# Appendix C Sauvie Island and Multnomah Channel Rural Area Transportation System Plan

**Transportation System Plan**

Multnomah County, Oregon

# SAUVIE ISLAND AND MULTNOMAH CHANNEL RURAL AREA TRANSPORTATION SYSTEM PLAN

August 2015


Prepared for:

**Multnomah County**
1600 SE 190th Avenue
Portland, Oregon 97233
(503) 823-4000

Prepared by:

**Kittelson & Associates, Inc.**
610 SW Alder Street, Suite 700
Portland, Oregon 97205
(503) 228-5230



Multnomah County

Transportation System Plan

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610 SW Alder, Suite 700
Portland, OR 97205
(503) 228-5230

Project Manager: Susan Wright, P.E.
Project Analyst: Jenny Miner, EIT
Project Principal: Julia Kuhn, P.E.

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# PREFACE

The development of this plan was guided by the Project Management Team (PMT) and the Community Advisory Committee (CAC). The PMT and CAC rosters are below, along with members of the consultant team. The CAC members devoted a substantial amount of time and effort and their participation was instrumental in the development of the Sauvie Island and Multnomah Channel Rural Area Transportation System Plan (TSP). The Sauvie Island and Multnomah Channel Rural Area's future transportation system has been enhanced because of their commitment.

**Project Management Team**

Joanna Valencia
*Multnomah County*

Terra Lingley
*Oregon Department of Transportation*

Susan Wright
*Kittelson & Associates, Inc.*

Kevin Cook
*Multnomah County*

**Community Advisory Committee**

Cindy Reid
*Sauvie Island resident*

Mike Hashem
*Bella Organics*

Roselie Fulkman
*Floating home resident*

Stephan Morris
*Bicyclist*

Jeremy Sievert
*Multnomah County Planning Commission*

Julie Samples
*Oregon Law Center*

Timothy Larson
*Floating home resident*

Cherie Sprando
*Moorage owner*

Ericka Dickey-Nelson
*Sauvie Island resident*

Martha Berndt
*Sauvie Island resident*

Jan Hamer
*Moorage owner*

Mark Greenfield
*Sauvie Island resident*

**Consultant Project Team**

Susan Wright
*Kittelson & Associates, Inc.*

Jenny Miner
*Kittelson & Associates, Inc.*

Jon Somerville
*Kittelson & Associates, Inc.*

Julia Kuhn
*Kittelson & Associates, Inc.*

Karla Kinglsey
*Kittelson & Associates, Inc.*

# Section 1
# Introduction

# INTRODUCTION

The Sauvie Island and Multnomah Rural Area Transportation System Plan (TSP) forms the transportation element of the Multnomah County Comprehensive Plan. The TSP is the master plan for how the rural transportation system will evolve and develop for the next 20 years. The plan's primary focus is on enhancing the safety of the transportation system and improving options for agricultural, visitor, residential, bicycle, and pedestrian travel to and from the rural areas. The TSP supports an economically vital and healthy community.

Transportation is the movement of people and goods from one place to another. Our transportation systems affect nearly every aspect of life. We import the basic necessities of life – food, clothing, and building materials – to our homes. A constant flow of freight supplies our lives. We travel to work and school, and move about to socialize and play. Streets create the framework around which our cities and counties are built. Personal choices about how we travel affect our daily lives and our physical and mental well-being. Transportation is the backbone that supports a community as it grows and evolves.

This TSP covers the areas of the County reflected in Figure 1 and is an update to the policies and projects identified in the 1998 Westside Rural Multnomah County TSP. Figure 1 also depicts the functional classification of the roadways within the study area.

This TSP provides Multnomah County with guidance for operating and improving the multimodal transportation system. The TSP includes transportation policies and priorities for projects and programs to implement over the next 20 years. It also provides a vision for longer term projects that could be implemented, should additional funding become available. The TSP is intended to be flexible to respond to changing community needs and revenue sources over the next 20 years and will be updated approximately every 5 to 10 years. The TSP builds consensus among the County, ODOT, and other agencies on area transportation needs and priority projects and informs local citizens on the projects that will be carried forward for funding from local, state, and federal sources.

## GOALS AND POLICIES

Review of the previous TSP, the Multnomah Channel Rural Area Plan (RAP), and input from the Project Management Team (PMT) and Citizen's Advisory Committee (CAC) provided the base for which the goals for this plan were developed. The goals provide a clear vision of what Sauvie Island and Multnomah Channel aims to achieve.

- Goal 1: Implement a transportation system that is safe and efficient in meeting the needs of area residents and those traveling through the area.
- Goal 2: Implement a balanced transportation system that supports all modes of travel.
- Goal 3: Develop a transportation system that supports the rural character of West Multnomah County.
- Goal 4: Develop a transportation system the supports a healthy economy.

- Goal 5: Provide transportation improvements in a timely manner according to funding capability.

## KEY TRANSPORTATION ISSUES

The plan focuses on addressing both current as well as year 2035 needs of the transportation system. The central needs are:

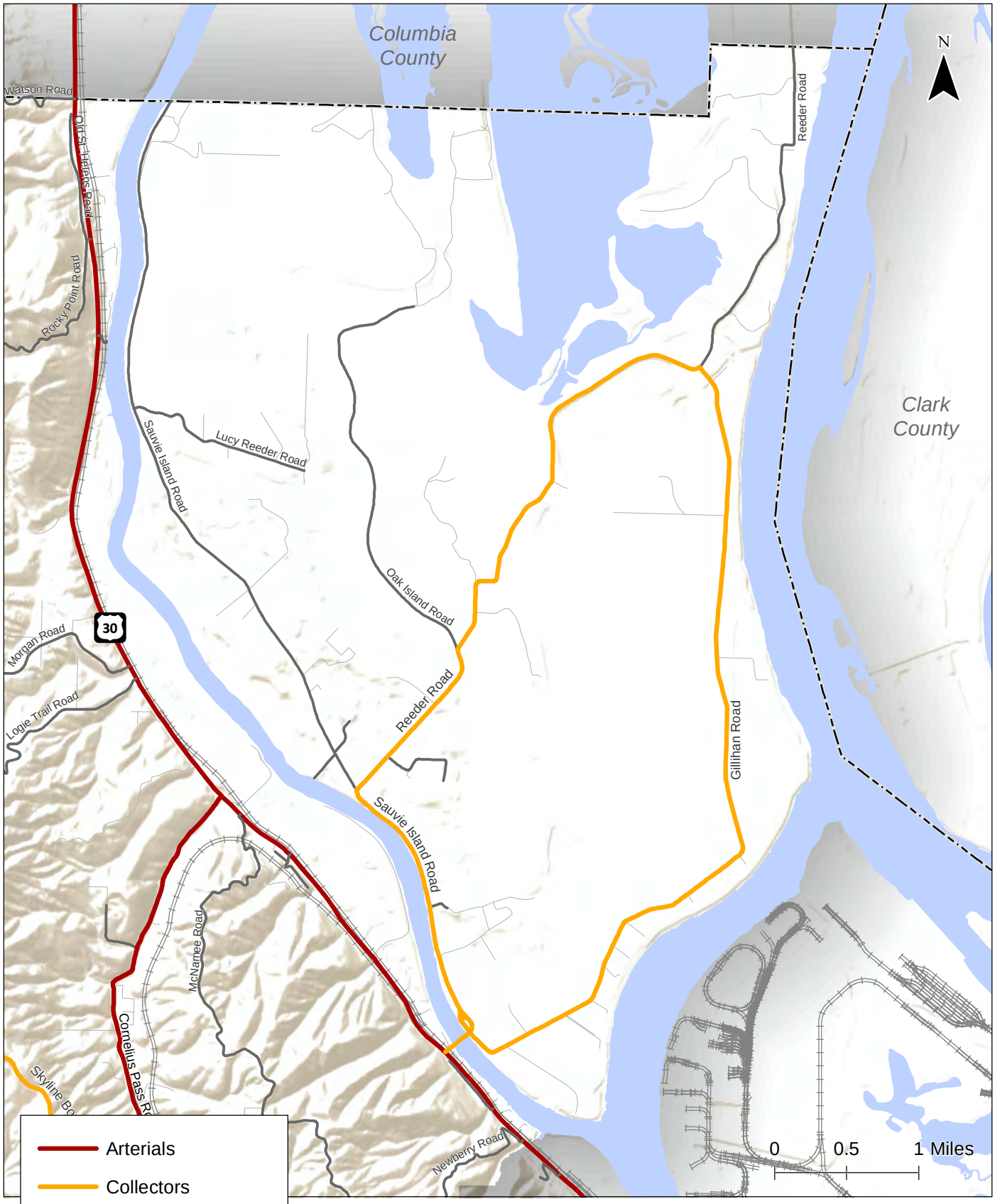
- **Reducing conflicts between different modes** – Sauvie Island is served by two-lane narrow rural roadways. A variety of users with diverse needs and varying speeds (e.g., farm equipment, an active cycling community, pedestrians, and motorists) use the roadway, which can result in conflicts between modes.
- **Increasing safety for all system users** – Recent crash history reflects a tendency toward single vehicle crashes with fixed objects after leaving the roadway. One of the fixed object crashes resulted in a fatality.
- **Managing travel demand** – Peak traffic conditions, resulting from seasonal all-day events (such as access to public beaches and pumpkin patches) and limited duration events (such as concerts and farm-to-table dinners), result in traffic congestion and long vehicle queues. During these times, vehicle queues consistently occur at the US 30/Sauvie Island Road intersection and at the access points to key visitor destinations. In addition to causing delays, highly congested roadways concern Island residents because of the potential impact on emergency response times.

Sections 2 through 4 comprise Volume 1 of the TSP and provide the main substance of the plan. Technical Appendices in Volume 2, which contains the technical memoranda, supplement Volume 1.

Section 2 describes the transportation system existing conditions and needs.

Section 3 presents an overview of each of the solutions included in the TSP.

Section 4 is the Transportation System Plan. This section describes the projects, studies, and programs to implement over the next 20 years.




**Functional Roadway Classifications**
**Multnomah County, Oregon**

Figure **1**

*Coordinate System: NAD 1983 CORS96 StatePlane Oregon North FIPS 3601 Ft Intl*

\\kittelson.com\fs\H_Portland\proj\file\17694 - Westside Rural Multnomah Co. TSP Update\gis\01 Functional Classifications.mxd - jsommerville - 8:28 AM 8/5/2015

# TSP UPDATE PROCESS

The TSP Update process included a series of technical memoranda, meetings with the Citizens Advisory Committee (CAC), and two plan development workshops. The technical memoranda included a review of existing plans and policies, a traffic data summary, and an overview of the transportation need, opportunities, and constraints. Regular meetings with the PMT allowed for effective coordination throughout the project. All technical memoranda can be found in the Technical Appendices.

The contents of the Needs, Opportunities, Constraints, and Tools memo were presented at a CAC meeting and at a public workshop in April 2015. Based on those meetings, the team developed and summarized feedback in the Draft Plan Development Workshop Report during and after the first workshop and made recommendations on proposed solutions. The team held a second workshop in May 2015 to present potential TSP amendments and discuss the feedback from the previous workshop. Workshop #1 focused on the range of applicable improvement options whereas Workshop #2 focused on details of the recommended treatments and corresponding potential projects. The full workshop report is Appendix 1.

# Section 2
# Existing Conditions

# EXISTING CONDITIONS

The following describes the existing plans, policies, and transportation system needs within the study area of the Sauvie Island and Multnomah Channel Rural Area TSP.

## PLANS AND POLICIES

Plans and documents addressing the Sauvie Island and Multnomah Channel Rural Area that include policies relevant to the Transportation System Plan (TSP) include:

- Sauvie Island Drainage Improvement Company policies;
- Sauvie Island & The Multnomah Channel Rural Area Plan (2015);
- Rural Westside TSP (1998);
- Multnomah County Transportation Capital Improvement Plan and Program Fiscal Years 2014-2018 (2014);
- Sauvie Island Wildlife Area Management Plan (2012); and
- Sauvie Island Wildlife Area Beach Use Plan (1993).

The Existing Plans and Policies Review Memo dated March 2015 in Appendix 2 contains the description of these documents and policies.

## EXISTING TRANSPORTATION SYSTEM NEEDS

This TSP addresses current transportation issues, particularly related to the increasing number of visitors and the need to provide safe, multimodal transportation facilities for residents, visitors, and businesses. A key component of the plan is identifying a range of potential programs, policies, and projects that the County can implement over the next 20 years. The Needs, Opportunities, Constraints, and Tools memo dated May 2015 in Appendix 3 documents the transportation needs as well as tools, opportunities, and potential constraints to future implementation of a variety of policies, programs and projects.

The following sources provided insights on existing transportation needs:

- public outreach related to the County's TSP Update project scoping work in 2013;
- review of relevant plans and policies (see January 22, 2015 Plans and Policies Memo prepared by Kittelson & Associates, Inc.);
- a review of traffic data (see January 27, 2015 Traffic Data Technical Memo prepared by Multnomah County);
- the implementation needs for transportation related policies in the Sauvie Island & Multnomah Channel Rural Area Plan; and,

- stakeholder interviews from November 2014 through February 2015 conducted by the project team to identify needs.

Based on information from the above efforts, the transportation needs in the study area generally fall into the following categories:

- reducing conflicts between different modes;
- increasing safety for all system users; and,
- managing travel demand.

The following sections outline the relevant needs to consider for each of these categories.

## Reducing Modal Conflicts

Sauvie Island is served by two-lane narrow rural roadways. A variety of users with diverse needs and varying speeds (e.g., farm equipment, an active cycling community, pedestrians and motorists) use the roadway, which can result in conflicts between modes. Some of the issues related to these potential conflicts are below.

Roadways on Sauvie Island are operated and maintained by Multnomah County, while ODOT operates Highway 30. Primary travel on the island occurs along a main loop comprised of three rural collector roadways: Gillihan Road, Reeder Road, and Sauvie Island Road. Other roads on Sauvie Island provide access to private property and Oregon Department of Fish and Wildlife (ODFW) lands for recreation and are local roads.

There are no dedicated pedestrian or bicycle facilities along the Island's roadways today, and roadway shoulders are narrow or non-existent in most places. The 1998 Transportation System Plan identified the need for 4 foot shoulders along major segments of Sauvie Island Road, Reeder Road, and Gillihan Road, but the County has not yet implemented these projects. Constraints on most of these roadways include limited right-of-way to provide wider shoulders or a parallel multi-use path and potential improvement costs and construction constraints near the levees create significant barriers to implementation. A complete list of the study area projects included in the County's 2014-2018 Capital Improvement Program (CIP) is provided in the Existing Plans and Policies Review memo in Appendix 2.

Sauvie Island is also a popular destination for recreational cyclists. On the weekends and peak seasons, visitors and residents enjoy cycling along the Island's roadways. In October 2014, daily weekend bicycle volumes were as high as 365 cyclists on Sauvie Island Road north of the Cracker Barrel store. In total, 1,765 cyclists were recorded there during the month of October.

In addition to safer facilities, stakeholders identified the need to provide wayfinding and information related to restrooms, water, and parking locations as well as education and outreach for all road users on sharing and obeying the rules of the road.

Many areas along Sauvie Island Road and Reeder Road are within the Sauvie Island Drainage Improvement Company (SIDIC) levee right-of-way and set back area. Construction along these sections of the roadways require special permitting from the Army Corps of Engineers and can only be considered if they will enhance the structural integrity of the levee. The County or Corps of Engineers would need to determine if construction of a multi-use path parallel to the loop roadways, on the island side of the levee could enhance the structural integrity of the levee and be approved by the Corps.

## Enhancing Safety

Both the County's policies and stakeholder feedback identify the importance of improving safety for all transportation system users on Sauvie Island and the Multnomah Channel.

Multnomah County staff reviewed reported crash data from 2007 through 2013 to establish a baseline for identifying potential safety-related improvements. This review revealed the following:

- There was only one reported crash in the Multnomah Channel area that was not located on Highway 30.
- There were no reported crashes involving pedestrians or bicycles on County facilities on Sauvie Island.
- The majority of crashes on Sauvie Island were reported as fixed object/run off the road.
- There were two recorded fatal crashes. One occurred at the Sauvie Island Road/Reeder Road intersection and one occurred along Gillihan Road south of the Reeder Road intersection.
- Areas with a pattern of crashes include:
    - Sauvie Island Road/US 30
    - Sauvie Island Road/Gillihan Road
    - Sauvie Island Road/Reeder Road
    - Reeder Road/Gillihan Road
    - Reeder Road curves
    - Sauvie Island Road along the levee

County staff also reviewed operating speeds along the rural collector roadway system in an effort to understand how speeds and potential speed differentials may affect safety. Most of the roadways have a posted speed limit of 45 miles per hour, with the exception of Gillihan Road which is not currently

posted and as such Oregon's "Basic Rule[1]" applies. Based on a 2014 County speed study, Reeder Road, Gillihan Road, and Sauvie Island Road all have 85th percentile speeds between 44 and 48 miles per hour, which is consistent with the posted speeds. Even with this speed consistency, this TSP includes treatments that can enhance safety by reducing conflicts between vehicles traveling the speed limit with slower moving agricultural vehicles, pedestrians, and cyclists. The Traffic Data Technical Memo in Appendix 4 provides additional information on the crash reports and speed data.

Stakeholder interviews and reviewed documents identified other safety concerns related to the multiple crossings of the railroad that runs north-south between US 30 and the Multnomah Channel. These concerns primarily relate to the lack of active crossing measures, such as gates and flashing lights at these crossings.

## Manage Travel Demand

The majority of the year the transportation network primarily serves residents, agricultural uses, and daily business operations on the Island and the rural areas. Average daily traffic volumes on most of the roadways throughout Sauvie Island are typically less than 3,000 vehicles per day. The popularity of the beaches, hunting and fishing areas, recreational cycling opportunities, seasonal festivals, and agri-tourism activities lead to significant fluctuations in daily traffic volumes during the summer and fall peak seasons. During these times, Sauvie Island Road can serve as many as 17,000 vehicles per day and 1,800 cyclists per month. These higher demand periods result in traffic congestion and long vehicle queues, especially at the US 30/Sauvie Island Road intersection and at access points to key visitor destinations. In addition to causing delays, highly congested roadways concern Island residents because of the potential impact on emergency response times.

This TSP includes solutions for managing traffic on Sauvie Island during peak events and seasons to ensure safe multimodal travel while supporting a vibrant agricultural and recreational economy over the next 20 years.

[1] The "Basic Rule" is that you may only drive a speed that is "reasonable and prudent" considering traffic, road, weather and other conditions.

# Section 3
# Range of Solutions

# RANGE OF SOLUTIONS

The project team identified four categories of opportunities to address transportation needs: bicycle and pedestrian facilities, safety, signage and signal treatments, and transportation demand management.

Table 1 summarizes the solutions that are included in the TSP. The following pages provide additional information on each of the solutions. The May 2015 Needs, Opportunities, Constraints, and Tools memo in Appendix 3 contains a full list of solutions identified.

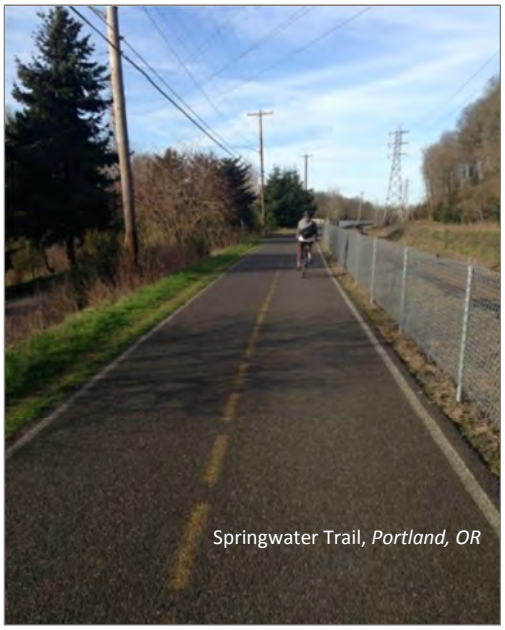
**Table 1 Solutions Summary Table**

| Reference Number | Potential Solutions | Transportation Needs Addressed |
|---|---|---|
| Bicycle and Pedestrian Facilities | | |
| BPF-1 | Multi-use path | Reduce Modal Conflicts |
| BPF-2 | Advisory bike lane | Reduce Modal Conflicts |
| BPF-3 | Paved shoulder | Reduce Modal Conflicts |
| BPF-4 | Shared-lane roadways | Reduce Modal Conflicts |
| BPF-5 | Bike map | Reduce Modal Conflicts, Manage Travel Demand |
| Safety | | |
| SA-1 | Increased shoulder width | Reduce Modal Conflicts, Additional Safety Issues |
| SA-2 | Curve improvements | Additional Safety Issues |
| SA-3 | Rural intersection improvements | Reduce Modal Conflicts, Additional Safety Issues |
| SA-4 | Railroad crossing improvements | Additional Safety Issues |
| Signage and Signal Treatments | | |
| SI-1 | Wayfinding signage | Reduce Modal Conflicts, Manage Travel Demand |
| SI-2 | Warning/advisory signs | Reduce Modal Conflicts |
| SI-3 | Speed limit signs | Reduce Modal Conflicts, Additional Safety Issues |
| SI-4 | Signal Controller/Timing Plans | Additional Safety Issues |
| Transportation Demand Management | | |
| D-1 | User-generated parking information | Manage Travel Demand |
| D-2 | Real-time parking information | Manage Travel Demand |
| D-3 | Pricing parking permit | Manage Travel Demand |
| D-4 | Parking enforcement | Manage Travel Demand |
| D-5 | Off-island park-n-ride lots | Manage Travel Demand |
| D-6 | On-Island shuttle service | Manage Travel Demand |
| D-7 | Event permit calendar | Manage Travel Demand |
| D-8 | Event-based “TDM” plan | Manage Travel Demand |

The following pages serve as a toolbox of information on the four categories of solutions in Table 1. Each solution has one page describing the solution, pros, cons, applicability to the TSP area, and other information.

# Bicycle and Pedestrian Facilities

## MULTI-USE PATH



Springwater Trail, *Portland, OR*

*Multi-use paths are paved, bi-directional trails separated from roadways that serve both pedestrians and bicyclists. Multi-use paths increase the safety and comfort level of the user. They play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels.*

### TSP Area Applicability

The main loop road that consists of Sauvie Island Road, Reeder Road, and Gillihan Loop Road could benefit from a multi-use path. A multi-use path on Sauvie Island would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

### Pros

- Provides facility for both pedestrians and bicyclists in less space than separated facilities.
- Providing separation from motor vehicles can attract pedestrians and cyclists of all ages and abilities.
- Would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

### Cons

- May result in conflicts between modes in areas with frequent crossings or driveways.
- May result in conflicts between bicyclists and pedestrians.
- When parallel to roadways, the path must be buffered from motorists which requires substantial right-of-way.
- Speed differentials between more experienced cyclists and slower cyclists and pedestrians can cause conflicts on a shared facility.

### Design Considerations

- Best suited in areas where roadway crossings can be minimized (such as parallel to travel barriers such as highways, railroad tracks, rivers, shorelines, natural areas, etc.). High-visibility treatments are needed at path crossings.
- A minimum width of 10 feet is recommended for low-pedestrian/bicycle-traffic contexts and would be appropriate for some areas of the Island; 12 to 20 feet should be considered in areas with moderate to high levels of bicycle and pedestrian traffic such as the loop.
- Pavement markings can be used to indicate separate space for pedestrian and bicycle travel.
- May need right-of-way acquisition and levee restrictions may alter design and alignment.
- Permeable paving options could help minimize surface water runoff and be compatible with the rural character of the area.

### Complementary Strategies

- Bike map, Wayfinding signage

# ADVISORY BIKE LANE

,Numansdorp, The Netherlands



*Hanover, NH*
Photo: Danny Kim, *The Dartmouth*

*Advisory bike lanes, also known as "suggestion lanes," are bicycle lanes that motor vehicles can use to pass oncoming motor vehicles after yielding to bicyclists. Advisory bicycle lanes are used in combination with a single center lane (without a centerline) for bi-directional motor vehicle travel on relatively low-volume streets.*

## TSP Area Applicability

This treatment is applicable to streets with less than 6,000 average daily motorized traffic (ADT) that do not have sufficient width for dedicated bicycle only facilities. Most Sauvie Island roadways have annual average ADT below 3,000; however seasonal traffic peaks result in ADT up to 17,000 vehicles in a day on Sauvie Island Road. Therefore, this treatment is likely to be suitable only on local roads that are not part of "the loop" but that are popular cycling routes.

## Pros

- Provides striped bicycle facility on roadways with very limited right-of-way or pavement width.
- Encourages slower motor vehicle speeds and motorists yielding to bicyclists.
- Inexpensive treatment consisting of only signing and striping.

## Cons

- Motorists may not initially understand advisory lanes due to limited applications in the US to date; educated would be required.
- Does not provide physical protection from vehicles and may not attract bicyclists of all levels.
- Does not improve pedestrian environment.
- No US design guidelines available.

## Design Considerations

- Advisory bike lanes can be striped as 5-7 foot lanes with a single center motorized vehicle lane of 10 to 18 feet.
- Explanatory signage may be helpful in US contexts to communicate to motorists that they must yield to bicyclists before passing oncoming vehicles.

## Complementary Strategies

- Bike map
- Wayfinding
- Speed limit signs

# Bicycle and Pedestrian Facilities

## PAVED SHOULDER

*Tucson, AZ*


*Boise, ID*

*A paved road shoulder can serve as a bicycle and pedestrian facility that provides space separated from motor vehicle traffic in rural areas.*

### TSP Area Applicability

Paved shoulders can be applied to any roadway in the study area but would require special permits to be constructed on roadways on the levee.

### Pros

- Provides a space separated from motorists.
- Requires less right-of-way than a separated multi-use path.
- Standard treatment for Multnomah County and equipment for maintenance available.

### Cons

- Does not provide physical protection from vehicles and may not be comfortable for all users.
- Shoulders serving other uses, such as disabled vehicles, farm equipment, or pedestrians may require bicyclists and pedestrians to use travel lanes.

### Design Considerations

- A 6-foot width is preferred to accommodate bicycle and pedestrian travel, with a 4-foot minimum in constrained areas. Greater widths can be used in higher-speed locations.
- Rumble strips or profiled striping can be used to enhance safety and minimize motorists encroaching on the shoulder.
- May require right-of-way acquisition.
- Levee restrictions may alter design or prohibit construction.

### Complementary Strategies

- Bike map
- Wayfinding
- Rumble strips

# SHARED LANE ROADWAYS




*Shared lane roadways are those where motorists and cyclists share the same travel lanes. Shared lane roadways that are part of a designated bicycle network may include shared lane markings ("sharrows") or signage to indicate the legal presence of bicyclists in the travel lane.*

## TSP Area Applicability

All of the roadways on Sauvie Island are currently shared facilities. Posting "Bikes on Roadway" signs would indicate to road users that bicyclists may be present and are on the roadway.

## Pros

- Allows for bicycle travel when other treatments are not feasible.
- Low- to no-cost.

## Cons

- Does not provide any separation from vehicles.
- Without additional traffic-calming treatments, it is likely to attract only strong and fearless bicyclists.
- Does not improve pedestrian environment.

## Design Considerations

- Provide guidance signage to alert drivers of the shared road. See warning/advisory signs section.
- Educate drivers on the rules of sharing the road.
- Increase signage and pavement markings.

## Complementary Strategies

- Pedestrian path
- Bike map

# Bicycle and Pedestrian Facilities

## BIKE MAP


Source: FMATS Bike Map

*Bike maps generally include the type of bicycle facilities available as well as destinations and other useful information within a defined area.*

### TSP Area Applicability

- Bike maps can provide guidance to infrequent cyclists regarding potential areas of interest such as types and location of recreational activities, bike parking locations, restrooms, and access to drinking water on Sauvie Island.
- Could be privately funded by bike friendly businesses.

### Pros

- Provides valuable information to bicyclists.
- Reduces trespassing.
- Map is portable and could also be available electronically.

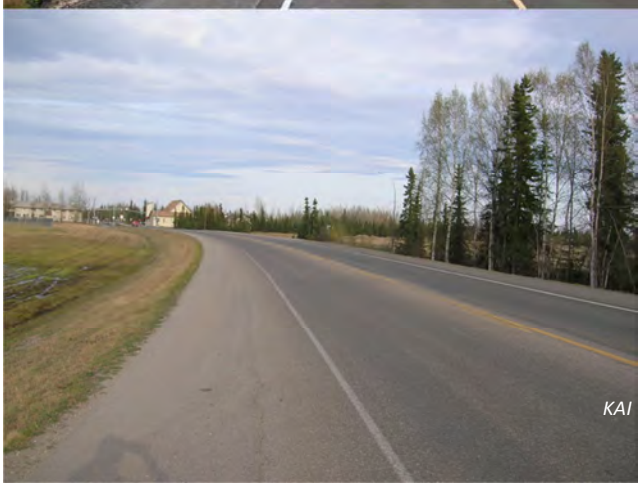
### Cons

- Cost of production and regular updates to ensure information remains relevant.

### Complementary Strategies

- Multi-use paths
- Pedestrian side-path
- Advisory bike lanes
- Paved shoulder
- Shared lane roadways
- Off-island Park-N-Rides

# INCREASED SHOULDER WIDTH


*A wide shoulder can be used to provide a separated space for cyclists and pedestrians, assist with vehicular recovery during driver inattentiveness, assist with incidence response and emergency situations, and provide space for motorists to bypass slow moving vehicles such as farm equipment.*

## TSP Area Applicability

During the past five years, nearly 70 percent of the reported crashes on Sauvie Island were single vehicle crashes. Widening the shoulders could be effective at reducing these types of crashes by providing space for recovery, especially along Reeder Road, Sauvie Island Road, and Gillihan Road.

## Pros

- Provides drivers more opportunity to recover before departing the roadway or slow their vehicle to a controlled stop.
- Wider shoulders may be used by pedestrian and bicyclists when other facilities are not present.
- Widening the shoulder could allow for shoulder rumble strips.
- As a current Multnomah County standard, knowledge and equipment for maintenance is available.

