

OR126/Tom McCall

OR126/Tom McCall (Prineville) Intersection Improvements

December 17, 2015



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Process

Follow a public and transparent process

Corridor Plan and TSPs provide direction

Alternative Analysis by Kittelson & Assoc., Inc.

Highway/Civil Engineering using Best Practices

Can't just pick a solution, must consider safety, engineering, and available funding

Problem OR126/Tom McCall

- **Growth in traffic**
- **Extremely long queues and congestion**
- **Increased crashes**
- **Intersection becoming significant barrier to economic development**



Need and Purpose

Need

Safety - Intersection use is increasing as surrounding land use grows

Purpose

Serve existing use and support future use from development of nearby industrial land



What is the OR126/Tom McCall Project?

- **Design and construction of a roundabout**
- **Roundabout approach treatments to slow traffic**
- **Re-route George Millican Road and Airport Way**

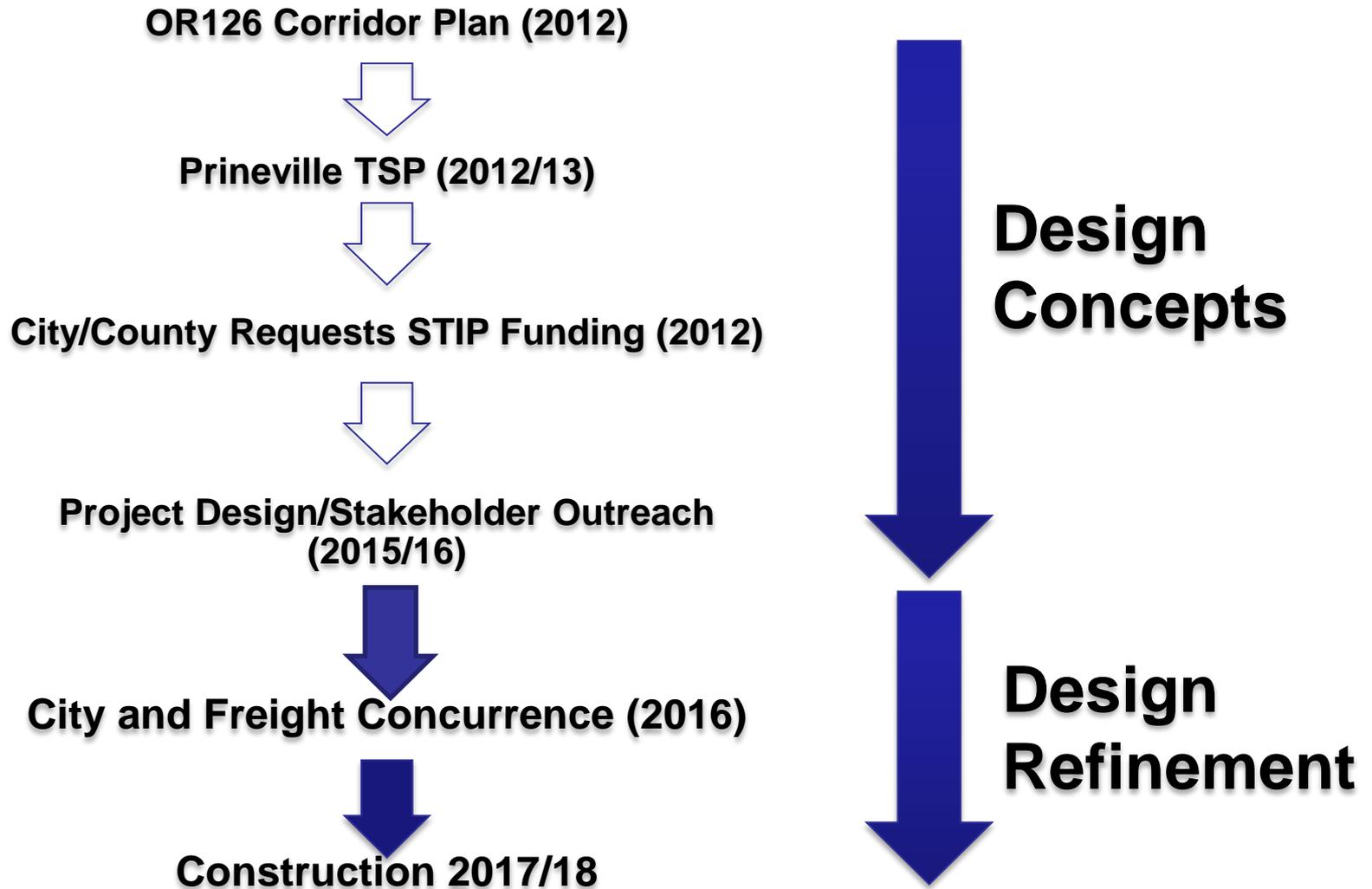


Key Goals OR126/Tom McCall

Key goals include:

