Lower Snake River Dams Transportation Study

Washington State Transportation Commission Briefing

Jim Mahugh, WSDOT LSRD Study Lead

October 15, 2024

Proviso

- 2023 Legislative Session Budget Proviso
    - Transportation Impacts of Lower Snake River Dam Removal
    - Joint Transportation Committee Oversight
    - Robust Community Engagement
    - $5M
        - $4M for Jacobs Engineering
    - Final Report Due December 31, 2026

Technical Phases and Tasks

Phase - 1

Spring 24

Understanding Needs

Task 1: Existing conditions for **barge traffic**

Task 2: Existing conditions for **rail and highway traffic**

Task 3: Total Logistics Cost diversion **model**

Interim Report

Phase - 2

Winter 25

Impacts & Safety

Estimation of geological, geographical, rail, road, and utility **impacts from dam closure**

Safety analysis

Phase - 3

Spring 25

Solutions & Competitive Impacts

Identify potential **mitigation options** for impacts

Estimate the **competitive impacts** of modal diversion

Phase - 4

Spring 26

Report

Development of the **draft and final report**

Task 13: Community Engagement

Reports

Quarterly Reports

Submitted to state legislature

Progress across each of the four phases and upcoming work to be conducted

Interim Report

December 2024

Existing movement of freight and how it might change

State of existing transportation system and ability to handle changes

Community engagement efforts

Final Report

Spring 2026

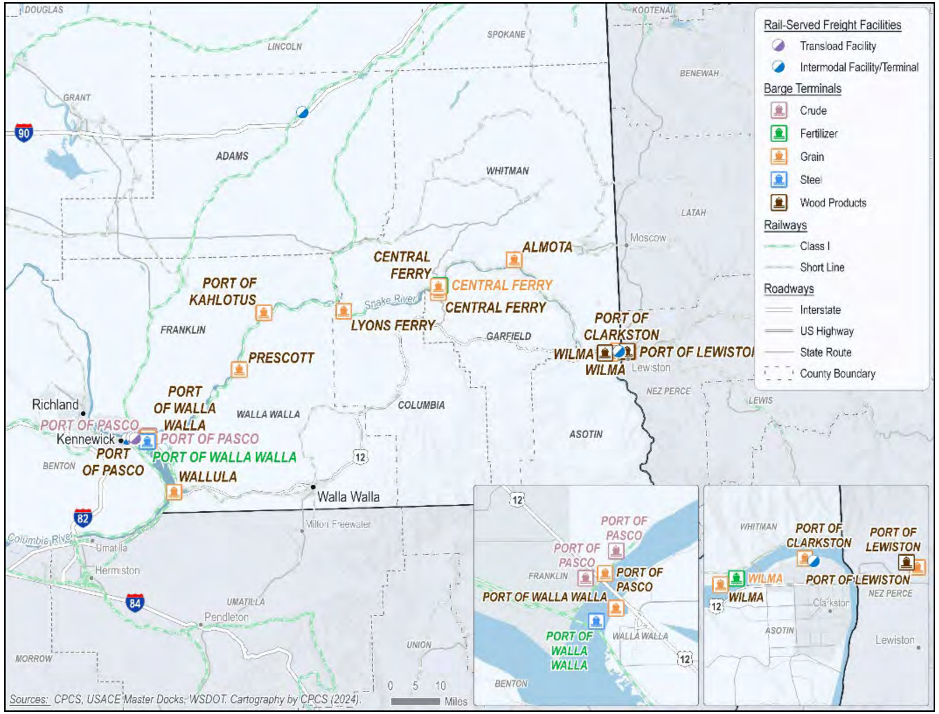
Summarizes the data, analysis, methodologies, findings, and engagement used for the full study

Barges

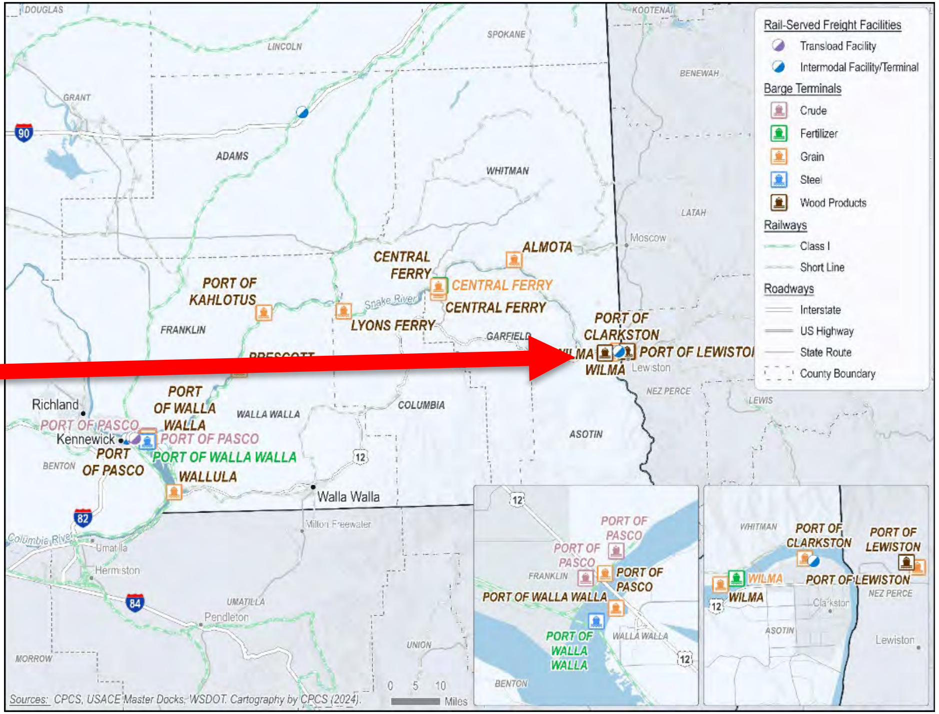

Seattle
WASHINGTON
Spokane
IDAHO
Lower Monumental Dam
Little Goose Dam
Lower Granite Dam
Snake R
Clarkston
Pasco
Ice Harbor Dam
Columbia River

Task 1: Barge Existing Conditions

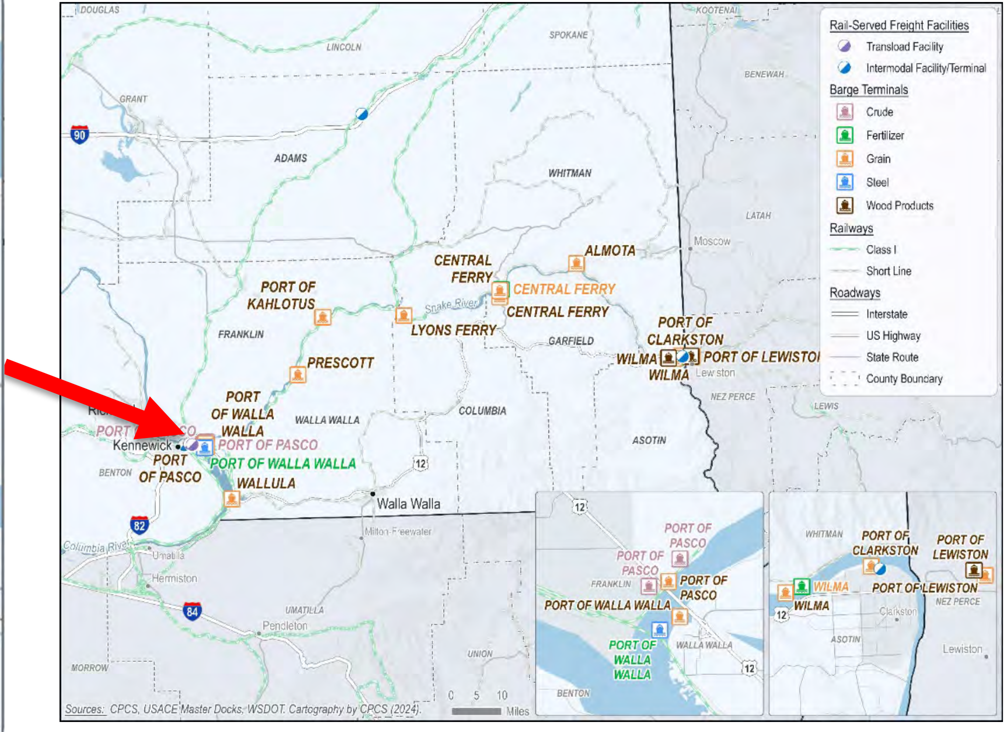
- Study area features a series of locks, dams, and ports



Task 1: Barge Existing Conditions



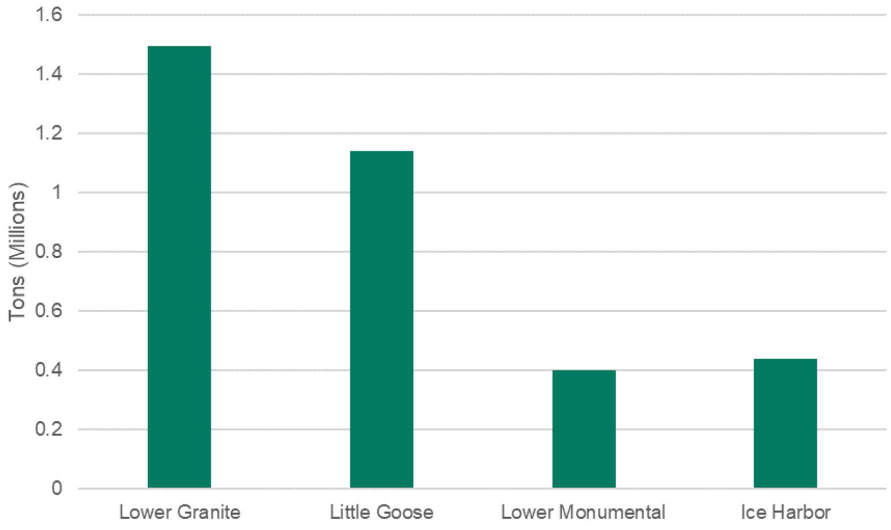
Task 1: Barge Existing Conditions



Task 1: Barge Existing Conditions

River Pool Tonnage

- Lower Granite pool:
    - Wilma
    - Lewiston
    - Clarkston
- Little Goose pool:
    - Almota
    - Central Ferry
    - Pomeroy

