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
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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
Transportation Performance Management

**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
Transportation Performance Management

**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

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>MEASURE CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STATUS I</strong></td>
<td>- Serious Injuries per VMT</td>
</tr>
<tr>
<td>9/30/2013</td>
<td>- Fatalities per VMT</td>
</tr>
<tr>
<td></td>
<td>- Number of Serious Injuries</td>
</tr>
<tr>
<td></td>
<td>- Number of Fatalities</td>
</tr>
<tr>
<td><strong>STATUS II</strong></td>
<td>- Pavement Condition on the Interstates</td>
</tr>
<tr>
<td>11/30/2013</td>
<td>- Pavement Condition on the Non-Interstate NHS</td>
</tr>
<tr>
<td></td>
<td>- Bridge Condition on NHS</td>
</tr>
<tr>
<td><strong>STATUS III</strong></td>
<td><strong>Traffic Congestion</strong></td>
</tr>
<tr>
<td>1/31/2014</td>
<td><strong>On-road mobile source emissions</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Freight Movement</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Performance of Interstate System</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Performance of Non-Interstate NHS</strong></td>
</tr>
</tbody>
</table>
Transportation Performance Management

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

<table>
<thead>
<tr>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
</table>

- **Rulemaking**
- **Planning & Target Setting**
- **Reporting and Assessment**
**Resources**

- **MAP-21 website**
  
  [www.fhwa.dot.gov/map21](http://www.fhwa.dot.gov/map21)

- **TPM Website**
  
  [www.fhwa.dot.gov/tpm](http://www.fhwa.dot.gov/tpm)

- **Performance Measure Rulemaking Direct Contact to FHWA**
  
  [PerformanceMeasuresRulemaking@dot.gov](mailto:PerformanceMeasuresRulemaking@dot.gov)

- **U.S. DOT Transportation Data Palooza Event Recording**
  
  [www.fhwa.dot.gov/tpm/events/datapalooza.cfm](http://www.fhwa.dot.gov/tpm/events/datapalooza.cfm)
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Rulemaking, Reporting, Reassessing

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)

- National Strategic Freight Plan
- Transit Safety Plan

**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)

- Perf Based Planning Reports
- Freight Conditions & Performance
- Conditions and Performance
Our system at work

Our Mobile Lifestyle

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

In the Spotlight

NEW! Mobile Moments: Bicycle Safety Infographic

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


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?


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/
Transportation Performance

Our System at Work

Mobile Moments: Bicycle Safety Infographic

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

The typical bicycle fatality victim was:

- Male: 87%
- Female: 13%

In an Urban Area: 70%

Between 45 and 54 Years Old:

- 45-54: 150
- 55-64: 100
- 65-74: 50
- 75-84: 25
- 85+: 10

The accident occurred:

- Between 4 p.m. and 8 p.m.: 40%
- Midnight - 4 a.m.: 10%
- 4 a.m. - 8 a.m.: 10%
- 8 a.m. - Noon: 10%
- Noon - 4 p.m.: 10%
- 4 p.m. - 8 p.m.: 10%
- 8 p.m. - Midnight: 10%

U.S. Cycling Fatalities:

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

Source: National Household Travel Survey (2009).

Learn More About Our System at Work
Transportation Performance Report

This report summarizes transportation performance measures at the NATIONAL level.

HIGHLIGHTED MEASURES

Are We Reducing Fatalities on our Roads?

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 12% reduction in fatal crashes in 2010 (versus the five-year average).

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%. Studies have found seatbelts to be 56% effective at reducing fatalities.
- Road departure crashes account for over 50% of fatal highway crashes.

SNAPSHOT

Data Sources: Annual Fatal Crashes from FARS.

TREND

- 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.
- Click it or Ticket mobilizations have been effective at increasing seatbelt usage.
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*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
Maturity Model Elements

Performance Management Process
- Goals/Objectives
- Performance Measures
- Targets
- Resource Allocation
- Reporting/Monitoring
- Management/Operations
- Integration into Planning

Technology/Tools
- Data Collection/Availability
- Data Sharing/Standardization
- Analysis Tools/Capabilities
- Availability of Data for Users

Institutional/Governance
- 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.

