

## 3.14 Transportation

Transportation plays an important role in building and operating any new development project. During construction and operation, moving materials and workers to and from a project site could affect transportation infrastructure and travel patterns and efficiency.

### Has any new information been developed since the Draft EIS?

Since the Draft EIS was issued, modifications to project design have changed the proposed site access options for the Aberdeen Log Yard Alternative during project operations to be limited to East Heron Street and East Terminal Way. Truck volumes for both build alternatives have been modified to reflect casting basin design changes. Employee estimates have also been revised to reflect more current estimates of casting basin construction and operation needs.

### What are the current transportation and traffic conditions in the study area?

#### CTC Facility

The area surrounding the CTC facility is industrial in character, with large trucks and heavy equipment operating throughout the area on most days. There are two main routes to and from the CTC facility—East Portland Avenue to East 11th Street and Port of Tacoma Road. Both routes have direct access to I-5. Because the facility is already constructed and is routinely used for industrial activities, including building pontoons, use of the CTC facility would not alter the character of the transportation environment in the site vicinity. The use of the site would be consistent with its permitted land use, and the net difference in traffic at the site compared to typical business operations is expected to be negligible.

#### Grays Harbor Build Alternatives

The Port of Grays Harbor is an industrial area with an established rail loop among the port's various properties in Hoquiam, Aberdeen, and surrounding communities. Freight loads commonly include grain, lumber, logs, and chemicals for pulp and paper mills. Aberdeen and Hoquiam are served by US 12, US 101, and SR 109. These one- and two-lane roads within the study area are designated haul routes.

For both Grays Harbor build alternatives, the transportation study area encompasses the routes that heavy trucks would travel carrying materials to and from each site (Exhibit 3.14-1). Some segments of these haul routes are shown in different colors in Exhibit 3.14-1 because

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#### What is the Transportation Technical Memorandum?

This section was derived from the Transportation Technical Memorandum, Appendix P, which details the existing study area transportation characteristics, the transportation analysis, and project effects.

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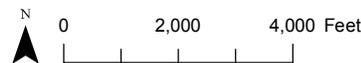


- Proposed project haul route common to both project sites
- Proposed project haul route: Aberdeen Log Yard Alternative only
- Proposed project haul route: Anderson & Middleton Alternative only
- Build Alternative Site
- Existing CTC facility
- City limits

Source: Grays Harbor County (2006) GIS Data (Waterbody and Street). Horizontal datum for all layers is State Plane Washington South NAD 83; vertical datum for layers is NAVD88.

### Exhibit 3.14-1. Potential Project Haul Routes

SR 520 Pontoon Construction Project



certain segments would be used exclusively for each alternative, although most of the routes would be used for either alternative.

Truck trips to and from either site would originate primarily from the east, given the location of many of the local material and disposal sites (see Exhibit 3.2-7 in Section 3.2, Geology and Soils). However, some trips may originate from the north because there is a material (such as soil for fill) site on the Quinault Indian Reservation that could be used. The performance and quality of transportation systems are represented by a LOS measure, which rates congestion levels based on traffic delays.

To establish current traffic conditions, WSDOT determined current LOS for intersections in Hoquiam and Aberdeen by using the *Highway Capacity Manual* methodology published by the Transportation Research Board (TRB 2000) and shown in Exhibit 3.14-2. Along the proposed truck haul routes intersections currently operate at acceptable levels of service (LOS D or better).

#### EXHIBIT 3.14-2

##### Established LOS Ratings for Signalized and Unsignalized Intersections

<b>LOS Rating</b>	<b>Average Delay for Signalized Intersections (seconds per vehicle)</b>	<b>Average Delay for Unsignalized Intersections (seconds per vehicle)</b>
A	0 to 10	0 to 10
B	10 to 20	10 to 15
C	20 to 35	15 to 25
D	35 to 55	25 to 35
E	55 to 80	35 to 50
F	More than 80	More than 50

Source: TRB (2000).

LOS level of service

WSDOT also reviewed January 2005 to December 2007 traffic collision data, which included pedestrian accident location data, along segments of state highways within the Grays Harbor transportation study area. Compared with the statewide average rate for similar roadways, the annual collision rate in the study area is notably higher on US 101 than the other segments studied. High-incident intersections along US 101 mainline include US 101 (Wishkah Street) at G Street, H Street, and US 101 (Alder Street). High-incident intersections along the US 101 Aberdeen Couplet include US 101 (Park Street) at Wishkah Street and US 101 (Heron Street), as well as US 101 (Heron Street) at M Street and H Street.

