

Joint Transportation Committee

PRIORITIZATION OF PROMINENT ROAD-RAIL CONFLICTS IN WASHINGTON STATE

**DATABASE REPORT CARD
STEP 1 SCREENING PROCESS**



PROJECT CROSSINGS

There are many road-rail crossings in Washington State and some crossings fall outside of the scope of this project. Here is a summary of the initial screening process undertaken before prioritizing sites.

PROJECT CROSSINGS: 2,197

Sites were chosen that met the following characteristics:

- **Active** rail line
- **Publicly** accessible
- **At-grade** crossing

The Road-Rail Study crossing database includes all active, public, at-grade crossings in Washington State. This Report Card summarizes the results of the Step I screening process and the data and criteria used.

TOP 5 RTPOs (by number of crossings)

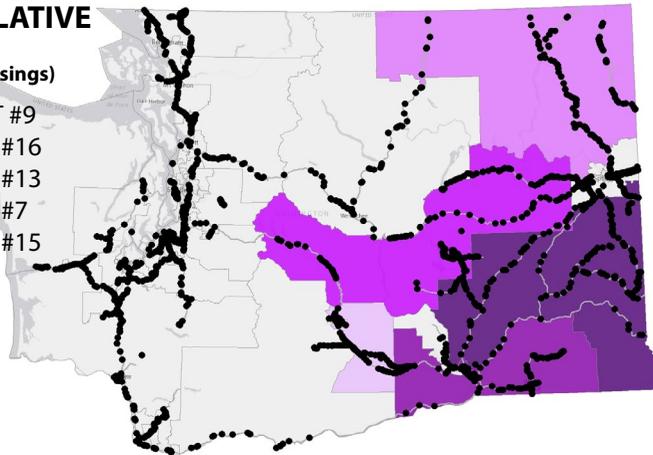
- 23% PUGET SOUND REG. COUNCIL
- 12% QUAD-COUNTY RTPO
- 10% SPOKANE REG. TRANS. COUNCIL
- 9% SW WASHINGTON RTPO
- 8% YAKIMA VALLE COUNCIL OF GOV.

TOP 5 MPOs (by number of crossings)

- 43% NO AFFILIATION
- 23% PUGET SOUND REG. COUNCIL
- 10% SPOKANE REG. TRANS. COUNCIL
- 4% WHATCOM COUNCIL OF GOV.
- 4% BENTON-FRANKLIN COUNCIL OF GOV.

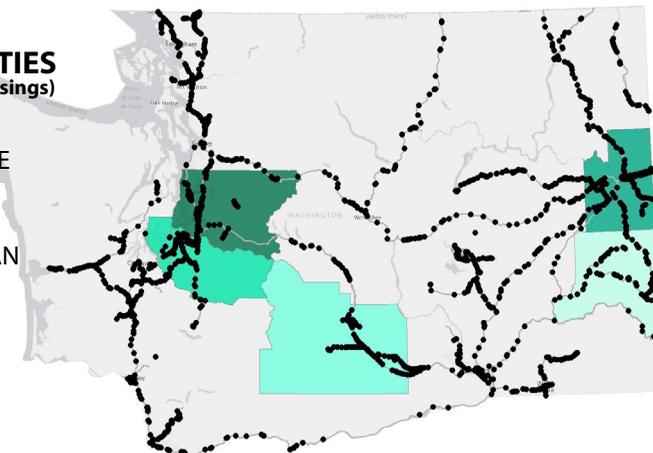
TOP 5 LEGISLATIVE DISTRICTS (by number of crossings)

