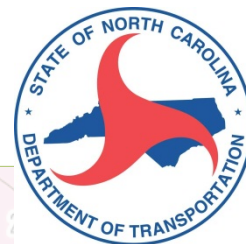


Integrating Maintenance and Asset Management

Jennifer Brandenburg, PE

State Asset Management Engineer

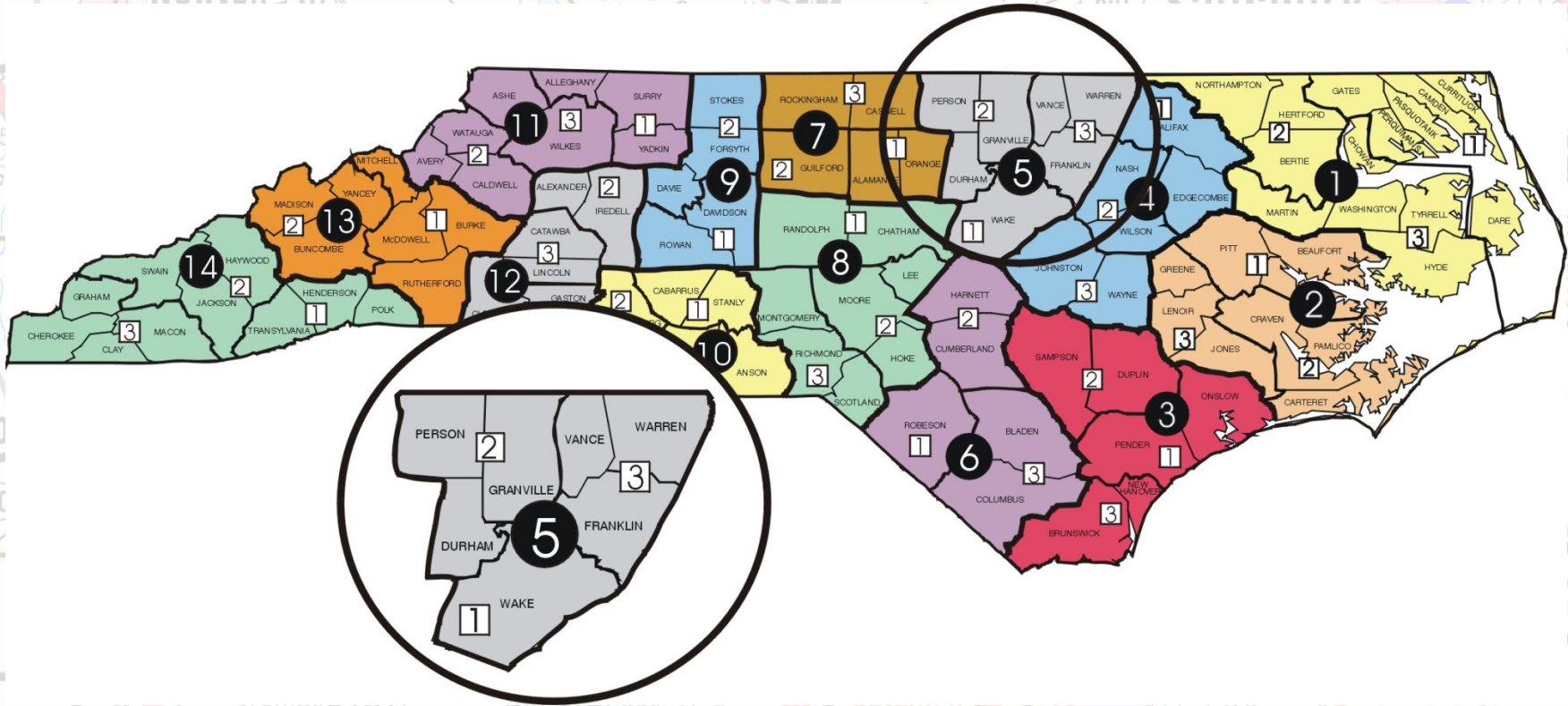


Discussion Points

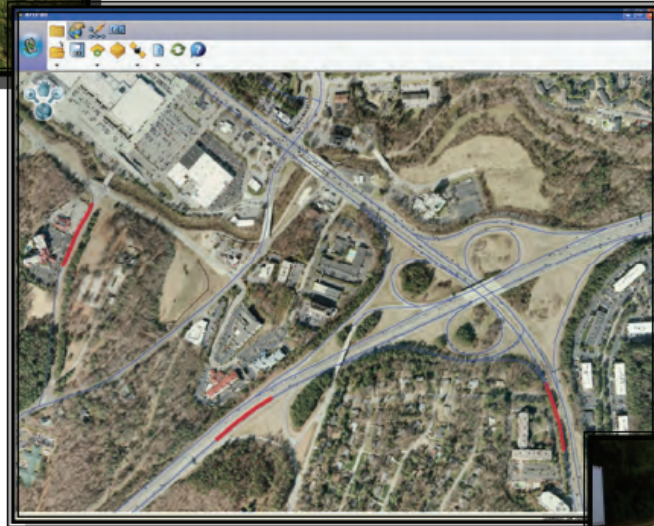
- **Conducting The Assessment**
- **Reporting The Data**
- **Planning The Work**
- **Reporting The Results**
- **Gaining Perspective**



NCDOT Organization



NCDOT Assessments



Reporting The Data (Scorecards)

- Statewide for all three systems
- Division level for interstate
- County level for primary and secondary
- Produced by the maintenance management system