The predominant factors contributing to collisions in the higher collision areas were reportedly disregard of traffic signals and following too closely (that is, tailgating). Two fatalities on US 101 were reported during the period studied. Collision rates on the other road segments studied ranged from above average (SR 109 mainline and US 12) to below average (SR 109 couplet and US 101 Heron Couplet—G Street to H Street). Trucks weighing 10,000 pounds or more represent approximately 4 percent of all vehicles involved in the study area collisions. When compared with the truck percentages in the area, this percentage does not appear to be disproportionately high.

### **Aberdeen Log Yard Alternative (Preferred Alternative)**

Aberdeen streets are primarily paved with asphalt and are generally in good condition, including access roads to the Aberdeen Log Yard site. In the Aberdeen Log Yard portion of the transportation study area, US 12 carries the highest amount of traffic to and from Aberdeen, with volumes totaling 22,000 vehicles per day east of North Tyler Street. US 101 carries the next highest amount of traffic to and from Aberdeen, with volumes ranging from 9,900 to 15,000 vehicles per day in the Aberdeen portion of the study area. As in Hoquiam, traffic flow on US 101 through Aberdeen is affected by multiple signalized intersections, business access, and residential driveways.



A truck turns south on US 101 in downtown Hoquiam.

Along the proposed truck haul route, the West Heron Street and South Garfield Street unsignalized intersection is rated LOS D on the northeast-bound approach, which is the lowest LOS-rated intersection along the truck haul route. Stop-controlled, side-street approaches experience longer delays from somewhat heavy traffic volumes along the arterial turn from South Garfield Street onto West Heron Street.

WSDOT conducted daily vehicle counts in December 2008 along the proposed truck haul routes in Hoquiam and Aberdeen. These counts showed that 6 percent of westbound traffic on West Wishkah Street west of Monroe Street in Aberdeen was a result of large trucks. On West Heron Street west of Monroe Street, about 9 percent of eastbound traffic consisted of large trucks.

Grays Harbor Transit provides eight transit routes in the Aberdeen portion of the transportation study area. Routes 20, 50, 55, and 60 provide intercity service in Grays Harbor County; these routes travel along portions of US 101 or US 12 and connect Grays Harbor and Aberdeen. Routes 40 and 90 provide intercity service between Aberdeen

and Olympia and Centralia. In addition, Grays Harbor Transit provides local bus service in Aberdeen along Route 10a (North Aberdeen) and Route 10b (South Aberdeen).

The closest walking and bicycling trail to the Aberdeen Log Yard study area is the Morrison Riverfront Walkway to the east. Additional information on trails in the City of Aberdeen is included in Appendix P, Transportation Technical Memorandum. The project is not anticipated to affect trails in the City of Aberdeen.

### **Anderson & Middleton Alternative**

City streets in Hoquiam are primarily paved with asphalt and are generally in good condition, including access roads to the Anderson & Middleton site. US 101 carries the highest amount of traffic in the Hoquiam portion of the study area, with volumes ranging from 8,900 to 14,000 vehicles per day.

Traffic flow on US 101 through Hoquiam is affected by multiple signalized intersections, business access points, and residential driveways. Although traffic volumes on SR 109 are lower than on US 101, SR 109 is also a main access road to and from Hoquiam.

Logging trucks travel regularly through the study area on weekday mornings. Based on daily vehicle counts WSDOT conducted in December 2008 along the proposed project truck haul routes (on Paulson Road south of Emerson Street [SR 109] in Hoquiam), heavy trucks constitute 4.1 percent of northbound traffic and 1.8 percent of southbound traffic. On Emerson Street (SR 109) east of Paulson Road in Hoquiam, heavy trucks constitute 1.5 percent of the eastbound traffic and 2.3 percent of westbound traffic.

Grays Harbor Transit provides bus service in Hoquiam via Route 20 (Aberdeen-Hoquiam), Route 40 (East County), Route 50 (Ocean Shores), Route 55 (Westport-Grayland), and Route 60 (Aberdeen-Quinalt). Part of all five bus routes travel on US 101 along the proposed truck haul route.

Bicycling opportunities are available on roads around the airport and on the SR 109 spur connecting to US 101, west and north of the study area. The project is not anticipated to affect bicycling opportunities along these roads. The Transportation Technical Memorandum in Appendix P provides more detail about existing study area transportation characteristics.

