



FIRSTNET IN OREGON

Coverage Objectives Methodology

October 2015

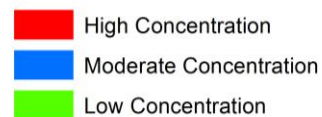
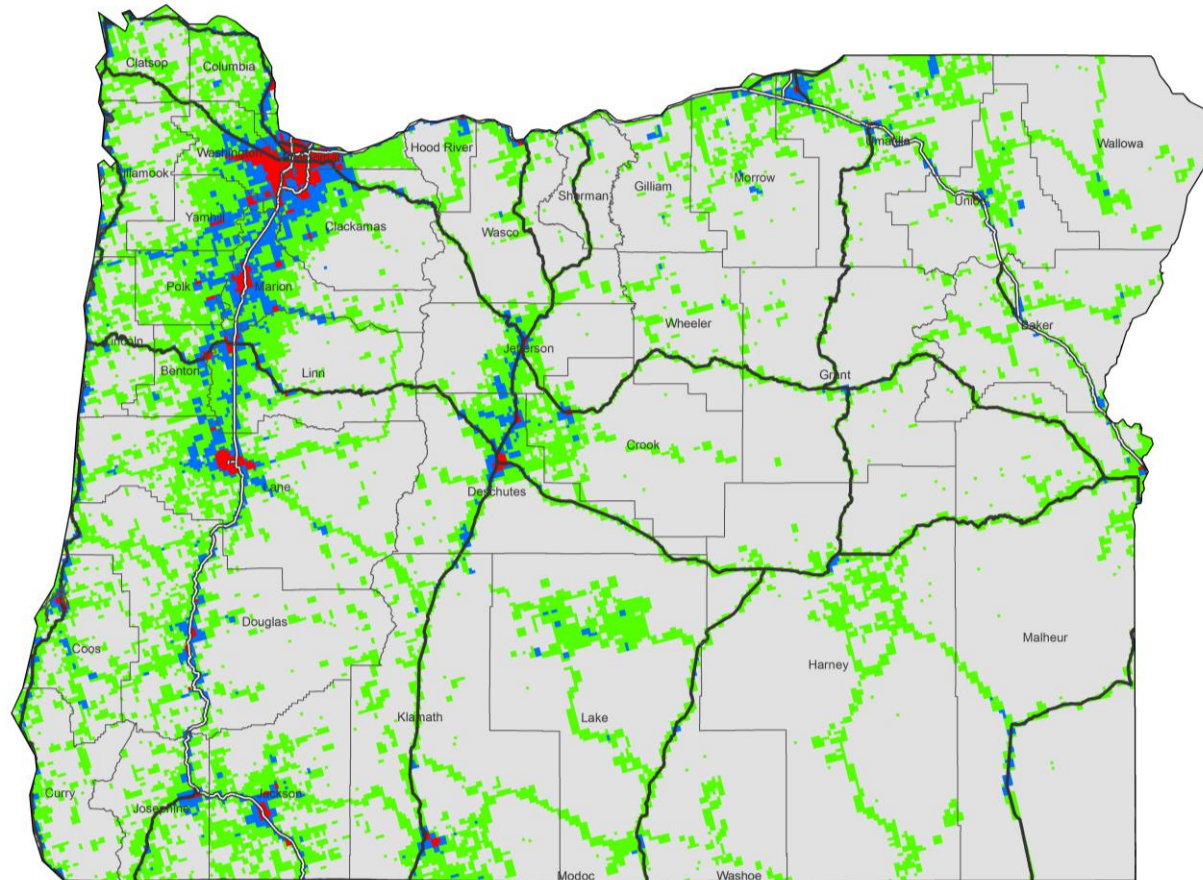
David Soloos

Oregon FirstNet Single Point of Contact (SPOC)

SPOC-FNIO-15-03

Additional information, references, and permissions can be found in
Oregon Planning For FirstNet Network Technical Report, SPOC-FNIO-14-01.

Oregon FirstNet Coverage Objectives Baseline



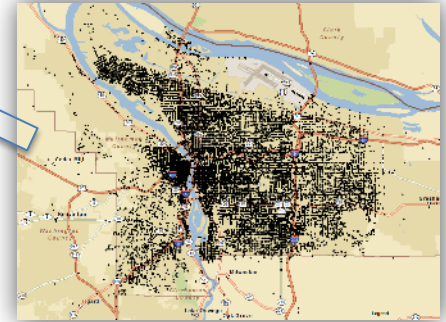
Starting Coverage Objectives Data

1. Public Safety User Population *(Source: HSIP, OEC provided)*

- **Public Safety User Density** based on jurisdiction (OEC data to start)
- **Common response areas (CAD data)** – as it's made available with State collection

2. Public Safety High Risk / Areas of Interest *(Source: HSIP)*

- **Key facilities** – PS agencies, corrections, airports, EOCs, hospitals, PSAPs, schools, etc.
- **Critical infrastructure** – manufacturing, energy, dams, etc.
- **Large Public Venues** – stadiums, theme parks, malls
- **Other major event locations** – if provided with initial consultation submission
- ***Area for feedback** – tourist/recreational destinations (parks, hiking, waterways, etc.)



