

Oregon Department of Transportation



Project Safety Management System (PSMS)

Biennial Status Report 2010



OREGON DEPARTMENT of TRANSPORTATION
TECHNICAL SERVICES
TRAFFIC-ROADWAY SECTION
<http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/>

TABLE OF CONTENTS

1	INTRODUCTION	1
2	PROJECT SAFETY MANAGEMENT SYSTEM (PSMS).....	2
2.1	SUMMARY OF ACCOMPLISHMENTS.....	3
2.2	SUMMARY OF PLANNED ACTIVITIES	4
3	HIGHWAY SAFETY PROGRAM (STIP).....	5
3.1	SUMMARY OF ACCOMPLISHMENTS.....	5
3.2	SUMMARY OF PLANNED ACTIVITIES	8
4	SAFETY PRIORITY INDEX SYSTEM (SPIS)	9
4.1	SUMMARY OF ACCOMPLISHMENTS.....	9
4.2	SUMMARY OF PLANNED ACTIVITIES	11
5	OTHER SAFETY INITIATIVES	12
5.1	SUMMARY OF ACCOMPLISHMENTS.....	12
5.2	SUMMARY OF PLANNED ACTIVITIES	14
6	THE FUTURE	14

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).

SAFETEA-LU further requires all states to develop a Strategic Highway Safety Plan (SHSP) and identify a strategic approach to addressing the states most severe safety concerns. In addition SAFETEA-LU requires states to submit an annual report to FHWA describing not less than 5% of their highway locations exhibiting the most severe safety needs, potential remedies to the hazardous locations, estimated costs of the remedies and any impediments to implementation of the remedies (other than cost).

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 2009 and 2010. Each of the items is detailed in the corresponding sections of the report.

TABLE FOR SECTION 2 - SUMMARY OF PSMS ACTIVITIES

Accomplishments in 2009 & 2010
<ul style="list-style-type: none">• Intergovernmental Agreements with PSU and OSU, Contracts with Consultants and Research Projects
<ul style="list-style-type: none">• Partnership between Traffic Roadway Section and Transportation Safety
<ul style="list-style-type: none">• Crash Modification Factors
<ul style="list-style-type: none">• Benefit Cost Worksheet
<ul style="list-style-type: none">• Collision Diagramming
<ul style="list-style-type: none">• Update of TransGIS

<ul style="list-style-type: none"> • Development of New Crash Reports
<ul style="list-style-type: none"> • Development of Safety Investigation Manual
<ul style="list-style-type: none"> • Redesigned Tool to Geocode Crashes
<ul style="list-style-type: none"> • Roadway Departure Plan
<ul style="list-style-type: none"> • Highway Safety Manual
<ul style="list-style-type: none"> • Safety Investigators User Group

TABLE FOR SECTION 3 - HIGHWAY SAFETY IMPROVEMENT PROGRAM

Accomplishments in 2009 & 2010
<ul style="list-style-type: none"> • Highway Safety Improvement Program (HSIP) Report
<ul style="list-style-type: none"> • Highway Safety Project Guide
<ul style="list-style-type: none"> • Statewide Transportation Improvement Program (STIP) – Safety Summary
<ul style="list-style-type: none"> • Repeat Offender Transfer- Section 164 Penalty
<ul style="list-style-type: none"> • High Risk Rural Road Program
<ul style="list-style-type: none"> • Safe Routes To School Program
<ul style="list-style-type: none"> • Training Provided
<ul style="list-style-type: none"> • Quick Fix Program
<ul style="list-style-type: none"> • Roundabouts
<ul style="list-style-type: none"> • Development of Performance Measure Tool for Safety

TABLE FOR SECTION 4 – NETWORK SCREENING - SAFETY PRIORITY INDEX SYSTEM (SPIS)

Accomplishments in 2009 & 2010
<ul style="list-style-type: none"> • 2007 and 2008 SPIS Reports published
<ul style="list-style-type: none"> • FHWA required Top 5% report based on SPIS
<ul style="list-style-type: none"> • Enhanced Top 5% Reports (SPIS All Roads)
<ul style="list-style-type: none"> • Oregon Adjustable Safety Index System (OASIS)

TABLE FOR SECTION 5 - OTHER SAFETY INITIATIVES

Accomplishments in 2009 & 2010
<ul style="list-style-type: none"> Lead State Initiative – Lane Departure Projects (phase II)
<ul style="list-style-type: none"> Speed Monitoring
<ul style="list-style-type: none"> Rumble Strips
<ul style="list-style-type: none"> Road Safety Audits

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

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

Traffic-Roadway utilized agreements with PSU and OSU and a contract with Kittleson and Associates as necessary to complete safety program work. These research efforts assist ODOT's Traffic-Roadway Section in research and completion of safety goals.