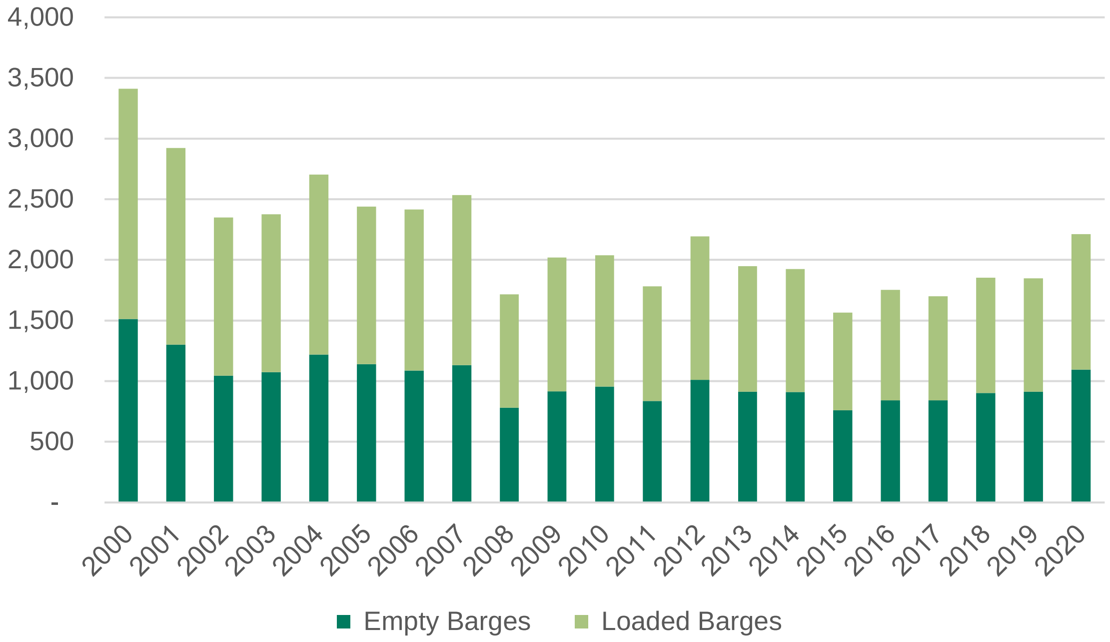


Additional Tonnage Loaded by Downstream River Pool

Task 1: Barge Existing Conditions

Ice Harbor Dam Number of Barges

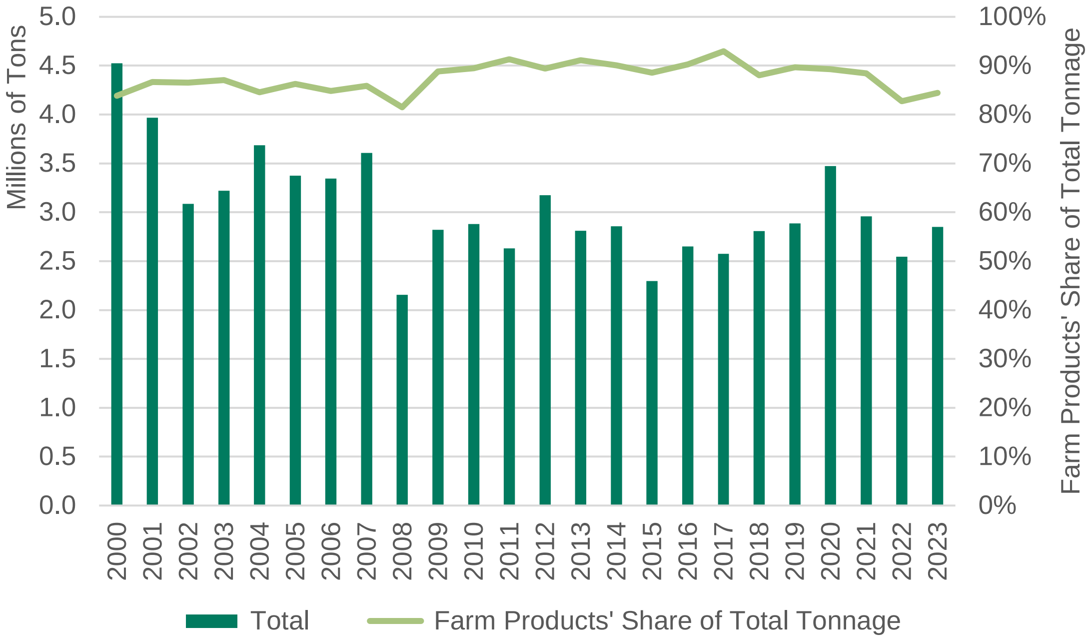
- About 2,000 barges a year go through the Ice Harbor Dam.



Task 1: Barge Existing Conditions

Ice Harbor Dam Annual Tonnage

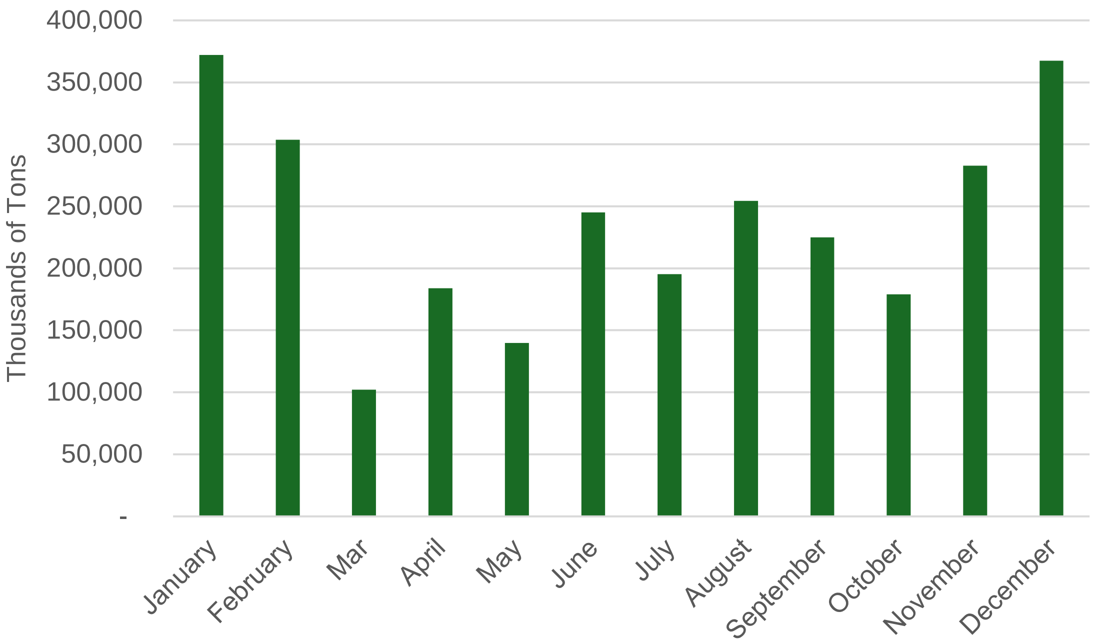
- Roughly 2 to 3 million tons moved annually through the Ice Harbor Dam, mostly grain.



Task 1: Barge Existing Conditions

Seasonal Fluctuations

- Snake River tonnage peaked in winter months with lowest volumes during the Spring maintenance period.
- March is annual maintenance.



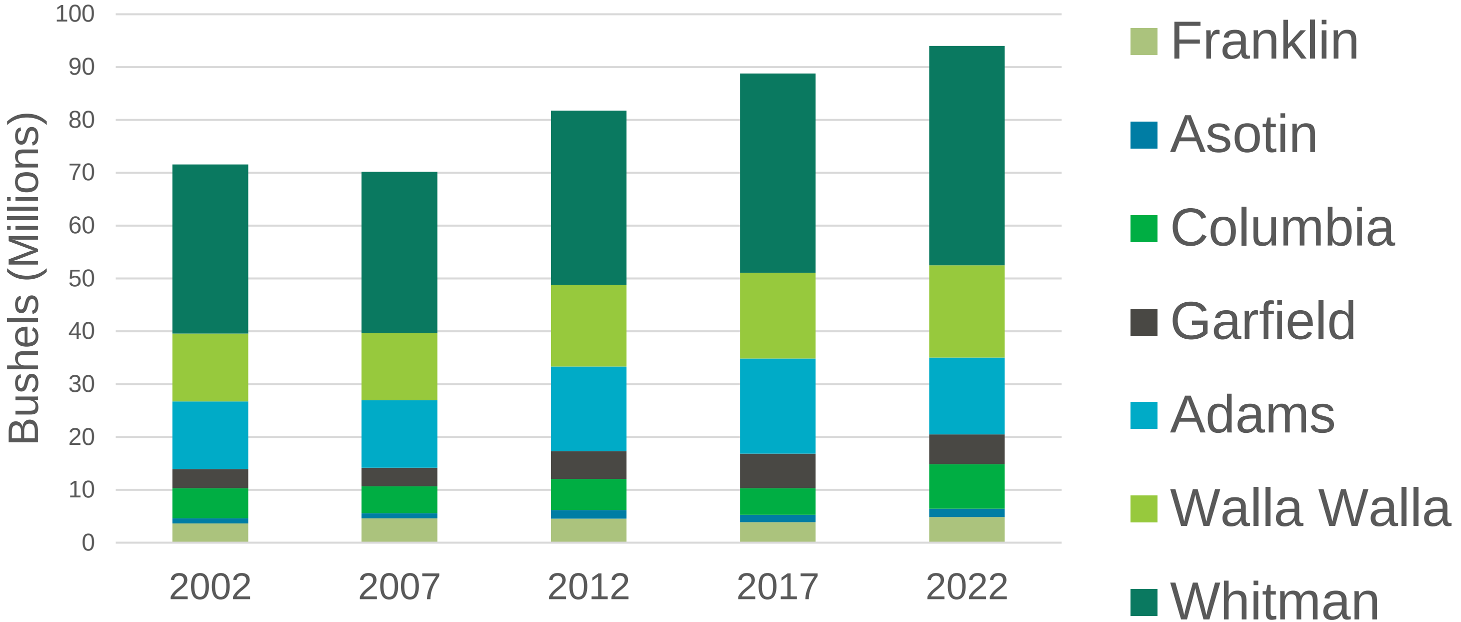
Snake River Tonnage by Month (2023)

