



## Appendix B

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Re: Agency Bicycle and Pedestrian Data Goals & Objectives

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## Introduction

This purpose of Appendix B is to report back on the themes and issues that emerged from a series of interviews conducted with various Oregon Department of Transportation (ODOT) (Agency) staff and departments. Over a 2-week period, fourteen interviews with representatives from the following work units occurred (method of interview):

- Region 1 (in-person)
- Region 2 (in-person)
- Region 3 (video)
- Region 4 (video)
- Region 5 (video)
- Transportation Data (in-person)
- Technical Services, Safe Routes to School, & Transportation Enhancement (in-person)
- Public Transit (phone)
- Planning - Transportation Planning Analysis Unit - staff (in-person)
- Planning - Transportation Planning Analysis Unit - management (phone)
- Planning - Planning & Implementation - management & Long Range Planning staff (phone)
- Planning - Planning & Implementation staff (phone)
- Office of Sustainability (phone)
- Transportation Safety Division (phone)

The interviews focused on three main topic areas: 1) Current methods of obtaining and using bicycle and pedestrian data; 2) Goals and objectives related to bicycle and pedestrian data; 3) Issues related to bicycle and pedestrian data.

This memo uses these three topic areas as an organizational structure. All responses have been aggregated to ensure that the study preserves the anonymity of the interview participants.

# Obtaining and Using Bicycle and Pedestrian Data

## Obtaining Bicycle and Pedestrian Data

Throughout the organization, a strong desire was expressed for using and incorporating bicycle and pedestrian data. There was also an acknowledgment that as ODOT moves forward on becoming a truly multi-modal agency with a focus on using Least Cost Planning and on reducing transportation-related greenhouse gas emissions, there will be an increased need for good data on non-motorized use and users.

There are various kinds of data available to assist with planning bicycle and pedestrian facilities and networks. These data types can be grouped into several general categories, including 1) quantifying use, 2) surveying users, 3) documenting facility extent, and 4) documenting safety concerns. Each data-type requires differing degrees of expertise, time and access to various types of technology or software. In 2005, the Pedestrian and Bicycle Information Center grouped<sup>1</sup> the existing data sets into the following categories:

**Table 1: Types of Bicycle & Pedestrian Data**

Data Collection Type	Sub-group	Description
Counts to Quantify Use (Volume)	Manual Counts	Data collected by persons in the field.
	Automated Counts	Data collected through the use of automated equipment (e.g. infrared, video, pavement or pneumatic tubes).
Surveying Users (Users and Trip Characteristics)	Targeting Non-Motorized Users	Surveys administered to individuals walking, biking, or participating in another form of non-motorized transportation.
	General Population Sample	Random-sample survey where all community members have an equal opportunity to be selected in a survey.
Documenting Facility Extent (Facilities)	Inventories	Collecting physical information about the transportation system (e.g., roadway segments, property parcels, crosswalk locations, etc.)
	Spatial Analyses	Mapping software (GIS/CAD) use to analyze and display facility data.
Safety (Collisions)	Crash Data	Data reported by law enforcement and the Oregon DMV
	Trauma Data	Data reported by hospitals

Memo #1 goes into more detail about each data collection type. Responses from ODOT staff generally followed this typology, which informs our analyses of the responses.

### Primary Data - Collected by ODOT

Primary data collected by ODOT is generally limited to count and observation data. This data is collected by:

- **Transportation Data**- Use automatic counters that are permanently located on ODOT roadway, as well as video and tube counts related to specific project or planning efforts. Traffic count requests must specify that full classifications are needed in order to include bicyclists and pedestrians in the counts, and is only available through manual or video count methodologies.
- **Planning** – Traffic counts are also collected by consultants as part of the typical scope of work on various planning projects. Similar to the counts done by Transportation Data, a request must be made to have

<sup>1</sup> PBIC Data Collection Studies (2005). The safety data collection type has been added for our purposes.

bicycle and pedestrian data collected while collecting traffic information, and is only collected when conducting manual or video counts.