- 10% DISTRICT #9
- 9% DISTRICT #16
- 9% DISTRICT #13
- 6% DISTRICT #7
- 6% DISTRICT #15



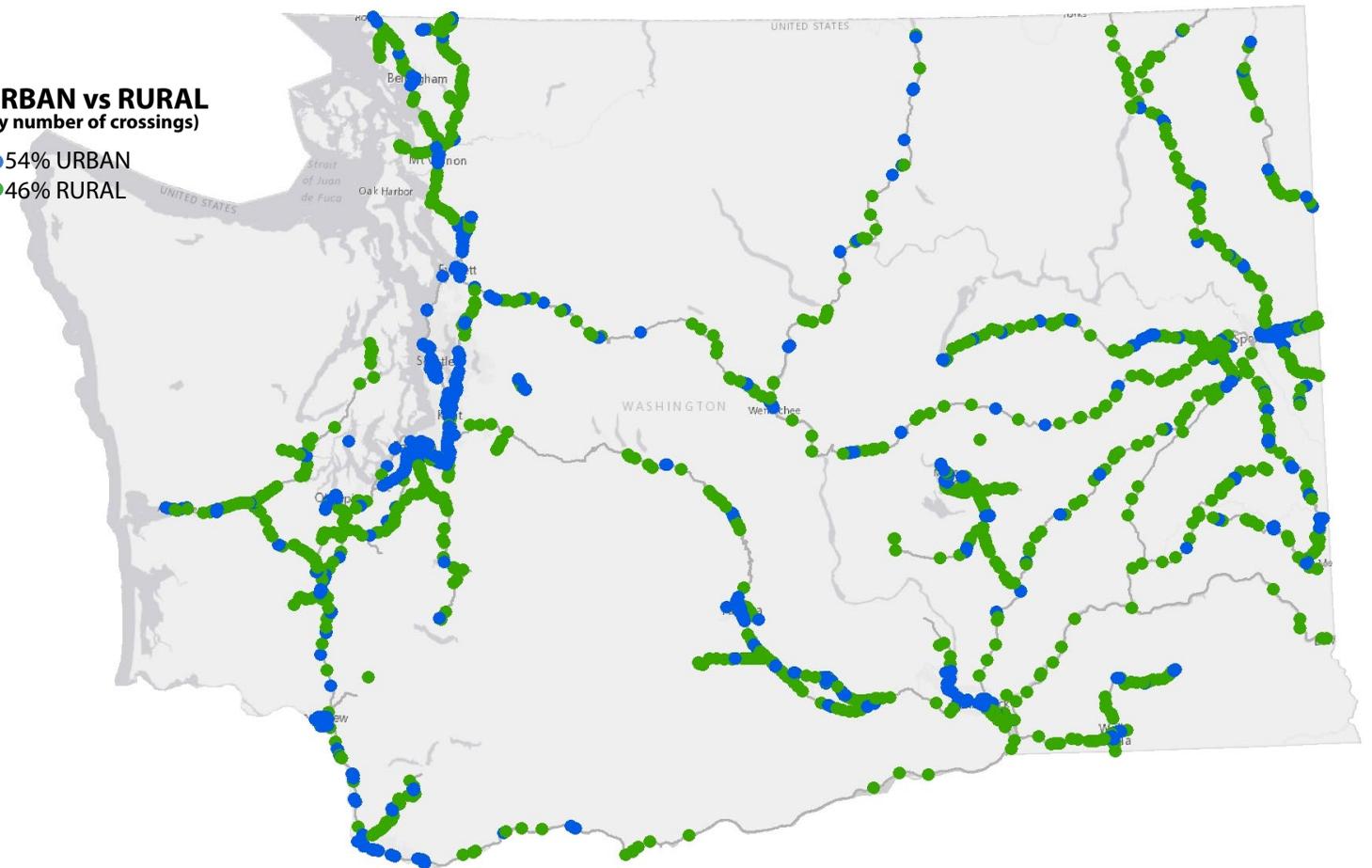
TOP 5 COUNTIES (by number of crossings)

- 11% KING
- 10% SPOKANE
- 8% PIERCE
- 8% YAKIMA
- 6% WHITMAN



URBAN vs RURAL (by number of crossings)

- 54% URBAN
- 46% RURAL



STATEWIDE CROSSING CHARACTERISTICS

TWO-STEP SCREENING PROCESS

A Two-Step Screening Process was used to focus detailed evaluation on the most prominent road-rail crossings in the state. The first step of the screening process, Step I, was less detailed and included criteria that identify higher priority crossings. Lower priority crossings were filtered out in Step I from further evaluation. The Step II screening step is more detailed and the criteria are used to prioritize or rank the most prominent crossings.