2012 SCORING PERFORMANCE MEASURES								
MCA Survey Period: Qtr 1, 2012 To Qtr 4, 2012					Non-MCA Survey Year: 2012			
System : Secondary					Summary : County Level			
Division : 5					County : Wake			
ELEMENT	Collection Method	Relative Importance	Element Weight	Target Score	Element Points	Actual Score	Element Points	
RM-1 Unpaved Shoulders	MCA	8	0.082	85	6.94	95	7.76	
RM-2 Ditches (Lateral Ditches)	MCA	6	0.061	85	5.2	97	5.94	
RM-3 Crossline Pipes (Blocked)	MCA	6	0.061	85	5.2	82	5.02	
RM-4 Crossline Pipes (Damaged)	MCA	7	0.071	85	6.07	91	6.5	
RM-5 Curb & Gutter (Blocked)	MCA	5	0.051	85	4.34	100	5.1	
RM-6 Boxes (Blocked or Damaged)	MCA	5	0.051	85	4.34	98	5	
R-1 Vegetation (Brush & Tree)	MCA	6	0.061	80	4.9	98	6	
R-2 Vegetation (Turf Condition)	MCA	4	0.041	85	3.47	93	3.8	
R-3 Storm Water Devices (NPDES)	ROADSIDE	4	0.041	90	3.67	91	3.71	
T-1 Long Line Pmnt Markings	MCA	8	0.082	80	6.53	90	7.35	
T-2 Words and Symbols	MCA	5	0.051	80	4.08	96	4.39	
T-4 Ground Mounted Signs	NTSS	8	0.082	85	6.94	94	7.67	
T-5 Overhead Signs	NTSS	6	0.061	85	5.2	No Inv	5.2	
B-4 NBIS Culverts	BRIDGE	7	0.071	75	5.38	99	7.07	
B-5 Non-NBIS Culverts	BRIDGE	7	0.071	60	4.29	82	5.86	
B-6 Overhead Sign Structures	BRIDGE	6	0.061	92	5.63	100	6.12	
TOTAL:				98	0.999	82.16	92.49	

Reporting The Data (Infrastructure Health Index)

STATEWIDE – ALL SYSTEMS EXISTING INFRASTRUCTURE HEALTH WEIGHTED BY VMT (80% AND LM (20%)

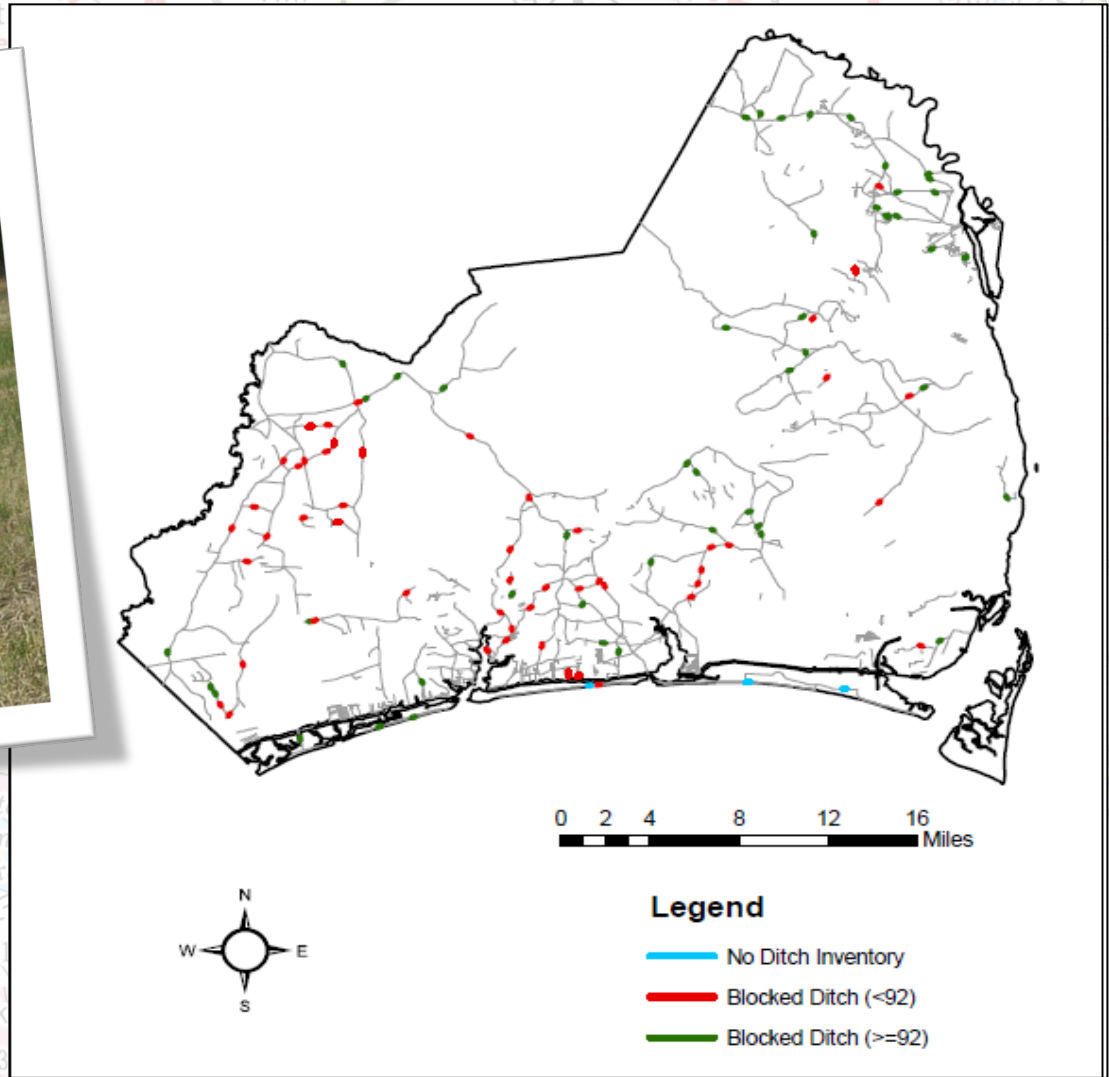
SYSTEM	WEIGHTED		PAVEMENTS			MCA			BRIDGE HEALTH INDEX			TOTAL IHCS			
	80%	20%	WEIGHTED	40		25		35			EXISTING				
	VMT %	LANE MI	FACTOR	% GOOD	LMG	SCORE	SCORE	LMS	SCORE	# BRIDGES	CR>=6	BHCI	SCORE	LOS	SCORE
INTERSTATE	45	5,038	36.59	84.9%	4,277	31.06	89.79	4,524	32.85	909	723	79.5%	29.10	B	84.2
PRIMARY	30	35,640	28.15	66.1%	23,558	18.61	86.41	30,797	24.32	4,199	2,796	66.6%	18.74	D	71.3
SECONDARY	25	131,074	35.26	67.5%	88,475	23.80	85.04	111,466	29.99	8,490	4,989	58.8%	20.72	D	68.8
TOTAL		171,752				73.47			87.17	13,598	8,508	62.6%	68.57		
COMPOSITE VALUES						29.4			21.8				24.0	C	75.2

