Components C and D: Data Management and Data Usability & Analysis

August 24 & 25, 2016
Jefferson City, MO

Component C: Data Management

C Data Management

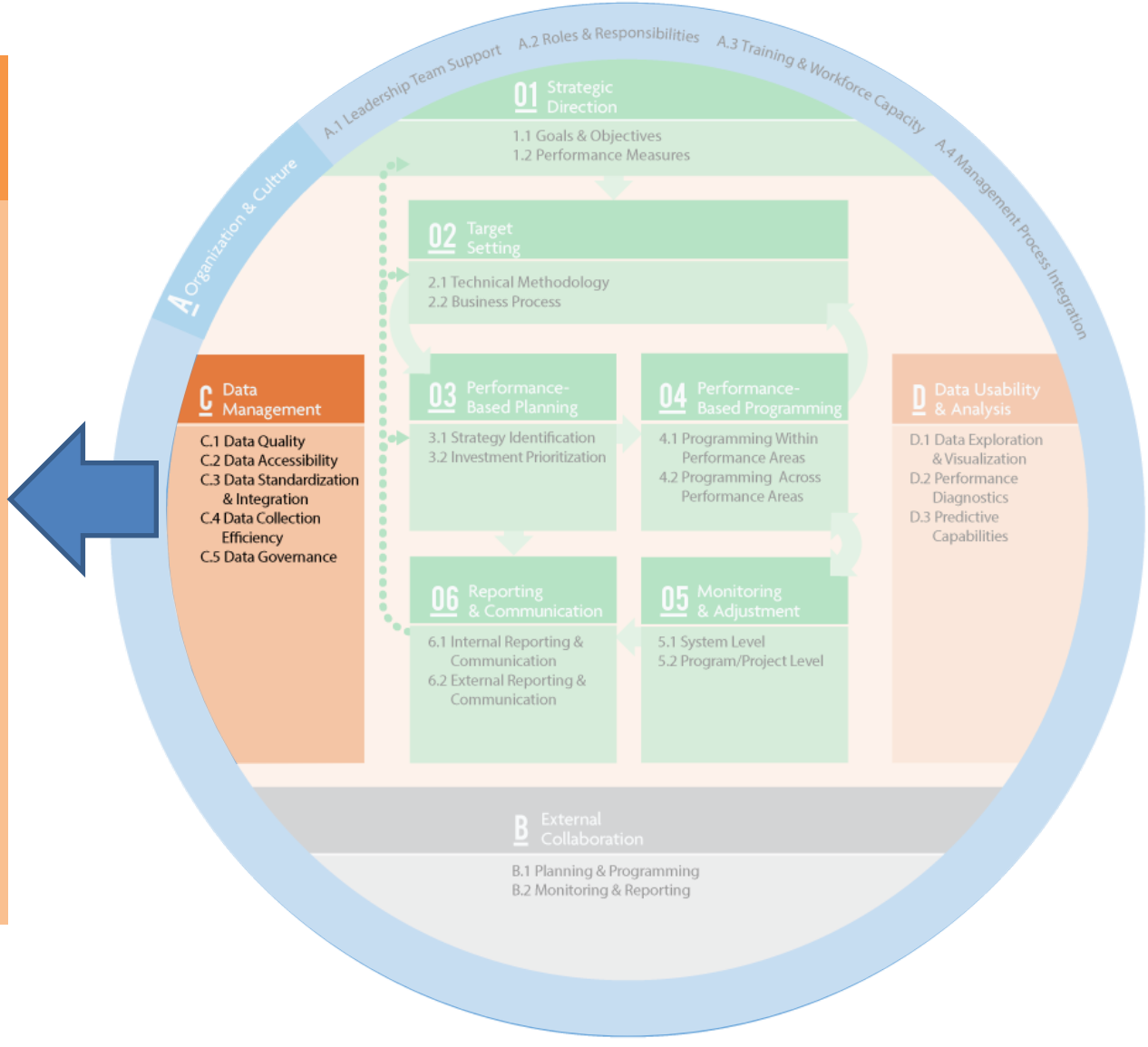
C.1 Data Quality

C.2 Data Accessibility

C.3 Data Standardization and Integration

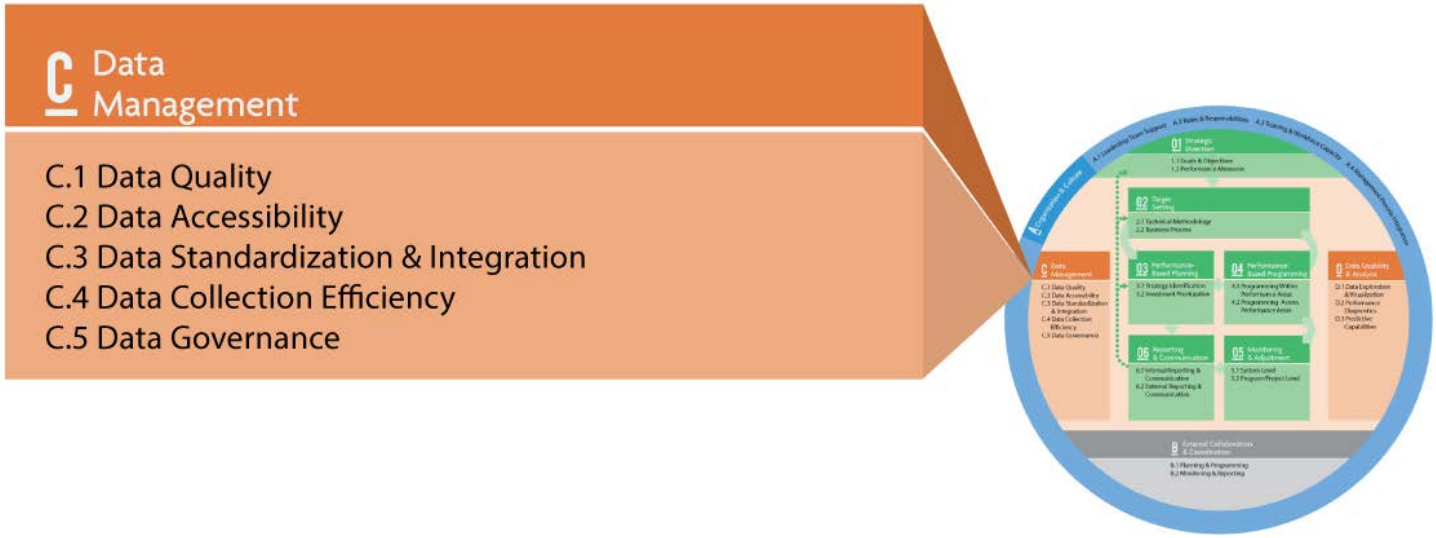
C.4 Data Collection Efficiency

C.5 Data Governance



Data Management

- Definition: *A set of coordinated activities for maximizing the value of data to an organization. It includes data collection, creation, processing, storage, backup, organization, documentation, protection, integration, etc.*