STEP I OF THE SCREENING PROCESS - IDENTIFYING THE TOP 300 CROSSINGS

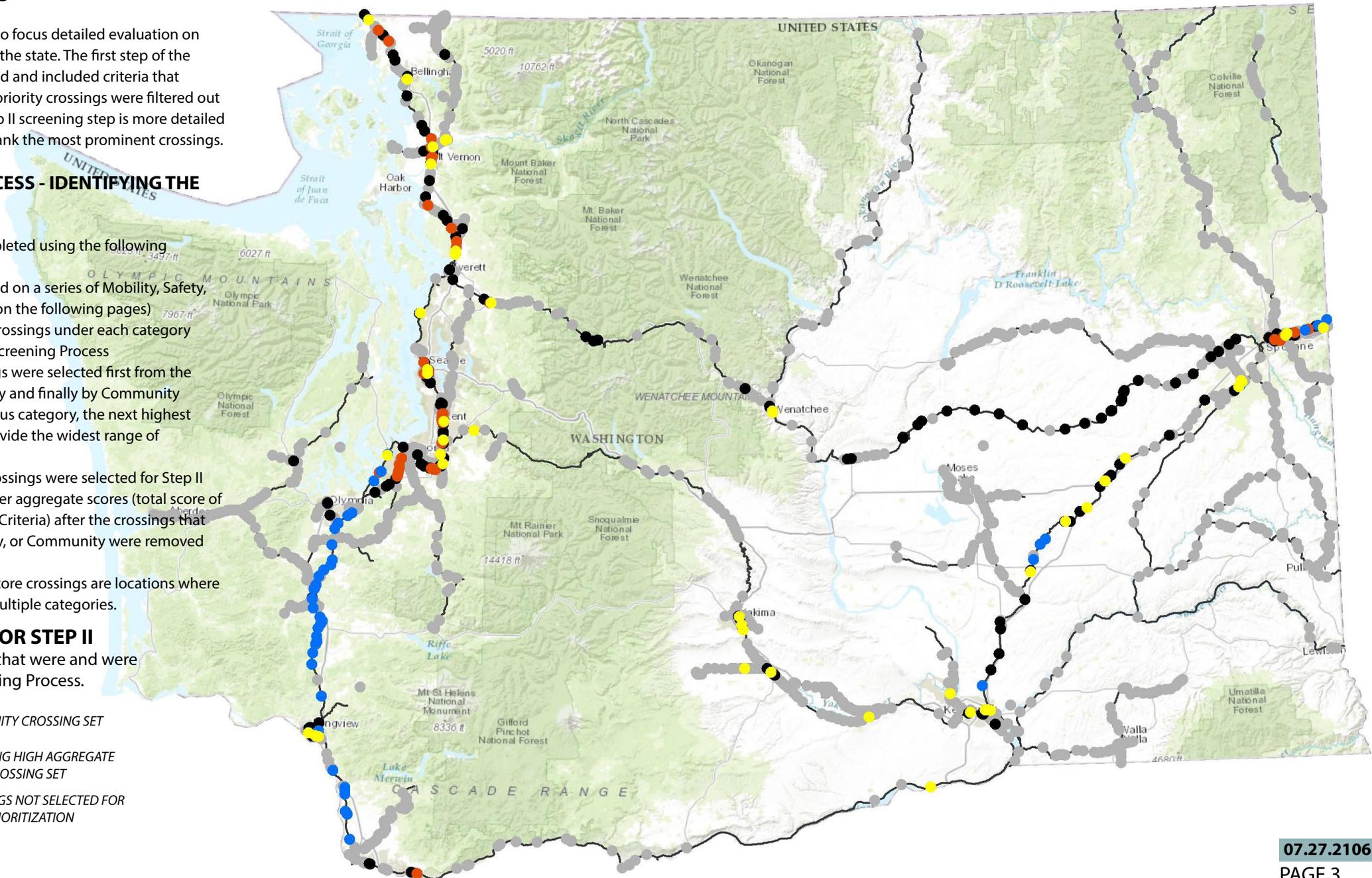
Step I of the Screening Process was completed using the following methodology:

- All 2,197 crossings were scored based on a series of Mobility, Safety, and Community criteria (described on the following pages)
- Approximately 50 highest ranking crossings under each category were selected for the Step II of the Screening Process
- To avoid duplication, Step II crossings were selected first from the Mobility category, followed by Safety and finally by Community
- If a crossing was selected in a previous category, the next highest scoring crossing was selected to provide the widest range of prominent road-rail conflicts
- An additional approximately 150 crossings were selected for Step II consideration based on having higher aggregate scores (total score of all Mobility, Safety, and Community Criteria) after the crossings that were included under Mobility, Safety, or Community were removed from consideration
- The Remaining Higher Aggregate Score crossings are locations where there are combined impacts from multiple categories.

300 CROSSINGS SELECTED FOR STEP II

This map summarizes the crossings that were and were not selected for Step II of the Screening Process.

- MOBILITY CROSSING SET
- SAFETY CROSSING SET
- COMMUNITY CROSSING SET
- REMAINING HIGH AGGREGATE SCORE CROSSING SET
- CROSSINGS NOT SELECTED FOR STEP II PRIORITIZATION