Planning The Work

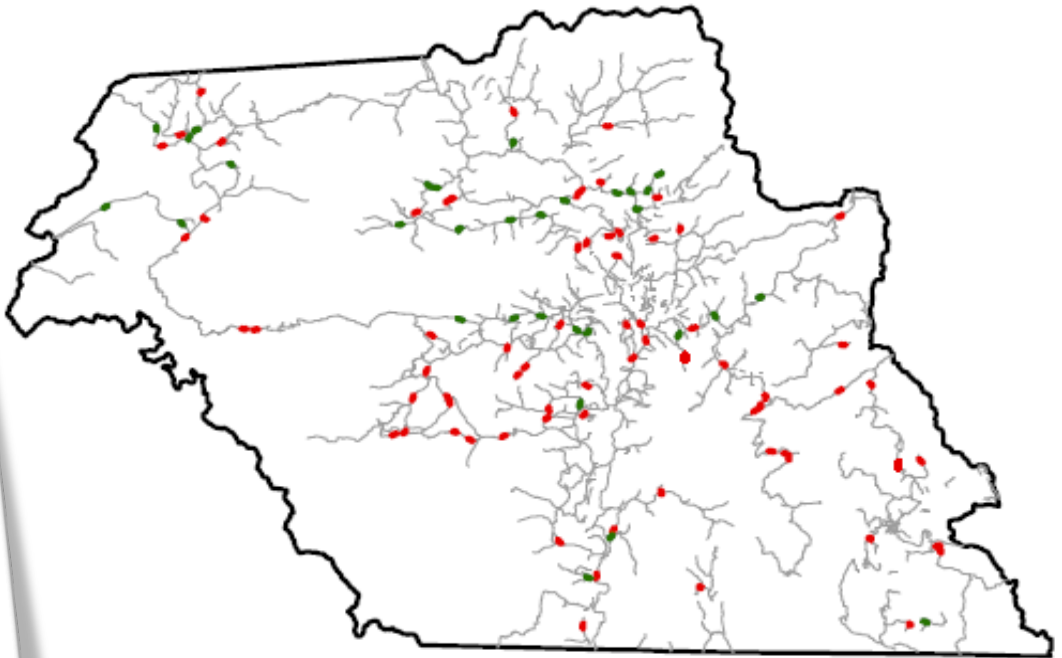
- Determine areas of deficiency
- Determine work functions needed and develop work plan
- Report outputs
- Outcomes/Outputs are part of employee performance evaluation
- Notification of critical maintenance needs






Planning The Work



Planning The Work



Legend

-  Striping (Pass)
-  Striping (Fail)
-  No Striping Inventory

Planning The Work

Asset Management System [ams-dp38] [Production] Version 6.9 Build 16955 - 03 Div Adm / MPWH

