## ITS, Signage, Signals, and Structures Condition Rating Dashboard

Doug Spencer, P.E. Standards Engineer Intelligent Transportation Systems Oregon Department of Transportation

## Background

- Operations funding has been flat for a number of years, though, roadside devices keep getting installed.
- Bridge and Pavement have been able to ask for addition funding by demonstrating the condition of their assets.
- Operations has not had a means to convey the condition rating of its assets for funding decisions.
- Operations needed a tool to help make investment decisions.

# **Highway Division Budget**

- Highway Maintenance Program \$516 million.
- Preservation Program \$254 million.
- Bridge Program \$270 million.
- Modernization Program \$325 million.
- Operations/Safety Program \$223 million.
- Local Government Program \$392 million.
- Special Programs \$355 million.

## Operations

- Slide and rock fall repairs
- Traffic signal systems
- Ramp metering
- Access management
- Traveler Information
- Intelligent Transportation Systems
- Illumination

## **Operations Limitation - Biennium**

- STIP Projects \$32 million
- TOC Operations and Incident Response-\$13.4 million
- ITS Operations \$3.5 million
- ITS Maintenance \$6 million
- TSSU Operations \$1.8 million
- Operations Fleet Replacement \$500,000



### Region 1 Operations STIP Budget (2018-2021)

| Category                           | 2018        | 2019        | 2020        | 2021        |
|------------------------------------|-------------|-------------|-------------|-------------|
| Slides and Rockfalls               | \$840,000   | \$790,000   | \$790,000   | \$790,000   |
| Intelligent Transportation Systems | \$360,000   | \$320,000   | \$320,000   | \$320,000   |
| Signals, Signs, and Illumination   | \$3,210,000 | \$3,310,000 | \$3,310,000 | \$3,310,000 |
| Transportation Demand Management   | \$0         | \$0         | \$0         | \$0         |
| Region 1 Total                     | \$4,410,000 | \$4,420,000 | \$4,420,000 | \$4,420,000 |

### Region 2 Operations STIP Budget (2018-2021)

| Category                           | 2018        | 2019        | 2020        | 2021        |
|------------------------------------|-------------|-------------|-------------|-------------|
| Slides and Rockfalls               | \$890,000   | \$830,000   | \$830,000   | \$830,000   |
| Intelligent Transportation Systems | \$550,000   | \$490,000   | \$490,000   | \$490,000   |
| Signals, Signs, and Illumination   | \$2,170,000 | \$2,240,000 | \$2,240,000 | \$2,240,000 |
| Transportation Demand Management   | \$320,000   | \$320,000   | \$320,000   | \$320,000   |
| Region 2 Total                     | \$3,930,000 | \$3,880,000 | \$3,880,000 | \$3,880,000 |

### Region 3 Operations STIP Budget (2018-2021)

| Category                           | 2018        | 2019        | 2020        | 2021        |
|------------------------------------|-------------|-------------|-------------|-------------|
| Slides and Rockfalls               | \$1,210,000 | \$1,130,000 | \$1,130,000 | \$1,130,000 |
| Intelligent Transportation Systems | \$240,000   | \$210,000   | \$210,000   | \$210,000   |
| Signals, Signs, and Illumination   | \$1,400,000 | \$1,450,000 | \$1,450,000 | \$1,450,000 |
| Transportation Demand Management   | \$150,000   | \$150,000   | \$150,000   | \$150,000   |
| Region 3 Total                     | \$2,990,000 | \$2,940,000 | \$2,940,000 | \$2,940,000 |

### Region 4 Operations STIP Budget (2018-2021)

| Category                           | 2018        | 2019        | 2020        | 2021        |
|------------------------------------|-------------|-------------|-------------|-------------|
| Slides and Rockfalls               | \$650,000   | \$610,000   | \$610,000   | \$610,000   |
| Intelligent Transportation Systems | \$220,000   | \$180,000   | \$180,000   | \$180,000   |
| Signals, Signs, and Illumination   | \$670,000   | \$830,000   | \$830,000   | \$830,000   |
| Transportation Demand Management   | \$120,000   | \$120,000   | \$120,000   | \$120,000   |
| Region 4 Total                     | \$1,660,000 | \$1,740,000 | \$1,740,000 | \$1,740,000 |

### Region 5 Operations STIP Budget (2018-2021)

| Category                           | 2018        | 2019        | 2020        | 2021        |
|------------------------------------|-------------|-------------|-------------|-------------|
| Slides and Rockfalls               | \$1,130,000 | \$1,060,000 | \$1,060,000 | \$1,060,000 |
| Intelligent Transportation Systems | \$150,000   | \$140,000   | \$140,000   | \$140,000   |
| Signals, Signs, and Illumination   | \$720,000   | \$850,000   | \$850,000   | \$850,000   |
| Transportation Demand Management   | \$0         | \$0         | \$0         | \$0         |
| Region 5 Total                     | \$2,010,000 | \$2,050,000 | \$2,050,000 | \$2,050,000 |

## **ODOT's Bridge Condition Report**







ODOT Bridge Conditions over Last 10 Years



# **Bridge Projections**

### All Route Bridge Condition Projections-Percent Poor



## **ODOT's Pavement Condition Report**

#### 2016 PAVEMENT CONDITION REPORT



A HEAT BERVICE

PAVEMENT MANAGEMENT 800 AIRPORT ROAD SE SALEM OR 97301



| Pavement<br>Condition | Activity   | Annual<br>Need<br>(lane miles) | Service<br>Life<br>(years) | Lane Mile-<br>Years | Annual<br>Need               |
|-----------------------|--|--------------------------------|----------------------------|---------------------|------------------------------|
| Failed                | Reconstruction<br>Concrete<br>Asphalt                | 20<br>25                       | 40<br>20                   | 800<br>500          | \$45 million                 |
| Poor                  | Structural Paving<br>(multi-layers)                  | 250                            | 20                         | 5,000               | \$68 million                 |
| Fair                  | Non-Structural<br>(thin paving)                      | 400                            | 10 to 15                   | 5,000               | \$70 million                 |
| Good/Fair             | Chip Seals   | 650                            | 8                          | 5,200               | \$17 million                 |
| All                   | Routine & Stop Gap<br>Maintenance                    | 500                            | 2 to 5                     | 1,500               | Included in<br>Maint. Budget |
|                       | <u>Totals</u><br>Reconstruct<br>Paving<br>Chip Seals | 45<br>650<br>650               |                            | 18,000              | \$200 million                |



### Pavement Conditions – Score to Conditions



Poor (PR)

Very Poor (VP)