Task 1: Barge Existing Conditions

Top Commodities on Lower Snake River
- Wheat
- Fertilizer
- Wood

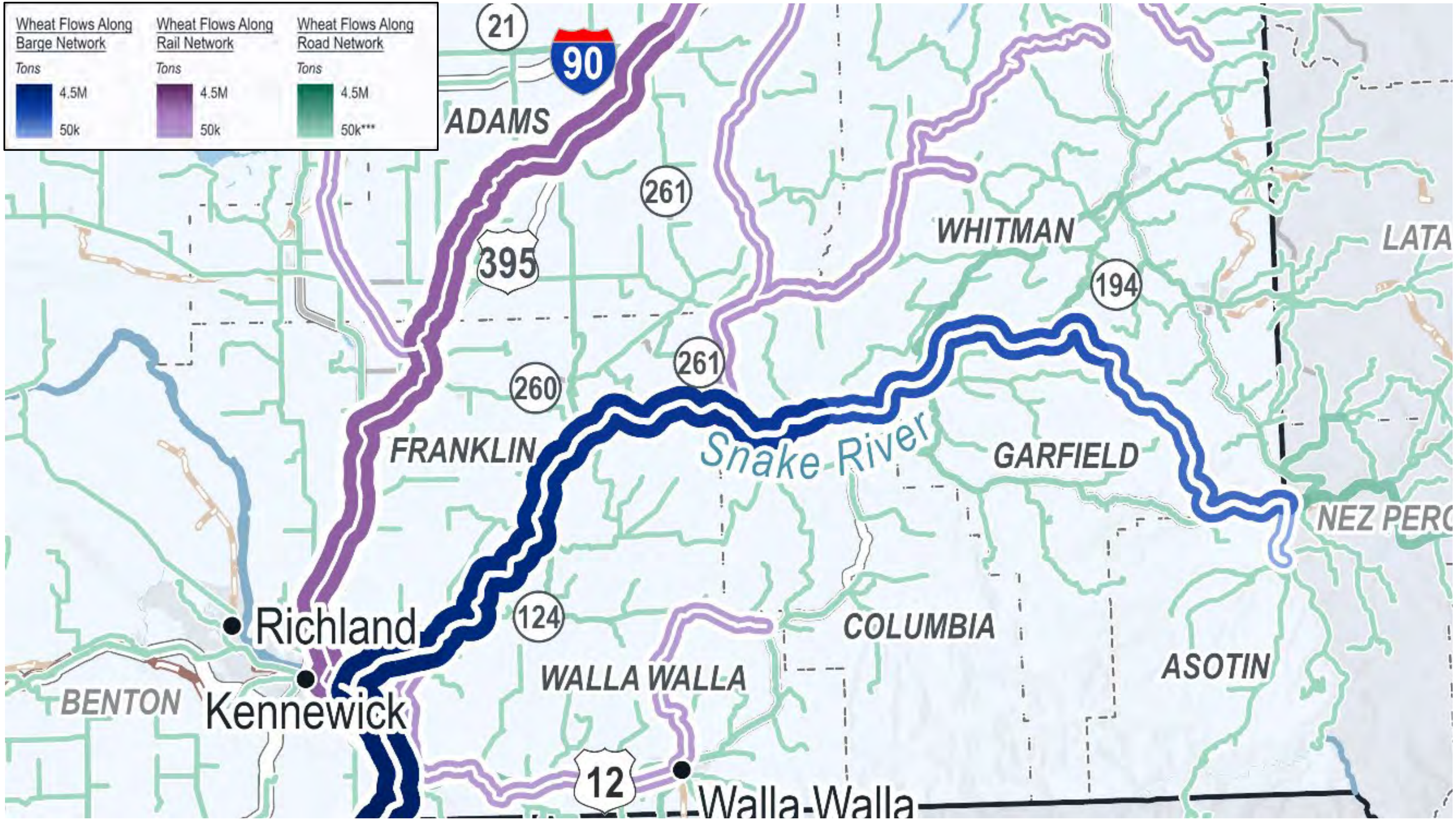
Other
- High, Wide, and Heavy

Task 1: Barge Existing Conditions



Wheat Production by County


Wheat Flows Along Barge Network
Tons
4.5M
50k
Wheat Flows Along Rail Network
Tons
4.5M
50k
Wheat Flows Along Road Network
Tons
4.5M
50k***
Seattle
Renton
Kent
Tacoma
Olympia
Centralia
Longview
Vancouver
Hillsboro
Portland
Gresham
Wenatchee
Yakima
Richland
Kennewick
Walla Walla
Spokane
Spokane Valley
Coeur d'Alene
Columbia River
Snake River
OKANOGAN
FERRY
STEVENS
PEND OREILLE
BONNER
DOUGLAS
LINCOLN
SPOKANE
KOOTENAI
SHOSHONE
KING
MASON
KITTITAS
GRANT
ADAMS
WHITMAN
BENEWAH
LATAH
GRAYS HARBOR
PIERCE
THURSTON
LEWIS
YAKIMA
FRANKLIN
GARFIELD
CLEARWATER
NEZ PERCE
COLUMBIA
ASOTIN
WALLA WALLA
BENTON
COWLITZ
SKAMANIA
KLICKITAT
CLARK
COLUMBIA
WASHINGTON
MULTNOMAH
HOOD RIVER
UMATILLA
IDAHO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Tons
4.5M
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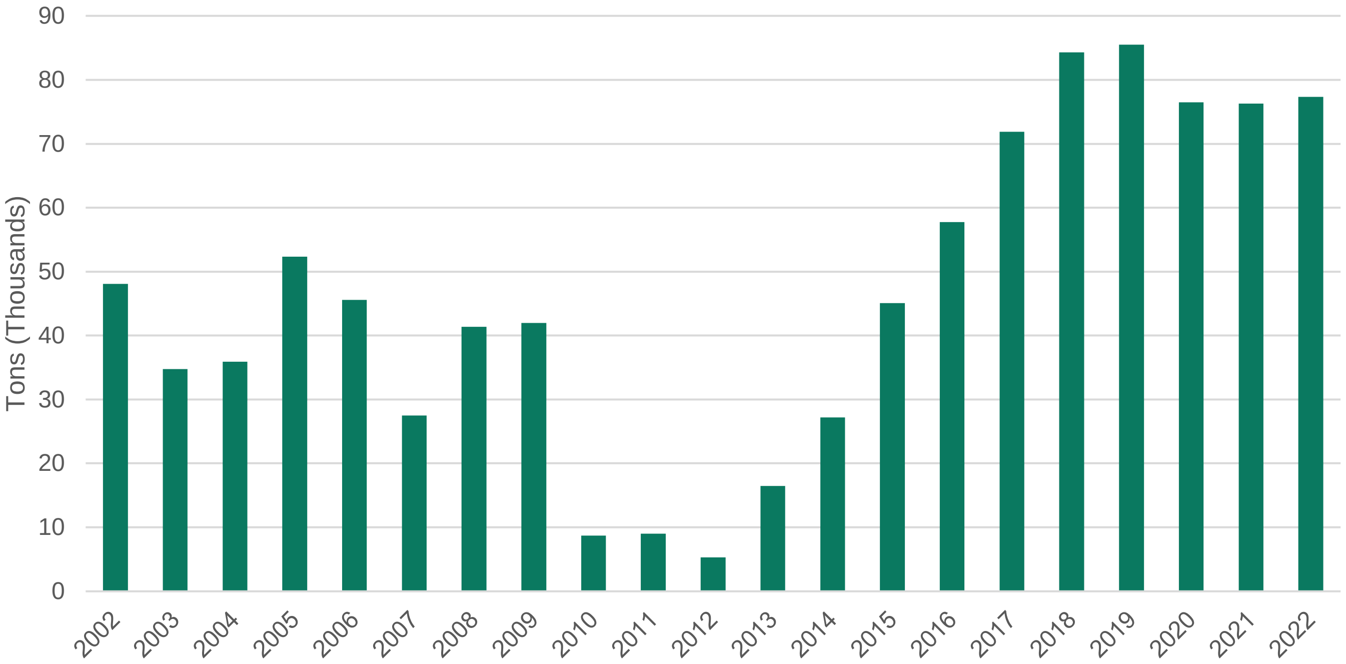
4.5M
50k
Wheat Flows Along Road Network
Tons
4.5M
50k***
21
90
ADAMS
261
395
WHITMAN
LATA
194
261
260
FRANKLIN
Snake River
GARFIELD
NEZ PERC
124
COLUMBIA
Richland
ASOTIN
WALLA WALLA
BENTON
Kennewick
12
Walla-Walla

Task 1: Barge Existing Conditions

Fertilizer Tonnage Traveling on Snake River

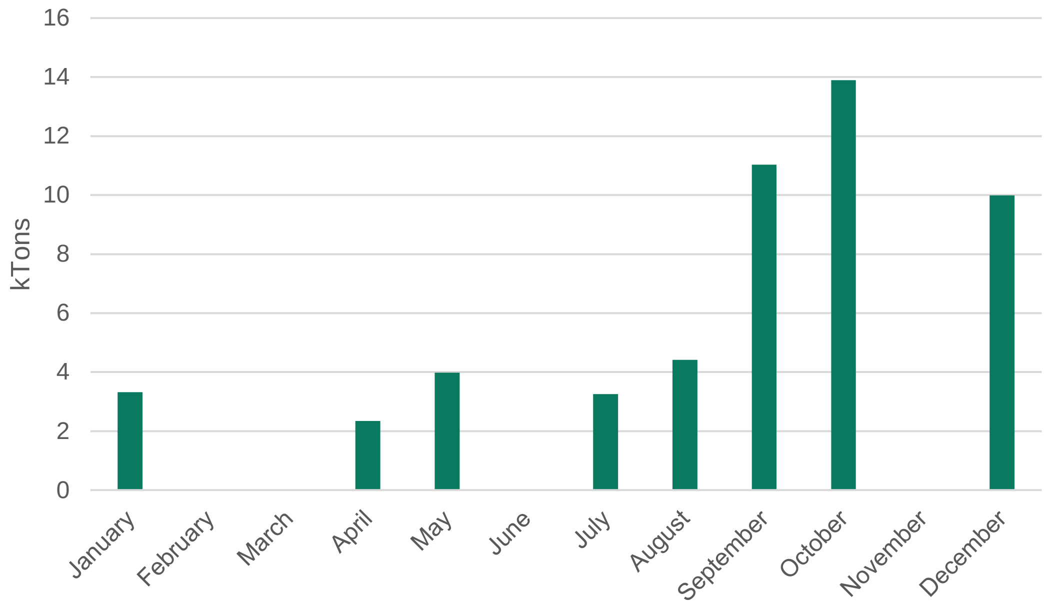


Fertilizer volume has increased dramatically between 2012 and 2019 prior to leveling off more recently.

Task 1: Barge Existing Conditions

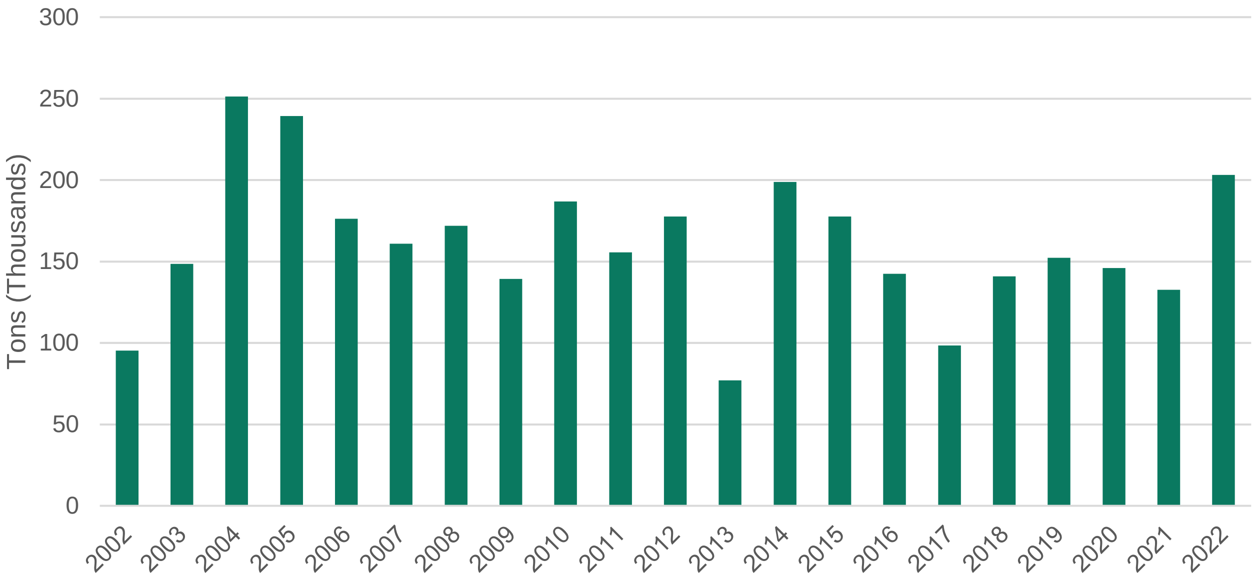
Fertilizer Flows on Snake River by Month (2023)

In 2023, most of fertilizer traveled in the September, October, and December periods.