## How did WSDOT evaluate direct effects on transportation?

WSDOT did not perform a comprehensive traffic analysis to evaluate effects on transportation at the CTC casting basin facility because any use of the facility for the proposed project is consistent with its current permitted use and the change in traffic volume because of this project would be negligible. Nine truck trips during daylight hours are expected during project operations. Additionally, because of the low volume of expected truck traffic, use of the CTC casting basin facility would not contribute to any new violation of air quality standards (see Section 3.5, Air Quality).

For the Grays Harbor build alternatives, WSDOT evaluated the proposed project effects on roads, railroads, and pedestrian and bicycle trails in the Grays Harbor study area by reviewing data from a variety of sources. Roadways studied include US 101, US 12, SR 109, city streets, and key intersections. Primary sources forming the basis of the analysis included previous traffic analysis in the Grays Harbor area and collision reports, WSDOT's 2007 and 2008 Annual Traffic Reports, 2007 Washington State Collision Data Summary (WSDOT 2007a; WSDOT 2008c), US 101 Regional Circulation Project (WSDOT 2007b), and the comprehensive land use plans of both the City of Hoquiam (City of Hoquiam 2008b) and City of Aberdeen (City of Aberdeen 2001).

WSDOT supplemented this information with data such as intersection diagrams and photographs collected during field visits. WSDOT traffic analysts also performed new traffic counts at intersections located near the two build alternative sites and along the proposed truck haul routes (Exhibit 3.14-1) to supplement existing traffic counts from WSDOT's 2007 US 101 traffic analysis report noted above, and summarized area motor vehicle collisions between January 1, 2005, and December 31, 2007.

### Truck Trip Estimates

#### CTC Facility

If the CTC facility is used, pontoon construction could require an estimated total of 2,700 truck trips over the course of the 3-year construction period; this equates to an average of nine daily trips, of which one truck trip would occur during the afternoon peak hour. This volume of truck traffic would be consistent with current operations at the CTC facility. This truck trip estimate assumes that the concrete required for pontoon construction would be produced offsite.

### Grays Harbor Build Alternatives

WSDOT estimated the number of truck trips needed to remove excavated material from the selected Grays Harbor casting basin site, bring material needed for casting basin construction to the site, and deliver materials needed for pontoon building to the site. WSDOT based the number of estimated truck trips on the amount of material needed; the sizes, types, and capacities of available haul trucks; and the anticipated schedules for project construction and operation.

Over the duration of the project, total truck trips for excavation, site construction, and material delivery would likely be 192,500 and 174,200 one-way trips (loaded and unloaded) for the Aberdeen Log Yard site and Anderson & Middleton site, respectively. The additional 18,300 truck trips estimated for the Aberdeen Log Yard site would be due mainly to launch channel dredge material for the longer launch channel at that site as well as some additional excavation for cutback slopes. These total truck trips are worst-case scenario estimates used to conduct a conservative traffic analysis for local streets. The conservative estimate assumes that no dredge material would be disposed in open water (at the time of the analysis WSDOT was still determining if this was an option) and that no barge or rail would be used to remove or deliver material. As discussed in *What mitigation measures does WSDOT propose to reduce direct effects on transportation?* in Chapter 5, *Mitigation*, these measures would be implemented when possible to minimize truck traffic.

Exhibits 3.14-3 and 3.14-4 show how truck activity could vary from month to month for site construction and pontoon-building operations at both the Aberdeen Log Yard and Anderson & Middleton sites, respectively, over the duration of the project. These exhibits also show the months related to peak truck activity used for the traffic analysis. For both sites, truck trips generated during the peak truck activity month were used for this traffic analysis to provide a conservative evaluation of the potential effects of each alternative on the Aberdeen-Hoquiam area transportation system. During this month with the most activity (shown in Exhibits 3.14-3 and 3.14-4 as month 7), a total of about 39,000 truck trips would be necessary for site excavation and casting basin material delivery.

