

Oregon Department of Transportation



Highway Safety Improvement Program
(HSIP)

Annual Report on the Progress of the Highway Safety Improvement and High Risk Rural Roads Programs for SFY 2014



OREGON DEPARTMENT of TRANSPORTATION Traffic-Roadway Section
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LIST OF ACRONYMS

FHWA	Federal Highway Administration
HRRRP	High Risk Rural Roads Program
HSIP	Highway Safety Improvement Program
ODOT	Oregon Department of Transportation
PDO	Property-damage-only crash
SFY	State Fiscal Year
TRS	Traffic-Roadway Section
HSEC	Highway Safety Engineering Committee
TSD	Transportation Safety Division
STIP	Statewide Transportation Improvement Program
HEP	Hazard Elimination Program
SHSP	Strategic Highway Safety Plan

SAFE	Safe, Accountable, Flexible, Efficient
TEA-LU	Transportation Equity Act: A Legacy for Users
MAP-21	Moving Ahead for Progress in the 21 st Century
ARTS	All Roads Transportation Safety
PS & E	Plans, Specifications and Estimate
IGA	Interagency Agreement
B/C	Benefit/Cost ratio
LPA	Local Program Agencies
LOC	League of Oregon Cities
AOC	Association of Oregon Counties
MOU	Memorandum of Understanding

INTRODUCTION

This report, required by Sections 152 and 148 of Title 23 of the United States Code, summarizes the progress made in implementing the Highway Safety Improvement Program (HSIP) in Oregon from July 1, 2013 to June 30, 2014, the state fiscal year (SFY 2014). Included are projects under the Highway Safety Improvement Program (HSIP) and the High Risk Rural Roads Program (HRRRP). Attached in Appendix A is the standard reporting form that contains evaluation data for HSIP completed projects and Appendix B provides additional High Risk Rural Roads Program data. Also included is Appendix C which provides a 5-Year moving average of fatalities and serious injuries for drivers and pedestrians age 65 and older.

HIGHWAY SAFETY IMPROVEMENT PROGRAM

The Highway Safety Improvement Program (HSIP) is a federally funded program that mandates each state to conduct and systematically maintain an engineering survey of all public roads. The Traffic-Roadway Section (TRS) uses engineering tools such as the Safety Priority Index System (SPIS) to identify segments of state highways that have a higher crash history and may require safety improvements. SPIS is a method developed by ODOT for identifying potential safety problems on state highways. Citizen complaint submittals and routine inspections by Oregon Department of Transportation (ODOT) District and Region personnel indicate other possible safety concerns.

The purpose of the program is "to achieve a significant reduction in traffic fatalities and serious injuries on public roads". Section 148 of Chapter 23 of the United States Code (USC) outlines how state and local governments will spend federal dollars toward improving safety on public roads or any public transportation facility. Prior to Federal SAFETEA-LU legislation the HSIP program was commonly referred to as the Hazard Elimination Program (HEP), Section 152 of Chapter 23 of the USC. SAFETEA-LU redefined the HSIP and the requirements. On July 6, 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law. MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing Oregon's transportation system. MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established in 1991.

The Traffic-Roadway Section has a HSIP project guideline (ODOT Safety Program Guide) to assist the Region Traffic offices. The program guide has its own criteria and requirements to tailor the Highway Safety Program to match Oregon's needs. In general, for a project to meet both the federal and state requirements, it must:

- Be an eligible highway safety project (as defined below);
- Have committed matching funds of 10% of the project cost (for federal funding);
- Be able to meet all applicable guidelines and standards for construction;

- Meet one of the following eligibility criteria:
 1. Positive Benefit/Cost (B/C) Ratio of 1.0 or greater;
 2. Top 10% Safety Priority Index System (SPIS);
 3. Justified by Risk Narrative (used on bicycle/pedestrian improvement projects).

TRS also has responsibility for annual reports of the programs progress and ODOT's Project Safety Management System (PSMS). The PSMS includes tools for identification and analysis of the safety problems like our recently completed ODOT Highway Safety Investigation manual, which is used to assist our Region Traffic Investigators http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/highway_safety.shtml.

Other responsibilities of the program include the Transportation Safety Division, which is responsible for the development of the Oregon's Strategic Highway Safety Plan (SHSP). The Region Traffic Offices have the responsibility of following the guidelines when selecting appropriate safety projects and identifying potential remedies to safety problem areas. ODOT's Highway Finance Office is responsible for management of HSIP funds along with the Region STIP Coordinators.

