

ASSET MANAGEMENT STRATEGIC PLAN

**STRATEGIC DECISION
MAKING**

**COMPLETE & RELIABLE
ASSET INVENTORY**

**INTEGRATED REPORTING &
ANALYSIS TOOLS**

**INTEGRATED DATA
SYSTEMS**



ODOT

November 2011



ODOT is an Equal Employment Opportunity and Affirmative Action Employer.

For TTY call 711

Approved by Asset Management Steering Committee May 2011

Table of Contents

Preface	1
Plan	
<i>Strategic Plan</i>	3
<i>Implementation Plan</i>	14
<i>Communication Plan</i>	18
<i>Technology Strategy</i>	19
Appendices	
<i>Appendix A - Asset List</i>	23
<i>Appendix B - Decision Process Diagram</i>	25
<i>Appendix C - Decision Matrix</i>	27
<i>Appendix D - Asset Management Work Plan</i>	29
<i>Appendix E - Asset Management Plan Implementation Guidelines</i>	31



Yaquina Bay



PREFACE

The 2011 Oregon Department of Transportation Integrated Asset Management Plan combines three plans into one. What were once separate documents, a Strategic Plan, Implementation Plan and Communication Plan, are now one integrated document that supersedes these three previously approved in 2006.

This document serves as a blueprint to guide systematic Asset Management efforts at the Oregon Department of Transportation (ODOT). As such, it includes an Executive Summary, a Strategies section, an Implementation section, a Communications section and a Technology Strategy. Appendices include the approved Asset List, Decision Diagram, Guidelines and the current Work Plan. It should be noted that ODOT's asset list is long, but the current emphasis will remain on the assets and features that make up the state transportation system, beginning with the highway system.

The contents of this plan reflect the knowledge gained and progress made over the past five years of sustained efforts to build and improve capacity for proactive Asset Management at ODOT. These efforts have been sustained in part thanks to the ongoing support of Jerri Bohard, Transportation Development Division Administrator; Cathy Nelson, Chief Engineer and Technical Services Manager; and Luci Moore, State Maintenance Engineer. ODOT enjoys dedicated staff in the Asset Management Integration Section serving to facilitate coordinated efforts. Steady progress has been possible thanks to the collaborative efforts and backing of numerous ODOT staff across divisions, but particularly to the members of the following units, groups and committees:

Highway Leadership Team
Asset Management Steering Committee
Technical Services Asset Management Task Force
Asset Data Management Committee
FACS-STIP Tool Project Team
Sign Asset Management Implementation Team
Network Optimization Task Force
Freight Mobility/Asset Management Coordination Team and Work Group
Transportation Data Section, Geographic Information Systems (GIS) Unit
Transportation Data Section, Roadside Inventory and Classification Services (RICS)
Highway Management Information System Steering Committee
Sign Asset Management Team
Project Delivery Information Systems Core and Extended Teams
TransInfo Steering Committee
TransInfo Leadership Team
Asset Management Pilot Steering, Technical and Working Groups (now disbanded)

Numerous other standing and ad hoc groups as warranted – all have been willing members of a large and extended team, collaborating and helping when called upon.



Asset Management Strategic Plan

2010 Update – Approved May 2011

Executive Summary

A sset Management is a process and decision-making framework that uses economic, business, technology and engineering considerations to make cost-effective investment decisions that consider an extended timeframe. The goal of any Asset Management process is to use a system-wide approach in order to improve operations and make the organization more effective by considering the full investment and life cycle of assets.

In recent years, Asset Management has gained considerable support in many organizations, including transportation agencies. Asset Management is beneficial to transportation agencies because it supports informed decision-making for planning, policies, and programs to help manage assets as effectively as possible. The American Association of State Highway and Transportation Officials (AASHTO) support Asset Management; they developed the Transportation Asset Management (TAM) Guide to help agencies implement their own Asset Management programs.

Given the billions of dollars of linear and non-linear assets managed by the Oregon Department of Transportation (ODOT), a proactive and informed decision-making process is essential. ODOT was an early adopter of asset management and, in recent years, efforts have expanded to develop a more comprehensive program. The combined result of these Asset Management efforts is ODOT's positive reputation with transportation agencies around the nation. Broader Asset Management efforts started with the formation of OTMS, or Oregon Transportation Management System, an effort to manage automation projects such as bridge, pavement, and safety management systems. As Asset Management work at ODOT continued to be a priority, the next steps were an Asset Management pilot in 2006 and a dedicated unit, the Asset Management Integration (AMI) Section, established in 2007.

The work of AMI, building on existing Asset Management successes at ODOT, continues efforts to add capacities for proactive management. AMI efforts followed recommendations from national organizations such as AASHTO and the Federal Highway Administration (FHWA), and were supported by research looking at national and international transportation agencies. Key Asset Management efforts, so far, are as follows: Basic inventory supported by technology for data collection; systems for storing, sharing and reporting; and development and implementation of analysis and decision-making frameworks. Positive impacts from these initiatives are already apparent: Noticeable cost-savings have come from sharing the data gathered via a web-based tool; inventory data helped make the case with FHWA for a 1R (pave-mainly) Program; communication and data-sharing improvements have resulted in more cross-divisional collaborations; and additional inventory has also helped with other compliance requirements as well as improved programmatic plans. Still, ODOT faces some challenges to full integration of Asset Management principles, and the years to come will include a focus on improving communication throughout the agency, changing culture to fully incorporate Asset Management, and maintaining focus and momentum of Asset Management efforts.

To address these issues, Asset Management at ODOT must have a clear path to success with vision and purpose. This Strategic Plan envisions that strategic decisions and fund allocation will maximize benefits from assets throughout their life cycles. Support for these improvements will come from the proper collection, storage, and analysis of asset data and its integration into ODOT's daily operations. The purpose of Asset Management efforts at ODOT is to bring this vision to fruition. This document outlines the course for arriving at the vision. The Strategic Plan outlines 4 goals:

- Foster **integrated strategic decision making**
- Sustain and establish a complete and reliable asset **inventory**
- Build a fully **integrated data system** or collection of systems
- Create **integrated reporting and analysis tools** that make use of the integrated data system

In support of these goals are the Implementation Plan, Communication Plan and Technology Strategy, which are listed in this document. The Implementation Plan outlines objectives and actions for

each of the above four goals, providing a step-by-step blueprint for how to achieve them. The Communication Plan has two specific objectives: 1) broad cross-functional representation on the Asset Management Steering Committee (AMSC), and 2) maintaining relevance to others. Each of these objectives has an associated list of specific actions to ensure its completion. The Technology Strategy is to ensure that data of all forms (transportation asset data, performance and diagnostic data, and financial data) are efficiently and reliably integrated and accessible to all who need access.



Background

What is Asset Management?

Asset Management is a methodology for proactively managing an organization's assets so as to meet business and customer needs at the lowest possible cost over the longest possible period of time. It draws upon knowledge and techniques from engineering, business management, economics and computer/network technology. Ultimately, Asset Management equates to getting the right information to the right people at the right time for better informed decisions and optimum results.

How Does Asset Management Apply to State Transportation Agencies?

Although work with pavement and bridge management systems has existed for some time, Asset Management is a relatively new concept to most transportation agencies. In 2002, AASHTO released a Transportation Asset Management Guide to help state agencies implement asset management practices. It consists of an analysis of ten years of Asset Management at transportation agencies and identifies Asset Management best practices.

