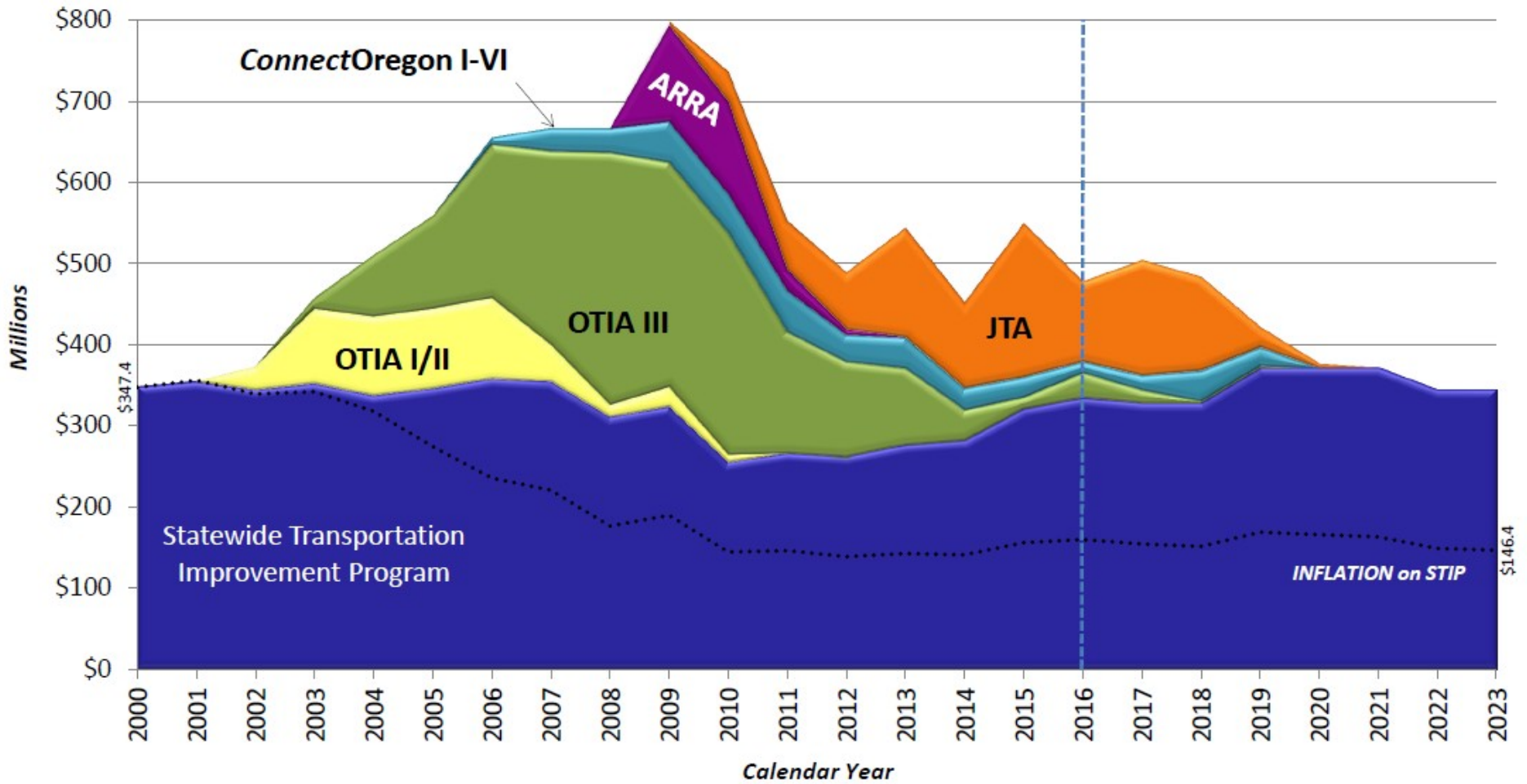




# ODOT Bridge and Pavement Funding Allocation Business Process

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4/24/17





# “Fix-It” Preservation Program

**Purpose:** The Preservation Program is to extend the service life of existing facilities without increasing capacity.<sup>1</sup>

