An aerial photograph of Interstate 5 in Washington state. The highway is a multi-lane divided highway with several vehicles, including cars and large white semi-trailers. To the right of the highway, there is a weigh station area with a small blue-roofed building, orange traffic cones, and a sign that says 'WEIGH STATION'. The background shows a dense forest of evergreen trees.

# Interstate 5 Fort Lewis Weigh Station Study

Prepared by  
Washington State Department of Transportation  
Olympic Region Multimodal Planning Office  
June 2021

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# **Interstate 5 Fort Lewis Weigh Station Study**

June 2021

Study limits milepost 116.7 – 118.4

Approved by:

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John Wynands  
WSDOT Olympic Region Administrator

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Date

## Table of Contents

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Executive Summary

Chapter 1 – Introduction

Chapter 2 – Study Process

Chapter 3 – Alternatives Development

Chapter 4 – Alternatives Evaluation

Chapter 5 – Study Recommendation and Next Steps

Appendix A – Stakeholder Advisory Committee Meetings

Appendix B – Community Engagement

Appendix C – Alternatives and Cost Estimates

## Executive Summary

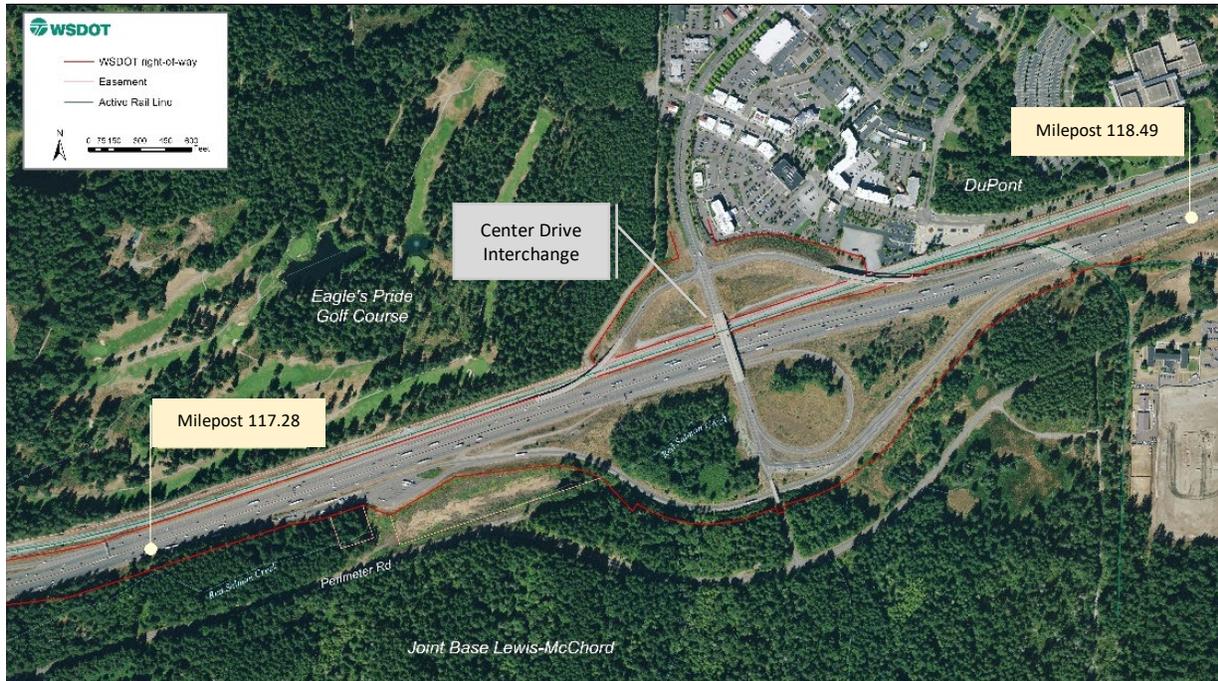
In 2020 the Washington State Department of Transportation (WSDOT) Olympic Region Multimodal Planning Office began a study of Scale House 7, the Fort Lewis Weigh & Inspection Station. The planning study was funded by WSDOT Commercial Motor Vehicle Services and focuses on identifying infrastructure preservation and improvement needs of the facility. Washington State Patrol (WSP) troopers and commercial vehicle enforcement officers' staff the weigh station, however the facility management is a joint operation between the WSP and WSDOT.

Exhibit ES-1: Location Map



The Fort Lewis Weigh Station, shown above in Exhibit ES-1, is located on northbound I-5 in Pierce County at Milepost 117.51. The weigh station is on a T-1 major freight corridor close to Joint Base Lewis-McChord (JBLM) and the City of DuPont. This high-volume segment of I-5 carries over 74 million gross truck tons a year. Exhibit ES-2 is an aerial view of the study area boundary from Milepost 117.28 to 118.49, and identifies the Fort Lewis Weigh Station and Center Drive interchange.

Exhibit ES-2: Study area



## Purpose, goals, and stakeholder participation guides the study process

In collaboration with federal, state, local and tribal partners, a purpose and needs statement was formed to guide the weigh station study process. The purpose of the study is to identify current and future operational needs of the facility and the needs of the study being a safe, effective, and efficiently functioning facility that provides services, a larger truck parking area and accommodates customer needs. The goal of the study is to understand the issues and determine the necessary improvements for the weigh station.

Three virtual stakeholder advisory committee meetings and an online public open house event were held during the 11-month study. Stakeholder members who participated in the study included the Washington State Patrol, Federal Highway Administration, Joint Base Lewis-McChord, Federal Motor Carrier Services Administration, Washington Trucking Association, Thurston Regional Planning Council, Pierce County, cities of Lakewood and DuPont, and the Nisqually Tribe. These activities helped to identify the current issues at the weigh station. The online open house, advertised in both English and Spanish engaged the public over a 2-week period to submit their observations and ideas about the weigh station. Respondents numbering just over 300 shared their concerns and comments. These activities led to the identification of issues and concerns about the weigh station and the development of improvement ideas which will support the study purpose and goals.

## Existing weigh station issues

An important factor in identifying necessary improvements to the weigh station is first understanding what the issues are. A culmination of stakeholder advisory committee and public comments collected, along with information from WSDOT Commercial Vehicle and WSP staff gives a clearer perspective of the challenges at the weigh station. These issues were identified as follows:

- There is not a designated safe and clean space with adequate lighting to conduct vehicle inspections
- Truck traffic slows to exit the weigh station off-ramp causing slowdown for trucks that use WIM to bypass the station
- The 12 parking stalls for staff and trucks at the weigh station is not enough to accommodate the number of trucks traveling the I-5 corridor
- Current administration building is too small for the number of staff needed at the station
- Weigh station signage is confusing
- Screening freight traffic traveling southbound I-5 is needed
- Drivers entering northbound I-5 after weigh station compete with traffic exiting the Center Drive interchange for DuPont or the JBLM gate
- Weigh station has two portable toilets located in the parking area and no handwashing station is available

## Recommendations and next steps

Using the information gathered during engagement with the study's stakeholder advisory committee and interested members of the public, 19 potential alternatives were identified. The study team and committee participated in a two-level alternatives screening approach. Level 1, the initial alternatives screening evaluated each concept based on whether it meets the study goals and purpose and need and is a viable option. Level 2, the detailed alternatives screening was conducted by assessing each alternative that previously met the level 1 screening criteria. An assessment was made based on planning level cost estimates, a need for additional right of way, and whether the alternative improves the functionality of the facility. Seven top scoring alternatives were recommended as the most promising and are listed in Exhibit ES-3. The recommended alternatives may be stand-alone projects or a combination of more than one alternative in a single project based on how the improvement modifies the layout of the facility.

Exhibit ES-3: Most promising alternatives

Alternative	Description	Cost *
Restroom facility	A small restroom facility and septic system could potentially be constructed in the parking area and would not require additional right of way.	\$260,000
Expand truck parking (short and long-term needs)	The alternative utilizes existing state right of way if constructed on the undeveloped land adjacent to the Center Drive Interchange. The area can potentially fit 21 truck parking spaces or more if double-sided parking was built.	\$3.2 Million

Vehicle inspection building	A new vehicle inspection building could potentially be located in the existing weigh station parking area. The alternative is a priority for WSP staff since the current facility does not have a designated area to conduct vehicle inspections.	\$3.3 Million
Clearer/additional weigh station signage	Some low costs improvements could be made to existing electronic signs to simplify and make the verbiage more consistent with other weigh stations. Concept considers installation of sign bridge to provide more clarity for truck drivers using both WIM and/or the weigh station.	\$538,600
Hazardous materials containment area	The alternative provides for a paved 100 by 200 foot paved and separated area for containment of a chemical leaking vehicle.	\$600,000
Larger administration building	The alternative is a new and larger scale house for WSP vehicle enforcement staff, which includes office space and a restroom.	\$1.5 Million
Southbound I-5 virtual weigh in motion	The alternative constructs virtual WIM technology with advance notice on southbound I-5 prior to the exit at Mounts Road. This allows for WSP to pull trucks off the highway at the off-ramp to conduct roadside inspections or direct them further to the northbound weigh station if needed.	\$4.2 Million
Lengthen weigh station off-ramp 500 feet **	Reconstruct off-ramp to depart from mainline 500 feet earlier. Assumes complete replacement of outer mainline shoulders at new taper location. Assumes replacement of ITS and WIM technology due to longer ramp as well as replacement of all ramp pavement between the new gore taper and a point on the ramp prior to the ramp split at the scales.	\$4.7 Million

\* Planning level cost estimate

\*\* Alternative was identified during review of the draft report. The cost estimate, assessment of right-of-way and functionality determined the concept is suitable to include in the most promising alternatives list.

