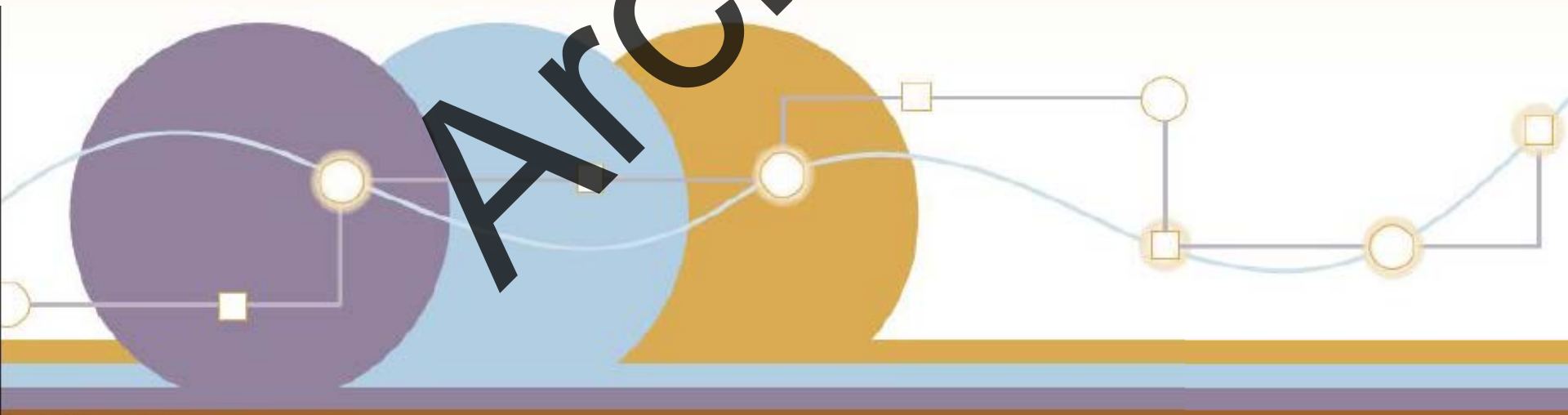
TPM Peer Exchange

Know More About TPM Implementation: Rulemaking, Reporting, Reassessing

June 18, 2013
1:30-3:00 PM EDT
https://connectdot.connectsolutions.com/sr500tpm/



TPM Peer Exchange

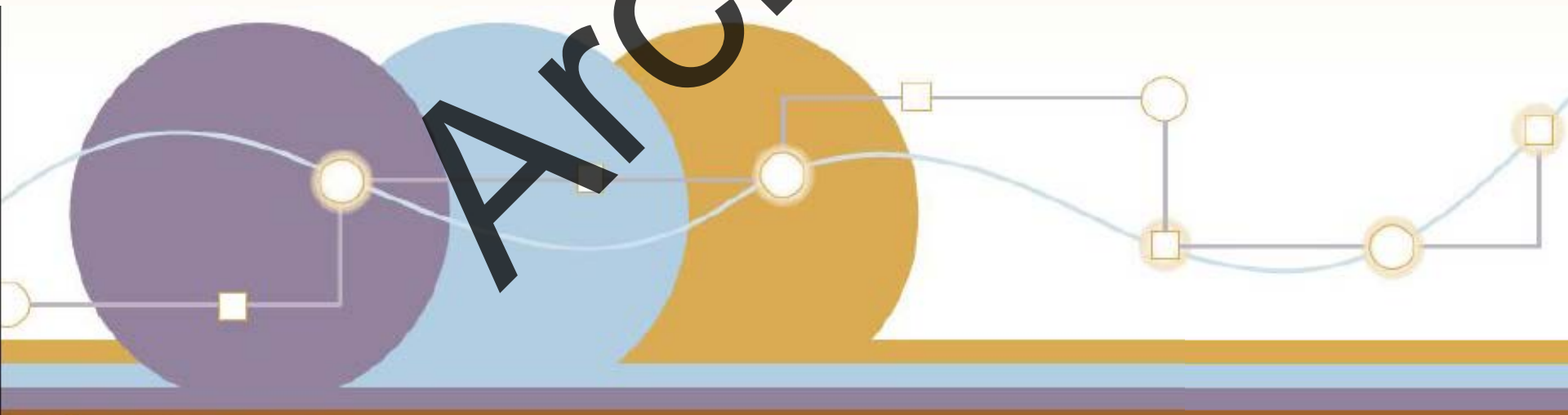
Know More About TPM Implementation: Rulemaking, Reporting, Reassessing

Requirements and Implementation Status, Francine Shaw Whitson, FHWA

Reporting Performance, Connie Yew, FHWA

CPM Maturity Model, Michael Nesbitt, FHWA

Overview of NCDOT's Performance Management Strategy, Ehren Meister, Matthew Whitley, Don Voelker, NCDOT



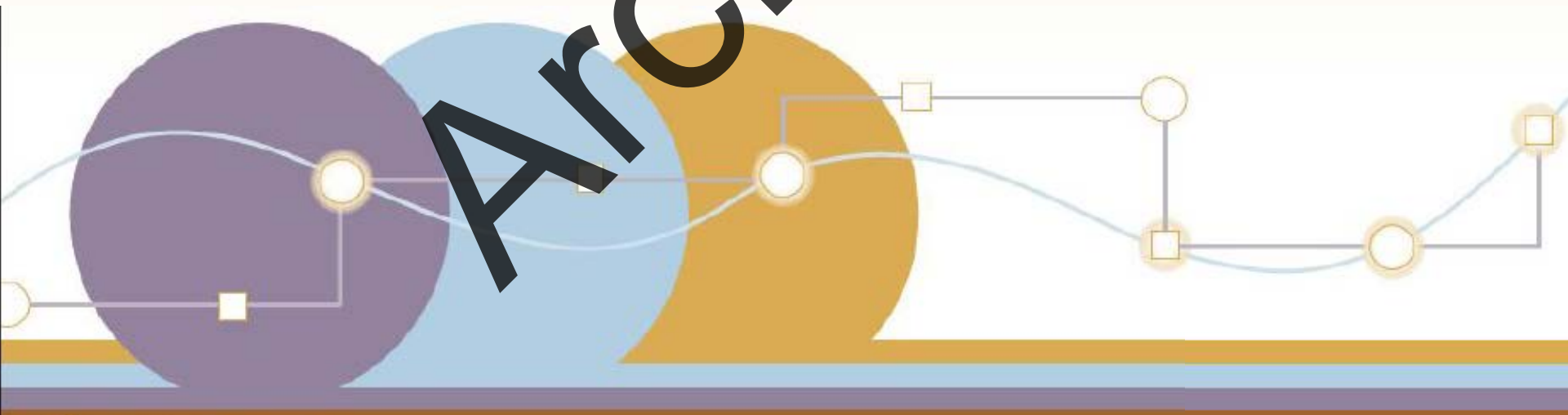
TPM Peer Exchange

Know More About TPM Implementation: Rulemaking, Reporting, Reassessing

Performance Management Elements

An Overview of Requirements and Implementation Status

June 18, 2013
Francine Shaw Whitson
Federal Highway Administration



Presentation Outline

- MAP-21 Performance Requirements
- USDOT Implementation Approach
- Performance Management Initiatives
- Resources

MAP-21 Performance Requirements

Where are the MAP-21 Background-Performance Requirements?

- ✓ *National Goals*
- ✓ *Measures*
- ✓ *Targets*
- ✓ *Plans*
- ✓ *Reports*
- ✓ *Accountability*

Measure Areas

- National Highway Traffic Safety Administration (NHTSA)
  - 14 measures documented in 2008 report
- Federal Highway Administration, Federal-aid Highway Program
  - HSIP - Fatalities and Serious Injuries (no. and rate)
  - NHPP
    - Interstate and non-Interstate National Highway System (NHS) pavement condition
    - NHS bridge condition
    - Interstate and non-Interstate NHS performance
  - Congestion Mitigation and Air Quality (CMAQ) Program
    - Traffic Congestion
    - On-road Mobile Source Emissions
  - Freight Movement on the Interstate
- Federal Transit Administration - Public Transportation
  - State of Good Repair
  - Safety Criteria

Targets

- States, MPOs and public transportation agencies set their own targets
- Target Setting Due Dates
  - Highway Safety (NHTSA)
    - States set targets beginning in 2013
  - Federal-aid Highway (FHWA)
    - States set targets no later than 1 yr after USDOT establishes measures
    - MPOs set targets no later than 180 days after State sets targets
  - Public Transportation (FTA)
    - Public Transportation Agencies set State of Good Repair targets no later than 3 months after USDOT establishes measures
    - MPOs select targets no later than 180 days after transit providers sets target

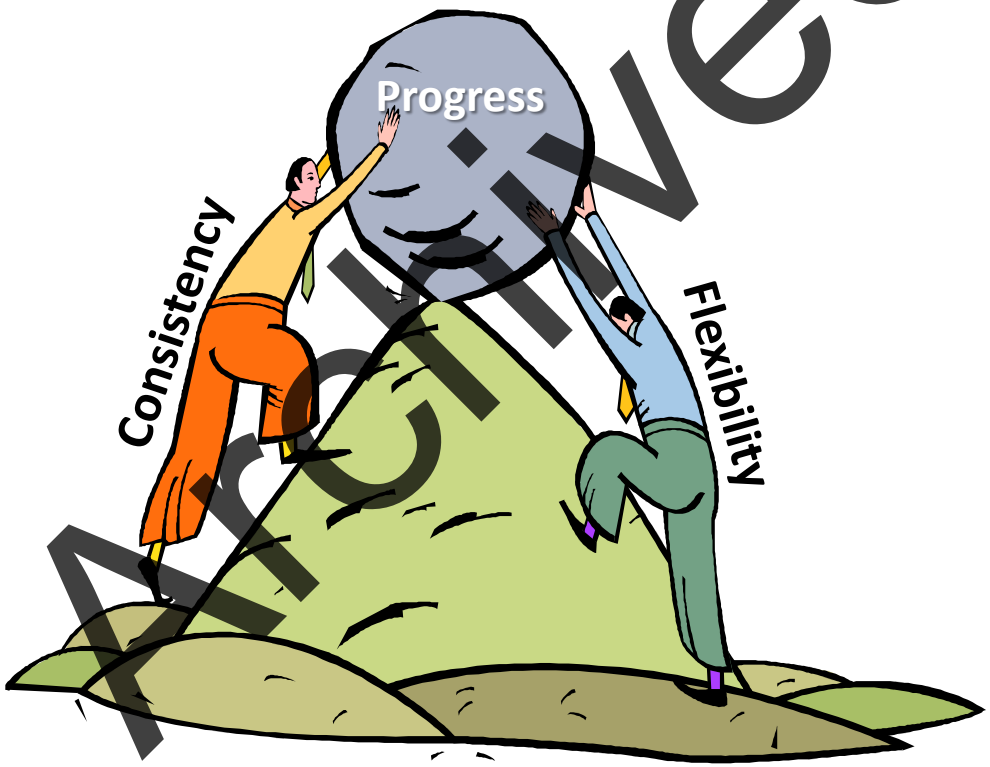
Plans and Reports

- Strategic Highway Safety Plan and Highway Safety Plan
- Transit and Highway Asset Management Plans
- CMAQ Performance Plan
- Metropolitan Long Range Plan
- Metro and State Transportation Improvement Program

- Highway Safety Improvement Program Report
- Highway Performance Report
- Transit Performance Report
- Metropolitan System Performance Report

USDOT Implementation Approach

Consideration of Challenges



Measure Groupings

PROGRAM	MEASURE CATEGORY
STATUS I 9/30/2013	• Serious Injuries per VMT
	• Fatalities per VMT
	• Number of Serious Injuries
	• Number of Fatalities
STATUS II 11/30/2013	• Pavement Condition on the Interstates
	• Pavement Condition on the Non-Interstate NHS
	• Bridge Condition on NHS
STATUS III 1/31/2014	• Traffic Congestion
	• On-road mobile source emissions
	• Freight Movement
	• Performance of Interstate System
	• Performance of Non-Interstate NHS

Coordinating Implementation

Measure Rules

- Define Measure
  - Data Elements
  - Data Source
- Interstate Pavement Condition
- Target Setting Requirements
- Define Significant Progress
- State Performance Reporting
- Establish Timing

Planning Rule

- Performance-based Planning Process
- Target Setting Coordination
- MPO Performance Reporting
- STIP/TIP Discussion
- Transition Period

Program Rules

- Plan Requirements
- Special Rules
- Integrating Performance
- Transition Period

