



Project Safety Management System (PSMS)

Biennial Status Report 2012



TABLE OF CONTENTS

1. INTRODUCTION	1
REPORT SUMMARY.....	2
2. PROJECT SAFETY MANAGEMENT SYSTEM (PSMS)	2
2.1 SUMMARY OF ACCOMPLISHMENTS	2
2.2 SUMMARY OF PLANNED ACTIVITIES.....	6
3. HIGHWAY SAFETY PROGRAM (STIP)	7
3.1 SUMMARY OF ACCOMPLISHMENTS	8
3.2 SUMMARY OF PLANNED ACTIVITIES.....	11
4. SAFETY PRIORITY INDEX SYSTEM (SPIS)	11
4.1 SUMMARY OF ACCOMPLISHMENTS	12
4.2 SUMMARY OF PLANNED ACTIVITIES.....	13
5. OTHER SAFETY INITIATIVES.....	14
5.1 SUMMARY OF ACCOMPLISHMENTS	14
5.2 SUMMARY OF PLANNED ACTIVITIES.....	15
6. THE FUTURE	16

1 INTRODUCTION

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) mandated that states develop and maintain six transportation management systems, one of which was a Safety Management System (SMS). As defined by the Federal Highway Administration (FHWA) a SMS is "a systematic process which increases the likelihood of reaching safety goals by ensuring that all opportunities to improve highway safety are identified, considered, implemented as appropriate, and evaluated in all phases of highway planning, design, construction, maintenance, and operations"

In response to the mandate, Oregon Department of Transportation (ODOT) began to develop a SMS. The National Highway Designation Act of 1995 made development of this management system optional, but ODOT recognized the benefits and has continued to develop a Safety Management System, comprised of the *Project Safety Management System (PSMS)*.

The Transportation Equity Act for the 21st century (TEA 21), enacted in 1998, provided for increased research funding for safety and continued the funding for safety improvement projects, the Hazard Elimination Program. The Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), enacted in 2005, further increased federal funding for safety improvements through the Highway Safety Improvement Program (HSIP). The Moving Ahead for Progress in the 21st Century Act (MAP-21) continues the successful HSIP program, increasing safety funds yet again, strengthening the focus on Fatal and serious injury crashes and emphasizing safety on all public roads.

In MAP-21 HSIP emphasizes a data-driven, strategic approach to improving safety on all public roads that focuses on performance. Each State is required to have to identify key safety problems, establish their relative severity, and then adopt strategic and performance-based goals to maximize safety. Every State is required to develop a Strategic Highway Safety Plan (SHSP) that lays out strategies to address these key safety problems. Every State now has an SHSP in place, and MAP-21 ensures ongoing progress toward achieving safety targets by requiring regular plan updates. The SHSP remains a statewide coordinated plan developed in cooperation with a broad range of multidisciplinary stakeholders.

In addition-

- States will set targets for the number of serious injuries and fatalities and the number per vehicle mile of travel. If a State fails to make progress toward its safety targets, it will have to devote a certain portion of its formula obligation limitation to the safety program and submit an annual implementation plan on how the State will make progress to meet performance targets.
- Although MAP-21 eliminates the requirement for every State to set aside funds for High Risk Rural Roads, a State is required to obligate funds for this purpose if the fatality rate on such roads increases.
- States are required to incorporate strategies focused on older drivers and pedestrians (65 years and older) if fatalities and injuries per capita for those groups increase.
- A State that fails to have an approved updated SHSP will not be eligible to receive additional obligation limitation during the overall redistribution of unused obligation limitation that takes place during the last part of the fiscal year.

Report Summary

This biennial report on the progress of the PSMS fulfills the requirement in the *Safety Management System Agreement*, dated February 24, 2000 between the Oregon Department of Transportation and the Federal Highway Administration (FHWA). Below in tables are summaries of the accomplishments for different categories of activities for the calendar years 2011 and 2012. Each of the items is detailed in the corresponding sections of the report.

A couple key accomplishments is getting the roadway departure projects to begin implementation and also developing a similar plan for Intersections. One accomplishment that has not been completed that is very close but very difficult to finish is the update to the All Roads SPIS. The development of this product was much more difficult than anticipated and continues to frustrate developers and analysts with the complexity but ODOT is striving to get it right soon.