There is currently no funding identified for these recommendations. The next steps moving forward are for WSDOT to work with partners to communicate the results of the study and identify various opportunities for funding.

## Chapter 1 – Introduction

In August of 2020, the Washington State Department of Transportation (WSDOT) Olympic Region Multimodal Office began this study of the I-5 Fort Lewis Weigh Station. The study was conducted in coordination with the Washington State Patrol (WSP). A map of the location of the Fort Lewis Weigh Station is shown in Exhibit 1-1.

Exhibit 1-1: Location Map



### 1.1 Study area context

This planning study focuses on the Fort Lewis Weigh Station located in the south Puget Sound area on northbound I-5 slightly north of the Thurston County line and into Pierce County. The study area shown in Exhibit 1-2 is between the weigh station off-ramp at Milepost 117.28 and the on-ramp re-entering I-5 at Milepost 118.49. The study area is near Joint Base Lewis-McChord (JBLM) and the City of DuPont.

Exhibit 1-2: Study area



I-5 is an important north-south freight corridor in Washington State, and is classified as a T-1 freight economic corridor, meaning it provides vital freight linkages to strategic national defense facilities, significant intermodal facilities, warehouse districts, industrial land and distribution centers, agricultural processing centers, and the National Highway Freight Network. Freight utilizing this T-1 segment of I-5 has an annual gross truck tonnage of more than 74.5 million tons per year. Northbound I-5 just across the Thurston/Pierce County line experiences high volumes of both freight and commuter traffic.

The I-5 Fort Lewis Weigh Station was built in 1969. This facility is the second busiest weigh station in Washington State (see Exhibit 1-3). Each year from 2018 to 2020 the weigh station continues to show an increase in the number of trucks traveling through this section of the I-5 corridor either bypassing or stopping at it. Although two updates were made in 1988 and 1996, the two scales and small scale house are from the original construction. The 1988 update lengthened the on-ramp and built the existing parking area that holds 12 truck parking stalls with a center raised island dividing them into two groups of six. The 1996 upgrade was the DuPont Interchange project, which built the current I-5 northbound on-ramp. Weigh-in-motion (WIM) equipment was installed in 2000, which allows trucks to continue moving while being weighed. The weigh station is a joint operation between WSP and WSDOT. The station is staffed with both WSP Troopers and Commercial Vehicle Enforcement Officers (CVEO). A photo of the Fort Lewis Weigh Station is shown in Exhibit 1-4.

Weigh stations like this support law enforcement that focus on commercial motor vehicle safety on all Interstate and State highways. The primary purpose of this station is to enforce truck weight regulations to protect roads and bridges from excessive wear and tear caused by overweight trucks. This promotes better movement of trucks and all vehicles on state highways.

Exhibit 1-3: Weigh station crossings statewide, year 2018 - 2020

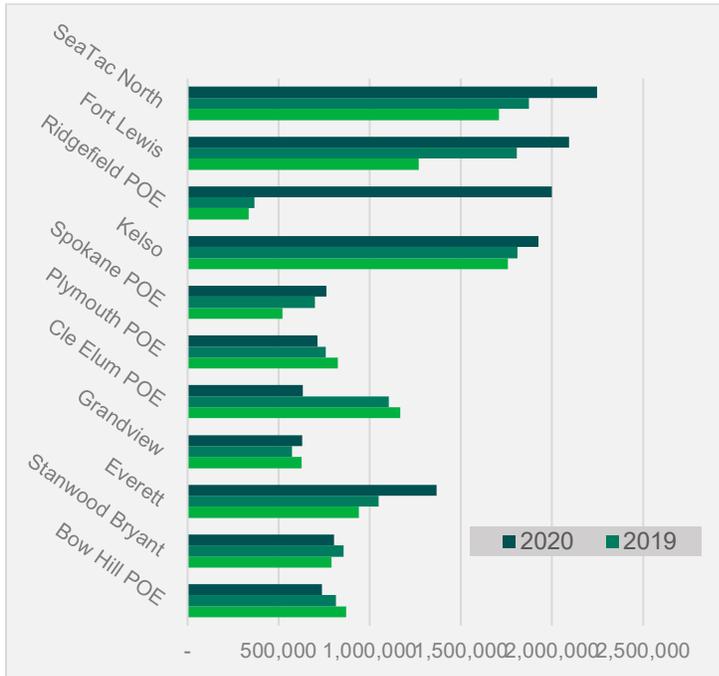


Exhibit 1-4: Photo of I-5 Fort Lewis Weigh Station



## 1.2 Study Goals and Purpose

The Washington State Commercial Vehicle Enforcement System Strategic Plan completed in 2017, is a collaboration between WSDOT and WSP which identified infrastructure preservation and improvement needs at weigh stations. The plan highlighted the I-5 Fort Lewis Weigh Station as a high priority facility

due to the large volume of trucks that use it. The goal of the plan was to better understand the issues and determine the necessary improvements for the I-5 Fort Lewis Weigh Station.

In collaboration with federal, state, local and tribal partners, this study provides a list of recommendations for operation and infrastructure improvements to the I-5 Fort Lewis Weigh Station. WSDOT and WSP may use the list of recommendations to update the list of improvements in the statewide weigh station strategic plan, propose delivery strategies, and continue to pursue funding opportunities. The funding for this study was available through weigh station preservation funds, and no funding for future design or construction has been identified at the time of this report.

### 1.3 Previous Related Plans

Looking at previous work that's been completed, the study team reviewed reports and plans to assist in developing improvement ideas for the weigh station. Background information was gathered to better understand freight movement along the I-5 corridor and identify the concerns that exist at the I-5 Fort Lewis weigh station.

#### WSDOT Corridor Sketch Summary

WSDOT's Corridor Sketch Initiative is a collaborative planning process with agency partners to identify performance gaps and select high-level strategies to address them. The study area falls within the boundary of the I-5 Tumwater to Tacoma corridor sketch. The corridor experiences some of the highest freight traffic volumes in Washington due to the proximity of major ports in Tacoma, Seattle, and Olympia. Traffic generators for the corridor include these major ports and employment centers like the state capitol and Joint Base Lewis-McChord. The summary recognizes the need to increase WSP enforcement on I-5. A mobility strategy for improving operations on I-5 encourages ports and JBLM to adjust freight movements to off-peak periods.

#### Commercial Vehicle Enforcement System Strategic Plan

The Commercial Vehicle Enforcement System Strategic Plan was created by WSDOT in partnership with WSP in 2017. The plan represents Washington's approach for continuing effective and efficient commercial vehicle enforcement to provide for safe highway operations, protect highway infrastructure and promote economic vitality of freight movement. WSDOT works with WSP in developing and maintaining a commercial vehicle enforcement system that helps the ever-increasing commercial vehicle operations by:

- Identifying high risk commercial carriers;
- Protecting basic highway infrastructure by screening for overweight commercial vehicles; and
- Maintaining a system that allows safe and legal carriers the opportunity to bypass a weigh station after successfully passing an electronic screening.

The plan conducted a commercial vehicle enforcement system needs assessment identifying the I-5 Fort Lewis Weigh Station functional but in need of repair, rehabilitation, or replacement. The strategic plan directs that a planning study be initiated and to consider moving or combining the weigh station facility with the Joint Base Lewis-McChord (JBLM) military base Logistics Center. WSDOT and WSP in the strategic plan agree freight traffic is continuing to increase, further increasing traffic and impacts to the

state's highway system. The need to upgrade weigh station facilities is important and should be addressed sooner rather than later.

### WSDOT Truck Parking Study

The WSDOT Truck Parking Study was completed in 2016 to better understand and address truck parking and rest facilities within Washington State. The key findings of the parking study identified I-5 as one of the top 3 corridors with unmet parking demand. An essential component of supply chains, 64% of freight in the state is transported by trucks. The study identified truck drivers frequently drive fatigued because of insufficient parking and do not feel safe when parked overnight. Proposed improvement opportunities included possible expansion in both public and private sector, adding real time parking availability systems, and looking for funding sources to enhance truck parking.