21 - 45

0 - 20

(FOB) line

# **Pavement Condition Rating**

|              | GFP<br>Score                     | Stability                           | Structural<br>Weakness                            | Fatigue  | Transverse/Block   | Patching   | Ride<br>Qualities                    | Deformation<br>and Rutting  | Comment  |
|--------------|----------------------------------|-------------------------------------|---|--|--|--|--------------------------------------|---|--|
| Very<br>Good | 100<br>99<br>98<br>97<br>96      | Stable                              | None  | None   | None   | None   | Excellent                            | Rut depth less<br>than 1/4"   | Nothing would improve<br>this road   |
| Good         | 95<br>90<br>85<br>80             | Stable                              | None<br>evident                                   | Generally<br>hariline and<br>hard to<br>detect       | Minor amounts<br>may be present  | Minor amounts<br>may be present                                    | Very good                            | Deformation<br>minor, rut less<br>than 1/2"                             | May have dry or light<br>colored appearance  |
| Fair         | 75<br>70<br>65<br>60<br>55<br>50 | Generally<br>stable                 | Minor areas<br>evident                            | Easier to<br>detect but<br>low severity              | May have<br>widespread low<br>and/or intermittent<br>moderate severity     | May be<br>patched, but not<br>excessively (i.e.<br>less than 100%) | Good to<br>acceptable                | Deformation<br>more easily<br>noticed, rut less<br>then 3/4"            | Typ. treatment need:<br>Low vol.: chip seal<br>High vol.: 2" resurface                         |
| Poor         | 45<br>40<br>35<br>30<br>25       | Areas of<br>instability             | Marked<br>evidence of<br>structural<br>deficiency | Large crack<br>patterns<br>(alligatoring)<br>present | May have<br>widespread<br>moderate and/or<br>intermittent high<br>severity | Heavy and<br>numerous  | Acceptable to poor                   | Deformation<br>very noticeable,<br>rut 3/4" or<br>greater if<br>present | Typ. treatment need:<br>Low vol.: 2" resurface<br>High vol.: >2" resurface                     |
| Very<br>Poor | 20<br>15<br>10<br>5              | Numerous<br>areas of<br>instability | Majority<br>showing<br>structural<br>deficiency   | Intermittent to<br>extensive high<br>severity        | Extensive high severity  | Intermittent to<br>extensive high<br>severity                      | Unacceptable,<br>should slow<br>down |   | Typ. treatment need:<br>Low vol.: >2" resurface<br>High vol.: heavy rehab<br>or reconstruction |

## House Bill 2017

- \$5.3 billion in total revenue over 10 fiscal years.
- \$500 million in State Highway Fund revenue.



## House Bill 2017 – Keep Oregon Moving

### Highlights of HB 2017 **Transportation Investments**

#### **Roads & Bridges**

Most of ODOT's funding will go to road maintenance and preservation for lasting fixes that keep Oregon's roads and bridges in good condition today and for future generations.

### Local Control

Half of road funding will go to cities and counties to complete local communities' top priority

road maintenance and improvements.

#### Reducing Congestion

Relieving congestion bottlenecks will help people get where they want to go

guickly and reliably. New lanes on I-5 at the Rose Quarter will save motorists 2.5 million hours wasted in gridlock each year, and widening sections of OR 217 and I-205 in Portland will improve reliability.

#### **Better Public** Transportation

Rural and urban bus service will provide choices to help people get around, while reducing air pollution and greenhouse gas emissions.

#### Safe Biking & Walking Options

Sidewalks. bike lanes, and crossings near schools will help kids get to school safely. Funding from a new bike tax will build

off-road paths that separate bikes and walkers from auto traffic.

#### Moving Freight



Improvements to rail and ports will get products from Cregon's farms,

forests, and factories to markets across the world. New intermodal rail facilities will shift freight from truck to train, freeing up space on crowded freeways.

### **Electric Vehicle** Incentives



Rebates for zero emission vehicle purchases will help Oregon transition to

a sustainable transportation system.

## Allocation of Funds for HB 2017



### **ODOT's Traffic Signal Condition Report**

 Needed to determine an asset condition rating to determine if current funding levels were appropriate.

• Where's Illumination?

 Initial development and what changes may be made moving forward.

### **ODOT's Traffic Signal Condition Report**



### 2017 Traffic Signal Condition Report

Scott B Cramer P.E. State Traffic Signal Engineer Traffic-Roadway Section

October 16, 2017

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#### CONDITION BY REGION

ODOT Owned & ODOT Maintained & City/County Maintained





|                                 |       | Region |      |     |     |     |
|---------------------------------|-------|--------|------|-----|-----|-----|
|                                 | State | 1      | 2    | 3   | 4   | 5   |
| Number of Signals               | 1480  | 519    | 451  | 270 | 150 | 90  |
| Average Rating                  | 77%   | 73%    | 78%  | 78% | 82% | 79% |
| Std Dev                         | 15%   | 17%    | 13%  | 13% | 12% | 11% |
| Min                             | 19%   | 19%    | 37%  | 42% | 38% | 43% |
| Max                             | 100%  | 100%   | 100% | 99% | 99% | 97% |
| Signals Rated Fair (70%+)       | 1040  | 326    | 331  | 193 | 120 | 70  |
| Signals Rated Poor (50-69%)     | 376   | 145    | 113  | 73  | 28  | 17  |
| Signals Rated Very Poor (49% -) | 64    | 48     | 7    | - 4 | 2   | 3   |

# **Traffic's Story**

- Did not have the funding to send staff out on the road to perform field inspections.
- Initial condition rating done using Google maps, ODOT's video log, and traffic signal database condition reports.
- Agency created system. Perhaps FHWA or AASHTO should consider national guideance.

## **Traffic Signal Condition Entry**

| Signal Condition Rating           |                         |                  |                        |   |        | ×                                |
|-----------------------------------|-------------------------|------------------|------------------------|---|--------|----------------------------------|
|                                   | Signal                  | Asset Location 8 | Misc Information       |   |        | Ture On Date: 1/24/1972          |
| TSSU ID: 1006 LRM: 00900100       |                         | Latitude         | 45.99308055            |   |        | Controller Type: 2070            |
| District: 1 Highway: 9            | MilePoint: 21.05        | Longitud         | e: -123.92063055       |   |        | Network Comm: Y                  |
| Location Description: US 101_BROA | DWAY                    |                  |                        |   |        | 100% Detection: N<br>Railroad: N |
| ODOT Owned: Y ODOT                | City: Seaside           |                  |                        |   |        | Cabinet Print: Y                 |
|                                   | All                     | Fields Below Mu  | ist Be Completed       |   |        |                                  |
| Big Poles:                        | Small Poles:            |                  | Pedestrian Features:   |   | Contro | oller Cabinet/Service:           |
| Mast Arms:                        | Vehicle Pedestal:       |                  | Pedestrian Head Mount: |   | Contro | oller Cabinet:                   |
| - I                               |                         | -                |                        | - |        | -                                |
| Strain Poles, Steel:              | Pedestrian Pedestal:    |                  | Pedestrian Heads:      |   | Servic | e Cabinet:                       |
| -                                 |                         | -                |                        | - |        | -                                |
| Other Poles:                      | Pushbutton Post:        |                  | Pushbutton Mount:      |   | Condi  | tion - Rust:                     |
| -                                 |                         | -                |                        | • |        | •                                |
| Condition - Rust:                 | Condition - Rust:       |                  | Pushbutton:            |   | Condi  | tion - Dents:                    |
| -                                 |                         | -                |                        | - |        | -                                |
| ,<br>Condition - Dents:           | ,<br>Condition - Dents: |                  | ,                      | _ | Condi  | tion - Foundation:               |
| -                                 |                         | •                |                        |   |        | •                                |
| Condition - Foundation:           | Condition - Foundation  | :                |                        |   | ,      | _                                |
| -                                 |                         | -                |                        |   |        |                                  |
| Attachments - Lens:               | ,                       |                  |                        |   |        |                                  |
| •                                 |                         |                  |                        |   |        |                                  |
| Attachments - Backplates:         |                         |                  |                        |   |        |                                  |
| <b>•</b>                          |                         |                  | Update                 | н | lelp   | Close                            |
|                                   |                         |                  |                        |   |        |                                  |