The highest number of daily truck trips that might occur for each site in the month with the most activity could be slightly more than 1,400 truck trips in a day. The number of truck trips per day over the course of the project would be difficult for the communities to differentiate and would be similar in effect, except that the haul route for the Anderson & Middleton site is longer (see *Haul Route Distance* subsection). The largest number of truck trips would occur on weekdays during site

EXHIBIT 3.14-3

Aberdeen Log Yard Alternative (Preferred Alternative) Total Truck Trips per Month

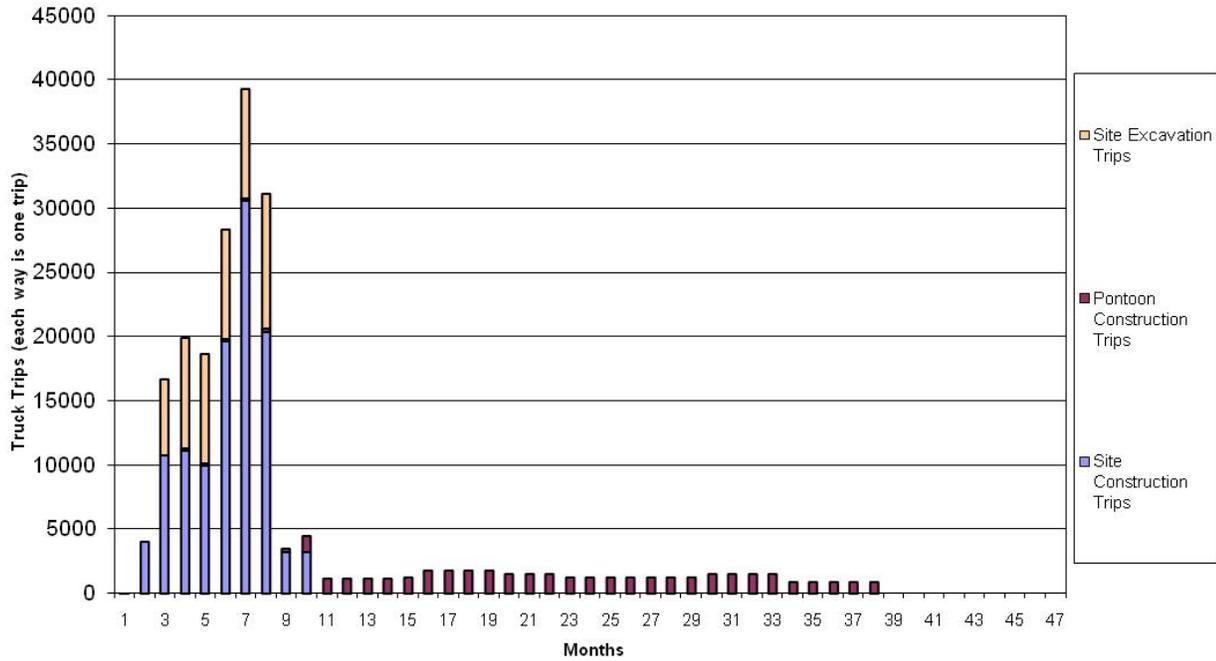
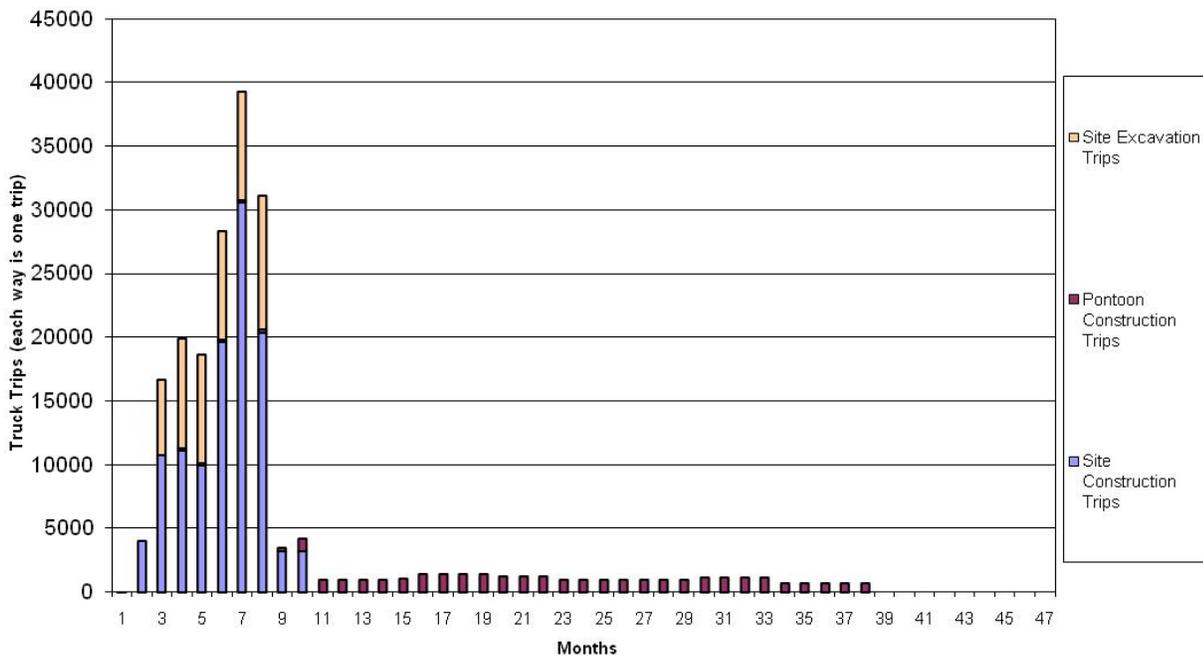