3. US Population *(Source: 2012 US Census)*

- **Population density**

4. Developed Areas / Buildings *(Source: 2006 National Land Cover Database)*

- **Dense / Medium / Light / Open / None**

5. Roadways *(Source: Federal Highway Administration)*

- **National Highway System**
- **Average Daily Traffic Counts** to identify significant secondary roadways

6. Tribal Land

7. Rural Metrics

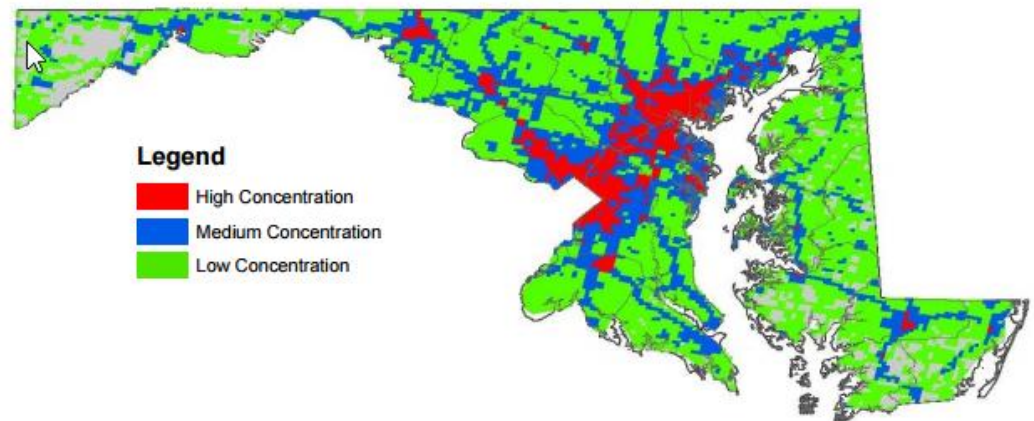
8. Federal Land



These will be incorporated with additional considerations (i.e. FirstNet Rural milestones) or via separate consultation (i.e. Federal)

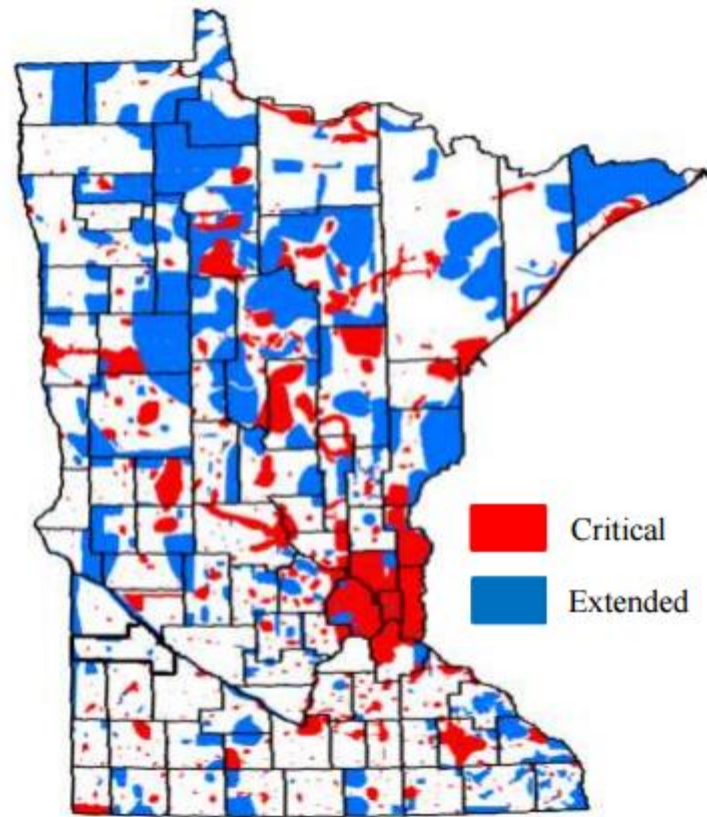
Maryland

- **Calls for Service Data**
 - Historical calls for service based on Computer Aided Dispatch (CAD) data
 - Average Call Duration
 - Call Priority Rank
- **Population (Public Safety Personnel, Nighttime, Daytime)**
- **Transportation (Traffic Count Data, Evacuation Route)**
- **Facilities/Public Places**
 - Community Anchor Institutions: schools, universities, medical/healthcare center, public safety facility, or community support government building.
 - Facilities: Airport, Energy Plant, Wastewater Treatment Plant, Correctional
 - Public Places: Sports/Racing Arena , State/County Park , National Park/Federal Protected Land, State Fairground
- **Other Coverage**
 - Access to Commercial 4G Service
 - Dead Zone
 - MD FIRST Coverage



Minnesota

- CAD incident location data
- Coverage review sessions
- Online survey
- FirstNet baseline data
- Current 4G wireless coverage