## Strategy:

- Keep bridges & highways in best possible condition at the lowest cost
- Avoid “worst first”
- Prioritize by State Classification (tiered approach)
- Balance bridge & pavement conditions across regions by highway class

## Implementation:

- Bridge Section & Pavement Services Unit
- Regions (STIP) & Districts (Major Maintenance Contracting)
- Project Delivery Staff & District Crews

## Oversight:

- Bridge Leadership Team & Statewide Pavement Committee







# Fix-It Selection Criteria/Process



## Old:

- Used historical splits between programs
- Used management systems to rank projects

## New:

- Use common set of criteria and management systems to set program levels and rank projects



# Current Funding Programs

1. STIP "Fix-it" Bridge & Pavements Preservation
2. Major Maintenance Contracts and Crews

Programs	Avg. Amount (2016-2018)
<b><u>STIP (Fix-it)</u></b>	
Pavements	\$104 million/yr
Bridge	\$54 million/yr
1R Safety Features	\$6 million/yr
<b><u>Major Maintenance</u></b>	
Pavements	\$13 million/yr
Bridge	\$8 million/yr

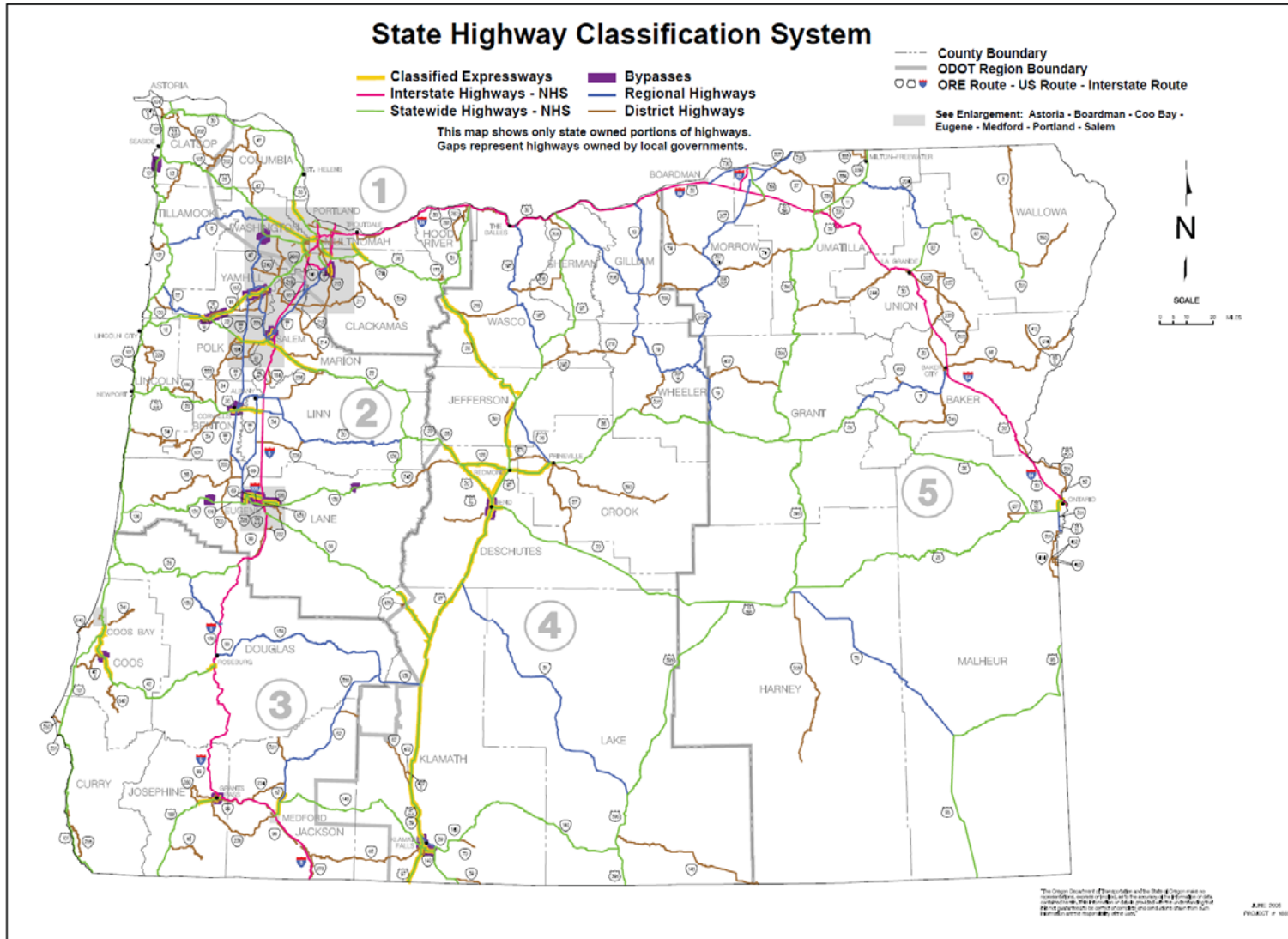
*Current funding is \$240 million short of optimal level to maintain current conditions.*