STEP I MOBILITY CRITERIA

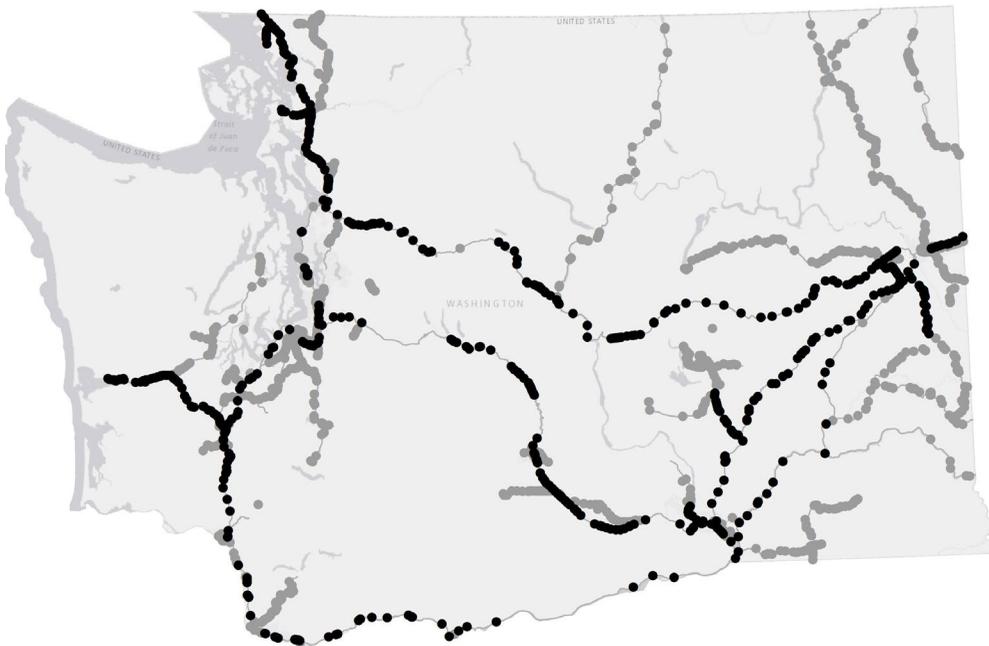
Mobility criteria assess road and rail traffic volumes at grade crossings, with higher volumes indicating larger impacts. Unit train data is included to reflect that these longer and slower-moving trains block vehicle traffic for longer periods of time.

SCORING

The individual criteria listed on this page were weighted and summed to produce an aggregate mobility score. These scores ranged from 10 to 20 with 47% of the crossing receiving a 10 versus less than 1% receiving a 20.

Of the 50 crossing selected for Step II based on the mobility criteria alone, 12 received a score of 20, 24 received a score of 18, and the remaining 14 received a score of 17. Of the remaining 150 crossings selected based on the remaining higher aggregate score for all criteria, 28 crossings received a mobility score of 17 and the lowest mobility score was 13.

PRESENCE OF UNIT TRAINS



Description

Presence of units trains.

Source

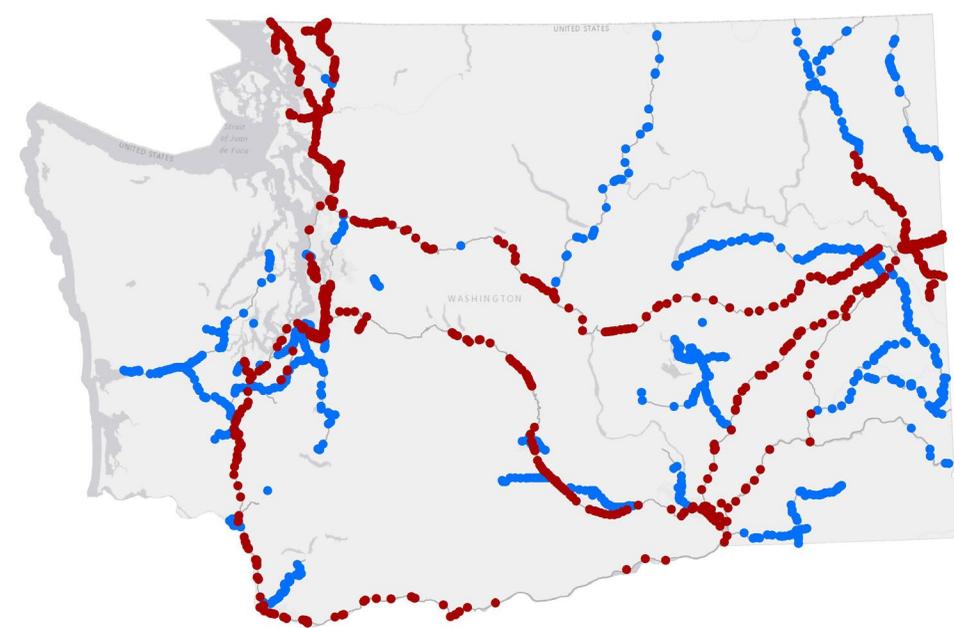
WSDOT & Dept. of Ecology

Notes

None

TRAINS	% OF ALL CROSSINGS	SELECTED FOR STEP II
● PRESENT	629 (29%)	230 (77%)
● ABSENT	1,568 (71%)	70 (23%)

RAIL CLASS



Description

The type of railroad classification associated with the rail line.

