

I-5 Marvin Road to Mounts Road PEL

PURPOSE AND NEED STATEMENT

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U.S. Department
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**Federal Highway
Administration**



**Washington State
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1 BACKGROUND

2 The *Interstate 5: Tumwater to Mounts Road Mid and Long-Range Planning Study* was conducted from 2018-2020. The corridor
3 planning study was developed for the section of I-5 between 93rd Ave SW (SR 121) in Tumwater (Exit 99) and Mounts Road near
4 DuPont (Exit 116), which experiences frequent congestion due to high traffic volumes and weaving at interchanges. Three locations
5 experience recurring congestion during peak commute periods, including locations near the Nisqually River bridges (WSDOT 2020).
6 This section of I-5 passes through the Nisqually River valley, an environmentally sensitive and important area for Endangered
7 Species Act listed steelhead, and the traditional home of the Nisqually Indian Tribe. Recommendations identified in the study's *Next*
8 *Steps* included:

- 9 ♦ Prepare for federal documentation requirements with a Planning and Environmental Linkages Study.
- 10 ♦ Work with the Nisqually Indian Tribe to analyze hydrologic study results and develop recommendations.

11 A Planning and Environmental Linkages (PEL) process was developed from 2020-2022 to refine the information provided by the
12 corridor planning study. The study area for the PEL was I-5 from Tumwater (Exit 99) to Mounts Road (Exit 116). The corridor PEL
13 identified strategies for regional congestion management, logical sections of the corridor to study further, and a strategic plan for the
14 Nisqually River bridges that considers ecosystem benefits to the Nisqually River estuary for salmon productivity and flood control.
15 The corridor PEL recommended two improvements for the Marvin Road (Exit 111) to Mounts Road (Exit 116) section—adding a lane
16 to the northbound I-5 on-ramp at the Nisqually Cutoff Road/Martin Way E interchange and adding one lane in each direction to I-5
17 from Marvin Road to Mounts Road (WSDOT 2022b).

18 This focused PEL will document a more detailed alternatives development and evaluation process for the Marvin Road (Exit 111) to
19 Mounts Road (Exit 116) section (Figure 1). After completing the focused PEL, this section will move directly into the NEPA
20 environmental documentation phase to implement the I-5 capacity and Nisqually Delta environmental habitat restoration
21 improvements.



1
2

Figure 1. Project Study Area

2 PURPOSE AND NEED

The purpose of the project is to:

- ◆ **Enhance mobility** on I-5 for passenger vehicles, freight, transit, and active modes and provide support for increased person throughput.
- ◆ Improve local and mainline I-5 **system resiliency**.
- ◆ Enable **environmental restoration and ecosystem resiliency** at the I-5 crossing of the Nisqually River Delta area.
- ◆ Support **economic vitality** through reliable freight movement and access to major employers.

The project needs related to each purpose statement are documented in Sections 2.1-2.4.

2.1 Enhance Mobility

Traffic volumes in this corridor exceed highway design capacity during peak travel periods, including weekends. From 2012 to 2019, average weekday traffic volumes on I-5 increased from 111,000 to 125,000, or an average annual increase of 1.5 percent. In 2020, daily traffic dropped to 106,000 due to travel changes from the COVID pandemic but rebounded to 119,000 in 2021. Daily traffic volumes are expected to increase along the corridor, with 2040 weekday volumes expected to be 20 to 30 percent higher than today.

Intercity Transit provides bus transit service between Olympia, Lakewood, and Tacoma, with connections to the Sounder commuter rail service into Seattle. Daily boardings for high-capacity transit — including commuter rail and express buses — in Thurston and Pierce counties are estimated between 2,500 to 4,000 (TRPC 2022). Buses experience increased traffic congestion, increased travel times, and variable schedule reliability for transit riders in the corridor. Amtrak Cascades provides passenger rail service along a parallel rail corridor to I-5. Future population and employment growth in the area indicates a need for increased transit, though light rail ridership potential is low and commuter rail may be cost prohibitive (TRPC 2022).

Upon completion of the I-5 JBLM Corridor South project, the new auxiliary/HOV lane terminates at the Mounts Road overpass (WSDOT 2021). This will create a southbound lane transition and reduction from 4 lanes to 3 lanes, causing traffic congestion to occur during the afternoon commute period and other high traffic volume periods. In the northbound direction, the uphill section from the Nisqually Delta to Mounts Road will continue to operate at or above capacity during morning commute hours. In 2022, the

1 Thurston Regional Planning Council (TRPC) received funding to examine options for multimodal high-capacity transportation (HCT)
2 to serve travelers on the I-5 corridor between central Thurston and Pierce counties (SB 2022).