<table>
<thead>
<tr>
<th>Level 1: None/Limited</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6: Optimized</th>
</tr>
</thead>
</table>

Archived
## Maturity Model - Operationalizing

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

**Level 1:**
- **Data Collection /Availability:** Incomplete or no data collected or available
- **Data Sharing / Standardization:** Data siloed among different agencies

**Level 2:**
- **Data Collection /Availability:** Limited data collected/available, or data only available for portion of corridor or network element; manual input
- **Data Sharing / Standardization:** Ad hoc data sharing across jurisdictions

**Level 3:**
- **Data Collection /Availability:** Limited data collected/available, or data only available for portion of corridor or network element; manual input
- **Data Sharing / Standardization:** Some data sharing among partner agencies for at least one mode

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**U.S. Department of Transportation**

**Federal Highway Administration**
# Maturity Model

## Self Assessment Tool

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which of the following best describes how the coalition is funded?</td>
<td></td>
</tr>
<tr>
<td>No formal corridor-wide funding arrangement</td>
<td></td>
</tr>
<tr>
<td>To what extent does the coalition collaborate with other modal partners (e.g., Class I railroads, transit agencies, seaports/ferry terminals, etc.)?</td>
<td></td>
</tr>
<tr>
<td>Corridor capacity integrated and managed across networks; corridor treated as system rather than individual network assets</td>
<td></td>
</tr>
<tr>
<td>To what extent does the coalition collaborate with other planning partners (e.g., DOTs, MPOs, city planning jurisdictions, etc.)?</td>
<td></td>
</tr>
<tr>
<td>Some collaboration between planning partners from multiple jurisdictions in at least a portion of corridor</td>
<td></td>
</tr>
</tbody>
</table>

### Performance Management Processes

**Has your coalition established goals or objectives, such as "improve mobility" or "increase safety", and/or does it utilize any performance measures or data?**

- Yes

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:

<table>
<thead>
<tr>
<th>Area</th>
<th>Goals/Objectives</th>
<th>Performance Measures</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>No goals/objectives defined</td>
<td>No performance measures considered or selected</td>
<td>No performance management framework or targets established</td>
</tr>
<tr>
<td>Reliability</td>
<td>Goals/objectives for at least one goal/objective area defined within portions of corridor</td>
<td>Defined metrics (by mode, if applicable); performance measures applied in portion of corridor.</td>
<td>Factors influencing target-setting examined</td>
</tr>
<tr>
<td>Freight Movement</td>
<td>Goals/objectives for at least one</td>
<td>Limited integration of performance</td>
<td>Appropriate approaches for target-setting selected</td>
</tr>
</tbody>
</table>
Transportation Performance Management

Maturity Model
Self Assessment Tool (continued)

<table>
<thead>
<tr>
<th>Performance Management Process</th>
<th>MATURITY</th>
<th>GUIDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals/Objectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>1</td>
<td>Identify whether individual jurisdictions have established goals/objectives for the portion of the corridor within their boundaries. Identify common themes. Conduct a workshop involving coalition members to discuss and reach consensus on corridor goals and objectives. Example: The I-80 Winter Operations.</td>
</tr>
<tr>
<td>Reliability</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Freight</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Economic Development</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Infrastructure Conditions</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Performance Measures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td>2</td>
<td></td>
</tr>
<tr>
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<tr>
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<td></td>
</tr>
<tr>
<td>Infrastructure Conditions</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Target Setting</strong></td>
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<td></td>
</tr>
<tr>
<td>Safety</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Freight</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Economic Development</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Infrastructure Conditions</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

*As the coalition’s data collection and analysis capabilities advance over time, assess whether adding new measures or replacing less effective measures makes sense.*