- **Project Development / Operations** – Observations of facility use and existing conditions are typically made as a part of capital improvement project scoping or operational responses to traffic safety issues. These observations are typically made by project-specific team members and documented in the project file.

## Secondary Data - Obtained by ODOT

Secondary data comes from a variety of sources, including: hospitals, law enforcement, and outside contractors/consultants.

- **Collision data** – Collision data is an important existing source of bicycle and pedestrian data which is collected from external sources and coded by Transportation Data Section staff. Bicycle and pedestrian data are underreported for a variety of reasons, including state requirements that only crashes involving a motor vehicle are reported, and that the collision occur within a roadway. Additional codes may be required to improve the explanatory power of the crash data involving bicycles and pedestrians.
- **Household Surveys** – ODOT and the six Metropolitan Planning Organizations (MPOs) are collecting household activity data across the entire state for 2008 – 2011. The survey covers activity conducted using all modes of transportation, including bicycle and walking. This data will be used to estimate and validate travel models.
- **Transit Boardings** – the ODOT Public Transit Division receives passenger boarding data from intercity service contractors, which also includes counts of passengers boarding with bicycles. Rogue Valley MPO plans to conduct an on-board survey in conjunction with their Fall 2011 Household Travel and Activity Survey.

## Summary

Table 2 shows how ODOT currently collects information about characteristics related to the identified data collection types in Table 1.

**Table 2. Data Source by Information Gathered**

Data Collection Type	Sources	Notes
Counts (Volume)	Detection counts, video counts, manual counts, observations	ODOT uses various traffic count methodologies; bicycles and pedestrians are counted by request; neither baseline nor annual data are collected
Survey (User Characteristics)	Collision reports, trauma data, video counts, manual counts, household surveys, observations	Small sample size of bicycle and pedestrian trips limit statistical validity of household data. Characteristics of bicyclists and pedestrians are gleaned to a limited degree from safety data and count data.

Data Collection Type	Sources	Notes
Survey (Trip Characteristics)	Household surveys, intercept surveys	Bicycle and pedestrian intercept surveys are done sporadically on a project by project basis. Small sample size of bicycle and pedestrian trips limit statistical validity of household data.
Facility Characteristics	Observations, manual counts, collision reports, Integrated Transportation Information System (ITIS) database; Video Log	Facility characteristics are gathered as a part of transportation system plans, project development, and maintenance and operational activities. The Transportation Data Section records facility data in its ITIS database and provides a video record of all highways by milepoint, including bicycle and pedestrian facilities. Manual counts and collision reports provide additional information.
Safety (Crash Information)	Collision reports, trauma data	Safety data are an important existing source of data used by ODOT for bicycle and pedestrian planning. Bicycle and pedestrian crashes are underreported, partially due to requirements that crashes involve a motor vehicle.

## Using Bicycle and Pedestrian Data

### Current Uses

Staff identified the following current uses of available pedestrian and bicycle data:

- Addressing traffic safety issues
- Systems and corridor planning
- Project development

Table 3 below summarizes the use of data by purpose. Several interviewees noted that ODOT policy requires provision of bicycle and pedestrian facilities in many ODOT projects. Thus, even in absence of comprehensive data, bicycle and pedestrian facilities are still provided.

Table 3. Current Uses of Bicycle & Pedestrian Data

Purpose	Collision Reports	Trauma Data	Detection Counts	Video Counts	Manual Counts	Household Surveys	User Observations	Intercept Surveys	Facility Observations
Project Development	x			x	x	x	x	x	x
Planning	x		x	x	x	x		x	x
Safety Improvements	x	x					x		x
Traffic Operations (including signal warrants, signal timing, investigating public complaint, speed limit setting, etc)	x		x	x	x		x		x
Annual Reporting	x			x	x				

Table 4 below identifies specific uses of the bicycle and pedestrian data across the agency.