Source

Federal Rail Administration

Notes

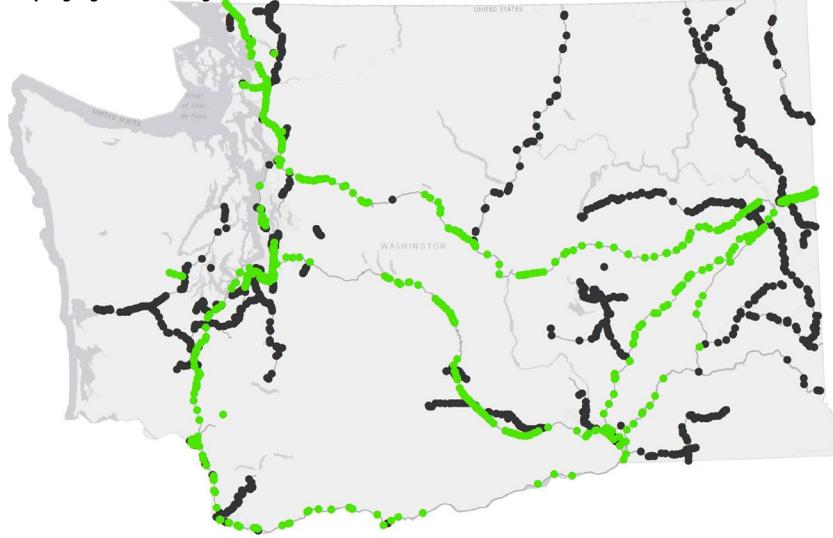
No Class II rail lines in the state.

CLASS	% OF ALL CROSSINGS	SELECTED FOR STEP II
● CLASS I	1,046 (48%)	275 (75%)
● CLASS III	1,151 (52%)	25 (25%)

NOTE: The maps summarize the characteristics of all 2,197 crossings. The tables provide information on all crossings as well as a summary of the characteristics of the crossings that continued to Step II of the screening process.

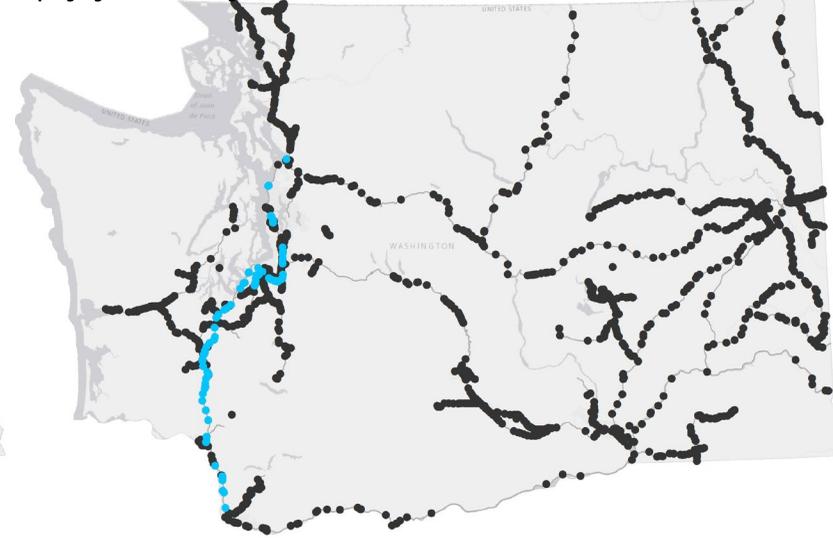
FREIGHT TRAIN COUNT (CURRENT & FUTURE)

Map Highlights Future Freight Train Count



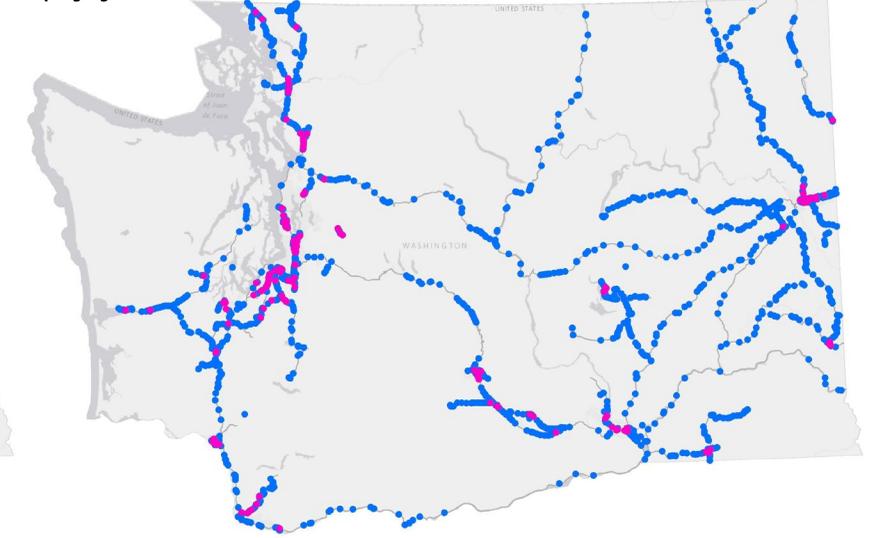
PASSENGER TRAIN COUNT (CURRENT & FUTURE)