"Off the Top" Allocation



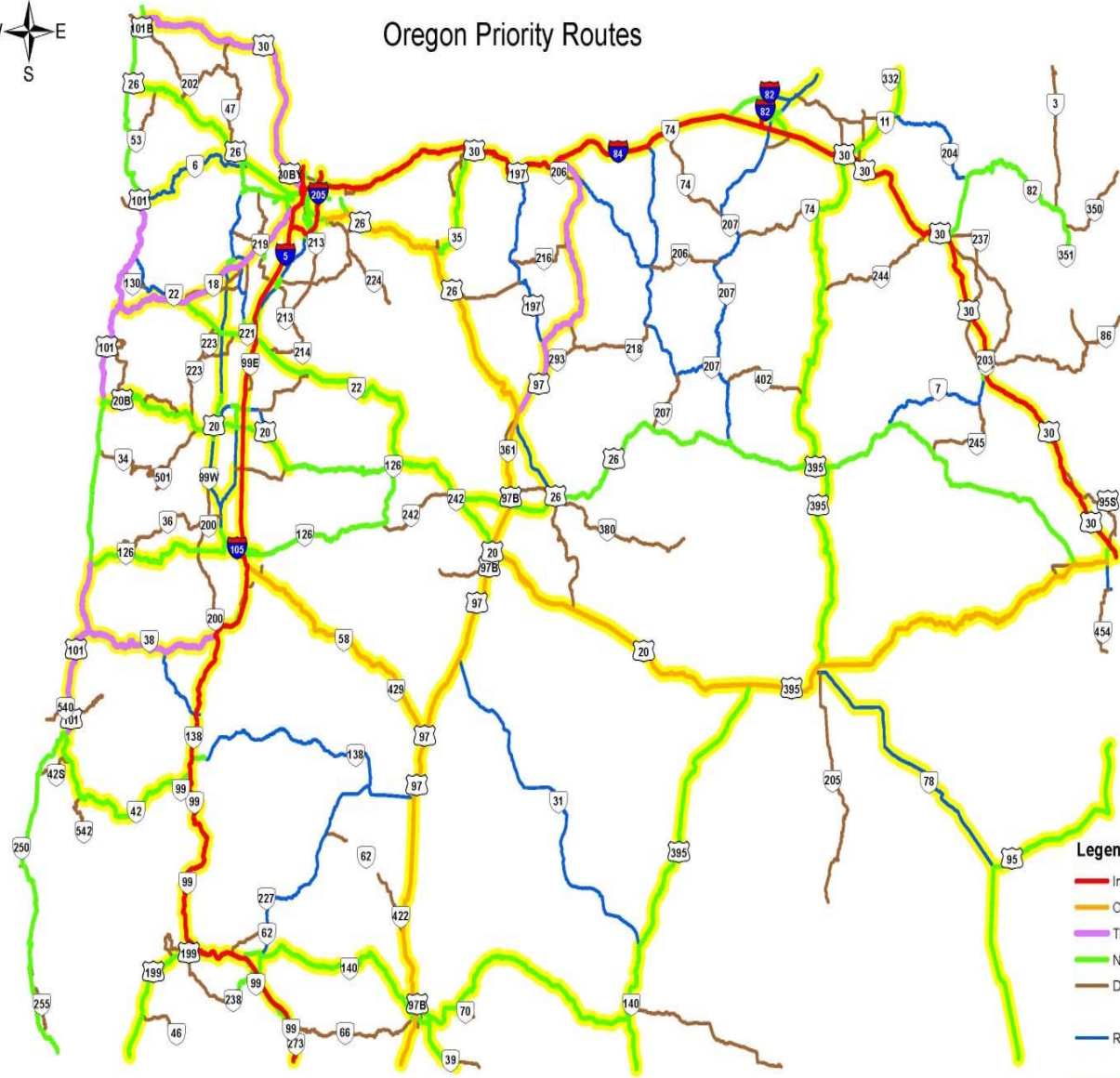


# State Highway Classification





## Oregon Priority Routes



- Legend**
- Interstate
  - OTIA Routes
  - Tier 1 Lifeline Routes
  - National Highway System (NHS)
  - DISTRICT
  - REGIONAL
  - Freight System Highways





# “Common Ground” Themes

## Bridge and Pavements

Both Programs are tracked by Key Performance Measures

High Priority given to low cost, high return preservation activities

- Bridge painting
- Chip seals

Route classification and freight volumes play a critical role in prioritization

- Bridge – NHS cusp bridges and SD bridges on freight routes
- Pavement – High/Low volume stratification, NHS given higher priority

Use Practical Design concepts to develop project purpose & need, and scope

- Focus program funding on feature, while meeting required design standards
- Use other funding sources for add-ons

Explore combining activities when:

- Work needs align
- Minimize traffic impacts
- Economic advantage
- Public Perception





# Fix-It STIP Development

- Timeline – Data to Construction – 6 years!
- Use BMS & PMS to develop initial priority list
  - Project conditions 6 years ahead
  - Priority to higher classes / traffic highways
  - Priority to projects with higher cost effectiveness



# 150% List

1. Start with BMS query for needs list in 13 categories
2. Preliminary Problem Statements in Work Types
