

# Performance-Based Planning and Programming Guidebook

Webinar

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U.S. Department of Transportation  
Federal Highway Administration

## Performance-based Planning and Programming

- Key role for planning and programming to influence more performance-based decision-making
- FHWA, FTA, AASHTO, APTA, AMPO, NARC and NADO working informally to:
  - Define key elements of performance-based planning/prog.
  - Identify examples of good practice
  - Engage with stakeholders and identify key challenges and opportunities for capacity building



## About the Guidebook

Designed as a practical resource to help State DOTs, MPOs, and transit agencies understand

- What the key elements of a PBPP process are, and
- How they fit within existing planning and programming.

### Context:

- Expands upon existing resources
  - White paper, past peer exchanges, resource documents
- Highlights examples of effective practices
  - State DOTs, MPO, and transit agencies
  - LRTP, TIP / STIP, and planning process elements (e.g., SHSPs, CMP, Asset Management Plans, etc.)

<http://www.fhwa.dot.gov/planning/pbp/>



## Additional Background

- Guidebook was developed between June 2012 and August 2013
- A stakeholder committee of practitioners from state DOTs, MPOs, transit agencies, and national associations guided the development and provided significant input
- The Guidebook is not intended to provide guidance regarding the implementation of MAP-21; rather, it is meant to showcase effective practices and provide useful information to agencies on how to use performance information to guide decision-making



# What is Performance-based Planning and Programming (PBPP)?

- PBPP refers to the application of performance management within the planning and programming process to achieve desired performance outcomes for the multimodal transportation system.
- Includes a range of activities and products.
  - Development of long range transportation plans (LRTPs)
  - Federally-required plans and processes -- such as Strategic Highway Safety Plans (SHSPs), Asset Management Plans, the Congestion Management Process (CMP), Transit Agency Asset Management Plans, and Transit Agency Safety Plans
  - Other plans
  - Programming documents, including State and metropolitan Transportation Improvement Programs (STIPs and TIPs)