Map Highlights Future Passenger Train Count



VEHICLE VOLUMES (CURRENT & FUTURE)

Map Highlights Future Vehicle Volumes



Description

The existing and estimated number of freight trains per day.

Source

2013 Washington State Rail Plan, FRA Database

Notes

For crossings where train volumes were not reported in the State Rail Plan, the FRA Database was used

CURRENT (AVG. DAILY TRAINS)

TRAINS	% OF ALL CROSSINGS	SELECTED FOR STEP II
<10	1,681 (77%)	49 (16%)
≥10	516 (23%)	251 (84%)

FUTURE (AVG. DAILY TRAINS)

TRAINS	% OF ALL CROSSINGS	SELECTED FOR STEP II
● <15	1,688 (77%)	61 (20%)
● ≥15	509 (23%)	239 (80%)

Description

The existing and estimated number of passenger trains per day.

Source

2013 Washington State Rail Plan, Amtrak, & Sound Transit

Notes

None

CURRENT (AVG. DAILY TRAINS)

TRAINS	% OF ALL CROSSINGS	SELECTED FOR STEP II
<10	2,095 (95%)	208 (69%)
≥10	102 (14%)	92 (31%)

FUTURE (AVG. DAILY TRAINS)

TRAINS	% OF ALL CROSSINGS	SELECTED FOR STEP II
● <10	2,095 (95%)	208 (69%)
● ≥10	102 (14%)	92 (31%)

Description

The existing and estimated Average Annual Daily Traffic (AADT) counts.

Source

UTC Crossings Dataset & WSDOT AADT Counts 2005 and 2015.

Notes

Vehicle volumes included in the UTC Crossings dataset were grown at 1% per year to 2015 and then grown to 2035 using growth rates identified by WSDOT 2005 to 2015 section data.

CURRENT (AVG. DAILY VEHICLES)

VEHICLES	% OF ALL CROSSINGS	SELECTED FOR STEP II
≤8,000	2,005 (91%)	201 (67%)
>8,000	192 (9%)	99 (33%)

FUTURE (AVG. DAILY VEHICLES)

VEHICLES	% OF ALL CROSSINGS	SELECTED FOR STEP II
● ≤8,000	2,002 (91%)	199 (67%)
● >8,000	195 (9%)	101 (33%)

STEP I SAFETY CRITERIA

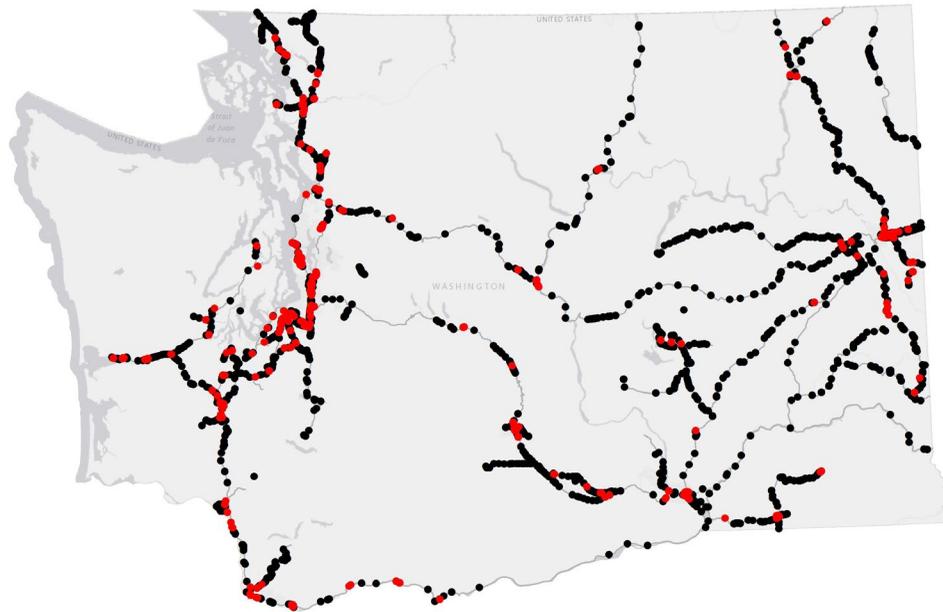
Safety criteria measure the potential for safety concerns at at-grade crossings in the state. The criteria measuring the presence of an alternate grade separated crossing identifies potential impacts to emergency vehicle access. The criteria measuring the number of mainline tracks assesses the potential for collisions to occur when an individual notices only one passing train where multiple trains could be crossing simultaneously.