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U.S. Department of Transportation
Federal Highway Administration
Launch Webinars

- Corridor Performance Management Study Session 1: June 27, 10:00 AM to 11:30 AM

- Corridor Performance Management Study Session 2: June 28, 1:00 AM to 2:30 PM
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 Technology
  - 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

Performance Reporting

Transportation Program

Department Accountability

Employee Accountability

Division/Unit Accountability

RESULTS!!!
**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”

<table>
<thead>
<tr>
<th>EXECUTIVE PERFORMANCE MEASURE</th>
<th>SFY13 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Statewide network crash rate</td>
<td>224 or less</td>
</tr>
<tr>
<td>1.2 Percentage of surveyed North Carolina drivers using a safety belt*</td>
<td>90.0% or greater</td>
</tr>
<tr>
<td>2.1 Average statewide accident clearance time</td>
<td>70 min. or less</td>
</tr>
<tr>
<td>2.2 Travel time index for surveyed interstates</td>
<td>1.04 or less</td>
</tr>
<tr>
<td>2.3 Percentage of planned ferry runs completed as scheduled</td>
<td>90.0% or greater</td>
</tr>
<tr>
<td>2.4 Percentage of passenger trains arriving on schedule</td>
<td>60.0% or greater</td>
</tr>
<tr>
<td>2.5 Percentage change in public transit ridership</td>
<td>+5% or greater</td>
</tr>
<tr>
<td>2.6 Percentage change in Port Authority cargo movements (container and breakbulk cargo)</td>
<td>+5% or greater</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXECUTIVE PERFORMANCE MEASURE</th>
<th>SFY13 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Percentage of bridges rated in good condition</td>
<td>95.0% or greater</td>
</tr>
<tr>
<td>3.2 Percentage of pavement miles rated in good condition*</td>
<td>70.0% or greater</td>
</tr>
<tr>
<td>3.3 Average highway feature condition scores (excluding pavement and bridges)*</td>
<td>54 or greater</td>
</tr>
<tr>
<td>3.4 Average rest area condition scores</td>
<td>90 or greater</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXECUTIVE PERFORMANCE MEASURE</th>
<th>SFY13 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Percentage of work program STIP projects on schedule</td>
<td>95% or greater</td>
</tr>
<tr>
<td>a. Percentage of centrally managed STIP projects on schedule</td>
<td>25% or greater</td>
</tr>
<tr>
<td>b. Percentage of division managed STIP projects on schedule</td>
<td>65% or greater</td>
</tr>
<tr>
<td>c. Percentage of municipal and locally managed STIP projects on schedule</td>
<td>65% or greater</td>
</tr>
<tr>
<td>4.2 Percentage of division managed non-STIP projects on schedule</td>
<td>65% or greater</td>
</tr>
<tr>
<td>4.3 Percentage of construction projects completed on schedule</td>
<td>95% or greater</td>
</tr>
<tr>
<td>4.4 Total budget overrun for completed construction projects</td>
<td>5% or less</td>
</tr>
<tr>
<td>4.5 Percentage of NCDOT’s total budget expended on external goods, materials and services</td>
<td>80.0% or greater</td>
</tr>
<tr>
<td>4.6 Percentage of the overall budget for administrative costs</td>
<td>7.8% or less</td>
</tr>
<tr>
<td>4.7 Percentage of the total program budget paid to minority- and women-owned businesses</td>
<td>10.7% or greater</td>
</tr>
<tr>
<td>4.8 Average customer wait-time at DMV facilities that track transactions</td>
<td>24 min. or less</td>
</tr>
<tr>
<td>4.9 Average statewide environmental compliance score on construction and maintenance projects</td>
<td>7.5 or greater</td>
</tr>
<tr>
<td>4.10 Percentage of surveyed customers satisfied with transportation services in North Carolina*</td>
<td>79% or greater</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EXECUTIVE PERFORMANCE MEASURE</th>
<th>SFY13 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Percentage of employees retained after three years</td>
<td>90% or greater</td>
</tr>
<tr>
<td>5.2 Employee safety index</td>
<td>5.16 or less</td>
</tr>
</tbody>
</table>

