

# 4 - Safety and Security of the Regional Transportation System

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## Introduction

The passage of the Safe Accountable Fair Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) has brought increased attention to addressing the safety and security of the transportation system. These issues were first identified in TEA-21 (Transportation Equity Act for the 21<sup>st</sup> Century, 1998) as important factors for consideration when developing the long-range plan. Ensuring the current and proposed regional transportation infrastructure is safe to use has long been a goal for all the partners in the urban area. Addressing the security of the system has received increased attention since the events of September 11, 2001.

This chapter includes a discussion of the concepts of transportation safety and security. Areas with safety issues will be documented and projects or concepts that have been identified to address these will be discussed. The chapter ends with a discussion of future steps to follow to ensure that the regional system operates in a safe and secure manner.

## Concepts of Transportation Safety and Security

What is meant by a transportation system that is safe and secure? Can any network that allows the free movement of people and goods ever reach such a goal? Are there limitations in meeting this goal, either monetarily or in the reduction of the easy use of the system? These are some of the questions that need to be answered when developing a strategy to ensure a transportation system that is safe for users and secure from disruption.

Safety and security are two different aspects of the regional transportation system. A safe system is not necessarily secure, and a secure system does not mean the safety of the users is assured. For the purposes of this Plan, safety will be defined as the ability of a person to use the regional transportation system, regardless of mode, to convey themselves, their passengers, and any goods they might be transporting in a manner that does not endanger others using the system or the population and environment, built and natural, along the route.

A secure transportation system is one that is functional in the event of disasters, either man-made or natural, or during severe weather conditions. Ensuring the security of the system does not mean installing gates, guards, and surveillance cameras everywhere. Instead, the focus is on providing multiple routes between locations, and ensuring that components of the transportation system can survive impact from disasters or incidents.

Disasters that can impact the regional system are classified as either natural or man-made, through either deliberate action or accidents. Natural disasters that have occurred or could potentially occur in the SKATS area include earthquakes, floods, fires, and extreme weather. Man-made disasters include acts of terrorisms, major collisions, and derailment.

# Realizing a Safe and Secure Regional Transportation System

The member agencies and jurisdictions of SKATS have developed plans and strategies that address the safety and security of their facilities on the regional transportation network. In addition, this Plan sets out Goals and Policies stressing the importance of building, maintaining and operating a regional transportation system, irregardless of mode, that is safe for the users.

ODOT's *Transportation Safety Action Plan and Amendment 1*, adopted in 2004 and 2006 respectively, identifies 69 actions with nine key actions for ODOT to strive for in making their road network safer, and in particular, working toward reducing the number of accidents on the State's roads. For the most part the key actions, those that ODOT will attempt to meet by 2014, identify areas to address beyond traditional transportation projects, such as education of drivers and training of judges and traffic police. Within the sixty remaining actions, there are ones that address facility design, construction and maintenance to ensure that the state system is not a safety issue itself, as well as developing a comprehensive database of incident information to assist in developing strategies and projects to address locations with a high number of incidents. Pertinent goals in this Plan that include the actions identified in the ODOT document include Goal 1 in the pedestrian chapter (chapter 6), Goal 2 in the bicycle chapter (chapter 7), Goal 2 in the rail chapter (chapter 11) and Goal 3 in the roads chapter (chapter 15).

The Salem-Keizer Transit District has updated their *System Security and Emergency Preparedness Plan* (2006) to address the additional requirements specified in the SAFETEA-LU legislation. This document details the procedures the transit district will follow when responding to the many possible scenarios that arise due to disasters, emergencies, or other situations.

In addition to these plans, a number of other documents have been developed addressing specific issues, such as rerouting traffic on the Willamette Bridges or Interstate 5 in the event of a closure in one or both directions. Drills and course-of-actions for evacuating the Capitol Mall area have been developed and practiced.

The *Salem-Keizer Metropolitan Area Intelligent Transportation System (ITS) Plan* (2005) identified a number of projects that either address providing for the safety of the transportation system user or toward providing the network some degree of security. Projects identified in that plan focus on providing connections between the traffic operation centers and the emergency responders, in particular the E-911 center for Salem-Keizer. In addition, projects were identified that install cameras at key locations to observe how the system is operating, and signs and radios to inform travelers of bottlenecks, diversions, and other hazards. Relevant projects have been incorporated into this Plan's project list; a list of ITS projects is presented in **Table 13-3**.

Securing the regional system against possible events is made difficult by the degree of openness that exists and is expected by the users. The first priority should be to ensure that the system functions during and after an event, whether it is extreme weather related or from an act of man. To achieve this, redundancy in the network is critical to allow multiple paths between

origin and destination. In addition, for sections of the network where no redundancy exists, it is critical that they be sufficiently “hardened” to allow them to survive the majority of events that may happen.

