Tillamook County Road Performance Report 2011

Submitted to:
Tillamook County
Public Works Department
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Tillamook, OR 97141

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July 1, 2010-June 30, 2011

TCPW Road Performance Report - 2011
Document Control

Revision Number	Date	Revision Details	Author	Reviewed	Approved	Informed
1.0	July 25, 2011	List Report Changes	PBS Consulting			
1.0	July 25, 2011	Review Report Changes		TCPW Director		
1.0	August 10, 2011	Draft Report	PBS Consulting			
1.0	August 18, 2010	Review Draft Report		TCPW Director		
1.1	September 1, 2011	Revise Final Report	PBS Consulting			
1.2	September 2, 2011	Deliver Final Report	PBS Consulting			
1.2	September 2, 2011	Receive Final Report			TCPW Director	
1.2	September 12, 2011	Distribute Final Report				BOCC & CRAC

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From the Director

2010-11 completes another challenging year for the Tillamook County Road Department. Our most valuable asset is the people who work at Public Works. Public Works staffing level is now 20. At this reduced level, providing a fully functioning Road Department is a daily challenge. The knowledge and dedication of our employees is crucial to providing the best possible road service and storm response. Training remains a priority to ensure safety and cross-training among employees who are called on to perform many tasks as overall staffing has declined.

Our mission is to maintain the capacity and condition of the roads so that the travelling public's risks are managed and costs of road services minimized. We are no longer able to ensure this mission can be accomplished, given available funds. It is with regret that I alert the Board of County Commissioners, citizens and businesses of Tillamook County that the budgeted county road revenues are not able to deliver the County's goal of long term safety and stability of the county transportation network. We are managing a failing transportation network. The condition of paved and gravel roads, the bridges, signs, culverts and other transportation physical assets managed by the County will continue to decline without an increase in funding.

Tillamook County owns and operates transportation infrastructure assets valued in 2011 at $393 million. Managing these 334 miles of county roads is always a challenge. The road network is critical for economic growth, safety and quality of life for those working, living and playing in the county. This includes roads, bridges, levees, culverts, signs, maintenance yard buildings, vehicles and equipment. County roads have been underfunded for years. Since 1998 the county road budget has stayed about the same while the number of employees has dropped from 41 to 20. The County's financial forecast anticipates the loss of the federal forest receipts by July 1, 2012, also called the Secure Rural Schools fund. This represents 41% of on-going 2011 road funding. This will result in less service and continued decline of the overall transportation system.

Last year, we initiated a public process that determined what services to cut based on an update of the risks and road funding forecasts. This is part of Public Work's commitment to continuously improve the community's understanding of road services, engage them in setting priorities based on knowing what road assets are owned by the County, their condition, value, and the present and future transportation needs of the community. Most Tillamook County road assets and services moved into Extreme or High risk categories between 2008 and 2010 risk assessments. For the Fiscal Year 2010-2011, the Board of County Commissioners directed the Road Department to deliver a lower level of County road services: Reduced Road Services—Focus on Core Services and Safety. This strategy focused on emergency response, safety, legally mandated services, drainage services and vegetation management. This operational focus required minimal material purchases.

Tillamook County experienced another federally declared weather event in January 2011, on top of an average annual rainfall of 90 inches. FEMA funds may resolve a specific failure from the disaster weather event but the entire road transportation system is heavily impacted by such disasters, raising our overall system maintenance cost and losses due to degradation. For example, two county levees were critically damaged. The abnormally mild and wet 2011 winter also resulted in extreme growth of roadside vegetation that blocks the visibility along county roads and traffic signs.

The January 2011 storm further undermined roads and the culverts that drain storm water. With an estimated 3,200 culverts, recent culvert failures are leading to costly replacements and upgrades to meet dramatic and changing watershed conditions, and to comply with fish passage environmental requirements. In many cases, bridges built in the late 1800s were replaced with undersized culverts in the 1950s and 1960s. These are reaching the end of their design life. This forested, hilly and wet coastal environment places additional demands on these critical assets as tidal flows corrode and accelerate some culvert deterioration rates. In some cases, catastrophic culvert failures are threatening the lives of those traveling on county roads. Working in partnership with the state and local agencies, the Road Department is developing better inventory and condition information on culverts that drain county roads. This road drainage asset and risk management strategy and financial requirements will be discussed with the Board of County Commissioners and road stakeholders in 2012.

Although we stabilized road condition from 2008 to 2010, it is still in an overall condition of "Poor", and considered the worst system in the state with a network average Pavement Condition Index of 46. Any PCI less than 50 is considered in poor condition. Businesses and the community served by county roads are feeling the impact in travel time, safety and

wear and tear on vehicles as potholes and weight limited bridges limit road use and impose detours. The community expresses their frustration with the current state of county road disrepair; 551 road service requests were received in 2011. Almost a quarter (22%) of the road funds went to pothole patching and hot asphalt patching. Long term, this reactive road maintenance activity is more costly and doesn't last.

While the community considers funding solutions for our transportation system, the Road Department remains committed to looking for better ways to manage the system while remaining accountable to those who rely on the County transportation network. Our County road management strategy is to provide a "Mix of Fixes," orienting toward asset preservation while recognizing that some of the deteriorated road network must be replaced. This strategy is proven to drive down the long term cost of road service and minimize risks. The County's road system needs more work than there is money to pay for it.

Our financial forecast and future planning efforts are targeting the loss of the federal forest receipts which will result in less service and continued decline of the overall transportation system. In 2011, we will continue using the Board of County Commissioners adopted Asset Management policy and principles to guide road service management priorities.

In spite of these challenges, we continue to find ways to provide value for the available road dollars. We support partnerships with other agencies and community groups such as:

- Overlaying over 7 miles of the county's roads with the help of the Federal Highway Administration
- Replacing 12 culverts
- Completing Boulder Creek bridge, a replacement for a failed culvert; and adding a one-lane temporary bridge over Farmer Creek to replace a failed culvert
- Modifying the vegetation spray truck so that one operator is needed to drive and operate the vehicle
- Engaging Marion County to provide pavement marking for our road network, as well as assisting with the chip seal program
- Partnering with state and local agencies to inventory and assess the condition of culverts so a drainage asset management plan can identify strategies and long term financial requirements that would improve culvert condition and fish passage
- Obtaining grant funds from resource agencies for the Lommen Bridge replacement, 10 grant-funded positions to assist for approximately 6 months with flood damage and provide employment training, Blaine Road chip seal, and culvert replacements on Slab Creek and Roy Creek
- Partnering with City of Tillamook and Tillamook Urban Renewal Agency on 3rd Street for bicycle and pedestrian road improvements
- Partnering with the City of Manzanita and Oregon State Parks for a bicycle and pedestrian path on Necarney Boulevard.
- Transferring road jurisdiction and management responsibility to other agencies:
    - McCoy Street (to City of Bay City)
    - Elm Street (to City of Manzanita)
    - Port Area (to Port of Tillamook Bay)
    - Cochran Road (to Washington County)

The county road situation is urgent and the condition of county roads dire. Current and projected revenues are not adequate to maintain our system, currently in poor condition. We are managing a deteriorated and failing system. New funding needs to be found or the community must understand that some road services will be eliminated while other service levels will continue to drop. In the end, this is the most costly choice. Rebuilding our transportation system is much more costly than preserving our investment. We challenge ourselves to work with the community to determine the desired level of road services and finding management solutions that prevent further decline of our county transportation system.

Liane Welch, Director
Tillamook County Public Works

1. EXECUTIVE SUMMARY

Tillamook County is a wet, rural coastal county along the Oregon coast. Primarily an agricultural and logging area, Tillamook Country also provides significant tourist opportunities with the population growing by 50% during summer months. The county's 25,250 population has grown 4% since 2000, more slowly than statewide growth, with a higher percentage of residents over 65 (20%), and a lower percentage of younger than 18 year olds (20%) than the rest of the state. Trucking dairy feed and products, as well as logs places a heavy demand on deteriorating county roads. People drive to work, school, medical care, and recreation on county roads now rated the worst in the state. This fact impacts economic development and the livability of the county.

The 334 mile country road network was built in the 1800s, and replacements in the 1950s and 1960s mean that the pavement, bridges, levees and culverts that form the network are at the end of their design life. The county road budget has been reduced over the last three years with the Secure Rural Schools funding (Federal Forest Receipts) eliminated entirely July 1, 2012. Staffing levels have declined significantly to 20. This decline in the transportation physical assets and decrease in the people who manage the network have put a strain on country road services. The result is a loss in quality of the road surface, little preventive maintenance like overlaying roads, and a move to reactive maintenance, such as pothole filling, which is more costly and temporary. Businesses and the community served by county roads are feeling the impact in travel time, safety and wear and tear on vehicles as potholes and weight limited bridges limit use and impose detours. The community expresses their frustration with the current state of county road disrepair; 551 road service requests were received in 2011.

County residents and businesses have a large investment in their county road network. The road assets have a 2011 replacement value of $393 million. County roads have been underfunded for years. The County's financial forecast anticipates the loss of the Secure Rural Schools fund next July 1,2012. This will result in less service and continued decline of the overall transportation system. Most Tillamook County road assets and services have moved into Extreme or High risk categories between the 2008 and 2010 risk assessment.

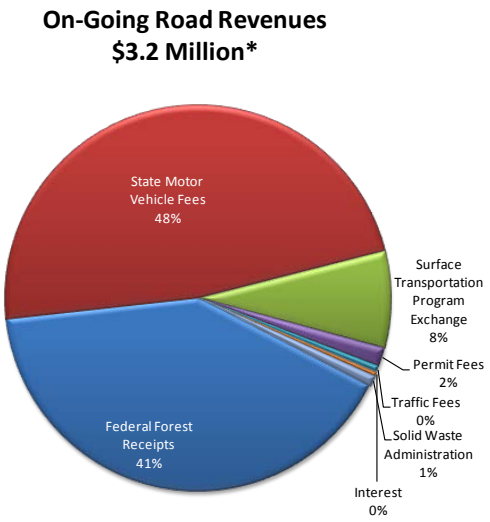
There are insufficient resources to address known County road network risks. There are 13 bridges in poor condition, four weight limited bridges, two levees are in poor condition that need critical repairs following a January 2011 federally declared storm. In 2010, county paved roads were rated in Poor condition (46 PCI), the worst in the state. While the Road Department stabilized the condition of county roads in 2010, the County road asset conditions are expected to decline over the next 5 years given the inadequacy of current resources and decrease in future road funding.

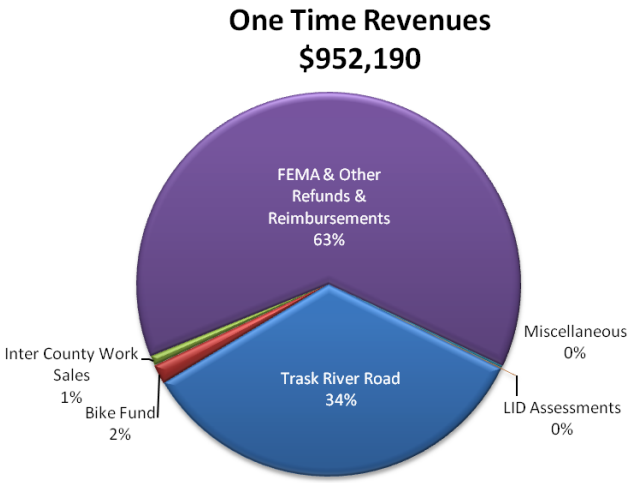
Since 2008, the accomplishments of the Road Department, the challenges of managing road network assets that are in a state of decline, as well as alternative levels of service and long term financial requirements that would maintain and improve road network conditions have been communicated to the Board of County Commissioners, and the county road stakeholders.

In November and December 2010 televised public meetings defined alternative levels of road services and their cost, performance and risk impacts. County leadership accepted a reduced level of County road services while citizens explore alternatives for Tillamook County road service funding. The Fiscal Year 2011-2012 is delivering this lower level of County road services: Reduced Road Services—Focus on Core Services and Safety. The Road Department was restructured in January to begin this process. This strategy focused on emergency response, safety, legally mandated services, drainage services and vegetation management. This operational focus required minimal material purchases. This report describes each country road service for the Fiscal Year 2010-2011. Information is through June 30, 2011.

Tillamook County Roads 2011

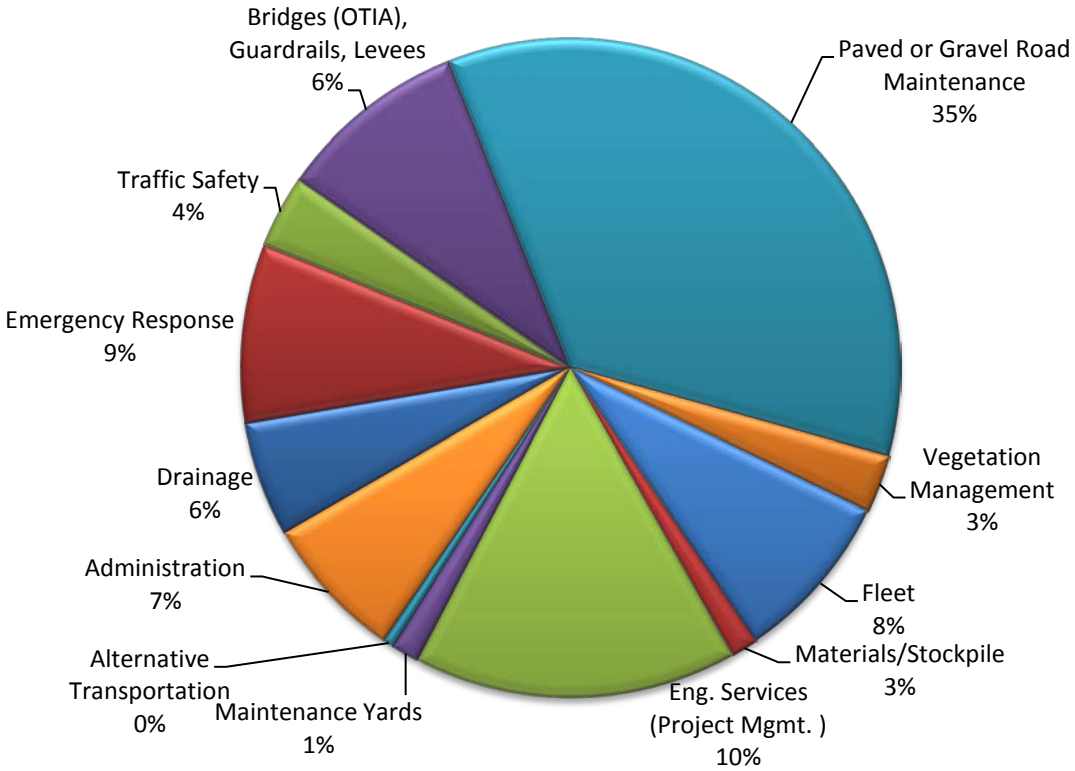
*Where did our money come from?**





*Without Beginning Fund Balance - $1.9 Million

What did we spend it on?



2. INTRODUCTION

2.1 Background

This performance report is to demonstrate responsive management of assets (and services provided from assets), compliance with regulatory requirements, and to communicate funding needed to provide the required levels of service. This report is to be read with the County Board's Asset Management Policy (Appendix A), Asset Management Strategy (page 11) and the following:

- The Tillamook County Public Works Road Asset Management Plan 2008 which describes the links between Tillamook County road management strategy, tactics and current operations.
- The Tillamook County Public Works Road Risk Assessment & Treatment Plan, 2010.

This report contains the most current funding and asset performance information available. Unless noted, information is through June 30, 2011. Updates of this information will occur annually.

TCPW is responsible for managing county transportation services and assets.