SCORING

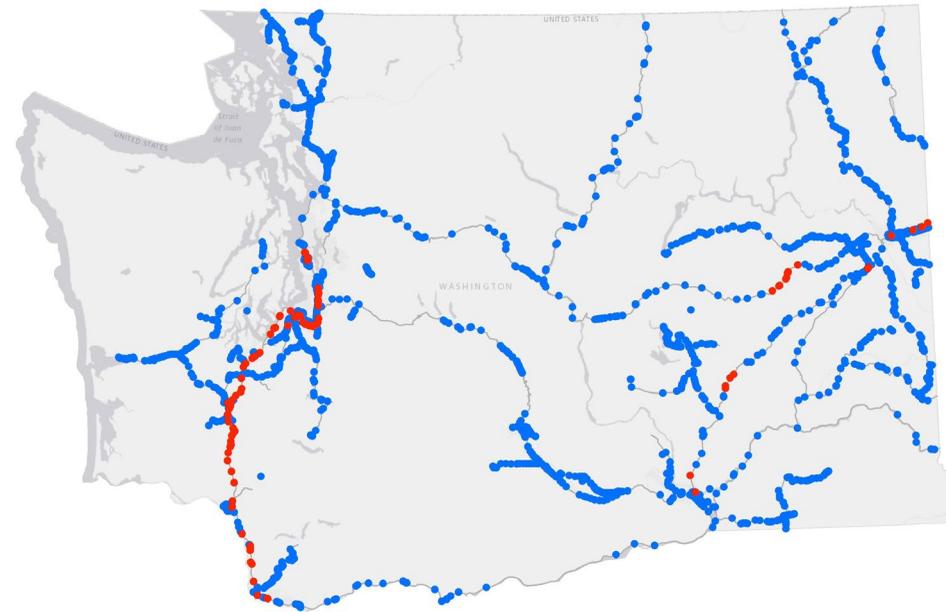
The individual safety criteria were weighted and summed to produce an aggregate safety score. Scores ranged from 3 to 6 with 22% of crossings receiving a 3 versus almost 4% receiving the highest score of 6.

All of the 50 crossings selected for Step II based on the safety criteria alone received the high score of 6. Of the remaining 150 crossings selected based on the remaining higher aggregate score for all criteria, 22 crossings received a safety score of 6, 117 crossings receiving a score of 4.5, and another 11 received a safety score of 3.

ALTERNATE GRADE SEPARATED CROSSINGS



NUMBER OF MAINLINE TRACKS



Description
Number of over or under crossings within 1/2-mile.

Source
UTC Crossing Dataset
Notes
None

ALTERNATE GRADE SEPARATED CROSSING	% OF ALL CROSSINGS	SELECTED FOR STEP II
● NONE	1,684 (77%)	237(79%)
● 1 OR MORE	513 (23%)	63 (21%)

Description
The number of mainline tracks at each crossing.

Source
UTC Crossings Dataset
Notes
None

TRACKS	% OF ALL CROSSINGS	SELECTED FOR STEP II
● 1 OR LESS	2,082 (95%)	194 (65%)
● 2 OR MORE	115 (5%)	106 (35%)

NOTE: The maps summarize the characteristics of all 2,197 crossings. The tables provide information on all crossings as well as a summary of the characteristics of the crossings that continued to Step II of the screening process.

