CHSR Seattle, WA, to Spokane

The High-Speed Rail Corridor between Seattle, WA, and Spokane

The Stampede Pass SPHSR Corridor

- This corridor is from the Seattle CHSR Central Station to Auburn, Ellensburg, Moses Lake, Ritzville, Spokane International Airport, and the current Spokane Amtrak Station.
- This corridor will shorten the rail distance between Seattle and Spokane by 62 miles.
- This corridor will reduce elevation climbs by 697 feet, requiring much less energy to propel trains over the Stampede Pass.
- This corridor will provide saving energy and reduce pollution.
- This corridor will shorten transit time and reduce corridor maintenance costs.
- This corridor will help the railroads compete in express freight movement.

The Stampede Pass Miles from Auburn to Spokane

- Miles from Auburn to Lester, on ground 10.09 mi, on flyovers 8.58 mi, in tunnels 20.53 mi, a total of 39.20 mi.

- Miles from Lester to Ellensburg via Easton, on ground 27.66 mi, on flyovers 6.66 mi, in tunnels 17.41 mi, a total of 51.73 mi. Easton tunnel Elevation is 2215'. This section, Easton to Ellensburg, is unsuitable for HSR as it has too many tight curves, which consume much more electrical power to propel the trains.

- Miles from Lester to Ellensburg via Cle Elum, on ground 16.44 mi, on flyovers 4.40 mi, in tunnels 28.52 mi, a total of 49.36 miles. The Cle Elum tunnel elevation is 2164'. This section is suitable for HSR and is 2.37 miles shorter, has lesser maintenance costs, and power consumption due to low curve friction resistance.

- The via Easton corridor has 58 mph speed restrictions because of short radius curves. The via Cle Elum corridor is HSR capable with has very large curve radiuses.

- Miles from Ellensburg to Spokane, on ground 85.34 mi, on flyovers 42.97 mi, in tunnels 33.42 mi, a total of 161,73 mi

- Total miles from Auburn to Spokane via the new Stampede Pass Corridor is 250,29 miles and 268 ± miles from the CHSR Seattle Central Station.

Legend

 CHSR Station in Tunnel

 CHSR Station on Flyovers

 CHSR Station in on Ground

On ground

Cuts

Fills

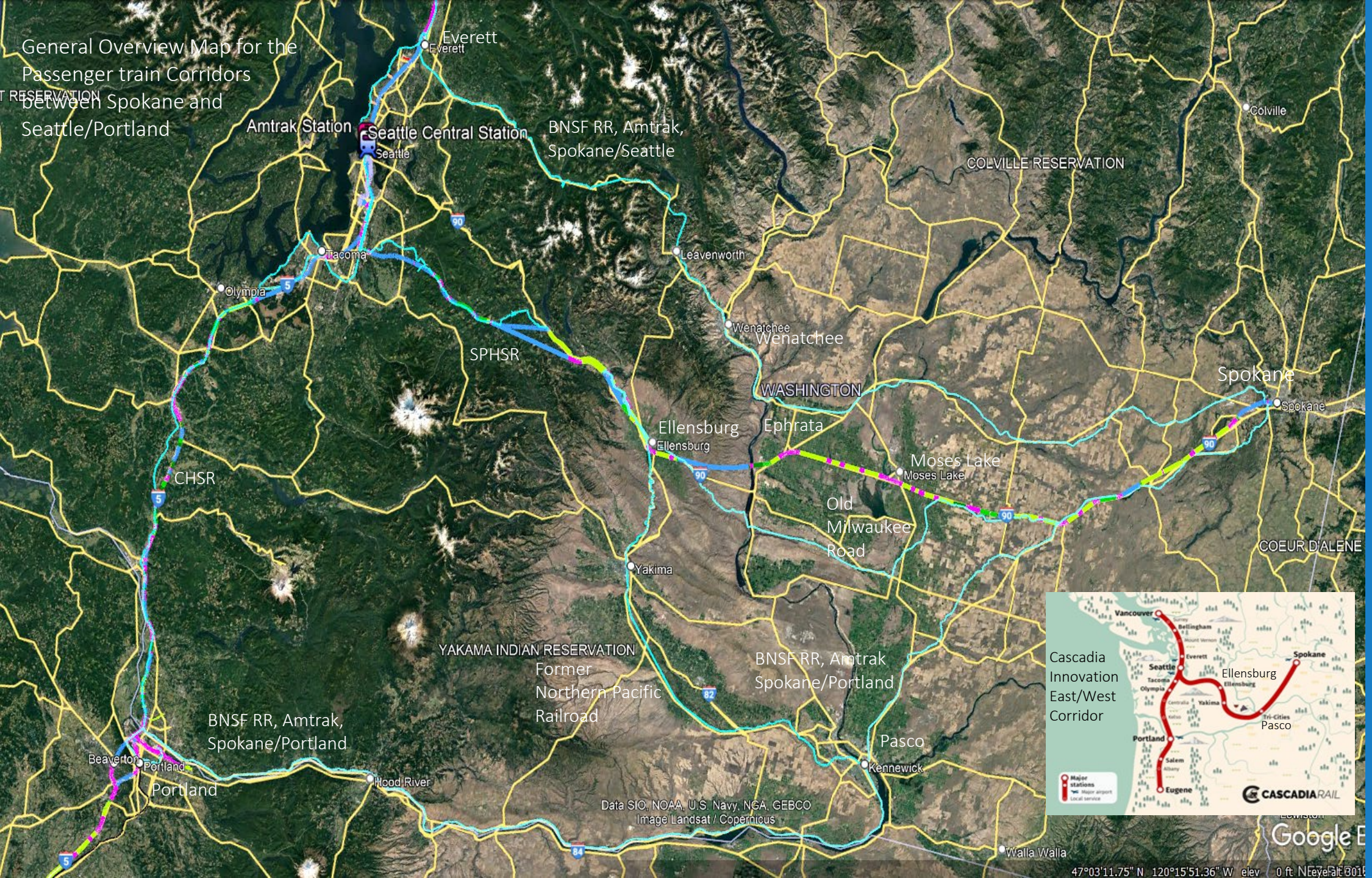
Flyovers

Tunnels

Existing Freight Railroads, other than BNSF and UP RR

Existing Freight Railroads, and Amtrak

HSR Legend 08
Des by R.N.

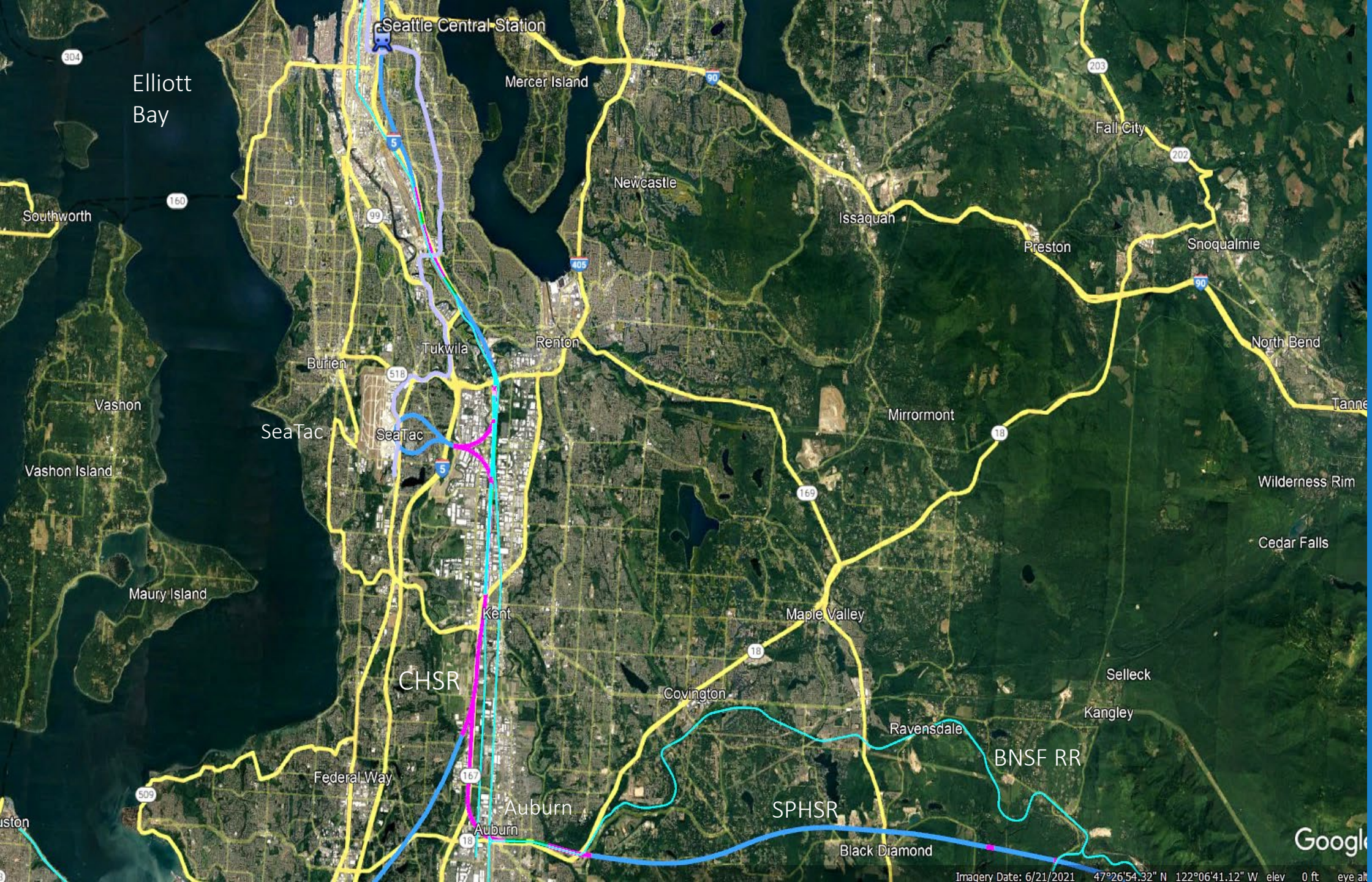


This Map does show the Existing Amtrak and the Proposed CHSR Corridors

The Stampede Pass SPHSR Corridor is the way to go for the East/West connection.

The existing Amtrak Trains, running on freight rail tracks, will not work for High-Speed Trains.

The Cascadia Innovation East/West Plan Corridor does use the existing freight tracks. This is not suitable for HSR trains.



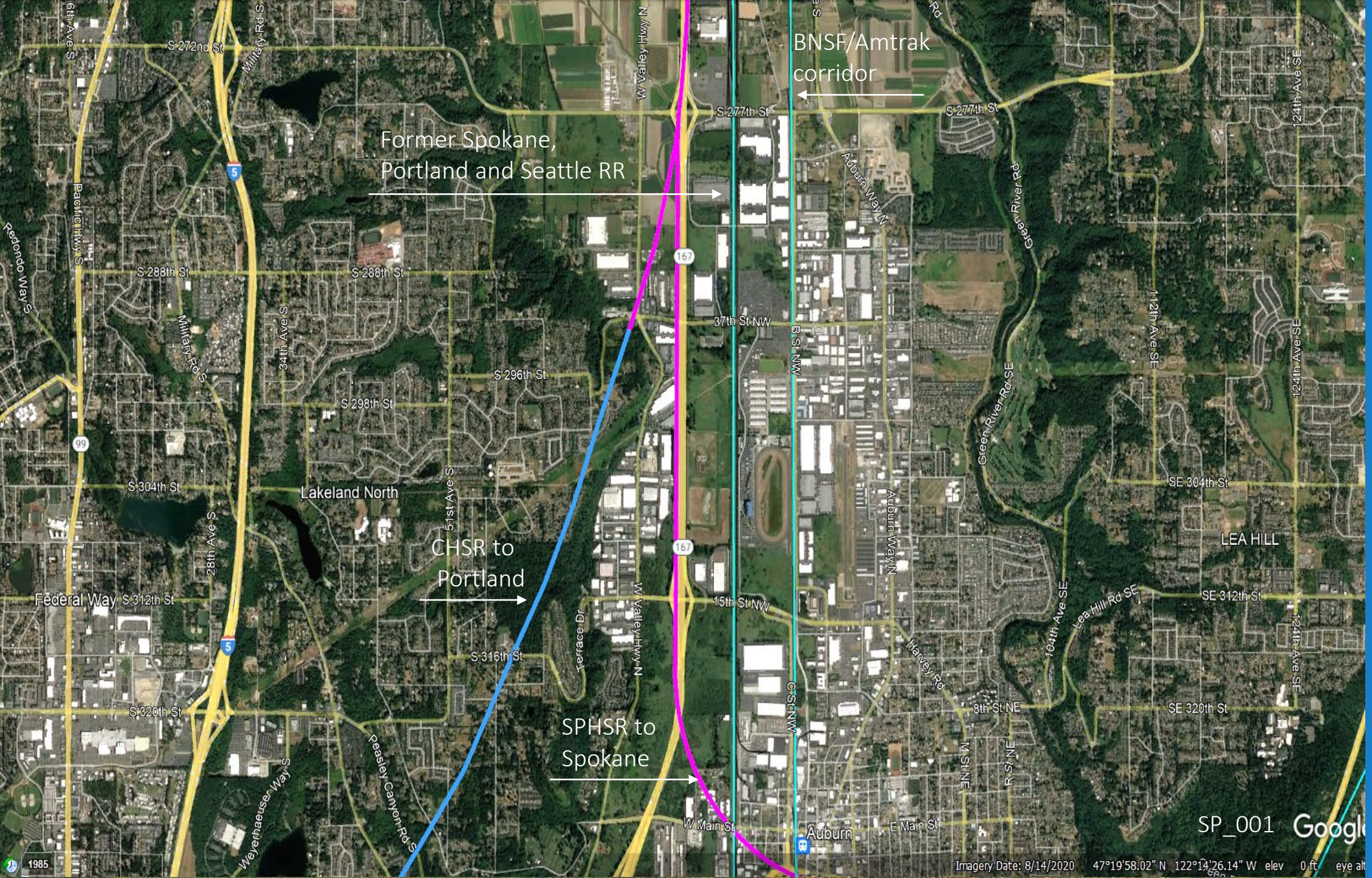
CHSR, SPHSR Corridors in the Greater Seattle, WA, Area

CHSR at the new Seattle Central Station

This station is below ground but above the Link-Rail Line.

The station has six tracks; two will serve the proposed Seattle to Spokane HSR corridor, two will serve the CIE to Vancouver, BC, and the local CCE, and two to Portland CIE and local CCE.

Parking, Hotel, and Restaurant are above the station.

