



Case Study 2: ERM Supporting Performance Management

John Milton, Washington State
Department of Transportation

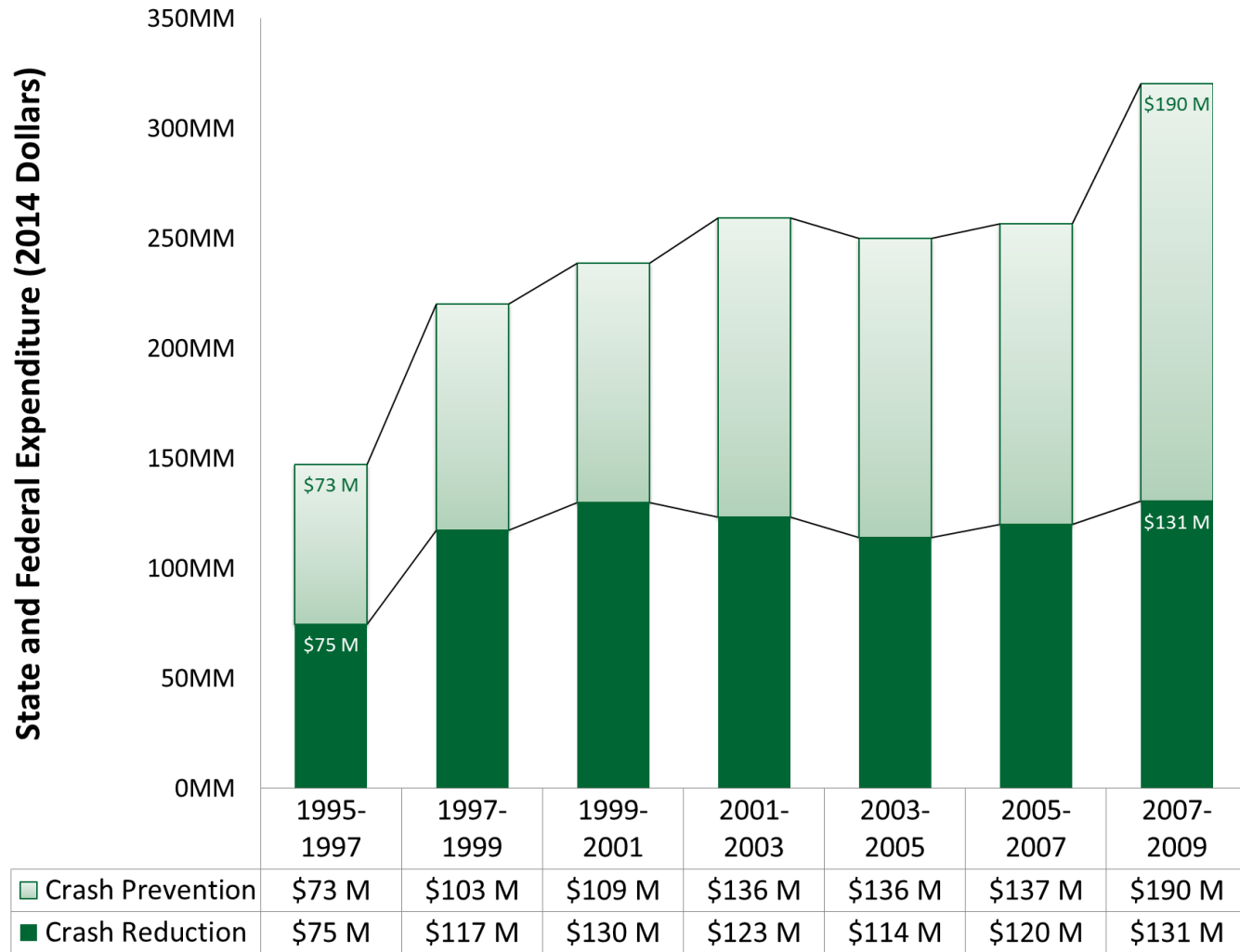


Applying risk management & analysis to