## Cons

- Additional right-of-way may be required.

## Design Considerations

- Adequate right-of-way is necessary.
- Levee restrictions may alter design or prohibit construction.

## Complementary Strategies

# Safety Treatments

## CURVE IMPROVEMENTS


*Curve improvements include a variety of treatments that help to inform the driver of the presence and characteristics of curves. Treatments include, but are not limited to, curve warning signs, decreased speed signs, curve delineation posts, and illumination.*

### TSP Area Applicability

Many of the roads on Sauvie Island are winding with limited warning to drivers of the impending curves. In addition, many of the reported crashes on Sauvie Island occur on or around roadway curves. Providing curve warning signs and delineation posts may help to reduce crashes along Island roadways, especially along Reeder Road and Gillihan Road.

### Pros

- Provides advanced notification to road users of location and characteristics of potentially unexpected curves.
- May help to decrease crashes on curves.

### Cons

- Contributes to sign clutter.
- Requires additional cost and maintenance

### Complementary Strategies

- Increased shoulder width



Source: MUTCD

# RURAL INTERSECTION IMPROVEMENTS

*Anchorage, AK*

*Intersection improvements include a variety of treatments to help all modes efficiently and safely travel through intersections. Treatments include, but are not limited to changing intersection control type or changing the stop-controlled approaches, adding turn lanes, adding marked or active crossing treatments, and providing adequate roadway illumination.*

## TSP Area Applicability

Four locations on Sauvie Island would benefit from intersection improvements that help all modes move safely and efficiently on the roadway system. These include:

- Sauvie Island Road/US 30
- Sauvie Island Road/Gillihan Road
- Sauvie Island Road/Reeder Road
- Reeder Road/Gillihan Road

More in depth analysis is necessary to provide recommendations on specific treatments to the intersections.

## Pros

- Lighting increases night-time visibility of roadway users and animals and sense of security for all roadway users.
- Possible improved operations of the intersection.

## Cons

- Cost of design and construction.
- Potential right-of-way acquisition.
- Increased maintenance costs with signals and illumination

## Complementary Strategies

- Shoulder widening
- Rumble strips
- Wayfinding signage

# RAILROAD CROSSING IMPROVEMENTS


Source: www.iqtrafficontrol.com

Source: urbanpostmortem.wordpress.com

*Railroad crossings can have passive control (devices that mark the location of a crossing such as cross-bucks and yield or stop signs) or active control (devices that mark the location of a crossing and indicate the approach or presence of a train such as flashing lights and gate arms). Active crossings are relatively expensive to install and maintain but provide increased safety compared to a passive crossing.*

## Design Considerations

For private railroad crossings (those at a driveway or private road), improving the crossing from passive control to active control requires railroad permission and a contract between the property owner and the railroad. Public crossings in Oregon (generally those at a crossing of a public road) are regulated by the Oregon Department of Transportation (ODOT). ODOT's Rail Division follows a federal mandate to consolidate at-grade railroad crossings. The federal direction has resulted in a requirement to close one or more crossings when a new crossing is constructed or an existing crossing is upgraded.

Upgrading crossings to active control in rural areas typically ranges from $200,000 - $500,000. In addition, railroad companies typically require crossing owners to pay $5,000 - $10,000 per year per crossing in annual maintenance fees to compensate for additional weekly inspections and maintenance required over the life of the crossing.

When railroad crossings are upgraded to active crossings the railroad tracks and the road bed typically also require reconstruction to current standards. The road grade at the crossing must have no more than approximately a three inch rise or fall within 30 feet of either side of the tracks per national standards. This can result in the need to re-grade the roadway or railroad track approaches to the crossing.

## TSP Area Applicability

There are approximately eight passive railroad crossings in the study area along Highway 30. Private property owners may be able to get permission to upgrade crossings from the railroad; however, public crossing upgrades will require a plan to consolidate and close one to two other public or private crossings. The best candidates for crossing upgrades are those with flat crossings with good visual clearance.

## Pros

- Provide active control and effectively communicates to vehicles, pedestrians, and bicyclists the need to stop at the railroad crossing.

## Cons

- Costly and likely to require closure of other crossings.

## Complementary Strategies

- Warning/advisory signs

# Signage and Signal Treatments

## WAYFINDING SIGNAGE


Source: Andy Daleiden, Kittelson & Associates, Inc.

*Signage indicating to bicyclists and pedestrians the direction and distance to points of interest along a corridor. Wayfinding signs can also be used to inform drivers of key recreational destinations, parking, etc.*

### TSP Area Applicability

Provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.

### Pros

- Encourages walking and biking by providing access information to major attractions.

### Cons

- Additional cost and maintenance.
- Potential for sign clutter.

### Design Considerations

- Place in key locations/decision points such as intersections.

### Complementary Strategies

- Multi-use paths
- Bike lanes
- Pedestrian paths
- Bike map

# Signage and Signal Treatments

## WARNING/ADVISORY SIGNS

Source: KAI


*Signage providing guidance or warning about unexpected conditions for all users of the roadway.*

### TSP Area Applicability

Signs can be used on Island roadways to inform motorists of bicycles sharing the road, locations of frequent pedestrian crossings, and roadway curvature. Signage may be particularly helpful along those roadways that remain "shared use" as well as areas with limited visibilities of roadway curvature and upcoming intersections.

### Pros

- Provides advanced notification to road users of unexpected conditions; i.e. pedestrians entering the roadway, curves, etc.
- Creates more awareness by motorists of the shared use and to look for bicyclists.

### Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

### Complementary Strategies

- Curve improvements
- Shared lane roadways

# Signage and Signal Treatments

## SPEED LIMIT SIGNS


Source: KAI

*Signage providing guidance on appropriate speeds for traveling the roadway.*

### TSP Area Applicability

Most roadways have posted speeds today, except Gillihan Road.

### Pros

- Alerts the driver to speeds appropriate for the roadway.
- Informs pedestrians and bicyclists about the suitability of the road for their comfort level.

### Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

### Complementary Strategies

- Shoulder bikeways and shared lane roadways

# Signage and Signal Treatments

## SIGNAL CONTROLLER/TIMING PLANS


*A traffic signal controller runs the signal timing and phase plan for a given traffic signal. Various timing plans can be used for different times of day (e.g. peak and off peak hour), time of years, and special events.*

### TSP Area Applicability

The existing controller at the intersection of Sauvie Island Road and Highway 30 is programmed but operation has degraded with age. The internal clock that controls the timing plans is faulty. Upgrading the controller to a newer version could provide more effective signal operations.

### Pros

- Effective movement of vehicles through an intersection.
- Better efficiency reduces congestion which can lead to safety benefits.

### Cons

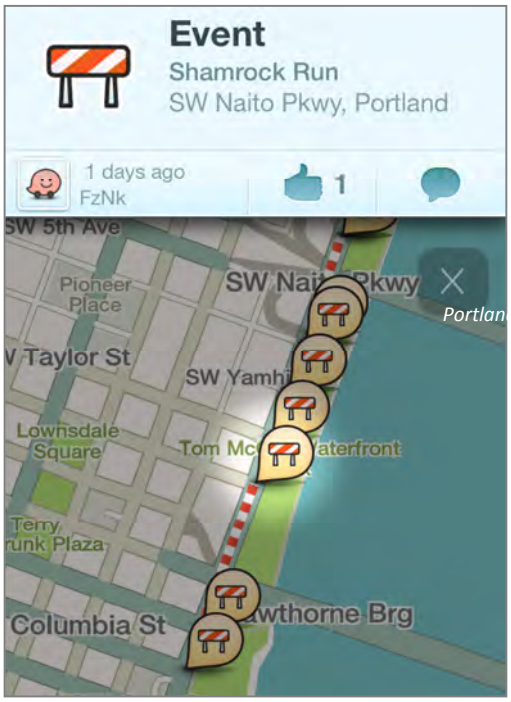
- Controller upgrades can be expensive.

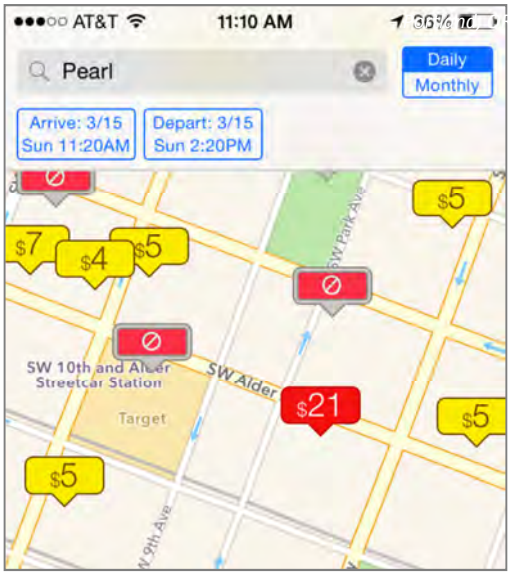
### Complementary Strategies

- Event permit calendar
- Event-based TDM plans

# Transportation Demand Management

## USER-GENERATED PARKING INFORMATION




*User-generated parking information would provide visitors and/or event participants with information about public or privately-held parking availability. This information is "shared" amongst system users through "apps" and other electronic means. This type of strategy has been implemented successfully for real-time user-generated traffic information by apps such as Waze, where users can report incidents or other temporary issues affecting traffic.*

### TSP Area Applicability

On Sauvie Island, this strategy could be implemented through the development of a smart-phone app and corresponding installation of real-time signage at key locations on the Island. These signs could be useful to:

- Visitors arriving at popular locations, such as the beaches, that are to encouraged to log-in to the app and report on the current availability of parking.
- Provide users arriving on the Island with information about parking availability and traffic congestion.
- Business owners and event organizers that can advise potential visitors to come later or park at alternate locations.

### Pros

- Can help avoid unnecessary trips when no parking is available.
- After the development of the app and installation of the signage, does not require additional staffing or investment.

### Cons

- Relies on users to generate information, which may result in inconsistent or infrequent updates.
- Limited cell phone coverage on the Island. Only users with smartphones and cell service can access.

### Design Considerations

- Signage should be visible and easy to understand
- App could be designed with a "points" system and rewards for consistent users that report parking information, such as discounts on permits.

### Complementary Strategies

- Parking permit pricing
- Park-N-Ride lots

# REAL-TIME PARKING INFORMATION

*Real-time parking information can help avoid unnecessary trips by letting visitors know when and where parking is already fully occupied. Digital displays are frequently used in parking garages, where automated counting or sensing is installed. Lower-tech options are also possible that rely upon a person to update the sign message. This information is provided by a designated staff person or through the use of parking sensors or video, rather than relying on users to report parking availability to other users.*

## TSP Area Applicability

Due to the predominance of graveled parking on Sauvie Island, it is not currently feasible to install detection or sensor on most parking locations. Instead, this strategy could be implemented through lower-tech methods such as:

- Informational maps of all parking locations can be readily available for visitors to the island, with various locations numbered or color-coded for easy "real-time" information communication
- On the busiest weekends, patrol officers, ODF&W, paid attendants, or volunteers at busy locations could relay information to the Cracker Barrel store, where information about the parking locations shown on the map would be posted for visitors arriving to the Island.
- In cases where popular parking locations are full, an information board could suggest alternate parking locations.
- Video cameras could be installed at key parking areas with complementary displays posted near the entrance to the Island and online.

## Pros

- Can help avoid unnecessary trips when no parking is available.
- Provides a low-tech way to provide information to all visitors

## Cons

- May require manual updates from people at the locations of parking and a display board, unless video cameras are installed.
- Video cameras may raise privacy concerns

## Design Considerations

- Signage with information about parking locations and availability should be positioned so that it is easily understood and visible to visitors entering Sauvie Island.

## Complementary Strategies

- Parking permit Pricing
- Park-N-Ride lots

# OPTIMIZE PARKING PERMIT PRICING

*Photo: Statesman Journal, Sauvie Island, OR*

*Pricing parking is a powerful tool for managing demand. Requiring payment for parking can influence travelers' choice to carpool or use other modes.*

## TSP Area Applicability

Visitors to Sauvie Island currently pay $7 for a daily permit to park in wildlife areas on the island. Annual permits cost $22. Additional strategies for consideration include:

- Permit pricing could be increased during high-traffic times, such as prime weekends, and decreased during lower-traffic times, such as week days or winter months, to help smooth out the flow of visitors.
- Annual permit costs could be increased or split into two "season" permits, with winter season having a much lower cost.
- Requiring permits for all vehicles entering the Island. Resident parking could be free or at a low cost covering only permit administration.
- Additional fees for parking could be collected in popular or congested locations, such as the beaches.

## Pros

- Can generate revenue as long as administrative costs are not substantial.
- Is demonstrated to help manage demand, since people are price-sensitive.

## Cons

- May be perceived as unfair or bad for business by some Island businesses if all visitors are required to obtain permits. Today, only those visitors desiring to use a public parking facility are required to buy permits.
- Cost of enforcement.

## Design Considerations

- Any increases or changes to the pricing structure could be accompanied by an explanation of where the additional revenue will be used. In examples where people are able to see the local benefit of the parking revenue, they are much more likely to support the increased costs.

## Complementary Strategies

- Off-Island Park-N-Ride

# PARKING ENFORCEMENT

*Regular enforcement of existing parking regulations can improve compliance. If people expect to receive a ticket for improper parking, they are more likely to seek other options.*

## TSP Area Applicability

Enforcement officers could increase the amount of patrolling and ticketing on peak weekends during the summer in wildlife parking areas or in areas not designated for parking. Communication about the increased enforcement could motivate visitors to follow parking regulations before getting tickets.

Depending on results, enforcement efforts could be limited to specific times or days to minimize the additional staffing investment.

## Pros

- Provides an economic incentive to follow the rules on parking locations by fining people for breaking them.
- Can generate additional revenue.

## Cons

- Requires parking enforcement staff
- May anger visitors or residents that have been accustomed to more relaxed parking enforcement.

## Complementary Strategies

- Parking Information
- Off-Island Park-N-Ride

# OFF-ISLAND PARK-N-RIDE LOTS



Portland, OR, Google Earth

*Park-n-ride lots offer people a place to park their cars when transferring to a different mode, such as carpooling with another person, bicycling, or taking transit.*

## TSP Area Applicability

An off-island park-n-ride could be located along Highway 30 south of the island in an industrial area. Partnerships for shared parking could be established for existing private parking that is used primarily during the week. This could enable:

- Beach-goers to form carpools to go to the island, leaving other vehicles at the park-n-ride locations off-Island.
- Bicyclists to leave their cars and ride their bicycles from parking locations on Highway 30.
- Provision of shuttle service from the park-n-rides during events or high-traffic weekends.

## Pros

- Facilitates use of carpooling and can reduce need for parking on the island.
- Can more effectively utilize off-island parking spaces that are normally used primarily during the week.

## Cons

- Would need to negotiate public access to existing location along Highway 30.
- More distant park-n-ride lots may not appeal to bicyclists, since Highway 30 may not be a comfortable bike route for many riders.
- May raise liability issues for parking arrangements on private properties.

## Design Considerations

- Signage and online information to promote the park-n-ride lot would need to be prominent to ensure that visitors know its location and that they can use it.

## Complementary Strategies

- Shuttle service
- Parking pricing
- Event TDM strategies

# ON-ISLAND SHUTTLE SERVICE

*A branded on-island shuttle circulator service could provide access to popular island locations during peak weekend days during the summer.*

## TSP Area Applicability

- An on-island shuttle service could operate as a circulator during peak weekend days, allowing people to park once and then travel in the shuttle to popular locations. This shuttle could run between the Cracker Barrel store and the beach during the peak summer days. In addition, shuttles could be chartered for particular event weekends, or by large events, to serve special event visitors. In these cases, shuttles could also travel to and from off-island park-n-ride locations.


## Pros

- Could provide an alternative to driving and parking on the island.
- If effectively utilized, could allow for more visitors with fewer traffic and parking impacts on the island.

## Cons

- Funding shuttle service may be difficult to sustain.
- Without consistent service, people may not be able to rely on the shuttle being available.

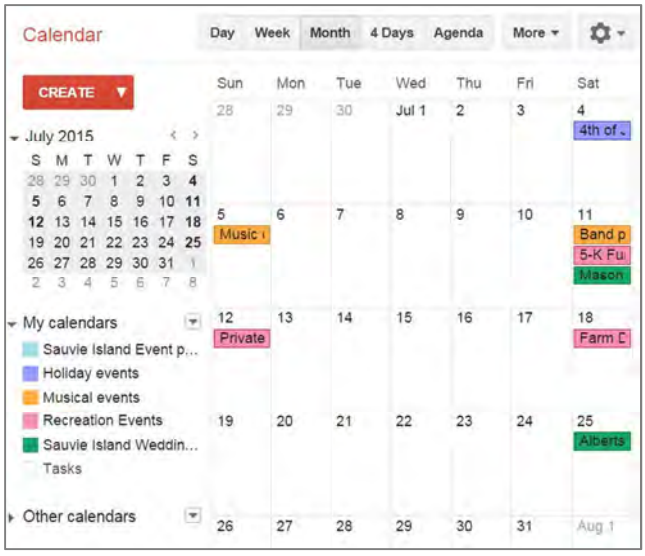
## Design Considerations

- Signage and online information to promote the shuttle service would need to be prominent to ensure that visitors know its location and how they should use it.


## Complementary Strategies

- Parking pricing
- Event permits / calendar
- Park-n-ride

# EVENT PERMITS / CALENDAR





*A system of event permits requires event organizers to register events through a central calendar system. A permit issued for each event states the requirements that each would have to meet.*

## TSP Area Applicability

On Sauvie Island, where events occur frequently throughout the year, this system could allow for coordination between same day events. This idea builds on the existing voluntary event permit system through the Sauvie Island Community Association and could remain informal or could be administered by a local TMA or by the County. This system could include:

- Events over a certain size limit could be required to implement a transportation demand management (TDM) plan for the event which would outline how the event will utilize any number of different TDM strategies to reduce traffic impacts.
- Provision of incentives, such as partial reimbursement for shuttle costs, for events demonstrating a certain level of non-drive-alone mode share.
- Provision of a daily "cap," if necessary, on the total number of event attendees arriving to the island in private vehicles, in order to help avoid days with the highest levels of congestion. For example, under the same cap, one large event or four smaller events may be able to occur on the same day – but all five would not be able to be held concurrently.

## Pros

- Allows for anticipation of heavy traffic days
- By capping total anticipated event attendance per day, events can be spread more evenly throughout the year
- Provides a mechanism for coordination TDM strategies among event planners

## Cons

- Administration of the permit system and calendar may require additional staff time.
- Event planners may have to commit to certain dates earlier than they would otherwise.
- Could result in conflicts between event organizers/local businesses in the competition for popular dates.

## Complementary Strategies

- Park-n-ride
- Event-based shuttle system
- Modified signal timing

# EVENT-BASED "TDM" PLANS

Photo: Thomas Cobb, Travel Portland

*Events of a certain size would be required to submit a transportation demand management (TDM) plan in order to receive an approved event permit.*

## TSP Area Applicability

Organizers of large events would need to provide a transportation demand management plan to demonstrate ways that they will manage impacts. Transportation demand management plans could include:

- Traffic management plan – organizers must demonstrate how they would manage the arrivals and parking for attendees of the event, including:
  - providing adequate parking to accommodate attendees
  - employing flaggers, if needed
  - arranging for overflow parking in alternate locations, if needed
  - coordinating with other events occurring in the same time-frame.
- Demand management strategies – organizers can draw on a number of demand management strategies to reduce vehicle trips:
  - Carpool / ride-matching for event attendees
  - Promotion of park-n-ride location for carpools, bicyclists, or other recreational visitors
  - Provide shuttle or van service from a park-n-ride location
  - Charging fees for event parking

## Pros

- Reduces congestion on Island roadways.
- Adds accountability for events
- Will encourage thorough planning and help mitigate impacts of larger events

## Cons

- Increases the organizational burden for event planners
- Requires staff time to review TDM plans and work with event planners.

## Complementary Strategies

- Park-n-ride
- Event permit / calendar
- Shuttle service
- Valet bike parking
- Modified signal timing

# Section 4
# Transportation System Plan

# TRANSPORTATION SYSTEM PLAN

This section details the projects, programs, and policies needed to serve Sauvie Island and Multnomah Channel Rural Areas through 2035. They represent the culmination of the existing needs and guidance from citizens, business owners, and governmental agencies within Sauvie Island and Multnomah Channel Rural Area, the PMT and the CAC. The projects, policies, and programs help to ensure and support the efficient and safe multimodal movement of people and goods throughout the Sauvie Island and Multnomah Channel Rural Area.

## TRANSPORTATION GOALS AND POLICIES

The Sauvie Island and Multnomah Channel Rural Area Plan (RAP) provides transportation policies for the study area. This TSP update implements the RAP policies, and uses the policies as guidance in developing goals, objectives, and policies. The applicable RAP policies, categorized by the three issue focus areas, are below.

- Reduce Modal Conflicts
    - Policy 5.2 – Identify and implement short- and long- term solutions to safely accommodate bicyclists, pedestrians, and motor vehicles on Sauvie Island including on-road bikeways, separated multi-use paths, and funding options.
    - Policy 5.4 - Consider context sensitive design when reviewing rural roadway standards to determine appropriate paved shoulder widths to preserve the rural character of roads. Shoulder widening should aim to achieve a minimum 3 foot paved width.
    - Policy 5.7 – Promote a transportation system that prioritizes and supports the efficient and safe movement of farm vehicles and equipment.
    - Policy 5.8 – Maintain and improve the transportation system for all modes of travel with the following goals: reducing vehicle miles traveled, minimizing carbon emissions, reducing conflict between travel modes, and improving the natural environment by minimizing stormwater runoff and facilitating wildlife movement. Ensure that the transportation system reflects the community's rural character while ensuring efficiency and connectivity.
- Additional Safety Issues
    - Policy 5.5 – Coordinate with ODOT Rail and Public Transit Division to promote appropriate safety devices at crossings.
    - Policy 5.11 – Promote effective use of signage designed to educate the public about farm equipment using roadways, wildlife crossings and bicycle and pedestrian

safety. Work with businesses to create additional way-finding signs that can help visitors get to their destinations more efficiently.

- Manage Travel Demand
    - Policy 5.6 – Coordinate with the Oregon Department of Fish and Wildlife (ODFW) and Columbia County to manage and reduce demand on the Sauvie Island transportation system, especially during peak use periods, by making more efficient use of capacity on the system through strategies such as user fees, shuttles, and parking management programs. Strategies may include, but are not limited to:
        - **(a)** Encourage and support action by the Oregon Fish and Wildlife Commission to increase daily fees during peak use periods to an amount that will effectively reduce the traffic burden on Sauvie Island roads and reduce adverse wildlife impacts resulting from heavy traffic, noise and dust.
        - **(b)** Encourage Columbia County and the Columbia County Sheriff to prohibit parking on county roads outside designated parking areas and to post and enforce its parking restrictions.
        - **(c)** Encourage the use of ride sharing, and support safe and convenient park-and-ride facilities for carpools and transit service in convenient and appropriate off-island locations.
        - **(d)** Explore options for shuttle support and traffic reduction strategies such as traffic fees and parking management programs.
        - **(e)** Coordinate with transit agencies and service providers to identify existing transit deficiencies and the improvements necessary to increase accessibility to transit service by potential users.
    - Policy 5.9 – Implement a range of Transportation Demand Management (TDM) policies encouraging existing businesses and requiring new development (beyond single family residential use and agricultural uses) to help reduce vehicle miles traveled (VMT), and alleviate congestion on US 30 and county roads caused by seasonal and special event traffic.

Descriptions of the five TSP goals and respective objectives, policies, and implementation strategies, which implement the RAP policies listed above, are below. These will guide the development of the transportation system over the next 20 years.

**Goal 1:** Implement a transportation system that is safe and efficient in meeting the needs of area residents and those traveling through the area.

***Objective A:*** *Provide a transportation system that addresses safety concerns for all modes of travel*

**Policy:** Continuously improve safety levels all motorized and non-motorized traffic.

**Implementation strategies:**

I. Monitor accident rates for all modes of transportation and recommend implementation of low-cost operational improvements within budgetary limits. Target resources to reduce accident potential in the top 10 percent of accident locations
II. Continue to monitor high accident location sites for all modes of transportation
III. Implement access management standards to reduce vehicle conflicts and maintain the rural character of the area

**Policy:** Actively support safe travel speeds on the transportation system. Reduce speeds limits to ensure they are compatible with adjacent land uses, support safety for all modes of travel. Speeds shall be consistent with corresponding implementation documents.

**Implementation strategies:**

I. Support speed limit enforcement (i.e. use of radar), traffic calming and education concepts.
II. Apply design standards that encourage appropriate motor vehicle and truck speeds.
III. Coordinate with ODOT to reduce speeds on rural roadways.

***Objective B**: Provide a transportation system that is convenient and limits congestion while safely accommodating all modes of travel.*

**Policy:** Adopt rural road design standards specific to Sauvie Island that are appropriate to safely meet the needs of all roadway users.

**Implementation strategies:**

I. Support the Street Design Guidelines for 2040 and apply them appropriately to maintain the rural character of Multnomah County as well as support the Rural Reserve requirements.
II. Support Title 6 of the Urban Growth Management Functional Plan and apply level of service standards appropriately to maintain the character of rural Multnomah County.

**Goal 2:** Implement a balanced transportation system that supports all modes of travel.

***Objective A:** Establish a transportation system that accommodates a variety of methods of travel and minimizes reliance on a single travel mode.*

**Policy:** Encourage the use of ride sharing facilities.

**Implementation strategies:**

I. Support safe and convenient park and ride facilities for car pools and transit service in convenient and appropriate locations.

II. Encourage the placement of bike lockers at all park and ride/park and car pool locations. Support and promote their use.
III. Coordinate with other agencies to assist users with convenient services (e.g. ride share matching).

**Policy:** Encourage mobility for the transportation disadvantaged.

**Implementation strategies:**
I. Work with public transportation providers to monitor and provide for the transportation needs of the transportation disadvantaged. Strategies could include establishing focus groups for conducting outreach to these groups.

**Policy:** Support the development of multi-use paths.

**Implementation strategies:**
I. Coordinate multi-use trail transportation needs with Metro Parks and Green Spaces.
II. Coordinate with the Sauvie Island Drainage Company for potential multi-use trails on Sauvie Island.

**Goal 3:** Develop a transportation system that supports the rural character of West Multnomah County.
***Objective A:*** *Maintain a transportation system that supports the surrounding rural land use designations.*

**Policy:** Discourage through traffic on trafficways with functional classification of rural local road.

**Implementation strategies:**
I. Reduce travel conflicts by providing appropriate facilities, signs, and traffic markings based upon user type and travel mode.
II. On rural local roads with heavy through traffic, consider implementing appropriate traffic-calming measures to reduce such traffic.

***Objective B:*** *Provide a transportation system that minimizes impacts to wildlife and agricultural resources.*

**Policy:** Apply roadway design safety standards appropriately by balancing the needs of the travelling public and minimizing negative impacts to the environment.

**Implementation strategies:**
I. Develop and implement a design exception process that considers the relative and incremental benefits of implementation, costs and impacts to the environment.
II. Assess implications of fish passage requirements on county facilities and develop a program for retrofitting drainage facilities.
III. Adopt and apply drainage system design guidelines and standards to accommodate fish passage.
IV. Adopt and apply rural roadway shoulder standards that preserve the rural character of the area.

V. Adopt and apply rural roadway standards that maintain and improve safe wildlife movement and ensure wildlife connectivity in the SIMC planning area.
VI. Assess Natural Resource strategies and explore design elements to minimize impacts to fish and wildlife habitat.
    1. Where possible, avoid harm to wildlife, including wildlife movement, from new, existing, or improved transportation facilities, and where not possible, minimize harm to wildlife. Mitigate any unavoidable harm to wildlife.
    2. Potential mitigation measures include, but are not limited to: wildlife crossings; improved culverts with shelves or dry paths built into the sides; mechanisms to funnel wildlife into the culverts; signage; habitat modification; asking drivers to turn on running lights; public awareness programs; and other wildlife mitigation measures that have been demonstrated to be effective.
VII. Explore incorporation of wildlife criteria for the Capital Improvement Plan and Program (CIPP).
VIII. Work with agencies to address impacts of boat traffic on the environment (e.g. shoreline).
IX. Consider climate change and the Climate Action Plan when planning transportation investments and service delivery strategies.

***Objective C:*** *Maintain the beauty of the area by preserving critical view sheds.*

**Policy:** Encourage the placement of new pipelines and transmissions lines in existing right-of-way whenever possible.

**Implementation strategies:**

I. Develop general guidelines for utility placement within the county right-of-way that reduce the number of conflicts and cost of implementation.
II. Enhance the rural character and scenic qualities of the area by placing utilities underground when possible.
III. Coordinate improvements with utility companies through regular status meetings to maintain and preserve the beauty of the rural character of west Multnomah County.

***Objective D:*** *Ensure the transportation plan meets federal, state and regional air, water, and noise standards.*

**Policy:** Coordinate transportation improvement projects with appropriate regulatory agencies.

**Implementation strategies:**

I. Retrofit existing facilities to meet regulatory requirements within budgetary limits.
II. Obtain permits as necessary for transportation improvement projects and maintenance activities.

**Goal 4:** Develop a transportation system the supports a healthy economy.

***Objective A:*** *Provide a convenient access while maintaining movement of freight along the U.S. Corridor 30.*

**Policy:** Provide ongoing coordination with state, regional, and local business interests to assure efficient movement of goods and services.

**Implementation strategies:**

I. Participate in, support, and adopt the U.S. 30 Corridor Plan.
II. Provide for auxiliary turn lanes on road connections to U.S. 30 to achieve acceptable operating levels of service.

**Policy:** Promote transportation alternatives for the movement of freight.

**Implementation strategies:**

I. Encourage rail operators to maintain rail service within the U.S. 30 corridor.
II. Support the movement of freight on the Columbia River, including the U.S. Army Corps of Engineers' study of deepening the Lower Columbia River navigation channel to accommodate deep draft ships.