A couple key planned activities for next biennium is the development of the “Jurisdictionally Blind” all public roads safety program and also the transition for that program over the next several years. Advocating for addressing safety on all roads and also using systemic measures has paid off and will likely have a beneficial impact on reducing fatal and serious injuries statewide. Also funding Intersection systemic measures and developing a similar plan for bicycle/Pedestrian safety and implementing the plan will be key to addressing safety on Oregon roads.

2 PROJECT SAFETY MANAGEMENT SYSTEM (PSMS)

The Oregon DOT's *Project Safety Management System* is a comprehensive data analysis and reporting system designed to improve the safety of Oregon's transportation system and reach all safety goals. The objective of the PSMS is to help in meeting ODOT's goal to reduce the traffic fatality rate in Oregon 10 per 100,000 population in 2009, to 9.25 per 100,000 in 2020 and 8.75 per 100,000 in 2030. The PSMS and associated tools give highway project leaders and designers pertinent PC-based and internet based crash, safety, roadway and traffic mitigation information to perform safety analyses and make safety investments where they will count the most.

2.1 Summary of Accomplishments

Research Projects

These research efforts assist ODOT's Traffic-Roadway Section in research and completion of safety goals.

Status: Ongoing

Completed Research:

Alternative Pedestrian Devices

Assessment of Statewide Intersection Safety Performance

Safety Performance of Highway Approaches

Feasibility of Using Safety Edge

Highway Safety Manual Part B assessment- Data Needs

Calibrating the Highway Safety Manual Predictive Models for Oregon

Quantifying Safety Performance of Driveways

Implementation Plan and Cost analysis for Oregon's online Crash Reporting System
Safety Evaluation of Curve Warning Speed Signs
Maximizing Investments in Work Zone Safety

Current Research:

Developing Safety Performance Measures for Roundabouts
Evaluation of Variable Speed Limit System for Wet and Extreme Weather
Improved Safety Performance Functions for Signalized Intersections
Pooled Fund Study of HSM Implementation
Effective Measures to Restrict Left Turn Movements

Partnership between Traffic Roadway Section and Transportation Safety

In March of 1999, a formal Safety Management System partnership between Traffic-Roadway Section and Transportation Safety Division was established. This partnership has continued with regular communications including monthly meetings, joint committee work and ongoing coordination to provide engineering, education and enforcement solutions to transportation safety problems.

The Transportation Safety Division takes the lead role in development of Oregon's Strategic Highway Safety Plan (SHSP) as required by SAFETEA-LU. Traffic-Roadway Section participates in the development of the plan (Oregon's SHSP is called the "Transportation Safety Action Plan"). In addition Traffic-Roadway participates in yearly planning for the Oregon Safety Performance Plans and regularly participates in the Oregon Transportation Safety Committee Meetings and Traffic Records Coordinating Committee.

Status: Ongoing

Partnership between Traffic Roadway Section and Transportation Planning and Analysis Unit

In 2010, Traffic-Roadway Section and Transportation Planning and Analysis began meeting to coordinate efforts to implement the Highway Safety Manual (HSM) at ODOT. This coordination has continued with regular communications including monthly meetings, joint work on traffic analysis manuals and ongoing coordination to provide engineering safety analysis to transportation safety problems.

Both groups play a key role in developing and implementing the HSM in ODOT.

Recently the groups have been working to include more HSM methods within the Analysis Procedures Manual.

Status: Ongoing

Crash Modification Factors Instruction Website

Accurate crash modification factors (CMF) are critical to selecting the most cost-effective countermeasures for highway safety improvement projects. The CRF list is the primary resource used by engineers for safety project development and evaluation. With the advent of the new Crash Modifications Clearinghouse by FHWA ODOT can now use a regularly updated list of countermeasures and the latest research on the

countermeasures effectiveness. ODOT has updated and added to the original website on how to use the Crash Modifications Factors.

Status: 100% Complete

Collision Diagramming

Work with Crash Data Unit to implement a new Collision diagramming tool based on earlier evaluation. This tool is still not complete but data improvements are being made.