The HSIP process begins when a State or local agency identifies a safety problem. Possible safety project locations are identified from a variety of sources including crash records, ODOT's Safety Priority Index System, systemic plans covering emphasis areas (Roadway Departure, Intersection and Pedestrian/Bicycle), local citizens, enforcement/emergency response personnel, and road maintenance crews. The ODOT's Region Traffic offices reviews proposed safety projects and determines eligibility based on the "ODOT Highway Safety Program Guide". Before the Regions proposed safety projects can be added to the STIP, they must get approval from the State Traffic Engineers office that the selected safety projects follow ODOT's Highway Safety Program Guidelines.

ODOT is currently transitioning into the “**All Roads Transportation Safety (ARTS)**” program. Here is a draft outline of the ARTS program:

Background

ODOT is moving towards a jurisdictionally blind safety program. ODOT met with representatives from the League of Oregon Cities (LOC) and the Association of Oregon Counties (AOC) to discuss the need for addressing safety on all roads in Oregon. The outcome of the meetings was a Memorandum of Understanding detailing the principles and purpose of the program. The result is the All Roads Transportation Safety (ARTS) Program.

The ARTS Program is intended to address safety needs on all public roads in Oregon. About half the fatal and serious injuries occur on non-state roadways. Only by working collaboratively with local road jurisdictions (cities, counties, MPO’s and tribes) can ODOT expect to increase awareness of safety on all roads, promote best practices for infrastructure safety, complement behavioral safety efforts and focus limited resources to reduce fatal and serious injury crashes in the state of Oregon. The program will be *data driven* to achieve the greatest benefits in crash reduction and will be blind to jurisdiction.

Purpose

The ARTS program primarily uses federal funds from the Highway Safety Improvement Program (HSIP). The principles and purpose of ARTS and HSIP are:

- The program goal is to reduce fatal and serious injury crashes.
- The program must include all public roads.
- The program is data driven and blind to jurisdiction.
- The process will be overseen by ODOT Regions.
- Both traditional “hot spot” methodology and systemic methodology will be used.

Criteria

The objective of ARTS and HSIP is to significantly reduce the occurrence of fatalities and serious injuries. A *data-driven* approach uses crash data, risk factors, or other data supported methods to identify possible locations to achieve the greatest benefits. The key to any good safety program is identifying the best candidate locations for investment.

All Projects shall:

- Address a specific Safety problem contributing to fatalities and serious injuries
- Use proposed countermeasures that correct or substantially improve the fatal and serious injury problem
- Use ODOT crash data to establish the Benefit/Cost ratio
- Use ODOT Benefit Cost method
- Be prioritized or categorized based on the Benefit/Cost Ratio for developing the 150% list

- Use only countermeasures from the approved ODOT Crash Reduction Factor list (a written process will be developed for considering new measures)
- Projects must include written support from the Road Jurisdiction if the project is proposed by another agency
- Benefit Costs will be based on the most recent available three to five years of crash data

The traditional approach to safety is to identify “hot spot” locations, and then identify measures to implement by diagnosing the “hot spot”.

Hot Spot Projects shall:

- Address a location with a crash history of at least one fatal or serious injury crash within the last five years

The systemic approach identifies a few proven low-cost measures to be widely implemented, then implements the measures where there is evidence that they would be most useful. The systemic measures have been proven to successfully reduce the occurrence of fatal and serious injury crashes. The sites may be selected from ODOT’s list of priority corridors for Roadway Departure, Intersections or Pedestrian/Bicycle crashes.

Systemic Projects shall:

- Use only approved “Systemic” countermeasures as listed in the Crash Reduction factors list
- Not require the acquisition of significant amounts of right of way (more than 10% of project costs), preferably no right of way.
- Use the ODOT Risk Benefit Cost ratio method for Bicycle or Pedestrian improvements

Systemic Projects should:

- Have a history of fatal or serious injury crashes or a risk of high severity crashes and preferably used on priority corridors from Systemic plans.

Transition

To bridge the gap between no funding for non-state roads and the ARTS program, \$16 million in funding for the “Transition” (2014-2016) was allocated, primarily to focus on a few systemic low cost fixes that can be implemented in the shorter timeframe on non-state roads.