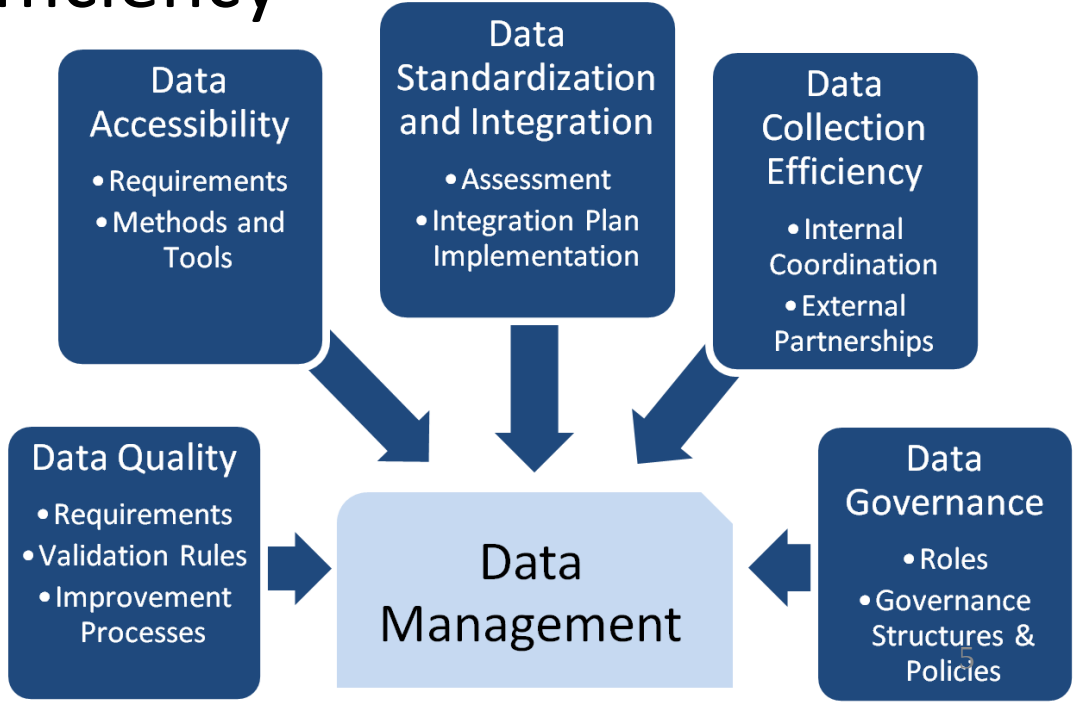


Data Management

- Reliable and consistent data = foundation of TPM
- Proper data management allows use of data to its full potential
- Myriad benefits

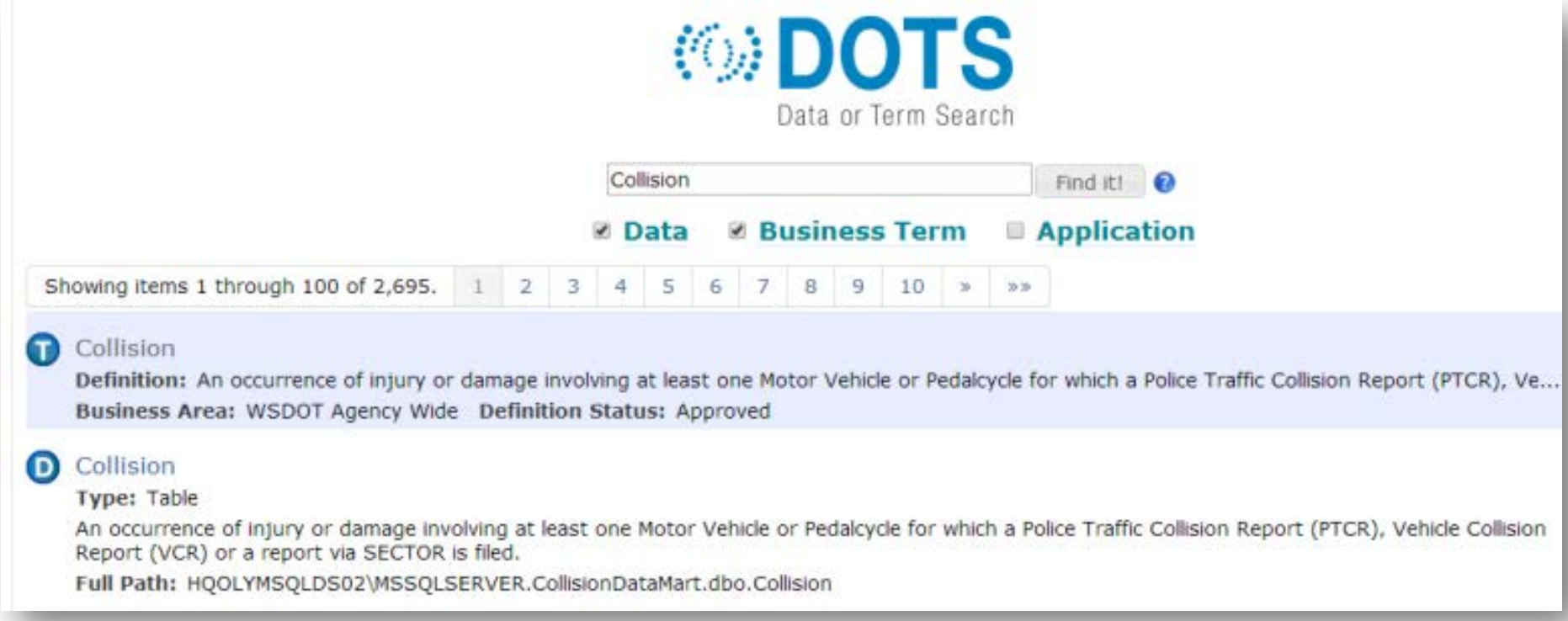
Data Management: Subcomponents

- C.1 Data Quality
- C.2 Data Accessibility
- C.3 Data Standardization and Integration
- C.4 Data Collection Efficiency
- C.5 Data Governance