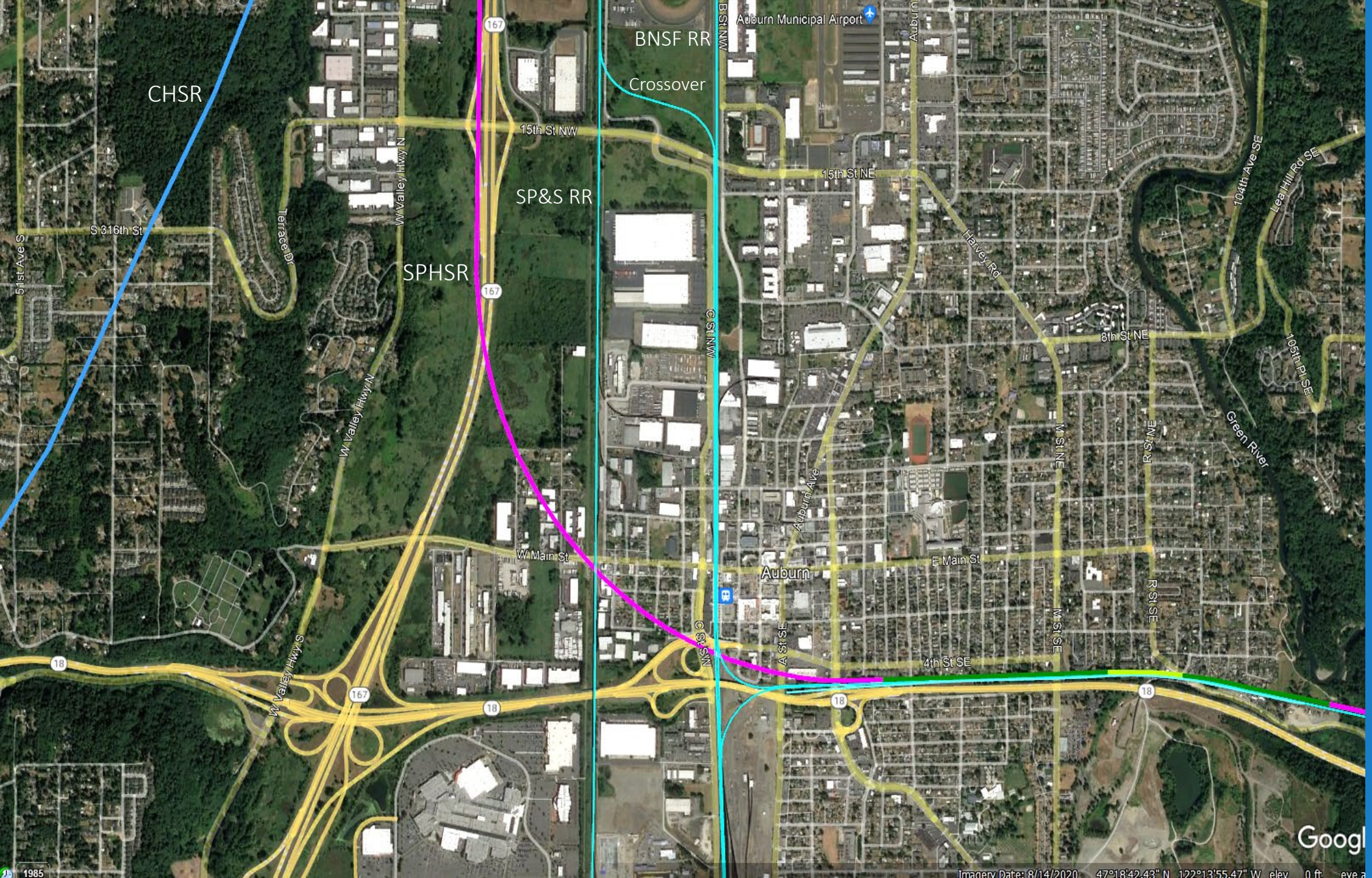


The Stampede Pass Corridor between S 277 St and W Main St

The S 277th St is a junction for the Stamped Pass Corridor; it will go off the CHSR corridor to Portland, OR.

The Stampede Pass corridor does use the CHSR corridor together between S 277 St and Seattle Central Station.

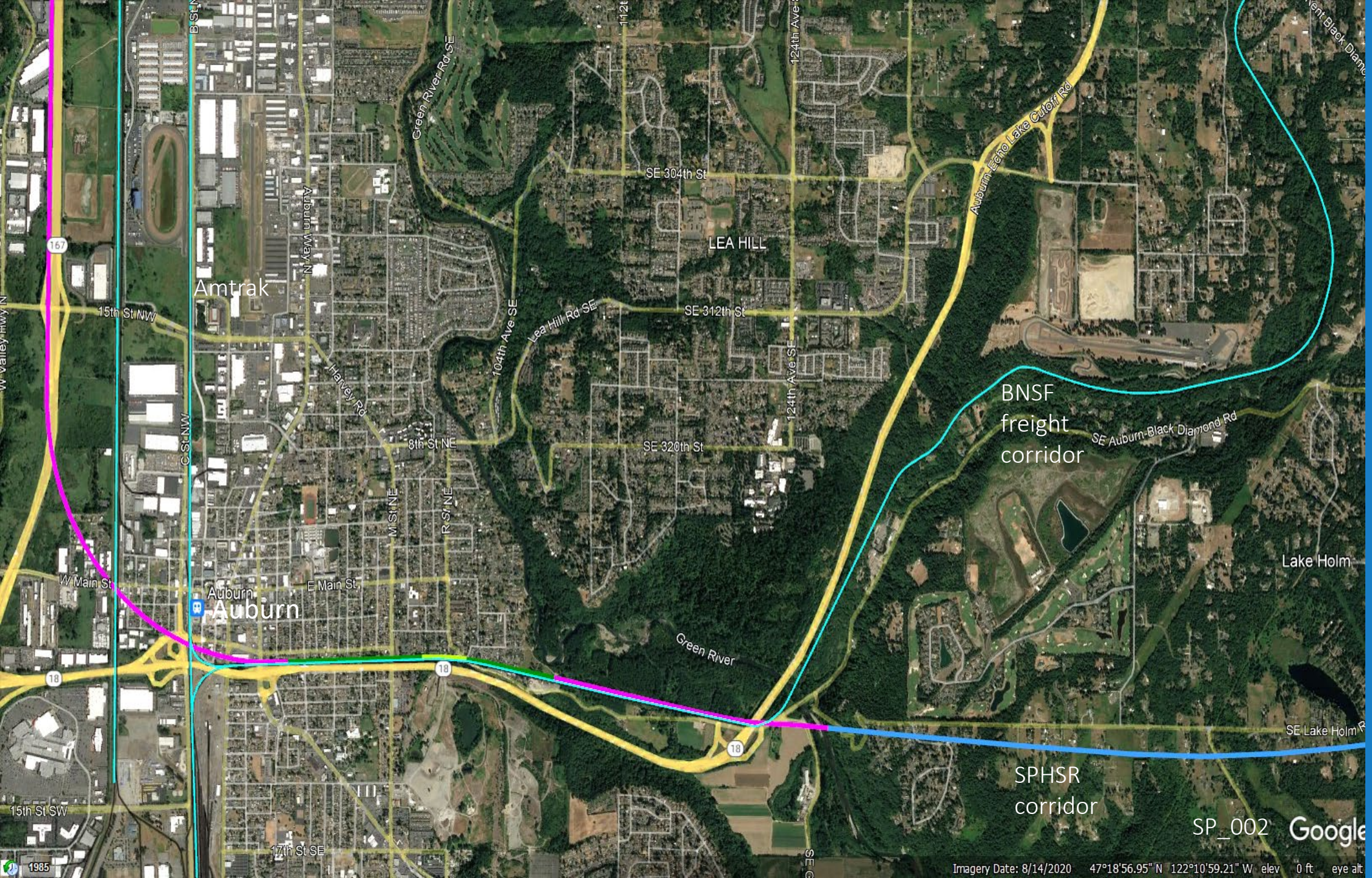
The Stampede corridor goes flyover the BNSF/Amtrak corridor



CHSR and SPHSR at Auburn Area

Showing the BNSF RR and the Spokane, Portland, and Seattle freight RR corridors.

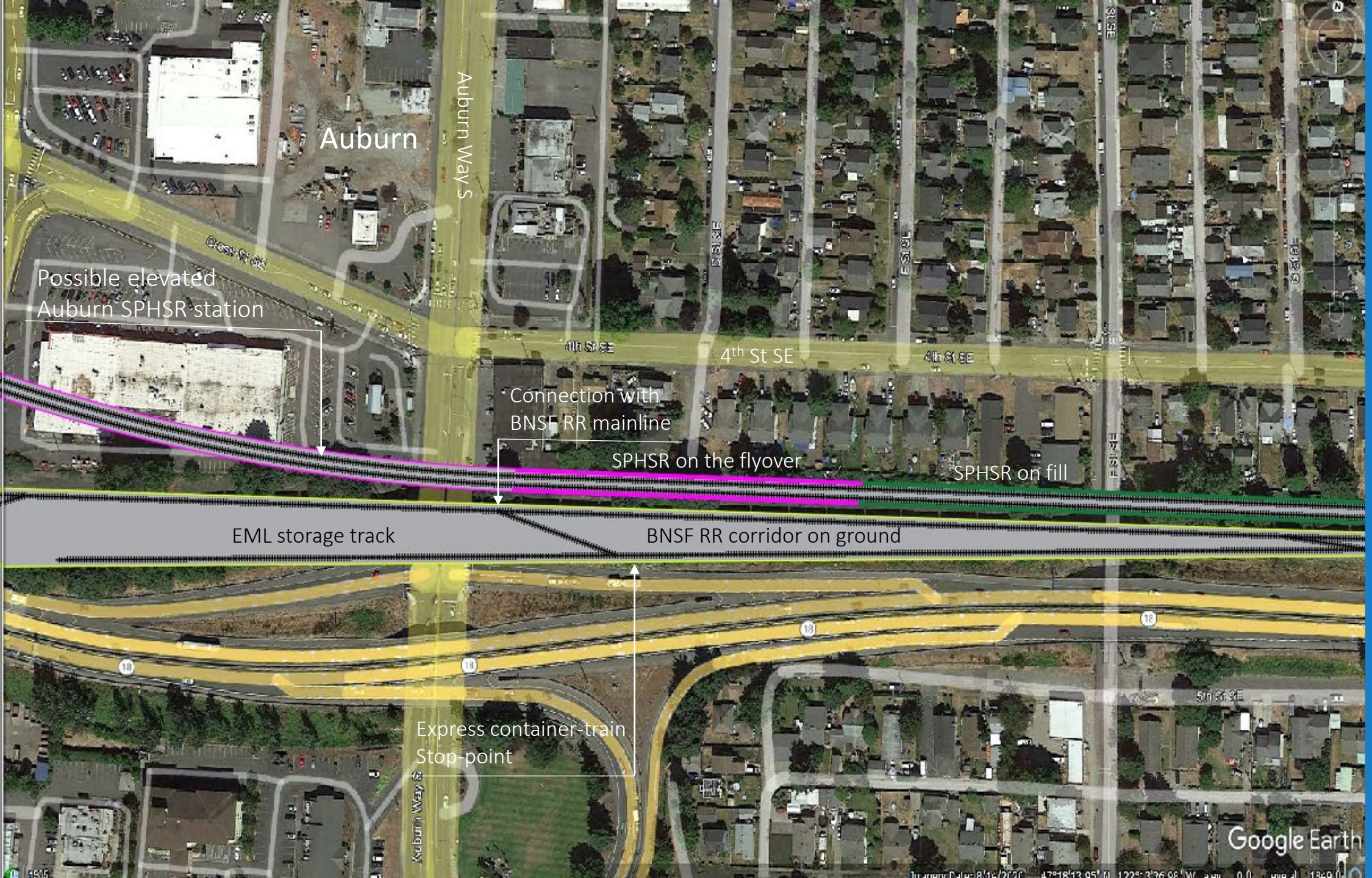
Note; Here we have a new crossover for the BNSF/SP&S railroads. This is needed to access the freight express station in Tukwila.



The Stampede Pass HSR Corridor between W Main St and Lake Holm

Auburn may have an elevated CHSR station serving commuter transit. This station has two tracks.

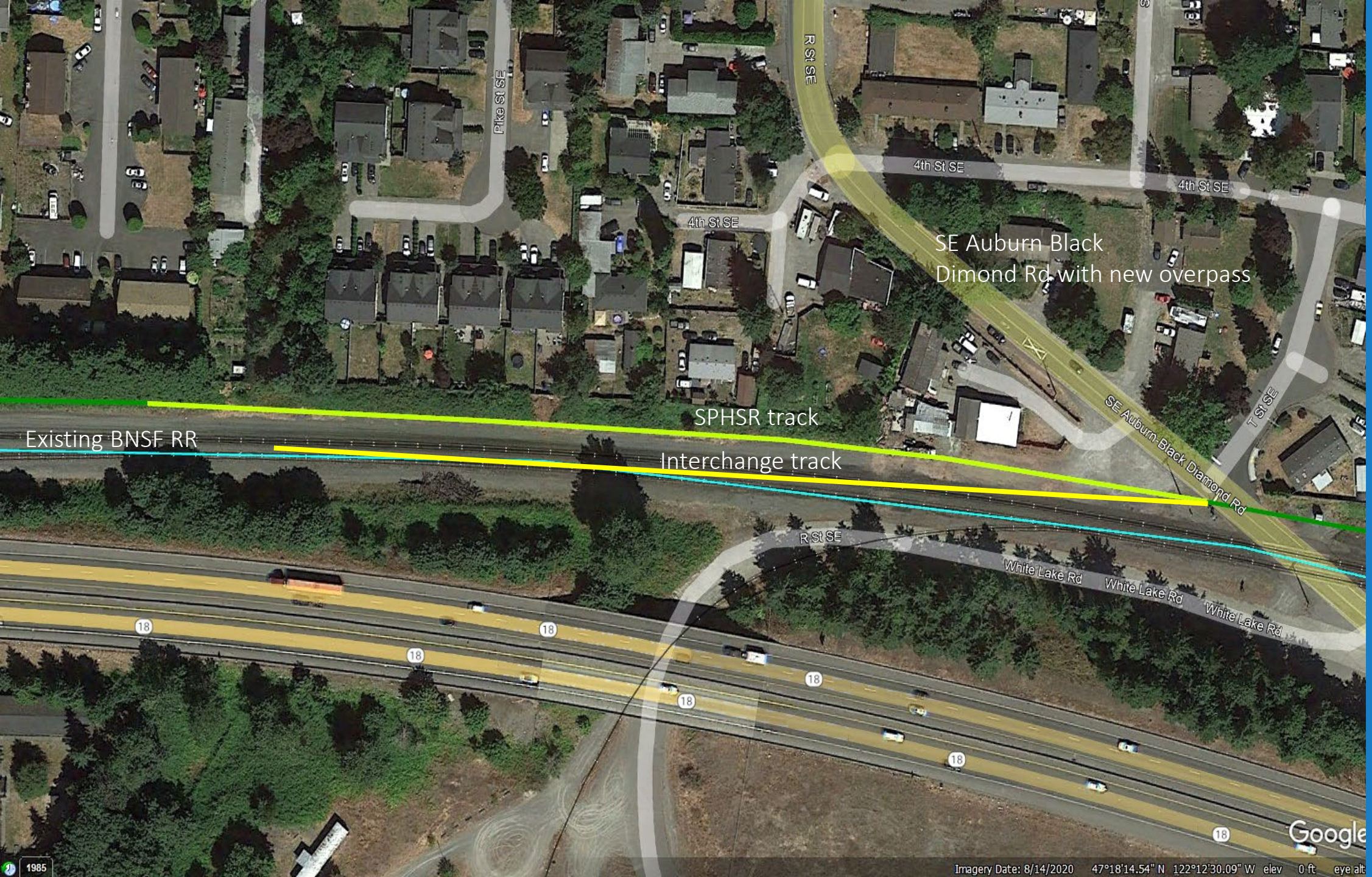
Express freight will exit at SE Auburn Black Diamond Rd and use regular BNSF/UPRR freight tracks.



Express container trains stop at this point to couple or decouple the EML locomotives.

Express container train length may be no longer than 1300 feet, “396m”, the standard CHSR station length. A five-unit articulated double-stack car is 266’ long or 1064’ for a 4x5 train. An EML is 62’ long so we can handle one EMD and two EML locomotives.