3 There is a need to establish a regional active transportation connection between Thurston and Pierce counties on or adjacent to the
4 I-5 right-of-way. Bicyclists currently use the shoulder of I-5 between Exits 111 (Marvin Road) and 116 (Mounts Road) because there
5 are no existing active transportation connections on local roadways or regional trails in this area. There are no shoulders on the
6 bridges that cross the Nisqually River creating unsafe conditions for people riding bicycles in the corridor.

7 **2.2 Transportation System Resiliency**

8 WSDOT's *Strategic Plan* identifies transportation system reliance a high priority goal, emphasizing the need to prepare for climate
9 change impacts. The I-5 Nisqually bridge crossings are vulnerable to flooding as climate change causes sea level rise and increased
10 extreme flood events. There is a need to address erosion and channel migration that will progressively increase to the point of
11 jeopardizing the stability of the I-5 causeway and/or the bridge crossing. The dynamic nature of the Nisqually River between the
12 revetment walls upstream (south) of the I-5 bridge crossing is creating these conditions, posing risks to I-5, fish and wildlife habitat
13 areas, and river hydrogeomorphic processes.

14 Photo documentation of the river channel has shown substantial migration in recent years. An oxbow forming upstream of the bridge
15 crossing has moved at the rate of 35.5 feet per year between 1990 and 2022; the meander can be expected to be at the I-5
16 roadway embankment in approximately 13 years (WSDOT 2022a).

17 This channel migration has the potential to cause temporary lane reductions or closures of I-5 in one or both directions for
18 emergency repairs (WSDOT 2022b). This section of I-5 is the only substantive north-south highway route highway route in the area
19 serving regional traffic. Even short-term closures would result in long detours and significant delays affecting much of western
20 Washington. In addition to the channel migration risk, the northbound I-5 bridge over the Nisqually River, built in 1937, has a
21 Sufficiency Rating of 48 and is nearing the end of its expected service life. The bridge has substandard vertical clearance, risking
22 strikes from oversize loads which could damage overhead trusses, and undergoes regular monitoring and repair of cracks in various
23 structural elements.

2.3 Environmental Restoration and Ecosystem Resiliency

There is a need to reduce impacts of the I-5 Nisqually delta crossing to enable restoration of the natural processes and functions that build and maintain habitat for many species, including those that meet salmon recovery goals. The I-5 crossing currently impedes sediment transport and channel migration, restricts tidal flow dynamics, impacts river hydraulics and geomorphology, occupies estuarine wetlands, and generally interrupts the natural functions and processes that create and maintain habitat in the Nisqually River basin, delta estuary, and nearshore (WSDOT 2022b). The current crossing also limits the restoration potential in the Nisqually River and delta by the Nisqually Indian Tribe and other salmon recovery partners.

An improved I-5 Nisqually delta crossing is also needed to improve ecosystem resiliency. As sea level rises due to climate change, fresh/saltwater mixing extends further up-river, decreasing the available estuary habitat for salmon to adapt. Under climate change conditions, extreme river flow events are expected to become more frequent; salmon need floodplain access and off-channel habitat to find refuge from extreme flood flows (WSDOT 2022b).

2.4 Economic Vitality

The Nisqually River is an important historical fishing location for the Nisqually Indian Tribe. Continued navigability of the river for commercial fishing and other private recreation vessels is needed to maintain the economic vitality of these marine activities.

WSDOT designated I-5 as a Truck Freight Economic Corridor, recognizing it as the state's most important north-south interstate corridor for the role it plays in linking Washington's trade with the rest of the United States, Canada, Mexico and Asia via Washington Ports. I-5 also connects marine and air cargo port complexes with essential state warehouse districts, industrial lands, intermodal transportation hubs, and major population centers. More than 10 million tons of freight move through Thurston County on I-5 each year. Within the project area in Thurston County, I-5 traffic has increased 13 percent from 2012 to 2019, to 125,000 vehicles per day. Truck volumes from 2012 to 2019 also increased 13 percent to over 14,600 trucks per day (WSDOT 2021). Truck volumes on I-5 at the border between Pierce County and Thurston County are some of the highest in the state (WSDOT 2021).