- Roads (paved and gravel)
- Structures (bridges, levees and guardrails)
- Drainage (culverts and ditches)
- Traffic Safety (road signs, road markings, traffic signals)
- Equipment and vehicles
- Maintenance Yard Facilities (buildings)
- Quarries
- Operational services that support the above (Vegetation Management, Emergency Management, Engineering and Administrative Services, Materials and Stockpiling)

TILLAMOOK COUNTY ROAD NETWORK
INVENTORY, CONDITION, AND VALUE
JULY 2011

FACILITY	GASB34	STATUS	REPLACEMENT VALUE	CONDITION*						TOTAL UNMET NEED**
				VG	G	F	P	VP	TBD	
PAVEMENT										
Paved	X	269 centerline miles	$261,600,000		27%	15%	24%	34%		$57,000,000
Gravel		65 centerline miles	$2,405,670						X	N/A
			$264,005,670							$57,000,000
STRUCTURES										
Bridges	X	99	$100,211,496		67%	20%	13%			TBD
Guardrails		10.1 miles	$1,152,385	39%	8%	8%	33%	10%	2%	$495,526
Levees		7	TBD						X	TBD
			$101,363,881							$495,526
DRAINAGE										
Culverts	X	3,210	$17,866,808						X	TBD
Ditches		198 miles	TBD	1%	6%	63%	22%	8%		TBD
TRAFFIC SIGNALS		1	$45,000						X	TBD
STREET SIGNS										
Signs (Condition for Stop Signs only)	X	5,426	$173,632						X	TBD
Delineators	X	456	$10,032						X	TBD
Posts	X	4,173	$91,806						X	TBD
			$275,470							
PAVEMENT MARKINGS										
Painted center lines miles		299	N/A							N/A
Painted Stop Bars		TBD	N/A							N/A
VEHICLES & EQUIPMENT* **	X	118	$3,966,527						TBD	TBD
MAINTENANCE YARDS	X	3	$4,000,000						X	
RIGHT-OF-WAY* **		2,367 acres	$1,475,557							
TOTAL			$392,998,913							

*Asset condition categories vary using 3, 4 and 5-level condition assessment categories.

**Unmet need varies by asset class; the level of service is defined specific to the asset class' highest performance for the least cost, or can simply be the elimination of assets in poor condition (e.g., signs).

****Tillamook County Comprehensive Financial Annual Report*, June 30, 2010. ROW width: minor arterials & major collector: 60 feet; minor collector width is 60 feet; locals 45 feet.

Notes: VG = Very Good, G = Good, F = Fair, P = Poor, VP = Very Poor, TBD = To Be Determined, N/A = Not Applicable

2.2 Management and Reporting

Tillamook County's road assets are managed by Public Works. TCPW is advised by the County Road Advisory Committee (CRAC) and reports directly to the Board of County Commissioners (BOCC). County asset management roles and responsibilities extend beyond TCPW and are considered critical to successful management of road services. This recognizes that asset management planning is a County responsibility and requires the commitment of the County Board to succeed.

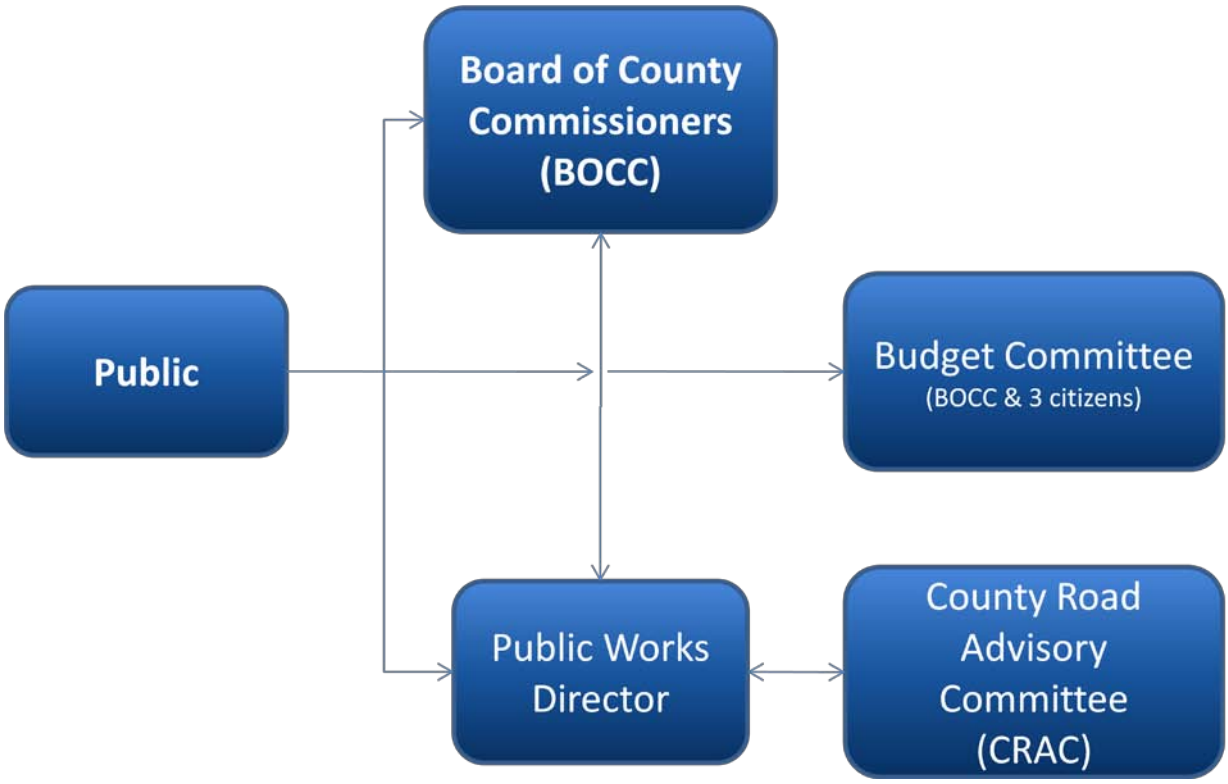


Figure 1 - County Decision Making Roles

2.3 Goals and Objectives of Asset Management

The County exists to provide services to its community. Some of these services are provided by infrastructure assets. As defined in the County *Transportation System Plan*, County roads are to be: "safe, durable, convenient, provide adequate drainage, allow flexibility in design and minimize costs to the extent practicable." The County has acquired infrastructure assets by "purchase," by contract, construction by County staff and by donation of assets constructed by developers and others to meet increased levels of service.

The County's goal in managing infrastructure assets is to meet the required level of service in the most cost effective manner for present and future consumers. The key elements of infrastructure asset management are:

- Taking a life cycle approach
- Developing cost-effective management strategies for the long term

- Providing a defined level of service and monitoring performance
- Understanding and meeting the demands of growth through demand management and infrastructure investment
- Managing risks associated with asset failures
- Sustainable use of physical resources
- Continuous improvement in asset management practices.[1]

The goal of asset planning and performance reporting is to:

- Document the services/service levels to be provided and the costs of providing the service,
- Communicate the consequences for service levels and risk, where desired funding is not available, and
- Provide information to assist decision makers in trading off service levels, costs and risks to provide services in a financially sustainable manner.

This report is prepared under the direction of the County's vision, mission, goals and objectives.

The County's vision is:

Enhance the quality of life for its citizens by promoting and preserving public health and safety, maintaining a stable economy, encouraging wise use of resources, and providing services in the most efficient and cost-effective manner possible.[2]

The County Public Works Road Department's mission is:

We take pride in serving the public by providing, maintaining, and preserving a safe and efficient county road network, and quickly responding to weather events and hazards. We protect the public's investment by working with our partners and targeting resources to minimize long term costs while providing the best possible service.[3]

[1] Tillamook County Board of Commissioners *Asset Management Policy,* January 27, 2009, and IPWEA, 2006, *IIMM* Sec 1.1.3, p 1.3.
[2] Draft Tillamook County *Comprehensive Plan, Goal 12: Transportation System Plan*, 1998.
[3] Tillamook County Public Works *Road Performance Report*, 2010.

2.4 Road Management Strategy

The TCPW county road network management strategy is to "Preserve investment at the least cost to meet present and future needs." This approach uses key performance criteria to target the best investment timing. However, given the current Poor condition of county road assets and declining funding, a "Mix of Fixes" strategy is pursued to ensure the safety of the traveling public. This requires major rehabilitation and reconstruction of some county road assets, while preserving the condition of other road assets so they do not fall into disrepair and require early replacement or reconstruction.

> The Tillamook County road management strategy is to provide a "Mix of Fixes" that ensures a safe, accessible and reliable county transportation network based on preserving road investments and minimizing long term cost and risks.

TCPW is committed to maintaining an inventory of its transportation assets—the pavement, bridges, signs, guardrails and other assets—that make up the county road network. Periodic inspection of these assets identifies their current performance. Regular maintenance, periodic renewal and eventual asset replacement and disposal are required.

Technical analysis is performed on high cost (e.g., pavement) and high risk (e.g., bridges, stop signs) assets to identify current and future performance. This and regular, documented and repeatable inspections identify network condition, and candidate repair and replacement projects. TCPW reviews candidate projects considering other agency partnership and funding opportunities. An annual work plan of selected projects is discussed with the County Road Advisory Committee and approved by the Board of County Commissioners.

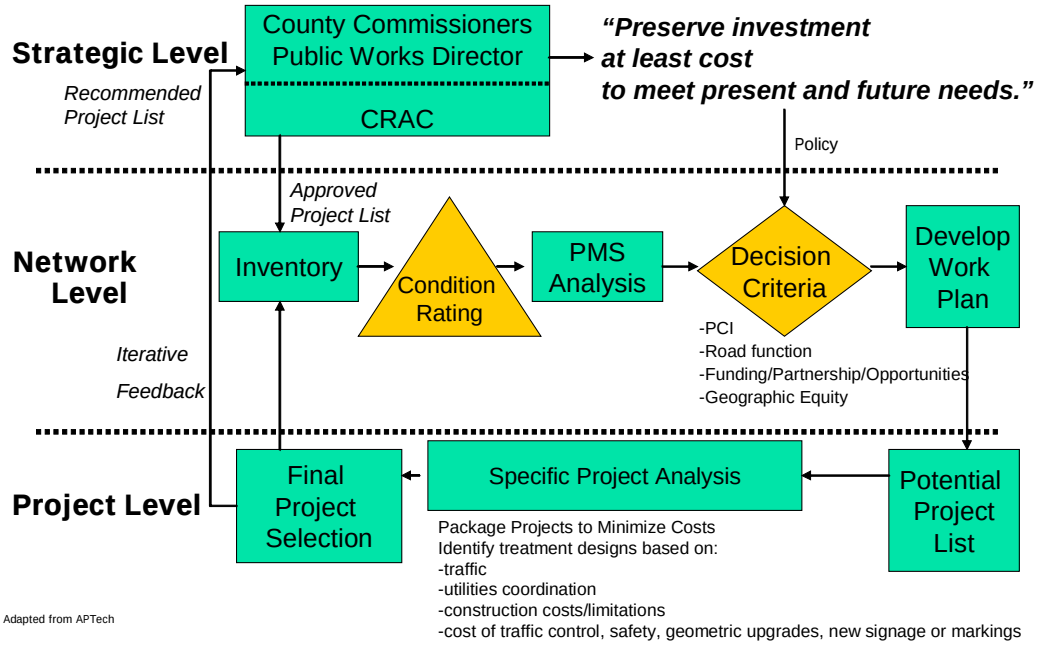


Figure 2 Strategic Alignment & Road Asset Management

2.5 Tillamook County Road Customers

Tillamook County provides road services that meet the needs of the community. What services are provided, and how they are provided depends on the community served. Many agencies and jurisdictions directly influence the demands and management of roadways within Tillamook County.

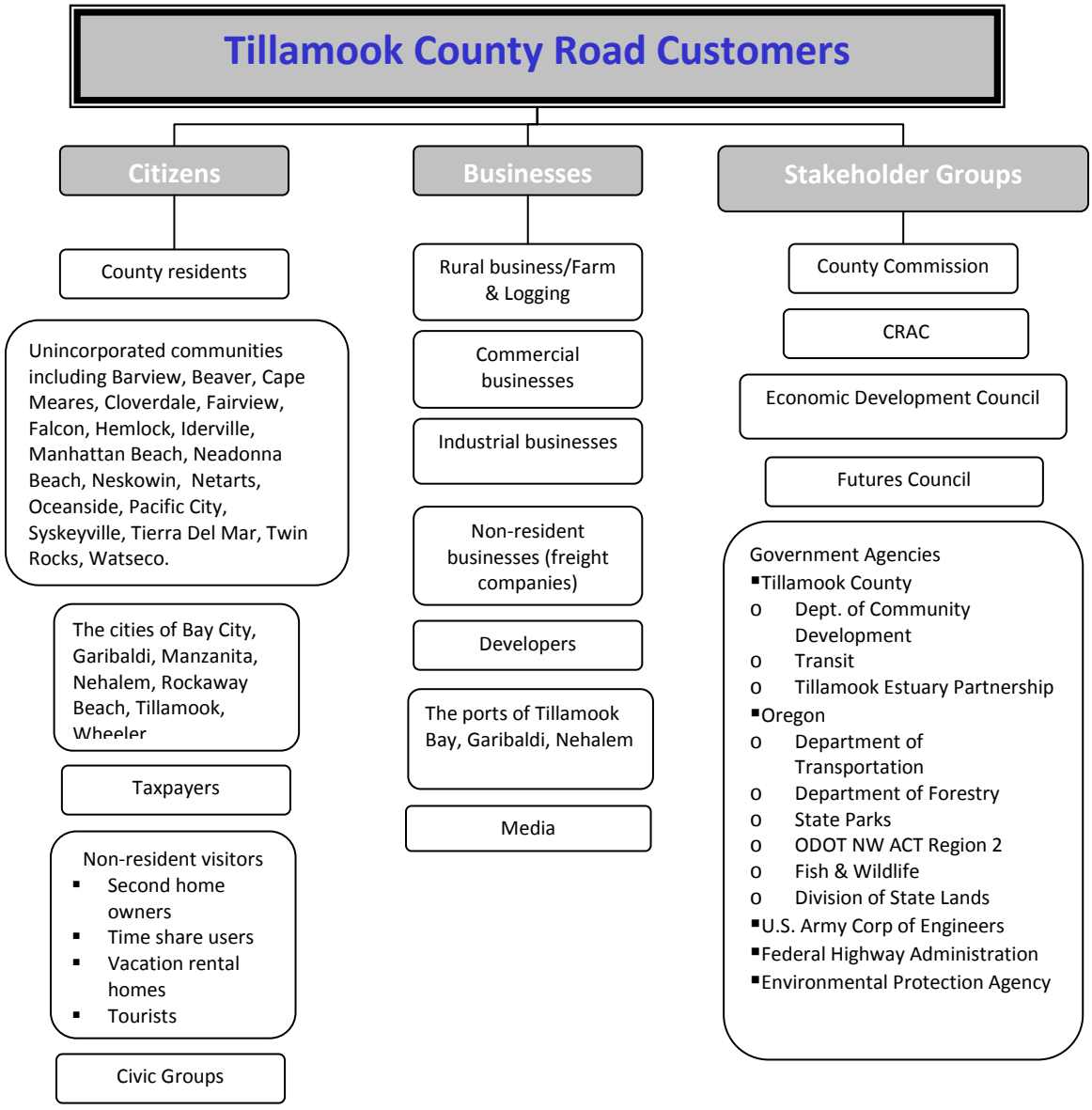


Figure 4 Tillamook County Road Customers

2.6 Risk Management Framework

The risks associated with delivering the desired level of County road services was established in 2008 and an asset management policy adopted in 2009 by the Board of County Commissioners. As identified in the policy, risks are monitored and reported on an on-going basis. A fall 2010 report updated the risk assessment process for the Fiscal Year 2011-2012 County budget process. Services were assessed based on:

- The adopted road management strategy, alternative pavement condition performance targets, their cost, performance and risk [4]
- Current status and future impacts as described in the *Tillamook County 2010 Road Performance Report*
- A two-day workshop with the Road Department management and employees in which County transportation network information was presented and risks associated with providing County road services were discussed, and business risk exposure identified.
- Two public meetings with the County Board, Advisory Committee and County managers and Public Works managers and staff reviewed work to date. Participants in the 2010 Tillamook County risk management process included:
  - Board of County Commissioners (BOCC)
  - County Road Advisory Committee (CRAC) members
  - Public Works Director, managers and staff
  - County Human Resource Manager
  - County Treasurer
  - County legal counsel
- Risk trends from 2008 and 2010 which included:
  - Establishing core road service principles (legal compliance, emergency response and worker safety).
  - Reviewing service tradeoffs in terms of their cost, risk and performance.
  - Priorities for delivering core road services, assuming a lower level of service.
  - Recognition that the condition of the County transportation network will continue to decline, given this lower level of funding.

Criteria used to evaluate the consequence of failure included:

- Economic impact (damages to community, losses, additional expenditures)
- Legal compliance
- Community impact
- Human health and safety
- Reputation

[4] *Pavement Management Program Budget Options Report,* Capital Asset and Pavement Services, October 2010.

- Environmental impact
- Human resource (reduction in staff, employee safety, overtime and workload, emergency response)

Service requests, risk incidents, legal mandates, asset condition index and asset failure trends were reviewed to identify greatest stakeholder and community effects when services or assets fail.

Based on this risk analysis (likelihood and consequence of failure), a risk rating was assigned. All but two services are declining in performance, and most assets and services are Extreme or High risks. A risk treatment plan is required and actions needed to manage Extreme and High risks within available resources.

Table 2 Risk Treatment

Risk Rating		Action Required
E	Extreme Risk	Immediate action required to reduce risk
H	High Risk	Management attention required to manage risk
M	Medium Risk	Management responsibilities specified and risk controls reviewed
L	Low Risk	Manage by routine procedures

Once Extreme or High risk (critical) assets or services were identified, The Road Department developed strategies to deliver a reduced level of Fiscal Year 2011-2012 road services based on this evaluation, and with the County Human Resources Manager's participation. This information was presented to the Board and CRAC in a public, televised meeting December 6, 2010.

Table 3 –Risk Trends and Legal Mandates for County Road Services 2008 - 2010[5]

Asset or Service Program	Asset or Service Subprogram	2008 Risk Rated Services	2010 Risk Rated Services	Legally Required	Regulation Category
Roads	Arterial & collector paved roads	Extreme	Extreme	No	
Veg.Mgmt.	Spraying & mowing roadsides	Extreme	Extreme	No	
Equipment	Fleet & equipment	Extreme	Extreme	No	
Admin. Services	Staffing levels & succession	Extreme	Extreme	No	
Emergency Management	Roads, Structures, Drainage, Traffic Safety, Department Employees	Extreme	Extreme	No	
Drainage	Culverts, ditches & shoulders	High	Extreme	No	
Traffic Safety	Signs-Regulatory (stop signs)	High	Extreme	Yes	MUTCD marking and sign requirements
Structures	Bridges	High	High	Yes	National Bridge Inspection Standards requirements
Roads	Gravel roads-county maintained	High	High	No	
Traffic Safety	Pavement markings	High	High	Yes	MUTCD marking and sign requirements
Materials Mgmt.	Quarries	High	High	No	
Engineering	Engineering Services	Medium	High	Yes	Land Use Requirements
Maint. Yards	Maintenance Yards	Low	High	No	
Structures	Guardrails	Medium	Medium	No	
Structures	Levees	TBD	Medium	No	
Traffic Safety	Signs-Other	Medium	Medium	No	

- All but two of the Tillamook County road assets and services have moved into Extreme or High risk categories between the 2008 and 2010 risk assessment.
- County paved roads are in Poor condition, the worst in the state. The majority of service requests are pothole complaints reflecting community dissatisfaction with the failing condition of County roads.
- The condition of County road assets is expected to decline over the next 5 years given current resources.

[5] *Tillamook County Risk Assessment & Treatment Plan*, 2010

3. COUNTY ROAD SERVICE PERFORMANCE

3.1 Progress on Key Indicators

The table below provides a general state of County road indicators included in this report. Details about the progress of each indicator are within the report.

Table 4 Progress on Key Indicators - 2011

Trend	Progress	Indicator	Comment
	Good Progress	Service Requests	551 requests tracked; 55% pothole related, 56% in Central District
	No Trend	Quarries	
	Changes are not favorable	Levees	January 2011 federally-declared storm causes critical damage to 2 of 7 levees
		Emergency management	January 2011 storm and 38% increase in emergency-related expenses
		Culverts	Unknown condition & some catastrophic failures; replaced 12 culverts
		Ditches	Reactive ditching program; 2008 inventory & condition assessment: 93% require some maintenance & 30% in Poor or Very Poor condition
		Signs	Reactive sign maintenance; federal night time reflectivity standards changing
		Equipment	47% Level A (Preventive Maintenance) performed as needed, based on use; crew & shop performed 100% safety check; replaced spray truck
		Guardrails	No guardrail program; reactive replacement only. 2007 inventory & condition assessment; 43% in Poor condition
		Paved roads	Average network condition Poor condition (PCI 46); Inadequate funds to achieve Good condition or prevent future decline.
		Gravel roads	Inadequate staff to provide regular maintenance
		Vegetation Management	Inadequate resources to maintain regular maintenance; not meeting customer expectations
		Bridges	1 bridge added to inventory in 2011; 13 bridges in Poor condition in 2010; 4 bridges weight limited
		Maintenance Yard Sites	All buildings exceed design life and function; painted two buildings

3.2 Detail of Road Service Performance, Condition and Need

3.2.1 Road Surface Management

3.2.1.1 Strategic Outcome and Objectives

Provide, maintain and preserve a safe and efficient county road network..

Strategic objectives are to:

- Preserve the condition of paved roads so they do not fall into disrepair and require early replacement or reconstruction.
- Ensure safety and minimize unpaved local road costs by blading and graveling every other year.

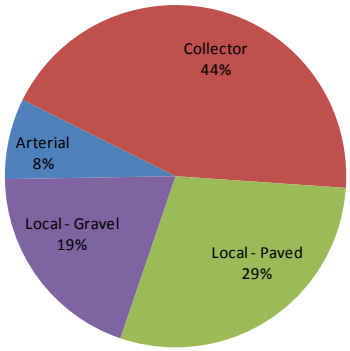


Figure 5 – 334 Miles of County Maintained Roads

3.2.1.2 Inventory

There are 334 County maintained miles in the road network. Eighty-one percent (81%) are paved and the remaining 65 miles are local gravel roads.[6]

3.2.1.3 Value

The June 30, 2010 replacement cost for County roads is $264 million.[7] Replacement value is recalculated every other year.

[6] Source: *Tillamook County Public Works Pavement Management Program Budget Options Report,* Capitol Asset and Pavement Services, Inc., October 2010; Tillamook County Comprehensive Annual Financial Report, 2010; Road Status, Public Works Department, October 2010.
[7] Ibid.

3.2.1.4 Road Surface Management Activities

Table 5 Road Surface Management Activities 2005 - 2011

	2005	2006	2007	2008	2009	2010	2011
1101 - Pothole Repair	$389,088.31	$324,181.06	$216,295.22	$203,738.00	$191,744	$190,639	$174,909
1102 - Surface Blading	$56,543.72	$79,373.67	$68,813.14	$42,388.00	$24,850	$112,502	$47,943
1104 - Shoulder Maintenance	$230,107.25	$176,255.62	$183,983.17	$140,454.00	$231,426	$314,687	$163,760
1105 - Brooming	$8,188.82	$10,185.33	$11,145.66	$3,526.00	$7,699	$8,424	$13,933
1150 - New Base/Sub Base	$50,870.12	$101,351.90	$112,304.56	$98,630.00	$122,726	$134,220	$18,123
1151 - New Oil Mat (Gravel)	$186.65	$5,200.00	$9,805.00	$9,673.00	$1,008	$3,715	$0
1152 - Oil Seal Coat (Pavement)	$631.49	$1,171.52	$0	$0		$146,753	$21,425
1153 - Paving less than 2 in.	$45,464.58	$258,637.83	$50,253.13	$10,518	$6,367	$10,564	$180,282
1154 - Paving (2 in.or more)	$368,892.51	$658,795.46	$864,802.82	$836,122	$687,657	$717,883	$1,000,725
1181 - Road Conditions		$20,787.96	$24,082.26	$17,788	$14,754	$20,654	$20,247
Totals	$1,149,973	$1,635,940	$1,541,485	$1,362,837	$1,288,231	$1,660,041	$1,641,347

A total of $1.6 million of the Road Fund was used to manage County paved and gravel roads including:

- 61% rehabilitated and reconstructed deteriorated roads,
- 22% was used for pothole repair and hot patching, and
- 10% on shoulder maintenance.

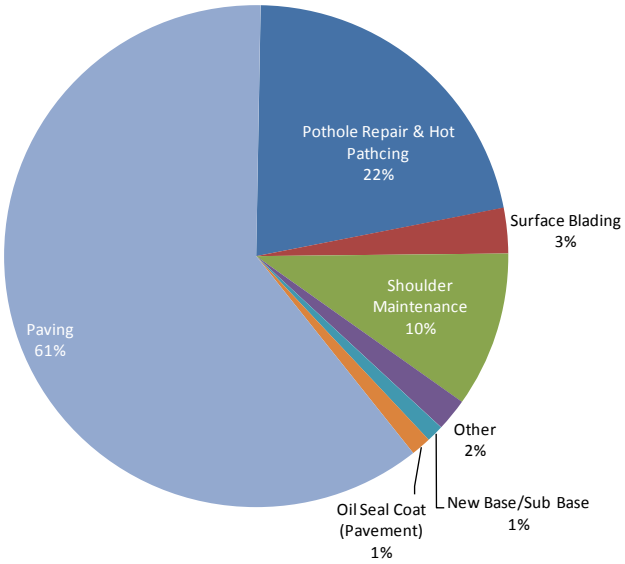


Figure 6 Road Surface Expenditures – $1.6 Million

3.2.1.5 Pavement Condition

Pavement condition is a Key Performance Indicator for County road network. Road Condition is evaluated every other year and will be reevaluated in 2012.

The 2010 Tillamook County road condition is Poor, or a network weighted average of 46 Pavement Condition Index (PCI).

Table 6 Pavement Condition - 2010

Condition	PCI Range	Road Condition
Good	70-100	-
Fair	50-69	Arterials 69
Poor	25-49	Collectors 49 Local 33
Very Poor	0-24	-

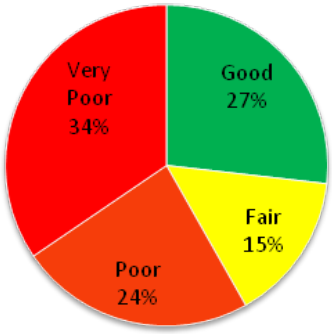


Figure 7 - Network Weighted Average Poor (46 PCI)

Arterial and collector roads are in better condition than local roads.

3.2.1.6 Pavement Condition - 2001-2010

Since 2001, pavement condition has declined. Figure 8 shows a significant drop in county roads condition in 2004. Beginning in 2004, more roads are in Poor condition than there are in Good condition.

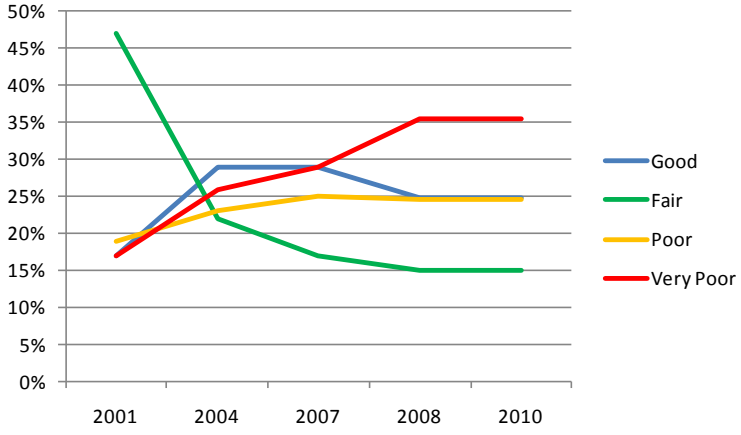


Figure 8 –Road condition stabilized in 2010 expected to decline

Road condition was stabilized between 2008 and 2010, however the overall network condition remains Poor (46 PCI). Given current funding, further deterioration of the roads is expected.

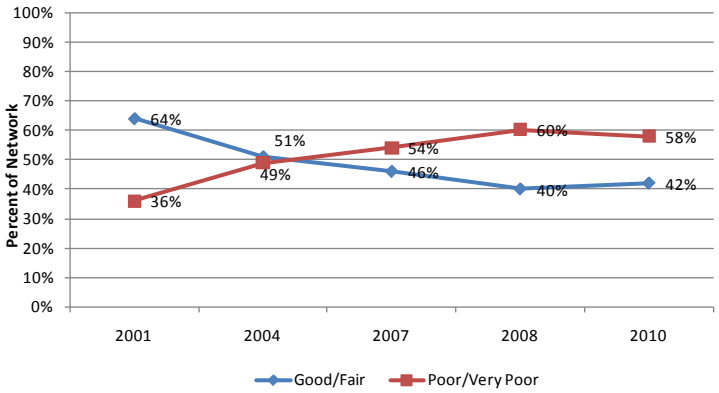


Figure 9 Road Condition Stabilized in 2010

3.2.1.7 Road Surface Treatments Target Preservation & Reduce Lifecycle Costs

Table 7 Pavement Management Strategy & 2010 Costs[8]

Strategy	Activity	Cost	Unit	Road Condition	
				Category	PCI
Routine Maintenance	Chip Seal	$4.00	square yard	Good	80-90
Preventive Maintenance	Thin Overlay (1.5")	$7.50	square yard	Fair	50-70
Minor Rehabilitation	Thin Overlay with leveling	$17.30	square yard	Poor	25-50
Rehabilitation	Thick Overlay (3-5")	$25.80	square yard	Poor	25-50
Recycled Reconstruction	Full Depth Reclamation	$39.40	square yard	Very Poor	0-25
Replacement	Reconstruction	$88.63	square yard	Very Poor	0-25

Chip seal and Full Depth Reclamation were introduced as pavement management techniques in 2010. Chip seal preserves roads in good condition. FDR saves 44% over traditional Reconstruction and between 33-56% over 30 years.

Figure 10 Intervention Strategy & Pavement Condition Index (PCI)

[8] Tillamook County IRIS, Street Saver (Pavement Management System), 2010

3.2.1.8 Road Lifecycle Management & Activity Costs

Table 8 Road Management Activities by Lifecycle

Activity (Source: IRIS[9])	Routine Maintenance	Reactive Maintenance	Preventive Maintenance	Rehabilitation	Reconstruction
1101 – Pothole Repair		✓			
- Hot Patching		✓			
1102 – Surface Blading	✓				
1104 – Shoulder Maintenance	✓				
1105 – Brooming	✓				
1150 – New Base/Sub Base				✓	
1151 – New Oil Mat (Gravel)			✓		
1152 – Oil Seal Coat (Pavement)			✓		
1153 – Paving (includes blade patch) less than 2 in.			✓		
1154 – Paving (2 inches or more)				✓	
1181 – Road Conditions	✓				

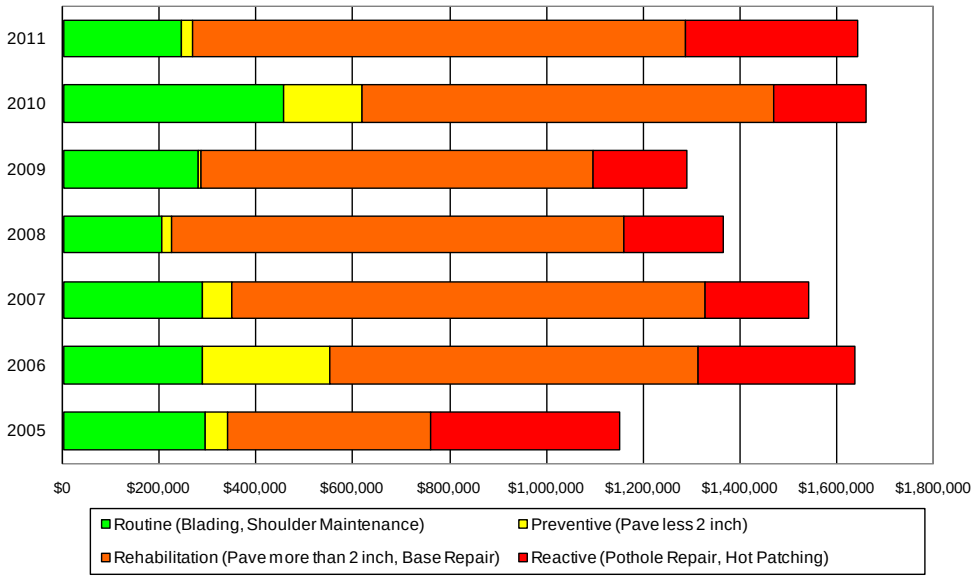


Figure 11 Road Lifecycle Expenditures 2005-2011

Less routine and preventive maintenance was performed in 2011. This is a reflection of the deteriorate condition of paved roads and greater need for rehabilitation and replacement of existing

[9]The Integrated Road Information System (IRIS) is software that tracks Tillamook County Public Works road asset inventory and condition information, equipment management, cost accounting, service requests, accounts payable and receivable. IRIS is developed and maintained by the Association of Oregon Counties.

road surfaces. In Fiscal Year 2011, 62% of road surface program expenditures rehabilitated County roads, and 22% patched and filled potholes, a reactive maintenance activity. Only 1% of road funds focused on preventive maintenance.

Table 9 Road TCPW Road Resurfacing Accomplishments – 1998-2011[10]

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Resurfacing (miles)	6.3	2.0	5.4	7.1	3.9	4.8	4.7	18.2	12.3	4.0	8.9	2.6	10.1	7.7

Road resurfacing projects include county, federal and state funded projects on county roads. Collaborative efforts support the commitment of the County to partner with other agencies and road stakeholders.

[10] *Tillamook County Comprehensive Annual Financial Report*, June 30, 2009, and Tillamook County Public Works Department.

3.2.1.9 Future Pavement Performance Decisions- 2011-2015

Target road performance is 60 PCI, or Fair. Tillamook's paved road condition will decline from 46 (Poor) to 35 PCI (Poor) by 2015 given current road funding.

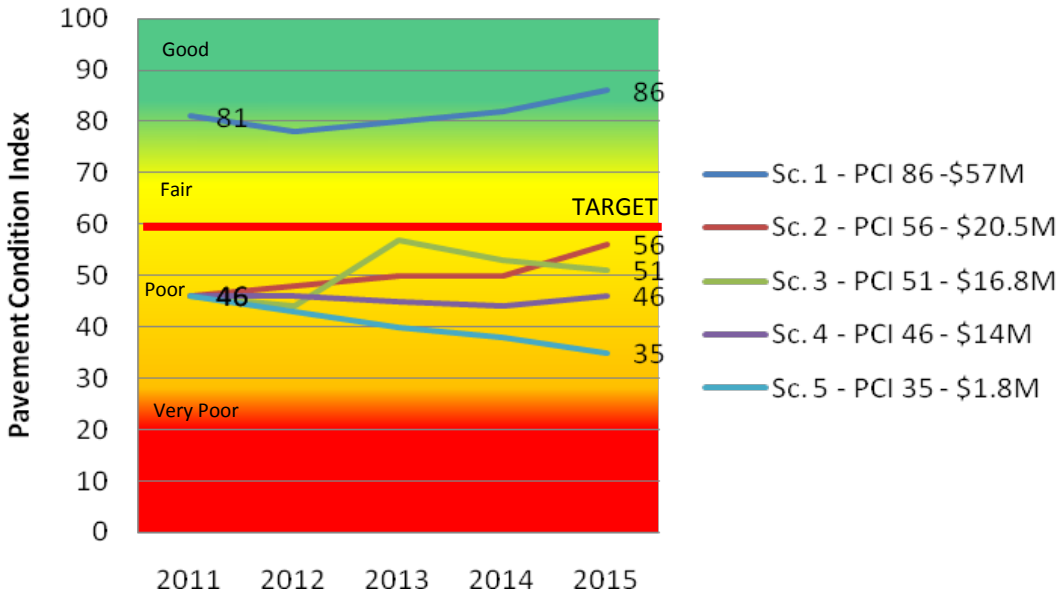


Figure 12 Pavement Condition Scenarios and Expenditures 2011-15[11]

Five pavement investment scenarios show the impact on pavement performance over 5 years. Scenario 2 would almost achieve the county road performance target, 60 PCI.

Pavement Condition	PCI Range
Good	70-100
Fair	50-69
Poor	25-49
Very Poor	0-24

- Scenario 1 **Unconstrained** – Achieve 86 PCI requires $57 million over 5 years.
- Scenario 2 Target Performance, Increase PCI by 10 – Requires $20.5 million
- Scenario 3 **Raise PCI to 51** – Requires $16.8 million over 5 years.
- Scenario 4 **Hold Condition at 46** – Requires $14 million over 5 years.
- Scenario 5 **Current Funding**, assuming lost of federal funds – Results in 35 PCI in 5 years, $1.8 million.

[11] *Pavement Management Program Budget Options Report*, Capitol Asset & Pavement Services, 2010

3.3 Detailed Structures Performance

3.3.1 Strategic Outcome and Objectives

A continuous road network over rivers, streams and uneven terrain supporting the traveling public and safety of all road users with well maintained bridges, guardrails and levees.

Objectives to achieve this are:

- Build and inspect bridges, guardrails and levees to comply with established standards
- Maintain and repair bridges to ensure long-term sustainability
- Respond to requests within specified timeframe and complete based on risk and available resources.

3.3.2 Inventory & Value

Table 10 Structures Inventory & Value - 2011

Structure Type	Number	Replacement Value
Bridges	99	$100,211, 496
Guardrail	10 miles	$ 1,152,385
Levees	7	Unknown

The Boulder Creek Bridge was added in 2011. This replaced a failed culvert. The 2011 bridge current replacement value reflects Tillamook County costs.

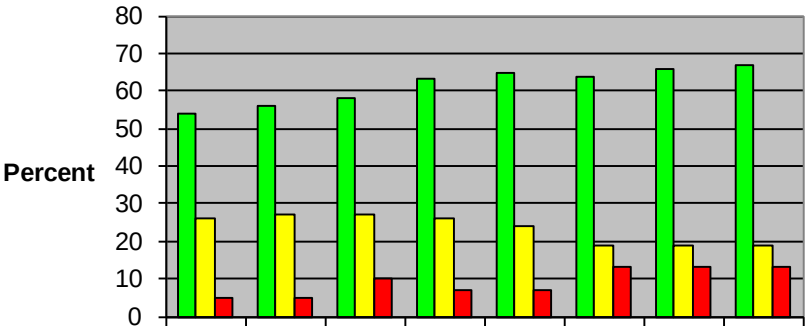
3.3.3 Condition

Bridge condition is assessed every other year. Bridge inspections will be completed at the end of 2011.

Bridge sufficiency ratings are used to indicate a bridge's condition based on structural adequacy, safety, reduction of load capacity, serviceability and functional obsolescence (roadway width, and vertical clearance), essentiality for public usage, and detour length. A rating of 75 or above is considered good, 50 to 75 is fair and below 50 is poor. It does not indicate the ability of a bridge to carry traffic loads or whether it will collapse but rather which bridges may need repair or replacement.

Two-thirds (67%) of the 99 bridges are in good condition, 20% in Fair and 13% were in Poor condition. The number of bridges in poor condition has increased from 7 to 13 since 2008.

An updated assessment of bridge condition will be completed in 2012.



	2001	2003	2004	2006	2008	2009	2010	2011
Good (>75)	54	56	58	63	65	64	66	67
Fair (50-75)	26	27	27	26	24	19	19	19
Poor (<50)	5	5	10	7	7	13	13	13

Figure 13 Bridge Condition

Of the bridges in poor condition, Lommen Bridge over the Nehalem River has a sufficiency rating of 4 out of 100. This is the second worst bridge rating in the state. The County has recently received HBR funding to replace this bridge, however 10% local match must still be found. The Salmonberry Bridge which was washed out in the December 2007 winter storm will be repaired in 2011. Ninety percent (90%) will be funded by Emergency Relief (ER) funding from the U.S. Federal Highway Administration, and 10% by local funding.

Four County bridges are posted with weight limits

- Foley Creek
- Holgate,
- Hushbeck, and
- Prince (Blum Lane)

Another 7 bridges require special permits for large loads, or due to narrow width restrictions.

Table 11 Thirteen Bridges are in Poor Condition

Bridge Name	Sufficiency Rating
Lommen	4.0
Holgate	8.7
Wyss	17.0
Minich Creek	24.6
Salmonberry	28.4
Cedar Creek	42.1
Lommen Overpass	44.2
Trask River, South Fork	44.9
Moss Creek	45.6
Hushbeck	46.1
Makinster	46.8
Prince (Blum Lane)	47.7
Fagan	48.5

The 2001 Oregon legislature approved a statewide bond measure, the Oregon Transportation Investment Act (OTIA), which provided funding for state, county and city bridge replacement. Tillamook County replaced 6 bridges in poor condition with OTIA funds:

- Johnson Bridge
- East Creek Bridge on Moon Creek Road
- Sorenson Bridge on Blaine Road
- Bewley Creek Bridge on Bewley Creek Road
- Josi Bridge on Kansas Creek Road
- Killam Creek Bridge on South Prairie Road

With the OTIA program completed, the County continues to pursue state and federal bridge funds to replace County bridges.

3.3.4 Guardrails

Guardrails were inspected in 2007. The Oregon Standardized Drawings were the basis of the five-point condition assessment.

Forty-three percent of the 10 miles of guardrail were in Poor or Very Poor condition in 2007.

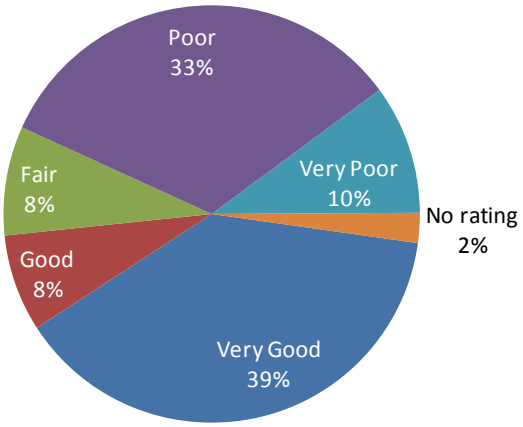


Figure 14 Guardrails Condition - 2007

3.3.5 Levees.

There are seven levees managed by Tillamook County (Moss Creek Road, Beaver Creek, Tone Road, Makinster, Boquist Road, Bosetti Road, and Miami-Foley Road). Levee management responsibility was transferred to TCPW in 2008 from the U.S. Army Corp of Engineers.

Levees were jointly inspected in January 2011 by the County and the U.S. Army Corp of Engineers following a federally declared storm. Two levees were damaged and are in Poor condition. Repair of the levees was initiated in 2011. A list of overdue maintenance activities (including vegetation management) were identified in the inspection process.

3.3.6 Structure Activities

Structure-related expenditures have declined significantly with completion of the OTIA bridge program.2006-2009 expenditures reflect OTIA funding, statewide bonds used to repair and replace bridges throughout Oregon. With OTIA's completion, the County continues to seek state and federal funds to rehabilitate and replace bridges.

Six percent (6%) of Road Funds were spent on bridges, guardrails and levees in 2011.

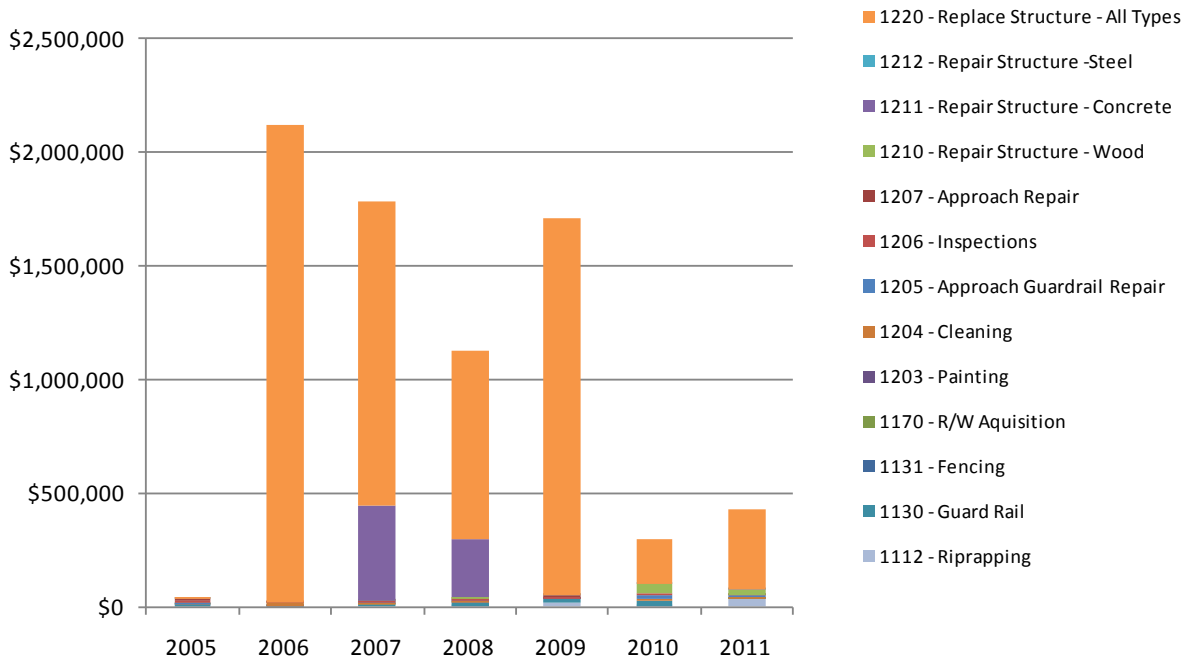


Figure 15 Structure Expenditures Decline

3.4 Detailed Traffic Safety Performance

3.4.1 Strategic Outcome and Objectives

A county road network safely and reliably used by the traveling public with well maintained road signs and markings so that state and local laws can be understood and enforced.

Traffic safety activities protect the motoring public by providing quality traffic control devices (signs & delineation) and pavement striping. This is accomplished by providing the public with signage and striping that meet at least the minimum standard required by federal, state and county regulations.

- Signs and delineators serve a variety of functions, including:
- Providing the motoring public with regulatory instructions which they are required to obey
- Warning travelers of temporary or permanent hazards
- Providing street name, and guide signs which identify where the traveler is or where sites are located

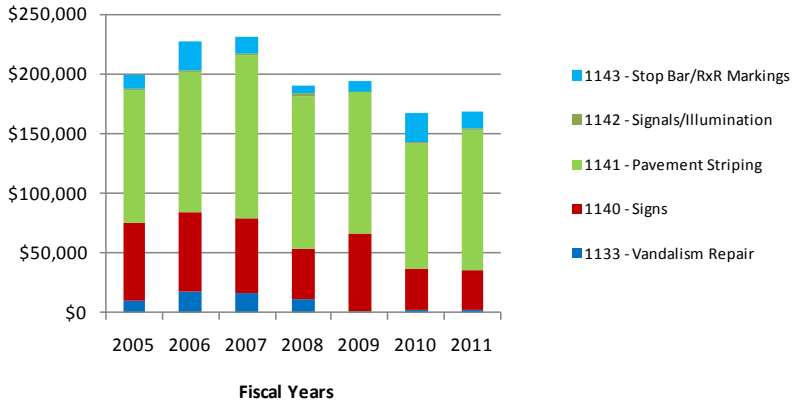
3.4.2 Traffic Safety Activities

Five activities make up the Traffic Safety program.

- Vandalism repair
- Sign maintenance
- Pavement striping
- Signal illumination
- Pavement striping at intersections and railroad crossings

$168,217 (4% of the road budget) provided traffic safety services. Annual pavement markings represent 78% of the traffic safety program expense.

Table 20 Traffic Safety Program Expenditures – 2005-2011



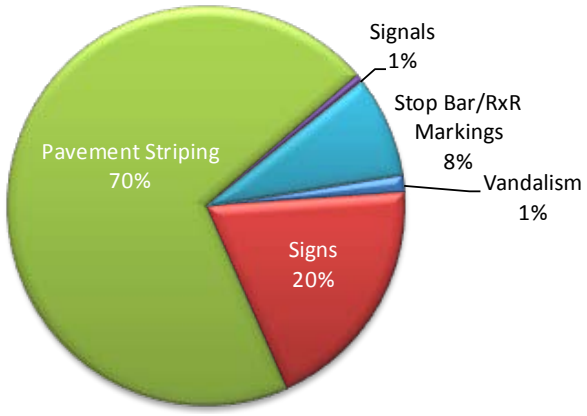


Figure 16 Traffic Safety Expenditures

3.4.3 Inventory & Replacement Value

There were 5,426 signs in IRIS in 2011. The Integrated Road Information System (IRIS) is software that tracks Tillamook County Public Works road asset inventory and condition information, equipment management, cost accounting, service requests, accounts payable and receivable. IRIS is developed and maintained by the Association of Oregon Counties.

Figure 17 – 5,426 Signs

Table 21 Traffic Sign Inventory & Value

Asset	Units	Unit Cost	Replacement Value
Signs	5,426	$32	$173,632
Delineators	456	$22	$10,032
Posts	4,173	$22	$91,806
Total Replacement Value			$275,470

3.4.4 Pavement Markings

Pavement markings regulate and guide traffic movements and promote safety. Centerline, stop bar and railroad crossing pavement markings are applied annually on arterial and collector roads with fog lines reapplied every other year. Over three hundred (339) lane miles of county roads received pavement markings or stop bars in 2011 at an average cost of $351 per mile. Pavement marking services are contracted out to Marion County. Stop bar, crosswalks and railroad crossings are done by TCPW staff.

3.4.5 Sign Condition & Performance

Staff reductions are resulting in reactive maintenance for all but regulatory signs. Regulatory signs (e.g., stop and yield signs) are an Extreme risk asset and therefore response to sign requests receive the highest priority. There are 576 stop signs on county roads. Sign condition has not been rated since 2008 due to staff reductions.

The County will have until January 2012 to implement and then continue to use an assessment or management method that is designed to maintain traffic sign retroreflectivity at or above the minimum levels specified. Based on this assessment of night time visibility, impending federal changes to the Manual on Uniform Traffic Control Devices (MUTCD) will require the county to replace certain regulatory, warning and post-mounted guide (except street name) signs by January 22, 2015. Additional mandates will require the replacement of approximately 80% of county street name signs and overhead guide signs by January 22, 2018. To implement this would require $130,000 in 2011 dollars.

The County is currently assessing night time visibility of regulatory signs in order to comply with this schedule. A four-point condition scale, from Very Good to Poor, has been used previously by the County to rate sign condition based on professional judgement. While it is assumed that the majority of signs are in good physical condition, there has been no night time sign visibility evaluation throughout the county road networks since 2009 due to staff reductions.

3.5 Detailed Drainage Management Performance

3.5.1 Outcome and Strategic Objectives:

An accessible, safe and well maintained county road network clear of surface storm water and flooding.

Drainage management strategic objectives are to:

- provide and maintain adequate road drainage in order to prevent water damage to the roadway structure,
- maximize the use of the county road network,
- protect the rights of adjoining property, and
- provide fish passage where mandated.

3.5.2 TCPW Drainage Management Activities

Surface storm water and flooding is managed by maintaining vegetated ditches that serve as drainage and water quality facilities, maintaining culverts in the condition necessary to handle their design capacity, and where culverts carry streams, in maintaining them in a condition to provide fish passage. Drainage management activities include:

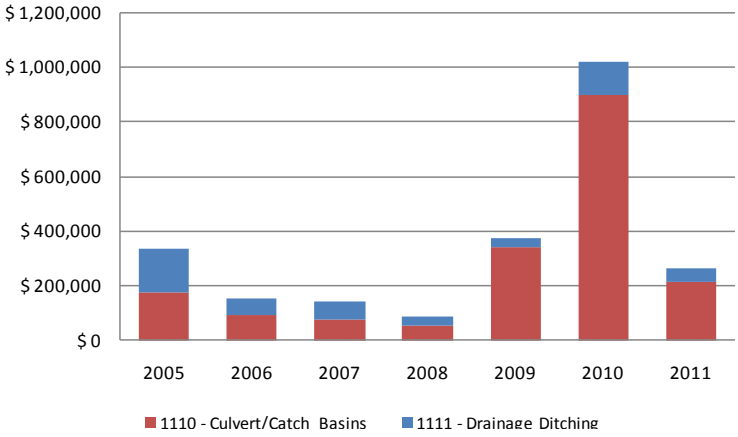


Figure 18 Drainage Expenditures Decrease 74%

- Culvert and catch basin cleaning,
- Culvert replacement
- Ditching
- Erosion control using best management practices with regards to steep slopes, drainage ways and permitted activities.

3.5.3 Culvert Inventory, Condition and Performance

County drainage assets are not well documented or the risks well managed. Culverts and the assets that drain the roadways require inspection, maintenance, repair and renewal. As buried underground assets, these assets are difficult to locate, inspect and maintain. The estimated 2011 replacement value for culverts is $17,866,808.

There are an estimated 3,210 culverts in the county with a combined length of almost 24 miles draining Tillamook County roads and their approaches. [12] Of these, 1,860 are classified as cross culverts which act as conduits that move water under the roadway. Based on a review of information in IRIS, the average length of a county culvert is 39 feet. 291 culverts (9%) have no information on length, material or condition. The confidence in the culvert information is low.

Recent culvert failure is leading to costly replacements and upgrades to meet dramatic and changing watershed conditions, and to comply with fish passage environmental requirements. Roads built in the late 1800s which were replaced in the 1950s and 1960s are reaching the end of their design life (between 25 and 60 years). Failure is occurring due to inadequate capacity, changing environmental regulations, failure due to age, salt water, prior construction techniques and heavy vehicle loads on county roads. The result is that several culverts have been converted back to bridges. For example, Farmer Creek Road culvert was replaced with a temporary one-lane bridge in 2011. Boulder Creek Bridge replaced a failed culvert in 2010.

A fall 2010 risk assessment public workshop ranked drainage assets (culverts, drainage ditches) as an Extreme risk.

A partial culvert inventory and condition inspection is planned for Fiscal Year 2012. This preliminary estimate of county road drainage needs will be used to advise County road stakeholders in 2012 on the county road drainage service performance, costs and risks. The objective is to identify a long term sustainable drainage asset management strategy and related financial requirements that achieve the desired level of road drainage performance.

12 Integrated Road Information System (IRIS)

3.5.4 Ditch Inventory, Condition and Performance

Ditches were inventoried and their condition assessed in 2008. Roadside ditches drain 60% of all county maintained roads. Two percent (2%) of county roads have concrete curbs channeling water, and 38% have no ditches or curbs.

County roadway ditches should be cleaned annually. Ditches are generally graded during the dry summer months so that the vegetation can be removed, the original flow line defined and adequate roadway and ditch drainage can occur.

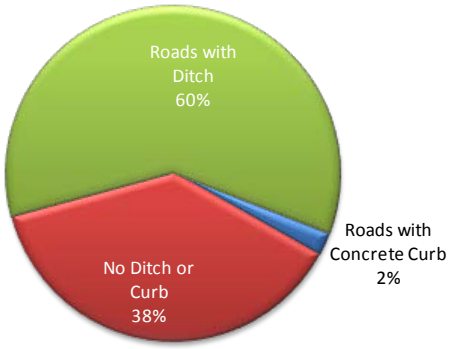


Figure 19 County Ditch Inventory 195 Miles

Table 11 Ditch Condition Rating

1	Very Good	This rating indicates ditch is clean and free of any debris, and is functioning as intended - No maintenance needed at this time
2	Good	Ditch is flowing fairly unobstructed - small amount of vegetation is present - No maintenance needed at this time
3	Fair	Ditch is carrying water with minor obstructions - Vegetation is present & growing - ditching required in some areas of main ditch channel
4	Poor	Vegetation & Sediment is blocking flow in numerous areas - still water depth reaches at least 1 foot or more before starting to flow
5	Very Poor	Ditch is more than 80% filled with Vegetation or Sediment and flow is severely impeded. Immediate maintenance is required

The county's ditch standard[13] requires a ditch depth of 3:1 width, with a width of 5 feet.

Of the 195 miles of ditches along Tillamook County roads, 30% required some ditching maintenance in 2008; 22% were in Poor condition, and 8% were in Very Poor condition requiring immediate maintenance.

Currently, Tillamook County ditches are cleaned on a reactive basis due to inadequate resources.

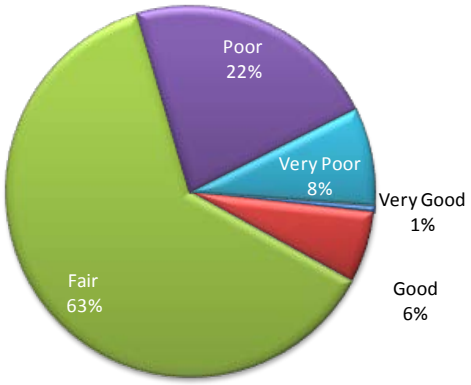


Figure 20 County Ditch Condition - 2008

[13] "Standard Roadway Section," which reflects standards of the American Association of State Highways and Transportation Officials (AASHTO) Manual

3.6 Detailed Vegetation Management Performance

3.6.1 Outcome and Strategic Objectives

Roadside safety and visibility ensured by removing vegetation blocking sight lines to advisory signs, ditch lines, guardrail and guideposts.

Strategic objectives are to:

- regularly maintain roadside vegetation, including routine cutting and disposing of trees, brush, berry, and other vines that may become a traffic hazard, and
- provide sight distance safety, drainage and prevent further damage to road surfaces and shoulders.

3.6.2 Vegetation Management Activities

County roadside vegetation is controlled through annual mowing. As a part of integrated vegetation management, small brush is cut, weeds are sprayed and trees removed or trimmed in the right of way. Debris in the right of way is removed as work is accomplished.

$132,451 or 3% of 2011 road funding managed roadside vegetation. This is down 44% from 2010.

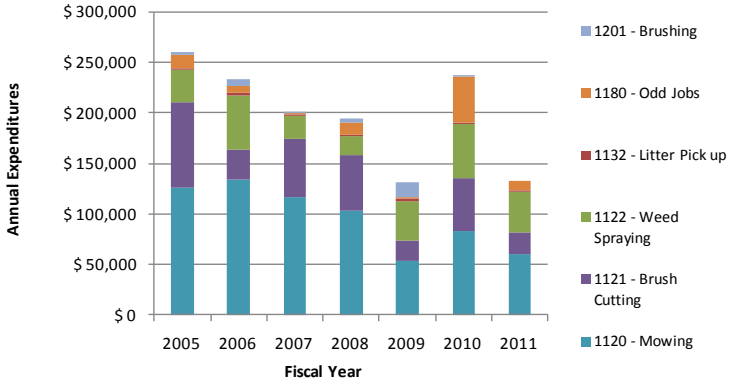


Figure 21 Vegetation Management Expenditures – 44% decrease

3.6.3 Inventory, Condition and Performance

Managing roadside vegetation is considered an Extreme risk in this wet county. Tillamook County experienced a wetter than normal spring in 2011. Nine percent (9%) of all service requests from the public were to address mowing, brush cutting and litter removal from roadways. There is currently no overall rated assessment of the vegetation at the edge of county roads (e.g., obstructions/hazards, noxious weed inventory, presence of litter, appearance).

The spray truck was modified in 2011 so that only one operator is needed to drive and spray vegetation. As a safety precaution, the spray truck operator is required to check in with the office daily.

3.7 Emergency Response Level of Service

3.7.1 Outcome and Strategic Objectives

A repaired and safe county road network by working in partnership with federal, state and county emergency responders, and preparing for and responding to weather events and hazards.

Objectives are:

- Respond to hazards due to weather events
- Respond to customer service requests in a timey manner to reduce hazards by participating in Incident Command center

3.7.2 Emergency Response Activities

Since 1996, Tillamook County has experienced numerous catastrophic storms. Over the last seven years, the average annual emergency response service expenditure is $422,945.

Table 12 Emergency Response Expenditures

	2005	2006	2007	2008	2009	2010	2011
1160 – Snow Plow/Sanding	$19,285	$18,377	$37,469	$23,060	$43,345	$867	$16,400
1161 - Flood/Wind/Slide	$83,781	$275,726	$300,935	$738,646	$684,166	$294,411	$389,014
1202 - Debris Removal	$230	$5,925	$558	$2,307	$6,676	$1,906	$4,290
Total	$103,295	$300,028	$338,962	$764,013	$734,187	$297,184	$409,704

In January 2011, a federally declared storm occurred. Managing this and other weather events and hazards increased emergency response services 38% from the prior year.

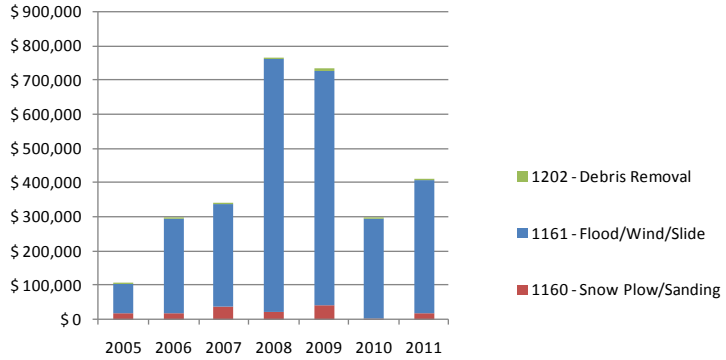


Figure 22 Emergency Management – 38% increase

3.7.3 Performance

Responding to customer Service Requests in a timely manner & reducing hazards is a high priority. 100% of emergency service requests are responded to. Their completion is dependent on their priority and staffing levels, given the event.

TCPW currently tracks the hours and costs of snow plowing and response to flood, wind events and land slides. Federal aid reimbursement requires documenting emergency costs.

3.8 Alternative Transportation

One percent (1%) of State Motor Vehicle Fees is set aside for alternative transportation projects (bike paths, for example).

In 2011, two county projects were funded by the County , the design of 3rd Street, a partnership with the Tillamook Urban Renewal Agency (TURA) and the City of Tillamook; and a bike path on Necarney Boulevard, which was a partnership with the City of Manzanita and Oregon State Parks.

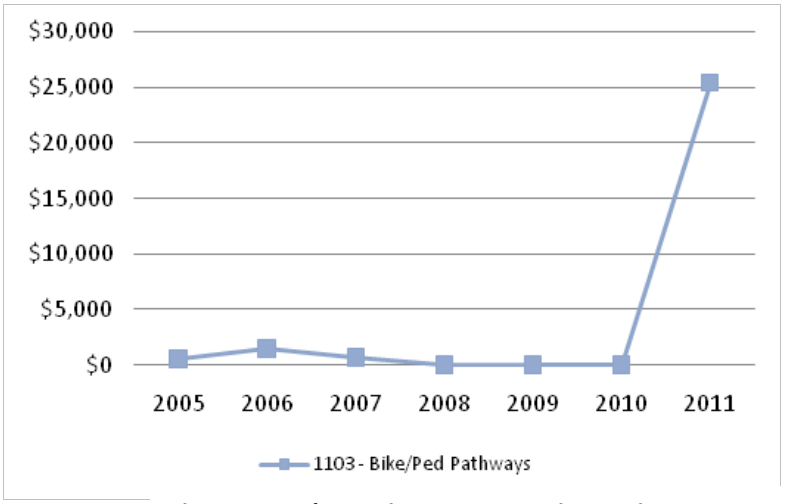


Figure 23 – Alternative Transportation Projects

3.9 Operations

3.9.1 Engineering Services

The purpose of Engineering Services is to plan, research, coordinate and manage right of way activities. This includes permit review, capital project, asset management and bridge design contract management. Engineering services also assist in emergency response and recovery.

Engineering expenditures have decreased significantly as the OTIA bridge program was completed in Tillamook County in 2009.

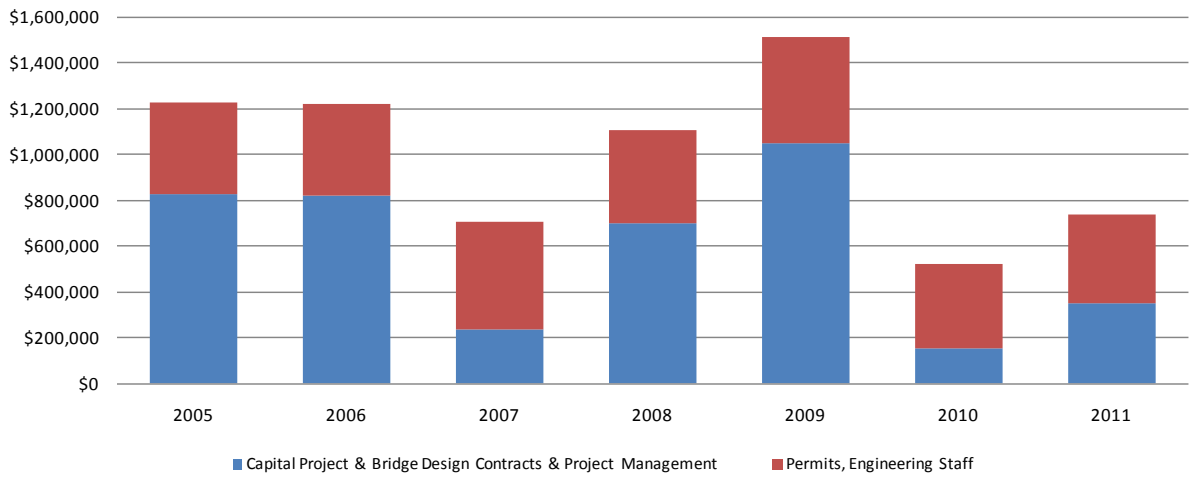


Figure 24 Engineering Services Decline with Staff Reductions & End of OTIA Program

Utility and road approach permits are given priority to support economic development in the county. 354 utility, road approach, and land use permits were reviewed and issued in 2011.

Engineering staff reductions that occurred in 2010 and 2011 have not been replaced, including the Engineering Project Supervisor position. This means there is no project management position. This increases project management responsibilities of the Director, and impacts day to day operations and accomplishments.

The County lacks advanced technology (e.g., GIS), and staff to perform adequate data maintenance. This hampers the ability of the Road Department to manage road infrastructure and services, and responsiveness to requests for no parking signs, street vacations, jurisdictional transfers, and Commissioner Office calls.

3.9.2 Equipment Management

The purpose of equipment management is to provide optimum TCPW vehicle availability and reliability for the least lifecycle cost by providing timely maintenance and repairs given available resources.

Table 13 Equipment Management Activities

	2005	2006	2007	2008	2009	2010	2011
1601 - Safety Inspections (shop)	$206	$617	$0	$435	$0	$2,725	$206
1602 - Fuel/Oil/Lube	$90,712	$139,240	$146,050	$189,285	$123,983	$117,700	$126,939
1603 - Tires	$10,872	$15,861	$27,320	$29,947	$18,866	$9,199	$15,834
1604 - Communications Equip.	$2,402	$3,642	$777	$455	$0	$1,644	$42,931
1610 - Other Repairs	$228,121	$248,084	$203,744	$200,241	$148,929	$187,928	$179,621
1620 - Operator Maint.& Repairs	$17,282	$16,170	$13,526	$14,720	$15,827	$18,921	$19,320
1621 - Accident Repairs	$0	$221	$0	$0.00	$0	$0	$0
1622 - Non-County Equip. Rental	$173	$2,795	$519	$107	$216	$678	$0
1630 - Fabrication	$637	$330	$47	$1,906	$870	$1,222	$432
1640 - Chasing Parts	$2,797	$5,036	$2,480	$3,506	$5,669	$2,182	$3,014
1651 - Renting Out Equipment	$0.00	$0.00	$0.00	$0	$0	$0	$119
Total	$ 353,203	$ 431,994	$ 394,462	$ 440,602	$ 314,360	$ 342,199	$ 388,416

Public Works manages 118 vehicles and rolling stock. The 2010 value was $3.97 million.[14] Nearly 75% exceed the County's adopted useful life for vehicles; almost all 5-yard dump trucks exceed 30 years. Vehicle replacement funds are used to replace high maintenance vehicles.

Significant challenges are:

- Some vehicle parts are not available and must be made in house.
- Equipment reliability and safety is an increasing concern.
- Equipment may not be appropriate for all job requirements.

[14] *Tillamook County Comprehensive Annual Financial Report,* June 30, 2010.

The shop foreman began analyzing and reporting on-going vehicle costs and performance (hours and miles of use) in 2008.

Forty-seven percent (47%) of the Road Department fleet received Level A Maintenance, and 118 (100%) an annual safety inspections in 2011. Level A servicing means the vehicle was lubricated, the oil and filter changed, and the vehicle inspected for safety. This is a lower level of service due to the overall reduced number of Road Department staff. One foreman and one mechanic must perform all equipment maintenance, and are also required to perform other road maintenance activities.

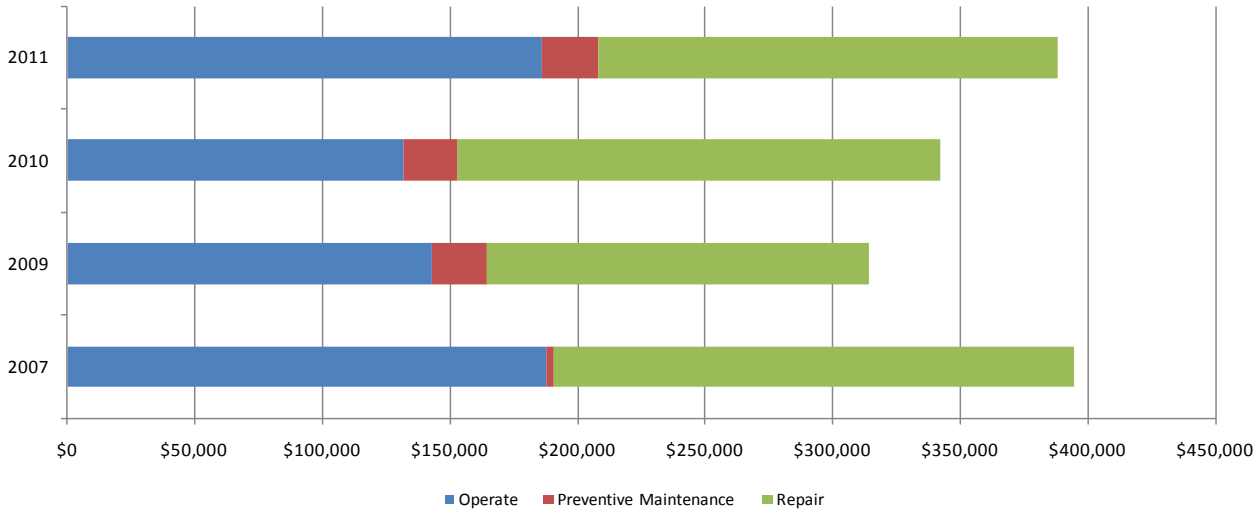


Figure 25 - Equipment Lifecycle Management Costs 2011

The 2011 equipment costs are 14% above 2010:

- The Road Department was federally mandated to invest in new, narrow band communication radios for vehicles. Purchase and installation of these public safety communication devices increased operational costs in 2011.
- A spray truck purchased in 2010 was modified in 2011 so that only one operator is required to spray vegetation. As a safety precaution, the spray truck operator is required to check in with the office daily.

3.9.3 Facilities Management

The purpose of facilities management is to provide safe and effective shelter for TCPW employees, equipment and the materials used to provide county road services.

Table 14 Facilities Management – 10% increase in 2011

	2005	2006	2007	2008	2009	2010	2011
1720 - Building Maintenance	$43,344	$20,581	$12,967	$27,373	$42,365	$15,259	$29,661
1721 - Utilities	$23,912	$26,615	$26,263	$29,885	$22,776	$28,381	$21,784
1722 - Yard Maintenance/Cleanup	$10,922	$12,641	$18,567	$27,409	$13,532	$14,156	$11,881
1723 - Building Construction	$18,635	$0	$115	$230	$62	$0	$183
Total	$96,813	$59,837	$57,912	$84,897	$78,735	$57,796	$63,509

The County Public Works buildings, built in the beginning of the 1900s, exceed their estimated useful life. The estimated useful life of county buildings is 45 to 50 years. Public Works buildings are inspected for health and safety annually.

Two Road Department buildings were painted in 2011, however overall building maintenance is being deferred.

3.9.4 Quarries, Materials Management & Stockpiling

Reliable materials are needed for county road maintenance. These must meet consistent standards of quality to support road maintenance activities.

Table 15 Materials & Stockpiling Activities

	2005	2006	2007	2008	2009	2010	2011
1502 - Operation	$1,133.55	$1,168.47	$4,817.57	$6,478	$3,120	$1,721	$1,406
1505 - Tack Oil	$7,995.13	$1,611.44	$2,106.49	$1,649	$294	$13,941	$6,282
1507 - Signs	$283.38	$8,195.15	$8,960.24	$7,483	$6,861	$2,586	$4,054
1510 - Pit/Stockpile	$37,275.85	$7,617.18	$2,767.01	$44,177	$17,535	$23,145	$8,673
1511 - Hauling to Stockpile	$25,711.74	$61,690.80	$45,575.59	$72,905	$59,941	$79,470	$40,932
1521 - Material Purchase	$0.00	$349.47	$0.00	$261	$0	$0	$149
Totals	$ 72,400	$ 80,633	$ 64,227	$ 132,953	$ 87,751	$ 120,863	$ 61,496

There are two county quarries. The county quarries are located south of Cloverdale (near Clear Creek) and north of Nehalem.

There is a 43% decrease in materials management since 2010.

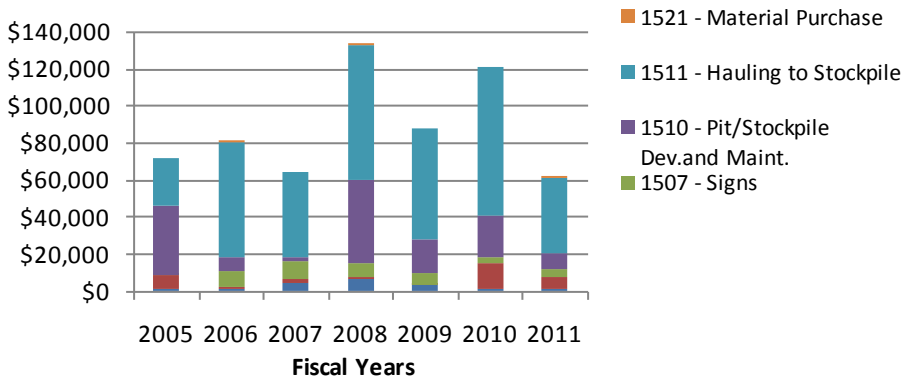


Figure 26 - Materials & Stockpiling – 43% decrease

3.9.5 Administration

County road managers and employees plan, budget and manage road resources (labor, materials and equipment) so that road services can be provided in a safe and cost effective manner. Results are communicated on road service performance, efficiency and effectiveness.

Table 16 Administration - $330,000

2005	2006	2007	2008	2009	2010	2011
$659,328	$589,096	$651,726	$564,911	$681,575	$303,375	$329,548

Administrative costs associated with department-level management and cost accounting are shown in Table 16. Overhead expenditures that support specific road services are allocated and reflected in each program's cost of service. Prior to 2010, these expenditures were double counted.

Administrative services include payroll, managing service requests, cost accounting, budgeting, accounts receivable and payable, and overall department management.

Payroll as a percentage of Road Fund Administration is 35%, down from 40% in 2010. This reflects the reduced number of Road Department employees.

Figure 27 – Administrative Services

Indirect administrative costs that support road maintenance, operations and engineering services are allocated to the programs served. Indirect service costs include audit services, training, safety program, Road Fund transfers to the General Fund, insurance, utilities and yard maintenance.

Forty-nine percent (49%) of indirect administrative costs reimburse the General Fund for support services (e.g., human resource management, legal services). Training (25%) remains a priority to ensure safety and cross-training among employees who are called on to perform many tasks as overall staffing declines. Other indirect services include moving equipment, paid leave, safety supplies and tools.

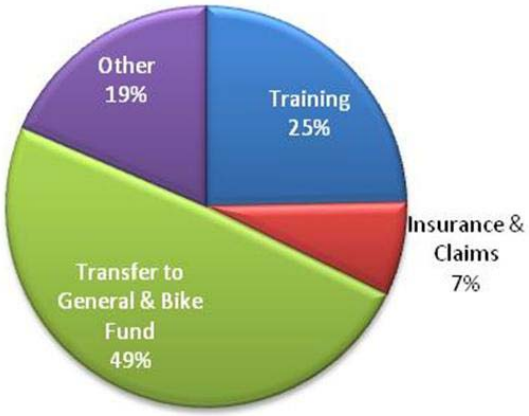


Figure 28 – Indirect Services

Road Department staffing has declined significantly. This is threatening the effectiveness of road services and reducing response time to service requests.

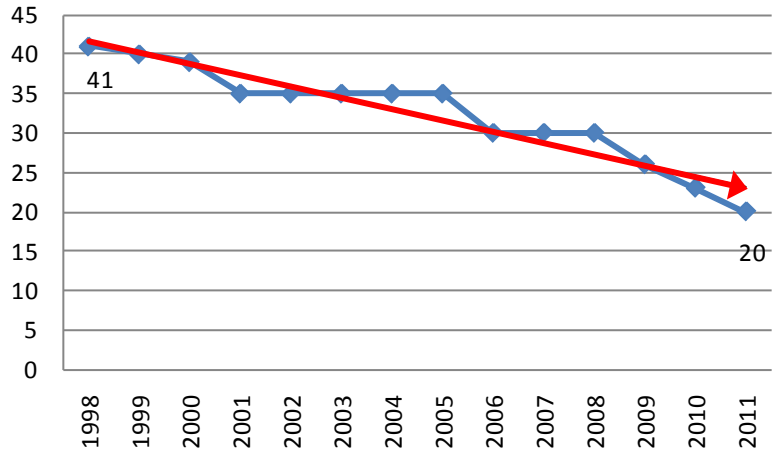


Figure 29 - Employees – 51% reduction since 1998

Table 17 includes all Administration expenditures (allocated and non-allocated).

Table 17 – Administration – 2005-2011

Activities	2005	2006	2007	2008	2009	2010	2011
1701 - Administration	$438,143	$427,724	$475,645	$342,733	$278,284	$259,407	$255,457
1702 - Union Business	$2,497	$1,133	$0	$1,286	$58	$0	$150
1703 - Paid Leaves	$3,884	$31,493	$0	$2,076	$2,620	$13,076	$16,780
1704 - Road Cost Accounting	$71,956	$28,073	$25,667	$23,109	$22,350	$22,102	$15,932
1705 - Admin.Transfer to GF	$0	$90	$0	$48	$187,106	$161,000	$202,000
1706 - LWOP	$0	$0	$0	$0	$0	$77	$0
1707- Transfer to Bike Path Fund	$0	$0	$0	$0	$0	$0	$17,250
1710 - Receiving Training	$63,595	$44,200	$63,032	$70,683	$75,458	$82,053	$103,048
1711 - Giving Training	$702	$615	$436	$1,229	$1,035	$2,406	$2,217
1730 - Safety Supplies/Services	$8,278	$9,345	$11,638	$14,058	$16,902	$12,621	$13,966
1731 - Safety Committee	$5,970	$4,853	$5,536	$6,986	$7,310	$6,359	$4,564
1740 - Overhead - Miscellaneous	$10,317	$7,583	$4,465	$4,359	$4,816	$12,210	$4,855
1741 - Overhead - Tools/Equipment	$24,318	$14,126	$13,384	$13,845	$19,053	$10,071	$11,084
1742 - Overhead - Medical	$2,100	$500	$800	$1,643	$1,102	$1,644	$914
1743 - Overhead - Insurance/Claims	$68	$0	$462	$324	$6,966	$62,080	$33,327
1744 - Overhead - Vehicle Accident	$405	$909	$36	$275	$1,213	$191	$497
1752 - Overhead - Surplus Equip. Disposal	$0	$105	$176	$0	$636	$0	$229
1753 - Overhead - Moving Equip	$12,409	$11,967	$23,021	$17,622	$17,307	$21,389	$33,920
1754 - Interdepartmental Labor (non Road/SW)	$8,449	$983	$4,820	$14,943	$0	$9,146	$19,428
1755 - Outside Billable	$6,239	$635	$684	$552	$5,589	$4,064	$3,512
1756 – Admin.-Storm Damage Assessmt -1st storm	$0	$4,764	$3,267	$47,079	$0	$8,656	$35,219
1756A - Admin-Storm Damage 2nd Storm	$0	$0	$14,689	$2,030	$4,952	$0	$0
1756B - Admin-Wind 3rd Storm Dec13-06	$0	$0	$3,969	$31	$28,818	$0	$0
Total	$659,328	$589,096	$651,726	$564,911	$681,575	$688,552	$774,349

3.9.6 Service Request Management

Responding to citizen road service requests is a high priority. Requests are evaluated based on priority and repairs completed as resources allow.

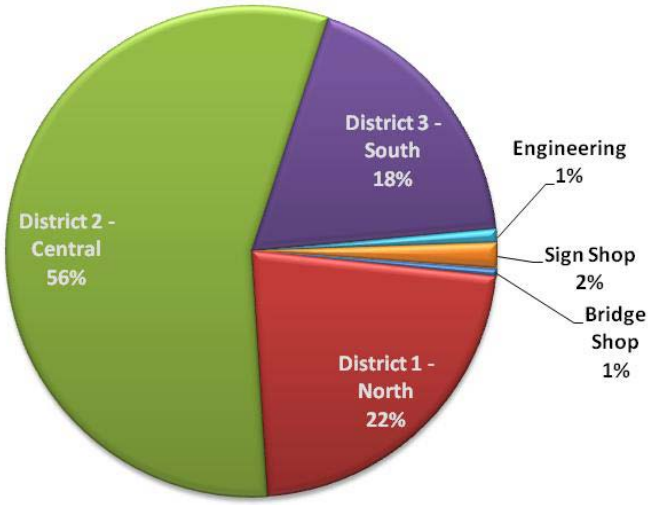


Figure 30 –Service Requests by District

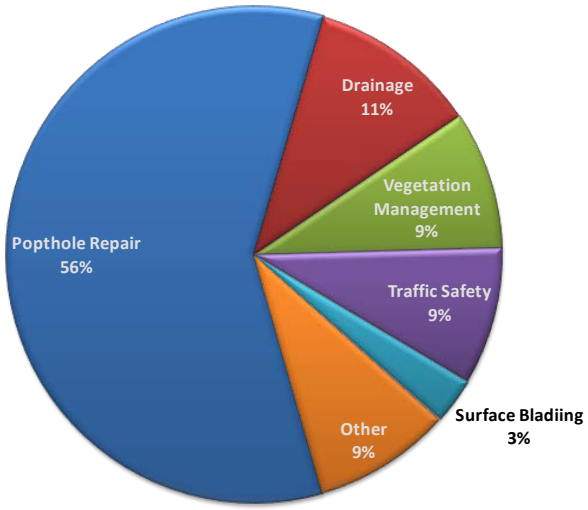


Figure 31 –Service Requests by Type

Over half (56%) of the 551 requests for service in 2011 were reported in the Central District. The majority (55%) were related to potholes in paved road surfaces. Potholes indicate a failing street and the need for increased preventive maintenance.

4. Asset Planning & Improvement Plan

Tillamook County road management requires cooperation and communication between the TCPW Department, other county agencies and partners. County asset management roles and responsibilities extend beyond TCPW and are considered critical to successful management of road services. This recognizes asset management planning is a County responsibility and requires the commitment of the County Board to succeed. Management and performance reporting occurs as follows:

Table 18 TCPW Management & Performance Reporting

Report & Monitoring Method	Frequency	Responsible	Approves	Conferred with	Informed
Asset Management Plan	Every 4 years	TCPW Director	BOCC	CRAC	TCPW Mgmt. & Employees Community & Partners
Three-Year Improvement Plan & Progress	Annual	TCPW Director	BOCC	CRAC	TCPW Mgmt. & Employees Community & Partners
Risk Management Plan	Every 3 years	TCPW Director	BOCC	Risk Team (TCPW Mgmt. Team, CRAC, BOCC, County Dept. Mgrs.)	Community & Partners
Risk Register – New Risks & Risk Status	Annual	TCPW Director	BOCC	Risk Team (TCPW Mgmt. Team, CRAC, BOCC, County Dept. Mgrs.)	Community & Partners
Performance Report	Annual	TCPW Director	n/a	TCPW Mgmt. & Employees BOCC CRAC	TCPW Mgmt. & Employees Community & Partners
Significant Service Level Changes	Annual	TCPW Director	BOCC	TCPW Mgmt. & Employees BOCC CRAC Community & Partners	TCPW Mgmt. & Employees Community & Partners
TCPW Budget	Annual	TCPW Director	BOCC	CRAC Community & Partners	TCPW Mgmt. & Employees Community & Partners
Asset Management Policy	Every 4 years	TCPW Director	BOCC	CRAC	TCPW Mgmt. & Employees Community & Partners

TCPW is committed to continuously improving the way it provides and reports on road services in Tillamook County. An improvement plan for Fiscal Years 2012-2014 follows and progress is noted. Accomplishments include:

- Adoption of asset management policy by Board of County Commissioners
- Annual reporting of performance, status and condition of assets and services
- Adopt asset management roles, responsibilities and reporting cycles
- Implement risk-based decision making
- Establish service request tracking system and response standards
- Completed intergovernmental agreement which shares resources and services
- Incorporated asset life cycle management in financial decision making

Table 19 Improvement Plan FY 20012-2014

Improvement Plan Schedule FY 2012-2014													
		FY2011-2012				FY2012-2013				FY 2013-2014			
No.	Task	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
	Policy												
1	Adopt explicit Board road asset management policy that clarifies how road services are to be managed and road needs funded. (See draft policy, Appendix D: Asset Management Policy).	Done											
2	The role of the BOCC and CRAC in setting goals and targeting road service performance needs to be clarified. Adopted goals should guide investment, program and project ranking criteria, and should be specific for each program.	On-going											
3	Distribute Asset Plan: Communicate established federal, state, local statutes, County policy, governing engineering standards and practices, and agency policies and procedures to the CRAC, BOCC and TCPWD employees.	On-going											
	Performance Management												
4	Adopt key performance measures and annually report the cost of each service. Link service levels and road service budgets, and share with the public. Highlight planned, significant changes to services that are provided (e.g., eliminating a service) as a part of the annual budget process.	On-going					CRAC May, BOCC June				CRAC May, BOCC June		
5	Develop targets for approval by the County Board so that appropriate budgets are developed that achieve targets over defined time periods given available resources.			CRAC BOCC				CRAC BOCC				CRAC BOCC	
6	Assign roles to track the inventory, condition and performance of assets; review as staffing changes occur.	On-going											
7	Review activity accomplishments. Assign appropriate workload measures for each service so that annual work plans can be developed for each service.	On-going											
8	Train crews to identify appropriate maintenance and renewal actions given asset performance and condition. Develop maintenance standards that include clear photographs, descriptions and quantitative measures to define the condition of an asset and appropriate maintenance or renewal activities.	On-going											
9	Review the TCPWD activities and redefine so that they are aligned with: location, asset class or service (e.g., drainage, structures, vegetation management), and whether an activity is performed to maintain, rehabilitate, install, or decommission an asset. Improving these relationships will enable TCPWD to identify whether it is more efficient to continue to maintain or replace an asset based on the lowest life cycle cost.	On-going											
	Accountability												
10	Annually report on the inventory, condition, replacement value and maintenance and renewal needs for County road assets.			BOCC				BOCC				BOCC	
11	Inventory and assess condition for culverts and TCPWD buildings.	On-going											
12	Develop documented, regular and repeatable inspection processes based on established standards and frequencies are needed for each asset class.	On-going											
13	Segregate preventive maintenance activities in the cost accounting system so that actions correlate more closely to managing the lifecycle of an asset, and note if an activity is reactive or planned (e.g., pothole patching is reactive while pavement overlays are planned activities). Train staff regularly to distinguish reactive maintenance (response to service requests) versus proactive, or preventive maintenance (usually scheduling work targeted at maintaining an asset's condition or preventing its deterioration).	On-going											
14	Add asset management accountabilities and responsibilities to the managers' position statement; foremen position statements should clearly identify their roles and asset management responsibilities, where appropriate. Incorporate in Performance Reviews, as possible.	On-going											
	Resource Allocation												
15	Maintain risk-based assessment at the network, program and project level. Update the risks identified in this plan to ensure known risks are included, adopted priorities are reflected in criteria. The objective is to clearly document the tradeoffs of investing more or less in various services and identifying and selecting projects in a consistent and defensible manner.	On-going	Update 2008 Risks										
16	Monitor & report the purpose of service requests, assign priorities and adopt response standards and track actual response time.	On-going											

Table 19 Improvement Plan FY 20012-2014 (continued)

Improvement Plan Schedule FY 2012-2014														
No.	Task	FY2011-2012				FY2012-2013				FY 2013-2014				
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	
	Operational Efficiency													
17	List operational efficiencies (e.g., changes in work practice or materials, partnerships with other jurisdictions, disposal of underutilized equipment) in the annual asset status and condition report so that employees, CRAC, the County Board and the public are aware progress.	In Progress - On-going												
18	Examine on-going costs such as equipment maintenance and repair versus equipment replacement, as well as gravel hauling. Identify whether more efficient mobilization can be achieved with fewer work sites.	In Progress - On-going												
	Data Collection and Organization													
19	Pavement, bridge, sign, ditches, guardrail and equipment inventory is current and condition known.	On-going												
20	Initiate inventory and assess condition of culverts, signs.Enter sign and sign post condition in IRIS. Document methods of condition assessment for each inventory so a repeatable process can achieve similar results when conducted by more than one individual.			Annual Report				Annual Report						
21	Annually report on TCPWD assets' inventory, condition, the method of assessing condition and the confidence and frequency of methods used. Document roles, responsibilities and methods for collecting and maintaining inventory information.			Annual Report				Annual Report				Annual Report		
22	Establish regular schedule for assessing asset condition that reflects the risks to the community and County liability.		Update 2008 Risks	Annual Report				Annual Report				Annual Report		
23	Train managers responsible for data maintenance and condition assessment on use of IRIS.	On-going												
24	Budget development and annual reports to the public and decision makers should include:			Annual Report				Annual Report				Annual Report		
24a)	a) An explanation of the current level of service and targeted level of service given a specific timeframe for achieving a road asset condition. The annual budget should seek to link short term budget levels to long term consequence of budgets.			Annual Report				Annual Report				Annual Report		
24b)	b) Annual accomplishments (e.g., miles of roads overlayed, signs replaced or maintained, miles of guardrail repaired)			Annual Report				Annual Report				Annual Report		
24c)	c) Service requests by type			Annual Report				Annual Report				Annual Report		
24d)	d) Public surveys on perception of service priorities and needs	As exists in other sources												
	Financial Planning													
25	Support local funding efforts that explore additional Tillamook County road funding for critical needs of the road network.	In Progress												
26	Strengthen link between work planning, cost accounting and performance reporting. Track expenditures based on an asset's life cycle, and work accomplishments so that performance can be reported. Incorporate life cycle cost consideration in capital project selection.	On-going		Annual Report				Annual Report				Annual Report		
27	Introduce annual revaluation and inventory, condition rating and unmet need in annual Status & Condition Report for County Transportation Network			Annual Report				Annual Report				Annual Report		
28	Continue to risk-rate services; highlight needs based on criticality or risk. Introduce risk-based decision making throughout TCPW decision making (project selection, service priorities, and budget requests).						Update 2012 risks							
29	Move from reporting historic depreciation for County road assets in financial reporting to current valuation. Base asset value on effective life of assets, current condition and anticipated service demands.	In Progress												
30	Develop long range capital improvement plan and capital improvement financing to address known rehabilitation, replacement and expansion needs. Integrate with County Transportation System Planning capital project priority setting.	As possible, on-going												

5. Road Asset Planning Processes

5.1 TCPW Mission, Vision & Values

The vision of Tillamook County Public Works is:

> *Tillamook County's high-quality, safe road network supports a thriving economy and a healthy environment. Our professional, well-trained staff works in partnership with our community to ensure that our road network meets the needs of our citizens now and in the future.*

The TCPW mission that achieves its vision is:

> *We take pride in serving the public by providing, maintaining, and preserving a safe and efficient county road network, and quickly responding to weather events and hazards. We protect the public's investment by working with our partners and targeting resources to minimize long term costs while providing the best possible service.*

The values that guide the performance of TCPW road services are:

Teamwork – We work together as a team, dedicated to exploring all options while supporting each other in performing high quality work efficiently.

Communication – We keep the lines of communication open with our employees, our partners and our customers.

Professionalism – We strive for professional excellence by supporting employee training focused on improved service delivery.

Change – We anticipate and prepare for change to meet the needs of today and the future.

Accountability - We deliver on our promises, and we maximize the use of public funds to deliver the best possible results.

Success – We provide successful solutions to the meet the needs of the public, and we celebrate our successes.

Safety – We perform our work safely to protect our employees, our customers and our environment.

5.2 Road Asset and Service Planning Processes

Information and business processes used by TCPW to manage each of these asset classes include the following.

Table 20 Asset Inventories and Road Management Processes

Asset Inventories	Process				
	Inventory?	Documented Condition?	Documented inspection process?	Established inspection schedule?	If yes, frequency?
Roads	Yes IRIS-SS	Yes	Yes	Yes	Every 2 years
Bridges	Yes PONTIS & Excel Spreadsheet	Yes	Yes	Yes	Every 2 years
Traffic Signs -reflectivity	Yes IRIS-RI	Partial IRIS-RI	Yes	Yes	Every 2 year night time inspection
Traffic Signs -maintenance	-	Yes IRIS-RI	Yes Report	No	As resources allow
Guardrail	Yes IRIS-RI	Yes	Yes	No[15]	-
Culverts	Yes (partial)[16]	Yes (2006)	No	No	-
Ditches	Yes (2008)	Yes	Yes	No	As resources allow
Pavement Markings	No[17]	N/A	N/A	N/A	N/A
Levees	Yes (2009)	Yes	No	Yes	Annually
Maintenance Yards	No	No	No	No	-
Vehicles & Equipment	Yes IRIS-EM	Per preventive maintenance	Yes[18]	Yes	Continuous
Quarry sites	No	No	No	No	No
Vegetation Management	-	No	Yes	Yes[19]	Annually

[15] Guardrail condition is based on an inspection completed in spring 2007.
[16] Nestucca/Neskowin Watersheds: Culvert Prioritization and Action Plan for Fish Passage, August 2006.
[17] Pavement markings are repainted by contractor (Marion County) one time a year with oil-based paint. An Excel spreadsheet notes the materials used and length of line and type to calculate materials.
[18] Equipment Management tracks preventive maintenance performed by vehicle.
[19] Vegetation management is performed routinely and spray reports comply with regulations.

Table 21 Method of Condition Assessment by County Asset Class

Asset Class – Asset Type	Inspection Method	Source of Standard	Condition Category		Frequency	Performed by
			Technical Scale	Qualitative Categories		
Road – Paved	Visual inspection	MTC Method	0-100	Good (70-100), Satisfactory (50-69), Fair (25-49), Poor (<25)	Every other year	Contract Inspection
Road – Unpaved	Complaint-driven	N/A	N/A	N/A	Per complaint	Foremen
Bridges	Visual inspection	National Bridge Inspection Standards (NBIS)	0-100	Good (75-100), Fair (50 to 75) Poor (0-49)	Every other year	Contract inspection
Guardrail	Visual inspection	Oregon Standardized Drawings	1-5	Very Good (1), Good (2), Fair (3), Poor (4), Very Poor (5)	No established cycle	TBD
Levees	Visual inspection	US Army Corp of Engineers (USACE)	TBD	TBD	Annually	Engineering Staff
Signs, Delineators & Posts	Visual inspection	Manual on Uniform traffic Control Devices (MUTCD)	1-4	Very Good (1), Good (2), Fair (3), Poor (4)	Every other year night time visibility	TBD
Culvert	TBD	TBD	TBD	TBD	TBD	TBD
Ditches	Visual	Industry Standard	1-5	Very Good (1), Good (2), Fair (3), Poor (4), Very Poor (5)	TBD	Contract inspection, as resources allow
Vegetation Management	N/A	Industry Standard	N/A	N/A	Annually	Vegetation Management Technician
Equipment	Hours or Miles of Service	IRIS Equipment policies	Per Vehicle	Per Vehicle	Ongoing	Shop Supervisor
Maintenance Yards	Visual	OSHA, fire Mechanical/Electrical/Structural	TBD	TBD	Annually TBD	Foremen

N/A: Not applicable.
TBD: To be defined.

5.3 Confidence Levels in Data & Information

The accuracy and reliability to forecast road asset needs is based on available information. The quality of forecasts varies by asset class. The expression of accuracy and reliability in the areas of information (source and reliability), process (ad hoc or repeatable) and documentation (documented or not documented).The following table provides definitions for each confidence level:

Table 22 Confidence Level Definitions[20]

	Confidence Level	Inventory Completeness	Condition Assessment Method and Frequency	Process and Documentation
1	No confidence	No inventory	No assessment method	No process
2	Low confidence	Partially	Estimates used to assess condition	Process not well documented
3	Moderate confidence	Inventory complete	Subjective process to estimate condition	Some documentation in place
4	High confidence	Inventory complete	Condition surveys conducted on a regular schedule by well-trained personnel	Well documented process followed
5	Optimal confidence	Inventory complete	Condition survey on a regular schedule	Objective process followed; Accuracy of data verified and well documented

The following defines confidence levels[21] in asset information presented in this report.

Table 23 Confidence Levels by Asset Class

Asset Information	Confidence
Pavement	Optimal for the first 3 years and Moderate in years 4-5
Bridge	Optimal
Culverts	Low; inventory estimated and condition unknown.
Guardrails	Moderate; inventory and condition assessment as of 2007; no inspection cycle established.
Signs	Moderate; inventory and condition managed by trained staff through 2008; condition not entered in IRIS
Equipment	Optimal
Maintenance Yards	Moderate; includes annual safety inspection
Levees	Optimal; 2011 inspection & inventory by US Army Corp of Engineers
Quarries	Moderate
Ditches	Moderate; assessment, documentation and inventory 2008
Pavement Markings	Not applicable; repainted each year based on inventory

[20] *City of Portland Asset Status & Condition Report*, December 2007

[21] *City of Portland Asset Status & Condition Report*, 2007

5.4 Asset Useful Life Assumptions

Useful life assumptions are the basis of asset planning. Maintenance and renewal costs are required over the life of an asset to ensure the useful life is achieved for the least total lifecycle cost. This information is an input to annual and long range County financial planning and reporting.

Table 24 Useful Life by Asset Classification[22]

Asset Classification	Useful Life
Roads[23]	
- Arterial & Collectors Paved	20 years
- Local Paved	40 years
- Local Gravel	N/A
Structures[24]	
Bridges	
- Timber bridges, treated	30 years
- Steel bridges	65 years
- Reinforced concrete bridges	80 years
- Pre-stressed concrete bridges	100 years
Guardrails	40
Levees	TBD
Traffic Safety Facilities[25]	
- Signs	7 years
- Signs-delineators	20 years
- Posts	10-30 years
- Painted pavement markings	6 months – 1 year
Drainage[26]	
- Drainage culverts**	25-60 years
- Major culverts (pipes/barrel, inlet/outlet structures)**	25-60 years
- Ditches	50-100 years
Support Facilities	
Equipment	5-10 years
Maintenance Yard Buildings	45-50 years
Quarries	N/A

*TBD: To be determined.
** Under review.
N/A: Not applicable.

[22] Useful life assumptions are reported in the *Tillamook County Combined Annual Financial Report,* June 30, 2010. Several assumptions are considered inaccurate (e.g., 50 years for roads, equipment). Public Works will refine and provide more accurate assumptions with the County Treasurer for future financial planning, reporting and asset planning purposes. The estimated useful life for county paved roads currently used by the County in financial reporting is 50 years which is considered conservative. A more accurate useful life for the surface of low volume, paved rural roads is 20 years, based on AASHTO guidelines.
[23] *Guidelines for Geometric Design of Very Low-Volume Local Roads*, AASHTO, 2001
[24] Bridges, guardrail useful life assumptions from City of Portland Transportation System: Status and Condition Report, 2008.
[25] Tillamook County Public Works, 2008
[26] TC Public Works Director estimates 40-60 year useful life for drainage and major culverts; Oregon DOT assumes a 50-year service life for culverts.

5.5 Asset Management Information Sources & Data Maintenance Responsibilities

Table 25 Information Sources & Data Maintenance Roles & Contacts

Asset /Activity	Source of Data	Lead Staff Contact
Service Requests	- IRIS	Office Support Specialist
Road		
- Pavement inspection	- Street Saver/contract services	Director
- Road inventory	- Street Saver/IRIS	Engineering/Office
- Local gravel condition	- TBD*	TBD
Structures		
- Bridges inventory, inspection & post weight limits	- Contract services/PONTIS	Engineering.
- Guardrails inspection & inventory management	- IRIS	Engineering
- Levees inventory & inspection management	- Inspection reports	Engineering
Drainage		
- Culvert inventory & condition assessment	- IRIS	Engineering/Office
- Ditches inventory & condition assessment	- Contract Management	Engineering/Office
Traffic Safety		
- Signs	- IRIS	Office
- Signs-delineators	- IRIS	Office
- Posts	- IRIS	Office
- Painted pavement markings	- Contract & spreadsheet	Office
Vegetation Management		
- Mowing by lane, percent miles cleared of debris	- N/A**	Foremen/Office
- Herbicide by acres sprayed	- IRIS	Foremen/ Office
Emergency Management		
- Storm response hours	- IRIS – CAS	Foremen/Office
- Hours spent plowing and sanding	- IRIS – CAS	Foremen/Office
- Slides response	- IRIS - CAS	Foremen/Office
- Culverts	- TBD	
Support Services/ Facilities		
- Equipment management	- IRIS	Shop Foreman
- Facilities management	- TBD	Shop
- Materials Management	- IRIS	Office
- Cost accounting/Budget development	- IRIS	Office

*TBD: To Be Developed/Determined

** N/A: Not Applicable

Appendix A – Asset Management Policy

BOOK 111 PAGE 396
COUNTY COURT JOURNAL

THE BOARD OF COUNTY COMMISSIONERS

FOR THE COUNTY OF TILLAMOOK IN THE STATE OF OREGON

FILED
JUL 01 2009
TASSI O'NEIL
COUNTY CLERK

In the Matter of a Tillamook County Public Works Asset Management Policy	)	**ORDER**
	)	**#09-** 054

This matter came on to be heard this 1st day of July 2009, at a regular meeting of the Board of Commissioners, at the request of Liane Welch, Tillamook County Public Works Director.

Being fully apprized of the records and files therein, the Board of Commissioners finds as follows:

1. Tillamook County's road network is the county government's most valuable physical asset. In 2008, the replacement value of the 374 miles of county roads was estimated at $304 million. The County transportation network has been under funded for years and the condition of county roads is declining.

2. The Tillamook County Board of Commissioners, concerned about the declining condition of county roads and bridges, authorized the Road Department to document the condition and value of County road assets, and identify the risks that must be managed in the County. This approach, known as asset management, helps target available road dollars so that the greatest risks are managed for the least cost.

3. The purpose of the Asset Management policy is to set guidelines for implementing consistent asset management processes throughout Tillamook County Public Works Department.

4. The Road Advisory Committee at their May 5, 2009 meeting accepted the Asset Management report.

NOW THEREFORE, IT IS HEREBY ORDERED THAT:

5. The Tillamook County Asset Management Policy, Exhibit A attached and incorporated here by reference, be and hereby is adopted.

6. This order is to become effective immediately.

DATED THIS 1st DAY OF July 2009.

BOARD OF COUNTY COMMISSIONERS FOR TILLAMOOK COUNTY, OREGON	Aye	Nay	Abstain/Absent
Tim Josi, Chair	✓		
Mark Labhart, Vice-Chair	✓		
Charles J. Hurliman, Commissioner	✓		

ATTEST: Tassi O'Neil
County Clerk

By Susan L Becraft
Special Deputy

APPROVED AS TO FORM:

William K. Sargent, County Counsel

EXHIBIT A

TILLAMOOK COUNTY PUBLIC WORKS

ASSET MANAGEMENT POLICY

1.0 Purpose

To set guidelines for implementing consistent asset management processes throughout Tillamook County Public Works Department.

2.0 Objective

To ensure adequate provision is made for the long-term replacement of major road assets as financial resources allow by:

- Ensuring that County services and infrastructure are provided in a sustainable manner, with the appropriate levels of service to residents, visitors and the environment.
- Safeguarding County road assets including physical assets and employees by implementing appropriate asset management strategies and appropriate financial resources for those assets.
- Creating an environment where all Public Works employees take an integral part in overall management of County road assets by creating and sustaining an asset management awareness throughout the County transportation system.
- Meeting legislative requirements for asset management and financial reporting.
- Ensuring resources and operational capabilities are identified and responsibility for asset management is allocated.
- Demonstrating transparent and responsible asset management processes that align with demonstrated best practice.

3.0 Scope

This policy applies to all County public works activities.

4.0 Policy

4.1 Background

4.1.1 The County Commission is committed to implementing a systematic asset management methodology in order to apply appropriate asset management best practices across all road management areas of the County. This includes ensuring that assets are planned, created, operated, maintained, renewed and disposed of in accordance with Commission priorities for service delivery.

4.1.2 The County owns and uses approximately $304 million road assets to support its core business of delivering road service to the community.

4.1.3 Asset management practices impact directly on the core business of the county and appropriate asset management is required to achieve our strategic service delivery objectives.

4.1.4 Asset management relates directly to the Tillamook County Transportation Strategic Plan goals and strategies:

- Protect the function, operation and safety of existing and planned roadways
- Consider land use impacts on existing or planned transportation facilities
- Coordinate with other jurisdictions to assure adequate connections to streets and transportation systems between incorporated and unincorporated areas
- The roadway network is not restricted to jurisdictional boundaries.
- Roadway maintenance and improvement are to be coordinated in cooperation with other jurisdictions.
- Road function, access and "level of service standards" are to be implemented through regulation.

4.1.5 A strategic approach to asset management will ensure that the County Commission delivers the highest appropriate level of service through its assets. This will provide positive impact on:

- Members of the public and staff;
- The ability of the County to deliver the expected level of service and infrastructure based on available resources;
- The political environment in which County Commission operates; and
- The legal liabilities of the County.

4.2 Principles

4.2.1 A consistent Asset Management Strategy must exist for implementing systematic asset management and appropriate asset management best-practice throughout the County's road department.

4.2.2 All relevant legislative requirements together with political, social and economic environments are to be taken into account in asset management.

4.2.3 Asset management principles will be integrated within existing planning and operational processes.

4.2.4 An inspection regime will be used as part of asset management to ensure agreed service levels are maintained and to identify asset renewal priorities, as funding allows.

4.2.5 Asset renewal plans will be prioritized and implemented progressively based on agreed service levels and the effectiveness of the current assets to provide that level of service.

4.2.6 Systematic and cyclic reviews will be applied to all asset classes and are to ensure that the assets are managed, valued and depreciated in accordance with appropriate best practice and applicable standards.

4.2.7 Future life cycle costs will be reported and considered in all decisions relating to new services and assets and upgrading of existing services and assets.

4.2.8 Future service levels will be determined in consultation with the community.

5.0 Standard	Government Accounting Standards Board (GASB) Statement 34
6.0 Related Documents	Tillamook County Road Asset Management Plan and Road Risk Management Plan.
Responsibility	**County Commissioners** are responsible for adopting the policy and ensuring that sufficient resources are applied to manage the assets. The **Public Works Director** has overall responsibility for developing an asset management strategy, plans and procedures and reporting on the status and effectiveness of asset management within the County road network.
Review Date	This policy has a life of 4 years. It will be reviewed in June 2013.

Appendix B. Detail of Road Services Performance

Tillamook County Road Performance by Service 2007-2011

Program	Unit/Type of Accomplishment						Effectiveness/Nework Impact					
Road Management		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Miles to maintain	378	378	380	268	268	PCI for arterial, collector, local roads	60/51/40	60/48/39	-	27/15/58	-
	Miles arterial/collector/local of asphalt resurfacing	8.9*	3.97	2.64	10.06	7.68	Percent of paved roads resurfaced (overlaid)	3%	3%	1%	4%	3%
	Miles local gravel road	91	91	97	65	65	Percent of local gravel roads graded every other year	TBD	TBD	TBD	TBD	TBD
	Hours grading gravel roads			491	1125	487	Percent of Surface Road expeditures on preventive maintenance	4%	1%	1%	10%	12%
	Miles inspected every other year	-	272	-	268	-	Percent of Surface Road expeditures on rehabilitation	63%	69%	63%	51%	62%
Service Requests		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Number of Service Requests	TBD	TBD	317	685	551	Percent service requests reported as completed	100%	TBD	87%	65%	73%
Structures		**2006**	**2008**	**2009**	**2010**	**2011**		**2006**	**2008**	**2009**	**2010**	**2011**
	Number of bridges inspected every other year	96	95	96	98	99	Average NBIS sufficiency rating	80%	80%	77%	77%	TBD
							Percent of bridges with sufficiency rating over 75 (Good)	66%	68%	67%	67%	TBD
							Percent of bridges with sufficiency rating under <50 (Poor)	7%	7%	13%	13%	TBD
	Number of weight limited bridges	6	3	3	4	4	Percent of weight limited bridges	6%	3%	3%	4%	4%
	Miles of guardrail inspected	10	-	-	-	-	Percent of guardrail in Poor/Very Poor condition	43%	43%	43%	43%	43%
	Number of levees inspected annually	TBD	2	7	7	7	Percent of Levees in Poor condition	TBD	TBD	0%	0%	29%
Traffic Safety		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Number of lane miles receiving pavement markings	299	299	299	323	339	Cost per lane mile for pavement marking	$346	$351	$349	$324	$390
	Number of traffic signs maintained	4,807	4,807	4,651	TBD	1,199	Percent of Stop signs Very Good or Good condition	98%	TBD	99%	99%	TBD
							Percent of signs inspected for night-time visibility	100%	100%	100%	0%	0%
							Percent of Stop signs repaired/replaced within 48 hours	100%	TBD	100%	100%	100%
							Percent of Stop sign requests response within 24 hours	100%	TBD	100%	100%	
Drainage		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Number of lane miles of ditches to maintain annually	TBD	195	195	195	195	Percent ditches blocked flow (Poor) or requiring immediate maintenance (Very Poor)	TBD	30%	30%	30%	TBD
	Hours of ditch maintenance	TBD	TBD	TBD	1,562	759	Percent of ditches maintained annually	TBD	TBD	TBD	TBD	TBD
	Lineal feet of culverts repaired or replaced	TBD	235	1,303	858	529	Percent of culverts maintained or replaced	TBD	TBD	1%	0.7%	0.4%
Vegetation Management		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Miles treated with herbicide	TBD	TBD	530	424	438						
	Hours mow & remove brush	TBD	TBD	TBD	541	1,260	Percent of lane miles mowed per year	TBD	TBD	TBD	TBD	TBD
Emergency Management		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Storm response hours (total for department)	5,400	11,018	7,703	3,517	5,103	Percent of roads cleaned of snow and sanded within 24 hours	100%	100%	95%	100%	100%
	Hours spent plowing and sanding	511	337	548	13	199	Percent of roads blocked by downed trees opened within 12 hours	95%	95%	100%	100%	100%
Equipment Management		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Number of pieces of equipment managed	99	99	115	115	118	Percent receiving 24 hour service fueling	TBD	100%	100%	100%	100%
	Number of pieces of equipment serviced receiving preventive maintenance service (Level A)	TBD	TBD	115	80	56	Percent of equipment serviced every 90 days for preventive maintenance (Level A)	TBD	100%	100%	70%	47%
	Number of pieces of equipment receiving safety inspection	TBD	TBD	115	115	118	Percent of fleet receiving safety inspection	TBD	0	100%	100%	100%
Maintenance Yards		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Number of Maintenance Yards inspected for structural, fire code and OSHA compliance annually	3	3	3	3	3	Percent of buildings certified by fire, OSHA, building inspector	TBD	100%	100%	100%	100%
Alternative Transportation		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Number of projects completed	0	0	0	0	2						
Engineering Services		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Total number of permits reviewed	TBD	380	475	248	291						
	Number of permits reviewed for Community Development	TBD	TBD	TBD	TBD	63						
Administration		**2007**	**2008**	**2009**	**2010**	**2011**		**2007**	**2008**	**2009**	**2010**	**2011**
	Number of employees	30.5	30.5	26	23	20	Percent of full time employees performance assessed per year	100%	100%	100%	100%	100%
	Hours of training per year	1,256	1,607	1,416	1,561	1,847	Percent of turnover	3%	30%	8%	6%	13%

*Included miles paved by federal and state agencies

TBD To Be Determined

N/A Not Available

Appendix C. List of 2011 Accomplishments

Overlay 7.68 miles
- Bewley Street
- Cape Kiwanda Drive
- College Street
- Cedar Street
- Elder
- Elm Street
- Evergreen
- Foss Road
- Hollyhock
- Jetty Park Road
- Long Prairie Road
- Marigold
- Marolf Loop Road
- McDonald Bridge
- Miami Foley
- Necarney Boulevard
- Nehalem road
- North Fork Road
- Resort Drive
- Slab Creek Road S.
- South Prairie Road
- 3rd Street
- Tideland
- Trask River Road
- Washington Street
- Whiskey Creek Road
- Woods Cloverdale Road

Graded gravel roads (487 hours)

Pothole repair ($175,000) & Hot Patching ($180,000)

Boulder Creek Bridge replaced culvert

Clarence Creek embankment repair

Mowed and removed brush (1,260 hours) and weeds (438 miles)

Ditching (1,562 hours)

Responded to federally declared storm January 2011 (5,130 hours)

Reviewed 354 permits

Received and managed 551 service requests

Re-striped & applied stop bars on 339 lane miles county roads

Maintained 1,199 signs

Replaced 12 culverts (529 lineal feet)
- Circle Drive S (2 - 12")
- Trask River Road (24")
- Bay Ocean Road (2 - 24")
- Jetty Road (18")
- Clarence Creek Road (18")
- Condor Road (18")
- Resort/Brooten (12")
- East Creek Road 2 - 12") (BLM funded)
- Neskowin Trace (48")

Built one temporary one-lane bridge over Farmer Creek Road, replacing failed culvert

Replaced one 12" tide gate on Resort/Brooten

Asset Management improvements:
- 2010 Performance Report
- Updated road service risk assessment in public meetings fall 2010
- Restructured Road Department in 2011 to reflect reduced staffing, and to manage Extreme and High risk services

Grant Funded Opportunities
- Grant funded 10 positions to assist with flood damage and provide employment training for 6 months
- Blaine Road chip seal
- Partnered with City of Tillamook on 3rd Street for bicycle and pedestrian road improvement (Pine to Marolf)
- Partnered with City of Manzanita and Oregon State Parks for Necarney Blvd. bike path
- Lommen Bridge replacement
- Culvert replacement
  - Slab Creek
  - Roy Creek

Transferred road jurisdiction to
- McCoy Street (City of Bay City)
- Elm Street (City of Manzanita)
- Port Area (Port of Tillamook Bay)
- Cochran Road (Washington County)

Maintained Road Department equipment & buildings
- Serviced 56 (47%) pieces of equipment
- Performed 118 (100%) equipment safety inspections
- Acquired three-5-ton utility trucks
- Modified spray truck for one-operator use
- Updated vehicle distributors for efficiency
- Painted North and South County shops