Practical Solutions Labs
March 31th and April 6th

Practical Solutions Lab - Agendas

Eastern Region Practical Solutions Multimodal Lab

The focus of the Lab is to work towards practical strategies for modal integration and improving safety within the US 2 corridor. We will be working from a common understanding of contextual needs and purpose that the planning team will summarize at the outset.

In this session, modal and discipline-specific experts will share key messages and user tips, followed by project-specific discussions.

Wednesday March 31, 2021

Times are subject to change: be flexible		Day 1 AGENDA	OUTCOME
PART I: BACKGROUND/CURRENT PLAN	8:30	Opening comments - welcome **Mike Gribner** Introduction to today's process; agenda review, safety Facilitators: **Ahmer Nizam / Charlene Kay**	Setting foundation and expectations
	8:45	Project Overview and Contextual Needs **Bonnie Gow**	Understanding of project, context, purpose and function
	9:45	**Introduce Planning Partners – What does this project mean to you and what are the most important opportunities to consider?**	
		10:15 MORNING BREAK	
PART 2: STRATEGIES & MODES	10:30	Safety – Presentation of corridor safety data and list high-level recommendations **Ida Van Schalkwyk** 50 min presentation & discussion / 10 min capture strategies	
	11:30	Freight – Overview of freight operations and forecasts **Jason Beloso / Trevor Daviscourt** 25 min presentation & discussion / 5 min capture strategies	
		12:00 LUNCH	
	1:00 pm	Environmental – Overview of Environmental Asset Review Memo **Tammie Williams / Justin Zweifel** 15 min presentation & discussion / 5 min capture strategies	
	1:20 PM	Equity – Overview of Environmental Justice for the Corridor **Alberto Valentin** 15 min presentation & discussion / 5 min capture strategies	
	1:40 PM	Active Transportation – Overview of Existing Conditions, Gaps and Opportunities **Brian Wood / Jerrold Compton** Presentation, discussion & strategies	
	3:50	Wrap up and Prep for Day 2	

Eastern Region Practical Solutions Multimodal Lab

The focus of the lab is to work towards practical strategies for modal integration and improving safety within the US 2 corridor.

Day 2 will continue with presentations by WSDOT Transportation Demand Management (TDM) and Transportation Systems Management and Operations (TSMO) experts and focus on identifying specific strategies for the corridor based on the information presented.

Tuesday April 6, 2021

Day 2 AGENDA	
8:30	Day 1 Debrief - Capture the main take-aways for further consideration **Ahmer Nizam / Charlene Kay**
9:00	Mobility – Overview of Findings from Analysis (LOS, Travel Time, Volumes) **Bonnie Gow / Glenn Wagemann** 30 min presentation & discussion / 10 min capture strategies
9:40	Public Transit and CTR - Overview of Existing Conditions, Gaps and Opportunities for Demand Management **Stan Suchan / Nina Stocker** 40 min presentation & discussion / 10 min capture strategies
	10:30 MORNING BREAK
10:45	Eastern Region ITS Architecture Plan **Becky Spangle** 15 min presentation & discussion / 5 min capture strategies
11:05	Transportation Systems Management and Operations - Overview **Pamela Vasudeva** 30 min overview and segue into strategies
	11:45 LUNCH
1:00 pm	Develop Corridor Strategies
	2:30 AFTERNOON BREAK
2:45	Develop Corridor Strategies
3:30	Wrap up and Next Steps
3:45	Adjourn

Practical Solutions Lab - Attendees

Practical Solutions Lab/Workshops Attendees - March 31st & April 6th, 2021
West Plains Subarea Transportation Management Plan Study, Ph 1, US 2 Vicinity

Attendees:

1. Bergam. Mark (mbergam@cawh.org)
2. Bradley, Rachelle
3. Coleman, Todd (wpaapda@gmail.com)
4. Corcoran, Lisa
5. Greene, Barry
6. Johnson, Jeffrey
7. Johnson, Ken
8. Koltonowski, Edward
9. KOWALSKI, JAMIE K GS-12 USAF AMC 92 CES/CENME
10. Mowery, Frashefski, Kara
11. Note, Inga
12. Shields, Kelly
13. Stewart, Ryan (SRTC)
14. Trautman, Heather
15. Urlich, Mike
16. Weiban, Zach
17. Weinand, Kathleen
18. White, Bill (bwhite@to-engineers.com)

WSDOT Attendees:

19. Beloso, Jason
20. Bjordahl, Mike
21. Compton, Jerrold
22. Daratha, Kelvin
23. Daviscourt, Trevor
24. Donahue, John
25. Elizer, Marshall
26. Engle, Kathy
27. Figg, Greg
28. Fortune, Andrea
29. Frostad, Larry
30. George, Leann
31. Gilman, Celeste
32. Gow, Bonnie
33. Kay, Charlene
34. McClanahan, Doug
35. Murray, Kathy
36. Neeley, Matthew
37. Nizam, Ahmer
38. Overton, Ryan
39. Platts, Max
40. Rydholm, Tim
41. Spangle, Becky
42. Stocker, Nina
43. Suchan, Stan
44. Swires, Dina
45. Traore, Mohamed
46. Wagemann, Glenn
47. Warren, Richard
48. Williams, Tammie
49. Wood, Brian
50. Vasudeva, Pamela
51. Vaughn, Dustin
52. Van Schalkwyk, Ida
53. Zweifel, Justin

Invited but not present:

Beck, Amanda
Jones, Sev
McDermott, Ted
McMenamy, Eve
Nicodemus, Megan
Selstead, Greg
Sullivan, Molly
Tripp, Albert
Whitford, Julia (Kalispel Tribe)
Williams, Deanna

ER Presentation

Project Overview and Contextual Needs

Bonnie Gow

West Plains Subarea Transportation Management Plan

Phase 1

US 2 Vicinity

Practical Solutions Workshop

Eastern Region Planning

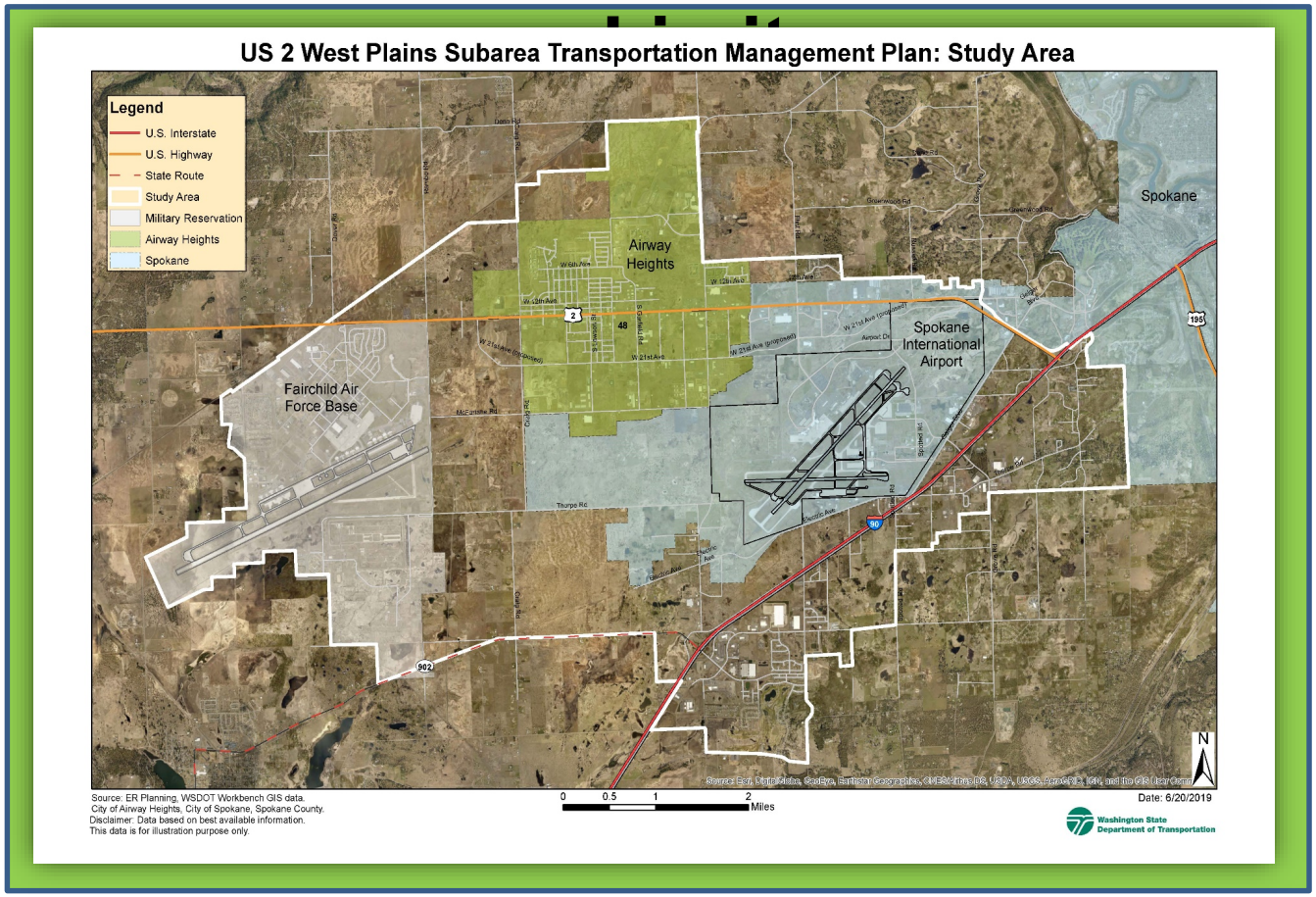
WSDOT

March 31st, 2021

WHY This Study?

- One of the Fastest Growing Land Use Development areas in Washington State
- Refinement and alignment of over 15 previous studies in the area
- Limited transportation connectivity -need for a supporting local network
- Congestion along segments of the US 2 corridor, identified during the Corridor Sketch Initiative
- Shared jurisdiction; City of Airway Heights, City of Spokane, Spokane County, Kalispel Tribe, Spokane Tribe, Spokane International Airport, SRTC, STA
- Rapidly increasing industrial area - Amazon Distribution Center

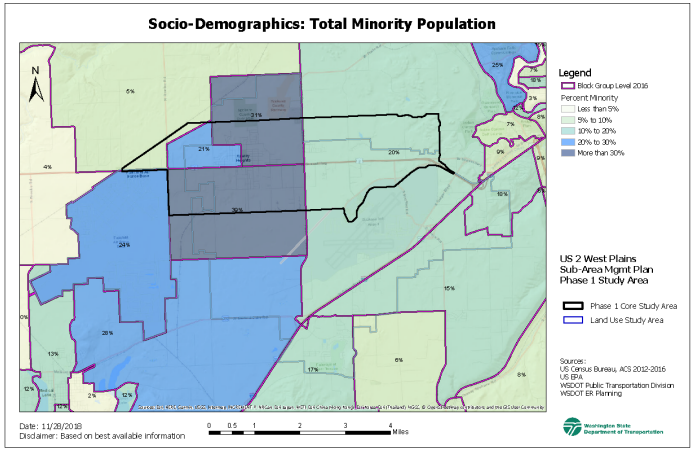
West Plains Study

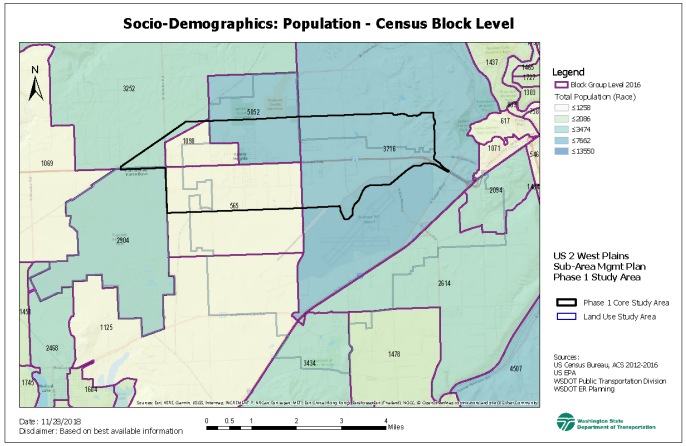


Environmental Justice Tit

- Population Density
- Employment
- Federal Poverty Level
- Veteran Status
- Age above 65
- Race
- Language

Source: US Census 5-year American Community Survey (ACS) (2012-2016) data.





West Plains Area – Connecting with the Community

- Community Built Around a Highway Corridor US 2
- Low Income, Veterans & Elderly
- Fairchild Air Force Base, Two Tribal Casinos, Spokane International Airport, Airway Heights Correctional Facility

Title VI

- Minority

High = 39%, Average = 25%

- Veterans

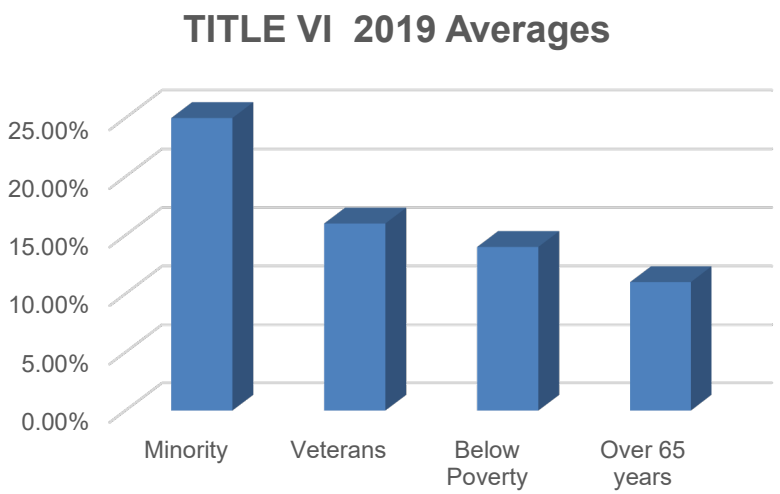
High = 33%, Average = 16%

- Below Poverty

High = 24%, Average = 14%

- Over 65 Years of Age

High = 24%, Average = 11%



Community Engagement

Listening posts at 2019 community events
(Medical Lake Founders Day, Sunday Fest at Quest Resort & Casino, Airway Heights Festival)

Further Community Outreach
Fairchild Air Force Base, Yokes Grocery Store, Smart Commute NW Employee Transportation Coordinators Luncheon, Growth Management Act (GMA) Steering Committee of Elected Officials Meeting

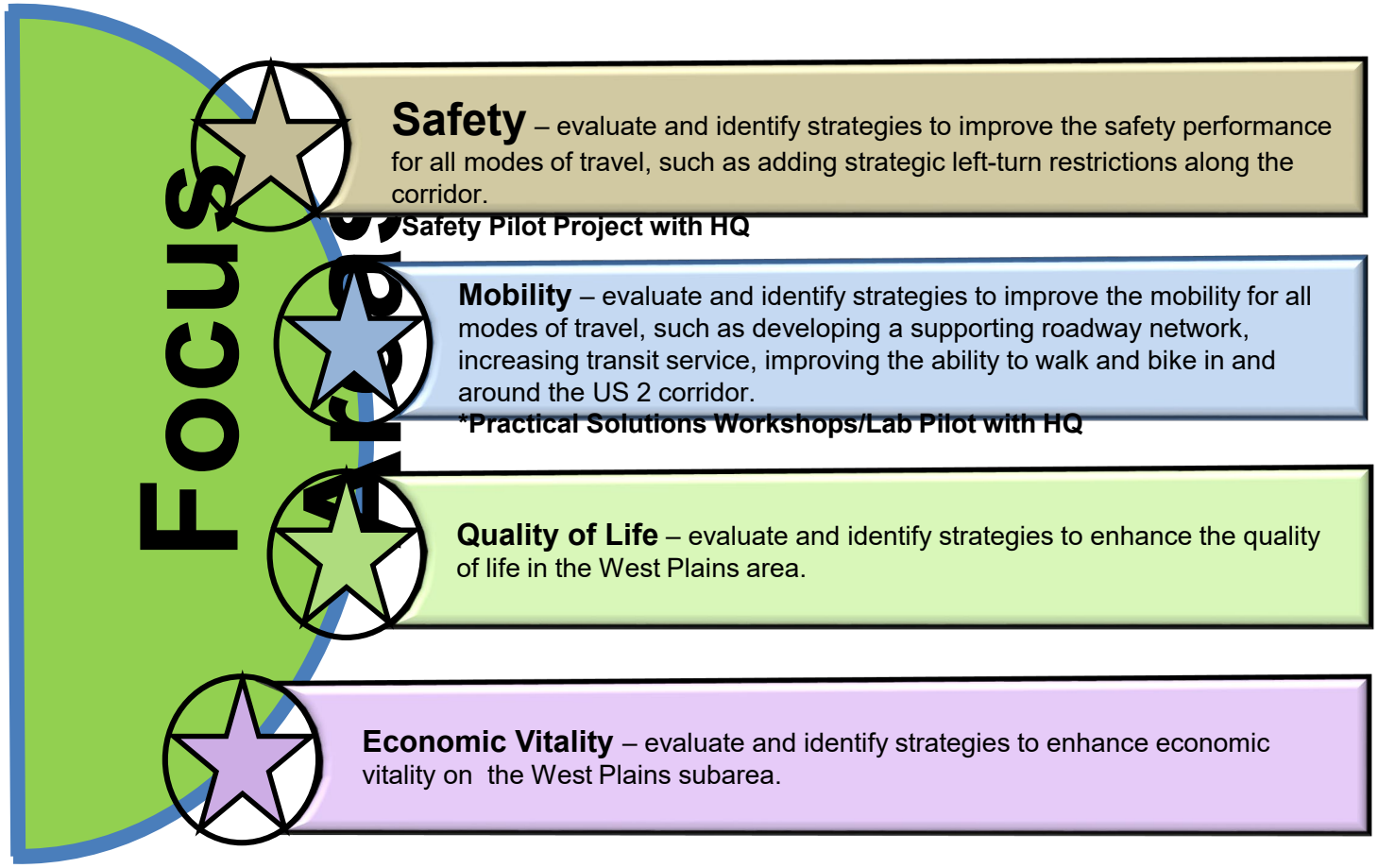
Informational Surveys Collected

- Over 600 primary surveys and over 400 supplemental surveys collected

WSDOT

STUDY Partners:

- City of Airway Heights
- City of Spokane
- Fairchild Air Force Base (FAFB)
- Kalispel Tribe of Indians
- S3R3 Solutions (Public Development Authority)
- Spokane County
- Spokane International Airport, (SIA)
- Spokane Regional Transportation Council (SRTC)
- Spokane Transit Authority (STA)
- Spokane Tribe of Indians
- West Plains Chamber of Commerce


Focus Areas
Safety – evaluate and identify strategies to improve the safety performance for all modes of travel, such as adding strategic left-turn restrictions along the corridor.
*Safety Pilot Project with HQ
Mobility – evaluate and identify strategies to improve the mobility for all modes of travel, such as developing a supporting roadway network, increasing transit service, improving the ability to walk and bike in and around the US 2 corridor.
*Practical Solutions Workshops/Lab Pilot with HQ
Quality of Life – evaluate and identify strategies to enhance the quality of life in the West Plains area.
Economic Vitality – evaluate and identify strategies to enhance economic vitality on the West Plains subarea.

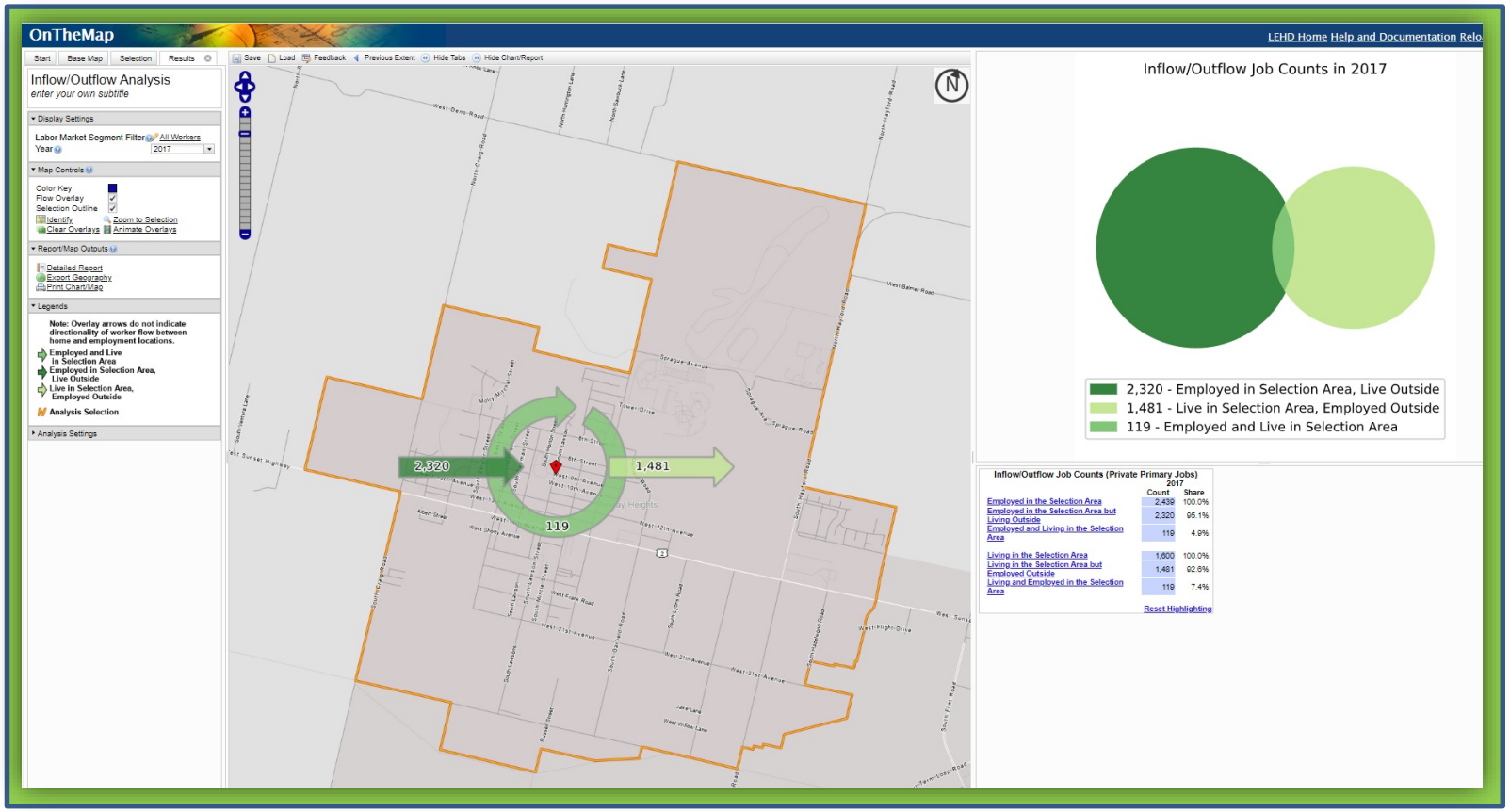
Previous West Plains Studies/Traffic Impact Analysis

•2006 – City of Airway Heights Highway 2 Revitalization
•2009 – City of Spokane Master Bike Plan
•2010 – WA Airport & Compatible Land Use Guidebook
•2010 – WSDOT US 2 Route Development Plan, Lincoln Co. Line to I-90 MP 266.86 to MP 283.01
•2011 – SRTC West Plains-SIA Transportation Study
•2011 – TIA Spokane Tribe West Plains Development
•2012 – Spokane County Comprehensive Plan
•2012 – Spokane AIR – West Site Transportation Analys
•2013 – Land Development Risks along State Transport
•2013 – VE Study I-90/SR 902 I/C Improvements, Value Strategies
•2014 – City of Spokane West Plains Subarea Transportation Plan
•2014 – Spokane International Airport Master Plan
•2015 – Rowand Business Park, Morrison Maierle, Inc.
•2016 – City of Spokane Comprehensive Plan update 2017
•2016 – City of Spokane Comprehensive Plan 2017 Appendix D
•2017 – City of Airway Heights Transportation Circular Plan
•? – City of Airway Heights US 2 Plan Model Zoning Overlay

Comprehensive Plans

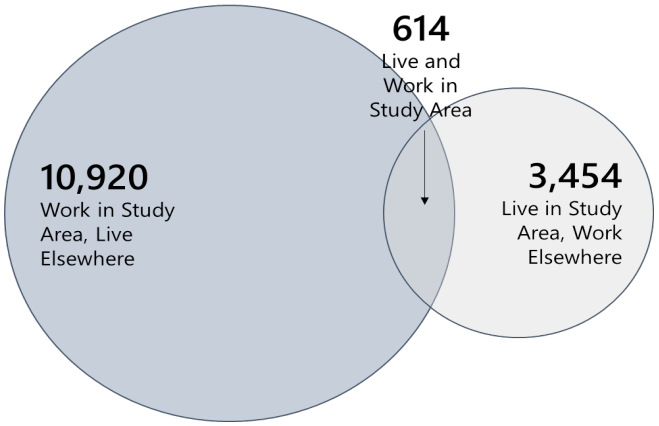
- City of Airway Heights
- City of Spokane
- Spokane County

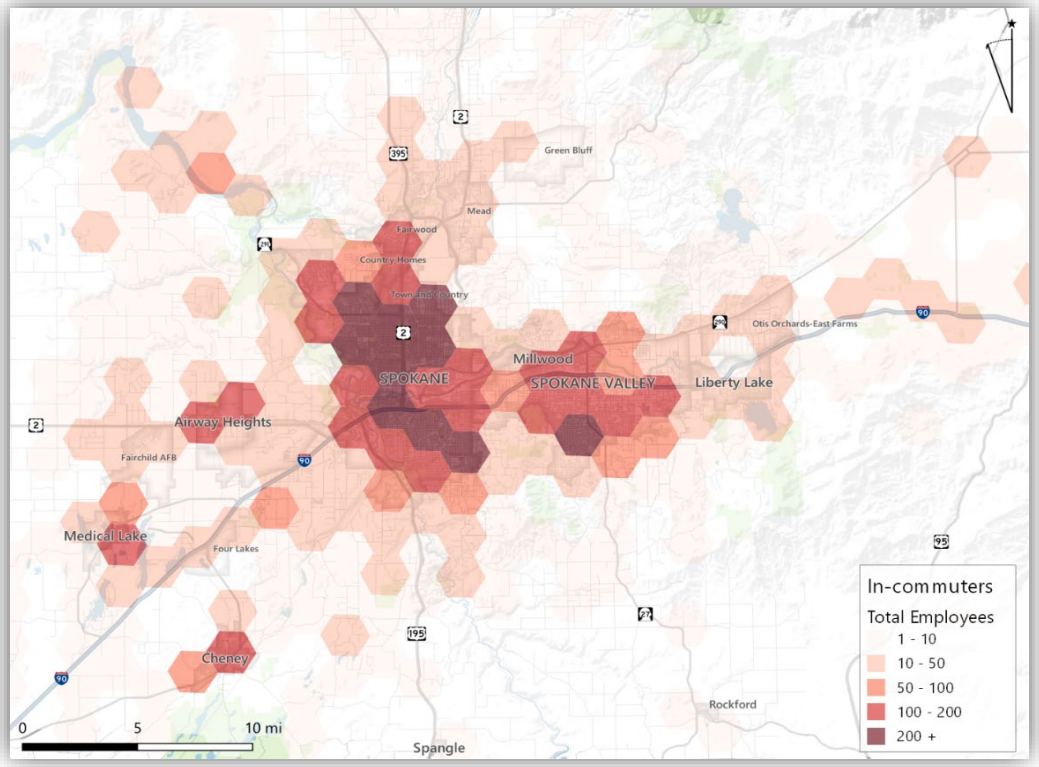
➢WHY This Study? – 95% of people working in the area, live outside of the area.



Commute Patterns

There are opportunities to develop new housing to capture the rapidly increasing employee population within West Plains.





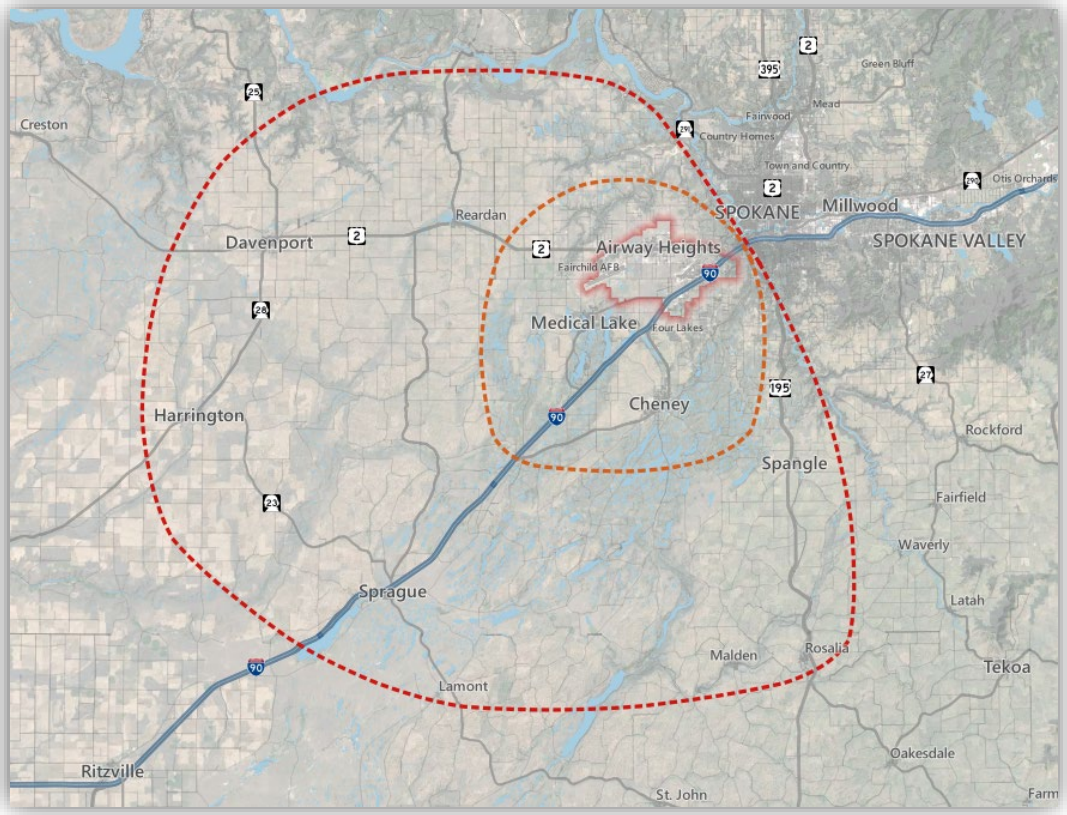
Demand Modeling

20-year regional demand forecast conducted for:

- Residential
- Office
- Industrial
- Retail

Market areas:

- Residential
- Office & Industrial
- Retail



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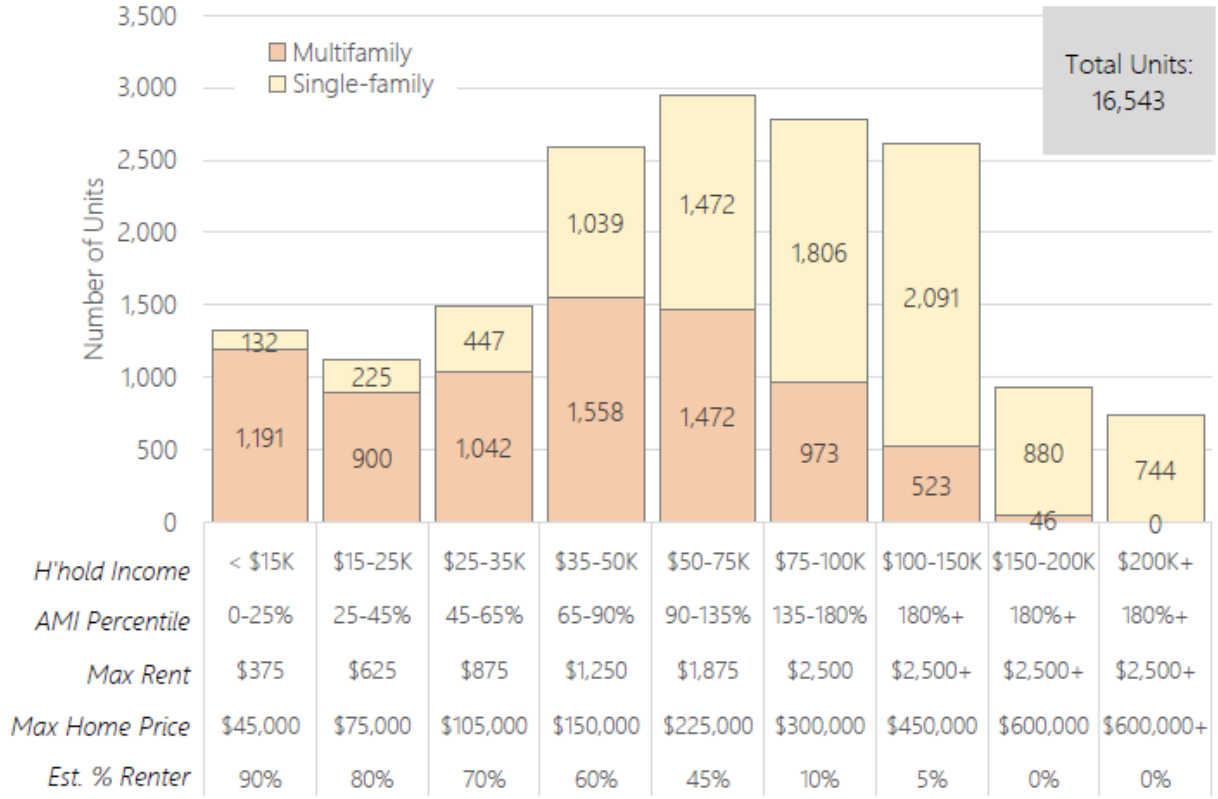
Market Land Use based on what could reasonably be expected by the year 2040

Residential Demand

Figure 12. Residential Demand, Residential Market Area, New Units, 2019-2040



Office & Industrial Demand 2019 - 2040

Primary drivers of demand are likely to remain industrial-oriented, particularly with Amazon's new facility creating additional interest for associated warehousing and distribution. Aerospace manufacturing growth at and around Spokane International Airport will support manufacturing growth and, to a lesser extent, research and development. Successful economic development efforts may provide even more impetus to this industry. Also, while not necessarily market-driven, the continued growth of "public administration" jobs will continue to support both office and industrial development, particularly at Fairchild and the airport.