***Objective B:*** *Preserve the function and safety of the transportation system.*

**Policy:** Provide a transportation system that ensures economically viable transportation of goods from farm to market.

**Implementation strategies:**

I. Conduct a study of Cornelius Pass Road.

**Policy:** Coordinate transportation system management activities with interested and affected stakeholders.

**Implementation strategies:**

I. Work with property owners to consolidate existing accesses when possible and as appropriate to access management standards.
II. Support limited accesses along U.S. 30 to the extent possible. Support access management along U.S. 30 in accordance with ODOT's Access Management Standards.

**Goal 5:** Provide transportation improvements in a timely manner according to funding capability.

***Objective A:*** *Maximize cost-effectiveness of transportation improvements using the Capital Improvement Plan process.*

**Policy:** Invest in safety and maintenance improvements.

**Implementation strategies:**

I. Accelerate shoulder paving to safely accommodate automobile, bicycle, and pedestrian use.
II. Make intersection improvements to improve safety, sight distance, and intersection efficiency.
III. Continue to provide opportunities to educate and inform citizens with easy-to-understand materials on transportation finance.
IV. Ensure the Capital Improvement Plan evaluation criteria adequately evaluate rural needs.

## IMPROVEMENT PROJECTS

Two community workshops and multiple CAC meetings provided feedback on the potential range of solutions in Section 3 and informed a 20-year list of programs and policies for TSP implementation. The resultant set of solutions intends to help manage traffic on Sauvie Island and ensure safe multimodal travel for Sauvie Island residents, visitors, and businesses during the next 20 years. Project priority categorizes the projects into one of three timeframes: near-, mid-, and long-term. Short-term projects include those that could be addressed within the next five years. Mid-term projects could be addressed within the next six to ten years. Long-term could be addressed within 11 to 20 years. Figure 2 and Table 2 illustrate the project list.

**Table 2 Planned Projects and Programs**

| Project Number | Project/Program Name | Project/Program Description | Estimated Cost | Priority |
|---|---|---|---|---|
| 1 | Sauvie Island Road Multi-Use Path | Construct multi-use path parallel to sections of Sauvie Island Road located on the levee. | $$ | Near-term |
| 2 | Advisory Bike Lane Study | Conduct engineering study to identify potential locations for an advisory bike lane pilot test and verify adequate sight distance. | $ | Near-term |
| 3 | Advisory Bike Lane Pilot Project | Implement advisory lane pilot test project. The project will temporarily implement an advisory lane and be monitored for compliance and use. | $ | Near-term |
| 4 | Sauvie Island and Multnomah Channel (SIMC) Bike Map | Work with Sauvie Island Community Association (SICA) and other Sauvie Island stakeholders to develop a bike map that includes wayfinding and education | $ | Near-term |
| 5 | Gillihan Road Curve Improvements | Provide warning signs and delineation posts on curves along the loop roads. | $$ | Near-term |
| 6 | Gillihan Road/Reeder Road Intersection Improvement Study | Conduct an engineering/safety study to determine impacts and safety considerations for implementing three-way stop-control at the intersection of Gillihan Road and Reeder Road. | $ | Near-term |
| 7 | Gillihan Road/Reeder Road Intersection Upgrades | Implement a three-way stop control at the intersection of Gillihan Road and Reeder Road. | $$ | Near-term |
| 8 | SIMC Wayfinding Upgrades | Install additional wayfinding to provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations. | $ | Near-term |
| 9 | Share the Road Improvements | Install warning/advisory signs are to inform motorists of bicycles and farm equipment sharing the road along facilities (all roads under existing conditions) | $$ | Near-term |
| 10 | Gillihan Road Signage Improvements | Install speed limit signs on unsigned sections of Gillihan Road. | $ | Near-term |
| 11 | Sauvie Island Mobile Speed Radar Implementation | Obtain a mobile speed radar unit for Sauvie Island that can be relocated at regular intervals. | $ | Near-term |
| 12 | US 30/Sauvie Island Road Intersection Upgrades | Upgrade the traffic signal controller at the intersection of US 30 and Sauvie Island Road. | $$ | Near-term |

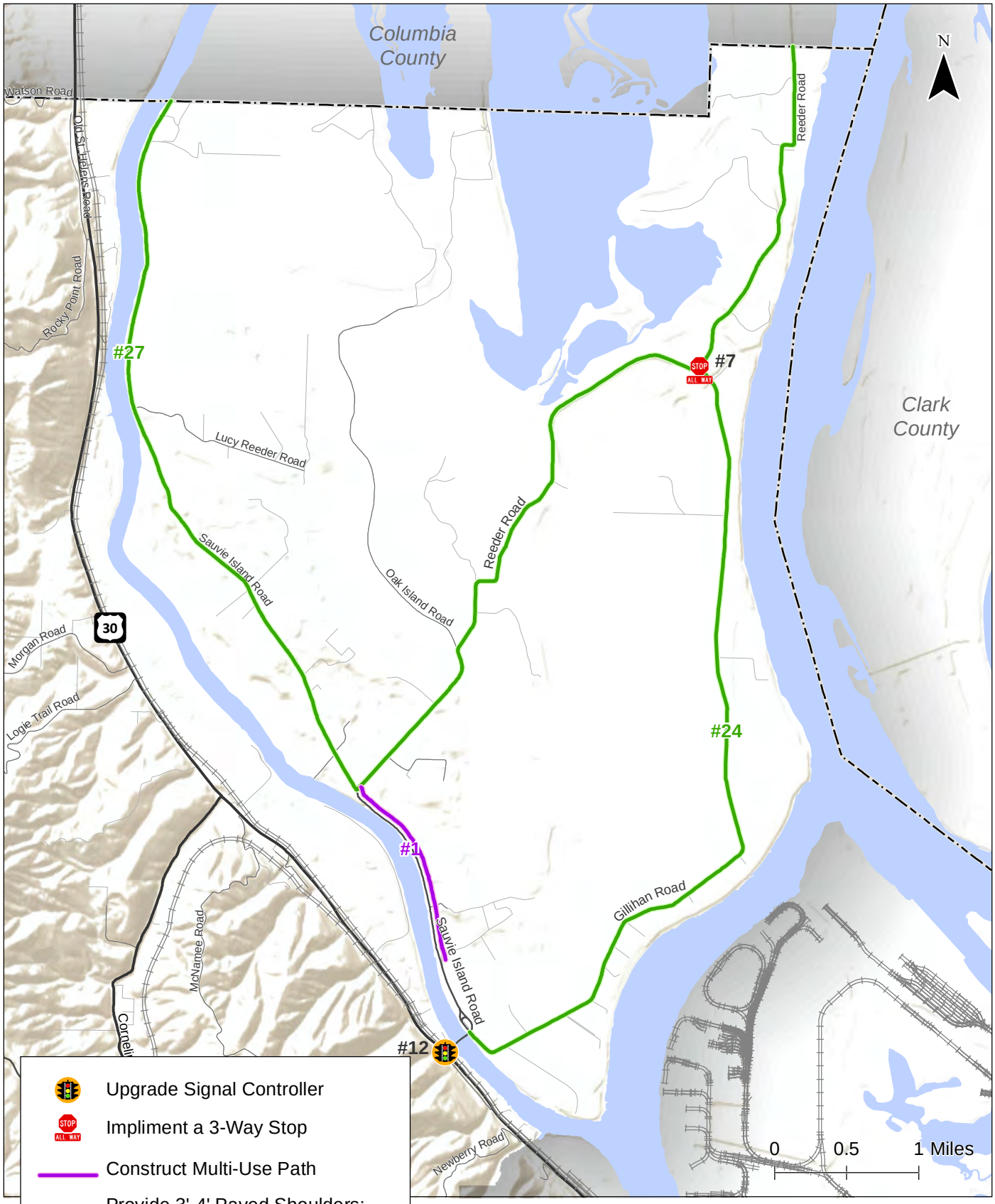
| Project Number | Project/Program Name | Project/Program Description | Estimated Cost | Priority |
|---|---|---|---|---|
| 13 | US 30/Sauvie Island Road Intersection Signal Study | Conduct study of signal timing at the intersection of US 30 and Sauvie Island Road for possible truck extensions, westbound detection issues, and optimization of green and red time. | $ | Near-term |
| 14 | Parking Information Distribution Study | Study to determine the most effective and feasible method to implement distribution of parking information. | $ | Near-term |
| 15 | Permitting Study | Work with ODF&W to implement an increased parking permit fee and/or limit number of permits. Include bicycle permitting. | $ | Near-term |
| 16 | Sauvie Island Park-n-Ride and Shuttle Service Study | Study to determine location of off-island park-n-ride lots and plan for on-island shuttle service for events. | $ | Near-term |
| 17 | Event Permit Calendar | Develop event permit calendar and implement use. | $ | Near-term |
| 18 | Daily Trip Study | Study to explore a daily trip cap. | $ | Near-term |
| 19 | Ticket and Permit Enforcement Study | Study the implementation of increased permits and enforcement of permits; including illegally parked vehicles, beach day use permits, and existing permit compliance. | $ | Near-term |
| 20 | Sauvie Island Bridge Toll Study | Study the implications of a Sauvie Island Bridge toll for non-residents. | $ | Near-term |
| 21 | SIMC Travel Demand Management Plan | Develop a Travel Demand Management Plan for the island that further explores each of the potential TDM strategies and explores and identifies a potential Transportation Management Association (TMA) for Sauvie Island. Elements of the TDM plan should include input from projects 14-20. | $$ | Near-term |
| 22 | Sauvie Island Road/Reeder Road Intersection Improvement Study | Conduct an engineering/safety study to determine impacts and safety considerations for implementing three-way stop-control and channelized right-turn for northbound traffic at the intersection of Sauvie Island Road and Reeder Road. | $ | Near-term |
| 23 | SIMC Rail Study | Conduct rail corridor study to identify feasible local street connections and railroad crossing consolidation and upgrades. Project will include coordinate with owners of the private rail crossings. | $$ | Mid-term |
| 24 | Loop Road Shoulder Improvements | Provide 3-4 foot paved shoulders on the loop roads including Reeder Road, Sauvie Island Road, and Gillihan Road. | $$$ | Mid-term |
| 25 | Sauvie Island Speed Photo Radar Implementation | Implement permanent speed photo radar signs at several locations on Sauvie Island. | $$ | Mid-term |
| 26 | Sauvie Island Speed Photo Radar Ticketing Implementation | Implement photo radar ticketing at several locations on Sauvie Island | $ | Mid-term |
| 27 | Sauvie Island Road Shoulder Improvements | Provide 3-4 foot paved shoulders on Sauvie Island Road from Reeder Road to the Columbia County line. | $$$ | Long-term |
| 28 | Reeder Road Shoulder Improvements | Provide 3-4 foot paved shoulders on Reeder Road from Gillihan Road to the Columbia County line. | $$$ | Long-term |

$ = $0 - $100,000; Near-term = 0-5 years
$$ = $100,000 - $500,000; Mid-term = 6-10 years
$$$ = > $500,000 Long-term = 11-20 years

## KEY CODE AND POLICY AMENDMENTS

The Transportation Planning Rule (TPR), as codified in Oregon Administrative Rules (OAR) 660-012-0020(2)(h), requires that local jurisdictions identify land use regulations and code amendments needed to implement the TSP, and include them as the implementation element.

The Multnomah County Comprehensive Plan update includes this work; expected completion by June 2016.




**TSP Planned Projects**
**Multnomah County, Oregon**

Figure **2**

*Coordinate System: NAD 1983 CORS96 StatePlane Oregon North FIPS 3601 Ft Intl*

# Appendix 1
# Plan Development Workshop Report

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

# TECHNICAL MEMORANDUM

**Westside Rural Multnomah County TSP Update**

Transportation System Update

Revised Plan Development Workshop Report

| | | |
|---|---|---|
| Date: | June 12, 2015 | Project #:17694 |
| To: | Joanna Valencia, Multnomah County | |
| From: | Susan Wright, PE, and Jenny Miner | |
| cc: | Terra Lingley, ODOT | |

## INTRODUCTION

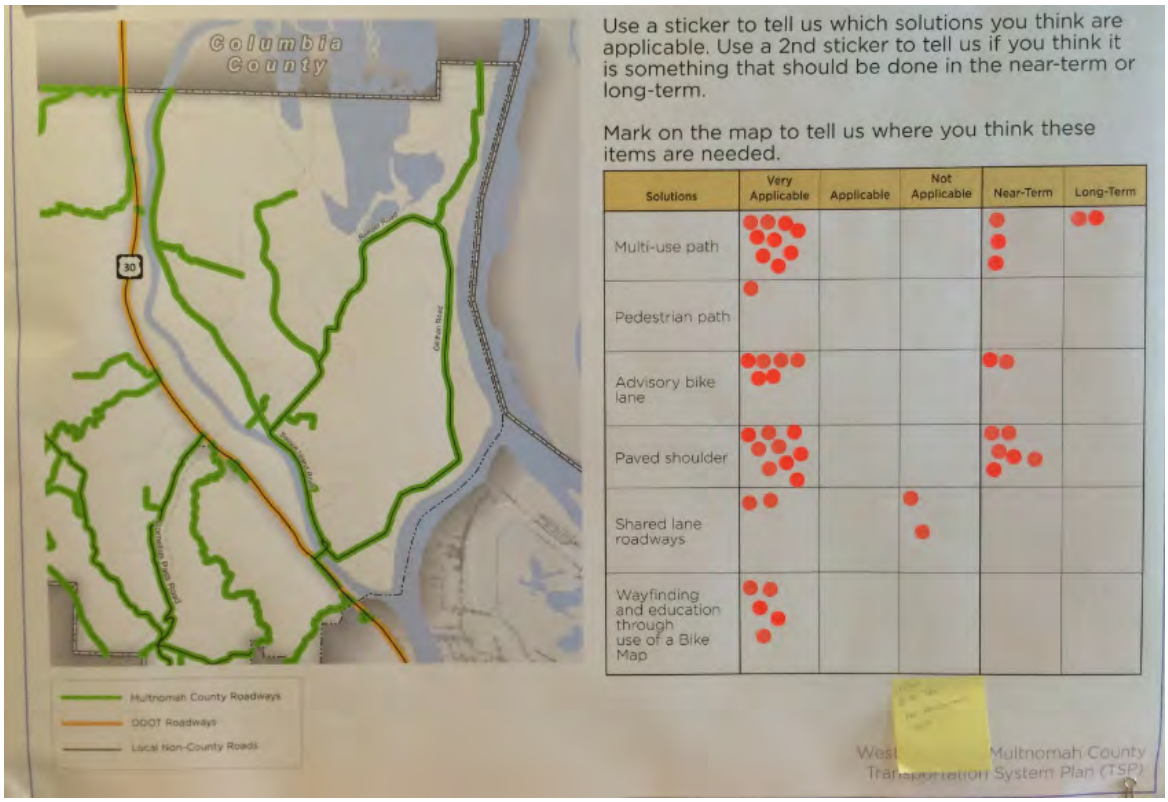
Multnomah County is updating the Westside Rural Multnomah County Transportation System Plan, adopted in 1998, to address current transportation issues and implement the Rural Area Plan for Sauvie Island and Multnomah Channel. The project team identified and summarized transportation needs as well as tools, opportunities, and potential constraints to future implementation of a variety of policies, programs and projects. From that list, the team then identified and summarized these issues in the Needs, Opportunities, Constraints and Tools memo. The team presented contents of that memo to the Community Advisory Committee (CAC) at a meeting on April 9th, 2015 and at a public workshop on April 15th, 2015. The team requested feedback on the solutions and approach. Based on those meetings, the team developed and summarized feedback in the Draft Plan Development Workshop Report during and after the first workshop and made recommendations on proposed solutions. The team held a second workshop on May 14th, 2015 to present the potential TSP amendments and discuss the feedback from the previous workshop. The following summarizes the feedback received at Plan Development Workshop #1 and #2 and presents proposed TSP amendments.

## WORKSHOP #1 FEEDBACK SUMMARY

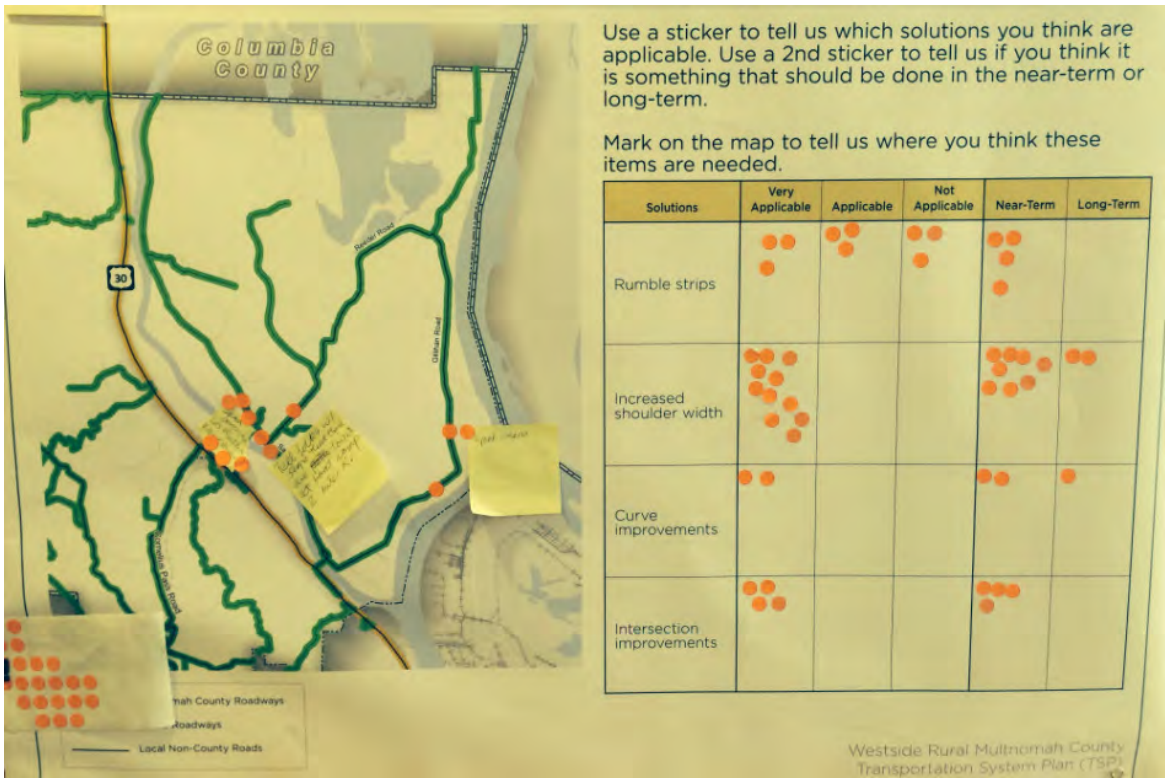
Public Workshop #1 presented potential solutions to address issues within the project area and solicited feedback and comments on the solutions. Participants provided comments verbally, hand written, and via survey boards. The majority of the feedback was confirmed the identified needs and the desire to address the needs. The project team categorized solutions into the one of four categories: bicycle and pedestrian solutions, safety solutions, signage and signal modifications, and travel demand management solutions. Exhibits 1 through 4 show the survey boards for the four categories of solutions, respectively, with orange dots signifying the participant's opinions on applicability and implementation timeframe.

As shown, participants identified all solutions to be "applicable" or "very applicable" with the exception of rumble strips and shared lane roadways. The CAC agreed that rumble strips were not appropriate in the study area because of the negative effects on farm vehicles and equipment as well as cyclists. Participants identified most solutions as applicable in the near-term, but several solutions were identified as long-term solutions. These include mixed-use paths, shoulder widening, curve improvements, warning signs, off-island park-and-rides, and event based TDM plans.

Exhibit 1 Bicycle and Pedestrian Solutions Feedback Board



## Exhibit 2 Safety Solutions Feedback Board




## Exhibit 3 Signage and Signal Modification Feedback Board

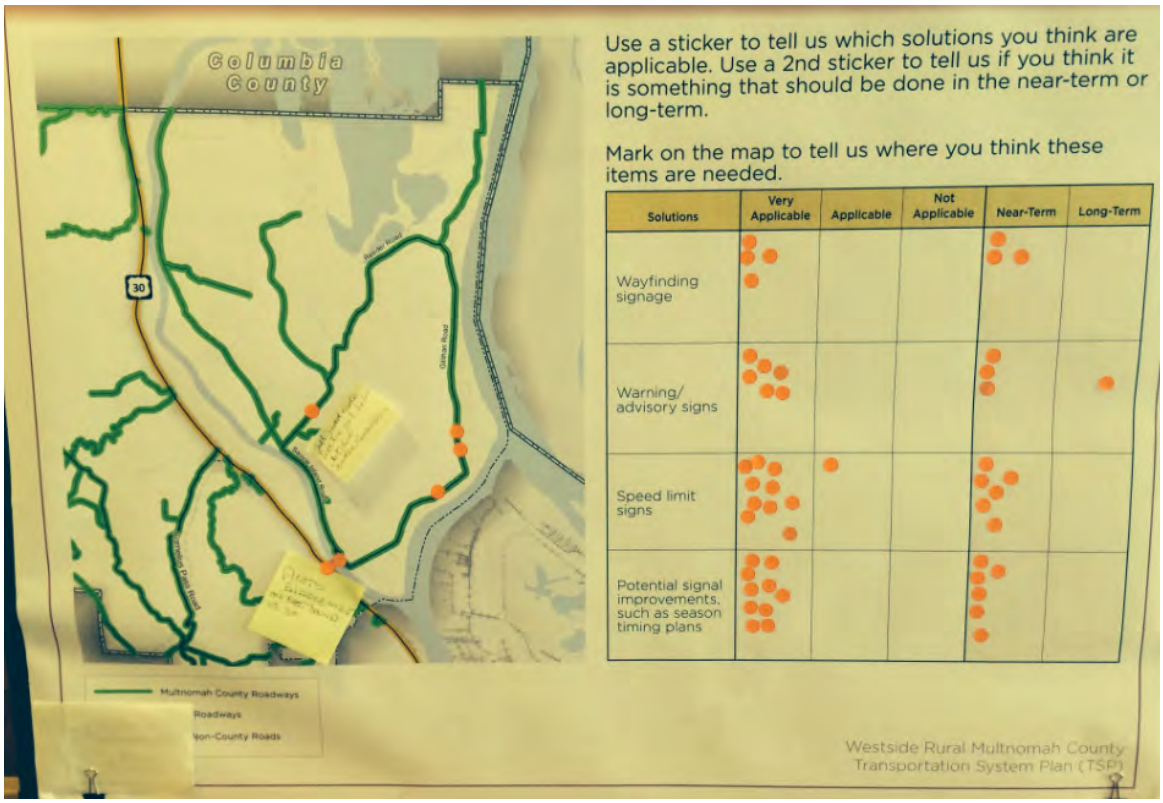
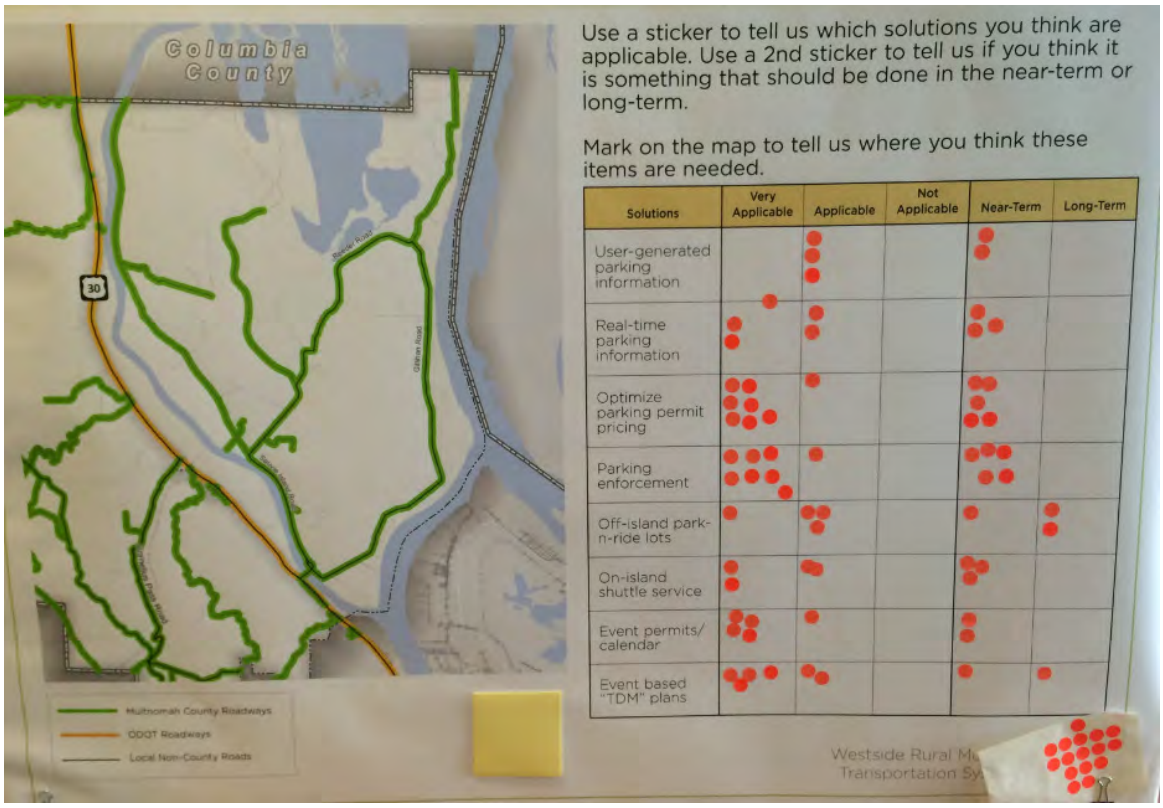


Exhibit 4 Travel Demand Management Solutions Feedback Board




Participants could use yellow sticky notes for additional written comments on the survey boards and a large aerial photo of the study area. The following is a summary of the written comments:

- Bicycle and Pedestrian Treatments - Collect a bike fee from recreational bikers on Sauvie Island. Construct a multi-use path on the levee and along Sauvie Island Road.

- Safety - Safety is a concern on Gillihan Road and for pedestrians and bicyclists traveling on Sauvie Island Road and near the bridge.

- Signage and Signal Modification - Install wayfinding signage indicating location of restrooms on Sauvie Island. Utilize photo radar enforcement on US 30.

- Emergency access and egress - Adequate emergency response times are a concern on Sauvie Island, especially during peak seasons. The lack of shoulders on the dike roads are a concern.

- Rural character - Maintain and preserve the Island's rural character and its roadways.

Additional comments provided on the aerial map of the study area and by the CAC include:

- Do not attract more bicycles to the area, but would like to improve safety for all road users including farm equipment.

- Implement shoulder widening to facilitate farm equipment movement but have concerns about losing the rural feel as a result of standard 6 foot paved shoulders and attracting more bicycles to the area.

- Implement more education and signage for bicyclists and motor vehicles about sharing the roadway.

- Implement curve signs on Gillihan Road and the intersection of Gillihan Road and Reeder Road converted to a three-way stop.

- Construct a roadway connection from Larson Road to Marina Way to provide connectivity and alternative routes to railroad crossings.

- Consider habitat and wildlife impacts from increased visitation to the island. Increased visitation is an impact in addition to the impact of more difficult roadway crossings.

## WORKSHOP #2 FEEDBACK SUMMARY

Public Workshop #2 presented draft TSP amendments developed from Workshop #1 feedback. The recommendations included treatments, potential projects to implement the treatments, and estimated project and program costs and priority. The project team requested additional feedback at Workshop #2 to ensure the recommendations reflect the community needs. While the feedback from Workshop #1 focused on what treatments were favorable, Workshop #2 feedback focused on details of the recommended treatments and corresponding potential projects.

The following summarizes the comments received by topic:

Bicycle and Pedestrian Facilities

- Explore requiring Island bicycle permits
- Add bicycle paths and restrict bike road use

Signage and Signal Treatments

- Add photo radar ticketing
- Explore truck priority at the US 30 and Sauvie Island Road signal
- Study detection issues when there are only one or two vehicles exiting the Island at US 30 and Sauvie Island Road
- “Share the Road” signage should indicate sharing with farm equipment

- Add more signage for speeds and sharing the road
- Work with ODOT to monitor signal phasing

Transportation Demand Management

- Prioritize transportation demand management – to address high traffic months
- Add a daily trip or visitor cap
- More enforcement
    - Prioritize existing permits compliance
    - Ticket illegally parked vehicles more
    - Add fees to beach goers
- Close admissions shack when parking lot is at capacity

General Feedback

- Patrol beaches for visitors breaking the law
- Find a way to limit traffic and people during peak months (June through October)
- Put a toll on the bridge for non-island residents
- Address drainage issues on  Reeder Road near Bailey Nursery

## RECOMMENDATIONS

The following identifies the projects, programs, and policies to include in the Draft TSP based on the input received by the CAC and at Workshops #1 and #2. The strikeout and red text indicate the changes from Workshops #1 to #2, including addressing comments from the previous section.