MMS PMS BMS Resources TradeOff System

Utilities Setup/Inventory Issue Progress (Complete) Analysis and Budgets Reports

MMS > Analysis and Budgets > Baseline / Dynamic Plan

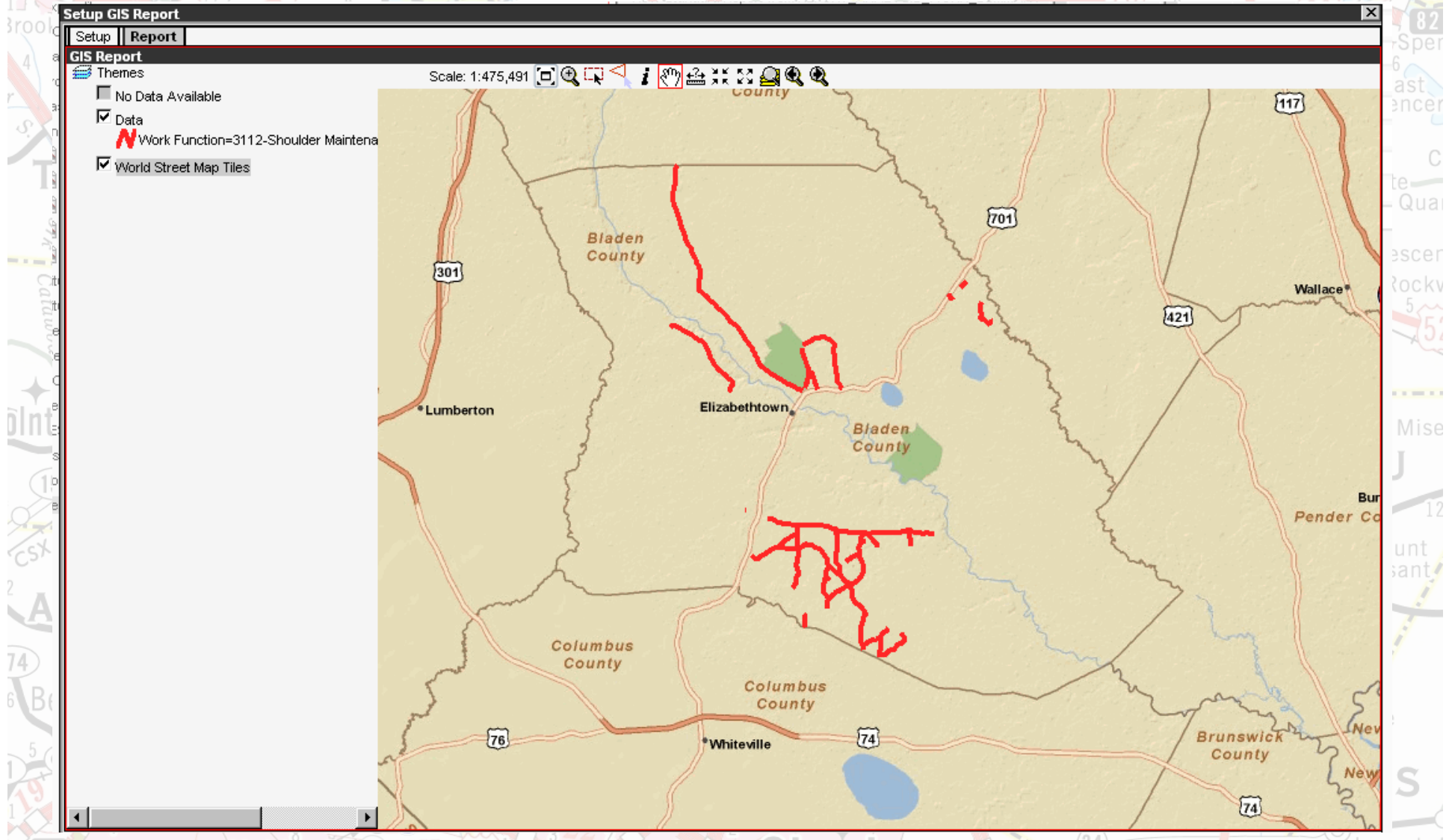
2013

4-FY 2013 Dynamic

Plan - ***WARNING! Be sure to click 'Retrieve' (left gutter) for the latest plan data available.*** - Filter applied