Status: 90% complete

Note: Work on the Collision Diagramming tool has been hampered by data discrepancies but with added work by the Crash Data unit it is close to completion and expected to be delivered in 2013

Update of TransGIS

ODOT supports the development and deployment of an easy to use and upgradeable mapping tool, TransGIS. The software is a simplified GIS in which users can generate maps of crash data, SPIS sites, SIP projects, pavement condition, ADT and other data.

Status: Complete

Development of New crash reports

ODOT's Crash Analysis and Reporting Unit, Transportation Development Division, improved current reports and developed new reporting tools for cities and counties to summarize and detail out crashes within their jurisdiction.

Status: 100% Complete

Roadway Departure Plan Implementation

During the spring of 2010 Oregon participated with FHWA to develop a plan for reducing Roadway Departure Crashes in Oregon. Roadway Departure crashes account for approximately 66% of all fatalities in Oregon. Data analysis of Oregon Crashes was combined with cost effective strategies to identify locations for the most effective use of funds to achieve an approximate 20% reduction in roadway departure fatalities. This systematic approach involves deploying large numbers of relatively low cost, cost effective countermeasures on targeted segments of road with a history of roadway departure crashes.

Since roadway departure severe crashes are such a high percentage of the traffic safety problem in Oregon, a significant impact on this crash type will make a big difference in the overall number of fatalities and incapacitating injuries in the State.

Information from the Roadway Departure Safety Implementation Plan is available on the Traffic-Roadway website at:

http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/roadway_departure.shtml
Implementation is proceeding in 2012 when funding was made available through 164 penalty funds, projects should precede in 2013.

Status: Ongoing

Intersection Plan Development

During 2012 Oregon participated with FHWA to develop a plan for reducing Intersection Crashes in Oregon. Intersection crashes account for approximately 15% of all fatalities in Oregon. Data analysis of Oregon Crashes was combined with cost effective

strategies to identify locations for the most effective use of funds to achieve an approximate 13% reduction in intersection fatalities. This systematic approach involves deploying large numbers of relatively low cost, cost effective countermeasures at targeted intersections with a history of crashes.

Information from the Intersection Safety Implementation Plan is available on the Traffic-Roadway website at:
<http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/Pages/intersections.aspx>

Status: 100% Complete

Highway Safety Manual Implementation

There has been a growing recognition that transportation professionals lack the needed tools to explicitly consider safety when making decisions. Several years ago the need for including highway safety in the Highway Capacity Manual was raised. The Transportation Research Board recognized the need for a standalone manual on Highway Safety to provide the best factual information in a useful and widely accepted form.

The Highway Safety Manual (HSM) represents that effort to identify and assemble the best currently available information on safety and measures for performance, prediction and evaluation of safety. The HSM provides information and tools to assist in making decisions that have a positive impact on safety. The HSM is a tool for predicting the safety consequences of actions in design, policy, planning and operations.

The HSM contains syntheses of validated highway research and adopts that research for practice. It provides the foundation for analytical tools and methods for predicting the impacts of design decisions on highway safety. The HSM was released in 2010.

Continue implementation of Highway Safety Manual (HSM) methods into planning, project scoping and selection, including calibrating Safety Performance Functions, determining if new Safety Performance Functions or Crash Modification Factors need development and provide training for staff

Status: Ongoing

Highway Safety Manual (HSM) Pooled Fund Study

ODOT is participating in FHWA sponsored pooled fund study. The objectives of the study are to advance and expand the implementation of the HSM by state DOT's. The research and products should help states accelerate their implementation of HSM thereby improving data analysis techniques and ultimately improving decision making.

Safety Investigators User Group

The Safety Investigators User Group was formed with Region Traffic Representatives and Central Traffic Staff as well as Safety Division staff. The purpose of the group was to meet and give input to central staff developing new tools, guidance and training. The group also receives information on the newest developments and helps guide the priorities of the development of ODOT's PSMS. The group also meets to discuss the yearly SPIS reports and FHWA reporting requirements.

Status: Ongoing

Safety Priority Index System (SPIS)

SPIS is an integral part of the PSMS and is described later in the report under “Network Screening”.

Pilots of HSM evaluation on State Highways

ODOT has taken several opportunities to use Highway Safety Methods to compare project alternatives. One such Pilot was done in Tumalo Oregon to compare different project alternatives.