support an asset management program

6. USING RISK MANAGEMENT TO SUPPORT ASSET MANAGEMENT

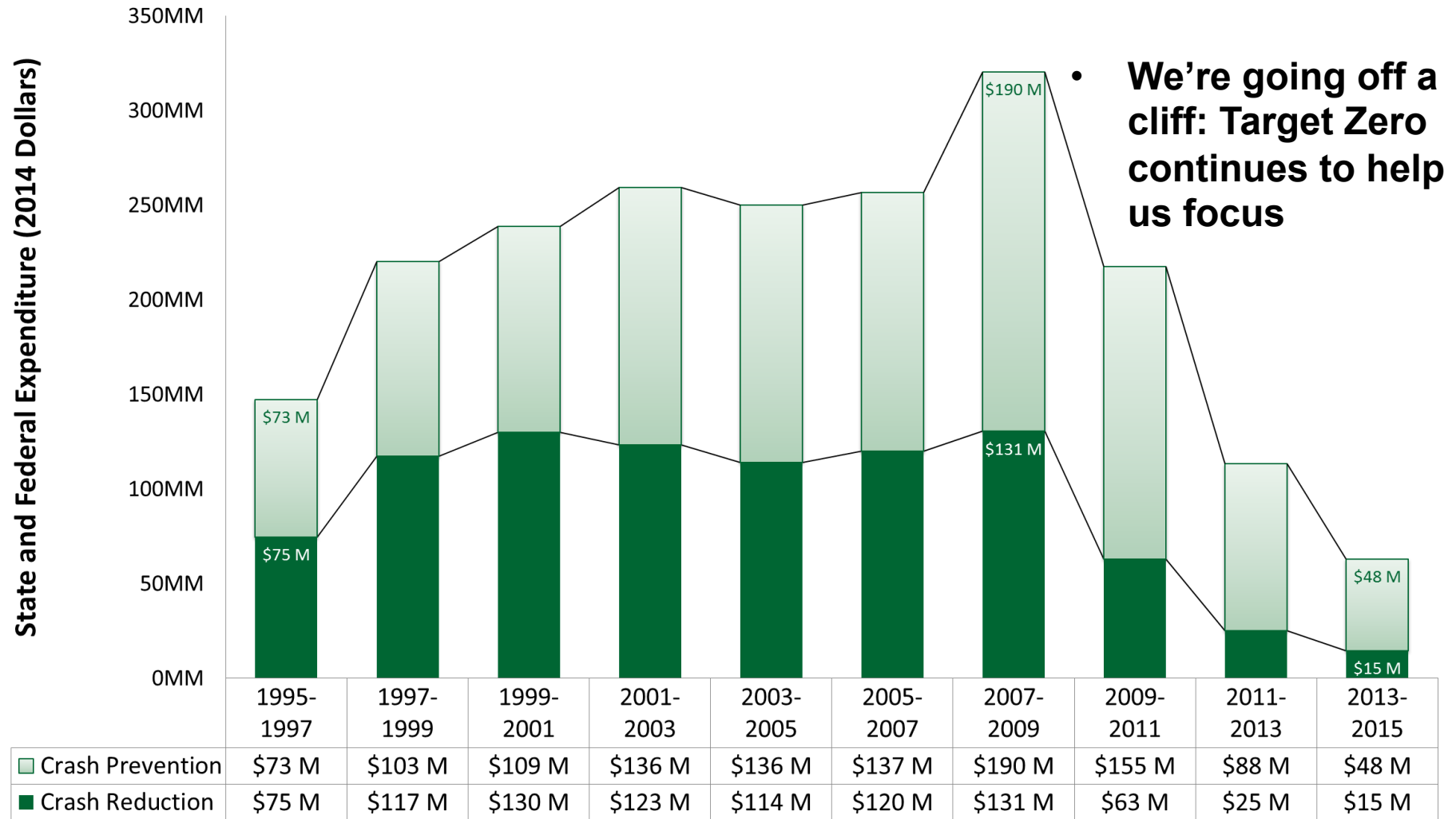


WSDOT Safety Investments - State & Federal Dollars (2014 Dollars)