STEP I COMMUNITY CRITERIA

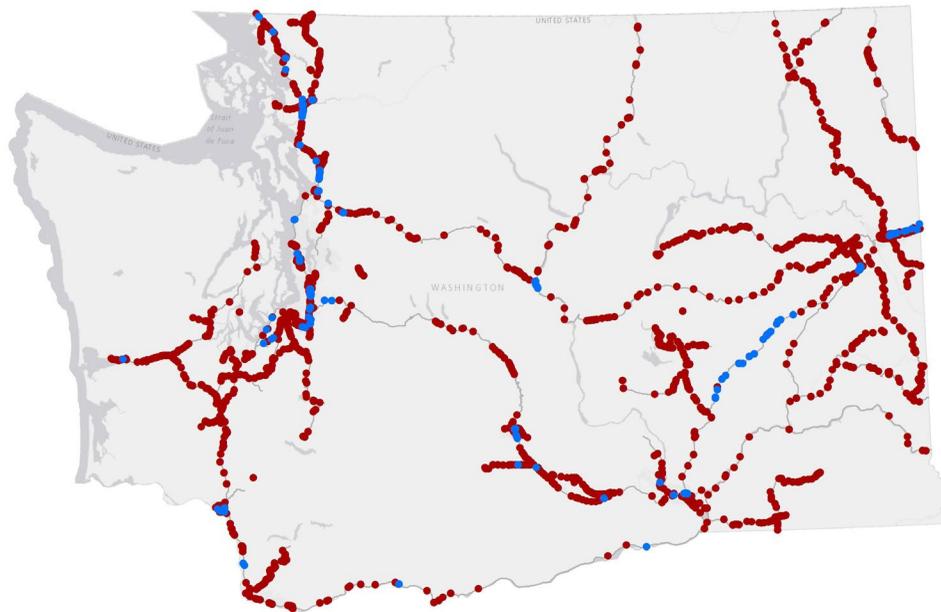
Community criteria are intended to summarize potential impacts to community access as well as to reflect local and regional planning efforts related to at-grade crossings. The functional road classification criteria measures the potential impacts to community access by measuring the access functions that the various roadways serve. Previously identified projects are included to measure the locations that have been identified as problematic by individual communities or regions.

SCORING

The individual community criteria were weighted and summed to produce an aggregate community score. Scores ranged from 2 to 4 with 66% of crossings receiving a 2 versus 4% receiving the highest score of 4.

All of the 50 crossings selected for Step II based on the community criteria alone received the high score of 4. Of the remaining 150 crossings selected based on the remaining higher aggregate score for all criteria, 2 crossings received a score of 4, 120 crossings received a community score of 3, and 28 received a community score of 2.

PREVIOUSLY IDENTIFIED PROJECTS



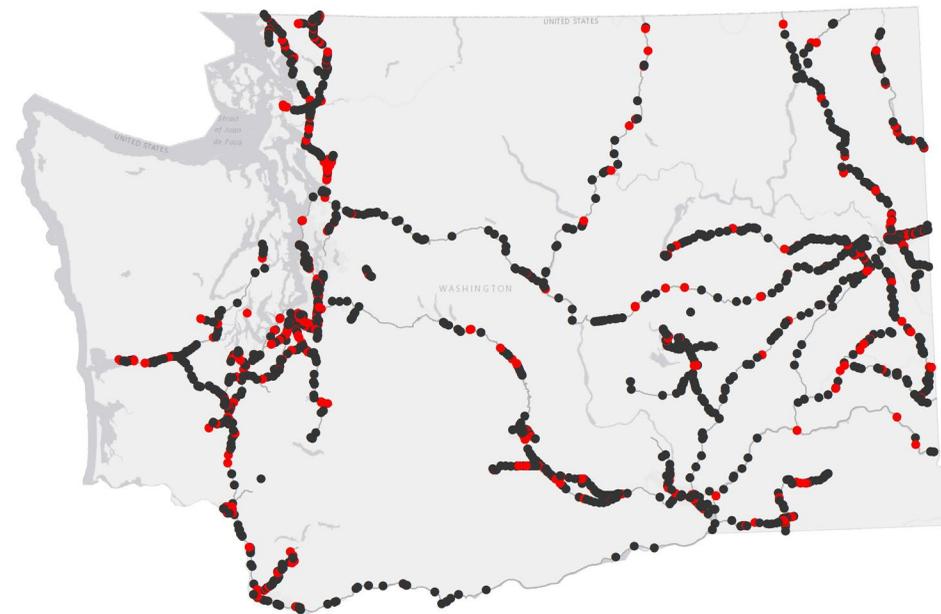
Description
Crossing identified in other local or regional plans and/or projects.

Source
MPO and RTPO Plans

Notes
None

IDENTIFIED	% OF ALL CROSSINGS	SELECTED FOR STEP II
● YES	146 (7%)	123 (41%)
● NO	2,051 (93%)	177 (59%)

FUNCTIONAL ROAD CLASSIFICATION



Description
The existing road categorized by its functional classification (WSDOT)

Source
WSDOT

Notes
None

CLASS	% OF ALL CROSSINGS	SELECTED FOR STEP II
● MINOR COLLECTOR AND BELOW	1,496 (68%)	87 (29%)
● MAJOR COLLECTOR AND ABOVE	701 (32%)	213 (71%)