Status: Ongoing

Comparisons of SPIS and HSM at Intersections

ODOT performed some comparisons of SPIS top 10% sites and HSM rankings of the same sites. Generally the top 10% SPIS sites were also identified by HSM as top ranked sites, only HSM ranked the sites in different order than SPIS. This was not surprising and ultimately confirmed what ODOT staff believed for a long time. That SPIS was a good tool for identifying top sites with less data requirements, the order of the SPIS rankings were less important than the grouping of top sites.

Status: 100% Complete

Roundabouts

Roundabouts provide a dramatic reduction in serious injury crashes at intersections. Training and presentations were provided to all Oregon Area Commissions on Transportation regarding the safety and operational benefits of Roundabouts.

Status 100% complete

Roundabout Moratorium and Research

ODOT called a moratorium on building roundabouts in 2011 until such time that policies could be examined. ODOT worked with the Freight Industry to resolve design and policy issues regarding using roundabouts on State Highways and freight routes.

Status 100% complete

2.2 Summary of Planned Activities

Intergovernmental Agreements with PSU and OSU, Contracts with Consultants and Research Projects

Continue research in the following:

Developing Safety Performance Measures for Roundabouts

Evaluation of Variable Speed Limit System for Wet and Extreme Weather

Improved Safety Performance Functions for Signalized Intersections

Pooled Fund Study of HSM Implementation

Other possible research includes:

*Maximize the Benefits of Red Clearance Extension to Reduce Red Light Running
Safety Performance Functions for Freeways and Ramps
Risk Factors Associated with High potential for Serious Crashes*

Develop a Pedestrian and Bicyclist Safety Plan

Investigate using a similar approach to the Roadway Departure Plan, of identifying large numbers of relatively low cost, cost-effective countermeasures and match them to corridors with a history of or risk of Pedestrian and Bicycles crashes amenable to reduction.

Develop a plan for implementing low cost bicycle and pedestrian systemic safety improvements on all roads in Oregon. The goal is to reduce bicycle and pedestrian fatal and serious injury crashes on roadways in Oregon.

Revise Benefit Cost worksheet to include HSM methods

Update ODOT process for analyzing benefit of safety project incorporating Highway Safety Manual Methods to account for regression to the mean effects and natural variations in the crash data.

Develop a tool for evaluating Before and After Performance of individual projects in reducing crashes using HSM methods

ODOT currently uses a before and after analysis for crash reduction comparisons. Develop spreadsheet tool for estimating the reduction in crashes due to the implementation of a safety countermeasures or multiple safety countermeasures on a project using Highway Safety Manual methods.

Data Requirements for Highway Safety Manual

Continue defining data needs for HSM methods, including analyzing FHWA requirements for a subset of MIRE data elements to be collected.

3 HIGHWAY SAFETY PROGRAM - STIP

The Statewide Transportation Improvement Program, known as the STIP, is Oregon's four year transportation capital improvement program. It is the document that identifies the funding for, and scheduling of, transportation projects and programs and includes ODOT's Highway Safety Program projects. Funding for Highway Safety in the STIP is from several sources, the Highway Safety Improvement Program (HSIP) is the primary source of funding.

The *Highway Safety Improvement Program (HSIP)* is a federally funded program that mandates each state have a safety data system to perform problem identification and countermeasure analysis on all public roads, adopt strategic and performance-based goals, advance data collection, analysis, and integration capabilities, determine priorities for the correction of identified safety problems, and establish evaluation procedures.

The HSIP is made up of three components, Highway Safety Improvement Projects, Highway Grade Rail Crossing (HGRX) Safety Projects, and the High Risk Rural Roads (HRRR) Projects. Highway Grade Rail Crossing Safety activities are reported managed by ODOT Rail Division. They are not included in this report. HRRR is being phased out in MAP21.

In addition there are Section 164 Penalty funds. Section 164 is a Highway Penalty Transfer Program (23USC 164). If a State does not enact and enforce laws regarding minimum penalties for repeat offenders for driving under the influence, certain Federal Aid highway funds are transferred into Highway Safety Improvement Program (HSIP) and used for highway safety activities.