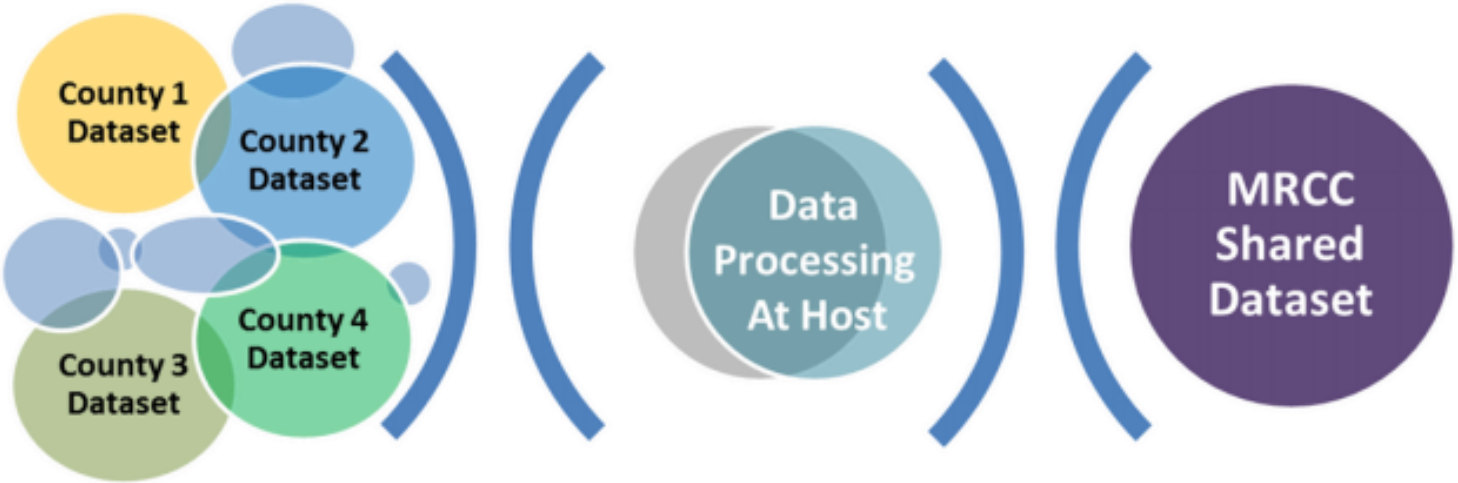
Data Management: Example 1

- WSDOT Data or Term Search (DOTS) application



Data Management: Example 2

- Metro Regional Centerline Collaborative



Each County Creates Local Dataset

Data Processing & Aggregation

Create & Maintain Shared Dataset

Component D: Data Usability & Analysis

D Data Usability and Analysis

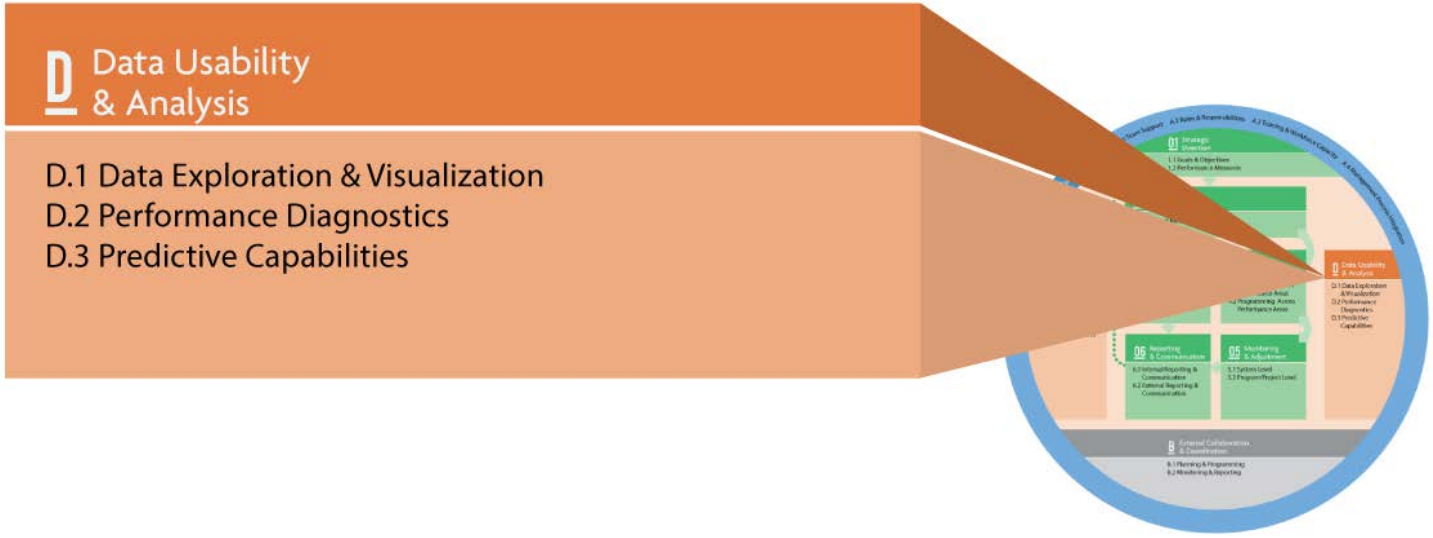
D.1 Data Exploration and Visualization

D.2 Performance Diagnostics