Asset Management holds many potential benefits for transportation agencies. For example, it:

- Provides tools for project, program and policy decision making;
- Provides a framework for short- and long-term planning for infrastructure improvements;
- Helps ensure compliance with federal regulations and accounting practices such as those from the Governmental Accounting Standards Board (i.e. GASB 34) and Americans with Disabilities Act (ADA); and,
- Helps organizations use their resources to get the best possible results.



Asset Management at ODOT

ODOT is responsible for billions of dollars of linear and non-linear assets. Data about these assets have been stored in 80-100 core databases, and over 100,000 miscellaneous databases are used for individual purposes or one-time reporting, with little consistency in the data or communication between the databases. Programmatic Asset Management efforts at ODOT began in response to a Federal legislative mandate in the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) requiring bridge, pavement and safety management systems. ODOT created the Oregon Transportation Management System (OTMS), to manage these and other management systems. Work began on core systems such as the bridge database, PONTIS.

As Oregon's transportation infrastructure continued to age and financial resources lagged behind need, it was clear a more systematic and strategic approach to Asset Management was necessary. Staff conducted extensive research on Asset Management practices, both nationally and internationally, and consulted with key executive staff members to develop priorities. ODOT adopted the goals and principles of AASHTO's

Transportation Asset Management Guide to actively incorporate Asset Management principles, and in 2006 a Strategic Plan and an Implementation Plan were written to guide efforts. To address issues highlighted in the Strategic Plan (i.e. a lack of available reliable and standardized data) the 2006 Asset Management Pilot project was launched in ODOT's Region 2. The pilot analyzed the data collection efforts of prioritized assets along four highway segments to get an accurate statewide perspective on data. Pilot findings highlighted specific challenges at ODOT, including insufficient data resulting from ad hoc data collection and inefficient data collection processes. Lessons from the pilot made it clear that ODOT was not ready for the comprehensive and detailed 2006 Implementation Plan. Based on pilot results, Asset Management goals were refined to focus on more fundamental issues, like basic inventory. The 2006 Strategic and Implementation Plans helped lay a foundation for Asset Management, and initiatives at ODOT today continue to build on the work that came out of OTMS efforts and the 2006 documents (See Table 1). Table 2 illustrates the progress made on asset data available on a statewide basis.



Table 1 – Statewide Asset Data Available

Asset	Statewide data available in 2005?	Statewide data available now?	Required for 1R Roadside Inventory
Bridges	X	X	X
Tunnels		X	
ITS	X	X	
Pavement	X	X	
Right of Way	X	X	
Signs		X	X
Traffic Barriers		X	X
Sidewalks		X	X
ADA Ramps		X	X
Bike Facilities		X	X
Culverts 6ft and over	NBI	In progress	X
Culverts under 6ft		In progress	X
WIM Sites		X	
Sound Barriers	X	X	
Wetland Mitigation Sites		X	
Material Sources		X	
Signals and Beacons	Tri-color only	Tri-color only	
Retaining Walls		In progress	
Unstable Slopes		In progress	
Approaches		In progress	
Major Traffic Support		Just starting	
Storm Water Facilities		Just starting	
Illumination			

Statewide Accessibility	
Limited Accessibility/ Availability	
Not Available, but Efforts Underway	
Required for 1R Roadside Program	

Table 2 – Building on Past Efforts

Asset Management Effort	Early Asset Management Work	Current Asset Management Work
Data Collection	Digital Video Log (OTMS)	Earthmine pilot
Data Reporting System	Objective in 2006 Implementation Plan	FACS-STIP, TransInfo
Incorporate AM language into key documents	References to asset management in 2006 ODOT Business Plan and the 2007 OTP Implementation Work Program	References to asset management practices and tools in Practical Design Manual
Documentation of Data Standards	Objective in 2006 Implementation Plan	Metadata, data collection manuals

In 2007 the Asset Management Integration (AMI) Section was formed, a unit dedicated to supporting Asset Management at ODOT. The goals listed in the 2006 Asset Management Strategic Plan and lessons learned from the pilot outlined the areas of emphasis: Basic inventory supported by technology for data collection; systems for storing, sharing, and reporting data; and development and implementation of analysis and decision-making frameworks. Asset Management efforts have taken a multi-path approach, making progress across each of these areas simultaneously. Asset Management fully supports the Oregon Transportation Plan Work Program and the ODOT Business Plan, and is complimentary to other efforts such as Practical Design, Engineering Data Management Strategic Plan and the Engineering Automation Vision. The results of these initiatives will be cost-savings, improved decision-making, increased data-sharing and communication throughout the agency, and progress in supporting ODOT goals of safety, mobility and sustainability. Work in these areas is still in progress, and ODOT hopes to continue to improve the availability of reliable inventory data and the state of its data management systems and reporting tools. Additionally, ODOT seeks to integrate Asset Management into its everyday operations and decisions.

While working towards these goals, Asset Management at ODOT must address several key challenges: Sustaining communication, changing culture, maintaining focus and maintaining momentum. The four strategic goals in this document will build on past successes of basic inventory, technology, and decision-making to address these challenges.

Vision, Purpose, Principles and Goals

Vision

An updated vision for the future of Asset Management efforts was adopted in 2010 by the Asset Management Steering Committee:

ODOT makes decisions and allocates funds for stewardship of transportation infrastructure strategically, maximizing the life cycle of each component to make the best use of constrained resources. These decisions are supported by reliable data that is collected once for use by many.

Purpose

Progress toward continued capacity building for Asset Management will involve many. The following summarizes key reasons for ODOT's efforts, the existence of the Asset Management Integration Section and this document.

Purpose of ODOT's Asset Management Programmatic Efforts:

- To enable and encourage ODOT employees to apply Asset Management principles when creating policy or making decisions about assets or across assets; and
- To build on past (and future) successes, using them as models for further Asset Management efforts.

Purpose of the Asset Management Integration Section:

- To facilitate the timely and cost-effective implementation of accepted Asset Management practices at ODOT; and
- To coordinate across divisions and business functions to establish the data systems, standards, collection methods and analysis tools needed to effectively implement these practices.

Purpose of the Asset Management Strategic Plan:

- To chart a course toward realization of Asset Management as a way of doing business;
- To provide a central, authoritative source of information about ODOT's Asset Management policies and goals; and
- To communicate these policies and goals clearly so that everyone at ODOT is able to work together with a common purpose.

Principles

- Efforts will:
 - Take into account the needs across the organization
 - Follow standards
 - Be sustainable

Asset Management Goals

Asset Management Integration Section, in collaboration with the Asset Management Steering Committee and other ODOT committees, has established four goals for ODOT's Asset Management efforts:

- **Integrated Decision-Making**
- **Inventory**
- **Integrated Data System**
- **Integrated Reporting and Analysis Tools**

All four goals are of equal priority, but the challenge will be in implementation and the strategic, and sometimes opportunistic, actions. The ultimate outcome is integrated decision making in the proactive management of transportation-related assets.

Integrated Decision-Making

ODOT's fundamental asset management goal is to **foster integrated strategic decision making**. Right now, many decisions at ODOT are made by individuals in particular sections or districts; although they may be making the best decisions from the point of view of

the asset within their area, they may not be making the optimum decisions for the system as a whole.