The overall objective of HSIP is reducing the number and severity of crashes and decreasing the potential for crashes on all highways. Primarily the HSIP project funds are used to fund safety projects on state highways. Section 164 Penalty funds address Safety Emphasis Areas within the Oregon Transportation Safety Action Plan, including Roadway Departure safety, Intersection safety and pedestrian and bicycle safety. MAP 21 increases the amount of HSIP funds available to states, ODOT has designated the increases to go for Intersections and Ped/Bike Safety starting in 2016. Meanwhile ODOT is also giving additional funds to safety for local agency roads, in anticipation of moving towards an all roads safety program (or Jurisdictionally Blind safety).

3.1 Summary of Accomplishments

Highway Safety Improvement Program (HSIP) Report

These reports detail ODOT's HSIP accomplishments for the fiscal years 2011 and 2012. The reports summarize the HSIP activities for the previous year and document the progress being made to implement safety improvements and the effectiveness of such projects.

Status: 100% Complete

High Risk Rural Roads

HRRR is being phased out under MAP21 (2012 was the last year) although the department still has remaining funds of HRRR unobligated and has programmed them into future years (2013-2015). The plan is to use them to fund systemic measures on local roads in 2013-2015.

Highway Safety Program Guide

Changes to the program guide are being developed. With the enactment of MAP-21 several changes will be made. In addition ODOT is enacting a more comprehensive approach of including projects on city and county roads within Oregon.

See: http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/highway_safety_program.shtml for a copy of the current guide updated in 2010.

Status: 10% Complete

Statewide Transportation Improvement Program (STIP) – SAFETY Summary

Just over about \$58 million was programmed for construction of safety projects using HSIP (primarily infrastructure improvements) over the 3 year period 2011-2013, compared to just over \$51 million the previous two years. This total does not include preliminary engineering, right-of-way, non-safety construction costs, Traffic Safety Grants, Rail Crossing projects or local safety projects. A summary is shown in the table below.

STIP Actuals (\$ in Thousands) – HSIP and Other

Region	2011	2012	2013
1	\$16,656	\$4975	6510
2	\$2861	\$5627	4671
3	2698	\$862	4720
4	\$0	\$3036	1761
5	\$450	\$369	1106
Sub-Total	\$22,485	\$14,869	\$18,768
Quick Fix	\$500	\$500	\$500
HR3	\$1300	\$1300	\$1300
Roadway Departure		\$7900	\$6800*

*Section 164 penalty funds for safety were approved by ODOT to be used exclusively for Roadway Departure Projects, and under MAP-21 the amount of funds is estimated to be more on the order of \$9.6 million starting in 2013.

STIP Targets approved by OTC (\$ in Millions)

	2014	2015
<i>Highway SAFETY (including HSIP)</i>	\$19,400	\$18,500
Roadway Departure (Section 164 Penalty)	\$6,800*	\$6,800*
High Risk Rural Roads	\$1,200	\$1,200
Quick Fix	\$500	\$500
Safety Total	\$27,900	\$27,000

Status: Ongoing

Note: Intersection and Bike/Ped funds for systemic improvements not shown above have been approved for 2016 and will show up in the next biennial report. Repeat Offender Transfer – Section 164 Penalty Funds

The Section 164 Penalty is a Highway Penalty Transfer Program (23USC 164). If a State does not enact and enforce laws regarding minimum penalties for repeat offenders for driving under the influence, certain Federal Aid highway funds are transferred into Highway Safety Improvement Program (HSIP) and used for highway safety activities.

Approximately \$6.8 million are available each year (although under MAP 21 this should go up to about \$9.6 million). Starting in 2012 these funds are to be used exclusively to fund projects to address Safety Emphasis Areas within the Oregon Transportation Safety Action Plan, primarily Roadway Departure safety. The approach involves deploying relatively low cost and cost effective countermeasures on target segments or intersections with a history of crashes.

The 2012 Penalty funds came late in the year, because of continuing resolutions around SAFETEA-LU. The first projects using these funds are scheduled to be obligates in 2013.

Status: Ongoing

High Risk Rural Road Program (HRRR)

The High Risk Rural Road Program (HRRR) is a sub-program of the Highway Safety Improvement Program (HSIP), a federally-funded program managed by the Oregon Department of Transportation (ODOT). Under MAP 21 the HRRR was discontinued unless activated by the special rule. The Special rule monitors the fatality rate on rural roads and if an increase is observed for a two year period states are required to obligate 200% of the HRRR received for 2009 in the next fiscal year.