Implementation Schedule

Resources

- **MAP-21 website**

  www.fhwa.dot.gov/map21

- **TPM Website**

  www.fhwa.dot.gov/tpm

- **Performance Measure Rulemaking Direct Contact to FHWA**

  PerformanceMeasuresRulemaking@dot.gov

- **U.S. DOT Transportation Data Palooza Event Recording**

  www.fhwa.dot.gov/tpm/events/datapalooza.cfm

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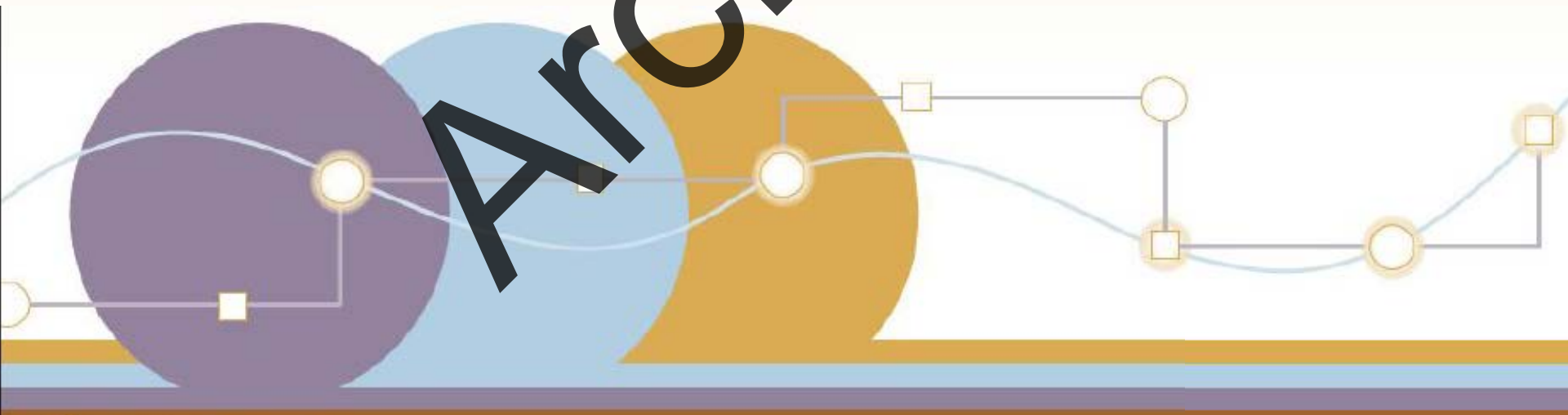
Reporting Performance

June 18, 2013

Connie Yew
Federal Highway Administration



MAP-21 reporting requirements

Specific requirements for reporting can be found in MAP-21 §1203 which will modify 23 U.S.C. 150(e) to read as follows: "(e) REPORTING ON PERFORMANCE TARGETS.—Not later than 4 years after the date of enactment of the MAP–21 and biennially thereafter, a State shall submit to the Secretary a report that describes—"

- the condition and performance of the National Highway System in the State;
- the effectiveness of the investment strategy document in the State asset management plan for the National Highway System;
- progress in achieving performance targets identified under subsection (d); and
- the ways in which the State is addressing congestion at freight bottlenecks, including those identified in the National Freight Strategic Plan, within the State.

Performance Plans

- Highway Safety Plan (1 yr)
- Strategic Highway Safety Plan (TBD)
- Transit Safety Plan
- NHS Asset Management Plan (4 yr)
- Transit Asset Management Plan (TBD)
- CMAQ Performance Plan (2 yr)
- State Freight Plan
- MPO System Perf. Report (4 yr)
- S/TIP Target Achievement Disc. (4 yr)

Performance Reports

- Highway Safety Plan (1 yr)
- HSIP Report (1 yr)
- Performance Report (2 yr)
- Transit Perf. Report (1 yr)
- CMAQ Performance Plan (2 yr)
- MPO System Perf. Report (4 yr)

- National Strategic Freight Plan
- Transit Safety Plan

- Perf Based Planning Reports
- Freight Conditions & Performance
- Conditions and Performance

Transportation Performance

Our system at work

Our Mobile Lifestyle

No matter where you live or what your age, your lifestyle depends on transportation

>>read more

BORING BUT IMPORTANT

- Bridges in the U.S.: 599,766
- Bridges requiring repairs: 152,324
- Cost to repair them: $140 billion
- What Americans spend each year on soft drinks: $65 billion
- What the US spent in 2008 repairing bridges: $12.8 billion

Source: AASHTO, ASCE, National Soft Drink Association

In the Spotlight

SEARCH

Mobile Moments: Bicycle Safety Infographic

630 cyclists died on U.S. highways in 2009.

Performance Report Showcase: Maryland's Annual Attainment Report.

This report gives Maryland residents a transparent assessment of the performance of their transportation system.

Infographic: How Long is It Taking Americans to Get to Work?

New York and Chicago have the longest commutes. What about your city?

By AutoInsuranceCenter and posted at Visual.ly (http://visual.ly/how-long-it-taking-americans-get-work)

The High Cost of Congestion

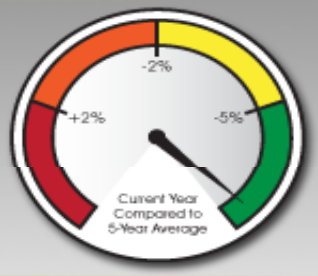
A Texas Transportation Institute study finds that Americans spend an extra 34 hours a year in their cars because of traffic, costing Americans $101 billion a year--$713 per urban commuter--in extra fuel and wasted time. Time Magazine - http://www.time.com/time/magazine/

HOW ARE WE MEASURING UP?

HIGHLIGHTED MEASURE

LOWERING FATAL CRASHES

snapshot



trend

>>more

ALL / SAFETY / PAVEMENT CONDITION / BRIDGE CONDITION / CONGESTION / RELIABILITY / FREIGHT / ENVIRONMENT / PROJECT DELIVERY

Transportation Performance

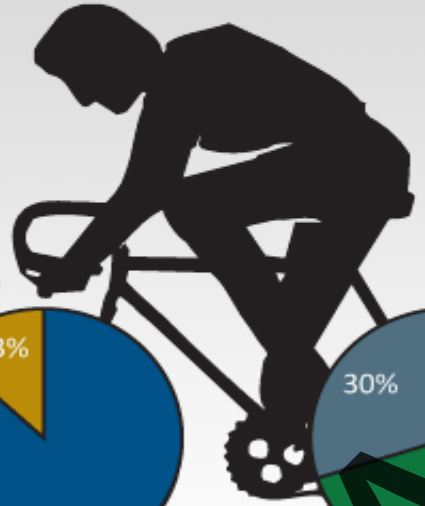
Our system at work

Mobile Moments: Bicycle Safety Infographic

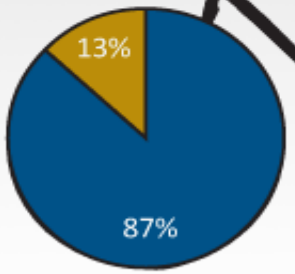
FOR DEMONSTRATION ONLY

630 cyclists died on U.S. highways in 2009.

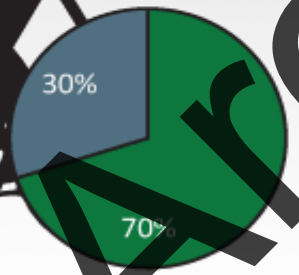
The typical bicycle fatality victim was:



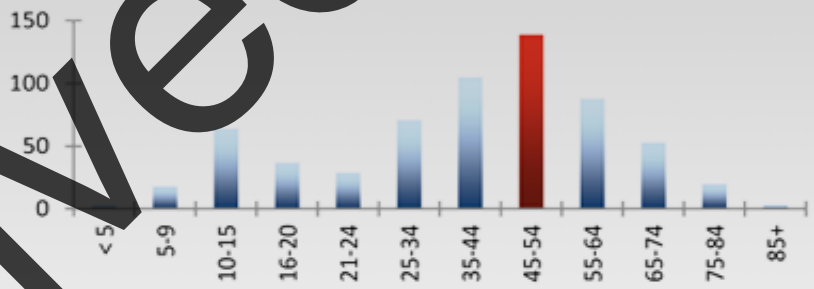
Male



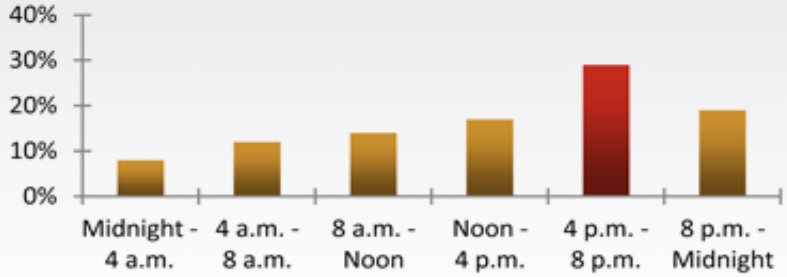
In an Urban Area



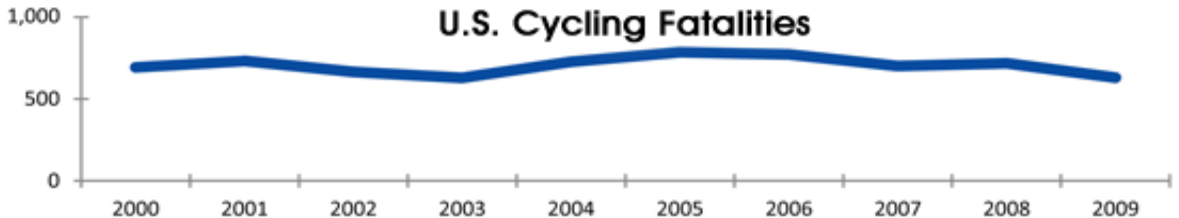
Between 45 and 54 Years Old



The accident occurred:



Between 4 p.m. and 8 p.m.



The number of trips by bicycle was up 25% between 2001 and 2009.

Source: National Household Travel Survey (2009).

>>Transportation Performance: Learn More About Our System at Work

Transportation Performance

Our system at work

Select the Report Type and Measures You Would Like to See

REPORT TYPE
>> NATIONAL
>> STATE
>> LOCAL

MEASURES
>> ALL
>> SAFETY
>> PAVEMENT CONDITION
>> BRIDGE CONDITION
>> CONGESTION
>> RELIABILITY
>> FREIGHT
>> ENVIRONMENT
>> PROJECT DELIVERY

Transportation Performance
Learn More About Our System at Work

FOR DEMONSTRATION ONLY

Transportation Performance Report

This report summarizes transportation performance measures at the NATIONAL level.

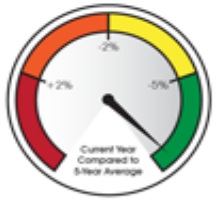
HIGHLIGHTED MEASURES — These measures are recommended as a National Priority.

Are We Reducing Fatalities on our Roads? YES

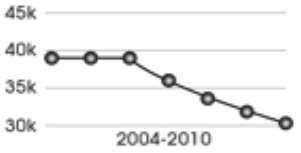
EXPLANATION

THE NUMBER OF FATAL CRASHES IS DOWN
The past five years have shown a steady decline in fatal crashes, but certain driver behaviors and crash types have remained a persistent threat to the safety of our roadways. There was a 19% reduction in fatal crashes in 2010 (versus the five-year average).

SNAPSHOT



TREND



Data Sources: Annual Fatal Crashes from FARS.

THE FACTS

- Fatal crashes in 2010 were at a 15-year low.
- Approximately 40,000 people are killed on the road every year.
- Seatbelt usage has shown an increasing trend since 1994. In 1994 usage was at 58%. In 2011 usage was 84%.[1] Studies have found seatbelts to be 56% effective at reducing fatalities.[2]
- Road departure crashes account for over 50% of fatal highway crashes.

ACTIONS

- FHWA and state DOT's have developed a focused approach to safety through the adoption of State Highway Safety Plans which establish strategic goals and include evaluation processes.
- Since the 1990's states have enacted graduated drivers licensing laws for teen drivers.
- Forty-eight states and D.C. have restricted nighttime driving and 45 states and D.C. have passenger restrictions.[3]
- Click it or Ticket mobilizations have been effective at increasing seatbelt usage.[4]

Transportation Performance Management

NC Refining a Performance Management System

NCDOT recognized they needed to refine their performance management system and therefore began a transformation process. (.pdf, 0.6 mb)

What is TPM?