Oregon Primary Data Collection

1. Public Safety Incident Locations

- Collected from PSAPs
- Computer Aided Dispatch (CAD) exported data

2. Public Safety User Feedback

- Webmap tool
- Outreach workshops

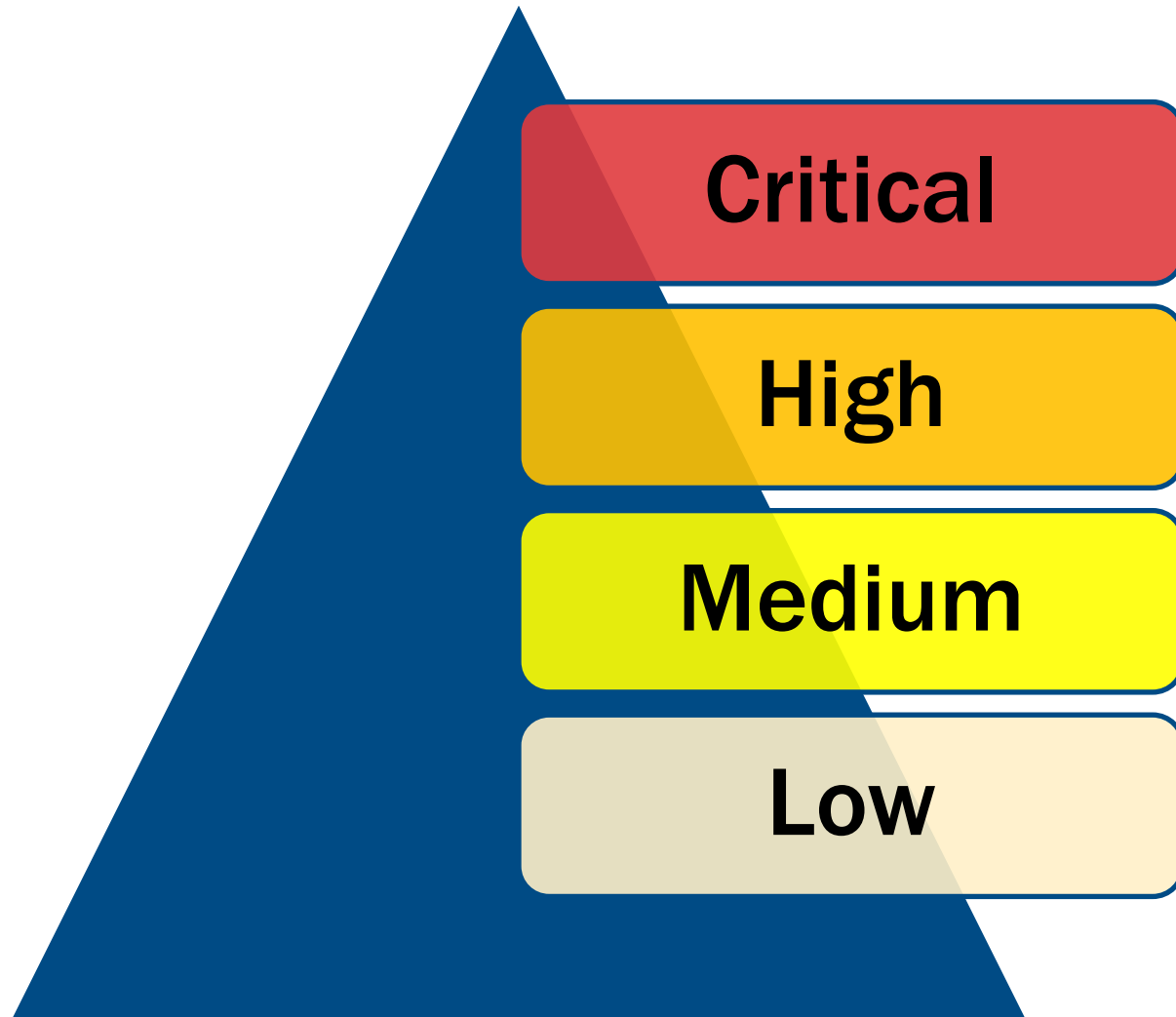
3. Major Events

- Online submission
- Outreach workshops

Oregon Secondary Data Collection

1. OR Department of Transportation (ODOT)
2. Department of Geology and Mineral Industries (DOGAMI)
3. OR Office of Emergency Management (OEM)
4. OR Department of Forestry (ODF)
5. FBI Homeland Security Infrastructure Program (HSIP)
6. U.S. Energy Information Administration (EIA)