## **Traffic Signal Condition Rating**

| Big Poles                |                                |    |  |  |
|--------------------------|--------------------------------|----|--|--|
| Mast Arms                | No Mast Arms                   | 0  |  |  |
|                          | 8 Bolt Base                    | 0  |  |  |
|                          | 4 bolt base/straight arm       | 5  |  |  |
|                          | 4 bolt base/curved arm         | 10 |  |  |
| Strain Poles, Steel      | No Strain Poles                | 0  |  |  |
|                          | Any base/type                  | 15 |  |  |
| Other Poles              | No Other Poles                 | 0  |  |  |
|                          | Wood Poles, Perm               | 30 |  |  |
|                          | Other types (sign bridge, etc) | 20 |  |  |
| Condition - Rust         | Good galv or Paint             |    |  |  |
|                          | Minor rust                     |    |  |  |
|                          | Major rust                     | 5  |  |  |
| Condition - Dents        | No dents                       | 0  |  |  |
|                          | Minor dents                    | 2  |  |  |
|                          | Major dents                    | 5  |  |  |
| Condition - Foundation   | No foundation damage           | 0  |  |  |
|                          | Minor foundation damage        | 2  |  |  |
|                          | Exposed rebar                  | 5  |  |  |
| Attachments - Lens       | Nolens                         | 0  |  |  |
|                          | 12" lens                       | 0  |  |  |
|                          | 8" lens                        | 5  |  |  |
| Attachments - Backplates | Reflective backplates          | 0  |  |  |
|                          | Backplates                     | 2  |  |  |
|                          | no backplates                  | 5  |  |  |

| Small poles            |                       |          |     |            |          |
|------------------------|-----------------------|----------|-----|------------|----------|
| Veh Pedestal           | No Veh Pedestal       | 0        | )   |            |          |
|                        | Standard base Veh     | 0        | )   |            |          |
|                        | Other base Veh        | 5        | ;   |            |          |
| Ped Pedestal           | No Ped Pedestal       | 0        | )   |            |          |
|                        | Standard base Ped     | 0        | )   |            |          |
|                        | Other base Ped        | 5        | 5   |            |          |
| Pushbutton Post        | No PB Post            | 0        | )   |            |          |
|                        | Standard base PB      |          | )   |            |          |
|                        | Other base PB         | 5        | 5   |            |          |
| Condition - Rust       | Good galv or Paint    |          | )   |            |          |
|                        | Minor rust            |          | 2   |            |          |
|                        | Major rust            | 5        | 5   |            |          |
| Condition - Dents      | No dents              | 0        | )   |            |          |
|                        | Minor dents           | 2        | 2   |            |          |
|                        | Major dents           | 5        | 5   |            |          |
| Condition - Foundation | No foundation damage  | 0        | )   |            |          |
|                        | Minor foundation dama | nge 2    | 2   |            |          |
|                        | Exposed rebar         | 5        | ;   |            |          |
|                        | Co                    | ontrolle | er  | Cabinet/Se | rvice    |
|                        | Co                    | ontrolle | r C | abinet     | 332S     |
|                        |                       |          |     |            | 332      |
|                        |                       |          |     |            | 336/3365 |

| Ped features     |                |   |
|------------------|----------------|---|
| Ped Head Mount   | Clam Shell     | 0 |
|                  | Other Ped Head | 5 |
| Ped Heads        | Countdown      | 0 |
|                  | Hand/Man       | 2 |
|                  | Words          | 5 |
| Pushbutton mount | No PB's        | 0 |
|                  | Standard mount | 0 |
|                  | H frame        | 2 |
|                  | small box      | 5 |
| Pushbutton       | No PB's        | 0 |
|                  | Two Inch       | 0 |
|                  | Other PB       | 5 |

| Controller Cabinet     | 332S                     | 0  |
|------------------------|--------------------------|----|
|                        | 332                      | 1  |
|                        | 336/336S                 | 5  |
|                        | Other/Steel Cabinets     | 10 |
| Service Cabinet        | BMC/BMCL                 | 0  |
|                        | RPS                      | 2  |
|                        | Other service            | 5  |
| Condition - Rust       | Good galv & ano or Paint | 0  |
|                        | Minor rust/fading        | 2  |
|                        | Major rust/fading        | 5  |
| Condition - Dents      | No dents                 | 0  |
|                        | Minor dents              | 2  |
|                        | Major dents              | 5  |
| Condition - Foundation | No foundation damage     | 0  |
|                        | Minor foundation damage  | 2  |
|                        | NEMA foundation          | 5  |

## **Traffic Signal Rating Explained**

- Overall condition rating starts with 110 points and then deficiencies are subtracted.
- Example, current intersection meets current design standards except for H Frame pushbutton mounts (-2), 332 cabinet (-1), and backplate (-2). Overall condition rating is (110-5)/110 = 95%

## Traffic Signal -100% Fair or Better



## Traffic Signal – 65% Poor



## Traffic Signal – 45% Very Poor



## Traffic Signal – 19% Very Poor



ODOT Owned & ODOT Maintained & City/County Maintained



|                                 |       |      |      | Region |     |     |
|---------------------------------|-------|------|------|--------|-----|-----|
|                                 | State | 1    | 2    | 3      | 4   | 5   |
| Number of Signals               | 1480  | 519  | 451  | 270    | 150 | 90  |
| Average Rating                  | 77%   | 73%  | 78%  | 78%    | 82% | 79% |
| Std Dev                         | 15%   | 17%  | 13%  | 13%    | 12% | 11% |
| Min                             | 19%   | 19%  | 37%  | 42%    | 38% | 43% |
| Max                             | 100%  | 100% | 100% | 99%    | 99% | 97% |
| Signals Rated Fair (70%+)       | 1040  | 326  | 331  | 193    | 120 | 70  |
| Signals Rated Poor (50-69%)     | 376   | 145  | 113  | 73     | 28  | 17  |
| Signals Rated Very Poor (49% -) | 64    | 48   | 7    | 4      | 2   | 3   |

ODOT Owned & ODOT Maintained



|                                 |       |      |      | Region |     |     |
|---------------------------------|-------|------|------|--------|-----|-----|
|                                 | State | 1    | 2    | 3      | 4   | 5   |
| Number of Signals               | 922   | 324  | 285  | 166    | 71  | 76  |
| Average Rating                  | 79%   | 79%  | 80%  | 77%    | 83% | 80% |
| Std Dev                         | 12%   | 11%  | 12%  | 13%    | 11% | 12% |
| Min                             | 42%   | 43%  | 44%  | 42%    | 56% | 43% |
| Max                             | 100%  | 100% | 100% | 99%    | 99% | 97% |
| Signals Rated Fair (70%+)       | 709   | 257  | 223  | 110    | 59  | 60  |
| Signals Rated Poor (50-69%)     | 201   | 65   | 58   | 53     | 12  | 13  |
| Signals Rated Very Poor (49% -) | 12    | 2    | - 4  | 3      | 0   | 3   |

ODOT Owned & City/County Maintained



|                                 |       |      |     | Region |    |    |
|---------------------------------|-------|------|-----|--------|----|----|
|                                 | State | 1    | 2   | 3      | 4  | 5  |
| Number of Signals               | 321   | 195  | 109 | 17     | 0  | 0  |
| Average Rating                  | 67%   | 62%  | 72% | 85%    | 0% | 0% |
| Std Dev                         | 18%   | 20%  | 14% | 10%    | 0% | 0% |
| Min                             | 19%   | 19%  | 37% | 59%    | 0% | 0% |
| Max                             | 100%  | 100% | 97% | 95%    | 0% | 0% |
| Signals Rated Fair (70%+)       | 147   | 69   | 62  | 16     | 0  | 0  |
| Signals Rated Poor (50-69%)     | 125   | 80   | 44  | 1      | 0  | 0  |
| Signals Rated Very Poor (49% -) | 49    | 46   | 3   | 0      | 0  | 0  |