### WSDOT Freight System Plan, 2017 Update

The WSDOT Freight System Plan provides information on the importance of freight to the State's economy, regions, and local communities. The I-5 corridor is identified as a critical freight corridor, and an area where future freight traffic projections continue to rise. The freight plan recognizes the shortage of truck parking and recommends new weigh stations be designed to provide for additional truck parking stalls. Some areas of focus include addressing truck bottlenecks, reducing truck-related fatalities and serious injury crashes, and finding opportunities to improve truck parking.

### Regional Transportation Plan, Puget Sound Regional Council (PSRC)

The Regional Transportation Plan considers what the community's future transportation needs are and provides guidance on how to meet those needs. Approximately 68% of freight in the region is moved by truck. The efficient movement of freight and goods is a vital function in maintaining the region's quality of life, ensuring that businesses can deliver products and services to market and strengthening the economy. Future demand for freight is directly linked to regional population, employment, and economic activity.

## Chapter 2 – Study Process

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WSDOT collaborated with the Washington State Patrol to gather information and develop a process to study the I-5 Fort Lewis Weigh Station. The study process involved working with key stakeholders and the public to understand the conditions of the weigh station and determine the right solutions.

### 2.1 Data Collection

WSDOT gathered background information about the weigh station facility, including traffic and crash data and the existing conditions along the corridor. This information was collected prior to community engagement and helps provide a better understanding of the key issues that exist which will assist in developing the right improvements for the Fort Lewis Weigh Station.

#### Environmental Conditions

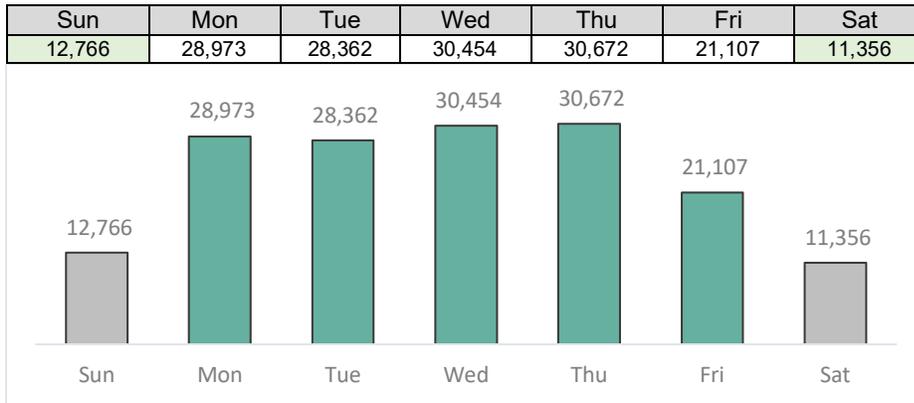
The WSDOT study team conducted a review of existing environmental conditions at the weigh station and I-5. Environmental resource information was downloaded from WSDOT's Geographic Information Systems (GIS) map tool to examine and highlight potential areas of concern. The study team reviewed data on climate impacts, fish barriers, historical bridges, stormwater treatment, wetlands, and wildlife connectivity. Red Salmon Creek runs along the south side of the weigh station and on the north side of I-5. Fish bearing exists in the creek and primarily occurs in the north region. The study area has a low vulnerability risk of climate impacts based on WSDOT's qualitative assessment. A stormwater treatment facility exists near the parking area of the weigh station. The area is considered a medium priority for stormwater retrofit, and future projects should address stormwater management. No fish barriers or wetlands were found in the study area. A more detailed review of environmental resources is conducted when a project is funded for design and construction.

Electricity reduces the impacts of greenhouse gas on the environment. As electric models of work trucks and commercial vehicles become more obtainable, the need for heavy-duty vehicle electrification sites on freight corridors is essential to improving fuel economy and reducing greenhouse gas emissions. An additional benefit of electrification at weigh stations is providing idle reduction equipment for heavy-duty vehicle parking. Truck drivers could potentially have the capability of connecting to a pedestal to access electricity eliminating truck idling. Truck stop electrification could also be used to support truck driver rest-period needs like cab heating or cooling or keeping engines warm.

#### Traffic Data

Traffic information for the study originated from two main sources: WSDOT's Commercial Vehicle Services' Legacy and Intelligent Roadside Operations Computer (IROC) electronic screening systems, and Thurston Regional Planning Council's transportation model. This section of the I-5 corridor in the vicinity of the Fort Lewis Weigh Station is a high-volume T-1 truck route and carries 74.5 million gross tons of freight a year. Over 10% of vehicles that travel I-5 in the Puget Sound region are trucks, and the amount of freight traffic traveling the corridor continues to increase. There are between 2,000 and 8,000 trucks a day that cross the Fort Lewis Weigh Station. In 2020, the Fort Lewis Weigh Station had the second highest number of commercial motor vehicle crossings in Washington. Exhibit 2-1 shows the number of trucks crossing the weigh station per month by day of the week.

Exhibit 2-1: Fort Lewis scale crossings per month by day of week



Truck traffic data displayed in Exhibit 2-2 of I-5 northbound from 2018 to 2020 shows the average hourly volume of freight traffic in a 24-hour period. The chart shows most trucks travel on Tuesdays, Wednesdays, and Thursdays between the hours of 6:00 AM and 2:00 PM. The data in Exhibit 2-3 displays an increase of approximately 1,500 trucks from 2018 to 2019. In 2020 there was only a slight increase in truck traffic, possibly due to the COVID-19 pandemic restrictions on employers that were in place at the time, yet still present was the need to keep up with the demand for essential goods like medical supplies, groceries, and paper goods.

Exhibit 2-2: I-5 northbound freight traffic by hour and weekday

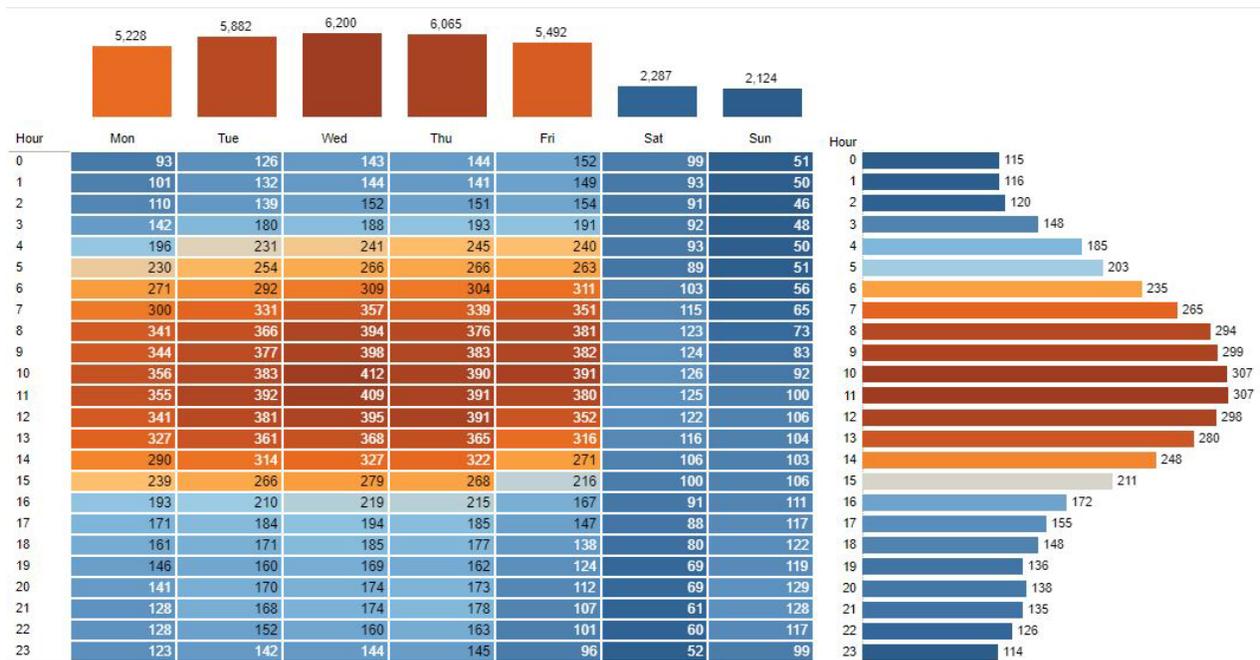
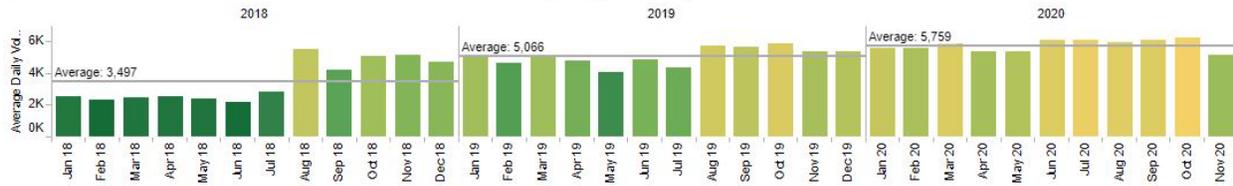