Table 4. Current Uses of Bicycle & Pedestrian Data

Purpose	Primary Uses
Project Development	Answer design questions
Planning	Identify appropriate facilities, users; current and projected usage (numbers and characteristics)
Safety Improvements	Problem identification, hotspot identification
Traffic Operations	Signal timing/phasing; intersection operations
Annual Reporting	Programmatic decisions, legislative decisions, grant applications

### Typical and Potential Applications of Bicycle & Pedestrian Data

The interview questions asked agency staff to identify whether bicycle or pedestrian data are used for specific applications, or if they could be used for those applications in the future. The specific practices are identified in the first column of Table 5. A summary of responses regarding whether data are used for these purposes is provided. The final column notes whether the identified application has been described as desirable within any divisions of ODOT.

Table 5. Typical Applications of Bicycle & Pedestrian Data

Typical Applications	Staff uncertain if currently done by ODOT	Staff report this is currently done by ODOT	Staff report this would be a desirable practice
To assess the before and after effects of installing pedestrian and bicycling facilities and track changes in volumes over time	X	X	X
To determine facility type and capacity needs related to planning and project development		X	X
Evaluate local system alternatives	X	X	X
To develop multi-modal levels of service or other such assessment		X	X
To establish a good base of data on number of trips, trip purpose, trip length, and replaced vehicle trips to build predictive models			X
To address traffic operations issues related to walking and bicycling	X	X	X
At the policy level, to help evaluate the potential of walking and bicycling modes to reduce vehicle miles traveled and transportation-related greenhouse gas emissions		X	X

Across the agency, ODOT staff understands the uses of bicycle and pedestrian data and the growing importance of this type of data. Making more of the data available in a usable, reliable, consistent form will be key.

## Agency Goals and Objectives

The second major topic addressed was agency goals and objectives. Most people interviewed did not report specific goals, objectives or performance measures related to bicycle and pedestrian data collection and utilization, with the exception of the Transportation Safety Division.

The Transportation Safety Division identifies problem areas for both bicyclist and pedestrian safety and sets performance measures for the Oregon Traffic Safety Performance Plan. In addition, the Asset Management Section has “Dashboard” goals, one of which is to complete the sidewalk and bikeway systems at 2% per year. Otherwise, most interviewees noted that there were goals and objectives already identified at the agency level in various statewide planning and policy documents that drive decision making regarding the inclusion of bicycle and pedestrian considerations in planning, programs and projects.

Table 6 below identifies the bicycle and pedestrian-related statements/policies found in ODOT documents referenced by agency staff during interviews. The table also identifies types of data that could be used to develop performance measures to measure progress towards their achievement.

Table 6. Bicycle &amp; Pedestrian Policies in ODOT Documents

Goal / Policy / Strategy	Counts to Quantify Use (Volume)	Surveying Users (Users and Trip Characteristics)	Documenting Facility Extent & Characteristics (Facilities)	Safety (Collisions)
Oregon Bicycle and Pedestrian Plan				
Strategy 1B. Retrofit existing roadways with paved shoulders or bike lanes to accommodate bicyclists, and with sidewalks and safe crossings to accommodate pedestrians	x	x	x	x
Strategy 2C. Adopt maintenance practices to preserve bikeways and walkways in a smooth, clean and safe condition.		x		x
Strategy 3C. Develop bicycling and walking safety education programs to improve skills and observance of traffic laws, and promote overall safety for bicyclists and pedestrians.		x		
Strategy 3A. Monitor and analyze bicyclist and pedestrian crash data to formulate ways to improve bicyclist and pedestrian safety.				x
Oregon Transportation Plan				
Policy 1.1 – Development of an Integrated Multimodal System It is the policy of the State of Oregon to plan and develop a balanced, integrated transportation system with modal choices for the movement of people and goods.	x	x	x	
Policy 1.2 – Equity, Efficiency and Travel Choices It is the policy of the State of Oregon to promote a transportation system with multiple travel choices that are easy to use, reliable, cost-effective and accessible to all potential users, including the transportation disadvantaged.	x	x	x	
Policy 2.1 – Capacity and Operational Efficiency It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long term benefit of people and goods movement.	x	x		x
Policy 3.2 – Moving People to Support Economic Vitality It is the policy of the State of Oregon to develop an integrated system of transportation facilities, services and information so that intrastate, interstate and international travelers can travel easily for business and recreation.	x	x	x	
Policy 3.3 – Downtowns and Economic Development It is the policy of the State of Oregon to provide transportation improvements to support downtowns and to coordinate transportation and economic development strategies.	x	x	x	
Policy 4.1 – Environmentally Responsible Transportation System It is the policy of the State of Oregon to provide a transportation system that is environmentally responsible and encourages conservation and protection of natural resources.	x		x	
Policy 4.3 – Creating Communities It is the policy of the State of Oregon to increase access to goods and services and promote health by encouraging development of compact communities and neighborhoods that integrate residential, commercial and employment land uses to help make shorter trips, transit, walking and bicycling feasible. Integrate features that support the use of transportation choices.			x	