D.3 Predictive Capabilities

Data Usability and Analysis

- Definition: *Existence of useful and valuable data sets and analysis capabilities available in accessible, convenient forms to support TPM*.

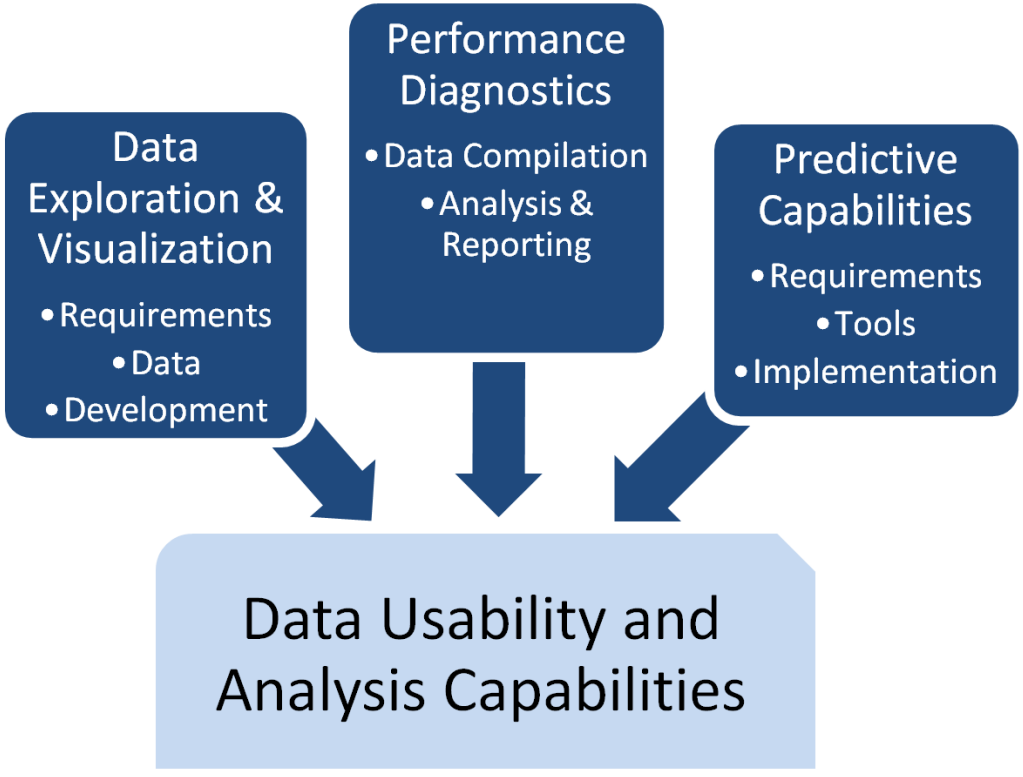


Data Usability and Analysis

- Data is not useful for TPM unless it can be analyzed
- Consider skills of staff in addition to data and analysis tools
- Collaborate with partner agencies for analysis
- Build on existing capabilities, and document them