Figure 2-3 – I-5 northbound average freight traffic volumes by month



Thurston Regional Planning Council provided peak hour traffic counts on I-5 in both directions for 2018 and 2045. The data in Exhibit 2-4 represents a 4:00 to 5:00 PM peak hour truck count that is separated by the federal classification of trucks, light, medium, and heavy-duty vehicles. All other vehicles like passenger cars are listed as non-commercial vehicles. The 2045 forecast year information was established using projected employment changes and main variable of influence to model future freight activity on mainline I-5. Commercial vehicles in the medium and heavy categories that carry over 10,000 pounds gross vehicle weight (GVW) are required to use weigh stations or WIM technology. Exhibit 2-4 in the I-5 northbound direction displays freight traffic is projected to increase 25 to 39% by 2045. In the southbound I-5 direction the 2045 future freight traffic projection is 21 to 33%.

Exhibit 2-4: Afternoon Peak Hour Truck Counts

	2018	2045*	Percent Change
<b>Northbound I-5</b>			
Light (SUV)	110	160	45%
Medium (city delivery truck)	117	163	39%
Heavy (semi-truck)	338	423	25%
Non-commercial vehicles	3,412	5,062	48%
<b>Southbound I-5</b>			
Light (SUV)	210	245	17%
Medium (city delivery truck)	120	160	33%
Heavy (semi-truck)	535	650	21%
Non-commercial vehicles	4,555	5,479	20%

\*based on projected employment changes

### Crash Data

The study team conducted a review of a 5-year history of crashes on I-5 from January 2015 to December 2019, focusing on the serious injury and fatal crashes. Exhibit 2-5 gives an overall view of vehicle crashes by direction on mainline I-5. During the 5-year period there were a total of 753 crashes on I-5, with 503 crashes occurring in the northbound direction and 250 along southbound I-5.

Exhibit 2-5: I-5 mainline crash data, 2015 - 2019

Year	Total crashes	Fatality	Serious Injury	Type of crash	Contributing circumstances
<i>Northbound direction</i>					
2015 – 2019	503	1	4	Rear end, hit object, sideswipe	Follow too close, inattention, speeding
<i>Southbound direction</i>					
2015 – 2019	250	0	3	Rear end, sideswipe, hit object	Inattention, speeding, follow too close

The data shown in Exhibit 2-6 highlights truck related crashes on I-5 mainline in the northbound direction from Milepost 115 to 119. The records indicated there were a total of 47 truck related crashes, most of which were sideswipes and rear end type crashes. No fatal or serious injury crashes occurred during the 5-year period. Most common factors that contributed to these crashes included not granting right-of-way, inattention, and following too close.

Exhibit 2-6: Northbound I-5 truck related crash data, 2015 – 2019

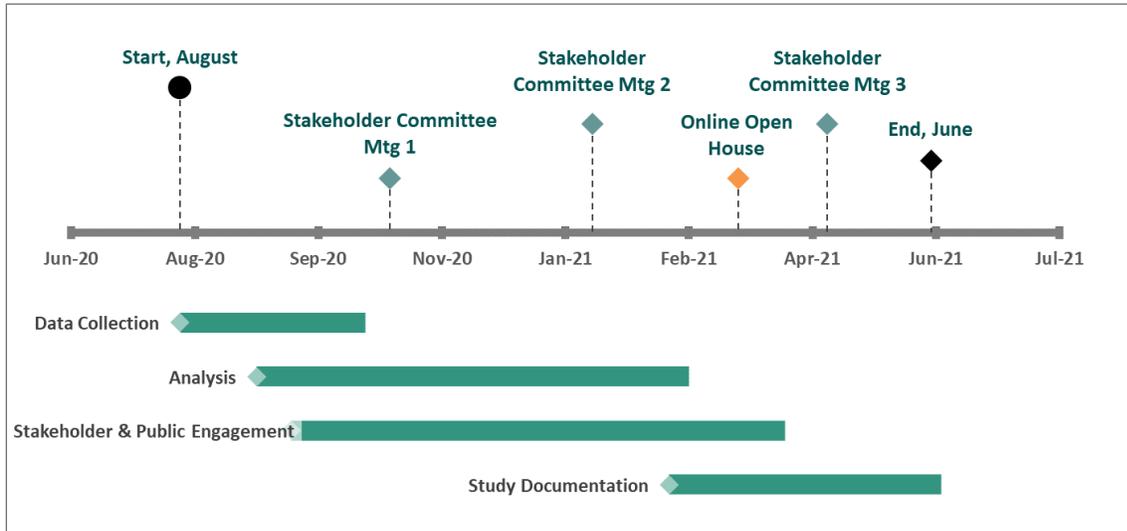
Year	PDO	Possible injury	Types of crashes			Contributing circumstances		
			Rear end crashes	Hit fixed object	Sideswipe	Inattention	Follow too close	Did not grant Right-of-Way
2015	5	0	3	1	2	3	1	0
2016	6	1	1	0	6	3	2	1
2017	9	4	6	2	5	2	5	2
2018	10	5	1	0	12	3	1	4
2019	6	1	3	1	1	2	2	2

. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

## 2.2 Community Engagement

Community engagement is an important part of the planning study process. WSDOT in collaboration with the Washington State Patrol developed a list of federal, state, tribal government, regional and local agencies, and trucking associations to participate in the weigh station planning study. A key component to the success of the study is to gather information from partners, community members and people who travel the route. This collaboration provided additional context as concepts were developed, ensuring the needs of the community were more completely identified. The study began in August 2020 (*see Exhibit 2-7*) and ended in June 2021. WSDOT study team collected background information and data about the weigh station, assembled a stakeholder advisory committee and conducted community engagement. Three stakeholder advisory committee meetings and a public online open house event were held during the study. A webpage was developed to share information about the study, advertise the open house event, and provide a way to communicate with the study management team.

Exhibit 2-7: Study timeline



### Stakeholder Advisory Committee

WSDOT assembled a stakeholder advisory committee and applied the standard planning method of 1) developing the study purpose and need, 2) analyzing existing conditions, 3) developing solutions to achieve the study goals, 4) evaluating potential solutions, and 5) developing recommendations. WSDOT’s Practical Solutions approach was also included in the process to allow for enhanced coordination with transportation providers to identify the gaps and apply least cost solutions. The organizations who were invited to participate on the stakeholder advisory committee included:

- Washington State Patrol
- Joint Base Lewis-McChord
- Federal Highways Administration
- Federal Motor Carrier Services Administration
- Washington State Dept. of Transportation
- Washington Trucking Association
- Thurston Regional Planning Council
- Pierce County
- City of DuPont
- City of Lakewood
- Nisqually Tribe

Three meetings were held with the committee to create a purpose and need statement based on the study goals, which directed the study develop a project list of recommendations for operation and infrastructure improvements to the I-5 Fort Lewis Weigh Station. The stakeholder advisory committee meeting summaries are in Appendix A of this report. The purpose and need statement provides the basis for understanding what the issues are and identifying potential improvements to address the issues in a practical and collaborative way. The purpose and need statement is, “To meet the increasing demand of trucks traveling the I-5 corridor and accommodate the volume of trucks that use the Fort Lewis Weigh Station, the study purpose is to identify current and future operational needs of the facility and develop recommended improvements. The Fort Lewis Weigh Station and staff need a safe,

effective, and efficiently functioning facility to provide commercial vehicle enforcement services and a larger truck parking area that meets the demand and accommodates truck driver needs.”

Once the study purpose and need were established, the committee identified concerns with the operations and functionality of the weigh station. During peak periods, trucks back up in the queue of the weigh station off-ramp. WSP commercial vehicle enforcement staff need a safe designated area to conduct vehicle inspections. The current scale house is not large enough for WSP staff. Additional truck parking stalls and a permanent restroom are needed. Signage for WIM and the weigh station needs improvement for clearer direction.

Stakeholder advisory committee members brainstormed a list of potential improvement ideas during the first and second committee meetings, shown in Exhibit 2-8.