As a public organization, ODOT has a responsibility to manage its resources efficiently *from a system perspective*. This means that decision-making must take into account the needs of all assets and regions in ODOT's purview, balancing both short-term and long-term considerations. These considerations are invariably constrained by available resources so the level of service that can be provided may vary, but these become better informed choices as ODOT progresses on this continuum. This also increases ODOT's ability and opportunity to communicate internally and externally about the impacts of these informed choices.

This level of integrated, strategic decision-making will not be possible without establishing a reliable statewide asset inventory, building a fully integrated data system, and developing the reporting and analysis tools needed to allow staff to evaluate this information. It will also call for newer and better performance metrics, greater flexibility of resource allocation, and a willingness to break away from familiar practices in order to get the most out of transportation funds. Finally, these changes can only occur if ODOT's organizational culture continues to value Asset Management and incorporate it into day-to-day decisions and activities.

Inventory

ODOT's next Asset Management goal is to **sustain or establish a reliable statewide asset inventory**. Specifically, this inventory should reside in an enterprise system, or set of integrated systems, that all processes feed into and from planning, design, construction and maintenance activities. With the inventory residing in a central repository, ODOT can ensure that data are collected once for many uses, rather than collected many times for one-time use.

When establishing or updating an inventory with limited resources, there is a tension between prioritizing breadth and prioritizing

depth – establishing a basic inventory for many assets, or establishing a detailed inventory of a few assets. There is also a tension between the level of detail people feel they need and the level that can be sustained by an organization. Finally, there is not consensus on how much of its budget ODOT is willing to invest in collecting and maintaining asset data, particularly in the face of an aging transportation infrastructure that demands reinvestment.

With these competing demands, ODOT has chosen an asset inventory strategy of first establishing a basic inventory, including first level condition, for a range of prioritized assets, then enhancing that inventory with more attributes (greater depth) and more assets (greater breadth). The rationale behind this strategy is based on the concept of diminishing marginal returns: Having basic data about most assets is vastly better than having no data for all but a few assets – but as more assets inventory and more detail is collected, the benefits of adding one more asset or one more data field decrease. At a certain point the benefit of gathering new data no longer outweighs the cost. Exactly when

that point will occur is hard to pin down, but these basic principles can nonetheless guide ODOT's data collection strategy: Start with basic inventory, and if the business need arises, get more detailed as time, inspections and budgets allow.



An Integrated View of Bridges

The importance of an integrated approach to decision making becomes more apparent when looking at updating Oregon's Seismic Lifeline Routes. Initial efforts to update these routes focused on the seismic vulnerability of bridges in essential corridors throughout the state. While this is vital information and critical for preserving the significant investment in these structures, this did not provide a complete forecast of how a corridor might be impacted by a seismic event.

A highway corridor is made up of many components, some essential for the very existence of a system that can provide for travel from one point to another. In addition to bridges, other essential assets in a highway system include culverts, pavements and retaining walls. A failure of one of these could cause a highway to be impassable at any time. Preparation planning for such an event should also include consideration of unstable slopes or rock fall sites since an earthquake could also trigger a major slide or significant rock fall that could also block the highway. Any of these types of failures could close a corridor for an extended period.

Impacts from significant seismic events and tsunamis around the world in the last decade underscore the need for preparation. The value of keeping bridges standing would be diminished by major failures of other critical components so the need for an integrated approach is recognized.

Work is just beginning on the review of Seismic Lifeline Routes, but ODOT will make better decisions to keep these vital routes open in an emergency based on better information. Consideration of multiple essential assets, as well as knowledge of unstable land formations will guide investments in vital corridors that could make the difference between rescue efforts mobilized on an open route versus those made extremely challenging by a closed route.

Integrated Data System

ODOT's next Asset Management goal is to **build a fully integrated data system**, so that information and functionality can be easily accessed by the people who need it, regardless of what division they belong to or what asset they are responsible for. This does not necessarily mean developing one big new database for everything, but it does mean finding a way for as much linear asset data as possible to flow into and out of or be interfaced with a central system – *TransInfo*. Asset databases need to be interfaced with *TransInfo* so that it acts as a corporate database. For example, users should be able to access a level of information about bridges through *TransInfo*, even if the more extensive information source is the PONTIS database.

Historically, the pattern at ODOT has been to develop a new data management system, often home-grown, whenever a new need arises. This tendency is exacerbated by ODOT's organizational structure: Different sections are responsible for different functions and their focus was on these functions and not on these separate systems working together in harmony. The consequence of this pattern is that there are thousands of separate databases, each with its own quirks and specific functionality. Communication among these databases is difficult and time-consuming at best, making strategic planning across many assets nearly



Bicycle and Pedestrian Infrastructure and the Asset Management Pilot

The Oregon Bicycle Bill (ORS 366.514) requires ODOT to include bicycle and pedestrian (“bike/ped”) facilities whenever constructing or re-constructing a road, and mandates that at least 1% of the State Highway Fund be spent on these facilities. These requirements have led to the adoption of legislative performance measures for bike/ped facilities. ODOT must report annually to the legislature on the extent and condition of bike/ped infrastructure, as well as outstanding infrastructure needs and the progress towards meeting those needs.

ODOT collected a statewide inventory of bike/ped facilities in 1995, and continued to update it afterwards using information from Statewide Transportation Improvement Program (STIP) project contract plans. In 2006 when the Asset Management Pilot collected data on the bike/ped infrastructure in McMinnville, it found that while the bike/ped data showed 3 miles of sidewalk, field verification counted 9.3 miles. Given the enormous discrepancy between the data and reality, it was decided that the existing data was not acceptable; a new inventory was collected and presented to the 2009 Legislature.

The bike/ped experience demonstrates the importance not only of establishing a good asset inventory, but of routinely maintaining and verifying that inventory so that it does not become inaccurate over time.

Signs

In 2006, the Asset Management Pilot project was forced to re-collect data because it could not be extracted from the signs database in the proper format. A little while later, the I-5 Sign Replacement Project also gathered similar data about the signs in the area. Shortly thereafter, maintenance teams counted signs again for a features inventory. In the span of just a few months, the same basic data about the road signs in District 3 had been collected four separate times, each for a single use.

Today, in contrast, newly available statewide signs data is among the best managed in the state, and will likely be the first new data set to migrate to TransInfo, ODOT's new corporate data management system. The process of getting from there to here demonstrates both the challenges of implementing asset management and the potential benefits of doing so.

Through the 1990s, all fifteen districts in Oregon were managing signs data independently and inconsistently. In 2000 a version of Region 2's database was rolled out for statewide use, but each district implemented it in its own way (or not at all). Nonetheless, the seed had been planted.

In 2006 the Sign Asset Management group (SAM) was formed to work on the issue. In 2007-09 nearly every district established a consistent basic inventory, along with a manual supporting it. In 2009 the Data Warehousing Project managed to reduce the number of location errors in the sign databases by almost 99%.

There were challenges, of course—for example, many of SAM's decisions were not being consistently implemented because the right mix of decision makers had not been consistently involved. So in 2009, the Sign Asset Management Implementation Team (SAMIT) was formed, incorporating managers regularly into the process.