- In the good times, incredible success
- Reporting to legislature on performance helped to increase safety investment levels

WSDOT Safety Investments - State & Federal Dollars (2014 Dollars)



Historic Perspective

WSDOT approach to highway safety

Major
efforts
completed

Systemic treatments
(e.g. cable median barriers, rumble strips)

80s & 90's:
3R Companion
Safety Projects

- Priorities driven by Paving Needs
- Approach to solutions was not standardized across the system
- Marginal risk reduction
- Marginal efficiency of reducing system-wide crash risk

90's to Present:
Design matrix
approach

- Spot & corridor focus based on B/C
- One size fits all approach
- Standards based matrix driven solutions
- Improved but still marginal risk reduction
- Improved but marginal efficiency in reducing risk

Today: Sustainable
Highway Safety

- Needs based on quantitative assessment of system performance
- Solutions based on assessment of site specific contributing factors
- Based on current scientific methods for predicting collision risk and reduction risk
- Substantive risk reduction
- Economically efficient

Marginal
safety

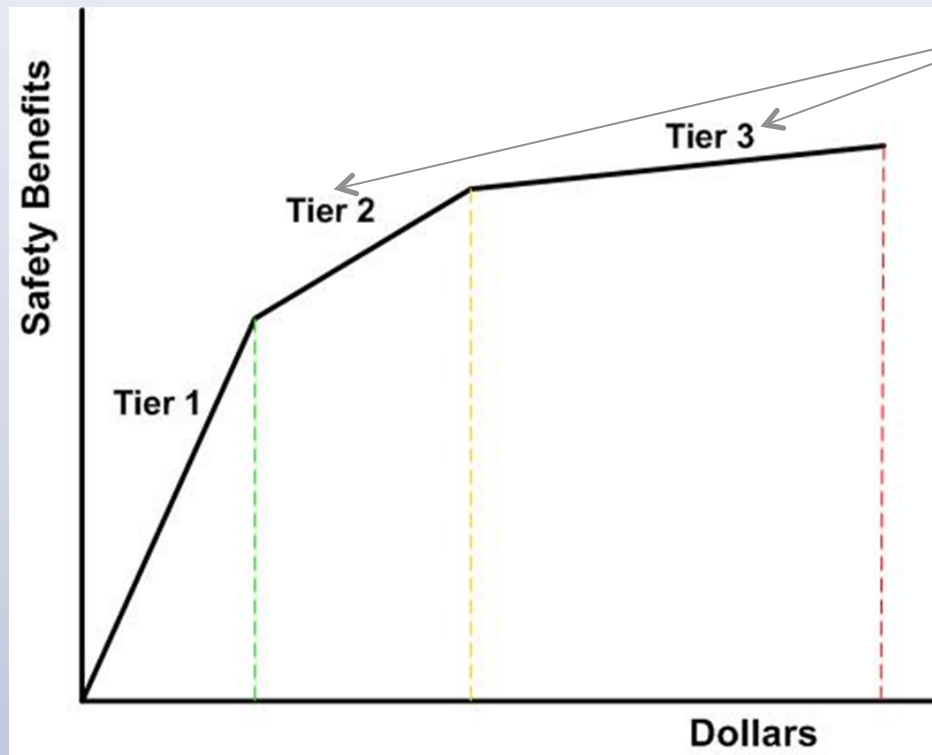
Standards-based
(nominal) safety

Substantive safety
(actual anticipated performance)
Focus: fatal and serious injury crashes

Investment approach

Incremental Benefit-driven Decision Making

Address the contributing circumstances to the crash first, rather than using simple standards based applications