Funding

The Safety funds are split to each region based on the amount of fatalities and serious injuries occurring in the region on all public roads. Regions will be required to spend a minimum of 50% of their funding on Systemic projects.

Systemic funding is intended to be used for Roadway Departure, Intersections and Pedestrian/Bicycle type projects. At the statewide level the split in F&A between Roadway Departure, Intersections and Ped/Bike is about 40%/40%/20% respectively. Regions will be given the flexibility to determine the appropriate splits between systemic types of projects for their regions. It is suggested:

- That at least one project per year be developed for each type, if possible.
- Region splits of systemic funds for each systemic type be roughly equivalent to the proportion of F&A occurring in the region

Process

There will be two separate processes used, one for Hot Spot projects and a different one for Systemic projects. ODOT Regions will meet with local jurisdictions within the Region and share the program purpose and the details of both processes. ODOT will distribute data on Hot Spots and Systemic Plans to help determine potential locations for improvement.

The **process for Hot Spots projects** will consist of each ODOT region developing a draft list of potential projects for all roads including both state highways and non-state highways. The Regions will share the draft list with the agencies to engage local jurisdictions in collaboration to look for gaps or missing potential projects. The agencies will be given the opportunity to submit projects with justification that it meets the program purpose. The number of submittals should be limited because of limited funds. Regions will categorize projects based on the project's ability to reduce fatal and serious injury crashes and the benefit cost of the project, and finalize a draft list for field scoping.

The **process for Systemic projects** will be an application process. Each jurisdiction, including ODOT, will be invited to submit projects for systemic improvements from a large list of low cost proven countermeasures. These submittals will be for three systemic categories of funding, roadway departure, intersections and pedestrian/bicycle. Regions will check all applications for program purpose and correctness, working with the submitting agencies when necessary in order to develop a potential list of projects. The intent is that the ODOT Regions will refine the list of submitted projects and desk scope about a 150% list. The ODOT Regions will prioritize the project list based on program purpose of reducing fatal and serious injuries and benefit cost, in order to finalize a draft list for field scoping.

Once the refined lists are ready, all projects (both hot spot and systemic) will go through a multi-discipline assessment to verify the solution. A multi-disciplinary team, including the owner of the facility, will assure the best countermeasure is chosen to mitigate fatal and serious injury crashes. The project will also be scoped to verify the costs and any possible barrier to implementation. A finalized list of prioritized projects can then be produced with the best solution and the best cost.

Once the list is prioritized and a final 100% list is produced ODOT Region's will work with Jurisdictions to determine the delivery methods, delivering agency and timelines (applicable funding year). For projects involving local agencies, the ODOT Regions will

work with Jurisdictions to develop an Intergovernmental Agreement. The delivering agency will be accountable for timely and fiscally responsible delivery.

Timing of the Process

The process for ARTS project selection will run concurrently with the new Statewide Transportation Improvement Program (STIP) development process for the 2018-2021 STIP scheduled to begin in late 2014. The process will include funding for 2017-2018 projects (in the current STIP) as well as 2019-2021 funding (in the new STIP), five years' of funding in all. The draft STIP list should be complete by the end of March 2015.

Federal Match

The Federal Highway Safety Improvement Program (HSIP) currently requires a 7.78% match for projects. During the Transition ODOT committed to 100% funding for most projects to assist local agency participation in the program because of a lack of advance notice. Within the ARTS program ODOT will require participating agencies to contribute match to the project. This will require local agencies to come up with the 7.78% non-federal cash match. ODOT Regions should develop written criteria by which they may decide to negotiate the match requirement.

All Roads Transportation Safety (ARTS) Program	
Funding subdivided to Regions based on F&A	
Regions meet with LPA's to share program purpose and goals	
Regions share data with Local Agencies	
Hot Spot Process	Systemic Process
ODOT Regions draft potential list of projects	All Agencies submit applications for Systemic funds
ODOT shares list with LPAs	Draft list based on B/C
LPAs given opportunity to submit additional projects	ODOT Regions desk scope 150% list
ODOT refine list	ODOT Regions refine B/C
Finalize scoping list	Finalize scoping list
Final Steps	
Multi-disciplinary Assessment of projects to verify solution	
Field scoping to verify cost	
Finalize B/C	
Finalize priority and 100% list with LPA's	
Regions determine delivery methods and timelines	