The traffic increase in the study area has been influenced both by population and employment growth in the south Puget Sound region, and by increased economic activity at the state level, fostering a rapid rise in freight movement. Thurston County employment is expected to increase approximately 50 percent from 129,000 to 194,000 by 2040 (WSDOT 2022b). The growth in population and jobs will add to traffic congestion on this corridor. Tourism trips are also increasing within the corridor leading to added congestion within the project limits.

1 Maintaining I-5 access is needed for the operational viability of JBLM and the Washington State National Guard at Camp Murray,
2 both of which are secure military bases. JBLM is located on the eastern end of the project area in Pierce County and is currently the
3 largest single employer site in Washington State, with roughly 52,000 military personnel and civilian jobs on site, generating 106,000
4 off-site vehicle trips per day (SSMPC 2022). This section of I-5 is also part of the national Strategic Highway Network (STRAHNET).
5 STRAHNET is a system of public highways that are a key part of the deployment of the United States Armed forces. It provides
6 defense access, continuity, and emergency capabilities for movements of personnel and equipment in both peace time and war.

7 The Marvin Road (Exit 111) interchange provides access to Hawks Prairie Business District—an emerging freight generator and
8 logistics hub—with a major travel nexus to Port of Tacoma and rail hubs in Pierce and King counties. The area includes the planned
9 Lacey Gateway Town Center, a 200-acre Town Center site consisting of both a destination retail component and an intensely
10 developed mixed-use district with commercial, retail, and residential uses (Triway 2006). Up to 500 residential units are anticipated
11 within Gateway Town Center.

3 PROPOSED LOGICAL TERMINI AND PROJECT AREA

2 The proposed project limits for the Focused PEL are from the I-5 Marvin Road interchange (Exit 111) to the Mounts Road
3 interchange (Exit 116).

4 ♦ **South end termini:** The Marvin Road/SR 510 interchange (Exit 111) provides primary access to Yelm, eastern Thurston
5 County, and for freight traffic to/from the Hawks Prairie Business District. The Hawks Prairie Business District is over 4600
6 acres with over 1900 acres of vacant land for mixed use office, industrial, retail, and residential development.

7 ♦ **North end termini:** An approved and fully funded separate project is scheduled to construct HOV lanes from the JBLM Main
8 Gate interchange (Exit 119) to the vicinity of the Mounts Road interchange (Exit 116), beginning in 2023. HOV improvements
9 will be a continuation of the I-5 Tacoma/Pierce County HOV program, which has existing HOV lanes within the city of Tacoma
10 and funded HOV improvements from SR-16 to Mounts Road.

11 This section of I-5 is important regionally and nationally because:

12 ♦ It is the primary north-south route connecting regional and international economic centers through west coast ports.

13 ♦ It is the primary regional transportation corridor connecting Thurston County with Pierce County, classified as a T-1 freight
14 corridor with more than 10 million tons of freight moved annually.

15 ♦ It passes through the Nisqually River valley near the river's estuary, the traditional home of the Nisqually Indian Tribe and
16 habitat area for Endangered Species Act listed Steelhead Trout.

17 ♦ It is important for access and base operations at Joint Base Lewis McChord.

18 The proposed project area includes eleven bridge structures as a part of Interstate 5. Information on the northbound and southbound
19 bridges crossing the Nisqually River are shown in Table 1 below. The older northbound bridge vertical clearance does not meet
20 current design guidelines (16'-6"). The existing 15'-1" clearance meets legal height requirements for trucks, but it is at risk of damage
21 from oversize loads.

22

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Table 1. Nisqually River Bridges Characteristics

Bridge #	Bridge Name	Sufficiency Rating (0-100)	Built	Vertical Clearance	Inspection Report Issues
5/345E	Nisqually River (Northbound)	48	1937	15'-1"	Monitor channel migration, numerous cracks in steel stringers repaired and monitored
5/345W	Nisqually River (Southbound)	78.23	1967	17'-1"	4/21/2022 Nisqually River Channel Migration memo describes long-term threat to the bridges.

2

3 The southern terminus of I-5 at Marvin Road (Exit 111) is the location where recent interchange improvements were made to expand
4 capacity to support development. A growing logistics center and multiple population and commercial centers are accessible through
5 the I-5 Marvin Road interchange (Exit 111), making this a key regional destination and logical southern terminus for extending I-5
6 improvements.

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