3. Region and District Coordination
4. Desk Scope
  1. Investigate differences - planning \$ vs. scope \$
5. Prioritize using Bridge Preservation Strategies
6. Cut to 150% list





# State Bridge Program Goals

Our investment decisions will be based on these goals:

Improve state bridges by eliminating

- Freight mobility restrictions (load, width, or vertical clearance)
- Poor structural condition (deterioration, damage, scour)

Maximize investment by building bridges that

- Require less maintenance with longer life expectancy
- Meet standards and community expectations well into the future



# Bridge Preservation Strategies

- Protect high value coastal, historic, major river crossings, and border structures by **acting before cost becomes prohibitive**
- Use **Practical Design** and fund only basic bridge rehabs and rare replacements with bridge funds
- Give priority to **maintaining the highest priority freight corridors**
- Develop **bridge preventive maintenance program** to extend the service life of decks and other components
- Resolve "Structurally Deficient" bridges on the NHS and monitor "cusp" bridges for preservation needs





## *Bridge Needs - 13 categories*

- Coastal
- Deck condition
- Deck width
- Historic bridge rehabilitation
- Load capacity
- Moveable bridge needs (electrical/mechanical)
- Paint
- Rails
- Scour
- Seismic
- Substructure
- Superstructure
- Vertical clearance