New estimated demand for office and industrial development over the next 21 years is as follows.

270,000 sq. ft.

6,340,000 million sq. ft.

Flex space, which can often bridge the gap between office and industrial, depending on total market demand, currently accounts for about 15 percent of office, industrial, and flex space in West Plains. At a similar rate, flex development would account for an additional 1.0 million square feet. However, flex is particularly challenging to forecast, so we would simply expect that any potential market gaps in the future would be plugged by new flex space.

Current Study Analysis – Retail Demand

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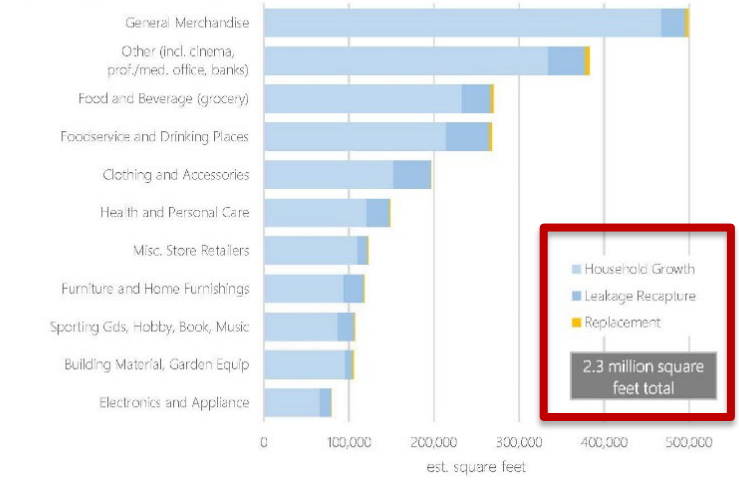
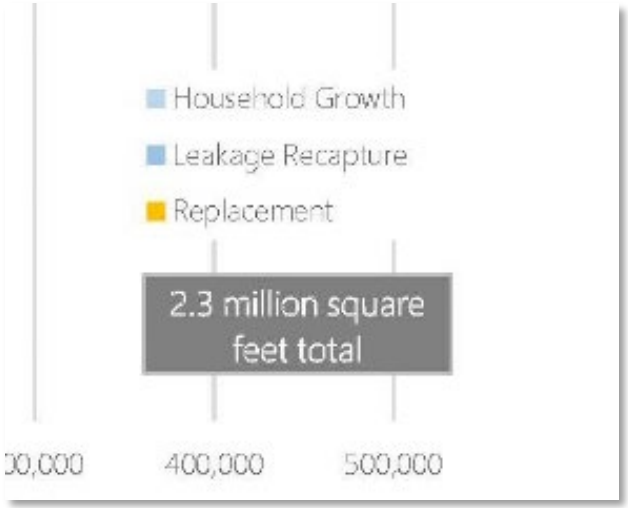
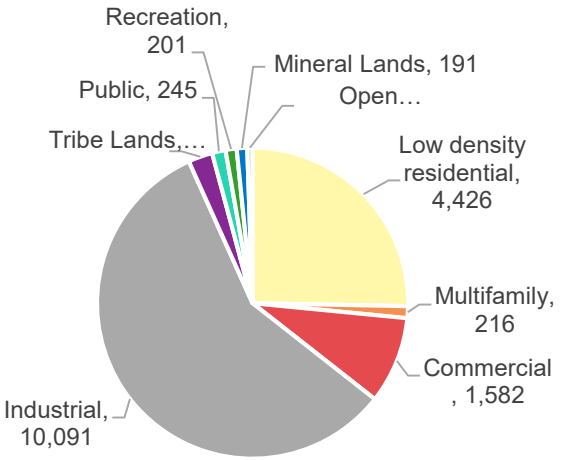
West Plains Transportation Management Plan | Market Analysis and Development Forecast

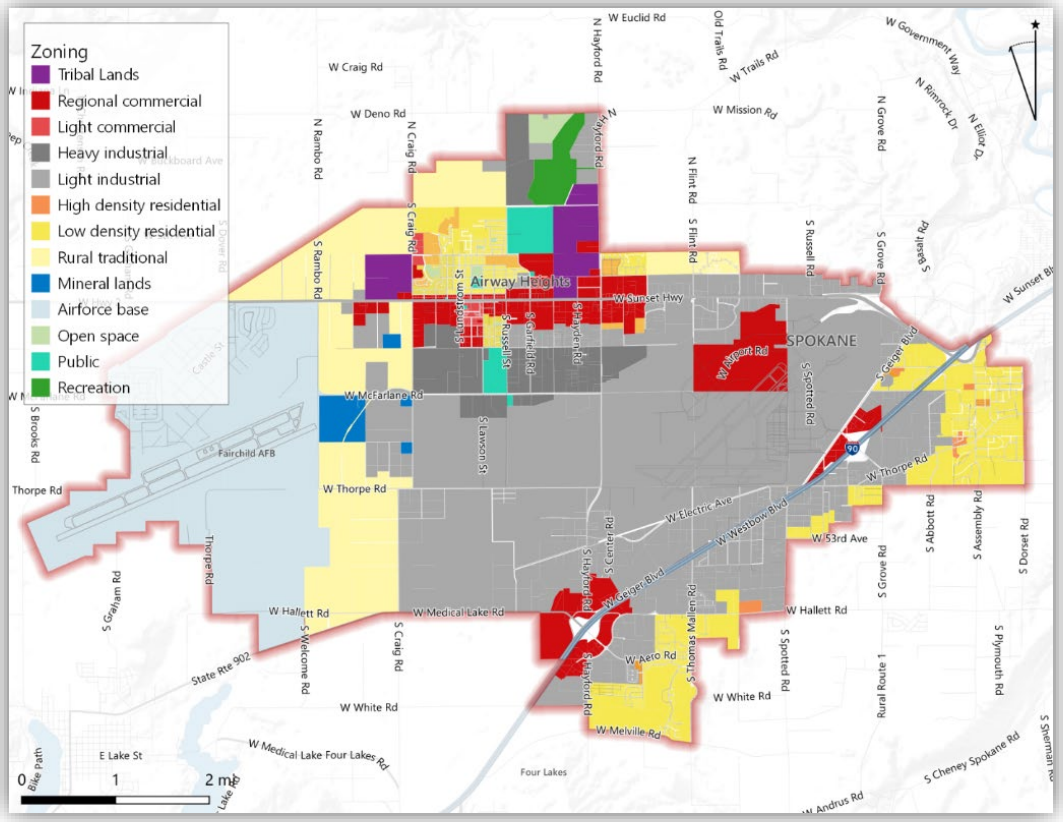
Figure 10. Retail Demand, Primary Trade Area, 2019-2040





Current Zoning





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Projected Development Program 2019 - 2040

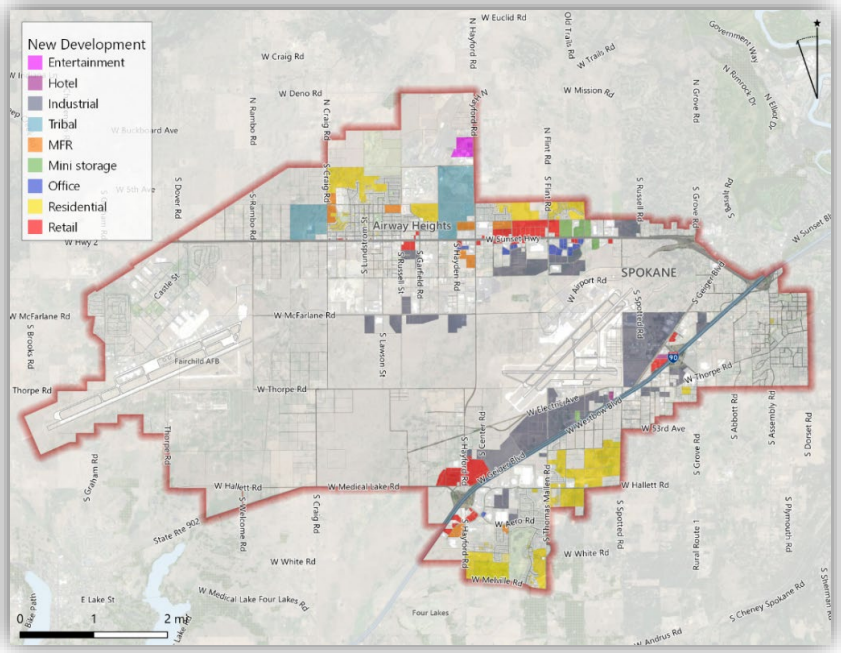
Development clustering around I-90 and US-2

Continued residential development (SFDU & MFDU)

Additional multifamily in and near Airway Heights

Major development on Kalispel Tribe and Spokane Tribe land

Potential but highly unpredictable development on airport-owned land



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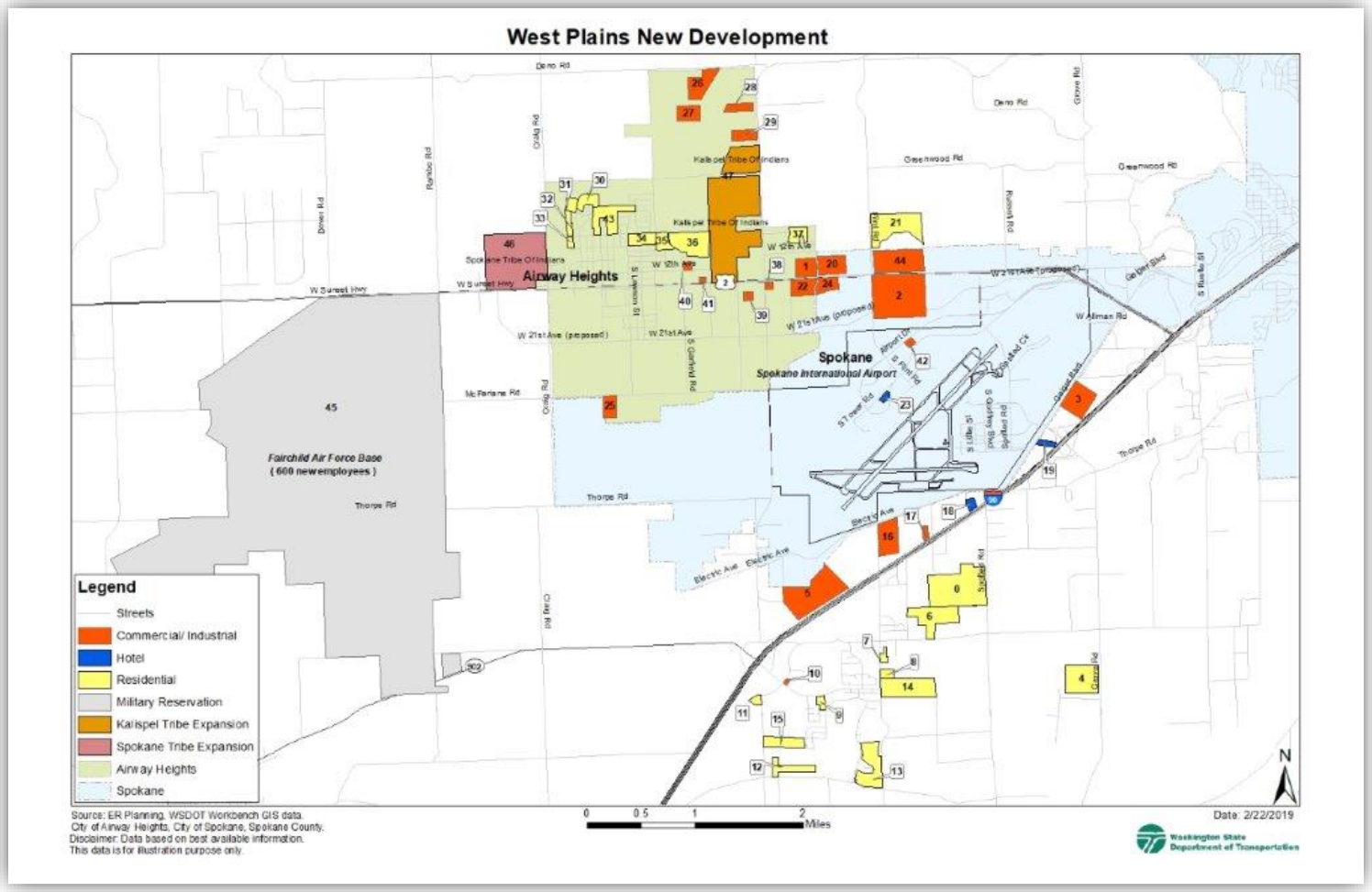
Developments Through 2019



Stakeholder Interviews

Strengths:

High Growth

Good Access

Plentiful industrial-zoned land

Strengthening housing market

Significant aerospace cluster

Good workforce

Affordable housing market

Challenges:

Worsening traffic

FAA restrictions

Restrictive overlay zone

Lacking infrastructure

Significant wetlands

Isolated Fairchild Air Force Base

Image

Weaker school district

Lack of rooftops to support retail

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Stakeholder Interviews

Opportunities:

Residential demand

Fairchild AFB growth

Industrial growth

Transload facility

Opportunity Zone

I-90 corridor

Strong transit

New infrastructure investment

Development Trends:

Tribal land build out

Amazon and associated development

Hwy 2 & I-90 build out

Airport development

Hotel growth

Limited office (innovation park)

Unprecedented rate of development (esp. housing)

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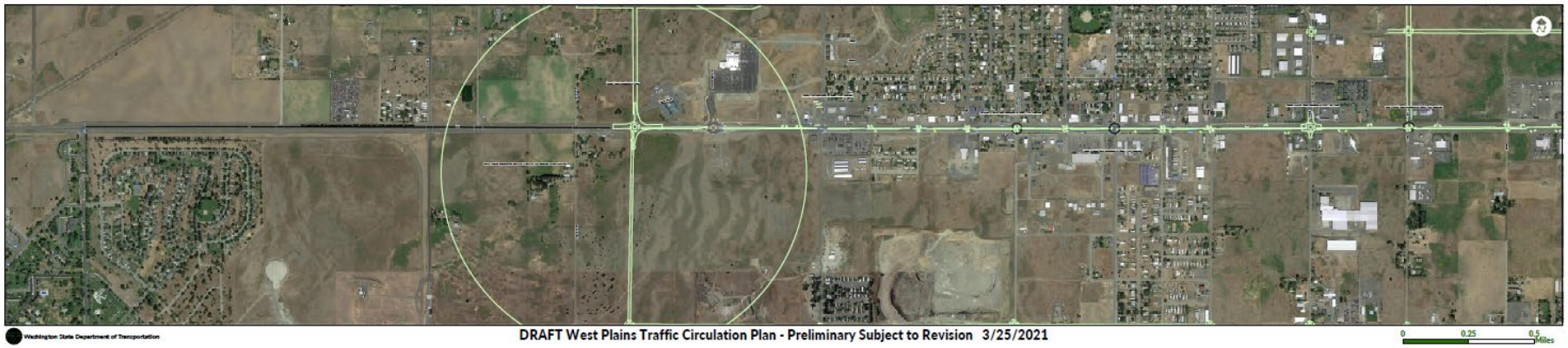
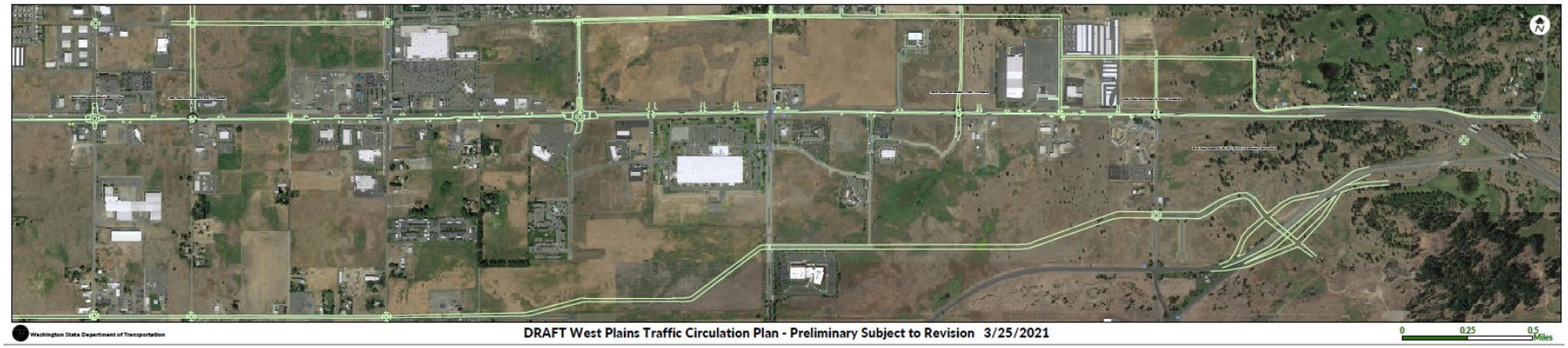
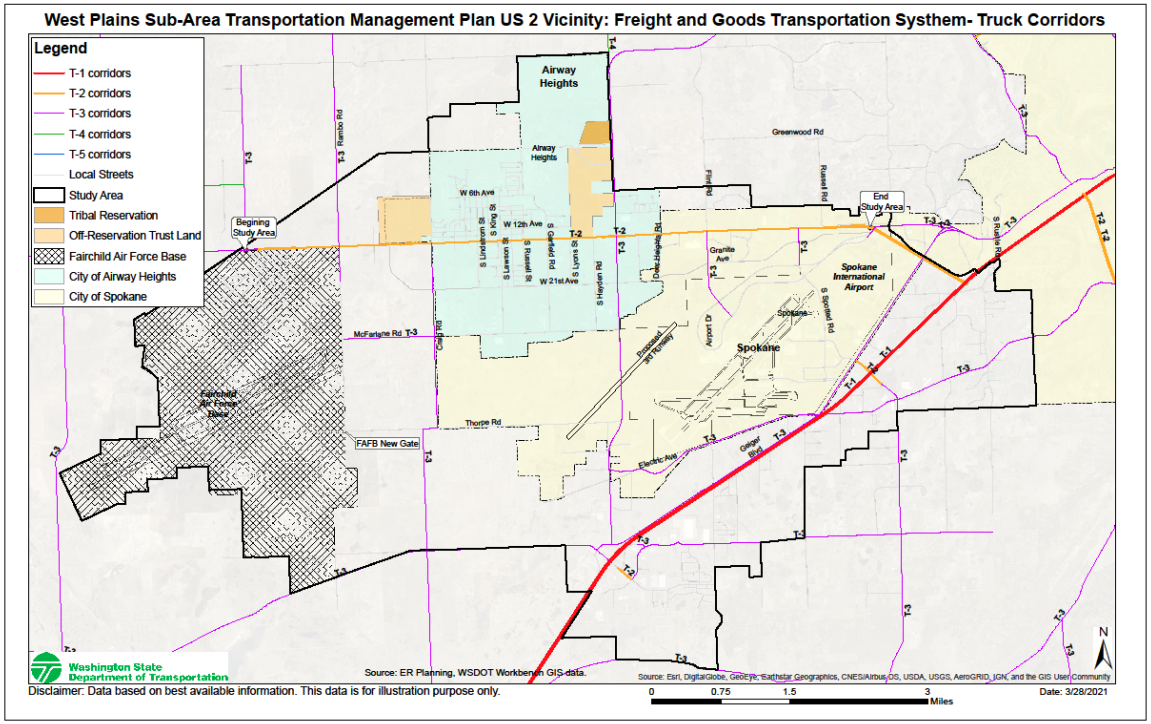
WPSA Traffic Circulation Plan in and Around US 2





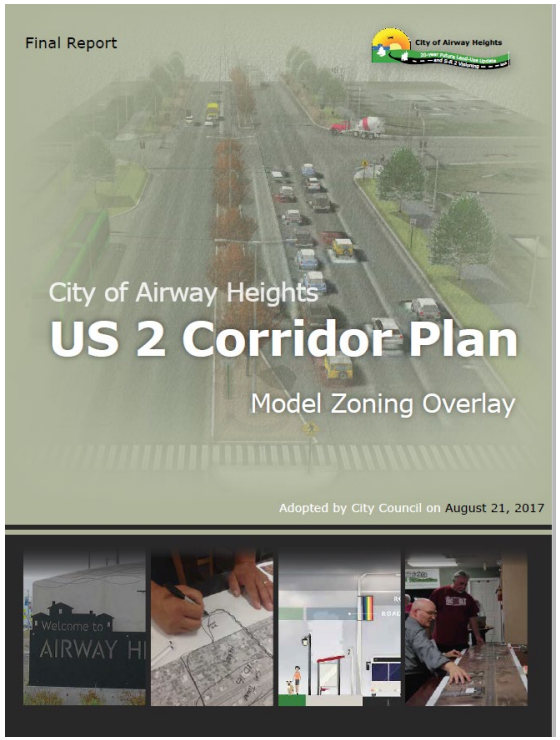
US 2 Freight Corridor

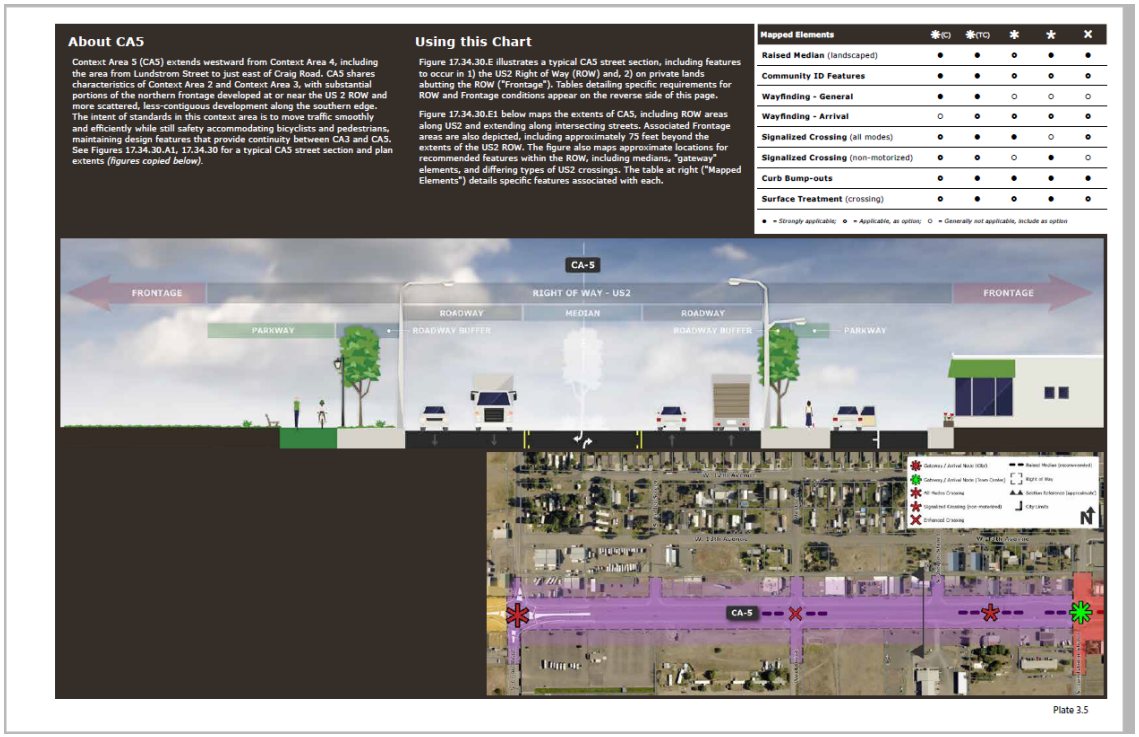
- **T2 Freight Corridor**
- **3% – 7% Truck Traffi**



Coordination with Partners – City of Airway Heights

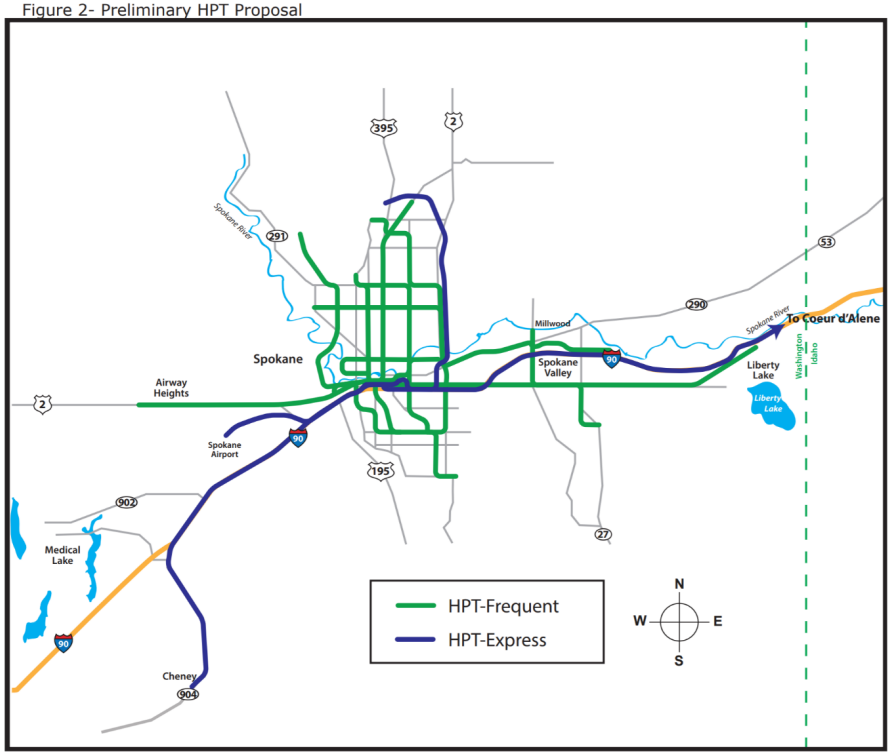
Revitalization Plan





Coordination with Partners – Spokane Transit Authority FUTURE - High Performance Transit

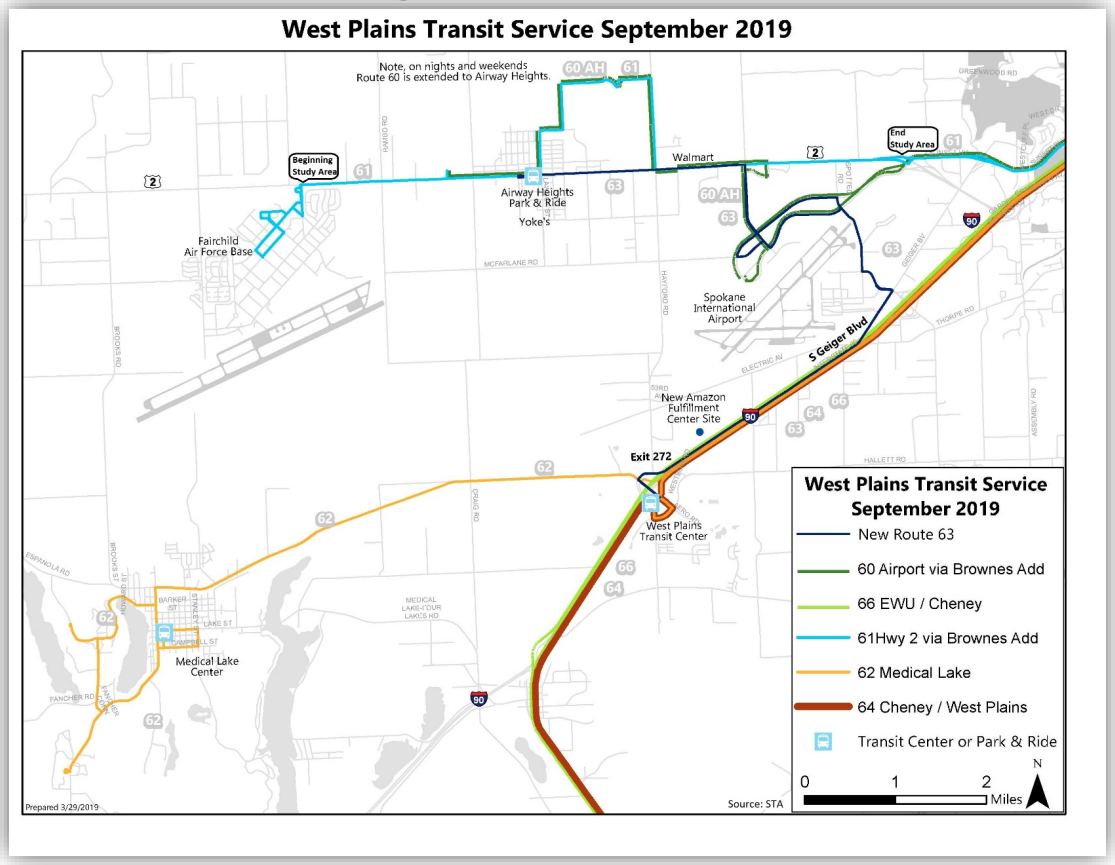
Figure 2- Preliminary HPT Proposal

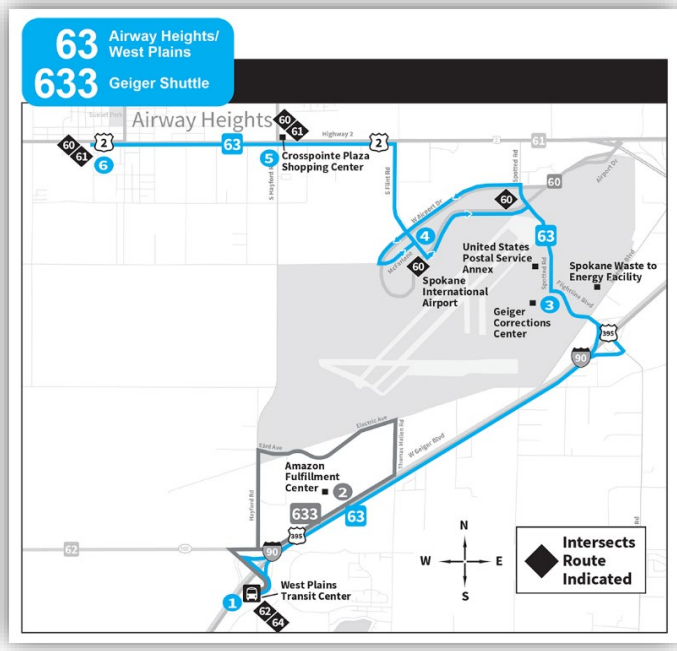


Route	Terminals	Via	Implementation Strategy and Challenges
E1	Cheney / EWU <> Hastings Park & Ride	I-90, Downtown Spokane, SCC, North Spokane Corridor	**Near-term-** Branded articulated bus or double-decker bus; ensure frequency and span between Downtown Spokane and Cheney meets HPT Express standards; restructure service to Medical Lake; construct West Plains Transit Center. **Mid-term-** Introduce express service on the North Spokane Corridor once completed. **Long-term-** Branded articulated bus or double-decker bus; ensure service to Hastings Park & Ride meets HPT Express span and frequency standards.
E2	Spokane Int'l Airport <> Coeur d'Alene, ID	Downtown Spokane, Mirabeau, Liberty Lake, Post Falls	**Near-term-** Articulated bus; consider expansion of select trips to Coeur d'Alene; construct Liberty Lake Park & Ride. **Mid-term-** Articulated bus or double-decker bus; construct Argonne Park & Ride. **Long-term-** Articulated bus or double-decker bus; install HPT stations and stop amenities; evaluate service options for extension to Spokane Int'l Airport.