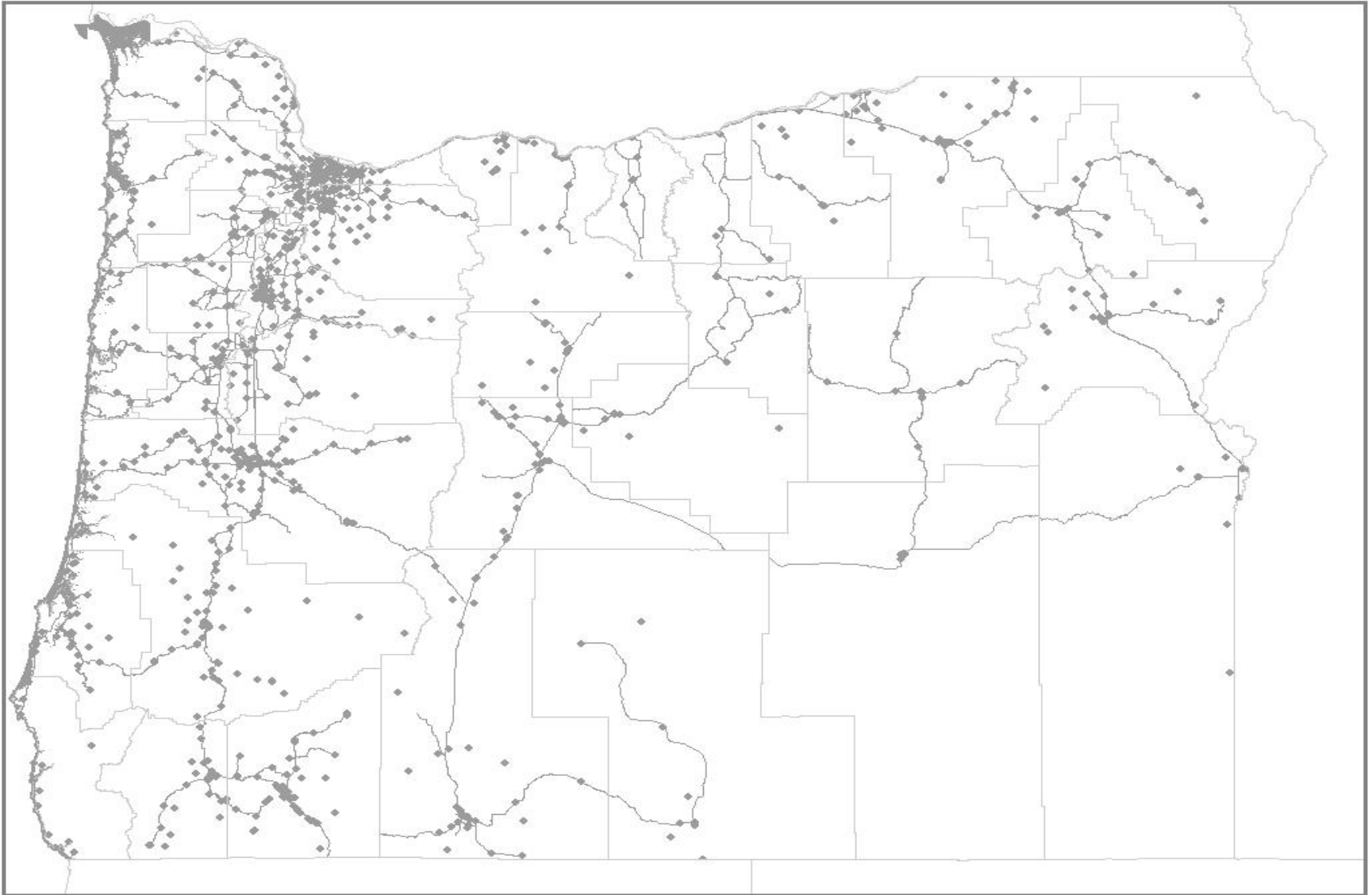
Data Hierarchy



Critical

- Seismic Lifeline Routes (ODOT)
- PSAP Locations
- Hospitals (HSIP)
- Jails (HSIP)
- Police Departments (HSIP)
- Fire Departments (HSIP)
- Emergency Operations Centers
- Tsunami Evacuation Zones (DOGAMI)
- U.S. Freeways

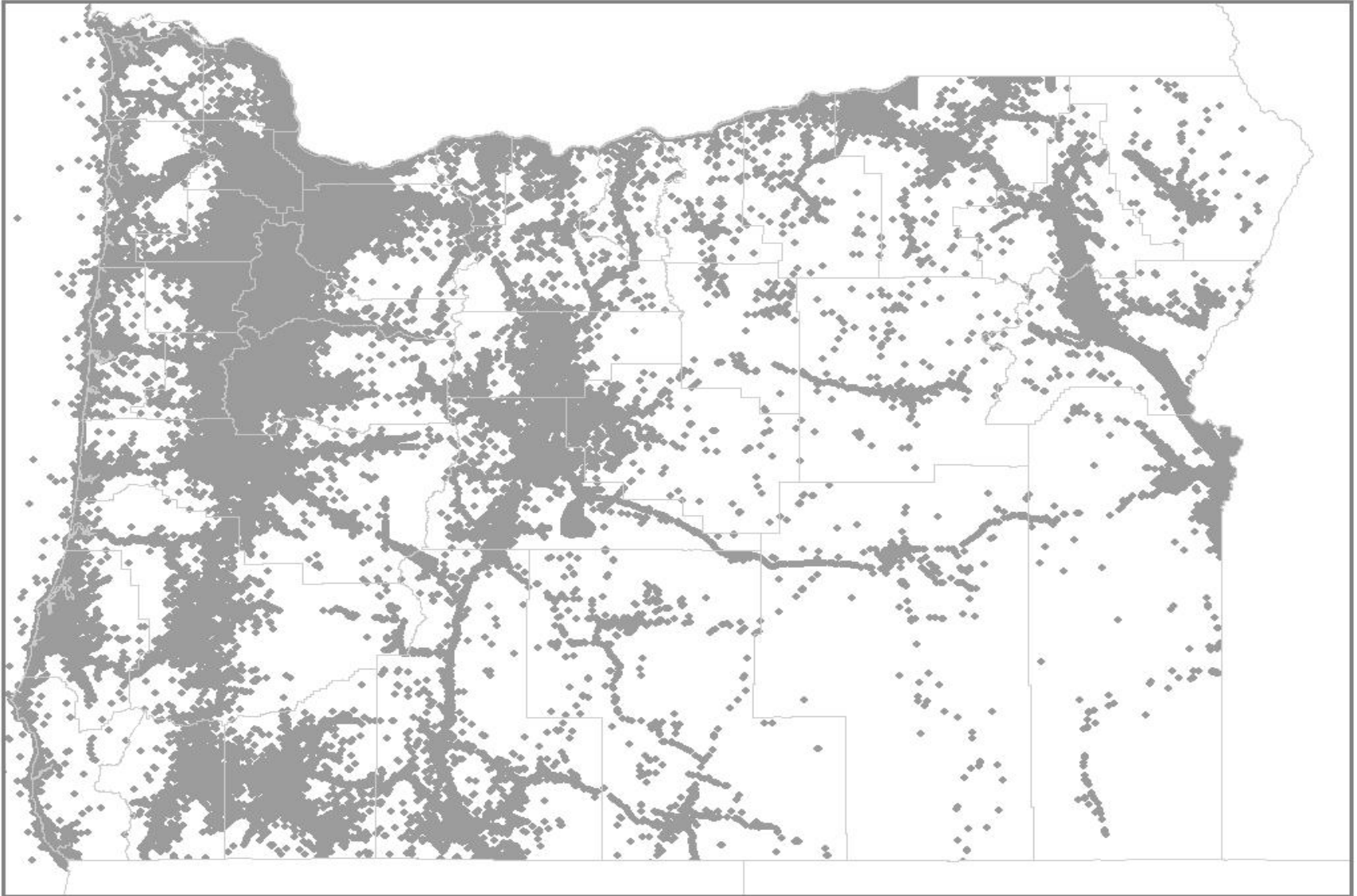
Critical



High

- **911 Call Origin Locations (OEM)**
- **SPIS Sites (ODOT)**
- **Safety Corridors (ODOT)**
- **Fires (Fire Marshal)**
- **911 Incident Locations**
- **Ambulances (HSIP)**
- **Urgent Care Facilities (HSIP)**
- **Webmap Feedback Tool Data**