# Guidebook Structure

## Executive Summary

I. Purpose and Overview

II. Overview of PBPP: Key Concepts

Key PBPP Elements

III. Develop Goals and Objectives

IV. Select Performance Measures

V. Identify Trends and Targets

VI. Identify Strategies and Analyze Alternatives

VII. Develop Investment Priorities in the LRTP

VIII. Programming – Develop Investment Priorities in the TIP and STIP

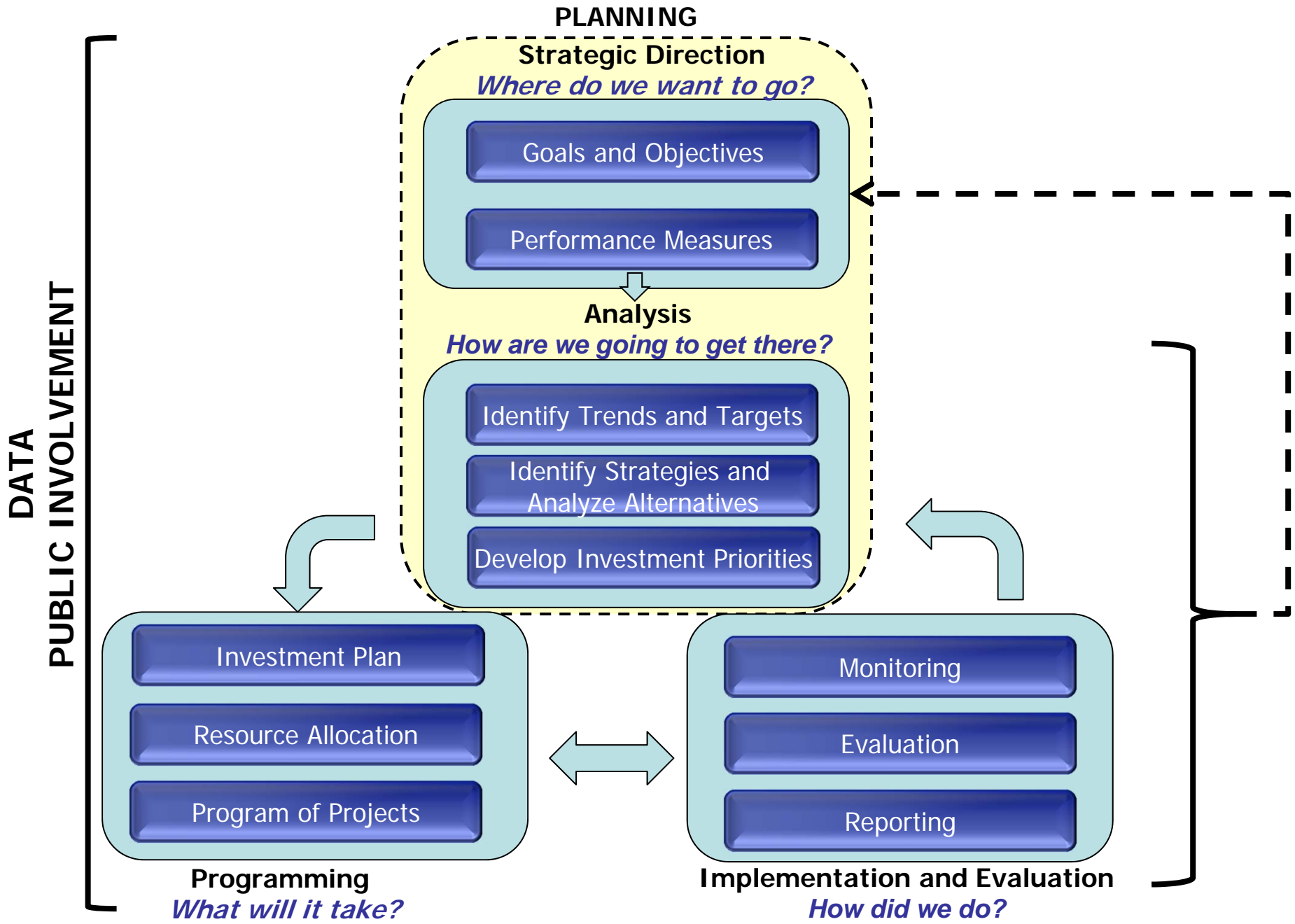
IX. On-going Monitoring, Evaluating, and Performance Reporting

X. Keys to Success

XI. Case Studies

XII. Additional Resources





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# 1. Purpose and Overview

- Motivation for PBPP includes: Limited funding, a need to strategically focus investments, and heightened demand for transparency and public sector accountability.
- The Guidebook is designed to help transportation agencies understand:
  - The key elements of a PBPP process
  - The relationship of these elements within existing planning and programming processes; and
  - Examples of best practices to help support implementation.