## Table 1 Solutions Recommendations

| Potential Solutions | Transportation Needs Addressed | Implementation Notes | Proposed TSP Amendment | | |
|---|---|---|---|---|---|
| | | | Project | Cost | Priority |
| Bicycle and Pedestrian Facilities | | | | | |
| Multi-use path | Reduce Modal Conflicts | Implement where shoulders cannot be widened such as on the levee | • Construct multi-use path parallel to sections of Sauvie Island Road located on the levee. | $$ | Near-term |
| Pedestrian path | Reduce Modal Conflicts | - | - | - | - |
| Advisory bike lane | Reduce Modal Conflicts | Identify potential locations to pilot test | • Conduct engineering study to identify potential locations for an advisory bike lane pilot test and verify adequate sight distance.<br>• | $ | Near-term |
| | | | • Implement advisory lane pilot test project.<br>• | $ | Near-term |
| Paved shoulder | Reduce Modal Conflicts | Provide paved shoulders where feasible and adequate ROW exists<br><br>Adopt a Sauvie Island specific roadway cross-section standard with 11 foot lanes and 4 foot shoulders to maintain a rural feel | • Provide 3-4 foot paved shoulders on the loop roads including Reeder Road, Sauvie Island Road, and Gillihan Road.<br>• | $$$ | ~~Near-term~~<br><br>Mid-term |
| | | | • Provide 3-4 foot paved shoulders on Sauvie Island Road from Reeder Road to the Columbia County line.<br>• | $$$ | Long-term |
| | | | • Provide 3-4 foot paved shoulders on Reeder Road from Gillihan Road to the Columbia County line. | $$$ | Long-term |
| Shared-lane roadways | Reduce Modal Conflicts | Represents existing condition. Identify locations for enhanced signage or markings as interim improvement. | See "Warning/advisory sign" projects below<br><br>- | | |
| Wayfinding and Education through use of Bike map | | Requires County coordination with stakeholders. | • Work with SICA and other Sauvie Island stakeholders to develop a bike map that includes wayfinding and education | $ | Near-term |
| Safety | | | | | |
| Rumble strips | Additional Safety Issues | Not recommended | N/A | - | - |
| Increased shoulder width | Reduce Modal Conflicts, Additional Safety Issues | Adopt a Sauvie Island specific roadway cross-section standard with 11 foot lanes and 4 foot shoulders to maintain a rural feel | See "Paved shoulder" projects above | | |
| Curve improvements | Additional Safety Issues | Consider curve warning signs on Gillihan Road | • Provide curve warning signs and delineation posts on curves along the loop roads. | $$ | Near-term |
| Rural intersection improvements | Reduce Modal Conflicts, Additional Safety Issues | Consider converting intersection of Gillihan Road and Reeder Road to three-way stop | • Conduct an engineering/safety study to determine impacts and safety considerations for implementing three-way stop at the intersection of Gillihan Road and Reeder Road. | $ | Near-term |

| Potential Solutions | Transportation Needs Addressed | Implementation Notes | Proposed TSP Amendment | | |
|---|---|---|---|---|---|
| | | | • | | |
| | | | • Implement a three-way stop at the intersection of Gillihan Road and Reeder Road. | $$ | Near-term |
| Railroad crossing improvements | Additional Safety Issues | Work with owners of the private rail crossings and private roads and conduct rail corridor study of feasible local street connections and crossing consolidation and upgrades. | • Conduct rail corridor study to identify feasible local street connections and railroad crossing consolidation and upgrades. Project will include coordinate with owners of the private rail crossings. | $$ | Mid-term |
| Signage and Signal Treatments | | | | | |
| Wayfinding signage | Reduce Modal Conflicts, Manage Travel Demand | Need signs for restrooms and other destinations | • Install additional wayfinding to provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations. | $ | Near-term |
| Warning/advisory signs | Reduce Modal Conflicts | Consider installation of curve warning signs on loop roads | • Install warning/advisory signs are to inform motorists of bicycles and farm equipment sharing the road along facilities (all roads under existing conditions) | $$ | Near-term |
| Speed limit signs | Reduce Modal Conflicts, Additional Safety Issues | - | • Install speed limit signs on unsigned sections of Gillihan Road.<br>•<br>• | $ | Near-term |
| | | | • Obtain a mobile speed radar unit for Sauvie Island that can be relocated at regular intervals | $ | Near-term |
| | | | • Implement permanent speed photo radar signs at several locations on Sauvie Island.<br>• | $$ | Mid-term |
| | | | • Implement photo radar ticketing at several locations on Sauvie Island | $ | Mid-term |
| Signal Controller/Timing Plans | Additional Safety Issues | Upgrade signal controller at US 30/Sauvie Island Road<br><br>Would require coordination with ODOT | • Upgrade the traffic signal controller at the intersection of US 30 and Sauvie Island Road.<br>• | $$ | Near-term |
| | | | • Conduct study of signal timing at the intersection of US 30 and Sauvie Island Road for possible truck extensions, westbound detection issues, and optimization of green and red time. | $ | Near-term |
| Transportation Demand Management | | | | | |
| User-generated parking information | Manage Travel Demand | Advance all strategies and develop near-term and long-term TDM plan. | • Develop a Travel Demand Management Plan for the island that further explores each of these strategies and explores and identifies a potential Transportation Management Association (TMA) for Sauvie Island. Elements of the TDM plan should include: | | |

| Potential Solutions | Transportation Needs Addressed | Implementation Notes | Proposed TSP Amendment | | |
|---|---|---|---|---|---|
| Real-time parking information | Manage Travel Demand | | • Study to determine the most effective and feasible method to implement distribution of parking information.<br>• Work with ODF&W to implement an increased parking permit fee and/or limit number of permits. Include bicycle permitting.<br>• Study to determine location of off-island park-n-ride lots and plan for on-island shuttle service for events.<br>• Develop event permit calendar and implement use.<br>• Study to explore a daily trip cap.<br>• Study the implementation of increased permits and enforcement of permits; including illegally parked vehicles, beach day use permits, and existing permit compliance.<br>• Study the implications of a Sauvie Island Bridge toll for non-residents. | $ (all projects) | Near-term (all projects) |
| Pricing parking permit | Manage Travel Demand | | | | |
| Parking enforcement | Manage Travel Demand | | | | |
| Off-island park-n-ride lots | Manage Travel Demand | | | | |
| On-Island shuttle service | Manage Travel Demand | | | | |
| Event permit calendar | Manage Travel Demand | | | | |
| Event-based “TDM” plan | Manage Travel Demand | | | | |
| Valet bike parking | Manage Travel Demand | - | - | - | - |

Note: Rows that are grey were removed from consideration based on public comments;
$ = $0-$100,000;
$$ = $100,000 - $500,000;
$$$ = > $500,000

Based on the feedback, the project team recommends implementing the following solutions:

- Widen and pave shoulders
    - Widening and paving shoulders provides a more comfortable environment for bicycles and pedestrians traveling and would accommodate farm equipment. To reduce concerns about losing the rural feel, which may encourage faster speeds, as well as the desire to not encourage more bicyclists, the project team recommends 3 to 4 foot shoulders are recommended (with 11 or 12 foot travel lanes). Additional unpaved shoulder width could also be included which would provide additional space for farm equipment and additional safety for vehicles. Widening shoulders is a priority on the loop roads including Reeder Road, Sauvie Island Road, and Gillihan Road. All road widening projects should consider wildlife impacts and the need for wildlife crossings.
- Multi-use path
    - Construct multi-use paths where widening the roadway shoulder is not feasible, such as parallel to the levee where restrictions prohibit roadway widening.
- Wayfinding signage
    - Install additional wayfinding signs to provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.
- Curve improvements
    - Add curve warning signs along the loop roads. Many of the roads on Sauvie Island are winding with limited driver warning. Many of the reported crashes on the Island occurred on or around roadway curves. Providing curve warning signs and delineation posts may help to reduce crashes along Island roadways.
- Warning/advisory signs
    - Add warning/advisory signs to warn motorists that bicycles are likely to share the road, indicate frequent pedestrian crossings, wildlife crossings, and roadway curves. Signage may be particularly helpful along those roadways that remain “shared use” as well as areas with limited visibilities of roadway curvature and upcoming intersections.
- Intersection improvements and signal controller/timing plans
    - Conduct additional analysis on converting the intersection of Gillihan Road and Reeder Road to a three-way stop intersection.
    - Work with ODOT to upgrade the signal controller at the intersection of US 30 and Sauvie Island Road.
- Railroad crossing improvements

- Work with owners of the private rail crossings and private roads and conduct rail corridor study to identify feasible local street connections and railroad crossing consolidation and upgrades.

- Travel Demand Management
  - Advance all strategies with the exception of bike valet parking (and any other strategies that would actively convert auto trips to bike trips) and develop an island TDM plan that includes near-term and long-term strategies. Strategies that had the most interest from the PAC and public include:
    - Event permit calendar (could be managed by SICA);
    - Limit parking permits and/or increase pricing;
    - Real-time parking information (user generated or other physical technology); and,
    - Off-island park-and-rides with shuttles for events.

## NEXT STEPS

The project team will compile these recommended solutions into a list of projects, programs, and policies to include in the Draft TSP.

# Appendix 2
# Existing Plans and Policies Review

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

# MEMORANDUM

Date: March 16, 2015

Project #: 17694

To: Joanna Valencia, Multnomah County
cc: Terra Lingley, ODOT

From: Susan Wright, P.E., and Jenny Miner
Project: Westside Rural Multnomah County Transportation System Plan Update
Subject: Tech Memo #1 – Existing Plans and Policies

The following memorandum summarizes key policies of the Sauvie Island Drainage Improvement Company and policies and projects identified in Multnomah County and Oregon Department of Fish and Wildlife (ODFW) documents and that will help inform the Westside Rural Multnomah County's Transportation System Plan (TSP) Update. The documents reviewed include:

- Sauvie Island & The Multnomah Channel Rural Area Plan *Draft* (October 1997; 2014 Update in process)
- Rural Multnomah County Westside TSP (1998)
- Multnomah County Transportation Capital Improvement Plan and Program Fiscal Years 2014-2018 (2014)
- Sauvie Island Drainage Improvement Company
- Sauvie Island Wildlife Area Management Plan (2012)
- Sauvie Island Wildlife Area Beach Use Plan (1993)

In addition to the above documents, the project team also reviewed the Multnomah County Functional Classification of Trafficways Findings and Recommendations Technical Report (2003), Multnomah County Pedestrian Master Plan (1996), and Multnomah County Bicycle Master Plan (1990). This review revealed that no recommendations or projects were included in any of these documents that are within the Rural Westside TSP study area. *Attachment "A" includes a description of these documents.*

## SAUVIE ISLAND DRAINAGE IMPROVEMENT COMPANY

Sauvie Island is protected by an 18-mile levee that surrounds most of the island. The Sauvie Island Drainage Improvement Company (SIDIC) maintains and manages the flood control works built by the Army Corps of Engineers. The company oversees over 11,170 acres along the 18-mile levee system and is the guiding agency for building on or near levee and drainage structures and implements set back rules.

SIDIC's right-of-way and set back rules impact potential improvements along or adjacent to parts of Sauvie Island Road and Reeder Road. In particular, the SIDIC requirements apply to potential road widening projects and the development of parallel multi-use paths. Per the requirements, no encroachment or additional encroachment is allowed on the levee, within SIDIC right-of-way, or within fifteen feet of the bottom of the levee slope. .

Recent conversations between SIDIC, Metro, and other stakeholders indicate there may be the potential for future multi-use paths within the encroachment area. Per the requirements, any possible paths within the established limits of the Sauvie Island Drainage Improvement Company's right-of-way will require submittal of a ":408 Application" to the SIDIC. The Company will only consider projects that enhance the structural integrity of the levee. Upon approval from SIDIC, the application will be forwarded to the District Engineer of the Army Corps of Engineers for their review and approval. Additional information is available here: http://sidrainage.org/district-and-charter-documents.html.

## SAUVIE ISLAND & THE MULTNOMAH CHANNEL RURAL AREA PLAN *DRAFT* (1997; 2014 UPDATE ADOPTION PROCESS)

This plan is a part of the Rural Area Planning Program and Multnomah County Comprehensive Framework Plan, and provides guidance on decision making regarding land use, capital improvements, and physical development of the Sauvie Island/Multnomah Channel area. It is in the process of being adopted. Chapter 5 of the new document describes the key transportation issues and polices.

Within the new document, polices that address cumulative traffic impacts generated by high levels of visitation the Wildlife Refuge and the beaches are noted with an asterisk (*). Policies that contain the word "consider" commit the County to propose amendments to the Multnomah County Code (MCC) in coordination with the Citizens Advisory Committee (CAC) and the community. These amendments could be considered as part of the TSP Update process.

The new document identifies the following key transportation issues as:

1. Need for strategies that reduce traffic conflicts between modes on Sauvie Island roads, particularly between bicycles and motorists, but also including farm equipment and pedestrians. There is a strong desire for better accommodations for bicycles and pedestrians. The lack of road shoulders and/or multi-use paths is a common theme.
2. Need for safety improvements for roads, intersections, and rail crossings.
3. Concern regarding the increasing numbers of visitors to Sauvie Island and related issues, such as increased traffic and increase demand on emergency service providers.

The policies identified to address these issues are:

- Policy 5.1 – The Multnomah County Bicycle and Pedestrian Advisory Committee should maintain continuous Sauvie Island representation to the extent possible.

- Policy 5.2 – Identify and implement short- and long- term solutions to safely accommodate bicyclists, pedestrians, and motor vehicles on Sauvie Island including on-road bikeways, separated multi-use paths, and funding options.
- Policy 5.3 – Oppose placement of new regional roadways in the Sauvie Island/Multnomah Channel Rural Area, should such roadways be contemplated by any regional transportation authority in the future.
- Policy 5.4 – Consider context sensitive design when reviewing rural roadways standards to determine appropriate paved shoulder widths to preserve the rural character or roads. Shoulder widening should aim to achieve a minimum 3 foot paved width.
- Policy 5.5 – Coordinate with ODOT Rail and Public Transit Division to promote appropriate safety devices at crossings.
- *Policy 5.6 – Coordinate with the Oregon Department of Fish and Wildlife (ODFW) and Columbia County to manage and reduce demand on the Sauvie Island transportation system, especially during peak use periods, by making more efficient use of capacity on the system through strategies such as user fees, shuttles, and parking management programs.
- Policy 5.7 – Promote a transportation system that prioritizes and supports the efficient and safe movement of farm vehicles and equipment.
- Policy 5.8 – Maintain and improve the transportation system for all modes of travel that reduce conflict and minimize impacts to the natural environment, and reflects the community's rural character while ensuring efficiency and connectivity.
- *Policy 5.9 – Implement a range of Transportation Demand Management (TDM) policies encouraging existing businesses and requiring new development (beyond single family residential use and agricultural uses) to help reduce vehicle miles traveled (VMT), maximize use of existing facilities, increase walking, biking and transit use and alleviate congestion on US 30 and county roads caused by seasonal and special event traffic.
- Policy 5.10 – Work with the Oregon Office of Emergency Management, Multnomah County Emergency Management and Multnomah County rural fire protection district to ensure that the transportation system supports effective responses to emergencies and disasters.
- Policy 5.11 – Promote effective use of signage designed to educate the public about farm equipment using roadways, wildlife crossings and bicycle and pedestrian safety and additional way finding signage.

  Policy 5.12 – Coordinate and work with transit agencies and service providers to identify existing transit deficiencies and the improvements necessary to increase access to transit services by potential users.

When adopted, the transportation policies in the 2014 Draft Rural Area Plan will supersede the policies in the 1998 TSP and will guide the TSP Update.

## RURAL WESTSIDE TSP (1998)

The 1998 Rural Westside TSP evaluated multimodal transportation issues and needs for the Sauvie Island & Multnomah Channel Plan Area and the West Hills Plan Area. The TSP was intended as a blueprint to guide transportation project priorities through the year 2015. The TSP includes approximately 15 policies and five key goals and associated objectives. These goals, objectives, and policies largely relate to safety for all modes of travel, the provision and support of transportation options (such as ride-sharing and active transportation facilities), maintaining the proper function of local roadways, and freight movement.

The TSP goals, objectives, policies, and implementation strategies below apply to both the Sauvie Island & Multnomah Channel Rural Area and the West Hills Rural Area; however, the goals and policies in the 2014 Draft Sauvie Island & Multnomah Channel Rural Area Plan, when adopted, will supersede the goals, objectives, and policies included in the 1998 TSP. Those relevant to West Hills Plan Area will remain in-place until the new TSP is adopted.

Table 1 provides an overview of the goals, objectives, policies, and implementation strategies in the 1998 TSP as well as the proposed modifications discussed with the CAC during the Rural Area Plan update process. Additional recommendations for the CAC to consider are identified in red.

**Table 1 1998 TSP Policies and Recommended Modifications**

| **Existing Policy from Westside Rural Multnomah County Transportation System Plan** | **Proposed or Modified Policy from CAC Discussion during Rural Area Plan Process & Additional Recommendations** |
|---|---|
| **Goal 1: Implement a transportation system that is safe and efficient in meeting the needs of area residents and those traveling through the area.**<br>**Objective A**: Provide a transportation system that addresses safety concerns for all modes of travel<br>**Policy**: Improve roadways to attain appropriate safety levels for all motorized and non-motorized traffic.<br>**Implementation strategies**:<br>i. Monitor accident rates for all modes of transportation and recommend implementation of low-cost operational improvements within budgetary limits. Target resources to reduce accident potential in the top 10 percent of accident locations<br>ii. Continue to monitor high accident location sites for all modes of transportation<br>iii. Implement access management standards to reduce vehicle conflicts and maintain the rural character of the area | *RAP Recommendation: Keep policy*<br><br>*Additional Recommendation: Reword policy statement to "**Continuously improve safety levels** for all motorized and non-motorized traffic.* |

| | |
|---|---|
| **Policy**: Actively support safe travel speeds on the transportation system.<br>**Implementation strategies**:<br>i. Support speed limit enforcement<br>ii. Apply design standards that encourage appropriate motor vehicle and truck speeds. | **RAP Revised Policy**: Actively support safe travel speeds on the transportation system. Reduce speeds limits to ensure they are compatible with adjacent land uses, support safety for all modes of travel. Speeds shall be consistent with corresponding implementation documents.<br>i. Support speed limit enforcement (i.e. use of radar), traffic calming and education concepts.<br>ii. Apply design standards that encourage appropriate motor vehicle and truck speeds.<br>iii. Coordinate with ODOT to reduce speeds on rural roadways. |
| **Objective B**: Provide a transportation system that is convenient and limits congestion while meeting minimum safety standards<br>**Policy:** Review adopted design standards to determine if 4 feet paved shoulders adequately meet safety standards for all modes of travel.<br>Implementation Strategies:<br>i. Support the Street Design Guidelines for 2040 and apply them appropriately to maintain the rural character of Multnomah County<br>ii. Support Title 6 of the Urban Growth Management Functional Plan and apply level of service standards appropriately to maintain the character of rural Multnomah County. | *RAP Recommendation: Keep policy*<br><br>*Additional Recommendation: **Revise Objective B:** Provide a transportation system that is convenient and limits congestion while **safely accommodating all modes of travel**.*<br><br>*Additional Recommendation: **Revise Policy:** Adopt rural road design standards specific to Sauvie Island that are appropriate to safely meet the needs of all roadway users.*<br><br>*Additional Recommendation: **Revise Implementation Strategies** related to design standards and add include support of Rural Reserve requirements.* |
| ***Goal 2: Implement a balanced transportation system that supports all modes of travel.**<br>**Objective A**: Establish a transportation system that accommodates a variety of methods of travel and minimizes reliance on a single travel mode.<br>**Policy**: Encourage the use of ride sharing facilities<br>**Implementation Strategies**<br>i. Support safe and convenient park and ride facilities for car pools and transit service in convenient and appropriate locations<br>ii. Encourage the placement of bike lockers at all park and ride/park and car pool locations. Support and promote their use.<br>iii. Coordinate with other agencies to assist users with convenient services (e.g. ride share matching) | *RAP Recommendation: Keep policy* |

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| **Policy**: Encourage mobility for the transportation disadvantaged.<br>**Implementation Strategy**<br>i. Work with public transportation providers to monitor and provide for the transportation needs of the transportation disadvantaged. | **RAP Recommended Policy**: Encourage mobility for the transportation disadvantaged.<br>**RAP Recommended Revised Implementation Strategy**<br>i. Work with public transportation providers to monitor and provide for the transportation needs of the transportation disadvantaged. Strategies could include establishing focus groups for conducting outreach to these groups. |
| ***Policy**: Support the development of multi-use paths.<br>**Implementation Strategy**<br>i. Coordinate multi-use trail transportation needs with Metro Parks and Green Spaces. | *RAP Recommendation: Keep policy*<br><br>*Additional Recommendation: **Add Implementation Strategy** to coordinate with the Sauvie Island Drainage Company for potential multi-use trails on Sauvie Island.* |
| **Goal 3: Develop a transportation system that supports the rural character of West Multnomah County**<br>**Objective A**: Maintain a transportation system that supports the surrounding rural land use designations.<br>**Policy**: Discourage through traffic on trafficways with functional classification of rural local road<br>**Implementation Strategies**<br>i. Reduce travel conflicts by providing appropriate facilities, signs, and traffic markings based upon user type and travel mode<br>ii. On rural local roads with heavy through traffic, consider implementing appropriate traffic-calming measures to reduce such traffic | *RAP Recommendation: Keep policy* |

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| **Objective B**: Provide a transportation system that minimizes impacts to wildlife and agricultural resources.<br>**Policy**: Apply roadway design safety standards appropriately by balancing the needs of the travelling public and minimizing negative impacts to the environment.<br>**Implementation Strategies**<br>i. Develop and implement a design exception process that considers the relative and incremental benefits of implementation costs and impacts to the environment<br>ii. Assess implications of fish passage requirements on county facilities and develop a program for retrofitting drainage facilities<br>iii. Adopt and apply drainage system design guidelines and standards to accommodate fish passage<br>iv. Adopt and apply rural roadway shoulder standards that preserve the rural character of the area<br>v. Adopt and apply rural roadway standards that accommodate wildlife migration | ***RAP Recommended Objective B**: Provide a transportation system that minimizes impacts to wildlife and agricultural resources.<br>**RAP Recommended Policy**: Apply roadway design safety standards appropriately by balancing the needs of the travelling public and minimizing negative impacts to the environment.<br>**RAP Recommended Revised Implementation Strategies**<br>i. Develop and implement a design exception process that considers the relative and incremental benefits of implementation costs and impacts to the environment<br>ii. Assess implications of fish passage requirements on county facilities and develop a program for retrofitting drainage facilities<br>iii. Adopt and apply drainage system design guidelines and standards to accommodate fish passage<br>iv. Adopt and apply rural roadway shoulder standards that preserve the rural character of the area<br>v. Adopt and apply rural roadway standards that accommodate wildlife migration<br>vi. Assess Natural Resource strategies and explore design elements to minimize impacts to fish and wildlife habitat.<br>vii. Explore incorporation of wildlife criteria for the Capital Improvement Plan and Program (CIPP).<br>viii. Work with agencies to address impacts of boat traffic on the environment (e.g. shoreline). |
| **Objective C**: Maintain the beauty of the area by preserving critical view sheds<br>**Policy**: Encourage the placement of new pipelines and transmissions lines in existing right-of-way whenever possible<br>**Implementation Strategies**<br>i. Develop general guidelines for utility placement within the county right-of-way that reduce the number of conflicts and cost of implementation<br>ii. Enhance the rural character and scenic qualities of the area by placing utilities underground when possible<br>iii. Coordinate improvements with utility companies through regular status meetings to maintain and preserve the beauty of the rural | *RAP Recommendation: Keep policy* |

| | |
|---|---|
| character of west Multnomah County. | |
| **Objective D**: Ensure the transportation plan meets federal, state and regional air, water, and noise standards<br>**Policy**: Coordinate transportation improvement projects with appropriate regulatory agencies<br>**Implementation Strategies**<br>i. Retrofit existing facilities to meet regulatory requirements within budgetary limits.<br>ii. Obtain permits as necessary for transportation improvement projects and maintenance activities | *RAP Recommendation: Keep policy* |
| **Goal 4: Develop a transportation system the supports a healthy economy**<br>**Objective A**: Provide a convenient access while maintaining movement of freight along the U.S. Corridor 30<br>**Policy**: Provide ongoing coordination with state, regional, and local business interests to assure efficient movement of goods and services<br>**Implementation Strategies**<br>i. Participate in, support, and adopt the U.S. 30 Corridor Plan<br>ii. Provide for auxiliary turn lanes on road connections to U.S. 30 to achieve acceptable operating levels of service | *RAP Recommendation: Keep policy* |
| **Policy**: Promote transportation alternatives for the movement of freight.<br>**Implementation strategies:**<br>i. Encourage rail operators to maintain rail service within the U.S. 30 corridor<br>ii. Support the movement of freight on the Columbia River, including the U.S. Army Corps of Engineers' study of deepening the Lower Columbia River navigation channel to accommodate deep draft ships. | *RAP Recommendation: Keep policy* |
| **Objective B**: Preserve the function and safety of the transportation system.<br>**Policy**: Provide a transportation system that ensures economically viable transportation of goods from farm to market.<br>**Implementation Strategies**<br>i. Conduct a study of the Sauvie Island Bridge<br>ii. Conduct a study of Cornelius Pass Road | **RAP Recommended Objective B**: Preserve the function and safety of the transportation system.<br>**Policy**: Provide a transportation system that ensures economically viable transportation of goods from farm to market.<br>**RAP Recommended Implementation Strategies**<br>~~i. Conduct a study of the Sauvie Island Bridge~~<br>ii. Conduct a study of Cornelius Pass Road |

| | |
|---|---|
| **Policy**: Coordinate transportation system management activities with interested and affected stakeholders<br>**Implementation Strategies**<br>i. Work with property owners to consolidate existing accesses when possible and as appropriate to access management standards<br>ii. Support limited accesses along U.S. 30 to the extent possible. Support access management along U.S. 30 in accordance with ODOT's Access Management Standards. | *RAP Recommendation: Keep policy* |
| **Goal 5:** Provide transportation improvements in a timely manner according to funding capability.<br>**Objective A**: Maximize cost-effectiveness of transportation improvements using the Capital Improvement Plan process.<br>**Policy**: Invest in safety and maintenance improvements<br>**Implementing Strategies**<br>i. Accelerate shoulder paving to safely accommodate automobile, bicycle, and pedestrian use.<br>ii. Make intersection improvements to improve safety, sight distance, and intersection efficiency.<br>iii. Continue to provide opportunities to educate and inform citizens with easy-to-understand materials on transportation finance.<br>iv. Ensure the Capital Improvement Plan evaluation criteria adequately evaluates rural needs. | *RAP Recommendation: Keep Policy* |

The Existing Conditions section of the 1998 TSP identifies natural hazards and functional classifications for the ODOT (US 30) and County roadways within the plan area. This section also includes roadway inventory data, such as pavement width, pavement conditions, bridge/viaduct conditions, slope stability, access management, and roadway design standards. The existing conditions also summarizes traffic volumes, intersection operations, and provides an overviews of pedestrian and bicycle systems, public transportation, and air, rail, water, and pipeline systems. In addition to the inventories, the existing conditions includes a review of safety of key roadways as well as where area residents have speed concerns. The new TSP will update existing conditions information from the 1998 document.

Based on a review of 2015 conditions, the 1998 TSP identifies the following roadway priorities within the Plan Area: study of key improvements to Cornelius Pass Road, future intersection improvements

along Highway 30, and study of the Sauvie Island Bridge needs ***(the bridge has been replaced since the 1998 TSP).***

The 1998 TSP also identifies the need for formalizing a park-and-ride facility on Sauvie Island and providing a park-and-ride for regional commuters on US 30 near the Columbia County line ***(a park-and-ride has since been constructed on Sauvie Island near the near the east end of the bridge)***.

Based on a review of existing conditions, the TSP indicates that apart from US 30, none of the roadways studied have paved shoulders, and that they primarily serve recreational walking and cycling uses. The TSP prioritizes paving shoulders on key roadways within both the West Hills and Sauvie Island area.

In total, the TSP includes a list of nine transportation improvements within the Sauvie Island/Multnomah Channel Rural Plan Area (the Rural Westside TSP includes an additional eleven projects within the West Hills area). These improvement projects are outlined below. Of all of the projects identified in the 1998 TSP, only the Sauvie Island park-and-ride has been completed.

- **Multnomah Channel/U.S. 30** – *Ride share parking* – Provide parking for 100 spaces next to truck scale near county line. Project to be coordinated with ODOT, Multnomah, and Columbia Counties.
- **U.S. 30/Cornelius Pass Road** – *Public transportation* – Provide commuter van pool or transit service from Columbia County over Cornelius Pass Road to Washington County.
- **U.S. 30** – *Scenic viewing opportunities* – Access provided across railroad tracks adjacent to Burlington Bottoms using existing road approaches (per location).Exact locations to be determined. Providing linear pull outs or widening adjacent to U.S. 30 will not be acceptable on the basis of safety and access management standards.
- **Cornelius Pass Road** – *U.S. 30 intersection improvements* – Include a northbound turn lane and shared northbound left-turn/right-turn lane.

**Sauvie Island:**

- **Gillihan Loop Road** – *Safety improvement* – Add to 6. 13 miles of shoulders (4 ft).
- **Reeder Road** – *Safety improvement* – Add to 4.33 miles of shoulders (4 ft).
- **Reeder Road** – *Safety improvements* – Improve intersection sight distance with Sauvie Island Road.
- **Sauvie Island Road** – *Safety improvement* – Add to 2.15 miles of shoulders (4 ft) and add guardrail from Gillihan Road to Reeder Road. Replace culverts.
- **Sauvie Island Road** – *Create park and ride* – Delineate parking and traffic circulation. (**Completed since 1998 TSP)**

The project list above with project rankings and potential funding sources can be found in Attachment "B".

## MULTNOMAH COUNTY TRANSPORTATION CAPITAL IMPROVEMENT PLAN AND PROGRAM FISCAL YEARS 2014-2018 (2014)

This document establishes a list of near-term priority transportation improvements to enhance and maintain the County's transportation system. The plan includes funding information, funding sources, and amounts .

The CIP includes the following projects within the Sauvie Island and Multnomah Channel areas of the Westside TSP Update:

**Roadway Projects:**

Collector Category – Rural

*Sauvie Island Rd: Bridge – Reeder Rd* (Project #159): Reconstruct road to rural collector standards with 2 travel lanes. Requires working on dike. (Estimated Cost: $8.3 Million. Also included on Bike CIP.)