Task 1: Barge Existing Conditions

Wood Tonnage Traveling on the Snake River



In 2022, region experience the highest volume of wood products movement in nearly two decades.

Task 1: Barge Existing Conditions

High, Wide, and Heavy

- Bulk transport to inland United States and Canada

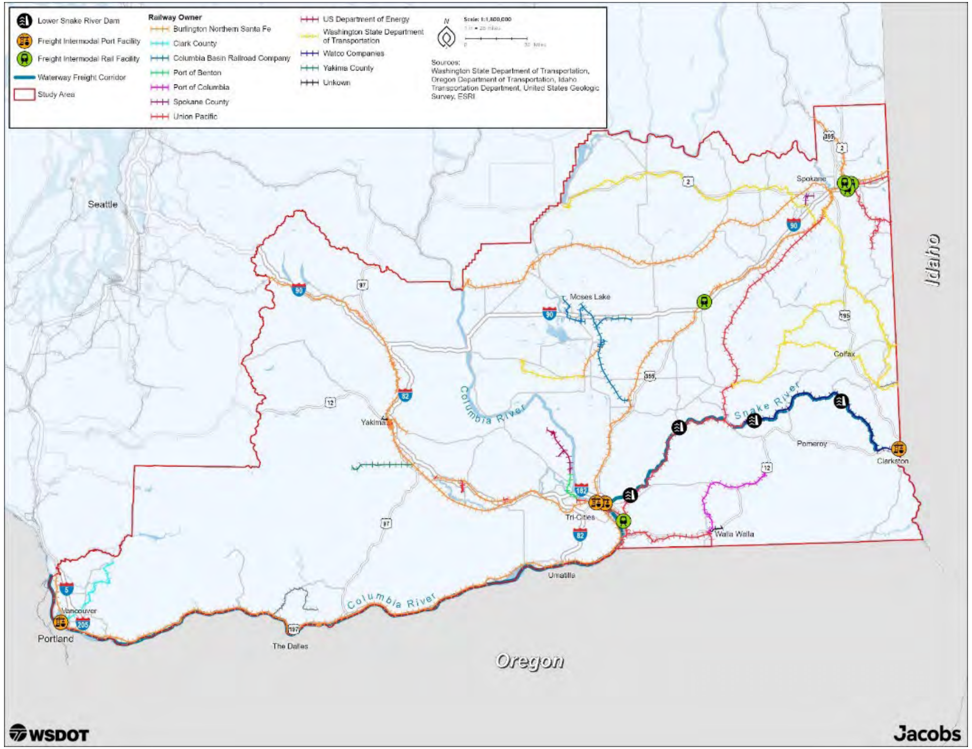
Rail

Task 2: Rail Existing Conditions

Railroad Operators

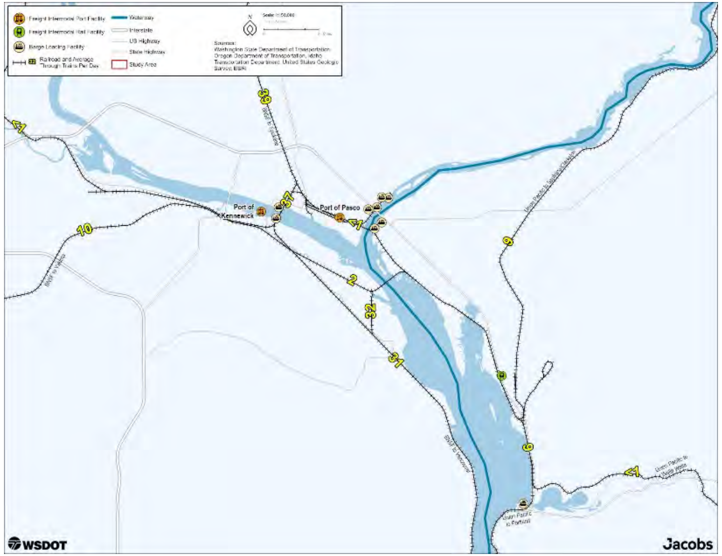
There are several railroads in the study area.

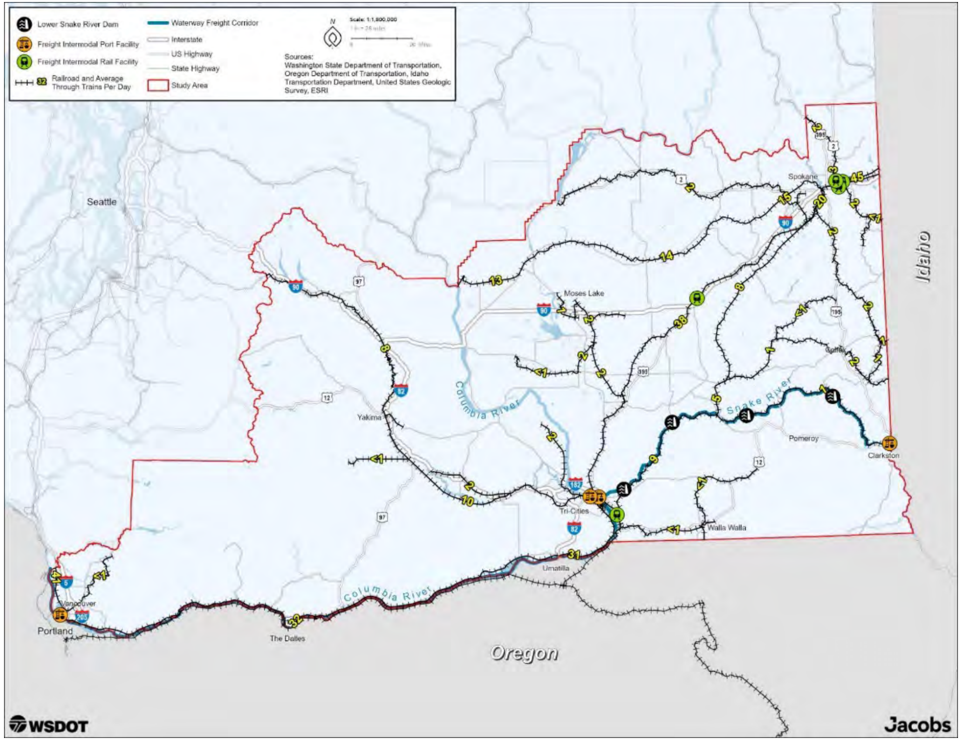
BNSF and UP take the grain to the export markets.



Task 2: Rail Existing Conditions

Average Daily Train Volumes: Busiest rail segments are BNSF line between Spokane, Tri-Cities, and Vancouver.



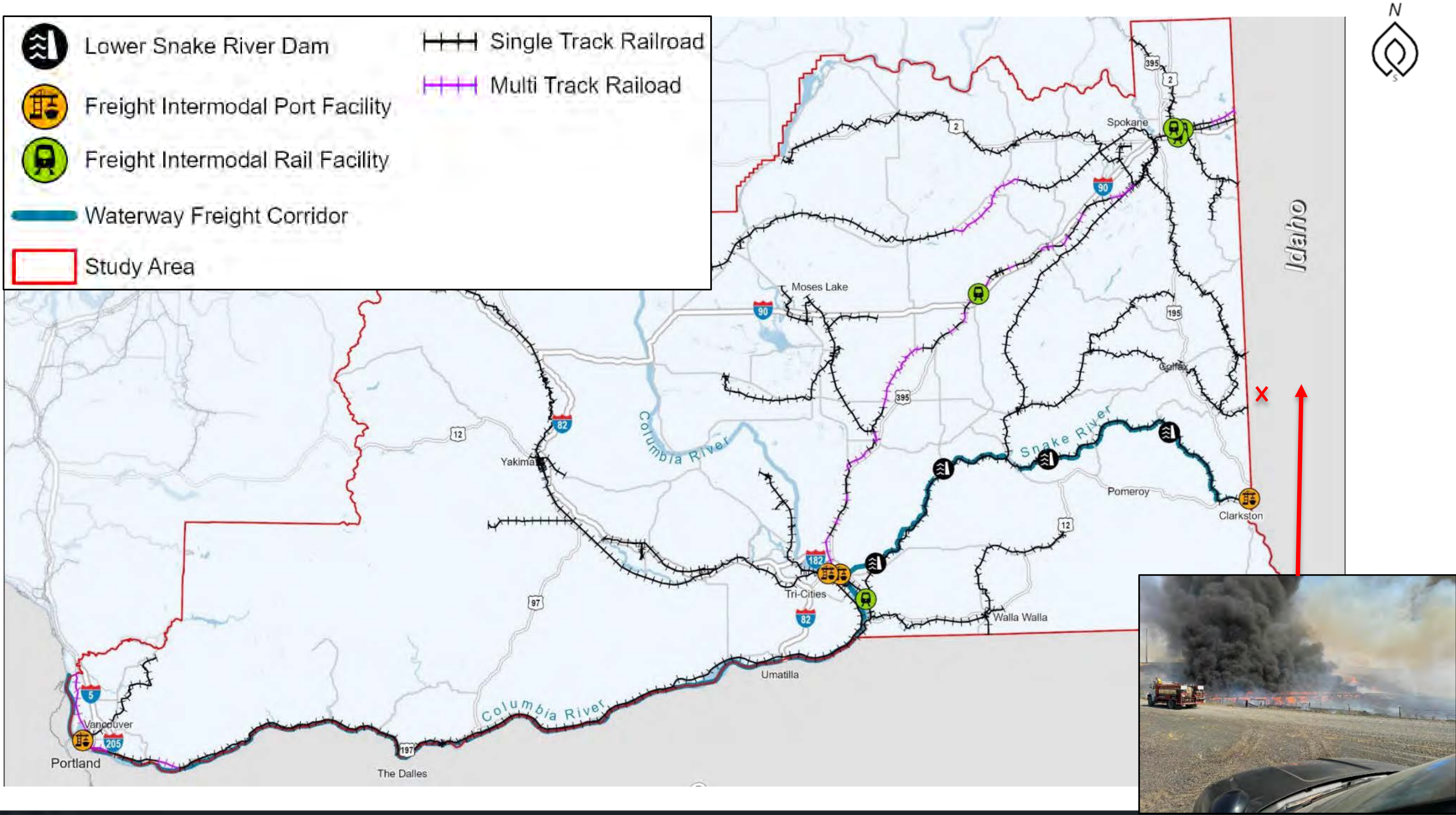


Task 2: Rail Existing Conditions

Rail Volumes Compared to Capacities

- No major capacity issues, but during peak season capacity may be constrained.
- Future growth and modal diversion from dam closure will also impact capacity.
- Initial outreach indicates there are related capacity issues at intermodal terminals.