The signs experience has shown that although establishing asset management practices can be difficult in a big organization, it is not impossible, especially once the potential benefits become apparent to people on the ground.

impossible. If anyone needs to compare their data to someone else's, they must find a way to connect with other databases, or, more typically, recreate the required data in their own database or analyze manually. These methods are both extremely time-consuming and expensive processes. A system where data are maintained based on standards so it can then be integrated with a variety of other appropriate data is a more efficient way to use ODOT's resources.

Integrated Reporting and Analysis Tools

ODOT's next asset management goal is to **create integrated reporting and analysis tools** that make use of the integrated data system, making sure to leverage those tools that already exist (see Goal 2). The two functions that these tools would perform – reporting and analysis – are both critical to effective Asset Management.

Reporting tools are vital to maintaining the reliability and usability of the integrated data system. These tools must be linked to the data system so that the data are accessible, but that changes in the data are also easily incorporated into the appropriate database. The tools must



also be widely used, so that all changes that occur are accounted for. Otherwise, data will rapidly lose accuracy as what is on the ground no longer aligns with the database.

Analysis tools are vital because they make an integrated data system valuable. Without analysis tools, there is no way to turn raw data into useful information, from which lessons can be learned and decisions made. Analysis tools have a key role in effective policy decisions; they enable strategic planning across assets and encourage the informed use of resources. Without integrated reporting and analysis tools, there is nothing to prevent a team from going out to replace aging pavement, only to have that same pavement torn up weeks later by another team sent to replace the aging culvert beneath it. By focusing on development of these tools, ODOT can ensure that crews visit a site once to fix appropriate assets and collect necessary data, rather than making separate trips each time maintenance or data is needed.



The 1R Program and the FACS-STIP Tool

One of the ways that ODOT's asset management efforts have shown direct and tangible benefits is through the 1R Program. This program is an effort by ODOT to ensure that scarce resources get to those assets that most need repairs or replacements. A key part of this has been gaining permission from the Federal Highway Administration (FHWA) to forego replacing some substandard assets when doing repaving projects; these requirements have often meant that a much-needed repaving project could not go forward because there was enough money available to fix the pavement, but not to fix other (substandard, but not yet failing) assets. The 1R Program has also led to \$6 million being set aside annually for replacement of the state's worst traffic barriers.

ODOT had sought this permission before, but was able to finally obtain it when it could demonstrate, via statewide inventory, the paving project requirements were preventing the replacement of dangerously substandard barriers. A requirement for keeping this permission (and the accompanying funds) is that ODOT continue to keep the inventories up to date.

To aid in this effort, a feature was added to the new FACS-STIP Tool (an online GIS-based tool designed to help project delivery staff) that quickly produces reports of 1R inventory-relevant assets along a designated segment of highway. The crews performing the inventory just have to quickly verify the information; any changes are reported via a commenting feature, which sends an alert to the appropriate asset data owner.

The benefits of the 1R Program – both in terms of the flexibility it affords and in terms of the newly funded program it provides – have demonstrated to many at ODOT that asset management is an investment that pays off in a measurable way.

Screen shot of available FACS-STIP
Asset Reports

View Asset Reports

ADA Ramps	View	<input type="checkbox"/> Export
Approaches	View	<input type="checkbox"/> Export
Bicycle Facilities	View	<input type="checkbox"/> Export
Bicycle Facility Needs	View	<input type="checkbox"/> Export
Bridges	View	<input type="checkbox"/> Export
Culverts	View	<input type="checkbox"/> Export
Culverts-District	View	<input type="checkbox"/> Export
Culverts-MS4 Permits	View	<input type="checkbox"/> Export
Fish Passage-ODFW	View	<input type="checkbox"/> Export
Fish Passage-DSL	View	<input type="checkbox"/> Export
Intel. Trans. Sys. (ITS)	View	<input type="checkbox"/> Export
Pavement	View	<input type="checkbox"/> Export
Retaining Walls	View	<input type="checkbox"/> Export
Safety-Crashes	View	<input checked="" type="checkbox"/> Export
Safety-SIP	View	<input type="checkbox"/> Export
Safety-SPIS	View	<input type="checkbox"/> Export
Safety-Crash Rates '08	View	<input checked="" type="checkbox"/> Export
Sidewalks	View	<input type="checkbox"/> Export
Sidewalk-Needs	View	<input type="checkbox"/> Export
Traffic-AADT	View	<input type="checkbox"/> Export
Traffic-Posted Speed	View	<input type="checkbox"/> Export
Traffic Barriers	View	<input type="checkbox"/> Export
Traffic Support-Signs	View	<input type="checkbox"/> Export
Unstable Slopes	View	<input type="checkbox"/> Export



Implementation Plan

ODOT is responsible for managing a lengthy list of assets, including many that make up the highway system as well as supportive equipment, technology, software and data. The full list is included in A-C Appendix. The current emphasis will be on the assets that make up the state highway system. The specific decisions about the timing and resourcing of the actions that follow will be guided by the priorities established by the Asset Management Steering Committee and will include input by various ODOT leadership teams and committees. The process for decisions is diagrammed in Appendix B. The details of how and estimates of when this work will be implemented are included in the biennial Asset Management Work Plan in Appendix C.

Goal 1: Integrated Decision-Making

Foster integrated decision making – managing resources efficiently from a system perspective; balancing short-term and long-term considerations for all assets.

Objective 1.1: Support System Decisions and Asset Prioritization in Support of Oregon Transportation Plan (OTP)

Action 1.1.1: Develop a process for prioritizing asset management initiatives; determine and document criteria for prioritization based on input by key leadership teams.

Action 1.1.2: Seek opportunities to include available asset data or expand availability of new data to support implementation of the OTP.

Action 1.1.3: Build capacity for comparisons and analysis against a common set of standards and/or performance measure goals for transportation assets.

Objective 1.2: Data Standards & Governance

Action 1.2.1: Support and ensure compliance with standards established by governing bodies such as taskforces or steering committees. (Standards intended to improve reliability and accuracy of data across ODOT's business lines).

Objective 1.3: Build Experience with Integrated Data

Action 1.3.1: Develop pilot projects that allow cross functional groups to gain experience using and making decisions with integrated asset data.

Action 1.3.2: Evaluate utility of metrics, levels of service and goals across a variety of assets for a representative sample of the state highway system.

Objective 1.4: Develop Common Goals and Metrics

Action 1.4.1: Develop goals, metrics and levels of service, appropriate for all business lines, for priority and other key assets. Ensure broad and diverse representation and input to ensure relevance of goals across ODOT business lines.

Objective 1.5: Develop a Corridor Approach to Asset Management

Action 1.5.1: Develop a corridor approach to managing assets. Select a corridor and evaluate the asset inventories to establish goals for each of the features. Prioritize asset goals considering program funding availability/limitations.



Goal 2: Inventory

Sustain or establish a reliable statewide asset inventory. Specifically, this inventory should reside in an enterprise system, or set of integrated systems, that all processes feed into and from - ranging from planning, to construction, to maintenance.

Objective 2.1: Collect and Maintain As Well As Continue to Increase Availability of Reliable Basic Inventory for Transportation Assets

Continue to build statewide data for priority assets. Priority assets are those deemed as such by ODOT's Asset Management Steering Committee or those required in support of reports to external stakeholders.

Action 2.1.1: Sustain and improve levels of information currently available for pavements, bridges, tunnels, rights of way and Intelligent Transportation System (ITS) components.