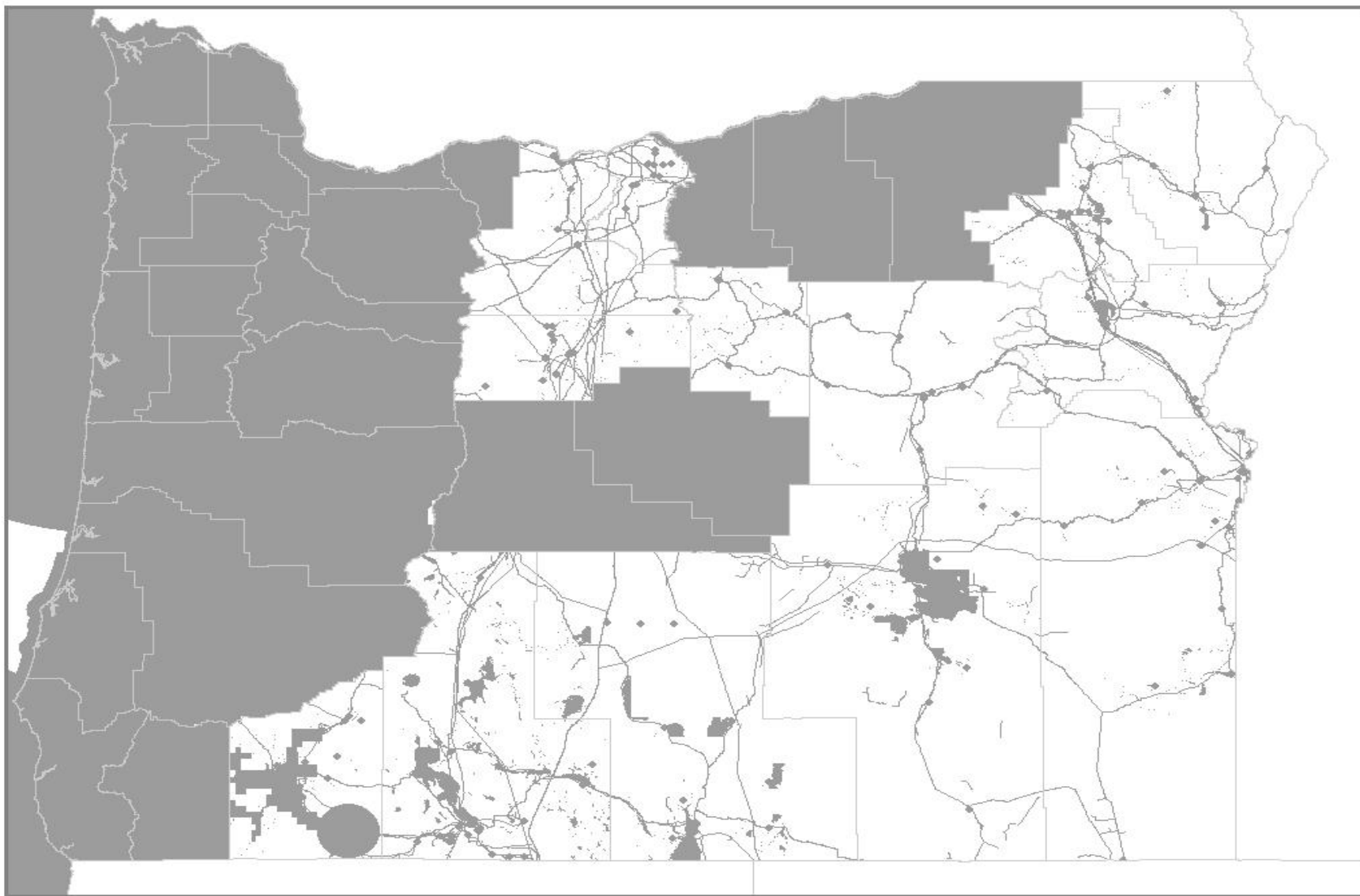
High



Medium

- State Highways
- Electric Transmission Lines (ODF)
- Natural Gas Pipelines (ODF)
- Crude Oil/Natural Gas/HGL/Petroleum Product Pipelines (EIA)
- Petroleum Refineries (EIA)
- Power Plants (EIA)
- Power Stations (Wikipedia)
- Flood Hazard Areas (FEMA/DOGAMI)
- Domestic Violence Shelters
- Health Departments (HSIP)
- Schools
- Large Dams
- Major Events Points
- Major Events Areas