Nominal/
Full Standards

Asset-Risk management triangle expanded





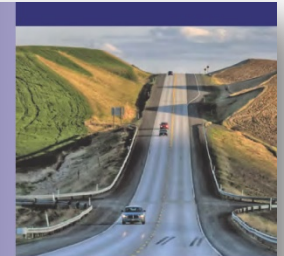
Target **ZERO**

Washington's Strategic
Highway Safety Plan

Washington State Strategic Highway Safety Plan 2013

Zero Deaths & Zero Serious Injuries
by 2030

Target
ZERO
Washington's Strategic
Highway Safety Plan



TZ priorities focus our efforts and investments

- If it isn't a priority in Target Zero, it isn't a WSDOT priority for safety
- Investment Plan

Washington State 2009-2011	Fatalities		Serious Injuries	
	Number	% of Total	Number	% of Total
Priority Level One				
Impaired Driver Involved	704	50.1%	1,519	21.0%
Run-Off-the-Road	615	43.7%	2,156	29.7%
Speeding Involved	555	39.5%	2,126	29.3%
Young Drivers 16-25 Involved	487	34.6%	2,763	38.0%
Distracted Driver Involved	426	30.3%	868	11.9%
Intersection Related	290	20.6%	2,474	34.1%
Traffic Data Systems	**	**	**	**
Priority Level Two				
Unrestrained Vehicle Occupants	348	24.8%	764	10.5%
Unlicensed Driver Involved	253	18.0%	n/a	n/a
Opposite Direction	221	15.7%	702	9.7%
Motorcyclists	206	14.7%	1,230	17.0%
Pedestrians	193	13.7%	869	12.0%
EMS and Trauma Systems	**	**	**	**
Priority Level Three				
Older Drivers 75+ Involved	126	9.0%	378	5.2%
Heavy Truck Involved	115	8.2%	341	4.7%
Drowsy Driver Involved	45	3.2%	258	3.6%
Bicyclists	26	1.8%	339	4.7%
Work Zone	9	0.6%	132	1.8%
Wildlife	8	0.6%	78	1.1%
School Bus Involved	3	0.2%	18	0.2%
Vehicle-Train	2	0.6%	3	0.0%
Total*	1,406		7,247	

* More than one factor is commonly involved in fatalities and serious injuries. Therefore, each fatality and serious injury tallied in "Total" may be represented in multiple factors in the table.