NC Refining a Performance Management System

WSDOT's Effective Communication of Performance Drives Results

Transportation Data Palooza

TPM and MAP-21

- What is TPM?
- National Goals
- MAP-21 Performance Requirements Summary
- Implementation Schedule

Engagement

- Rulemaking Stakeholder Engagement
- Readiness Stakeholder Engagement

Resources

- Tools
- Noteworthy Practices
- Presentations

News and Events

- FHWA Webinar Series: Asset Management Book Club
  Webinar
  March 27, 2013, 2:00 PM EST
- View all TPM Events
- Subscribe to email updates

TPM Peer Exchange

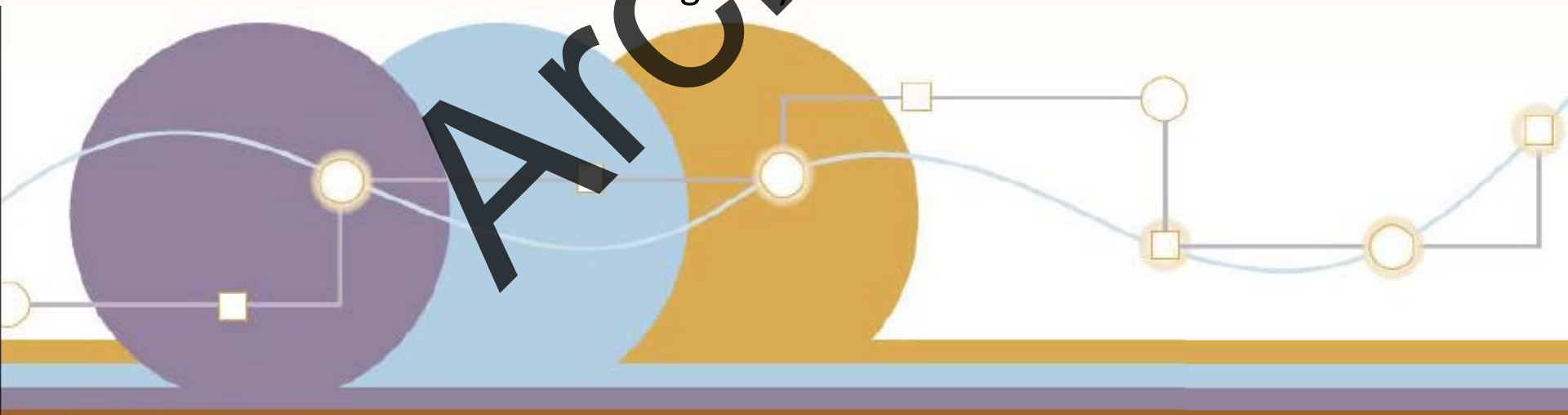
Know More About TPM Implementation: Rulemaking, Reporting, Reassessing

Corridor Performance Management Study

An Overview of the CPM Maturity Model

June 18, 2013

Michael Nesbitt
Federal Highway Administration



Project Purpose

- Study how states can work together to use performance management elements to improve corridor performance in the MAP-21 goal areas of:
  - Safety
  - Infrastructure condition
  - Freight movement/economic vitality
  - System reliability/congestion reduction
- Provide state DOTs and other agencies with guidance and tools to help improve performance

Deliverables

- Study how multiple agencies have worked together to manage performance of a multi-state corridor
- Development and testing of Maturity Model
- Test application of model on I-95 and I-15
- Final Report (June, 2013)
  - Maturity model and assessment tool
  - Noteworthy practices
  - Implementation plan recommendations

Maturity Model

Purpose and Design

- Help agencies/coalitions gauge how corridor level planning and monitoring activities within their jurisdiction compare with current/future national standards
- Rows consist of key "elements" to be ranked
- Columns form a scale from 1-6, with 6 being most mature for any element

Level 1: None/Limited	Level 2	Level 3	Level 4	Level 5	Level 6: Optimized

Maturity Model

Elements

Performance Management Process	Technology/Tools	Institutional/Governance
• Goals/Objectives • Performance Measures • Targets • Resource Allocation • Reporting/Monitoring • Management/Operations • Integration into Planning	• Data Collection/Availability • Data Sharing/Standardization • Analysis Tools/Capabilities • Availability of Data for Users	• Mobilization of Partners • Organizational Structure • Funding • Collaboration with Modal and Planning Partners

Maturity Model

Scale

1. None/Limited.
2. Some activity within the corridor. Activities are isolated and not coordinated; may be "ad hoc."
3. Earliest signs of corridor-level coordination. Coordination may not include all jurisdictions or modes.
4. Coordinated, corridor-wide activities are executed.
5. Operations and planning activities are united such that corridor-wide performance is prioritized. Individual jurisdictions treat the corridor as a single, cohesive unit.
6. Optimized. All corridor planning among partner agencies are unified. Activities and processes are continually monitored and improved.

Maturity Model-Operationalizing

	Level 1: None/Limited	Level 2	Level 3	Level 4	Level 5	Level 6: Optimized
Data Collection /Availability	Incomplete or no data collected or available	Limited data collected/available, or data only available for portion of corridor or network element; manual input	Some automated data collection; data for at least one mode available for entire corridor	Automated data collection/remote sensing for at least one mode in portion of corridor; data available across entire corridor for multiple modes	Automated data collection/remote sensing for multiple modes across entire corridor; data available across entire corridor for multiple modes	Continuous, automated data collection across all modes for entire corridor
Data Sharing /Standardization	Data siloed among different agencies	Ad hoc data sharing across jurisdictions	Some data sharing among partner agencies for at least one mode	Data shared by some partner agencies among all modes	At least some data shared among all partner agencies for all modes	Complete sharing of all available data; central data repository

	Level 1: None/Limited	Level 2	Level 3
Data Collection /Availability	Incomplete or no data collected or available	Limited data collected/available, or data only available for portion of corridor or network element; manual input	Some automated data collection; data for at least one mode available for entire corridor

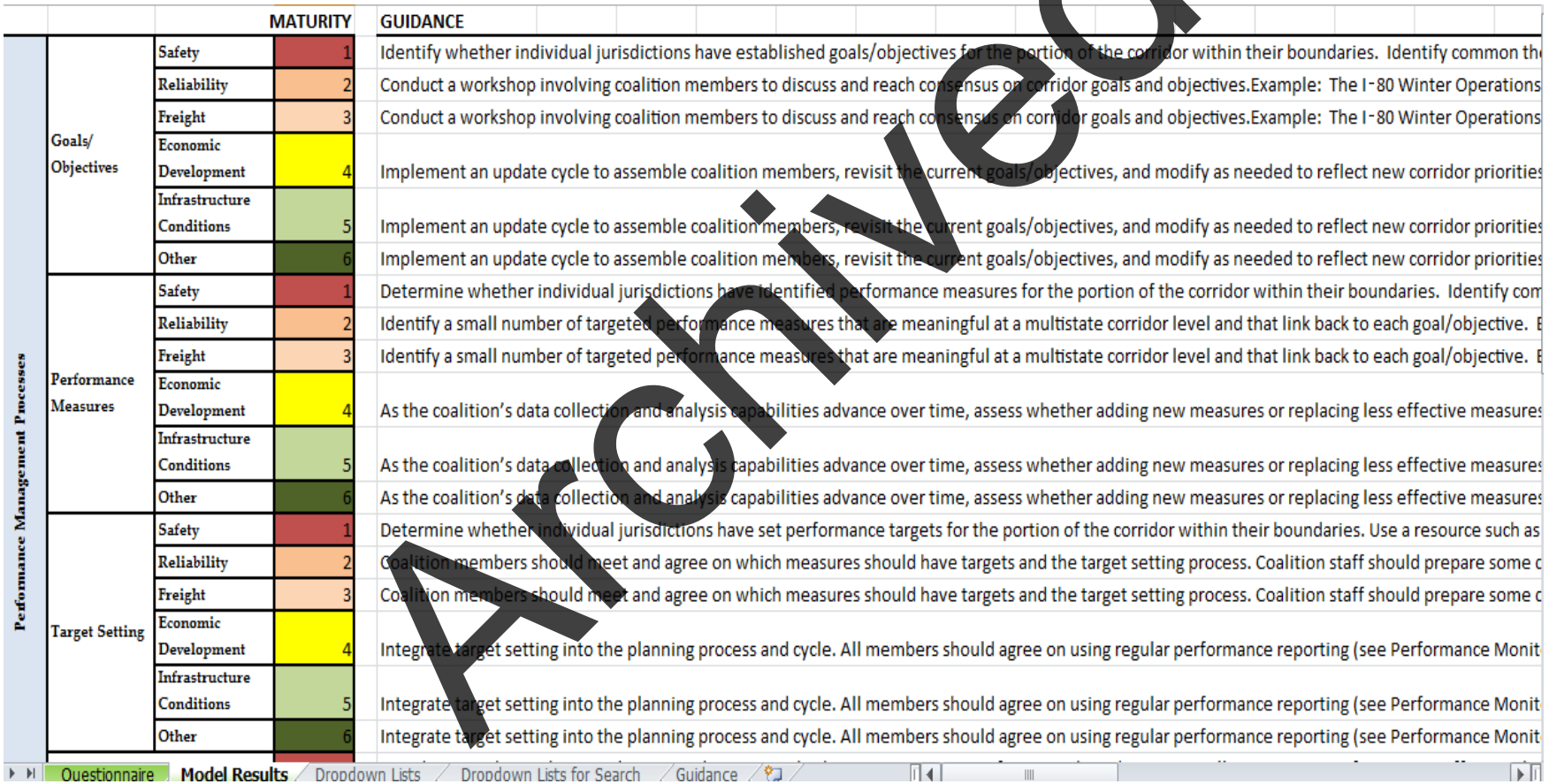
Maturity Model

Self Assessment Tool

7	Which of the following best describes how the coalition is funded?	No formal corridor-wide funding arrangement		
8				
9	To what extent does the coalition collaborate with other modal partners (e.g., Class I railroads, transit agencies, seaports/ferry terminals, etc.)?	Corridor capacity integrated and managed across networks; corridor treated as system rather than individual network assets		
10				
11	To what extent does the coalition collaborate with other planning partners (e.g., DOTs, MPOs, city planning jurisdictions, etc.)?	Some collaboration between planning partners from multiple jurisdictions in at least a portion of corridor		
12				
13	**Performance Management Processes**			
14	Has your coalition established goals or objectives, such as "improve mobility" or "increase safety", and/or does it utilize any performance measures and data?	Yes		
15				
16	Please indicate whether your coalition has established goals, performance measures, and/or targets for use in planning or operations in any or all of the following areas by selecting the appropriate item from each drop down box:			
17		**Goals/Objectives**	**Performance Measures**	**Targets**
18	**Safety**	No goals/objectives defined	No performance measures considered or selected	No performance management framework or targets established
19	**Reliability**	Goals/objectives for at least one goal/objective area defined within portions of corridor	Defined metrics (by mode, if applicable); performance measures applied in portion of corridor.	Factors influencing target-setting examined
	Freight Movement	Goals/objectives for at least one	Limited integration of performance	Appropriate approaches for target-setting selected

Maturity Model

Self Assessment Tool (continued)



			MATURITY	GUIDANCE
Performance Management Processes	Goals/ Objectives	Safety	1	Identify whether individual jurisdictions have established goals/objectives for the portion of the corridor within their boundaries. Identify common th
		Reliability	2	Conduct a workshop involving coalition members to discuss and reach consensus on corridor goals and objectives.Example: The I-80 Winter Operations
		Freight	3	Conduct a workshop involving coalition members to discuss and reach consensus on corridor goals and objectives.Example: The I-80 Winter Operations
		Economic Development	4	Implement an update cycle to assemble coalition members, revisit the current goals/objectives, and modify as needed to reflect new corridor priorities
		Infrastructure Conditions	5	Implement an update cycle to assemble coalition members, revisit the current goals/objectives, and modify as needed to reflect new corridor priorities
		Other	6	Implement an update cycle to assemble coalition members, revisit the current goals/objectives, and modify as needed to reflect new corridor priorities
	Performance Measures	Safety	1	Determine whether individual jurisdictions have identified performance measures for the portion of the corridor within their boundaries. Identify com
		Reliability	2	Identify a small number of targeted performance measures that are meaningful at a multistate corridor level and that link back to each goal/objective. E
		Freight	3	Identify a small number of targeted performance measures that are meaningful at a multistate corridor level and that link back to each goal/objective. E
		Economic Development	4	As the coalition's data collection and analysis capabilities advance over time, assess whether adding new measures or replacing less effective measures
		Infrastructure Conditions	5	As the coalition's data collection and analysis capabilities advance over time, assess whether adding new measures or replacing less effective measures
		Other	6	As the coalition's data collection and analysis capabilities advance over time, assess whether adding new measures or replacing less effective measures
	Target Setting	Safety	1	Determine whether individual jurisdictions have set performance targets for the portion of the corridor within their boundaries. Use a resource such as
		Reliability	2	Coalition members should meet and agree on which measures should have targets and the target setting process. Coalition staff should prepare some c
		Freight	3	Coalition members should meet and agree on which measures should have targets and the target setting process. Coalition staff should prepare some c
		Economic Development	4	Integrate target setting into the planning process and cycle. All members should agree on using regular performance reporting (see Performance Monit
		Infrastructure Conditions	5	Integrate target setting into the planning process and cycle. All members should agree on using regular performance reporting (see Performance Monit
		Other	6	Integrate target setting into the planning process and cycle. All members should agree on using regular performance reporting (see Performance Monit

Questionnaire | Model Results | Dropdown Lists | Dropdown Lists for Search | Guidance

Launch Webinars

- Corridor Performance Management Study Session 1: June 27, 10:00 AM to 11:30 AM
  - https://www.nhi.fhwa.dot.gov/resources/webconference/web_conf_learner_reg.aspx?webconfid=26215
- Corridor Performance Management Study Session 2: June 28, 1:00 AM to 2:30 PM
  - https://www.nhi.fhwa.dot.gov/resources/webconference/web_conf_learner_reg.aspx?webconfid=26216