Regions work on IGA
Responsible agency develops and delivers project

Timeline of events for ARTS:

- ODOT met with AOC and LOC in 2012
- ODOT signed Memorandum of Understanding with AOC and LOC in February 2013
- Introduced the ARTS program in April 2013.
- Held meetings with local jurisdictions to discuss a transition process in May 2013.
- Completed project selection for the Transition in the fall of 2013.
- Scope Transition projects in summer and fall of 2014.
- Begin Transition project development in 2014 through 2015.
- Transition Projects should begin construction in 2015 through 2016.
- Funding for the ARTS process was reserved in Regions budgets for 2017-2018.
- In 2014 ODOT works to develop the ARTS process.
- Regions will meet with Local Agencies to discuss program purpose and goals starting the fall of 2014.
- ODOT Regions use ARTS process to develop project lists in collaboration with local agencies, starting in fall of 2014
- Field scoping beginning approximately April of 2015
- Final lists for STIP due March 2016 (following closely with the STIP development process for the 2018-2021 STIP).
- Amend 2015-2018 STIP with Safety projects for 2017 and 2018 (anticipate this can be done in mid-2015).
- Follow 2018-2021 STIP process to incorporate Safety projects for 2019, 2020 and 2021 (anticipated to be complete in 2017).

Delivery timeline of individual projects dependent on schedule, funding and responsible agency (anticipate agencies will complete PS&E in the funding year).

Summary of HSIP Projects

This section summarizes the number of projects under construction, the type of projects applications reviewed and the effectiveness of projects with sufficient crash data for comparison. For the purposes of this report, HSIP projects are classified into these general categories:

Intersection Improvements—channelization and turning lanes, new or upgraded traffic signals, red light running cameras, and illumination.

Signing and Delineation—traffic signs and pavement marking and/or delineation where these project activities are the predominant safety improvement.

Roadway/Structure Improvements—lane widening, lane additions, rumble strip installation, median strip installation, shoulder widening/improvement, roadway realignment, skid treatment, and safety-related bridge and other structural improvements.

Roadside Improvements—flattening slopes, the elimination of roadside obstacles (e.g. drainage structures), the installation of breakaway signs and utility poles, and the construction, for safety purposes, of sidewalks and bikeways.

Safety Appurtenances—upgrades to bridge approach guardrail and railings, guardrail and median barrier improvements, impact attenuators, and safety fencing.

Traffic Calming Projects—specific traffic calming projects including, but not limited to, curb extensions, lateral/horizontal shifts in the roadway, raised devices (e.g. speed humps), and diverters.

Safety Projects Obligated in SFY 2014

In SFY 2014, there were fifty-four (54) safety projects totaling \$20.6 million which were obligated for construction using HSIP funds. The HSIP fund consists of all safety projects with an ODOT program code of LS30, MS30, H210, LS2E, L24E, M001, MS32, M240, M9V0, MS302, LU2E, etc. This also includes projects funded by Section 164 penalty money (TSP0, TSP1, MS32 money transferred from the highway funds to Transportation Safety Division, then redirected for safety projects that comply with HSIP guidelines). The type of projects obligated or under construction are classified in Table 1 by general category of improvement.

Table 1 HSIP Projects Obligated for Construction in SFY 2014

Category	Number of Projects	Project Cost Estimates
Intersection Improvements	12	\$4,421,000
Signing and Delineation	6	\$1,226,000
Roadway/Structure Improvements	9	\$3,279,000
Roadway Improvements	13	\$6,135,000
Safety Appurtenances	12	\$5,371,000
Traffic Calming Projects	2	\$209,000
Total Projects	54	\$20,641,000

Note: These figures reflect changes to the existing safety projects in the STIP for SFY 2014

Applications Received/Reviewed

In SFY 2014 (July 1, 2013 to June 30, 2014) the Region Traffic Offices were required to get final approval from the State Traffic Engineer's office that their selected safety projects follow ODOT's Highway Safety Program Guidelines before they are added to the STIP.

All highway safety projects, regardless of funding (state or federal) will now follow the same guidance for project eligibility as outlined in the ODOT Highway Safety Program Guide http://www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/highway_safety_program.shtml.

The proposed program year of the HSIP safety projects approved varies depending on the STIP cycle. The final selection of projects for construction is the responsibility of the Region Traffic Engineer and the Region Traffic Manager.