# 1. Purpose and Overview (ctd.)

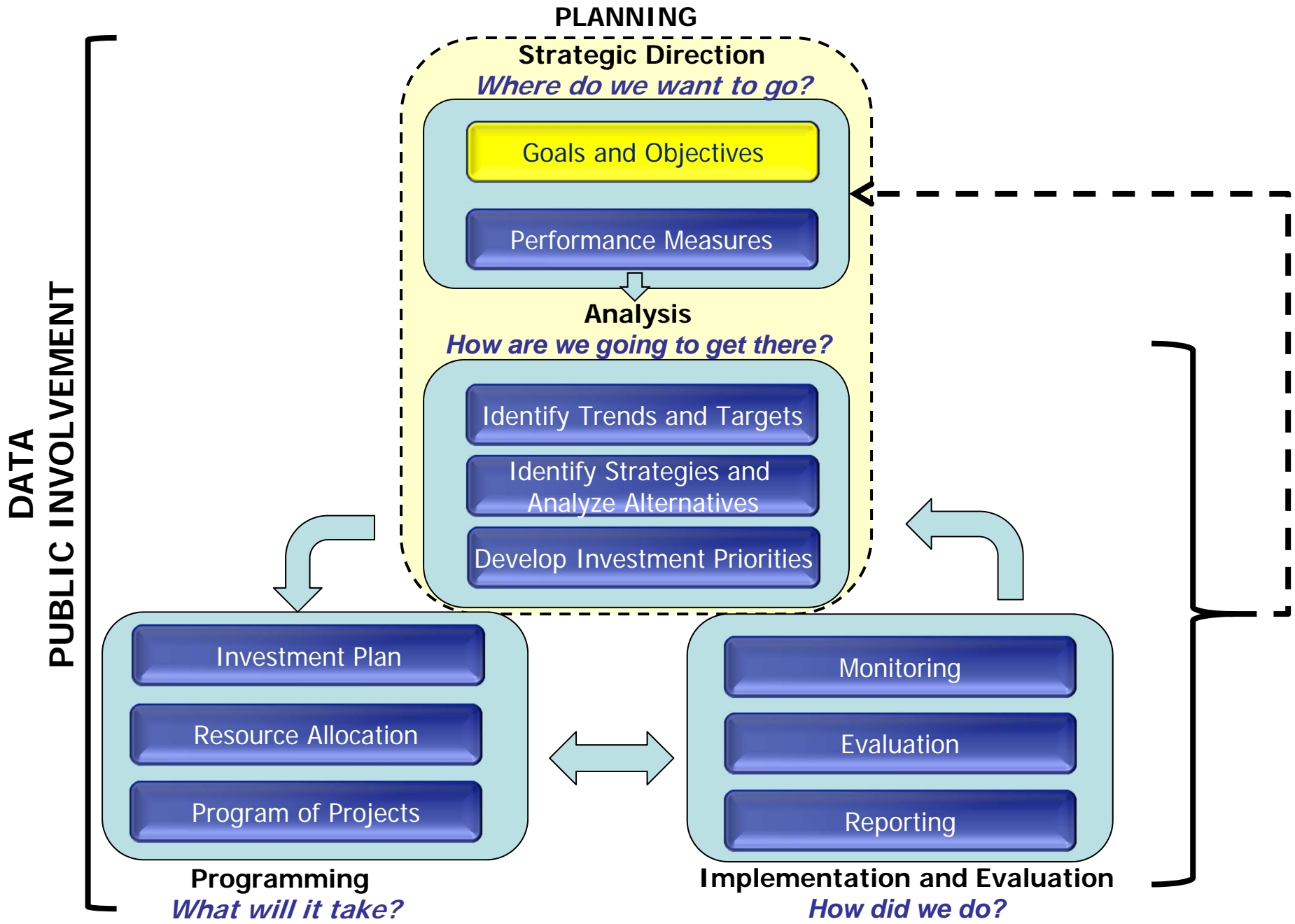
- PBPP builds on existing practices
  - Concept of “performance management”, which is a strategic approach that uses data to support decisions that help to achieve performance goals.
  - Transportation asset management (TAM), a strategic and systematic resource allocation process based on quality information and well-defined objectives.
  - Existing performance-based processes, such as the SHSP and CMP
  - Requirements under MAP-21
- **Performance management** can be applied to many aspects of an agency’s activities, including planning, operations, and maintenance.
- **PBPP** involves integrating performance management concepts into the existing federally-required transportation planning and programming processes.



## 2. Overview of PBPP: Key Concepts

- Reasons to use a performance-based approach:
  - Improved investment decision-making
  - Improved return on investments and resource allocation
  - Improved system performance
  - Increased accountability and transparency
  - Demonstrates link between funding and performance
- Key terminology
- Common Themes within a PBPP Process:
  - Cooperation and coordination
  - Linkages across performance-based planning activities
  - Public and stakeholder involvement
  - Data and tools
  - Feedback mechanisms