Questions or Comments on Model

Michael.Nesbitt@dot.gov

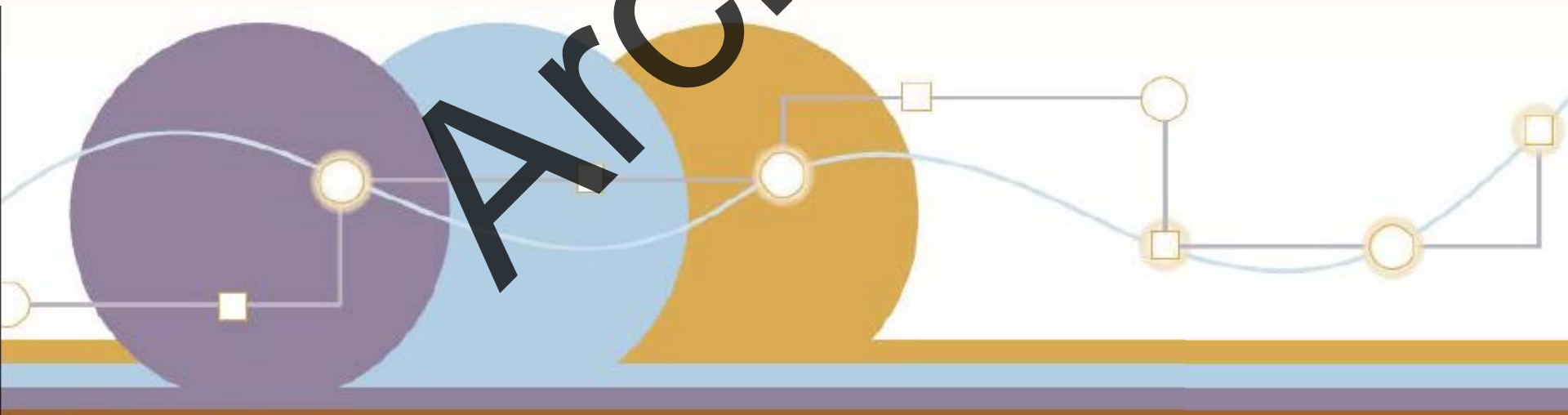
More Info

www.fhwa.dot.gov/map21

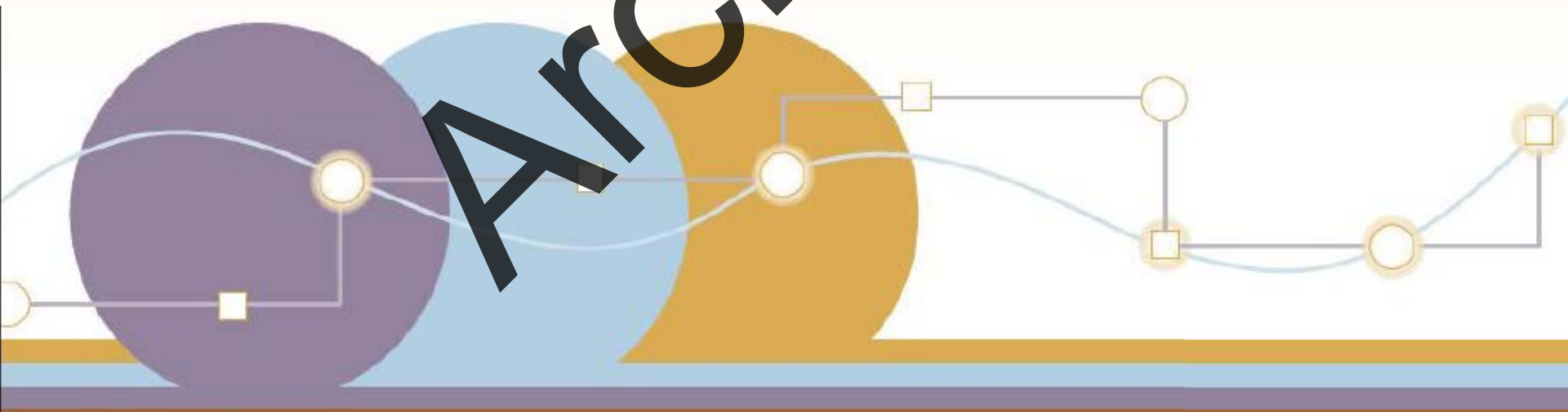
www.fhwa.dot.gov/tpm

Rulemaking

PerformanceMeasuresRulemaking@dot.gov



Questions?

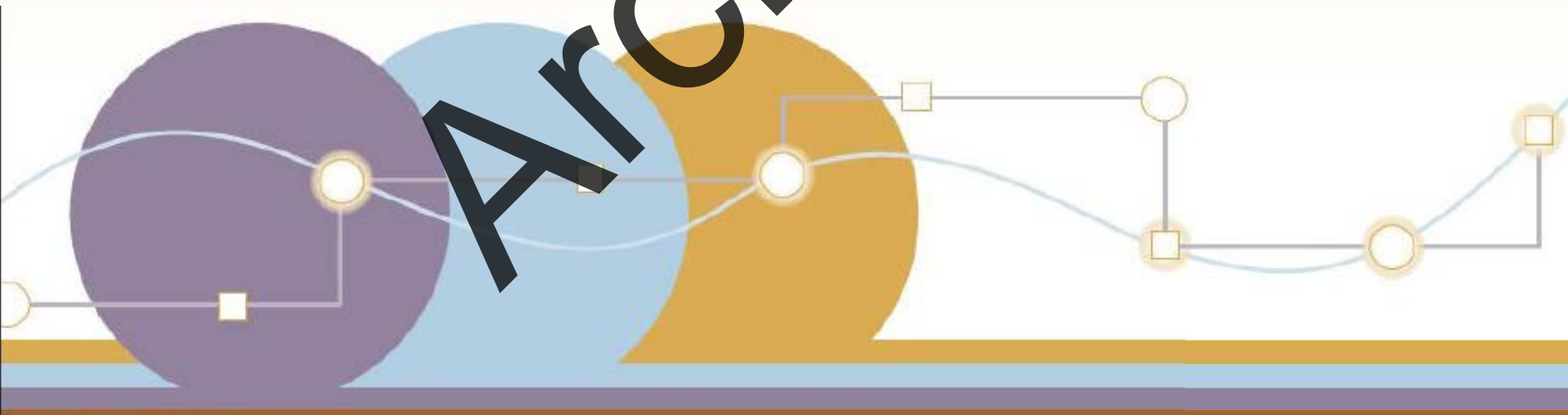


TPM Peer Exchange

Know More About TPM Implementation: Rulemaking, Reporting, Reassessing

Overview of NCDOT's Performance Management Strategy,

Ehren Meister, Matthew Whitley, Don Voelker, NCDOT

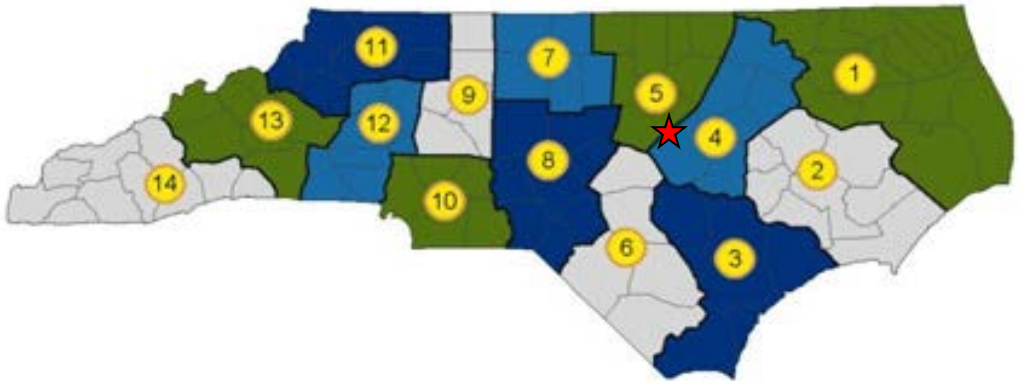


An Overview of North Carolina Department of Transportation's Performance Management Strategy

Ehren Meister, MPA
Performance Metrics Director
Strategic Planning Division
North Carolina Department of Transportation
emeister@ncdot.gov
919-707-2903

NCDOT State Perspective

- Almost 80,000 state maintained road miles (2nd only to Texas)
- 2nd largest state operated ferry system (Washington State is 1st)
- About 13,000 employees
- 14 regional "highway operation" divisions across the state
- 12 "central" divisions including:
  - Highways (all other non-operational divisions)
  - Motor Vehicles
  - Financial Management
  - Information Technolc
  - Technical Services
  - Transit
  - Etc.



NCDOT Historical Perspective

Early 2000s: Performance accountability introduced randomly

- Asset Management Systems, Long Range Planning, etc.

2007: "Transformation" Process

- Developed clear agency purpose/mission
- New performance management system developed
- Performance scorecards/dashboards implemented

2009: Transportation Reform: Policy to Projects

- Strategic prioritization of projects implemented

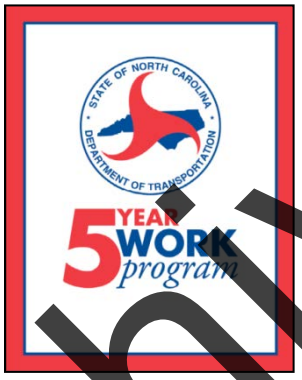
2013: Economy, Customers, Efficiencies

- Strategic mobility investment formula proposed
- 25-Year infrastructure plan underway
- Performance management process well-defined

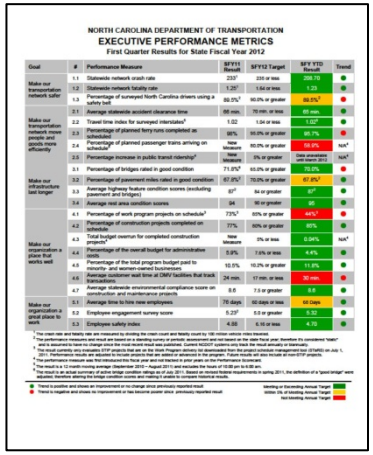
The Performance Management Process

Setting Direction

Transportation Program

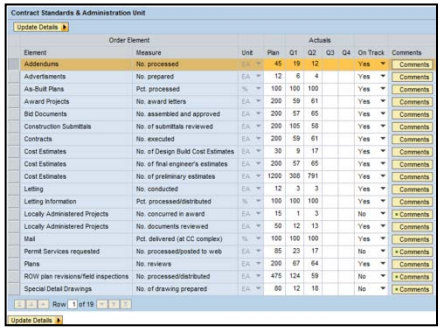


Department Accountability

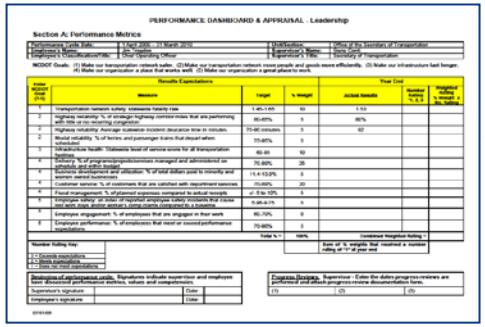


RESULTS!!!