City/County Owned & ODOT Maintained



|                                 |       |    |      | Region |     |     |
|---------------------------------|-------|----|------|--------|-----|-----|
|                                 | State | 1  | 2    | 3      | 4   | 5   |
| Number of Signals               | 237   | 0  | 57   | 87     | 79  | 14  |
| Average Rating                  | 79%   | 0% | 81%  | 78%    | 81% | 77% |
| Std Dev                         | 12%   | 0% | 13%  | 12%    | 12% | 8%  |
| Min                             | 38%   | 0% | 49%  | 45%    | 38% | 67% |
| Max                             | 100%  | 0% | 100% | 99%    | 97% | 89% |
| Signals Rated Fair (70%+)       | 184   | 0  | 46   | 67     | 61  | 10  |
| Signals Rated Poor (50-69%)     | 50    | 0  | 11   | 19     | 16  | 4   |
| Signals Rated Very Poor (49% -) | 3     | 0  | 0    | 1      | 2   | 0   |

**ODOT Signals Maintained By:** 



#### Fair+ Poor Very Poor

|                                 |       |               | Re            | egion                |                      |                      |      |        | C       | ity/C      | ounty | 1      |             |         |
|---------------------------------|-------|---------------|---------------|----------------------|----------------------|----------------------|------|--------|---------|------------|-------|--------|-------------|---------|
|                                 | State | ODOT Region 1 | ODOT Region 2 | <b>ODOT</b> Region 3 | <b>ODOT</b> Region 4 | <b>ODOT</b> Region 5 | PBOT | WashCo | ClackCo | Be averton | Salem | Eugene | Springfield | Medford |
| Number of Signals               | 1243  | 324           | 285           | 166                  | 71                   | 76                   | 155  | 6      | 3       | 31         | 41    | 39     | 29          | 17      |
| Average Rating                  | 76%   | 79%           | 80%           | 77%                  | 83%                  | 80%                  | 59%  | 69%    | 87%     | 74%        | 81%   | 66%    | 68%         | 85%     |
| Std Dev                         | 12%   | 11%           | 12%           | 13%                  | 11%                  | 12%                  | 20%  | 16%    | 1%      | 10%        | 11%   | 14%    | 11%         | 10%     |
| Min                             | 19%   | 43%           | 44%           | 42%                  | 56%                  | 43%                  | 19%  | 45%    | 85%     | 55%        | 57%   | 37%    | 47%         | 59%     |
| Max                             | 100%  | 100%          | 100%          | 99%                  | 99%                  | 97%                  | 100% | 95%    | 87%     | 94%        | 97%   | 97%    | 87%         | 95%     |
| Signals Rated Fair (70%+)       | 856   | 257           | 223           | 110                  | 59                   | 60                   | 45   | 2      | 3       | 19         | 33    | 14     | 15          | 16      |
| Signals Rated Poor (50-69%)     | 326   | 65            | 58            | 53                   | 12                   | 13                   | 65   | 3      | 0       | 12         | 8     | 23     | 13          | 1       |
| Signals Rated Very Poor (49% -) | 61    | 2             | - 4           | 3                    | 0                    | 3                    | 45   | 1      | 0       | 0          | 0     | 2      | 1           | 0       |

#### REGION 1 - Rated "Very Poor"

| TSSU ID  | District | ODOT Owned | ODOT Maintained | Location Description                        | City              | Condition Rating |
|----------|----------|------------|-----------------|---|-------------------|------------------|
| 2BCP913  | 2        | Y          | N               | Lombard St _ Fiske Ave                      | Portland          | 19%              |
| 2BCP925  | 2        | ¥          | N               | Lombard St Wall Ave                         | Portland          | 19%              |
| 2BCP914  | 2        | ¥          | N               | Lombard St Greeley Ave                      | Portland          | 21%              |
| 2BCP912  | 2        | ¥          | N               | Lombard St Fenwick Ave Ped Signal           | Portland          | 22%              |
| 2BCP808  | 2        | Y          | N               | (US30)St Helens Rd_Bridge Ave N(US30BY)     | Portland          | 24%              |
| 2BCP924  | 2        | Y          | N               | Lombard St _ Wabash Ave                     | Portland          | 24%              |
| 2BCP926  | 2        | Y          | N               | Lombard St_Woolsey Ave                      | Portland          | 24%              |
| 2BCP876  | 2        | Y          | N               | 82nd Ave _ Prescott St                      | Portland          | 25%              |
| 2BCP909  | 2        | Y          | N               | Lombard St _ Chautaugua Blvd                | Portland          | 27%              |
| 2BCP911  | 2        | Y          | N               | Lombard St _ Denver Ave                     | Portland          | 28%              |
| 2BCP923  | 2        | Y          | N               | Lombard St _ Vancouver Ave                  | Portland          | 28%              |
| 2BCP910  | 2        | ¥          | N               | Lombard St _ Delaware Ave                   | Portland          | 29%              |
| 2BCP916  | 2        | Y          | N               | Lombard st _ Ida Ave                        | Portland          | 29%              |
| 2BCP949  | 2        | Y          | N               | (I405SB)16th_Everett                        | Portland          | 29%              |
| 2BCP922  | 2        | Y          | N               | Lombard St _ Stanford Ave                   | Portland          | 30%              |
| 2BCP869  | 2        | Y          | N               | 82nd Ave _ Fremont St                       | Portland          | 31%              |
| 2BCP837  | 2        | Y          | N               | Macadam Ave Nevada St                       | Portland          | 32%              |
| 2BCP864  | 2        | Y          | N               | 82nd Ave _ Davis St                         | Portland          | 33%              |
| 2BCP879  | 2        | Y          | N               | 82nd Ave _ Siskiyou St                      | Portland          | 33%              |
| 2BCP882  | 2        | ¥          | N               | 82nd Ave _ Wasco St                         | Portland          | 33%              |
| 2BCP885  | 2        | Y          | N               | 82nd Ave _ Woodstock Blvd                   | Portland          | 33%              |
| 2BCP908  | 2        | Y          | N               | Lombard St _ Buchanan                       | Portland          | 33%              |
| 2BCP919  | 2        | Y          | N               | Lombard St _ Oswego Ave                     | Portland          | 35%              |
| 2BCP943  | 2        | Y          | N               | I-405SBOnramp(14thSt.)_Montgomery           | Portland          | 35%              |
| 2BCP809  | 2        | Y          | N               | (US30)St Helens Rd_Bridge Ave S(US30BY)     | Portland          | 35%              |
| 2BCP858  | 2        | Y          | N               | 1205 NB OFF _ Woodstock Blvd                | Portland          | 35%              |
| 2BCP881  | 2        | Y          | N               | 82nd Ave _ Tillamook St                     | Portland          | 35%              |
| 2BCP915  | 2        | Y          | N               | Lombard St _ Hodge Ave                      | Portland          | 35%              |
| 2BCP951  | 2        | Y          | N               | (I405SB)16th_Glisan                         | Portland          | 35%              |
| 2BCP836  | 2        | Y          | N               | Macadam Ave _ Nebraska St                   | Portland          | 36%              |
| 2BCP946  | 2        | Y          | N               | (I405NB)14th_Burnside                       | Portland          | 37%              |
| 2BCP947  | 2        | Y          | N               | (I405SB)15th_Burnside                       | Portland          | 39%              |
| 2BCP870  | 2        | Y          | N               | 82nd Ave _ Glisan St                        | Portland          | 41%              |
| 2BCP895  | 2        | Y          | N               | Barbur Blvd _ Capitol Hwy/I5                | Portland          | 41%              |
| 2BCP830  | 2        | Y          | N               | 184WB OFF Halsey St                         | Portland          | 42%              |
| 2BCP868  | 2        | Y          | N               | 82nd Ave _ Foster Rd                        | Portland          | 42%              |
| 2BCP893  | 2        | Y          | N               | Barbur Blvd _ 24th Ave                      | Portland          | 42%              |
| 2BCP901  | 2        | Y          | N               | (1405)Vaughn ST_23rd Ave                    | Portland          | 42%              |
| 28339    | 2        | Y          | Y               | OR99W 15 SB Off-Ramp                        | Tigard            | 43%              |
| 2BCP958  | 2        | Y          | N               | (US30BY)Philadelphia_Ivanhoe                | Portland          | 43%              |
| 2BCP824  | 2        | Y          | N               | IS NB_Rosa Parks Way                        | Portland          | 44%              |
| 2BCP859  | 2        | Y          | N               | 1205 NB ON _ Foster Rd                      | Portland          | 44%              |
| 2BCP838  | 2        | Y          | N               | Macadam Ave _ Pendleton St                  | Portland          | 45%              |
| 2BCP847  | 2        | Y          | N               | Powell Blvd 42nd Ave/43rd Ave               | Portland          | 45%              |
| 2BWC1251 | 2        | Y          | N               | Upper Boones Ferry Rd Lower Boones Ferry Rd | Washington County | 45%              |
| 28476    | 2        | Y          | Ŷ               | US26WB_Barnes Rd/Baltic                     | Portland          | 47%              |
| 2BCP857  | 2        | Y          | N               | Powell Blvd_Milwaukie Ave                   | Portland          | 48%              |
| 2BCP956  | 2        | Y          | N               | (OR99W)N.InterstateAve_N.ArgyleWay          | Portland          | 48%              |