Action 2.1.2: Sustain levels of information more recently established for signs, traffic barriers and impact attenuators, sound barriers, bicycle facilities, sidewalks, ADA ramps, wetlands mitigation sites, aggregate sites, unstable slopes and weigh-in-motion sites.

Action 2.1.3: Continue to build basic inventory started through previous initiatives for culverts, retaining walls, and approaches.

Action 2.1.4: Establish standards for data collection methods, tools and management of asset spatial data and associated attributes.

Action 2.1.5: Develop new initiatives to update or establish reliable statewide inventory for additional assets or attributes based on priority and/or opportunity. Known potential candidates include major traffic structures, vertical clearance, approaches, storm water facilities and additional inventory requirements for drainage.

Objective 2.2: Make Use of Existing Tools and Continue to Build a Repertoire of Tools and Standards for Efficient, Reliable Data Collection.

Identify a complimentary set of tools for data collection and update or establish standards for the use of these tools, the data collected and the fields and methodologies used to establish location of assets.

Action 2.2.1: Sustain a cross-functional sub-committee of Asset Management Steering Committee that will be charged with completing analysis and making recommendations to create ODOT-wide standards for tools and location methodologies for data collection, as well as management of spatial data collected. Sub-committee will use systematic evaluation and analysis of pilot efforts to vet potential new tools. Sub-committee will also establish criteria and make recommendations for continuing or discontinuing the use of older tools as new tools become available.

Action 2.2.2: Test or evaluate various potential data collection tools, methods and applications to determine which are complimentary and best suited to meet ODOT's needs and cost/benefit analysis.

Action 2.2.3: Develop strategies for efficient acquisition and maintenance of mobile Global Positioning System (GPS) tools used for field data collection. This includes equipment replacement cycles, firmware updates, software updates and application development and maintenance.

Action 2.2.4: Establish ownership and standards for these tools, the data collected and the fields and methodologies used to establish the location of assets.

Action 2.2.5: Modify and evolve, as possible opportunities present themselves, existing metadata across ODOT business functions (For example: Alignment of metadata for survey activities with that for asset databases) based on analysis and consensus building through cross-functional teams.

Goal 3: Integrated Data System

Build a fully integrated data system, so that information and functionality can be easily accessed by the people who need it, regardless of what division they belong to or what asset they are responsible for. An integrated system can be a single system, but will more likely be a collection of integrated systems.

Objective 3.1: Develop Systems Integration Strategy

Establish *TransInfo* as ODOT's central asset data management system, housing or linking to data about as many assets as is feasible.

Action 3.1.1: Maintain expertise and knowledge gained of complex and robust Bentley/Exor product during implementation of Phase 1 of *TransInfo*, replacing the Integrated Transportation Information System (ITIS) and the Features Inventory function of the Maintenance Management System.

Action 3.1.2: Establish dedicated resources from Information Systems and transportation business to sustain and grow *TransInfo* content and functionality.

Action 3.1.3: Prioritize candidate data for migration into *TransInfo* during future phases across based upon criticality and readiness of the data and business processes as well as the commitment of the responsible business staff.

Action 3.1.4: Establish long-term data migration vision, strategies and schedule based on priorities and capacities.

Action 3.1.5: Use automated tools such as extract, transfer and load (ETL) and/or features manipulation engine (FME) functions to improve data quality, particularly spatial or location data, in preparation for use in or migration to enterprise systems.

Action 3.1.6: Extract data from databases (or data warehouse), transform it appropriately to generate reports or migrate to *TransInfo*.

Objective 3.2: Data Governance

Action 3.2.1: Establish data model and definitions that delineate between asset classes and relates them to lifecycle management activities and external reporting requirements

Action 3.2.2: Establish asset list that is a complimentary foundation to other business processes such as financial reporting, project delivery and construction (an asset taxonomy).

Action 3.2.3: Document asset, attribute and other definitions; update as necessary; incorporate into metadata; make accessible to those using or collecting data to foster communication about data and reinforce established standards.

Action 3.2.4: Develop and update data standards as necessary to ensure sustained reliability of asset data.

Objective 3.3: Business Process

Action 3.3.1: Establish business process models for each asset, involving asset owners and business owners in the process. Process models are for common, ongoing understanding for all ODOT staff, so roles, responsibilities and expectations are clear. They facilitate data management as well and should be compliant with standards.

Goal 4: Integrated Reporting and Analysis Tools

Create integrated reporting and analysis tools that make use of the integrated data system, making sure to leverage those tools that already exist.

Objective 4.1: FACS-STIP Tool

Action 4.1.1: Continue support for the FACS-STIP Tool, both generally and with a focus on 1R inventory features.

Action 4.1.2: Complete migration of the tool from external servers to servers appropriate for the long-term.

Action 4.1.3: Continue to appropriately add data and/or functionality based on programmatic and staff priorities.

Objective 4.2: *TransInfo*

Action 4.2.1: Identify the reporting needs and options as well and the analysis needs by asset owners and managers. Determine options in *TransInfo* to support these needs in combination with the FACS-STIP Tool, other GIS-based tools and the data warehouse.

Objective 4.3: Support Standards for Financial Reporting (GASB)

Action 4.3.1: Support necessary improvements to ODOT's financial reporting processes through consistent standards wherever possible. Examples may include reliable inventory or improved cost data through alignment of construction project bid items with a foundational asset list (taxonomy).

Objective 4.4: Other GIS-Based Tools

Action 4.4.1: Continue to support, develop and evolve new or existing GIS-based tools (i.e. Transviewer) to improve efficiencies in reporting as well as the collection and management of transportation-related asset data. Ensure compatibility with *TransInfo* and major systems such as PONTIS.

FACS-Data To Go							
Reports Generated Use the Following Criteria:							
Start Milepoint: 19.65							
End Milepoint: 27.25							
Highway Name: CROOKED RIVER (014)							
Highway Suffix: 00							
Roadway Number: 1							
Buffer Distance: 0.1							
Asset Filter Type: All Assets							
Note: Any field shown in green indicates a 1R-required field.							
Approaches							
Records Returned: 5							
Highway Number	Milepoint	Highway Side	App Status	Status Date	Surface Width	Surface Type	Effective Date
014	19.11	R	Aprvd (use)	11/5/2002	30.0000 ft		2010
014	20.37	L	Pre-Application	8/15/2005			2010
014	20.37	L	Aprvd (use)	6/11/2008	28.0000 ft		2010
014	23.56	L	Aprvd (use)	10/30/2007	20.0000 ft		2010
014	23.97	R	Aprvd (use)	3/23/2007			2010

Communication Plan

Objective C.1: Broad, Cross-Functional Representation on the Asset Management Steering Committee (AMSC)

Action C.1.1: Maintain diverse business and technical representation on AMSC while maintaining ties to key leadership teams, management teams and committees across ODOT.