**Bicycle Projects:**

*Sauvie Island Rd: Gillihan Rd – Reeder Rd*: Bike Path (Estimated Cost: $2.1 Million)

*Sauvie Island: Reeder – Ferry Rd*: Shoulder Bikeway (Estimated Cost: $535,000)

## SAUVIE ISLAND WILDLIFE AREA MANAGEMENT PLAN (2012)

This plan was developed by ODFW to maintain the Sauvie Island Wildlife Area (SIWA) while addressing the changes and challenges the area is experiencing. The identified challenges are associated with an increase in public use of the island, increase of wintering population of geese, developing new wetlands, and restoration efforts of other habitat types. The plan identifies four goals and associated objectives to guide SIWA in managing and addressing the area's challenges. Goals 1-3 are exclusively focused on wildlife and resources are included in Attachment "C". Goal 4 pertains to public use of the wildlife areas and references the 1993 SIWA Beach Use Plan, specifically focusing on the Parking Permit Program and adherence to it. This goal and its associated objectives are summarized below and will be considered as part of the TSP update.

**Goal 4:** To control other public uses to minimize impacts on fish and wildlife, their habitats, and fish and wildlife related recreation and to maintain the security of the wildlife area and reduce disturbance to neighboring private lands.

**Objective 4.1**: Manage non-wildlife oriented public use to minimize disturbance to wildlife species on SIWA.

**Objective 4.2**: Review the Parking Permit program to determine its effectiveness in providing appropriate levels of funding for maintenance, law enforcement and administration.

**Objective 4.3**: Continue implementation of the 1993 SIWA Beach Use Plan.

## SAUVIE ISLAND WILDLIFE AREA BEACH USE PLAN (1993)

The Oregon Department of Fish and Wildlife (ODFW) manages a significant amount of land on Sauvie Island that is available for public recreational use. Much of this land includes public beaches along the Columbia River that are used for hiking, fishing, hunting, and other recreational activities by the public. ODFW also maintains parking facilities and an accompanying parking permit program. ODFW developed the Sauvie Island Wildlife Area Beach Use Plan to manage the public beach use to ensure minimal negative effects on the Sauvie Island Wildlife Area.

The goals identified in Beach Use Plan are:

1. Develop and manage the lands, wildlife, and public use to provide an area for waterfowl with emphasis on wintering waterfowl, wildlife management, wildlife oriented recreation, and a public hunting area.

2. Practice land and water stewardship that does not degrade the basic resources; soil, air, and water and with no net loss of existing wetlands.

3. Manage soil, water vegetation, and man-made structures to benefit wildlife and compatible uses.

4. Maintain natural areas for habitat diversity.

5. Plan and regulate human use and recreational opportunities so they are compatible with maintaining high quality wildlife resource. Discourage or eliminate incompatible recreational activity.

6. Maintain a minimum motor vehicle transportation system for public access, prohibiting off-road vehicle travel and encouraging foot travel.

7. Provide basic public use facilities to meet visitor needs.

8. Comply with all laws, regulations, ordinances, and adopted plans that affect the wildlife area.

9. Encourage governmental authorities and private land managers to plan, develop, and maintain all of Sauvie Island and proximate river basin lands in a manner beneficial to the wildlife objectives of Sauvie Island Wildlife Area.

10. Maintain flexibility to provide for new ideas and change through periodic review of the plan.

The TSP update will consider Goals 6, 7, and 8.

This document also includes a long range management plan for ODFW's lands. Section B is specific to transportation, focusing on parking.

*B. Parking*

*The beach parking sites described below are not reserved for beach users, but are shared by anglers, dog trainers, hikers, hunters, picnickers, clothed sunbathers, clothing-optional sunbathers, wildlife watchers, and others on a first-come, first- served basis without regard to whether users go to the beaches or to the interior of the island. Any user may park in any designated parking site.*

*1. Walton Beach Parking Sites*

*275 Walton Beach main lot*
*90 End of pavement to Collins Beach*
*365 Total Walton Beach Parking Sites*

*2. Collins Beach Parking Sites (clothing-optional area)*

*343 South end of Collins Beach to Gilbert River Road*
*130 1, 300 feet of new parking north of Gilbert River Road and south of private property*
*473 Total Collins Beach Parking Sites*

*3. North Unit Beach Parking Sites*

*35 End of Reeder Road parking lot*

*4. Parking Summary*

*473 Parking opposite clothing optional Collins Beach*
*400 Parking opposite other beaches*

*5. Other Parking-related Actions*

*5.1 Shoulder Parking*

*Work with Columbia County to post the shoulder of Reeder Road "No Parking" except where developed parking sites exist.*

*5.2 Towing Vehicles*

*The Area OAR now authorizes towing when vehicles block traffic or are left on the Area overnight. Oregon State Police and Columbia County Sheriff shall decide whether to*

*implement towing when a vehicle is in violation of the OAR or a county ordinance. Signing will be used to inform the public of towing regulations.*

*5.3 Handicap Parking*

*Two sites adjacent to handicap restrooms will be provided, one at Walton Beach and one at Collins Beach. (This may need to be reviewed to assure compliance with the American Disabilities Act.)*

*5.4 Undeveloped Sites*

*Except where new parking sites are developed, the Department will move the fence back to the road right-of-way along the west side of Reeder Road from Gilbert River Road north to private property. All of Gilbert River Road (both sides and the median strip) will be posted "No Parking" and barricaded.*

*The undeveloped area around the gate onto the Columbia Drainage Dike near the junction of the paved and gravel portions of Reeder Road will be posted "No Parking."*

*5.4 Bulletin Boards*

*All bulletin boards in parking areas opposite Walton Beach will say "Walton Beach (A Clothed Beach)." All bulletin boards in parking areas opposite Collins Beach will say "Collins Beach (A Clothing Optional Beach)." A bulletin board will be erected in the North Unit Beach parking area, and will say "North Unit Beach (A Clothed Beach)."*

*5.6 Parking Permits*

*Parking permits continue to be required year-around. All parking restrictions apply year-around. The Department intends to enforce permits and restrictions year-around*.

The Beach Use Plan calls for reducing the number of non-wildlife oriented recreational uses in the area. To facilitate this, continuation of the parking permit system is outlined in the Oregon Revised Statutes (ORS) 635-008-0148 through 0151 with required parking permits, restricting the number of designated parking sites, and requiring vehicles to park in the designated sites. Specific areas, fees, and signage are described. The Sauvie Island parking ORSs are included in Attachment “D”.

# Attachment A – Additional Documents Reviewed

## MULTNOMAH COUNTY FUNCTIONAL CLASSIFICATION OF TRAFFICWAYS FINDINGS AND RECOMMENDATIONS TECHNICAL REPORT (2003)

This technical report reviews, evaluates, and makes recommendations for updates and changes to the functional classification of roadways in Multnomah County in both urban and unincorporated areas. This document is more current than any of the County's Rural Area Plans (with the exception of the Draft 2014 Sauvie Island and Multnomah Channel Plan) and TSPs. Although largely focused on consistency with Metro and local agency plans in urban areas, it does include information on designated Scenic Routes, recommended updates to the Comprehensive Framework Plan Policies to provide compliance with the Transportation Planning Rule, discusses truck routes and identifies areas of truck restrictions and bridge weight restrictions.

There are no recommendations to the roadways or bridges within the study area of the Westside TSP Update.

## MULTNOMAH COUNTY PEDESTRIAN MASTER PLAN (1996)

This plan provides a framework for developing a safe and convenient pedestrian system on both urban and rural roads. It includes a vision for walking in Multnomah County and includes objectives and policies that were recommended for adoption into the Comprehensive Framework Plan. The plan also contains an inventory of existing pedestrian facilities, deficiencies in the system, as well as a Pedestrian Capital Improvement Program (PCIP). The PCIP developed criteria for prioritizing pedestrian projects and identified funding sources for implementation. Objectives developed for the plan are:

1. Improve pedestrian circulation
2. Provide pedestrian facilities that promote transit use
3. Identify pedestrian improvement projects
4. Coordinate planning, programming, and development among citizen groups, government agencies, and transit providers

No pedestrian projects were identified in the study area of the Westside TSP Update.

## MULTNOMAH COUNTY BICYCLE MASTER PLAN (1990)

The Multnomah County Bicycle Master Plan outlines development of a safe and efficient road and bicycle system. The plan amends the Comprehensive Framework Plan Bicycle Map to update the bicycle routes. It includes guidance on appropriate facility types (shared lanes or shoulder bikeways in the rural area) by roadway functional classification and characteristics. It also includes objectives and policies and a Bicycle Capital Improvement Plan (BCIP) as a means to implement the Plan.

Two objectives were developed in the plan:

1. Develop and maintain an extensive network of bicycle transportation facilities that provide safe, efficient and enjoyable bicycle travel.
2. Increase bicyclist and motorist knowledge and awareness so as to resolve hazards and conflicts of bicycling-related accidents.

No bicycle projects were identified in the Westside TSP study area.

# Attachment B – 1998 TSP Project List

APPENDIX B

# Task Force and Sounding Board Ranking of Projects

During the public involvement process, the Sounding Board and Task Force members were asked to validate the transportation needs and identify improvement projects. The participants were then asked to rank potential improvement projects based on project importance to the community. The list of improvement projects was refined further based upon comments received at the open house and agency review of the draft TSP.

TABLE B-1
Ranking of Candidate Projects

| Transportation Improvement[1] | Jurisdiction[2] | Score[3] | Cost Estimate (1,000) | Process[4] |
|---|---|---|---|---|
| **Cornelius Pass Road** | County | *33 | $20 | CIP |
| Safety improvement—Find ways to enforce posted speed limits and safe travel speeds. Install photo radar. | | | | |
| **Cornelius Pass Road** | County | *31 | $200 | CIP |
| Safety improvement—Install reflectors, delineators, and traffic striping. | | | | |
| **Sauvie Island Road** | County | 30 | $3,675 | CIP |
| Safety improvement—Add to shoulders (4 ft) and add guardrail from Gillihan Road to Reeder Road. Replace culverts. | | | | |
| **U.S. 30** | ODOT | 27 | $100 | RTP STIP CIP |
| Commuter rail study—Conduct study to determine feasibility of commuter rail from Portland to Astoria. | | | | |
| **Gillihan Road** | County | 27 | $2,055 | CIP |
| Safety improvement—Add to shoulders (4 ft). | | | | |
| **Reeder Road** | County | 27 | $5,925 | CIP |
| Safety improvement—Add to shoulders (4 ft). | | | | |
| **Newberry Road** | County | 27 | $450 | CIP |
| Safety spot improvements—Install guardrail ¼ mile south of U.S. 30 and install speed hump 1.2 miles from U.S. 30. | | | | |
| **U.S. 30** | ODOT | 26 | $325 | RTP STIP |
| Ride share parking—Provide parking for 100 spaces next to truck scale near county line. | | | | |

TABLE B-1
**Ranking of Candidate Projects**

| Transportation Improvement[1] | Jurisdiction[2] | Score[3] | Cost Estimate (1,000) | Process[4] |
|---|---|---|---|---|
| **Cornelius Pass Road** | County | 26 | $5 | State |
| Speed zone study—Conduct speed zone study to determine average running speed, safe operating speed, and needs for enforcement. | | | | |
| **Germantown Road** | County | 26 | $6,744 | CIP |
| Safety improvement—Add to 2.22 miles of shoulders (4 ft). | | | | |
| **Skyline Boulevard** | County | 26 | $2,039 | CIP |
| Safety improvement—Add to shoulders from UGB to Cornelius Pass Road (1.49 miles). | | | | |
| **Skyline Boulevard** | County | 25 | $11,153 | CIP |
| Safety improvement—Add to shoulders from Cornelius Pass Road to Rocky Point Road (4 ft). | | | | |
| **U.S. 30** | ODOT | 25 | $5 | State |
| Speed zone study—Conduct speed zone study to determine safe speed zone from Linnton north. | | | | |
| **Skyline Boulevard** | County | 25 | $695 | CIP |
| Cornelius Pass Road intersection improvements—Install signal, provide westbound left-turn lane and through/right lane on Skyline Blvd. | | | | |
| **U.S. 30/Cornelius Pass Rd.** | ODOT | *24 | $78/year | RTP STIP |
| Public transportation—Provide commuter transit service from Columbia County over Cornelius Pass Rd. to Washington County | | | | |
| **Cornelius Pass Road** | County | 23 | $180 | CIP |
| Safety and capacity needs—Study to look at climbing lanes, guardrail, drainage, addition of shoulders, and alternate routes. | | | | |
| **Cornelius Pass Road** | County | 23 | $695 | STIP CIP |
| U.S. 30 intersection improvements—Include a northbound turn lane and shared northbound left-turn/right-turn lane. | | | | |
| **Germantown Road** | County | 23 | $750 | CIP |
| Safety spot improvements—Widen lanes on curves only, install center skip line reflective markers, and install mirror at intersection with Old Germantown Road. | | | | |
| **Reeder Road** | County | 22 | $250 | CIP |
| Improve parking and intersection safety with Sauvie Island Road. | | | | |

TABLE B-1
**Ranking of Candidate Projects**

| Transportation Improvement[1] | Jurisdiction[2] | Score[3] | Cost Estimate (1,000) | Process[4] |
|---|---|---|---|---|
| **Sauvie Island Bridge** | County | 22 | $170 | CIP |
| Conduct bridge replacement study. | | | | |
| **U.S. 30** | RAZ | 21 | $78/year | Other |
| RAZ service expansion—Expand assuming 20 hours of additional service per work day for one bus. | | | | |
| **Sauvie Island Wildlife Refuge** | ODF&W[5] | 21 | $1,060 | Other |
| Recreational bike path—Conduct study to determine feasibility of a bike path north of Reeder Road for recreational purposes only, followed by implementation of the findings. | | | | |
| **Cornelius Pass Road** | County | *20 | $50/year | Other |
| Safety improvement—Contract with the City of Portland for speed enforcement. Assume 0.25 staff per year including equipment and overhead. | | | | |
| **Skyline Boulevard** | County | *20 | $5 | State |
| Speed zone study—Conduct speed study to determine appropriate speed limit for Skyline Blvd. from Cornelius Pass Road east to city limits of Portland. | | | | |
| **Sauvie Island Road** | Tri-Met | 20 | $300 | RTP |
| Improve park and ride—Delineate parking and traffic circulation. | | | | |
| **Springville Road** | County | 20 | $3,160 | CIP |
| Safety improvement—Add to shoulders (4 ft). | | | | |
| **Laidlaw Road** | County | 20 | $1,930 | CIP |
| Safety improvement—Add to shoulders (4 ft). | | | | |
| **Thompson Road** | County | 19 | $643 | CIP |
| Safety improvement—Add to shoulders (4 ft). | | | | |
| **U.S. 30** | ODOT | 19 | $100 | STIP |
| Exclusive car pool lane study—Conduct study to determine feasibility and cost of adding a reversible exclusive car pool lane on U.S. 30. | | | | |
| **Cornelius Pass Road** | County | 19 | $2,020 | CIP |
| Realignment—Reduce curvature and eliminate switchback while minimizing grade increase of 1,500-foot section (assume average cut of 60 feet). | | | | |

TABLE B-1
**Ranking of Candidate Projects**

| Transportation Improvement[1] | Jurisdiction[2] | Score[3] | Cost Estimate (1,000) | Process[4] |
|---|---|---|---|---|
| **U.S. 30** | ODOT | 18 | $1 | State |
| Harborton sign installation—Provide signing for Harborton. | | | | |
| **Skyline Boulevard** | County | 18 | $485 | CIP |
| Safety improvement—Install traffic calming devices such as speed humps to reduce speeds from UGB to Cornelius Pass Road. | | | | |
| **U.S. 30** | Metro Parks and Greenspaces | 15 | $350 | Other |
| Scenic viewing opportunities—Access provided across railroad tracks adjacent to Burlington Bottoms using existing road approaches (per location). Exact locations to be determined. Providing pull outs or widening along U.S. 30 will not be acceptable on the basis of safety. | | | | |
| **Skyline Boulevard** | Metro Parks and Greenspaces | 12 | $350 | Other |
| Scenic viewing opportunities—Acquire property through fee or donation for development of parking area adjacent to roadway. | | | | |
| **Cornelius Pass Road** | County | *11 | $750 | CIP |
| Safety Improvement—Construct pullouts at a number of locations for the purposes of speed enforcement. | | | | |
| **Germantown Road** | County | *0 | $887 | CIP |
| Safety improvement—Install traffic calming devices such as speed humps to reduce speeds | | | | |

[1] Candidate projects are based upon public input, current needs, and future needs.

[2] Jurisdictional control over facility.

[3] Ranking score as established by Sounding Board mailing. Projects with an asterisk (*) are projects that were added at the Task Force meeting on March 4.

[4] Indicates the process most likely for securing funding for candidate project.

[5] ODF&W is the Oregon Department of Fish and Wildlife.

*Projects with an asterisk (*) are projects that were added at the Task Force meeting on March 4, 1998.

# Attachment C - Sauvie Island Wildlife Area Management Plan (2012) Goals 1-3

**Goal 1:** To protect, enhance and manage wetland habitats to benefit fish and wildlife species.

Sturgeon Lake

**Objective 1.1**: Conduct research on methods and then implement these methods to improve the biological and hydrological function of the 3,000 acre Sturgeon Lake system.

Inside the levees

**Objective 1.2**: Protect, enhance and manage approximately 286 acres of palustrine seasonally flooded wetlands and convert approximately 200 acres of existing poorly drained agricultural land into a total of 486 acres of this wetland type to benefit a wide variety of fish and wildlife species.

Outside the levees

**Objective 1.3**: Protect and enhance approximately 2,922 acres of lacustrine seasonally flooded wetlands to benefit a wide variety of fish and wildlife.

**Objective 1.4**: Protect and manage 285 acres of lacustrine permanently flooded wetlands to benefit a wide variety of fish and wildlife species.

**Objective 1.5**: Protect, enhance and manage approximately 795 acres of palustrine permanently flooded wetlands to benefit a wide variety of fish and wildlife species.

**Objective 1.6**: Enhance and manage 62 acres of palustrine semi-permanently flooded and 52 acres of palustrine seasonally flooded wetland habitats to benefit a wide variety of fish and wildlife species.

**Objective 1.7**: Protect and enhance approximately 161 acres of riverine wetlands to benefit a wide variety of fish and wildlife species.

**Objective 1.8**: Maintain and improve critical physical and functional infrastructure affecting wetland and water management activities within and outside the levees.

**Goal 2:** To protect, enhance and manage upland habitats to benefit a wide variety of wildlife species.

**Objective 2.1**: Enhance habitat carrying capacity for wintering Canada geese by reviewing and modifying current habitat management practices on 2,230 acres of upland pastures/grasslands and 1,316 acres of agricultural cropland.

**Objective 2.2**: Maintain and improve the quality of 193 acres of existing Willamette Valley oak woodlands.

**Objective 2.3**: Maintain 2,867 acres of riparian/bottomland hardwood forest and improve the quality of these habitats.

**Objective 2.4**: Protect, enhance and manage approximately 2,230 acres of pasture/grassland habitats to benefit wildlife species, with emphasis on ground nesting birds.

**Objective 2.5**: Maintain and enhance SIWA facilities, structures, and equipment used to conduct habitat management, public use projects and other administrative functions.

**Goal 3:** To maintain waterfowl hunting programs and provide a variety of other fish and wildlife oriented recreational and educational opportunities to the public that are compatible with Goals 1 and 2.

**Objective 3.1**: Provide approximately 165,000 hunting, trapping, and angling use days annually.

**Objective 3.2**: Provide opportunities for individual dog training and up to 50 days of dog field trial use days annually which will not conflict with wildlife habitat management objectives or Objective 3.1.

**Object 3.3**: Provide 100,000 wildlife viewing, wildlife-oriented education and interpretation use days annually, compatible with Objective 3.1 and habitat management objectives.

# Attachment D – Sauvie Island Parking OARs

*635-008-0148*

*Purpose*

*The purpose of the Sauvie Island parking permit system is to limit the number and locations of parking spots in the Sauvie Island Wildlife Area to protect the wildlife and the wildlife habitat.*

*Stat. Auth.: ORS 496 Stats. Implemented: ORS 496 Hist.: FWC 12-1990, f. & cert. ef. 2-2-90*

*635-008-0149*

*Definition*

*For purposes of OAR 635-008-0148 through 635-008-0151:*

*(1) "Permit" means a vehicle permit that is issued as evidence of a grant of authority to park a motor-propelled vehicle in a designated parking area within the Sauvie Island Wildlife Area.*

*(2) "Parking" means a vehicle not in motion.*

*Stat Auth.: ORS 496.012, 496.138, 496.146 & 497.071*
*Stats. Implemented: ORS 496.012, 496.138, 496.146 & 497.071*
*Hist.: FWC 12-1990, f. & cert. ef. 2-2-90; FWC 8-1993, f. & cert. ef. 2-8-93*

*635-008-0151*

*Procedures for Issuance and Enforcement of Parking Permits for Sauvie Island Wildlife Area*

*The Oregon Department of Fish and Wildlife hereby adopts the following procedures relating to issuance and enforcement of parking permits for certain vehicles in Sauvie Island Wildlife Area parking areas:*

*(1) A parking permit is required at all times for all parking areas. Parking is permitted only in designated parking areas.*

*(2) Parking areas are designated by the following signs:*

*(a) "Entering Sauvie Island Wildlife Area -- Parking Permits Required Beyond This Point";*

*(b) "Parking allowed only in designated areas -- Sauvie Island Wildlife Area Parking Permit Required."*

*(3) There are two separate permits of different colors: an annual permit and a daily permit.*

*(4) The fee for parking permits is $2.00 for permits issued on a daily basis or $9.50 for permits issued on an annual basis beginning each January 1.*

*(5) Permits are issued by selected local agents to a party upon payment and may be transferred from vehicle to vehicle.*

*(6) The permits must be visible from outside the vehicle and be displayed in the front or rear window of the vehicle.*

*(7) No parking permits will be required for those vehicles which are owned or operated by government agencies.*

*(8)(a) A person who operates or parks a motor-propelled vehicle in violation of restrictions established and posted under OAR 635-008-0146 through 635-008-0151 commits an offense punishable as provided in ORS 496.992;*

*(b) Except as otherwise provided in subsection (8)(a) of this section, a person who is the owner of an unattended motor-propelled vehicle parked in violation of restrictions established and posted under OAR 635-008-0146 through 635-008-0151 is guilty of a violation punishable as described in ORS 161.635 without regard to culpable mental state;*

*(c) The procedure for a police officer to follow upon finding a non government vehicle parked in designated parking area without a permit shall consist of the issuance of a notice which shall be either delivered to the defendant or placed in a conspicuous place upon the vehicle in the violation.*

*Stat. Auth.: ORS. 496.012, ORS 496.138, ORS 496.146 & ORS 497.071*
*Stats. Implemented: ORS 496.012, ORS 496.138, ORS 496.146 & ORS 497.071*
*Hist.: FWC 12-1990, f. & cert. ef. 2-2-90; FWC 8-1993, f. & cert. ef. 2-8-93; DFW 30-2000, f. & cert. ef. 6-14-00*

# Appendix 3 Needs, Opportunities, Constraints, and Tools Technical Memorandum

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

# TECHNICAL MEMORANDUM

Date: May 14, 2015

Project #: 17694

To: Joanna Valencia, Multnomah County

Cc: Project Management Team

From: Susan Wright, P.E., Jenny Miner, and Karla Kingsley

Project: Westside Rural Multnomah County TSP Update

Subject: Needs, Opportunities, Constraints and Tools

## INTRODUCTION

Multnomah County is updating the Westside Rural Multnomah County Transportation System Plan (TSP, adopted in 1998) to address current transportation issues, particularly related to the increasing number of visitors and the need to provide safe, multimodal transportation facilities for residents, visitors, and businesses. A key part of the update is to identify a range of potential programs, policies, and projects that the County can implement over the next twenty years. This memo outlines documented transportation needs as well as tools, opportunities, and potential constraints to future implementation of a variety of policies, programs and projects.

## DOCUMENTED TRANSPORTATION NEEDS

The following sources helped the project team compile the list of needs:

- public outreach related to the County's TSP Update project scoping work in 2013;
- review of relevant plans and policies (see Kittelson & Associates' January 22, 2015 Plans and Policies Memo);
- a recent review of traffic data (see January 27, 2015 Traffic Data Technical Memo prepared by Multnomah County);
- the implementation needs for transportation related policies in the Draft Sauvie Island & Multnomah Channel Rural Area Plan; and,
- stakeholder interviews from November 2014 through February 2015 conducted by the project team as a means to identify needs.

Based on information from the above efforts, the transportation needs in the study area generally fall into the following categories:

- reducing conflicts between different modes;
- increasing safety for all system users; and,
- managing travel demand.

The following sections outline the relevant needs to consider for each of these categories.

## Reducing Modal Conflicts

Sauvie Island is generally served by two-lane narrow rural roadways. These roadways serve a variety of users with diverse needs and varying speeds (e.g., farm equipment, an active cycling community, pedestrians and motorists) that can result in conflicts between modes. Some of the issues related to these potential conflicts are described below.

The roadways on Sauvie Island are predominantly operated and maintained by Multnomah County with the exception of those within Columbia County. Primary travel on the island occurs along a main loop comprised of three rural collector roadways: Gillihan Road, Reeder Road, and Sauvie Island Road. Other roads on Sauvie Island provide access to private property and Oregon Department of Fish and Wildlife (ODFW) lands for recreation and are classified as local roads.

Dedicated pedestrian or bicycle facilities are not provided along the Island's roadways, and roadway shoulders are narrow or non-existent in most places. The 1998 Transportation System Plan includes 4 foot shoulders along major segments of Sauvie Island Road, Reeder Road, and Gillihan Road, but the County has not implemented these projects yet. Most of these roadways have available right-of-way to provide wider shoulders or a parallel multi-use path; however, potential costs of the improvements and construction constraints near the levees represent significant barriers to implementation. *A complete list of the study area projects included in the County's Capital Improvement Program (CIP) is provided in the Existing Plans and Policies Review memo.*

Sauvie Island is also a popular destination for recreational cyclists. On the weekends and peak seasons, visitors and residents enjoy cycling along the Island's roadways. In October 2014, daily weekend bicycle volumes were as high as 365 cyclists on Sauvie Island Road north of the Cracker Barrel store. In total, 1,765 cyclists were recorded there during the month of October.

In addition to safer facilities to ride on, stakeholders have identified the need to provide wayfinding and information related to access to restrooms, water, and parking locations for cyclists as well as education and outreach for all road users on sharing and obeying the rules of the road.

Many areas along Sauvie Island Road and Reeder Road are within the Sauvie Island Drainage Improvement Company (SIDIC) levee right-of-way and set back area. As such, construction along these sections of the roadways require special permitting from the Army Corps of Engineers and can only be considered if they will enhance the structural integrity of the levee. Further analysis is required to determine if construction of a multi-use path parallel to the loop roadways, on the island side of the levee could be designed so as to enhance the structural integrity of the levee and be approved by the Corps.

The TSP update will need to look at the feasibility of providing multimodal facilities that can safely serve Sauvie Island residents, visitors, and businesses over the next twenty years.

## Increase Safety

Both the County's policies and stakeholder feedback identify the importance of increasing safety for all users of the transportation system on Sauvie Island and the Multnomah Channel.

To establish a baseline for identifying potential safety-related improvements, Multnomah County staff reviewed reported crash data from 2007 through 2013. This review revealed the following:

- There was only one reported crash in the Multnomah Channel area that was not located on Highway 30.
- There were no reported crashes involving pedestrians or bicycles on County facilities on Sauvie Island.
- The majority of crashes on Sauvie Island were reported as fixed object/run off the road.
- There were two fatal crashes reported. One occurred at the Sauvie Island Road/Reeder Road intersection and one occurred along Gillihan Road south of the Reeder Road intersection.
- Areas with more than one reported crash include:
  - Sauvie Island Road/US 30
  - Sauvie Island Road/Gillihan Road
  - Sauvie Island Road/Reeder Road
  - Reeder Road/Gillihan Road
  - Reeder Road curves
  - Sauvie Island Road along the levee

In addition to reviewing reported crash reports, County staff also reviewed operating speeds along the rural collector roadway system in an effort to understand how speeds and potential speed differentials may affect safety. Most of the roadways have a posted speed limit of 45 miles per hour, with the exception of Gillihan Road which is not currently posted and as such Oregon's "Basic Rule[1]" applies. Based on a 2014 speed study conducted by the County, Reeder Road, Gillihan Road, and Sauvie Island Road have average speeds below 45 miles per hour whereas 85$^{th}$-percentile speeds vary from 44 to 48 miles per hour. The 85$^{th}$-percentile speed is the speed which 85 percent of vehicles travel at or below. These 85$^{th}$ percentile speeds are consistent with the posted 45 mph limits. Additional information on the crash reports and speed data is included in the Traffic Data Technical Memo.

Finally, stakeholder interviews and reviewed documents identified other safety concerns related to the multiple crossings of the railroad that runs north-south between US 30 and the Multnomah Channel. These concerns primarily relate to the lack of active crossing measures, such as gates and flashing lights, at these crossings and related potential safety issues.

[1] The "Basic Rule" is that you may only drive a speed that is "reasonable and prudent" considering traffic, road, weather and other conditions.

## Manage Travel Demand

The majority of the year the transportation network primarily serves the residents and daily business operations and average daily traffic volumes on most of the roadways throughout Sauvie Island are less than 3,000 vehicles per day. The popularity of the beaches, hunting and fishing areas, recreational cycling opportunities, seasonal festivals, and agri-tourism activities lead to significant fluctuations in average daily traffic volumes during the peak seasons, summer and fall. During these times, the Sauvie Island Road can have as many as 17,000 vehicles per day. In October 2014, Sauvie Island Road had between 12,000 and 17,000 vehicle trips each day the first three Saturday and Sundays of the month; whereas, the weekdays in October 2014 averaged approximately 5,000 trips per day.

The peak traffic conditions are a result of both seasonal all-day events (such as access to public beaches and pumpkin patches) as well as limited duration events (such as concerts and farm-to-table dinners). During these times, traffic congestion and long vehicle queues consistently occur at the US 30/Sauvie Island Road intersection and at the access points to key visitor destinations. In addition to causing delays, highly congested roadways concern Island residents because of the potential impact on emergency response times.