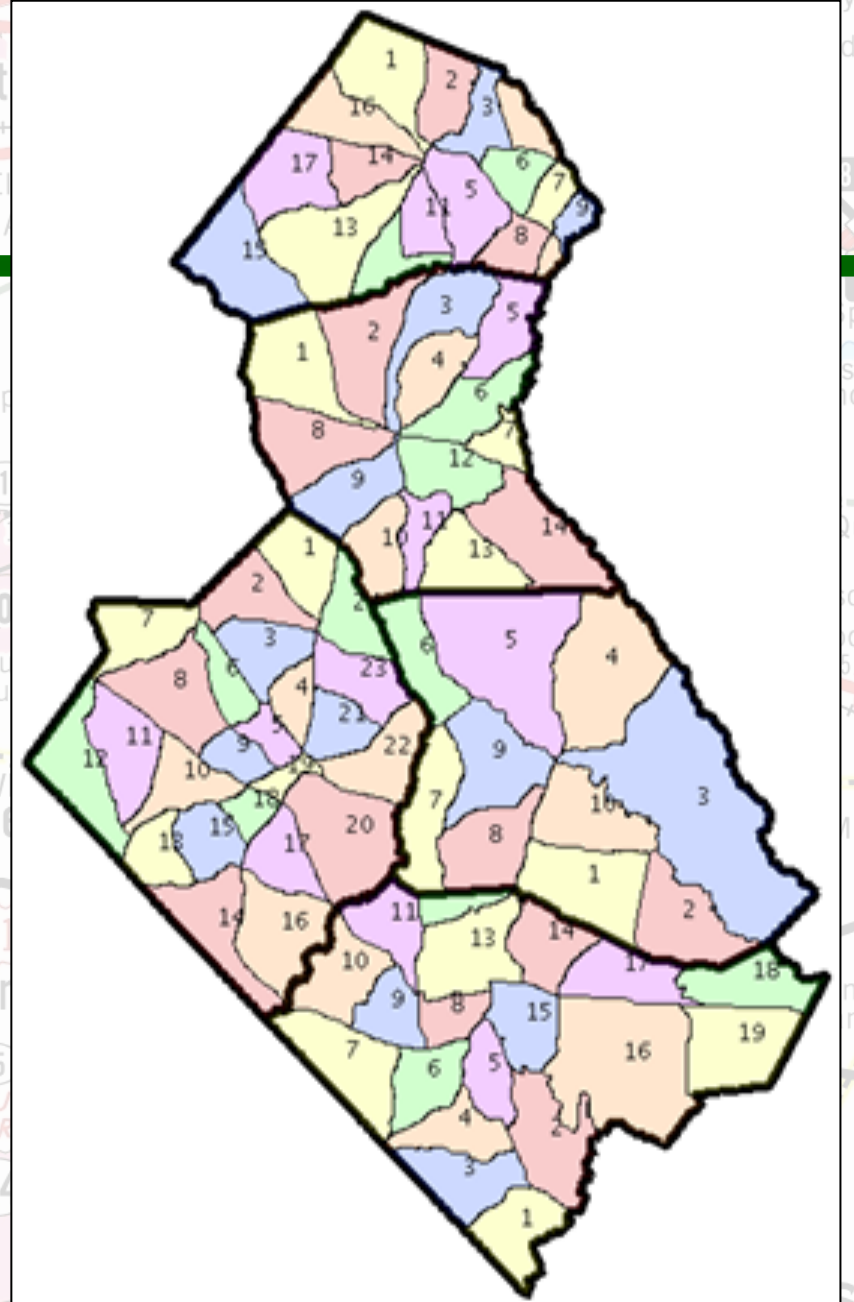
Approved	Fiscal Year	Admin. Unit	Work Function	WBS	Amount	Rate	Total Cost
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	2909-Manual Brush and Tree Control (LFT)	3.201011	500	\$3.50	\$1,750.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	2909-Manual Brush and Tree Control (LFT)	3.101011	7,500	\$3.50	\$26,250.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	Unplanned	3.201021			\$6,000.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	Unplanned	3.201011			\$90,000.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	Unplanned	3.101011			\$255,000.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3140-Unpaved Road Stabilization Surface Maintenance (TON)	3.201021			\$10,000.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3138-Machining Unpaved Road (RML)	3.201021			\$60,000.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3130-Install/ Maintain / Repair of Misc. Drainage Structures (EA)	3.201011	8	\$561.69	\$4,493.52
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3130-Install/ Maintain / Repair of Misc. Drainage Structures (EA)	3.101011	25	\$561.69	\$14,042.25
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3128-Maint/Repair Pipes (<=48") (EA)	3.201011	25	\$1,073.95	\$26,848.75
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3128-Maint/Repair Pipes (<=48") (EA)	3.101011	25	\$1,073.95	\$26,848.75
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3126-Install Pipes (<=48") (LFT)	3.201011	1,000	\$52.62	\$52,620.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3126-Install Pipes (<=48") (LFT)	3.101011	1,000	\$52.62	\$52,620.00
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3112-Shoulder Maintenance / Reconstruction (SHM)	3.201011	20	\$1,884.26	\$37,685.20
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3112-Shoulder Maintenance / Reconstruction (SHM)	3.101011	30	\$1,884.26	\$56,527.80
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3108-Drainage Ditch Maintenance (SHM)	3.201011	5	\$14,858.53	\$74,292.65
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	3108-Drainage Ditch Maintenance (SHM)	3.101011	8	\$14,858.53	\$118,868.24
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	2912-Brush and Tree Control / Mechanical/ Other (SHM)	3.201021	5	\$181.34	\$906.70
<input type="checkbox"/>	2013	03 /3 Brunswick Mnt	2912-Brush and Tree Control / Mechanical/ Other (SHM)	3.201011	10	\$181.34	\$1,813.40

Planning The Work



Sectional Planning

- Alternate Planning Process
- Allows for cyclic approach
- Improves Coordination
Among Work Groups