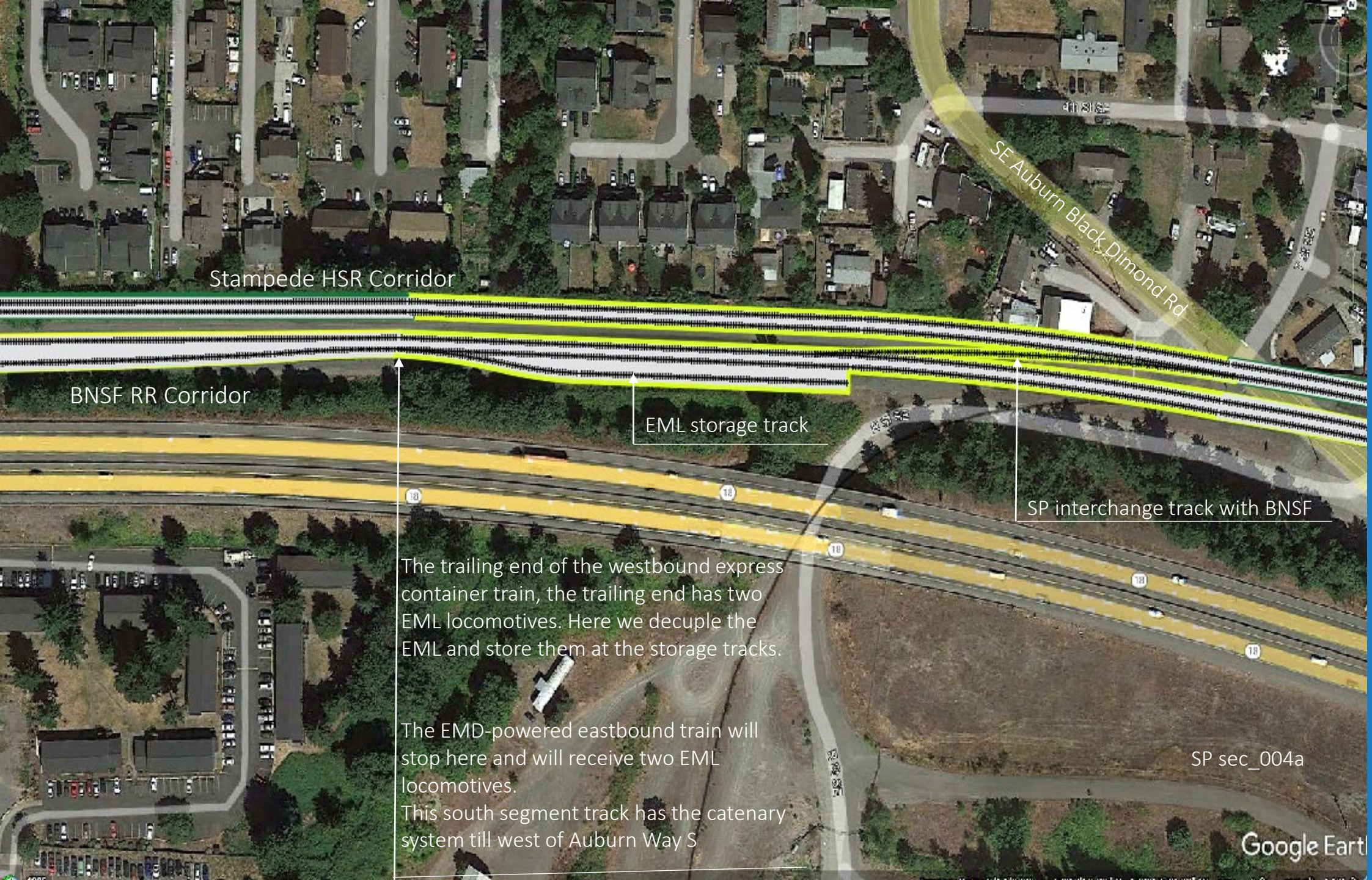
One EMD has sufficient power to bring a train consist to the end-point terminals.



The Stampede Pass HSR Corridor at SE Auburn Black Dimond Rd

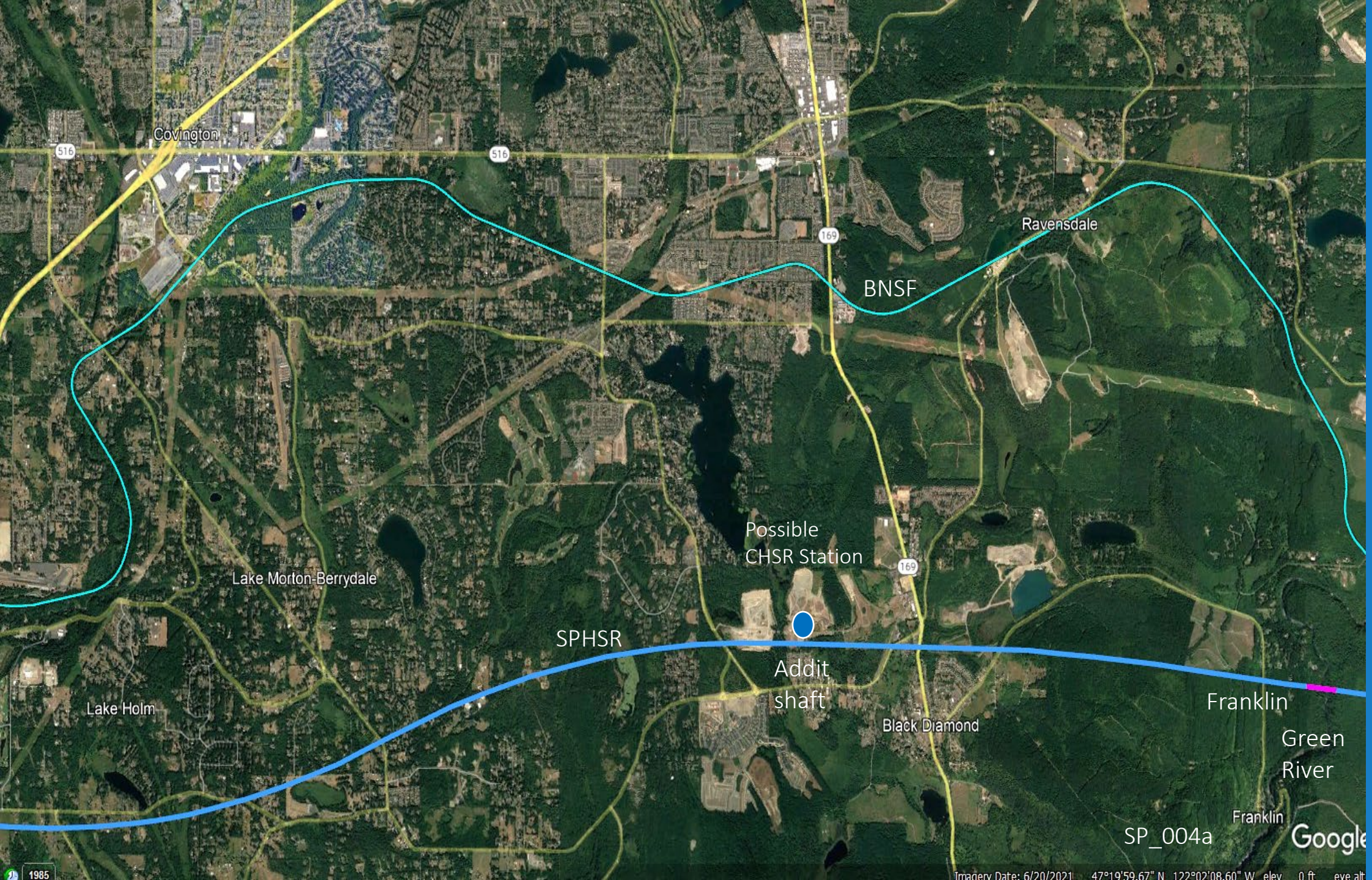
Here is the interchange point for the Stampede CHSR express freight with the BNSF RR to run to and from Spokane.

The SE Auburn Black Diamond Rd will get an overpass, starting at 4th St SE. Extend R St SE to the west to intersect with SE Auburn Black Dimond Rd.



The Stampede Pass HSR Corridor at SE Auburn Black Dimond Rd

Here we have an interchange between the two rail corridors. The Electric Mountain Locomotive (EML) has a storage track to park four locomotives. Eastbound container, diesel-powered trains will arrive at this point, where we couple the EML in front of the diesel locomotive. An EML has an 8300-horsepower, speed of 140 mph Details for this locomotive type must still be decided. Preferred is a DC, with 16.7 cycles with a very high starting torque.



The Stampede Pass HSR Corridor between Lake Holm and Franklin

The CHSR is in a tunnel to avoid all grade crossings.

The addit shaft allows two headings for the tunnel boring machines (TBM). Later, CHSR station possibility.

Note the many curves at the BNSF corridor.

Example of Tunnel Muck Deposits

Tunnel muck deposit heap in Switzerland, note the muck transport via the conveyor system.

The deposit heap will be re-naturized with grasses, shrubs, and different species of trees upon completion.

Conveyor system
during construction
in Switzerland

Break Through Celebration of a Tunnel Boring Machine (TBM)

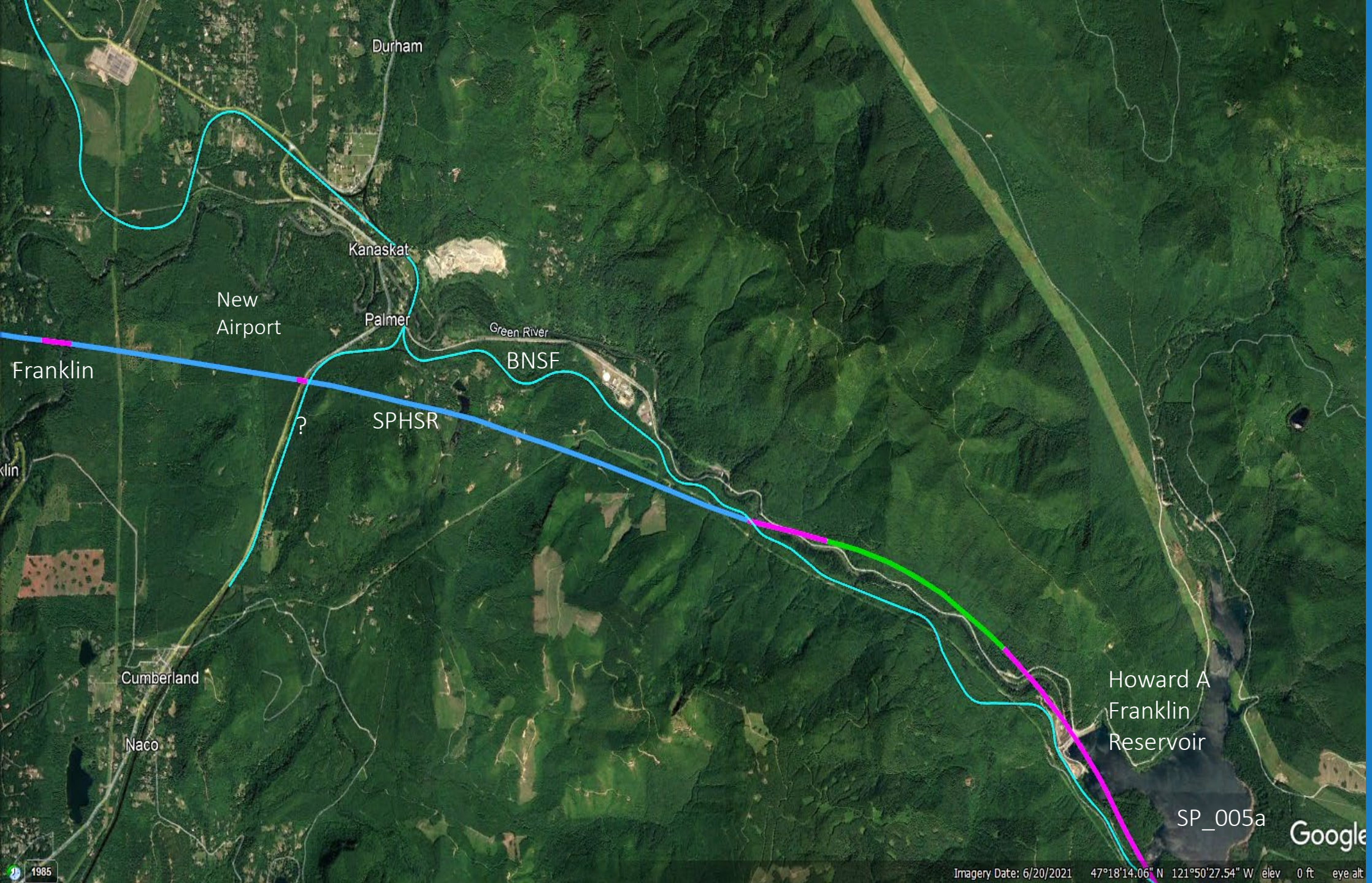
This Is a TBM machine for hard rock geology.

Machines for soft rock below bodies of water and rivers are available.

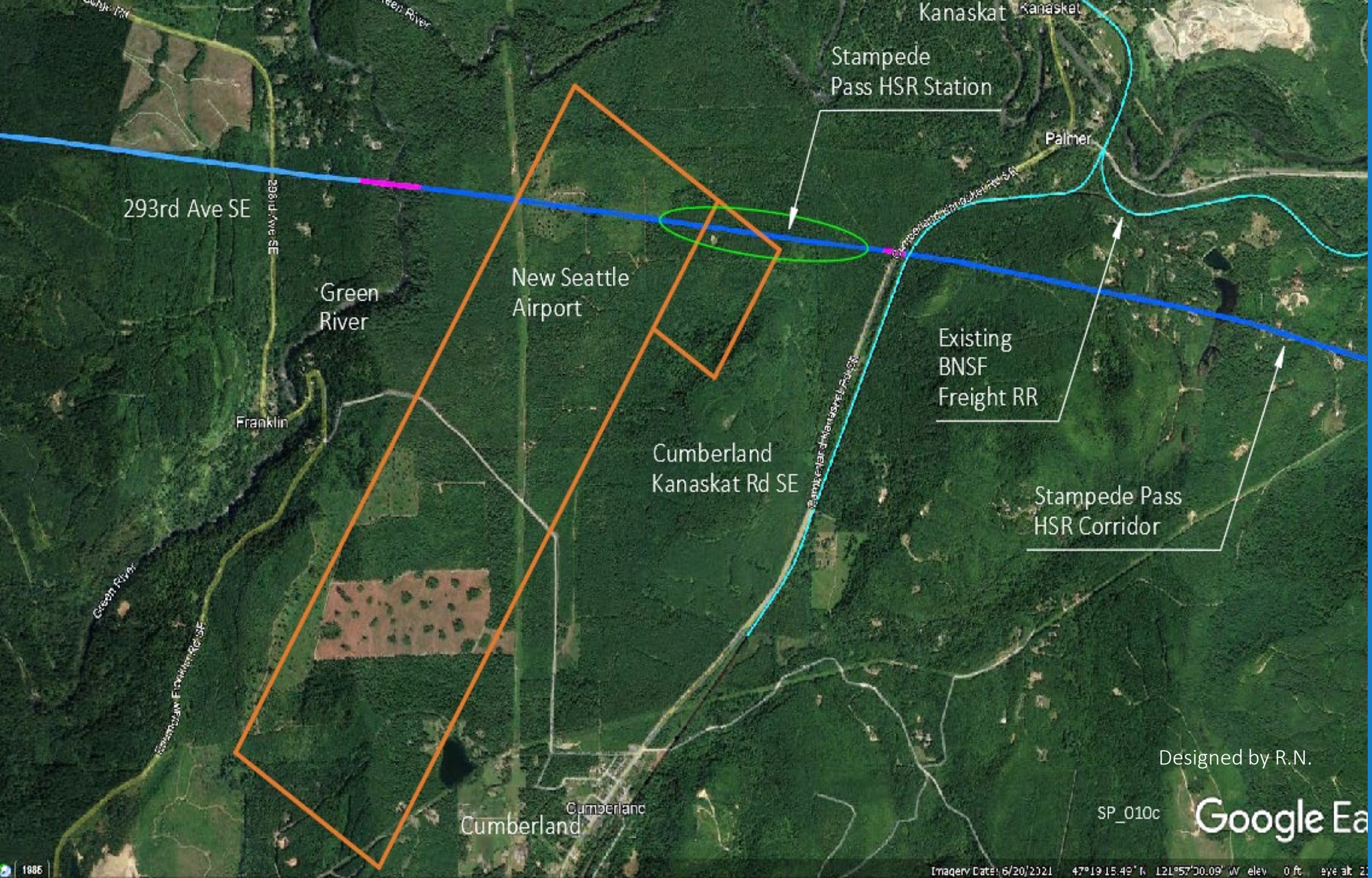
Please see below the educational videos of tunnel-boring machines for different geology. (Skip advertising)

(25) TBM Variable (25) TBM Variable Density® EN - YouTube® EN - YouTube

Tunnel Boring Machine (TBM) animation. - YouTube



The Stampede Pass HSR Corridor between Franklin and Howard A Hanson Reservoir



The Stampede Pass HSR Corridor between 293rd Ave and Cumberland Kanaskat Rd SE

Here we may construct the new, additional Seattle International Airport.