The TSP Update will need to identify potential solutions for managing traffic on Sauvie Island during peak events and seasons to ensure safe multimodal travel during the next twenty years.

## Applicable Policies related to the Summary of Needs

There are multiple policies in the draft Sauvie Island & Multnomah Channel Rural Area Plan (RAP) and other applicable County documents that support the needs discussed above. The applicable draft RAP policies include:

- Equity
    - Policy 1.0 – Acknowledge the needs of low-income and minority populations in future investments and programs, including an equity analysis consistent with required federal, state and local requirements.
- Reduce Modal Conflicts
    - Policy 5.2 – Identify and implement short- and long- term solutions to safely accommodate bicyclists, pedestrians, and motor vehicles on Sauvie Island including on-road bikeways, separated multi-use paths, and funding options.
    - Policy 5.4 - Consider context sensitive design when reviewing rural roadway standards to determine appropriate paved shoulder widths to preserve the rural character of roads. Shoulder widening should aim to achieve a minimum 3 foot paved width.
    - Policy 5.7 – Promote a transportation system that prioritizes and supports the efficient and safe movement of farm vehicles and equipment.
    - Policy 5.8 – Maintain and improve the transportation system for all modes of travel in a manner that reduces conflict and minimizes impacts to the natural environment, and reflects the community's rural character while ensuring efficiency and connectivity.

- Additional Safety Issues
    - Policy 5.5 – Coordinate with ODOT Rail and Public Transit Division to promote appropriate safety devices at crossings.
    - Policy 5.11 – Promote effective use of signage designed to educate the public about farm equipment using roadways, wildlife crossings and bicycle and pedestrian safety. Work with businesses to create additional way-finding signs that can help visitors get to their destinations more efficiently.
- Manage Travel Demand
    - Policy 5.6 – Coordinate with the Oregon Department of Fish and Wildlife (ODFW) and Columbia County to manage and reduce demand on the Sauvie Island transportation system, especially during peak use periods, by making more efficient use of capacity on the system through strategies such as user fees, shuttles, and parking management programs. Strategies may include, but are not limited to:
        - **(a)** Encourage and support action by the Oregon Fish and Wildlife Commission to increase daily fees during peak use periods to an amount that will effectively reduce the traffic burden on Sauvie Island roads and reduce adverse wildlife impacts resulting from heavy traffic, noise and dust.
        - **(b)** Encourage Columbia County and the Columbia County Sheriff to prohibit parking on county roads outside designated parking areas and to post and enforce its parking restrictions.
        - **(c)** Encourage the use of ride sharing, and support safe and convenient park-and-ride facilities for carpools and transit service in convenient and appropriate off-island locations.
        - **(d)** Explore options for shuttle support and traffic reduction strategies such as traffic fees and parking management programs.
        - **(e)** Coordinate with transit agencies and service providers to identify existing transit deficiencies and the improvements necessary to increase accessibility to transit service by potential users.
    - Policy 5.9 – Implement a range of Transportation Demand Management (TDM) policies encouraging existing businesses and requiring new development (beyond single family residential use and agricultural uses) to help reduce vehicle miles traveled (VMT), maximize use of existing facilities and alleviate congestion on US 30 and county roads caused by seasonal and special event traffic. Support the use of bicycle transportation alternative to automotive use without encouraging purely recreational bicycle activities that may increase this level of vehicle conflict on roadways.

The TSP Update will identify projects, programs and policies that complement and are consistent with the policies identified above.

## OPPORTUNTIES

Based on the identified needs and applicable RAP policies, the following section identifies opportunities related to providing pedestrian and bicycle facilities, safety improvements, signage and signal improvements, as well as implementing travel demand management measures during the next twenty years.

Table 1 outlines a variety of potential solutions to address the identified needs and policies. The first column in Table 1 refers to the applicable page in the appendix to this document that describes each potential solution in more detail. The following columns identify the policies from the Draft Rural Area Plan that the solution would help implement. This is followed by an identification of which of the transportation needs (described in the previous section) the potential solution helps to address. The right-most column in the table identifies the other potential solutions that are complementary to the implementation of the identified solution.

Table 1 Potential Solutions Summary Table

| Appendix Page | Potential Solutions | Applicable Rural Area Policy | Transportation Needs Addressed | Complementary Solutions |
|---|---|---|---|---|
| **Bicycle and Pedestrian Facilities** | | | | |
| BPF-1 | Multi-use path | 5.2 | Reduce Modal Conflicts | BPF-6, SI-1 |
| BPF-2 | Pedestrian path | 5.2 | Reduce Modal Conflicts | BPF-3, BPF-4, BPF-5, BPF-6, SI-1 |
| BPF-3 | Advisory bike lane | 5.2, 5.8 | Reduce Modal Conflicts | BPF-6, SI-1, SI-3 |
| BPF-4 | Paved shoulder | 5.2, 5.7 | Reduce Modal Conflicts | BPF-6, SA-1, SI-1 |
| BPF-5 | Shared-lane roadways | 5.2, 5.8 | Reduce Modal Conflicts | BPF-2, BPF-66 |
| BPF-6 | Bike map | 5.11 | Reduce Modal Conflicts, Manage Travel Demand | BPF-1, BPF-2, BPF-3, BPF-4, BPF-5, D-5 |
| **Safety** | | | | |
| SA-1 | Rumble strips | 5.2, 5.7, 5.8 | Additional Safety Issues | SA-2, BPF-1 |
| SA-2 | Increased shoulder width | 5.2, 5.7, 5.8 | Reduce Modal Conflicts, Additional Safety Issues | SA-1 |
| SA-3 | Curve improvements | 5.2, 5.7, 5.8 | Additional Safety Issues | SA-1, SA-2 |
| SA-4 | Rural intersection improvements | 5.2, 5.7, 5.8 | Reduce Modal Conflicts, Additional Safety Issues | SA-1, SA-2, SI-1 |
| SA-5 | Railroad crossing improvements | 5.5 | Additional Safety Issues | SI-2 |
| **Signage and Signal Treatments** | | | | |
| SI-1 | Wayfinding signage | 5.2, 5.7, 5.8, 5.11 | Reduce Modal Conflicts, Manage Travel Demand | BPF-1—6 |
| SI-2 | Warning/advisory signs | 5.2, 5.7, 5.8, 5.11 | Reduce Modal Conflicts | SA-3, BPF-5 |
| SI-3 | Speed limit signs | 5.2, 5.7, 5.8, 5.11 | Reduce Modal Conflicts, Additional Safety Issues | BPF-4 |
| SI-4 | Signal Controller/Timing Plans | 5.7, 5.8, 5.9 | Additional Safety Issues | D-7, D-8 |
| **Transportation Demand Management** | | | | |
| D-1 | User-generated parking information | 5.6, 5.9 | Manage Travel Demand | D-3, D-5 |
| D-2 | Real-time parking information | 5.6, 5.9 | Manage Travel Demand | D-3, D-5 |
| D-3 | Pricing parking permit | 5.6, 5.9 | Manage Travel Demand | D-1, D-2, D-4 |
| D-4 | Parking enforcement | 5.6 | Manage Travel Demand | D-1, D-2, D-5 |
| D-5 | Off-island park-n-ride lots | 5.9 | Manage Travel Demand | D-3, D-6, D-8 |
| D-6 | On-Island shuttle service | 5.6, 5.9 | Manage Travel Demand | D-5, D-7, D-8, |
| D-7 | Event permit calendar | 5.9 | Manage Travel Demand | D-5, D-6, SI-4 |
| D-8 | Event-based “TDM” plan | 5.9 | Manage Travel Demand | D-5, D-6, D-7, D-9, S-4 |
| D-9 | Valet bike parking | 5.9 | Manage Travel Demand | D-7, D-8 |

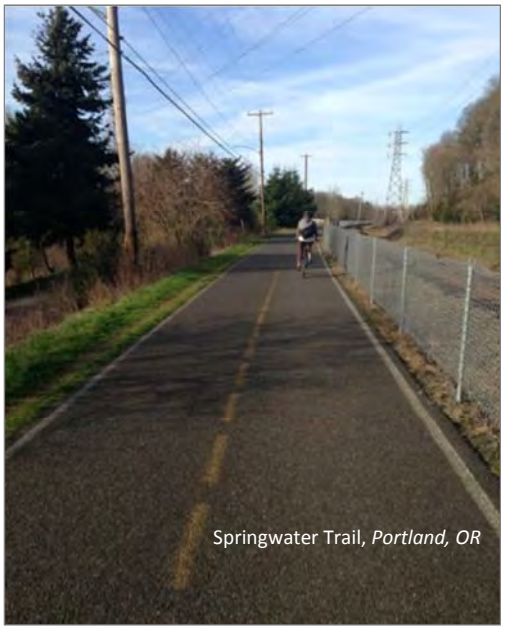
# OPPORTUNITIES FOR BICYCLE AND PEDESTRIAN FACILITIES

Future implementation of pedestrian and bicycle facilities on Sauvie Island needs to reflect the Island's rural character and context. Today, the rural two-lane roadways serve motorists, cyclists, pedestrians, equestrian users, and farm equipment. With its active agricultural areas and peak seasonal, recreational and agri-tourism activities, providing pedestrian and bicycle facilities along key roadways could be very beneficial for all road users. As such, the following treatments can be considered as part of the TSP Update:

- Multi-use path – BPF-1
- Pedestrian path (side-path) – BPF-2
- Advisory bike lane – BPF-3
- Paved shoulder – BPF-4
- Shared lane roadways – BPF-5
- Provision of wayfinding and education through the use of a Bike map – BPF-6

# Bicycle and Pedestrian Facilities

## MULTI-USE PATH



Springwater Trail, *Portland, OR*

*Multi-use paths are paved, bi-directional trails separated from roadways that serve both pedestrians and bicyclists. Multi-use paths increase the safety and comfort level of the user. They play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels.*

### Westside Rural Area Applicability

The main loop road that consists of Sauvie Island Road, Reeder Road, and Gillihan Loop Road could benefit from a multi-use path. A multi-use path on Sauvie Island would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

### Pros

- Provides facility for both pedestrians and bicyclists in less space than separated facilities.
- Providing separation from motor vehicles can attract pedestrians and cyclists of all ages and abilities.
- Would improve accessibility for residents on the Island and increase safety for all users including recreational cyclists.

### Cons

- May result in conflicts between modes in areas with frequent crossings or driveways.
- May result in conflicts between bicyclists and pedestrians.
- When parallel to roadways, the path must be buffered from motorists which requires substantial right-of-way.
- Speed differentials between more experienced cyclists and slower cyclists and pedestrians can cause conflicts on a shared facility.

### Design Considerations

- Best suited in areas where roadway crossings can be minimized (such as parallel to travel barriers such as highways, railroad tracks, rivers, shorelines, natural areas, etc.). High-visibility treatments are needed at path crossings.
- A minimum width of 10 feet is recommended for low-pedestrian/bicycle-traffic contexts and would be appropriate for some areas of the Island; 12 to 20 feet should be considered in areas with moderate to high levels of bicycle and pedestrian traffic such as the loop.
- Pavement markings can be used to indicate separate space for pedestrian and bicycle travel.
- May need right-of-way acquisition and levee restrictions may alter design and alignment.
- Permeable paving options could help minimize surface water runoff and be compatible with the rural character of the area.

### Complementary Strategies

- Bike map, Wayfinding signage

# Bicycle and Pedestrian Facilities

## PEDESTRIAN PATH (SIDEPATH)

Skyline Boulevard
*Portland, OR*

Skyline Boulevard
*Portland, OR*

*A pedestrian path is a hard-surface path adjacent to the roadway in lieu of providing a sidewalk in areas where other bicycle facilities exist. Unlike a multi-use path, pedestrian paths are narrower in width and not intended for bicycle travel.*

### Westside Rural Area Applicability

Pedestrian paths could be used on Sauvie Island Road where there is significant pedestrian activity and a multi-use path cannot be accommodated.

### Pros

- Provides a hard surface for pedestrians buffered from the roadway.
- Requires less right-of-way than a multi-use path.

### Cons

- May also attract bicyclists who are not comfortable riding on or adjacent to the roadway, creating the potential for conflicts between pedestrians and bicyclists.
- Drivers may perceive the path as intended for bicyclists and be concerned about cyclists sharing the roadway.

### Design Considerations

- Paths are typically 5- to 8-foot wide asphalt surface.
- Pedestrian paths are typically separated from the roadway by a gravel or vegetated buffer instead of a curb and gutter.
- Should follow ADA standards to allow for universal access.
- Though not intended for bicyclists, pedestrian paths may attract bicyclists if a separate bicycle facility is not provided. Appropriate signage is needed to indicate the intent of the path.
- Pedestrian paths may require right-of-way.
- Levee restrictions constrain path design.
- Permeable paving options could help minimize surface water runoff and be compatible with the rural character of the area..

### Complementary Strategies

- Advisory bike lane
- Paved shoulder
- Shared lane roadway
- Bike map
- Wayfinding signage

# ADVISORY BIKE LANE

,Numansdorp, The Netherlands



*Hanover, NH*
Photo: Danny Kim, *The Dartmouth*

*Advisory bike lanes, also known as "suggestion lanes," are bicycle lanes that motor vehicles can use to pass oncoming motor vehicles after yielding to bicyclists. Advisory bicycle lanes are used in combination with a single center lane (without a centerline) for bi-directional motor vehicle travel on relatively low-volume streets.*

## Westside Rural Area Applicability

This treatment is applicable to streets with less than 6,000 average daily motorized traffic (ADT) that do not have sufficient width for dedicated bicycle only facilities. Most Sauvie Island roadways have annual average ADT below 3,000; however seasonal traffic peaks result in ADT up to 17,000 vehicles in a day on Sauvie Island Road. Therefore, this treatment is likely to be suitable only on local roads that are not part of "the loop" but that are popular cycling routes.

## Pros

- Provides striped bicycle facility on roadways with very limited right-of-way or pavement width.
- Encourages slower motor vehicle speeds and motorists yielding to bicyclists.
- Inexpensive treatment consisting of only signing and striping.

## Cons

- Motorists may not initially understand advisory lanes due to limited applications in the US to date; educated would be required.
- Does not provide physical protection from vehicles and may not attract bicyclists of all levels.
- Does not improve pedestrian environment.
- No US design guidelines available.

## Design Considerations

- Advisory bike lanes can be striped as 5-7 foot lanes with a single center motorized vehicle lane of 10 to 18 feet.
- Explanatory signage may be helpful in US contexts to communicate to motorists that they must yield to bicyclists before passing oncoming vehicles.

## Complementary Strategies

- Bike map
- Wayfinding
- Speed limit signs

# Bicycle and Pedestrian Facilities

## PAVED SHOULDER

*Tucson, AZ*


*Boise, ID*

*A paved road shoulder can serve as a bicycle and pedestrian facility that provides space separated from motor vehicle traffic in rural areas.*

### Westside Rural Area Applicability

Paved shoulders can be applied to any roadway in the study area but would require special permits to be constructed on roadways on the levee.

### Pros

- Provides a space separated from motorists.
- Requires less right-of-way than a separated multi-use path.
- Standard treatment for Multnomah County and equipment for maintenance available.

### Cons

- Does not provide physical protection from vehicles and may not be comfortable for all users.
- Shoulders serving other uses, such as disabled vehicles, farm equipment, or pedestrians may require bicyclists and pedestrians to use travel lanes.

### Design Considerations

- A 6-foot width is preferred to accommodate bicycle and pedestrian travel, with a 4-foot minimum in constrained areas. Greater widths can be used in higher-speed locations.
- Rumble strips or profiled striping can be used to enhance safety and minimize motorists encroaching on the shoulder.
- May require right-of-way acquisition.
- Levee restrictions may alter design or prohibit construction.

### Complementary Strategies

- Bike map
- Wayfinding
- Rumble strips

# SHARED LANE ROADWAYS




*Shared lane roadways are those where motorists and cyclists share the same travel lanes. Shared lane roadways that are part of a designated bicycle network may include shared lane markings ("sharrows") or signage to indicate the legal presence of bicyclists in the travel lane.*

## Westside Rural Area Applicability

All of the roadways on Sauvie Island are currently shared facilities . Posting "Bikes on Roadway" signs would indicate to road users that bicyclists may be present and are on the roadway.

## Pros

- Allows for bicycle travel when other treatments are not feasible.
- Low- to no-cost.

## Cons

- Does not provide any separation from vehicles.
- Without additional traffic-calming treatments, it is likely to attract only strong and fearless bicyclists.
- Does not improve pedestrian environment.

## Design Considerations

- Provide guidance signage to alert drivers of the shared road. See warning/advisory signs section.
- Educate drivers on the rules of sharing the road.
- Increase signage and pavement markings.

## Complementary Strategies

- Pedestrian path
- Bike map

# Bicycle and Pedestrian Facilities

## BIKE MAP


Source: FMATS Bike Map

*Bike maps generally include the type of bicycle facilities available as well as destinations and other useful information within a defined area.*

### Westside Rural Area Applicability

- Bike maps can provide guidance to infrequent cyclists regarding potential areas of interest such as types and location of recreational activities, bike parking locations, restrooms, and access to drinking water on Sauvie Island.
- Could be privately funded by bike friendly businesses.

### Pros

- Provides valuable information to bicyclists.
- Reduces trespassing.
- Map is portable and could also be available electronically.

### Cons

- Cost of production and regular updates to ensure information remains relevant.

### Complementary Strategies

- Multi-use paths
- Pedestrian side-path
- Advisory bike lanes
- Paved shoulder
- Shared lane roadways
- Off-island Park-N-Rides

# OPPORTUNITIES FOR SAFETY

Based on a detailed review of the reported crash data from 2009 - 2013, 39 crashes occurred on Sauvie Island roadways. Of these, 27 crashes were single car collisions with fixed objects after leaving the roadway. One of the fixed object crashes resulted in a fatality. The safety improvements identified below can help address fixed object and run off the road crashes, as well as provide other improvements that can contribute to a safe transportation system. These improvements can be applied along roadways or at spot locations such as intersections or railroad crossings.

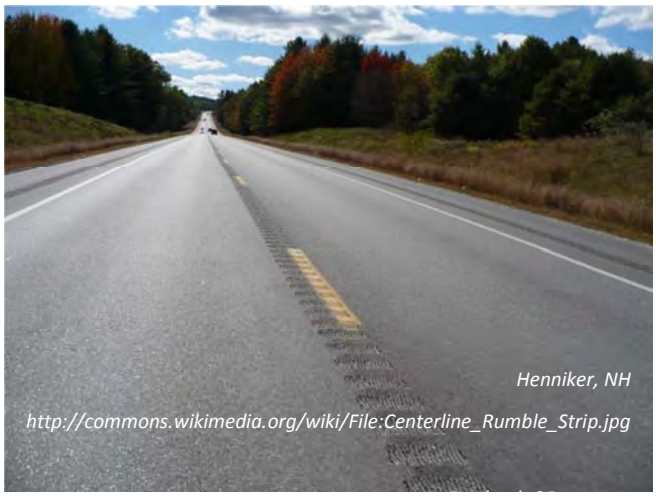
This section discusses the following safety-based treatments:

- Rumble strips – SA-1
- Increased shoulder width – SA-2
- Curve improvements – SA-3
- Intersection treatments – SA-4
- Railroad crossing improvements – SA-5

# Safety Treatments

## RUMBLE STRIPS


Kansas Cyclist


Henniker, NH
http://commons.wikimedia.org/wiki/File:Centerline_Rumble_Strip.jpg

*A type of pavement treatment consisting of successive grooves cut in the pavement applied to lane edges, striped medians, and transversely across travel lanes that cause vibration and rumbling noise when tires drive on them. They are used as a method of alerting drivers of potential dangers of drifting across the centerline and leaving the roadway.*

### Westside Rural Area Applicability

Rumble strips are effective at reducing fixed object crashes, which make up the majority of the crashes occurring in the study area. Rumble strips could be installed along Reeder Road, Sauvie Island Road, and Gillihan Road (i.e., the roadways with the most crashes) if shoulder bikeways or a multi-use path was also installed.

### Pros

- Shoulder rumble strips are effective at reducing run off the road crashes by 15 percent and fatal and injury run off the road crashes by 29 percent.
- Provides a "buffer" between cyclists and vehicles when a shoulder bikeway or parallel mulit-use path is present.
- Warns inattentive drivers of exit from lane.

### Cons

- Increased noise pollution when vehicles pass over.
- A safety hazard for bicyclists if adequate space for cycling is not provided.

### Design Considerations

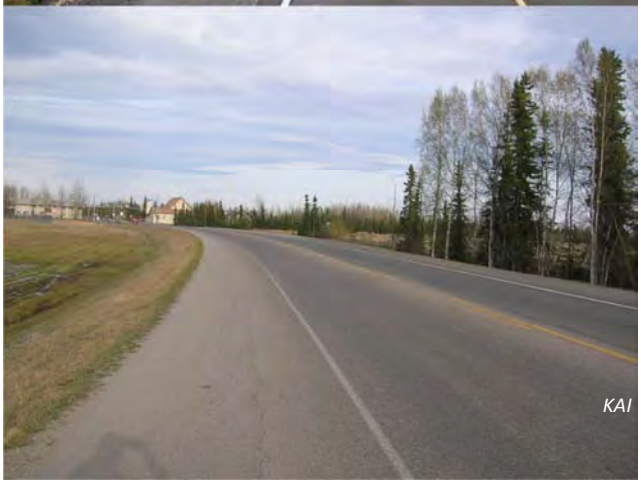
- Adequate shoulder width is necessary.
- Shoulder and centerline rumble strips can be used in combination for additional crash reduction.

### Complementary Strategies

- Increased shoulder width
- Multi-use path

# Safety Treatments

## INCREASED SHOULDER WIDTH


*A wide shoulder can be used to provide a separated space for cyclists and pedestrians, assist with vehicular recovery during driver inattentiveness, assist with incidence response and emergency situations, and provide space for motorists to bypass slow moving vehicles such as farm equipment.*

### Westside Rural Area Applicability

During the past five years, nearly 70 percent of the reported crashes on Sauvie Island were single vehicle crashes. Widening the shoulders could be effective at reducing these types of crashes by providing space for recovery, especially along Reeder Road, Sauvie Island Road, and Gillihan Road.

### Pros

- Provides drivers more opportunity to recover before departing the roadway or slow their vehicle to a controlled stop.
- Wider shoulders may be used by pedestrian and bicyclists when other facilities are not present.
- Widening the shoulder could allow for shoulder rumble strips.
- As a current Multnomah County standard, knowledge and equipment for maintenance is available.

### Cons

- Additional right-of-way may be required.

### Design Considerations

- Adequate right-of-way is necessary.
- Levee restrictions may alter design or prohibit construction.

### Complementary Strategies

- Rumble strips

# Safety Treatments

## CURVE IMPROVEMENTS


*Curve improvements include a variety of treatments that help to inform the driver of the presence and characteristics of curves. Treatments include, but are not limited to, curve warning signs, decreased speed signs, curve delineation posts, and illumination.*

### Westside Rural Area Applicability

Many of the roads on Sauvie Island are winding with limited warning to drivers of the impending curves. In addition, many of the reported crashes on Sauvie Island occur on or around roadway curves. Providing curve warning signs and delineation posts may help to reduce crashes along Island roadways, especially along Reeder Road and Gillihan Road.

### Pros

- Provides advanced notification to road users of location and characteristics of potentially unexpected curves.
- May help to decrease crashes on curves.

### Cons

- Contributes to sign clutter.
- Requires additional cost and maintenance

### Complementary Strategies

- Rumble strips
- Increased shoulder width



Source: MUTCD

# RURAL INTERSECTION IMPROVEMENTS

*Anchorage, AK*

*Intersection improvements include a variety of treatments to help all modes efficiently and safely travel through intersections. Treatments include, but are not limited to changing intersection control type or changing the stop-controlled approaches, adding turn lanes, adding marked or active crossing treatments, and providing adequate roadway illumination.*

## Westside Rural Area Applicability

Four locations on Sauvie Island would benefit from intersection improvements that help all modes move safely and efficiently on the roadway system. These include:

- Sauvie Island Road/US 30
- Sauvie Island Road/Gillihan Road
- Sauvie Island Road/Reeder Road
- Reeder Road/Gillihan Road

More in depth analysis is necessary to provide recommendations on specific treatments to the intersections.

## Pros

- Lighting increases night-time visibility of roadway users and animals and sense of security for all roadway users.
- Possible improved operations of the intersection.

## Cons

- Cost of design and construction.
- Potential right-of-way acquisition.
- Increased maintenance costs with signals and illumination

## Complementary Strategies

- Shoulder widening
- Rumble strips
- Wayfinding signage

# RAILROAD CROSSING IMPROVEMENTS


Source: www.iqtrafficontrol.com

Source: urbanpostmortem.wordpress.com

*Railroad crossings can have passive control (devices that mark the location of a crossing such as cross-bucks and yield or stop signs) or active control (devices that mark the location of a crossing and indicate the approach or presence of a train such as flashing lights and gate arms). Active crossings are relatively expensive to install and maintain but provide increased safety as compared to a passive crossing.*

## Design Considerations

For private railroad crossings (those at a driveway or private road), improving the crossing from passive control to active control requires railroad permission and a contract between the property owner and the railroad. Public crossings in Oregon (generally those at a crossing of a public road) are regulated by the Oregon Department of Transportation (ODOT). ODOT's Rail Division follows a federal mandate to consolidate at-grade railroad crossings. The federal direction has resulted in a requirement to close one or more crossings when a new crossing is constructed or an existing crossing is upgraded.

Upgrading crossings to active control in rural areas typically ranges from $200,000 - $500,000. In addition, railroad companies typically require crossing owners to pay $5,000 - $10,000 per year per crossing in annual maintenance fees to compensate for additional weekly inspections and maintenance required over the life of the crossing.

When railroad crossings are upgraded to active crossings the railroad tracks and the road bed typically also require reconstruction to current standards. The road grade at the crossing must have no more than approximately a three inch rise or fall within 30 feet of either side of the tracks per national standards. This can result in the need to re-grade the roadway or railroad track approaches to the crossing.

## Westside Rural Area Applicability

There are approximately eight passive railroad crossings in the study area along Highway 30. Private property owners may be able to get permission to upgrade crossings from the railroad; however, public crossing upgrades will require a plan to consolidate and close one to two other public or private crossings. The best candidates for crossing upgrades are those with flat crossings with good visual clearance.

## Pros

- Provide positive control and effectively communicates to vehicles, pedestrians, and bicyclists the need to stop at the railroad crossing.

## Cons

- Costly and likely to require closure of other crossings.

## Complementary Strategies

- Warning/advisory signs

# OPPORTUNITIES FOR SIGNAGE AND SIGNAL MODIFICATIONS

Given the variety and growth of transportation users on Sauvie Island, the need to effectively communicate relevant transportation-related information has increased. Regulatory, warning, or informational/wayfinding signs can be used to convey guidance to system users. Signage can be cost effective in informing users about the location of key destinations and resources, such as restrooms, parking or water, and posting speed limits or informing users about unexpected conditions along the roadways. In addition to signage, effectively moving traffic through signalized intersections will help with overall system operations. This section discusses the following treatments:

- Wayfinding signage – SI-1
- Warning/Advisory signs – SI-2
- Speed limit signs – SI-3
- Potential signal improvements, such as seasonal timing plans – SI-4

# Signage and Signal Treatments

## WAYFINDING SIGNAGE


Source: Andy Daleiden, Kittelson & Associates, Inc.

*Signage indicating to bicyclists and pedestrians the direction and distance to points of interest along a corridor. Wayfinding signs can also be used to inform drivers of key recreational destinations, parking, etc.*

### Westside Rural Area Applicability

Provide guidance to motorized and non-motorized users to areas of interest such as types and location of recreation, parking, and other key destinations.

### Pros

- Encourages walking and biking by providing access information to major attractions.

### Cons

- Additional cost and maintenance.
- Potential for sign clutter.

### Design Considerations

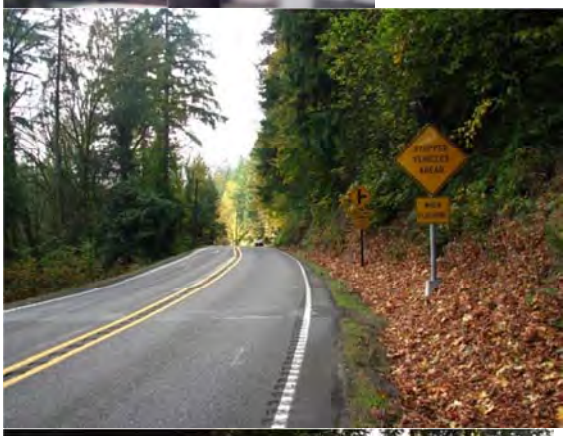
- Place in key locations/decision points such as intersections.

### Complementary Strategies

- Multi-use paths
- Bike lanes
- Pedestrian paths
- Bike map

# Signage and Signal Treatments

## WARNING/ADVISORY SIGNS


Source: KAI

*Signage providing guidance or warning about unexpected conditions for all users of the roadway.*

### Westside Rural Area Applicability

Signs can be used on Island roadways to inform motorists of bicycles sharing the road, locations of frequent pedestrian crossings, and roadway curvature. Signage may be particularly helpful along those roadways that remain "shared use" as well as areas with limited visibilities of roadway curvature and upcoming intersections.

### Pros

- Provides advanced notification to road users of unexpected conditions; i.e. pedestrians entering the roadway, curves, etc.
- Creates more awareness by motorists of the shared use and to look for bicyclists.

### Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

### Complementary Strategies

- Curve improvements
- Shared lane roadways

# Signage and Signal Treatments

## SPEED LIMIT SIGNS


Source: KAI

*Signage providing guidance on appropriate speeds for traveling the roadway.*

### Westside Rural Area Applicability

Most roadways have posted speeds today, except Gillihan Road.