- **Provide a high level of safety in high-speed rural area**
- **Support economic development within the City's industrial lands**
- **Accommodate oversized freight movements**

Project Background and Schedule



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Kittelson & Associates, Inc. – Traffic Analysis



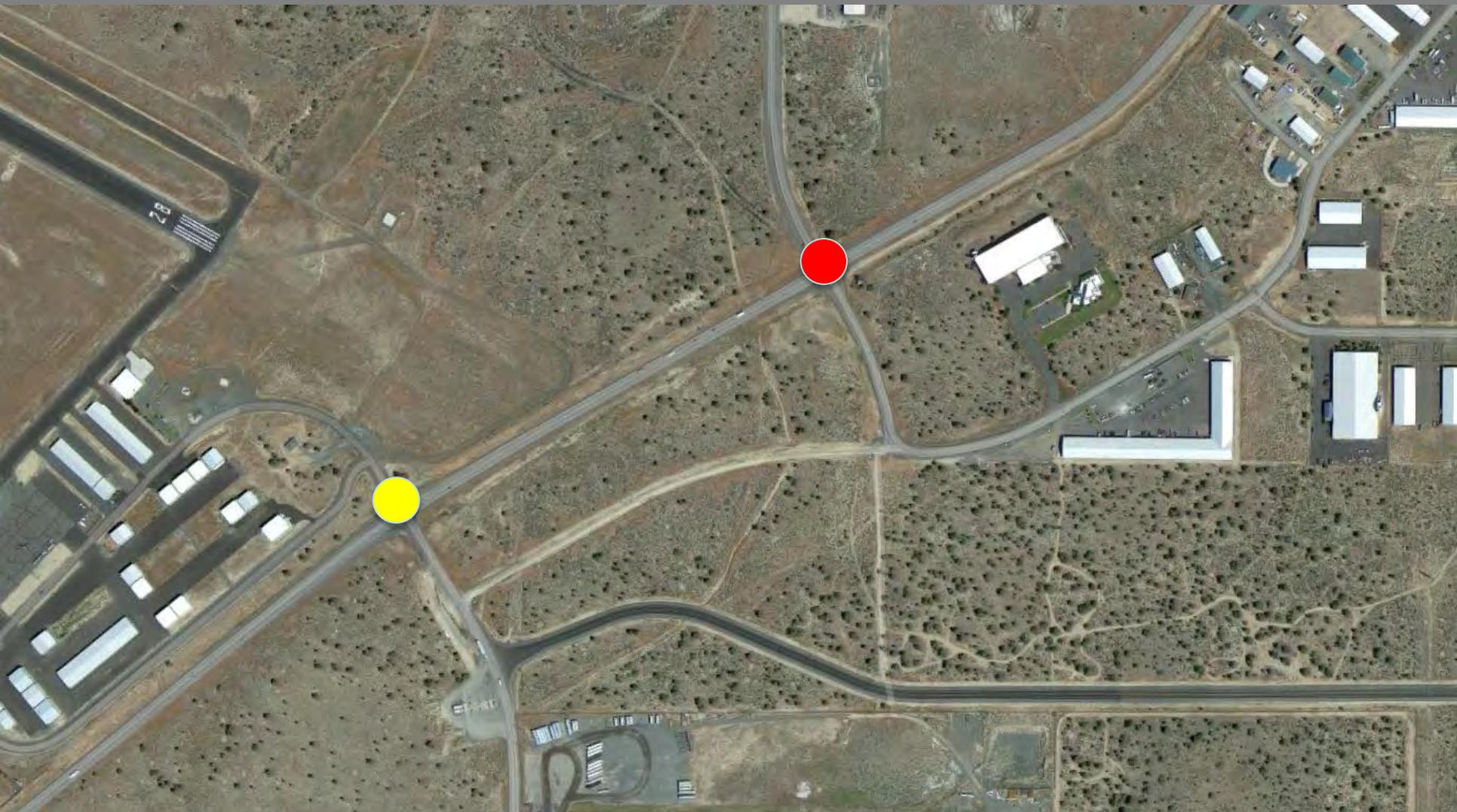
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Study Area