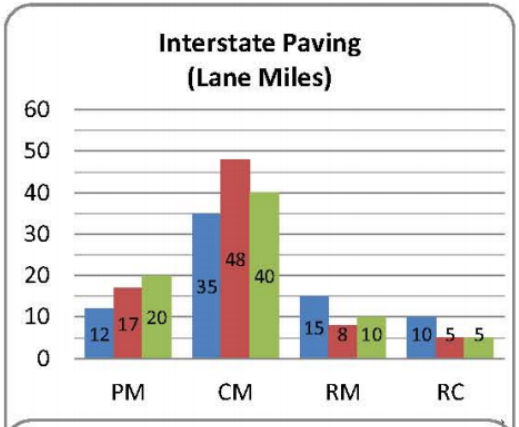
Data Usability and Analysis: Subcomponents

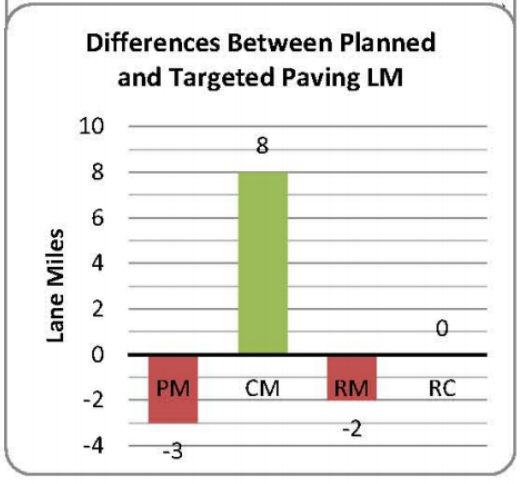
- D.1 Data Exploration and Visualization
- D.2 Performance Diagnostics
- D.3 Predictive Capabilities