# **Traffic Signal Funding Trend**

Number and Cost of Signals Rated Poor and Very Poor 1400 \$190.00 1200 \$173.1 M \$170.00 421 1000 \$150.00 Total Cost, Millions Number of Signals 800 \$130.00 171 600 \$110.00 64 400 791 \$92.1 N \$90.00 590 200 376 \$70.00 \$53.6 M 0 \$50.00 0 5 10 Year

Poor Very Poor -Total Cost

## Ways to Improve Signal Rating

- Low Cost Solutions (+1% to +15%)
  - Adding backplates or reflectorized backplates for vehicle signals
  - 8" lens vehicle signals to 12" lens
  - Upgrading pedestrians signals to countdown LED type
  - Upgrading pedestrian pushbuttons

## Ways to Improve Signal Rating

- Moderate Cost Solutions (+1% to +30%)
  - Changing controller cabinets (336, 336S, 337, 332) to 332S
  - Changing power service (RPS & other) to BMC cabinet
  - Repair damaged foundations
  - Remove and repair rust on steel features

## Ways to Improve Signal Rating

- High Cost Solutions (+20% to +100%)
  - Replace overhead vehicle signal poles (mast arm & strain poles) to 8 bolt base mast arm poles
  - Complete rebuild of the traffic signal

### **Traffic Signal Condition Rating - Future**

- Field Inspections Necessary
- Detection Type, Condition, ATSPM
- Controller Type
- Networking
- Intersection Timing Signal Performance Measures
- Other Junction Boxes, Conduit, Conductors, Cabling, etc.
- Illumination

## **ITS Asset Rating Dashboard**

- Created to view Operational assets condition rating in one common viewer. Tied to multiple databases.
- Developed using Microsoft Power BI.
- Tool for Management to Discuss Funding and Use for Determining Asset Replacement.

## **Current ITS Asset Counts**

#### **Current ITS Asset Counts**

| Current Asset Count       |     |     |     |     |     |       |  |  |  |  |  |  |
|---------------------------|-----|-----|-----|-----|-----|-------|--|--|--|--|--|--|
| CLASS_NM                  | 1   | 2   | 3   | 4   | 5   | Total |  |  |  |  |  |  |
| Camera - Fixed            | 12  | 51  | 79  | 56  | 35  | 233   |  |  |  |  |  |  |
| Camera - Pan Tilt Zoom    | 150 | 46  | 6   | 6   | 19  | 227   |  |  |  |  |  |  |
| HAR Transmitter           |     | 12  | 4   |     | 4   | 20    |  |  |  |  |  |  |
| Portable - VMS            | 21  | 53  | 22  | 39  | 19  | 154   |  |  |  |  |  |  |
| RWIS                      | 30  | 26  | 22  | 45  | 22  | 145   |  |  |  |  |  |  |
| VMS - Curve Warning Sign  | 5   | 3   | 2   | 1   | 5   | 16    |  |  |  |  |  |  |
| VMS - Drum                | 3   | 1   |     |     | 20  | 24    |  |  |  |  |  |  |
| VMS - General Purpose     | 68  | 27  | 9   | 13  | 24  | 141   |  |  |  |  |  |  |
| VMS - Rider               |     |     |     |     | 5   | 5     |  |  |  |  |  |  |
| VMS - Travel Time Sign    | 3   |     |     |     |     | 3     |  |  |  |  |  |  |
| VMS - Variable Speed Sign | 95  | 2   |     |     | 20  | 117   |  |  |  |  |  |  |
| Total                     | 387 | 221 | 144 | 160 | 173 | 1085  |  |  |  |  |  |  |

| Current Assets Beyond Design Life Count |    |   |   |   |   |       |  |  |  |  |
|---|----|---|---|---|---|-------|--|--|--|--|
| CLASS_NM                                | 1  | 2 | 3 | 4 | 5 | Total |  |  |  |  |
| Camera - Fixed                          | 0  | 0 | 0 | 0 | 0 | 0     |  |  |  |  |
| Camera - Pan Tilt Zoom                  | 61 | 1 | 0 | 0 | 1 | 63    |  |  |  |  |
| HAR Transmitter                         |    | 0 | 0 |   | 3 | 3     |  |  |  |  |
| Portable - VMS                          | 0  | 0 | 0 | 0 | 0 | 0     |  |  |  |  |
| RWIS                                    | 0  | 0 | 0 | 0 | 0 | 0     |  |  |  |  |
| VMS - Curve Warning Sign                | 0  | 0 | 0 | 0 | 0 | 0     |  |  |  |  |
| VMS - Drum                              | 0  | 0 |   |   | 0 | 0     |  |  |  |  |
| VMS - General Purpose                   | 5  | 0 | 0 | 0 | 2 | 7     |  |  |  |  |
| VMS - Rider                             |    |   |   |   | 0 | 0     |  |  |  |  |
| VMS - Travel Time Sign                  | 0  |   |   |   |   | 0     |  |  |  |  |
| VMS - Variable Speed Sign               | 0  | 0 |   |   | 0 | 0     |  |  |  |  |
| Total                                   | 66 | 1 | 0 | 0 | 6 | 73    |  |  |  |  |