This Airport will connect via CHSR to/from the Seattle Central Station.

This underground station will have four tracks to allow commuter transit.

The Stampede Pass HSR Corridor between Howard A Hanson Reservoir and 5.6 miles west of Lester

Note the CHSR corridor curves in comparison to the existing BNSF freight corridor.

The Stampede Pass HSR Corridor at Lester

The Stampede Pass HSR Corridor at Lester

We may have a train inspection yard at Lester to ensure safe tunnel transit and a Power Substation.

The nearby High Voltage Powerline will provide power for the tunnel boring machines (TBM) and power supply for the CHSR Catenary.

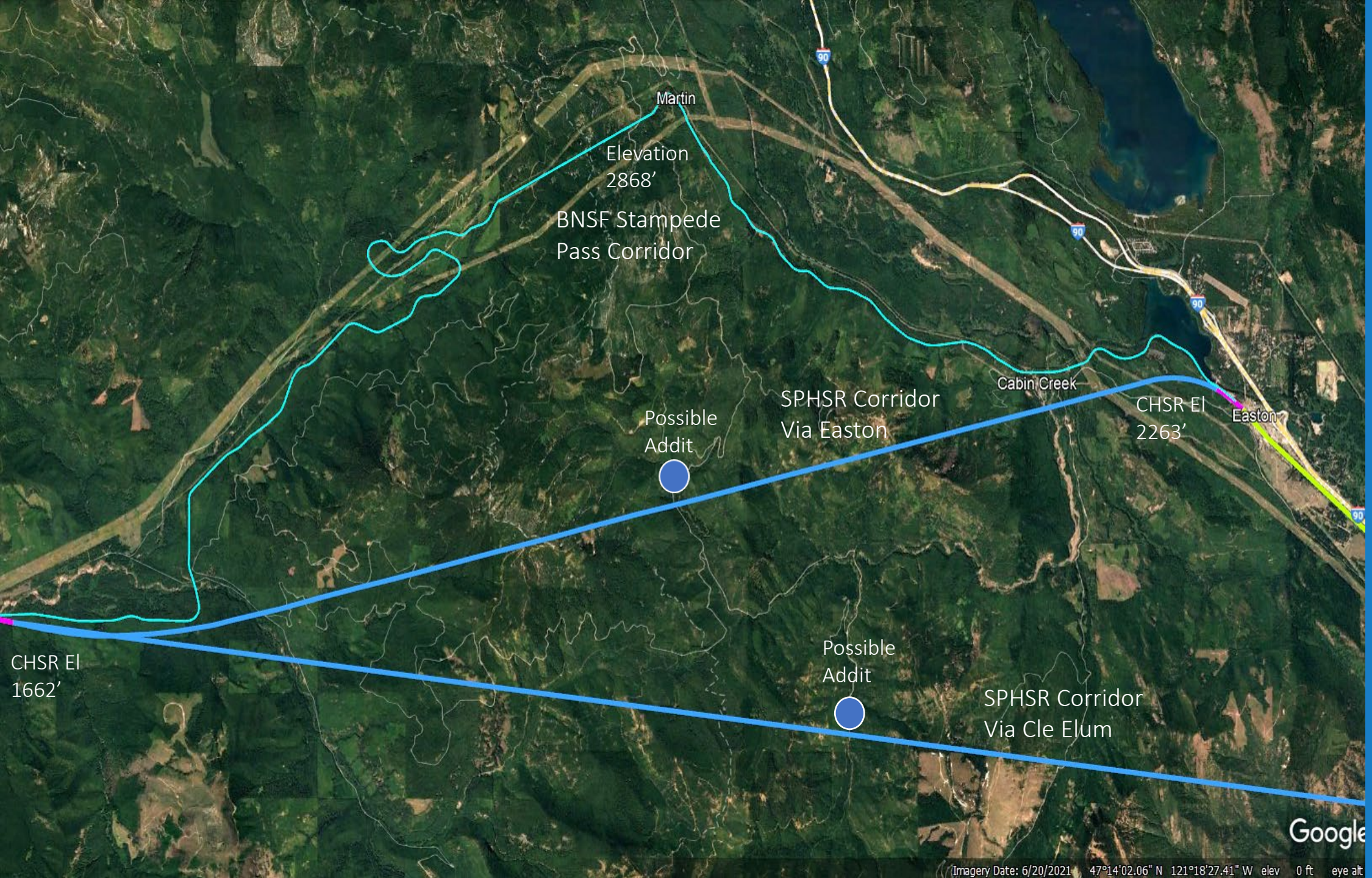
We also will sort tunnel muck at Lester for ballast, concrete aggregate, and fill deposit.

Examples of Conveyor Tunnel Muck Transport and Material Sorting

The conveyors are covered

CHSR Tunnel Boring Machine Installation

This is in Spain



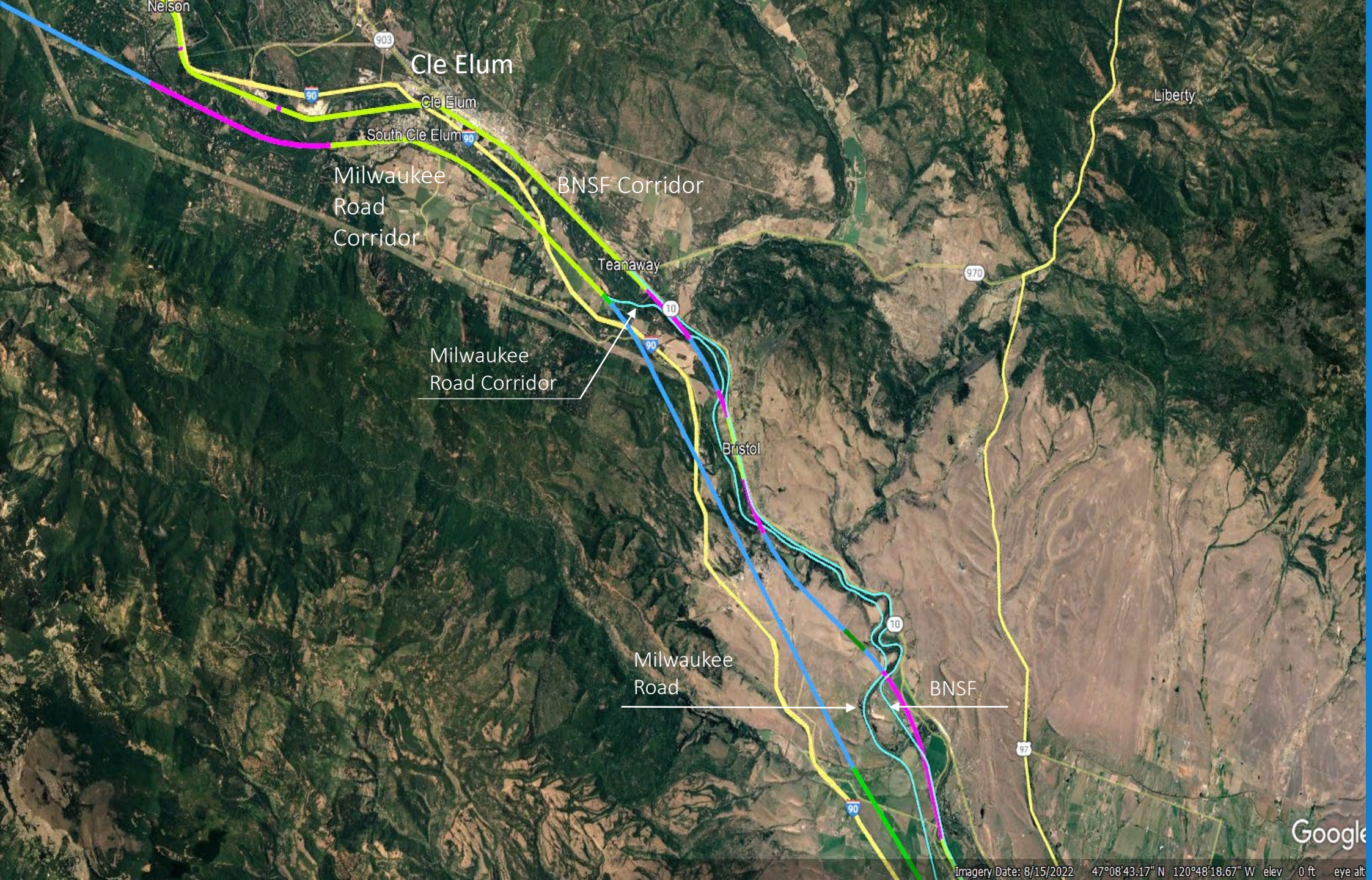
The New Stampede Pass HSR Corridor Tunnel Corridors

Depiction of the two SPHSR corridors.

Tunnel length, via Easton, 13.9 mi; via Cle Elum, 20.1 mi

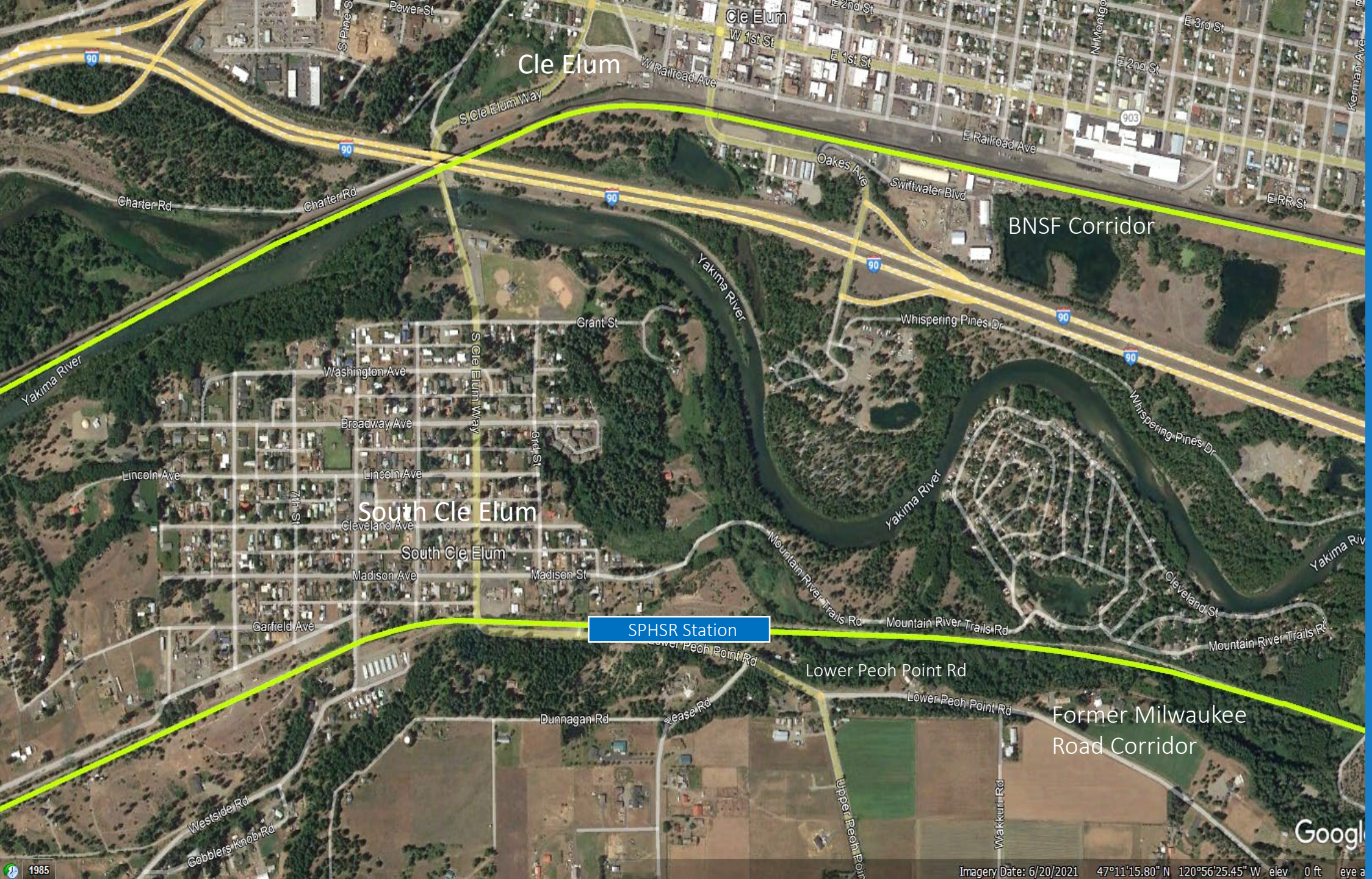
Addit shafts will speed up the tunnel boring.

The CHSR company has detailed drawings for KMZ, elevation profiles, and more.



The Stampede Pass SPHSR Corridor at Cle Elum Area

This area has two CHSR corridors; one will follow the existing BNSF corridor till Teanaway, then on a new corridor. The other corridor will use part of the former Milwaukee Road Right-of-Way.



The Stampede Pass SPHSR Corridor at Cle Elum City

South Cle Elum may get a new SPHSR Station.

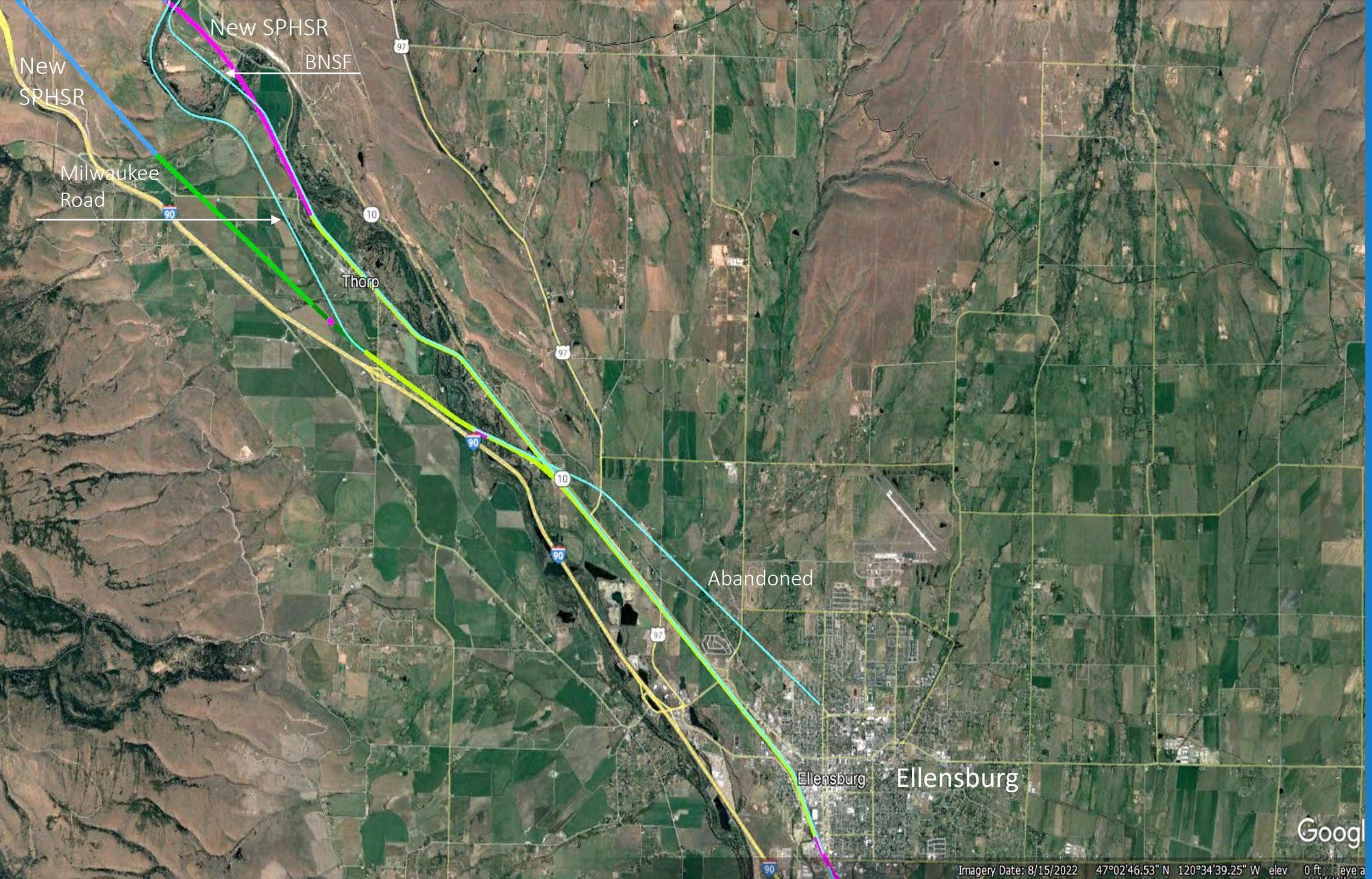
Reroute and provide an overpass from Madison Street to Lower Peoh Point Rd as needed.

The South Cle Elum station is on the ground and has four tracks. The station track length is 1300 feet.

Typical CHSR Tracks at a CHSR Station

The platforms are on the outside of the Inter City Tracks.

The Inter City Express (ICE) Tracks are in the center of the station; the ICE trains will not stop at all stations.



The Stampede Pass SPHSR Corridor Entering Ellensburg

There are two CHSR corridors to 4.4 miles northwest of Ellensburg.

Part of the BNSF and part of Milwaukee Road will merge into a one-line corridor.

CHSR will use new Corridors. Route options are not decided as of now.

The Stampede Pass Miles from Ellensburg to Spokane

- Miles from Ellensburg to Spokane, on ground 85.76 mi, on flyovers 39.67 mi, in tunnels 33.52 mi, a total of 158.95 mi.

- Total miles from Auburn to Spokane via Easton, 248.96 mi.
  Total miles from Auburn to Spokane vis Cle Elum, 246.81 mi.

- Additional miles from Seattle Central to Auburn, 18.45 mi, or 267.41 mi, 265.26 mi.

- Amtrak miles from Seattle to Spokane, 329 mi, or the CHSR corridor is 62 miles shorter. Think about the corridor maintenance cost reduction, the energy savings, the emission reduction, and the travel time savings.

The Stampede Pass HSR Corridor from Ellensburg East

From Ellensburg, the SPHSR will use a new, short-cut corridor to Moses Lake, Ritzville, and Spokane. The SPHSR will cross the Columbia River to the east side of the gorge.

The CHSR company owns all the section and profile drawings for the SPHSR corridor.

SP HSR Corridor south of Ellensburg to Pomona

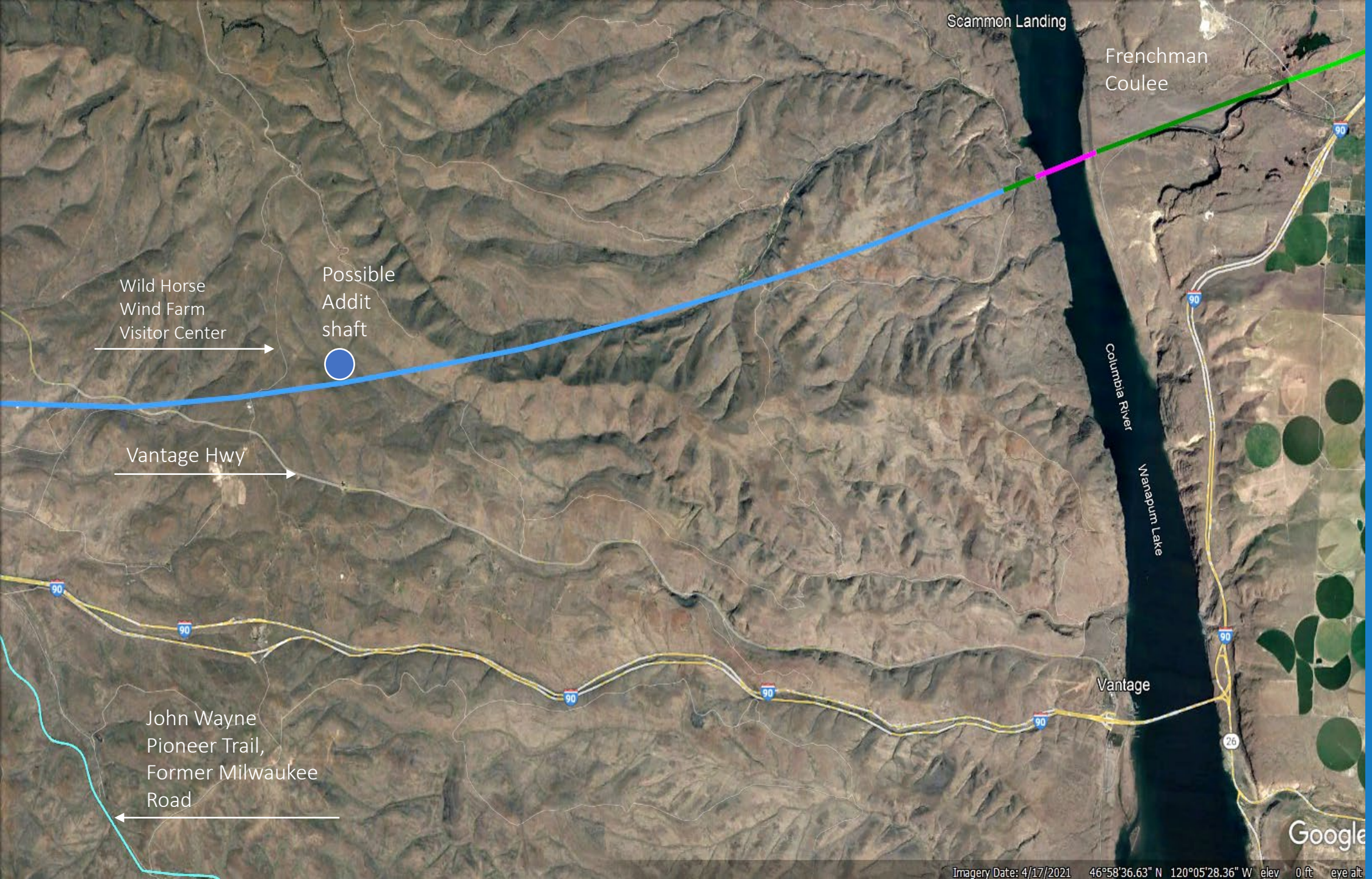
Here we would need a tunnel to alleviate the many BNSF RR curves.

The sections Ellensburg, Pasco, and Spokane don't pencil out economically.

This corridor option will take too long for a speedy passenger connection between Seattle and Spokane.

SPHSR Station at Ellensburg

The SPHSR station is on the ground. The W 5th Ave will get an overpass, and so do all road crossings along the SP CHSR corridor.



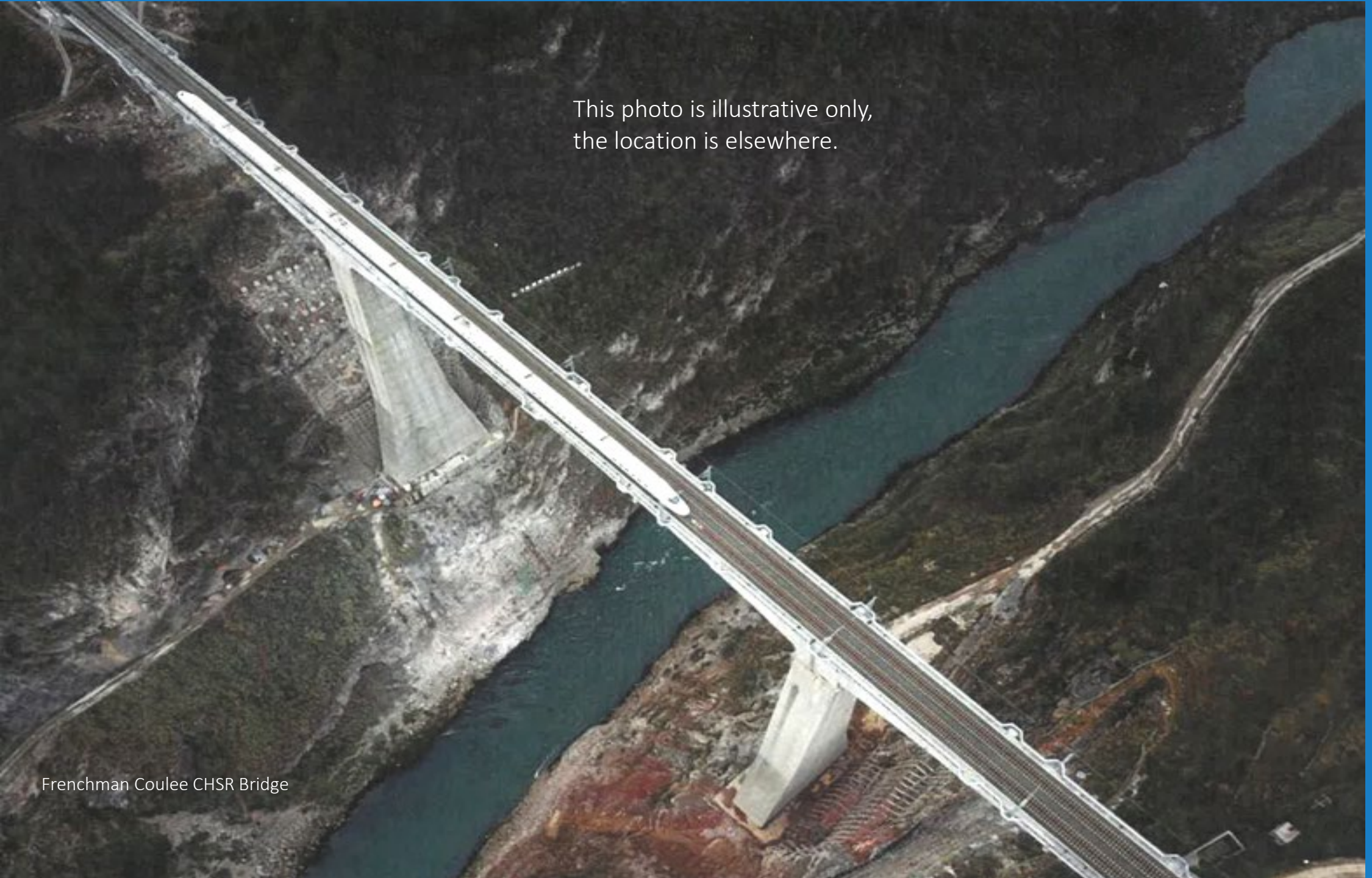
The Stampede Pass SPHSR Corridor Crossing the Mountain Range

The tunnel length is 17.2 miles; therefore, addit shafts are on longer tunnels. This will speed up the tunnel borings because of multi-boring heads.

All addit shafts will be converted to updraft ventilation shafts.

The Stampede Pass HSR Corridor at the Columbia River Crossing

Here, the SPHSR does cross the Columbia River from the tunnel via in-fill, high-bridge, in-fill, and cut.



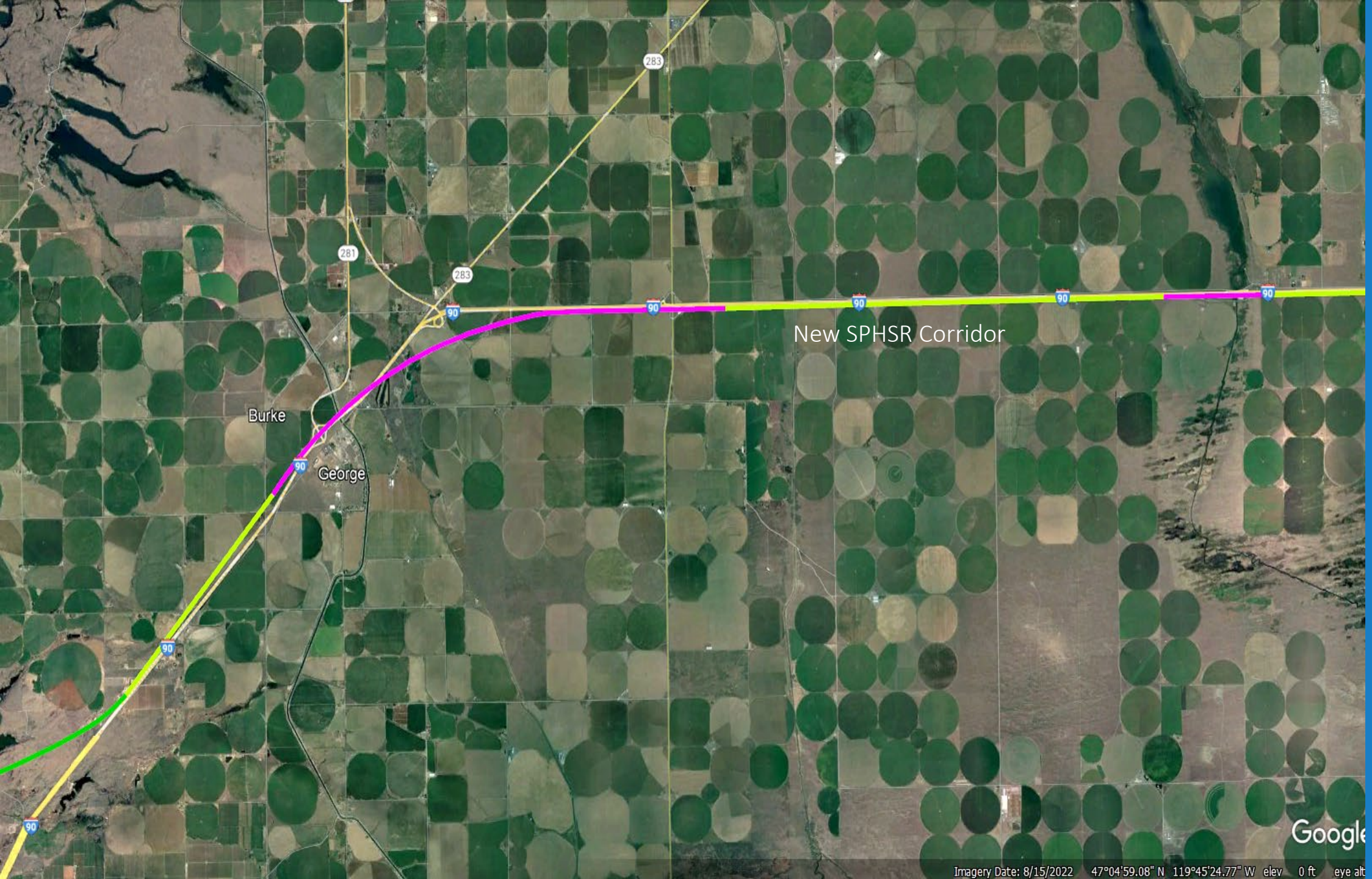
Frenchman Coulee CHSR Bridge

The Stampede Pass Frenchman Coulee SPHSR Bridge

This is the high bridge to cross the Columbia River, 5.4 miles north of Vantage, WA.

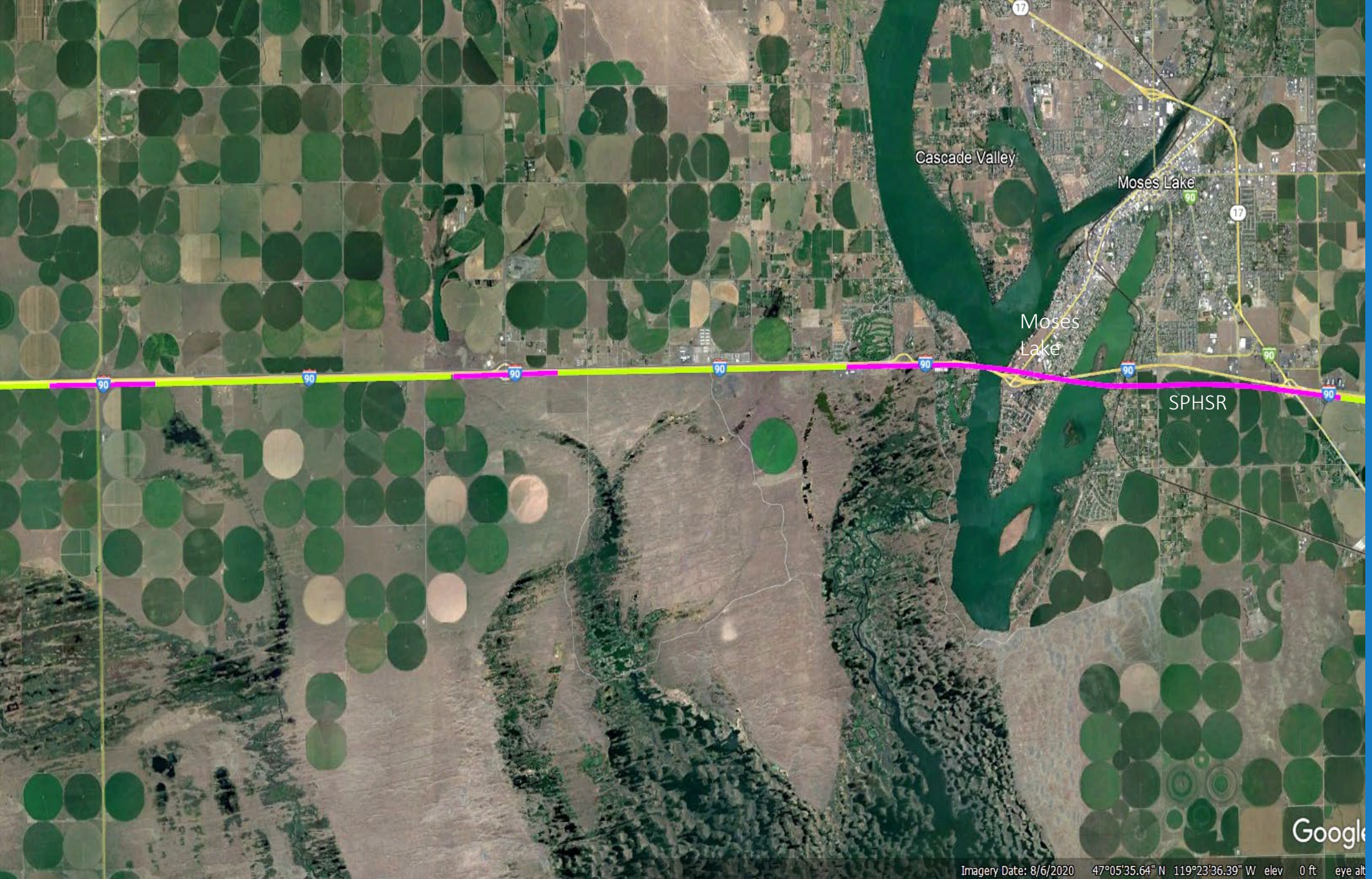
This bridge is 125 feet above the Columbia River, which will eliminate the dip down to the river and then climb again on the other side of the river.

The plan for crosswind windbreaks for the upper Columbia Gorge is available.



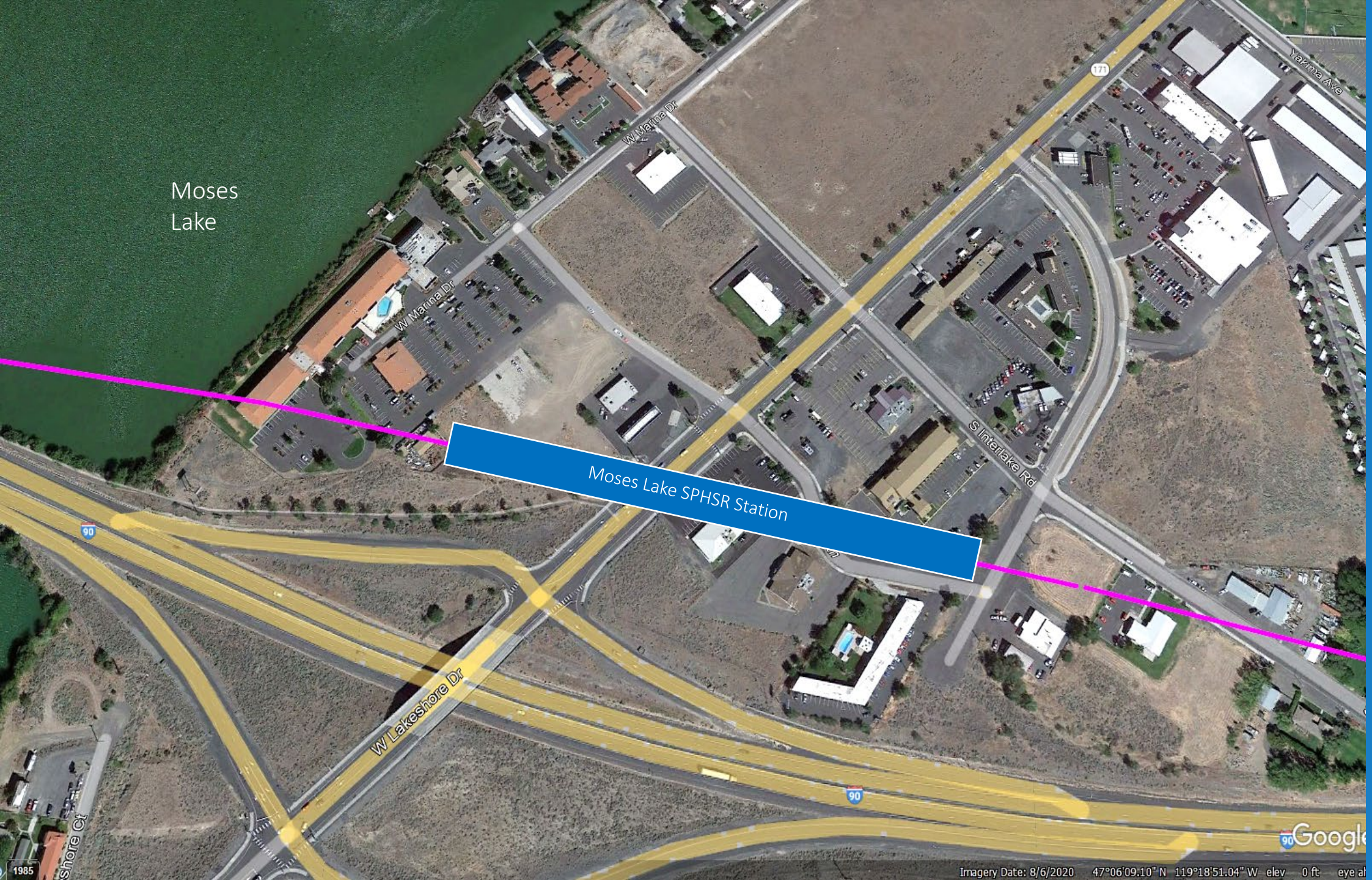
The Stampede Pass SPHSRC Corridor East of the Columbia River Crossing

The SPHSR will now go parallel to the I-90 on the northwest side, fly over the I-90, and follow the I-90 along the south side to Moses Lake. Much of this corridor can use the existing public right-of-way. This flyover will eliminate all road crossings and protect farmland.



The Stampede Pass HSR Corridor at Moses Lake Area

Moses Lake may get a CHSR station.

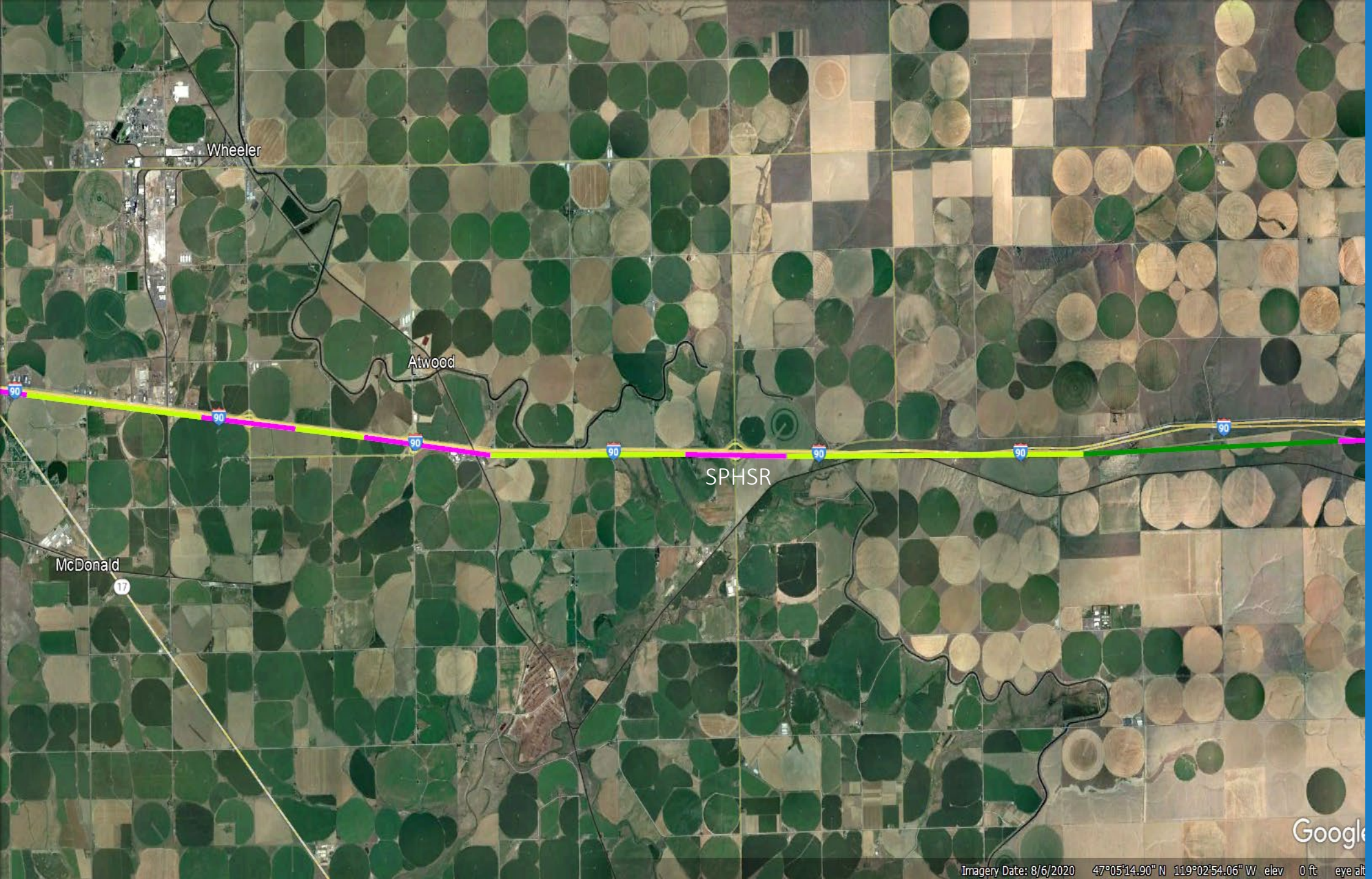


The Stampede Pass HSR Corridor at Moses Lake, with possible SPHSR Station

The Moses Lake CHSR station is elevated and is 1300 feet long and has four tracks at the platforms.

Good access to the I-90, lodging, and space for parking is available.

The distance to Grant County International Airport is 8.25 miles.

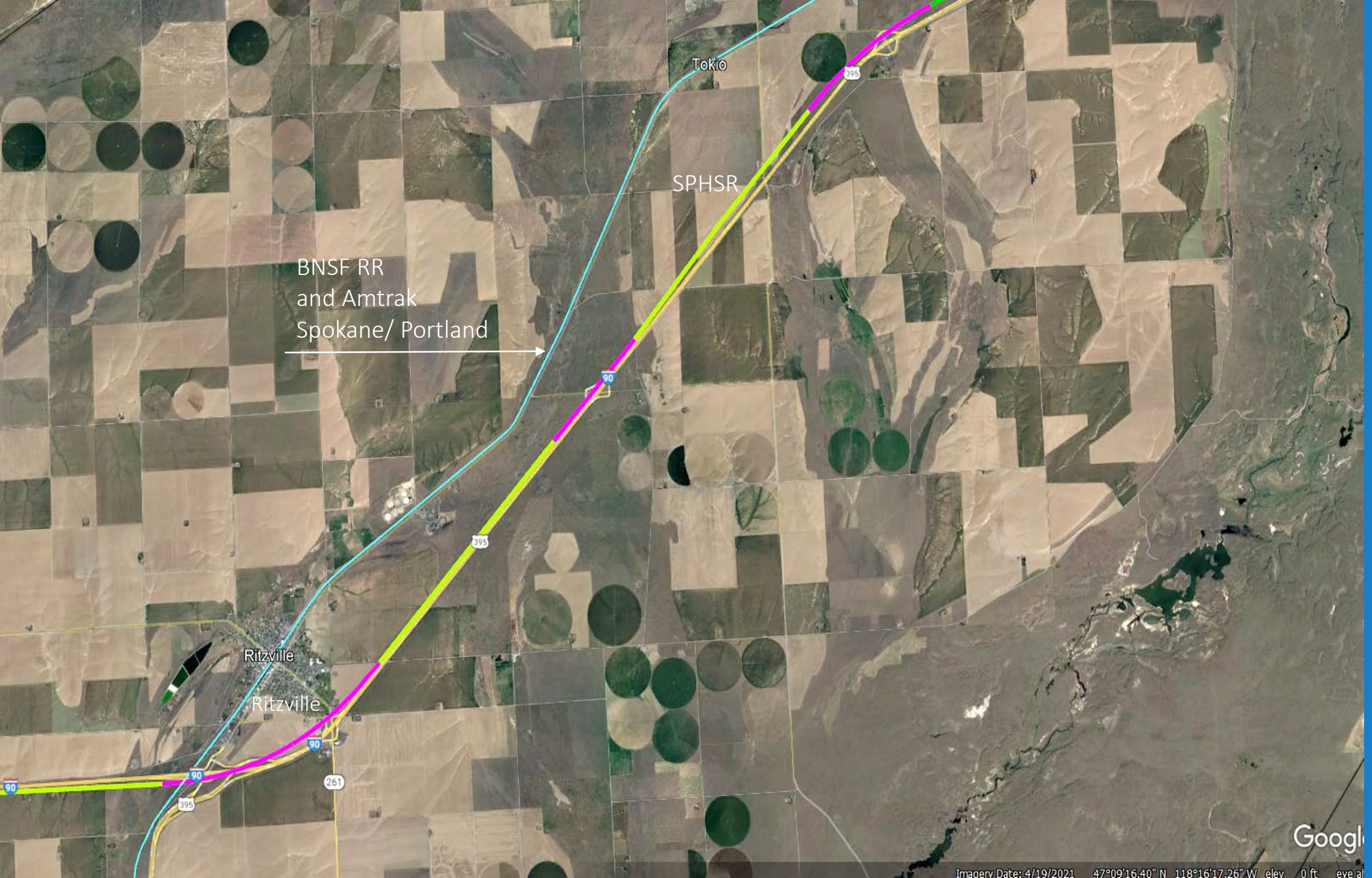


The Stampede Pass HSR Corridor along the Southside of I-90 toward Ritzville

Most of the SPHSR can use existing right–of–way.

The Stampede Pass HSR Corridor along the Southside of I-90 toward Ritzville

Part of the SPHSR can use existing right–of–way.



The Stampede Pass HSR Corridor at Ritzville

Most of the SPHSR can use existing right–of–way.

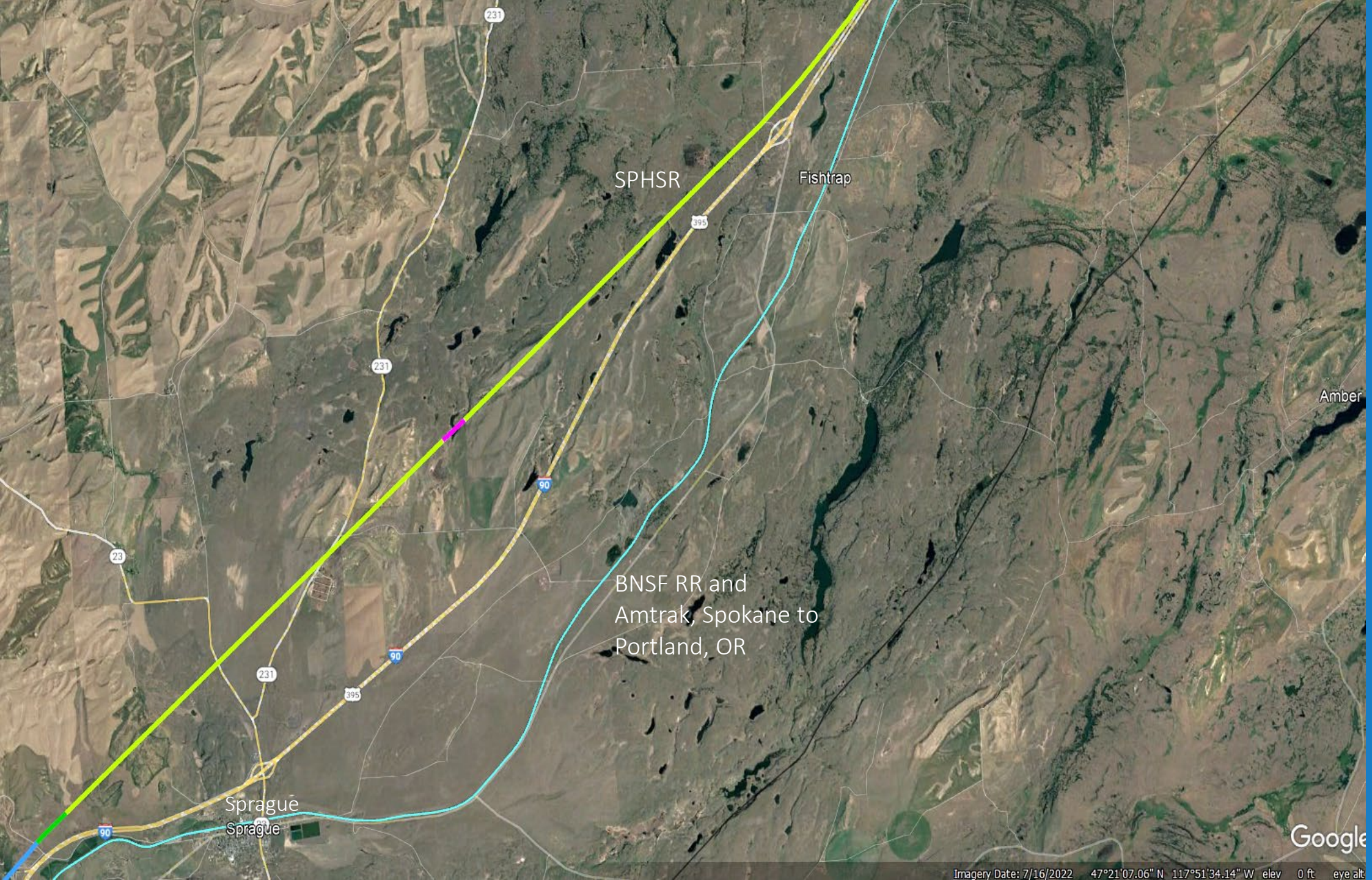
Ritzville may be too small for an SPHSR station.

HSR, Spokane, WA, Ritzville, Pasco, and Portland, Oregon is problematic because of freight train track usage. Too many tight curves and no room for capacity.

The Stampede Pass HSR Corridor at Sprague Lake Area

The SPHSR will depart from the I-90 right-of-way and use a new corridor.

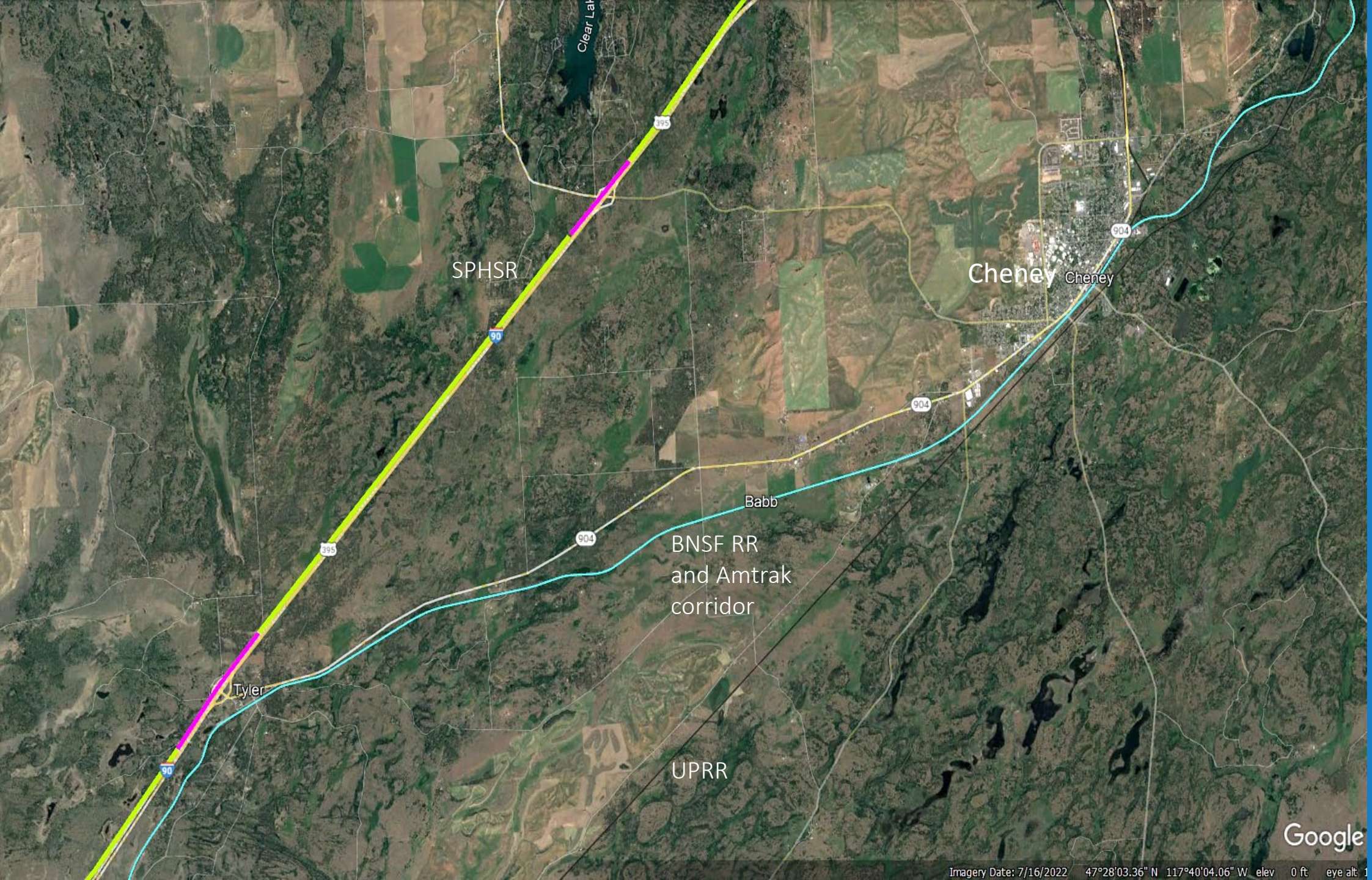
Some of the agricultural lands are marginal in this area so that land acquisition costs may be low.



The Stampede Pass HSR Corridor at Sprague Area

CHSR Tracks in the Country

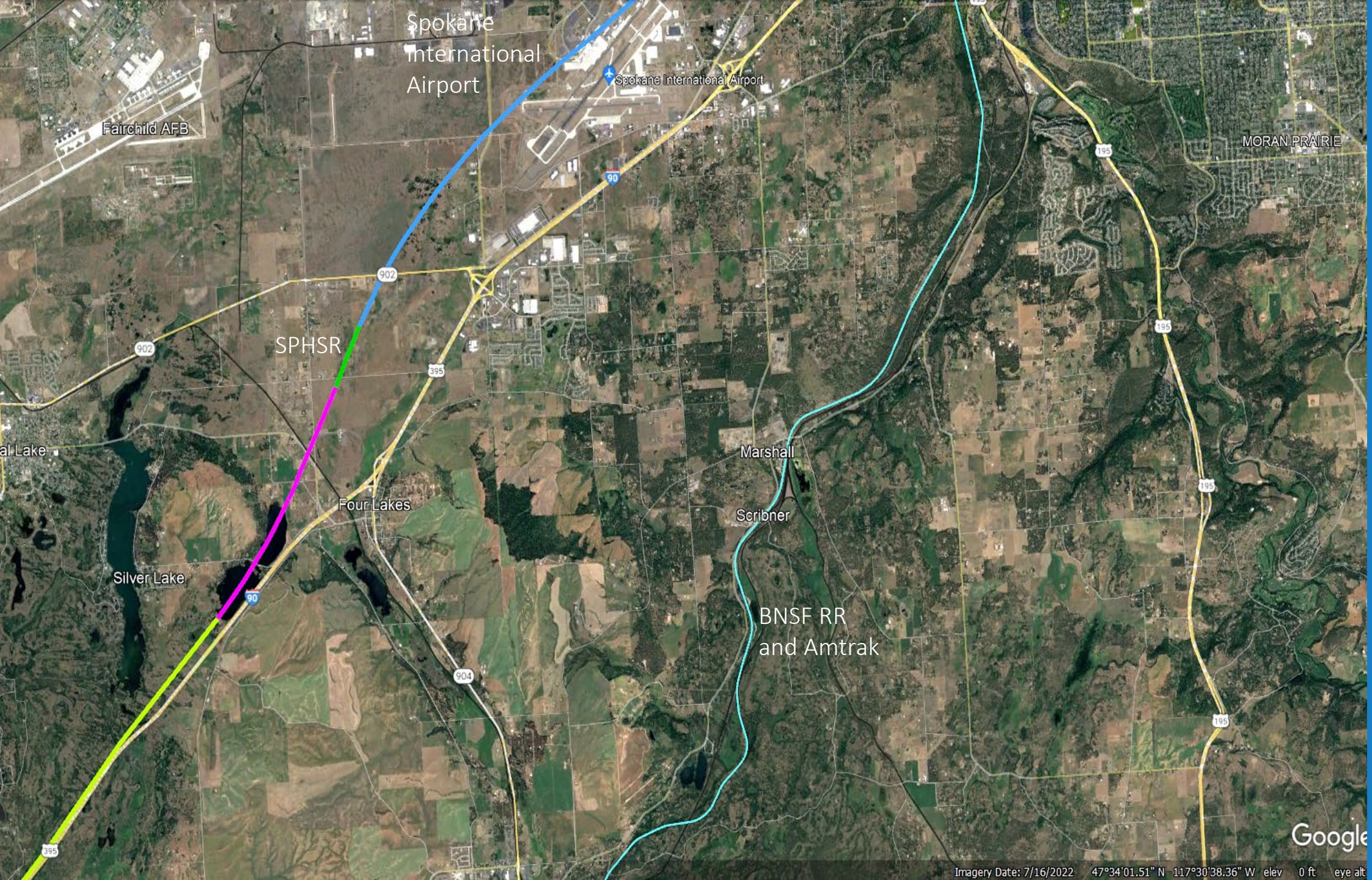
Note the ample radius curves.



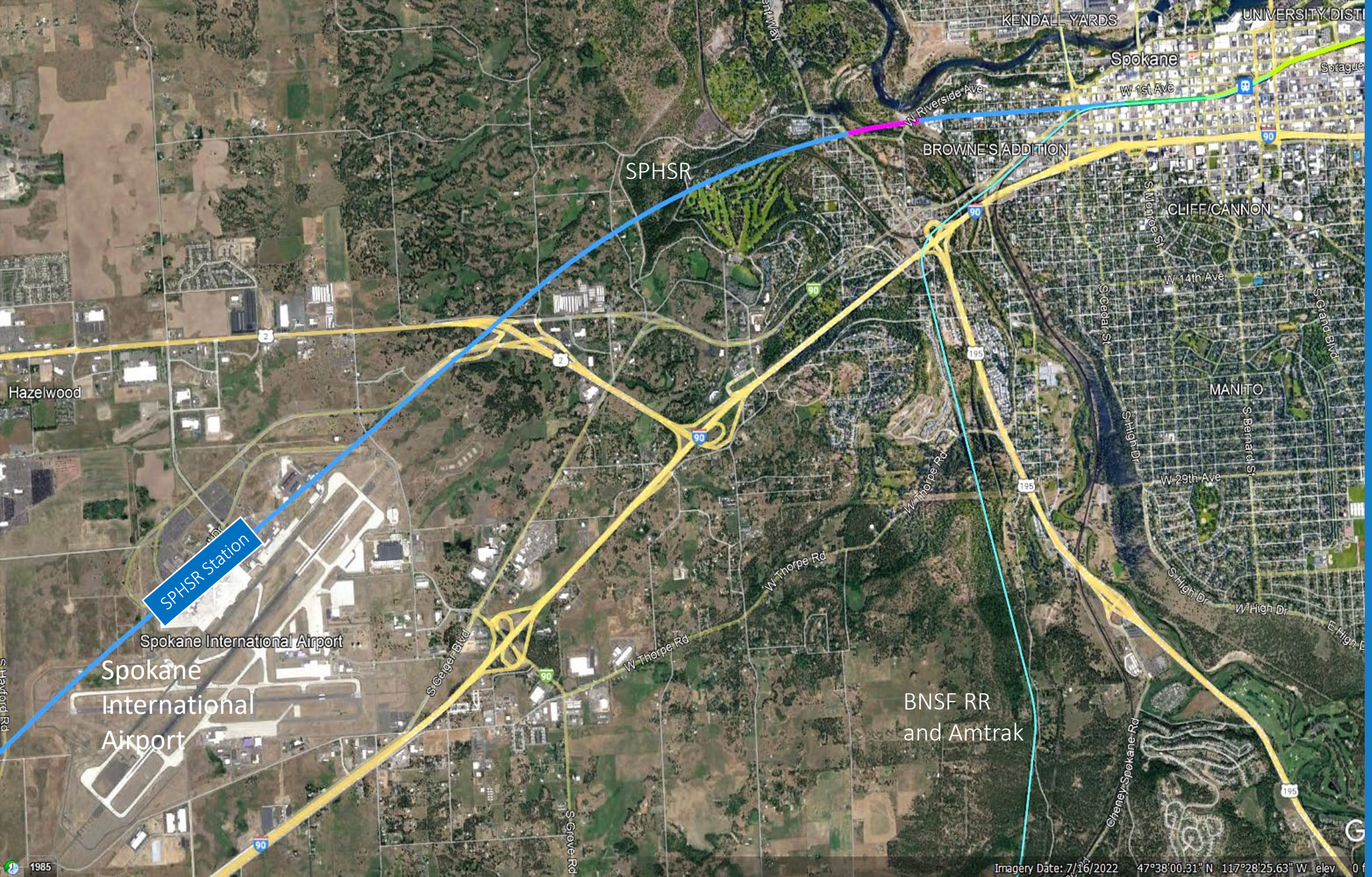
The Stampede Pass HSR Corridor near Cheney

The existing Amtrak corridor has many short radius curves, therefore unsuitable for high-speed trains.