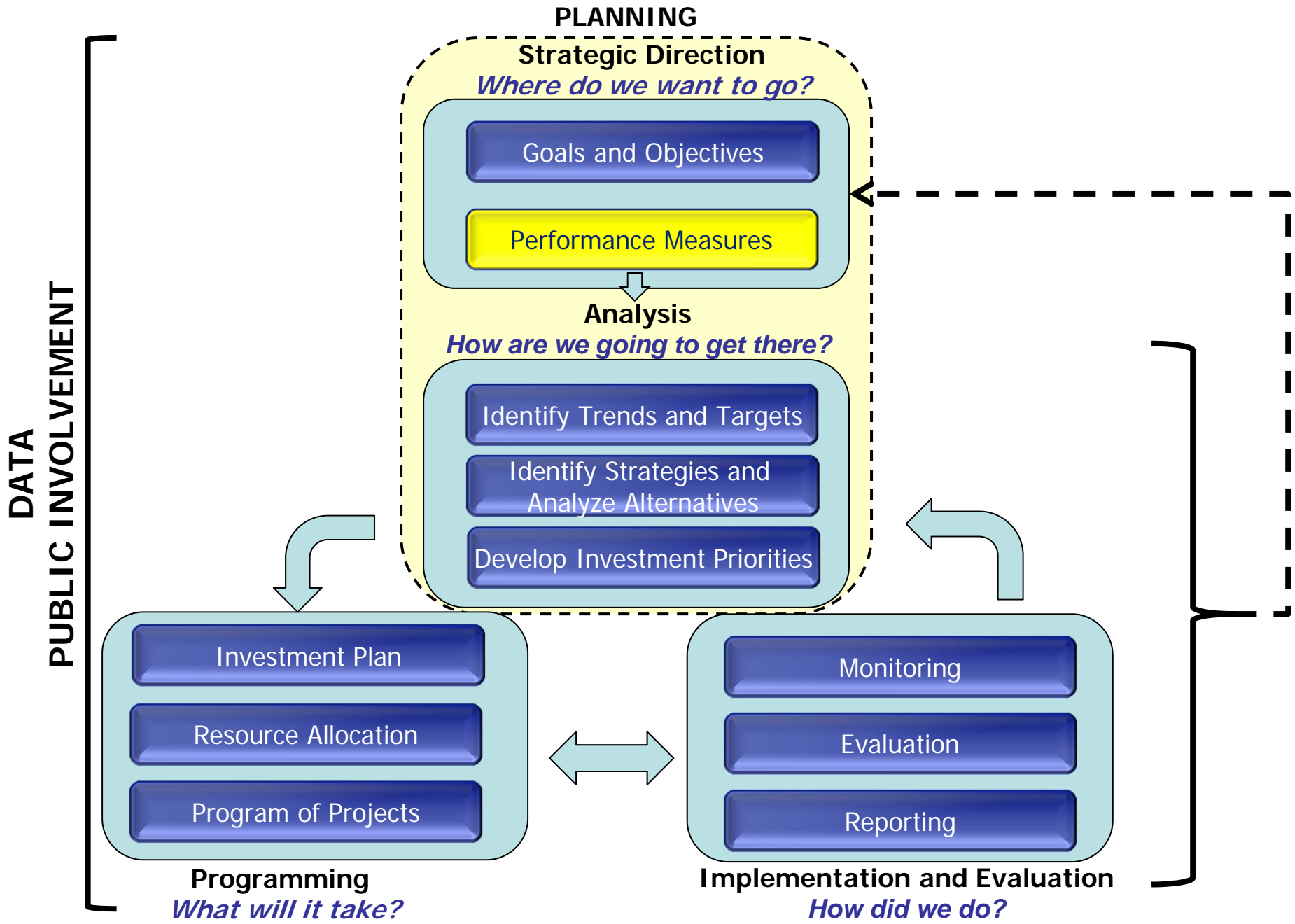
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### 3. Develop Goals and Objectives

- Goal = Broad statement that describes a desired end state
- Questions to consider in formulating goals
  - What do we want our area to look like?
  - What do we want to achieve?
- Goals may address:
  - Planning factors
  - National goal areas under MAP-21
  - Other issues of importance to a community
- Consider goals broadly:
  - Societal goals (e.g., economic vitality, mobility, environment, sustainability)
  - Transportation goals (e.g., infrastructure preservation, operations, safety)

### 3. Develop Goals and Objectives (ctd.)

- Objective = specific, measurable statement that supports achievement of a goal
  - Example: Reduce pedestrian fatalities (by 10 percent by 2025)
  - Types of objectives:
    - Outcome: reflects concerns of the public (e.g., incident-based delay)
    - Output: reflects actions that affect outcomes (e.g., clearance time of incidents)
    - Activity: reflects actions taken by transportation agencies (e.g., number of cameras tracking system conditions)
- It is critical to involve the public in developing goals and objectives as a strategic foundation for a performance-based approach to decision-making