| Region's Ass              | Region's Assets Beyond Design Life Percent |       |              |              |        |               |  |  |  |  |  |  |
|---------------------------|--|-------|--------------|--------------|--------|---------------|--|--|--|--|--|--|
| CLASS_NM                  | 1  | 2     | 3            | 4            | 5      | Total         |  |  |  |  |  |  |
| Camera - Fixed            | 0.0 %                                      | 0.0 % | 0.0 %        | 0.0 %        | 0.0 %  | 0.0 %         |  |  |  |  |  |  |
| Camera - Pan Tilt Zoom    | 40.7 %                                     | 2.2 % | 0.0 %        | 0.0 %        | 5.3 %  | 27.8 %        |  |  |  |  |  |  |
| HAR Transmitter           |  | 0.0 % | 0.0 %        |              | 75.0 % | <b>15.0</b> % |  |  |  |  |  |  |
| Portable - VMS            | 0.0 %                                      | 0.0 % | 0.0 %        | 0.0 %        | 0.0 %  | 0.0 %         |  |  |  |  |  |  |
| RWIS                      | 0.0 %                                      | 0.0 % | 0.0 %        | 0.0 %        | 0.0 %  | 0.0 %         |  |  |  |  |  |  |
| VMS - Curve Warning Sign  | 0.0 %                                      | 0.0 % | 0.0 %        | 0.0 %        | 0.0 %  | 0.0 %         |  |  |  |  |  |  |
| VMS - Drum                | 0.0 %                                      | 0.0 % |              |              | 0.0 %  | 0.0 %         |  |  |  |  |  |  |
| VMS - General Purpose     | 7.4 %                                      | 0.0 % | 0.0 %        | 0.0 %        | 8.3 %  | 5.0 %         |  |  |  |  |  |  |
| VMS - Rider               |  |       |              |              | 0.0 %  | 0.0 %         |  |  |  |  |  |  |
| VMS - Travel Time Sign    | 0.0 %                                      |       |              |              |        | 0.0 %         |  |  |  |  |  |  |
| VMS - Variable Speed Sign | 0.0 %                                      | 0.0 % |              |              | 0.0 %  | 0.0 %         |  |  |  |  |  |  |
| Total                     | 17.1 %                                     | 0.5 % | <b>0.0</b> % | <b>0.0</b> % | 3.5 %  | <b>6.7</b> %  |  |  |  |  |  |  |

### Region ITS Assets Beyond Life Percent



## ITS Asset Beyond Design Life Trend

|                           | Asset Beyond Design Life Trend |         |          |            |           |         |          |          |  |                           |        |       |      |        |       |      |      |      |
|---------------------------|--------------------------------|---------|----------|------------|-----------|---------|----------|----------|--|---------------------------|--------|-------|------|--------|-------|------|------|------|
|                           |                                |         |          |            |           |         |          |          |  |                           |        |       |      |        |       |      |      |      |
|                           |                                |         |          |            |           |         | F        | Region   |  |                           |        |       |      |        |       |      |      |      |
| 1                         |                                |         |          | 2          |           |         |          | 3        |  | 4                         |        |       |      |        |       | 5    |      |      |
|                           |                                |         |          |            |           |         |          |          |  |                           |        |       |      |        |       |      |      |      |
|                           |                                | Asset B | eyond De | esign Life | e Percent |         |          |          |  | As                        | sset B | eyond | Desi | ign Li | fe Co | unt  |      |      |
| CLASS_NM                  | 2017                           | 2018    | 2019     | 2020       | 2021      | 2022    | 2023     | 2024     |  | CLASS_NM                  | 2017   | 2018  | 2019 | 2020   | 2021  | 2022 | 2023 | 2024 |
| Camera - Fixed            | 0.0 %                          | 0.0 %   | 0.00 %   | 0.00 %     | 0.00 %    | 0.00 %  | 0.00 %   | 0.00 %   |  | Camera - Fixed            | 0      | 0     | 0    | 0      | 0     | 0    | 0    | 0    |
| Camera - Pan Tilt Zoom    | 36.0 %                         | 40.7 %  | 43.33 %  | 46.67 %    | 46.67 %   | 59.33 % | 64.00 %  | 72.67 %  |  | Camera - Pan Tilt Zoom    | 54     | 61    | 65   | 70     | 70    | 89   | 96   | 109  |
| Portable - VMS            | 0.0 %                          | 0.0 %   | 0.00 %   | 0.00 %     | 0.00 %    | 0.00 %  | 0.00 %   | 9.52 %   |  | Portable - VMS            | 0      | 0     | 0    | 0      | 0     | 0    | 0    | 2    |
| RWIS                      | 0.0 %                          | 0.0 %   | 0.00 %   | 16.67 %    | 23.33 %   | 23.33 % | 23.33 %  | 26.67 %  |  | RWIS                      | 0      | 0     | 0    | 5      | 7     | 7    | 7    | 8    |
| VMS - Curve Warning Sign  | 0.0 %                          | 0.0 %   | 0.00 %   | 0.00 %     | 0.00 %    | 0.00 %  | 0.00 %   | 0.00 %   |  | VMS - Curve Warning Sign  | 0      | 0     | 0    | 0      | 0     | 0    | 0    | 0    |
| VMS - Drum                | 0.0 %                          | 0.0 %   | 0.00 %   | 0.00 %     | 0.00 %    | 0.00 %  | 0.00 %   | 0.00 %   |  | VMS - Drum                | 0      | 0     | 0    | 0      | 0     | 0    | 0    | 0    |
| VMS - General Purpose     | 4.4 %                          | 7.4 %   | 7.35 %   | 7.35 %     | 7.35 %    | 8.82 %  | 10.29 %  | 11.76 %  |  | VMS - General Purpose     | 3      | 5     | 5    | 5      | 5     | 6    | 7    | 8    |
| VMS - Travel Time Sign    | 0.0 %                          | 0.0 %   | 0.00 %   | 0.00 %     | 0.00 %    | 0.00 %  | 0.00 %   | 0.00 %   |  | VMS - Travel Time Sign    | 0      | 0     | 0    | 0      | 0     | 0    | 0    | 0    |
| VMS - Variable Speed Sign | 0.0 %                          | 0.0 %   | 0.00 %   | 0.00 %     | 0.00 %    | 0.00 %  | 0.00 %   | 0.00 %   |  | VMS - Variable Speed Sign | 0      | 0     | 0    | 0      | 0     | 0    | 0    | 0    |
| Total                     | 14.7 %                         | 17.1 %  | 18.09 %  | 20.67 %    | 21.19 %   | 26.36 % | 28.42 %  | 32.82 %  |  | Total                     | 57     | 66    | 70   | 80     | 82    | 102  | 110  | 127  |
| Total                     | 14.7 70                        | 17.1 /0 | 18.09 %  | 20.07 /0   | 21.19 %   | 20.30 % | 20.42 /0 | 52.62 /0 |  | Total                     | 57     | 00    | 70   | 00     | 02    | 102  | 110  | 127  |

