Expediting Project Delivery of Key Transportation Projects in the Intermountain West Region

September 27, 2016 Close-Out Webinar

Today's Agenda

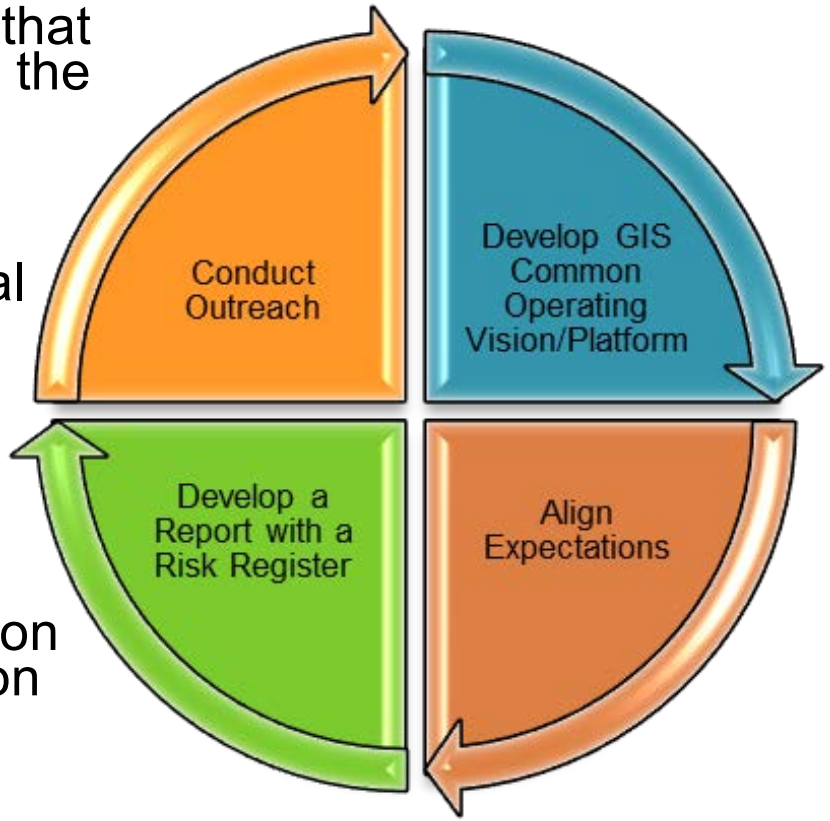
1. **Welcome –** Denise McClafferty
2. **Presentation to briefly highlight project:**
   - Project Summary – Amy Duffy
   - Transportation Summary/Risk Register – Tim Strow
   - Economic Summary – Jim Rounds
   - GIS Overview/Major Efforts and Findings – Anubhav Bagley
   - Story Map Overview – Jami Dennis
   - Outreach, Project Conclusions and Identified Next Steps
3. **Feedback on project and Discussion - All**

Expediting Project Delivery of Key Transportation Projects in the Intermountain West Region

FHWA awarded a grant to MAG to advance deployment of multi-objective solutions that expedite transportation project delivery in the broader Intermountain West Region

Project Goals:

1. Outreach to identify needs and potential gaps related to transportation and data resources
2. Develop GIS Common Operating Vision/Platform for easier data information sharing
3. Align expectations for a long-range vision to move people and goods in the Region
4. Develop Report with Risk Register



Project Major Events

- April 2014: Project kick-off calls with Intermountain West MPO/TMA Directors and WRA
- October 2014 – 2016: Held 13 webinars and additional meeting/teleconferences providing overview of project and **highlighting key web mapping services/GIS tools used by 17 entities in the region**

Project Major Events
(continued)

- 2014 - 2015: **GIS Surveys**
  - August 2014: draft survey #1 sent out for review
  - August 2014: webinar with technical team to go over survey; make refinements
  - August – October 2014: compile survey responses; follow-up
  - January – March 2015: GIS survey #2; individual agency interviews and summarize findings

Project Major Events
(continued)

- March – April 2015: **Collect Data** from SHRP2 C19 technical team
- June – August 2015: Develop with SHRP2 C19 technical team draft **land use look-up tables** for the Intermountain West Region
- August 27-28, 2015: 26 technical staff from 14 agencies (DOTs, MPOs, TMAs) **meet to provide input on the SHRP2 (C19) project and share information**

Project Major Events
(continued)

- 2015-2016: **Intermountain West Transportation Vision**
  - Multiple requests to seek input; further collaborate
- 2015-2016: **Report Efforts**
  - Throughout the project: research relevant efforts
  - July 2015: Begin drafting GIS summaries
  - September 2015: Draft report outline
  - January – September 2016: Drafting of report and risk register
  - February 2016: MAG hires Jim Rounds to augment efforts to include economic perspective
- Throughout the project: **Outreach**
  - MAG SHRP2 webpage updated
  - SHRP2 presentations to relevant forums

SHRP2 C19 Report Overview

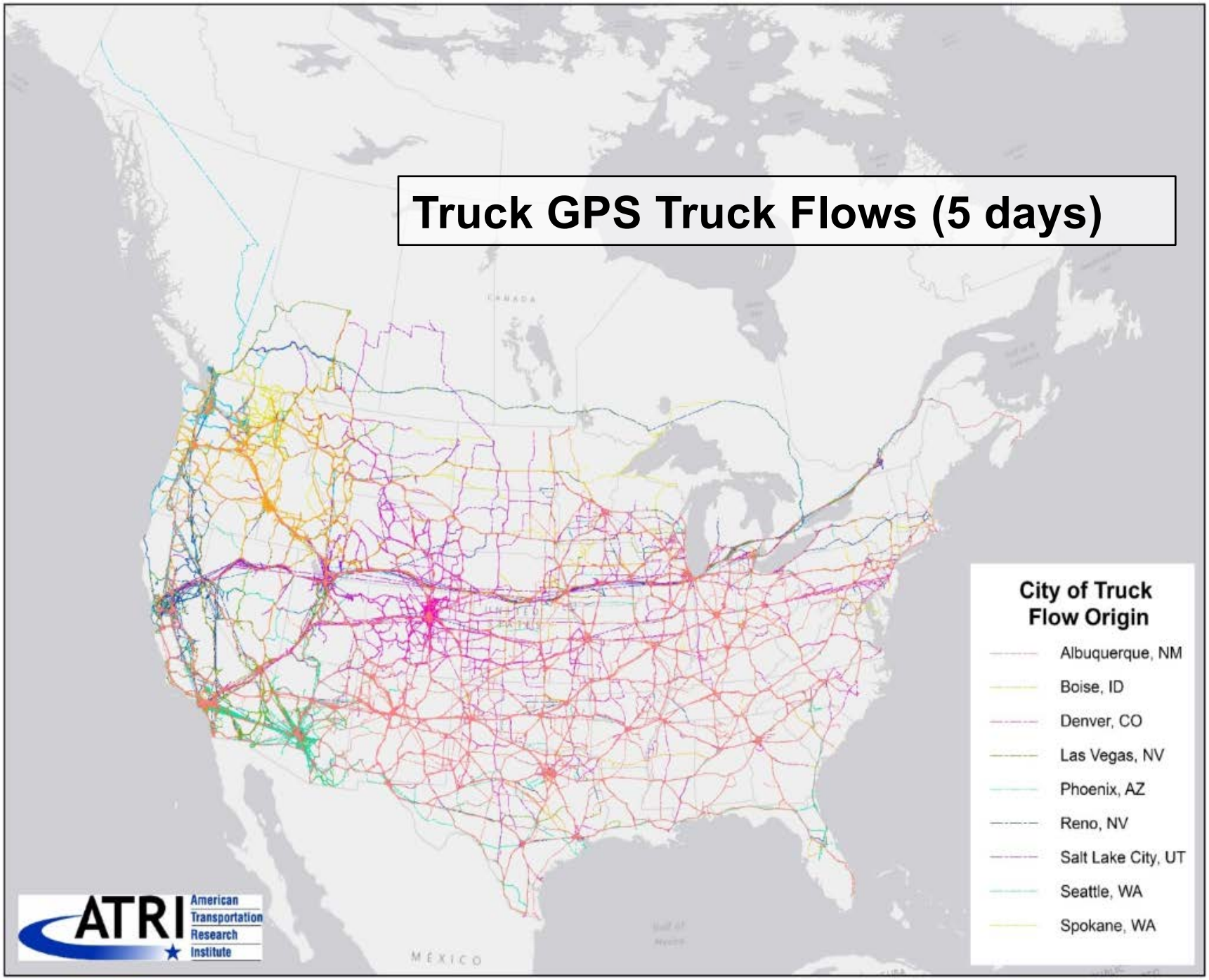
1. Executive Summary
2. IMW Region Information Region and Project Goals
3. IMW Transportation Resources
4. IMW Transportation Vision/Alignment of Expectations
5. Economic Perspective
6. SHRP2 Project Stakeholder Engagement and the Public Process
7. IMW GIS Resources
8. GIS Survey and Results
9. SHRP2 Project: Development of a Common GIS Vision/Platform
10. Risk Register
11. Stakeholder Engagement and Communications Best Practices and Lessons Learned
12. IMW Recommendations and Findings
13. SHRP2 Project Conclusion
14. Appendices