Route	Terminals	Via	Implementation Strategy and Challenges
F1	Downtown Spokane <> Newport Hwy & Hawthorne	Downtown Spokane, Division Street, Newport Hwy.	**Near-term-** Regular bus; improve daytime capacity issues and night and weekend frequency; construct improved passenger amenities; Business Access and Transit (BAT) lanes between N. Foothills Dr. and the Spokane River. **Mid-term-** Enhanced bus; meet HPT Frequent frequency and span standards; construct Farwell Park & Ride; construct HPT station and stop amenities. **Long-term-** Electric BRT-style vehicles; construct center-running transit-only lanes.
F2	Airway Heights <> Liberty Lake	Sunset Blvd., I-90 Corridor, Sprague Ave., Spokane Valley, Greenacres	**Near-term-** Regular bus; expand service on Route 173 VTC Express with more peak frequency and hourly mid-day service; simplify Route 61 Highway 2 through Airway Heights; construct improved stop amenities. **Mid-term-** Enhanced bus; ensure frequency and span meet HPT Frequent standards with BRT service along semi-exclusive right of way. **Long-term-** Light rail.
F3	VA Hospital <> Indiana & Evergreen	Wellesley, Market, SCC, Trent, Millwood, Spokane Valley Mall	**Near-term-** Regular bus; improve frequency during nights and weekends on Route 33 Wellesley. **Mid-term-** Regular bus; modify Routes 32 and 33; add 15 minute daytime weekday frequency throughout the length of the corridor. **Long-term-** Enhanced bus; meet HPT Frequent frequency and span standards; install HPT station and stop amenities.
F4	Whitworth University <> South Hill Park & Ride	Hawthorne Rd., Division St., Nevada St., Francis Ave., Market St., Freya St., 29th Ave.	**Near-term-** Improve frequency during nights and weekends along Route 26 Lidgerwood and 28 Nevada. **Mid-term-** Regular bus; modify parts of Route 26 Lidgerwood, 28 Nevada and 34 Freya; add 15 minute daytime weekday frequency. **Long-term-**Enhanced bus; ensure frequency and span meet HPT Frequent standards; install HPT stations and stop amenities.

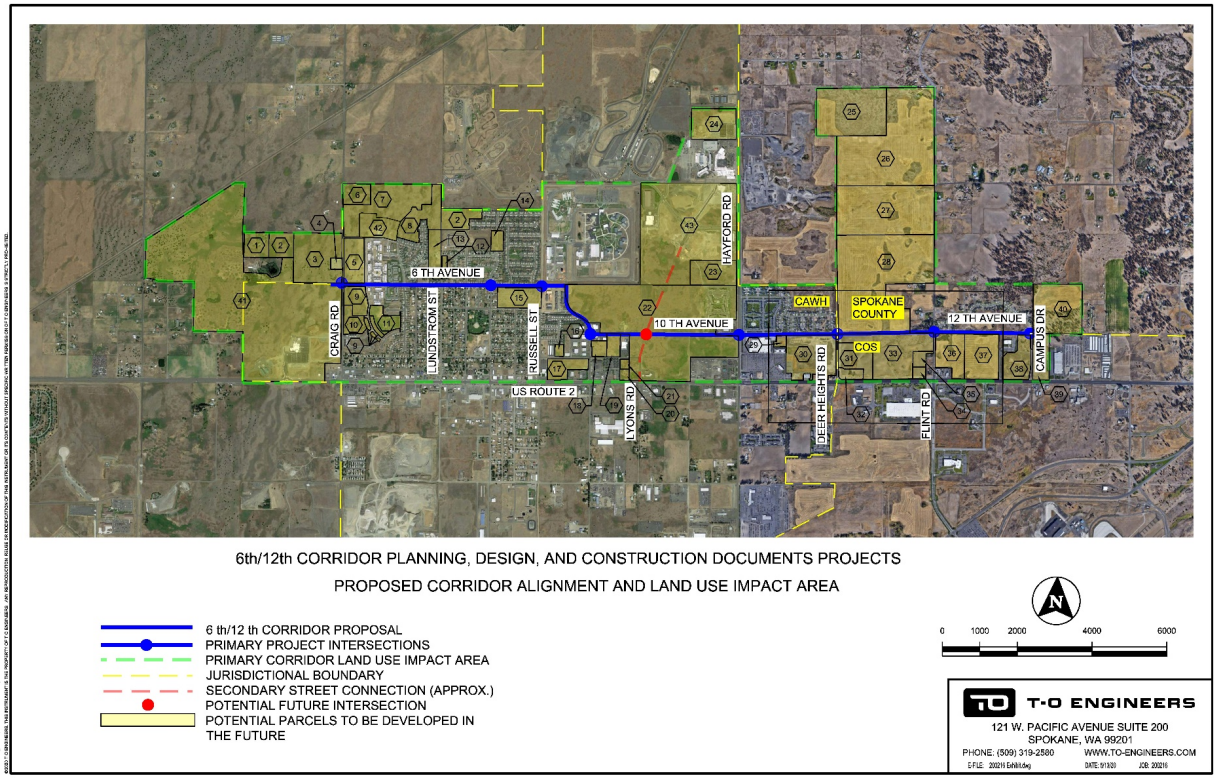
Current West Plains Spokane Transit Authority - Routes





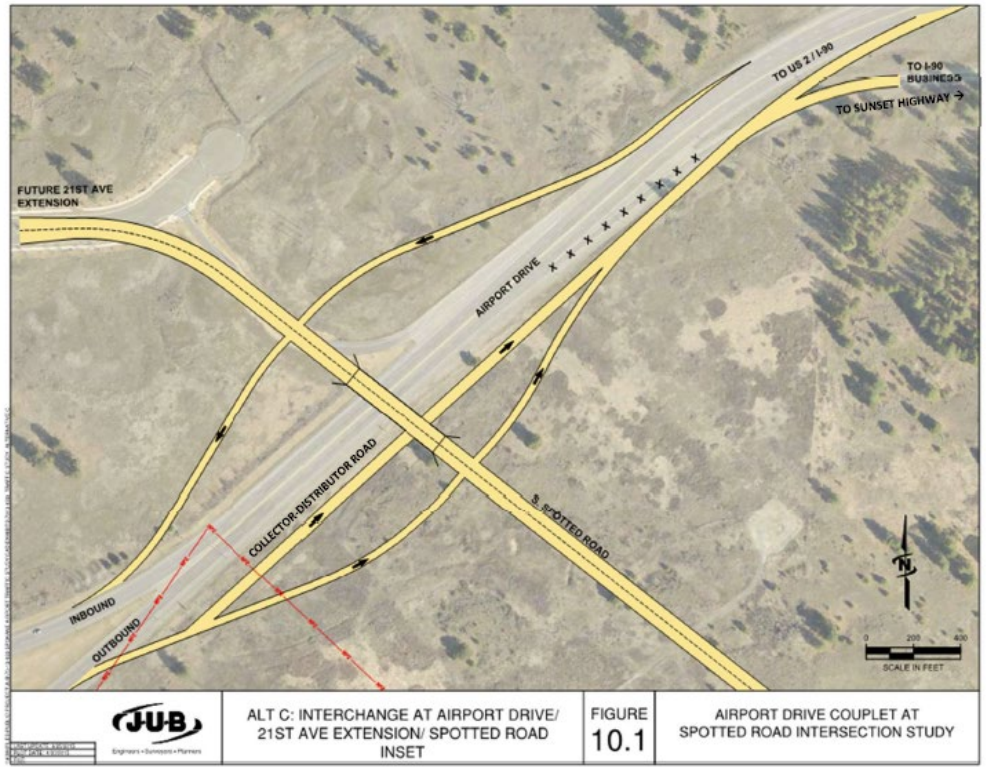
Coordination with Partners – Public Development Authority

6th/10th/12th– TIB Grant Segment Garfield Rd to Flint



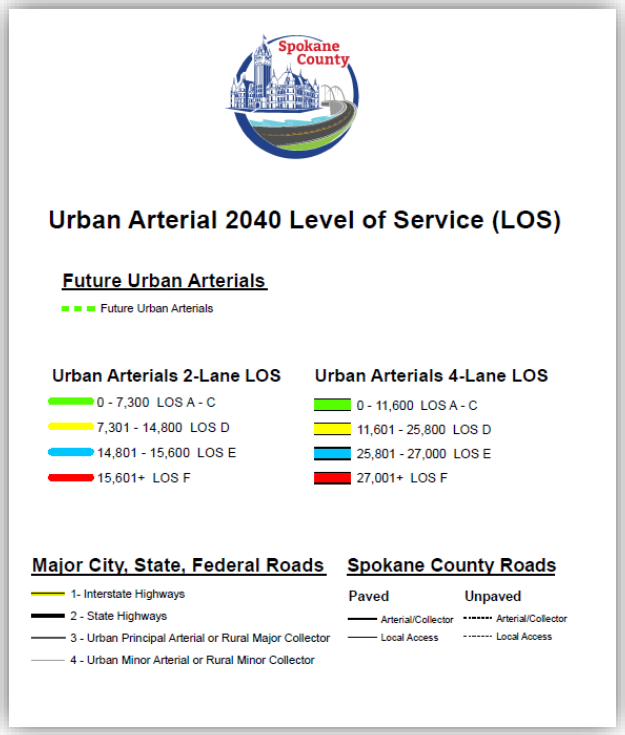
Coordination with Partners- Spokane International Airport Airport Drive Rd /Spotted Road Interchange

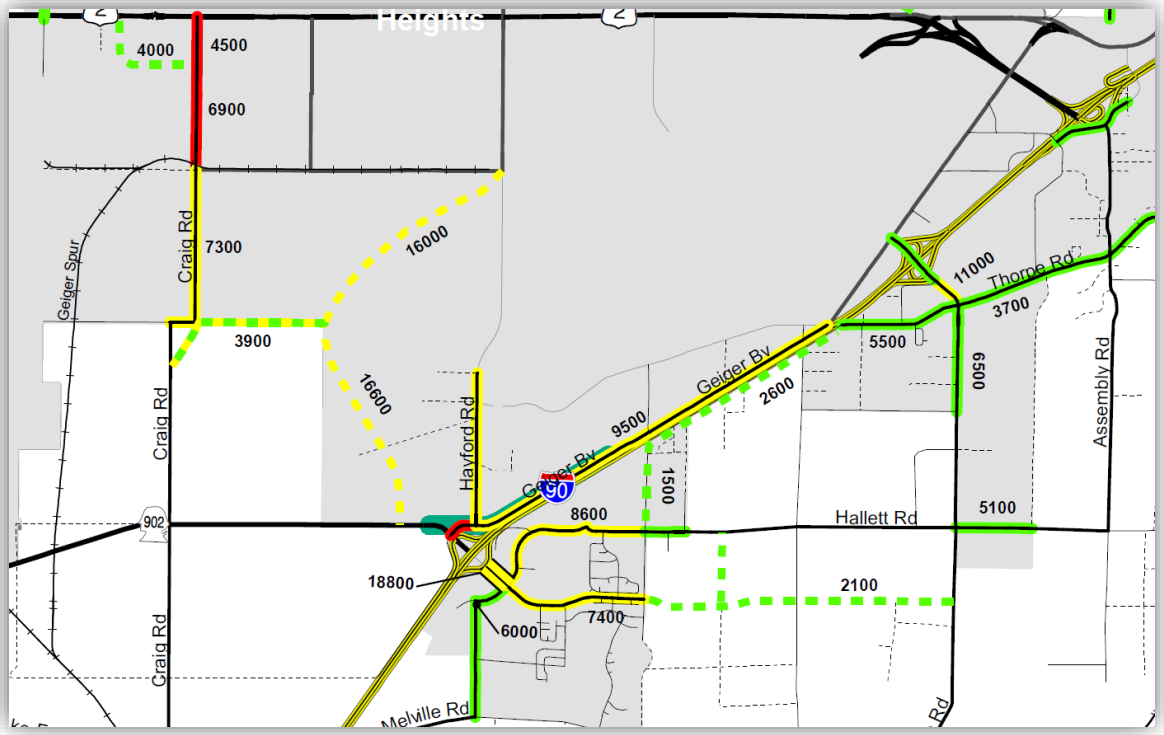
Figure 1. JUB Traffic Study, 2015 - Preferred Alternative Layout



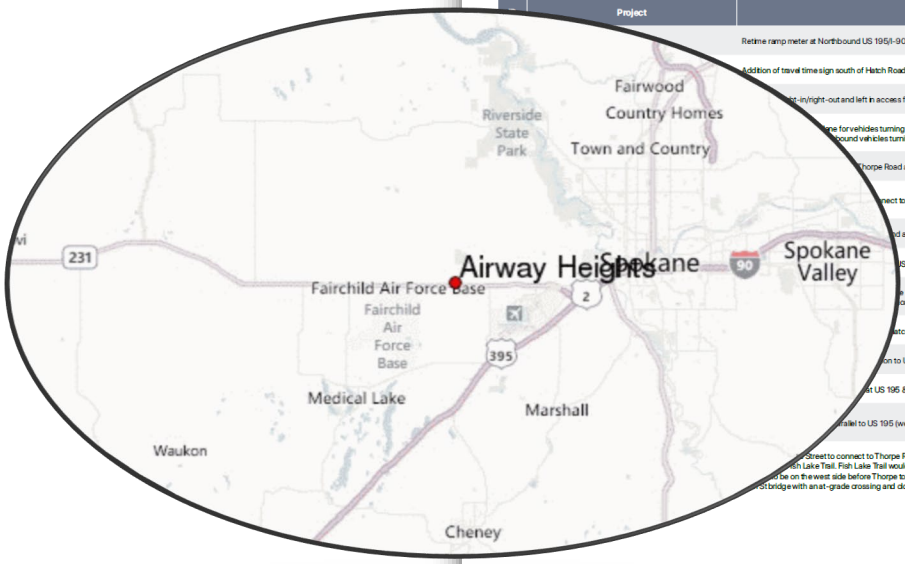
Coordination with Partners- Spokane County

Hayford Road Re-alignment & Geiger Rd Project





Coordination with Partners – US 195 Study (SRTC)

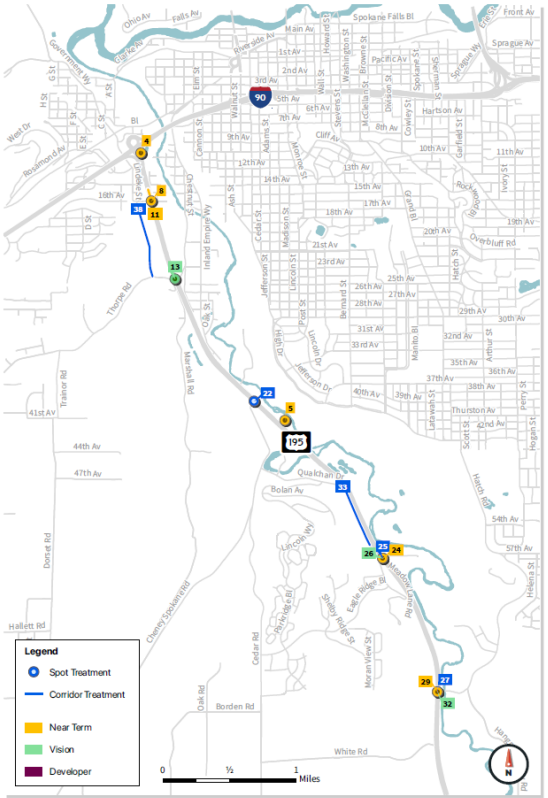


Package #1
US 195: Enhanced Expressway

US 195/I-90 Study

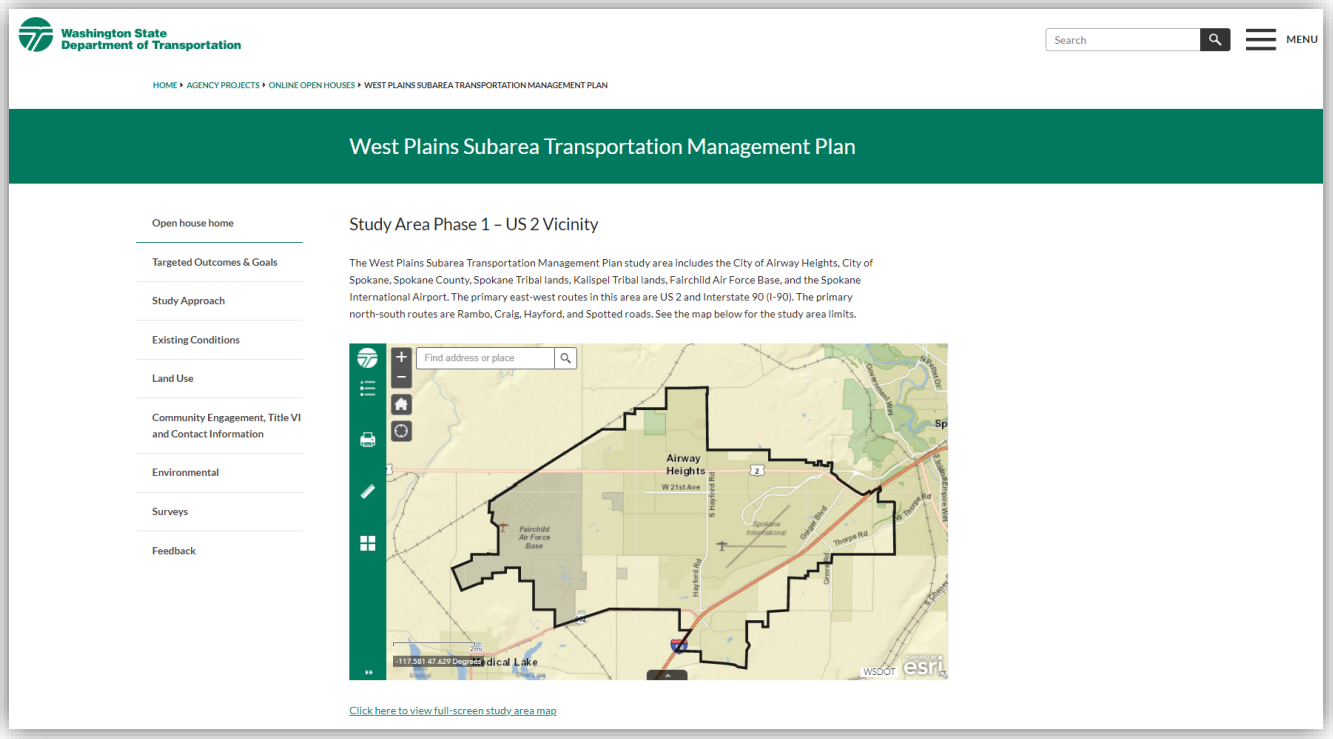
Projects in this package keep US 195 as a four-lane divided expressway but enhance the mobility and safety of the corridor while strengthening access by walking, cycling, and transit. This project includes **14** projects, which reconfigure local access to US 195 and build out the local roadway network. Included in this package are **6** near term projects that could be completed within 10 years although some of these near-term projects are also identified for longer-term enhancements to upgrade safety and access as the region grows. This package also includes **3** projects identified as vision projects which are more complex projects that may take many decades to gather sufficient funding to complete. While complex and expensive, these vision projects would maximize the vehicle-carrying capacity of US 195.

	Project	Description
		Retime ramp meter at Northbound US 195/I-90 Ramp to make alternate routes more travel time competitive
		Addition of travel time sign south of Hatch Road and south of Thorpe Road
		...t-in/right-out and left in access from the west leg at 16th Avenue & US 195; no change to east leg
		...ne for vehicles turning from US 195 on 16th Avenue and ...bound vehicles turning onto US 195
		...Thorpe Road and construct overcrossing to separate Thorpe Road from US 195
		...ect to Inland Empire Way, with a metered ramp to northbound US 195
		...d and eastbound left-turns at US 195 intersection
		...S 195 & Meadow Lane Intersection
		...e Road with southbound off-ramp ...cess to US 195
		...tch Road intersection to eliminate left-turns across US 195
		...on to US 195 to separate westbound left and right turns
		...t US 195 & Hatch Road
		...allel to US 195 (west side) connecting S Meadow Lane Road to Qualchan Drive
		...Street to connect to Thorpe Road on the west side of US 195. Extension would be constructed in ...sh Lake Trail. Fish Lake Trail would be realigned to be east of Lindeke St just south of 16th, crossing ...be on the west side before Thorpe to use existing grade separation. Requires demolition of existing ...st bridge with at-grade crossing and close the west leg at the US 195/16th Avenue intersection.



Ongoing “LIVING” Corridor Study website –

www.connectwestplains.com



HQ Presentation - Safety

Ida Van Schalkwyk

Need Presentation and Recommendations

HQ Presentation - Freight

Jason Beloso/Trevor Daviscourt

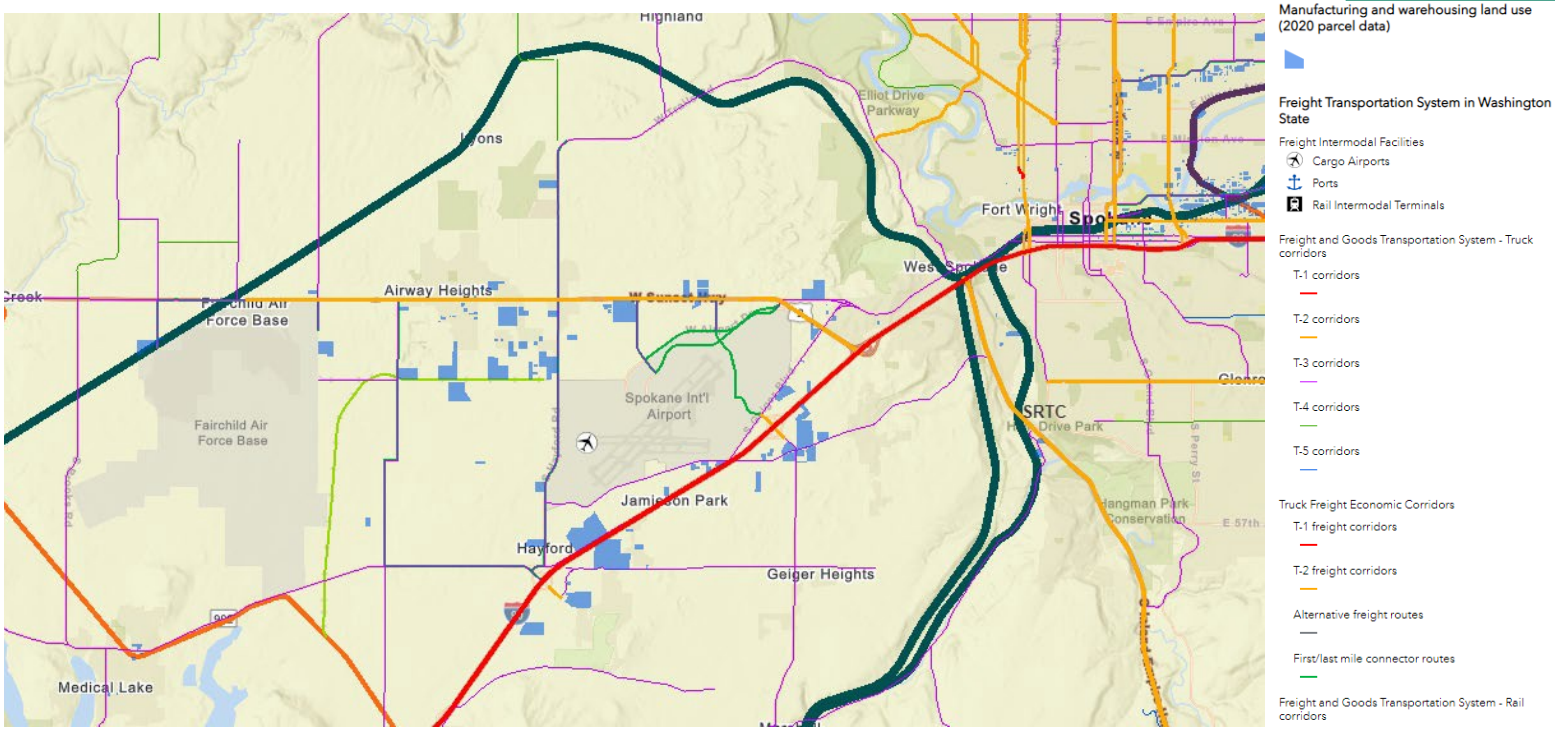
WSDOT Freight Insights

- West Plains Subarea Transportation Management Plan Study, Ph 1 US 2Vicinity
- Practical Solutions Lab

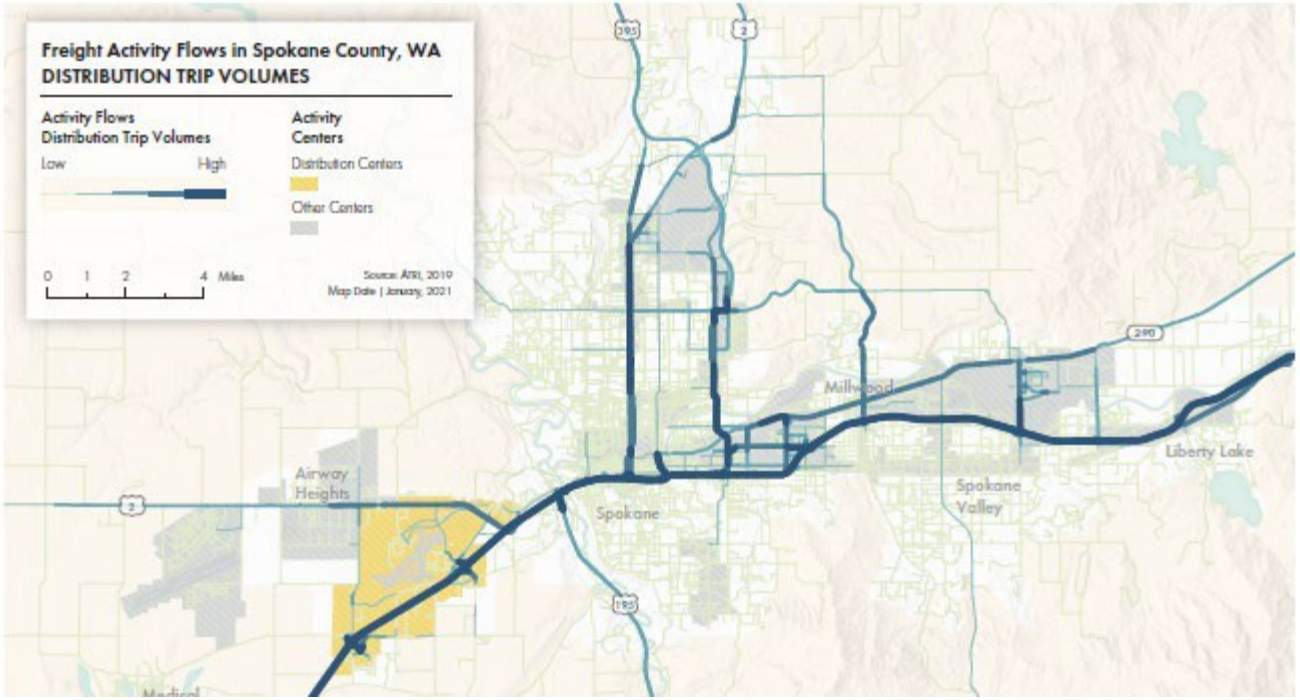
- **Trevor Daviscourt**
- WSDOT Rail, Freight and Ports Division