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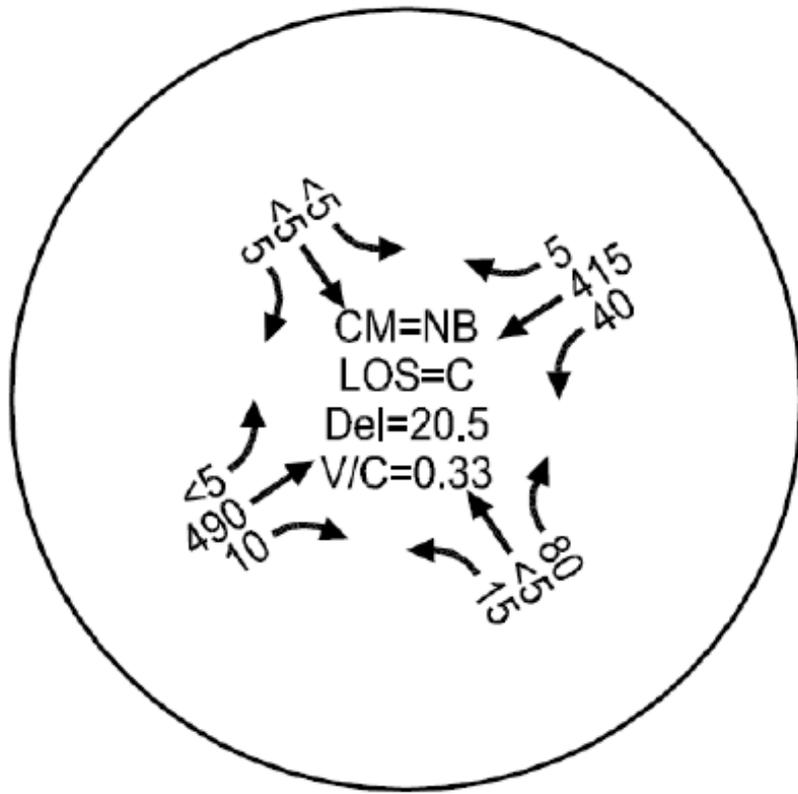


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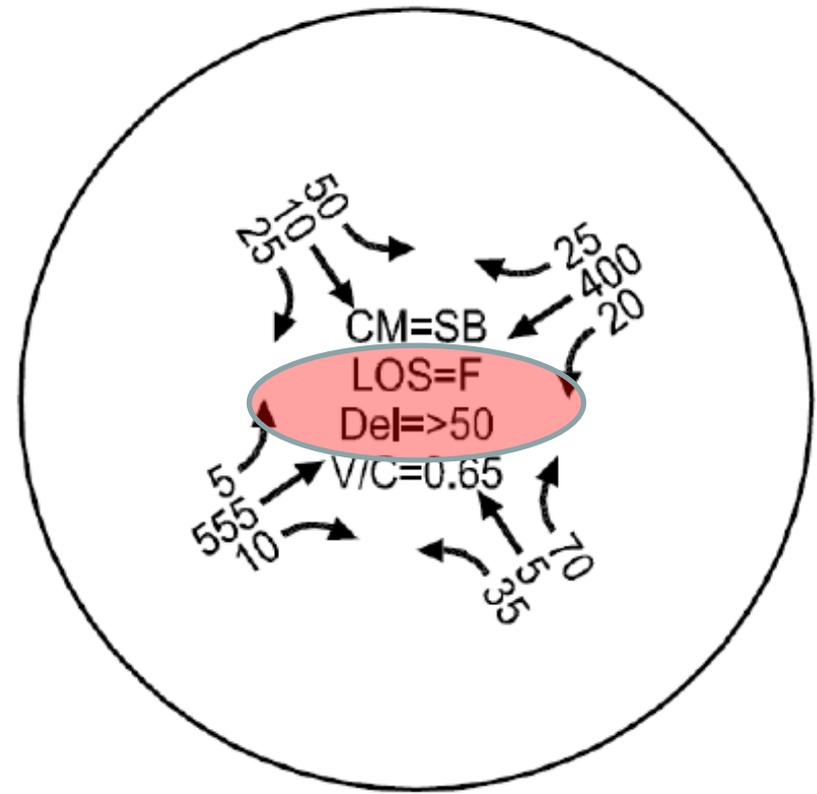