Exhibit 2-8: Stakeholder committee improvement ideas list

Improvement Idea	Description
Widen weigh station off-ramp	Additional lane to allow for more vehicle storage by widening off-ramp. Helps alleviate truck traffic slowdown on mainline. To avoid back-ups, weigh station access is temporarily closed giving trucks a free bypass.
New vehicle inspection building	Currently, WSP does not have an adequate covered space to safely perform vehicle safety inspections.
Larger administration building	WSP mostly work out of their vehicles. Existing building accommodates no more than 2 staff.
Additional signage near entry and exit points for merging traffic	Weigh station signage begins 2 miles before the station. There are 11 signs, some on both sides of northbound I-5 leading up to the weigh station to inform trucks about WIM and the weigh station.
Install virtual Weigh in Motion technology in advance of southbound I-5 Mounts Road exit.	Southbound I-5 nearest weigh station is in Kelso, WA. Trucks traveling south need to be screened for safety violations and be able to either pull off at the Mounts Road exit or travel to the northbound weigh station.
Relocate weigh station to the JBLM Logistics Center at Exit 123	Location near the Logistics Center allows for northbound and southbound I-5 traffic to access the weigh station. Previous discussion between WSP and JBLM occurred about potential coordination of commercial vehicle inspections of trucks entering JBLM.
Moving the weigh station closer to Center Drive	Allows space for longer off-ramp to the weigh station. Existing administration building, scales and parking would all need to be moved.
Permanent restroom facilities	Provide a small permanent restroom facility located in or near parking area. Currently, two porta potties exist in the parking area. Explore potential partnerships to allow for food or beverages at the weigh station.
Additional truck parking stalls	Locate additional parking space. Twelve parking stalls currently exist and trucks at times park along the shoulder between the weigh station and the I-5 on-ramp. Statewide there is a truck parking shortage.

Further discussion with the committee about the improvement ideas, alternatives evaluation and screening are described in Chapters 3 and 4 of the report.

### Public Online Open House

WSDOT held an online open house event for a two-week period from March 25 to April 8 to inform the local community members, commuters and truck industry about the Fort Lewis Weigh Station study and gather feedback about what’s most important to them. The study team provided online materials in English and Spanish with information and a link to the event posted on the study’s webpage. The event was advertised with flyers displaying study information at nine rest areas to the north, south and east of the Fort Lewis Weigh Station. WSDOT Olympic Region Communications staff sent out study information through press contacts, social media, and agency freight email distribution lists. Stakeholder advisory committee members also sent out information about the open house through their freight contacts.

The content for the online open house provided an overview of the study, the purpose and need, and the list of potential improvement ideas developed by the stakeholder advisory committee. Responders were surveyed to gather information and ideas about the weigh station. The questions asked were what concerns they have about the Fort Lewis Weigh Station, what changes would they most like to see and are there any ideas they would like to suggest for improving the weigh station. Two-hundred responses from the online open house were received from the trucking industry, community members, commuters, and commercial vehicle enforcement staff. Exhibit 2-9 categorizes the priority for responders when asked what improvements they would like to see. Truck parking and a permanent restroom facility were most important to responders. These two categories received the most attention during the public online event.

Exhibit 2-9: Improvements responders want to see



Responders submitted improvement ideas for the weigh station listed in Exhibit 2-10. The public comments were reviewed by WSDOT to determine which ones meet the study purpose and need and should therefore be included in the list of alternatives being considered. Ten responder ideas met the study purpose and need and were combined with the list of improvements identified by the stakeholder

advisory group for further analysis through the alternatives evaluation and screening process. The meeting materials and comments from the public event are provided in Appendix B of the report.

Exhibit 2-10: Online open house improvement idea suggestions

Responder improvement ideas
“Comfort Station” described as a weigh station that includes a public restroom facility as well as availability of food and beverages
Improved signage notifying trucks it’s ok to bypass when weigh station is full
Signage directing trucks which scale to use
Consistent weigh station signage statewide
Second I-5 northbound WIM lane
New I-5 southbound weigh station
Hazardous material parking pad or containment area
Move the I-5 northbound weigh station south closer to Tumwater or Scatter Creek rest area
Build new I-5 northbound on-ramp under Center Drive bridge
Lengthen I-5 northbound on-ramp

## Chapter 3 Alternatives Development

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### 3.1 Key Issues

The study goals provide context for identifying the key issues surrounding the weigh station which leads to the development of improvement ideas and the final recommendations. The I-5 Fort Lewis Weigh Station study team began with the goal of working with the Washington State Patrol (WSP) to identify infrastructure and preservation needs, to accommodate the large volume of truck traffic volumes on the I-5 corridor. Information from WSP and WSDOT Commercial Vehicle Services was provided to develop the list of key issues. With help from the study stakeholder advisory committee and the public, the issues were identified.

#### The facility lacks adequate space for Commercial Vehicle Inspections

The Fort Lewis Weigh Station lacks a designated safe and clean space with adequate room to conduct vehicle inspections. Inspections are currently completed on pavement in the existing truck parking lot surrounded by parked vehicles, a porta potty and limited lighting. WSP Commercial Vehicle Enforcement staff perform commercial motor vehicle inspections to ensure trucks driving on roadways are operating safely. These inspections are conducted by the WSP at weigh stations or on the roadside where there's adequate space. Officers have a checklist of equipment and paperwork which they review during inspections that can range from checking brake systems, tire conditions, weight of the vehicle and cargo securement, and mechanical fitness to proper license, permits and insurance status.

#### Trucks back up at the weigh station off-ramp

Trucks that travel I-5 northbound exiting to the weigh station experience congestion and back up on the off-ramp. The length of the off-ramp is approximately 950 feet. During peak hour, northbound traffic congestion slowdown occurs and impacts trucks entering the right lane for WIM or to exit I-5 at the weigh station off-ramp. To avoid the safety risk of trucks backing up onto the highway, WSP enforcement staff will temporarily close the scale allowing trucks to bypass it. By letting trucks bypass the inspection station, missed opportunities occur for driver and vehicle inspections that help reduce the number and severity of vehicle collisions and other incidents. This also affects the ability to extend the life of roadway pavements and bridges and to promote safe travel of commercial vehicles by enforcing size, weight, and load laws.

#### Truck parking capacity does not meet demand

There are presently 12 designated truck parking spaces at the station. Having adequate and frequent truck parking facilities is important for truck drivers to use safe and available short and long-term parking options. A shortage of parking facilities can lead to drivers parking in unofficial areas that lack proper amenities like restrooms and garbage disposal facilities potentially causing damage to roadway shoulders. WSDOT's 2017 truck parking study identified 46% of survey respondents drive fatigued because of insufficient parking, with 59% who do not feel safe while parking overnight in Washington. While the increase in demand of transporting goods to market continues to increase, the shortage of truck parking, especially in urban corridors like I-5, will continue to grow.

### Weigh station administration building does not accommodate WSP staff

The current scale house shown in Exhibit 3-1 was built in 1969 and has a restroom and office space large enough for two people. The facility size is not an adequate space to accommodate the number of staff needed to manage the weigh station efficiently with the amount of freight traffic traveling I-5.

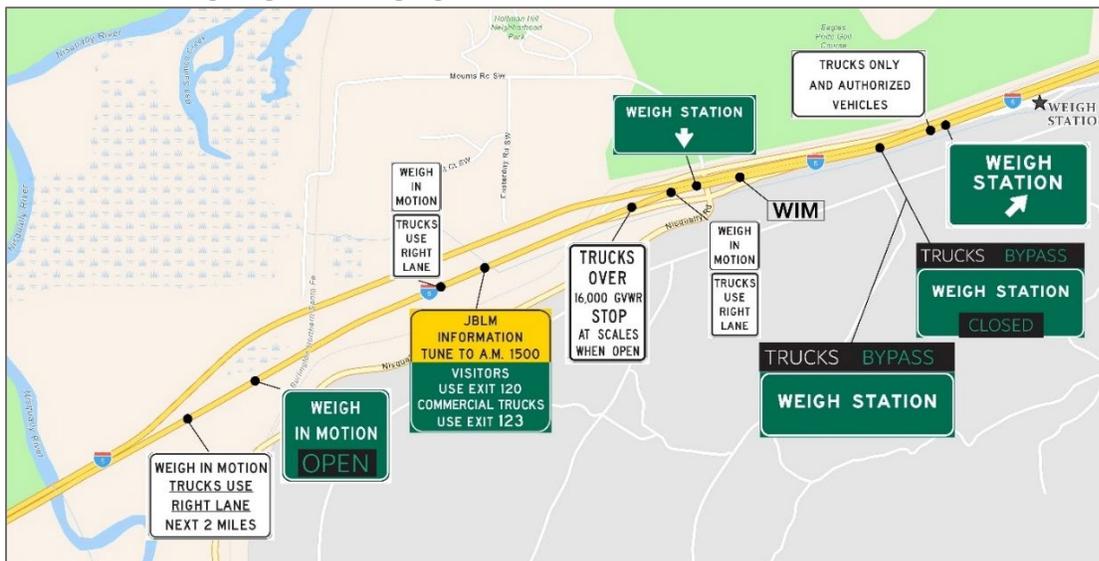
Exhibit 3-1: Fort Lewis Weigh Station Scale House 7



### Weigh station signage is confusing

Signage on I-5 for the weigh station begins two miles before the off-ramp to the station. Exhibit 3-2 displays the locations of the 11 signs that exist along northbound I-5 leading up to the weigh station informing trucks to move into the right lane for WIM and the weigh station. The current signage directing freight traffic to the weigh station may not be clear enough for all drivers to safely approach the weigh station. An additional lane is added just prior to the Mounts Road bridge with a sign on the bridge directing trucks to get into the lane for the weigh station. There is currently nothing in the first five signs that conveys the message that an additional lane is added prior to the weigh station. Improved clearer signs are needed for both WIM and weigh station users.