# **Biennium Trends**

Year

### **Biennium Trends**

Camera - Fixed

HAR Transmitter

Portable - VMS
RWIS

Camera - Pan Tilt Zoom

VMS - Curve Warning Sign

VMS - General Purpose

### \* If No Investment in Assets\*

| Asset Beyond Design Life Percent |       |              |        |         |          |                |          |                |  |  |  |
|----------------------------------|-------|--------------|--------|---------|----------|----------------|----------|----------------|--|--|--|
| CLASS_NM                         | 2017  | 2018         | 2019   | 2020    | 2021     | 2022           | 2023     | 2024           |  |  |  |
| Camera - Fixed                   | 0.0 % | 0.0 %        | 0.00 % | 0.00 %  | 0.00 %   | 0.00 %         | 0.00 %   | 0.00 %         |  |  |  |
| Camera - Pan Tilt Zoom           | 0.0 % | 0.0 %        | 0.00 % | 0.00 %  | 0.00 %   | 0.00 %         | 0.00 %   | 33.33 %        |  |  |  |
| HAR Transmitter                  | 0.0 % | 0.0 %        | 0.00 % | 0.00 %  | 100.00 % | 100.00 %       | 100.00 % | 100.00 %       |  |  |  |
| Portable - VMS                   | 0.0 % | 0.0 %        | 4.55 % | 4.55 %  | 4.55 %   | 4.55 %         | 4.55 %   | 63.64 %        |  |  |  |
| RWIS                             | 0.0 % | 0.0 %        | 9.09 % | 27.27 % | 31.82 %  | 36.36 %        | 36.36 %  | 36.36 %        |  |  |  |
| VMS - Curve Warning Sign         | 0.0 % | 0.0 %        | 0.00 % | 0.00 %  | 0.00 %   | 0.00 %         | 0.00 %   | 100.00 %       |  |  |  |
| VMS - General Purpose            | 0.0 % | 0.0 %        | 0.00 % | 11.11 % | 11.11 %  | 22.22 %        | 33.33 %  | 44.44 %        |  |  |  |
| Total                            | 0.0 % | <b>0.0</b> % | 2.08 % | 5.56 %  | 9.03 %   | <b>10.42</b> % | 11.11 %  | <b>23.61</b> % |  |  |  |

Region



### Current Sign Count Failing Retroreflectivity

### Current Sign Count Failing RetroReflectivity

| Region | Total Failed | Total Installed | % Failure |
|--------|--------------|-----------------|-----------|
| 1      | 41           | 32393           | 0.13 %    |
| 2      | 374          | 64619           | 0.58 %    |
| 3      | 730          | 24384           | 2.99 %    |
| 4      | 875          | 22444           | 3.90 %    |
| 5      | 186          | 31160           | 0.60 %    |
| Total  | 2206         | 175000          | 1.26 %    |
|        |              |                 |           |



## Current Sign Failing Retroreflectivity



\*Page Reflects Only Geo-Coded Signs

# **Current Signal Rating Count**

| District | Poor | Very Poor | Total |                       |
|----------|------|-----------|-------|-----------------------|
| 1        | 10   | 1         | 11    |                       |
| 2        | 138  | 51        | 189   |                       |
| 3        | 20   |           | 20    |                       |
| 4        | 24   | 2         | 26    |                       |
| 5        | 42   | 5         | 47    |                       |
| 7        | 18   | 2         | 20    |                       |
| 8        | 33   | 1         | 34    |                       |
| 10       | 6    |           | 6     |                       |
| 11       | 7    |           | 7     |                       |
| 12       | 8    | 3         | 11    |                       |
| 13       | 1    |           | 1     |                       |
| 14       | 1    |           | 1     |                       |
| Total    | 308  | 65        | 373   |                       |
|          |      |           |       |                       |
|          |      |           | Ra    | ating<br>Fair or Bett |

ODOT Owned

Y

Very Poor Dayton Gifford Kennewick Yakama Indian Nez Aste Pinchot Longview Reservation Walla Walla National Forest dieton Vancouver 84 The Dalles Hillsb Tillamook 84 Heppner La Grande 30 Umatilla Warm National Springs I.R. aker City Forest Malheur Newpor National Forest Willamette end avet National Forest Caldwell Runns Great Sandy Desert Umpqua loseburg Coquille National Forest 63 Crater Lake NP er **Medford** Fremont National math Falls Very Poor Lakeview Forest **b** Bing © 2018 HERE,© 2018 Microsoft Corpora Crescent City

Poor

# **Major Traffic Structures**



## **Bridge Inspection Filter**



Bridge Inspection

inspection Schedule Maintenance

**PONTIS Reporting** 



✓

Percent

**~** 

#### **Bridge Inspection Filter**

| Recommendations            |                              |            |                                      |                              |              |
|----------------------------|------------------------------|------------|--------------------------------------|------------------------------|--------------|
| Load Rating                |                              |            |                                      | Reports                      |              |
|                            |                              |            |                                      | Routine                      | ۲            |
| Sufficiency Rating         |                              |            |                                      | Inspection                   | Quantity     |
| Miscellaneous<br>Documents |                              |            |                                      | SI & A<br>Report             | $\checkmark$ |
|                            |                              |            |                                      | Bridge<br>Clearance          | $\checkmark$ |
|                            |                              |            |                                      | Bridge<br>Images             | $\checkmark$ |
|                            |                              |            |                                      | Cross<br>Channel<br>Profiles | $\checkmark$ |
|                            | Filter 1                     |            |                                      | Detour<br>Bridges            | ✓            |
|                            | BRIDGE ID                    | ?          |                                      | Fracture<br>Critical         | $\checkmark$ |
|                            | HIGHWAY                      | ?          |                                      | Fatigue<br>Prone             | $\checkmark$ |
|                            | MILE POINTS                  | Begin:     |                                      | Gusset<br>Plate              | $\checkmark$ |
|                            | Filter 3                     |            |                                      | Assessment                   |              |
|                            | COUNTY                       | DISTRICT   | REGION                               | Job Hazard<br>Assessment     | $\checkmark$ |
|                            | Yamhill                      | Unknown    | $\begin{array}{c}1\\2\\3\end{array}$ | Sign<br>Structures           | $\checkmark$ |
|                            | ARE                          | A          |                                      | Timber<br>Boring             | $\checkmark$ |
|                            | Zone 2206<br>Zone 2207       | $\sim$     |                                      | Diagrams<br>Underwater       |              |
|                            | CUSTO                        | DIAN       |                                      | inspections                  |              |
|                            | Town/Township<br>Unknown (P) | Hwy Agency |                                      | Action<br>Plans              | ✓            |

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## **Bridge Inspection Report**

#### Oregon Department of Transportation

#### Bridge Inspection Report

| District      | 2C             | Structure    | Sign Truss Br, Hwy 26 at | Bridge ID   | 0M458             |
|---------------|----------------|--------------|--------------------------|-------------|-------------------|
| Fac Crossed   | OR 35<br>(026) | Owner        | MP 57.80                 | Fac Carried | SIGN BRIDGE       |
| Suff Rating   | -2.0           | County       | State Highway Agency     | Mile Point  | 57.80mi           |
| AC Depth      |                | Record Type  | 2                        | Insp Date   | 07/08/2014        |
| Bridge Length | 109.00ft       | Insp Freq    | 24                       | Inspector 1 | JOHN ADKINS (183) |
|               |                | Bridge Width | 0.00ft                   | Inspector 2 |                   |

Signature:

#### Element Condition States (New AASHTO report)

| Elemkey            | Elemkey Defects/Prot Sys |                        | Quantity Units Env CS 1 |      |      |        | <u>CS 2</u> | <u>CS 3</u> | <u>CS 4</u> |
|--------------------|--------------------------|------------------------|-------------------------|------|------|--------|-------------|-------------|-------------|
| 920-Sign Structure |                          |                        | 2                       | (EA) | Mod. | 0      | 2           | 0           | 0           |
| •                  | 10                       | 00-Corrosion           | 1                       | (EA) | Mod. | 0      | 1           | 0           | 0           |
|                    | 70                       | 00-Damage              | 1                       | (EA) | Mod. | 0      | 1           | 0           | 0           |
|                    |                          | 518-Steel Paint        | 1000                    | (SF) | Mod. | 550    | 250         | 100         | 100         |
|                    | Apprais                  | sal                    |                         |      | N    | 3I Cat | egory       |             |             |
| Appraisal          | NBI #                    | Rating                 | Category                |      |      | NBI#   | Ra          | ting        |             |
| Scour              | 113                      | N Not Over Waterway    | Deck Condition          |      | 58   | N N/A  | (NBI)       |             |             |
| Bridge Rail        | 36A                      | N N/A or not required  | Superstructure          |      | 59   | 5 Fair | r'í         |             |             |
| Transitions        | 36B                      | N N/A or not required  | Substructure            |      | 60   | 5 Fair |             |             |             |
| Approach Rail      | 36C                      | N N/A or not required  | Channel                 |      | 61   | N N/A  | (NBI)       |             |             |
| Rail Ends          | 36D                      | N N/A or not required  | Culvert/Retaining Walls |      | 62   | N N/A  | (NBI)       |             |             |
| Structural         | 67                       |                        |                         |      |      |        |             |             |             |
| Deck               | 68                       | N Not applicable (NBI) |                         |      |      |        |             |             |             |
| Clearance          | 69                       | N Not applicable (NBI) |                         |      |      |        |             |             |             |
| Waterway           | 71                       | N Not applicable       |                         |      |      |        |             |             |             |

#### Remarks

#### 920-Sign Structure

Welded steel truss sign bridge. Truss has freckle rust throughout. Some isolated base metal exposed. The 4 steel columns have been repainted recently - CS1. Columns on the N. end are buried in debris - can't inspect bolts. Broken welds on bracing to bottom chord. Deformed bottom chord in WB lanes from high load hit. The upper cross bracing at the South Columns has rusted through and several other cross braces have rust holes with section loss. Bucket truck inspection w/ E. Portland crew on 10/2010. 20' 8 inches from EB fog line, 20' 7 inches from WB fog line (7/12). Use ladder to inspect during routine.

8 Equal Desirable Crit

#### 7000-Damage

Approach Alignment 72

High load impact in WB lanes. Distorted lower chord by up to 2 inches. Cross bracing has been repaired. High hit in EB lanes, no damage to the lower chord but angle damaged and cracked.

# **ITS Assets Life Cycle**

| Devices               | Existing Inventory | Expected<br>Life<br>(Years) | Annual<br>Replacement<br>(#) | Unit Cost (\$) | Total Cost (\$) |
|-----------------------|--------------------|-----------------------------|------------------------------|----------------|-----------------|
| Signals               |                    |                             |                              |                |                 |
| Traffic Signals       | 1,480              | 40                          | 37.000                       | \$250,000.00   | \$9,250,000     |
| Detection Loops       | 30,000             | 10                          | 3000.000                     | \$500.00       | \$1,500,000     |
| Ramp Meters           | 142                | 30                          | 4.733                        | \$100,000.00   | \$473,333       |
| Intersection Flashers | 95                 | 20                          | 4.750                        | \$75,000.00    | \$356,250       |
| Hazard Beacons        | 2,000              | 15                          | 133.333                      | \$12,000.00    | \$1,600,000     |
|                       |                    |                             |                              |                |                 |
| Signs                 |                    |                             |                              |                |                 |
| Major Signs           | 13,803             | 15                          | 920.200                      | \$680.00       | \$625,736       |
| Minor Signs           | 144,763            | 15                          | 9650.867                     | \$76.00        | \$733,466       |
| Major Sign Supports   | 3,615              | 50                          | 72.300                       | \$9,000.00     | \$650,700       |
| Minor Sign Supports   | 99,556             | 10                          | 9955.600                     | \$115.00       | \$1,144,894     |
|                       |                    |                             |                              |                |                 |
| Lighting              |                    |                             |                              |                |                 |
| Roadway Lighting      | 21,000             | 40                          | 525.000                      | 8,500          | 4,462,500       |
| Tunnel Lighting       | 9                  | 40                          | 0.200                        | 1,000,000      | 225,000         |
|                       |                    |                             |                              | SSI Total      | \$21,021,879    |

# ITS Assets Life Cycle (Cont.)

| пъ                                   |     |    |        |              |           |
|--------------------------------------|-----|----|--------|--------------|-----------|
| VMS Type 1 (Interstate)              | 67  | 20 | 3.350  | \$105,000.00 | \$351,750 |
| VMS Other (96x288)                   | 8   | 20 | 0.400  | \$75,000.00  | \$30,000  |
| VMS Other (96x256)                   | 1   | 20 | 0.050  | \$70,000.00  | \$3,500   |
| VMS Other (travel time)              | 5   | 20 | 0.250  | \$15,000.00  | \$3,750   |
| VMS Type 2                           | 26  | 20 | 1.300  | \$62,000.00  | \$80,600  |
| VMS Type 3                           | 5   | 20 | 0.250  | \$56,000.00  | \$14,000  |
| VMS Type 4                           | 22  | 20 | 1.100  | \$52,000.00  | \$57,200  |
| VSL/LCS (VX signs)                   | 101 | 20 | 5.050  | \$30,000.00  | \$151,500 |
| Multi-truss Sign Bridge Structure    | 11  | 50 | 0.220  | \$120,000.00 | \$26,400  |
| Round Monotube Sign Bridge           | 0   | 50 | 0.000  |              | \$0       |
| Square Monotube Cantilever Structure | 31  | 50 | 0.620  | \$100,000.00 | \$62,000  |
| Round Monotube Cantilever            | 0   | 50 | 0.000  |              | \$0       |
| Butterfly/Cantilever (Small Sign)    | 15  | 50 | 0.300  | \$35,000.00  | \$10,500  |
| Butterfly (Type 1)                   | 11  | 50 | 0.220  | \$70,000.00  | \$15,400  |
| Butterfly (Type 2)                   | 13  | 50 | 0.260  | \$60,000.00  | \$15,600  |
| Cameras                              | 301 | 10 | 30.100 | \$12,000.00  | \$361,200 |
| Camera Poles                         | 274 | 50 | 5.480  | \$30,000.00  | \$164,400 |
| RWIS                                 | 94  | 15 | 6.267  | \$30,000.00  | \$188,000 |
| HAR                                  | 76  | 10 | 7.600  | \$40,000.00  | \$304,000 |
| HAR Beacon Signs                     | 54  | 10 | 5.400  | \$10,000.00  | \$54,000  |
| Snow Zone Signs (VMS Replacement)    | 20  | 15 | 1.333  | \$75,000.00  | \$100,000 |
| Call Box                             | 2   | 15 | 0.133  | \$10,000.00  | \$1,333   |
| Weather Warning Systems              | 12  | 10 | 1.200  | \$30,000.00  | \$36,000  |
|                                      |     |    |        | ITS Total    | 2,031,133 |
|                                      |     |    |        | Total        |           |

## **ITS Assets End of Life Replacements**









## Summary

- Operational assets are starting to reach end of their design life.
- ODOT is starting to use the condition rating tool for STIP project programming. Consideration of replacing aging assets and the installation of new.
- As funding opportunities come up, agencies need to consider maintenance and replacement of existing roadside devices in addition to bridges and pavement.

## Thank You

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