- March 31, 2020

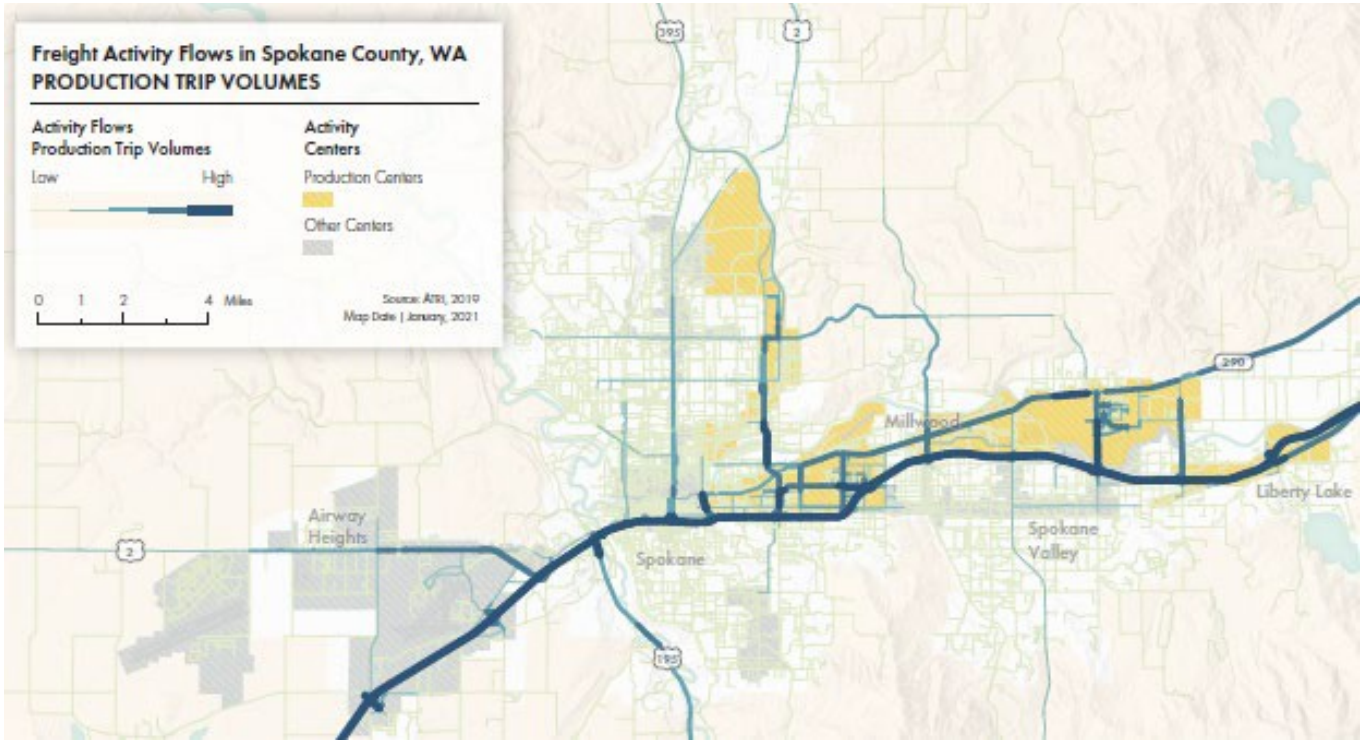
Freight network - FGTS



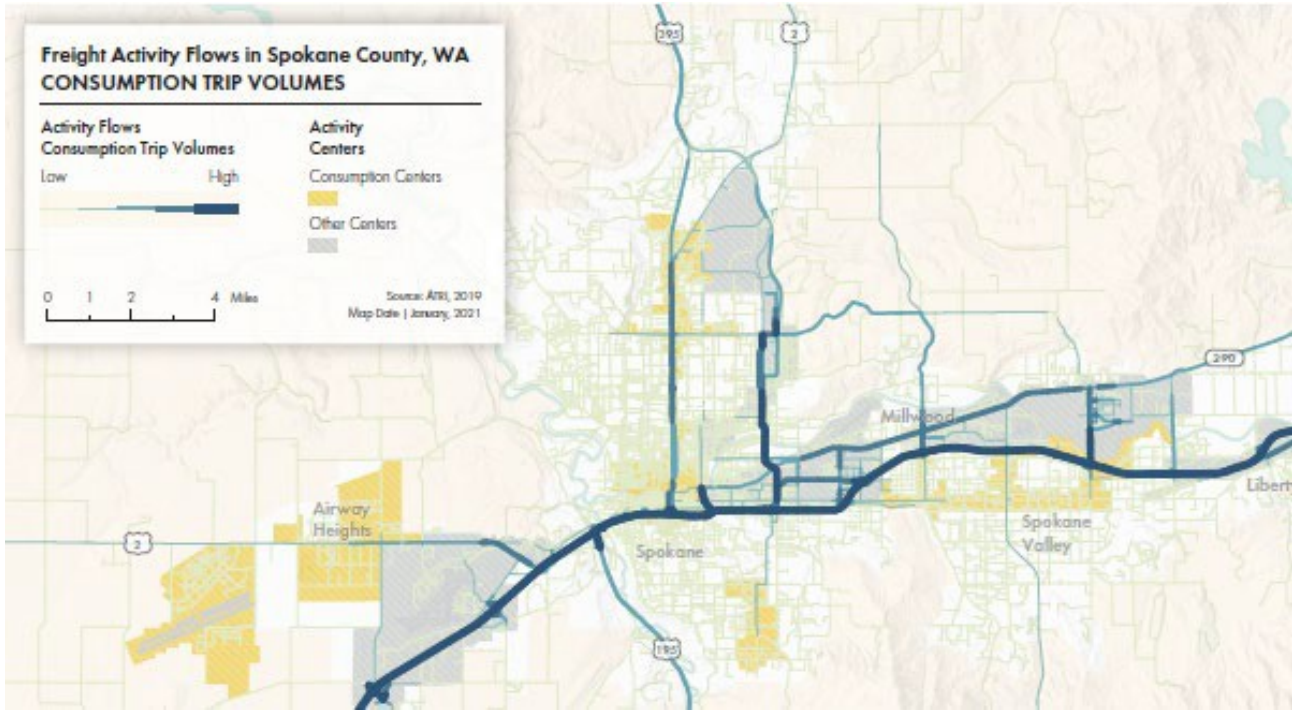
Freight flows – Distribution trips



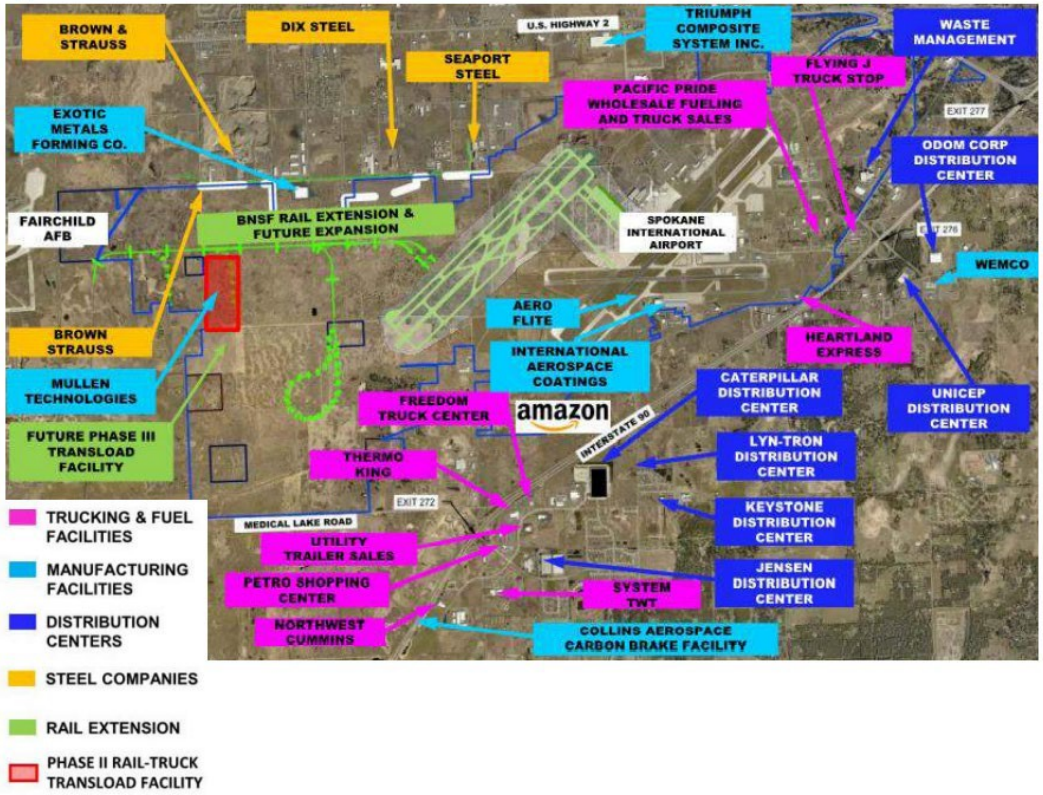
Freight flows – Production trips



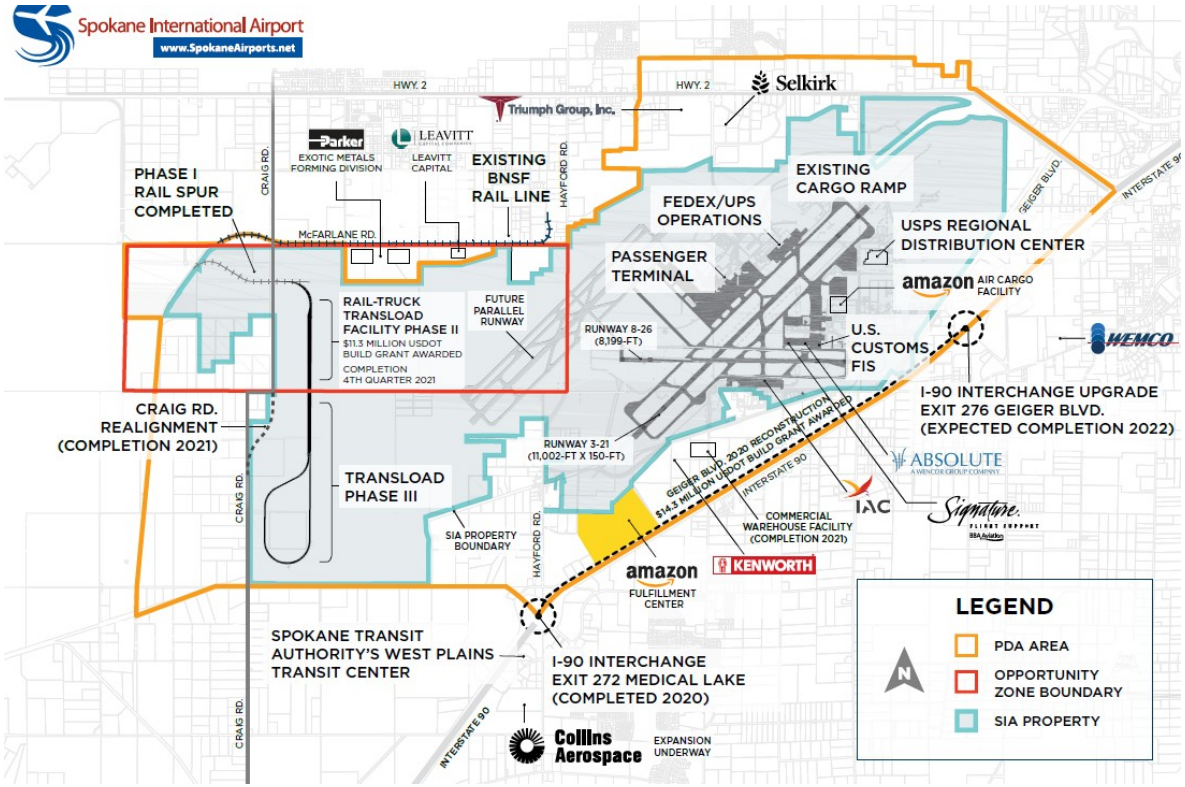
Freight flows – Consumption trips



Discussion – Growth



Discussion – Rail projects



Discussion – Design tradeoffs

COMMUNITY ORIENTED

WHAT: Narrow travel lanes without a median, with wider bicycle lanes and wide sidewalks with wide landscaped buffer with shade trees

WHY: *Pedestrian and bicycle mobility and safety are paramount. Slow design speeds and high levels of roadside access typically require four lanes of travel without a median, a feature that also minimizes pedestrian crossing distances. Bicycle lanes provide added asphalt width as an extra measure of safety for larger vehicles.*

DIVERSE ACTIVITY

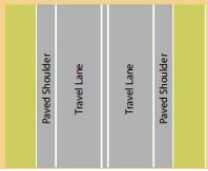
WHAT: Moderately wide travel lanes with a grassy median, narrower bicycle lanes, and narrower sidewalks with narrower grassy buffers

WHY: *Frequent presence of trucks requires wider lanes to accommodate truck passing. Pedestrian and bicyclist mobility and safety are emphasized with designated pathways. Medians provide left turn lanes at intersections, decreasing delays for through vehicles.*

LOW ACTIVITY

WHAT: Wide two-lane road without a median, with a paved shoulder

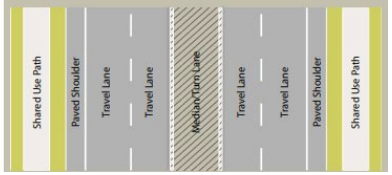
WHY: *Minimal pavement width minimizes construction and maintenance costs. Paved shoulder serves as an adequate facility for infrequent pedestrian use. Wide lane and paved shoulder provides adequate width for infrequent bicycle use.*



FREIGHT ORIENTED

WHAT: Moderately wide inside travel lanes and wide outside travel lanes with flush painted median, paved shoulders, and shared use paths.

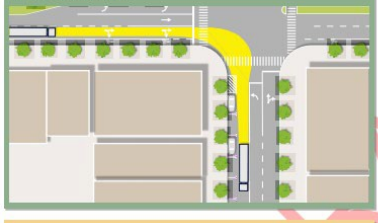
WHY: *Moderate inside lane width discourages high vehicle speeds. Wider outside lane with paved shoulder accommodates infrequent conflicts between on-street bicyclists and trucks, and provides added room for truck maneuvers. Painted median allows space for frequent left turns. Shared use path accommodates pedestrians if outside of the one-mile urban buffer boundary.*



COMMUNITY ORIENTED

WHAT: *Smaller radius, no channelization*

WHY: *Providing pedestrian safety, access, mobility, convenience, and comfort is the highest priority. Land use context favors smaller scale infrastructure. Design vehicles are smaller in community oriented areas. Regular encroachment into bicycle lanes and multiple receiving lanes on destination leg, and occasional encroachment from multiple sending lanes from departure leg and into opposing traffic when lanes are clear is appropriate.*



DIVERSE ACTIVITY

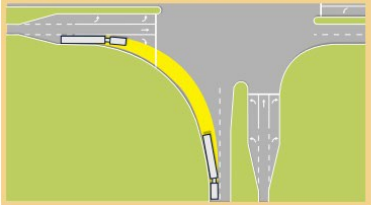
WHAT: *Middle-range curb return radius, no channelization*

WHY: *Providing pedestrian safety, access, mobility, convenience, and comfort is a high priority. Large vehicles will be using the intersection frequently, requiring a larger turning radius.*

LOW ACTIVITY

WHAT: *Large curb return radius, no channelization*

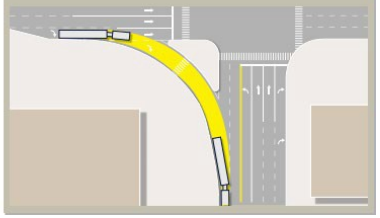
WHY: *Pedestrian activity is infrequent. Safe accommodations (curb ramps and crosswalks) must be provided, but need not exceed minimum standards. Low activity areas are not areas for targeted investments; treatments in low activity areas should minimize construction and maintenance costs.*



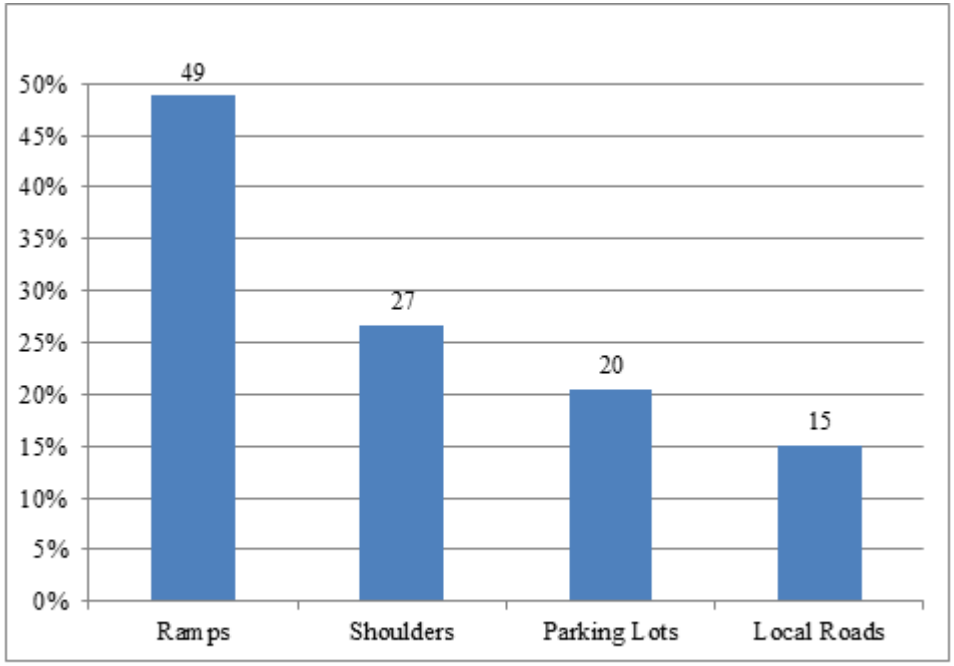
FREIGHT ORIENTED

WHAT: *Larger curb return radius, with channelization*

WHY: *Large trucks require large curb return radii. Pedestrian activity is low but occasional.*

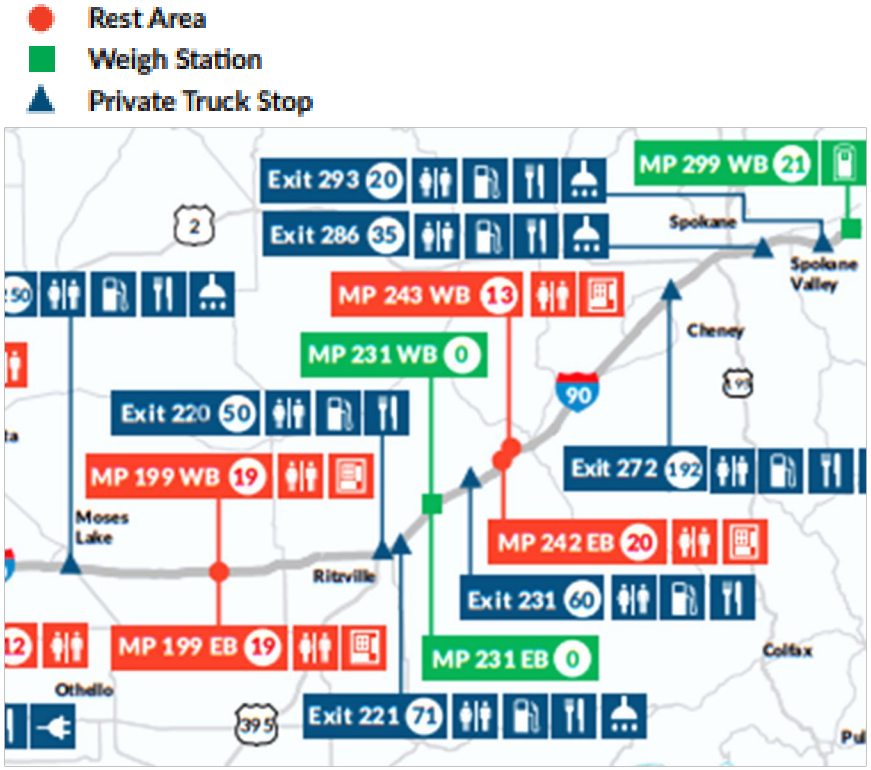


Discussion – Truck parking

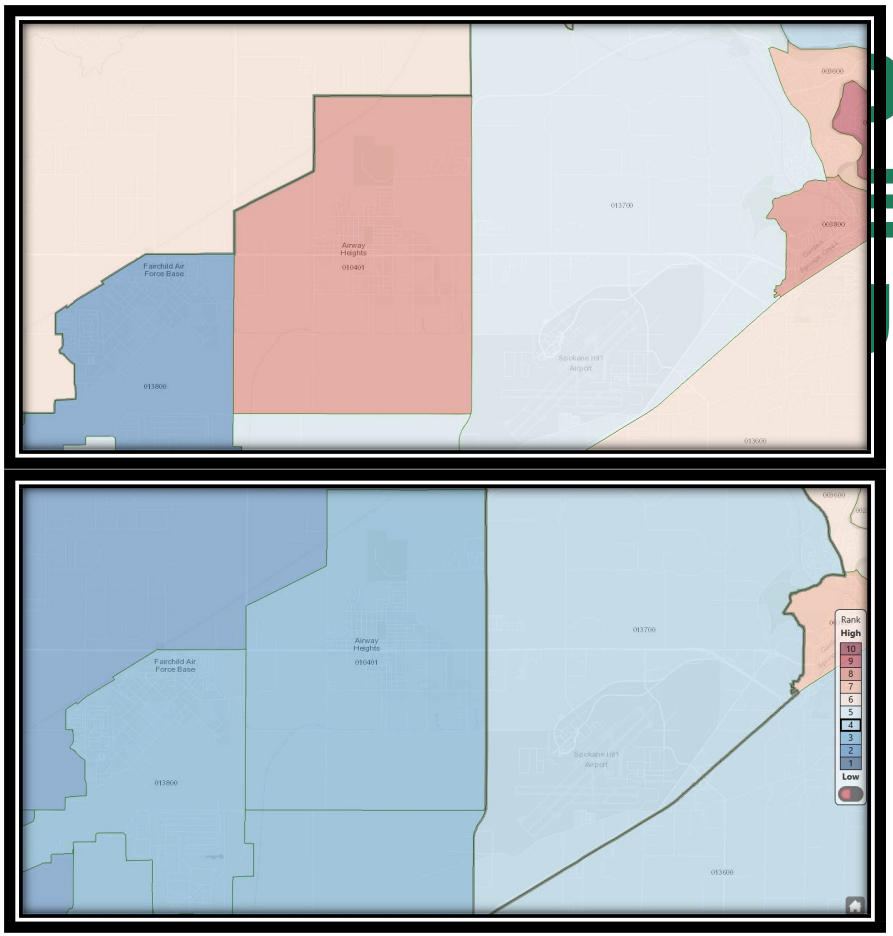


Source: Commercial Vehicle Safety Alliance Survey

Figure 20 - Unofficial Parking Locations as Reported by State Motor Ca



Discussion – Environmental Justice



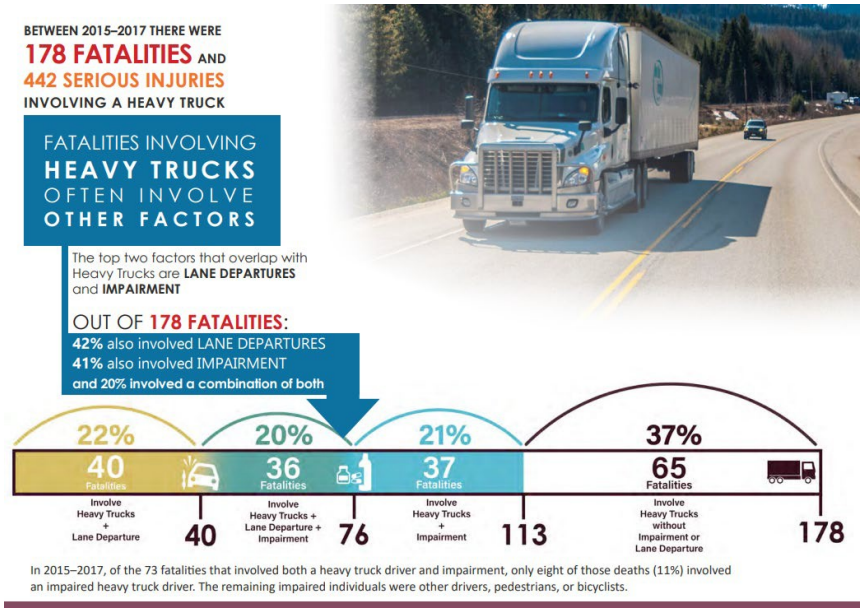
[Link to State Environmental Health Disparities Map]

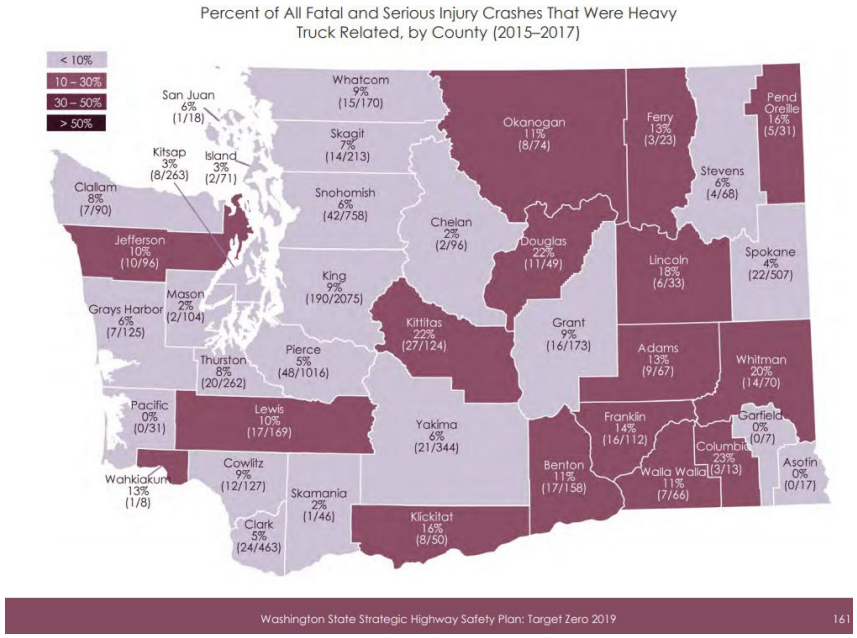
Environmental health disparities

Exposure to diesel emissions

WSDOT

Discussion – Safety





Thank you

For more statewide freight information

Please contact

- **WSDOT Rail, Freight, and Ports Division**
  360-705-7900
  freight@wsdot.wa.gov
- davisct@wsdot.wa.gov

State freight planning resources

- wsdot.wa.gov/freight/
- Washington State Freight Systems Plan
- Freight and Goods Transportation System
- Washington State Rail Plan
- 2016 Truck Parking Study

Need Recommendations

HQ Presentation - Environmental

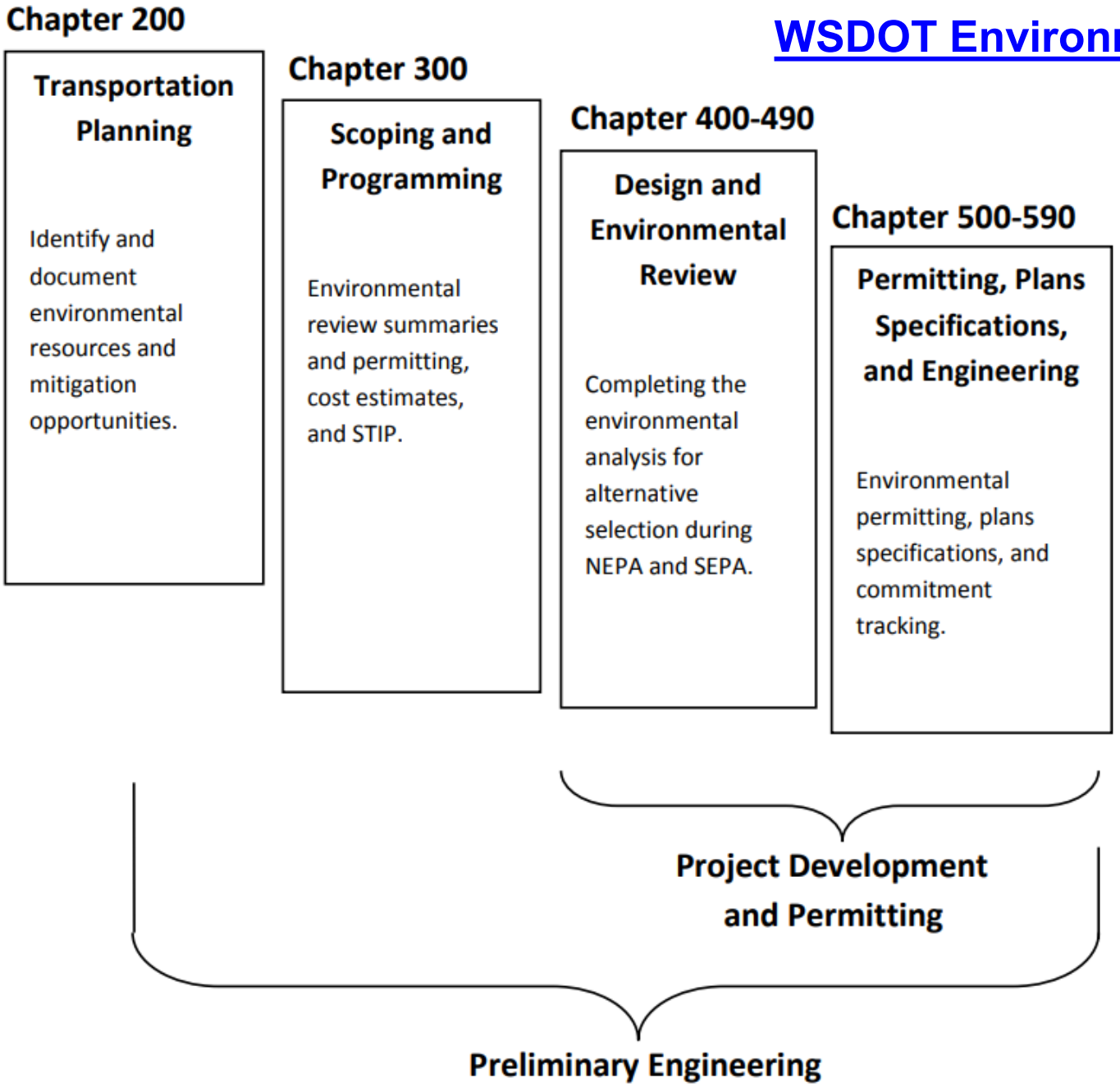
Tammie Williams/Justin Zweifel

West Plains Subarea Transportation Management Plan Study
Phase 1
US 2 Vicinity

Tammie Williams, Eastern Region Environmental Manager
Dustin Vaughn, Eastern Region Environmental Document Coordinator
Justin Zweifel, Environmental Services Office

March 31, 2021

WSDOT Environmental Manual



Washington State Department of Transportation

Search

Traffic & Cameras | Projects | Business | Environment | Maps & Data | Email/text updates

Home » Environment » Environmental technical » Environmental planning

Menu

- Environmental permits & approvals
- **Environmental planning**
- Environmental

Environmental planning

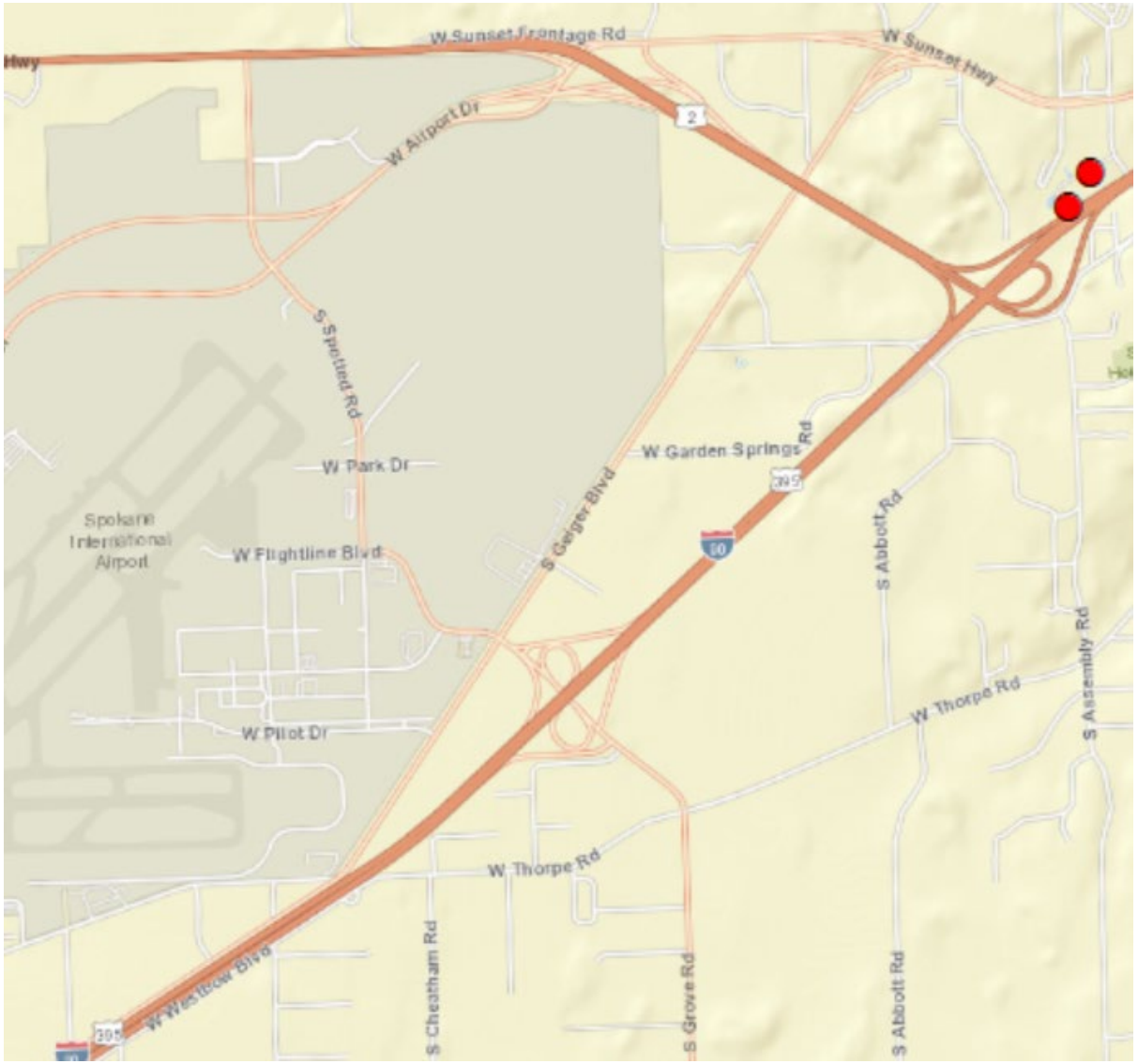
Use the guidance on this page to document environmental information, analysis, and products during transportation planning for highway corridor and modal facility plans. Find guidance regarding Federal Planning and Environmental Linkages (PEL) at the bottom of this page.

For statewide, regional, or modal plans, contact the appropriate region or modal environmental manager and WSDOT's National/State Environmental Policy Act (NEPA/SEPA) Program Manager to tailor your efforts.