EXHIBIT 3.14-4

Anderson & Middleton Alternative Total Truck Trips per Month



construction, including removal of excavated material and delivery of casting basin material. The resulting estimated weekday afternoon peak-hour truck trips for the alternatives would be similar:

- Approximately 50 total truck trips for excavation
- Approximately 108 total truck trips for casting basin material delivery

The listed peak-hour truck trips assume that during the work day the flow of truck trips in and out of the sites would be steady; however, some clustering of trips might occur.

Once the site is constructed and truck traffic is associated with pontoon building only, truck trips would likely average slightly more than 50 truck trips per day.

### **Labor Trip Estimates**

The largest number of employee labor trips would occur on weekdays during pontoon building operations rather than during casting basin facility construction. During operations, WSDOT assumes that some project employees would drive to work alone in their vehicles and some would carpool as well (resulting in average vehicle occupancy of 1.24, or approximately five employees for every four vehicles, based on data published for industrial uses). Those working the first shift would leave the project site during the p.m. peak hour, which is defined as one hour between 4 and 6 p.m. WSDOT determined that the heaviest labor traffic would be during the weekday p.m. peak hour in the pontoon-building project phase because pontoon construction would require the largest workforce. There would be 175 p.m. peak-hour trips during casting basin construction and 322 p.m. peak hour trips during pontoon-building operations.

### **Haul Route Distance**

Haul routes are shown in Exhibit 13.4-1. Most of the local material sites (see Exhibit 3.2-7 in Section 3.2, Geology and Soils) are located east of the Grays Harbor build alternative sites and, for this reason, most of the truck trips would probably originate from the east; the same would be true for the disposal sites. Although the Hoquiam wastewater treatment plant's lagoon is located west of both the Anderson & Middleton and Aberdeen Log Yard sites and could accommodate a majority of the overall site excavations for either site alternative, some of the excavated material disposal trips would likely be routed east of the sites to destinations south of the Chehalis River.

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#### **What is the weekday afternoon peak hour for truck trips?**

The weekday afternoon peak hour refers to the "worst" hour of traffic within the peak afternoon traffic period, which is from 4 to 6 p.m. The number of truck trips for the weekday afternoon peak hour was estimated by breaking down the daily truck trips during the peak months of project construction and operations activity into hourly estimates.

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The distance to the potential material and disposal sites varies widely, but would likely be longer for most trips to and from the Anderson & Middleton site because most of the trucks would likely be coming and going from the east. For the Anderson & Middleton site, potential material sites are located as near as 10 to 12 miles away to as far as 62 to 76 miles away. For the Aberdeen Log Yard site, potential material sites are located as near as 7 to 8 miles away and as far as 59 to 72 miles away. The potential disposal sites are as close as 1 to 2 miles and as far as 10 to 12 miles from the Anderson & Middleton site. For the Aberdeen Log Yard site, potential disposal sites are as near as 5 to 6 miles and as far away as 7 to 8 miles.

## **How would construction of the casting basin directly affect transportation?**

### **Aberdeen Log Yard Alternative (Preferred Alternative)**

Currently, intersections along the proposed haul routes operate at LOS D or better. With the Aberdeen Log Yard Alternative, signalized intersections along the proposed truck haul route would continue to operate at LOS D or better. LOS and delays for most unsignalized intersections would also be acceptable according to WSDOT standards (LOS D or better), but the unsignalized intersection at **West Heron Street and South Garfield Street** (with both site access options) could operate at LOS F without intersection improvements (see Chapter 5, Mitigation); the LOS at this intersection is now A and would change to F. After intersection improvements to improve channelization to mitigate for this effect, the intersection LOS will return to LOS D or better.