Existing Intersection Operations

OR 126 and Airport Way/ SW Millican Road



OR 126 and Tom McCall Road



Existing Safety Performance

- 5 years of historical crash data (2009-2013)

OR 126 Intersection	Number of Crashes	Million Entering Vehicles (MEV)	Crash Rate (crash per MEV)	Statewide 90 th Percentile Rate
Tom McCall Road	10	21.4	0.47	0.41
Airport Way-SW Millican Road	5	18.6	0.27	0.41

Future Intersection Operations – No-Build

Evaluation Year	Stop-Controlled Approaches	LOS	V/C	Delay (sec)	95th Percentile Queue (ft)
OR 126 and Tom McCall Road					
2035	Northbound	F	>1.0	>80	>500
	Southbound	F	>1.0	>80	>500
OR 126 and Airport Way/SW Millican Road					
2035	Northbound	E	0.65	46.5	100
	Southbound	F	0.22	59.9	25



What is a roundabout?



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What is not a modern roundabout?

Rotary



Photo: City of Fort Worth, TX

Traffic Circle



Photo: Google Maps

Neighborhood Traffic Circle



Photo: Lee Rodegerdts



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Conversion of Rotary to Roundabout: Kingston, NY

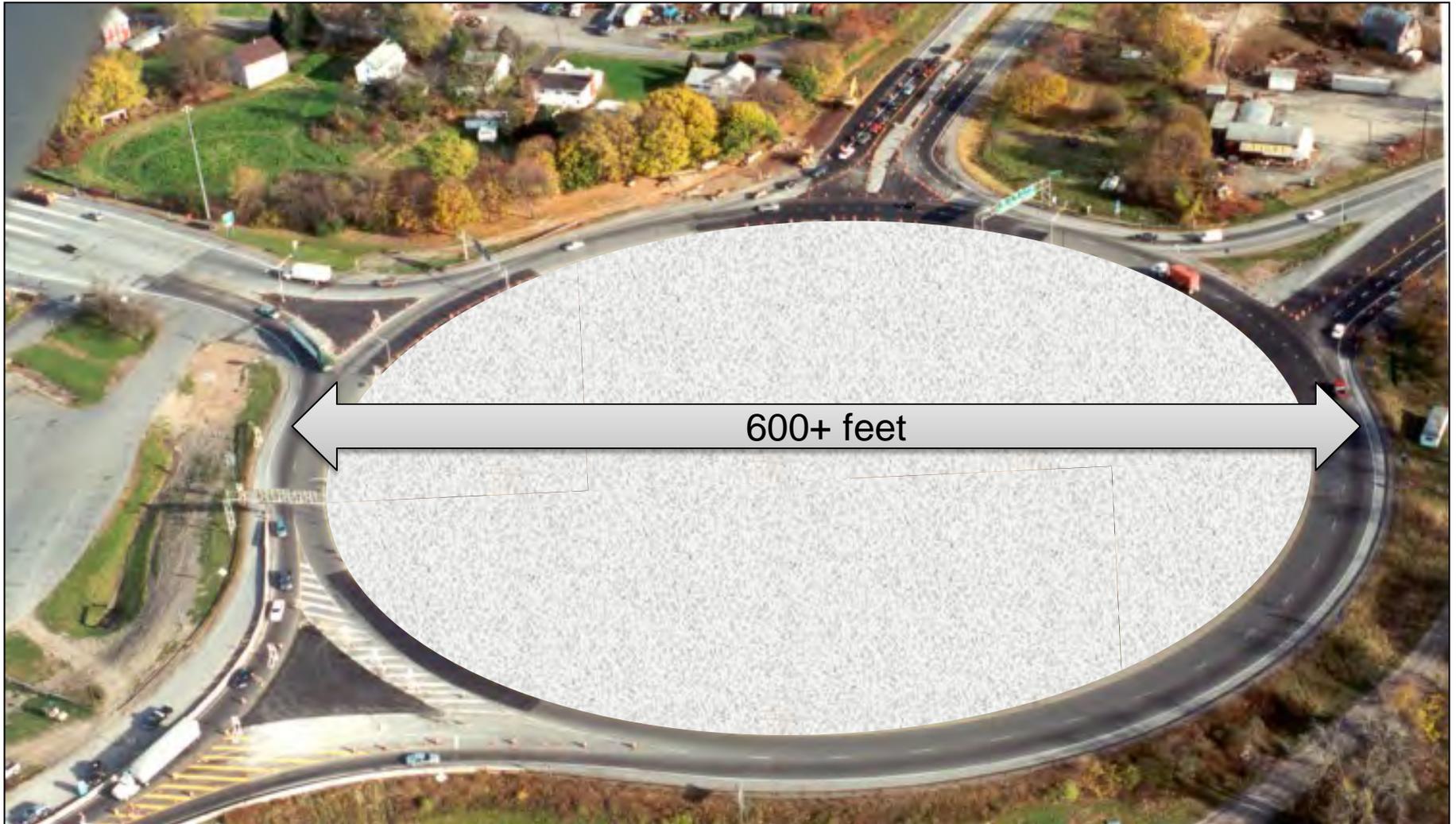


Photo: New York State DOT



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Conversion of Rotary to Roundabout: Kingston, NY



Photo: New York State DOT



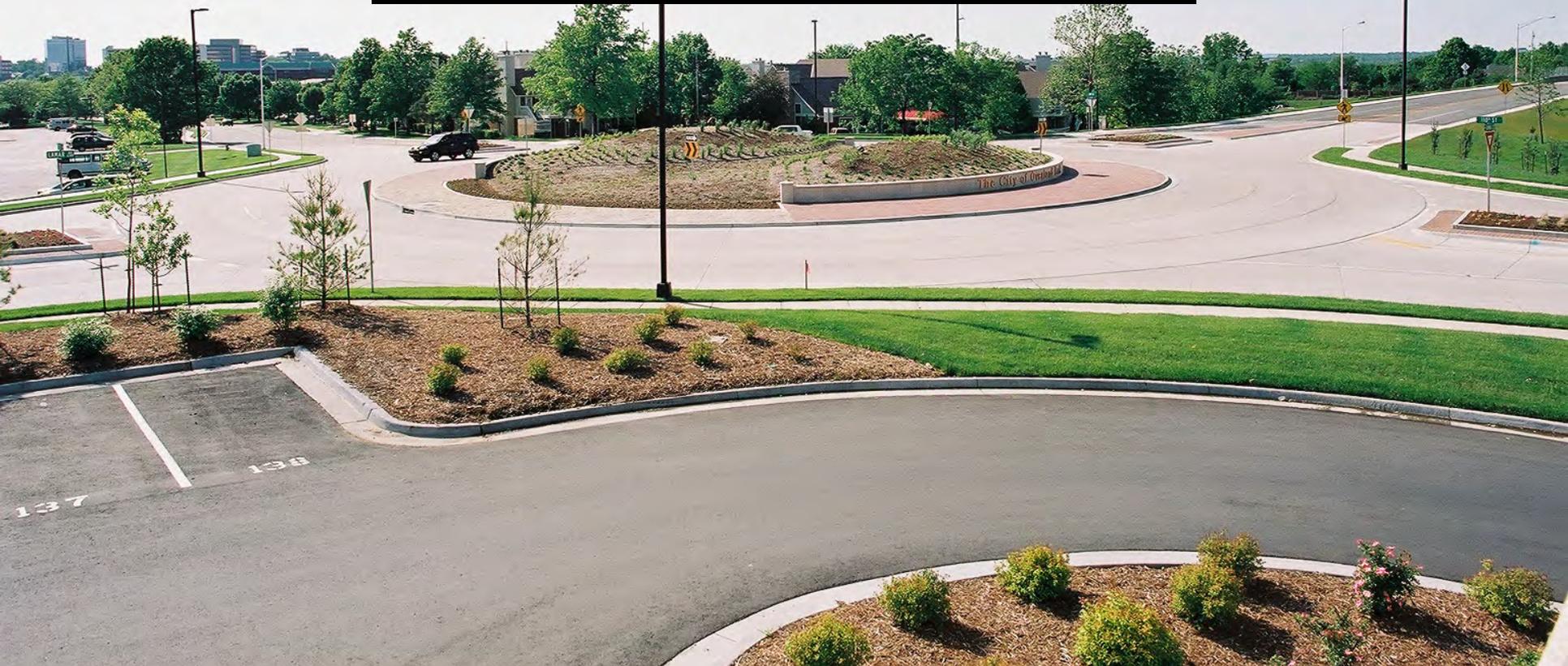
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Why a roundabout?