Home > Environment > Environmental technical > Environmental Planning


Climate Vulnerability
Chronic Environmental Deficiency
Fish Passage Barrier
Historic Bridge
Noise Wall
Habitat Connectivity
Wetland Mitigation Site
Stormwater

Fish Passage

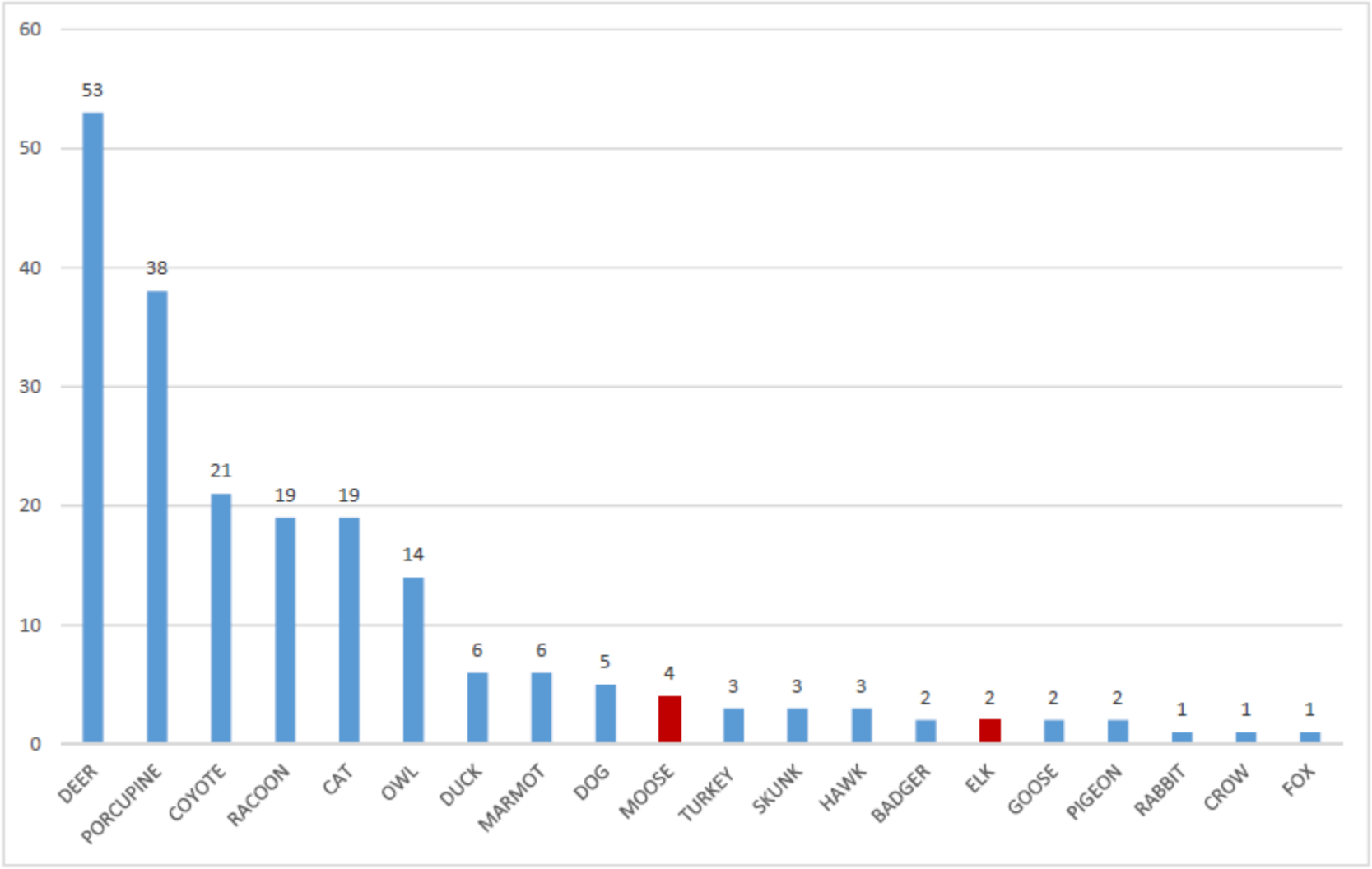


WEST PLAINS SUBAREA TRANSPORTATION MANAGEMENT PLAN STUDY PHASE 1

INTERSTATE 90 VICINITY

MILEPOST 270 TO 278

HATS ROADKILL RECORDS 2014 - 2020

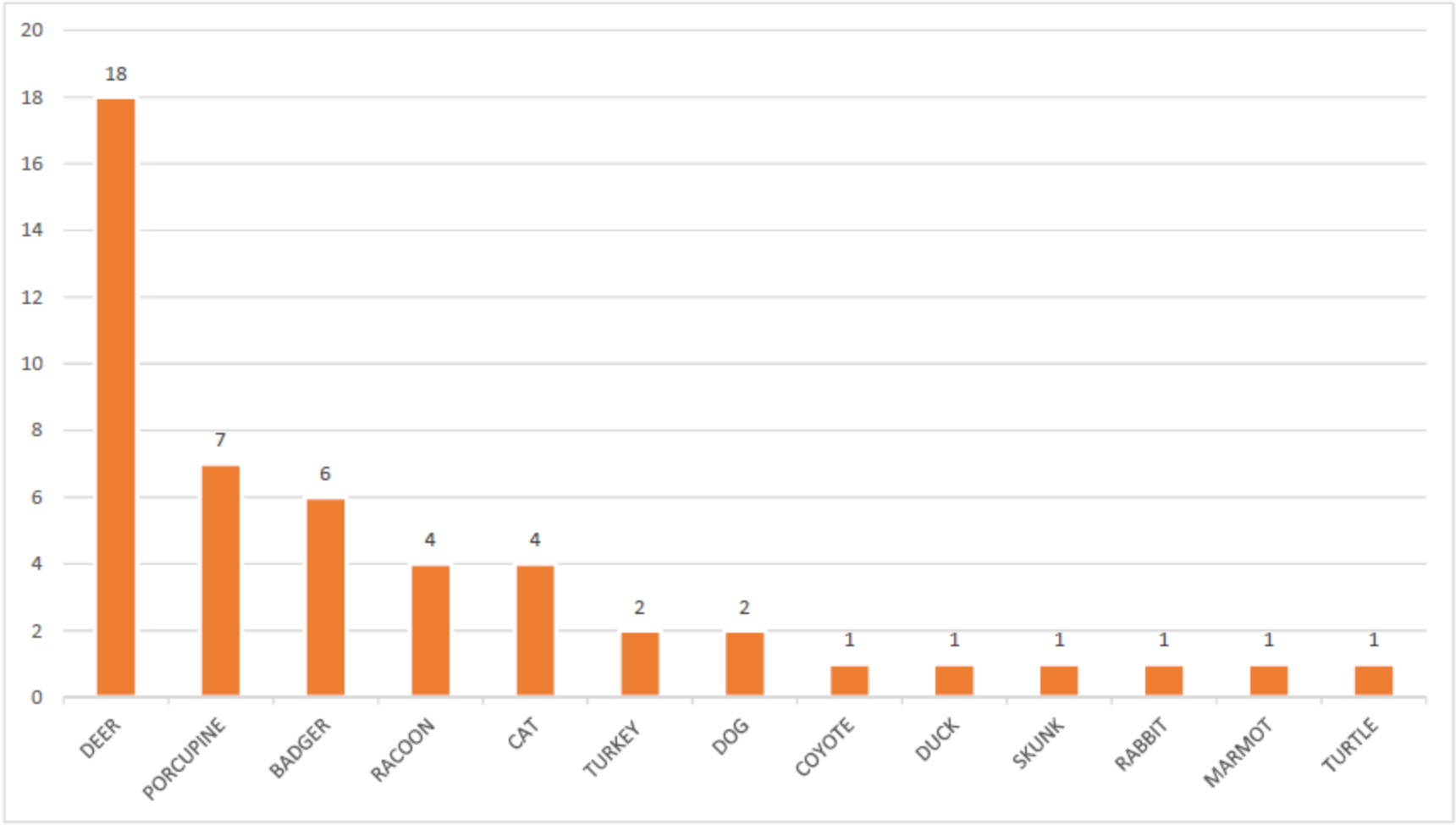


WEST PLAINS SUBAREA TRANSPORTATION MANAGEMENT PLAN STUDY PHASE 1

US 2 VICINITY

MILEPOST 279 TO 283

HATS ROADKILL RECORDS 2014 - 2020



Stormwater BMPs

Need Recommendations

HQ Presentation – Equity Recommendations

Alberto Valentin

HQ Presentation - Equity

“The basic idea for building trust, is not only doing community engagement when a project is already there, but a constant communication with communities to understand their necessities even before the project is planned”.

“Understanding communities necessities is an ongoing work, the input from minorities will help developing better future plans, without the necessity or the urgency to engage with them when the project is already happening and very hard to make changes on it”.

Alberto Valentin

HQ Presentation - Equity (cont.)

- Developing engagement plans for major projects and plans that describe engagement and consultation opportunities relative to project milestones;
- Identifying pre-existing meetings of interested groups and sharing appropriate information;
- Ensuring that public meetings are held at convenient and accessible locations and times;
- Utilizing existing community groups or convening citizen advisory groups;
- Providing for periodic review of the effectiveness of community engagement strategies;
- Create a general community suggestion or community inputsystem (e.g., mail box, e-mail address, Internet site, etc.) that allows public input on problems, issues, and ideas not currently on a decision-making body's agenda.
- Host Periodical community wide planning input drop-by sessions at a central location (a sports arena, shopping mall, high schools, major parks, library, local fair, etc.);
- Create permanent community engagement task-forces or workgroups;

HQ Presentation - Equity (cont.)

- Use community meetings to establish dialogue and participatory deliberation;
- Publish an easy-to-read guidebook or pamphlet on public participation;
- Translate that pamphlet into other languages use in that region or location;
- Conduct surveys of community residents, as well, as business owners, operators and employees in the area;
- Host periodical torus of communities facing environmental justice issues for community residents and other interested parties (including business, industry, and development representatives);
- Use translators for meetings affecting people for whom English is not their dominant language and translate agendas, minutes, and major documents into their dominant language;
- Conduct physical tours of communities facing environmental justice issues so that planning staff and local official can better understand the issues;

HQ Presentation - Equity (cont.)

- Hold planning commission meetings and similar land-use meetings at times and on days that members of low-income and minority communities can attend (e.g., evenings, weekends), and hold meetings on major planning, zoning, orprojects approval decisions in the affected neighbor- hood/area.
- Respond to comments in hearings, reports, final documents, and/or decisional records.
- Involve community residents early in decision making about planning, zoning, permit decisions, public infrastructure, and the like; do not wait until plans are well developed or essentially completed;
- Use focus groups to identify and discuss particular issues;
- Create and use advisory boards and task forces from the community;
- Require developers and project proponents to meet with residents in the affected community prior to filing an application for the develop- ment.
- Create multi-stakeholder, collaborative, problem-solving groups or task forces, using negotiation and/or mediation techniques to address particular problems or conflicts.

HQ Presentation – Active Transportation Overview of Existing Conditions, Gaps and Opportunities

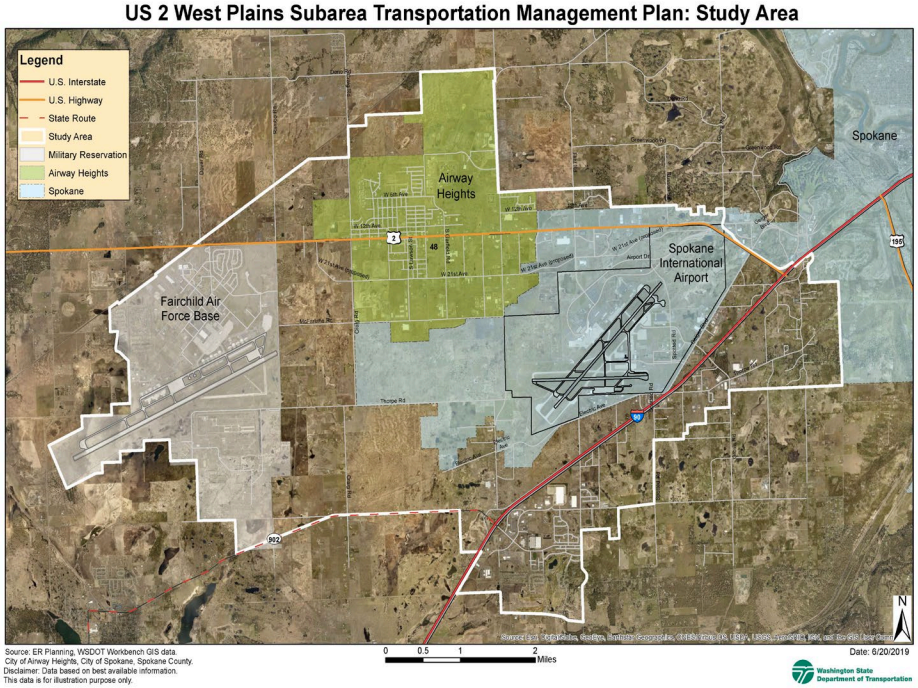
Brian Wood

Need presentation and recommendations

HQ Presentation Day 2 Debrief - Strategies Captured

Ahmer Nizam

WSDOT
US 2 West Plains Corridor
Practical Solutions Lab

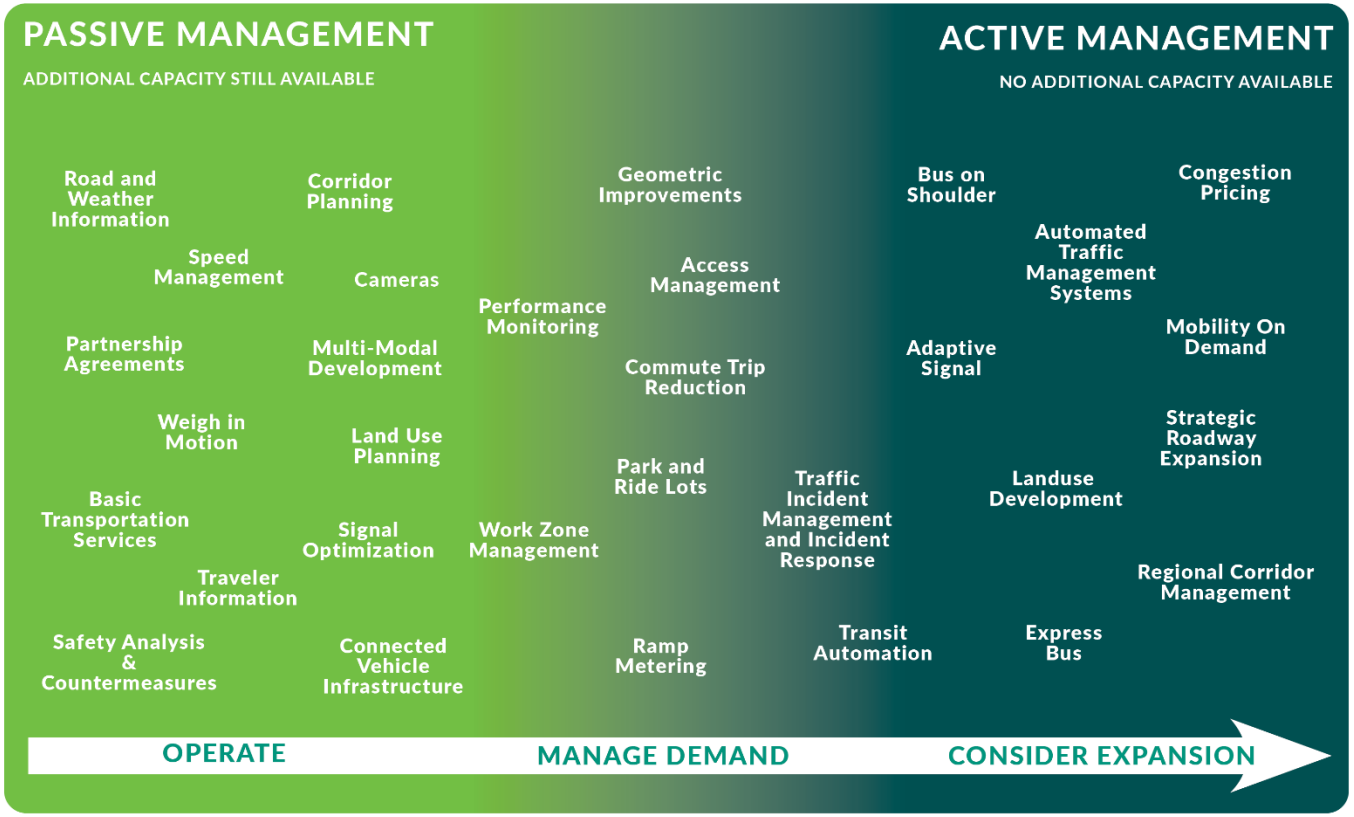


Corridor Strategies that are Forward Compatible with Impending Growth

- **Safety - Planning a safer corridor**
- **Mobility**
  - **Local Access Connectivity**
  - **Circulation between Spokane and West Plains**
  - **Managing commute time to and from Fairchild AF Base**
- **Increasing TDM opportunities, including active transportation, transit ridership and CTR programs.**

Transportation Systems Management & Operations (TSMO)

Systems Operations Integrated Within a Corridor



Planning for a Better Performing Corridor

Recap of issues:

Crash history along corridor (be mindful of possible unreported crashes); Lighting may have been an issue in crashes involving peds; more crashes recorded in wet weather and at night

New headlight designs may conflict with WSDOT lighting standards;

Freight will change both in terms of increased volume and character (more home delivery trips)

Disadvantaged and underrepresented populations

Queuing at Fairchild AF Base backing up onto US 2 where speeds can be high

Planning for a Better Performing Corridor

Strategies

- Promoting right turn and U-turn movements
- Maximize the availability of marked crossing opportunities (*e.g.* 1/8 mile)
- Minimize crossing distance
- Prioritizing ped movements at signalized intersections
- Provide crossing enhancements with high driver compliance
- Provide center protection
- Road Diet
- Lowering highway speeds (connected to roadway design, tree-scapes, etc)
- Aligning with Safe Routes to School
- Parallel arterial routes for local trips

Planning for a Better Performing Corridor

Strategies continued

- Alternative routes for non-motorized transportation
- Pedestrian facilities, lighting, and ADA compliance
- Consolidate freight movement onto specific corridors (either along US 2 or divert from US 2)
- RABs (including determining the best spacing for each situation)
- Redesign Fairchild entry system to increase storage for vehicles being processes - to shorten queues than may back up onto the roadway system (RABs can act as a storage feature)
- Education & Enforcement related to risky behavior
- Consider separated wildlife crossings AND discourage wildlife movement away from Airport
- Enable ITS and enforcement solutions through availability of fiber (note –may require legislation for red light cameras)

Mobility – Local Access Connectivity

Recap of Issues

Barriers to non-motorized access between school vs neighborhoods, but includes access to stores and other services

- Incomplete sidewalk network
- Challenges to crossing US 2

Reportedly difficult to bike along US 2

High priority area for habitat connectivity

Local transportation network has gaps (6th, 10th, 12th, Flint Rd to Sunset, 18th & 21st)

Zoning & Land Use

Mobility – Local Access Connectivity

Strategies

- Alternative routes off of US 2 for peds and bikes to use
  - Local roadways
  - Trail
- Separation/buffers between motorized/non-motorized traffic
- Improve or add pedestrian facilities / ADA facilities
- Increased crossing density (number of crossings along the corridor)
- Minimize crossing distance (curb to curb)
- Supporting Zoning and Land Use efforts that will enable or promote TSMO strategies
- Siting of facilities that generate high transit demand (on existing transit routes)
- Site design and plat design for ped connectivity (coordinating during permitting stage)

Mobility – Local Access Connectivity

Strategies Continued

- Develop a corridor off of US 2 to be more attractive for freight (e.g. 18th & 21st)
  - Truck Parking / Stop area
- Parallel arterial routes for local trips
- Partnership with bike/scooter rental program – first & last mile connections
- Ensure access to public transportation, pedestrian and bike facilities, commerce, local services, broadband services
- Build and maintain community trust and partnerships
- Ability to provide drivers with information on alternative routes in real time for decision making
- Update circulation plan to make sure solutions are complimentary

Mobility – Circulation Between Spokane and West Plains

Recap of Issues

Congestion

Many people commute into the West Plains Sub-Area from outside of the community

US-2 at Airway Heights is considered to be a “gap” area for bike connectivity

Strategies

- Ensure adequate Truck Parking
- Partnership with bike/scooter rental program
- CTR

Mobility – Managing Commute Time To and From Fairchild Air Force Base

Recap of Issues

Already experiencing issues with travel time reliability

Peak times are different than for surrounding areas

Congestion/delay is not always due to traffic volumes (security, card reader maintenance)

Queuing and back-ups upon entry/processing

Mobility – Managing Commute Time To and From Fairchild Air Force Base

Strategies

Bike plan for FAFB commuters – including to Medical Lake

ITS / VMS?

At Thorp, Spokane County is working to correct the dog leg and is seeking funding for a future RAB at Craig Rd

Increasing TDM opportunities, including active transportation, transit ridership and CTR programs.

Recap of Issues

- High low income, veteran, disabled populations
- Most people working in Airway Heights live elsewhere
- Mean travel time for SOV = 19 min (N side of Spokane to downtown area of AWH)
- Throughput should be considered from a multi-modal perspective
- West plains is isolated (with two bottlenecks) and transit can be a very powerful solution to get people through the two points)
- Think reliability in addition to peak hour / peak direction

Increasing TDM opportunities, including active transportation, transit ridership and CTR programs.

Strategies

- Improve pedestrian and active transportation "experience" which will promote transit / create safe crossings / ADA accessibility - sidewalks specifically / 1st and last mile connections via Lime scooters and bikes
- Create more dense downtown corridor (e.g. City of Airway Heights Downtown Strategic Plan) - i.e. create a place where people are doing more than just going to and from work
- Employer-sponsored bus passes
- Use of Tribal Transit Services to connect into the Spokane Area during the 23:30 PM - 5:30 AM period currently not served by STA

Increasing TDM opportunities, including active transportation, transit ridership and CTR programs.

Strategies Continued …

- Form a transportation management association (TMA) to provide support for major employers in the area (see Redmond example in chat)
- Seek funding opportunities through grants (RMG, CMAQ, ST Block Grants, Federal Sandbox Grants)
- Follow up with Amazon commitment to support CTR initiatives
- TDM works best when a suite of strategies are working together
- Expand ITS-enabling infrastructure / Partner with broadband providers for both greater broadband connectivity and ITS and CAT possibilities

Practical Solution Day 2

Mobility – Overview of Findings

(LOS, Travel Time, Volumes)

Bonnie Gow

West Plains Subarea Transportation Management Plan

Phase 1

US 2 Vicinity

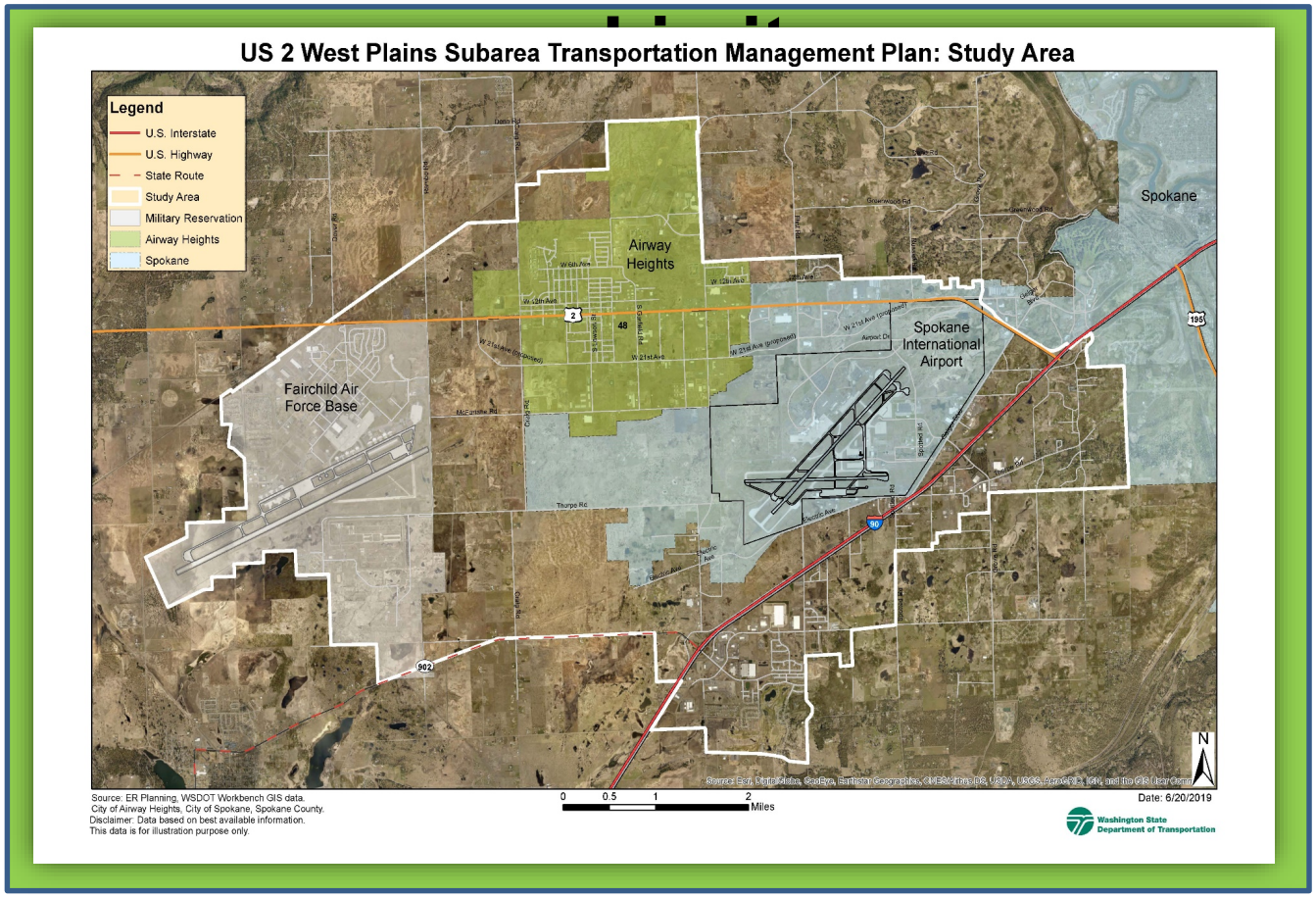
Practical Solutions Workshop 2nd Day

Eastern Region Planning

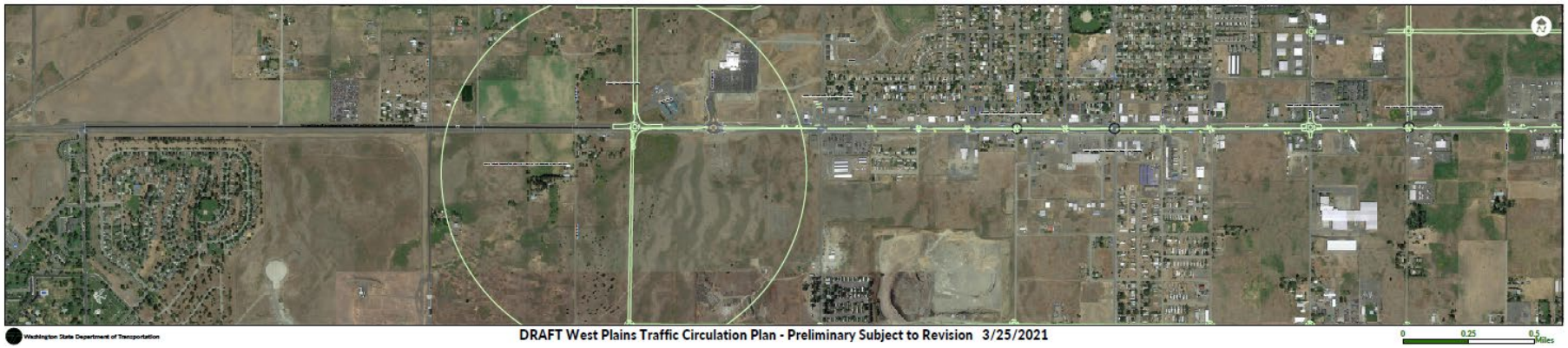
WSDOT

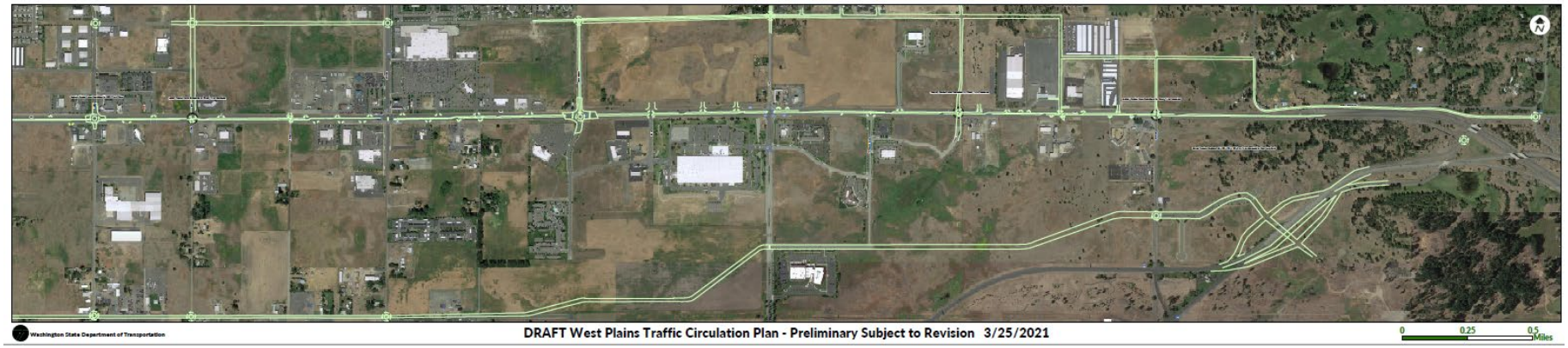
April 6th, 2021

West Plains Study



WPSA Traffic Circulation Plan in and Around US 2





2019 EXISTING PM PK HR BALANCED VOLUMES ALONG THE CORRIDOR

Year:	2019															
Case:	Balanced Existing (Actual)															
Time:	PM Peak Hour															
INTID	North Approach	East Approach	South Approach	West Approach	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	N/A	US 2	Mitchell St/FAFB Ent	US 2	189	0	940	0	0	0	0	310	31	260	698	0
2	Rambo Rd	US 2	Rambo Rd	US 2	1	1	2	17	1	15	87	1163	1	1	942	84
3	Spoko Fuel Ent	US 2	N/A	US 2	0	0	0	67	0	79	35	1146	0	0	949	135
4	Spokane Tribe Casino Ent	US 2	N/A	US 2	0	0	0	60	0	15	21	1192	0	0	1069	58
5	Craig Rd	US 2	Craig Rd	US 2	28	0	34	70	0	76	1	1198	53	1	1023	80
6	Lundstrom	US 2	Lundstrom	US 2	16	2	16	24	2	15	21	1254	28	17	1073	36
7	King St	US 2	N/A	US 2	35	5	35	13	3	8	20	1230	43	35	1082	43
8	Lawson St	US 2	Lawson St	US 2	39	34	90	79	11	21	26	1243	10	143	1105	60
9	Campbell St	US 2	Campbell St	US 2	5	2	31	21	1	6	7	1396	9	37	1297	29
10	Russell St	US 2	Russell St	US 2	7	1	17	9	1	5	17	1422	8	18	1350	10
11	Garfield Rd	US 2	Garfield Rd	US 2	47	15	156	171	16	27	32	1406	11	101	1304	218
12	12th Ave	US 2	N/A	US 2	3	0	1	97	1	43	23	1709	1	5	1577	8
13	Hayford Rd	US 2	Hayford Rd	US 2	166	384	235	412	231	281	520	1211	76	247	1143	242
14	Deer Heights Rd	US 2	Deer Heights Rd	US 2	23	1	18	4	1	6	1	1817	40	21	1603	48
15	N/A	US 2	Lucas Drive	US 2	7	0	20	0	0	0	0	1830	9	2	1665	0
16	Flint Rd	US 2	Flint Rd	US 2	147	41	39	63	18	53	66	1673	110	23	1466	91
17	N/A	US 2	Technology Blvd	US 2	1	0	65	0	0	0	0	1774	1	2	1579	0
18	N/A	US 2	Spotted Rd	US 2	49	0	10	0	0	0	0	1765	74	27	1532	0
19	Russell Rd	US 2	N/A	US 2	0	0	0	1	0	3	1	1774	0	0	1557	7
20	Sunset Highway Frontage Rd	US 2	N/A	US 2	0	0	0	2	0	2	1	1774	0	0	1561	1