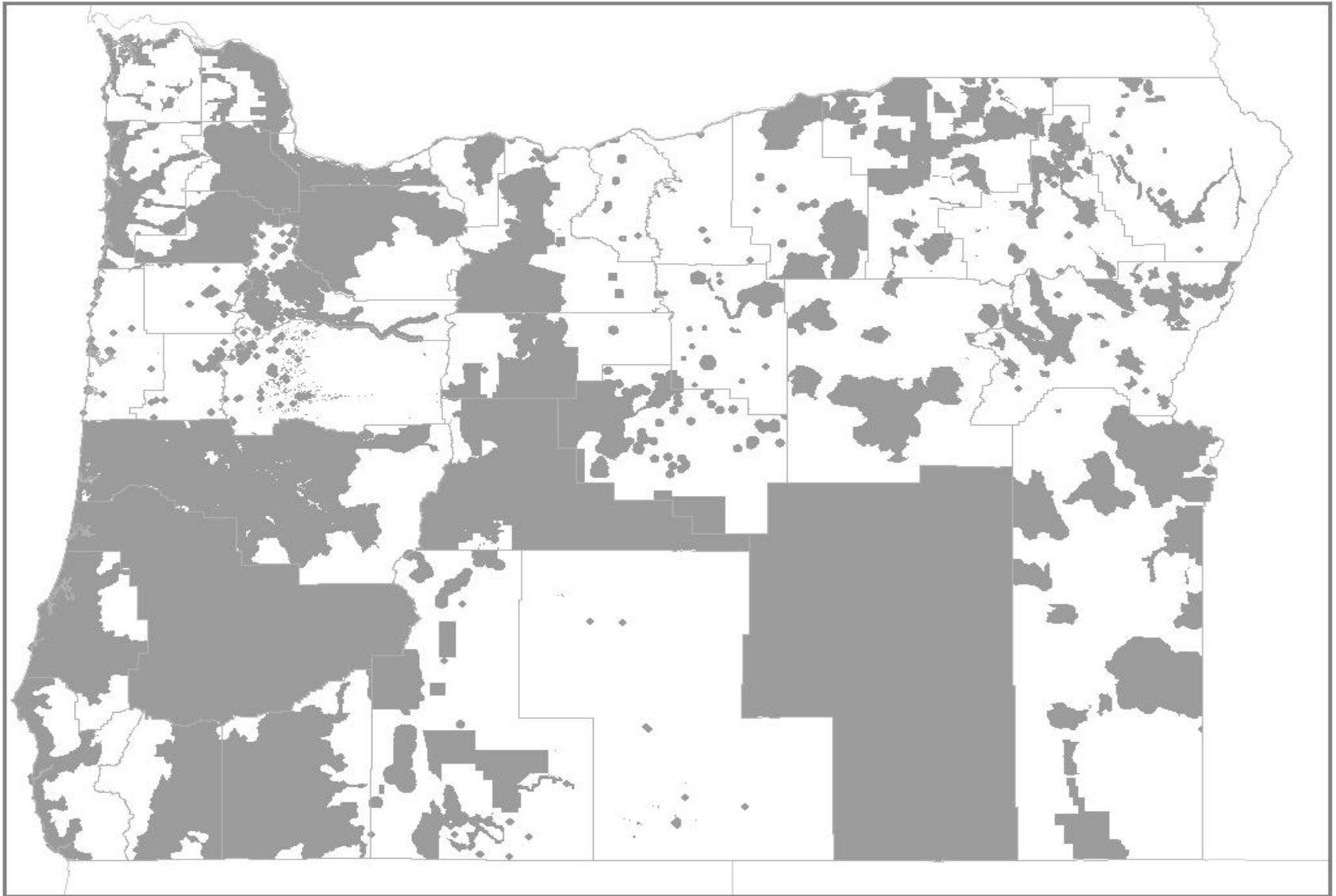
Medium



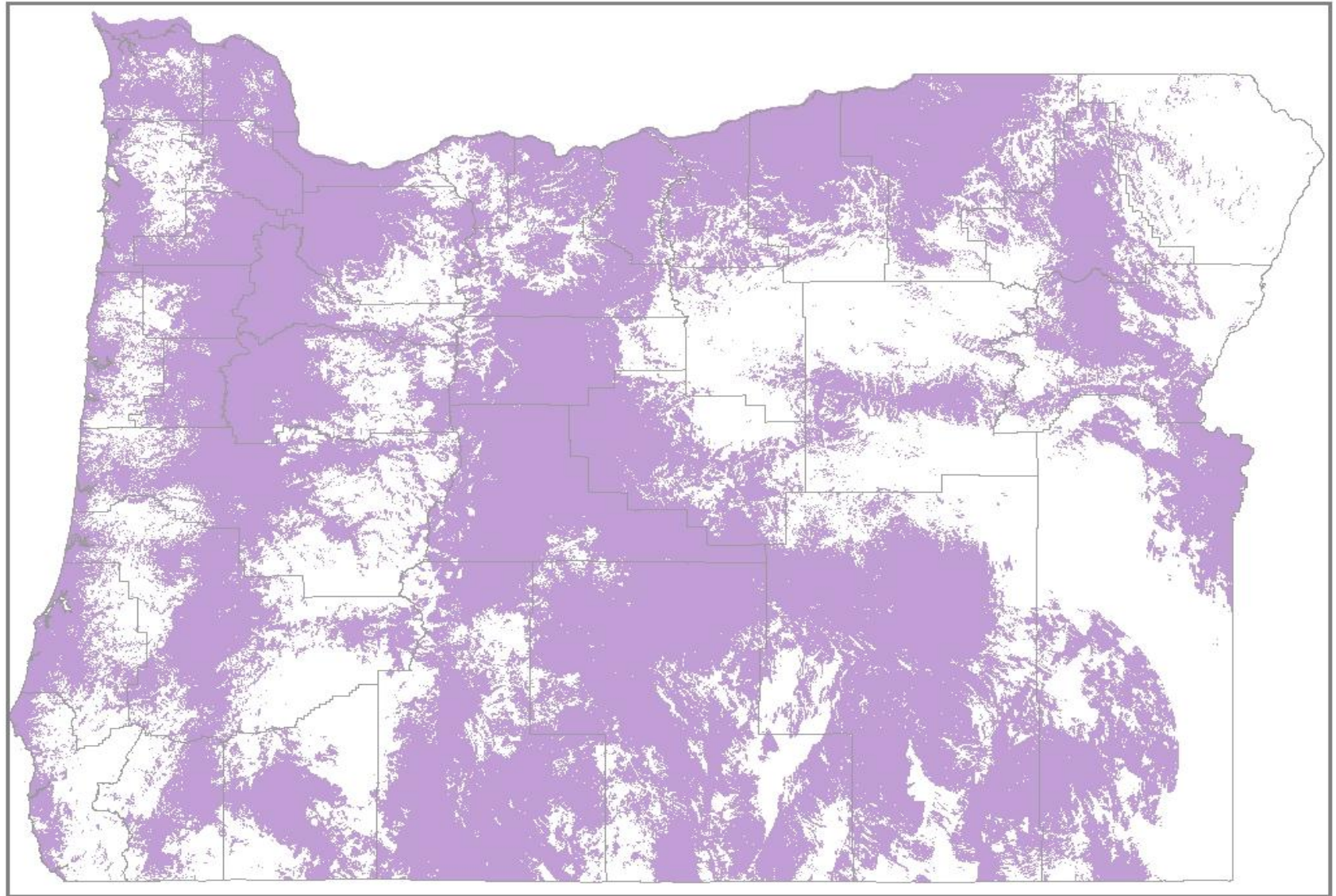
Low

- **Forest Protection Districts (ODF)**
- **Structural Fire Protection Districts (ODF)**
- **Wildland Urban Interface Areas (ODF)**
- **Fire Weather Zones (ODF)**
- **Historic Fires (ODF)**
- **State Parks**
- **Religious Institutions (HSIP)**
- **Child Care Facilities (HSIP)**
- **Colleges and Universities (HSIP)**
- **Extended Care Homes (HSIP)**
- **Red Cross Facilities (HSIP)**
- **Residential Treatment Centers (HSIP)**
- **Runaway Shelters (HSIP)**
- **School District Offices**

Low



Current Wireless Coverage



Weighting

- FirstNet provided 1x1 mile grid
- Data divided into counts of features per grid cell for each input layer