## *Bridge Work Types - 22+ categories*

- Approach panel repair/ replacement
- Bearing repair/replacement
- Cathodic protection
- Cold plane pavement removal
- Culvert replacement
- Deck joints repair / replacement
- Deck overlay
- Deck replacement
- Electrical/mechanical system repair/replacement
- Historic rehabilitation
- Painting
- Rail retrofit / replacement
- Raising
- Scour countermeasures
- Seismic retrofit
- Strengthening





## *Bridge Work Types - cont'd.*

- Structural repairs - concrete
- Structural repairs - steel
- Structural repairs - timber
- Tunnel liner repair/replacement
- Tunnel portal repair/replacement
- Widening
- Other



# Project Scoping

A photograph of a construction site under a clear blue sky. In the foreground, a surveyor in a white hard hat and orange safety vest is adjusting a green and white total station on a yellow tripod. To his right, two other surveyors in similar gear are looking towards the background. A red toolbox sits on the ground nearby. In the mid-ground, a yellow CAT 316E L excavator is parked on a dirt path. Further back, a white pickup truck and a dark SUV are parked. The background features a line of trees and a clear horizon.

Scope/Schedule/Budget

Business Case





New Trial Process 150% → 100%

*Applies to Pavement and Bridge Program*

Score 1 to 5 for Each of these Factors	Weighting
Route Classification, ADT, Truck ADT	25%
Cost Effectiveness, Delay Risk	25%
Program Priority	25%
Region Priority	25%



# Classification Points

<u>Classification</u>	<u>Score</u>
Interstate	5
OTIA or Seismic Lifeline	4
State Class Route or NHS	3
Regional Class Route	2
District Class or Other	1





# ADT Points

<u>Traffic Level (ADT)</u>	<u>Score</u>
> 10,000	5
>4,000 to <=10,000	4
>1,500 to <= 4,000	3
>500 to <=1,500	2
<=500	1



# Truck ADT Points

<u>Truck ADT</u>	<u>Score</u>
> 1,200	5
>600 to <= 1,200	4
>300 to <= 600	3
>100 to <=300	2
<=100	1





# Cost Effectiveness

<u>\$ / Lane Mile / Year</u>	<u>Score</u>
$\leq \$10,000$	5
$> \$10,000$ to $\leq \$15,000$	4
$> \$15,000$ to $\leq \$20,000$	3
$> \$20,000$ to $\leq \$40,000$	2
$> \$40,000$	1



# Project Postponement Risk

- Score 1 to 5
- Looks at Consequence of Delay beyond STIP
  - Maintenance Cost / Risk
  - Pavement Repair Cost Risk (missing the window)





# Program Priority (1 to 5)

- Bridge or Pavement Program Management
- Allotted 3 points per project
- Favor Projects which meet Transportation Commission priorities...



- Helps achieve performance measure target
- Maximizes benefit to the asset and/or reduce maintenance requirements and costs
- Maximize long term service life
- Provide safety benefits
- Improve freight movements (load capacity or VC)
- Minimize repetitive, reactive “throw away” maintenance costs
- Have negative impacts if treatment is deferred beyond the STIP period





# Region Priority (1 to 5)

- Regions Allotted 3 points per project
- Suggested criteria include, but not limited to:
  - Maintenance Impact
  - Community Impacts (economics, travel time, freight & modal impacts, etc.)
  - Safety Impact
  - Detour or alternative route availability
  - Project Delivery Staffing implications



# 100% List

1. Combine Bridge and Pavement project in one list
2. Rank by total weighted scores
3. Send to Highway Management Team
  - use results to set final Bridge/Pavement funding levels
  - use results for regional paving splits
  - use results for initial 100% project list