The Oregon Department of Transportation maintains a listing of the bridges in the area and whether they have any structural issues. Currently, 44 of the 91 bridges in the area have been identified as having structural issues. This list should be used to prioritize projects on high-volume routes to address any structural issues that may cause failure or closure of the bridge after an earthquake of suitable magnitude.

Accident locations in the SKATS area are shown in **Map 4-1**. The data comes from ODOT and represents the sites rated in the Safety Priority Index System (SPIS) database. This database includes information regarding collisions on the roads in the state and calculates an index of the severity of the safety issues of the location in relation to the other locations in the area. In addition, information for collisions occurring on city of Salem and Marion County roads is displayed. The number of crashes and resultant fatalities and injuries that occurred in the three cities between 1996 and 2005 is presented in **Table 4-1**. During this time period, 89 people were killed and over 19,000 injured due to crashes on the region’s roads.

**Table 4-1**  
**Crashes, Injuries, and Fatalities, 1996 to 2005<sup>1</sup>**

Jurisdiction	Total Crashes	Deaths	Injuries
Keizer	1,816	7	1,336
Salem	26,203	82	17,969
Turner	54	0	36

Between 1993 and mid-2004, 30 pedestrians were struck and killed by trains in the Salem-Keizer area. The majority of these fatalities occurred along the Union Pacific line running through Salem. Approximately 30 trains a day use this rail line, which runs alongside 12<sup>th</sup> Street in downtown Salem and bisects the neighborhoods just to the northeast of downtown. Construction began in 2001 on the 12<sup>th</sup> Street promenade, providing a wide sidewalk with a decorative wall alongside the Union Pacific rail line through downtown. This was constructed in an attempt to reduce the number of fatalities and to provide a pedestrian-bicycle link between the Salem Railroad Station and the north end of downtown. The final phase of this project was completed in 2006, crossing Mill Creek to connect to North Salem HS and Olinger Pool. Since mid-2004 there have been no fatalities along the UP rail line.

Throughout the region there are a number of common safety issues. These include:

- Interaction between modes (pedestrian and train, bicycle and car, car and train, etc.)
- Interaction between vehicles and animals (e.g. car and deer)
- Road design and/or geometry issues

<sup>1</sup> Data from ODOT Crash Analysis and Reporting Unit. Information from the 1996 to 2005 Summary by City available at: [www.oregon.gov/ODOT/TD/TDATA/car/CAR\\_Main.shtml](http://www.oregon.gov/ODOT/TD/TDATA/car/CAR_Main.shtml)

- Identification and removal of bottlenecks and other congested locations

In addition, several safety issues can occur more sporadically in the area, including power outages affecting streetlights and stoplights, and the need to inform motorists of high water and other impediments.

A number of projects included in the current Plan, as well as in previous plans, are designed to address the underlying issues of critical locations in the SKATS area. The purpose of these projects is to reduce the potential for collisions and incidents by installing signals and widening intersections to provide better channelization of the traffic movements.

Solutions have been identified for several of the issues listed above, and are being implemented for particular locations in the SKATS area. In general, retrofitting streets with sidewalks, curbs, gutters, and bike lanes—typically referred to as an “urban standard” project—provides a degree of safety to pedestrians and bicyclists that is otherwise missing. One specific area with safety concerns is downtown Salem, where the installation of bulb outs at many intersections shortens the path pedestrians have to cross the street. Another specific concern that is being addressed is the development of plans to reroute traffic on Interstate 5 and the Willamette Bridges in the event of a lane or span closure.

In addition, solutions that are applicable throughout the urban area include, but are not limited to:

- Properly lighted streets to see hazards and pedestrians
- Well marked pedestrian crossings, crosswalks, and bike lanes
- Installation of center turn lanes and dedicated turn lanes with “protected turn” signals
- Bulb outs at intersections in areas with pedestrian traffic

The results of these projects will need to be tracked over time to determine whether they have been successful in addressing safety issues. See **Chapter 15** for a list of projects that address safety issues. These are classified under Safety, Efficiency, ITS, Pedestrian or Urban Standards.

## Outstanding Issues

Ensuring the region has a transportation system that is safe to use has long been a goal of the Plan. However, additional data and analysis are required to better inform the decision making process where scarce funds would provide the most return on investment. Future updates to the Plan will include additional data on where incidents have occurred and how successful the proposed solutions have been in addressing the underlying issues. Further information is necessary to establish any trends regarding the safety of the region’s transportation system.

By necessity, this chapter focused on those modes that are funded with public dollars. Private industries, such as railroads and pipeline companies, face many of the same issues identified above, but their solutions will, for the most part, use their own funding and are outside the scope of this plan.