THE INTERMOUNTAIN WEST		States: 9	Population: 30 million
Employment: 10.5 million	Transportation Related Jobs: Over 380k	Licensed Drivers: Over 21 million	Registered Vehicles: Over 26 million
Miles of Public Road: Over 545k	Miles of Freight Railroad: Over 18.5k	Bridges: Over 46k	Number of MPOs: 48
Transit Ridership: Over 596 million	Border Ports of Entry: 37	Major Airports: 91	Air Carrier Enplanements: Over 106 million

Transportation-Related Project Summary
(Sections 3, 4, 10 and Appendices A-J)

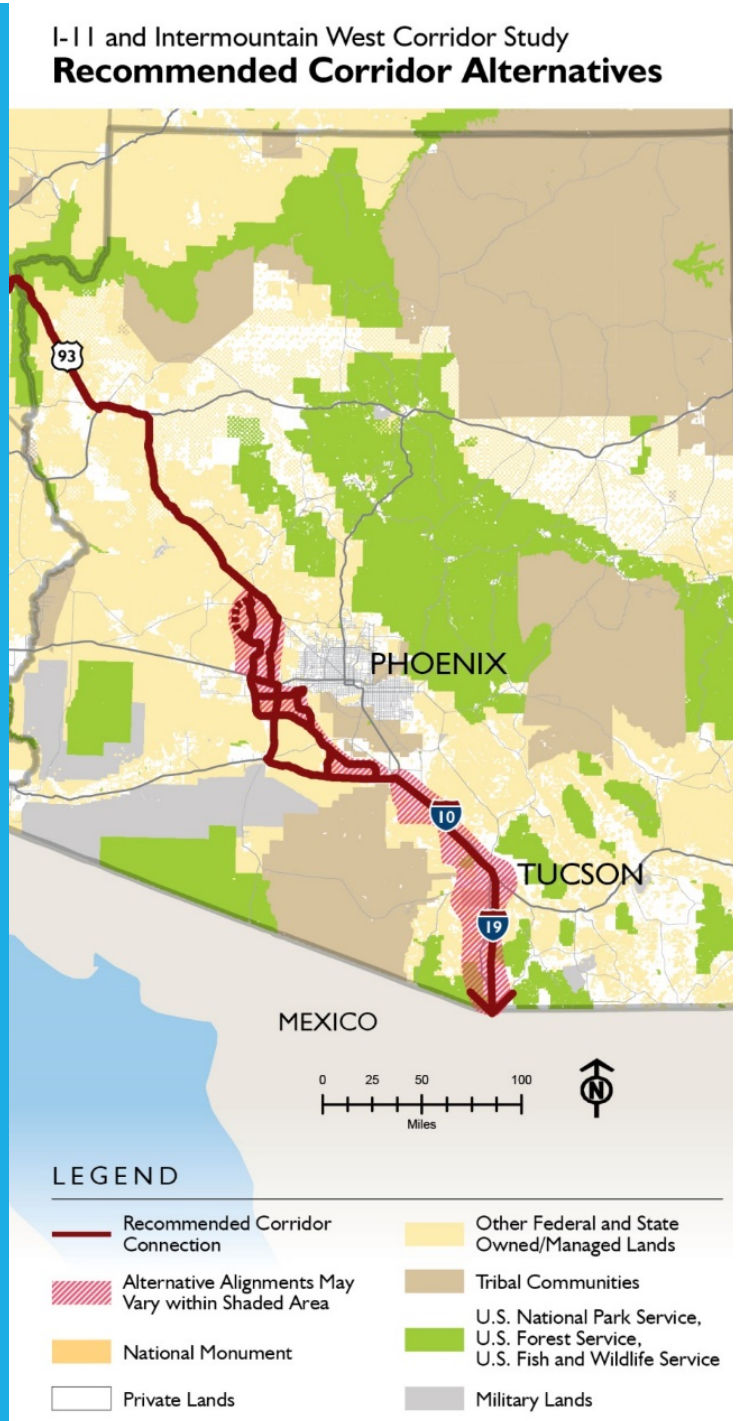
- IMW Transportation Resources
  - Brief History of the Interstate Highway System in the IMW
  - Intermountain West Freight
    - Northwest Seaport Alliance (Seattle and Tacoma); Ports of Los Angeles, Long Beach, Oakland
    - International Trade Connection
    - Truck Freight (Forecast, 5-Day Truck Flows)
    - Railroads
  - Aviation
- Intermountain West Transportation Vision/Alignment of Expectations
  - Long-Term Transportation Considerations
  - Environmental Considerations (Listing of Threatened and Endangered Species and those subject of petitions)
  - FAST Act Freight Program and Partnering Opportunity

Truck GPS Truck Flows (5 days)



Risk Register

- *NOTE: After the grant was received, EIS underway for portion of the corridor. Therefore a high level risk-analysis was conducted*
- Focused along I-11 and Intermountain West Corridor Study (Nogales to Las Vegas via Phoenix)
  - Approximately 450 miles in length and up to 25 miles wide
- Risk register identifies:
  - Land (Ownership, topography, land coverage, future land use)
  - Hydrological (water)
  - Environmental
  - Infrastructure
  - Economic consideration

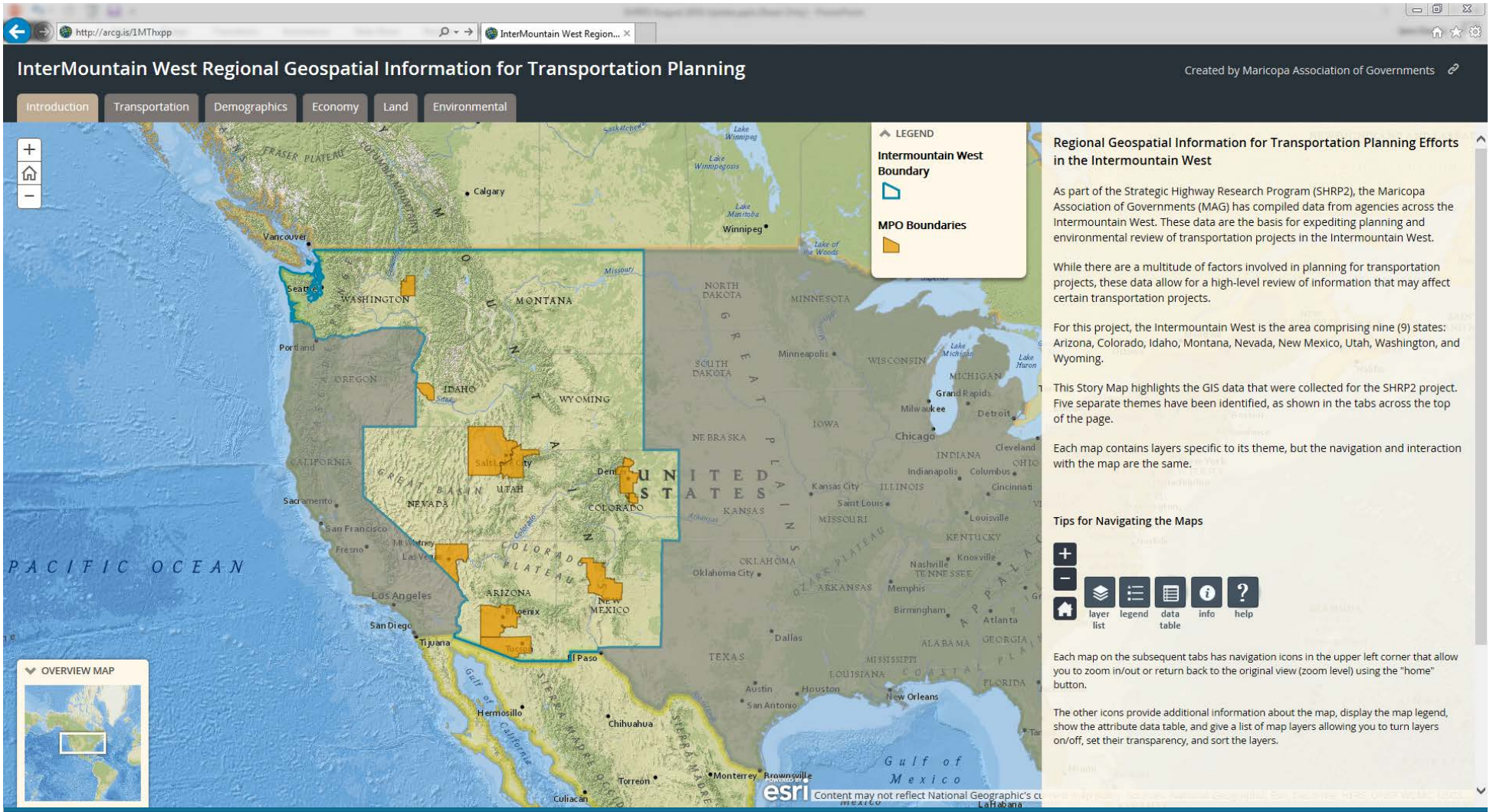


Economic-Related Project Summary
(Section 5 and Appendices K-L)

- A number of things make an economy “tick” and this will vary from region to region.
- Foundational items such as highway infrastructure appear to be universal.
- Past discussions included the calculation of impacts from construction activity.
- Moving forward, it’s the enhanced economic growth that needs to lead the discussion.
- Alignment: analysts, policymakers, general public, private sector businesses, etc.