Name:	Representing:	Team/Committee Ties (not all):
Jerri Bohard	Co-Sponsor (TDD)	Exec Staff, PBLT, HLT
Cathy Nelson	Co-Sponsor (Tech Services)	PDLT, HLT, TSMT
Laura Wipper	Asset Management Integration	Various Committees
Luci Moore	Maintenance (Headquarters)	MLT, HLT
Bruce Johnson	Bridge Engineering & Established Management Systems	TLT, TSMT, BLT
Hal Gard	Environmental Disciplines	TLT, TSMT, ELT
Bob Pappé	Traffic and Roadway Disciplines	TLT, RLT, TSMT, TOLT, AMLT
Dave Ringeisen	Transportation Data	TDD Mgmt Team
Sonny Chickering	Region Managers	HLT
Ron Winterrowd	Information Systems	ISB and TAD Mgmt
Michael Bufalino	Freight Mobility	Freight Advisory Committee
Darrin Neavoll (R3)	District Managers	DM's, MLT
Steve Davis (R5)	Project Delivery, Tech Center Mgrs.	TLT, R5 Mgmt Team
David Kim (R1)	Area Managers	Area Mgr LT
Ron Snell (R4)	Project Delivery, Construction	CLT
Marlene Hartinger	Non-voting member from Central Services	Audit Committee; CSMT
Clay Flowers	Financial Services; Financial Reporting	FSB Mgmt Team

Action C.1.2: Foster regular exchange between key ODOT leadership teams, management teams and committees through regular communications by AMSC members. This should include a member of the AMI staff when appropriate. Use information from exchanges to guide decisions about current and future efforts.

Objective C.2: Maintain Relevance to Others

Action C.2.1: Travel to each region regularly to create opportunity for two-way communications; providing updates on progress with inventory efforts, systems development and new or improved tools for data collection, reporting and analysis.

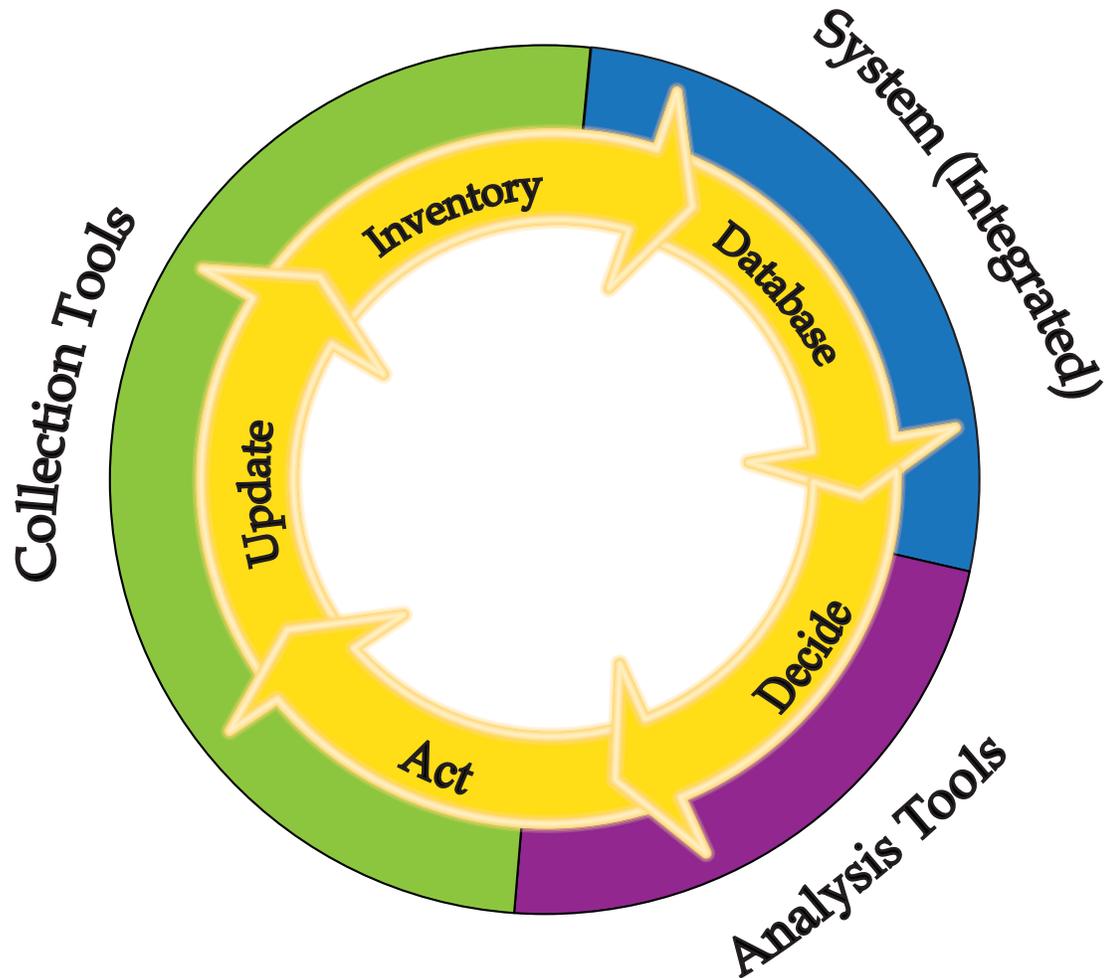
Action C.2.2: Establish key relationships and liaisons within ODOT for more frequent and regular input to ensure efforts are supportable and relevant.

Action C.2.3: Participate or host webinars or other educational events, especially those that expand knowledge across assets and programs.

Action C.2.4: Establish key relationships and liaisons outside ODOT, i.e., Federal Highway Administration (FHWA), for more frequent and regular input to ensure efforts are supportable and relevant as well as to share lessons learned.

Technology Strategy

Objective T.1: Transportation Asset Data, Performance and Diagnostic Data, Financial Data and Other Related or Supporting Data is Efficiently and Reliably Integrated and Accessible to All Who Need Access.



Principles:

1. Data governance and standards will ensure reliable and consistent data that can be integrated for whole system views, reporting and analysis.
2. *TransInfo* system will be the predominant asset management system.
 - a. Will be the first choice repository for additional asset data sets.
 - b. Will be the first choice system for additional asset data sets (when available modules provide efficient and proactive management of the asset).
 - c. Will be the first choice repository for additional asset data sets when additional functionality can be efficiently developed and interfaced.
 - d. Will be able to integrate data with that from other key/priority systems, such as PONTIS for bridge data.
 - e. Will be able to integrate with other analysis tools deemed necessary for proactive management of the asset, such as Agile Assets or other tools for pavements.

3. GIS and GPS-based tools, as well as Data Warehouse functions, an ETL (extract-transform-load) tool, and other appropriate tools will be used as appropriate for efficient data handling, quality assurance and management.
4. GIS will be a choice for development of analysis tools across assets.
5. Standards for the tools used to collect, update, inspect, view, report and analyze asset data will ensure efficiency, staff safety, effective data management and reliability.

Action T.1.1: Establish standards effectively determine, collect, integrate and manage transportation asset locations.

Action T.1.2: Establish standards and metadata to ensure data reliability and consistency.