Exhibit 3-2: Existing weigh station signage



### Southbound truck traffic is not weighed or inspected

WIM technology has not been installed along this stretch of southbound I-5 to screen freight traffic. The lack of a southbound WIM and/or weigh stations impedes WSP's effort to prevent over-height and over-weight trucks from damaging the state's pavements and bridges, as well as reducing the number and severity of commercial motor vehicle collisions and hazardous material incidents. In addition, the existing weigh station in the southbound direction are located on the north side in Everett at milepost 188, 71 miles away, and the existing weigh station to the south side in the southbound direction is located in Kelso at milepost 55, 62 miles away.

### Weigh Station traffic merges into an exit only lane

Truck drivers re-entering the I-5 northbound on-ramp after the weigh station are in an exit only lane competing with traffic heading to DuPont or Joint Base Lewis-McChord's DuPont gate. As trucks pick up speed to merge onto I-5, they have a short distance to change lanes where vehicles are merging into the exit only lane.

### Permanent restroom facilities are needed

A single portable toilet is currently located in the parking lot of the weigh station and no handwashing station is available. Because of the large number of truck drivers who frequent the weigh station, a more permanent restroom with proper lighting, a handwash area, and trash disposal is needed.

## 3.2 Proposed Alternatives

The study team examined the key issues and began to develop improvement ideas to address them. This effort in collaboration with the stakeholder advisory committee and the public helped to identify a list of potential ideas for improving the functionality and infrastructure of the Fort Lewis weigh station.

### Vehicle inspection building

New vehicle inspection building for WSP to conduct vehicle checks. A new covered area for vehicle enforcement officers to conduct inspections in a safe and clean space will allow for a more effective and efficient way of conducting vehicle checks. The vehicle inspection building will need to include lighted inspection pits deep enough for standing under vehicles and space for equipment storage. An example of an inspection building is shown in Exhibit 3-3.

Exhibit 3-3: WSDOT weigh station vehicle inspection facility, Spokane, WA



### Trucks back up at the weigh station off-ramp

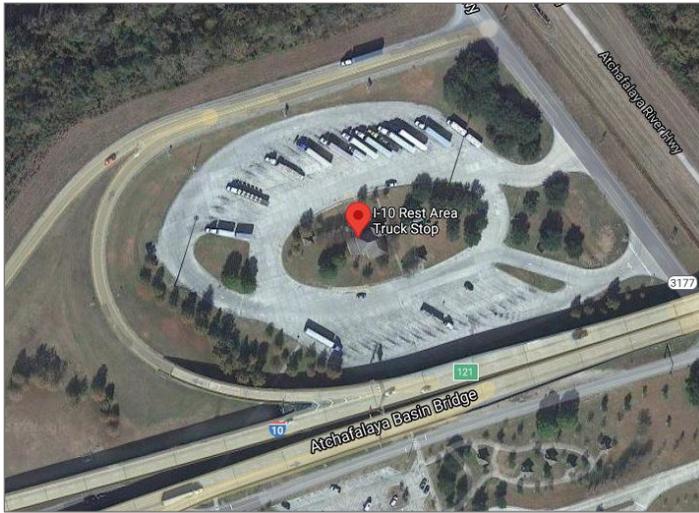
Six ideas were identified to alleviate truck traffic congestion approaching the weigh station off-ramp.

- Widen the weigh station off-ramp to 2 lanes to provide for more truck storage space and avoid traffic slowdown from occurring on I-5. The concept adds an additional lane northbound between the Mounts Road on-ramp and the weigh station off-ramp widening the off-ramp to 2 lanes.
- Extend the northbound I-5 off-ramp to the weigh station to provide truck storage space and alleviate truck slow down on I-5. The study team considered a longer off-ramp to the weigh station and developed two alternatives to achieve this, a short-braided ramp, and a long ramp. The short-braided ramp to the weigh station exits northbound I-5 immediately after the Mounts Road bridge. The Mounts Road on-ramp to I-5 would need to be reconfigured and requires the construction of multiple retaining walls and a bridge. The long ramp concept reconstructs the off-ramp to the weigh station which would depart from I-5 prior to the Tacoma Rail bridge. The concept also requires the construction of passage under the railroad track and Mounts Road.
- A second WIM lane constructed to allow more trucks to utilize the technology and bypass the Fort Lewis Weigh Station without merging into a single lane.
- Move the weigh station facility closer to Center Drive to allow for lengthening the I-5 off-ramp. There is an undeveloped area at the southwest corner of the Center Drive interchange where the weigh station parking lot, administration building and scales can be relocated to, which would allow for a slightly longer off-ramp.
- Move I-5 northbound WIM technology further south to allow trucks additional time to enter the WIM lane early prior to traffic slowdown near the weigh station off-ramp. A potential location for it could be on the upgrade from Nisqually, likely between the railroad bridges, or between the Mounts Road bridge and the northbound Mounts Road off-ramp gore. Both configurations should include a second WIM installed on the Mounts Road on-ramp to northbound I-5 for trucks coming from the local roadway network and to prevent the use of the Mounts Road or Nisqually ramps to bypass the WIM on mainline I-5.

### Truck Parking Expansion

The need to examine additional truck parking was identified as an improvement idea because of the necessity for more truck parking in Washington State. Some level of parking is needed to serve trucks during and after safety inspections. Trucks may be required to stay at the weigh station until they are able to pass inspection before re-entering I-5. An ideal site for a truck parking lot is an undeveloped area immediately north of the weigh station in the southwest corner of the Center Street Interchange. The area can accommodate approximately 21 or more truck parking stalls. Exhibit 3-4 is an example of a truck parking area located at an interchange.

Exhibit 3-4: Example of interchange parking area in Louisiana



Source: Map data ©2018 Google

### Weigh station administration building

Construction of a new administration building to accommodate approximately eight WSP officers and includes space for three offices and a restroom. A new and larger facility provides room for scale operations to be conducted, including various administrative staff duties, a kitchen area, and storage space similar to the Spokane Port of Entry weigh station shown in Exhibit 3-5.

Exhibit 3-5: WSDOT Spokane weigh station scale house



### Weigh station signage

Improve signage for trucks using the WIM lane or exiting I-5 at the weigh station. The idea of overhead signage was suggested by the study team which may improve clarity and require fewer signs along the roadside. Coordination with WSP is needed to ensure clear and consistent messaging with other weigh

stations is identified. WSDOT Olympic Region Traffic staff conducted a cursory review of existing weigh station signs to identify improvements that can be made. Concerns about the number of signs and messaging of both WIM and the weigh station were expressed by truck drivers. Some ideas from region traffic include removing the “in motion” plaque on the first sign so that the sign only informs drivers if the weigh station is open or closed. Overhead signage at the weigh station scales is beneficial in directing trucks and informing of wait times. It was also noted the WSDOT JBLM Stage 3 project that restripes and shifts the add lane to the left side to accommodate HOV should significantly reduce the signage confusion.

### Southbound I-5 freight traffic

The need to develop solutions for addressing freight traffic in the I-5 southbound direction was recognized at the beginning of the study. Two improvement ideas were identified.

- Installation of southbound I-5 virtual WIM technology would occur on southbound I-5 to allow for screening commercial vehicles. Once vehicles are screened while in motion, if they are directed to pullover, they may pull onto the roadside or make their way to northbound I-5 to access the weigh station. This approach of enforcement does not require continuous staffing or a static weigh station facility.
- Build a new I-5 southbound weigh station facility to address freight traffic traveling south. The nearest weigh station is in Kelso, which is approximately 62 miles south.

### Lengthen northbound I-5 on-ramp

Two ideas for improving the on-ramp to I-5 after the weigh station were suggested. The on-ramp enters the freeway at the exit only lane to the Steilacoom/DuPont Road and JBLM gate entrance causing traffic conflicts between trucks entering the freeway and vehicles exiting.