GIS-Overview
(Section 7-9 and Appendices N-P)

- Summaries of 17 presentations on GIS resources in the IMW
- Assessed available GIS data resources through two surveys and follow-up interviews
  - 15 agencies (11 MPOs and four state DOTs) submitted responses
- Identified relevant IMW GIS Resources/URLs
- Development of a IMW common GIS vision/platform
  - Collaborated on data conflictions, data standards, and data gaps
  - Meeting held in August 2015 recommended that the project finalize the lookup table for the IMW and IMW Story Map



Story Map

Visualizing and Sharing Data

http://arcg.is/1MThxpp

Outreach, Project Conclusions and Next Steps (Sections 6, 11-13, and Appendix M)

- MAG with everyone's expertise successfully met project performance measures and deliverables/tasks
- Main Project Accomplishments/Resources for transportation planning in the IMW:
  - Inventory of IMW transportation- and GIS-related resources (to assist with this project and other collaborative IMW efforts)
  - The IMW Story Map
  - The risk register (that a planner can adapt for their particular project, depending on scale and scope)
  - Development of a technical team from agencies (MPOs, TMAs, DOTs, and other key stakeholders throughout the IMW)

Outreach, Project Conclusions and Next Steps (continued)

- Chapter 12 outlines potential transportation-related recommendations
- Next phases, if funding is available is:
  - Developing a proof of concept tool to serve as a common GIS platform
  - Gathering feedback and input from stakeholders on the proof of concept
  - Determining next steps

Feedback on project and Discussion

Thank you for your involvement!

Intermountain West Regional Geospatial Information for Transportation Planning

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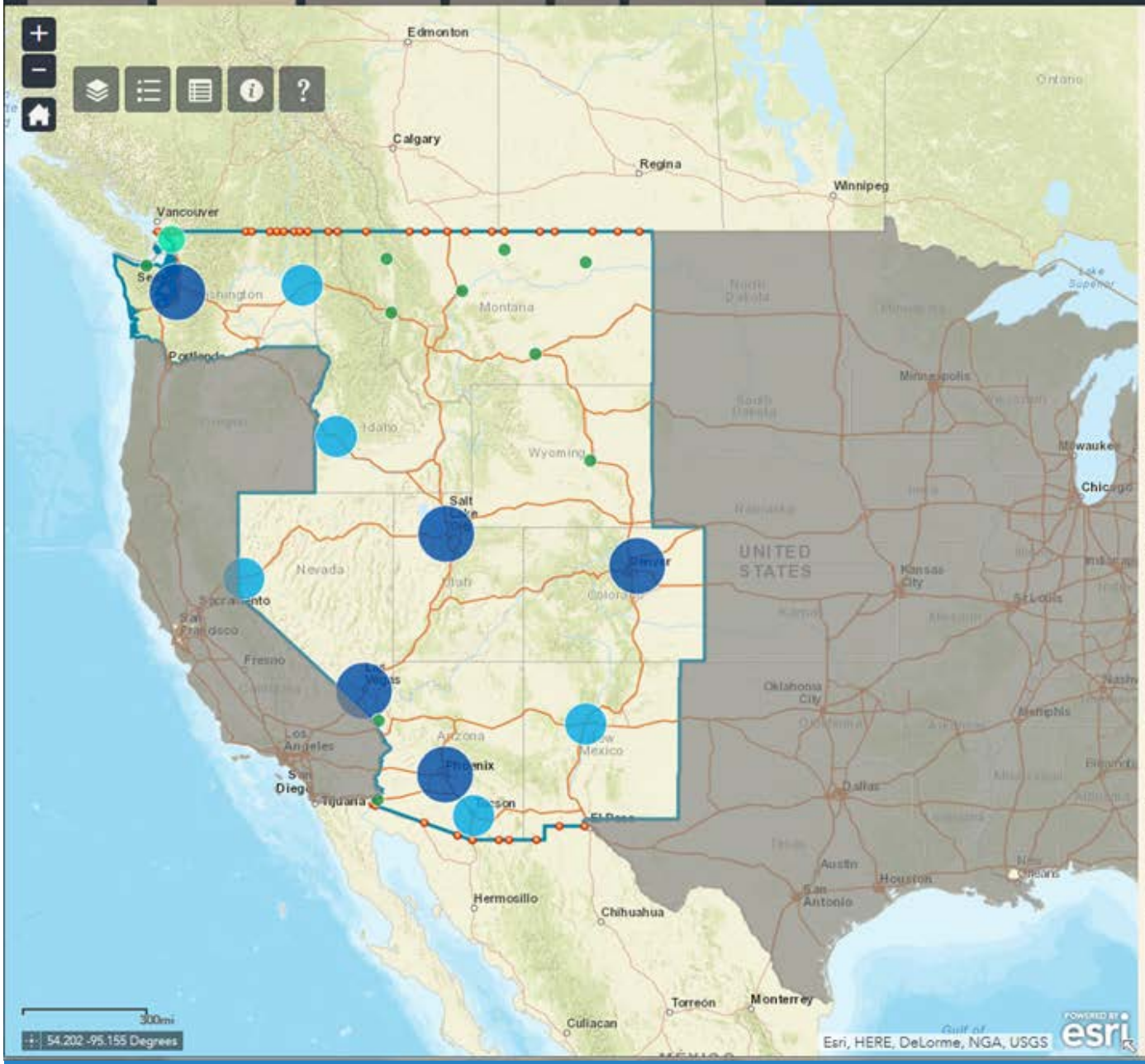
Introduction | Transportation | Demographics | Economy | Land | Environmental



Existing Transportation Infrastructure

Existing transportation infrastructure is used as a baseline for transportation projects. Statewide transportation networks are modeled for capacity to determine if expanding future volumes need to be addressed. Locations of border crossings and airports also need to be analyzed for volume trends to determine if these pose a risk or opportunity for a transportation project.

As a baseline, this map shows the existing transportation network base along with International border ports of entry and International airports. As you zoom in on the map, additional data layers become available including bridges and traffic volumes.

Transportation departments report measured traffic volumes in terms of Average Annual Daily Traffic (AADT). These values vary significantly across the Intermountain West region. For example, the largest reported AADT for 2013 (the most recent year for which data are available) was in the Phoenix, Arizona region along Interstate 10. This segment of roadway reported an average annual daily traffic count of 281,092 vehicles. On the end, Wyoming's highest reported AADT was just 33,691 on a segment of Del Range Blvd, just north of the Cheyenne Regional Airport. (See table below).

Highest Average Annual Daily Traffic (AADT) for Intermountain West States (2013)

State	2013 Max AADT	Location	Metro area
Arizona	281,092	I-10 between Baseline Rd and Broadway Rd	Phoenix
Colorado	257,000	I-25 between W 8th Ave and W Colfax Ave	Denver
Idaho	116,000	I-84 between S Eagle Rd and S Orchard St	Boise
Montana	48,000	US-87 between Highway 89 and S Airport Rd	Billings
Nevada	294,000	I-15 between W Tropicana Ave and W Desert Inn Rd	Las Vegas
New Mexico	208,000	I-25 between Lomas Blvd NE and Comanche Rd NE	Albuquerque
Utah	190,000	I-15 between 2100 S and I-80	Salt Lake City
Washington	213,000	I-5 between Columbia River (Vancouver) and Exit 308A	Seattle
Wyoming	33,691	Dell Range Blvd between Converse Ave and Crandall Ave	Cheyenne

Source: Federal Highway Administration, Office of Highway Policy Information, Highway Performance Monitoring System (HPMS) Public Release Geospatial Data 2013

Projected truck traffic can highlight potential areas of concern for capacity along freight corridors. Planners can use this information for a variety of tasks including scenario modeling, alternate route development, and more. To see the projected average annual daily truck traffic data show in the static map below, zoom in on the interactive map on the left.