### Pros

- Alerts the driver to speeds appropriate for the roadway.
- Informs pedestrians and bicyclists about the suitability of the road for their comfort level.

### Cons

- Contributes to sign clutter.
- Additional cost and maintenance.

### Complementary Strategies

- Shoulder bikeways and shared lane roadways

# Signage and Signal Treatments

## SIGNAL CONTROLLER/TIMING PLANS


*A traffic signal controller runs the signal timing and phase plan for a given traffic signal. Various timing plans can be used for different times of day (e.g. peak and off peak hour), time of years, and special events.*

### Westside Rural Area Applicability

Modern traffic signal controllers can be programmed with multiple timing plans to adjust to known seasonal peaks in traffic and associated events. With an upgraded traffic signal controller at the intersection of Sauvie Island Road and Highway 30, weekend and weekday signal timing plans for each season could be programed into the traffic signal. This would eliminate the need for a request to ODOT each season to adjust the timing.

### Pros

- Effective movement of vehicles through an intersection.
- Better efficiency reduces congestion which can lead to safety benefits.
- Reduce need for seasonal requests to ODOT for signal timing changes.

### Cons

- Controller upgrades can be expensive.

### Complementary Strategies

- Event permit calendar
- Event-based TDM plans

# OPPORTUNITIES FOR TRANSPORTATION DEMAND MANAGEMENT

Sauvie Island attracts visitors year-round for a wide variety of activities. These visitors come to Sauvie Island using the same transportation facilities that must serve Island residents' daily activities and farm practices.

At times, the roadways on the island become highly congested, causing delays and impacting livability for Island residents. There are a number of strategies to help manage the cumulative impacts resulting from the variety of attractions and events that can occur concurrently. Generally, these strategies fall within a broader category of "transportation demand management" that manage, or reduce, the amount of vehicle travel. In more urban contexts, transportation demand management can cover a broad variety of strategies, ranging from charging for parking to providing better bike facilities to planning land uses closer together. This section elaborates on the opportunities for transportation demand management that are most applicable for Sauvie Island, given the existing activities on the Island.

As part of identifying appropriate TDM strategies, there are three general types of visitors throughout the year whose needs can be considered:

- **Recreational visitors** – this group includes bicyclists, beach-goers, and wildlife area visitors such as bird-watchers. People in this group tend to come to the Island on fair-weather weekends throughout the year, with higher levels of activity during the spring, summer, and fall months.
- **Seasonal attractions** – this group visits the Island for a particular seasonal attraction, such as fall harvest activities including the pumpkin patches and corn mazes. Their visits are focused on a specific time of the year due to the seasonal nature of the attraction.
- **Specific event visitors** – this group comes to the Island to attend a specific, scheduled event, such as a concert, farm-to-table dinner, or wedding[2].

[2] In addition there events such as runs and bike races that occur on the island that already implement travel demand management techniques to manage access and traffic for their events.

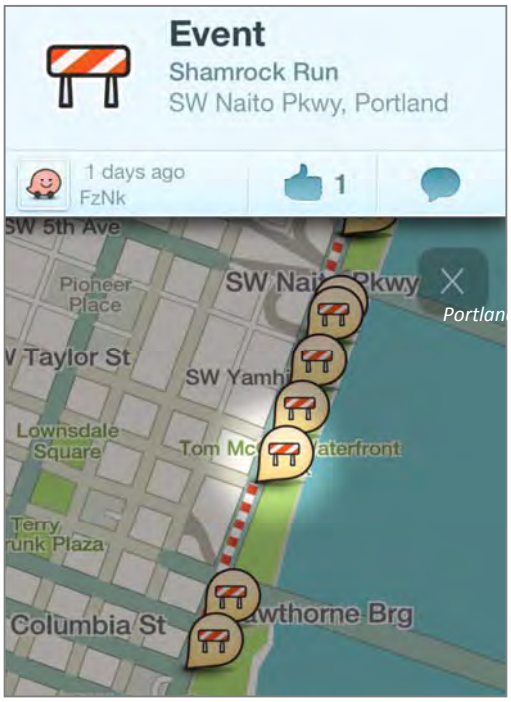
- Strategies to reduce the cumulative impacts of this visitor travel must be tailored to meet the unique needs of these types of visitors. Generally, these strategies fall into three general overarching categories:
- **On-island parking information and management**
    - Parking information
    - Permit pricing
    - Parking enforcement
- **Strategies to reduce the amount of vehicle travel**
    - Park-N-Ride locations off-island for beach-goers and other recreational users
    - Shuttle service during peak weekends
- **Special event management**
    - Event permits with coordinated calendar and cumulative visitor limits (i.e., establishing a potential cap or maximum)
    - Event-based "TDM" plans
    - Valet bike parking

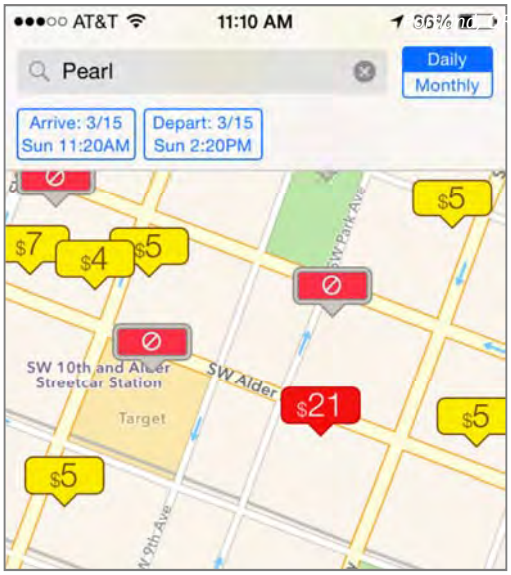
Some of these strategies are already in place on Sauvie Island, but may benefit from increased emphasis or implementation changes. A Transportation Management Association (TMA) may provide an opportunity to employ a half- or full-time staff person to coordinate transportation demand management strategies on the Island throughout the year. A TMA is an organization dedicated to solving local transportation concerns. TMAs can be funded through a variety of mechanisms, ranging from regional grants to private businesses within the association's area. Multnomah County could explore options for initiating a TMA for Sauvie Island.

Strategies that can be accomplished by a TMA, by Multnomah County, or by other organizations are outlined below. The following treatments are discussed in this section:

- User-generated parking information – D-1
- Real-time parking information – D-2
- Optimize parking permit pricing – D-3
- Parking enforcement – D-4
- Off-island park-n-ride lots – D-5
- On-island shuttle service – D-6
- Event Permits/Calendar – D-7
- Event based "TDM" plans – D-8
- Valet bike parking – D-9

# USER-GENERATED PARKING INFORMATION




*User-generated parking information would provide visitors and/or event participants with information about public or privately-held parking availability. This information is "shared" amongst system users through "apps" and other electronic means. This type of strategy has been implemented successfully for real-time user-generated traffic information by apps such as Waze, where users can report incidents or other temporary issues affecting traffic.*

## Westside Rural Area Applicability

On Sauvie Island, this strategy could be implemented through the development of a smart-phone app and corresponding installation of real-time signage at key locations on the Island. These signs could be useful to:

- Visitors arriving at popular locations, such as the beaches, that are to encouraged to log-in to the app and report on the current availability of parking.
- Provide users arriving on the Island with information about parking availability and traffic congestion.
- Business owners and event organizers that can advise potential visitors to come later or park at alternate locations.

## Pros

- Can help avoid unnecessary trips when no parking is available.
- After the development of the app and installation of the signage, does not require additional staffing or investment.

## Cons

- Relies on users to generate information, which may result in inconsistent or infrequent updates.
- Limited cell phone coverage on the Island. Only users with smartphones and cell service can access.

## Design Considerations

- Signage should be visible and easy to understand
- App could be designed with a "points" system and rewards for consistent users that report parking information, such as discounts on permits.

## Complementary Strategies

- Parking permit pricing
- Park-N-Ride lots

# REAL-TIME PARKING INFORMATION

*Real-time parking information can help avoid unnecessary trips by letting visitors know when and where parking is already fully occupied. Digital displays are frequently used in parking garages, where automated counting or sensing is installed. Lower-tech options are also possible that rely upon a person to update the sign message. This information is provided by a designated staff person or through the use of parking sensors or video, rather than relying on users to report parking availability to other users.*

## Westside Rural Area Applicability

Due to the predominance of graveled parking on Sauvie Island, it is not currently feasible to install detection or sensor on most parking locations. Instead, this strategy could be implemented through lower-tech methods such as:

- Informational maps of all parking locations can be readily available for visitors to the island, with various locations numbered or color-coded for easy "real-time" information communication
- On the busiest weekends, patrol officers, ODF&W, paid attendants, or volunteers at busy locations could relay information to the Cracker Barrel store, where information about the parking locations shown on the map would be posted for visitors arriving to the Island.
- In cases where popular parking locations are full, an information board could suggest alternate parking locations.
- Video cameras could be installed at key parking areas with complementary displays posted near the entrance to the Island and online.

## Pros

- Can help avoid unnecessary trips when no parking is available.
- Provides a low-tech way to provide information to all visitors

## Cons

- May require manual updates from people at the locations of parking and a display board, unless video cameras are installed.
- Video cameras may raise privacy concerns

## Design Considerations

- Signage with information about parking locations and availability should be positioned so that it is easily understood and visible to visitors entering Sauvie Island.

## Complementary Strategies

- Parking permit Pricing
- Park-N-Ride lots

# OPTIMIZE PARKING PERMIT PRICING

*Photo: Statesman Journal, Sauvie Island, OR*

*Pricing parking is a powerful tool for managing demand. Requiring payment for parking can influence travelers' choice to carpool or use other modes.*

## Westside Rural Area Applicability

Visitors to Sauvie Island currently pay $7 for a daily permit to park in wildlife areas on the island. Annual permits cost $22. Additional strategies for consideration include:

- Permit pricing could be increased during high-traffic times, such as prime weekends, and decreased during lower-traffic times, such as week days or winter months, to help smooth out the flow of visitors.
- Annual permit costs could be increased or split into two "season" permits, with winter season having a much lower cost.
- Requiring permits for all vehicles entering the Island. Resident parking could be free or at a low cost covering only permit administration.
- Additional fees for parking could be collected in popular or congested locations, such as the beaches.

## Pros

- Can generate revenue as long as administrative costs are not substantial.
- Is demonstrated to help manage demand, since people are price-sensitive.

## Cons

- May be perceived as unfair or bad for business by some Island businesses if all visitors are required to obtain permits. Today, only those visitors desiring to use a public parking facility are required to buy permits.
- Cost of enforcement.

## Design Considerations

- Any increases or changes to the pricing structure could be accompanied by an explanation of where the additional revenue will be used. In examples where people are able to see the local benefit of the parking revenue, they are much more likely to support the increased costs.

## Complementary Strategies

- Off-Island Park-N-Ride

# PARKING ENFORCEMENT

*Regular enforcement of existing parking regulations can improve compliance. If people expect to receive a ticket for improper parking, they are more likely to seek other options.*

## Westside Rural Area Applicability

Enforcement officers could increase the amount of patrolling and ticketing on peak weekends during the summer in wildlife parking areas or in areas not designated for parking. Communication about the increased enforcement could motivate visitors to follow parking regulations before getting tickets.

Depending on results, enforcement efforts could be limited to specific times or days to minimize the additional staffing investment.

## Pros

- Provides an economic incentive to follow the rules on parking locations by fining people for breaking them.
- Can generate additional revenue.

## Cons

- Requires parking enforcement staff
- May anger visitors or residents that have been accustomed to more relaxed parking enforcement.

## Complementary Strategies

- Parking Information
- Off-Island Park-N-Ride

# OFF-ISLAND PARK-N-RIDE LOTS



Portland, OR, Google Earth

*Park-n-ride lots offer people a place to park their cars when transferring to a different mode, such as carpooling with another person, bicycling, or taking transit.*

## Westside Rural Area Applicability

An off-island park-n-ride could be located along Highway 30 south of the island in an industrial area. Partnerships for shared parking could be established for existing private parking that is used primarily during the week. This could enable:

- Beach-goers to form carpools to go to the island, leaving other vehicles at the park-n-ride locations off-Island.
- Bicyclists to leave their cars and ride their bicycles from parking locations on Highway 30.
- Provision of shuttle service from the park-n-rides during events or high-traffic weekends.

## Pros

- Facilitates use of carpooling and can reduce need for parking on the island.
- Can more effectively utilize off-island parking spaces that are normally used primarily during the week.

## Cons

- Would need to negotiate public access to existing location along Highway 30.
- More distant park-n-ride lots may not appeal to bicyclists, since Highway 30 may not be a comfortable bike route for many riders.
- May raise liability issues for parking arrangements on private properties.

## Design Considerations

- Signage and online information to promote the park-n-ride lot would need to be prominent to ensure that visitors know its location and that they can use it.

## Complementary Strategies

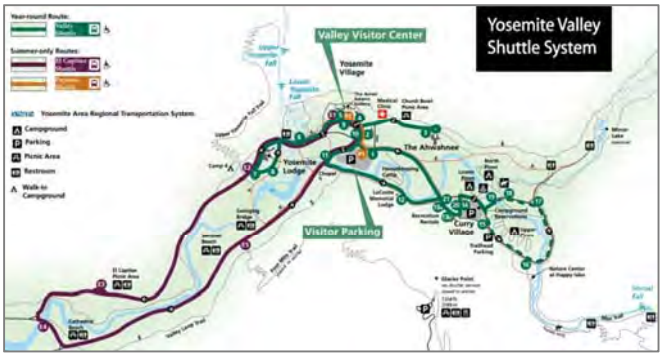
- Shuttle service
- Parking pricing
- Event TDM strategies

# ON-ISLAND SHUTTLE SERVICE

*A branded on-island shuttle circulator service could provide access to popular island locations during peak weekend days during the summer.*

## Westside Rural Area Applicability

- An on-island shuttle service could operate as a circulator during peak weekend days, allowing people to park once and then travel in the shuttle to popular locations. This shuttle could run between the Cracker Barrel store and the beach during the peak summer days. In addition, shuttles could be chartered for particular event weekends, or by large events, to serve special event visitors. In these cases, shuttles could also travel to and from off-island park-n-ride locations.




## Pros

- Could provide an alternative to driving and parking on the island.
- If effectively utilized, could allow for more visitors with fewer traffic and parking impacts on the island.

## Cons

- Funding shuttle service may be difficult to sustain.
- Without consistent service, people may not be able to rely on the shuttle being available.

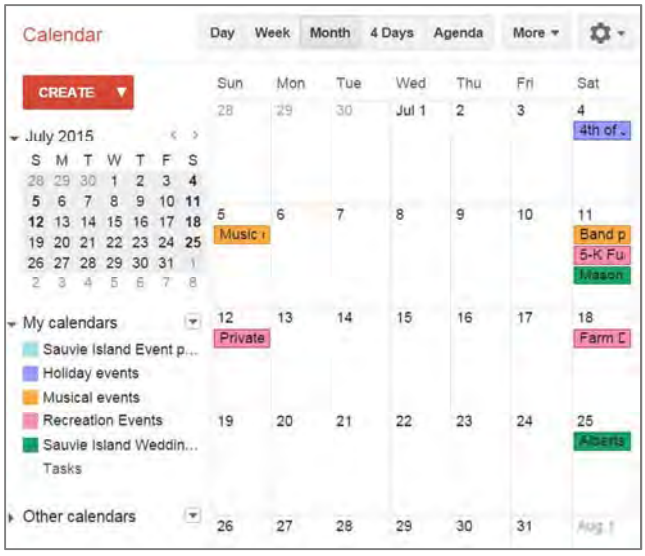
## Design Considerations

- Signage and online information to promote the shuttle service would need to be prominent to ensure that visitors know its location and how they should use it.


## Complementary Strategies

- Parking pricing
- Event permits / calendar
- Park-n-ride

# EVENT PERMITS / CALENDAR





*A system of event permits requires event organizers to register events through a central calendar system. A permit issued for each event states the requirements that each would have to meet.*

## Westside Rural Area Applicability

On Sauvie Island, where events occur frequently throughout the year, this system could allow for coordination between same day events. This idea builds on the existing voluntary event permit system through the Sauvie Island Community Association and could remain informal or could be administered by a local TMA or by the County. This system could include:

- Events over a certain size limit could be required to implement a transportation demand management (TDM) plan for the event which would outline how the event will utilize any number of different TDM strategies to reduce traffic impacts.
- Provision of incentives, such as partial reimbursement for shuttle costs, for events demonstrating a certain level of non-drive-alone mode share.
- Provision of a daily "cap," if necessary, on the total number of event attendees arriving to the island in private vehicles, in order to help avoid days with the highest levels of congestion. For example, under the same cap, one large event or four smaller events may be able to occur on the same day – but all five would not be able to be held concurrently.

## Pros

- Allows for anticipation of heavy traffic days
- By capping total anticipated event attendance per day, events can be spread more evenly throughout the year
- Provides a mechanism for coordination TDM strategies among event planners

## Cons

- Administration of the permit system and calendar may require additional staff time.
- Event planners may have to commit to certain dates earlier than they would otherwise.
- Could result in conflicts between event organizers/local businesses in the competition for popular dates.

## Complementary Strategies

- Park-n-ride
- Event-based shuttle system
- Modified signal timing

# EVENT-BASED "TDM" PLANS

Photo: Thomas Cobb, Travel Portland

*Events of a certain size would be required to submit a transportation demand management (TDM) plan in order to receive an approved event permit.*

## Westside Rural Area Applicability

Organizers of large events would need to provide a transportation demand management plan to demonstrate ways that they will manage impacts. Transportation demand management plans could include:

- Traffic management plan – organizers must demonstrate how they would manage the arrivals and parking for attendees of the event, including:
  - providing adequate parking to accommodate attendees
  - employing flaggers, if needed
  - arranging for overflow parking in alternate locations, if needed
  - coordinating with other events occurring in the same time-frame.
- Demand management strategies – organizers can draw on a number of demand management strategies to reduce vehicle trips:
  - Carpool / ride-matching for event attendees
  - Promotion of park-n-ride location for carpools, bicyclists, or other recreational visitors
  - Provide shuttle or van service from a park-n-ride location
  - Charging fees for event parking

## Pros

- Reduces congestion on Island roadways.
- Adds accountability for events
- Will encourage thorough planning and help mitigate impacts of larger events

## Cons

- Increases the organizational burden for event planners
- Requires staff time to review TDM plans and work with event planners.

## Complementary Strategies

- Park-n-ride
- Event permit / calendar
- Shuttle service
- Valet bike parking
- Modified signal timing

# VALET BIKE PARKING

Photo: PeoplePowerSC

*Valet bike parking provides staffed, secure bike parking for people arriving at a location by bike. Valet bike parking eliminates the need to have a bike lock and permanent racks at which to lock the bikes.*

## Westside Rural Area Applicability

Sauvie Island is already a popular place for bicyclists. By providing valet bike parking at events, recreational bicyclists could be encouraged to use bicycling as their transportation to and from the Island as well. Potential benefits of this strategy include:

- Valet bike parking provides one of the most secure forms of bike parking: when bicyclists drop off a bike, they are provided a ticket with which to reclaim the bike. The bike remains within a fenced, attended parking area until its owner returns.
- Often recreational bicyclists on Sauvie Island are riding expensive bicycles and would not feel comfortable leaving them unattended, even if locked; valet parking provides a solution to this
- Racks used for valet parking can be temporary and brought in specifically for events

## Pros

- Provides highly secure form of bike parking
- Can be scaled up to provide hundreds of bike parking spots for a limited time
- Can be implemented on most surface types without substantial impacts

## Cons

- Requires staff or volunteers during the event to monitor the valet parking area and check bikes in and out.

## Complementary Strategies

- Event permit / calendar
- Event-based TDM plans

# Appendix 4 Technical Information Memorandum

**Department of Community Services**
**Land Use and Transportation Planning Program**
**www.multco.us/landuse**

**1600 SE 190th Avenue, Portland Oregon 97233-5910 • PH. (503) 988-3043 • Fax (503) 988-3389**

# MEMO

To: CAC

From: Joanna Valencia, Senior Transportation Planner

Date: January 27, 2015

RE: Sauvie Island/Multnomah Channel Transportation System Plan Update: Technical Info

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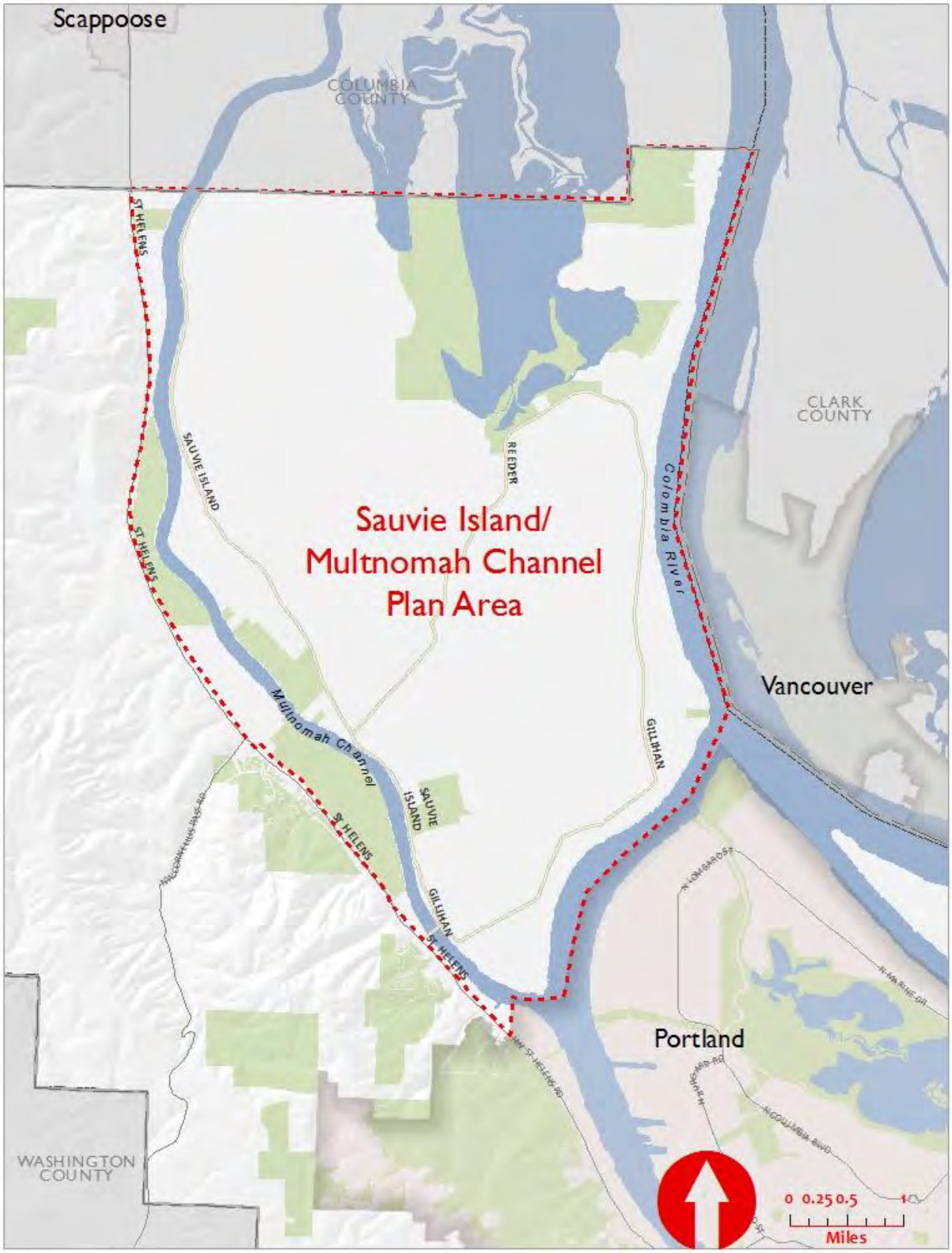
The purpose of this memo is to summarize the existing transportation system within the area.

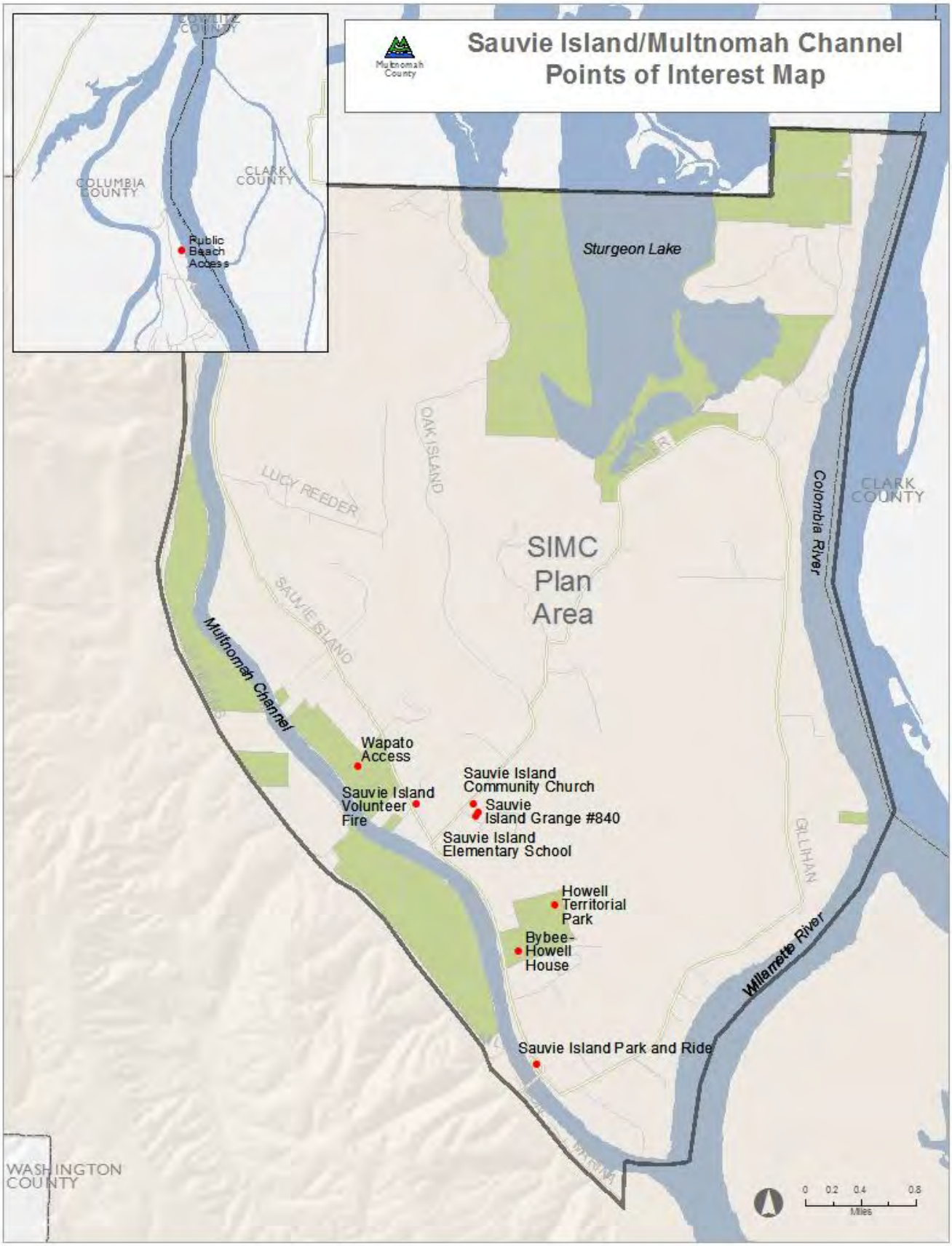
Roadway Facilities are under the jurisdiction of Multnomah County and serve multiple modes including motor vehicles, farm implement and equipment, pedestrians, bicyclists and public transit riders. As the road authority, the County is responsible for determining the road's functional classification, defining the roadway's design, maintenance of the roadways, and approving construction and access permits on the system.