- **Z-Score** calculated for each input dataset (number of standard deviations that value is from the mean)
 - $Z = (\text{count} - \text{avg}) / \text{std}$
- **Index Value** calculated by weighting each Z-Score based on the relative priority of the dataset, then summing the results
 - High priority = weight of 1.0
 - Medium priority = weight of 0.5
 - Low priority = weight of 0.2
 - **Index Value** = $\sum \text{zscore} * \text{weight}$

Coverage Priority

Critical

If a grid cell contains any critical infrastructure

High

≥ 2 Index Value or FirstNet designation of High

Medium

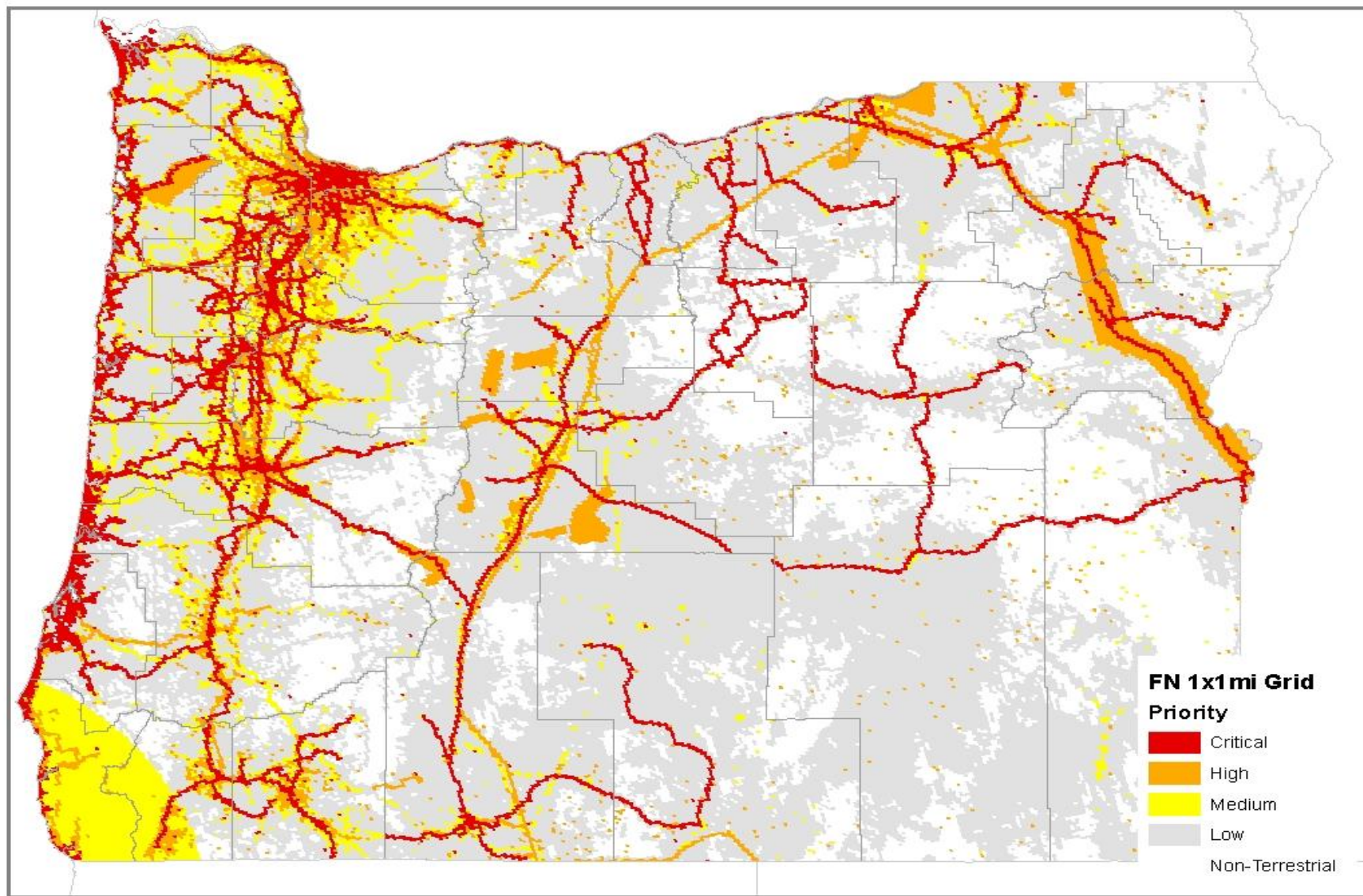
1 – 2 Index Value or FirstNet designation of Medium