Currently the remaining HRRR and those funds programmed under 2013-2015 STIP will be used to fund systemic local road projects.

Status: Ongoing

Training Provided

Highway Safety Manual Training
Safety Investigators Manual training
Crash Magic Training (collision diagramming)
Roadside Safety Audits (RSA) training

Status: Ongoing

Quick Fix Program

The quick fix program was implemented in 2007. The long lead time required to program safety projects in the STIP led ODOT to establish this dedicated “bucket” of safety funds for addressing immediate needs in a timely manner. The program establishes a small pooled fund (about \$500K from the Highway Safety Funds) that regions could use to address immediate highway safety concerns by implementing low cost measures.

Status: Ongoing

HSIP Report Improvements

Improved the HSIP reports, with more comprehensive reporting, including all Safety Projects not just those funded with HSIP funds.

Status 100% complete

Development of Performance Measurement Tool for STIP projects

ODOT Traffic-Roadway developed several prototypes of excel spreadsheets to measure performance of Safety Projects beyond the report to FHWA. Tested the crash reduction of total crashes and fatal and serious injury crashes plus compared crash rates before and after by region and for the entire state.

The report pointed out several difficulties with trying to objectively measure the performance of the safety projects and we believe the Highway Safety Manual will assist with eliminating some of the effects of regression to the mean in the simple before and after analysis.

ODOT made some recent progress on this task and plans to work more on it in 2013.

Status: 60% Complete

Intersection and Bike/Ped Systemic Safety Programs

Developed concept to fund systemic safety measures for Intersections and for Bicycle/Pedestrian and presented the concept to Highway Management. ODOT Highway Management approved the concept and \$4 million in funding for each program starting in 2016.

Status 100% complete

3.2 Summary of Planned Activities

Training

Additional Safety Training for Local Agencies

Systemic measures training

Additional Highway Safety Manual training

HSIP Reports

Continue to improve the HSIP reports, with more comprehensive reporting, including developing better evaluation tools and better tracking of the projects, through the new project delivery tools being developed.

Develop Jurisdictionally Blind Safety Program

Meet with representatives of local agencies to discuss the need for addressing safety on all public roads and establish a basis for moving towards a jurisdictionally blind safety program. Agree on Program principles. Reasonable expect the program to begin in the next STIP cycle (2017-2020).

Develop Transition Program for All Public Roads Safety

Continue the discussions on Jurisdictionally Blind program by developing a transition program of funding systemic measures until the Jurisdictionally Blind program can be implemented in the 2017-2020 STIP. Develop training for Regions (or hire consultant) to assist with facilitation of discussions at region levels of what the Local Safety program is for each region.

Older Driver Program (special rule in MAP 21)

Analyze data for Older Driver Special rule in MAP 21 and implement Older Driver program of engineering measures.

4 NETWORK SCREENING

The *Safety Priority Index System (SPIS)* is a method developed in 1986 by the Oregon Department of Transportation (ODOT) for identifying potential safety problems on state highways. The development of SPIS complies with the federal Highway Safety Improvement Program (HSIP). When Oregon began developing its Safety Management System in response to the 1991 ISTEA, it identified SPIS as one of several essential building blocks. In 1996, based upon recommendations of Dr. Robert Layton at Oregon State University, changes were

made in the weightings of indicator values (crash severity, crash frequency, crash rate) that make up the composite score.

SPIS is a tool used to identify crash history in 0.10 mile segments on state highways. SPIS scores are developed based upon crash frequency, severity, and rate. A prioritized list is created for each region (the top 10 percent of statewide SPIS sites) and is provided to regions annually for analysis and possible corrective action.

4.1 Summary of Accomplishments

2012 SPIS Reports Published

The SPIS reports are generated and distributed to Regions for investigation about mid year each year.

In 2012 there were total of 4,886 sites on this year's top 10% SPIS site list. Below is summary for the last five years.

Oregon Department of Transportation
2012 Safety Priority Index System
5 Year History Summary

Year	# Top 10% Sites	# Repeat Sites	# New Sites	10% Cutoff SPIS Value
2012	4,886	3,281	1,605 (33%)	42.82
2011	4,717	3,279	1,438 (30%)	42.38
2010	4,679	3,400	1,279 (27%)	41.60
2009	4,830	3,340	1,490 (31%)	43.60
2008	5,032	3,390	1,642 (33%)	44.27

Status: 100% Complete

FHWA required Top 5% report based on SPIS

As part of the new HSIP, states are required to submit an annual report describing not less than 5 percent of their highway locations exhibiting the most severe safety needs. The intent of this provision is to raise public awareness of the highway safety needs and challenges in the states.