* 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
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
Transportation Performance Management

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 our infrastructure last longer
4. Make our organization a place that works well
5. Make our organization a great place to work

Objectives & Performance Measures

- 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

Strategies & Actions

- 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

<table>
<thead>
<tr>
<th>SHEET NO.</th>
<th>ASSET</th>
<th>CONDITION INDICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM-1</td>
<td>Unpaved Shoulders (Low &amp; High Shoulder)</td>
<td>No dropoff’s greater than 3 inches and no shoulders higher than 2 inch</td>
</tr>
<tr>
<td>RM-2</td>
<td>Ditches (Lateral Ditches)</td>
<td>No blocked, eroded or non functioning ditches</td>
</tr>
<tr>
<td>RM-3</td>
<td>Crossline Pipes (Blocked)</td>
<td>Greater than 50% diameter open</td>
</tr>
<tr>
<td>RM-4</td>
<td>Crossline Pipes (Damaged)</td>
<td>No damage or structural deficiency affecting functionality</td>
</tr>
<tr>
<td>RM-5</td>
<td>Curb &amp; Gutter (Blocked)</td>
<td>No obstruction greater than 2 inches for 2 feet</td>
</tr>
<tr>
<td>RM-6</td>
<td>Boxes (Blocked or Damaged)</td>
<td>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</td>
</tr>
</tbody>
</table>
Transportation Performance Management

Functional Work Group Worksheet

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

<table>
<thead>
<tr>
<th>LOS Category</th>
<th>LOS Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Equal to or greater than 95% of the linear measurement meets the condition indicator</td>
</tr>
<tr>
<td>B</td>
<td>90% to &lt; 95% of the linear measurement meets the condition indicator</td>
</tr>
<tr>
<td>C</td>
<td>85% to &lt;90% of the linear measurement meets the condition indicator</td>
</tr>
<tr>
<td>D</td>
<td>80% to &lt; 85% of the linear measurement meets the condition indicator</td>
</tr>
<tr>
<td>F</td>
<td>Less than 80% of linear measurement meets the condition indicator</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Target</th>
<th>Statewide</th>
<th>Regional</th>
<th>Subregional</th>
<th>Division</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Method</td>
<td>MCA</td>
<td>MCA</td>
<td>MCA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Does Assessment Data exist</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>MCA</td>
<td>NO</td>
</tr>
<tr>
<td>Desired level of survey</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Does Feature Inventory exist</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Desired level of Feature Inventory</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

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
## Transportation Performance Management