Action T.1.3: Establish plans and priorities to efficiently, effectively and systematically make use of the robust options made possible by implementation of *TransInfo*.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix A - Asset List

**Oregon Department of Transportation
Linear Non-Linear Asset List
Approved: 04-15-2011**

LINEAR ASSETS:							
Asset Group	Classification	Asset	Type	Attributes	Other Associated Data	Intangible Benefits	
Bridges & Tunnels	BRIDGES (1R)	Bridges with NBI number (Deck, Sub-Structure, Super-Structure & Rails)	Prestressed Concrete, Post-Tensioned Concrete, Steel, Slab, Timber, Truss, Arch, etc.	Vertical clearance	Associated connectors for interchanges		
		Other Bridges (Deck, Sub-Structure, Super-Structure & Rails)	Traffic Tunnels, Drainage Tunnels				
Highway	Roadway	Pavement Surface, Base and Sub-Base	Pavement Type	BIKE LANES (1R) , Striping, Legends, Pavement Markings, Rumblestrips, Shoulders, [Parking]	Parking Restrictions		
		Retaining walls four feet or more in height	Base Type Sub-Base Type				
	Hwy Structures	Major Traffic Support	MSE, Gravity, etc. Sign Bridge, Cantilever, Butterfly, High Mast	Bridge Wall, Highway Wall.			
		CULVERTS 6 ft. and over (1R)	Shape (Circular, box, etc), Material (concrete, metal, etc.), usage.	Fish Passage, tide gate, trash racks, outfall			
	Drainage	CULVERTS under 6 ft. (1R)	Shape (Circular, box, etc), Material (concrete, metal, etc.), usage.	Fish Passage, tide gate, trash racks, outfall			
		Storm Water	Inlets, pipes, detention, treatment, access holes, drainage curbs, etc.	Tide gate, Outfall			
		Ditches					
		Drains					
		TRAFFIC BARRIERS (1R)	Horizontal, Vertical Guardrail, Concrete Barrier, and Cable Barrier	Guardrail Terminals			
		Impact Attenuators				Clear Zone	
Roadside			Approaches				
			Curbs				
			Fencing: Street Furniture and Appurtenances				
	Pedestrian Facilities	SIDEWALKS (1R) ADA RAMPS (1R) Multi-Use Paths					
	Environmental	Sound Barriers					

Location associated with highway

Highway Types: Mainline, connectors, frontage roads, functional class

Original Priorities

1R Roadside Inventory (1R)
S/W Data

Oregon Department of Transportation
Linear Non-Linear Asset List
 Approved: 04-15-2011

NON-LINEAR ASSETS (FIXED)							
Asset Group	Classification	Associations	Asset	Type	Other Associated Data	Intangible Benefits	
Location associated with highway	Highway System	Related to Traffic Operations Minor Traffic Support, post or pole with signs, signals, beacons, illumination and/or ITS equipment attached	SIGNS (1R)	Major & Minor			
			Signals	Components (to describe complexity)			
			Beacons				
			Illumination		Metal Pole, Tunnel Lighting Luminaire		
			Intelligent Transportation System (ITS)		Dynamic Message Signs (Variable or other), Ramp Metering, Cameras, Variable Speed Limit Signs, Weather Stations, Warning Systems, Highway Advisory Radio		
			WIM Sites	Transportation Data - Enforcement-Related		Components (roadway and roadside)	
			Scales	Transportation Data - Acquisition Only			
			Automatic Traffic Recorder Sites				
			GPS Base Stations				
			Communications/Electrical	General Operations Support		Fiberoptic cable, copper interconnect, electrical infrastructure (such as cabinets, boxes, meters, conduit, solar)	
			Passenger Vehicles & Pickups	Highway Construction & Maintenance Equipment			
			Large Rolling Stock				
			Other				
			ITS	Highway Operations		Portable VMS	
			Rail				
Safety							
Other							
Radio & Communications	Mobile Radios, Portable Radios, Communication Network						
Facilities-Related	HVAC, etc.						

Original Priorities 1R ROADSIDE INVENTORY (1R) S/W Data

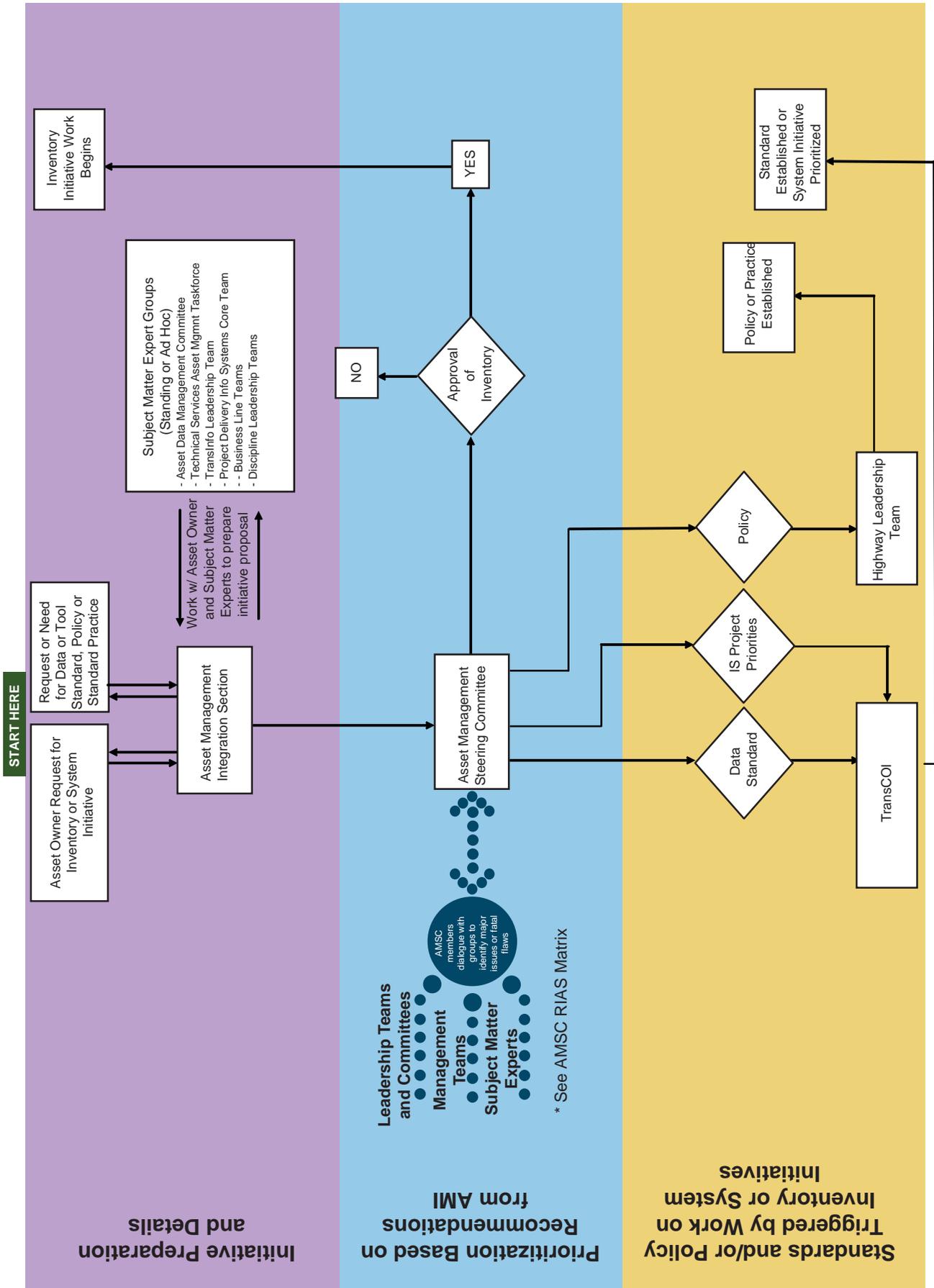
**Oregon Department of Transportation
Linear Non-Linear Asset List
Approved: 04-15-2011**