Low

-1 – 1 Index Value

**or if 50% covered by current wireless and not Crit/High/Med
or FirstNet designation of Low**

Coverage Priority



Coverage Priority

Critical

6,752 Square Miles

High

6,431 Square Miles

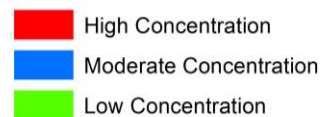
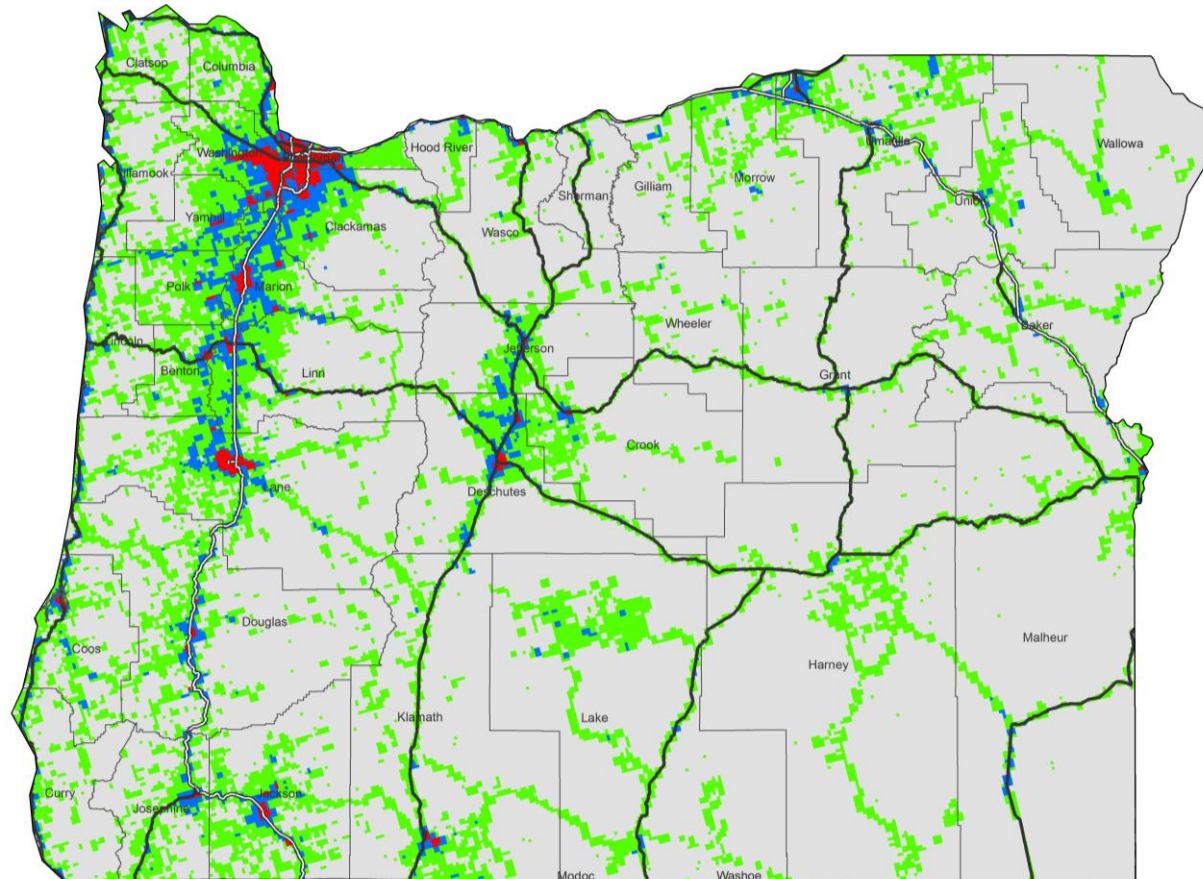
Medium

6,666 Square Miles

Low

50,947 Square Miles

Oregon FirstNet Coverage Objectives Baseline



Coverage Priority

- Oregon added 46,883 Square Miles of coverage to the FirstNet baseline.