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Roundabouts reduce crashes

- Over 90% reduction in fatalities
- 76% reduction in injuries
- 35% reduction in total crashes

* *NCHRP Report 572*



Photo: Lee Rodegerdts



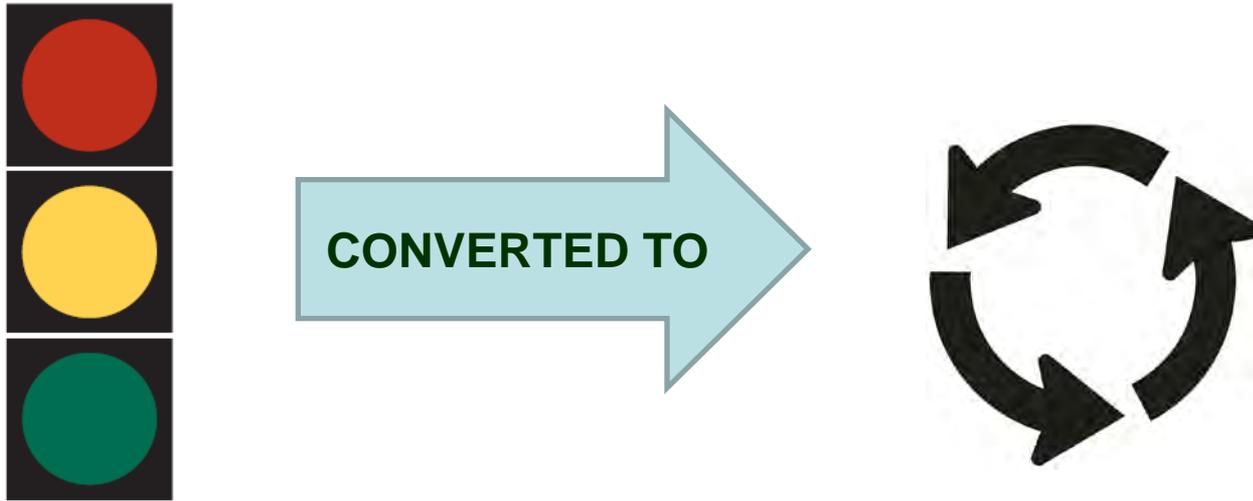
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Safety Performance (NCHRP Report 572)



- **78% reduction in injuries**
- **48% reduction in total crashes**



ALTERNATIVES ANALYSIS



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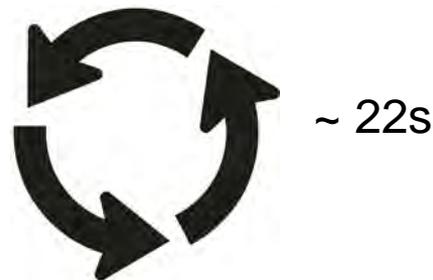
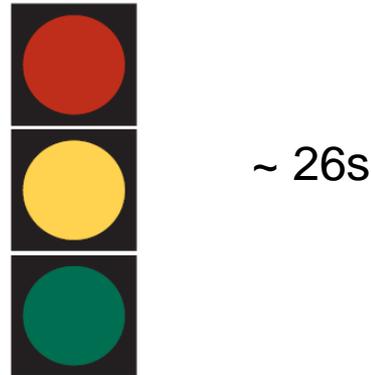
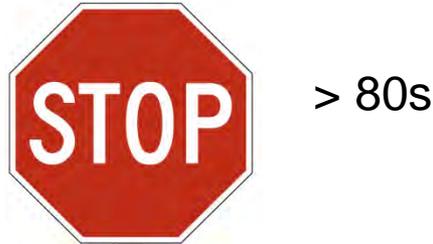
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How does a roundabout compare to a signal?

Year 2035 Operations – Average Delay per Vehicle

OR126/Tom McCall



Vehicle stacking

Queues are approximately half as long with roundabout vs. signal



How does a roundabout compare to a signal?