Reporting The Outputs

Plan vs. Actual

Report Filters

Fiscal Year: 2011
Division: 6
Admin. Unit: 06 /3 Bladen Mnt



MMS Jasper Report

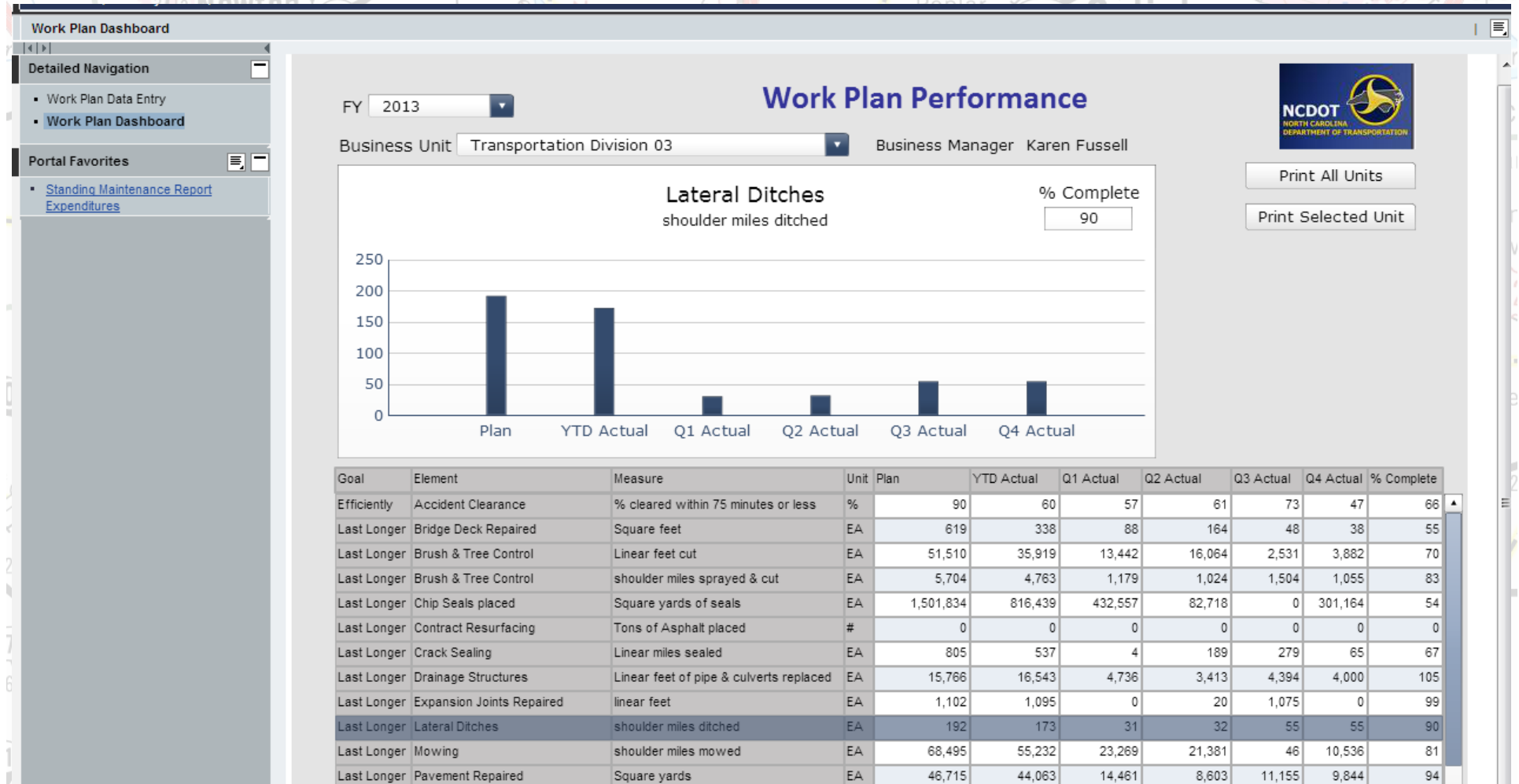
WBS Element: 6.200915

Work Function	Planned Cost	Actual Cost	Planned Work	Actual Work	Planned Rate	Actual Rate
2900-Grass Mowing	\$ 131,712.00	\$ 62,875.90	3803	4,871.71	\$ 34.63	\$ 12.91
2910-Manual Brush and Tree Control	null	\$ 8.68	null	0.00	null	\$ 0.00
2912-Brush and Tree Control / Mechanical/	null	\$ 962.94	null	0.00	null	\$ 0.00
Unplanned	\$ 16,464.00	null	null	null	null	\$ 0.00
Summary	\$ 164,640	\$ 65,414				

WBS Element: 6.200918.8

Work Function	Planned Cost	Actual Cost	Planned Work	Actual Work	Planned Rate	Actual Rate
8510-ON-BOARD OPERATIONS	null	\$ 79,517.29	null	3,725.85	null	\$ 21.34
8520-SHORE SUPPORT	null	\$ 7,655.21	null	296.05	null	\$ 25.86
Summary	null	\$ 87,172				

Reporting The Outputs



Reporting Outcomes

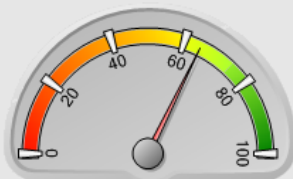
Infrastructure Health

This page displays the Department's success rate for maintaining and improving the health of our highway system. These items are indicators of the health and condition of our bridges, pavements and roadside features such as guardrails, signs and culverts.

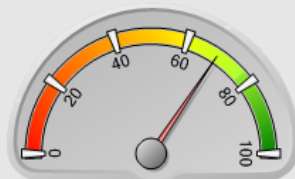
Filter these results by county:

STATEWIDE

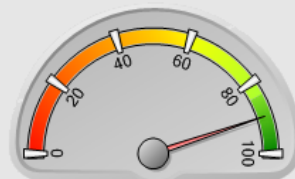
Infrastructure Health: Statewide



Bridge Health Index 64.6%

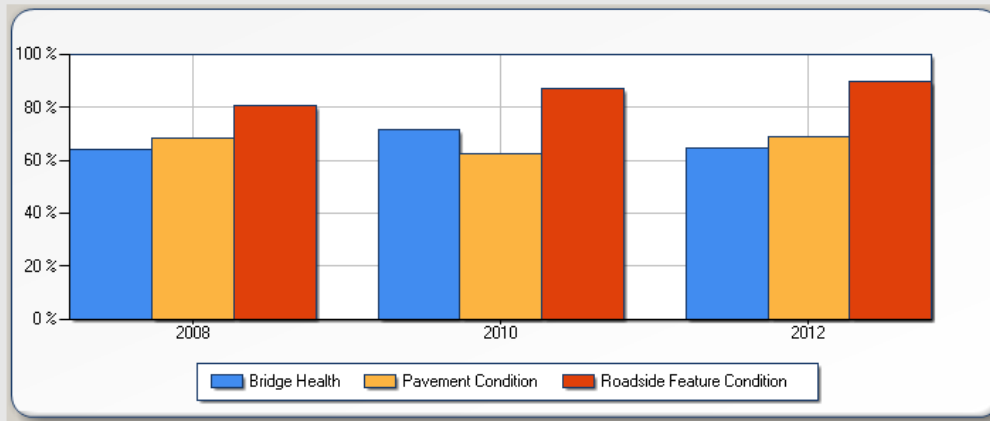


Pavement Condition 68.9%



Roadside Feature Condition 89.7

Statewide Yearly Statistics



	Bridge Health	Pavement Condition	Roadside Feature Condition ¹
2008	64.2%	68.4%	80.6
2010	71.6%	62.5%	87.1
2012	64.6% ²	68.9%	89.7