Example off wildlife crossings below the CHSR tracks



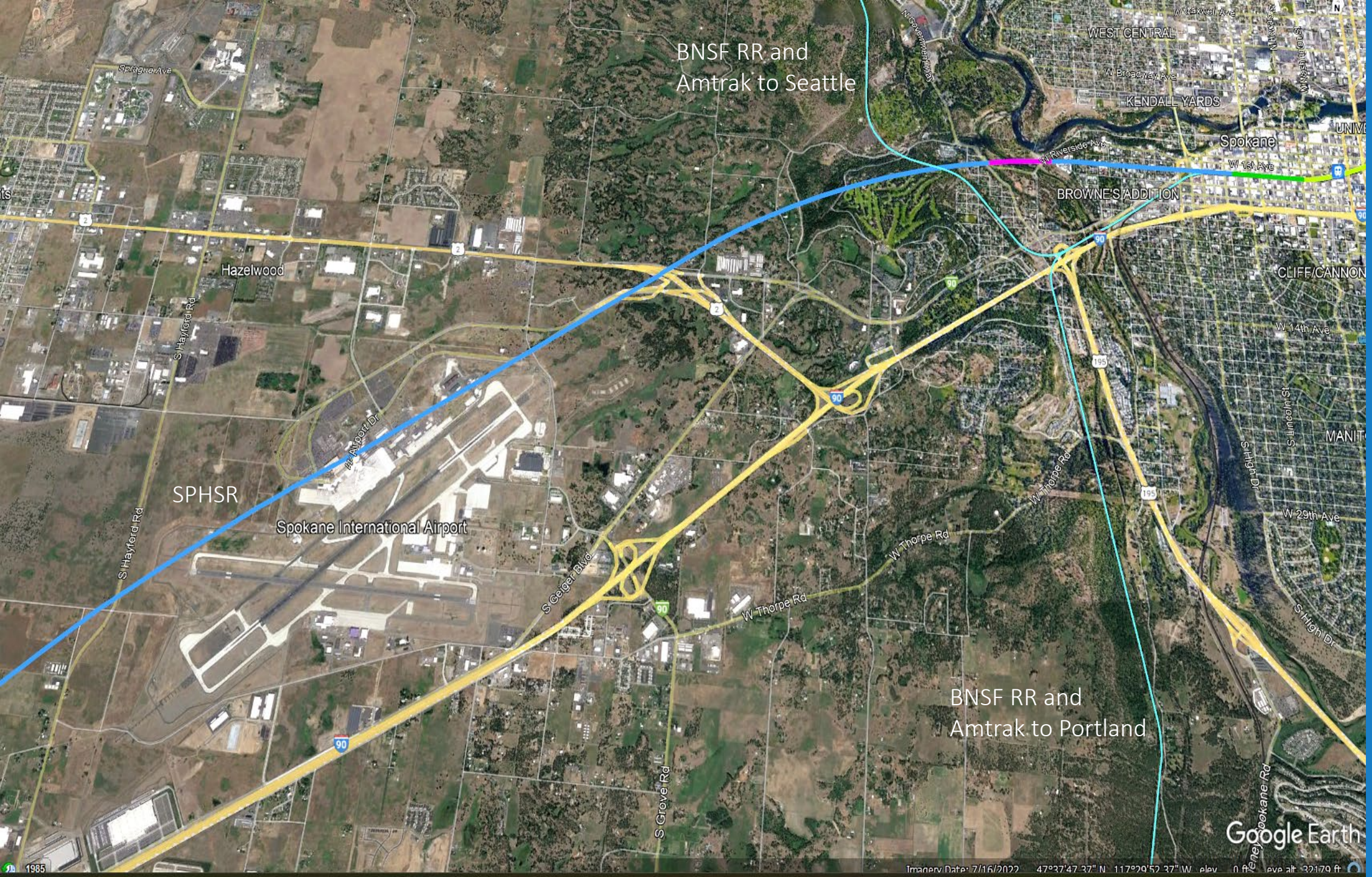
The Stampede Pass HSR Corridor SW of Spokane



The Stampede Pass HSR Corridor at the Spokane International Airport

The airport SPHSR station is underground and 6.4 miles SW of the Spokane Amtrak Station.

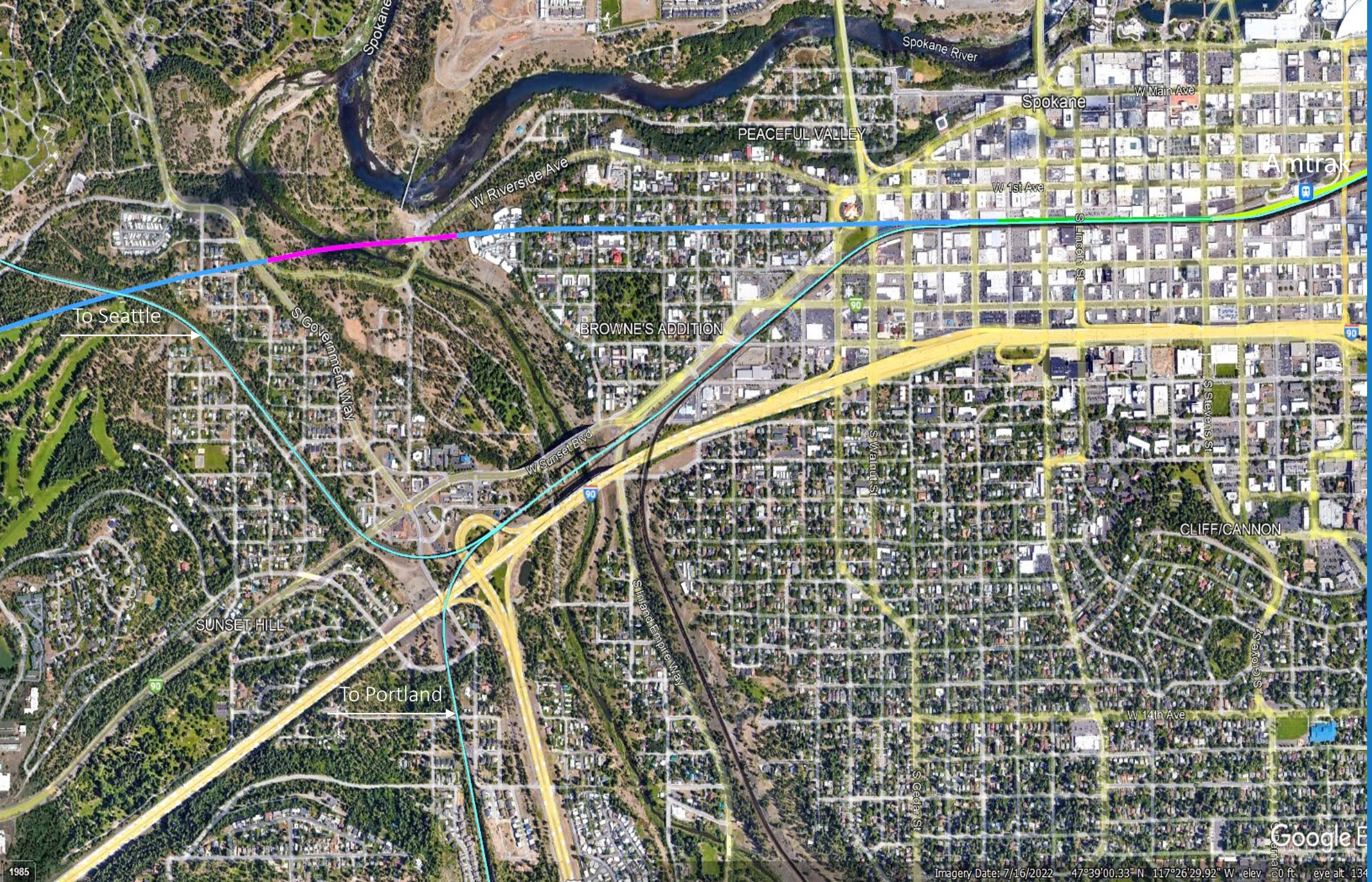
This station has four tracks to allow shuttle train transit between the airport and downtown Spokane.



The Stampede Pass HSR Corridor at the Spokane International Airport

The airport SPHSR station is underground and 6.4 miles SW of the Spokane Amtrak Station.

This station has four tracks to allow shuttle train transit between the airport and downtown Spokane.



The Stampede Pass HSR Corridor Terminus at the Spokane Amtrak Station

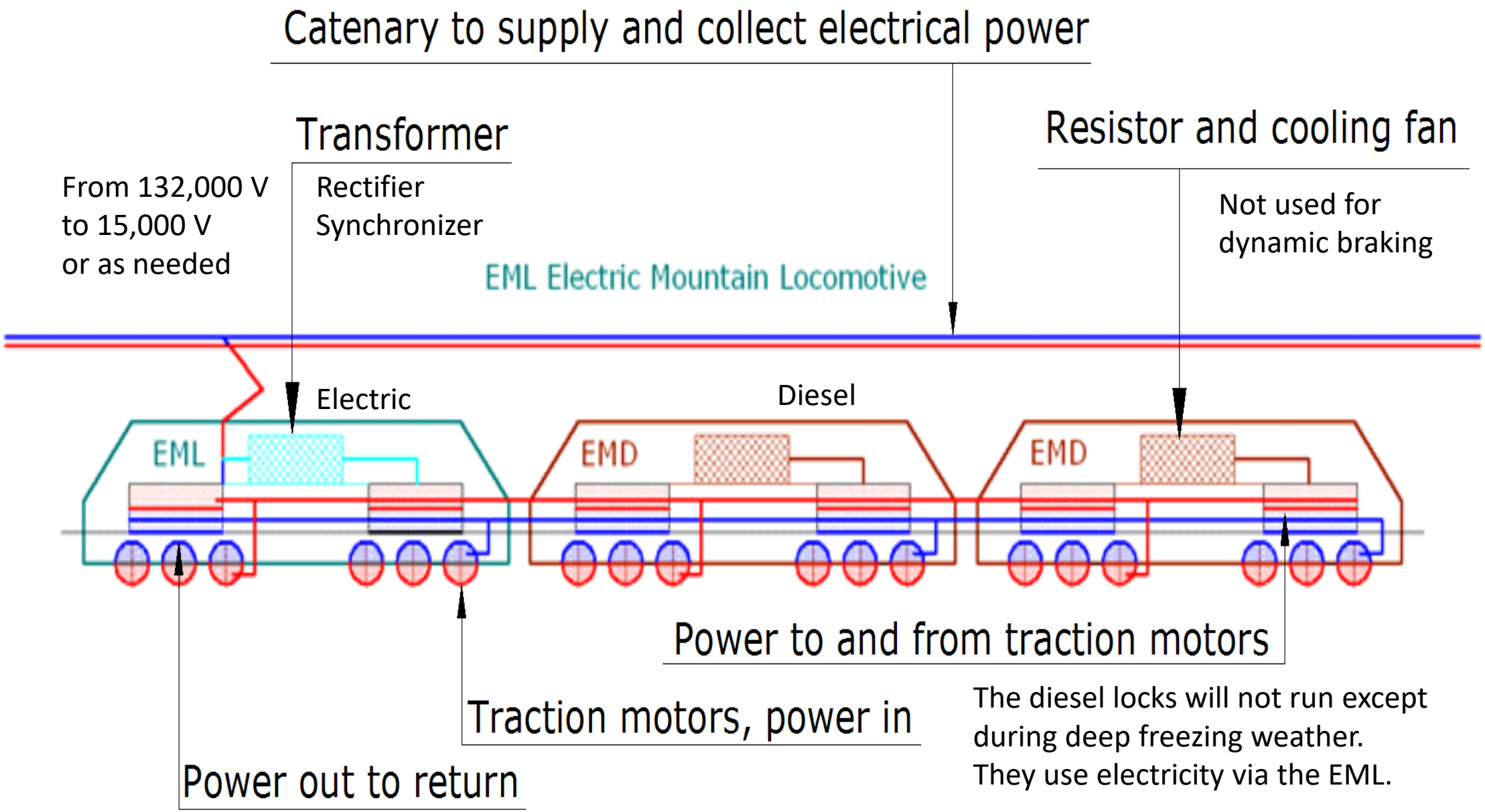
Here the existing Amtrak corridors are shown. The existing corridors have way too many tight curves which can't handle High-Speed Trains. See the detailed drawings for clarification.

The intent for this east-west SP corridor is to reduce energy consumption, reduce emissions, shorten transit time, and maximize the right-of-way to help passenger and express freight movement.

The Stampede Pass HSR Corridor Terminus at the Spokane Amtrak Station

The electrified line will end at N Helena St. At this location, we park and serve the EML locomotives.

Express multi-modal trains will be no longer than 1300’. At this point, we disconnect the EML, and then the diesel EMD will continue the journey. On the westbound trip, the procedure will be reversed.



Approach for Electrification over the Stampede Pass Route

Keep intermodal trains configuration with the diesel locomotives as they are. Add the Electric Mountain Locomotive (EML) to the front. The EML will use electric power to propel the trains. Diesel locomotives are an auxiliary power source. During the braking, the diesel will forward the power to the EML. Once off the grid, the diesel Locks will bring the train to the destination point.


132 kV AC Power
or as needed
Catenaries
For the trains

The Stampede Freight and the new Stampede Pass CHSR Corridor

The SP CHSR has stops at Seattle Central, Auburn, New Cumberland Airport, Cle Elum, Ellensburg, Moses Lake, and Spokane

Former Northern Pacific RR Corridor Mileage	Station to Station	Travel Time
125 miles	Seattle, Auburn, Ellensburg	3 hours and 14 minutes
126 miles	Ellensburg, Yakima, Pasco	3 hours and 6 minutes
145 miles	Pasco, Spokane	2 hours and 55 minutes
396 miles	Seattle, Spokane – former Northern Pacific	8 hours and 15 minutes
329 miles	Seattle, Everette, Wenatchee, Ephrata, Spokane	7 hours and 42 minutes, current Amtrak Train

Bus Lines, Stampede Pass CHSR	Station to Station	Travel Time
351 miles	Portland, Pasco, Spokane	8 hours and 45 minutes
228 miles	Seattle, Ellensburg, Moses Lake, Spokane	5 hours and 5 minutes
110 miles	Ellensburg, Pasco,	2 hours and 24 minutes
135 miles	Pasco, Spokane	2 hours and 20 minutes
268 miles	Seattle, Spokane, Stampede Pass CHSR	2 hours plus with 7 stops

Notes