Future Safety Performance over 5 Years

OR126/Tom McCall



6.5 Crashes
3.5 Fatal/Injury



3.5 Crashes

44% reduction



1.5 Crashes
0.5 Fatal/Injury

74% reduction
89% reduction



Roundabout Concept



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Signal Concept



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Freight Accommodation



Freight Accommodation

- **1,552 single-use permits on OR126 (2007-2012)**
- **764 single-use permits on Millican Road (2013-2014)**

- **Longest combination truck-trailer = 267 feet**
- **Widest load = 23.5 feet**
- **Over 12 loads = Height > 18 feet**

Designing for Freight – US20/Barclay Example

- Full-scale test in two locations
- Tested 18 truck/trailer combinations
 - Up to 130' in length
- All test vehicles made it through the roundabout





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Questions?



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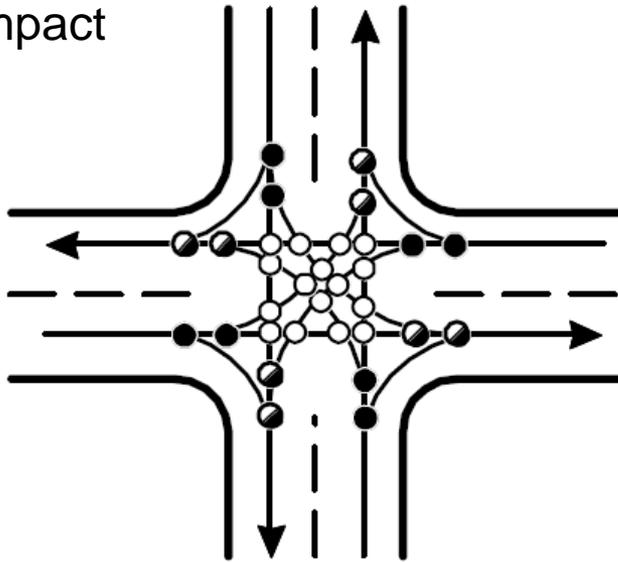
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Vehicle Conflict Points: REDUCED

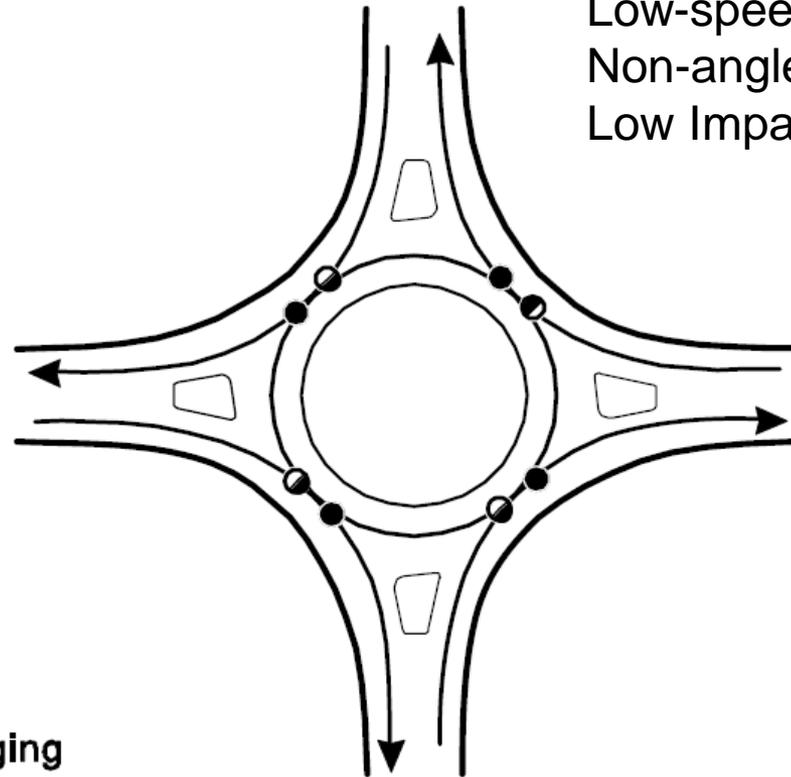
32 conflict points

High-speed
Angle Crashes
High Impact



8 conflict points

Low-speed
Non-angle Crashes
Low Impact



- Diverging
- ◐ Merging
- Crossing



Signalized Intersection Crashes in Oregon 2003 - 2007 (5 yrs)