Projects Evaluated

A total of seven (7) HSIP projects were completed between July 1, 2010 to June 30, 2011 and had 3 years of before and after crash data available for evaluation where possible. Details for each project can be found in Appendix A. A similar number of before and after crash months were compared for each project. This simple evaluation only considered total crashes and did not examine target crashes (the crashes the project was designed to mitigate). The evaluation indicates that there was a 7% increase in injury crashes from the before to the after evaluation period. During the evaluation period, statewide fatal crashes decreased by 8.0% and injury crashes increased by 28%. The evaluation indicates a 60% decrease in fatal crashes.

Using the overall reduction in crashes statewide as a surrogate for the variability of crashes, the projects at these locations appear to have had a measurable effect on safety. It should be noted that there was a change in minimum property-damage-only

crash (PDO) reporting requirements in 1998 and again in 2003 so that comparison of PDO and total crash reductions is not valid.

In Appendix A, an additional six (6) safety projects were also evaluated which were funded using other safety funds under different criteria. These safety project evaluations are shown for information only to assist in improving ODOT's data driven decision making process when developing future safety projects. In the future, all highway safety projects, regardless of funding (state or federal) will now follow the same guidance for project eligibility as outlined in the ODOT Highway Safety Program Guide.

Table 2 (Shaded in gray) Summary of 7 HSIP Project Evaluations

Crash Type	Before	After	Reduction or Increase in Crashes	Percent Change	Percent Change Statewide (09-2012)
Fatal	5	2	-3	-60%	-8%
Injury	185	197	+12	+7%	+28%
PDO	245	225	-20	-8%	+14%
Total	435	424	-11	-3%	+21%

Table 3 Summary of 6 Other Safety Project Evaluations

Crash Type	Before	After	Reduction or Increase in Crashes	Percent Change	Percent Change Statewide (09-2012)
Fatal	3	2	-1	-33%	-8%
Injury	404	473	+69	+17%	+28%
PDO	556	532	-24	-4%	+14%
Total	963	1,007	+44	+5%	+21%

HIGH RISK RURAL ROADS PROGRAM (HRRRP)

A. Overview

The High Risk Rural Road Program (HRRR) in SAFETEA-LU (called HR3 in Oregon) is a sub-program of the Highway Safety Improvement Program (HSIP), a federally-funded program managed by the Oregon Department of Transportation (ODOT). Approximately one million dollars of federal funding is available each federal fiscal year in Oregon for High Risk Rural Roads.

B. Mission of HR3

The mission of the HR3 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.

C. Core Principles

1. The High Risk Rural Roads safety provision is dedicated exclusively to rural roads.

The HSIP includes a set-aside for construction and operational improvements to address safety problems and opportunities on High Risk Rural Roads. This set-aside of \$90 million (nationally) each fiscal year for high risk rural roads is limited to roadways functionally classified as a rural major or minor collector or as a rural local road.

2. High Risk Rural Roads are identified as follows:

- a. Roadways functionally classified as a rural major or minor collector or as a rural local road.
- b. Roadways that have a crash rate for fatalities and incapacitating injuries exceeding the statewide average for those functional classes of roadways.
- c. Roadways whereby future traffic volumes are projected to increase causing a projected increase in the crash rate for fatalities and incapacitating injuries exceeding the statewide average.

3. Acceptability of HR3 funding for project development.

As long as the project will ultimately involve a construction or operational improvement which is identified as part of a State's HSIP process, funds from the set-aside for high risk rural roads for preliminary engineering (including right of way, environmental approvals and final design) would be eligible for federal reimbursement.

II. OREGON PROCESS TO UTILIZE HR3 FUNDS

A. General

1. HR3 was originally funded as is a 4 year \$1.1 million annual federally funded program designed to carry out safety improvement projects on rural roads, with identified safety issues, to achieve a significant reduction in traffic fatalities and serious injuries. As SAFETEA-LU was extended for 3 years the available funding in HR3 increased by approximately 3.3 million dollars. Part of these funds were used to fully fund under funded projects.
2. Under MAP-21 the HR3 program is discontinued, but there are still remaining funds from this program. At this time it is planned that the remaining funds in HR3 will be used to fund eligible projects within the local road safety program. ODOT is transitioning to a Jurisdictionally Blind program of safety for all public roads in 2017. From 2013-2016 will be a transition period where ODOT is using HSIP and HR3 program funds to fund safety on local roads (off of state highways).
3. HR3 funding is federally funded; therefore projects need to conform to AASHTO standards. The AASHTO Low Volume Road Guide is the AASHTO standard for very low volume rural, e.g. roads with ADTs less than or equal to 400. Exceptions to AASHTO standards will be processed using the current FHWA/ODOT/Local Agency design exception process.