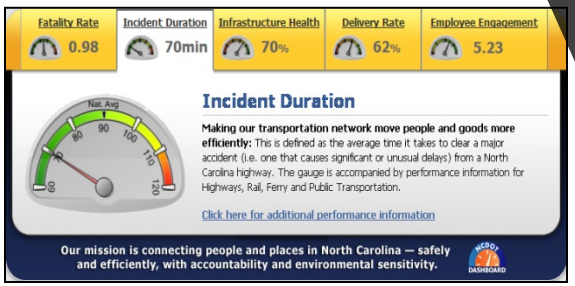
Division/Unit Accountability



Employee Accountability



Performance Reporting



NCDOT's Executive Performance Measures

Our "Strategic" Measures

- Outcome based performance measures (lagging indicators) connected to project prioritization
- Indicators of how successful the agency is at achieving our mission and goals
- Established annually (July)
- Reported quarterly via the "performance scorecard"

NCDOT

OUR METRICS

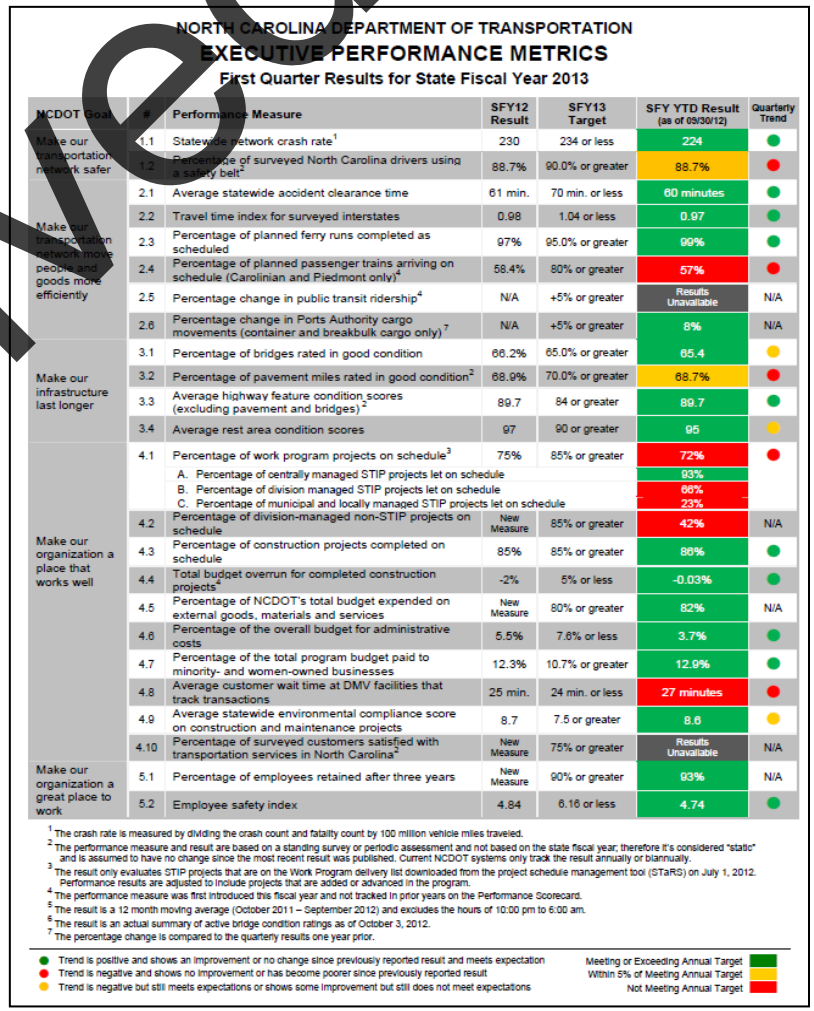
STATE FISCAL YEAR 2013

GOAL		EXECUTIVE PERFORMANCE MEASURE	SFY13 Target
Make our transportation network **safer**	1.1	Statewide network crash rate	234 or less
	1.2	Percentage of surveyed North Carolina drivers using a safety belt*	90.0% or greater
GOAL		**EXECUTIVE PERFORMANCE MEASURE**	**SFY13 Target**
Make our transportation network move people and goods more **efficiently**	2.1	Average statewide accident clearance time	70 min. or less
	2.2	Travel time index for surveyed interstates	1.04 or less
	2.3	Percentage of planned ferry runs completed as scheduled	95.0% or greater
	2.4	Percentage of passenger trains arriving on schedule	80.0% or greater
	2.5	Percentage change in public transit ridership	+5% or greater
	2.6	Percentage change in Port Authority cargo movements (container and breakbulk cargo)	+5% or greater
GOAL		**EXECUTIVE PERFORMANCE MEASURE**	**SFY13 Target**
Make our infrastructure **last longer**	3.1	Percentage of bridges rated in good condition	65.0% or greater
	3.2	Percentage of pavement miles rated in good condition*	70.0% or greater
	3.3	Average highway feature condition scores (excluding pavement and bridges)*	84 or greater
	3.4	Average rest area condition scores	90 or greater
GOAL		**EXECUTIVE PERFORMANCE MEASURE**	**SFY13 Target**
Make our organization a place that **works well**	4.1	Percentage of work program STIP projects on schedule a. Percentage of centrally managed STIP projects on schedule b. Percentage of division managed STIP projects on schedule c. Percentage of municipal and locally managed STIP projects on schedule	85% or greater
	4.2	Percentage of division-managed non-STIP projects on schedule	85% or greater
	4.3	Percentage of construction projects completed on schedule	85% or greater
	4.4	Total budget overrun for completed construction projects	5% or less
	4.5	Percentage of NCDOT's total budget expended on external goods, materials and services	80.0% or greater
	4.6	Percentage of the overall budget for administrative costs	7.6% or less
	4.7	Percentage of the total program budget paid to minority- and women-owned businesses	10.7% or greater
	4.8	Average customer wait-time at DMV facilities that track transactions	24 min. or less
	4.9	Average statewide environmental compliance score on construction and maintenance projects	7.5 or greater
	4.10	Percentage of surveyed customers satisfied with transportation services in North Carolina*	75% or greater
GOAL		**EXECUTIVE PERFORMANCE MEASURE**	**SFY13 Target**
Make our organization **a great place** to work	5.1	Percentage of employees retained after three years	90% or greater
	5.2	Employee safety index	6.16 or less

* Performance measure and result is based on a standing survey or assessment and not tracked quarterly

Performance Scorecard: The Results

- Static "report card" results
- Snapshot as of:
  - September 30
  - December 31
  - March 31
  - June 30
- Presented to NC Board of Transportation
- Basis to annual performance report and dashboards



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
EXECUTIVE PERFORMANCE METRICS
First Quarter Results for State Fiscal Year 2013

NCDOT Goal	#	Performance Measure	SFY12 Result	SFY13 Target	SFY YTD Result (as of 09/30/12)	Quarterly Trend
Make our transportation network safer	1.1	Statewide network crash rate[1]	230	234 or less	224	●
	1.2	Percentage of surveyed North Carolina drivers using a safety belt[2]	88.7%	90.0% or greater	88.7%	●
Make our transportation network move people and goods more efficiently	2.1	Average statewide accident clearance time	61 min.	70 min. or less	60 minutes	●
	2.2	Travel time index for surveyed interstates	0.98	1.04 or less	0.97	●
	2.3	Percentage of planned ferry runs completed as scheduled	97%	95.0% or greater	99%	●
	2.4	Percentage of planned passenger trains arriving on schedule (Carolinian and Piedmont only)[4]	58.4%	80% or greater	57%	●
	2.5	Percentage change in public transit ridership[4]	N/A	+5% or greater	Results Unavailable	N/A
	2.6	Percentage change in Ports Authority cargo movements (container and breakbulk cargo only)[7]	N/A	+5% or greater	8%	N/A
Make our infrastructure last longer	3.1	Percentage of bridges rated in good condition	66.2%	65.0% or greater	65.4	●
	3.2	Percentage of pavement miles rated in good condition[2]	68.9%	70.0% or greater	68.7%	●
	3.3	Average highway feature condition scores (excluding pavement and bridges)[2]	89.7	84 or greater	89.7	●
	3.4	Average rest area condition scores	97	90 or greater	95	●
Make our organization a place that works well	4.1	Percentage of work program projects on schedule[3]	75%	85% or greater	72%	●
		A. Percentage of centrally managed STIP projects let on schedule			93%	
		B. Percentage of division managed STIP projects let on schedule			66%	
		C. Percentage of municipal and locally managed STIP projects let on schedule			23%	
	4.2	Percentage of division-managed non-STIP projects on schedule	New Measure	85% or greater	42%	N/A
	4.3	Percentage of construction projects completed on schedule	85%	85% or greater	86%	●
	4.4	Total budget overrun for completed construction projects[5]	-2%	5% or less	-0.03%	●
	4.5	Percentage of NCDOT's total budget expended on external goods, materials and services	New Measure	80% or greater	82%	N/A
	4.6	Percentage of the overall budget for administrative costs	5.5%	7.6% or less	3.7%	●
	4.7	Percentage of the total program budget paid to minority- and women-owned businesses	12.3%	10.7% or greater	12.9%	●
	4.8	Average customer wait time at DMV facilities that track transactions	25 min.	24 min. or less	27 minutes	●
	4.9	Average statewide environmental compliance score on construction and maintenance projects	8.7	7.5 or greater	8.6	●
	4.10	Percentage of surveyed customers satisfied with transportation services in North Carolina[2]	New Measure	75% or greater	Results Unavailable	N/A
Make our organization a great place to work	5.1	Percentage of employees retained after three years	New Measure	90% or greater	93%	N/A
	5.2	Employee safety index	4.84	6.16 or less	4.74	●

[1] The crash rate is measured by dividing the crash count and fatality count by 100 million vehicle miles traveled.
[2] The performance measure and result are based on a standing survey or periodic assessment and not based on the state fiscal year; therefore it's considered "static" and is assumed to have no change since the most recent result was published. Current NCDOT systems only track the result annually or biannually.
[3] The result only evaluates STIP projects that are on the Work Program delivery list downloaded from the project schedule management tool (STaRS) on July 1, 2012. Performance results are adjusted to include projects that are added or advanced in the program.
[4] The performance measure was first introduced this fiscal year and not tracked in prior years on the Performance Scorecard.
[5] The result is a 12 month moving average (October 2011 – September 2012) and excludes the hours of 10:00 pm to 6:00 am.
[6] The result is an actual summary of active bridge condition ratings as of October 3, 2012.
[7] The percentage change is compared to the quarterly results one year prior.

● Trend is positive and shows an improvement or no change since previously reported result and meets expectation
● Trend is negative and shows no improvement or has become poorer since previously reported result
● Trend is negative but still meets expectations or shows some improvement but still does not meet expectations

Meeting or Exceeding Annual Target
Within 5% of Meeting Annual Target
Not Meeting Annual Target

Business Unit/Division Work Plans

Our "Operational" Metrics

- What a business unit plans to do… Essentially a units/divisions actions or strategies that are measurable categories expected to be achieve during the year ("plan your work, work your plan")
- Approximately 70 business units at NCDOT are required to maintain a work plan and report results quarterly
- Work plan activities, elements and metrics connect to annual employee appraisals
- An internal management and reporting tool only

Employee Performance Management at NCDOT

- Completely overhauled in 2007 to focus on objective performance results (new process, new policies, new forms)
- Agency performance is connected to individual performance
- Employees and managers are given the authority to create fair, equitable, objective and measurable performance expectations
- Employee accountability is the foundation to achieving organization outcomes and results

"just measuring your job performance"

Dynamic Results: Performance Dashboards

Performance Dashboard – just like a car's dashboard, it's a dynamic tool that can tell us how an organization is performing, therefore improving decisions and accountability

✓ **NCDOT's Executive Performance Dashboard**

- Public-facing (web: www.ncdot.gov/performance)
- Public-friendly and easy to understand

✓ **NCDOT's Internal Management Dashboard**

- Internal-facing (secure access only)
- Detailed performance data and results aligned to organizational hierarchy

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

For illustration only. Not live.

NCDOT Internal Management Dashboard

) 68][Project Development (Non-STIP) 82][Environmental Compliance 8.7][MB/WBE

For illustration only. Not live.

NCDOT's Performance Management Strategy

"Connecting people and places in North Carolina…"

1. Make our transportation network **safer**
2. Make our transportation network **move people and goods** more efficiently
3. Make or infrastructure **last longer**
4. Make our organization a place that **works well**
5. Make our organization a **great place** to work

–Fatality/crash rates
–Incident duration
–Travel reliability
–Infrastructure health scores
–Project & program delivery rates
–Fiscal management indicators
–Customer satisfaction scores
–Business utilization rates
–Employee engagement scores
–Employee safety index

– Strategic Mobility Formula
– 5-Year Work Program
– Strategic Prioritization
– Long Range Planning
– Asset Management Systems
– Business Unit Work Plans
– Employee Appraisals
– Performance Dashboards
– Scorecards & Reports
– STIP

NCDOT's Performance Based Maintenance Cycle

Matthew Whitley, P.E.
NCDOT – Management Systems and Assessments

Discussion Points

- Performance Measures
- Assessment Methodology
- Conducting the Assessment
- Scorecards & Infrastructure Health Index
- Maintenance Planning & Operations

Performance Measures

- Define the expectations for element condition or operating LOS
- 6 Element Groups- construction, pavement, bridge, roadside, traffic, & road maintenance

SUMMARY SHEET FOR ROADWAY MAINTENANCE

SHEET NO.	ASSET	CONDITION INDICATOR
RM-1	Unpaved Shoulders (Low & High Shoulder)	No dropoff's greater than 3 inches and no shoulders higher than 2 inch
RM-2	Ditches (Lateral Ditches)	No blocked, eroded or non functioning ditches
RM-3	Crossline Pipes (Blocked)	Greater than 50% diameter open
RM-4	Crossline Pipes (Damaged)	No damage or structural deficiency affecting functionality
RM-5	Curb & Gutter (Blocked)	No obstruction greater than 2 inches for 2 feet
RM-6	Boxes (Blocked or Damaged)	Grates and outlet pipe of boxes not blocked greater than 50%, Inlet and outlet of boxes are not damaged, and grates are present and not broken

Transportation Performance Management

Functional Work Group Worksheet RM-1

Element: Shoulder and Ditches

Asset: Unpaved Shoulders

Activities: Low & High Shoulder

Condition Indicator: No dropoffs greater than 3 inches below the roadway edge of pavement and no shoulders higher than 2 inch above the road surface