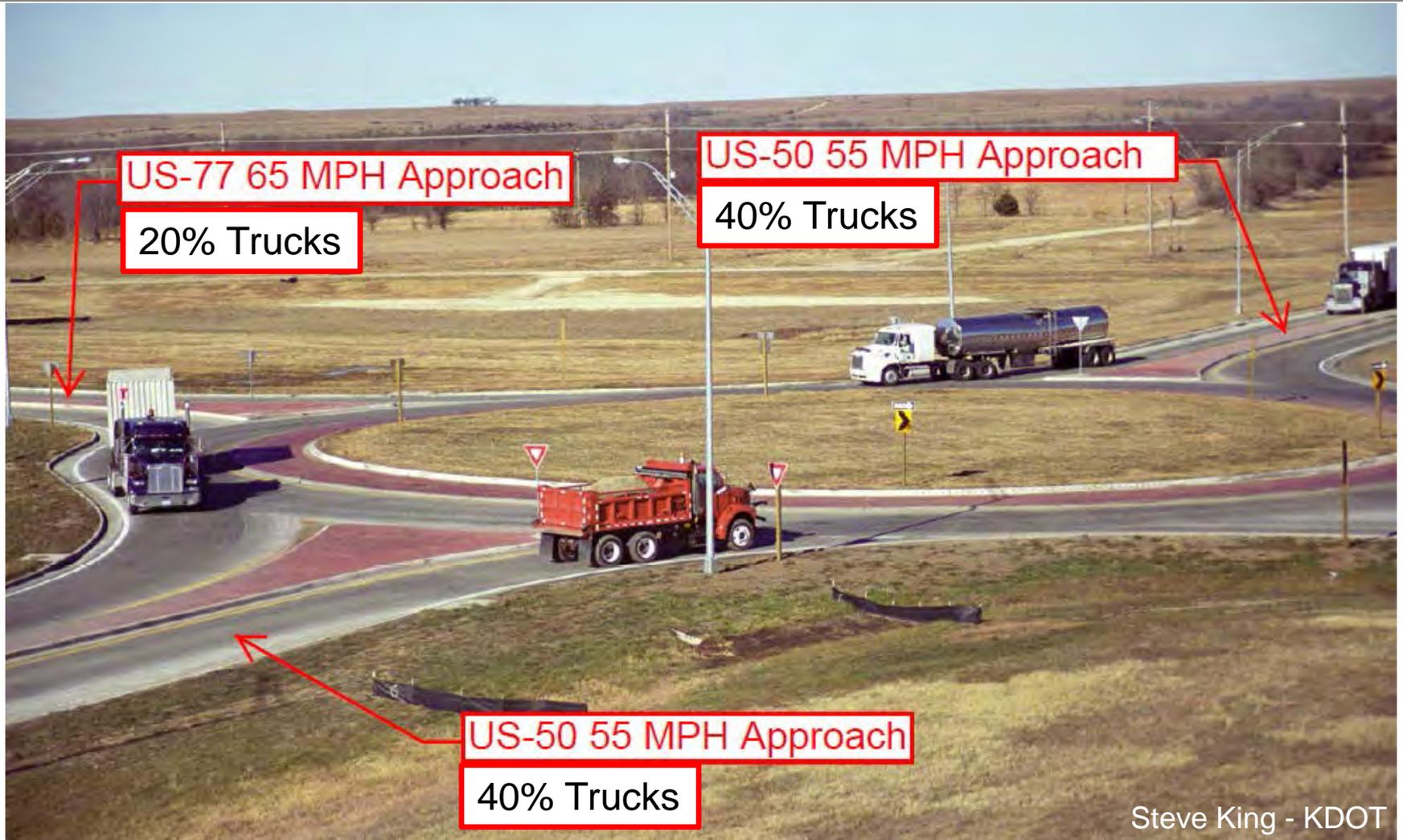
- **At 1,240 Signalized Intersections on State Highways**
 - **32 Fatal crashes**
 - **308 Serious Injury crashes**
 - 5,171 Moderate & minor injury crashes



	Scenario	Total Entering Volume
OR126/Tom McCall	Existing	1,210
	2018	1,355
	2035	1,915
Brookwood/Bond/Reed Market	May 2014 Counts	2,476



US 50/US 77 – Florence, KS



Steve King - KDOT



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