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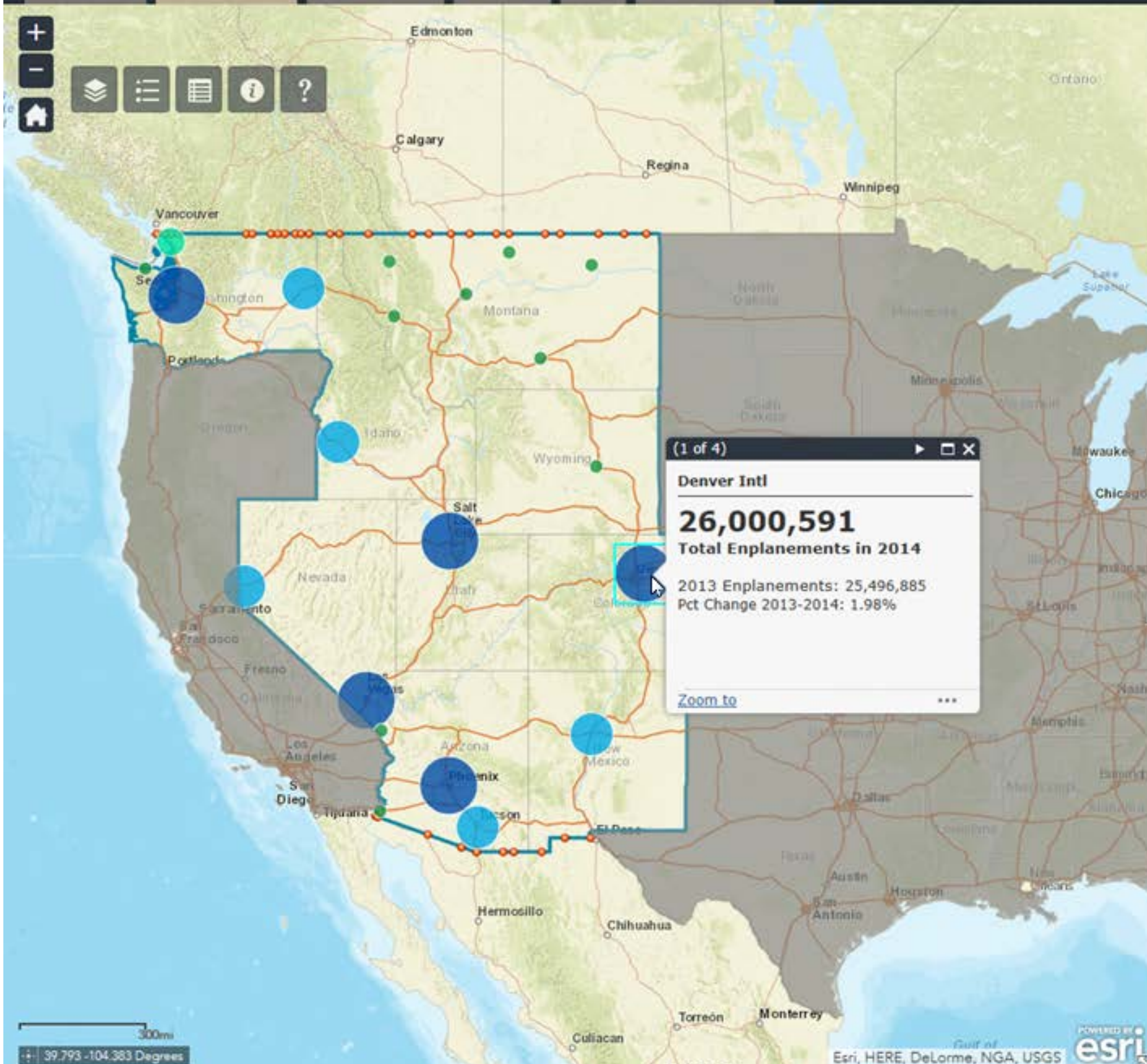

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Arizona	[illegible]	[illegible]	Phoenix
Colorado	[illegible]	[illegible]	Denver
Idaho	[illegible]	[illegible]	Boise
Montana	[illegible]	[illegible]	Billings
Nevada	[illegible]	[illegible]	Las Vegas
New Mexico	[illegible]	[illegible]	Albuquerque
Utah	[illegible]	[illegible]	Salt Lake City
Washington	[illegible]	[illegible]	Seattle
Wyoming	[illegible]	[illegible]	Cheyenne

Source: [illegible]

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Projected Average Annual Daily Truck Traffic in the Intermountain West

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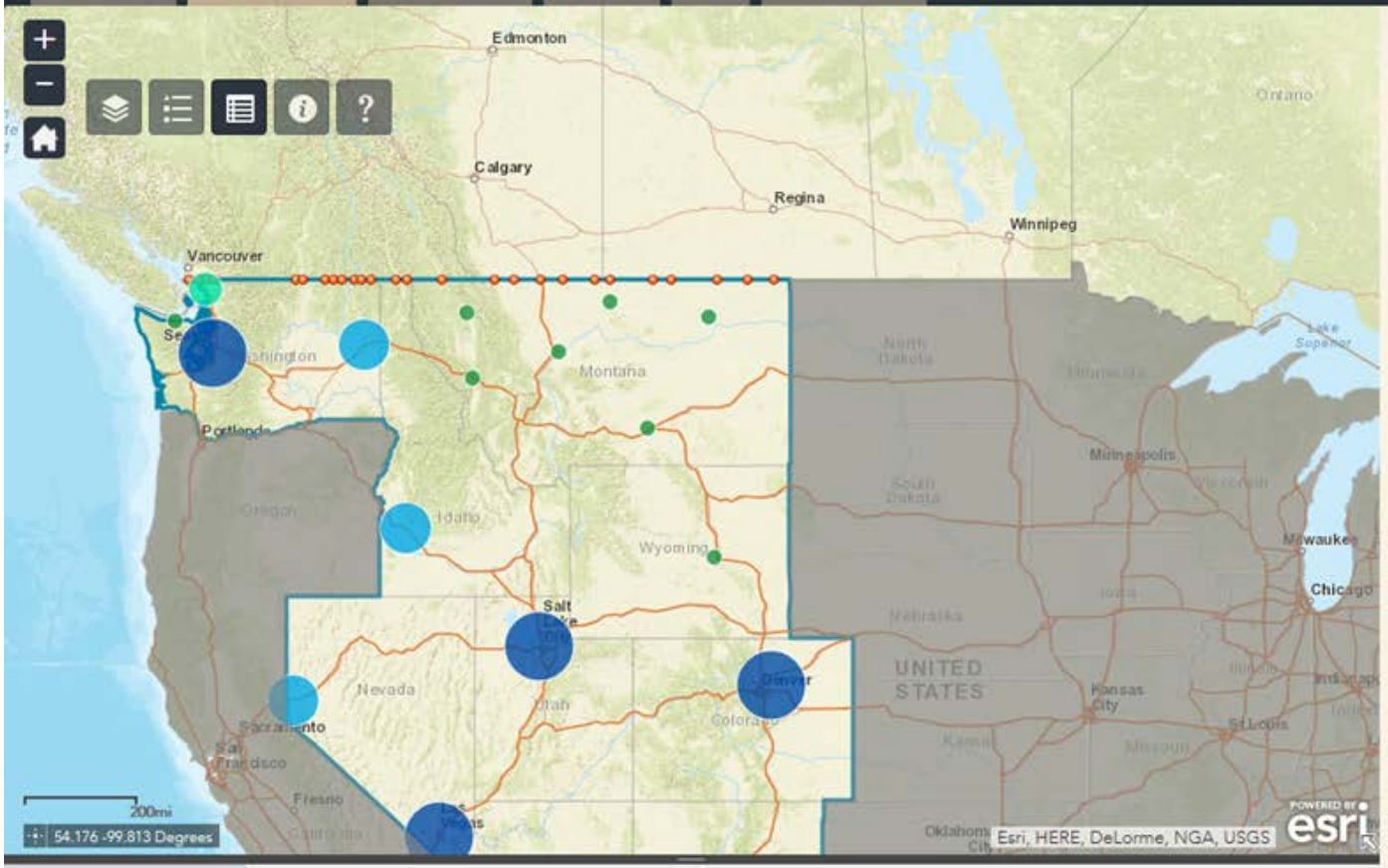

Projected Truck Volumes 2040 | Airports | Bridges | Ports of Entry | Freeways

Options | Filter by Map Extent | Zoom to | Clear Selection | Refresh

AADTT07	FAF07	NONFAF07	AADT40	AADTT40	FAF40	NONFAF40	VMT_07	VMT_40	TVMT_0
470	63	407	2,461	728	86	642	19,623	30,798	5,881
127	0	127	2,241	200	0	200	40,165	63,387	3,592
108	0	108	1,902	170	0	170	55,216	87,154	4,948
861	255	606	4,627	1,295	339	956	37,380	58,196	10,829
382	0	382	6,703	604	2	602	107,741	170,087	9,693
839	19	820	2,786	1,328	34	1,294	26,102	61,421	18,496