Data Usability: Example 1

- Virginia DOT Pavement Management Analysis





Hampton Roads Interstate Paving Summary

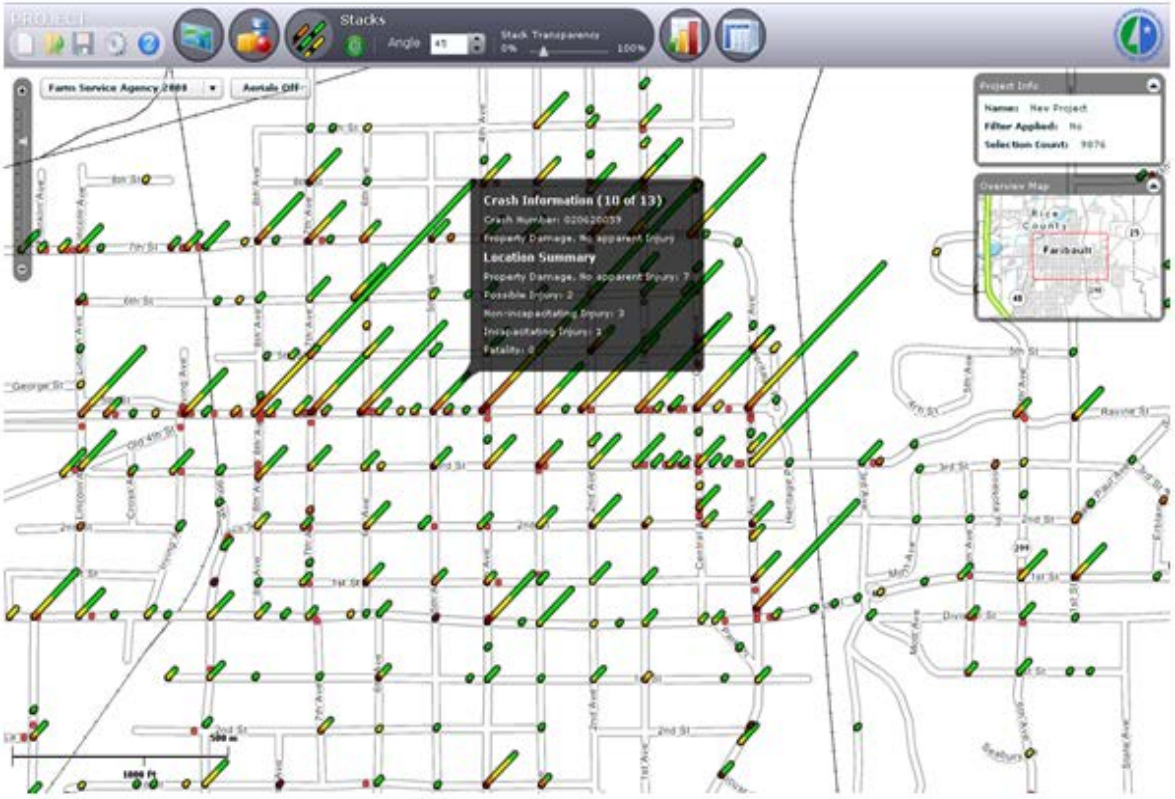
Preventative Maintenance (PM)	
2011 Awarded (PMSS):	16 LM
2012 Planned (PMSS):	17 LM
2012 Targeted (PMS Optimized):	20 LM
Difference (Planned – Targeted):	**-3 LM**
Corrective Maintenance (CM)	
2011 Awarded (PMSS):	35 LM
2012 Planned (PMSS):	48 LM
2012 Targeted (PMS Optimized):	40 LM
Difference (Planned – Targeted):	**+8 LM**
Restorative Maintenance (RM)	
2011 Awarded (PMSS):	15 LM
2012 Planned (PMSS):	8 LM
2012 Targeted (PMS Optimized):	10 LM
Difference (Planned – Targeted):	**-2 LM**
Reconstruction / Major Rehab (RC)	
2011 Awarded (PMSS):	10 LM
2012 Planned (PMSS):	7 LM
2012 Targeted (PMS Optimized):	7 LM
Difference (Planned – Targeted):	**0 LM**

Given planned 2012 Interstate paving, Hampton Roads District:

- **Is not** predicted to achieve its 20 lane mile paving target for Preventative Maintenance on the Interstate system.
- **Is** predicted to achieve its 40 lane mile paving target for Corrective Maintenance on the Interstate system.
- **Is not** predicted to achieve its 10 lane mile paving target for Restorative Maintenance on the Interstate system.
- **Is** predicted to achieve its 7 lane mile paving target for Reconstruction / Major Rehabilitation on the Interstate system.

Data Usability: Example 2

- Minnesota DOT Crash Mapping Analysis Tool



Group Discussion: Component C Maturity Levels

Discussion Questions

- Does the median value for your agency maturity make sense?
- Did every part of the maturity level description seem to match your agency?
  - Were particular elements preventing you from selecting a higher maturity level?
  - Were some capabilities advanced while others limited? Why?

Discussion Questions

- What noteworthy practices from your agency should other agencies know about?
- What are some data management challenges at your agency?
- How does your agency address the following?
  - Documentation/data management plan
  - Data collection/sourcing
  - Data governance
  - Coordination mechanisms for data sharing
  - Integration opportunities/methods

Breakout Discussion: Component D Maturity Levels

Breakout Discussion

- Break into 6 groups
- Select a facilitator, recorder, and presenter
- Refer to discussion questions (next slide, handout)
- Report out to full group (4 min per group)

Discussion Questions

- Does the median value for your agency maturity make sense?
- Did every part of the maturity level description seem to match your agency?
  - Were particular elements preventing you from selecting a higher maturity level?
  - Were some capabilities advanced while others limited? Why?

Discussion Questions

- What noteworthy practices should other agencies know about?
- What are your greatest challenges?
- How does your agency address the following?
  - Data exploration and diagnostic tools
  - Data reporting tools
  - Cross-agency collaboration to pool resources
  - How data is used to: calculate measures, perform trend analysis, establish targets, monitor performance, and adjust strategies/investment

Report Out: Component D Maturity Levels

- 4 minutes per group
- Share highlights of the discussion
  - Advanced v. limited capabilities
  - Noteworthy practices
  - Challenges