Name	Daily Trains	Practical Capacity Max. Daily Trains	Volume-Capacity Ratio
Pasco-Cheney (BNSF)	38	62	0.61
Cheney-Spokane (BNSF & UP)	38	50	0.76
Vancouver-Pasco (BNSF)	32	41	0.78
Hermiston-Cheney (UP)	10	23	0.43
Hermiston-Portland (UP)	8	TBD	TBD


Lower Snake River Dam
Freight Intermodal Port Facility
Freight Intermodal Rail Facility
Waterway Freight Corridor
Study Area
Single Track Railroad
Multi Track Raiload
N
Idaho
Spokane
Moses Lake
Colfax
Snake River
Pomeroy
Clarkston
Columbia River
Yakima
Tri-Cities
Walla Walla
Umatilla
Vancouver
Portland
The Dalles

Roads

Task 2: Highway Existing Conditions

Congestion on Main Highways Near Barge Facilities

Highway	Mileposts		Port/ Community Name	Peak Hour Peak Direction Volume		Posted Speed	Congestion Evaluation[1]	Over Capacity?
	From	To		All Vehicles	Trucks			
US 12	428.3	429.9	Clarkston, Port of Wilma	230-435	25-30	30-60	Speed < 85% of posted	No
US 12	290.6	294.1	Pasco, Port of Walla Walla	1,150-1,565	225-290	60	Speed < 85% of posted	No
US 730	2.1	6.1	Port Wallula/ Port Kelley Docks	275	145	60	Speed < 85% of posted	No
SR 124	0.0	1.2	Burbank	365-460	55	40	V/C < 0.8	No
SR 124	20.1	22.1	Sheffler	130	35	65	Speed < 85% of posted	No
SR 127	8.0	11.2	Central Ferry	65-70	10	55	Speed < 85% of posted	No
SR 128	0.0	2.2	Port of Wilma	354-401	65-75	35-55	V/C < 0.8	No
SR 193	0.0	1.9	Port of Wilma	205	55	55	V/C < 0.8	No
SR 194	0.0	1.0	Almota	35	10	40	V/C < 0.8	No
SR 261	11.7	14.2	Lyons Ferry	40	10	50	V/C < 0.8	No
SR 263	2.9	5.0	Port of Kahlotus	20	10	50	V/C < 0.8	No
SR 397	19.2	16.9	Pasco, Kennewick	600-1,270	70-85	35-40	Speed < 85% of posted	No

Rail Terminal Connector Highways

Highway	Mileposts		Port/ Community	Facility Served	Peak Hour Peak Direction Volume		Posted Speed	Congestion Evaluation[1]	Over Capacity?
	From	To			All Vehicles	Trucks			
I-90	216.3	225.5	Ritzville	Templin Terminal	810-1,635	185-215	70	Speed < 85% of posted	**No**
	267.0	271.8	Airway Heights	HighLine Shuttle Train Loading Facility	1,755-2,520	160-200	70	Speed < 85% of posted	**No**
I-82	130.1	133.0	Plymouth	Grain Handling LLC Grain Receiving Terminal	1,445-1,655	155-315	65-70	Speed < 85% of posted	**No**
US 195	59.4	62.1	McCoy	McCoy Shuttle Train Loading Facility	315	35	60	V/C < 0.8	**No**
US 395	100.5	101.5	Ritzville	Templin Terminal	945	190	70	Speed < 85% of posted	**No**
SR 14	177.8	179.8	Plymouth	Grain Handling LLC Grain Receiving Terminal	245	95	55	Speed < 85% of posted	**No**
SR 240	25.9	29.9	Richland	CWCP Shuttle Facility at the Port of Benton	355-2,095	25-155	55	V/C < 0.8	**No**
SR 261	61.6	62.7	Ritzville	Templin Terminal	50-435	15-165	35-55	V/C < 0.8	**No**
SR 271	4.8	6.8	McCoy	McCoy Shuttle Train Loading Facility	90	15	55	Speed < 85% of posted	**No**
SR 904	15.5	17.0	Airway Heights	HighLine Shuttle Train Loading Facility	1,395	130	40	Speed < 85% of posted	**No**

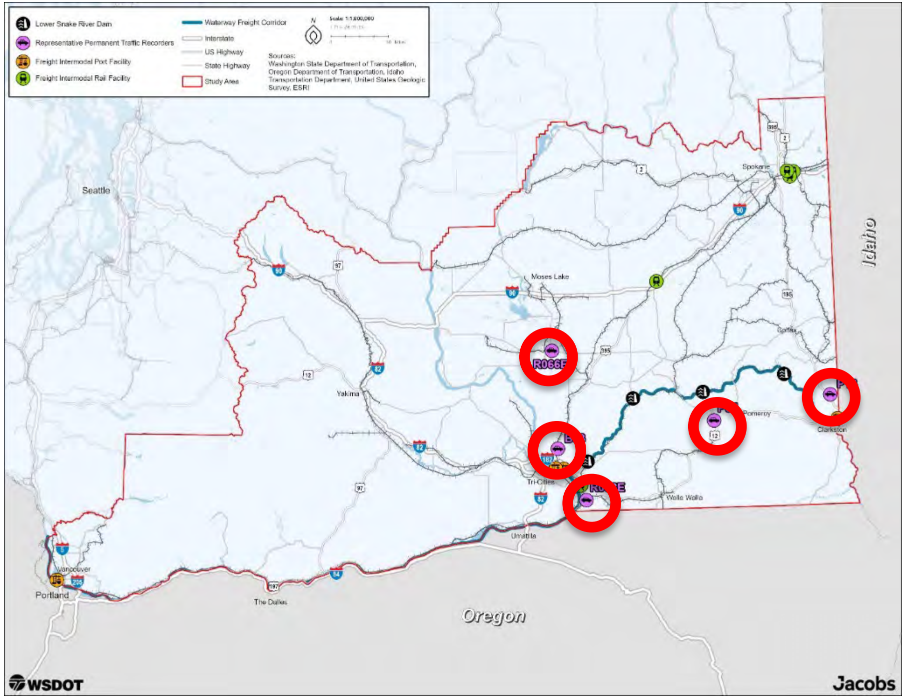
Grain Terminal Connecting Highways

Highway	Mileposts		Community	Facility Served	Peak Hour Peak Direction Volume		Posted Speed	Congestion Evaluation[1]	Over Capacity?
	From	To			All Vehicles	Trucks			
I-90	193.9	196.8	Schrag	Gavilon Grain, LLC	885-910	85-95	70	Speed < 85% of posted	No
	216.3	225.5	Ritzville	Ritzville Warehouse Co.	810-1635	185-215	70	Speed < 85% of posted	No
	241.6	244.5	Lamont	Lamont Grain Growers, Inc.	1655	185	70	Speed < 85% of posted	No
US 195	4.5	7.5	Uniontown	Uniontown Cooperative Assoc.	290-390	30-65	60	V/C < 0.8	No
	59.4	60.4	Rosalia	Cooperative Agricultural Producers, Inc.	320	35	60	Speed < 85% of posted	No
	63.9	64.9			355	35	60	Speed < 85% of posted	No
US 2	192.6	194.6	Hartline	HighLine Grain, LLC	85	10	60	V/C < 0.8	No
	199.8	203.4	Almira	HighLine Grain, LLC	80-115	10-20	60	V/C < 0.8	No
	212.9	214.9	Wilbur	HighLine Grain, LLC	115-185	20-30	60	V/C < 0.8	No
	241.6	244.5	Davenport	HighLine Grain, LLC	170-400	30-40	30-60	Speed < 85% of posted	No
	248.5	250.5	Mondovi	HighLine Grain, LLC	365	45	60	V/C < 0.8	No
	252.5	256.9	Reardan	HighLine Grain, LLC	400-485	40-70	30-60	Speed < 85% of posted	No
US 395	100.5	101.5	Ritzville	Ritzville Warehouse Co.	945	190	70	Speed < 85% of posted	No
SR 21	77.2	79.2	Monson	HighLine Grain, LLC	20-25	10	55	V/C < 0.8	No
	90.7	91.7	Wilbur	HighLine Grain, LLC	25	10	30	V/C < 0.8	No
	92.4	92.9			165	30	60	Speed < 85% of posted	No
SR 23	12.9	14.9	St. John	Whitgro, Inc.	65-95	15-20	55	V/C < 0.8	No
	34.0	36.6	Lamont	Lamont Grain Growers, Inc.	25-40	5-10	55	V/C < 0.8	No
	64.4	66.0	Harrington	HighLine Grain, LLC	30	10	25-55	V/C < 0.8	No
SR 231	27.0	28.0	Reardan	HighLine Grain, LLC	25	10	55	V/C < 0.8	No
	30.9	32.0			115	20	55	V/C < 0.8	No
SR 25	0.0	1.0	Davenport	HighLine Grain, LLC	120	15	55	V/C < 0.8	No
SR 261	61.6	62.7	Ritzville	Ritzville Warehouse Co.	50-435	15-165	35-55	V/C < 0.8	No
SR 27	37.2	39.7	Oakesdale	Cooperative Agricultural Producers, Inc.	50-75	15	25-55	V/C < 0.8	No
	64.9	67.0	Fairfield	Cooperative Agricultural Producers, Inc.	75-155	15	25-55	V/C < 0.8	No
SR 271	0.0	1.0	Oakesdale	Cooperative Agricultural Producers, Inc.	95	15	55	V/C < 0.8	No
	7.5	8.5	Rosalia	Cooperative Agricultural Producers, Inc.	95	15	55	V/C < 0.8	No
SR 28	121.2	123.2	Harrington	HighLine Grain, LLC	50-115	10-15	60	V/C < 0.8	No
	133.7	135.3	Davenport	HighLine Grain, LLC	125	25	60	V/C < 0.8	No
US 12	363.4	365.7	Dayton	Columbia County Grain Growers, Inc.	180-430	50-85	25-60	Speed < 85% of posted	No