Since HR3 projects are intended to meet a specific safety need, the scope of work is limited to features that are directly impacted as a result of addressing this specific need. Each feature constructed in a HR3 project must be built to the applicable standard for new construction. Elements of HR3 projects that are not directly being impacted need not be brought up to current standards. For example, a signing upgrade along a rural corridor will generally not necessitate shoulder widening.

B. Eligibility Criteria

Oregon's eligibility criteria mirrors the federal guidelines as stated in Section 1-C-2 above. These criteria are:

1. Roadways functionally classified as a rural major or minor collector or as a rural local road are eligible.

2. The roadway must have a crash rate for fatalities and incapacitating injuries (serious injury A) that exceeds the statewide average for those functional classes of roadways.
3. Roadways are also eligible if future traffic volumes are projected to increase causing a projected increase in the crash rate for fatalities and incapacitating injuries that exceeds the statewide average.

ELIGIBILITY NOTES:

- a. Roadways with similar characteristics **in the vicinity of an area of identified fatal or serious injury crash history** may be included in the project limits. Applicants are encouraged to develop projects that will address similar crash types or characteristics on eligible roadway sections.
- b. The intent of Oregon's implementation is to focus on County roads, however, qualified State Highways or roads identified as public under 23 CFR 460.2, with a history of fatal or serious injury A crashes may apply for HR3 funding.
- c. Projects in counties subject to loss of revenue due to reduction or elimination of Federal School Safety Net Funds may be given special consideration.
- d. When all projects are submitted, the HR3 Steering Committee will assess the possibility of combining projects, of a similar nature, on a Regional or Statewide basis.
- e. Eligible roadways with ADT's less than or equal to 400 will be given special consideration.
- f. Roads with high crash rates, in addition to fatal crashes and serious injury A crashes, and having an assessment by the local engineer that there is potential for serious injury A crashes or fatal crashes to increase will be given special consideration.

C. Local Match Requirements

The Local Match requirement for HR3 projects is 7.78% of the total project cost.

D. Project Non- Participating Costs and Overruns

1. Project Sponsors are responsible for 100 percent of the cost of any item which is not eligible for federal participation.
2. Project overruns, unless authorized by the HR3 Steering Committee, are the responsibility of the Project Sponsor. Project Sponsors may submit a request for consideration of additional authorization for reimbursement of project overruns by submitting a detailed overrun justification to the HR3 Steering Committee. The HR3 Steering Committee will review the submittal and

determine if there is sufficient available funding to cover the overrun. If adequate funding is not available, or if the reason and purpose of the overrun does not sufficiently meet HR3 Program goals, the Project Sponsor retains responsibility for the overrun.

E. Intergovernmental Agreement (IGA) and Prospectus

HR3 projects are federally funded; therefore the current FHWA/ODOT/Local Agency project development and delivery process must be used to expend these funds. Funds obligated for local road safety during the transition period will likely be overseen and developed by ODOT.

F. Statewide Fatal and Serious Injury “A” Crash Rate Information

In 2004 the total number of fatal and serious injury “A” (F&A) crashes on Oregon’s rural public roads classified major collectors and below was 430. Using an inventory of 47,860 miles for these classifications of roads and an annual estimate of 14.2 million vehicle miles per day, the statewide average for these class of roads is 8.3 F&A crashes/ HMVM (crashes per hundred million vehicle-miles).

Data for fatal and serious crashes for 2000-2004 can be found by 1) right clicking on: [Crash Data](#) 2) Clicking on Open Hyperlink and 3) Clicking on “No” on the popup box that indicates the document has been modified and asking you if you want to save.