2040 MODELED VOLUMES ALONG THE CORRIDOR,

INTID	North Approach		East Approach	South Approach	West Approach	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Notes
1	N/A	SIGNAL	US 2	Mitchell St/FAFB Ent	US 2	485	0	1494	0	0	0	0	986	290	903	1331	0	Post-Processed and Balanced Volumes
2	Rambo Rd	2 Way Stop	US 2	RPMbo Rd	US 2	5	0	0	38	5	70	300	2180	0	0	2159	101	Post-Processed and Balanced Volumes
3	Spoko Fuel Ent	Roundabout	US 2	N/A	US 2	115	40	25	25	20	145	135	2643	35	0	###	95	Post-Processed and Balanced Volumes
4	Spokane Tribe Casino Ent	Roundabout	US 2	N/A	US 2	0	0	0	352	0	55	55	2638	0	0	###	199	Post-Processed and Balanced Volumes
5	Craig Rd	Roundabout	US 2	Craig Rd	US 2	155	20	65	84	5	280	20	2625	345	0	1804	394	Post-Processed and Balanced Volumes
6	Lundstrom	Roundabout	US 2	Lundstrom	US 2	35	5	20	41	5	45	95	2604	75	24	2118	78	Post-Processed and Balanced Volumes
7	King St	2 Way Stop/RT In Rt Out	US 2	N/A	US 2	0	0	30	0	0	10	80	2525	60	25	2210	75	Post-Processed and Balanced Volumes
8	Lawson St	Roundabout	US 2	Lawson St	US 2	60	35	123	61	10	15	40	2506	10	113	###	83	Post-Processed and Balanced Volumes
9	Campbell St	2 Way Stop/RT In Rt Out	US 2	CPMpbell St	US 2	0	0	16	0	0	10	20	2655	15	24	###	24	Post-Processed and Balanced Volumes
10	Russell St	2 Way Stop/RT In Rt Out	US 2	Russell St	US 2	0	0	30	0	5	5	20	2641	0	10	2421	5	Post-Processed and Balanced Volumes
11	Garfield Rd	Roundabout	US 2	Garfield Rd	US 2	115	25	97	226	40	120	150	2471	50	109	2201	254	Post-Processed and Balanced Volumes
12	Lyons Rd	Roundabout	US 2	N/A	US 2	60	0	14	147	25	145	360	2424	10	16	###	55	Post-Processed and Balanced Volumes
13	Hayford Rd - HELD	SIGNAL	US 2	Hayford Rd	US 2	240	290	260	460	190	385	570	1955	60	145	1805	200	Post-Processed and Balanced Volumes
14	Deer Heights Rd	Roundabout	US 2	Deer Heights Rd	US 2	31	5	17	375	5	218	384	2262	29	25	1901	157	Post-Processed and Balanced Volumes
15	N/A	2 Way Stop/RT In Rt Out	US 2	Lucas Drive	US 2	0	0	10	0	0	0	0	2639	15	0	###	0	Post-Processed and Balanced Volumes
16	Flint Rd	SIGNAL	US 2	Flint Rd	US 2	184	74	70	113	32	66	95	2395	159	41	1833	164	Post-Processed and Balanced Volumes
17	N/A	2 Way Stop/RT In Rt Out	US 2	Technology Blvd	US 2	0	0	40	0	0	0	0	2555	23	5	###	0	Post-Processed and Balanced Volumes
18	Spotted Rd	Roundabout	US 2	Spotted Rd	US 2	420	90	9	2	30	16	69	2288	239	15	1607	15	Post-Processed and Balanced Volumes
19	Russell Rd	2 Way Stop/RT In Rt Out	US 2	N/A	US 2	0	0	0	0	0	5	68	2232	0	0	1632	75	Post-Processed and Balanced Volumes
20	Sunset Hill Frontage Rd	2 Way Stop/RT In Rt Out	US 2	N/A	US 2	0	0	0	0	0	18	31	2201	0	0	1688	10	Post-Processed and Balanced Volumes
INTID	North Approach		East Approach	South Approach	West Approach	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Notes
21	N/A		6th/10th/12th Ave	Spoko Fuel Entrance	6th/10th/12th Ave	1	0	34	0	0	0	0	38	1	30	35	0	Model Volumes - Balanced - NOT Post Processed
22	Craig Rd		6th/10th/12th Ave	Craig Rd	6th/10th/12th Ave	1	112	37	1	107	17	27	44	1	58	47	0	Model Volumes - Balanced - NOT Post Processed
23	N/A		6th/10th/12th Ave	Lundstrom	6th/10th/12th Ave	1	0	3	0	0	0	0	81	1	1	105	0	Model Volumes - Balanced - NOT Post Processed
24	N/A		6th/10th/12th Ave	King St	6th/10th/12th Ave	1	0	64	0	0	0	0	83	1	1	105	0	Model Volumes - Balanced - NOT Post Processed
25	N/A		6th/10th/12th Ave	Lawson St	6th/10th/12th Ave	1	0	57	0	0	0	0	146	1	110	105	0	Model Volumes - Balanced - NOT Post Processed
26	N/A		6th/10th/12th Ave	Russell St	6th/10th/12th Ave	0	0	0	1	0	22	9	194	0	0	193	1	Model Volumes - Balanced - NOT Post Processed
27	N/A		Not Named	Garfield Rd	6th/10th/12th Ave	95	0	1	0	0	0	72	123	0	1	99	0	Model Volumes - Balanced - NOT Post Processed
28	N/A		10th Ave	Garfield Rd	6th/10th/12th Ave	73	0	55	0	0	0	0	81	43	151	27	0	Model Volumes - Balanced - NOT Post Processed
29	Lyons Rd		6th/10th/12th Ave	Lyons Rd	6th/10th/12th Ave	1	5	152	1	50	1	1	134	1	5	176	38	Model Volumes - Balanced - NOT Post Processed
30	N/A		6th/10th/12th Ave	Future Rd 2	6th/10th/12th Ave	0	0	0	54	0	141	161	127	0	0	77	45	Model Volumes - Balanced - NOT Post Processed
31	N/A		6th/10th/12th Ave	Future Rd 3	6th/10th/12th Ave	0	0	0	67	0	1	1	180	0	0	121	29	Model Volumes - Balanced - NOT Post Processed
32	Hayford Rd - HELD		6th/10th/12th Ave	Hayford Rd	6th/10th/12th Ave	57	454	19	169	532	1	1	168	78	13	149	141	Model Volumes - Balanced - NOT Post Processed
33	N/A		6th/10th/12th Ave	Deer Heights Rd	6th/10th/12th Ave	27	0	240	0	0	0	0	312	25	116	316	0	Model Volumes - Balanced - NOT Post Processed
34	Flint Rd		6th/10th/12th Ave	Flint Rd	6th/10th/12th Ave	7	129	1	12	18	85	196	355	1	1	340	38	Model Volumes - Balanced - NOT Post Processed
35	N/A		6th/10th/12th Ave	Spotted Rd	6th/10th/12th Ave	1	0	298	0	0	0	0	302	66	24	378	0	Model Volumes - Balanced - NOT Post Processed
36	N/A		6th/10th/12th Ave	Russell Rd	6th/10th/12th Ave	125	0	9	0	0	0	0	599	1	1	277	0	Model Volumes - Balanced - NOT Post Processed
37	6th/10th/12th Ave		Sunset Hill Frontage R	N/A	unset Hill Frontage F	0	0	0	607	0	1	0	14	141	126	1	0	Model Volumes - Balanced - NOT Post Processed
INTID	North Approach		East Approach	South Approach	West Approach	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Notes
38	Craig Rd		18th/21st Ave	Craig Rd	18th/21st Ave	283	210	76	39	171	6	4	105	51	142	83	12	Model Volumes - Balanced - NOT Post Processed
39	Lundstrom		18th/21st Ave	N/A	18th/21st Ave	0	0	0	13	0	1	1	220	0	0	235	1	Model Volumes - Balanced - NOT Post Processed
40	Lawson St		18th/21st Ave	Lawson St	18th/21st Ave	1	1	2	2	1	1	1	231	1	2	235	68	Model Volumes - Balanced - NOT Post Processed
41	Campbell St		18th/21st Ave	N/A	18th/21st Ave	0	0	0	55	0	1	1	234	0	0	303	56	Model Volumes - Balanced - NOT Post Processed
42	Russell St		18th/21st Ave	N/A	18th/21st Ave	0	0	0	2	0	1	1	288	0	0	358	2	Model Volumes - Balanced - NOT Post Processed
43	Garfield Rd		18th/21st Ave	Garfield Rd	18th/21st Ave	1	34	2	124	1	58	4	285	1	2	301	66	Model Volumes - Balanced - NOT Post Processed
44	Lyons Rd		18th/21st Ave	N/A	18th/21st Ave	0	0	0	1	1	1	1	410	0	0	367	48	Model Volumes - Balanced - NOT Post Processed
45	Hayford Rd - HELD		18th/21st Ave	Hayford Rd	18th/21st Ave	79	199	170	1	359	1	15	390	6	276	330	1	Model Volumes - Balanced - NOT Post Processed
46	Deer Heights Rd		18th/21st Ave	N/A	18th/21st Ave	0	0	0	1	0	112	67	494	0	0	495	1	Model Volumes - Balanced - NOT Post Processed
47	Flint Rd		18th/21st Ave	Flint Rd	18th/21st Ave	145	397	36	1	189	1	1	293	201	9	349	1	Model Volumes - Balanced - NOT Post Processed
48	Campus Dr		18th/21st Ave	N/A	18th/21st Ave	0	0	0	158	0	21	35	295	0	0	339	63	Model Volumes - Balanced - NOT Post Processed
49	Spotted Rd		18th/21st Ave	Spotted Rd	18th/21st Ave	135	1	1	53	1	38	190	262	1	1	228	143	Model Volumes - Balanced - NOT Post Processed
50	18th/21st Ave		Airport Dr	18th/21st Ave	Airport Dr	1	284	1	0	315	1	0	0	0	1	1	88	Model Volumes - Balanced - NOT Post Processed

METADATA NOTES:

BASE Travel Demand Model: 2015 WPSA PMPKHR Model Final 1-20-21\2015 WPSA PMPKHR Model Final 1-20-21 (Removed from original 2015 SRTC Model release 12/14/2017)

2040 Travel Demand FORECAST MODEL: 2040 WPSA PMPKHR Model Final 1-20-21 / 2040 WPSA PMPKHR Model Final 1-20-21 (copied from 2040 SRTC model release 12/14/2017)

2019 Existing traffic counts were collected and/or obtained for 20 main Intersections along US 2

Model volumes were grown from 2015 to 2019 at 2% per year, compounded annually to match actual existing counts that were collected for an apples to apples comparison - in collaboration with SRTC

All Volumes along US 2 Are post processed using this Furness Method workbook (orignally from CH2MHill) with volume balancing using the NCHRP 765 Difference Volume Method

Future forecast VOLUMES along 6th/10th/12th and 18th/21st are balanced model volumes "ONLY". They are Not POST-PROCESSED.

These spreadsheets were checked for quality control

The best available information was used

Level of Service (LOS)

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HCM 6th Edition -

failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

Exhibit 19-8 lists the LOS thresholds established for the motorized vehicle mode at a signalized intersection.

Exhibit 19-8
LOS Criteria: Motorized Vehicle Mode

Control Delay (s/veh)	LOS by Volume-to-Capacity Ratio[a] ≤1.0	>1.0
≤10	A	F
>10–20	B	F
>20–35	C	F
>35–55	D	F
>55–80	E	F
>80	F	F

Note: [a] For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

Pedestrian and Bicycle Modes

Signalized Intersections

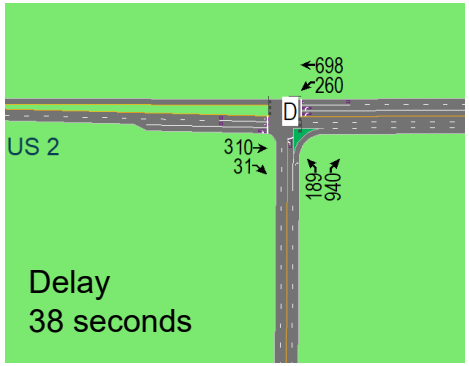
The TRB *Circular 212* Planning method is the selected level of service calculation method for the designated intersections in the San Mateo County's CMP Roadway System. A signalized intersection's level of service, according to the method described in TRB *Circular 212,* is based on dividing the sum of the critical volumes by the intersection's capacity. This calculation yields the volume-to-capacity ratio (V/C). The critical movements are the combinations of through movements plus right-turn movements if there is no exclusive right-turn lane, and opposing left-turn movements that represent the highest per-lane volumes. Descriptions of levels of service for signalized intersections, together with their corresponding V/Cs, are presented in Table B-6.

Table B-6
Intersection Level of Service Definitions

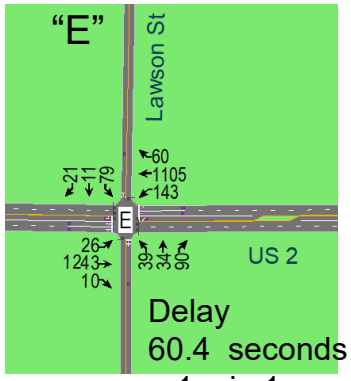
Level of Service	Interpretation	V/C Ratio
A	Uncongested operations; all queues clear in a single signal cycle.	Less Than 0.60
B	Very light congestion; an occasional approach phase is fully utilized.	0.60 to 0.69
C	Light congestion; occasional backups on critical approaches.	0.70 to 0.79
D	Significant congestion on critical approaches, but intersection functional. Cars required to wait through more than one cycle during short peaks. No long-standing queues formed.	0.80 to 0.89
E	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersections(s) upstream of critical approach(es).	0.90 to 0.99
F	Total breakdown, stop-and-go operation.	1.00 and Greater

2019 PM Peak Hour Level of Service – US 2 Existing Signal LOS

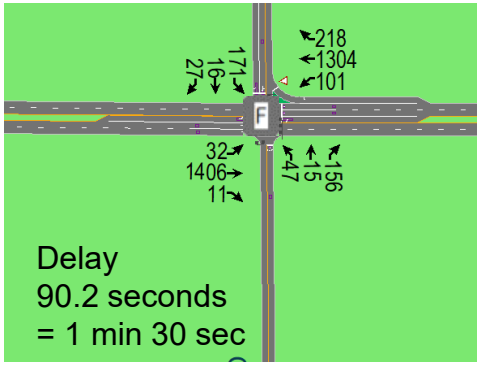
Mitchell St – "D"



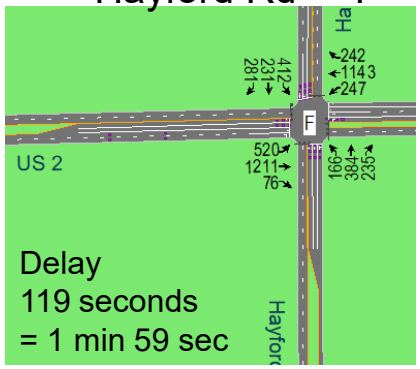
Lawson St– "E"



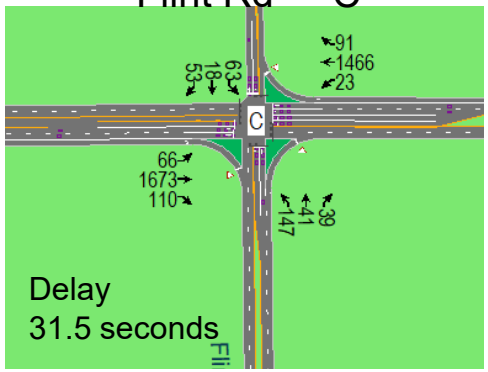
Garfield St– "F"



Hayford Rd – "F"



Flint Rd – "C"



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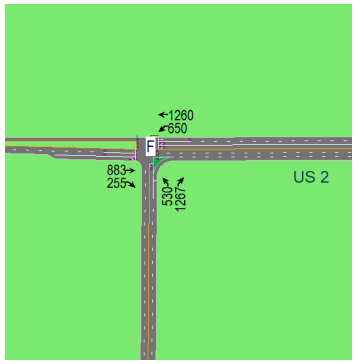
LOS based on HCM 6th Ed. Synchro

Source: Synchro File, based on existing 2019 balanced traffic co

2040 PM Peak Hour Level of Service – US 2 “FUTURE” Signal LOS

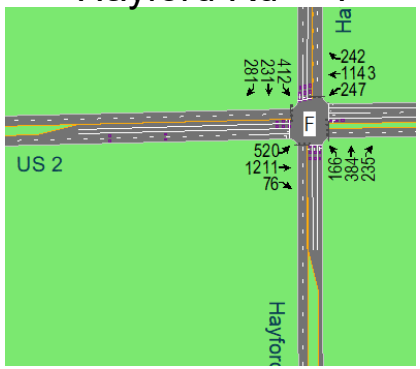
“draft”

Mitchell St – “F”



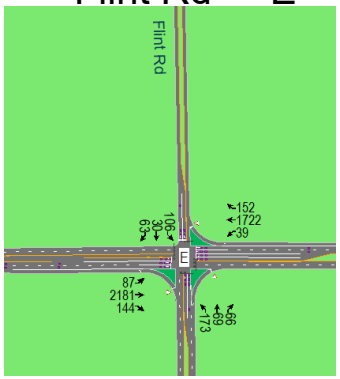
Delay = 150.4 seconds
= 2 min 30 sec

Hayford Rd – “F”



Delay = 167.3 seconds
= 2 min 47 sec

Flint Rd – “E”



Delay = 77.1 seconds
= 1 min 17 sec

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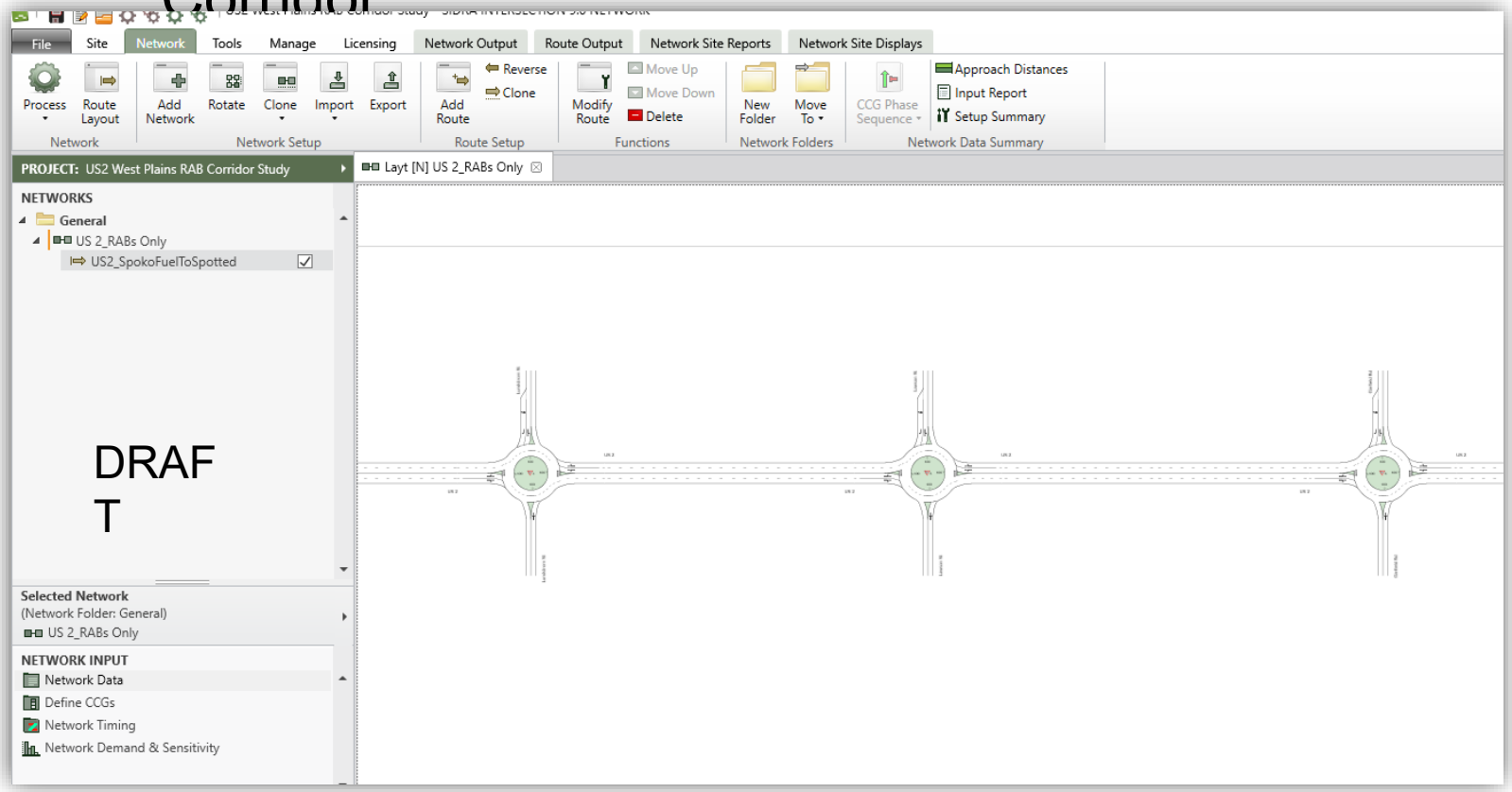
Source: VISUM TDM File, based on 2040 model volu
LOS based on HCM 6th Ed. Synchro File

2040 Initial “draft” SIDRA Analysis – US 2 Corridor



2040 Estimated Travel Time ALONG THE CORRIDOR, "draft"

US 2 Route and includes vehicles traveling straight through the Spoko Fuel intersection and through the Spotted Rd Intersection.

- Average travel time: 610 seconds (~10 minutes)
- Distance: 5.35 miles
- Average speed: 31.6 mph

DRAFT

ROUTE TRAVEL PERFORMANCE

Route: R101 [US2_SpokoFuelToSpotted]

New Route
Network Category: (None)

Route Travel Performance

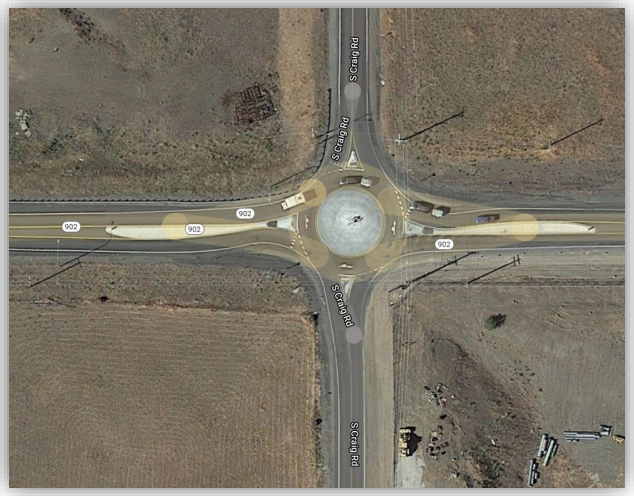
Performance Measure	Vehicles	Per Unit Distance	Persons
Travel Speed (Average)	31.6 mph		31.6 mph
Travel Distance (Average)	28273.8 ft		28273.8 ft
Travel Time (Average)	610.6 sec	114.0 sec/mi	610.6 sec
Desired Speed (Program)	46.8 mph		
Route Delay (Average)	132.4 sec	24.7 sec/mi	132.4 sec
Route Stop Rate	3.75	0.70 per mi	3.75
Route Level of Service (LOS)	LOS B		
Speed Efficiency	0.67		
Travel Time Index	6.38		
Congestion Coefficient	1.48		

LOS "B"

Roundabouts

Single Lane Roundabout

Double Lane Roundabout



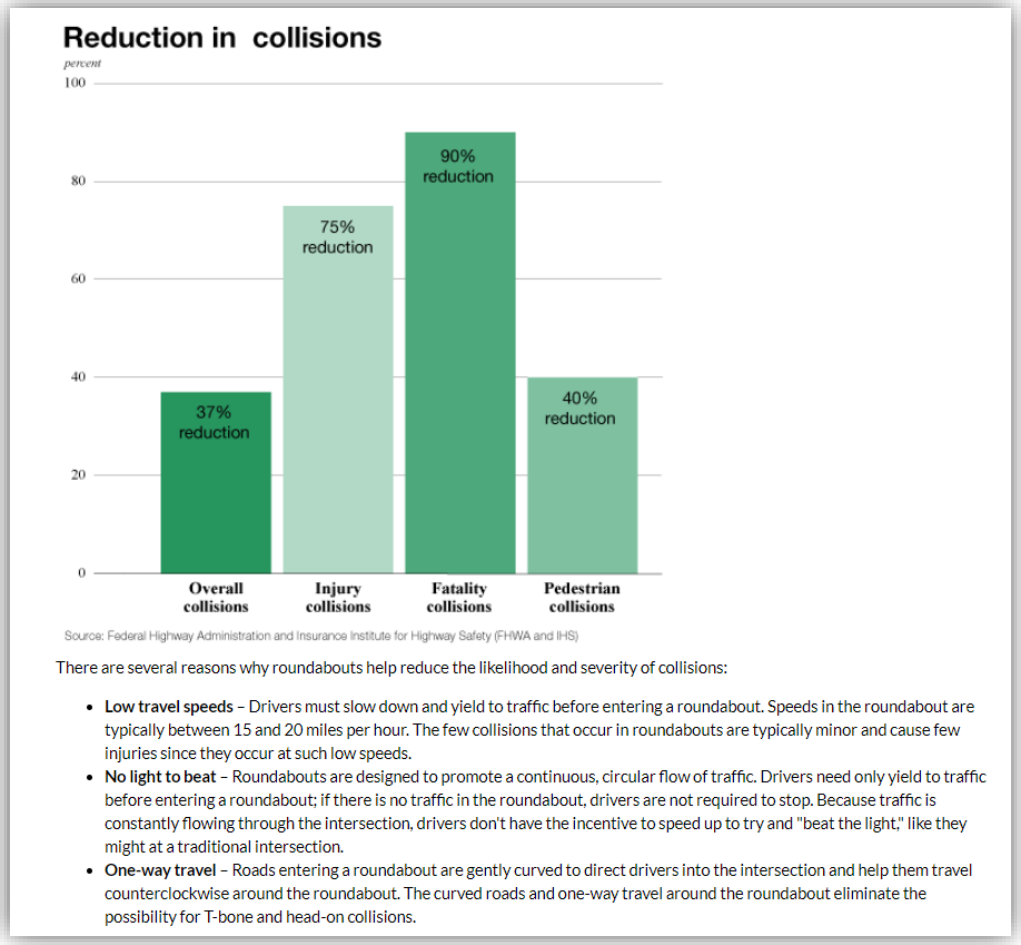
Compact Roundabout

Roundabout Statistics

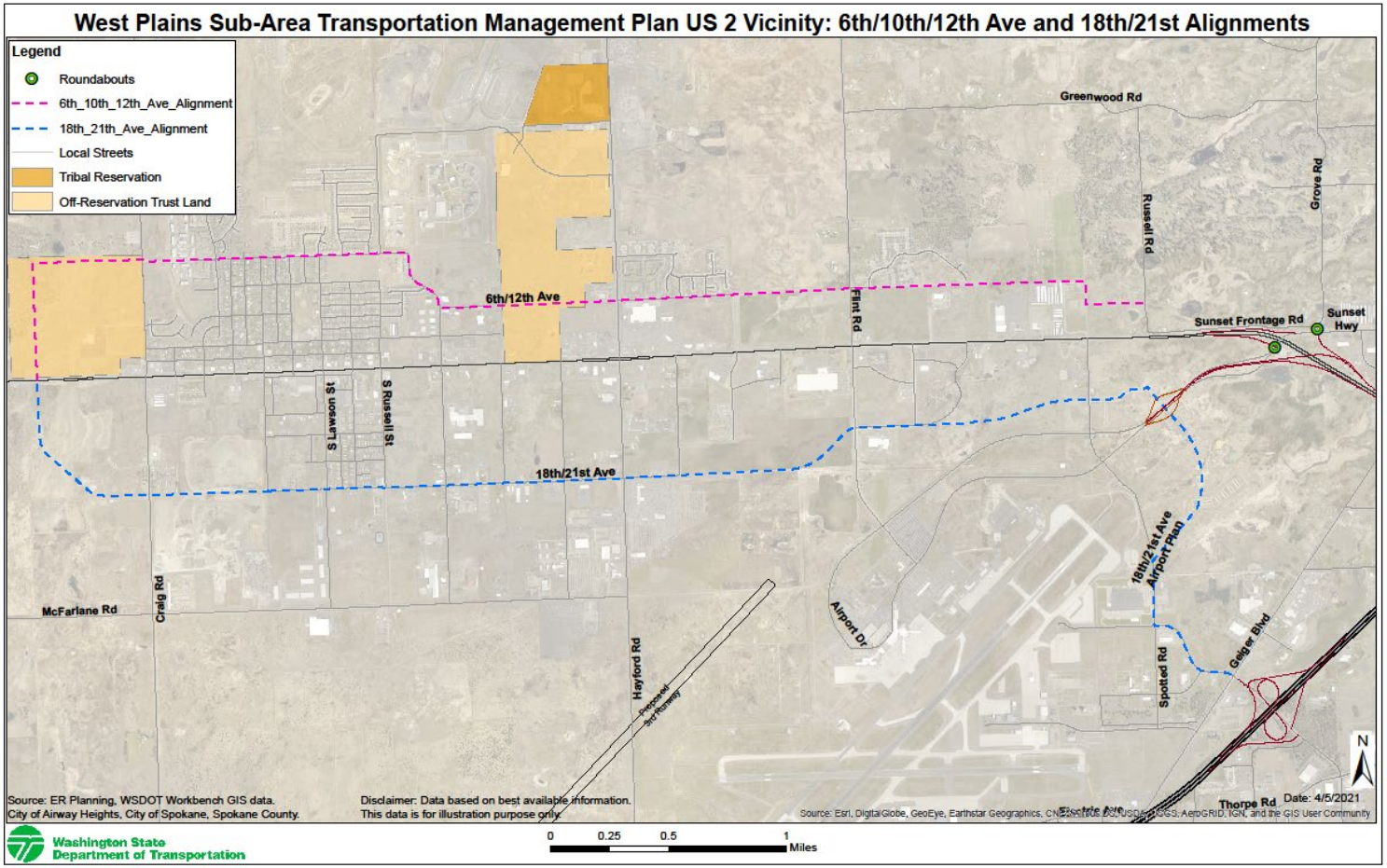
- Studies have shown that roundabouts are safer than traditional stop sign or signal controlled intersections

- Reduction in Crashes =

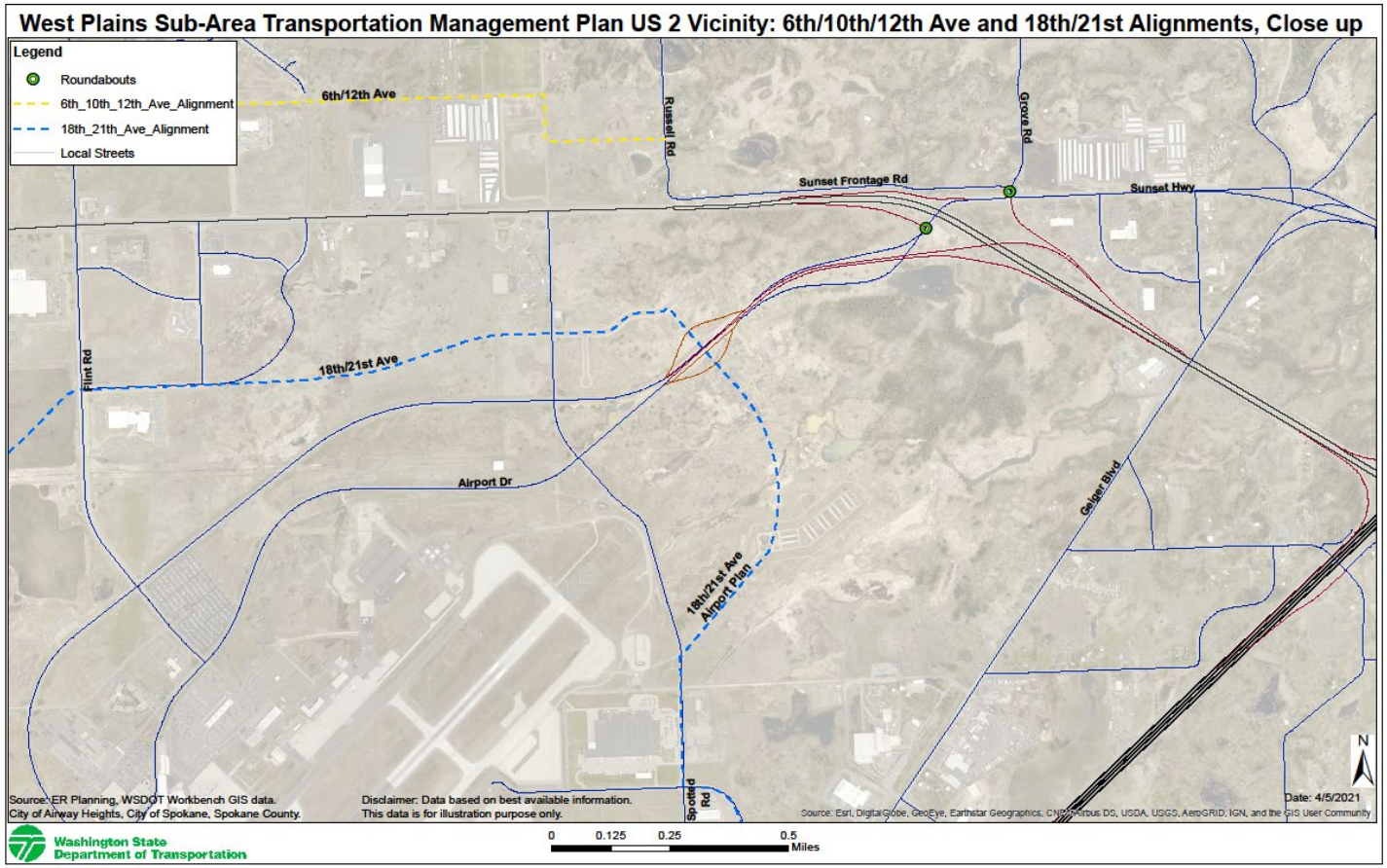
Overall by 37%
Injury crashes by 75%
Fatalities by 90 %
Pedestrian Crashes by 40%