NON-LINEAR ASSETS (FIXED)						
Asset Group	Classification	Associations	Type	Attributes	Other Associated Data	Intangible Benefits
Land	Right of Way	Highway System	Deed, Easement, Temporary Easement, Long-term Leases, Sub-Surface (Material), etc. Improved Grounds	Access Control		
		Highway System Support	Environmental	For Rest Areas, Sno-Parks, Landscaping Wetlands Mitigation Sites, Habitat Improvements, etc.		
		Utilities	Material Sources	Material Type, Stockpile and Disposal Sites		Cost Savings incurred by improved competitive bidding
		Risk Management	All types plus Rail Unstable Slopes Rockfall Mitigation Systems Hazardous Materials Runaway Truck Refuges			
Buildings		Other				
		Buildings and Related Equipment				
IT-Related	Equipment	Computer Equipment Facilities				
	Software	Fleet Equipment (separately greater than \$5000) Computer Software (COTS) and Custom Programmed Applications			Vehicle equipment installed in	
	Data					
Other						

Original Priorities 1R Roadside Inventory (1R) S/W Data

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B - Decision Process Diagram



THIS PAGE INTENTIONALLY LEFT BLANK

Appendix C - Decision Matrix

Type of Decision	Sponsor	AMI	Asset Data Mgmt Committee	Asset Mgmt Steering Committee	HLT	TransCOI/ Data Council	PBLT	MLT	DM's	PDLT	TLT	CLT	AMLT	Other Modes &/or Freight Mobility	GIS Steering Committee	TransInfo Leadership	Technical Discipline Teams	Asset Owner/ Data Owner/ System Mgr
Priorities	JB/CN/LM	C	IS	A	RA	S	IS	IS	IS	IS	IS	IS	IS	I	I	S	I	I
Plans	JB/CN/LM	C	IS	A	RA	S	IS	IS	IS	IS	IS	IS	IS	I	I	S	I	I
Inventory Pilots	JB/CN/LM	C	RIS	RA	S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	I	I	N/A	I	RIS
Inventory Initiatives	JB/CN/LM	C	IS	A	RA	S	IS	IS	IS	IS	IS	IS	IS	I	I	S	I	RIS
Major System Maintenance	JB/CN/LM	S	IS	A	S	RA	IS	IS	IS	IS	IS	IS	IS	I	I	RIS	I	I
System Initiatives	JB/CN/LM	S	IS	A	S	RA	IS	IS	IS	IS	IS	IS	IS	I	I	RIS	I	I
Data Standards	JB/CN/LM	C	A	A	S	RA	IS	IS	IS	IS	IS	IS	IS	I	IS	S	IS	RS
Tool Standards	JB/CN/LM	C	A	A	S	RA	IS	IS	IS	IS	IS	IS	IS	I	IS	S	IS	IS
Maintenance Process Changes	JB/CN/LM	C	IS	A	R	S	IS	A	IS	IS	IS	IS	IS	I	S	S	IS	IS
Planning Process Changes	JB/CN/LM	C	IS	A	RA	S	A	IS	IS	IS	IS	IS	IS	I	S	S	I	I
Project Development Process Changes	JB/CN/LM	C	IS	A	RA	S	IS	IS	IS	RA	IS	IS	IS	I	S	S	IS	IS
Construction Process Changes	JB/CN/LM	C	IS	A	RA	S	IS	IS	IS	RA	IS	IS	IS	I	S	S	I	I

R: Responsible
I: Input
A: Approval
S: Support
C: Coordinate
RA: Final Approval

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix D - Asset Management Work Plan

Work Plan currently under construction

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix E - Asset Management Plan Implementation Guidelines

Background

The following guidelines are promulgated to ensure continued progress on the Oregon Department of Transportation's (ODOT) capacities for proactive management of transportation infrastructure assets. Compliance with these guidelines will sustain enterprise data, systems and tools and build agile decision processes that fully utilize sustained, reliable, integrated information.

To Foster Integrated Strategic Decision Making:

- Terms (definitions), goals, performance measures, asset standards and elements of decision processes – where necessary – will be defined in common across ODOT business lines and organizational structure.
- The Asset Management Integration Section (AMI) of ODOT's Technical Services Branch will work across all ODOT business lines to adjust established processes or develop new processes.
- ODOT staff from all business lines will seek to collaborate with others to work toward terms and processes in support of integrated decision making.

To Sustain or Establish a Reliable Statewide Asset Inventory:

- The Asset Management Steering Committee (AMSC), a sub-committee of the Highway Leadership Team (HLT), will guide priorities for establishing, sustaining and reporting asset data.
- Managers of established statewide quantities of asset data will maintain levels of effort to sustain this data.
 - If or when it might be necessary to consider resource constraint, managers will report issue and options to AMI in addition to their manager.
 - ODOT staff will work together to update methods to maintain existing asset data.
- AMI will serve as the central coordinator of new asset data collection efforts on state highways.
 - Those initiating inventory efforts within a corridor, maintenance section, district or region will contact AMI before such efforts begin to ensure the effort builds enterprise data.
 - AMI will serve as liaison with all appropriate subject matter experts in order to facilitate all necessary and appropriate support for such data collection efforts in an expeditious manner.
 - Subject matter experts will work with AMI staff and other ODOT staff as necessary to ensure successful enterprise data collection efforts.
- The question of how much asset data to collect will be evaluated and determined for each asset before any initiative begins.
- Basic Inventory is a minimum first priority that will be determined for new initiatives.
 - Basic Inventory includes all appropriate fields that equate to type, size and location.
 - In addition, data to facilitate triaged responses for management of transportation assets must be included. This can range from a non-technical visual assessment to simple representation of condition to condition based on inspection.
 - The fields that constitute Basic Inventory shall be well defined and documented in formats that can be used in the field as well as inform users of the data (includes metadata).

- Data standards will be followed.
- Asset location must be established using ODOT standard methods and tools.
 - Location established by approved means allows asset data to contribute to ODOT's enterprise data, to be reliably integrated and allows Basic Inventory to be the foundation upon which additional attributes can be added appropriately over time

To Build a Fully Integrated Data System:

- ODOT staff will consider TransInfo as the primary Asset Management data system.
- AMI staff will work with system owners, data managers, system managers, stakeholders and other subject matter experts to ensure that the systems work and priorities contribute to elements of an integrated data system.
- Information Systems staff and contractors performing work on ODOT systems shall ensure that platforms comply with ODOT standards and that all required fields are included that are necessary for integration of data and/or systems.

To Create Integrated Reporting and Analysis Tools That Make Use of the Integrated Data System:

- ODOT staff will look to available data and existing tools first to inform analysis.
- AMI will serve as the central coordinator for reporting and analysis tool needs as well as the additional data and/or attributes considered necessary for analysis purposes.
 - ODOT staff will proactively communicate with AMI regarding these needs

To Maintain Communications with ODOT Staff:

- AMI will provide regular updates regarding the status of implementation efforts, including progress on all goals.
- ODOT staff should seek information regarding progress made across all goals and all assets.

To Maintain Relevance to Others:

- ODOT staff will engage in regular conversation and communications internally and externally in order to constructively improve efforts and opportunities.





Please contact Asset Management Integration if you have questions or are wanting additional information.

Internet

(http://www.oregon.gov/ODOT/TD/asset_mgmt/index.shtml)

Intranet

(<http://intranet.odot.state.or.us/otms>)