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Colorado	267,300	I-25 between W 9th Ave and W 6th Ave	Denver
Idaho	146,900	I-84 between E Eagle Rd and S Maple Grove Rd	Boise
Montana	48,900	US 87 between Hilltop Rd and E Airport Rd	Billings
Nevada	264,300	I-15 between W Sahara Ave and W Desert Inn Rd	Las Vegas
New Mexico	136,400	I-25 between E Interstate 40 N and Comanche Rd NE	Albuquerque
Utah	240,900	I-15 between 2100 S and I-80	Salt Lake City
Washington	232,000	I-5 between Lakeview Blvd E and Lake Samish Dr	Seattle
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Source: Federal Highway Administration, Office of Highway Policy Information, Highway Performance Monitoring System (HPMS) Public Release Geospatial Data (2013)

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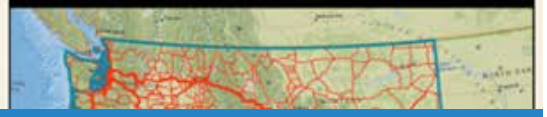

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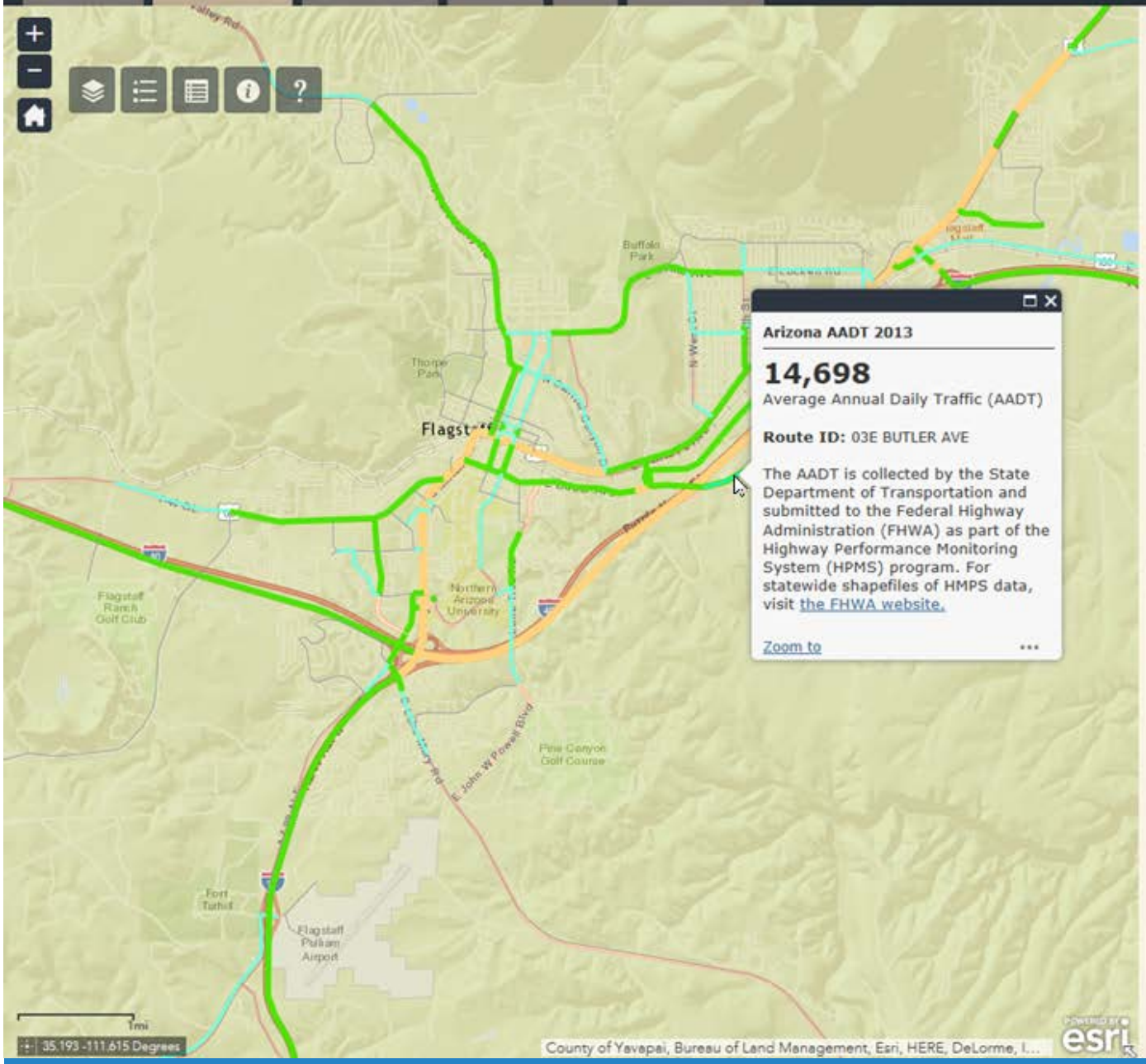

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Idaho	148,900	I-84 between S Eagle Rd and S Maple Grove Rd	Boise
Montana	48,300	US 87 between Hilltop Rd and E Airport Rd	Billings
Nevada	294,000	I-15 between W Sahara Ave and W Desert Inn Rd	Las Vegas
New Mexico	206,400	I-25 between Lomas Blvd NE and Comanche Rd NE	Albuquerque
Utah	190,900	I-15 between 2700 S and I-80	Salt Lake City
Washington	210,000	I-5 between Lakeview Blvd E and Dec 2004	Seattle
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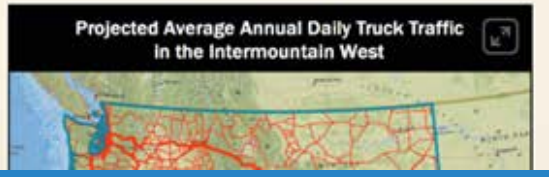

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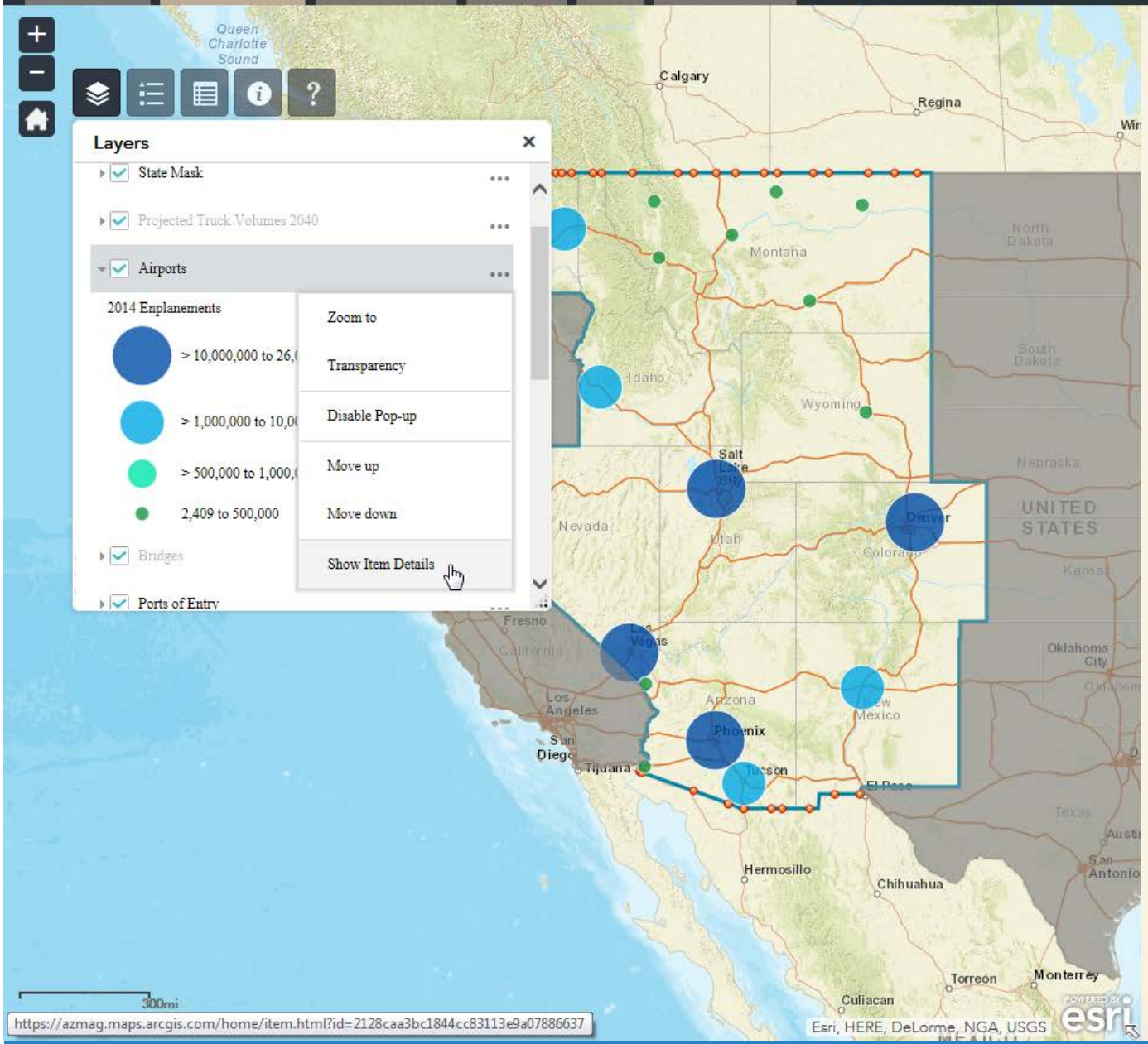