Planned Parallel Frontage Roads, 6th/10th/12th & 18th/21st



Planned Parallel Frontage Roads, 6th/10th/12th & 18th/21st



Planned Frontage Roads – 6th/10th/12th & 18th/21st, Initial “draft”, PM Peak Hour results

- With Frontage Rds, Some local traffic diverts to frontage roads, 10 - 15% less traffic along US 2
- Highest Model Volumes along 6th,10th 12th from Hayford Rd to Flint Rd , model volume shows approx. 6500 vehicles
- Highest Model Volumes along 18th/21st from Hayford Rd to Flint Rd , model volume shows approx. 10,000 vehicles

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From the SME
ITS Plan Presentations & Final Recommendations

Becky Spangle

Spokane Regional ITS Architecture

ITS & TSMO For Multi-Modal & Practical Solutions

Presenter: Becky Spangle

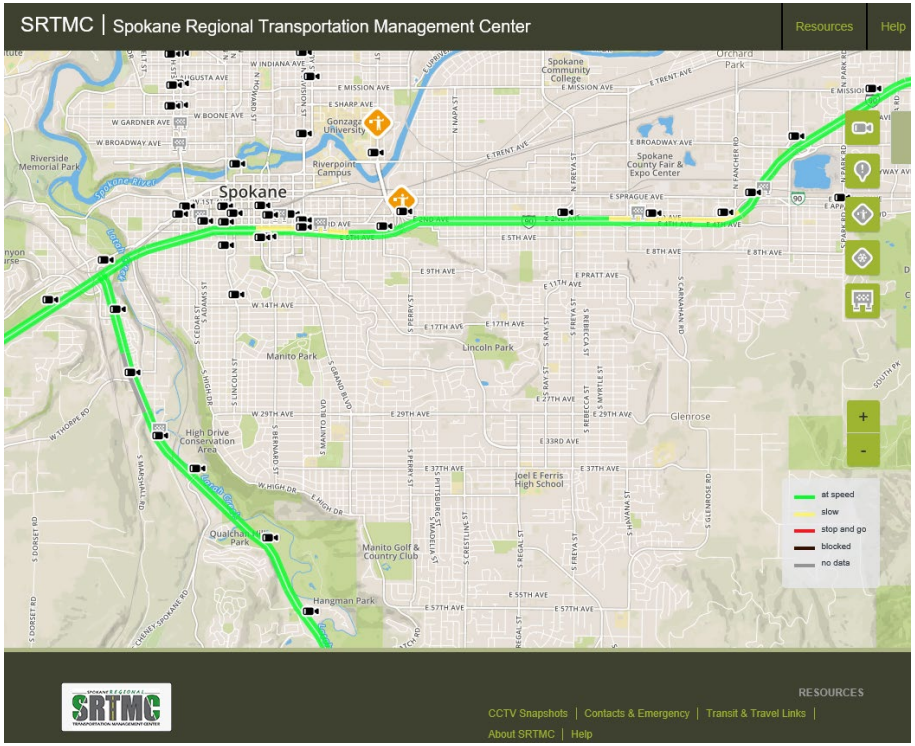
SPOKANE REGIONAL SRTMC TRANSPORTATION MANAGEMENT CENTER

CITY OF SPOKANE · SPOKANE COUNTY · Washington State Department of Transportation · SRTC SPOKANE REGIONAL TRANSPORTATION COUNCIL · Spokane Transit · City of Spokane Valley

An ITS and TSMO Solution
SRTMC

Efficient Use of Existing Infrastructure by Managing Incidents, Construction, Weather Events and More for All Agency Partners

Providing Information to the Public for Better Travel Choices

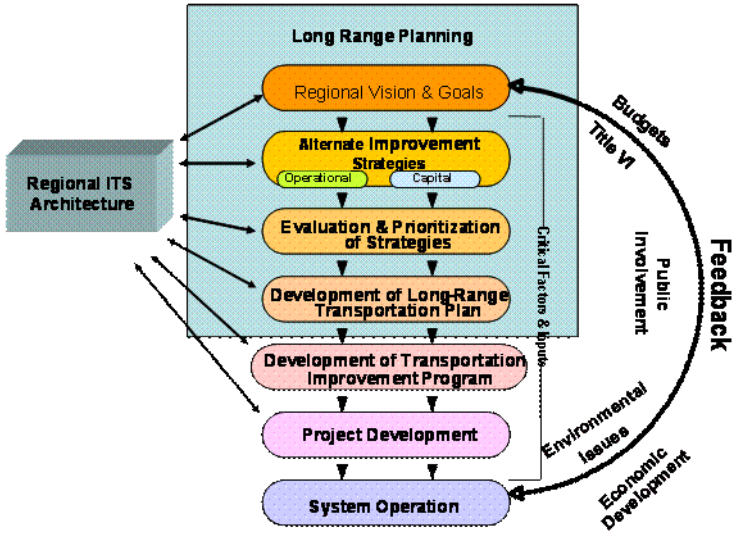


ITS Legislation and Technology Processes

§ 23 CFR 940.11 Project implementation.
(a) All ITS projects funded with highway trust funds shall be based on a systems engineering analysis.
(b) The analysis should be on a scale commensurate with the project scope.
(c) The systems engineering analysis shall include, at a minimum:
(1) Identification of portions of the regional ITS architecture being implemented (or if a regional ITS architecture does not exist, the applicable portions of the National ITS Architecture);
(2) Identification of participating agencies' roles and responsibilities;
(3) Requirements definitions;
(4) Analysis of alternative system configurations and technology options to meet requirements;
(5) Procurement options;
(6) Identification of applicable ITS standards and testing procedures; and
(7) Procedures and resources necessary for operations and

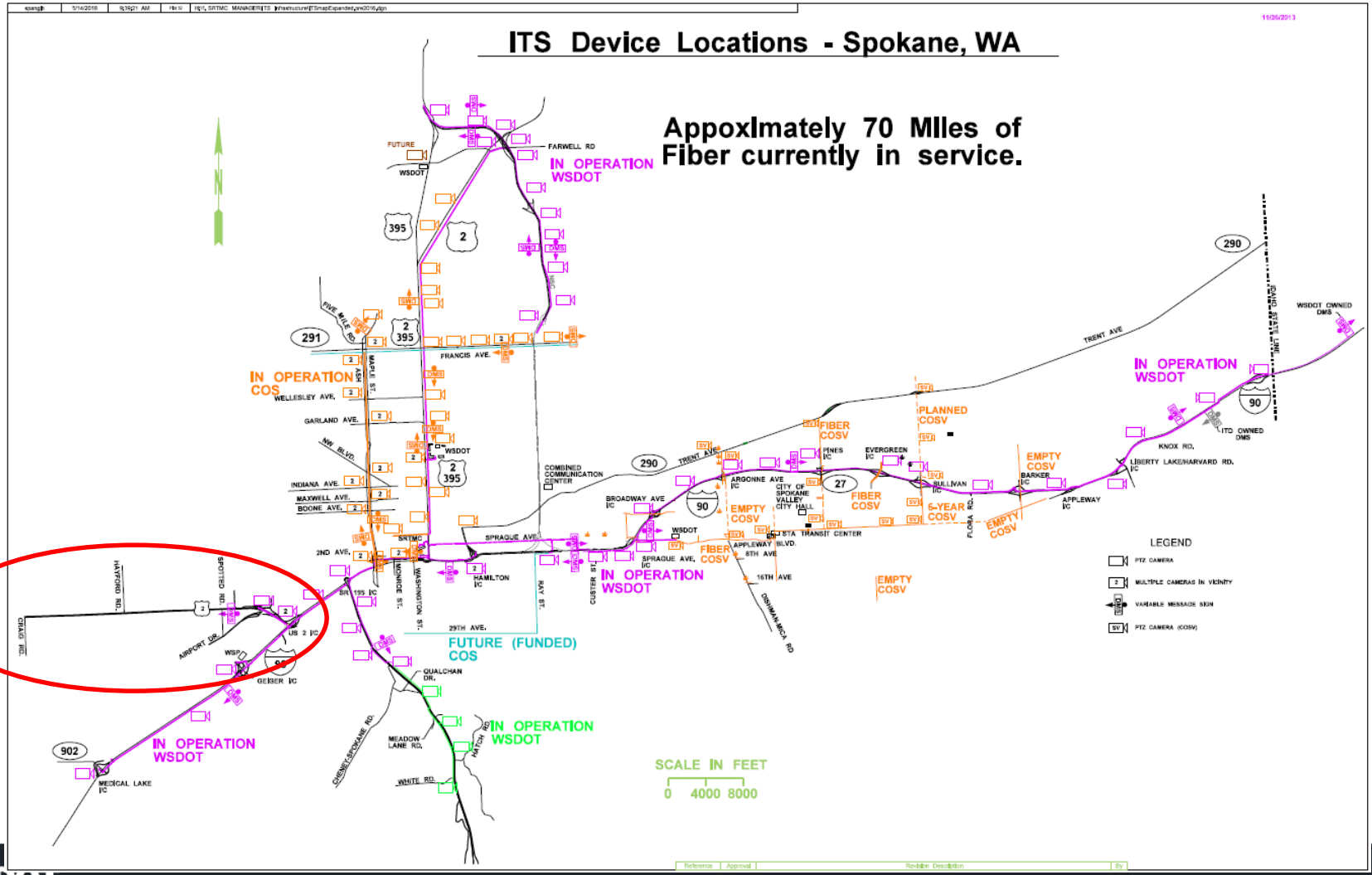
ITS Legislation

- June 9, 1998, TEA-21, Section 520.6(e): ITS Projects funded through the Highway Trust Fund be in conformance with the National ITS Architecture and applicable standards
- This requirement has continued through the current legislation, the *FAST Act* of 2015



Groundwork Complete...

Region Wide ITS Infrastructure



ITS Priority Project

SPOKANE REGION ITS PROJECT IMPLEMENTATION PLAN 2019-2021

3. Regional Communications Infrastructure Expansion & Gap Fill

A critical component of all ITS systems that we currently deploy and hope to deploy in the future is a reliable communications network. We were fortunate to begin installation of Communication Fiber Trunk Lines on Interstate, State Route, and some major arterial routes through the region at the onset of ITS system implementation. Spokane is growing, congestion through the region is increasing, development is expanding and the need for monitoring traffic and providing traveler information to these expanded areas is also critical. Staying ahead of critical congestion levels requires installation of communication networks so that data detection, traffic monitoring, and traveler information devices can be installed in time to make a difference.

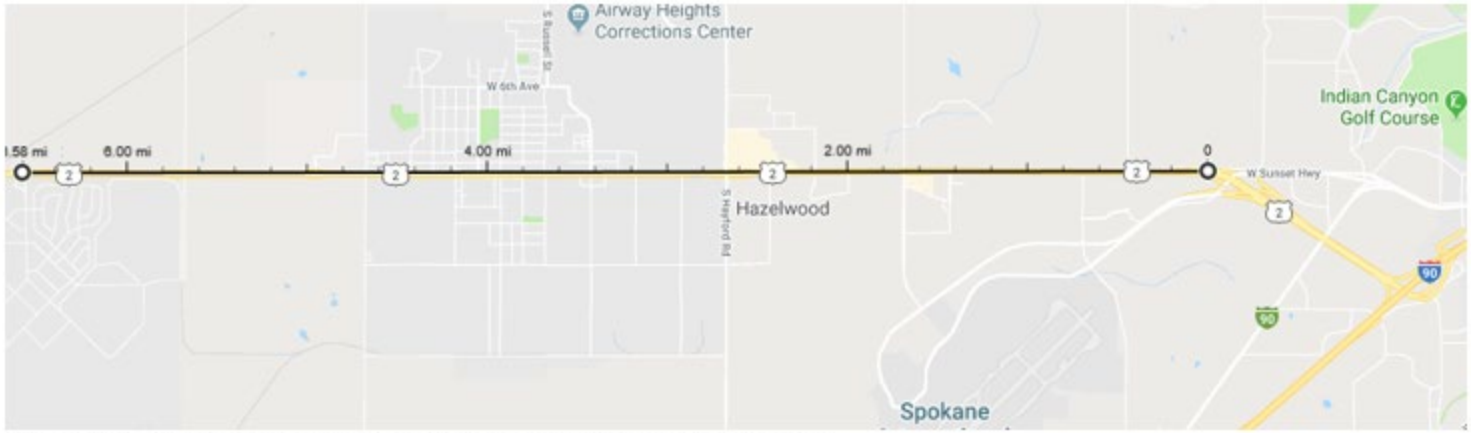


Figure 5 – US 2/West Plains Communication Infrastructure

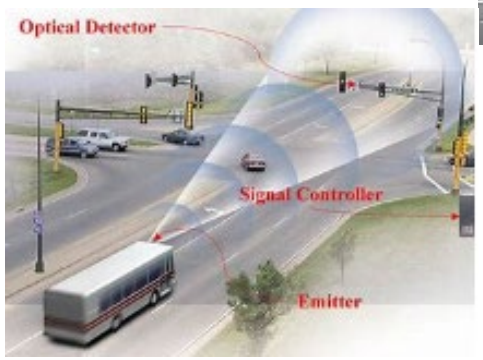
Practical & Multimodal Solutions

Weather Information Processing and Distribution

Variable Speed Limits

Ramp Metering

Transit Signal Priority



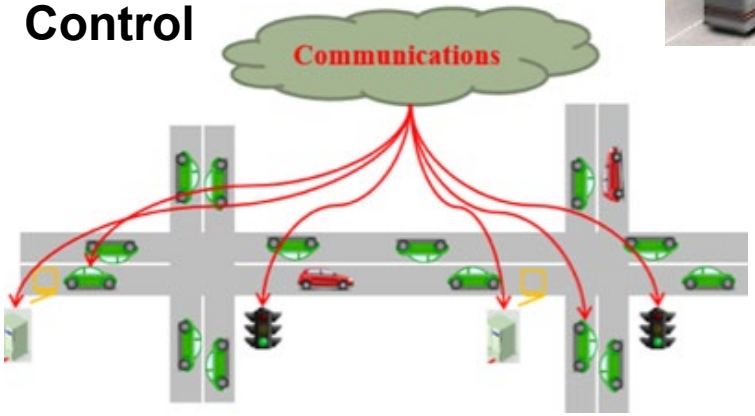
Traffic Information Dissemination

Queue Detection & Warning

Reduced Speed Zone Warning

Disaster Traveler Information

Traffic Signal Control

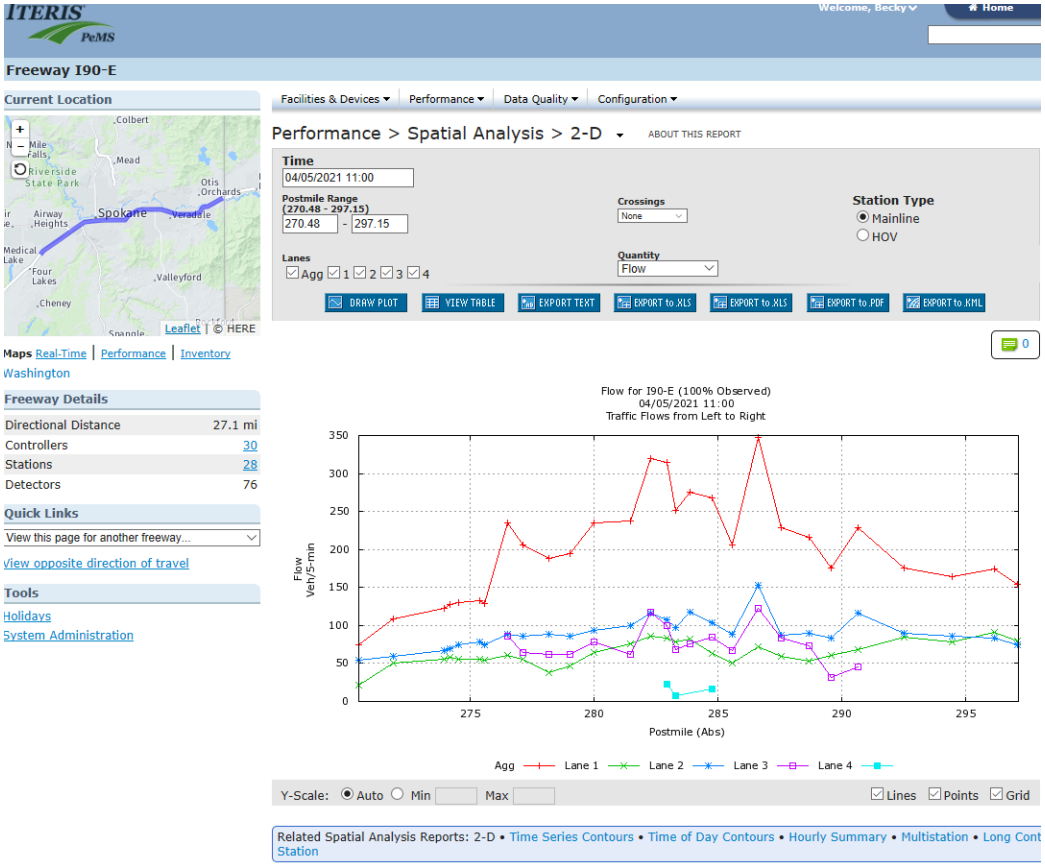


Connected Vehicle Traffic Signal System

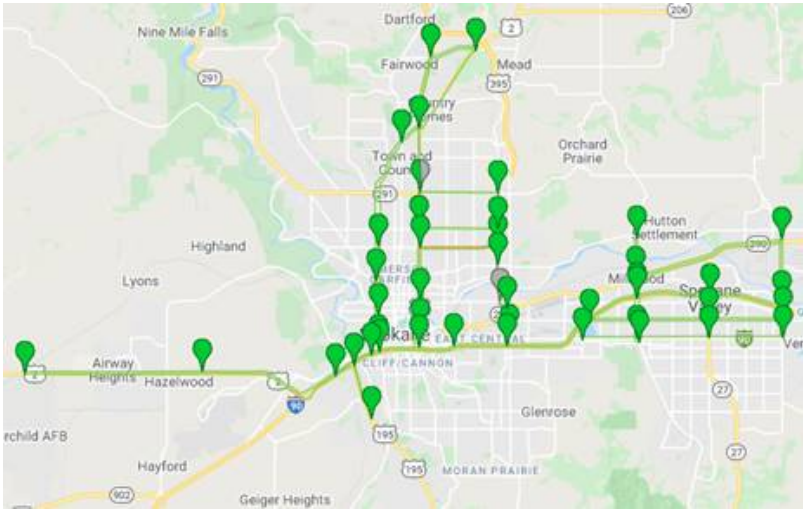
In-Vehicle Signage

SRTMC User Tools

iPeMS by Iteris

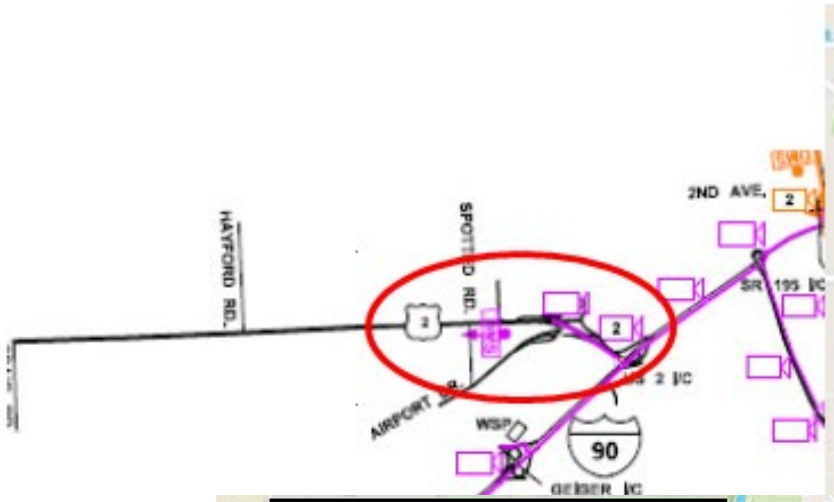


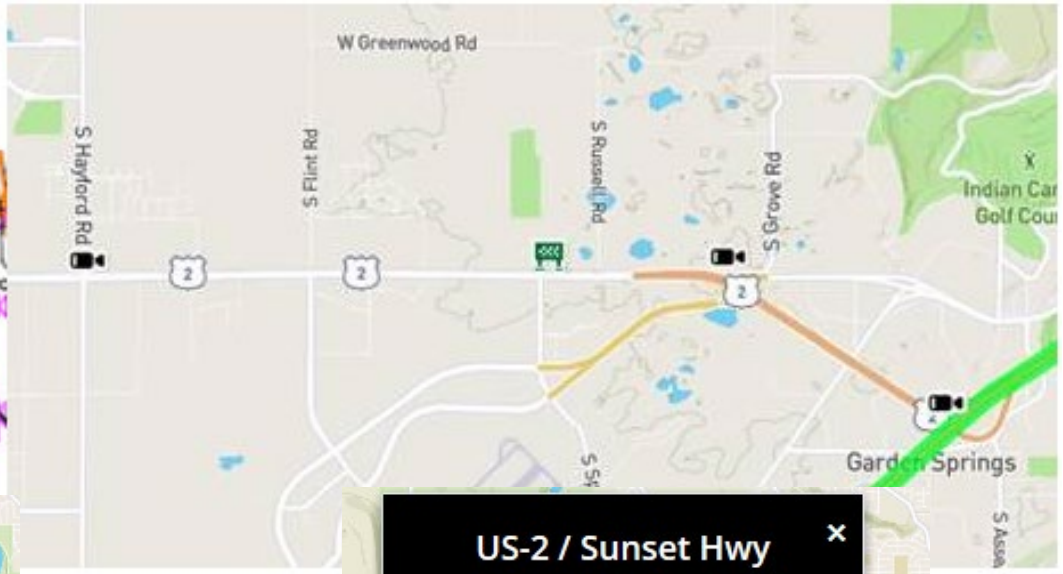
Acyclica Go

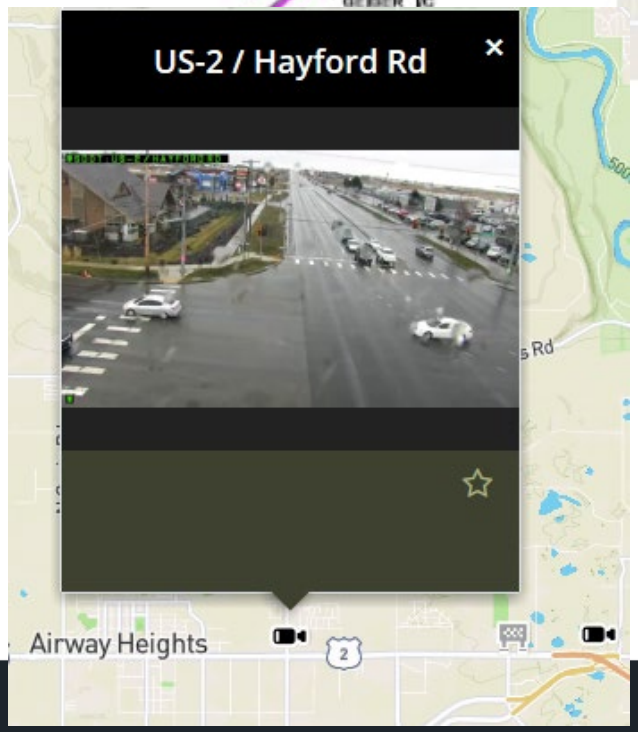


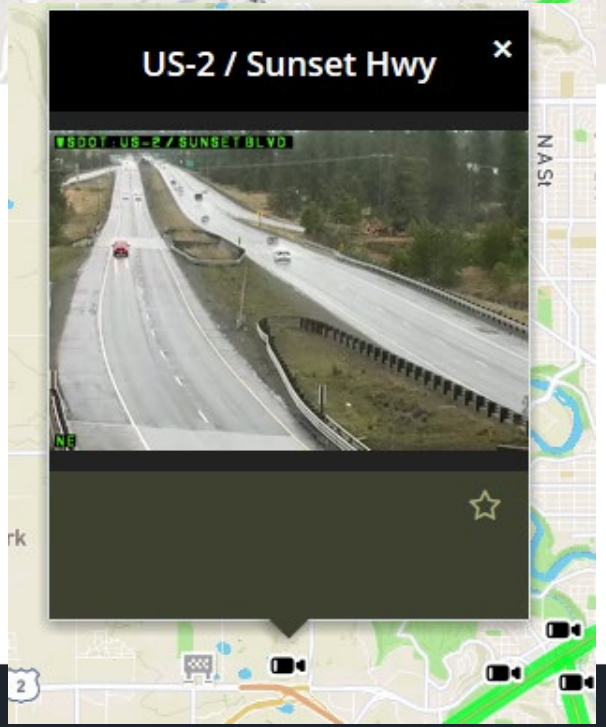
Data analytics tools are available to our partner agencies, consultants, and the public

SRTMC.ORG Public Website



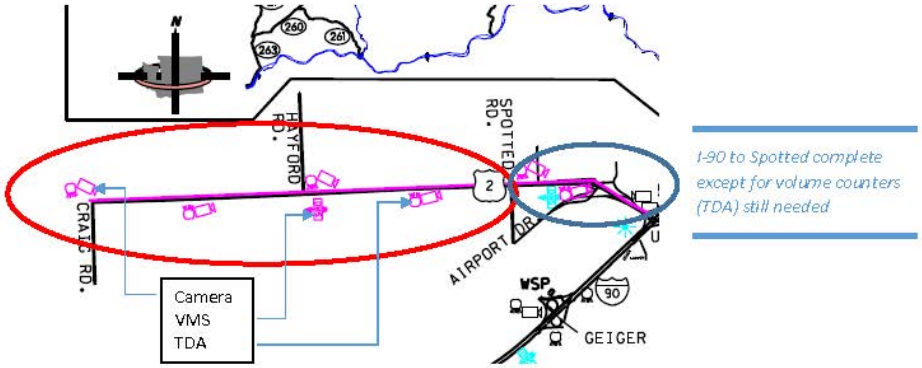






ITS Recommendations

Proposed ITS for US 2 West



Map from 2006 CMAQ Call for projects - Fiber, Cameras, and VMS completed from Spotted Rd to I-90 with 2013 grant (CMAQ)

Craig Rd to Spotted Rd section still to complete:

- 3 Cameras at Flint, Lawson and Craig
- 2 Variable Message Signs (VMS) for EB between Lawson and Hayford and WB between Flint and Hayford
- 6 Volume Counters (TDA) at Craig, Lawson, Hayford, Flint, Spotted, W. Airport Dr
- 4 miles Fiber Trunk Line from Craig Rd to Spotted Rd
  - 5 Connections to Traffic Signals at Fairchild, Lawson, Garfield, Hayford, & Flint

This would provide for:

- SRTMC Monitoring of Traffic on US 2
  - Incident & Event Management
- Travel Information to Public in real-time
- Volume/Occupancy/Speed data in real-time and archived for performance measurement
  - Advanced Transportation Management System (ATMS) incident detection
  - Public Facing Flow Maps
  - Provides for future congestion management, variable speed limits, travel time messaging
- Real-time monitoring and control of traffic signals
- Groundwork and connectivity for future Transit Signal Priority
- Communication for Transit stations/bus stops
- Communications for Fairchild Air Force Base

From the SME
Transit CTR Presentation & Recommendations

Nina Stocker

PUBLIC TRANSIT AND COMMUTE TRIP REDUCTION

Practical Solutions Lab

Nina Stocker, Eastern Region Community Liaison

WSDOT Public Transportation Division

April 6, 2021

OVERVIEW

- Providing demographic context - Who lives and works in the area?
  - Nexus to WSDOT Human Services Transportation Plan
  - Disability Rights WA Storymap project
- Discuss current level of transit service
  - STA: near term plans and long-term vision
- Transit partners: Spokane and Kalispel Tribes
- Explore TDM strategies
  - Commute Trip Reduction (CTR)
  - Parking Management
  - Land Use and Transit Oriented Development
  - Senior Shuttles and Vanpools
- Discuss potential funding opportunities (RMG, Federal Sandbox, Congestion Mitigation and Air Quality/CMAQ)