Below are some examples of sections of roadway that meet or exceed the statewide average based on the following formula:

$$\text{Crash Rate} = (\# \text{ of Crashes} * 100 \text{ million}) / (\text{ADT} * \text{Length in Miles} * \text{Number of Years} * 365 \text{ days/year})$$

# F&A Crashes (in 3 yrs)	Average Daily Traffic (ADT)	Length of Section (miles)	F&A Crash Rate (crash/HMVM)
3	6600	5	8.3
2	4000	5	9.1
1	2000	5	9.1
1	1500	7	8.7
1	1000	10	9.1
1	500	20	9.1
1	250	40	9.1

Note: As ADT or Length increases Crash Rate decreases.

As ADT or length decreases Crash Rate increases.

Each application must contain information that confirms the project location crash history and rate and should use three or more years of crash data.

Fatalities are used for participants who die as a result of injuries sustained in the crash. Injury "A" (Serious or Incapacitating injury) is used for participants who suffer severe injuries. An incapacitating injury is a non-fatal injury which "prevents the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred".

G. Application and project selection process.

1. The ODOT Local Government Section sent requests to prospective applicants for HR3 projects in July 2006. They were required to submit a HR3 Notice of Intent to determine if the project met the program eligibility requirements before submitting a full application. Required documentation for the Notice of Intent was:
 - a. A completed Notice of Intent Form
 - b. An attached letter or narrative (1 page max.) explaining the need for the project, type and extent of proposed work, funds requested and matching funds available, and the role of any co-applicants or partners.
 - c. An attached vicinity map and site map or other appropriate graphics (1 or 2 pages).

2. ODOT reviewed the Notice of Intent submittals and determined which projects met the program eligibility requirements. ODOT notified all applicants if their project met the eligibility requirements. Full applications (see Appendix B) for projects meeting the program minimum requirements were then requested from the Project Sponsors.
Required documentation for the included:
 - a. Project justification
 - b. Proposed solution
 - c. Detailed Cost Estimate that includes 15% PE, 15% CE, 40% Contingencies and 20% for Mobilization & Traffic Control. For example, including these items at these percentages for a project with \$100,000 of construction costs will make the final total project cost and funding request \$190,000.

3. The HR3 Steering Committee (comprised of ODOT staff and local agency representatives) reviewed the applications, develop a prioritized list, and suggest possible project groupings of eligible projects. The final selected project list was prioritized based on available funding with 5 projects receiving full funding. Four more projects were included in a reserve project list in case more funding becomes available. The selected projects were approved by OTC to be placed in the STIP at their May 2007 meeting. The projects were amended into the STIP on March 5th, 2008 after in depth project scoping was performed.
4. ODOT has completed detailed scoping of the selected and reserve projects. The selected projects are currently completed or will be completed by 2015.

For the Transition period from 2013-2016, ODOT regions will be in charge of working with local stakeholders to determine projects and determining which are eligible for HR3 funding.

H. Assessment of HR3 Project Effectiveness

ODOT is responsible to report to FHWA regarding the effectiveness of crash solutions that are implemented using HR3 funding. To prepare this report it is important that HR3 project sponsors provide information as listed in the bullets below to ODOT related to the crash solution(s) implemented and their effectiveness.

- Location/identifier for project—Basic information on the roadway where the project occurred
- Type of improvement(s) implemented
- Cost of improvement
- “Before” and “After” crash results—At least 3 years of “before” and 3 years of “after” data should be used.

Evaluation Results—Show whether the project achieved its purpose using benefit-cost or other approved methodology.

Appendix A: Standard Reporting Form

THE 2014 ANNUAL REPORT ON HIGHWAY SAFETY IMPROVEMENT PROGRAMS (HSIP)

STANDARD REPORTING FORM OF EVALUATION DATA FOR COMPLETED SAFETY IMPROVEMENTS (July 1, 2010 to June 30, 2011)