In addition, the following unsignalized intersections would continue to operate in the acceptable range (LOS D or better), but could have noticeable increases in delay (more than 10 seconds per vehicle) with certain site access options:

- **West Heron Street and South Division Street and Northeast Site Access:** The LOS at this intersection is now A and would change to B with the Heron Street site access.
- **East Terminal Road and Port Industrial Road:** The LOS at this intersection is now A and would change to C with the East Terminal Road site access.
- **US 101 and US 12 (East Heron Street) and South G Street:** The LOS at this intersection is now C and would change to D with both site access options.

During casting basin construction, WSDOT estimates there would be 114,900 total truck trips to and from the Aberdeen Log Yard site, which would be slightly more than for the Anderson & Middleton site because more excavation for the launch channel would be needed at this site. A small portion of these truck trips would be related to materials for pontoon construction. Maximum truck trips per day are estimated to be approximately 1,400 truck trips in an area that is reported to have from 9,900 to 15,000 total vehicle trips per day and up to 22,000 total vehicle trips per day on US 12.

For example, without the project in 2011, at the southwest corner of Park Street (US 101) and Heron Street (US 101), up to seven cars and one truck per minute would drive past heading east. With the project, the number of cars could increase to eight per minute and trucks could increase up to three per minute. These numbers represent the worst-case scenario during project construction.

The truck traffic generated by the Aberdeen Log Yard Alternative would likely have a minor effect on vehicular, transit, and paratransit operations because the study area LOS would not degrade below acceptable levels during casting basin construction (except at the one unsignalized intersection mentioned above). At intersections where the LOS does degrade below current levels, traffic modeling shows that the greatest delay at these intersections would be more than 10 seconds, but less than 1 minute. These delays would affect cars and transit to the same degree. For instance, vehicles traveling on US 101 westbound from G Street to 23rd Street and eastbound from Ontario Street to H Street would experience less than a minute of additional travel time during the project.

The truck trips generated during project construction would not substantially affect the safety of nonmotorized transportation in the study area. Pedestrians and bicyclists might have to wait a little longer at crosswalks than they do now, but the project would not impede access to pedestrian and bicycle facilities. Washington state law gives pedestrians the right-of-way, including unsignalized intersections. Pedestrians begin to cross when there is an adequate gap or they recognize that a driver is yielding right-of-way. There is no way to measure the behavior of all pedestrians and drivers at unsignalized intersections.

### **Anderson & Middleton Alternative**

Currently, intersections along the proposed haul routes operate at LOS D or better. With the Anderson & Middleton Alternative, all signalized intersections along the proposed truck haul route would continue to operate at LOS D or better during casting basin construction. LOS and delays at unsignalized intersections along the proposed truck haul route

would be acceptable according to WSDOT standards (LOS D or better). The following unsignalized intersections would have noticeable increases in delay (more than 10 seconds per vehicle) but would continue to operate at LOS D or better:

- **US 101 (West Simpson Avenue) and 6th Street:** The LOS at this intersection is now C and would change to D.
- **US 101 (Lincoln Street) and SR 109 (Emerson Avenue):** The LOS at this intersection is now A and would change to B.
- **US 101 and US 12 (East Heron Street) and South G Street:** The LOS at this intersection is now C and would change to D.

These estimated changes in LOS levels depend on several factors, which are described in detail in Appendix P, Transportation Technical Memorandum.

During casting basin construction, WSDOT estimates there would be 103,600 total truck trips to and from the Anderson & Middleton site. Maximum truck trips per day are estimated to be approximately 1,400 truck trips in an area that is reported to have from 8,900 to 14,000 total vehicles trips per day. A small portion of these truck trips are related to materials for pontoon construction. Most of these truck trips would originate from the east given the location of local material and disposal sites.

For example, without the project in 2011, at the southwest corner of Emerson Street (SR 109) and Adams Street about five cars and up to one truck per minute would drive past heading east. With the project, the cars per minute is expected to remain the same (because employees would likely use other routes), but truck traffic would increase to about two trucks per minute. These numbers represent the worst-case scenario during project construction.