Status: Ongoing

Completed Research:

Evaluating the Effectiveness of the Safety Investment Program

Determining Optimum Safety Countermeasures for Speed Related Crashes

Curve Warning Sign Evaluation

Evaluating the Safety and Operations of High Speed Signalized Intersections

Safety Investigation Manual (phase 2)

Current 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*

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

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. Since the original development of Oregon DOT's Crash Reduction Factors list, there have been significant improvements to evaluate the effectiveness of engineering countermeasures which has produced a wealth of new published research. With the advent of the new Crash Modifications Clearinghouse by FHWA ODOT we can now use a regularly updated list of countermeasures and the latest research on the countermeasures effectiveness. ODOT developed a useful website on how to use the Crash Modifications Factors.

Status: 100% Complete

Benefit Cost Worksheet and Economic factors

Updated ODOT's Benefit Cost worksheet with parameters and updated economic factors for the costs of crashes

Status: 100% Complete

Collision Diagramming

Work with Crash Data Unit to implement a new Collision diagramming tool based on earlier evaluation.

Status: 90% complete

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: Ongoing (working on second version of TransGIS)

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: 10% complete

Development of Safety Investigation Manual and worksheets

ODOT developed and deployed easy to use spreadsheets and checklists for safety investigations and to determine crash trends by facility type.

Status: Complete

Redesigned Tool to Geocode Crash data

ODOT GIS completed a new tool that allows Crash Data Unit staff to geocode all crash data with latitude and longitude for use with GIS maps. Beginning in 2007 the staff began coding all crashes with geocodes. In addition to helping locate the crash with better precision the geocode will allow local agencies to receive the data with geocodes already established for the first time. The tool was redesigned to better link the crashes to the roadway. Along with other methods to geocode all public roads in Oregon this will provide a powerful tool for locals to analyze and locate their crash data

Status: Complete

Roadway Departure Plan

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

Highway Safety Manual

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.

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 – Safety Priority Index System".

2.2 Summary of Planned Activities

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

Continue research in the following:

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

Other possible research includes:

Highway Safety Manual Pooled Fund Study

Pilots of HSM evaluation on State Highways

Evaluate Variable Speed Limits

Roundabout Safety Performance Functions for Oregon

Safety Performance Functions of Signalized Intersections

Safety Performance Functions for local and collectors roads in Oregon

Intersection Related Crashes

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 intersections with a history of intersection targeted crashes amenable to reduction.

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 systematically survey all highways to identify hazardous locations, segment and elements. 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.

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. The HRRR are exclusively for rural roads and primarily used on county roads. 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.

3.1 Summary of Accomplishments

Highway Safety Improvement Program (HSIP) Report

These reports detail ODOT’s accomplishments for the fiscal years 2009 and 2010. The reports summarize the both the HSIP and HRRR activities for the previous year and document the progress being made to implement safety improvements and the effectiveness of such projects.

Status: Complete

Highway Safety Program Guide

The program guide was revised in 2010 with new eligibility criteria. The Safety Investment Program (formerly referred to as SIP) was eliminated and the SPIS eligibility formerly required to be top 5% SPIS sites was expanded to address top 10% SPIS sites.

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

Status: 100% Complete

Statewide Transportation Improvement Program (STIP) – SAFETY Summary

Just about \$59 million was programmed for construction of safety projects (primarily infrastructure improvements) over the 2 year period 2008-2009, 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	2009	2010
1	\$9,228	\$16,656
2	\$10,274	\$2,681
3	\$2,591	\$2,698
4	\$3,390	\$0
5	\$491	\$450
Total	\$25,974	\$22,485

For the 2010-2013 STIP, categories were added for High Risk Rural Roads and Safe Routes to School by SAFETEA-LU. The OTC approved significantly more funds to the Highway Safety Limitation than provided by federal funding alone. HSIP is approximately \$14.5 million per year with the additional \$14 to \$15.4 million made up of other eligible federal and state funds.

STIP Targets approved by OTC (\$ in Millions)

	2012	2013
<i>Highway SAFETY (including HSIP)</i>	\$19,800	\$19,800
Section 164 Penalty	\$6,800	\$6,800
High Risk Rural Roads	\$1,200	\$1,200
Safe Routes to Schools	\$1,300	\$1,300
Safety Total	\$29,100	\$29,100

Status: Ongoing

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, currently the funds are used with the Highway Safety Program. Starting in 2012 these funds will be used exclusively to funds projects to address Safety Emphasis Areas within the Oregon Transportation Safety Action Plan, including Roadway Departure safety. The approach involves deploying relatively low cost and cost effective countermeasures on target segments or intersections with a history of crashes.