ODOT uses our Safety Priority Index System (SPIS) tool to identify and prioritize its most severe safety needs. In addition, to the listing of top 5% SPIS sites, the new HSIP requires the report to include:

- Potential remedies to the hazardous locations identified;
- Estimated costs of the remedies; and
- Impediments to implementation of the remedies other than costs.

Status: 100% Complete

Enhanced Top 5% reports (SPIS All Roads)

Currently ODOT uses our Safety Priority Index System (SPIS) tool to identify and prioritize its most severe safety needs. Currently the SPIS only generates SPIS for State Highways; the plan was to include all public roads in Oregon.

Two obstacles exist, the linear referencing system used by cities and counties make it difficult to use the current SPIS methodology and insufficient data on the traffic volumes on local roads do not allow crash rates to be determined. To expand the SPIS to include local agency roads (city and county roads) requires more data on the local road system, including traffic volumes and a common referencing system similar to either a mileposting system or a geographic information system (GIS).

Developments in GIS lead us to believe that GIS is the answer to calculate SPIS statewide. First, all crash data, beginning in 2007, has been geocoded with latitudes and longitudes. Second, an effort to map road information including volumes to all local roads in Oregon to GIS is underway (OR-Trans). Together these two developments form the basis of developing a statewide method for expanding SPIS to the local road system.

The plan was to accomplish this before August 31, 2009. The project ran into significant problems with upgrading the system to include all public roads, when data did not fit together in a comprehensive GIS system. A problem was found with locating crash data on line work used for the off-state roadways in OR-Trans (city and county roads). Also problems were found with locating traffic volumes for all public roads. These problems delayed the project to repair and clean data.

The project has piloted city and county reports using cleaned data for one county and shown the process viable.

Status: 95% complete (status is hard to determine and the project may actually take much longer than expected)

Oregon Adjustable Safety Index System (OASIS)

As part of the new SPIS All Roads Project, OASIS is being developed. The “module” will provide some additional flexibility for users to adjust SPIS formulas, to filter out certain crash types or road conditions and basically provide an “adjustable SPIS”. Loading, cleaning and developing reports for OASIS adds a small amount of overhead to the SPIS All Roads project, but provides a new system that will be very flexible for ODOT, cities and counties to adjust SPIS to their own needs if they desire.

Status: 95% complete

4.2 Summary of Planned Activities

SafetyAnalyst

The SafetyAnalyst (through use of HSM methods) describes a superior method to perform network screening and potential problem areas. SafetyAnalyst requires data about the roadway elements and character in addition to crash and volumes to provide a network screening tool. ODOT has been collecting much of the data necessary but may be lacking some key components. Local agencies may be lacking much of the data required for network screening, but may be able to use the HSM methods on specific projects for decisions about the best options to employ.

Continue investigation into data needs and issues with implementing SafetyAnalyst. Investigate other products that may perform the same function using HSM methods.

Safety Scoping Tool

Develop some simple GIS tools for locals to work with geocoded crashes, evaluate their systems and plot crash maps by crash types, severity or other. AASHTO has a proposal to develop free software in GIS to produce simple analysis and provide extended capability for GIS based data for locals.

5 OTHER SAFETY INITIATIVES

Other Safety Initiatives that don't fit well in the above categories are listed below. This list is not exhaustive and does not include all engineering safety initiatives carried forth by other parts of ODOT, such as cable median guardrail for crossover crashes, upgrading guardrail/concrete barrier ends, upgrading roadside areas, corridor planning, pedestrian safety programs, bike safety programs, rail crossing safety programs and operations and modernization projects that also improve safety.

5.1 Summary of Accomplishments

Advocate for increased Safety Funding for System Wide Improvements or Emphasis Areas

Currently the entire Safety Funding Program is regionally allocated to addressing high priority sites. Addressing needed Safety Improvement through funding either systematic improvements or emphasis areas would serve as an additional way to reduce fatal and serious injury crashes.