Performance Measure: Linear feet of shoulder that meets the Condition Indicator

Work Plan Focus Area: Transportation Safety

LOS Category	LOS Description
A	Equal to or greater than 95% of the linear measurement meets the condition indicator
B	90% to < 95% of the linear measurement meets the condition indicator
C	85% to <90% of the linear measurement meets the condition indicator
D	80% to < 85% of the linear measurement meets the condition indicator
F	Less than 80% of linear measurement meets the condition indicator

	Statewide	Regional	Subregional		Division	County
Performance Target	A	B	C		NA	NA
Assessment Method	MCA	MCA	MCA		MCA	MCA
Does Assessment Data exist	YES	YES	YES		YES	NO
Desired level of survey	YES	YES	YES		YES	YES
Does Feature Inventory exist	YES	YES	YES		YES	YES
Desired level of Feature Inventory	NO	NO	NO		NA	NA

Glossary
MCA: Maintenance Condition Assessment

Assessment Methodology

- Random sampling by system
- Level: Interstate – Division

  Primary & Secondary - County

- 95% Confidence with a margin of error +- 3%
- Assess over 22,000, 0.1 mile sections

Conducting the Assessment

- Conducted every two years from 1998-2010
- Currently it's a continuous assessment
- Utilize tablet computer with Arcpad program & GPS device
- Assess 11 elements
- 12 2-men teams statewide
- An inventory and failure quantity is recorded for each element per section

Conducting the Assessment

Elements

- Shoulders
- Lateral Ditches
- Crossline Pipes Blocked
- Crossline Pipes Damaged
- Gutters Blocked
- Inlets (Blocked or Damaged)
- Brush & Tree Control
- Turf Condition
- Pavement Striping
- Words & Symbols
- Pavement Markers

Scorecards

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

Scorecards

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 Pvmt Markings	MCA	8	0.082	80	6.53	90	7.35
T-2	Words and Symbols	MCA	5	0.051	80	4.08	86	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	5.36	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 TOTAL: 0.999 TOTAL: 82.16 TOTAL: 92.49

Infrastructure Health Index

- Combines MCAP scores, PCS ratings, and Bridge indices
- Provides a system rating for all three assets and an overall network rating
- Statewide and Division level
- Produced by the maintenance management system (future)

Infrastructure Health Index

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

				PAVEMENTS			MCA			BRIDGE HEALTH INDEX				TOTAL IHCS	
				WEIGHT VALUE		40	WEIGHT VALUE		25	WEIGHT VALUE			35	EXISTING	
	80%	20%	WEIGHTED			OVERALL			OVERALL	ALL	EXIST		OVERALL		
SYSTEM	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

WEIGHTED FACTOR = 80% x VMT% + 20% x lane mile %

OVERALL SCORES =
Pavement : % Good x WEIGHTED FACTOR
MCA : SCORE x WEIGHTED FACTOR
Bridges : BHCI x WEIGHTED FACTOR

Infrastructure Health Index

SCORE =
Pavement % Good x Weight Value (40)
+ (MCA SCORE / 100) x Weight Value (25)
+ BHCI x Weight Value (35)

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

				PAVEMENTS			MCA			BRIDGE HEALTH INDEX				TOTAL IHCS	
				WEIGHT VALUE		40	WEIGHT VALUE		25	WEIGHT VALUE			35		
	80%	20%	WEIGHTED			OVERALL			OVERALL	ALL	EXIST		OVERALL	EXISTING	
SYSTEM	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
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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**

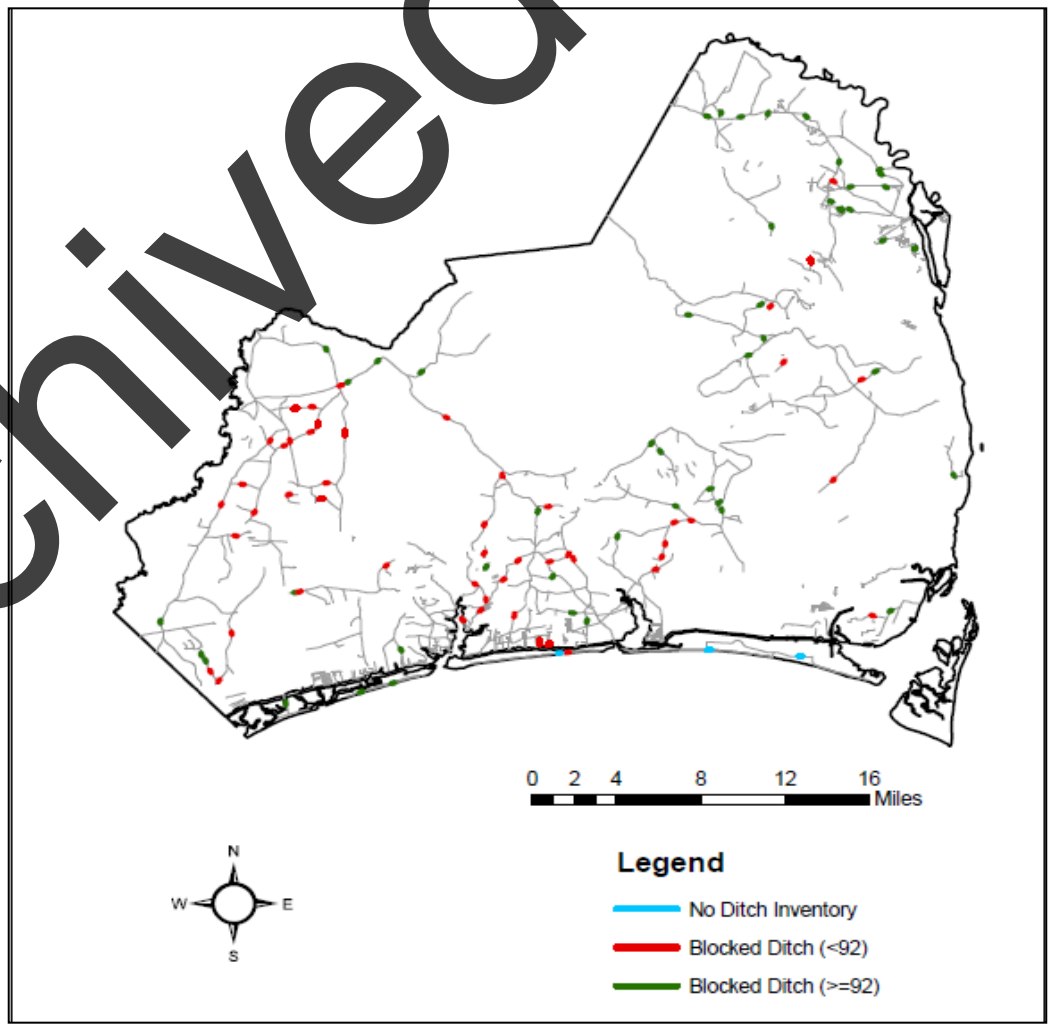
COMPOSITE VALUES = TOTAL OVERALL SCORE x WEIGHT VALUE

TOTAL COMPOSITE SCORE = SUM OF COMPOSITE VALUES

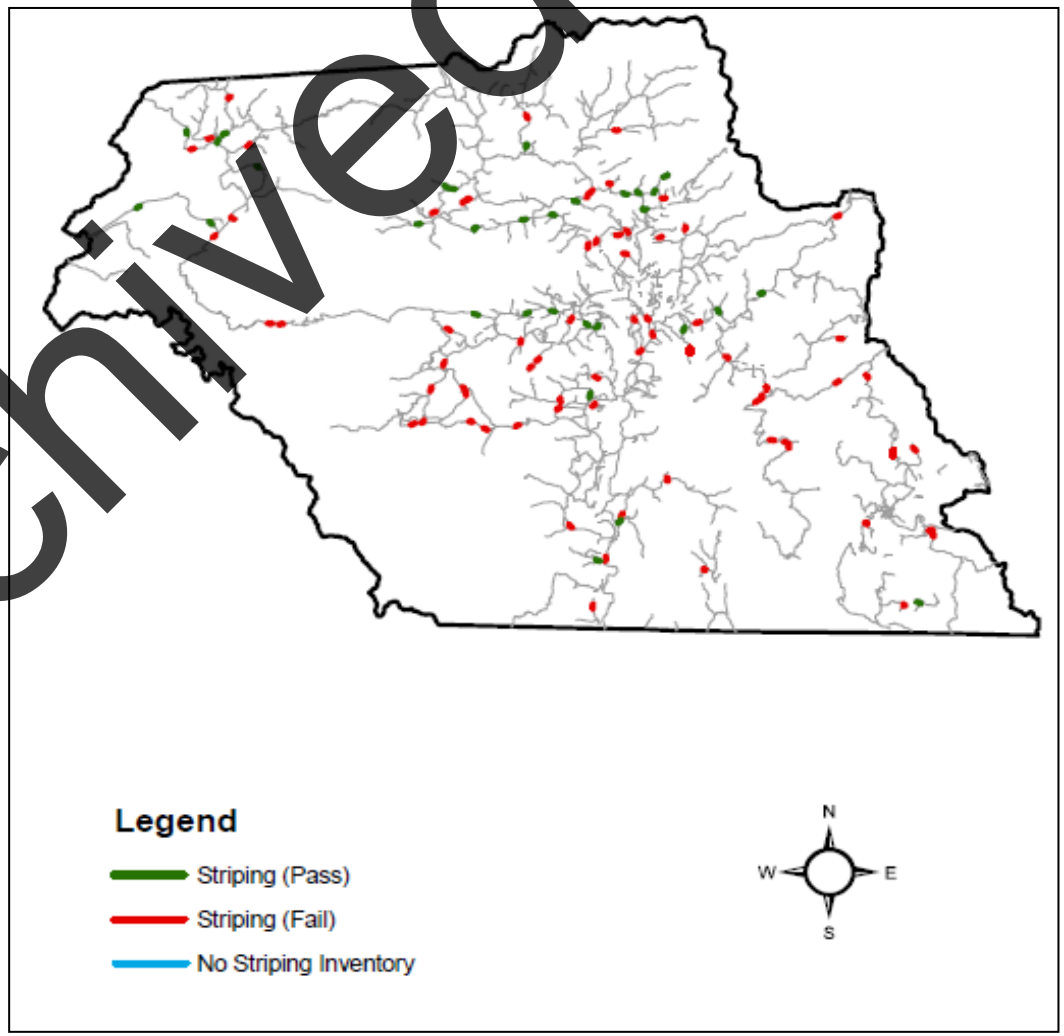
Maintenance Planning & Operations

- Within the Division determine unit responsible for elements not meeting target
- Determine work functions needed to correct deficiencies and develop work plan
- Part of employee performance evaluation
- Notification of critical maintenance needs