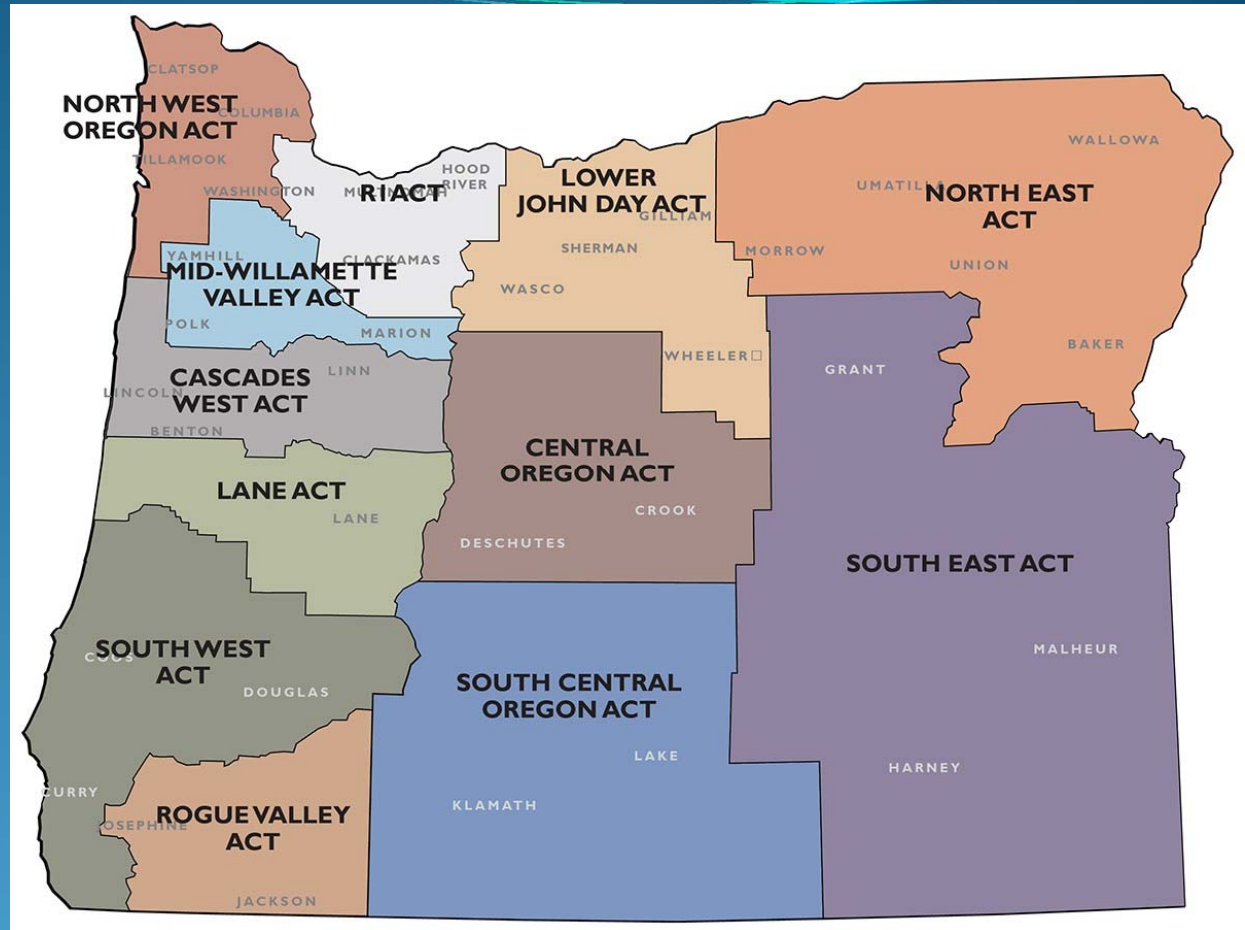


# Are we done?

- Are there **bundling** opportunities?
- Are there **leveraging** opportunities?



# 150% List



Work with region and Area Commissions on Transportation to find bundling and leveraging opportunities



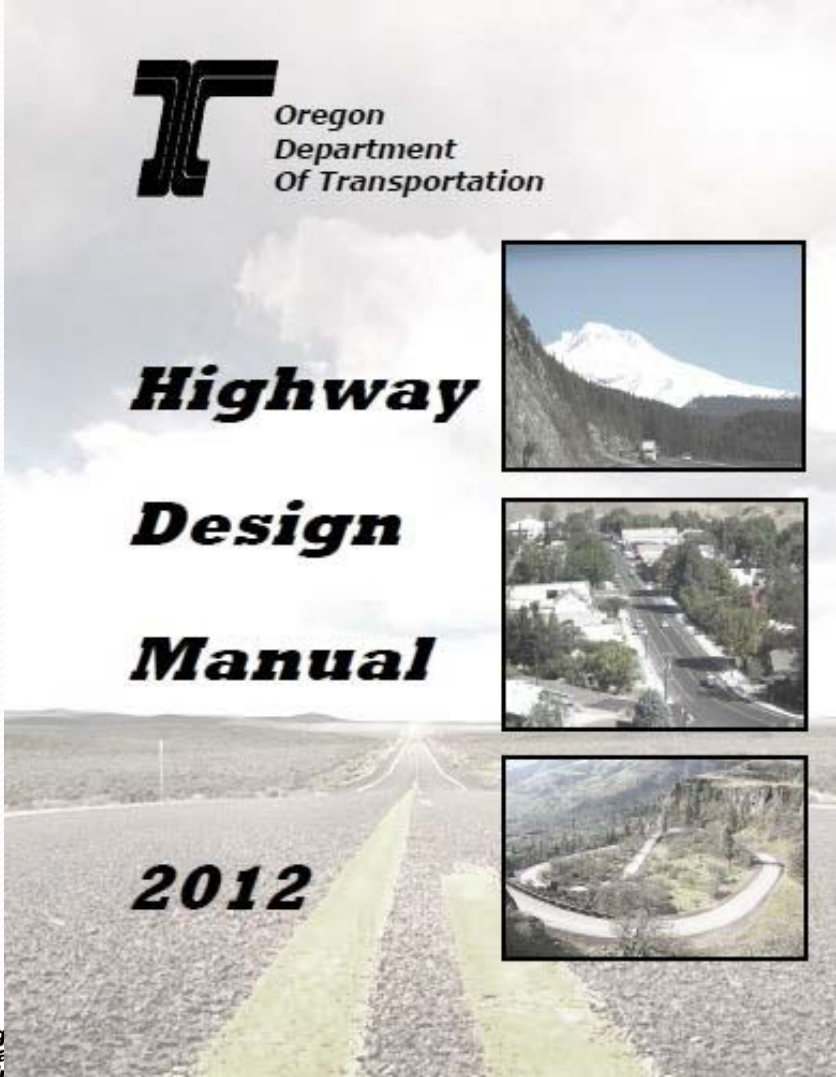


# 100% List → Final

- Start with 100% list
- Option to swap projects (leverage enhance)
  - Swap must be from the 150% list
  - Program Manager and District Manager must approve
- Shelf Program – develop from unselected projects



# Shelf Projects - Projects funded for Design Only (5%)



Positioned to be ready for additional funding

Look for projects with long shelf life and a priority for the next STIP







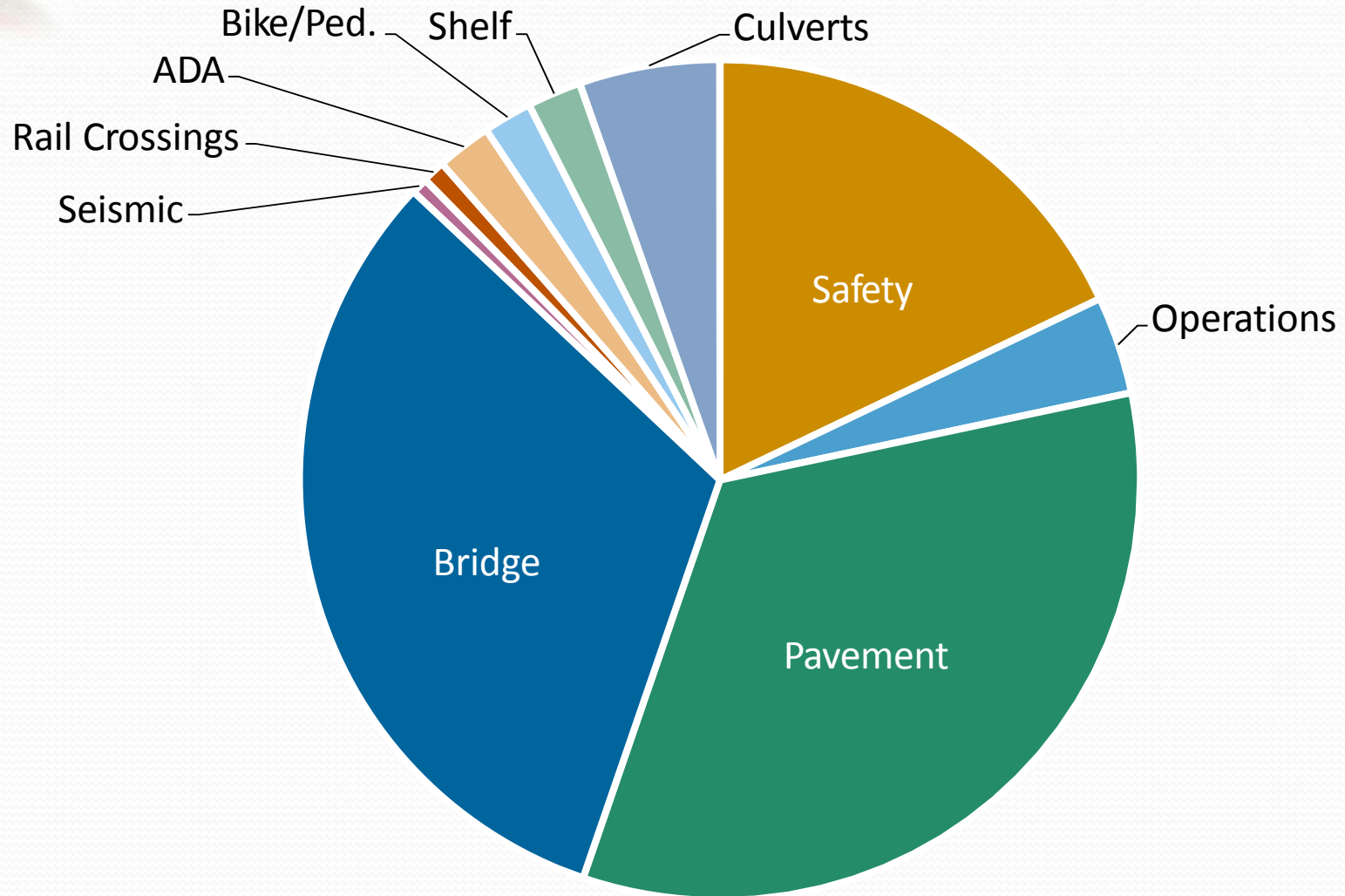
# Criteria/Process Results

Applied New process only to Pavement and Bridge

	2015-18 STIP	2018-21 STIP
Bridge	\$54 Million	\$85 Million
Pavement	\$104 Million	\$85 Million



# Outcome: 2018 – 21 STIP Program Balance







# Conclusions

- Bridge – Pavement Program Level Process resulted in about 50% - 50% split, versus old split of 34% bridge and 66% pavements
- Process is driven by overall highway category
  - Optimizes across a large number of goals
  - Federal Performance Measure Optimization will require a separate process
- Consider using process for Safety, Culverts, and Operations, etc. along with Bridge and Pavements