Status: Ongoing

High Risk Rural Road Program (HR3P)

The High Risk Rural Road Program (HR3P) is a sub-program of the Highway Safety Improvement Program (HSIP), a federally-funded program managed by the Oregon Department of Transportation (ODOT). Approximately \$1.2 million of federal funding is available each federal fiscal year in Oregon for High Risk Rural Roads. The mission of the HR3P is to carry out safety improvement projects on rural roads, with identified safety issues, to achieve a significant reduction in traffic fatalities and serious injuries. High Risk Rural Roads are identified as roadways functionally classified as a rural major or minor collector or as a rural local road

It is the intent of the program to primarily focus on county roads, but the funds may also be used on eligible state highways. A steering committee comprised of FHWA, ODOT, Association of Oregon Counties (AOC) and county road officials coordinates the program and project selection criteria.

Status: Ongoing

Safe Routes to School Program (SRTS)

The SRTS program is managed by Transportation Safety Division and is not part of Highway Division. See Transportation Safety Division's Website for more information: <http://www.oregon.gov/ODOT/TS/>

Training Provided

FHWA Pilot Training on new tools: Highway Safety Manual
Safety Investigations Course by OSU/PSU
Safety Training for Local Agencies

Implement Safety Investment Program (SIP) Research

The SIP research recommended several improvements to the Highway Safety Program. Implemented the research recommendations.

Status: 100% complete

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

Roundabouts

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

Status 85% 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.

Status: 50% Complete (has been on hold waiting to implement HSM)

3.2 Summary of Planned Activities

Training

Developing a course in Safety Investigations by OSU/PSU

Additional Safety Training for Local Agencies

Training on the New Highway Safety Manual scheduled to be distributed in 2010

Additional Roadside Safety Audits (RSA) training

HSIP Reports

Improve the HSIP reports, with more comprehensive reporting, including all Safety Projects not just those funded with HSIP funds. Develop better evaluation tools and better tracking of the projects, through the new project delivery tools being developed.

Roundabouts

ODOT will be working with the Freight Industry to resolve design and policy issues regarding using roundabouts on State Highways and freight routes.

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.

Highway Safety Manual

Begin implementation of Highway Safety Manual (HSM) methods into Project scoping and selection, including defining data needs for HSM methods, calibrating Safety Performance Functions, determining if new Safety Performance Functions or Crash Modification Factors need development and provide training for staff.

4 NETWORK SCREENING - SAFETY PRIORITY INDEX SYSTEM (SPIS)

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

2009 and 2010 SPIS Reports Published

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

In 2010 there were total of 4679 sites on this year's top 10% SPIS site list. Below is summary for the last five years.

Oregon Department of Transportation
2008 Safety Priority Index System
5 Year History Summary

Year	# Top 10% Sites	# Repeat Sites	# New Sites	Cutoff SPIS Value
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
2007	5,031	3,529	1,502 (30%)	44.60
2006	4,953	3,420	1,533 (27%)	45.49
2005	5,038	3,679	1,359 (29%)	43.91
2004	5,154	3,655	1,499 (29%)	44.49

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: 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: 90% 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: 90% complete

4.2 Summary of Planned Activities

Highway Safety Manual (SafetyAnalyst)

ODOT has already begun research into the data needs and requirements for the new network screening processes contained in the new Highway Safety Manual and SafetyAnalyst tool from AASHTO.

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.

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

Lead State Initiative – Lane Departure Projects (phase II)

This initiative examined the two elements, run-of-road (ROR) and head-on non-freeway crashes. It is to be noted that ROR crashes also includes opposing flow sideswipe crashes.

The report analyzed several aspects of the problem, identified problem areas (e.g. fixed object crashes), summarized major concerns, developed performance measures to use as a goal, and developed recommended actions/strategies for the department to reduce the occurrence and severity of lane departure crashes. Phase 1 was completed in 2006.

Phase II of the initiative was to use allocate use of funds to provide funding for Safety projects to address some high crash corridors with the objective to reduce fatalities and serious injuries related to lane departure crashes. The project selection was overseen by the Highway Safety Engineering Committee (HSEC) and about 6 million dollars of 164 penalty funds were used to fund the projects. An evaluation on the effectiveness will be completed after three years of crash data are accumulated.

Status: Complete (All 14 projects were constructed by September 30, 2009)

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.

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.

Status: Ongoing

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)

5.2 Summary of Planned Activities

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.