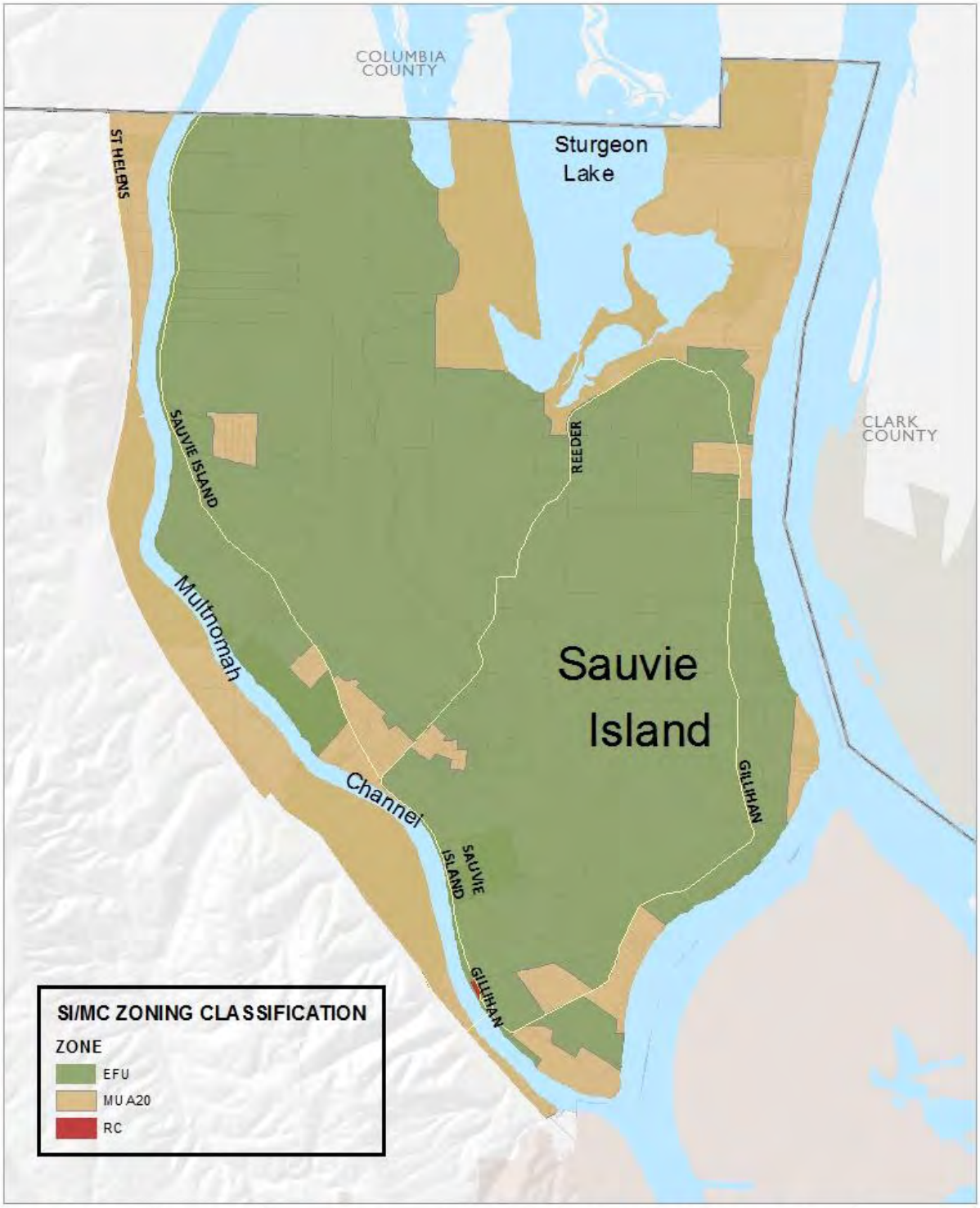
**Plan Area**

The Project Area is bordered by U.S. Highway 30 on the west, Columbia County on the north, the Columbia River on the east, and the Willamette River and the city of Portland on the south. The area is dominated by agricultural land uses but also includes a wildlife refuge, public beaches, various water-related uses on and along the Multnomah Channel, residential areas, and a few businesses. The Project Area includes about 15,400 acres of land (mostly on the island) and several thousand additional acres of water. Roads in the area consist of rural local access roads and rural collector roads that provide a loop serving the island. Along the Multnomah Channel, Highway 30 is an Oregon Department of Transportation (ODOT) facility with County rural local access roads serving the Channel.

The Project Area is a subset of the area covered in the 1998 TSP and corresponds to the 1997 Sauvie Island/Multnomah Channel Rural Area Plan.


Scappoose
COLUMBIA COUNTY
ST HELENS
SAUVIE ISLAND
REEDER
Sauvie Island/
Multnomah Channel
Plan Area
Columbia River
CLARK COUNTY
Vancouver
Multnomah Channel
SAUVIE ISLAND
GILLHAM
ST HELENS
NW ST HELENS RD
N LOMBARD ST
N MARINE DR
Portland
N COLUMBIA BLVD
WASHINGTON COUNTY
0 0.25 0.5 1
Miles

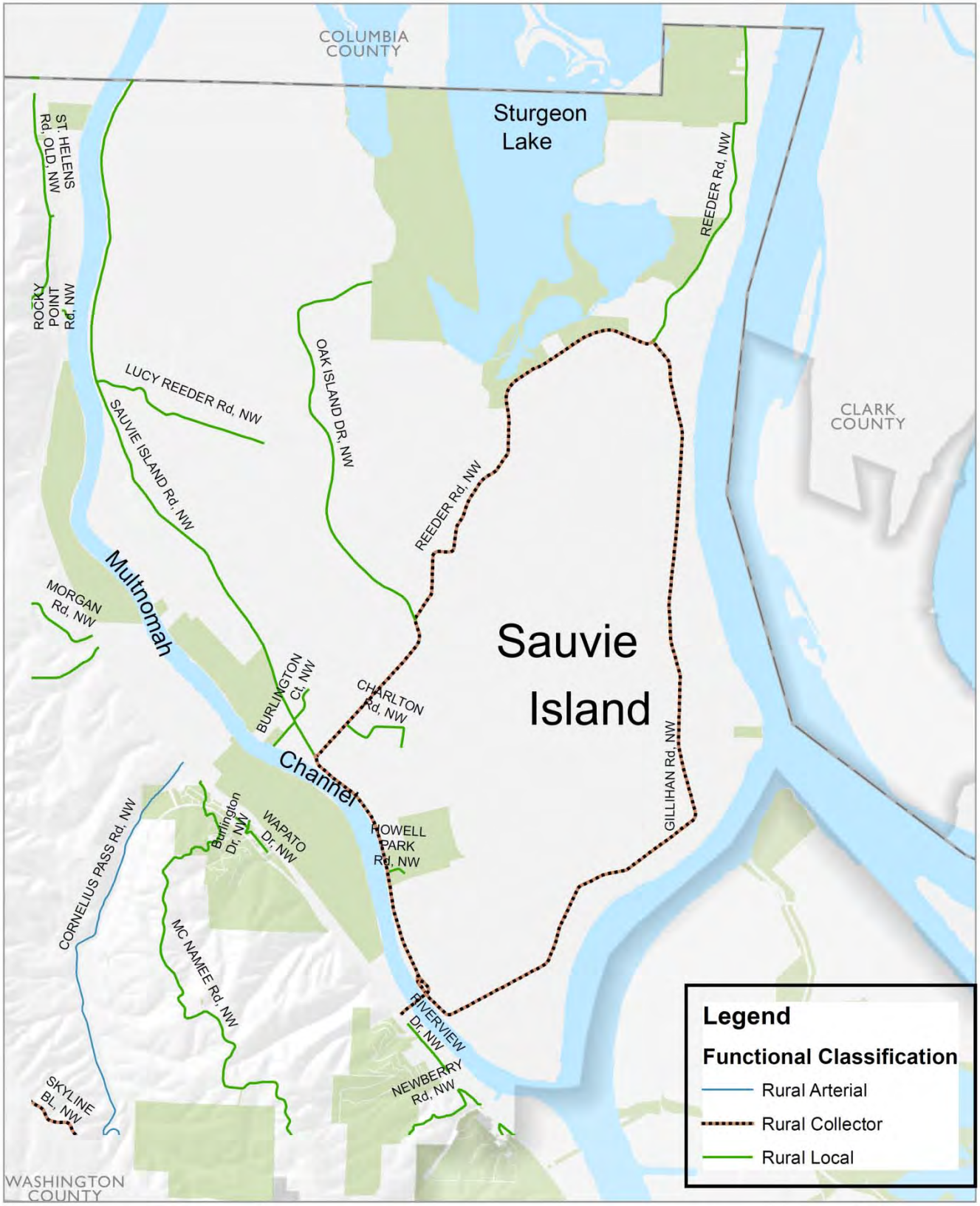

Sauvie Island/Multnomah Channel
Points of Interest Map
Multnomah County
COLUMBIA COUNTY
CLARK COUNTY
Public Beach Access
Sturgeon Lake
OAK ISLAND
LUCY REEDER
SAUVIE ISLAND
SIMC Plan Area
Columbia River
CLARK COUNTY
Multnomah Channel
Wapato Access
Sauvie Island Volunteer Fire
Sauvie Island Community Church
Sauvie Island Grange #840
Sauvie Island Elementary School
GILLIHAN
Howell Territorial Park
Bybee-Howell House
Willamette River
Sauvie Island Park and Ride
WASHINGTON COUNTY
0 0.2 0.4 0.8
Miles


COLUMBIA COUNTY
ST HELENS
Sturgeon Lake
CLARK COUNTY
SAUVIE ISLAND
REEDER
Multnomah Channel
Sauvie Island
GILLIHAN
SAUVIE ISLAND
GILLIHAN
SI/MC ZONING CLASSIFICATION
ZONE
EFU
MUA20
RC
0 0.15 0.3 0.6
Miles
Multnomah County
Sauvie Island/Multnomah Channel Zoning Map

## Functional Classification

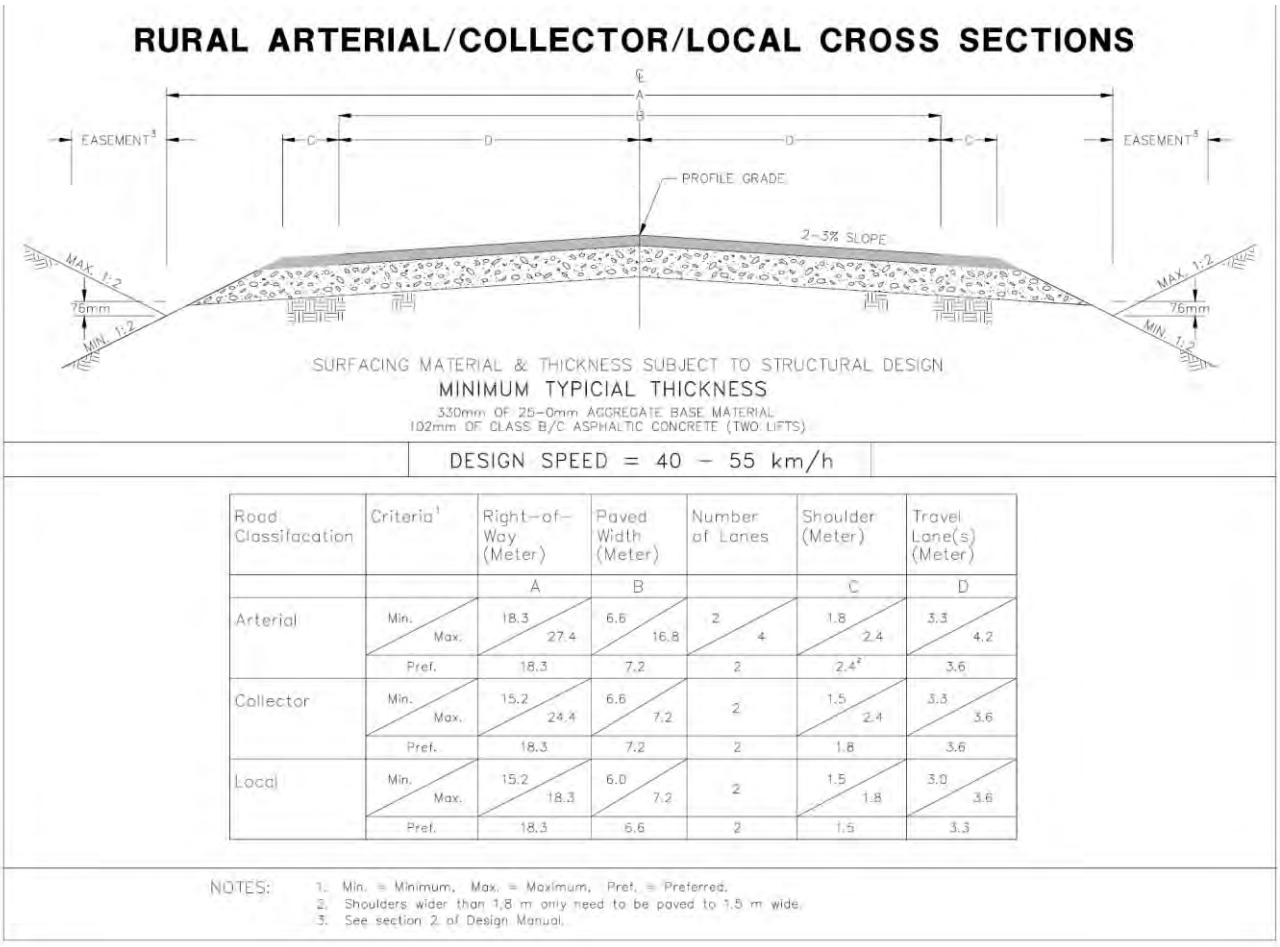
The transportation system in the plan area consists of a series of roads that serve a variety of uses. The area is dominated by agricultural uses and a wildlife refuge, with various water-related uses on and along Multnomah Channel ranging from protected wetlands to marinas. The Sauvie Island Road system is largely served by a main loop made up of a Rural Collector road system which includes Gillihan Rd, Reeder Rd, and Sauvie Island Rd. Rural Collector roads distribute traffic over large areas and generally connect to urban streets or rural arterials. They also provide necessary truck transport (agriculture, timber or minerals) out of rural areas. All other roads in the Sauvie Island/Multnomah Channel Rural Area are Rural Local roads. Local roads provide access to abutting land uses and are generally low traffic volume and low speed facilities. The Sauvie Island Bridge provides all road access to Sauvie Island , and crosses Multnomah Channel near the south end of the island.

County roads provide access to properties along the Channel off US Highway 30 which is an Oregon Department of Transportation (ODOT) facility. These roads are mainly classified as Rural Local or Local Roads and mainly serve the adjacent land uses. These roads include: Wapato Drive, Burlington Drive, Wapato Avenue, and Lower Rocky Point Road.


COLUMBIA COUNTY
Sturgeon Lake
ST. HELENS Rd, OLD, NW
ROCKY POINT Rd, NW
LUCY REEDER Rd, NW
SAUVIE ISLAND Rd, NW
OAK ISLAND DR, NW
REEDER Rd, NW
REEDER Rd, NW
CLARK COUNTY
Sauvie Island
Multnomah Channel
MORGAN Rd, NW
BURLINGTON Ct, NW
CHARLTON Rd, NW
GILLIHAN Rd, NW
HOWELL PARK Rd, NW
Burlington Dr, NW
WAPATO Dr, NW
CORNELIUS PASS Rd, NW
MC NAMEE Rd, NW
RIVERVIEW Dr, NW
NEWBERRY Rd, NW
SKYLINE BL, NW
WASHINGTON COUNTY
Legend
Functional Classification
Rural Arterial
Rural Collector
Rural Local
0 0.15 0.3 0.6
Miles
Multnomah County
Sauvie Island/Multnomah Channel
Road Classification Map

**Street Section**

County standards for Rural Collector roadways include two 12-foot travel lanes and two 8-foot paved shoulders. Gillihan Rd, Reeder Rd, and Sauvie Island Rd are not currently constructed to the County standards for Rural Collector roads.



RURAL ARTERIAL/COLLECTOR/LOCAL CROSS SECTIONS



SURFACING MATERIAL & THICKNESS SUBJECT TO STRUCTURAL DESIGN

MINIMUM TYPICIAL THICKNESS

330mm OF 25-0mm AGGREGATE BASE MATERIAL
102mm OF CLASS B/C ASPHALTIC CONCRETE (TWO LIFTS)

DESIGN SPEED = 40 – 55 km/h

| Road Classifacation | Criteria[1] | Right-of-Way (Meter) | Paved Width (Meter) | Number of Lanes | Shoulder (Meter) | Travel Lane(s) (Meter) |
|---|---|---|---|---|---|---|
| | | A | B | | C | D |
| Arterial | Min. / Max. | 18.3 / 27.4 | 6.6 / 16.8 | 2 / 4 | 1.8 / 2.4 | 3.3 / 4.2 |
| | Pref. | 18.3 | 7.2 | 2 | 2.4[2] | 3.6 |
| Collector | Min. / Max. | 15.2 / 24.4 | 6.6 / 7.2 | 2 | 1.5 / 2.4 | 3.3 / 3.6 |
| | Pref. | 18.3 | 7.2 | 2 | 1.8 | 3.6 |
| Local | Min. / Max. | 15.2 / 18.3 | 6.0 / 7.2 | 2 | 1.5 / 1.8 | 3.0 / 3.6 |
| | Pref. | 18.3 | 6.6 | 2 | 1.5 | 3.3 |

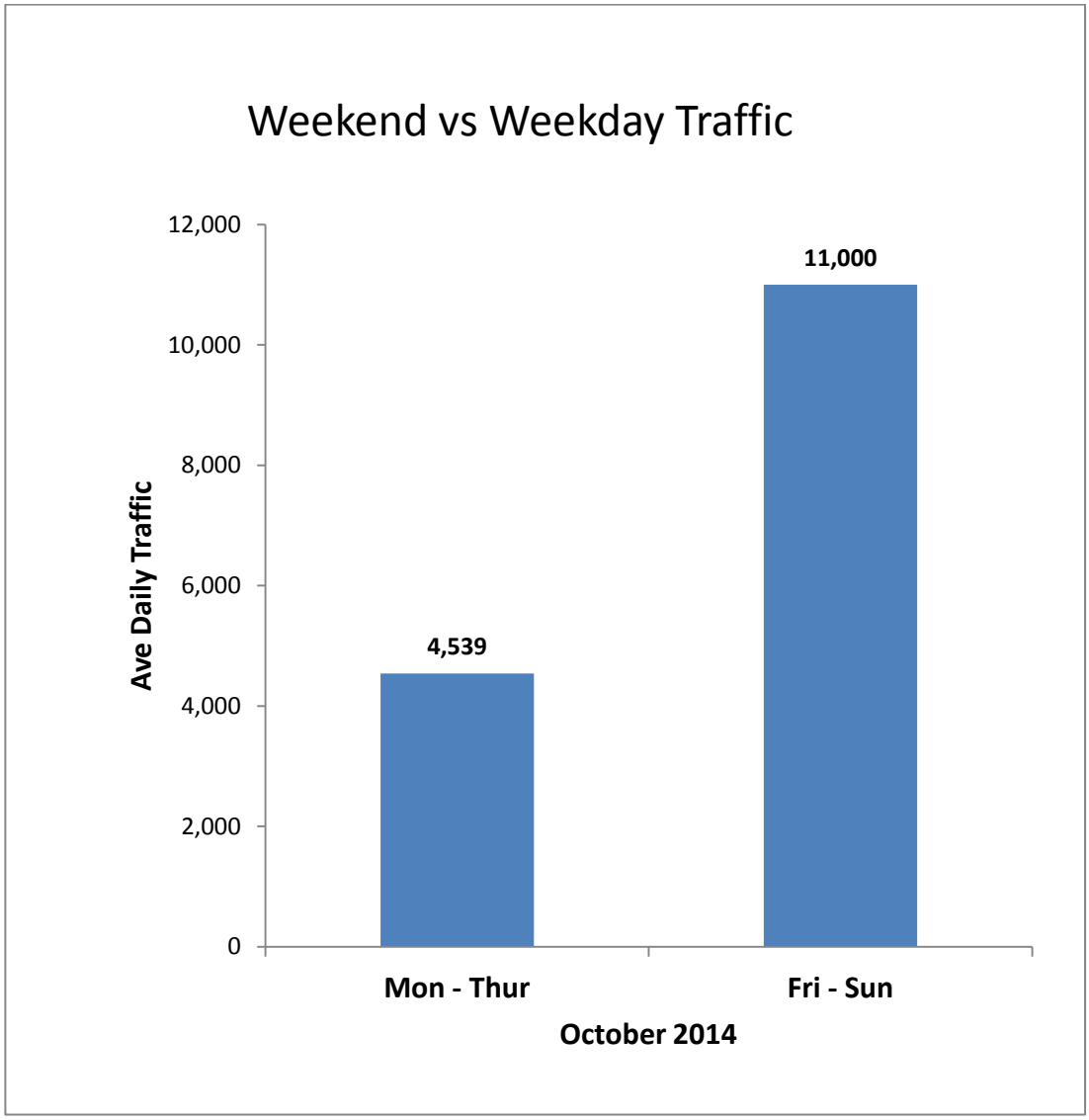
NOTES:
1. Min. = Minimum, Max. = Maximum, Pref. = Preferred.
2. Shoulders wider than 1.8 m only need to be paved to 1.5 m wide.
3. See section 2 of Design Manual.

| Functional Classification | Right-of-Way Width | Pavement Width | Number of Lanes | Shoulder Width | Travel Lane Width |
|---|---|---|---|---|---|
| Rural Arterial | 70 feet | 24 feet | 2 | 8 feet | 12 feet |
| Rural Collector | 60 feet | 24 feet | 2 | 6 feet | 12 feet |
| Rural Local | 50 feet | 22 feet | 2 | 5 feet | 11 feet |

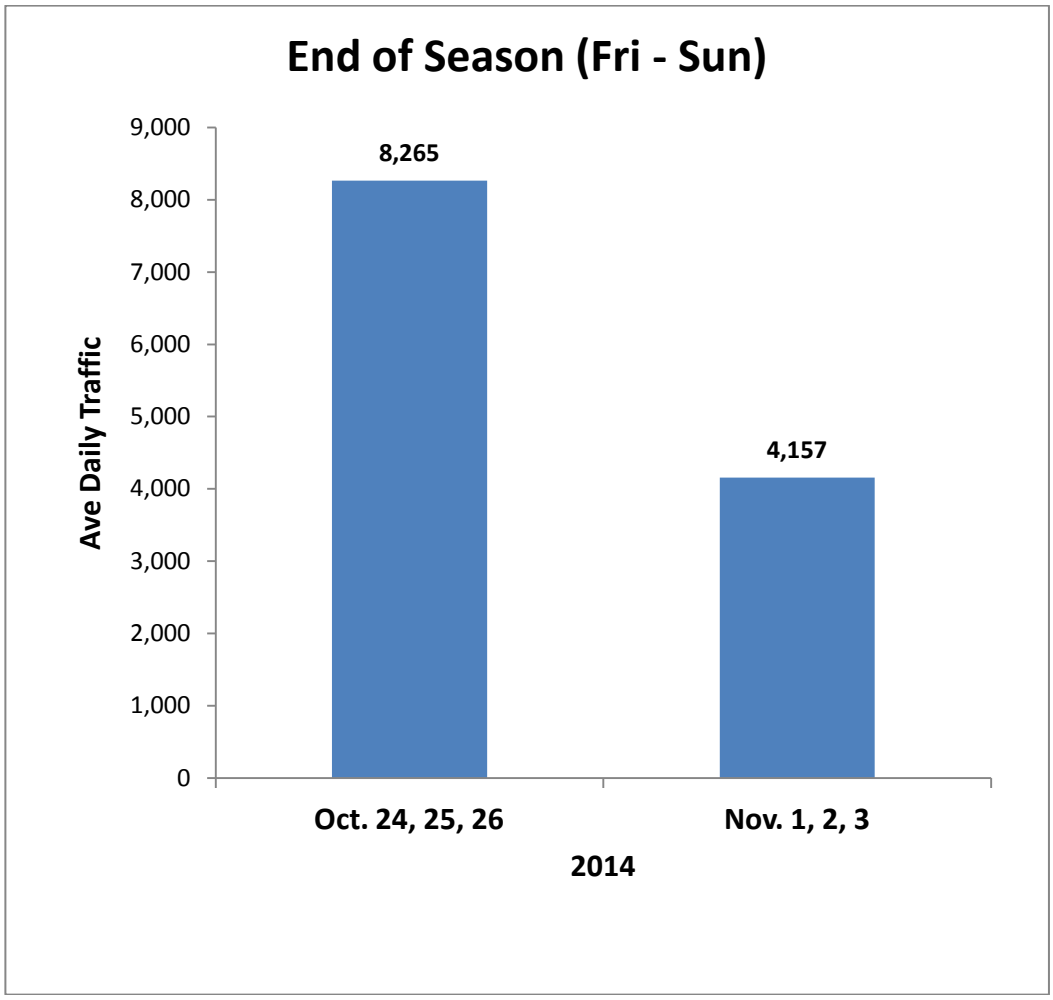
**Traffic Data**

The following data is based on traffic counts conducted by the County.

**Volumes**




Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road




Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road

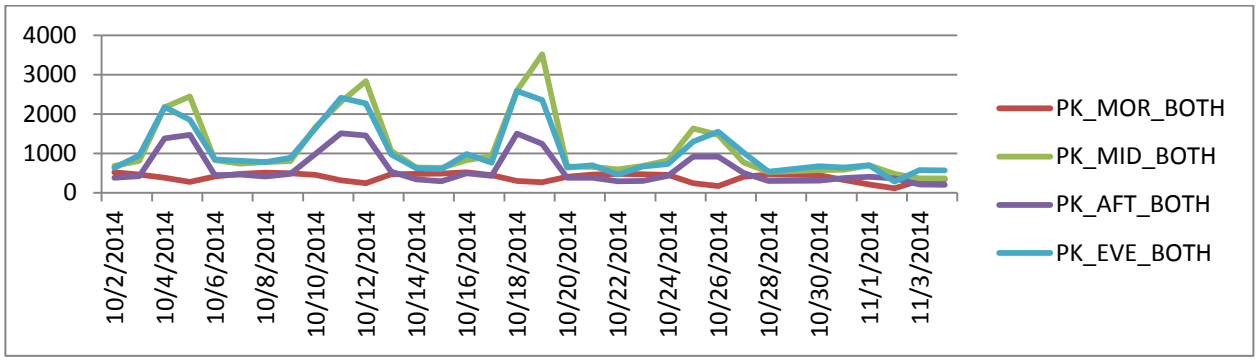
2014 Top 5 days with the most Daily Traffic

| Day of the week | Top 5 Days | Daily Traffic |
|---|---|---|
| Sat | 10/18/2014 | 17,504 |
| Sun | 10/19/2014 | 15,780 |
| Sat | 10/11/2014 | 15,522 |
| Sat | 10/4/2014 | 13,002 |
| Sun | 10/12/2014 | 12,830 |

Daily Traffic

| Year | Min | Max | Average |
|---|---|---|---|
| 2009 | 309 | 7373 | 2179 |
| 2012 | 1547 | 12606 | 5889 |
| 2014 | 335 | 17504 | 2949 |

Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road




Data: Counter location- Sauvie Island Road: between Hwy 30 and Gillihan Road

| | |
|---|---|
| **Morning Peak 2 Hr** | **7:00 - 9:00 AM** |
| **Midday Peak 2 Hr** | **11:00 AM - 1:00 PM** |

| | |
|---|---|
| **Afternoon Peak** | **2:00 - 3:00 PM** |
| **Evening Peak 2 Hr** | **4:00 - 6:00 PM** |

**Speed Data**

2014 Data

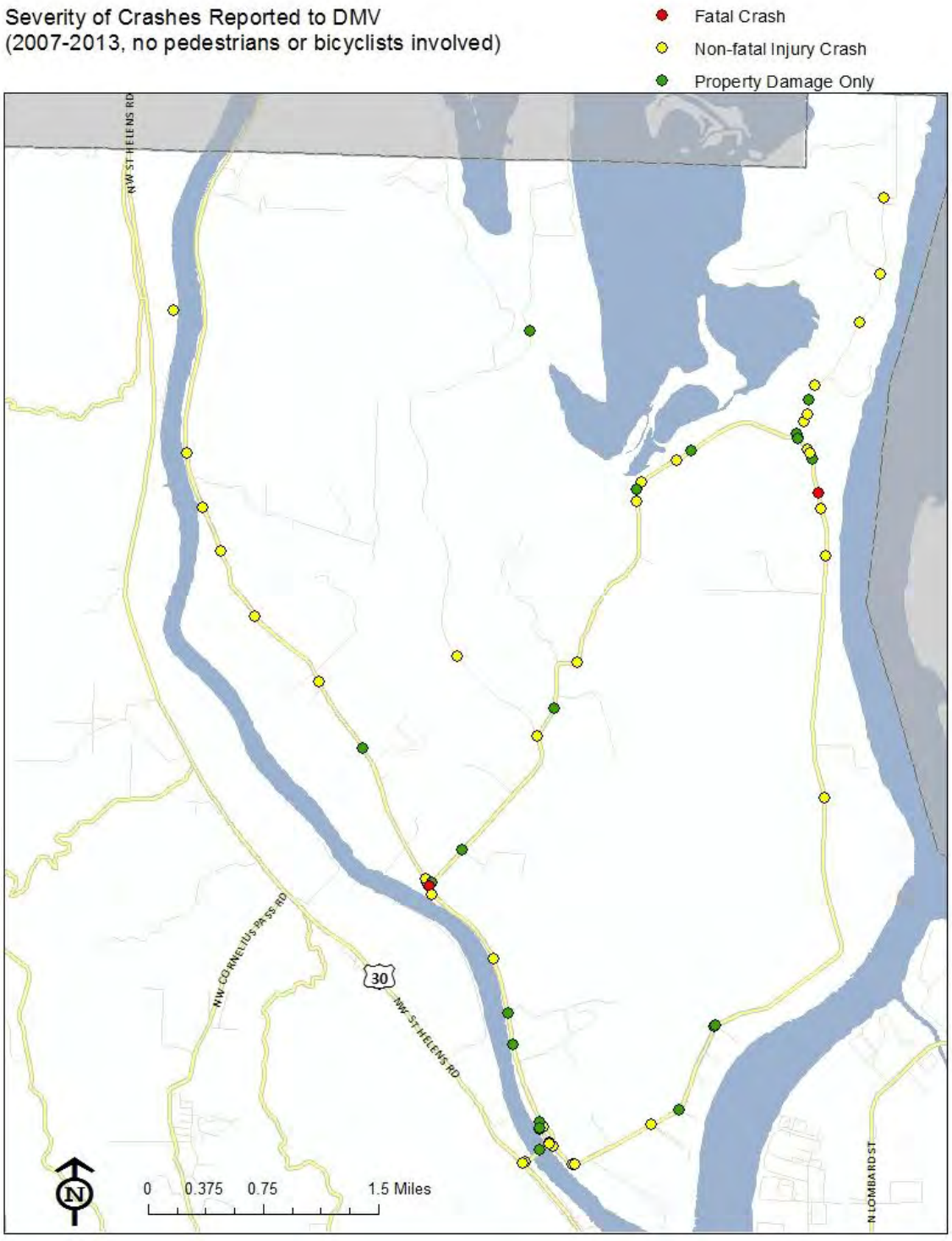
| | Values | | |
|---|---|---|---|
| **Road** | **Average** | **Max** | **85Th Percentile** |
| Gillihan Rd | 40 | 77 | 48 |
| Reeder RD | 38 | 77 | 45 |
| Sauvie Island Rd | 37 | 93 | 44 |

Gillihan Road- 45 mph posted speed
Reeder Road- 45 mph posted speed
Sauvie Island Road- 45 mph posted speed

## Traffic Safety

### Crash Data

ODOT provides detailed crash data for the area. The maps below summarize the data in the plan area between 2007-2013.



## Crashes Reported to DMV (2007-2013) involving bicyclists and pedestrians