Task 2: Highway Existing Conditions

Seasonal Fluctuations – Permanent Count Locations

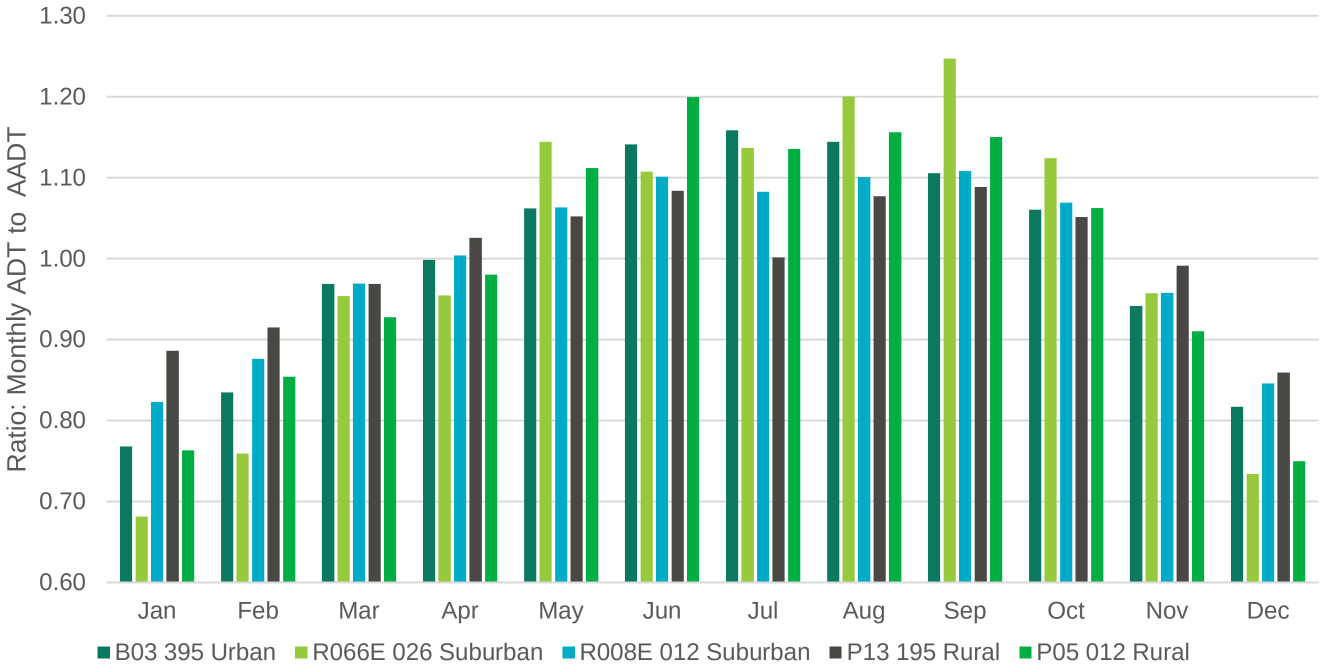
PTR	Hwy	Roadway Classification	Nearest Community	Location Description
B03	US 395	Other Freeway/ Expressway	Pasco	Urban
R066E	SR 26	Other Freeway/ Expressway	Othello	Rural/Urban Boundary
R008E	SR 12	Principal Arterial	Wallula Junction	Rural
P13	US 195	Principal Arterial	Uniontown	Rural
P05	SR 12	Principal Arterial	Tucannon	Rural



Task 2: Highway Existing Conditions

Total Volumes – Monthly Fluctuations

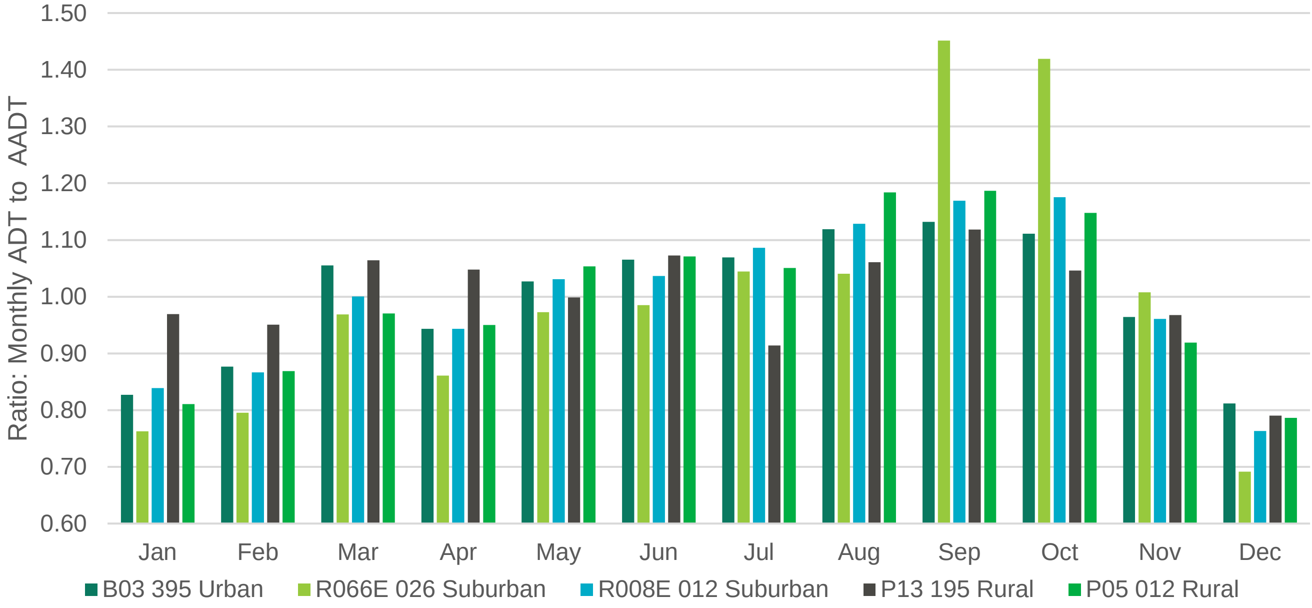
- Seasonal fluctuations are important to analyze to identify peak volumes.
- Total vehicle volumes peak in summer months.



Task 2: Highway Existing Conditions

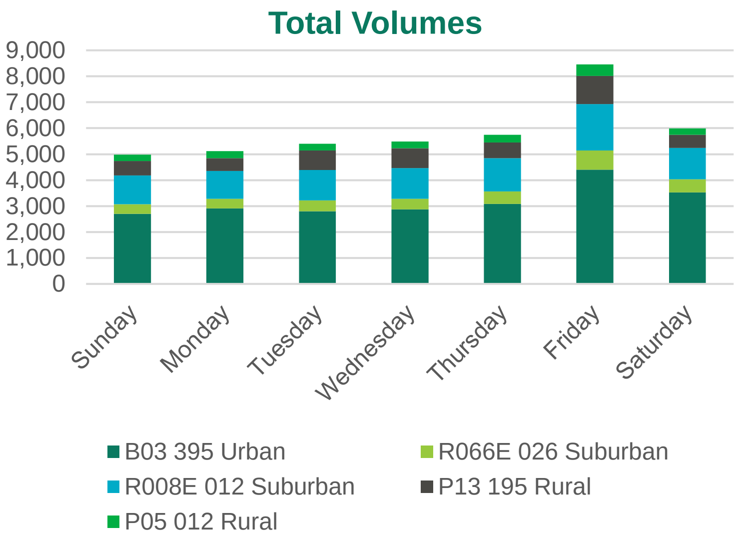
Truck Volumes – Monthly Fluctuations

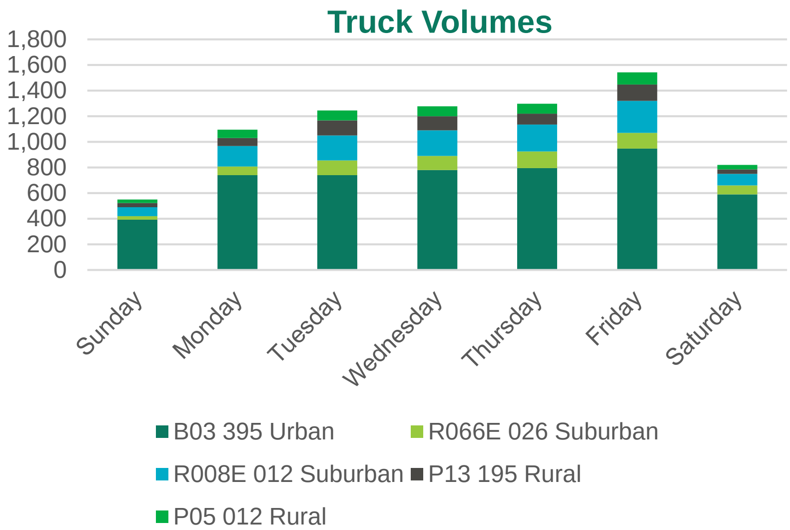
- Truck volumes peak in September and October.
- The SR 26 location in Othello has particularly high peaking.



Task 2: Highway Existing Conditions

Day of Week Volume Fluctuations: Volumes build throughout the week with peak traffic occurring on Fridays