### Scorecards

**2012 SCORING PERFORMANCE MEASURES**

<table>
<thead>
<tr>
<th>MCA Survey Period: Qtr 1, 2012 To Qtr 4, 2012</th>
<th>Non-MCA Survey Year: 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System:</strong> Secondary</td>
<td></td>
</tr>
<tr>
<td><strong>Summary:</strong> County Level</td>
<td></td>
</tr>
<tr>
<td><strong>Division:</strong> 5</td>
<td></td>
</tr>
<tr>
<td><strong>County:</strong> Wake</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>Collection Method</th>
<th>Relative Importance</th>
<th>Element Weight</th>
<th>Target Score</th>
<th>Element Points</th>
<th>Actual Score</th>
<th>Element Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>RM-1 Unpaved Shoulders</td>
<td>MCA</td>
<td>8</td>
<td>0.082</td>
<td>85</td>
<td>5.34</td>
<td>95</td>
<td>7.76</td>
</tr>
<tr>
<td>RM-2 Ditches (Lateral Ditches)</td>
<td>MCA</td>
<td>8</td>
<td>0.061</td>
<td>85</td>
<td>5.2</td>
<td>97</td>
<td>5.94</td>
</tr>
<tr>
<td>RM-3 Crossline Pipes (Blocked)</td>
<td>MCA</td>
<td>8</td>
<td>0.061</td>
<td>85</td>
<td>5.2</td>
<td>82</td>
<td>5.02</td>
</tr>
<tr>
<td>RM-4 Crossline Pipes (Damaged)</td>
<td>MCA</td>
<td>7</td>
<td>0.071</td>
<td>80</td>
<td>0.07</td>
<td>81</td>
<td>0.5</td>
</tr>
<tr>
<td>RM-5 Curb &amp; Gutter (Blocked)</td>
<td>MCA</td>
<td>5</td>
<td>0.001</td>
<td>80</td>
<td>4.34</td>
<td>100</td>
<td>5.1</td>
</tr>
<tr>
<td>RM-6 Boxes (Blocked or Damaged)</td>
<td>MCA</td>
<td>5</td>
<td>0.051</td>
<td>85</td>
<td>4.34</td>
<td>96</td>
<td>4.26</td>
</tr>
<tr>
<td>R-1 Vegetation (Bush &amp; Tree)</td>
<td>MCA</td>
<td>8</td>
<td>0.061</td>
<td>80</td>
<td>4.0</td>
<td>98</td>
<td>4.5</td>
</tr>
<tr>
<td>R-2 Vegetation (Turf Condition)</td>
<td>MCA</td>
<td>4</td>
<td>0.041</td>
<td>85</td>
<td>3.47</td>
<td>93</td>
<td>3.8</td>
</tr>
<tr>
<td>R-3 Storm Water Devices (NFDES)</td>
<td>ROADSIDE</td>
<td>4</td>
<td>0.041</td>
<td>90</td>
<td>3.67</td>
<td>91</td>
<td>3.71</td>
</tr>
<tr>
<td>T-1 Long Line Pnt Markings</td>
<td>MCA</td>
<td>8</td>
<td>0.082</td>
<td>80</td>
<td>5.53</td>
<td>90</td>
<td>7.35</td>
</tr>
<tr>
<td>T-2 Words and Symbols</td>
<td>MCA</td>
<td>5</td>
<td>0.051</td>
<td>80</td>
<td>4.08</td>
<td>86</td>
<td>4.39</td>
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<tr>
<td>T-4 Ground Mounted Signs</td>
<td>NTSS</td>
<td>8</td>
<td>0.082</td>
<td>85</td>
<td>3.94</td>
<td>94</td>
<td>7.67</td>
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<tr>
<td>T-5 Overhead Signs</td>
<td>NTSS</td>
<td>0</td>
<td>0.001</td>
<td>85</td>
<td>5.2</td>
<td>No Inv</td>
<td>5.2</td>
</tr>
<tr>
<td>D-4 NBIG Culverts</td>
<td>BRIDGE</td>
<td>7</td>
<td>0.071</td>
<td>75</td>
<td>5.38</td>
<td>95</td>
<td>7.07</td>
</tr>
<tr>
<td>E-5 Non-NBIG Culverts</td>
<td>BRIDGE</td>
<td>7</td>
<td>0.071</td>
<td>80</td>
<td>4.39</td>
<td>82</td>
<td>5.06</td>
</tr>
<tr>
<td>B-8 Overhead Sign Structures</td>
<td>BRIDGE</td>
<td>8</td>
<td>0.061</td>
<td>82</td>
<td>5.83</td>
<td>100</td>
<td>8.12</td>
</tr>
</tbody>
</table>