Goal / Policy / Strategy	Counts to Quantify Use (Volume)	Surveying Users (Users and Trip Characteristics)	Documenting Facility Extent & Characteristics (Facilities)	Safety (Collisions)
Policy 6.1 – Funding Structure It is the policy of the State of Oregon to develop a transportation finance structure that addresses the public funding aspects of all modes and reinforces plan strategies. This structure should include provisions for flexibility in the use of new funding sources and new partnerships to achieve system integration while also protecting transportation funds for transportation purposes.	x		x	
Policy 5.1 – Safety It is the policy of the State of Oregon to continually improve the safety and security of all modes and transportation facilities for system users including operators, passengers, pedestrians, recipients of goods and services, and property owners.			x	x
Policy 6.2 – Achievement of State and Local Goals It is the policy of the State of Oregon to plan and manage the transportation finance structure to contribute to the accomplishment of state and local environmental, land use and economic goals and objectives.	x	x	x	x
Oregon Highway Plan				
Policy 1A: State Highway Classification System It is the policy of the State of Oregon to develop and apply the state highway classification system to guide ODOT priorities for system investment and management.		x	x	x
<p>Policy 1B – Land Use and Transportation This policy recognizes the role of both State and local governments related to the state highway system:</p> <ul style="list-style-type: none"> <li>• State and local government must work together to provide safe and efficient roads for livability and economic viability for all citizens.</li> <li>• State and local government must share responsibility for the road system.</li> <li>• State and local government must work collaboratively in planning and decision-making relating to transportation system management.</li> </ul> <p>It is the policy of the State of Oregon to coordinate land use and transportation decisions to efficiently use public infrastructure investments to:</p> <ul style="list-style-type: none"> <li>• Maintain the mobility and safety of the highway system;</li> <li>• Foster compact development patterns in communities;</li> <li>• Encourage the availability and use of transportation alternatives;</li> <li>• Enhance livability and economic competitiveness; and</li> <li>• Support acknowledged regional, city and county transportation system plans that are consistent with this Highway Plan</li> </ul>	x	x	x	x
Policy 1G: Major Improvements It is the policy of the State of Oregon to maintain highway performance and improve safety by improving system efficiency and management before adding capacity. ODOT will work in partnership with regional and local governments to address highway performance and safety needs.	x	x	x	x
Policy 2B: Off-System Improvements It is the policy of the State of Oregon to provide state financial assistance to local jurisdictions to develop, enhance, and maintain improvements on local transportation systems when they are a cost-effective way to improve the operation of the state highway system	x	x	x	x
Policy 2D: Public Involvement It is the policy of the State of Oregon to ensure that citizens, businesses, regional and local governments, state agencies, and tribal	x	x	x	x



Goal / Policy / Strategy	Counts to Quantify Use (Volume)	Surveying Users (Users and Trip Characteristics)	Documenting Facility Extent & Characteristics (Facilities)	Safety (Collisions)
governments have opportunities to have input into decisions regarding proposed policies, plans, programs, and improvement projects that affect the state highway system.				
POLICY 2F: TRAFFIC SAFETY It is the policy of the State of Oregon to continually improve safety for all users of the highway system using solutions involving engineering, education, enforcement, and emergency medical services.	x		x	x