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Montana	48,360	US 87 between Airport Rd and E Airport Rd	Billings
Nevada	256,000	I-15 between W Sahara Ave and W Desert Inn Rd	Las Vegas
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Utah	204,500	I-15 between 2100 S and I-80	Salt Lake City
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Source: Federal Highway Administration, Office of Highway Policy Information, Highway Performance Monitoring System (HPMS), Public Release Geospatial Data 2013

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Airports in the Intermountain West

Overview | Data | Visualization

International Airports in the Intermountain West

by jdennis_AZMAG

Last Modified: July 25, 2016

Feature Layer

Open in Map Viewer

Open in Scene Viewer

Open in ArcGIS for Desktop

Description

International airports in the Intermountain west region with enplanements for 2013 and 2014.

Shapefile from the U.S. National Atlas, enplanement data from the FAA.

Layers

Airports_in_the_Intermountain_West

Open In | Service URL

Access and Use Constraints

No special restrictions or limitations on using the item's content have been provided.

Details

0 ratings, 53 views

Source: Feature Service

Created From: Airports in the Intermountain West, Shapefile

Created: June 15, 2016

Size: 32 KB

Owner

jdennis_AZMAG

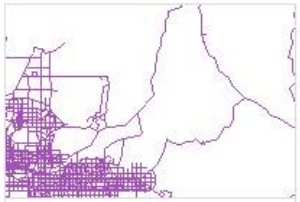
Tags

airports, enplanements, intermountain west

Credits (Attribution)

Arizona AADT 2013

Overview | Data | Visualization



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Average Annual Daily Traffic (AADT) in 2013 for Arizona.

by jdennis_AZMAG

Last Modified: July 25, 2016

Feature Layer

Open in Map Viewer

Open in Scene Viewer

Open in ArcGIS for Desktop

Export Data

- Export to Shapefile
- Export to CSV file
- Export to FGDB
- Export to GeoJSON
- Export to Feature Collection

Description

Average Annual Daily Traffic (AADT) in 2013 for Arizona. This data comes from the Highway Performance Monitoring System (HPMS) 2013 submittal to the US DOT Federal Highway Administration (FHWA).

Layers

Arizona_AADT_2013

Open In | Export To | Service URL

Access and Use Constraints

No special restrictions or limitations on using the item's content have been provided.

Details

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Source: Featu

Created From Shapefile

Created: June 14, 2016

Size: 22 MB

Owner

jdennis_AZMAG

Tags

Arizona, AADT, annual, average, daily

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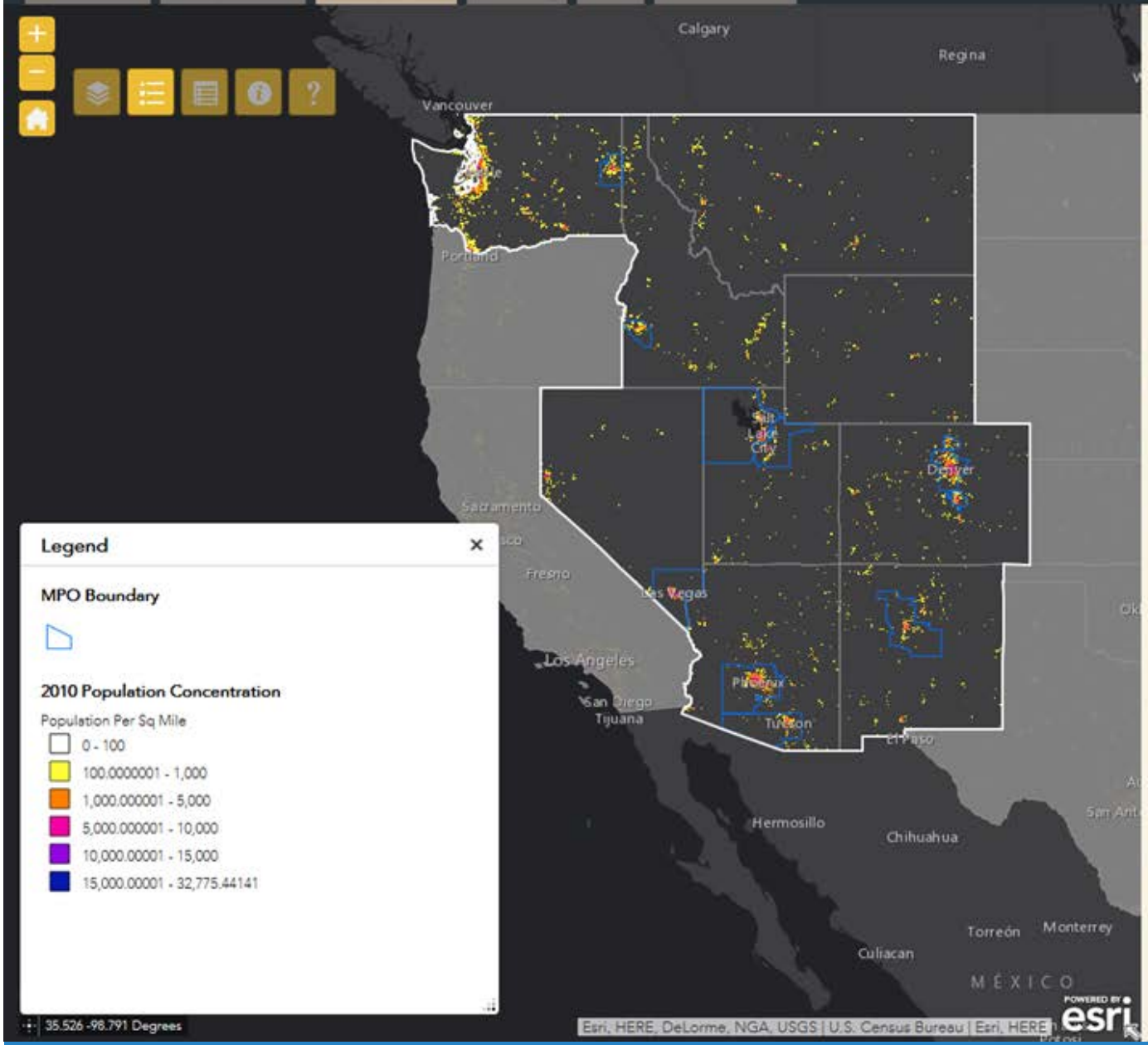
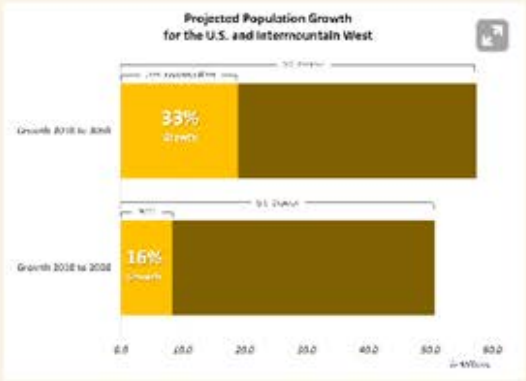


Demographics of the Intermountain West

Transportation departments across the united states are tasked with planning and building projects that allow for the safe and efficient movement of people and goods. As population grows and concentrates within certain regions, how does this affect planning for transportation projects?

According to the 2010 Decennial Census, 9.3% of the U.S. population lives in this 9-state region. That's 28.8 million people. Ten years prior, in 2000, these same 9 states were home to just 8.6% of the U.S. population. It is a growing part of the nation, and indications are that it will continue to be. By 2030 it's projected that this region will be home to almost 10.5% of the nation's population. In addition, it is projected that the Intermountain West will grow by just over 30%, almost twice the projected growth for the nation.

The map to the left depicts the concentration of the population in 2010. As you zoom in, denser areas can be seen formed around urban areas with the most densely populated areas showing in shades of purple and pink.



Future growth by county can also be seen by turning on the "County Population Growth 2010-30" layer on the map. The counties expected to gain the most people by 2030 are shown in darker green. Click on any county to get the population counts and growth rates for that county.