Examples

Target Zero Priorities

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Priority Level One

Impaired Driver Involved

Run-Off-the-Road

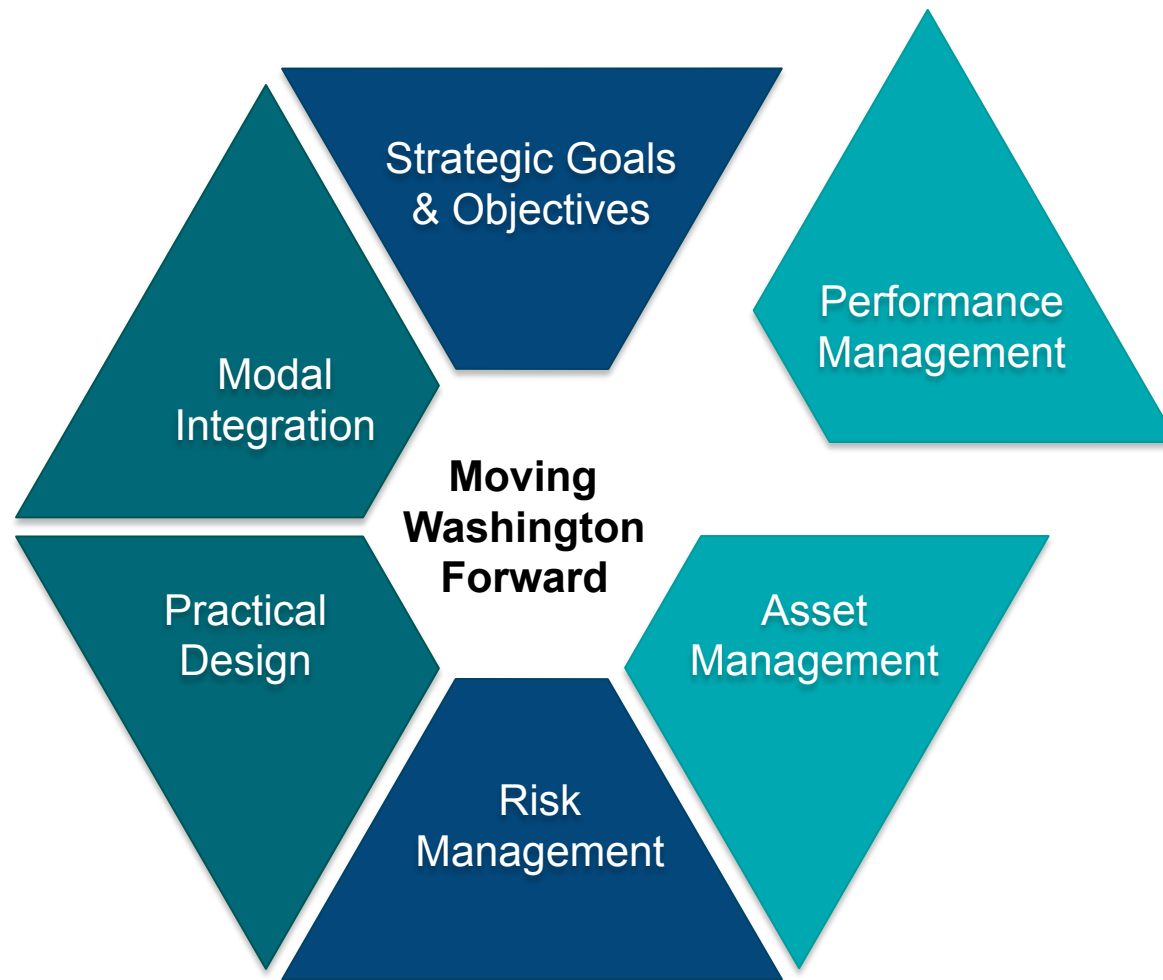
Speeding Involved

Young Drivers 16-25 Involved

Distracted Driver Involved

Intersection Related

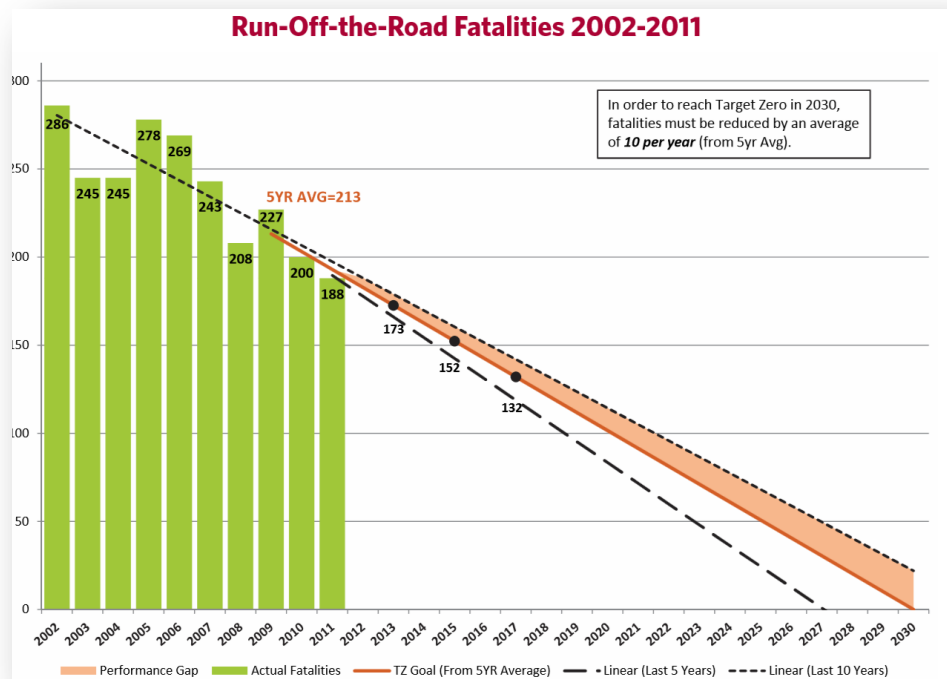
Traffic Data Systems



Run-off-the-road

A continuing journey

- We've been focusing on run-off-the-road crashes since 1999

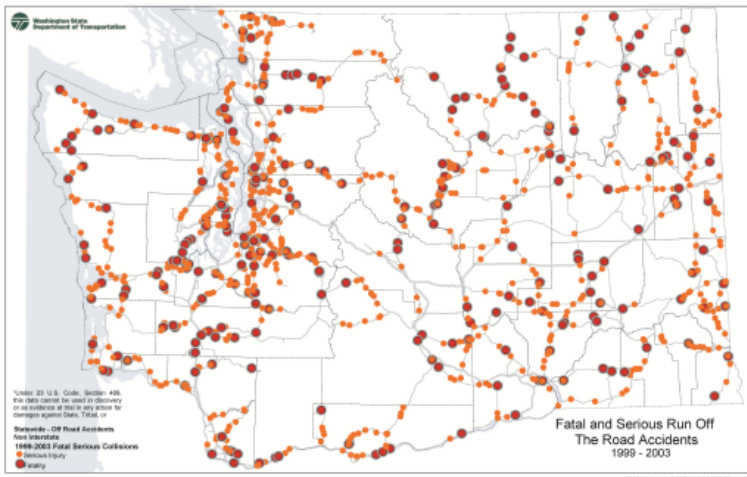