- Lengthening the I-5 northbound on-ramp will allow trucks enough time to merge onto I-5 northbound without having to slow for traffic getting off at Exit 119 Steilacoom/DuPont Road. Currently, traffic merges into the on-ramp which is also an exit only lane for the Joint Base Lewis McChord DuPont gate at the southern location of the military base.
- New I-5 northbound on-ramp under the Center Drive bridge. The idea addresses the existing on-ramp weave by allowing trucks to leave the weigh station and travel under the Center Drive bridge and onto I-5 northbound mainline.

### Permanent restroom facility

Two restroom facility options were identified.

- A small public restroom for weigh station users with proper lighting, a sink for handwashing, and trash receptacle. The facility could be built in the truck parking area.
- During the public engagement period, some additional comments were suggested about a restroom and area with food services available for weigh station users.

### Relocation of weigh station

There were multiple comments to relocate the Fort Lewis Weigh Station to the north approximately six miles on I-5 northbound or move the weigh station south of Tumwater.

- Relocating the I-5 northbound weigh station north to Thorne Lane, Exit 123 near the JBLM Logistics Center. The idea originated from a discussion between WSP and JBLM to employ state staff to assist with inspection of commercial vehicles heading onto the base. A new weigh station facility at Thorne Lane may provide improved access and possibly address freight traveling both the northbound and southbound directions. This location would allow for needed expansion including truck parking and improved weigh station access.
- Relocate the I-5 northbound weigh station to an area south of Tumwater to alleviate traffic backup occurring at the current weigh station in Nisqually. Two possible locations may be found in the vicinity of Scatter Creek directly opposite the southbound Maytown rest area or in a location between the Maytown interchange and the Aldrich Road bridge. These locations both appear to have impacts to properties and local roadways.

### Hazardous Materials Containment Area

A designated containment area for vehicles carrying hazardous materials was suggested during the study's public comment period. Bow Hill and Ridgefield weigh stations currently have a 100 by 200-foot designated area that is paved and positioned to the side for leaking trucks or fuel spills. WSP is interested in having a similar area constructed at the Fort Lewis Weigh Station.

The broad list of improvement ideas was developed to achieve the study goals and purpose and need with the help of the study team, the Stakeholder Advisory Committee, and the public. These ideas are further developed and evaluated in Chapter 4.

## Chapter 4 Alternatives Evaluation

This chapter provides a summary of the process used to evaluate and screen the proposed improvement ideas. Once the list of ideas was established, these study alternatives were further developed and evaluated in collaboration with the stakeholder advisory committee.

### 4.1 Alternatives and criteria development

There are three screening criteria that were identified for evaluation of the Fort Lewis weigh station. Following the development of various study alternatives, the study team worked with the stakeholder advisory committee to brainstorm screening criteria to use in evaluating the effectiveness of each alternative. The screening criteria included:

- **Cost** – Planning level cost estimates were identified for each of the alternatives, more detailed information is found in Appendix C. In addition to the cost for design, right-of-way and construction, a separate cost estimate for maintenance was provided for each alternative. The estimated maintenance cost was developed using the replacement project cost converted into a yearly cost using durations of 10 years for pavement, 20 years for structures and 75 years for bridges.
- **Right-of-way impacts** – An assessment of the amount of right-of-way impacts for each alternative. The preferred alternative should strive to minimize right-of-way impacts.
- **Functionality** – Determination of how the facility operates is based on whether the alternative is a need, a want, or a desire. A need is defined as something that is required, necessary and a person can't live without it; a want is not needed but will make it better; and a desire is a strong wish for something.

A point rating scale in Exhibit 4-1 was developed to assess performance measures and desired outcomes for the list of alternatives. The total number of points an alternative could receive was 75 points.

Exhibit 4-1: Performance measures

Study goal	Performance measures	Desired outcome
Cost for design/ construction and maintenance	<ul style="list-style-type: none"> <li>&lt; \$1 million = 25 points</li> <li>\$1 - \$5 million = 20 points</li> <li>\$5 - \$10 million = 10 points</li> <li>&gt; \$10 million = 5 points</li> </ul>	Consider least cost solutions and assessment of benefit-cost shares
Right-of-way impacts	<ul style="list-style-type: none"> <li>No right-of-way needed = 25 points</li> <li>Some right-of-way needed = 15 points</li> <li>Significant right-of-way needed = 5 points</li> </ul>	Minimize the need for additional right-of-way
Functionality of facility	<ul style="list-style-type: none"> <li>Need = 25 points</li> <li>Want = 15 points</li> <li>Desire = 5 points</li> </ul>	Ability to manage current and future volume of commercial vehicle traffic and necessary services

## 4.2 Alternatives evaluation and results

The primary purpose of alternatives evaluation and screening is to narrow the large number of options so that the most promising ones are carried forward. This evaluation and alternatives screening process (see Exhibit 4-2) relies heavily on readily available information and a high-level assessment which is conducted in a two-level screening approach. The list of alternatives which were developed with the stakeholder advisory committee and the public were submitted through Level 1 screening and the ones that survived were advanced to Level 2 screening for a more detailed evaluation. Level 2 screening is a qualitative assessment of each alternative using the three criteria and assigning a point system. The study team conducted a preliminary alternatives screening followed with a discussion and final recommendations by the stakeholder advisory committee.

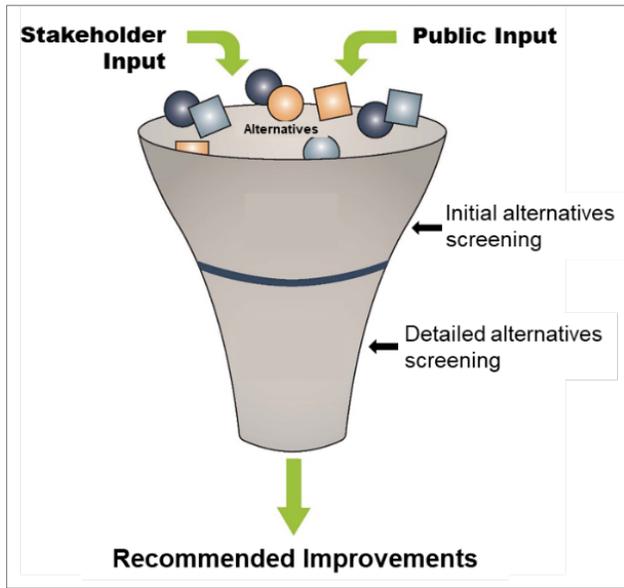
### Level 1 – Initial alternatives screening

The initial alternatives screening method is the first level of assessment the study team applied to each alternative to determine if it meets the study purpose, need and goals. In addition, the alternative must be a viable option with no unavoidable impacts causing it to be extremely difficult to implement. The study purpose and need is,

“To meet the increasing demand of trucks traveling the I-5 corridor and accommodate the volume of trucks that use the Fort Lewis Weigh Station, the study purpose is identify current and future operational needs of the facility and develop recommended improvements. The Fort Lewis weigh station and staff need a safe, effective, and efficiently functioning facility to provide commercial vehicle enforcement services and a larger truck parking area that meets the demand and accommodates truck driver needs.”

One brainstormed alternative to pursue private 3<sup>rd</sup> party partnership opportunities did not move forward into the Level 2 detailed alternatives screening. The alternative was not carried forward because commercial operations allowed within the right-of-way limits of the Interstate Highway System are solely vending machines operated by the State Department of Blind Services (see 23 CFR 752.8 and 23 USC 111).

Exhibit 4-2: Alternatives screening process



**Level 2 – Detailed alternatives screening**

The detailed alternatives screening process uses cost, right-of-way impacts and improves functionality as criteria to evaluate each of the proposed alternatives.

An assessment was conducted of each alternative to determine whether the alternative has sufficient merit to move forward as a recommendation or should be eliminated based on a fatal flaw. Each alternative was evaluated using a performance rating system with points earned for each of the three screening criteria. There were 7 top scoring alternatives that are listed as most promising in Exhibit 4-3. These alternatives are necessary for improving the operation of the weigh station and do not require additional right-of-way.

Exhibit 4-3: Most promising alternatives

ALTERNATIVES	Planning level cost estimate	Right-of-Way Needs	Functionality	Total Score
Restroom facility	Project - \$260,000 Maintenance - \$5,000	None	Need	75
	A small restroom facility and septic system could potentially be constructed in the parking area and would not require additional right-of-way.			
Expand truck parking (short and long-term needs)	Project - \$3.2 Million Maintenance - \$8,000	None	Need	70
	The alternative utilizes existing state right-of-way if constructed on the undeveloped land adjacent to the Center Drive interchange. The area can potentially fit 21 truck parking spaces or potentially more if double-sided parking was built. Additional detail about the alternative is in Appendix C.			