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projected growth for the nation.

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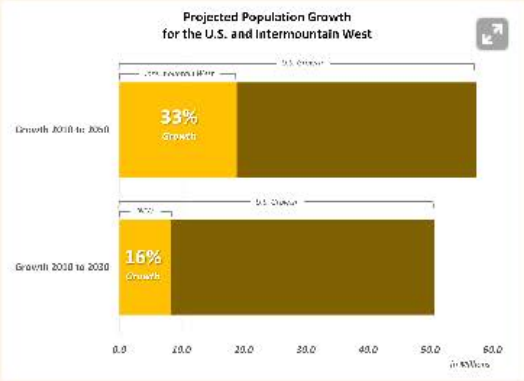
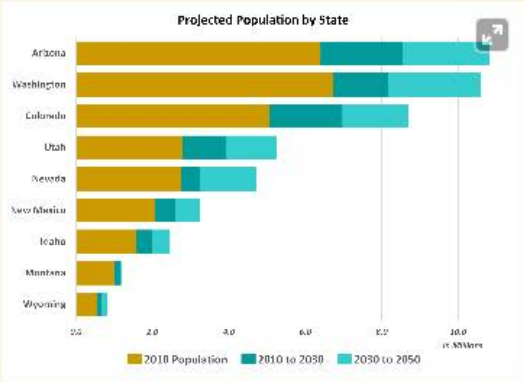


Future growth by county can also be seen by turning on the "County Population Growth 2010-30" layer on the map. The counties expected to gain the most people by 2030 are shown in darker green. Click on any county to get the population counts and growth rates for that county.



Layer List

- Population Growth 2010-2050
  - Pct Growth
    - > 100 to 250
    - > 50 to 100
    - > 0 to 50
    - Loss
- Poverty by Block Group
- Minority by Block
- State Boundary
- State mask

Boise
Idaho Falls
Salt Lake City
Las Vegas
Los Angeles
San Diego
Tijuana
Mexicali
Phoenix
Tucson

33.909 -107.547 Degrees

Esri, HERE, DeLorme, NGA, USGS, NPS | U.S. Census Bureau | Esri, HERE

POWERED BY esri

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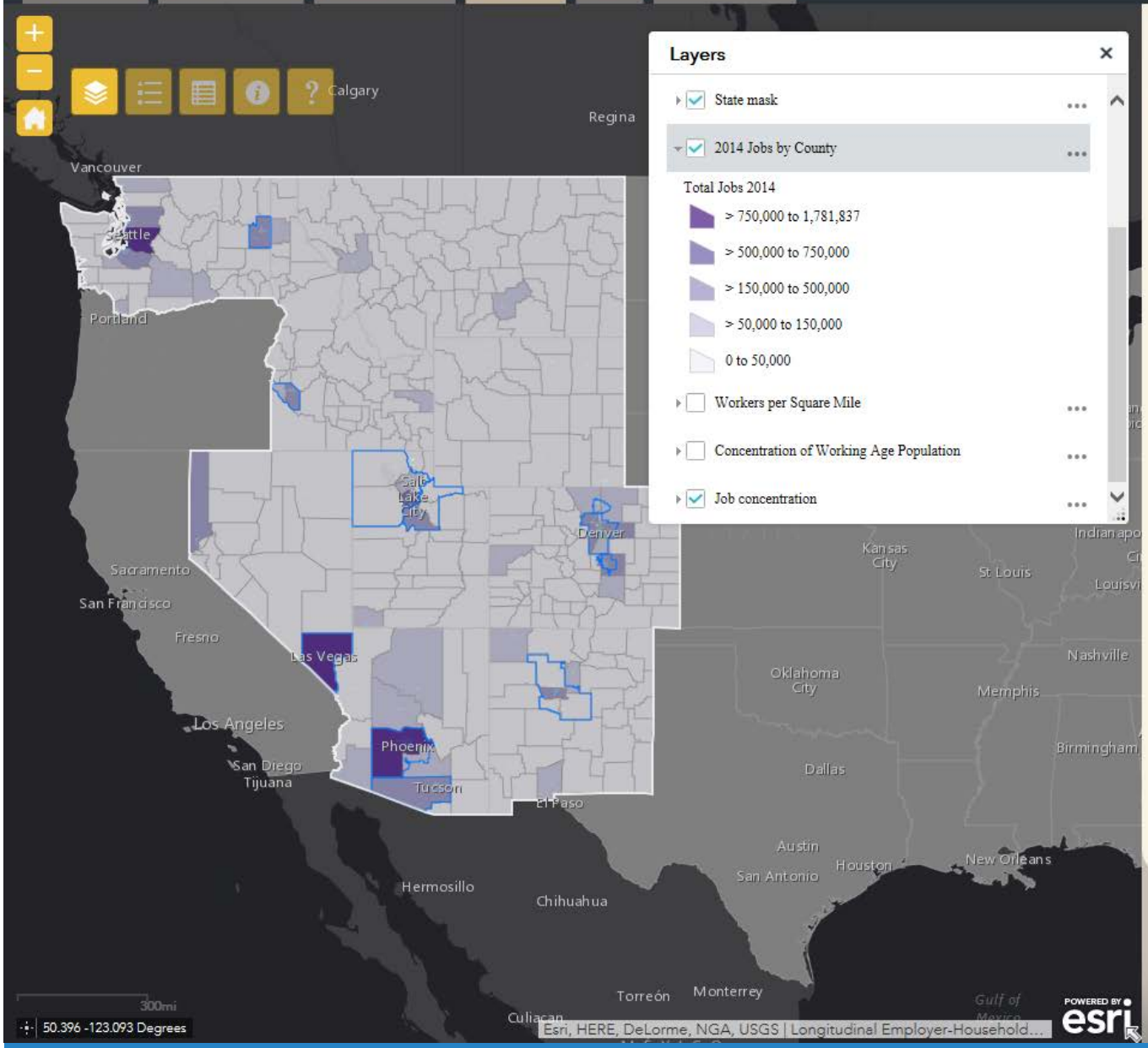
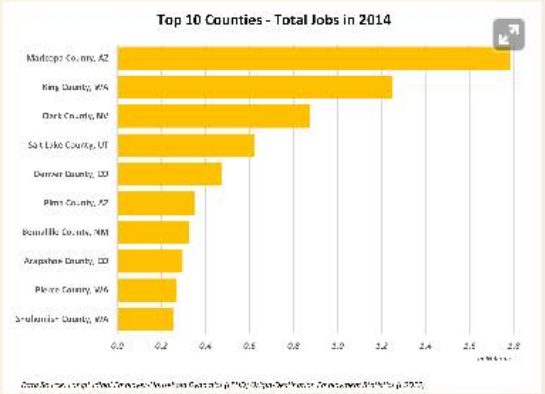


Economic Influences on Transportation

Transportation and economic development often go hand in hand. Businesses often choose to locate in accessible locations that combine efficient transportation with housing selections, good schools, community activities, and natural amenities. Transportation projects can have a significant impact on the economy as businesses and workers consider commute options when selecting a place to locate. The transportation of goods, or freight movement, is often another consideration that businesses have when locating. Additionally, businesses within the same or complimentary sectors often cluster together.

With this in mind, transportation planners may need to consider the effect that employment clusters have on roadway demands. For example, a growing warehouse and distribution sector will have much different demands for roadway use than an expanding financial services sector. And what about the sudden growth in jobs and businesses after the completion of a roadway project? With these types of questions in mind, a review of job trends in a region could be beneficial in evaluating transportation needs.