DEMOGRAPHICS QUICK VIEW

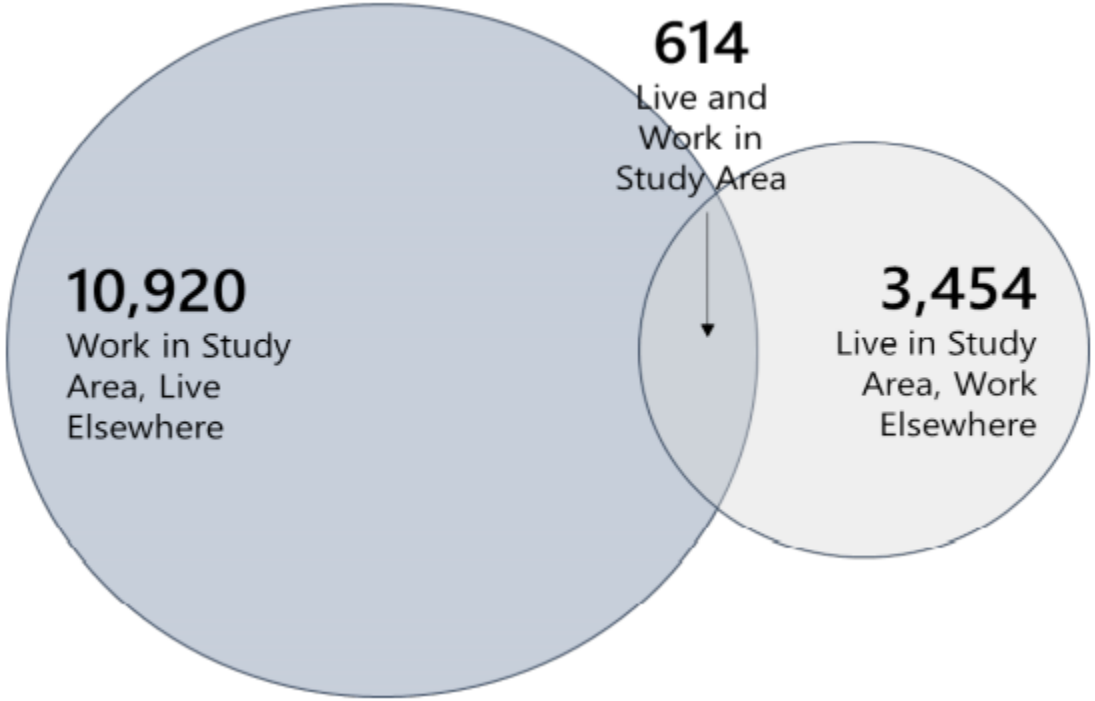
Median Income

Male: $20,243

Female: $18,946

20.9% in poverty

8.5% Veteran population



12.1% living with a disability under 65 years of age

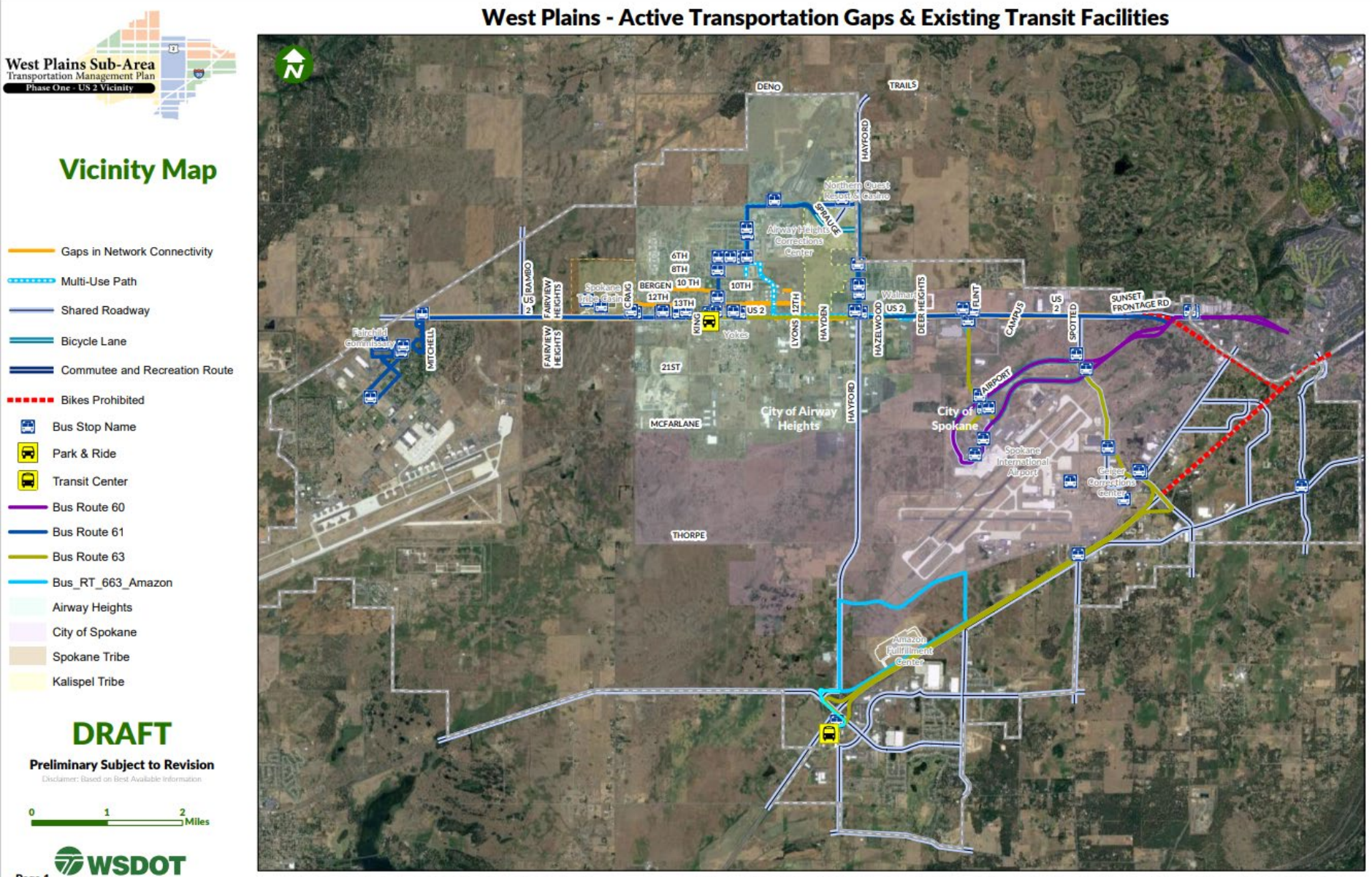
Mean travel time to work 19 minutes (single occupancy vehicle)

Source: U.S. Census Bureau Quick Facts, 2019

West Plains - Active Transportation Gaps & Existing Transit Facilities

West Plains Sub-Area
Transportation Management Plan
Phase One - US 2 Vicinity

Vicinity Map



- Gaps in Network Connectivity
- Multi-Use Path
- Shared Roadway
- Bicycle Lane
- Commutee and Recreation Route
- Bikes Prohibited
- Bus Stop Name
- Park & Ride
- Transit Center
- Bus Route 60
- Bus Route 61
- Bus Route 63
- Bus_RT_663_Amazon
- Airway Heights
- City of Spokane
- Spokane Tribe
- Kalispel Tribe

DRAFT

Preliminary Subject to Revision

Disclaimer: Based on Best Available Information

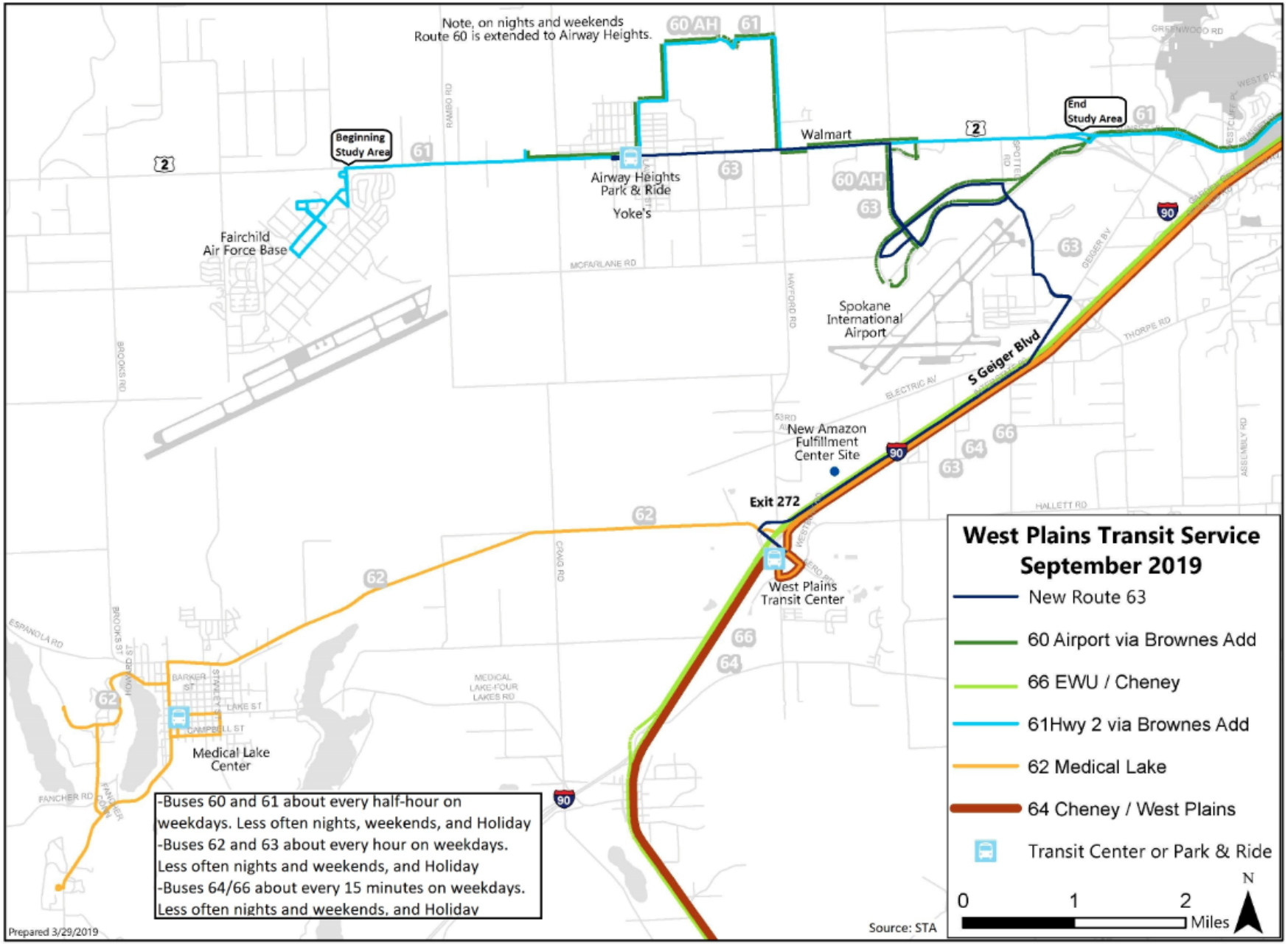
0 1 2 Miles

WSDOT

Page 1

Disclaimer: Data based on best available information. This data is for illustration purpose only. Source: ER Planning, WSDOT Workbench GIS data. City of Airway Heights, City of Spokane, Spokane County. Date: 3/29/2021. File Name: ActTrans_&Transit_3-25-21.mxd

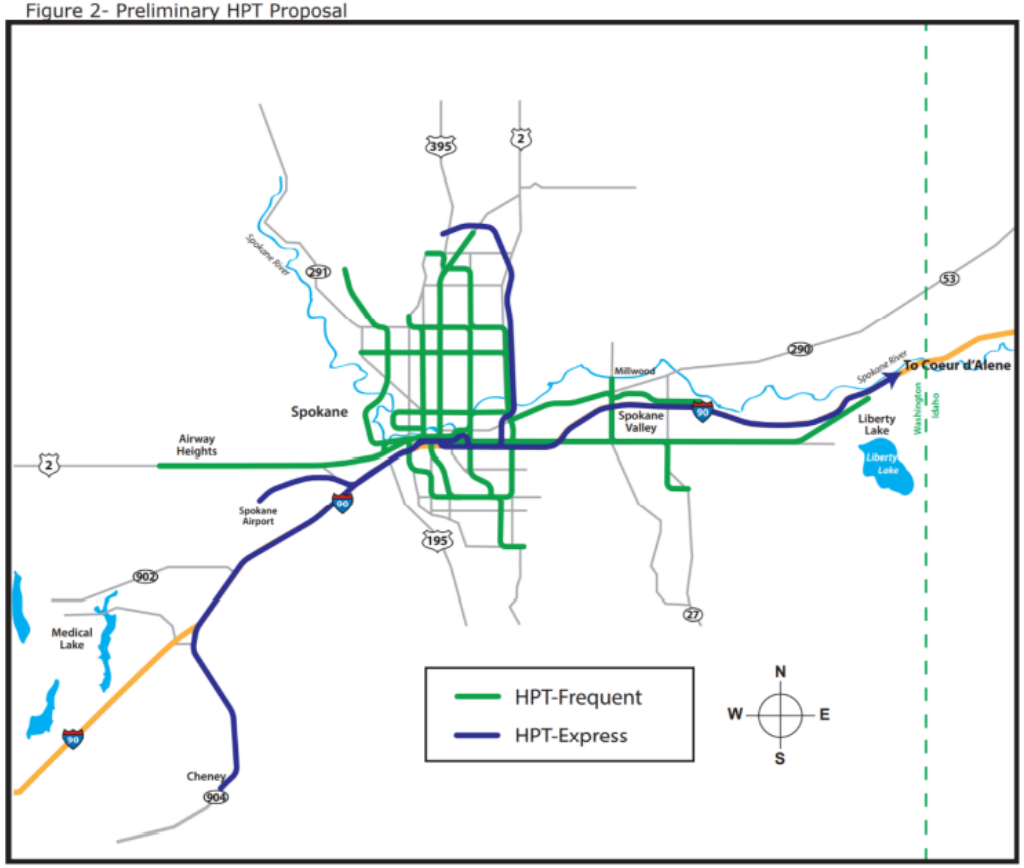
West Plains Transit Service September 2019



HIGH PERFORMANCE TRANSIT

Route	Terminals	Via	Implementation Strategy and Challenges
F1	Downtown Spokane <> Newport Hwy & Hawthorne	Downtown Spokane, Division Street, Newport Hwy.	**Near-term-** Regular bus; improve daytime capacity issues and night and weekend frequency; construct improved passenger amenities; Business Access and Transit (BAT) lanes between N. Foothills Dr. and the Spokane River. **Mid-term-** Enhanced bus; meet HPT Frequent frequency and span standards; construct Farwell Park & Ride; construct HPT station and stop amenities. **Long-term-** Electric BRT-style vehicles; construct center-running transit-only lanes.
F2	Airway Heights <> Liberty Lake	Sunset Blvd., I-90 Corridor, Sprague Ave., Spokane Valley, Greenacres	**Near-term-** Regular bus; expand service on Route 173 VTC Express with more peak frequency and hourly mid-day service; simplify Route 61 Highway 2 through Airway Heights; construct improved stop amenities. **Mid-term-** Enhanced bus; ensure frequency and span meet HPT Frequent standards with BRT service along semi-exclusive right of way. **Long-term-** Light rail.

Figure 2- Preliminary HPT Proposal

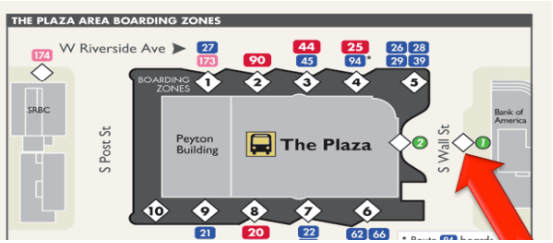


TRANSIT PARTNERS

Spokane Route *** Summer 2020

Outbound from Wellpinit — Inbound to Wellpinit

Arrive Wellpinit	Leave Wellpinit	Spoko Fuel	Spokane Tribe Casino	Wal Mart	Plaza (Wall St.)	Intermodal Ctr. (1st & Bernard)	Wal Mart	Spokane Tribe Casino	Spoko Fuel	Arrive Wellpinit/ Connect w/ Busses 1 & 2
	To Spokane →					To Wellpinit →				
	6:15am	7:00am	7:05am	7:15am	7:30am	7:35am	7:45am	7:55am	8:15am	9:00am
9:00am	9:15am	10:00am	10:05am	10:15am	10:30am					
12:00pm	1:15pm	2:00pm	2:05pm	2:15pm	2:30pm					
4:00pm	4:15pm	5:00pm	5:05pm	5:15pm	5:30pm					



MEDICAID TRANSPORTATION

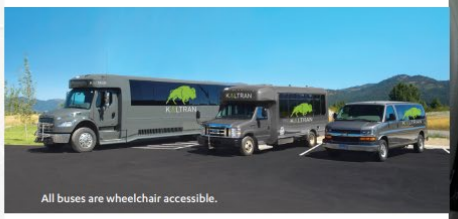
Kaltran is now providing **MEDICAID TRANSPORTATION SERVICES** throughout Pend Oreille County to the Camas Center Clinic, Camas Path North Offices and People's Place.

We also provide transportation to Native Project in Spokane for Medicaid services to Native American clientele.

Do you have MEDICAID?

- Do you need reliable transportation to your appointments?
- Are your appointments at the Camas Center Clinic, Camas Path North Office or People's Place?

If your appointments are MEDICAID eligible and you have a current **MEDICAID** card, you may be able to utilize our services to get to your appointments.



GIVE US A CALL. WE WOULD BE HAPPY TO HELP!

509.447.7247

Call Monday-Saturday, 7am-5pm to schedule your

KALTRAN

MANAGING THE DEMAND

Shifting priority away from driving alone

Collaborating with employers

Improving public transportation

Educating people about their options

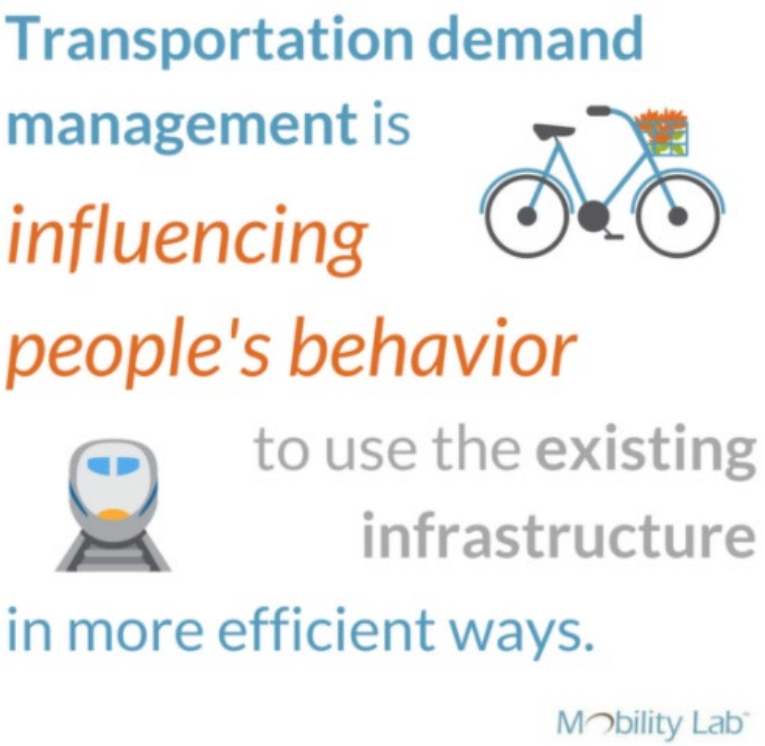


Figure 3: SR-2 Revitalization Plan Proposed Concept - 2011

Source: City of Airway Heights Downtown Strategic Plan

FUNDING OPPORTUNITIES

Regional Mobility Grants (RMG)

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

Surface Transportation Block Grant Program

Federal Sandbox Grants

ADD - Need Recommendations

From the SME
Transportation System Management and Operations – Overview Presentation & Final Recommendations

Pamela Vasdeva

Practical Solutions Workshop: US 2 West Plains Subarea Transportation Management Plan

TSMO Description

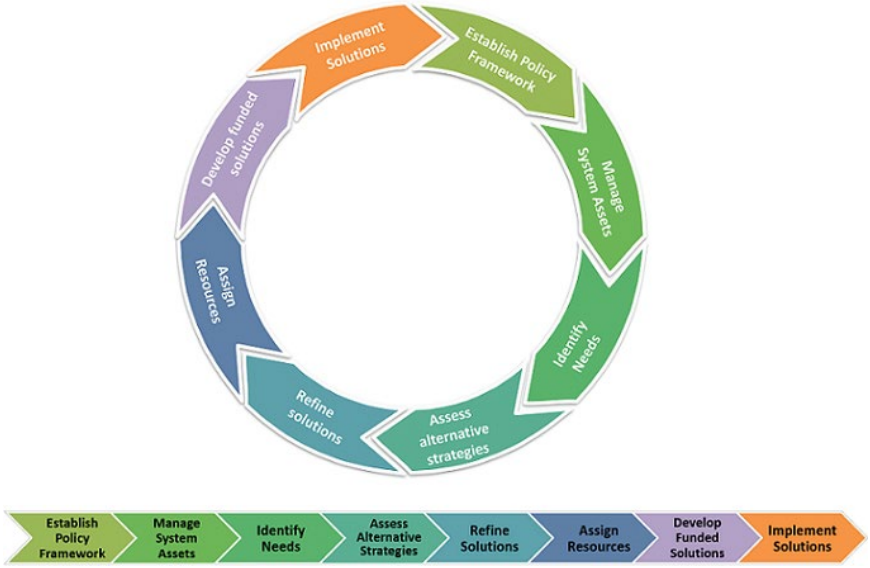
TSMO encompasses a broad set of **strategies that aim to optimize the safe, efficient, and reliable use of existing and planned transportation infrastructure for all modes**. TSMO is undertaken from a systems perspective, which means that these strategies are coordinated with related strategies and across multiple jurisdictions, agencies, and modes.

TSMO Video

https://www.youtube.com/watch?v=R45hyElfWEg

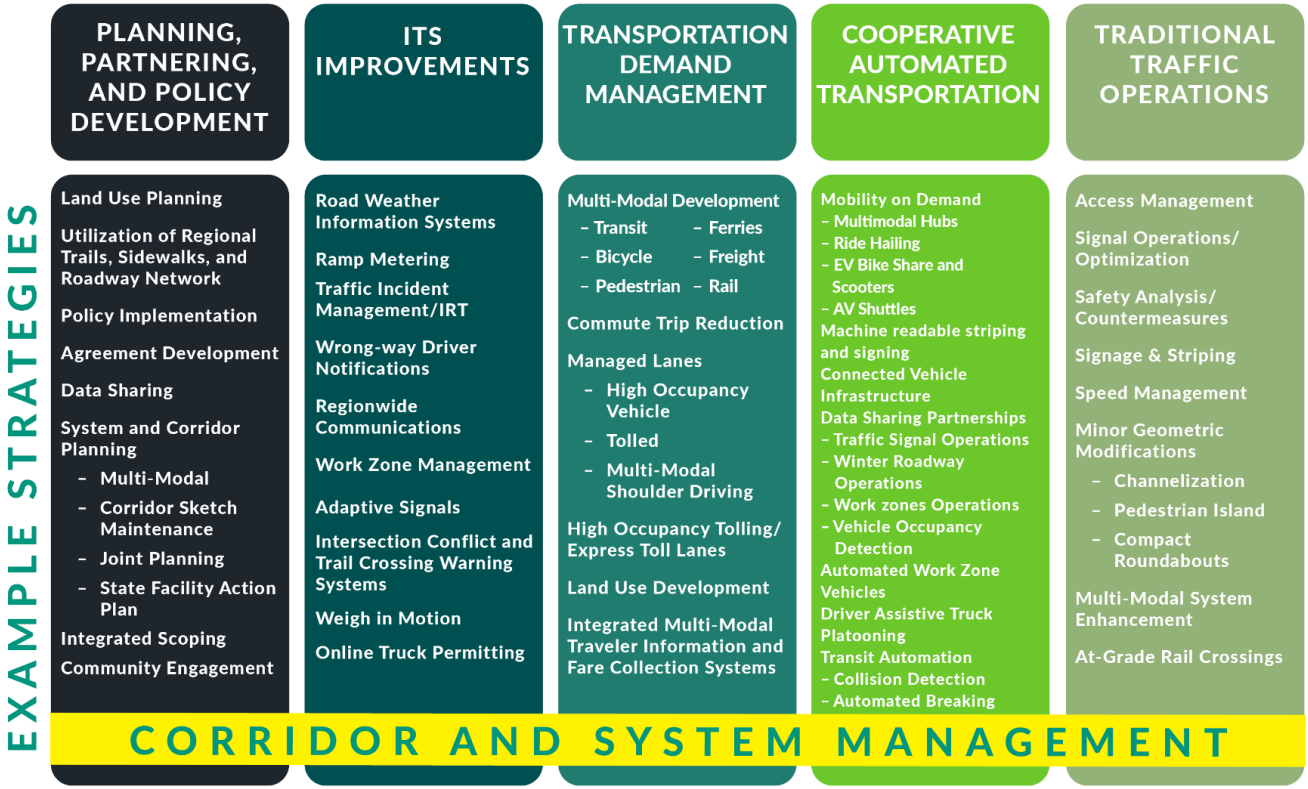
TSMO & Practical Solutions

Practical Solutions is WSDOT's performance-based approach to transportation decision making. Along with asset management, practical design, and other elements, **TSMO is one of the tools in the 'Practical Solutions toolbox'**.



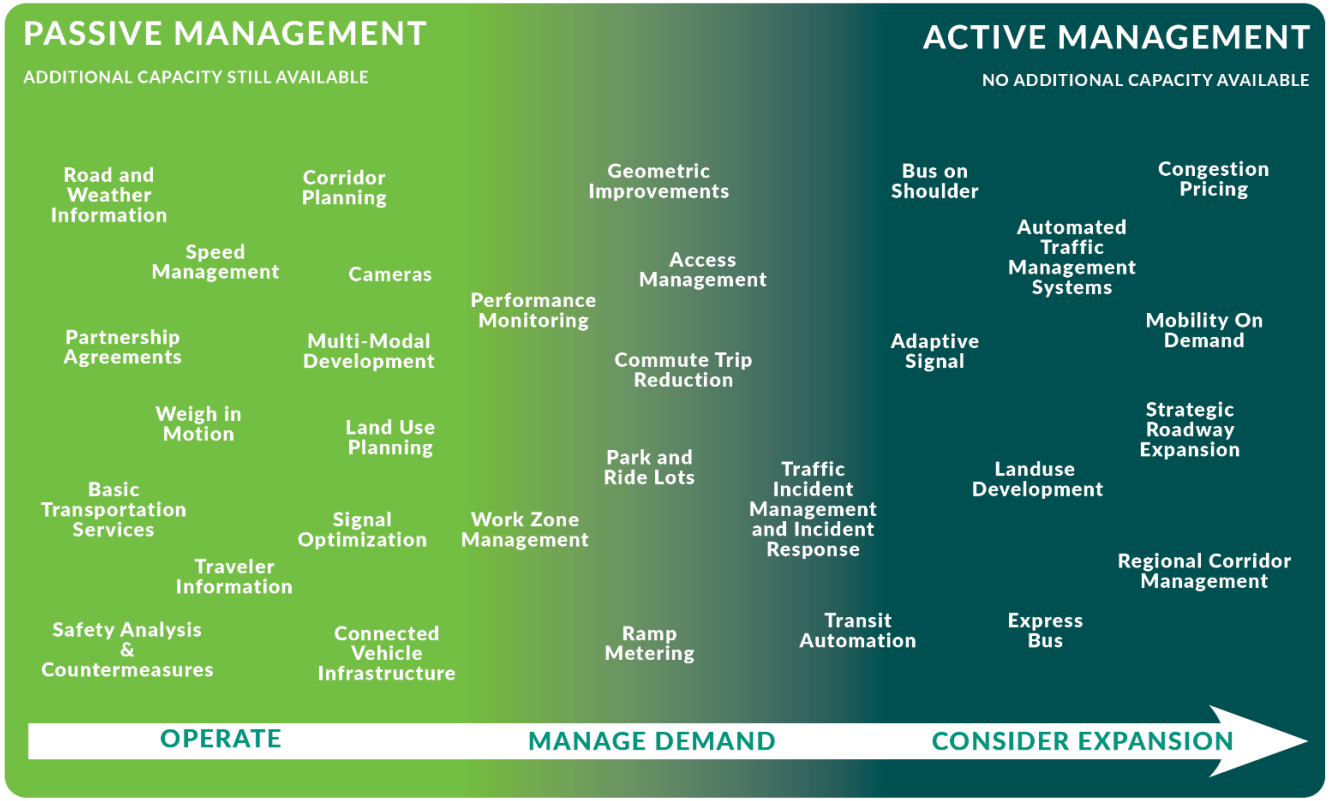
Transportation Systems Management & Operations (TSMO)

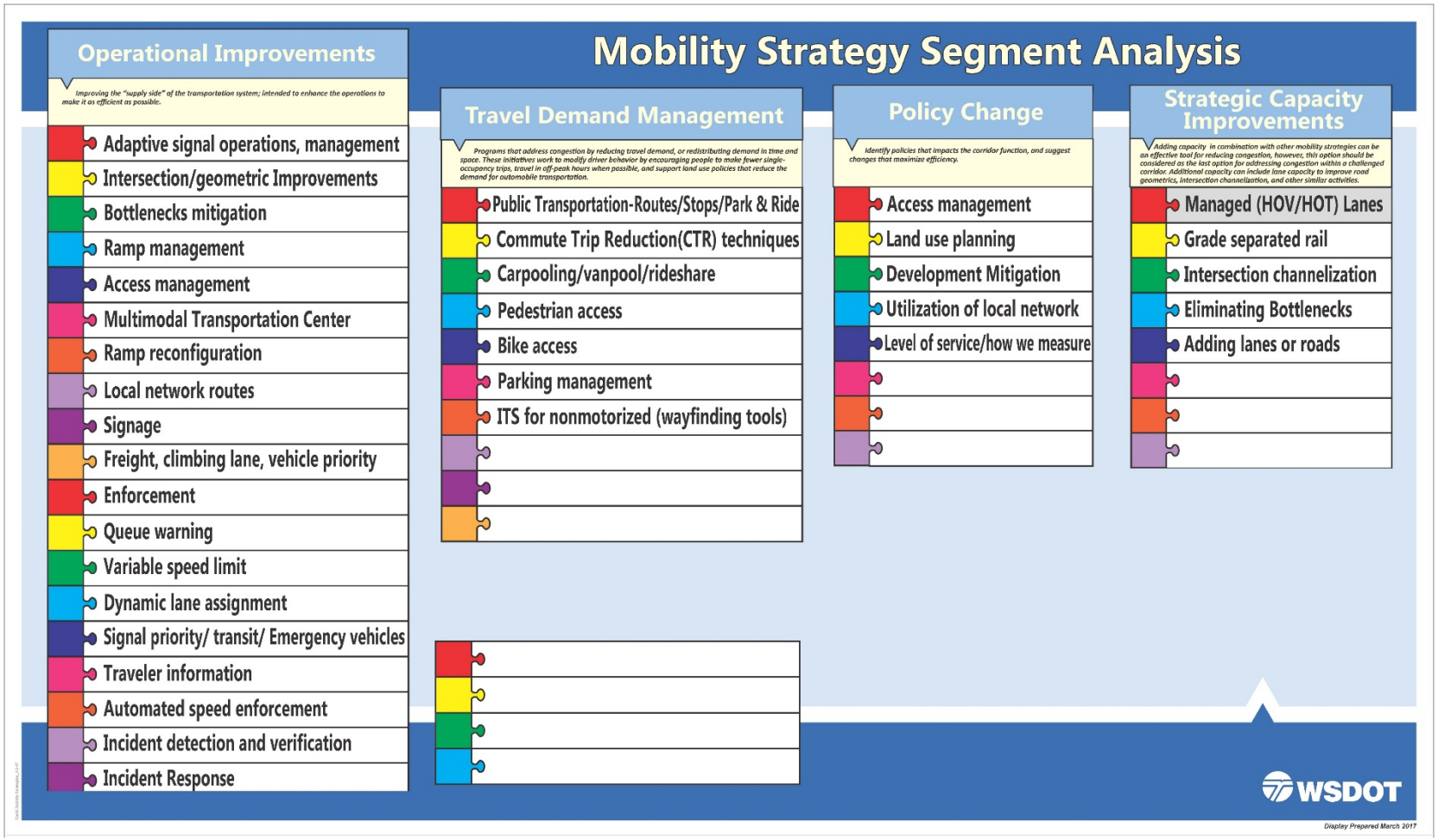
Managing safety and capacity as an asset



Transportation Systems Management & Operations (TSMO)

Systems Operations Integrated Within a Corridor




Mobility Strategy Segment Analysis
Operational Improvements
Improving the "supply side" of the transportation system; intended to enhance the operations to make it as efficient as possible.
Adaptive signal operations, management
Intersection/geometric Improvements
Bottlenecks mitigation
Ramp management
Access management
Multimodal Transportation Center
Ramp reconfiguration
Local network routes
Signage
Freight, climbing lane, vehicle priority
Enforcement
Queue warning
Variable speed limit
Dynamic lane assignment
Signal priority/ transit/ Emergency vehicles
Traveler information
Automated speed enforcement
Incident detection and verification
Incident Response
Travel Demand Management
Programs that address congestion by reducing travel demand, or redistributing demand in time and space. These initiatives work to modify driver behavior by encouraging people to make fewer single-occupancy trips, travel in off-peak hours when possible, and support land use policies that reduce the demand for automobile transportation.
Public Transportation-Routes/Stops/Park & Ride
Commute Trip Reduction(CTR) techniques
Carpooling/vanpool/rideshare
Pedestrian access
Bike access
Parking management
ITS for nonmotorized (wayfinding tools)
Policy Change
Identify policies that impacts the corridor function, and suggest changes that maximize efficiency.
Access management
Land use planning
Development Mitigation
Utilization of local network
Level of service/how we measure
Strategic Capacity Improvements
Adding capacity in combination with other mobility strategies can be an effective tool for reducing congestion, however, this option should be considered as the last option for addressing congestion within a challenged corridor. Additional capacity can include lane capacity to improve road geometrics, intersection channelization, and other similar activities.
Managed (HOV/HOT) Lanes
Grade separated rail
Intersection channelization
Eliminating Bottlenecks
Adding lanes or roads
WSDOT
Display Prepared March 2017

TSMO First Approach

- ✓ Build partnership early
- ✓ Set context
- • **System/corridor planning**
- • Performance based evaluation
- • Identify funding opportunities

Example TSMO First Studies

- SR 518 Corridor Planning Study SR 509 to I-5 (WSDOT)
- I-90: Four Lakes to Stateline Operations Study (WSDOT)
- Westlake Cycle Track (SDOT)

ADD – Need Recommendations