Vehicle inspection building	Project - \$3.3 Million Maintenance - \$10,000	None	Need	70
	A new vehicle inspection building could potentially be located in the existing weigh station parking area. The alternative is a priority for WSP staff since the current facility does not have a designated area to conduct vehicle inspections.			
Clearer/Additional weigh station signage	Project - \$538,600 Maintenance - \$1,000	None	Want	65
	Some low costs improvements to existing electronic signs to simplify and make the verbiage more consistent with other weigh stations. Concept considers installation of sign bridge to provide more clarity for truck drivers using both WIM and/or the weigh station.			
Hazardous materials containment area	Project - \$600,000 Maintenance (only as needed)	None	Want	65
	The alternative provides for a 100' by 200' paved and separated area for containment of a chemical leaking vehicle.			
Larger administration building	Project - \$1.5 Million Maintenance - \$5,000	None	Want	60
	The alternative is a new and larger scale house for WSP vehicle enforcement staff, which includes office space and a restroom.			
Southbound I-5 virtual WIM	Project - \$4.1 Million Maintenance - \$5,000	None	Want	60
	The alternative constructs virtual WIM technology with advance notice on southbound I-5 prior to the exit at Mounts Road. This allows for WSP to pull trucks off the highway at the off-ramp to conduct roadside inspections or direct them further to the northbound weigh station.			
Lengthen weigh station off-ramp 500 feet **	Project - \$4.7 Million Maintenance - \$5,700	Some	Need	60
	Reconstruct off-ramp to depart from mainline 500 feet earlier. Assumes complete replacement of outer mainline shoulders at new taper location. Assumes replacement of ITS and WIM technology due to longer ramp as well as replacement of all ramp pavement between the new gore taper and a point on the ramp prior to the ramp split at the scales.			

\*\* Alternative was identified during review of the draft report. The cost estimate, assessment of right-of-way and functionality determined the concept is suitable to include in the most promising alternatives list.

The next grouping of alternatives received lower scores and are considered least promising. There are 9 alternatives in this category which are displayed in Exhibit 4-4. The proposed alternatives received low scores during the evaluation due to either high cost, the need to acquire right-of-way, and is more a desire, or even a combination of multiple criteria.

Exhibit 4-4: Lower scored alternatives

ALTERNATIVES	Planning level cost estimate	Right-of-Way Needs	Functionality	Total Score
Restroom w/ food services	Project - \$260,000 Maintenance - \$5,000	None	Desire	55
	The alternative includes the construction of a public restroom facility with food services available to weigh station users. The challenge with the option to include food services is that the only commercial operations allowed within the right-of-way limits of the Interstate Highway System are vending machines that are run by the State's Dept. of Blind Services, see 23 CFR 752.5(g) and 752.8I(5). Also, 23 U.S.C. 111(c), which provides guidance on the statutory limitation of commercialization with the Interstate right-of-way.			
Move WIM further south on I-5 northbound	Project - \$909,000 Maintenance - \$5,000	None	Desire	55
	The alternative removes the WIM from where it's currently located, moving it to either between the railroad bridges in Nisqually or between the Mounts Road off-ramp gore and the Mounts Road bridge. There will need to be a second WIM installed on the Mounts Road on-ramp to northbound I-5 to cover trucks coming from the local roadway network, and to prevent use of the Mounts Road or Nisqually ramps to bypass the WIM on mainline I-5. Appendix C contains additional information about cost and the potential locations.			
2-lane weigh station off-ramp	Project - \$4.2 Million Maintenance - \$2,300	Some needed	Want	50
	The alternative creates an auxiliary lane between Mounts Road off-ramp and the current weigh station. This concept would require some right-of-way. A second lane off-ramp would allow for additional truck capacity however, the length of the off-ramp will still require trucks to begin slowing down while on mainline.			
Move weigh station closer to Center Drive	Project - \$6.05 Million Maintenance - \$8,400	None	Desire	40
	The alternative moves the weigh station northward and along the existing location to increase available storage of the off-ramp. The existing building and scales will be removed, and new structures will be built several hundred feet to the north along existing pavement. The challenge will be finding an area for vehicle parking.			
Lengthen weigh station off-ramp - Long ramp	Project - \$45.8 Million Maintenance - \$18,100	Significant right-of-way needs	Need	35
	The alternative creates a longer off-ramp to the northbound I-5 weigh station. The long ramp is primarily grading and paving and will require 2 new bridges and effectively closed-abutment tunnels located under Mounts Road and the railroad. More information about the alternative is in Appendix C.			
Lengthen weigh station off-ramp – Short ramp	Project - \$50 Million Maintenance - \$15,000	Some needed	Desire	25
	The alternative would be an urban braid design, resulting in a new high multiple long span bridge for the on-ramp to I-5. The alternative involves construction of multiple retaining walls like the I-5 southbound on-ramp from Center Drive. A slip ramp will be provided from Mounts Road to the weigh station. Additional easement may be needed to accommodate the weigh station ramp and additional drainage. More information about the alternative is in Appendix C.			

Build new southbound I-5 weigh station	Project - \$10 Million Maintenance - \$8,400	Significant right-of-way needs	Desire	20
	The alternative is a new weigh station located on southbound I-5. This alternative would require significant amount of right-of-way to be acquired for the weigh station.			
Move weigh station to Tumwater or Scatter Creek rest area	Project - \$10 Million Maintenance - \$8,400	Significant right-of-way needs	Desire	20
	The alternative involves relocating the existing weigh station to an area of northbound I-5 south of Tumwater near the Scatter Creek safety rest area. There are two ideal areas where a new weigh station could be located. Traveling northward from Scatter Creek, the primary location would be directly opposite the southbound Maytown rest area. This location may require two to six residential relocations and possible removal or reconstruction of county roadways, primarily Peterson Rd SW, but is largely undeveloped and would allow for plenty of deceleration and acceleration lengths between the Scatter Creek on-ramp and the Maytown off-ramp, in addition to adequate site size. The secondary location is between the Maytown interchange and the Aldrich Road bridge. This location would appear to impact a farm and a residence and would remove the majority of Case Extension Road SW.			
Move weigh station closer to JBLM Logistics Center	Project - \$25 Million Maintenance - \$8,400	Significant right-of-way needs	Desire	15
	The alternative moves the existing weigh station location north to Exit 123, the Thorne Lane/JBLM Logistics Center gate. The alternative would require JBLM approval to lease federal land. The original concept for this alternative was a better location for the weigh station and the idea for WSP to assist Department of Defense with inspection of commercial vehicles entering the military base. This concept would require substantial upgrade to the JBLM gate and security fencing between the weigh station and the Logistics Center. The alternative also requires potential revisions to Murray Road. Some challenges with the alternative are the Department of Defense staff only can conduct inspections of vehicles entering JBLM. JBLM most likely would require the state to pay the cost to upgrade the military gate, a cost of \$15 million dollars, which was added to the estimated project cost for this alternative.			

**Alternatives eliminated**

Three alternatives were eliminated from the list for safety and fatal flaws.

- Add a 2<sup>nd</sup> I-5 northbound WIM lane. The alternative presents safety challenges if trucks in the inside WIM lane are notified to exit the freeway at the weigh station. The conflict occurs with trucks in the outside and inside WIM lanes.
- Lengthen the I-5 northbound on-ramp after the weigh station. The alternative conflicts with the current JBLM Stage 3 construction project which reconfigures the Steilacoom/DuPont Road off-ramp into a collector distributor splitting into two following the mainline gore; one ramp will roughly follow the existing alignment providing access to the base, while the other ramp provides access to the relocated Steilacoom/DuPont Road.

- Realign the I-5 northbound on-ramp under the Center Drive bridge. The alternative would require reconstruction of the Center Drive interchange and conflicts with the current JBLM Stage 3 construction project.

The outcome of the alternatives evaluation and screening process is a list of alternatives which have the most potential to address the current and future needs of the weigh station.

## Chapter 5 Recommendations and Next Steps

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This chapter identifies the recommended alternatives for the study. The study team in collaboration with the stakeholder advisory committee reviewed available data, discussed the issues of the weigh station facility and brainstormed concepts for improving the operations. Local community members, commuters who travel this section of the corridor, and weigh station users provided ideas and comments to aid in the development of improvement concepts for the weigh station.

### 5.1 Recommended alternatives

Through the planning study process the following list of alternatives, found to be the most promising ones, were recommended for advancement.

- New permanent public restroom facility
- Expanded truck parking in undeveloped cloverleaf area
- New vehicle inspection building
- Clearer signage for weigh in motion and weigh station
- Hazardous materials separate containment area
- New larger administration building
- Southbound I-5 virtual weigh in motion
- Lengthen weigh station off-ramp 500 feet

### 5.2 Next steps

The next steps will be to pursue funding to implement the list of recommended alternatives. The recommended alternatives may be a stand-alone project or a combination of more than one alternative in a single project.