**TOTAL: 98**

**TOTAL: 0.999**

**TOTAL: 52.16**

**TOTAL: 92.45**
Transportation Performance Management

**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%)**

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>VMT %</th>
<th>LANES MI</th>
<th>WEIGHTED FACTOR</th>
<th>% GOOD</th>
<th>LMG</th>
<th>OVERALL SCORE</th>
<th>PAVEMENTS WEIGHT VALUE</th>
<th>40</th>
<th>MCA WEIGHT VALUE</th>
<th>25</th>
<th>BRIDGE HEALTH INDEX</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERSTATE</td>
<td>45</td>
<td>5,038</td>
<td>36.59</td>
<td>84.9%</td>
<td>4,277</td>
<td>31.06</td>
<td>89.79</td>
<td>4,644</td>
<td>32.85</td>
<td>909</td>
<td>723</td>
<td>79.5%</td>
</tr>
<tr>
<td>PRIMARY</td>
<td>30</td>
<td>35,640</td>
<td>28.15</td>
<td>66.1%</td>
<td>23,558</td>
<td>18.61</td>
<td>86.41</td>
<td>30,797</td>
<td>24.32</td>
<td>4,199</td>
<td>2,796</td>
<td>66.5%</td>
</tr>
<tr>
<td>SECONDARY</td>
<td>25</td>
<td>131,074</td>
<td>35.26</td>
<td>67.5%</td>
<td>88,475</td>
<td>23.80</td>
<td>85.04</td>
<td>117,466</td>
<td>29.99</td>
<td>8,490</td>
<td>4,989</td>
<td>58.8%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>171,752</td>
<td></td>
<td>73.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMPOSITE VALUES**

| Pavement | 29.4 | MCA | 21.8 | Bridge | 24.0 |

**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%)**

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>VMT %</th>
<th>LANE MI</th>
<th>FACTOR</th>
<th>80%</th>
<th>20%</th>
<th>WEIGHTED</th>
<th>PAVEMENTS</th>
<th>MCA</th>
<th>BRIDGE HEALTH INDEX</th>
<th>TOTAL IHCS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>% GOOD</td>
<td>LMG</td>
<td>OVERALL</td>
<td>WEIGHT VALUE</td>
<td>25</td>
<td>OVERALL</td>
<td>OVERALL</td>
</tr>
<tr>
<td>INTERSTATE</td>
<td>45</td>
<td>5,038</td>
<td>36.59</td>
<td>84.9%</td>
<td>4.277</td>
<td>31.06</td>
<td>89.78</td>
<td>4.524</td>
<td>32.85</td>
<td>909</td>
</tr>
<tr>
<td>PRIMARY</td>
<td>30</td>
<td>35,640</td>
<td>28.15</td>
<td>66.1%</td>
<td>23.553</td>
<td>18.61</td>
<td>85.41</td>
<td>30.797</td>
<td>24.32</td>
<td>4,199</td>
</tr>
<tr>
<td>SECONDARY</td>
<td>25</td>
<td>131,074</td>
<td>35.26</td>
<td>67.5%</td>
<td>88.443</td>
<td>29.80</td>
<td>85.04</td>
<td>111.466</td>
<td>29.99</td>
<td>8,490</td>
</tr>
<tr>
<td>TOTAL</td>
<td>171,752</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13,598</td>
</tr>
</tbody>
</table>

**COMPOSITE VALUES**

- Pavement: 29.4
- MCA: 21.8
- Bridge: 24.0

**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

- N.C. Statewide Long-Range Transportation Plan (2040 Plan)
  - 30 year
- Program & Resource Plan
  - 10 year
- Statewide Transportation Improvement Program (STIP)
- Projects
  - Work Program
  - 5 year

Strategic Prioritization
### Strategic Prioritization and Programming Process

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritize Projects using</td>
<td>Set Investment Strategy</td>
<td>Program Projects</td>
</tr>
<tr>
<td>• Data</td>
<td>• Conduct Scenario/Trade-off Analysis with DOT &amp; Partners</td>
<td>• Develop STIP using Project Rankings &amp; Investment Strategy</td>
</tr>
<tr>
<td>• Local Input</td>
<td>• Constrained only by Total Available Revenue</td>
<td>• Apply Constraints</td>
</tr>
<tr>
<td>• Multimodal Characteristics</td>
<td></td>
<td>• Compare Selected Strategy vs. Applied Constraints</td>
</tr>
<tr>
<td>• Classify ranked Projects into Buckets (Mode, Goal, Tier)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Transportation Performance Management
NCDOT

OUR MISSION
Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well-being of North Carolina.