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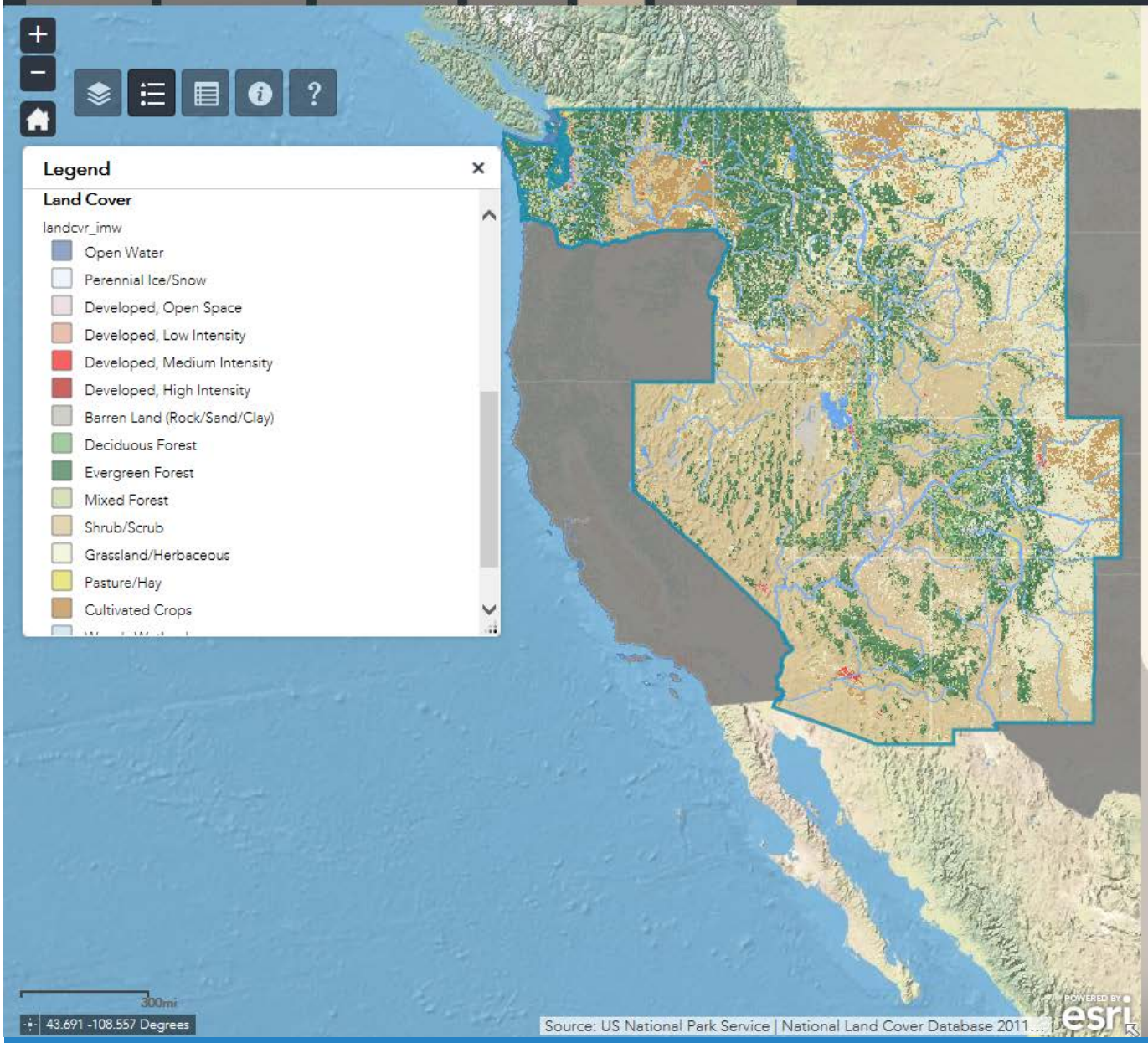
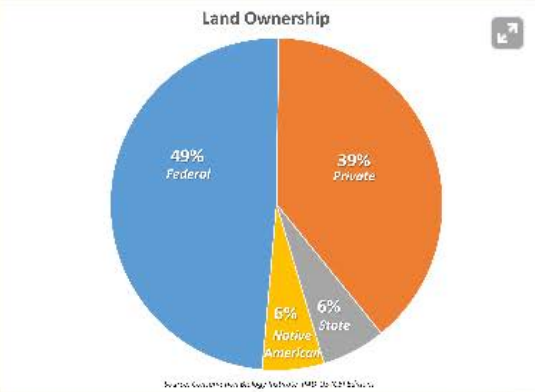


Developable Land

There are a variety of factors that affect the ability to develop land for transportation corridors, from land ownership to type of terrain. The Intermountain west is comprised of 49% Federally-owned land, 39% private land, and 6% each of State-owned and Native American land.

The slope and terrain vary from state to state and county to county. View the variety of land cover by turning on the Land Cover layer in the map. (Open the Layer List and check the box next to the Land Cover listing).



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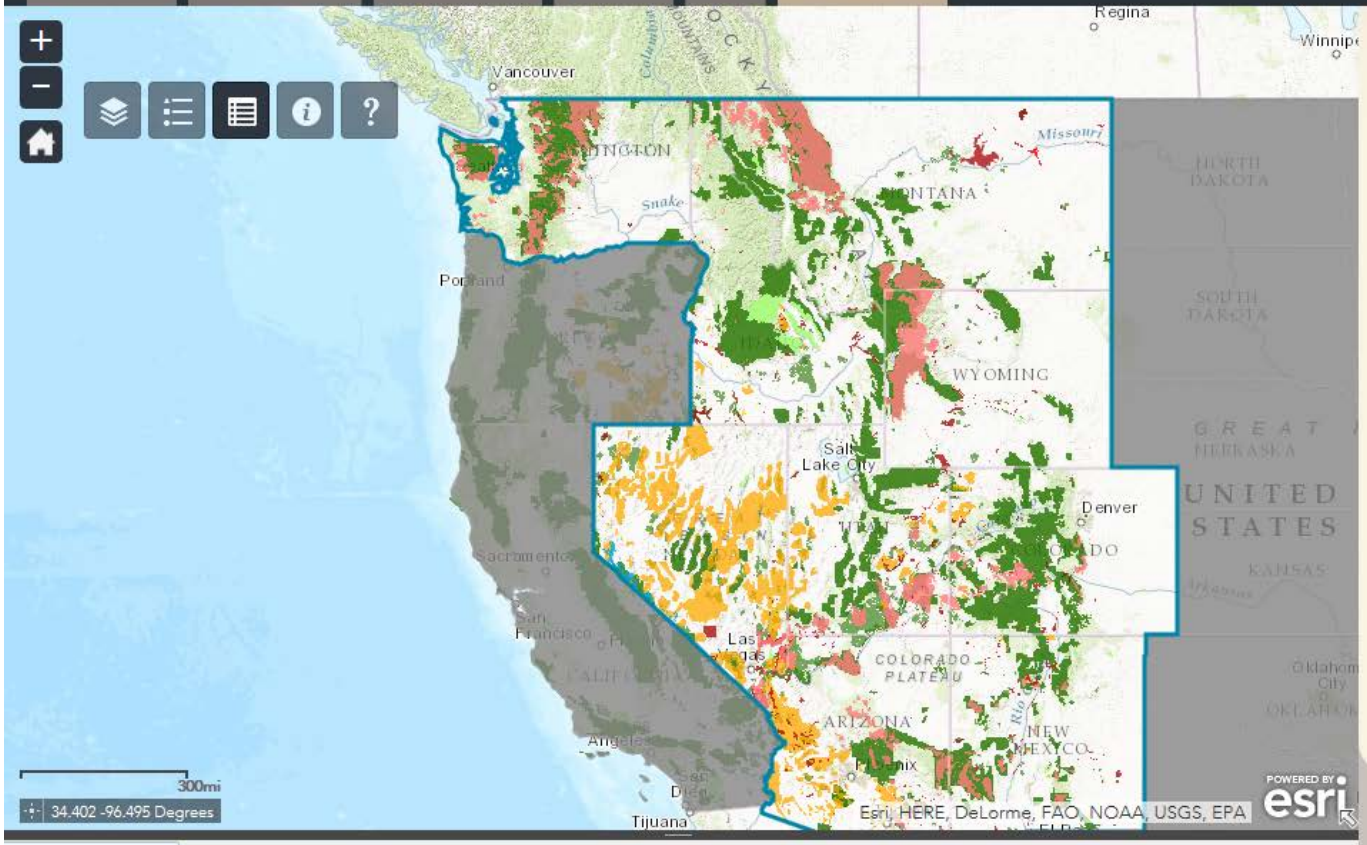

Environmental Concerns

The National Environmental Policy Act (NEPA) requires an Environmental Impact Statement (EIS) for major transportation projects that may significantly affect teh quality of the human environment. The EIS is a document that details the complete development process of a transportation project, including consideration of reasonable alternatives, analysis of potential impacts resulting from the alternatives, and demonstration of compliance with any other applicable environmental laws and executive orders.

The data on this map provides an overview of potential environmental concerns. Critical habitat areas, protected wilderness areas, and other areas of concern that should be studied.

Number of Critical Habitat by Type	
Endangered	*959*
Threatened	*145*
Proposed Endangered	*1*
Resolved Taxon	*1*
Recovery	*1*

Source: U.S. Fish & Wildlife Service

Critical Habitat Areas | Areas of Critical Concern | BLM Herd Mgmt Area | Parks and Forests | National Monuments and Wilderness Areas

Options | Filter by Map Extent | Zoom to | Clear Selection | Refresh

Status	Common Name	Scientific Name
Threatened	DeBeque phacelia	Phacelia submutica
Threatened	Parachute beardtongue	Penstemon debilis
Endangered	Pagosa skyrocket	Ipomopsis polyantha
Endangered	Jemez Mountains salamander	Plethodon neomexicanus
Threatened	Yellow-billed Cuckoo	Coccyzus americanus
Endangered	Ash Meadows Amargosa pupfish	Cyprinodon nevadensis mionectes

?2 features 0 selected