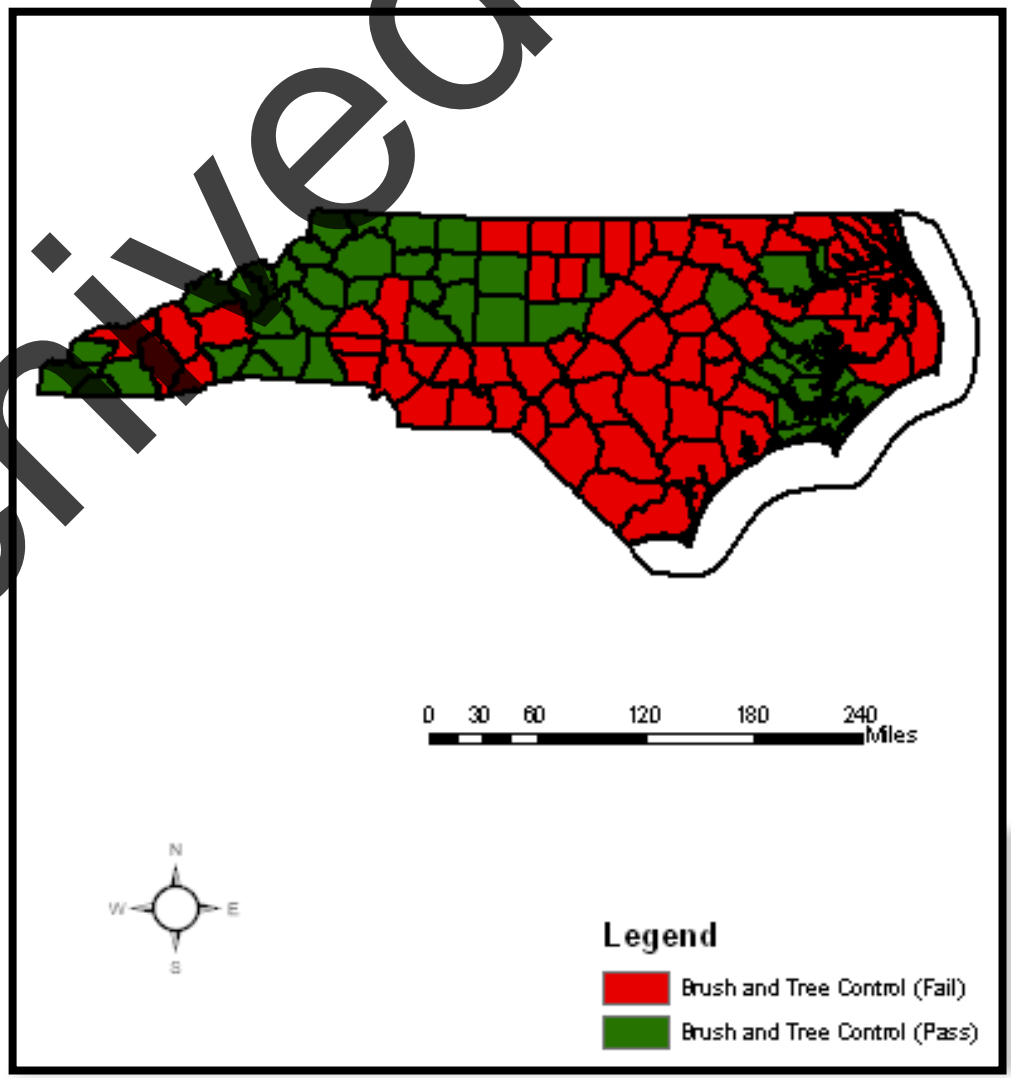
Maintenance Planning & Operations



Maintenance Planning & Operations



Maintenance Planning & Operations



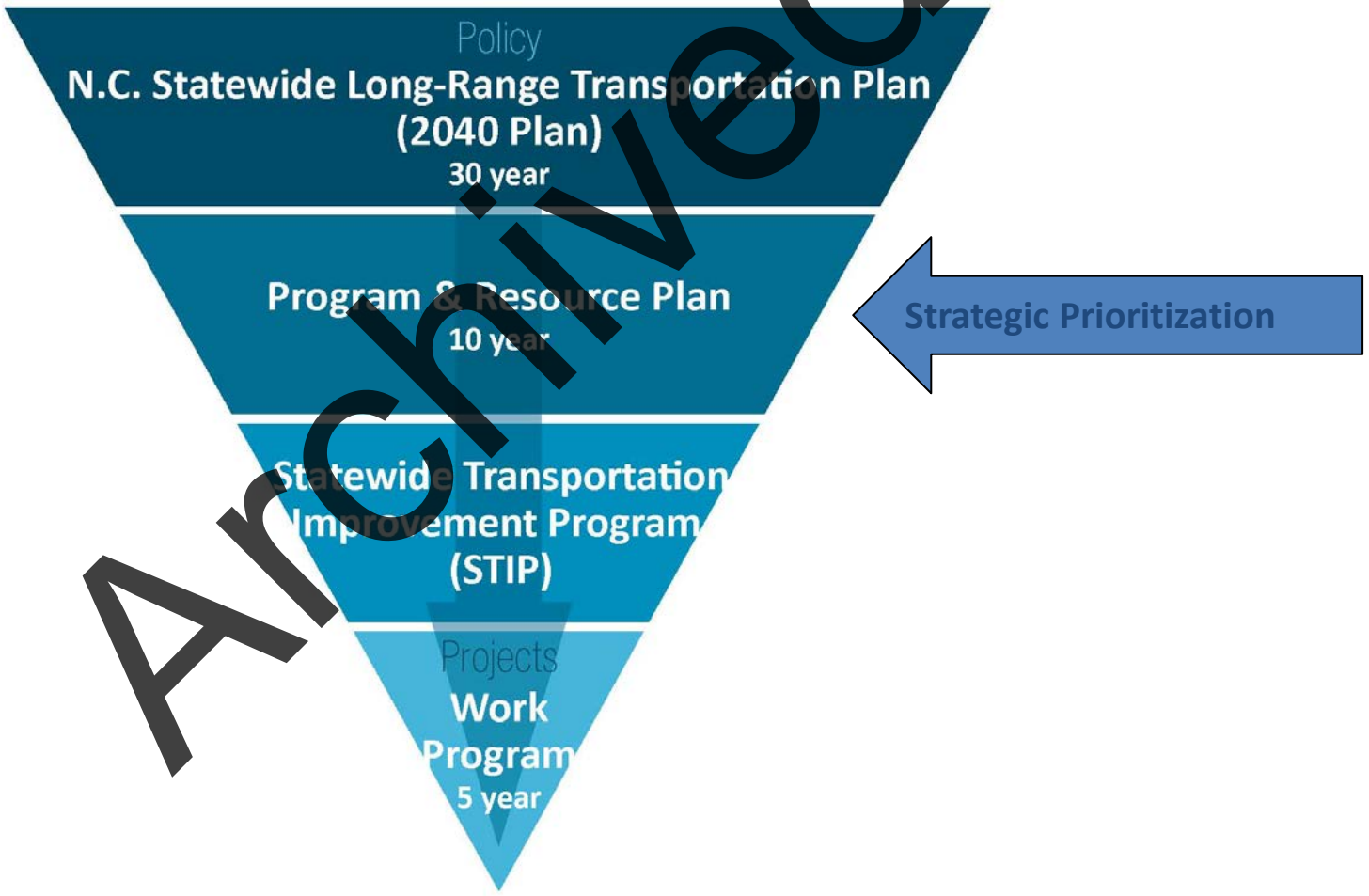
Our Prioritization Story
North Carolina DOT

Don Voelker
NCDOT – Director, Strategic Prioritization Office

Transportation Reform

- **Public wanted politics removed from transportation decision-making**
- **Governor Purdue issued Executive Order Number 2**
  - *The Secretary of the Department of Transportation shall implement throughout the Department a professional approval process for all highway construction programs, highway construction contracts, highway construction projects, and plans for the construction of projects."*
- **Strategic Planning Office created (3 founding members)**
- **Implemented NCDOT's first strategic prioritization process in 2009**
- **Completed Prioritization 2.0 (P2.0) in early 2012; now on P3.0**

How it All Fits Together: NCDOT Policy to Projects



Strategic Prioritization and Programming Process

1. Score	2. Strategize	3. Schedule
Prioritize Projects using	**Set Investment Strategy**	**Program Projects**
• Data • Local Input • Multimodal Characteristics • Classify ranked Projects into Buckets (Mode, Goal, Tier)	• Conduct Scenario/Trade-off Analysis with DOT & Partners • Constrained only by Total Available Revenue	• Develop STIP using Project Rankings & Investment Strategy • Apply Constraints • Compare Selected Strategy vs. Applied Constraints

Transportation Performance Management

P2.0 - Scoring Highway Projects

	QUANTITATIVE	LOCAL INPUT	
Tier	Data	Division Rank	MPO/RPO Rank
Statewide	70%	20%	10%
Regional	50%	25%	25%
Subregional	30%	30%	40%

Local Input

Each MPO/RPO & Division receives equal number of points → 1,300

Can choose between Top 25 project ranking or Control Total

Top 25	OR	Control Total
#1 = 100 #2 = 96 #3 = 92 … #25 = 4		Can rank projects as desired Max 100 pts per project Min 4 pts per project Can transfer points to other areas*

* Must be agreement between giving and receiving organizations

Highway Scoring (P3.0)

Total Score = Quantitative Data + Local Input + Multimodal Pts

Bonus Points (extra credit)

A. Multimodal Options → 8 points:

HOV / HOT, light rail, bus rapid transit, or bus-on-shoulder w/in the highway ROW.

B. Multimodal Connections → 5 points:

Direction connection (property line) to a transportation terminal along a roadway with an access point (airport, seaport, rail depot, ferry terminal, transit terminal, major military base, and freight intermodal terminal (includes air/truck/rail/pipeline terminals)

C. Military Base or Seaport Connections → 5 points:

Project is located along Non-Interstate STRAHNET Route or Non-Interstate STRAHNET Connector.

D. Freight Corridor → 3/4/5 points:

- Existing roadway has between 4,000 and 6,999 trucks per day → 3 points
- Existing roadway has between 7,000 and 9,999 trucks per day → 4 points
- Existing roadway has 10,000 or more trucks per day → 5 points

E. Multimodal Design Features → 3 points:

Sidewalks, pedestrian crossings, striped bicycle lanes, wide outside shoulders, bus pullouts, transit bypass lanes, transit signal prioritization, bus shelters

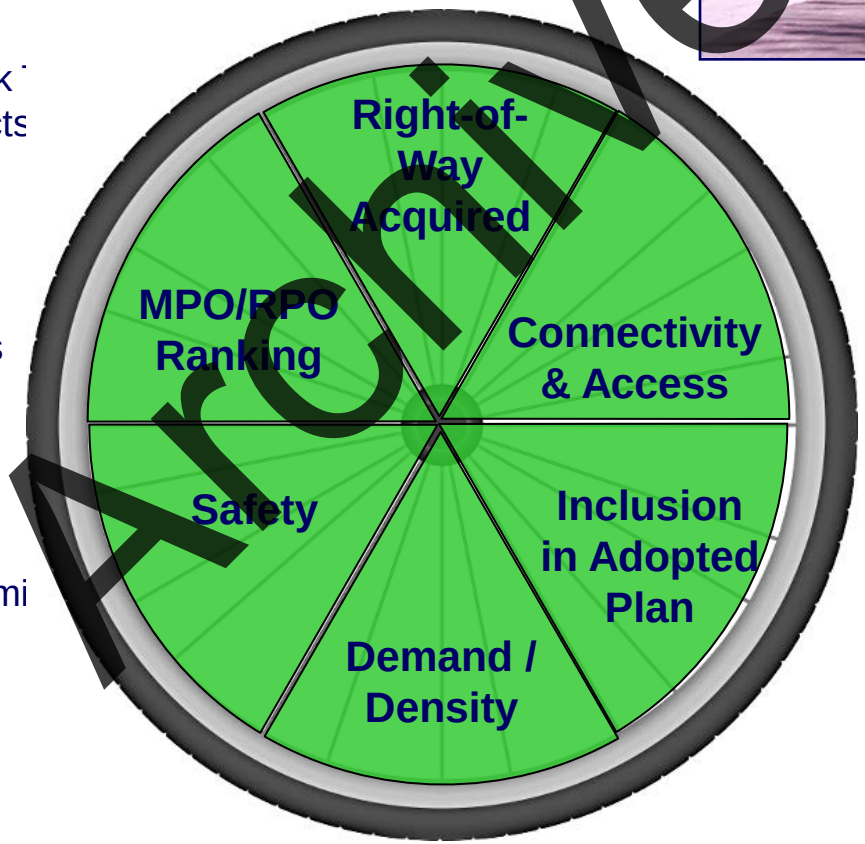
**Note: Projects must be ranked and included in an adopted plan to receive multimodal bonus points*

Bicycle and Pedestrian - Scoring

Same scoring for Bicycle or Pedestrian Projects

10 pts max.

30 pts max. Rank
Bike & Ped Projects
#1 = 30 pts
#2 = 27 pts
#3 = 24 pts
…
#10 = 3 pts



25 pts max. 20 points for Access-destination type and distance to municipal center, transit station, major employment center, mixed-use community, university, high-density residential, schools, parks, bus stops AND 5 points for Connectivity- for number of connections to other Bike & Ped facilities

15 pts max. Recognition of a project in an adopted bicycle / pedestrian plan

10 pts max. Evaluation of bike/ped crashes, speed limi of adjacent roadway, and project safety benefits

10 pts max. Greater pop. or employment densities = higher points

Public Transportation Prioritization

A new model is being developed. Criteria likely to include:

Operating Efficiency of System
Age of Fleet/Facility
Increase in Service Hours
Increase in the number of routes

Aviation, Rail and Ferry Prioritization Processes

- **Aviation** – Data only drives scoring. (17 categories/activities within three NCDOT Goals of Safety, Infrastructure Health and Mobility) Safety projects funded first, then infrastructure health and the mobility projects

- **Rail** – Data only drives scoring. High-speed rail projects driven by grant requirements. Grade-crossing projects by a rail- index- (ADT and frequency of trains)

- **Ferry** – Data only drives scoring. Condition of vessels and facilities (buildings and ferry terminals)

Prioritization 2.0 Accomplishments

Generated scores and ranked almost 2000 projects

- 1200 Highway projects
- 600 Bicycle & Pedestrian projects
- 100 Public Transportation projects

THE ISSUE:

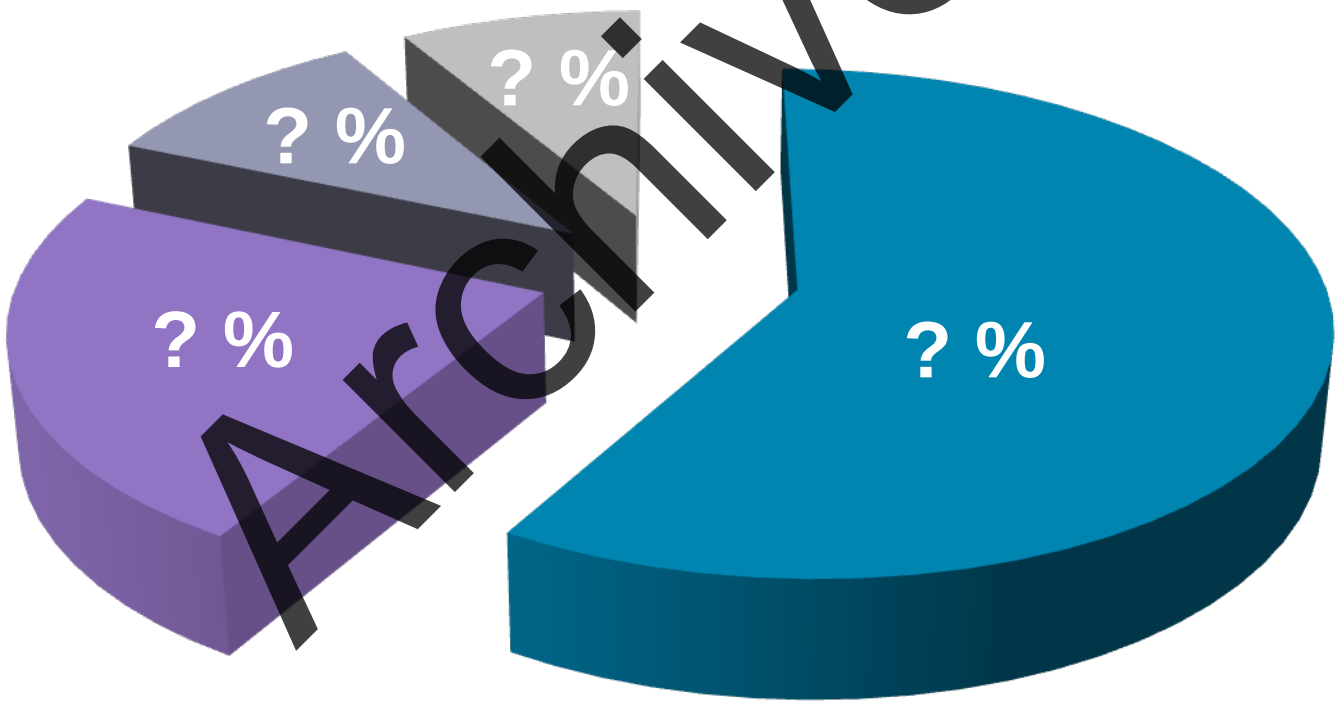
$63 Billion in Total Transportation Needs for the 2000 projects

$10 Billion in Revenue for the next ten years

Strategic Prioritization and Programming Process

1. Score	2. Strategize	3. Schedule
Prioritize Projects using	**Set Investment Strategy**	**Program Projects**
• Data • Local Input • Multimodal Characteristics • Classify ranked Projects into Buckets (Mode, Goal, Tier)	• Conduct Scenario/Trade-off Analysis with DOT & Partners • Constrained only by Total Available Revenue	• Develop STIP using Project Rankings & Investment Strategy • Apply Constraints • Compare Selected Strategy vs. Applied Constraints

How to Divide the Pie? - Determining the Investment Strategy



Investment Strategy Summits

Summits held throughout NC every 2 years

- Partner and public input opportunity

Purpose: provide input on where to apply expected revenue

- What are the high-level priorities?
- What is the investment needed to achieve those priorities?
- Revenue is based on expected 10 Year total only

Use Level of Service (LOS) analysis to determine return on investment

(i.e., if $X are allocated to Bucket "Y", expected 10 Year LOS is "Z")

Outcome is a "picture of where transportation dollars should be spent"

Performance Level of Service (LOS)

Quality of service provided to the user

Different than Highway Capacity Manual

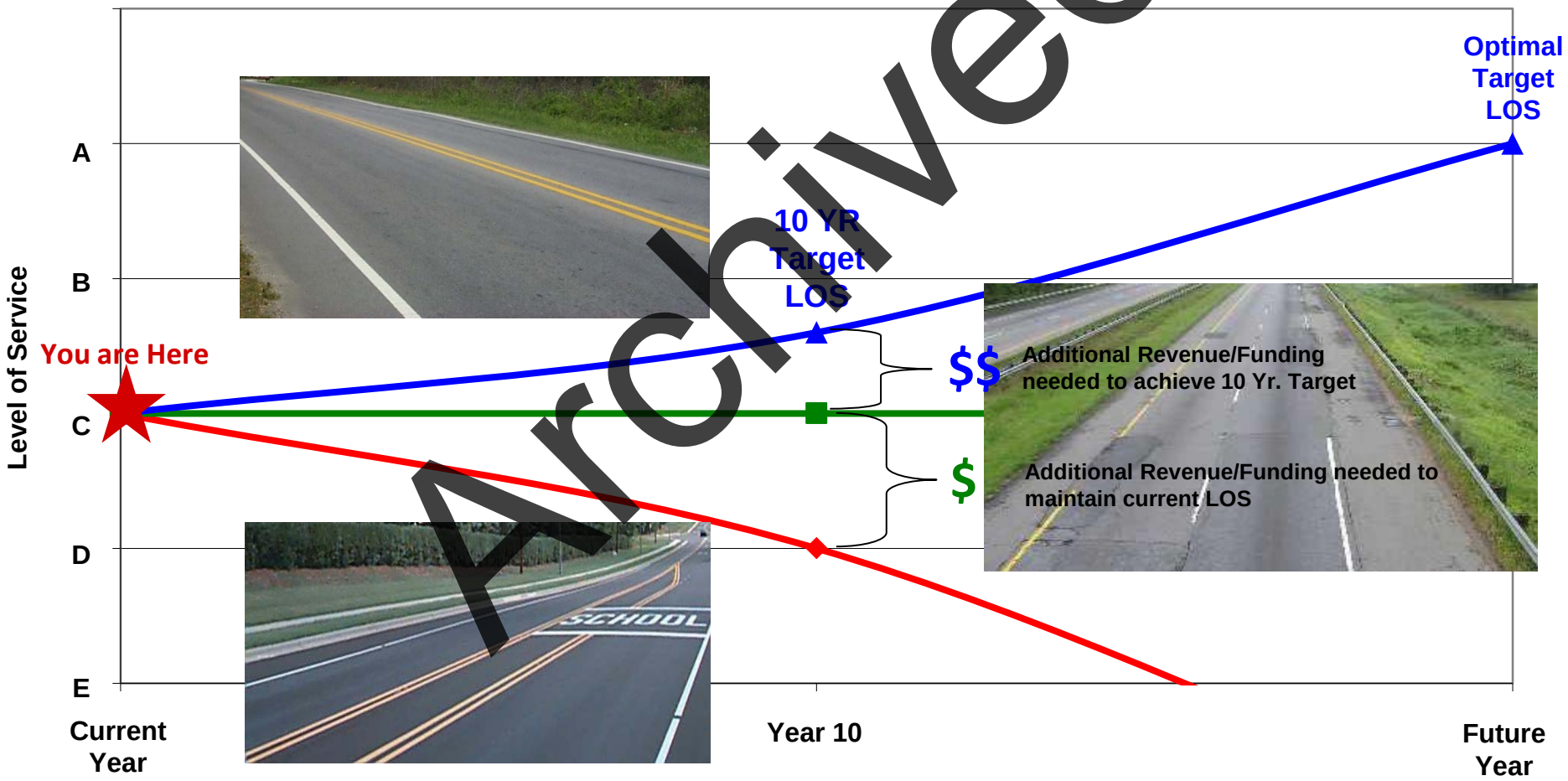
Criteria for determining LOS

- Measures are reliable, repeatable, and affordable
- Current measure and targets are realistic (graded on A-F scale)
- Data is readily available, easy to collect and update

Determine existing LOS and baseline LOS for 10 years in future

Translate LOS into $$ needed to maintain and improve performance

Performance Level of Service (LOS) – Example



Transportation Performance Management

GOAL	Performance Measure	Current LOS	Summit Average LOS	DRAFT STIP
Safety	Fatal Crash Rates	C	C	D
Mobility	% of miles with uncongested roadways	B	B	A
Infrastructure Health (*Pavement*)	% of miles with "Good" rating or better	C	D	D
Infrastructure Health (*Modernization*)	% of miles meeting DOT paved shoulder width standards	D	D	D
Infrastructure Health (*Bridges*)	% of bridges with "Good" rating or better	C	C	B
Overall Average for Highways		**C**	**C**	**C**

Note: letter grades reflect an **average across Tiers*

LOS – Current Grades (Non-Highways)

MODE	GOAL	Performance Measure	Current Level of Service	Summit Average LOS	DRAFT STIP
Aviation	All 3 Goals	# of unfunded Projects	D	D	D
Bicycle - Pedestrian	Mobility	Bike-Pedestrian Index	D	D	F
Ferry	Mobility	# of vehicles left behind / year	C	D	D
	Health	# of terminals / vessels meeting Coast Guard standards			
Public Transportation	All 3 Goals	Passenger trips, age of fleet, dollars invested in safety/security	C	C	D
Rail	Mobility	Mobility Index	D	D	D
	Overall Average - Non-Highways		**D**	**D**	**D**

Note: letter grades reflect an **average across Tiers*

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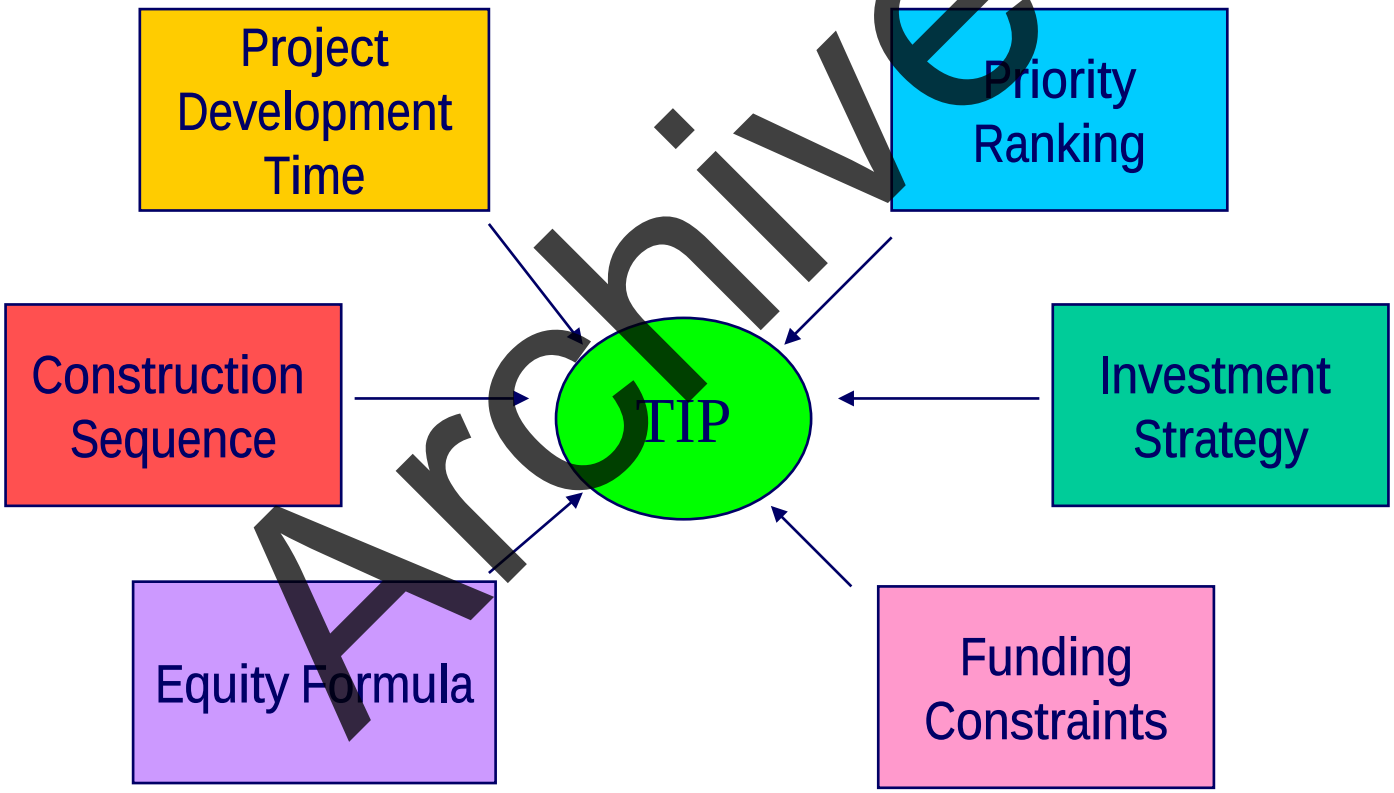
Factors Influencing TIP



Prioritization Results ≠ Programming

Prioritization Process is now in Law

"The Department shall develop and utilize a process for selection of transportation projects that is based on professional standards in order to most efficiently use limited resources to benefit all citizens of the State.

The strategic prioritization process should be a systematic, data-driven process that includes a combination of quantitative data, qualitative input, and multimodal characteristics, and should include local input.

The Department shall develop a process for standardizing or approving local methodology used in Metropolitan Planning Organization and Rural Transportation Planning Organization prioritization."

- S.L. 2012-84

Questions?