ODOT Region	ODOT Key #	Line	Safety Improvement Program [1]	Safety Classification	Cost of Evaluated Improvements	Quantity of Improvements	Units	Number of Crashes												Eval. Status	Volume		Rural or Urban	Number of Lanes	Divided or Undivided		
				Code	1,000	Mos.		Fat.	Inj. A	Inj. B	Inj. C	*PDO	TOTAL	Mos.	Fat.	Inj. A	Inj. B	Inj. C	*PDO		TOTAL	Before AADT				After AADT	
				[2]	[3]	[5]		[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]		[18]	[20]				[21]	[22]
1	12150	1	HSIP	1F	490	3.00	X	36	0	1	14	54	111	180	29	0	1	20	41	75	137	F	-	-	Urban	2	Undivided
1	13163	2	HSIP	1A	1,644	1.00	X	36	0	2	0	3	3	8	36	0	0	1	0	1	2	F	7,499	7,709	Rural	3	Undivided
2	13664	3	Other	1C	604	0.72	M	36	0	2	18	50	98	168	35	0	3	26	56	91	176	F	37,200	35,500	Urban	3	Undivided
1	13702	4	Other	1D	20,851	6.64	M	36	2	14	48	167	311	542	28	0	6	54	219	278	557	F	131,400	135,800	Urban	3	Undivided
1	13725	5	HSIP	3E	1,371	1.21	M	36	0	0	1	6	8	15	26	0	0	0	0	0	0	F	4,200	3,900	Rural	2	Undivided
2	14204	6	HSIP	1A	1,251	1.00	X	36	0	0	7	4	6	17	30	0	0	2	0	1	3	F	10,800	10,000	Rural	2	Undivided
1	15045	7	HSIP	1C	1,302	1.90	M	36	1	2	9	40	79	131	36	0	7	16	70	108	201	F	37,000	48,000	Urban	4	Undivided
2	15740	8	HSIP	1D	95	19.36	M	36	3	1	15	11	32	62	35	1	3	16	15	33	68	F	5,900	5,000	Rural	2	Undivided
4	15765	9	Other	1G	250	1.00	X	36	0	0	1	0	0	1	32	0	0	0	0	0	0	F	-	-	Rural	2	Undivided
5	15769	10	Other	1E	6,840	21.50	M	36	0	0	22	29	77	128	35	0	2	13	35	81	131	F	9,800	10,700	Rural	2	Undivided
2	16350	11	Other	3L	3,974	5.00	M	36	1	3	16	22	60	102	36	2	0	21	29	73	125	F	58,200	58,700	Rural	3	Undivided
1	16459	12	Other	1A	2,370	1.00	X	36	0	3	2	7	10	22	36	0	0	5	4	9	18	F	-	-	Urban	2	Undivided
3	16691	13	HSIP	3E	43	3.20	M	36	1	1	4	10	6	22	22	1	0	1	4	7	13	F	5,600	5,200	Rural	2	Undivided

Note: The 7 projects highlighted in gray shade are HSIP projects

The remaining 6 safety projects evaluated were funded using other safety funds (ex.164 penalty funds) are shown for information only to assist in improving ODOT's data driven decision making process when developing future safety projects.

* A change in the minimum reporting value for PDO crashes from \$500 to \$1,000 occurred in 1998 and in 2003, the minimum reporting value for PDO crashes changed again from \$1,000 to \$1,500.

Appendix B: High Risk Rural Roads Program Data

Appendix C: 5-Year Moving Average of Fatalities and Serious Injuries for
Drivers and Pedestrians Age 65 and Older

Oregon Department of Transportation - Transportation Development Division
 Transportation Data Section - Crash Analysis Reporting Unit

5-Year Moving Average of Fatalities and Serious Injuries for Drivers and Pedestrians Age 65 and Older

Table 1: Older Driver & Pedestrian Fatalities and Serious Injuries by Year

Year	Fatalities* (F)	Serious Injuries** (A)	Total Older Driver & Ped F&A
2006	57	161	218
2007	72	148	220
2008	44	102	146
2009	48	113	161
2010	46	140	186
2011	50	162	212
2012	48	170	218

* source: FARS Encyclopedia

** source: ODOT Statewide Crash Data System (CDS)

Table 2: Population per 1,000

Year	People Age 65 and Over per 1,000 Population***
2006	129
2007	130
2008	133
2009	135
2010	139
2011	143
2012	149

*** source: FHWA MAP-21 Section 142, Attachment 2

Table 3: Five-Year Averages

Range of Years	5-Year Average Rate^	Rounded 5-Year Average Rate^
2006-2010	1.40	1.4
2008-2012	1.31	1.3

^ formula per FHWA MAP-21 Section 142, Attachment 1

$$2012 \text{ to } 2008 \Rightarrow ((218/149) + (212/143) + (186/139) + (161/135) + (146/133)) / 5 = 1.32$$

$$2010 \text{ to } 2006 \Rightarrow ((186/139) + (161/135) + (146/133) + (220/130) + (218/129)) / 5 = 1.40$$

Appendix C: