upgraded in tandem with implementation of planned protected bicycleway and crossing enhancements. Parallel route: physical separation (Clackamas Crossing) between Wheeler and 2nd. (+) 	Moderate uphill and/or relatively flat grades with no excessively steep slopes; in order to access the Clackamas Crossing, users would encounter some additional climbing/descending of 5% or less (beyond the total elevation difference between the Broadway Bridge and the Broadway/Weidler corridor east of I-5). (-).	N/A (criterion does not apply) (=)
	vvainiig	Westbound	Direct route with some out- of-direction travel. Length of route = 3, 375 feet. Difference of +315 feet from the primary No-Build Route. (-)	Two of six study intersections (through which the route passes) yield PLTS scores representing less favorable conditions for the target design user (=)	Route passes through one ramp terminal intersection (=)	 Primary Travel Route: Physical separation (sidewalks) along street corridors; sidewalks along Broadway and Weidler could be upgraded in tandem with implementation of planned protected bicycleway and crossing enhancements. Parallel route: physical separation (Clackamas Crossing) between 2nd and Wheeler. (+) 	Moderate uphill and/or relatively flat grades with no excessively steep slopes; in order to access the Clackamas Crossing , users would encounter some additional climbing/descending of 5% or less (beyond the total elevation difference between the Broadway Bridge and the Broadway/Weidler corridor east of 1-5). (-)	N/A (criterion does not apply) (=)



						Criteria*		
	Mode	Direction of Travel	Route Directness	Intersection	Ramp Terminal	Separation from Motor Vehicle Traffic	Grades	Bicycle Delay
	Bicycling	Northbound	Direct route with no out-of- direction travel. Length of route = 7,360 feet.	Quality All four study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Avoidance Route passes through three ramp terminal intersections (-)	Physical separation between Esplanade and Williams (formerly Interstate)/Oregon intersection (shared-use path); delineated separation on Interstate and Williams (conventional bicycle lane on Interstate, bi-directional bicycle lane through Rose Quarter Transit Center, physical separation on Williams between I-5 SB exit ramp and Weidler (separated/protected bicycle lane) (+)	Moderate uphill and/or relatively flat grades with no excessively steep slopes; users would not encounter excessive climbing/descending beyond the total elevation difference between the Eastbank Esplanade and Williams/Vancouver/Tillamook (=)	The route passes through the following additional signalized intersection, compared to the No-Build route: • Hancock and Williams (-)
Steel Bridge/Eastbank Esplanade to/from Williams/Vancouver corridor and Tillamook Neighborhood Greenway	Bicycling	Southbound	Direct route with no out-of- direction travel. Length of route = 7,740 feet.	All five study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes one ramp terminal intersections (+)	Physical separation on Vancouver and Wheeler (physically separated bicycle lane north of Broadway) Combined bicycle/bus lane on Vancouver between Broadway and Weidler, buffered bicycle lane on Vancouver/Wheeler south of Broadway; delineated separation Williams (formerly Wheeler [shared lane markings north of Multnomah]; delineated separation on Williams (formerly Wheeler and Interstate [bi-directional bicycle lane through Rose Quarter Transit Center, conventional bicycle lane on Williams]); physical separation between Williams (formerly Interstate)/Oregon intersection and Esplanade (shared- use path) (+)	Moderate downhill and/or relatively flat grades with no excessively steep slopes; users would encounter moderate downhill grades on N Vancouver Avenue with a maximum grade of 4% south of the cover and up to 5% (increase of 2%-3%) on the cover. No excessive climbing/descending beyond the total elevation difference between Williams/Vancouver and the Eastbank Esplanade (-)	No Change (=)
		Northbound	Direct route with no out-of- direction travel. Length of route = 7,000 feet.	Three of four study intersections (through which the route passes) yield PLTS scores representing less favorable conditions for the target design user (=)	Route passes through three ramp terminal intersections (-)	Physical separation between Esplanade and Williams (formerly Interstate)/Oregon intersection (shared use path); physical separation (sidewalks) along street corridors; sidewalk gaps on Williams (formerly Wheeler) between Interstate and Holladay and between Multnomah and Ramsay would be connected. (+)	Moderate uphill and/or relatively flat grades with no excessively steep slopes; users would not encounter excessive climbing/descending beyond the total elevation difference between the Eastbank Esplanade and Williams/Vancouver/Tillamook (=)	N/A (criterion does not apply) (=)
	Walking	Southbound	Direct route with no out-of- direction travel. Length of route = 7,000 feet.	Three of four study intersections (through which the route passes) yield PLTS scores representing less favorable conditions for the target design user (=)	Route passes through three ramp terminal intersections (-)	Physical separation (sidewalks) along street corridors; physical separation between Esplanade and Williams (formerly Interstate)/Oregon intersection (shared-use path); sidewalk gaps on Williams (formerly Wheeler) between Interstate and Holladay and between Multnomah and Ramsay would be connected. (+)	Moderate downhill and/or relatively flat grades with no excessively steep slopes; users would not encounter excessive climbing/descending beyond the total elevation difference between Williams/Vancouver/Tillamook and the Eastbank Esplanade (=)	N/A (criterion does not apply) (=)
Steel Bridge/Eastbank Esplanade to/from Broadway/Weidler corridor immediately east of I-5 interchange	Bicycling	Northbound	Relatively indirect route with some out-of-direction travel necessary (to utilize Clackamas Crossing). Length of route = 6,350 feet. Difference of +1,170 feet from the primary No- Build Route. (-)	Both study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes through no ramp terminal intersections (=)	Physical separation between Esplanade and Williams (formerly Interstate)/Oregon intersection (shared-use path); no separation on Oregon (shared lane markings); physical separation on 1st (protected bicycle lane); delineated separation on Multnomah (buffered bicycle lane); no separation on 3rd (neighborhood greenway); physical separation on Weidler (protected bicycle lane); physical separation (Clackamas Crossing) between Williams and 2nd. (=)	Moderate uphill and/or relatively flat grades with no excessively steep slopes; in order to access the Clackamas Crossing , users would encounter some additional climbing/descending of 5% or less (beyond the total elevation difference between the Eastbank Esplanade and the Broadway/Weidler corridor east of I-5). (=)	No Change (=)



		Criteria*							
[′] Mode	Direction of Travel	Route Directness	Intersection Quality	Ramp Terminal Avoidance	Separation from Motor Vehicle Traffic	Grades	Bicycle Delay		
	Southbound	Relatively indirect route, with some out-of-direction travel necessary (in order to utilize Clackamas Crossing). Length of route = 6,150 feet. Difference of +780 feet from the primary No- Build Route. (-)	All three study intersections (through which the route passes) yield BLTS scores representing favorable conditions for the target design user (=)	Route passes through no ramp terminal intersections (=)	Physical separation on Broadway (protected bicycle lane); no separation on 2nd, Wasco, and 3rd (neighborhood greenway), delineated separation on Multnomah and Williams (formerly Wheeler and Interstate segments) (buffered bicycle lanes on Multnomah, bi-directional bicycle lane through Rose Quarter Transit Center, conventional bicycle lane on Williams [formerly Interstate]; physical separation between Williams (formerly Interstate)/Oregon intersection and Esplanade (shared-use path); physical separation (Clackamas Crossing) between 2nd and Williams. (=)	Moderate downhill, uphill and/or relatively flat grades with no excessively steep slopes; in order to access the Clackamas Crossing, users would encounter some additional climbing/descending of 5% or less beyond the total elevation difference between the Broadway/Weidler corridor (east of I-5) and the Eastbank Esplanade. (=)	No Change (=)		
	Northbound	Length of route = 4,530 feet. No change from the primary No-Build Route. (=)	N/A (route does not pass through any study intersections) (=)	Route passes through no ramp terminal intersections (=)	Physical separation between Esplanade and Williams (formerly Interstate)/Oregon intersection (shared-use path); physical separation between Esplanade and Interstate/Oregon intersection (shared use path) (=)	Moderate uphill and/or relatively flat grades with no excessively steep slopes; users would not encounter excessive climbing/descending beyond the total elevation difference between the Eastbank Esplanade and the Broadway/Weidler corridor east of I-5 (=)	N/A (criterion does not app (=)		
Walking	Southbound	Length of route = 4,530 feet. No change from the primary No-Build Route. (=)	N/A (route does not pass through any study intersections) (=)	Route passes through no ramp terminal intersections (=)	Physical separation (sidewalks) along street corridors; physical separation between Esplanade and Interstate/Oregon intersection (shared use path) (=)	Moderate downhill and/or relatively flat grades with no excessively steep slopes; users would not encounter excessive climbing/descending beyond the total elevation difference between the Broadway/Weidler corridor (east of I-5) and the Eastbank Esplanade (=)	N/A (criterion does not ap (=)		
Darker green cell Substantia improvem compared with No-Build Alternative (+++)	al improvement compared with No-Build Alternative (++)	Very light green cells: Slight improvement compared with No-Build Alternative (+)	Gray cells: Relatively similar compared with No-Build Alternative, and or criterion is not applicable (=)	Very light red cells: Slight degradation compared with No-Build Alternative (-)	Lighter red cells: Moderate degradation compared with No-Build Alternative ()	Darker red cells: Substantial degradation compared with No-Build Alternative ()			

Notes: BLTS = Bicycle Level of Traffic Stress; N/A = Not applicable; PLTS = Pedestrian Level of Traffic Stress

* Conditions are indicated by color scheme and use of the symbols +, =, and -. See descriptions of color and symbol meanings below. Assessment based on conditions experienced by people walking and bicycling via the "Primary Travel Routes," as illustrated in Figures 21 and 22 of the 2019 Active Transportation Technical Report.

Bicycle delay is a qualitative assessment comparing the number of signalized intersections between the primary build route and the primary no-build route.



Route 1: Broadway Bridge to/ from Williams/ Vancouver Corridor and Tillamook Neighborhood Greenway

Pedestrians

The Revised Build Alternative would have better route directness for westbound pedestrians than the Build Alternative and No-Build Alternative in the *Broadway Bridge to/ from Williams/ Vancouver Corridor and Tillamook Neighborhood Greenway* route because of the improved pedestrian facilities on N Vancouver Avenue between N Hancock Street and N Broadway. Eastbound pedestrians in this corridor would traverse the same number of ramp terminals as the No-Build (0) and two less than the Build Alternative (2). The Revised Build Alternative intersection quality of this route would be **similar or better** for northbound pedestrian users compared to the Build Alternative. The Revised Build Alternative would have all signal-controlled turns and would not allow right turns on red, thus reducing impacts to pedestrian crossings- Intersection quality would increase for westbound pedestrians under the Revised Build Alternative to the relocation of the southbound **exit ramp** to N Williams Avenue.

Cyclists

The Revised Build Alternative would have increased route directness for westbound bicyclers when compared to the No-Build Alternative and Build Alternatives in the *Broadway Bridge to/from Williams/Vancouver Corridor and Tillamook Neighborhood Greenway* route with because of the improved bicycle facilities on N Vancouver Avenue between N Hancock Street and N Broadway. Under the Revised Build Alternative, southbound cyclists would take the protected facilities on N Vancouver Avenue directly down to N Broadway instead of taking N Flint Avenue (under the No-Build Alternative) or the Hancock-Dixon connector (under the Build Alternative). Eastbound cyclists would have increased separation from motorists with the improved bicycle facilities on NE Weidler Street compared to the Build Alternative and similar separation as the No-Build Alternative. Cyclists would be required to traverse the same number of ramp terminals as the Build and No-Build Alternatives. Bicycle delay would be higher under the Revised Build Alternative compared to the No-Build Alternative due to the additional signal at the intersection of N Hancock Street and N Williams Avenue.

Route 2: Broadway Bridge to/ from Lloyd

Pedestrians

The overall route conditions **would improve** for pedestrians along the *Broadway Bridge to/ from Lloyd* route under the Revised Build Alternative. **The Clackamas Crossing would provide opportunities to avoid ramp terminal intersections, physical separation, and improved intersection quality. The route directness is reduced to reach the Clackamas Crossing,**



resulting in an additional 40 feet in length compared to the primary No-Build Alternative route.

Cyclists

Most route conditions for cyclists along the *Broadway Bridge to/from Lloyd* route in the Revised Build Alternative would be similar to conditions under the No-Build Alternative. The Revised Build Alternative westbound route would pass one less ramp terminal than the No-Build Alternative. The Revised Build Alternative separation from motorists would be similar to the No-Build with the updated biking facilities along NE Weidler Street and NE Broadway **and** would include complete separation **on** the Clackamas **Crossing**.

> Route 3: Broadway Bridge to/ from Broadway/ Weidler Corridor Immediately East of I-5 Interchange

Pedestrians

The overall route conditions for pedestrians under the Revised Build Alternative, which **includes** the Clackamas Bicycle and Pedestrian Bridge, would be similar to the No-Build Alternative on the *Broadway Bridge to/ from Broadway/ Weidler Corridor Immediately East of I-5 Interchange* route. Under the Revised Build Alternative, pedestrians would have similar route directness compared to the No-Build Alternative but more direct connections than the Build Alternative, which in this route, travels out of direction to the Clackamas Bicycle and Pedestrian Bridge. **The** Revised Build Alternative **primary travel routes would be similar to those of the No-Build Alternative. The parallel route using the Clackamas Crossing would not** require the eastbound pedestrian route to cross the high volume I-5 northbound **exit ramp** at NE Weidler Street and NE Victoria Avenue and would **utilize the Clackamas Crossing instead, which would provide complete separation between N Wheeler Avenue and NE 2nd Avenue.** Under the Revised Build Alternative, pedestrians walking on Weidler between the Broadway Bridge and the area east of the I-5 interchange would be required to cross the same number of ramp terminals as the No-Build Alternative (1, at the I-5 northbound **exit ramp**) and one less than the Build Alternative (2, at the I-5 southbound **entrance ramp** and northbound **exit ramp**).

Cyclists

Under the Revised Build Alternative, cyclists would take similar routing to both the Build and No-Build Alternatives, along NE Weidler Street (EB) and NE Broadway (WB). Cyclists' route directness under the Revised Build Alternative would be similar to route directness under the Build and No-Build Alternatives. Eastbound cyclists on NE Weidler Street would be required to cross the same number of ramp terminals as the No-Build Alternative and one less than the Build Alterative. Westbound cyclists on NE Broadway would be required to cross one less ramp terminal compared to both the Build Alterative and No-Build Alternative. **The parallel route using the Clackamas Crossing would provide a separated route from NE 2nd Avenue to**



NE Wheeler Avenue and would not require the crossing of interchange ramp terminals; however, it would require out of the way travel unlike the primary travel route.

Route 4: Steel Bridge/ Eastbank Esplanade to/ from Williams/ Vancouver Corridor and Tillamook Neighborhood Greenway

Pedestrians

Pedestrians under the Revised Build Alternative would have similar route directness in the *Steel Bridge/ Eastbank Esplanade to/ from Williams/ Vancouver Corridor and Tillamook Neighborhood Greenway* route to the Build and No-Build Alternatives. The Revised Build Alternative would have less motorist separation than the Build Alternative, which included a two-way bicycle and pedestrian path on N Williams Avenue between NE Ramsay Way (N Winning Way) but more motorist separation than the No-Build Alternative. The Revised Build Alternative would have all signal-controlled turns and would not allow right turns on red, thus reducing impacts to pedestrian crossings. Under the Revised Build Alternative, the route would cross an additional ramp compared to the Build and No-Build Alternatives due to the relocated southbound **exit ramp** on N Williams Avenue. Intersection quality of this route under the Revised Build Alternative would be similar to the No-Build Alternative and decreased compared to the Build Alternative.

Cyclists

The Revised Build Alternative would have less motorist separation than the Build Alternative, which included a two-way bicycle and pedestrian path on N Williams Avenue between N Ramsay Way (N Winning Way) and NE Broadway, and the two-way cycle track designed between NE Broadway and NE Hancock Street, but more bicycle separation than the No-Build Alternative due to the protected bicycle facilities designed on N Williams Avenue between the I-5 southbound and N Weidler Street. Under the Revised Build Alternative, the **relocated exit ramp** on of the I-5 southbound ramp terminal on N Williams Avenue would decrease both ramp terminal avoidance and intersection quality for northbound cyclists but increase ramp terminal avoidance for southbound cyclists. Bicycle delay **would** increase along this route compared to the Build and No-Build Alternatives with the addition of the signal at the intersection of N Hancock Street and N Williams Avenue.



Route 5: Steel Bridge/ Eastbank Esplanade to/ from Broadway/ Weidler Corridor Immediately East of I-5 Interchange

Pedestrians

Under the Revised Build Alternative, pedestrians would have similar overall route conditions along the *Steel Bridge/ Eastbank Esplanade to/ from Broadway/ Weidler Corridor Immediately East of I-5 Interchange* route as reported for the Build and No--Build Alternatives in the 2019 Active Transportation Technical Report.

Cyclists

Under the Revised Build Alternative, the assumed travel route for cyclists would remain the same as described in the 2019 Active Transportation Technical Report (westbound: NE Broadway to NE 2nd Avenue, across the Clackamas Crossing, south on NE Wheeler Avenue to N Interstate Avenue, to the Eastbank Esplanade; eastbound: Eastbank Esplanade to N Interstate Avenue to NE Wheeler Avenue, across the Clackamas Crossing, north on NE 2nd Avenue, east on NE Wheeler Avenue, across the Clackamas Crossing, north on NE 2nd Avenue, east on NE Weidler Street; see Figure 21 and Figure 22 in the 2019 report). Cyclists would have similar ramp terminal avoidance, less route directness, more separation from motorists, and similar grade along the *Steel Bridge/ Eastbank Esplanade to/ from Broadway/ Weidler Corridor Immediately East of I-5 Interchange* route to the No-Build Alternative.