Reporting Outcomes

2012 SCORING PERFORMANCE MEASURES

MCA Survey Period: Qtr 1, 2012 To Qtr 4, 2012

Non-MCA Survey Year: 2012

System : Secondary
Summary : County Level

Division : 5

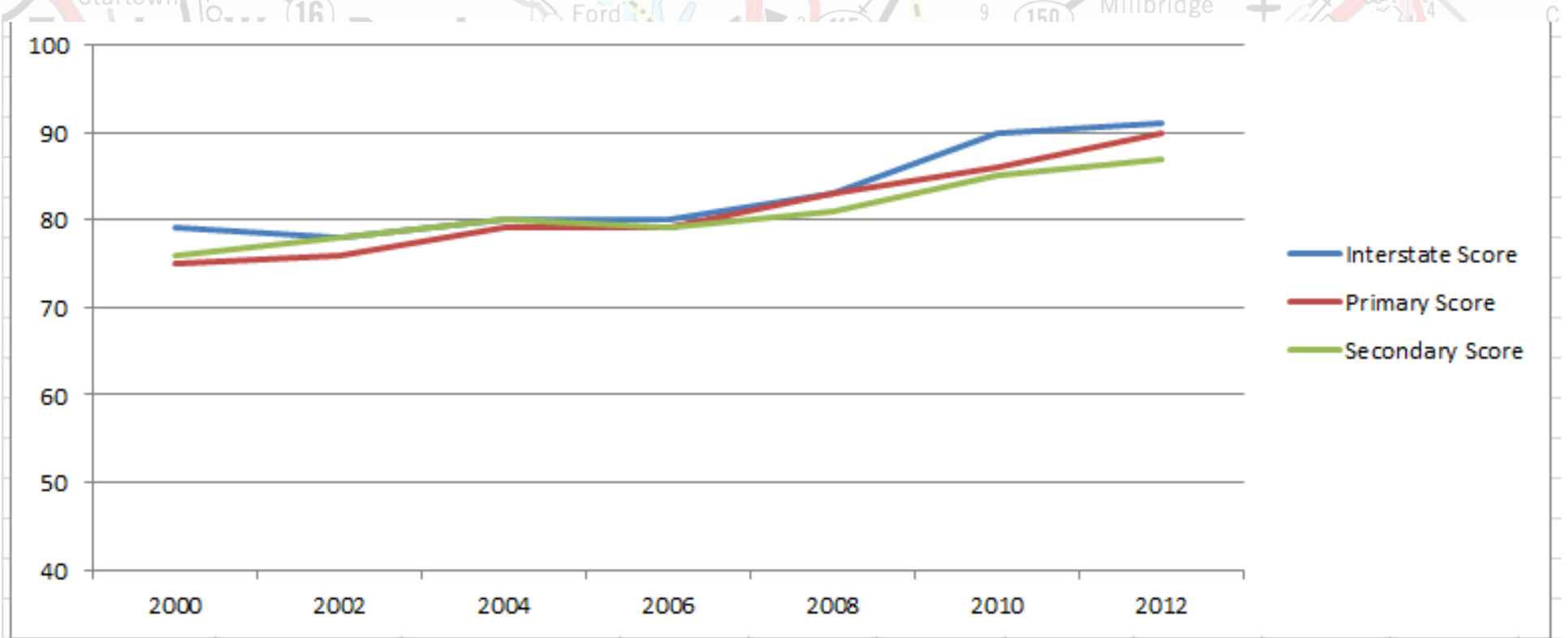
County : Wake

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B-5 Non-NBIS Culverts	BRIDGE	7	0.071	60	4.29	82	5.88
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TOTAL: 98 TOTAL: 0.999 TOTAL: 82.16 TOTAL: 92.49

Looking Back

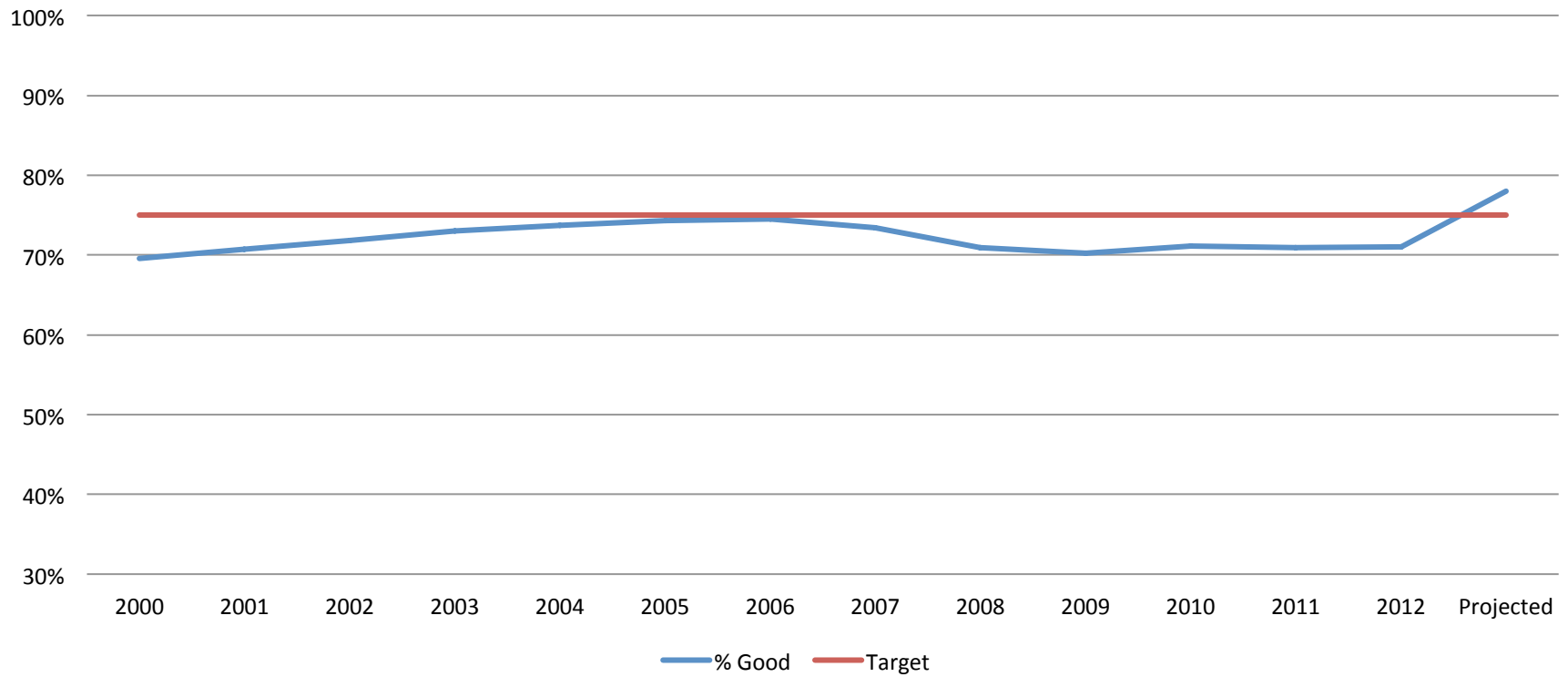
Performance Measure Trends Roadside Features



