Tillamook County Public Works

2008 Road Performance Report

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

Submitted by:
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Information through June 30, 2008
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TCPW Road Performance Report - 2008
Document Control

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1.0	March 17, 2009	Draft Report	Patricia Bugas-Schramm PBS Consulting		
1.0	April 14, 2009	Review Draft Report		TCPW Director	
1.1	April 19, 2009	ReviseReport	Patricia Bugas-Schramm PBS Consulting		
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1.2	June 5, 2009	Revise Final Report	Patricia Bugas-Schramm PBS Consulting		
1.2	June 24, 2009	Approve Final Report			BOCC

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Transmittal Letter from the Board of Tillamook County Commissioners

The Tillamook County road network is the county government's most valuable physical asset with a 2008 replacement value of $304 million. The capacity and condition of the road infrastructure is a foundation to road safety, and supports Tillamook County business and employment. Tillamook County Public Works is committed to continual improvement in the way the road network is managed. Asset management—knowing what is owned, its condition and present and future needs—provides County leadership the opportunity to move toward a more financially sustainable transportation system

This first *Tillamook County Road Performance Report* outlines the strategy for management of the county road network. Timely maintenance and renewal of road assets delivers the optimum economic benefit based on the life and use of physical road assets while recognizing safety, environmental and community needs. Managing the roads in this way will result in a better quality of life for all county residents, both now and in the future.

The county's road system has been under funded for years and the condition of county roads are considered the worst in Oregon. We face many challenges as we strive to move the Tillamook County road network from a designation as one of the worst road systems in the state with an average Pavement Condition Index (PCI) of 45 (Fair Condition) to a PCI in the Satisfactory level (PCI 50–70). An additional $37.5 million was needed in 2008 to bring paved roads, bridges and guardrails to good condition. As explained in the *Tillamook County Budget*, recurring natural disasters have added to the burden of safety and infrastructure maintenance. Without new funding, the condition of county roads will continue to decline.

There are many accomplishments which are due to the hard work and dedication of the County Road Department. Beyond the 2008 specific projects accomplished (listed by name and location in Appendix Recent initiatives include:

- Responding to a series of severe storms to ensure the safety of the traveling public on County roads
- Conducting a risk analysis of all road services to identify their priority order
- Cross-training employees and identifying a succession plan for road staffing
- Capital construction on Long Prairie Road, using $1.2 million of the Oregon Transportation Improvement Act (OTIA II) grant funds
- Completion of five bridge projects and initiation of the Johnson Bridge Project since 2005 funded by (OTIA III) grant funds
- Use of the available public safety road fee collected from timber sales in the Trask Basin to improve the Trask River Road
- Use of innovative methods that cut costs, include:
    - Placing a concrete apron along the shoulders of Long Prairie Road to minimize flood damage
    - Elevating the Tideland Road intersection to minimize flood damage
    - Cutting trees along Miami River Road to lessen future storm damage
    - Using a video log to document county road condition to help reduce staff travel time when responding to requests for service
    - Inventorying and assessing the condition of
        - 10 miles of guardrails
        - 299 miles of ditches that provide road drainage and prevent water damage to the roadway structure

- Implementing more preventive maintenance pavement strategies that lower the short and long term costs including chip seal, crack sealing, in-place asphalt grinding
- Partnering with other counties to re-stripe County roads, share equipment and reduce the overall cost of providing County road services where appropriate

We face many challenges as we move the Tillamook County road network to a more sustainable level of service. We support the strategies outlined in this *Performance Report*. We as elected officials will work hard at implementing the strategies outlined in this report. We ask our citizens to read this report, provide us feedback and help us to implement the strategies with your support of our efforts.

We thank PBS Consulting and our Public Works staff for their work in preparing this first ever *Tillamook County Road Performance Report*. May our overall goal for the next *Performance Report* to the citizens of Tillamook County be one where we celebrate our significant accomplishment towards a satisfactory PCI rating.

Tim Josi Mark Labhart Chuck Hurliman

Tillamook Board of County Comissioners

1. Introduction

a. Purpose

Tillamook County's road conditions are rated the worst in the state of Oregon. Weather events, economic shifts and expiring funding add to the importance of examining the legal, economic and community risks associated with managing a viable transportation network throughout the county.

Tillamook County Public Works introduced asset management processes beginning in 2008. The Public Works oorganizational structure, roles and responsibilities, asset planning, decision processes and data management and field tools were evaluated. This was seen as a way to establish a foundation for setting county road service priorities and allocating resources. Documenting the inventories, current and future condition, and replacement value of the assets that make up the County road network is an important first step in becoming a "knowledgeable owner" of the 378 miles of county roads.

This is the first annual report on Tillamook County Public Works (TCPW) road service performance. Monitoring and reporting performance serves several purposes:

1. Establish current County road performance and identify future needs
2. Communicate with customers and partners
3. Monitor & report progress on delivering results based on strategic objectives and tactics of road asset management plan
4. Manage resources annually over a 3-year planning horizon
5. Measure & compare road services to similar agencies & seek to understand & implement best appropriate practices at Tillamook County.

Three types of performance measures are included:

1. Strategic measures link the County's strategic vision and goals, legislative requirements and customer expectations with what the Tillamook County Public Works must provide to achieve the desired community outcomes (e.g. smooth, safe and affordable roads rely on pavements and bridges in good condition with appropriate signs to ensure the safety of the traveling public). They report current road network performance or significant aspects of road services compared to a target level of service (e.g., 65% of paved road surfaces in Good or Very Good condition). Strategic indicators are primarily used to report to external stakeholders.
2. Program or tactical measures link road services Tillamook County provides to measurements as perceived by the customer and the technical expert, and set targets of performance. Where possible, the current road service performance and future targets are identified so progress can be measured and reported.
3. Operational performance measures are related to the timeliness and cost efficiency of activities performed to deliver a program or service. These assist day to day operations as monitor and report the value for specific road services delivered.

Future reports will include more explicit performance targets. Performance targets clearly align the road management strategy, included in this report, and Tillamook County Public Works resources and efforts. Comparing targets with what is achieved annually indicates whether strategic objectives are being achieved, or road service needs are changing and why. Clear accountability helps decision makers, citizens, and TCPW employees communicate about these choices using the same information. Future impacts can be better managed and risks minimized if strategy and actions are linked and monitored.

This report should be read in conjunction with

- 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 Core Infrastructure Risk Management Plan for Road Assets,* January 2008. Road service priorities were established by a Risk Management Team as a part of a June 2008 workshop.

This report contains the most current funding and asset performance information available. Unless noted, information is through June 30, 2008. Updates of this information will occur annually.

b. Tillamook County Public Works Mission

A well-maintained, safe road network supports a thriving Tillamook County economy and a healthy environment. Well-trained and professional staff works in partnership with the community to ensure that the County road network meets the needs of citizens now and in the future.

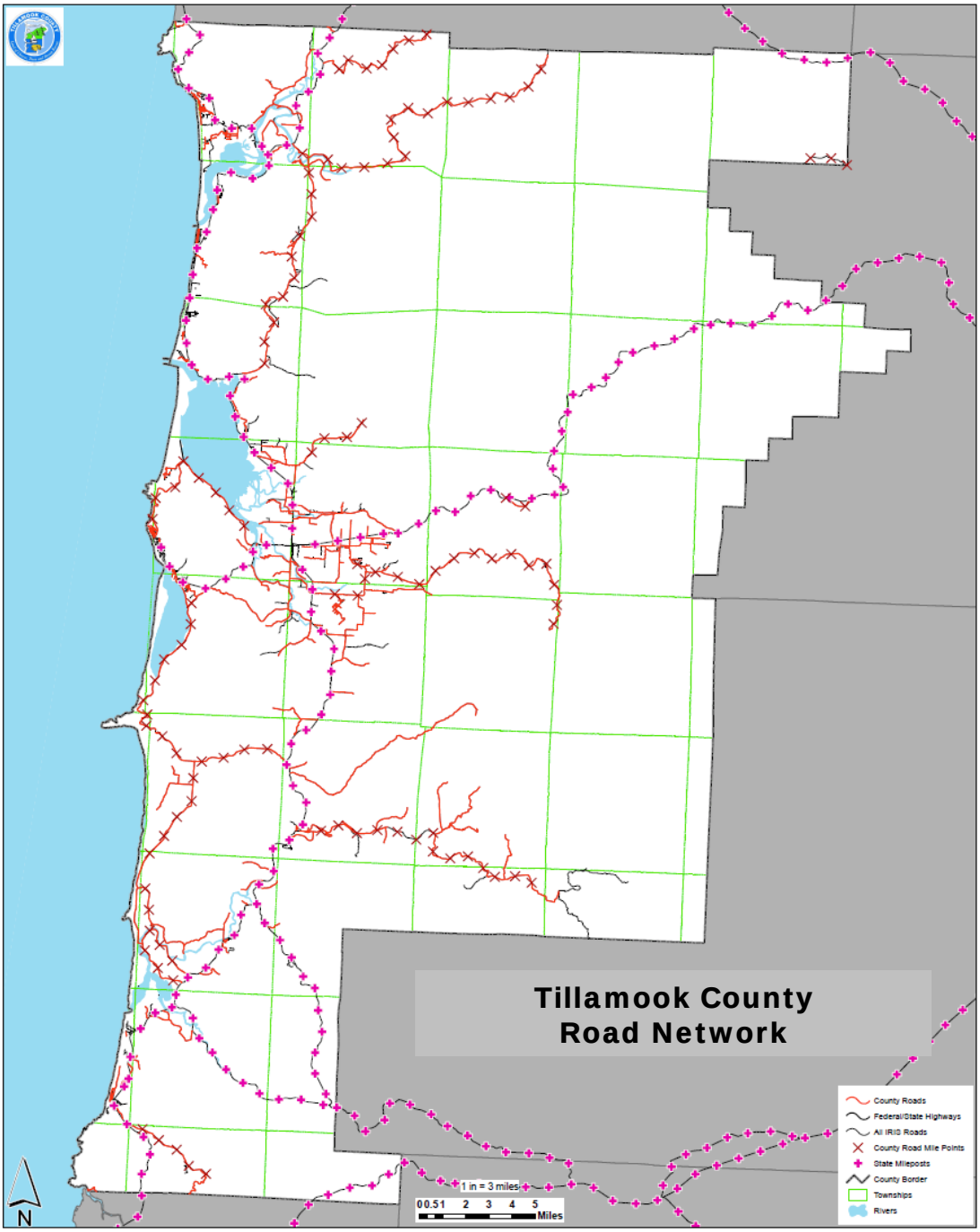
Strategic objectives are to:

- Maintain a safe road system by
    - Responding to weather events
    - Identifying and repairing hazards
- Preserve county roads to prevent further deterioration and protect the public's investment
- Reconstruct the most critical road assets
- Bring road facilities up to standard and manage the County roads to meet current and future needs

TCPW is committed to improving services to Tillamook County road customers and partners given available resources. Tillamook County Public Works (TCPW) adopted this new mission in 2008 that embraces asset management strategies and best practices as a core business process. Performance reporting is a part of this commitment. It provides feedback on performance for continuous improvement. The accompanying 3-year improvement plan reflects how TCPW intends to implement improvements while minimizing long term costs, minimizing risks to the community and meeting legal obligations that together improve the livability of the citizens and businesses in Tillamook County.

c. County Road Network

Tillamook County Public Works (TCPW) managed a 378[1] mile county road network in 2008 for 25,038 county citizens.



[1] There is slight variation in the reported miles of Tillamook County roads. For purposes of this report, 378 miles (287 paved, 91 gravel) is used. This is the mileage reported by in the *Tillamook County Comprehensive Annual Financial Report*, June 30, 2008.

The road network provides safe access to services for county residents and movement of goods to and within the county.

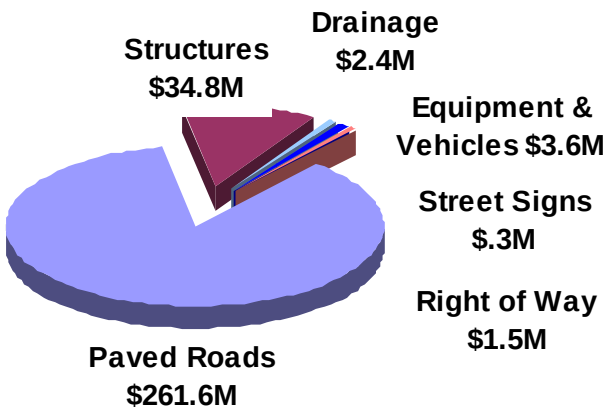


Figure 1 County Road Network Value $304 Million - 2008

As of July 2008 County road assets are conservatively valued at $304 million. Eighty-six percent (86%) of the road network's value is in its paved roads.

d. County Road Services

TCPW is responsible for the following managing county:

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

e. County Road Network Inventory, Value & Condition and Unmet Need

Table 1 Tillamook County Road Network
Inventory, Value, Condition & Unmet Need – 2008

TILLAMOOK COUNTY ROAD NETWORK
INVENTORY, CONDITION, AND VALUE
JULY 2008

FACILITY	GASB34	STATUS	REPLACEMENT VALUE	CONDITION*						TOTAL UNMET NEED**
				VG	G	F	P	VP	TBD	
PAVEMENT										
Paved	X	287 centerline miles	$261,600,000		25%	15%	25%	36%		$37,000,000
Gravel		91 centerline miles**	N/A					100%		N/A
			$261,600,000							$37,000,000
STRUCTURES										
Bridges	X	96	$33,619,088		68%	25%	7%			TBD
Guardrails		10.1 miles	$1,152,385	39%	8%	8%	33%	10%		$495,526
Levees		2	TBD						X	TBD
			$34,771,473							$495,526
DRAINAGE										
Culverts	X	3,210	$2,375,000						X	TBD
Ditches		198 miles	TBD	1%	6%	62%	22%	8%		TBD
TRAFFIC SIGNALS		1	TBD						X	TBD
STREET SIGNS										
Signs	X	4,807	$144,210	92%	7%		1%			$1,620
Delineators	X	659	$11,862						X	TBD
Posts	X	5,452	$98,136						X	TBD
			$254,208							
PAVEMENT MARKINGS										
Painted center lines		282	N/A							N/A
Painted Stop Bars		TBD	N/A							N/A
VEHICLES & EQUIPMENT	X	99	$3,623,771						TBD	TBD
BUILDINGS	X	TBD	TBD						X	
RIGHT-OF-WAY* **		2,367 acres	$1,475,557							
TOTAL			$304,100,009							$37,497,146

*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).
***Right of Way Value from *Tillamook County Comprehensive Financial Annual Report* , June 30, 2008. 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

Tillamook County's 2008 pavement condition rating (PCI) is Fair (45 PCI), a decline from 2007. $37.5 million is needed to bring County roads to Good condition and address known guardrail needs. Long term this provides the lowest lifecycle cost required to manage paved roads.

2. TCPW Services – Sources of Revenue & Expenditures

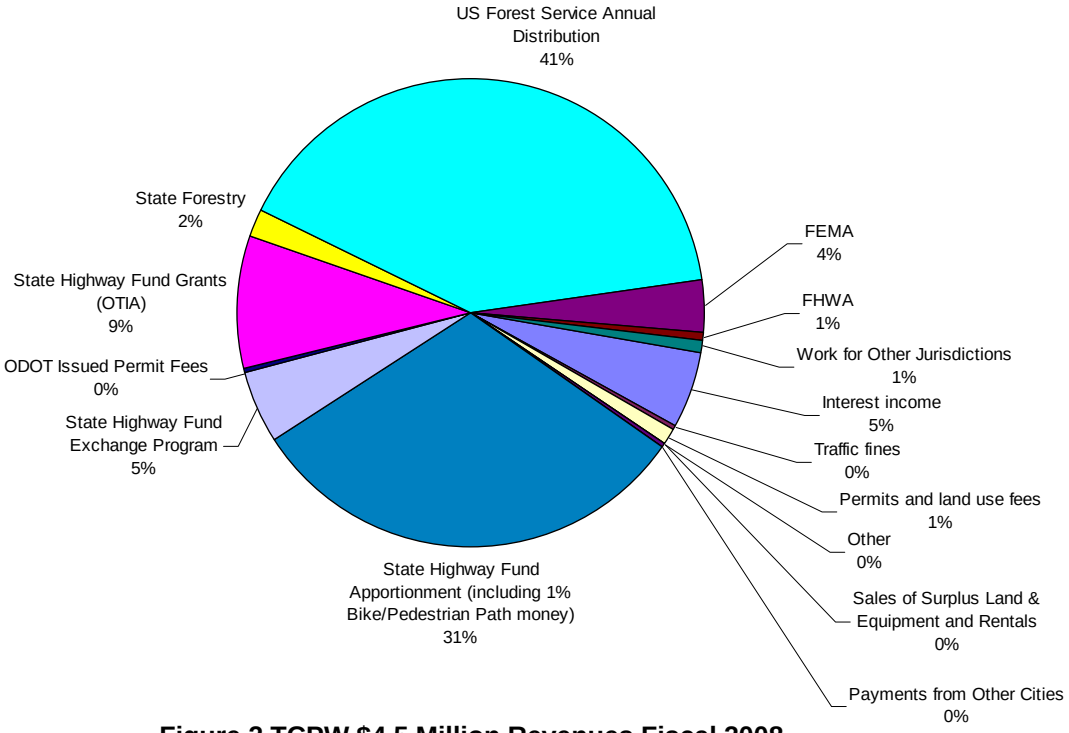


Figure 2 TCPW $4.5 Million Revenues Fiscal 2008

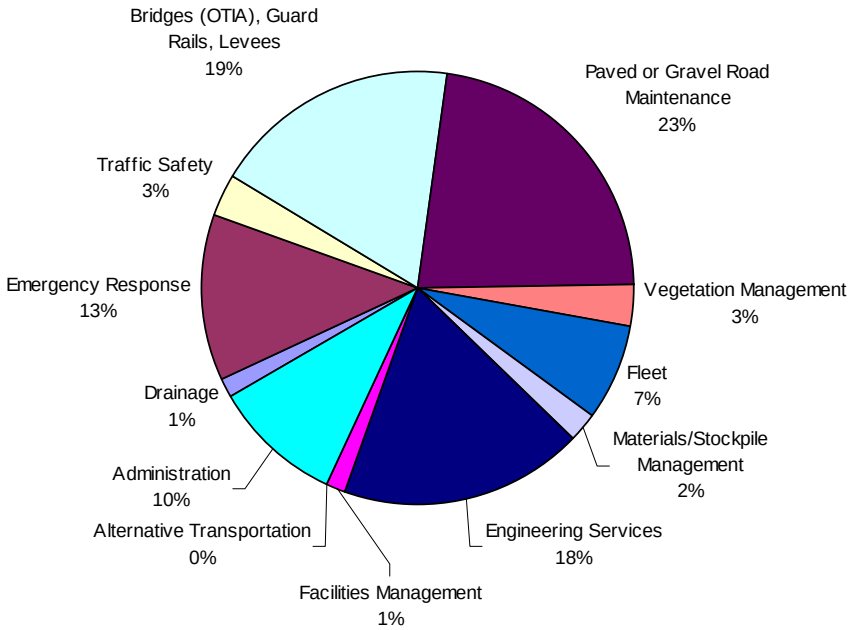


Figure 3 TCPW Expenditures Fiscal 2008

3. Reporting Relationships

a. 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). The organizational structure is shown above.

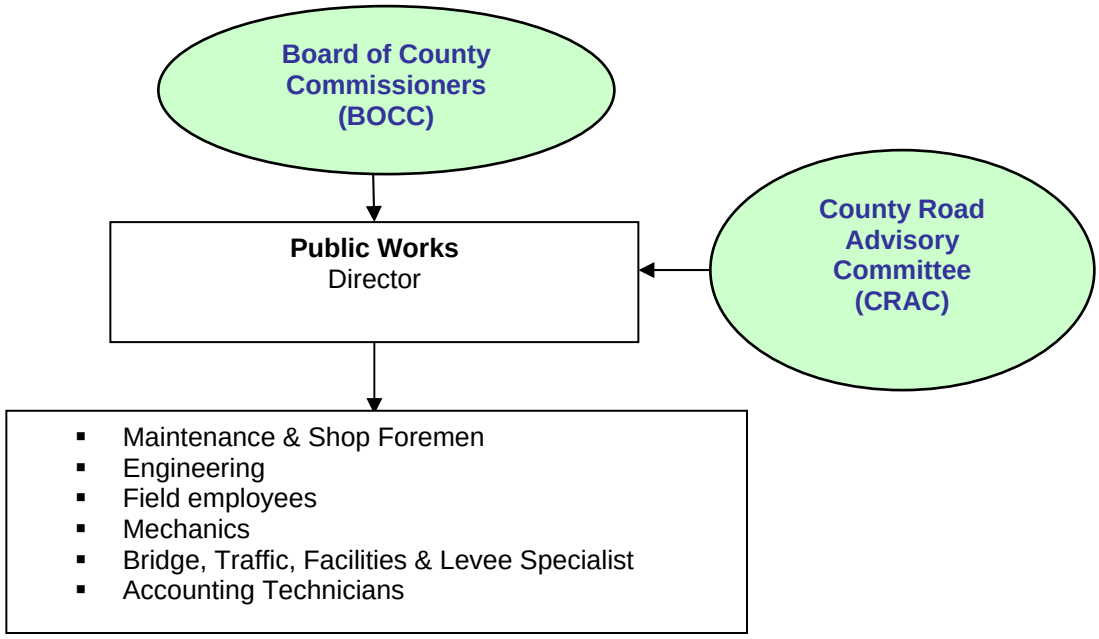


Figure 4 Tillamook County Management Structure

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.

b. Road Management Strategy & Decision Making Process

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 Fair condition of county road assets, 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.

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., bridge, 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.

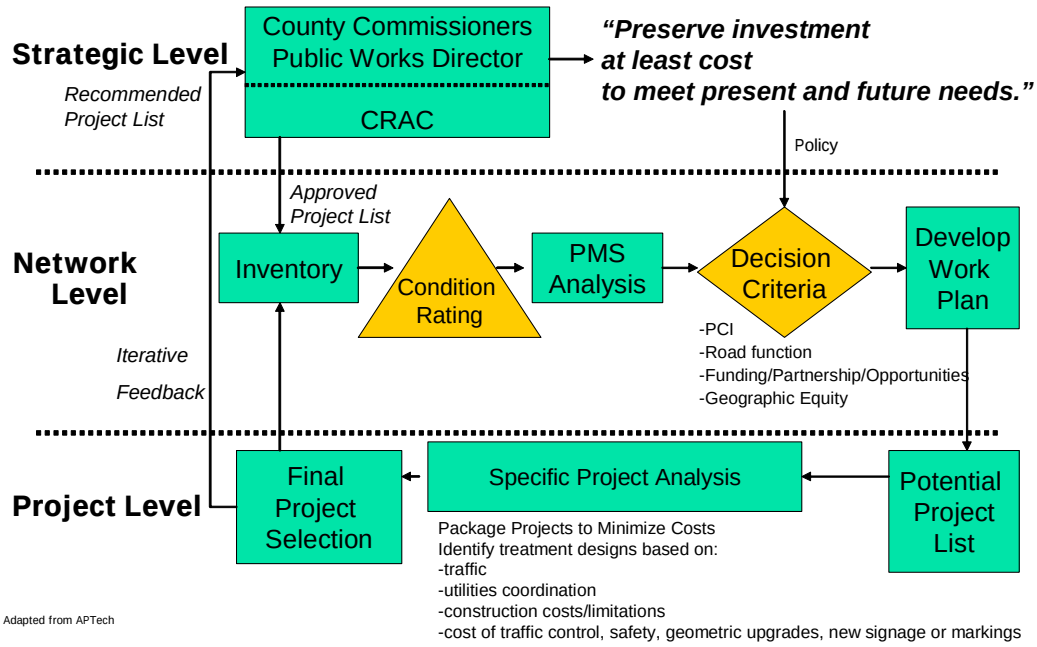


Figure 5 Strategic Alignment & Road Asset Management

c. Links to Other Plans & Strategies

Management of county road assets relates to adopted County strategic plans and processes, public expectations and legislative mandates.

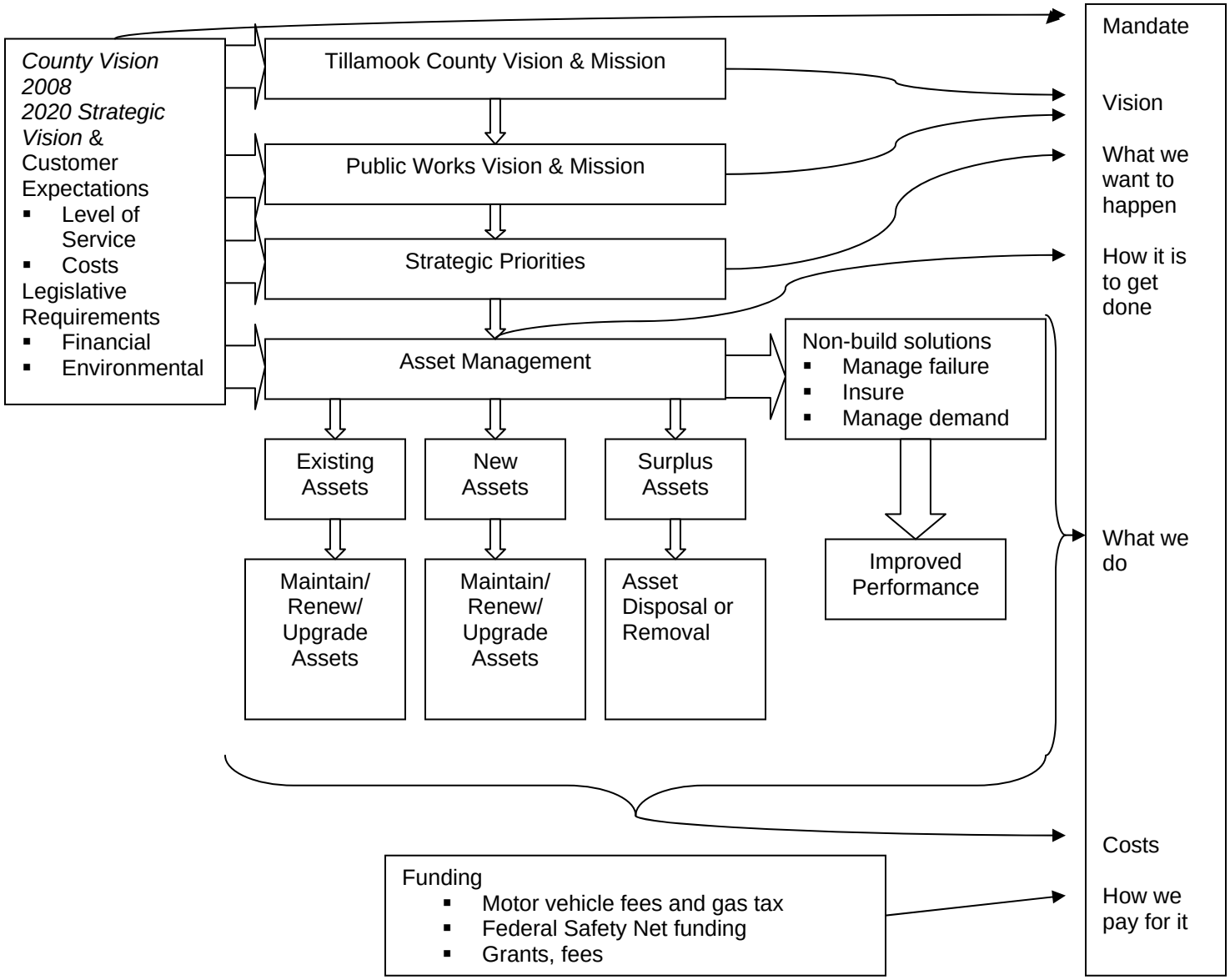


Figure 6 Tillamook County Strategy, Planning & Policy Framework

4. 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.

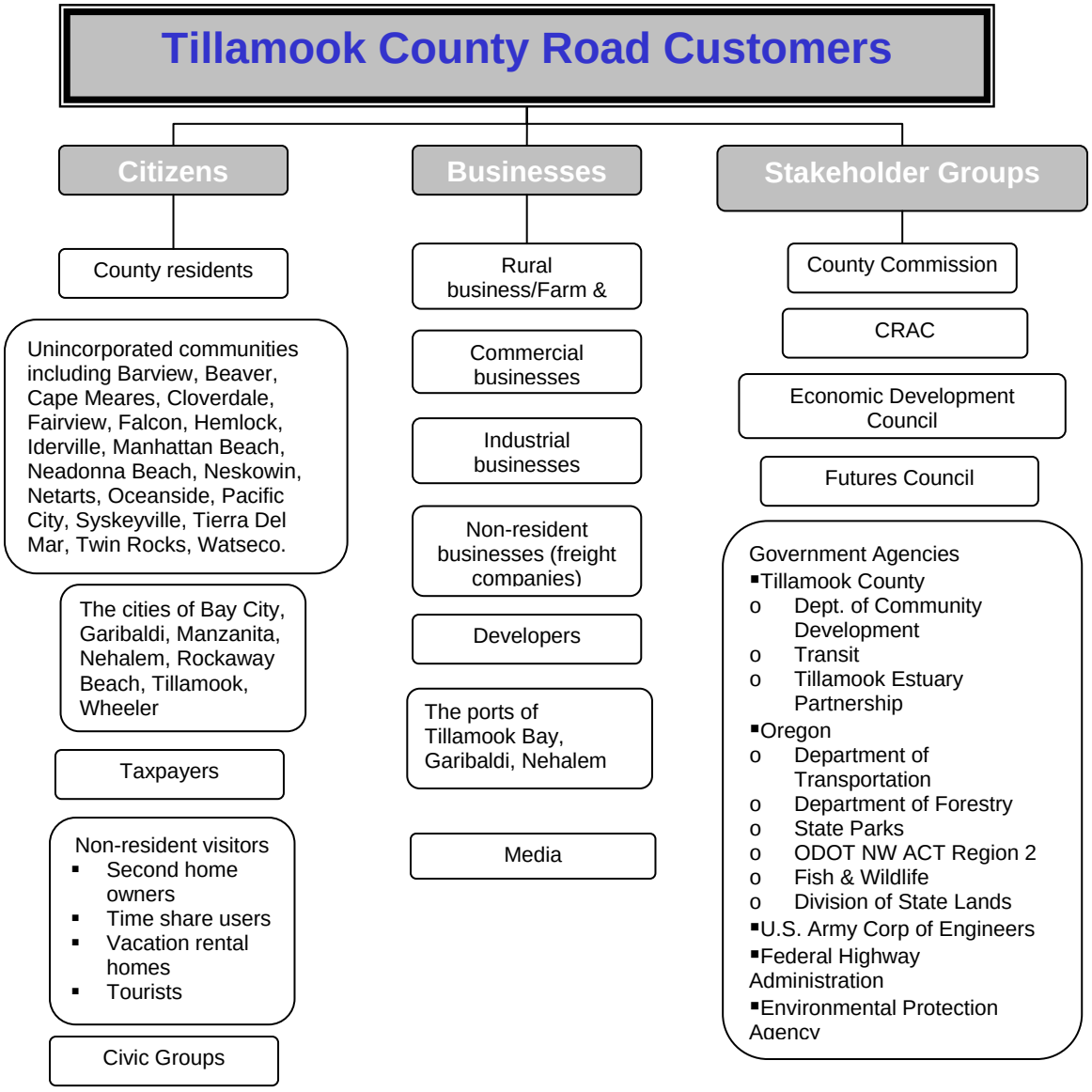


Figure 7 Tillamook County Road Customers

5. Risk Assessment and Management

The relative priority of TCPW services and their assets was established by a June 2008 Risk Workshop Team. Members of the team are:

- Tillamook County Board of County Commissioners (BOCC)
- County Road Advisory Committee (CRAC) Members
- Tillamook County Public Works Director and management staff
- County Community Development Director
- Tillamook County Coastal Resource Planner
- Tillamook County Treasurer
- Tillamook County Human Resource Director

Using existing inventory, condition and value information and Tillamook County Public Works management knowledge, the Risk Workshop Team assessed the types of failure that might be expected, how likely failure was, and if failure was to happen, the consequences to Tillamook County road service customers.

Criteria used to evaluate consequence include:

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

Based on this analysis (likelihood and consequence) a risk level was assigned. Required actions and a risk management strategy are in the process of being developed by TCPW for Extreme and High risks. Other risks are monitored as a regular course of business, transferred to others (e.g., local access roads), or accepted, given the current level of resources.

A Risk Register will monitor and report on actions taken to reduce known risks.

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

Extreme risks include:

- Arterial and collector paved roads
- Mowing and spraying roadsides
- Fleet equipment
- Staffing levels and succession planning

High risks include:

- Gravel roads
- Local Access Roads (private local roads received County maintenance based on Board Order; this was seen optional level of service and an opportunity to transfer resposibility back to the private property owners)
- Bridges
- Levees
- Culverts/Ditches & Shoulders

- Signs-Regulatory
- Pavement markings
- Quarries

Medium risks:
- Guardrails
- Signs/Other
- Engineering staff shortage

Low risks include:
- TCPW facilities

Within each asset class, critical assets for safe passage on County roads and bridges are identified and managed (see weight limited bridges, bridge sufficiency ratings, pavement management system, and Integrated Road Information System for these rank-ordered assets). Monitoring and addressing critical asset needs will occur as a part of future risk evaluation processes, and are reflected in annual operating budget requests and long range capital planning.

6. Performance of TCPW Road Services

a. Performance Summary

Table 3 Summary of Road Services Performance

Tillamook County Road Performance by Service						
Program	**Unit/Type of Accomplishment**			**Effectiveness/Nework Impact**		
Road Management		**2007**	**2008**		**2007**	**2008**
	Miles to maintain	378	378	PCI for arterial, collector, local roads	60/51/40	60/48/39
	Miles arterial/collector/local of asphalt resurfacing	8.9	8.9	Percent of paved roads resurfaced (overlaid)	3%	3%
	Miles local graveled/bladed every other year	91	91	Percent of local gravel roads graded every other year	TBD	TBD
				Percent of Surface Road expeditures on preventive maintenance	4%	TBD
	Miles inspected every other year	272	272	Percent of Surface Road expeditures on rehabilitation	63%	TBD
				Percent of road requests response within 24 hours	100%	TBD
Structures		**2006**	**2008**		**2006**	**2008**
	Number of bridges inspected every other year	96	95	Average NBIS sufficiency rating	80%	80%
				Percent of bridges with sufficiency rating over 75 (Good)	66%	68%
				Percent of bridges with sufficiency rating over <50 (Poor)	7%	7%
	Number of weight limited bridges	6	3	Percent of weight limited bridges	6%	3%
	Miles of guardrail inspected	TBD	10	Percent of guardrail in Poor/Very Poor condition	TBD	43%
Traffic Safety		**2007**	**2008**		**2007**	**2008**
	Number of miles receiving pavement markings	299	299	Cost per mile for pavement marking	$346	$351
	Number of traffic signs maintained	4,807	TBD	Percent of Stop signs Very Good or Good condition	98%	TBD
				Percent of Stop signs repaired/replaced within 48 hours	100%	TBD
				Percent of Stop sign requests response within 24 hours	100%	TBD
Drainage		**2007**	**2008**		**2007**	**2008**
	Number of lane miles of ditches to maintain annually	TBD	195	Percent ditches requiring immediate attention (Fair, Poor, Very Poor)	TBD	93%
	Lane miles of ditches maintained	TBD	TBD	Percent of ditches maintained annually	TBD	TBD
	Lineal feet of culverts repaired or replaced	TBD	235	Percent of culverts maintained or replaced	TBD	TBD
	Number of levees inspected annually	TBD	2	Levees in Poor condition	TBD	TBD
Vegetation Management						
	Acres of shoulder area treated with herbicide	TBD	TBD	Percent of lane miles mowed per year	TBD	TBD
	Lane miles of vegetation maintained	TBD	TBD	Percent of lane miles cleared of debris per year	TBD	TBD
Emergency Management		**2007**	**2008**		**2007**	**2008**
	Storm response hours (total for department)	5,400	11,018	Percent of roads cleaned of snow and sanded within 24 hours	100%	100%
	Hours spent plowing and sanding	511	337	Percent of roads blocked by downed trees opened within 12 hours	95%	95%
	Number of slides responded to	15	17			
Equipment Management		**2007**	**2008**		**2007**	**2008**
	Number of pieces of equipment managed	99	99	Percent receiving 24 hour service fueling	TBD	100%
	Number of pieces of equipment serviced receiving preventive maintenance service	TBD	TBD	Percent of equipment serviced every 90 days for preventive maintenance	TBD	100%
	Number of pieces of equipment D.O.T. certified annually	TBD	TBD	Percent of fleet DOT certified annually	TBD	0
Facilities Management						
	Number of buildings inspected for structural, fire code and OSHA compliance annually	3	3	Percent of buildings certified by fire, OSHA, building inspector	TBD	100%
Alternative Transportation						
	Number of projects completed annually	0	0	Percent projects completed annually	0%	0%
Engineering Services 2007		**2007**	**2008**		**2007**	**2008**
	Number of permits reviewed	TBD	380	Percent of project completed or made ready	TBD	TBD
	Number of permits reviewed - community development	TBD	120			
	Number of bridge projects ready for construction/complete annually	TBD	0			
Administration		**2007**	**2008**		**2007**	**2008**
	Number of employees	30.5	30.5	Percent of full time employees performance assessed per year	100%	100%
	Hours of training per year	1,256	1,607	Percent of retention/turnover	3%	30%

TBD To Be Determined
N/A Not Available

b. Detail of Road Service Performance, Condition, and Need

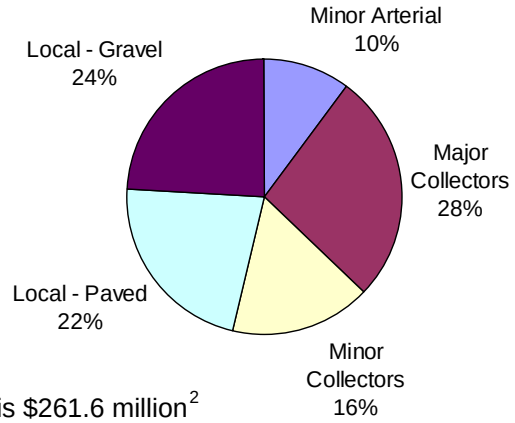
b.1. Paved and Gravel Roads

b.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.
- Ensuring safety and minimizing unpaved local road costs by blading and graveling every other year.



b.1.2 Inventory

There are 378 miles in the County road network. Seventy-six percent (76%) or 278 miles are paved and the remaining 91 miles (24%) are local gravel roads.

b.1.3 Value

The June 30, 2008 replacement cost for road infrastructure is $261.6 million[2]

b.1.4 Pavement Condition

Pavement condition is a Key Performance Indicator for County road network needs. The 2008 Tillamook County road condition is Fair. Arterial and collector roads are in better condition than local roads.

Table 4 Pavement Condition

Condition Category	PCI Range
Good	70 - 100
Satisfactory	50 - 69
Fair	25 – 49
Poor	< 25

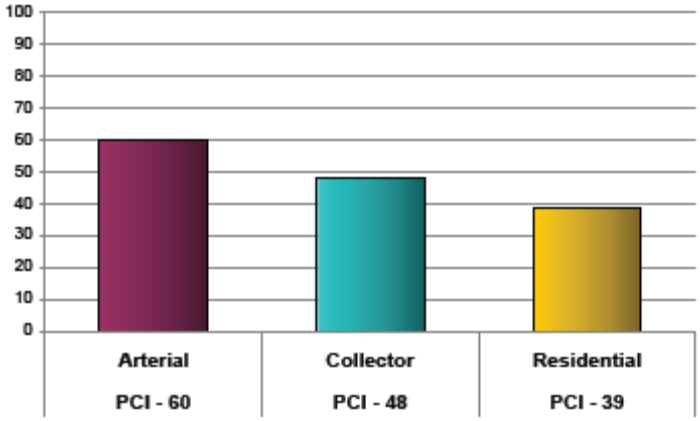


Figure 8 2008 Pavement Condition by Type of Road (45 Network Weighted Average)

[2] Source: *Tillamook County Comprehensive Annual Financial Report for June 30, 2008*. Replacement cost includes only the paved roadway (consisting of all labor and materials associated with construction) from curb to curb.

b.1.5 Pavement Condition - 2001-2008

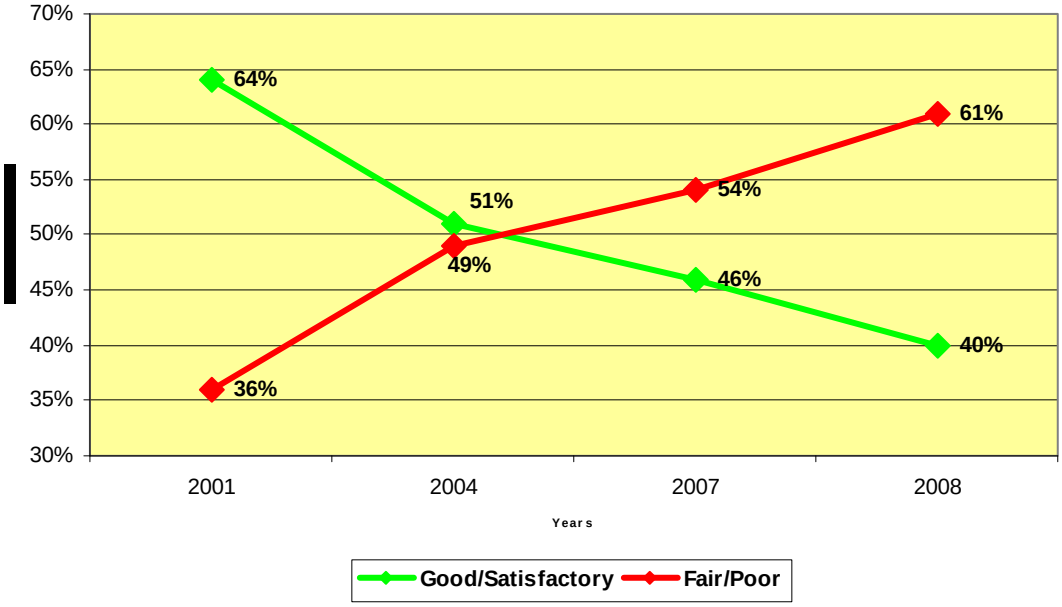


Figure 9 County Road Condition Declined - 2001-2008

b.1.6 2008 Cost of Road Surface Management

Table 5 Pavement Management Strategy & 2008 Costs[3]

Strategy	Activity	Cost	Unit	Road Condition	
				Category	PCI
Routine Maintenance	Crack Seal	$0.84	lineal foot	Good	90
Routine Maintenance	Chip Seal	$2.25	square yard	Good	90
Preventive Maintenance	Thin Overlay (1.5")	$7.50	square yard	Satisfactory	50-70
Minor Rehabilitation	Thin Overlay with leveling	$7.50	square yard	Fair	25-50
Rehabilitation	Thick Overlay (3-5")	$14.50	square yard	Fair	25-50
Replacement	Reconstruction	$90.00	square yard	Poor	0-25

Figure 10 Intervention Strategy & Pavement Condition Index (PCI)

[3] Tillamook County Pavement Management System, 2008

b.1.7 Road Lifecycle Management & Activity Costs 2005-2008

Table 6 Road Management Activities by Lifecycle

Activity (Source: IRIS)	Routine Maintenance	Reactive Maintenance	Preventive Maintenance	Rehabilitation	Reconstruction
1101 - Chuckhole Repair		✓			
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	✓				

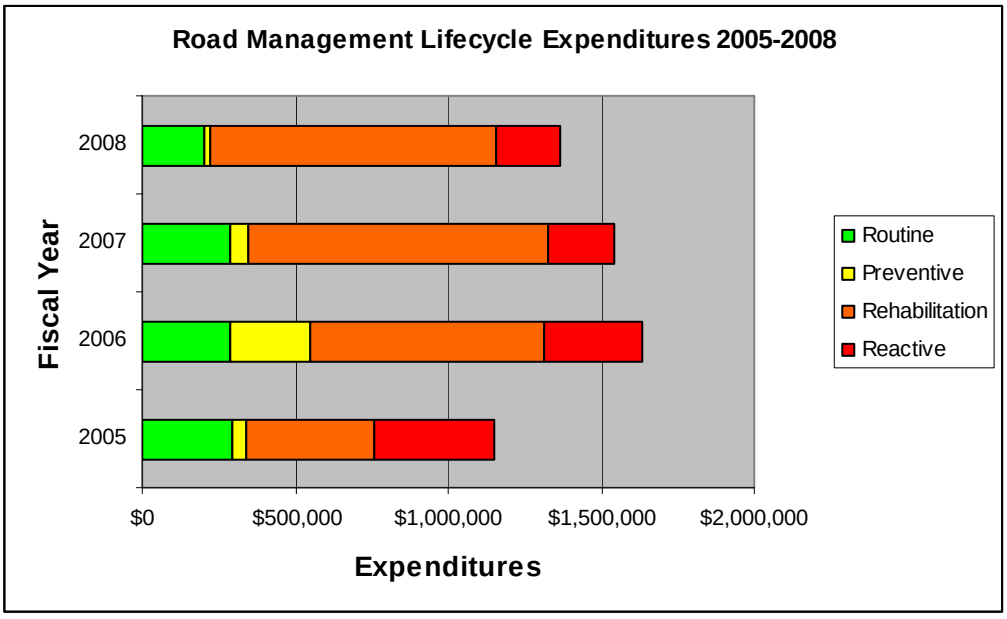


Figure 10 Road Lifecycle Management 2005-2008

Table 7 Road TCPW Road Resurfacing Accomplishments – 1998-2008[4]

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

2005 and 2006 pavement overlay projects included projects with federal or other funding.

b.1.8 Future Pavement Performance Options & Decisions- 2008-2018

The five scenarios show pavement condition in 2018 given funding levels. Given current funding levels, Tillamook's road network will decline to a pavement condition of 32 PCI, or Fair condition by 2018.

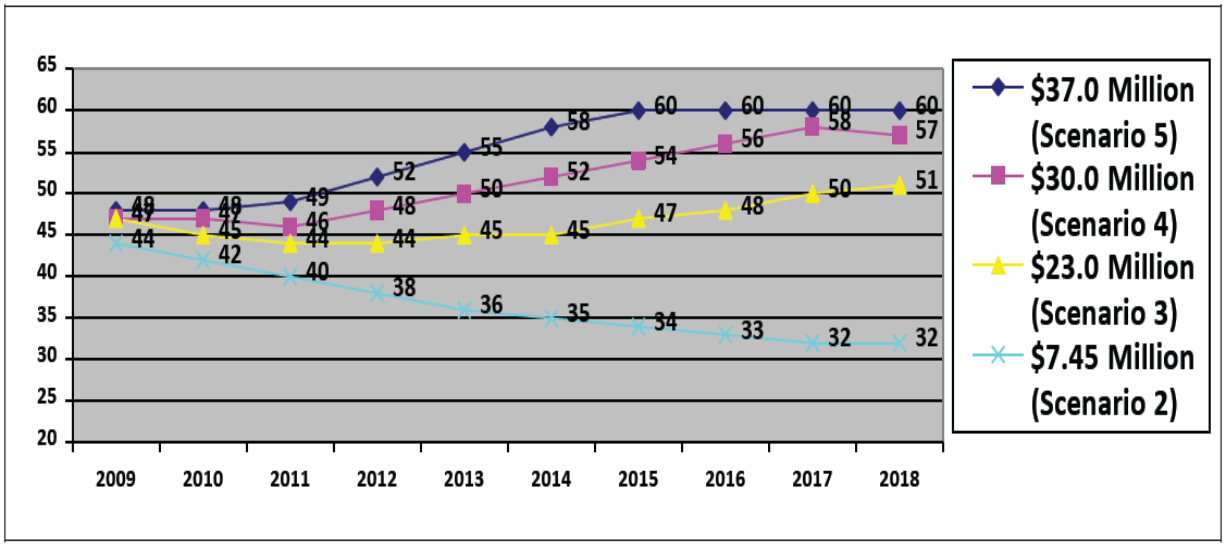


Figure 11 Pavement Condition Scenarios and Expenditures 2009-2018[5]

Current funding will result in continued decline of the County road network. Funding is insufficient to maintain the street network over the long run; the deferred maintenance backlog will continue to rise. If the current funding level continues over ten years ($745,000 per year), the network PCI will decrease to 32 (Scenario 2). The deferred maintenance backlog continues to increase, to $191.6 million in 2018.

If the County were to increase the funding level to $3.7 million per year (Scenario 5), for a total of $37.0 million over ten years, the network level PCI would increase by 15 points, to 60 at the end of the ten year analysis period. The deferred maintenance continues to increase under this funding level, to $118.1 million in 2018. Almost 71% of the network would be in Good condition.

This funding level approximates the target performance the Oregon Department of Transportation and is below current performance of adjoining Lincoln and Clatsop counties; both counties have PCIs above 70.

[4] *Tillamook County Comprehensive Annual Financial Report*, June 30, 2007
[5] *Pavement Management Program Budget Options Report*, Capitol Asset & Pavement Services, 2008

b.2 Detailed Structures Performance

b.2.1 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 sustainablity
- Respond to requests within specifiied timeframe and complete based on risk and available resources.

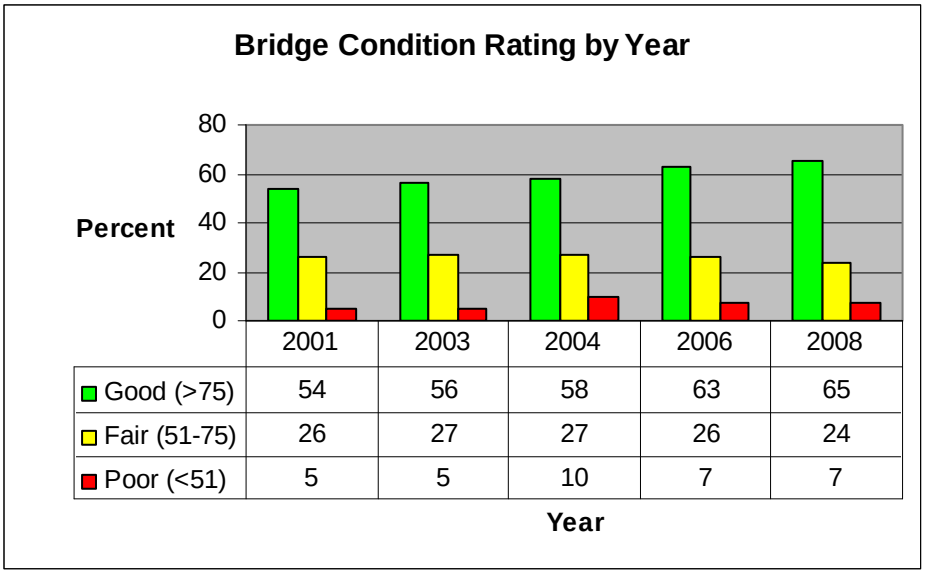
b.2.2 Inventory & Value

Table 8 County Structures Inventory & Value - 2007

Structure Type	Number	Replacement Value
Bridges	96	$33,619,008
Guardrail	10 miles	$ 1,152,385
Levees	2	Unknown

b.2.3 Condition

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 pubic usage, and detour length. A rating of 75 or above is considered good, 50 to 75 is fair and below 51 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.



	2001	2003	2004	2006	2008
Good (>75)	54	56	58	63	65
Fair (51-75)	26	27	27	26	24
Poor (<51)	5	5	10	7	7

Figure 12 Bridge Condition 2001-2008

In 2008, the County owned 96 bridges. The Salmonberry Bridge was washed out in 2007. It is assumed in Poor condition. Bridge condition was assesessed for the remaining 95 county-owned bridges in 2008. Sixtey-five bridges (68%) are in Good condition, 25% in Fair and 7% were in poor condition with 3 bridges posted with weight limits. Another 5 bridges require special permits for large loads and volumes.

Of the 6 bridges rated in poor condition; the Wyss Bridge was scheduled for repair in 2007. By Board Order, Hushbeck, Prince (Blum Lane) and Foley Creek bridges are posted with signs limiting weight loads.

Table 9 Bridges in Poor Condition in 2008 (less than 50 sufficiency rating)

(less than 50 sufficiency rating) BRIDGE NAME	SUFFICIENCY RATE 2008
WYSS	17.0
LOMMEN OVERPASS	44.2
TRASK RIVER, SO. FK.	44.9
HUSHBECK	46.1
FAGAN	48.5
PRINCE (BLUM LANE)	49.8

The 2001 Oregon legislature approved a statewide bond measure, the Oregon Transportation Investment Act (OTIA), which provides funding for state, county and city bridge replacement. Tillamook bridges repaired or replaced using these funds are:

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

b.2.4 Guardrails. Guardrails were inspected in 2007. The Oregon Standardized Drawings were the basis of the five-point condition assessment.

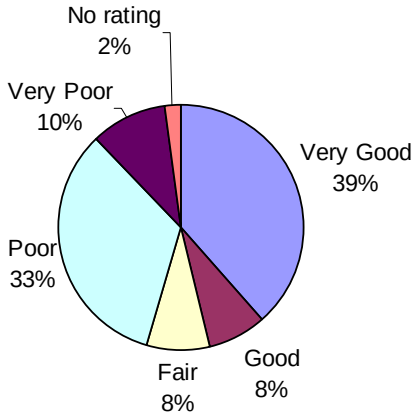


Figure 13 Guardrail Condition

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

b.2.5 Levees. Levee management responsibility was transferred to TCPW in 2008. Levee inventory, condition inspection protocols and asset-based cost accounting are under development. Levees are currently inspected prior to and following major weather events.

b.2.6 Structure Activities – 2005-2008

2006-2008 expenditures reflect state OTIA funding that is targeted at the repair and replacement of County bridges.

	2005	2006	2007	2008
1112 - Riprapping	$3,607	$155	$0	$4,751
1130 - Guard Rail	$4,975	$5,051	$7,891	$14,939
1131 - Fencing	$53	$591	$258	$241
1170 - R/W Aquisition	$208	$0	$111	$0
1201 - Brushing	$3,199	$8,434	$2,030	$0
1204 - Cleaning	$1,727	$11,021	$8,233	$5,872
1205 - Approach Guardrail Repair	$9,880	$2,677	$2,596	$4,733
1206 - Inspections	$6,395	$2,047	$11,529	$2,776
1207 - Approach Repair	$11,125	$357	$470	$131
1210 - Repair Structure - Wood	$487	$0	$299	$12,802
1211 - Repair Structure - Concrete	$523	$0	$418,415	$255,265
1220 - Replace Structure - All Types	$415	$2,101,103	$1,344,881	$824,681
Total	**$38,987**	**$2,131,280**	**$1,796,712**	**$1,121,440**

b.3 Detailed Traffic Safety Performance

b.3.1 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

b.3.2 Traffic Safety Activities - 2005-2008

Five activities make up the Traffic Safety program.

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

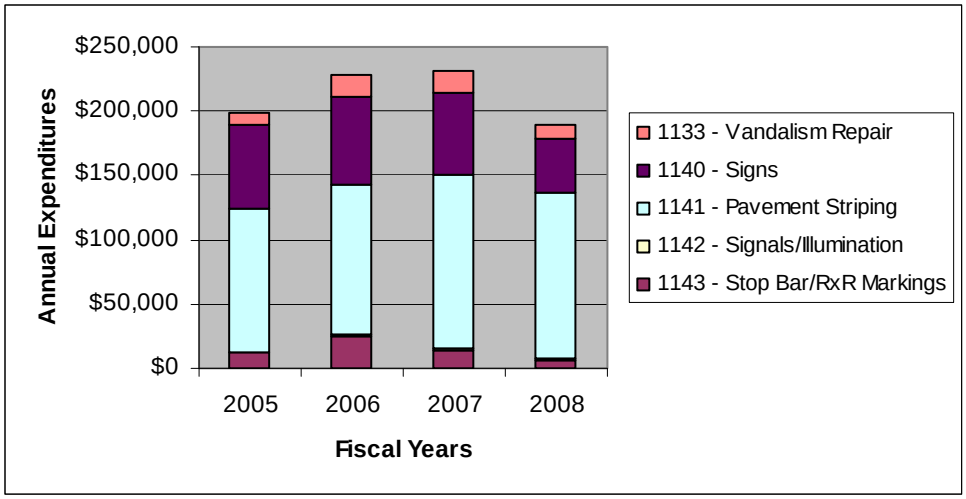


Figure 14 Traffic Safety Program Expenditures – 2005 - 2008

The County spent $**189,945** on the Traffic Safety program in 2008. Centerline and fog lines at the side of county roads must be repainted each year. Sixtty-eight percent (68%) of the program's expenditures were used to re-stripe County roads and another 3% to add pavement markings at railroad crossings and intersections (stop bars). Maintaining County signs requires one-fifth of resources (22%). The County spent $12,000 (6%) in 2008 responding to sign vandalism. Tillamook County contracts with Marion County for pavement marking services.

b.3.3 Inventory & Replacement Value

Table 10 Traffic Safety Inventory and Value - 2007

Asset	Units	Unit Cost	Replacement Value
Signs	4,807	$30	$144,210
Delineators	659	$18	$11,862
Posts	5,452	$18	$98,136
Total Replacement Value			**$254,208**

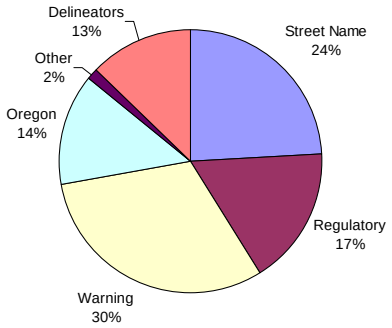


Figure 14 Traffic Safety Inventory - 2007

b.3.4 Pavement Markings

Pavement markings regulate and guide traffic movements and promote safety. Arterial and collector paved roads receive pavement centerline, stop bar and fog lines. Marion County provides contract services under intergovernmental agreement (IGA). Centerline, stop bar and railroad crossing pavement markings are applied annually with fog lines reapplied every other year.

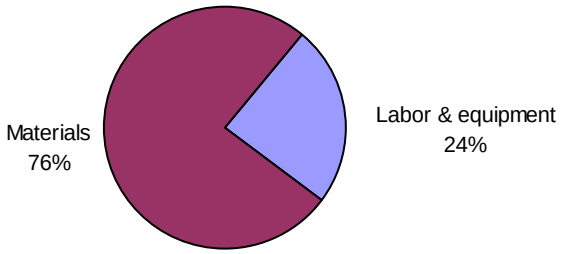


Figure 15 Pavement Marking Expenditures $105,000- 2008

Two hundred and ninety-nine (299) miles of county roads received pavement markings in 2008 at an average cost of $351 per mile.

b.3.4 Sign Condition & Performance

Regulatory signs receive the highest priority. There are 425 stop signs on county roads; 93% are in Very Good condition, 5% in Good and 1% in Fair condition.

Table 11 Sign Condition and Performance

Category	Condition		Reflectivity	
Very Good	4399	92%	484	87%
Good	355	7%	18	3%
Fair	44	1%	5	1%
Poor	9	0%	50	9%
Subtotal	4807			
No information	668	6%	110	20%

The majority of signs are in good physical condition. For the 4,807 signs with condition ratings in IRIS, 92% are in Very Good condition. Reflectivity, the visibility of signs, is judged using annual nighttime visual inspection. The same four-point scale, from Very Good to Poor, is assigned. Ten percent (10%) of the sign inventory in IRIS has a documented reflectivity rating. Of the 557 signs with a reflectivity condition rating, 73% are Very Good.

b.4 Detailed Drainage Management Performance

b.4.1 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.

b.4.2 TCPW Drainage Management Activities 2005-2007

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

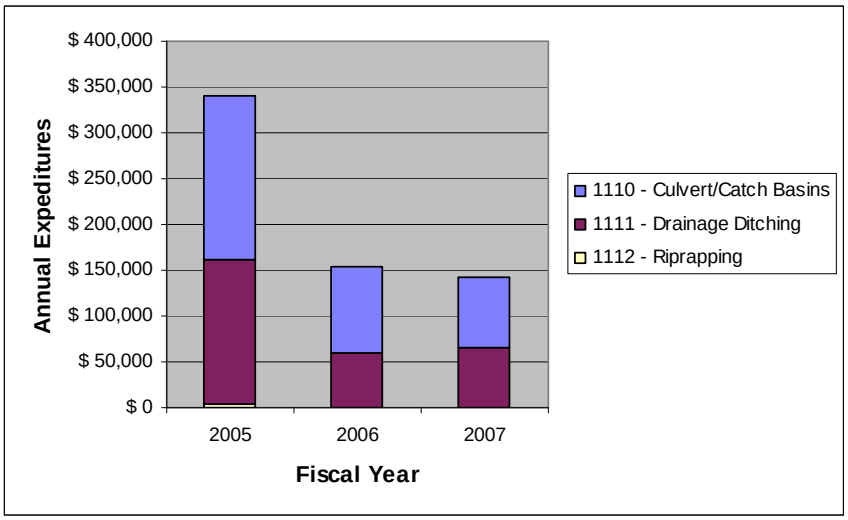


Figure 16 Drainage Expenditures 2005-2007

b.4.3 Culvert inventory, condition and performance

There are an estimated 3,210 culverts in the county with a combined length of 124,577 feet, or almost 24 miles of culverts associated with draining Tillamook County roads and their approaches. [6] 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. The confidence in culvert inventory has not been established but is considered low.

b.4.4 Ditch Inventory, Condition and Performance

[6] Integrated Road Information System (IRIS)

County roadway ditches should be cleaned annually. Ditches are graded generally 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. Currently, Tillamook County ditches are cleaned on a reactive basis.

County roads were surveyed in 2008 to inventory and rate the condition of county road ditches. Of the 325 road miles surveyed in 2008, 60% have ditches, 2% have concrete curbs channeling water and 38% have no ditches or curbs.

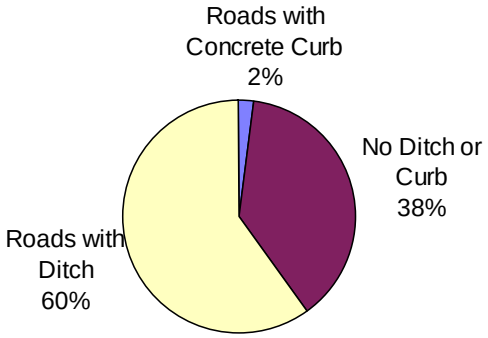


Figure 17 County Ditch Inventory 195 Miles - 2008

Table 12 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

Of the 195 miles of ditches along Tillamook County roads, 181 miles or 93% require some ditching maintenance. Thirty-one percent of county road ditches require immediate maintenance. The county's ditch standard[7] requires a ditch depth of 3:1 width, with a width of 5 feet.

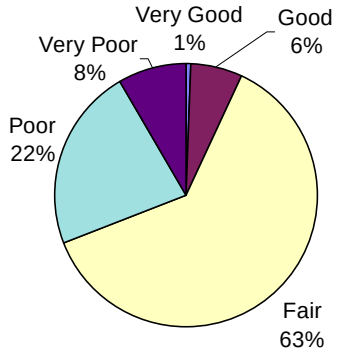


Figure 14 County Ditch Condition – 2008

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

b.5 Detailed Vegetation Management Performance

b.5.1 Outcome and Strategic Objectives

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

Vegetation 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.
- provide sight distance safety, drainage and prevent further damage to road surfaces and shoulders.

b.5.2 Vegetation Management Activities 2005-2008

County roadside vegetation is controlled and road infrastructure preserved 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.

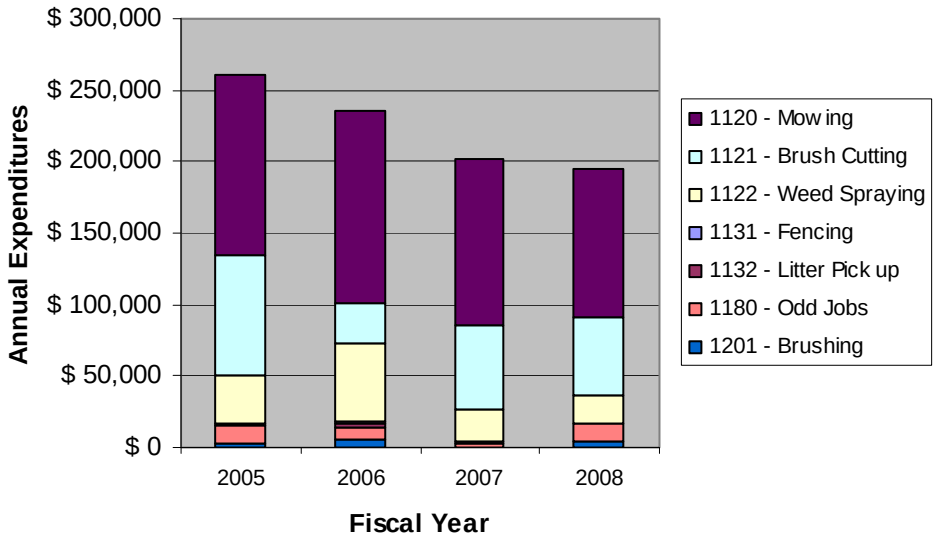


Figure 15 Vegetation Management Expenditures 2005-2008

b.5.3 Inventory, Condition and Performance

There is currently no inventory or condition assessment of the vegetation at the edge of county roads (e.g., obstructions/hazards, noxious weed inventory, presence of litter, appearance).

b.5 Emergency Response Level of Service

b.5.1 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

b.5.2 Emergency Response Activities 2005-2008

Since 1996, Tillamook County has experienced numerous catastrophic storms. Road network emergency mitigation and recovery expenses have increased 639% between 2005 and 2008. The four-year average spent on emergency response is $374,000. Emergency management activities represent 13% of TCPW 2008 expenditures, up from 6% in 2007. This is a 125% increase from 2007 to 2008.

Table 13 Emergency Response Expenditures 2005-2008

Activities	2005	2006	2007	2008
1160 - Snow Plow/Sanding	$19,285	$18,377	$37,469	$23,060
1161 - Flood/Wind/Slide	$83,781	$275,726	$300,935	$738,646
1202 - Debris Removal	$230	$5,925	$558	$2,307
Total	**$103,066**	**$294,104**	**$338,404**	**$761,706**

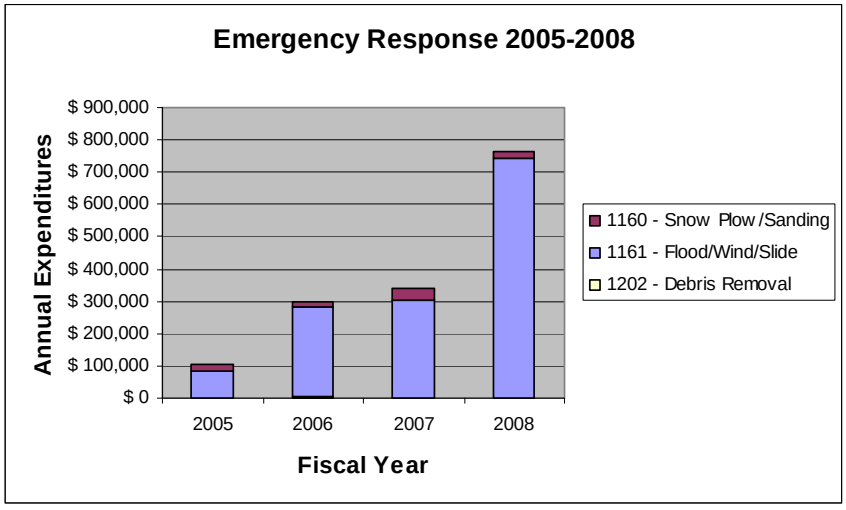


Figure 16 Emergency ManagementExpenditures 2005-2008

b.5.3 Performance

Responding to customer Service Requests in a timely manner & reducing hazards is a high priority. 100% of emergency requests are responded in emergencies as soon as staffing allows. Completion is dependent on priority and staffing levels, given the event.

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

b.6 Operations

b.6.1 Outcome and Strategic Objectives

Engineering Services
Purpose: Plan, research, coordinate and manage variety right of way activities. Assist in emergency response and recovery.

2005	2006	2007	2008
$1,228,243	$1,222,455	$707,430	$1,104,287

The majority of Engineering Services cost increase from 2007 to 2008 is due to an increase in contract management expenditures.

Equipment Management
Purpose: Support reliable vehicles for TCPW by balancing cost and timely maintenance and repairs with optimum vehicle availability and reliability.

Table 14 Equipment Management

Activities	2005	2006	2007	2008
1601 - Safety Inspections (shop)	$206	$617	$0	$435
1602 - Fuel/Oil/Lube	$90,712	$139,240	$146,050	$189,285
1603 - Tires	$10,872	$15,861	$27,320	$29,947
1604 - Communications Equipment	$2,402	$3,642	$777	$455
1610 - Other Repairs (shop crew)	$228,121	$248,084	$203,744	$200,241
1620 - Operator Maintenance and Repairs	$17,282	$16,170	$13,526	$14,720
1621 - Accident Repairs	$0	$221	$0	$0.00
1622 - Non-County Equipment/Oper. Rental	$173	$2,795	$519	$107
1630 - Fabrication	$637	$330	$47	$1,906
1640 - Chasing Parts	$2,797	$5,036	$2,480	$3,506
Total	$ 353,203	$ 431,994	$ 394,462	$ 440,602

Public works manages 99 vehicles and rolling stock. The historic purchase price in 2007 was $3.6 million. Nearly 75% of these vehhicles exceeds the County's adopted useful life for vehicles. Beinning in 2006, TCPW shop foreman began analyzing and reporting on-going vehilce costs and performance (hours and miles of use). A vehicle replacement fund was started in 2008 to replace high maintenance vehicles.

Facilities Management

Purpose: Safe and effective shelter for TCPW employees, equipment and the materials used to provide county road services.

Table 15 Facilities Management

Activities	2005	2006	2007	2008
1720 - Building Maintenance	$43,344	$20,581	$12,967	$27,373
1721 - Utilities	$23,912	$26,615	$26,263	$29,885
1722 - Yard Maintenance/Cleanup	$10,922	$12,641	$18,567	$27,409
1723 - Building Construction	$18,635	$0	$115	$230
Total	**$96,813**	**$59,837**	**$57,912**	**$84,897**

Performance

County Public Works buildings were built in the beginning of the 1900s. The estimated useful life of county buildings is 45 to 50 years; Public Works buildings are inspected for health and safety annually. They require increasing maintenance and repair and sustantially exceed their estimated useful lifely.

Quarries ,Materials Management & Stockpiling

Purpose: Reliable materials for county road maintenance that meet consistent standards of quality for the least cost in support of safe, serviceable and sustainable county roads.

Table 16 Material & Stockpiling

Activities	2005	2006	2007	2008
1502 - Operation	$1,133.55	$1,168.47	$4,817.57	$6,478
1505 - Tack Oil	$7,995.13	$1,611.44	$2,106.49	$1,649
1507 - Signs	$283.38	$8,195.15	$8,960.24	$7,483
1510 - Pit/Stockpile Dev.and Maint.	$37,275.85	$7,617.18	$2,767.01	$44,177
1511 - Hauling to Stockpile	$25,711.74	$61,690.80	$45,575.59	$72,905
1521 - Material Purchase	$0.00	$349.47	$0.00	$261
Totals	$72,399.65	$80,632.51	$64,226.90	$132,953.00

There are two county quarries. The county quarries are located south of Cloverdale (near Clear Creek) and north of Nehalem. Materials management costs result from hauling gravel from the Counties quarries to work sites. These costs increased 107% from 2007 to 2008. This is influenced by fuel costs. Over half (59%) of the 2008 total was the cost of hauling gravel to various work sites within the 378 mile county road system. Rock crushing in 2008 represents 26% of material management costs.

Administration

Purpose: Plan, budget and manage resources (labor, materials and equipment) in a safe and cost effective manner. Communicate results on performance, efficiency and effectiveness.

Table 17 Administration

2005	2006	2007	2008
$683,240	$615,711	$677,989	$594,796

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Employees	41	40	39	35	35	35	35	35	30	30	30

6. Road Network Level of Service

TCPW Mission: Provide, maintain, and preserve 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.

Table 6.1 Current Service Levels – Road Surface Management

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

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
COMMUNITY LEVELS OF SERVICE						
Responsiveness & Safety-Service Requests (SR)	Response to customer Service Requests in a timely manner & Reduce hazards	Response time to Service Requests responded to within set guidelines	TBD	Routine: -Response 100% in 24 hours (not for routine potholes) -Completion is priority dependent Emergency: -Response 100% in 2 hours for hazard -Completion 100% as is required and resources allow	Assign reporting to Office Staff; Set targets in FY 2008-09; Begin monthly reports in FY 09-10	See Actions

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
TECHNICAL LEVELS OF SERVICE						
Quality Sustainability – Overall Pavement Condition Index	Maintain the condition of assets at minimum lifecycle costs within the available budget	Inspect, rate & report pavement condition every other year; Report pavement condition annually (Very Good to Very Poor)	To Be Established (e.g., Good or better – more than 85%, PCI greater than 75)	2007 PCI: -Arterials: 61 -Collectors: 51 -Locals: 40	Budget for pavement inspection & asset condition reporting;	TCPW director & professional inspection contract
		% of arterial, collector and local paved roads receiving surface maintenance and renewal	TBD	2007: -Arterials: _ miles -Collectors: _ miles -Locals: _ miles	Pave roads to minimize lifecycle costs & repair greatest safety risks ("Mix of Fixes")	District Foremen
	Blade & gravel local roads to minimize lifecycle costs & repair greatest safety risks ("Mix of Fixes")	% of gravel roads receiving maintenance annually	Re-grade every other year	Not currently met	Seek additional revenues and shift from storm repair	District Foremen

Table 6.2 Structures Level of Service Statements

Outcome: A continuous road network over rivers, streams and uneven terrain supporting the traveling public and safety of all road users.

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
COMMUNITY LEVELS OF SERVICE						
Responsiveness & Safety-Service Requests (SR)	Response to customer Service Requests in a timely manner & Reduce hazards	Response time to Service Requests responded to within set guidelines	TBD	Routine: -Response 100% in 48 hours -Completion Priority dependent Emergency: -Response 100% in 2 hours for hazard -Completion – Priority dependent	Assign reporting to Office Staff; Set targets in FY 2008-09; Begin annual reports in FY 09-10	See Actions
TECHNCIAL LEVELS OF SERVICE						
Safety Sustainability -Bridge Condition & Posted Weight Limited Bridges	Maintain safe, accessible bridges appropriate for traffic	Publish bridge condition (Good 75-100, Fair 51 to 75, Poor 0-50) annually.	TBD	7 bridges in Poor condition (2008)	Report bridge condition to CRAC & set Target.	Assign inspection contract management and reporting to Engineering Project Supervisor
		Inspect all bridges every other year and after major	100%	100%	Manage bridge inspection contract.	Assign inspection contract management to Engineering

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
		storms				Project Supervisor
		# of weight limited bridges	TBD	3 bridges posted with restricted weight limits (2008)	Post weight limits as appropriate; work with CRAC.	Engineering Project Manager
Safety Sustainability – Guardrail Condition	Safe, appropriate guardrail protection	Inspect guardrail condition every other year using Oregon Standardized Drawings 5-point condition assessment.	TBD	43% in Poor or Very Poor condition (2007)	Post weight limits as appropriate; work with CRAC.	Engineering Project Manager
Safety Sustainability –Levees Condition	Safe, continuous road passage by levee protection	100% levees inspected annually, or after weather event	TBD	100% of levees inspected & emergency needs addressed	Assign levee inspection responsibility to Engineering Project Supvr.;	See Actions'

Table 6.3 Traffic Safety Level of Service Statement

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

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
COMMUNITY LEVELS OF SERVICE						
Responsiveness & Safety-Service Requests (SR)	Response to customer Service Requests in a timely manner & Reduce hazards	Response time to Service Requests responded to within set guidelines	Same as Current	Routine: -Response Evaluated in 2 days -Completion Prioritized by need. Emergency: -Response 100% in 24 hours for Stops -Completion 100% in 48 hours for Stops	Assign reporting to Office Staff; Set targets in FY 2008-09; Begin annual reports in FY 09-10	See Actions

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
TECHNICAL LEVELS OF SERVICE						
Safety – Sign Condition & Pavement Markings	Maintain a safe road network	Regulatory signs inspected	100% regulatory signs inspected annually; all signs inventoried in IRIS	__% inspected in FY08-09; __% tracked in IRIS	Assign sign inspection responsibility; Assign IRIS data entry & reporting	TBD
		Arterial & collector centerline pavement markings repainted annually	Pavement markings - centerlines annually; Fog lines every other year	Same as target	Assign pavement marking contract to Engineering Project Supervisor	See actions

Table 6.4 Drainage Facilities Level of Service Statements

Outcome: Clear surface storm water and flooding so that roads are accessible, safe and quality is maintained.

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
COMMUNITY LEVELS OF SERVICE						
Responsiveness - Service Requests (SR)	Response to customer Service Requests in a timely manner & Reduce hazards	Response time to Service Requests responded to within set guidelines	TBD	TBD	Assign reporting to Office Staff; Set targets in FY 2008-09; Begin monthly reports in FY 09-10	See Actions
Safety	Provide stormwater system that is low risk to the community	Number of injuries & Number of properties affected & inundation events	TBD	TBD	Develop tracking system with Engineering staff	Assign to Engineering staff
TECHNCIAL LEVELS OF SERVICE						
Condition Visual Assessment	Periodic visual assessment of ditches & culverts	Visual inspection	TBD	TBD	Establish inventory of ditches & culverts; Adopt inspection method	TBD
Function – Percent of ditches maintained & Lineal feet of culverts repaired or replaced	Ensure stormwater system has appropriate design capacity		TBD	TBD	Develop tracking system with Emergency Manager	TBD

Table 6.5 Vegetation Management Level of Service Statement

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

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
COMMUNITY LEVELS OF SERVICE						
Safety & Responsiveness - Service Requests (SR)	Response to customer Service Requests in a timely manner & Reduce hazards	Response time to Service Requests responded to within set guidelines	TBD	Routine: -Response __% in 24 hours -Completion _% Emergency: -Response __% in 2 hours for hazard -Completion _%	Assign reporting to Office Staff; Set targets in FY 2008-09; Begin monthly reports in FY 09-10	See Actions
TECHNCIAL LEVELS OF SERVICE						
Condition & Function – Percent of lane miles mowed each year; Percent of lane miles cleared of debris per year; Acres of herbicide applied	Ensure roadway is safe and free of unsafe vegetation	Annual mowing and herbicide program	TBD	TBD	Work with foremen and Office staff to track quantities of vegetation management; Work with Engineering & Office Staff to develop performance tracking and reporting	See Actions

Table 6.6 Emergency Management Level of Service

Outcome: 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.

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
COMMUNITY LEVELS OF SERVICE						
Safety & Responsiveness - Service Requests (SR)	Response to customer Service Requests in a timely manner & Reduce hazards	Response time to Service Requests responded to within set guidelines	TBD	Emergency: -Response 100% as staffing allows -Completion Priority dependent	Assign reporting to Office Staff; Set targets in FY 2008-09; Begin annual reports in FY 09-10	See Actions
TECHNCIAL LEVELS OF SERVICE						
Safety – Storm response hours	Respond to hazards due to weather events and hazards	Hours of storm response (TCPW total);	TBD	TBD	Work with foremen and Office staff to track storm response hours	See Actions
Safety- Hours spent plowing and sanding		Miles of road network sanded and plowed,	TBD	TBD	Work with foremen and Office staff to track hours plowing and sanding	See Actions
Safety - Slides responded to		Number of slides	TBD	TBD	Work with foremen and Office staff to track number of slides	See Actions
Safety – Culverts		Number of culverts	TBD	TBD	Work with foremen and Office staff to track number of blocked culverts	See Actions

Table 6.7 Operational Support Level of Service Statements

Engineering Services
Purpose: Plan, research, coordinate and manage variety right of way activities. Assist in emergency response and recovery.

Equipment Management
Purpose: Support reliable vehicles for TCPW by balancing cost and timely maintenance and repairs with optimum vehicle availability and reliability.

Facilities Management
Purpose: Safe and effective shelter for TCPW employees, equipment and the materials used to provide county road services.

Materials Management & Stockpiling
Purpose: Reliable materials for county road maintenance that meet consistent standards of quality for the least cost in support of safe, serviceable and sustainable county roads.

Administration
Purpose: Plan, budget and manage resources (labor, materials and equipment) in a safe and cost effective manner. Communicate results on performance, efficiency and effectiveness.

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
TECHNCIAL LEVELS OF SERVICE						
Engineering Services: Response, Function Permits reviewed, projects readied, lane miles/bridge projects bid, constructed/	Consistent, reliable and responsive permits, projects and ROW managed	Annual permit and project tracking	TBD	TBD	Engineer staff establish log to track permits reviewed, projects bid and completed (pavement and bridge)	See Actions

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
completed annually						
Equipment Management: Safety, Condition & Function – Number of pieces of equipment serviced receiving preventive maintenance service; Number of pieces of equipment DOT certified annually;	Reliable vehicles for TCPW that balance cost and timely maintenance and repairs with optimum vehicle availability and reliability.	Equipment receiving 24 hour service fueling; Equipment serviced every 90 days for preventive maintenance; Fleet DOT certified annually	TBD	TBD	Shop Foreman reports performance by FY 08-09	See Actions
Facilities Safety, Condition and Function	Safely and effectively shelter TCPW employees, equipment and the materials used to provide county road services.	Buildings inspected by fire, OSHA, building inspector	TBD	TBD	Engineering Project Supervisory and Bridge Technician reports performance by FY 08-09	See Actions

Key Service Criteria & Performance Measure	Level of Service	Performance Measure Process	Performance Target	Current Performance	Actions to Meet Target Performance	Resources
Materials Management: Quality, Reliability Supply of aggregate and sign materials	Record on materials, quality, dates and hours of operation and volume by type of material	Transaction records on square yards of gravel and number of signs issued	TBD	TBD	Office Staff and Engineering Project Supervisor: Mmaintain records	See Actions
Administration: Response, Quality Training per employee, performance assessment, retention/turn over annually	Ensure skilled employees, and performance is monitored and reported	Maintain annual report on employee training performance assessments, and turnover (% of budget for training budget; $/employee; hours of training per employee; % turnover	TBD	TBD	Director works with Office staff to develop format for annual report	See Actions

7. TCPW Priorities & Improvement Plan

Tillamook County road management requires cooperation and communication between the Road 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 7.1 TCPW Management & Performance Reporting

Report & Monitoring Method	Frequency	Responsible	Approves	Conferred with	Informed
Asset Management Plan	Every 3 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

TCPW is committed to continuously improving the way it provides and reports on road services in Tillamook County. An improvement plan for Fiscal Years 2009-2011 follows.

Table 7.2 Improvement Plan FY 2009-2011

Improvement Plan Schedule FY 2009-2011														
		FY2008-2009				FY2009-2010				FY 2010-2011				
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).				**BOCC June**									
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.													
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.	**In Progress**												
	Performance Management													
4	The cost of each service and key performance measures should be adopted and reported annually. Service levels and road service budgets should be linked, and shared with the public. Planned, significant changes to services that are provided (e.g., eliminating a service) should be highlighted as a part of the annual budget process.	**In Progress**			**CRAC May, BOCC June**									
5	Targets approved by the County Board and appropriate budgets developed so that targets are achievable over defined time periods given available resources.													
6	Roles should be assigned to track the inventory, condition and performance of assets.	**In Progress**												
7	Activity accomplishments should be reviewed. Appropriate workload measures should be assigned so that annual work plans can be developed for each service.	**In Progress**												
8	Clatsop and Jackson Counties should be contacted to identify improvements to work planning and performance reporting and benchmark the cost of activities and services. This may benefit foremen as they structure how and when activities are performed.													
9	Crews should be trained to identify appropriate maintenance and renewal actions given asset performance and condition. Maintenance standards should be developed which include clear photographs, descriptions and quantitative measures to define the condition of an asset and appropriate maintenance or renewal activities.	**In Progress**												
10	The TCPWD activities should be reviewed and redefined 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.													
	Accountability													
11	An annual report of all County road assets is needed. This should report the inventory, condition, replacement value and maintenance and renewal needs for each asset.	**In Progress**												
12	An inventory and condition assessment is needed for culverts and TCPWD buildings.													
13	Documented, regular and repeatable inspection processes based on established standards and frequencies are needed for each asset class.													
14	Preventive maintenance activities should be segregated 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). Staff should receive regular training which distinguishes activities that are 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).													
15	The TCPWD asset management accountabilities and responsibilities should be added to the managers' position statement; foremen position statements should clearly identify their roles and asset management responsibilities, where appropriate.													
16	The director TCPW and asset management responsibilities and roles should be adopted and the frequency of reporting to the CRAC and County Commissioners defined. The TCPW director and AM team will a) adopt strategy and assign implementation roles based on needs assessment and strategic initiatives to improve road services; b) plan implementation for data collection, review of service delivery, and information technology implementation (e.g., service requests, inventory and mapping services); and c) plan ongoing operations and planning (e.g., evaluate and monitor accomplishments) and ongoing plan review).													
	Resource Allocation													
17	Implement a risk-based assessment at the network, program and project level. Review 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.	**Done**												
18	Adopted policies should guide service priorities and road resources.	**In Progress**												
19	The Local Access Roads (LAR) Board Order should be reviewed given the resources of Tillamook County. Provision of county road maintenance services on private roads is not performed by adjoining Oregon counties.	**Done**												
20	Service requests purpose should be clearly noted, priorities assigned and response standards adopted and tracked.													

Table 7.2 Improvement Plan FY 2009-2011 (continued)

Improvement Plan Schedule FY 2009-2011													
No.	Task	FY2008-2009				FY2009-2010				FY 2010-2011			
		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												
21	Adopt an explicit policy that as resources are spent on the County's road assets, consideration of innovative techniques for new or major renewal projects will be considered, including performance-based contracting. Bulk materials purchases and equipment sharing should be pursued as a regular practice.	**Done**											
22	Complete intergovernmental agreement (PMAT) which shares resources and services.	**Done**											
23	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**											
24	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												
25	Pavement, bridge, sign, ditches and guardrail inventory is current and condition known. Equipment management has just begun recently, as has guardrail condition assessment. Initiate inventory and assess condition of culverts, levees, and buildings.	**In Progress**											
26	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.												
27	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.												
28	Establish regular schedule for assessing asset condition that reflects the risks to the community and County liability.	**In Progress**											
29	Train managers responsible for data maintenance and condition assessment on use of IRIS.												
30	Budget development and annual reports to the public and decision makers should include:	**In Progress**											
30a)	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.	**In Progress**											
30b)	b) Annual accomplishments (e.g., miles of roads overlayed, signs replaced or maintained, miles of guardrail repaired)	**In Progress**											
30c)	c) Service requests by type	**Done**											
30d)	d) Public surveys on perception of service priorities and needs	**As exists in other sources**											
	Financial Planning												
31	Support local funding efforts that explore additional Tillamook County road funding for critical needs of the road network.	**In Progress**											
32	Introduce a stronger link between work planning, cost accounting and performance reporting. This should track expenditures based on an asset's life cycle, and track work accomplishments so that performance can be reported.												
33	Establish reporting system that begins to track life cycle cost of work activities; incorporate life cycle cost consideration in capital project selection.												
34	Introduce annual revaluation and inventory, condition rating and unmet need in annual Status & Condition Report for County Transportation Network	**In Progress**											
35	Continue risk-rate services which highlight needs based on criticality or risk. Introduce risk-based decision making throughout TCPW decision making (project selection, service priorities, and budget requests).	**In Progress**											
36	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**											
37	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.												

8. TCPW Planning Processes

a. 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.

b. Asset and Service Planning Processes
Information and business processes used by TCPW to manage each of these asset classes include the following.

Table 8.1 Asset Inventories and Tillamook County 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 Spreadsheet	Yes	Yes	Yes	Every 2 years
Traffic Signs -reflectivity	Yes IRIS-RI	Partial IRIS-RI	Yes Annual report	Yes	Once per year-night inspection
Traffic Signs -maintenance	-	Yes IRIS-RI	Yes Report	On-going	
Guardrail	Yes IRIS-RI	Yes	No	No[8]	-
Culverts	Yes[9]	Yes (2006)	No	No	-
Ditches	No	No	No	No	-
Pavement Markings	No[10]	No	No	-	-
Levees	No	No	No	No	-
Buildings	No	No	No	No	-
Vehicles	Yes IRIS-EM	No	Yes[11]	Yes	By need
Quarry sites	No	No	No	No	No
Equipment	Yes	Yes	Yes	Yes	Continuous
Vegetation Management	No	No	No	Yes[12]	-

[8] Guardrail condition is based on an inspection completed in spring 2007.
[9] Nestucca/Neskowin Watersheds: Culvert Prioritization and Action Plan for Fish Passage, August 2006.
[10] 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.
[11] Equipment Management tracks preventive maintenance performed by vehicle.
[12] Vegetation management is performed routinely and spray reports comply with regulations.

Table 8.2 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	Re-grade every other year	N/A	N/A	N/A	50% per year	TCPW 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	TCPW Bridge Technician
Levees	Visual inspection	TBD			Annually, before & after severe weather events	TCPW Foremen
Signs, Delineators & Posts	Visual inspection	Manual on Uniform traffic Control Devices (MUTCD)	1-4	Very Good (1), Good (2), Fair (3), Poor (4)	On-going; retroreflectivity: once per year	TCPW
Culvert	TBD	TBD	TBD	TBD	TBD	TBD
Ditches	Visual	TBD	1-5	Very Good (1), Good (2), Fair (3), Poor (4), Very Poor (5)	TBD	Contract inspection
Vegetation Management	TBD	TBD	TBD	TBD	TBD	TBD
Equipment	TBD	TBD	TBD	TBD	Ongoing	Shop Supervisor
Facilities	Visual	OSHA, fire	TBD	TBD	TBD	TCPW Eng. Project Supervisor

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

c. 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 8.3 Confidence Level Definitions[13]

	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[14] in asset information presented in this report.

Table 8.4 Confidence Levels by Asset Class – 2007

Asset Information	Confidence
Pavement	Optimal for the first 3 years and Moderate in years 4-10.
Bridge	Optimal in the near term and Moderate for years 4-10.
Culverts	Low; inventory estimated and condition unknown.
Guardrails	Moderate; inventory and condition assessment as of 2007; no documentation or inspection cycle established.
Signs	Moderate; inventory and condition managed by trained staff through 2008; condition not entered in IRIS
Equipment	Optimal
Remaining assets (Levees, buildings, quarries, ditches)	Low; better inventory and condition information, and inspection processes needed
Pavement Markings	Not applicable; repainted each year based on inventory

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

d. 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 8.5 Useful Life by Asset Classification[15]

Asset Classification	Useful Life
Roads[16]	
- Arterial & Collectors Paved	20 years
- Local Paved	40 years
- Local Gravel	N/A
Structures[17]	
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[18]	
- Signs	7 years
- Signs-delineators	20 years
- Posts	10-30 years
- Painted pavement markings	6 months – 1 year
Drainage	
- Drainage Culverts	40-60 years
- Major culverts (pipes/barrel, inlet/outlet structures	40-60 years
- Ditches	50-100 years
Support Facilities	
Equipment	5-10 years
Buildings	45-50 years
Quarries	N/A

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

[15] Useful life assumptions are reported in the *Tillamook County Combined Annual Financial Report,* June 30, 2008. 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.
[16] *Guidelines for Geometric Design of Very Low-Volume Local Roads*, AASHTO, 2001
[17] Bridges, guardrail useful life assumptions from *City of Portland Transportation System: Status and Condition Report, 2008.*
[18] Tillamook County Public Works, 2008

e. Asset Management Information Sources & Data Maintenance Responsibilities

Table 8.6 Information Sources & Data Maintenance Roles & Contacts

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

***TBD**: To Be Developed/Determined

Appendix A. List of 2008 Project Accomplishments

Tillamook County Public Works
FY 2008
Paving and Culvert Installation Accomplishments

Paving

District	Road	Start MP	End MP
1	Tideland	-	0.05
1	Tideland	0.10	0.40
1	Tideland	1.40	1.50
1	Miami-Foley	2.30	2.40
1	Miami-Foley	3.00	3.30
2	McCormick Loop		
2	Whiskey Creek Road	2.30	2.90
2	Whiskey Creek Road	3.40	3.80
2	Trask River Rd	10.00	10.50
2	Curl Bridge		
3	Resort Drive	0.40	0.68

Total miles paved 2.84

Culverts Replaced

District	Road	Size	Qty
1	Tideland	12"	30 feet
1	Falcon Cove	48'	40 feet
2	Makinster Road	12"	20 feet
2	Trask River Road	95"x 67"	40 feet
2	Gienger Road	24"	60 feet
2	Baumgartner Road	18"	2 feet
2	Chance Road	18"	30 feet
3	East Creek Road	12"	34 feet
3	East Creek Road	18"	40 feet

Replaced 9 culverts