6.3 INDIRECT IMPACTS

This section describes indirect impacts under the Revised Build Alternative that are different from those disclosed in the 2019 Active Transportation Technical Report including:

- By reducing intersection complexity, upgraded intersections along new or reconstructed streets on the expanded cover could improve pedestrian convenience, comfort, and safety. Collectively, these enhancements could make walking more practical and attractive. People with disabilities would also encounter fewer barriers in these areas. The expanded cover space in the Revised Build Alternative would give pedestrians and cyclists greater connectivity compared to the Build and No-Build Alternatives.
- Additional building capacity provided by the cover **would** generate more active transportation use in the cover area compared to the Build and No-Build Alternatives.

6.4 CUMULATIVE IMPACTS

The Cumulative impacts of the Revised Build Alternative would be similar to those reported in the 2019 Active Transportation Technical Report. The 2014 Metro Regional Transportation Plan (RTP) evaluated in the 2019 Active Transportation Technical Report was updated in 2018. No additional projects were added to the API in the RTP update.



Like the Build Alternative, the Revised Build Alternative would include the following:

- As identified in the List of Reasonably Foreseeable Future Actions (Appendix C of the Supplemental EA), establishment of new active transportation corridors outside of the API would spread out regional active transportation more evenly. However, existing bikeways and walkways within the API, particularly those designated as Major City Bikeways and City Walkways, would continue to fulfill prominent roles in the local and regional network due to future population and employment growth in Lloyd and Eliot Neighborhoods and given the API's proximity to Portland's Central Core.
- The conditions for walking in the area would benefit from **the addition of new pedestrian connections (Clackamas Crossing),** improved sidewalk connections and pedestrian crossings, coupled with a reduction in intersection complexity. Increased walking activity would support local and regional pedestrian mode share goals. These improvements would occur along with slightly increased grades and the loss of two crosswalk street crossings and outweigh the adverse effects of those changes.
- Because people walking and bicycling are sensitive to conditions on a more granular scale, the active transportation network's functionality and attractiveness would largely depend on design details, which are less defined at this level of analysis. Route directness, level of stress and risk, grades, delay, and other factors would collectively inform the user's perception.

6.5 CONCLUSION

The analysis from this report has shown that the Revised Build Alternative would have the following impacts:

Direct Impacts

- Change construction impacts and detour strategies during construction which would temporarily alter active transportation routes.
- Include upgraded, physically separated and raised bicycle facilities and shorter intersection crossings along NE Broadway and NE Weidler Street that benefit east-west traveling pedestrians and cyclists.
- Include upgraded, physically separated and raised bicycle facilities and shorter intersection crossings on portions of N Vancouver Avenue and N Williams Avenue that benefit north-south traveling pedestrians and cyclists.
- Provides pedestrian crossings at all intersections, with protected crossings at locations where exclusive turning lanes are provided. Crosswalks would be provided at the north leg of N/NE Broadway/ N Williams Avenue and at the south and east leg of



N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way. These crosswalks are closed under No-Build Alternative.

- Include the Clackamas Crossing which provides a physically separated crossing for pedestrians and cyclists.
- Include a N Hancock Street connection over I-5 which would increase connectivity in the northwest portion of the study area.
- Include design changes that would alter LTS conditions for both cyclists and pedestrians in the API. These impacts are both positive and negative, but not substantial. However, they are different from impacts in both the Build and No-Build Alternatives as evaluated in the 2019 Active Transportation Technical Report.

Indirect Impacts

- By reducing intersection complexity, upgraded intersections along new or reconstructed streets on the expanded cover could improve pedestrian convenience, comfort, and safety. Collectively, these enhancements could make walking more practical and attractive. Though people with disabilities are more sensitive to grade changes and complex intersections, the Project would have fewer barriers in these areas for these users. Additional building capacity provided by the cover **would** generate more active transportation use in the cover area compared to the Build and No-Build Alternatives.
- The expanded cover space under the Revised Build Alternative would give pedestrians and cyclists greater connectivity compared to the Build and No-Build Alternatives.
- Additional building capacity provided by the cover would generate more active transportation use in the cover area compared to the Build and No-Build Alternatives.

Cumulative Impacts

Major design changes in the Revised Build Alternative such as the relocation of the I-5 southbound exit ramp to N Williams Avenue and NE Weidler Street have changed route-based conditions compared to the Build and No-Build Alternatives. As a whole, route directness in the API would be similar to the No-Build Alternative.

7.0 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Mitigation measures would be the same as reported in the 2019 Active Transportation Technical report.



8.0 PREPARERS

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Appendix A: Area of Potential Impact Roll Plot