Source: Target Zero (2013 Plan)

Run-off-the-road

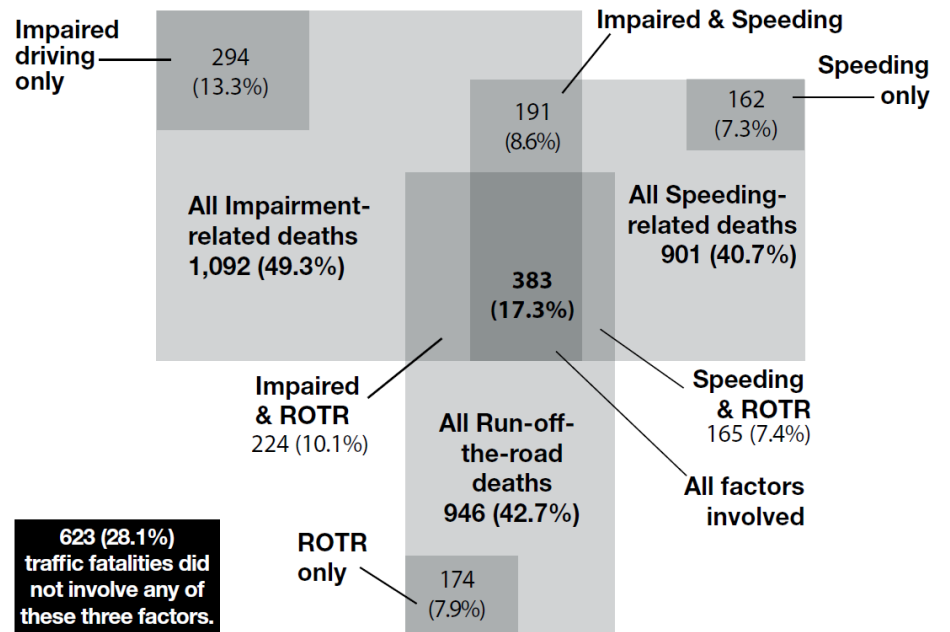
Tracking and evaluation

In 2005:



Fatal & serious injury Run-off-the-road crashes (1999 – 2003)

In 2011:
5E evaluation of contributing circumstances



The role of impairment, speed, or run-off-the-road in traffic fatalities, 2006-2009

Data source: Fatal Accident Reporting System (FARS) and WSDOT Statewide Travel and Collision Data Office (STCDO).
Prepared by: WA Traffic Safety Commission.