OUR GOALS
• Make our transportation network safer
• Make our transportation network move people and goods more efficiently
• Make our infrastructure last longer
• Make our organization a place that works well
• Make our organization a great place to work
## P2.0 - Scoring Highway Projects

<table>
<thead>
<tr>
<th>Tier</th>
<th>QUANTITATIVE</th>
<th>LOCAL INPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data</td>
<td>Division Rank</td>
</tr>
<tr>
<td>Statewide</td>
<td>70%</td>
<td>20%</td>
</tr>
<tr>
<td>Regional</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>Subregional</td>
<td>30%</td>
<td>30%</td>
</tr>
</tbody>
</table>
**Local Input**

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

Can choose between Top 25 project ranking or Control Total

<table>
<thead>
<tr>
<th>Top 25</th>
<th>OR</th>
<th>Control Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 = 100</td>
<td>Can rank projects as desired</td>
<td>Can transfer points to other areas*</td>
</tr>
<tr>
<td>#2 = 96</td>
<td>Max 100 pts per project</td>
<td></td>
</tr>
<tr>
<td>#3 = 92</td>
<td>Min 4 pts per project</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#25 = 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 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

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

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

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. 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**

<table>
<thead>
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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

- Level of Service:
  - A: Maintain Current LOS
  - B: Achieve Target LOS
  - C: Optimal Target LOS

- Year 10:
  - Current Year
  - Future Year

- Additional Revenue/Funding needed to achieve 10 Yr. Target
- Additional Revenue/Funding needed to maintain current LOS

- LOS based on Do-Nothing
- Maintain Current LOS
- Achieve Target LOS
<table>
<thead>
<tr>
<th>GOAL</th>
<th>Performance Measure</th>
<th>Current LOS</th>
<th>Summit Average LOS</th>
<th>DRAFT STIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Fatal Crash Rates</td>
<td>C</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Mobility</td>
<td>% of miles with uncongested roadways</td>
<td>B</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Infrastructure Health (Pavement)</td>
<td>% of miles with “Good” rating or better</td>
<td>C</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Infrastructure Health (Modernization)</td>
<td>% of miles meeting DOT paved shoulder width standards</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Infrastructure Health (Bridges)</td>
<td>% of bridges with “Good” rating or better</td>
<td>C</td>
<td>C</td>
<td>B</td>
</tr>
<tr>
<td>Overall Average for Highways</td>
<td></td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

*Note: letter grades reflect an average across Tiers*
## LOS – Current Grades (Non-Highways)

<table>
<thead>
<tr>
<th>MODE</th>
<th>GOAL</th>
<th>Performance Measure</th>
<th>Current Level of Service</th>
<th>Summit Average LOS</th>
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<tr>
<td>Aviation</td>
<td>All 3 Goals</td>
<td># of unfunded Projects</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Bicycle - Pedestrian</td>
<td>Mobility</td>
<td>Bike-Pedestrian Index</td>
<td>D</td>
<td>D</td>
<td>F</td>
</tr>
<tr>
<td>Ferry</td>
<td>Mobility</td>
<td># of vehicles left behind / year</td>
<td>C</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>Health</td>
<td># of terminals / vessels meeting Coast Guard standards</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Transportation</td>
<td>All 3 Goals</td>
<td>Passenger trips, age of fleet, dollars invested in safety/security</td>
<td>C</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Rail</td>
<td>Mobility</td>
<td>Mobility Index</td>
<td>D</td>
<td>D</td>
<td>D</td>
</tr>
<tr>
<td>Overall Average - Non-Highways</td>
<td></td>
<td></td>
<td>D</td>
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### Strategic Prioritization and Programming Process

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Factors Influencing TIP

- Project Development Time
- Priority Ranking
- Construction Sequence
- Investment Strategy
- Equity Formula
- Funding Constraints

Prioritization Results ≠ Programming
“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?