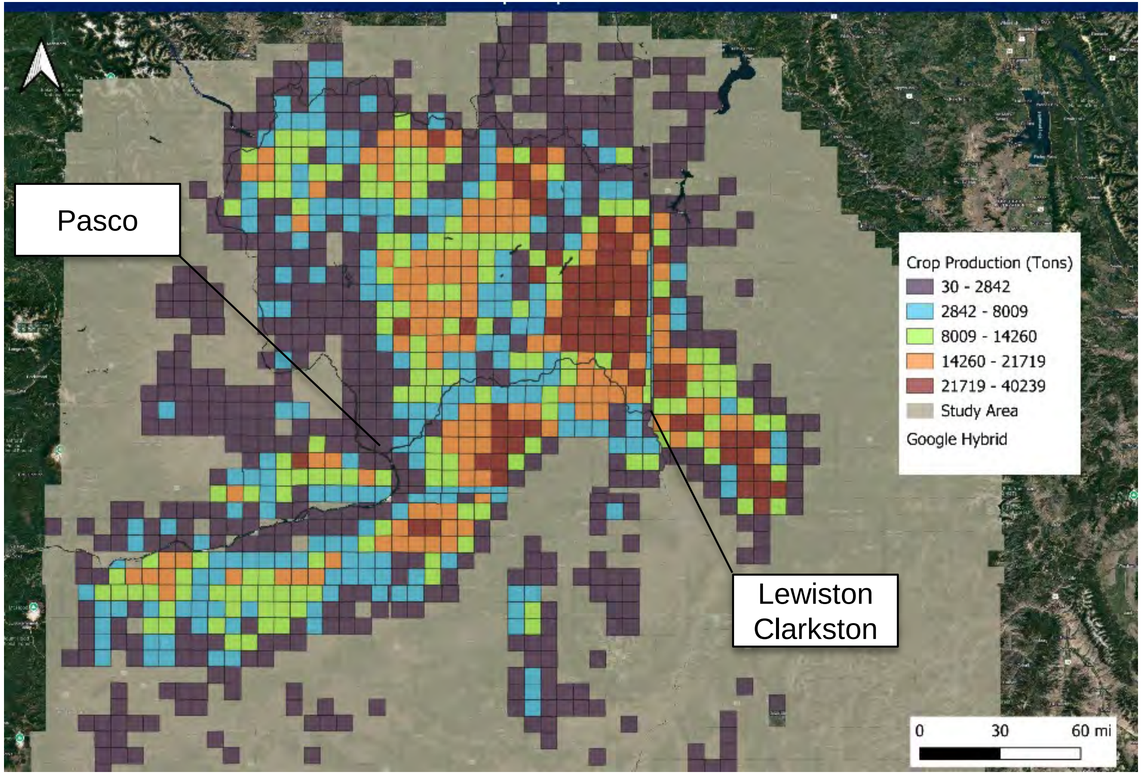




Total Logistics Cost Model

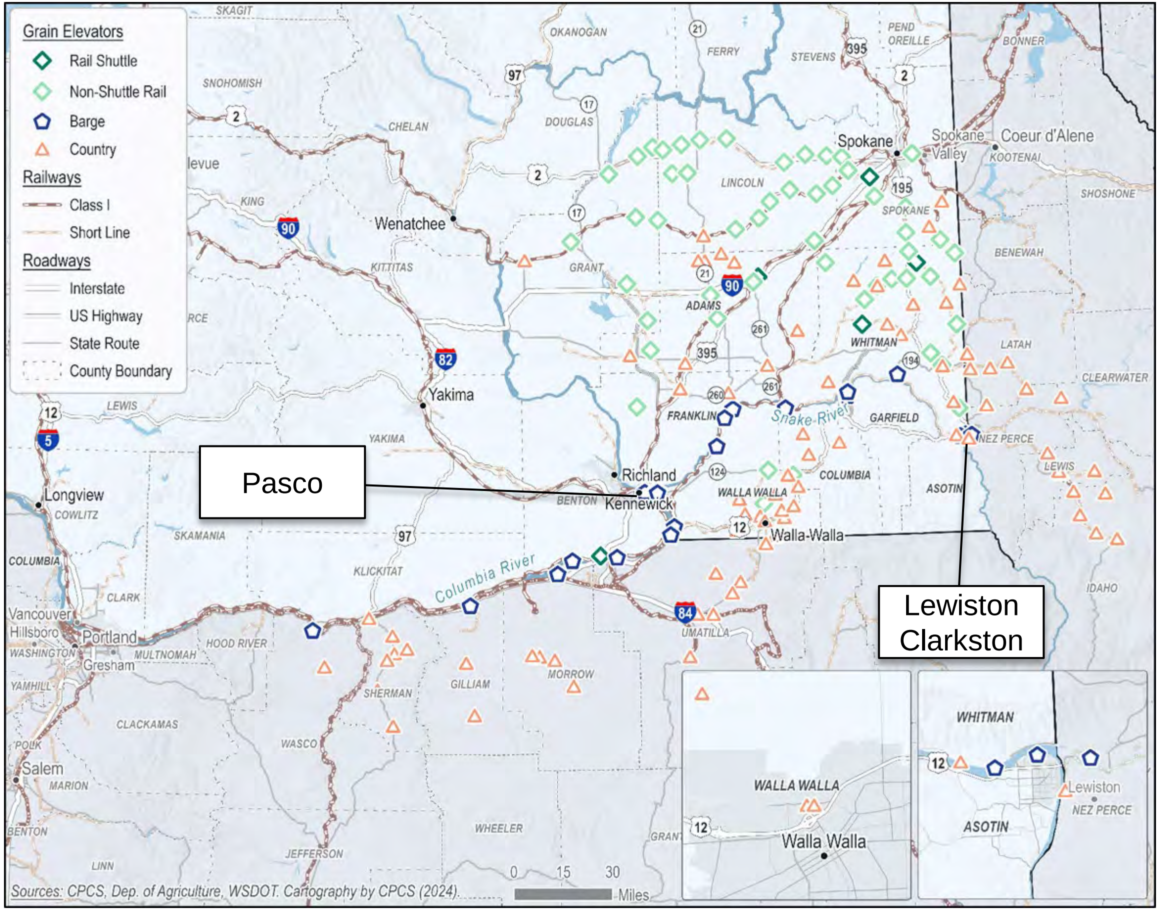
Task 2: Wheat

- Study area clarification – excluding townships with less than 1,000 bushels of wheat production (1 truckload) from model.
- Updated barge and trucking cost formulas to reflect increasing per-mile costs based on distance traveled, cost formulas for trucking reflect round-trip miles.



Task 2: Wheat

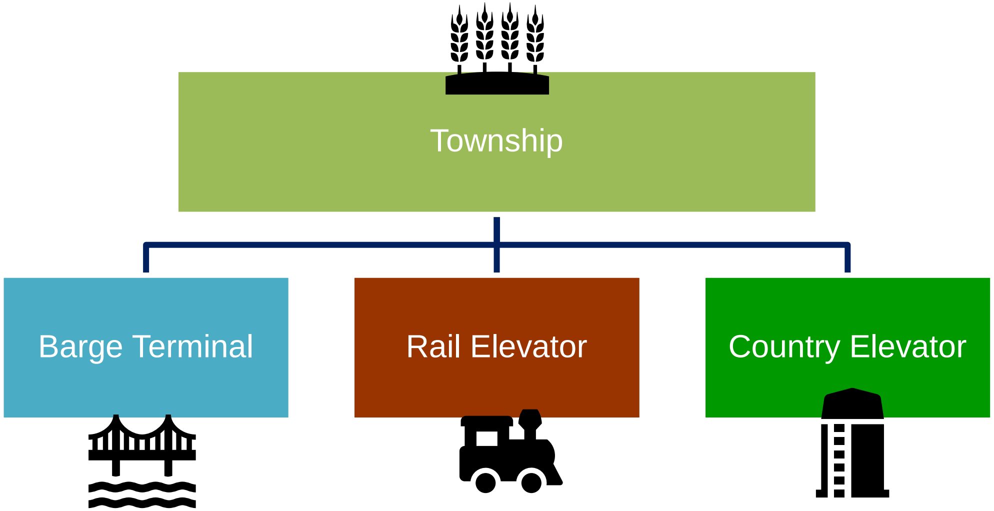
- Grain elevators in Eastern Washington, Central Idaho, and Northeast Oregon.