Data derived from 2,216 total traffic fatalities; 71.9% or 1,593 deaths involved driver impairment, speeding, or run-off-the-road (ROTR), or a combination of these behaviors.



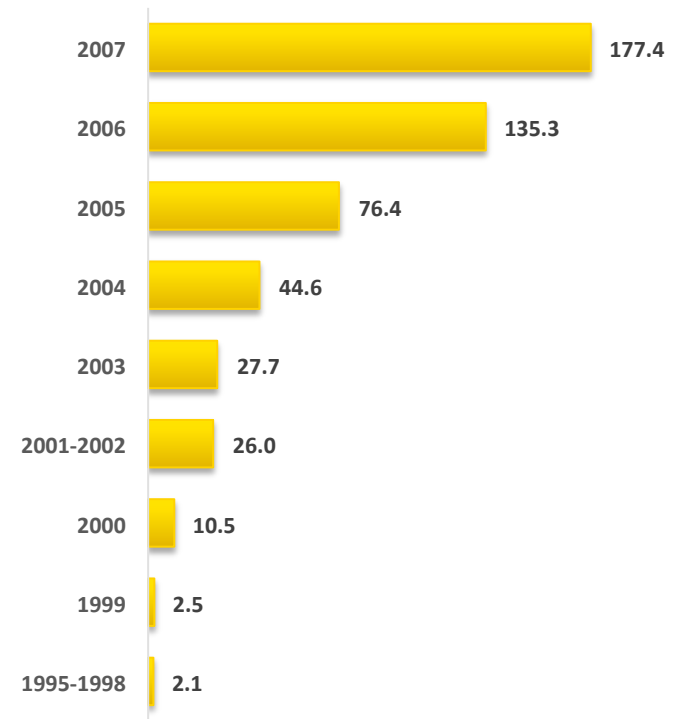
Run-off-the-road

Systemic treatments since 1999

Cable Median Barrier

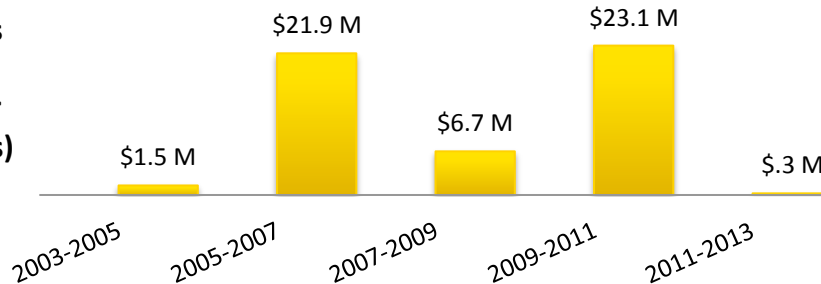


In 2008:
Tracking cumulative miles of cable median barriers



Cable Median Barrier Expenditure by Biennium (2014 Dollars)

Safety Program Expenditures for Median Cable Barrier (2014 Dollars)



Cable Barrier Miles in Place (Cumulative)

Run-off-the-road

Systemic treatments since 1999

Rumble Strips (Edge & centerline)



Center and Edge line (shoulder) rumble strips
Source: <http://www.flickr.com/photos/wsdot/3972234532/>