Looking Back

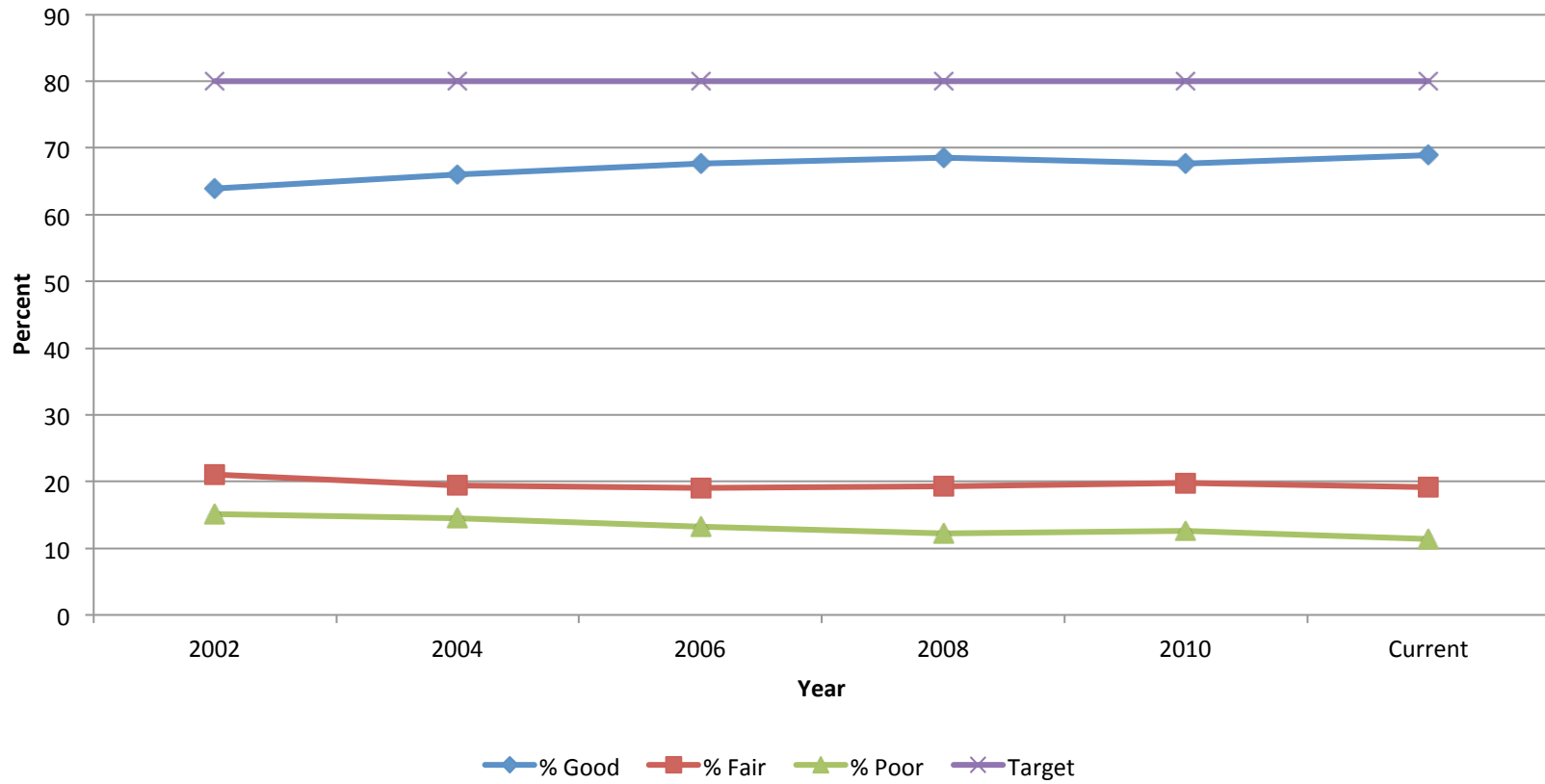
Performance Measure Trends Bridge Health Condition

All Systems



Looking Back

Performance Measure Trends Overall Pavement Condition





Looking Ahead

Strategic Mobility Formula

- Just signed into Law last week
- Redirects trust fund dollars from paving unpaved roads
- Accelerates capitol projects
- Encourages economic growth
- Data driven process

System Preservation Funds

Questions?