## Emerging ODOT initiatives

Throughout this process, there was an acknowledgment that as ODOT moves forward on becoming a truly multi-modal agency, there will be an increased need for data on non-motorized use and users. The information in this report seeks to bring the specific issues related to collecting and using bicycle and pedestrian data into focus and suggest strategies to build on existing efforts which are already under way at ODOT. The following are current initiatives to improve data collection and reporting as well as strengthen ODOT’s contribution towards sustainability.

### Data Access

FACS-STIP (Features, Attributes & Conditions Survey – Statewide Transportation Improvement Program) - FACS-STIP is being developed by the Asset Management Integration Section with the purpose of including or linking to various existing ODOT data sets. A part of this effort is the development of standardized ways to collect and report data, including the recent Bicycle/Pedestrian Facilities, Parking, ADA Ramps & Curbs: Data Collection User's Guide, which is now being used by the ODOT regions to do facilities updates. The overall goal is to have one place to go for data about ODOT facilities rather than the multiple locations that exist now. FACS-STIP links to ITIS (The Integrated Transportation Information System), crash data, traffic count data, Safety Priority Index System (SPIS) corridors, etc. It will eventually serve as the means to find all bicycle-pedestrian related data across the ODOT system.

### Sustainability

Sustainability is an umbrella phrase covering a wide range of issues and efforts. ODOT’s Sustainability Plan focuses on seven areas with a framework for sustainably managing its internal and external operations. The major sustainability efforts that were noted by ODOT staff interviewed for this report are:

- Least-Cost Planning
- GreenRoads Rating System

- Greenhouse Gas Emission reduction/modeling
- Multi-Modal Level of Service (MMLOS)

### **Least-Cost Planning**

Least-Cost Planning (LCP) was defined by the 2009 Oregon Legislature in the Jobs and Transportation Act (House Bill 2001): “Least-cost planning means a process of comparing direct and indirect costs of demand and supply options to meet transportation goals, policies or both, where the intent of the process is to identify the most cost-effective mix of options.” ODOT is now working with stakeholders to develop a least cost planning methodology that will meet the definition above. ODOT expects LCP to enable a more comprehensive evaluation of possible solutions and improve consistency, transparency, and accountability for decisions made with LCP. One challenge in developing the LCP methodology will be to determine how to compare the costs and benefits of various investment strategies, such as non-motorized transportation projects, transit projects or land use changes. LCP will almost certainly require addition bicycle and pedestrian data to facilitate the informed decision-making this process aims to achieve.

### **Greenhouse Gas Emission (GHG) reduction/modeling**

Recent state legislation to reduce greenhouse gas emissions is resulting in the development of new tools to evaluate strategies for reducing emissions. ODOT is currently developing a Greenhouse gas Statewide Transportation Emissions Planning model (GreenSTEP) to estimate emissions generated by the transportation sector. With relation to bicycle and pedestrian activity, the work performed by ODOT will likely occur at a broad level and aim to identify the effect on greenhouse gas emissions of shifting modes in metropolitan areas under different transportation investment and policy scenarios. As this work continues, additional data will likely be needed to help evaluate the potential of walking and bicycling modes to reduce vehicle miles traveled and transportation-related greenhouse gas emissions.

### **GreenRoads Rating System**

ODOT is exploring the use of the GreenRoads™ rating system (<http://www.greenroads.us/>). GreenRoads is a sustainability rating system for roadway design and construction that is applicable to all roadway and trail projects including new, reconstruction and rehabilitation (including overlays). GreenRoads functions as a collection of sustainability best practices, called "credits," that relate to design and construction. Achieving these credits can earn points toward a total score for the project, and in general, this GreenRoads score can be used as an indicator of sustainability for the roadway. One of the voluntary credit categories is Access & Equity, which includes several bicycle and pedestrian related measurements. Those include: safety audit, context sensitive solutions, traffic emissions reduction, pedestrian access, and bicycle access.