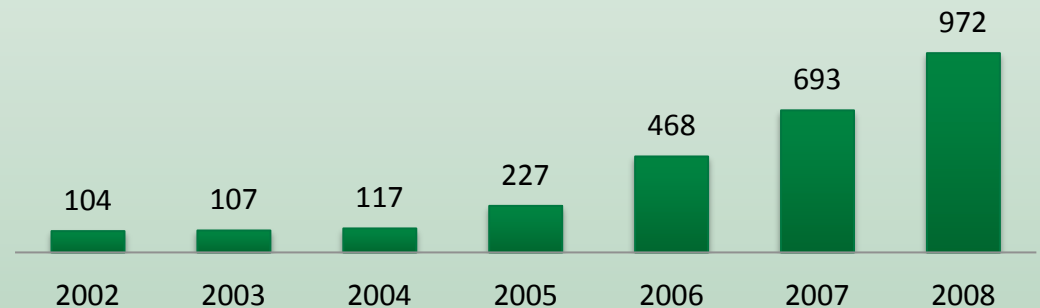
Continuing to track installation and performance

Example (2009):

■ Shoulder Rumble Strips: Miles Installed



■ Edge Shoulder Rumble Strips: Miles Installed



Intersection related

Systemic treatments since 1999

Roundabouts

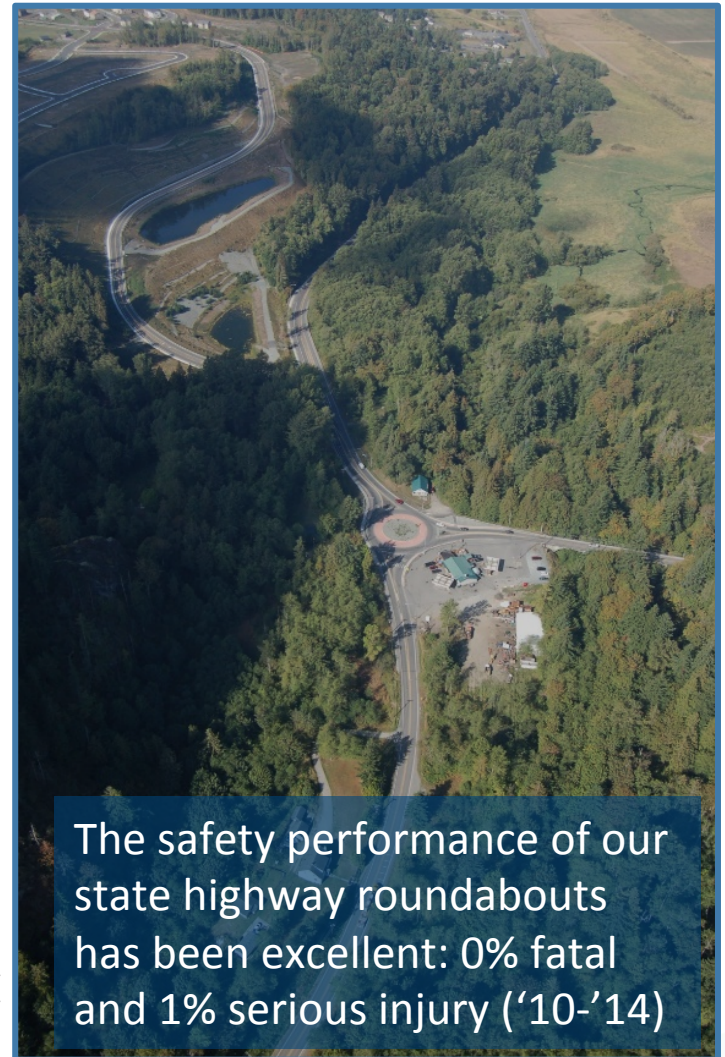


SR 539 Wisner Lake roundabout

Photo: Lyle Jansma; Source: <http://www.flickr.com/photos/wsdot/4184630257/sizes/o/in/photostream/>

Big Rock roundabout in Mount Vernon

Roundabout at the intersection of SR 9 and SR 538 to accommodate increased traffic and improve safety performance. The roundabout was built and paid for by a local developer under the direction of WSDOT. (Completion Date: August 2007)
Photo: WSDOT; Source: <http://www.flickr.com/photos/wsdot/3951199368/sizes/o/in/set-72157622322334341/>



The safety performance of our state highway roundabouts has been excellent: 0% fatal and 1% serious injury ('10-'14)