The truck traffic generated during casting basin construction would likely have a minor effect on vehicular, transit, and paratransit operations because the study area LOS would not degrade below acceptable levels during casting basin construction. The truck trips generated during this project phase would not substantially affect the safety of nonmotorized transportation, such as pedestrians and bicyclists, in the study area. Pedestrians and bicyclists might have to wait a little longer at crosswalks than they do now, but the project would not impede access to pedestrian and bicycle facilities. As noted above for the Aberdeen Log Yard Alternative, Washington state law gives pedestrians the right-of-way, including at unsignalized intersections. Pedestrians begin to cross when there is an adequate gap or they recognize that a driver is yielding right-of-way. There is no way to

measure the behavior of all pedestrians and drivers at unsignalized intersections.

WSDOT expects that the longer haul routes from the Anderson & Middleton site would have a slightly greater overall effect on the Hoquiam and Aberdeen transportation systems, including nonmotorized transportation. The slight greater effects would occur because trucks travel through and past more resources and communities, given the geographical concentration of potential disposal and material sites.

## **How would pontoon-building operations directly affect transportation?**

### **CTC Facility**

Based on the amount of material needed to build pontoons at the CTC facility, WSDOT estimates about nine truck trips per day to and from the site during daylight hours. The use of the site is consistent with its permitted land use, and the net difference in traffic at the site resulting from this project compared to typical business operations would be negligible. Given the negligible change in traffic volume, no controlled intersection is substantially affected.

### **Aberdeen Log Yard Alternative (Preferred Alternative)**

During pontoon construction, WSDOT estimates there would be 37,900 total truck trips to and from the Aberdeen Log Yard site, which is the same as with the Anderson & Middleton Alternative, and about 67 percent fewer truck trips than needed during casting basin construction. The signalized intersection LOS would remain acceptable; however, the LOS could degrade below acceptable LOS D at the unsignalized intersection of **West Heron and South Garfield Streets** (with both site access options), depending upon the access location for worker vehicles, if no improvements are made; the LOS at this intersection is now A and would change to F. Mitigation is proposed for effects to this intersection, as described in Chapter 5, Mitigation.

Similar to the Anderson & Middleton Alternative, the truck traffic generated during pontoon building operations would have a minor effect on vehicular, transit, and paratransit operations. The truck trips generated during project construction would not substantially affect the safety of nonmotorized transportation, such as pedestrians and bicyclists, in the study area. Pedestrians and bicyclists might have to wait a little longer at crosswalks than they do now, but access to pedestrian and bicycle facilities would not be impeded.

## **Anderson & Middleton Alternative**

The operation phase for the Anderson & Middleton Alternative would not substantially affect the LOS along the proposed truck haul route. During pontoon construction, WSDOT estimates there would be 37,900 total truck trips to and from the Anderson & Middleton site, which is much fewer truck trips (about 63 percent fewer truck trips) than needed during the casting basin construction phase. All signalized intersections would continue to operate at LOS D or better. Overall, vehicle delays at the unsignalized intersections would continue to be in the acceptable range according to WSDOT standards (LOS D or better operations).

The truck traffic generated during casting basin construction would have a minor effect on vehicular, transit, and paratransit operations because the study area LOS would not degrade below acceptable levels during pontoon-building operations. The truck trips generated during this phase of the project would not substantially affect the safety of nonmotorized transportation, such as pedestrians and cyclists, in the study area. Pedestrians and cyclists might have to wait a little longer at crosswalks than they do now, but access to pedestrian and cycle facilities would not be impeded.

Although overall LOS and delays are acceptable according to WSDOT standards, WSDOT expects that the longer haul routes from the Anderson & Middleton site would have slightly more of an overall effect on the Hoquiam and Aberdeen transportation systems, including nonmotorized transportation such as bicycles, because trucks would likely travel through and past more resources and more communities, given the geographical concentration of potential disposal and material sites. The potential effects of the haul routes on a resource are discussed in the appropriate section for that resource.

Most of the 37,900 estimated truck trips to and from this site during pontoon building would originate from the east given the location of local material and disposal sites. WSDOT acknowledges that traffic could increase in areas outside the study area, as construction vehicles haul materials to and from either build alternative site. For the reasons listed above under the Aberdeen Log Yard Alternative, the effects of these trips on traffic outside of the study area have not been evaluated.

## **How would pontoon moorage directly affect transportation?**

Pontoon moorage would have no effects on vehicular and nonmotorized transportation. For potential effects on waterborne transportation, see Section 3.9, Navigable Waterways.

## How would the Grays Harbor build alternatives compare in their direct effects on transportation?

Exhibit 3.14-5 summarizes and compares the direct transportation effects of the Anderson & Middleton Alternative with the Aberdeen Log Yard Alternative.