Status: Complete (see intersection and ped/bike safety programs above)

Advocate for additional funds to address local agency safety needs

Currently half of Oregon's fatalities happen on local roads, two thirds on County roads and one third on city streets. Part of the problem though is it is spread out over ten times the mileage of the State Road System. Applying Safety dollars to that sporadic of crashes and having a significant impact requires good planning and excellent use of resources. By far lane departure crashes (run off the road crashes) in rural areas are the leading cause of fatal and serious injury.

Status: Complete (see jurisdictionally blind program above)

Speed Monitoring

The Traffic-Roadway Section (TRS) monitors speeds on Oregon Highways through a series of speed monitoring stations. The 27 stations throughout the state are maintained by the Traffic Monitoring Unit of the Transportation Development Branch for collecting volumes and speeds. The speed data is analyzed and summarized by Traffic-Roadway Section staff quarterly during the year. Results are used for research, reports and informational requests.

Because of budget cuts within the department this program may be eliminated in 2015.

Status: Ongoing

Rumble Strips

ODOT has been experimenting with different types of rumble strips for several years. As part of several initiatives the department installed variations of rumble strips, including centerline rumble strips in passing areas and rumble strips integral with the fog

line. As part of the Roadway Departure initiative ODOT will be revisiting their rumble strip policy in an effort to gain wider acceptance of the use of rumbles strips in Oregon.

Efforts to complete a final policy in 2012 were hampered, the Department is revisiting this topic in 2013.

Status: 60% Complete

Roadside Safety Audits (RSA) implementation and training

A Road Safety Audit (RSA) is a formal safety performance examination of an existing road or intersection by an independent team. The review team is made up of interdisciplinary members to get different perspectives of the safety issues. The RSA involves a field review, a formal set of recommendations, and attempt to consider all factors that contribute to a crash and all modes of road users.

ODOT has begun their use on a limited basis, but several RSA's have been performed for various projects. More work is needed to fully integrate Road Safety Audits into mainstream use. Policies and practices need to be developed.

Status: Ongoing (more training is needed)

1R Pavement Preservation Program – Guardrail Replacement

ODOT has been working with FHWA to revise the program for guardrail upgrade and replacement within the 1R pavement preservation program and the criteria by which locations are chosen. Ongoing work will be necessary as the program moves from replacing outdated guardrail on the Interstates to NHS off interstate highways.

Status: Ongoing

5.2 Summary of Planned Activities

Safety Corridors

ODOT will begin a process to update safety corridor guidance possibly incorporating HSM methods within the selection criteria of safety corridors and within the decommissioning criteria.

Advocate for increased Safety Funding for System Wide Improvements or Emphasis Areas

Currently the entire Safety Funding Program is regionally allocated to addressing high priority sites. Addressing needed Safety Improvement through funding either systematic improvements or emphasis areas would serve as an additional way to reduce fatal and serious injury crashes.

Advocate for additional funds to address local agency safety needs

Currently half of Oregon's fatalities happen on local roads, two thirds on County roads and one third on city streets. Part of the problem though is it is spread out over ten times the mileage of the State Road System. Applying Safety dollars to that sporadic of crashes and having a significant impact requires good planning and excellent use of resources. By far lane departure crashes (run off the road crashes) in rural areas are the leading cause of fatal and serious injury.

6 THE FUTURE

The efforts to integrate the Highway Safety Manual into ODOT might greatly change the direction of the ODOT PSMS in the future likely to lead to a more objective approach to safety and more effective and reliable tools.

ODOT's PSMS is committed to improving the data driven process included in the safety analysis of roadways in Oregon by improving the crash data access and also roadway inventory data. The PSMS should provide better trend analysis by summarizing the data in useful and intuitive ways. An additional component of the process will be to incorporate better evaluation tools, for evaluation of projects, policies, and countermeasures.

Significant challenges lie ahead for further improving highway safety in Oregon. Although the fatality rate has continued to decline over the past decade, the annual decreases have not been as great in recent years. Without continued focused investment, there is the potential for increased fatalities as a result of expected growth in vehicle miles traveled. In addition to future needs, there is a backlog of current identified problems.

Systemic approaches to safety improvement will greatly improve progress towards reducing fatal and serious injury crashes in Oregon. The measures are very cost effective.