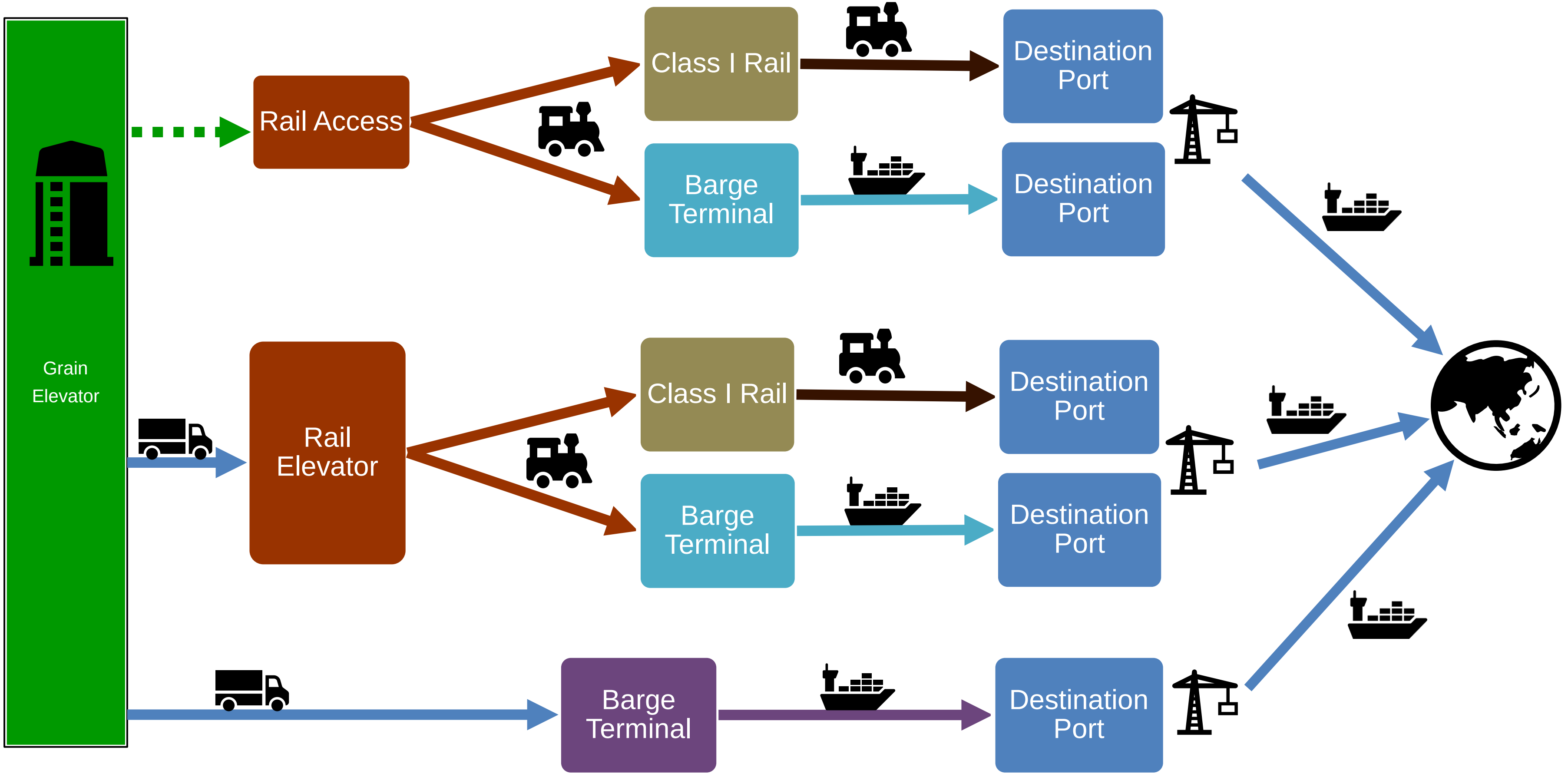


Task 2: Wheat

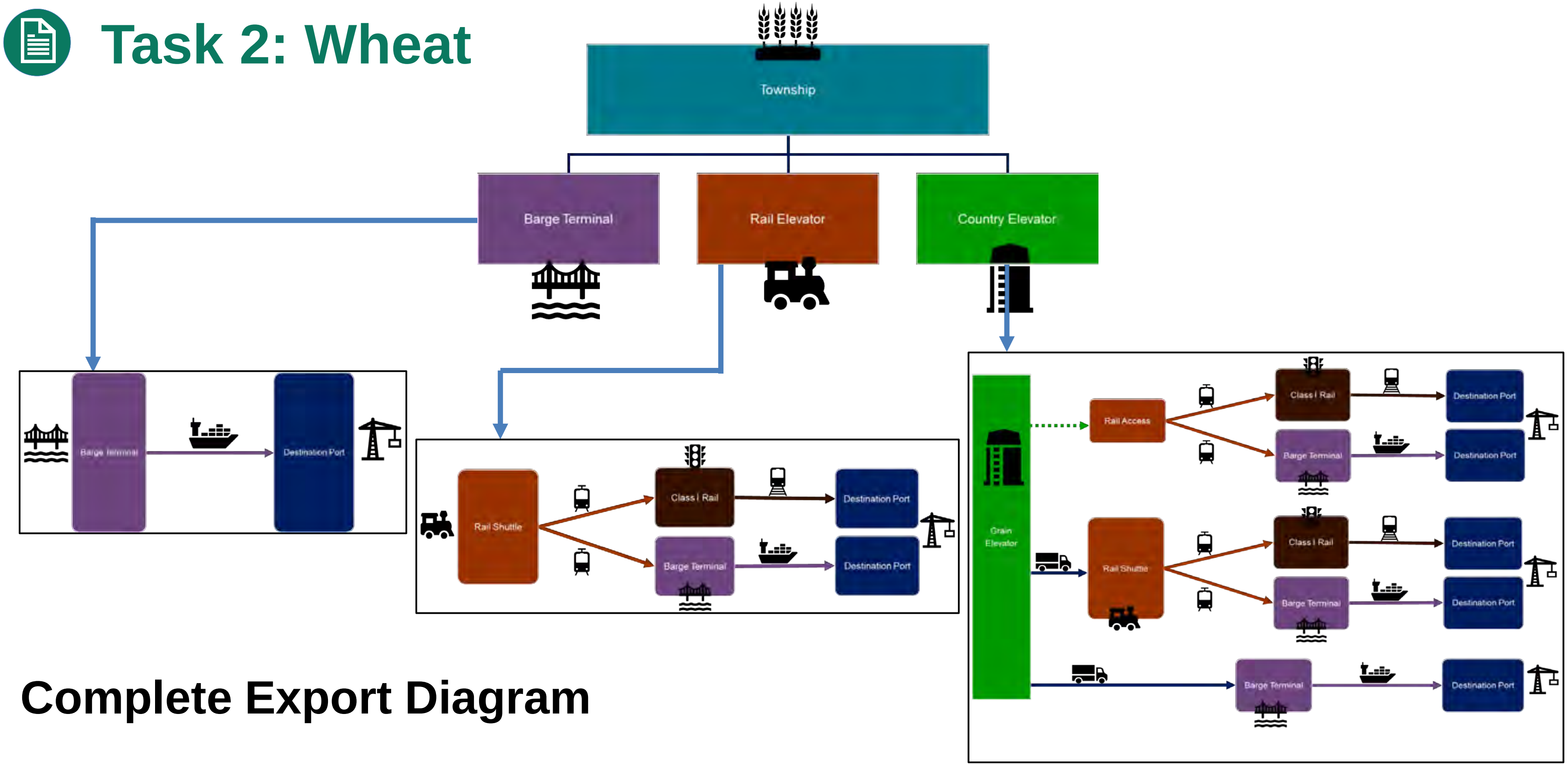
Step 1: From Township to Barge Terminal/Rail Elevator/Country Elevator

- **Assumption:** Minimum Travel Cost
- **Network:** Road
- **Mode:** Truck




Grain Elevator
Rail Access
Class I Rail
Barge Terminal
Destination Port
Destination Port
Rail Elevator
Class I Rail
Barge Terminal
Destination Port
Destination Port
Barge Terminal
Destination Port

Task 2: Wheat



Complete Export Diagram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Tons
4.5M
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Tons
4.5M
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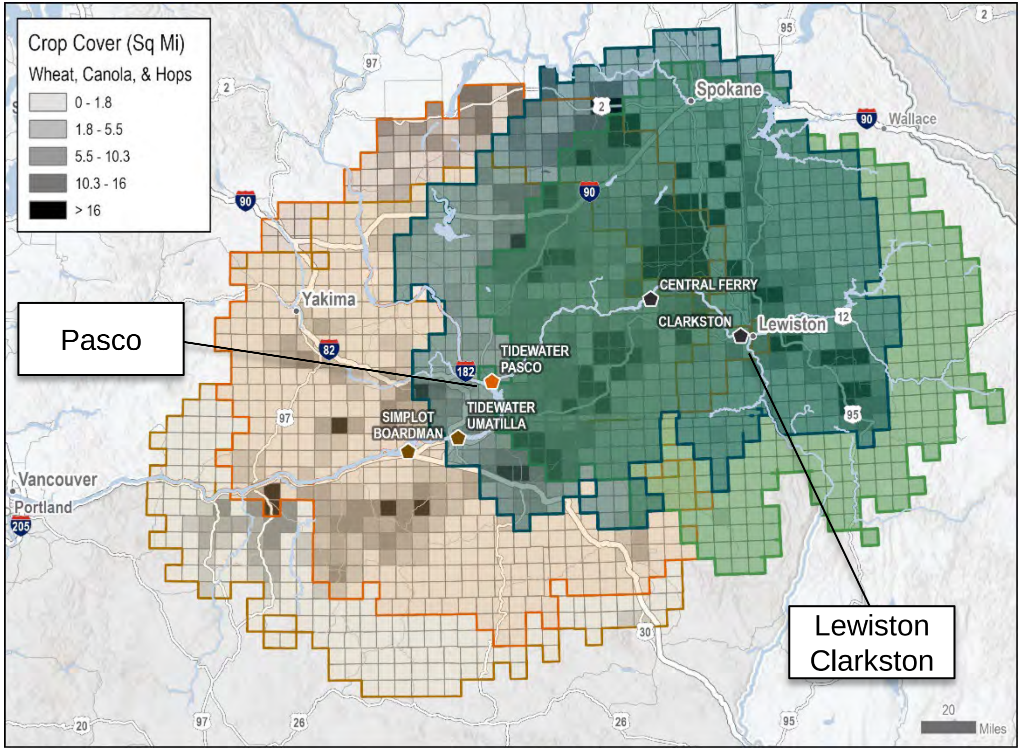
Wheat Flows Along Road Network
Tons
4.5M
50k***
Seattle
Renton
Kent
Tacoma
Olympia
Centralia
Longview
Vancouver
Hillsboro
Portland
Gresham
Wenatchee
Yakima
Richland
Kennewick
Walla-Walla
Spokane
Spokane Valley
Coeur d'Alene
Columbia River
Snake River
OKANOGAN
FERRY
STEVENS
PEND OREILLE
BONNER
DOUGLAS
LINCOLN
KOOTENAI
SHOSHONE
SPOKANE
KING
MASON
KITTITAS
GRANT
ADAMS
BENEWAH
GRAYS HARBOR
PIERCE
WHITMAN
LATAH
THURSTON
CLEARWATER
LEWIS
FRANKLIN
GARFIELD
YAKIMA
NEZ PERCE
COLUMBIA
ASOTIN
WALLA WALLA
BENTON
COWLITZ
SKAMANIA
KLICKITAT
CLARK
HOOD RIVER
MULTNOMAH
WASHINGTON
UMATILLA
IDAHO

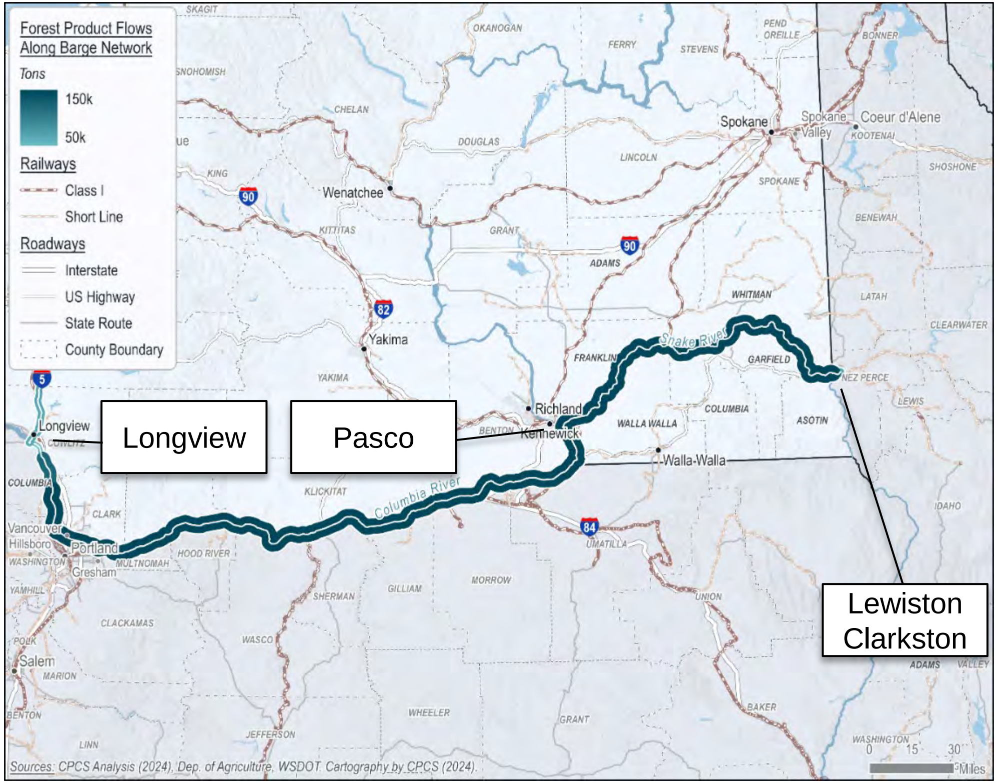
Task 2: Fertilizer

- Inventoried fertilizer terminals to add to model for use in later model runs for post-dam scenarios:
  - Barge: Pasco, Umatilla, Boardman
  - Rail: Pasco, Tokio, Othello, Plymouth

- Using 2023 as a base year for flows due to the addition of new capacity in prior years.



Task 2: Wood Products



Engagement

Phase 1 Community Engagement

Planning & kick off	Existing goods Movement	Existing Volumes	Rail and Volume Changes
▪ Develop web content and GovDelivery	• Public Engagement Plan • Briefings and presentations • Tribal coordination • Advisory Committees • Online Open House	• Road show • Website update • Tribal coordination • Advisory Committees	• Road show • Website update • Newsletters and social media • Tribal coordination • Online open house • Advisory Committees

Recent Engagement

The project team will be introducing the project at existing meetings

September	October	November
• TAC & CAC • Palouse RTPO • WSDOT Traffic Engineers	• Six-Sovereigns Lewiston Mtg • Infra Day • Washington Transportation Commission	• TAC & CAC • Statewide MPO/RTPO • WSDOT Project Engineers

Online Open House

- **When:** November 15 – December 6
- **Purpose:** Introduce the study to the broader public, confirm preliminary analysis findings, and gain input on needs and priorities.
- **Where:** Static online open house, accessible through the project webpage.

Future Engagement Activities

Spring/Summer 2025

- Fairs and festivals
- In-person open houses
- Online open houses

Upcoming Items

52

US Army Corps of Engineers

Agreement for Partnership

- Extends study outside of Washington State

Interim Report

- **Purpose is to describe existing conditions of the transportation system related to the Lower Snake River Dams.**

- **Structure of Report**
    - Introduction
    - Barge Traffic
    - Rail Traffic
    - Highway/Truck Traffic
    - Summary of Engagement Conducted to-date
    - Next Steps

- **Report to be completed by December 15, 2024.**

Technical Phases and Tasks

Phase - 1

Spring 24

Understanding Needs

Task 1: Existing conditions for **barge traffic**

Task 2: Existing conditions for **rail and highway traffic**

Task 3: Total Logistics Cost diversion **model**

Interim Report

Phase - 2

Winter 25

Impacts & Safety

Estimation of geological, geographical, rail, road, and utility **impacts from dam closure**

Safety analysis

Phase - 3

Spring 25

Solutions & Competitive Impacts

Identify potential **mitigation options** for impacts

Estimate the **competitive impacts** of modal diversion

Phase - 4

Spring 26

Report

Development of the **draft and final report**

Task 13: Community Engagement

More Information

- Monthly newsletter: GovDelivery
- Website

Washington State Department of Transportation

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