EXHIBIT 3.14-5  
Transportation Summary of Direct Effects

Type of Effect	Aberdeen Log Yard Alternative (Preferred Alternative)	Anderson & Middleton Alternative
Casting basin construction	LOS at intersections along the haul routes would remain at LOS D or better, except for the unsignalized intersection at West Heron Street and South Garfield Street. Haul route length could vary from 5 to 6 miles to 7 to 8 miles for disposal and from 7 to 8 miles to 59 to 72 miles for materials.	LOS at intersections along the haul routes would remain at LOS D or better.  Haul route length could vary from 1 to 2 miles to 10 to 12 miles for disposal and from 10 to 12 miles to 62 to 76 miles for materials.
Pontoon-building operation	LOS at intersections along the haul routes would remain at LOS D or better, except for the unsignalized intersection at West Heron Street at South Garfield Street (for both site access alternatives).  Haul route length could vary from 7 to 8 miles to 59 to 72 miles for materials.	LOS at intersections along the haul routes would remain at LOS D or better.  Haul route length could vary from 10 to 12 miles to 62 to 76 miles for materials.
Pontoon moorage	None	None

LOS level of service

## What indirect effects would the project have on transportation?

### CTC Facility

Because there would be no infrastructure changes or site construction if the CTC facility is used and the number of pontoons that can be constructed at the facility at any given time would not change from existing conditions, there would be no change in transportation effects. As a result, there would be no indirect effects on transportation from using the CTC facility.

### Grays Harbor Build Alternatives

Indirect effects on transportation associated with either Grays Harbor build alternative would be similar in type and intensity because similar construction and operation activities would be conducted at the two sites, and the existing road systems and traffic operations would be

similar. Indirect effects would include changes in vehicle traffic outside of the transportation study area or traffic related to future use of the proposed facility after the SR 520 Pontoon Construction Project is completed.

Once a facility is constructed at one of the Grays Harbor build alternative sites, it could remain available in the future for other projects or businesses. For example, it would be available, if needed, for the proposed SR 520, I-5 to Medina: Bridge Replacement and HOV Project. Depending on the location(s) of equipment and material suppliers for future projects, traffic could increase in and around the study area. Potential future uses of the proposed casting basin are speculative; therefore, these indirect effects were not specifically evaluated or quantified for this Final EIS.

During the proposed project, some vehicular traffic might use alternate routes in order to avoid traffic associated with the proposed project. This could subsequently result in increased traffic and altered traffic patterns along those alternate routes. Given that the direct effects along the haul routes are expected to be minor, this indirect effect, while acknowledged by WSDOT, was not specifically evaluated or quantified for this Final EIS.

WSDOT acknowledges that traffic could increase in areas outside the study area as construction vehicles haul materials to and from either build alternative site. Because project materials suppliers have not yet been identified and volumes of materials and supplies from various potential locations are not currently known, this effect has not been evaluated.

### **Grass Creek**

WSDOT anticipates that constructing the Grass Creek mitigation site would require a limited number of small earth-moving equipment and vehicles traveling to and from the site, which would have only a negligible effect on traffic on SR 109.

### **How would transportation be affected if the project were not built?**

With the No Build Alternative, street traffic conditions would generally remain as they are now at intersections along the proposed truck haul routes in Grays Harbor. Improvements that potentially would be made as a result of this project would not occur. CTC would find another customer to make use of its facility, so traffic conditions would also remain as they are now.

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## **What would the cumulative effects on transportation likely be?**

### **CTC Facility**

Because the project would have no direct or indirect effects on transportation in the Tacoma study area, there would be no cumulative effect on transportation related to WSDOT's operation of the CTC facility.

### **Grays Harbor Build Alternatives**

Both adverse and beneficial cumulative effects on traffic could be expected in the Grays Harbor study area in the future, with or without the project. The 2 percent annual compounded growth rate used to evaluate the No Build Alternative and the build alternatives captures the cumulative effect of most or all of the actions listed in Exhibits 3-1 and 3-3. The potential effects of the project on traffic, combined with this growth, could result in the cumulative effect of higher traffic volumes and longer traffic delays.

Many of the projects listed and shown in Exhibits 3-1 and 3-3 could result in some increase in traffic in the study area. However, the construction of planned transportation projects would likely offset some of the growth-related traffic effects. The planned improvements listed in Exhibit 3-1 and 3-3, along with other regional transportation plans, would contribute to a beneficial, long-term cumulative effect on traffic operations in and beyond the transportation study area.