Initial feedback from ODOT staff at the project level for using a GreenRoads checklist is positive. It is thought that this tool can help ODOT assess whether it is spending money as wisely as possible and meeting its sustainability goals.

### **Multi-Modal Level of Service**

The newest edition of the Highway Capacity Manual (HCM) includes a methodology for calculating level of service for multiple modes, including for bicycling and walking. The TPAU Facilities Analysis & Simulation Team reports that it is beginning to develop agency guidelines on collecting the necessary inventory data (width of bike lanes, sidewalks, buffers, parking, etc.) in order to complete the multi-modal level of service calculations found in the HCM.

## Issues Related to Bicycle and Pedestrian Data

Several themes emerged in the interview process associated with the collection and utilization of bicycle and pedestrian data. These themes are identified below, along with the key issues that arose for each theme.

### Data Access

- There is a need for centralized data storage locations to upload, view and request available traffic count and crash data.
- Many traffic and non-motorized counts only reside in individual project folders. There is a need for a central location to upload this information for later use.
- Transportation Data reports that there is a count database licensed to anyone at ODOT. Accessing the database requires that the IT department install an application on individual user machines, which may explain why agency staff appear unaware of its existence.
- Standardized data request forms are needed.

### Data Usability

- Bicycle and pedestrian count data are most often collected as part of a general traffic count; these locations and timeframes are rarely optimal for documenting bicycle and pedestrian activity in a community
- Potentially useful data is currently being lost/overwritten (i.e., data collected by traffic signals)

### Counts & Statistical Validity

- Need to develop adjustment factors for bicycle and pedestrian counts (urban/rural, roadway typology, weather, etc.)
- Need to install a network of continuous bicycle and pedestrian counters and develop a methodology for factoring short duration counts

### Planning/Project Development/Operations Level

- Stronger justification of bicycle and pedestrian facilities projects would be a key benefit of improved data.
- Counts would be valuable to document facility usage and develop crash exposure rates.
- Count data would be desirable to measure the effectiveness of different facility types and prioritize projects.
- The value of data collection and analysis activities may vary by location. Higher density areas would benefit from increased data collection. Data collection in less populated areas may unnecessarily divert scarce resources from implementing projects to complete known facilities gaps.
- There are many ways to quantify/monetize motor vehicle activity (e.g. Vehicle Miles Traveled); Need to develop appropriate metrics and source data for bicycle and pedestrian activity.

### Funding

- Strengthening grant applications by local governments (for ODOT Flex Fund, Bicycle and Pedestrian, Safe Routes to School, and Transportation Enhancements programs funding) to build bicycle and pedestrian projects would be one of the most important uses of improved data.

- Agency staff appear unclear of the details of internal ODOT bicycle/pedestrian funding opportunities – where money is available within the agency, and where money that the agency awards (e.g. through bicycle/pedestrian grants) is being awarded.
- If there was more money for bicycle and pedestrian projects, people would pay more attention to these modes.

### **Forecasting**

- Increased data would increase understanding of safety risk at a given location and aid in facility type selection .
- Agency travel demand modelers anticipate adding more robust representation of the bicycle and pedestrian modes. This will require significant data detail, the extent of which is not clear right now.

### **Goals**

- There are few metrics to measure progress towards achieving statewide policy goals and agency aspirations to become more multi-modal.

### **ODOT's Role**

- ODOT is a statewide agency, which provides a great opportunity to take a leadership role in increasing investment in bicycle and pedestrian facilities.
- ODOT should develop standard methodologies for bicycle and pedestrian data collection to be used around the state.
- ODOT could serve as a central housing location for bicycle and pedestrian data across the state from multiple government agencies.

### **General Comments**

- Lack of data puts bikes and pedestrians at a disadvantage compared to other modes.
- Improved data could be used to measure the economic benefits to communities of bicycle and pedestrian investments.
- Opportunities exist to improve internal communication with regard to ODOT data practices.