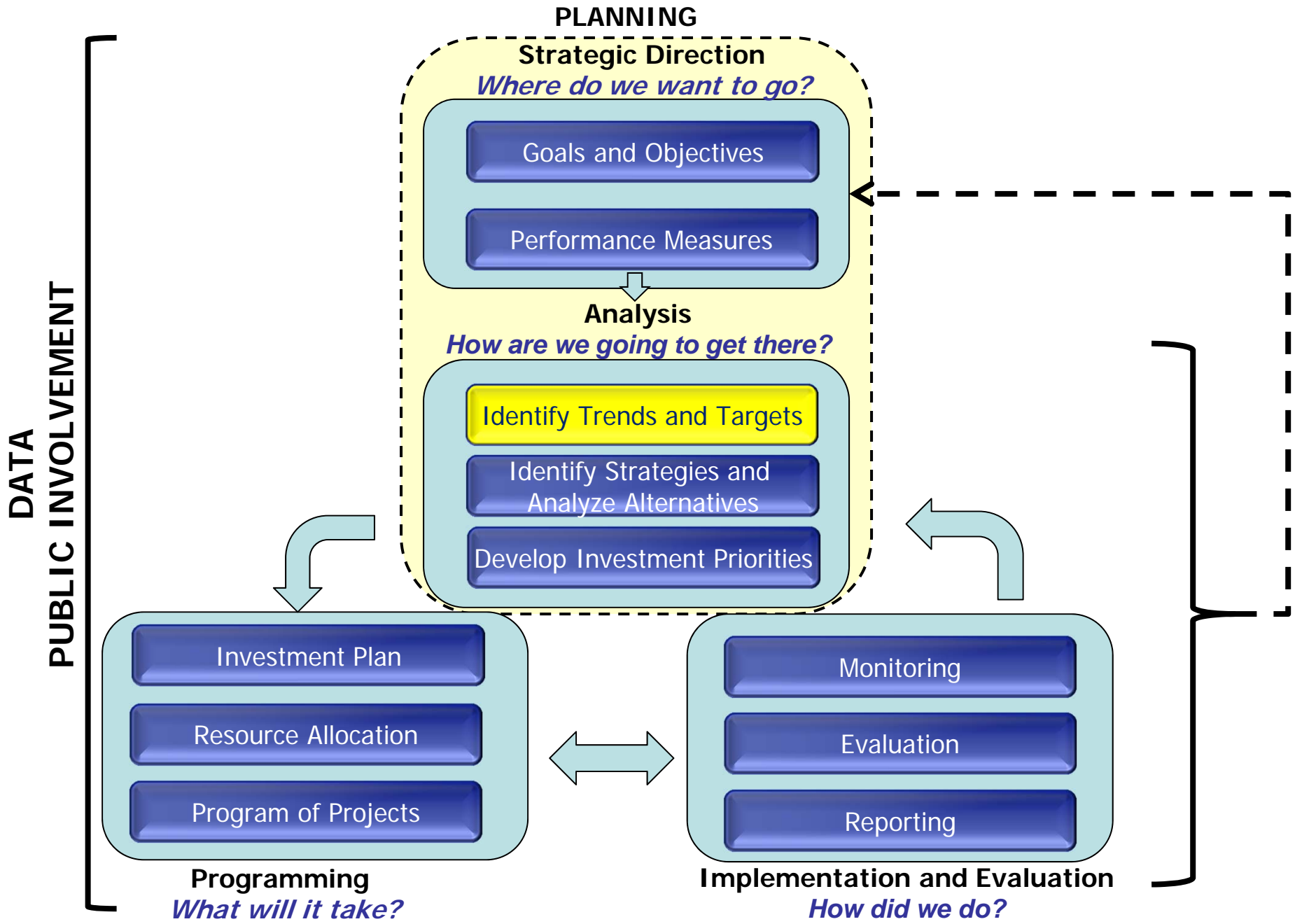


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## 4. Select Performance Measures

- Performance measures serve five critical purposes:
  - Clarify the definition of goals
  - Monitor or track performance over time
  - Serve as a reference for target-setting
  - Serve as a basis for supporting policy and investment decisions by comparing alternative options
  - Assess the effectiveness of projects and strategies
- Factors to consider in selecting measures:
  - Does it represent a key concern?
  - Is it clear?
  - Are data available?
  - Can it be forecasted?
  - Is the measure something the agency can influence through investment?
  - Is the measure meaningful for the types of services or area?
  - Is improvement direction clear?
- Build on public concerns in selecting measures.



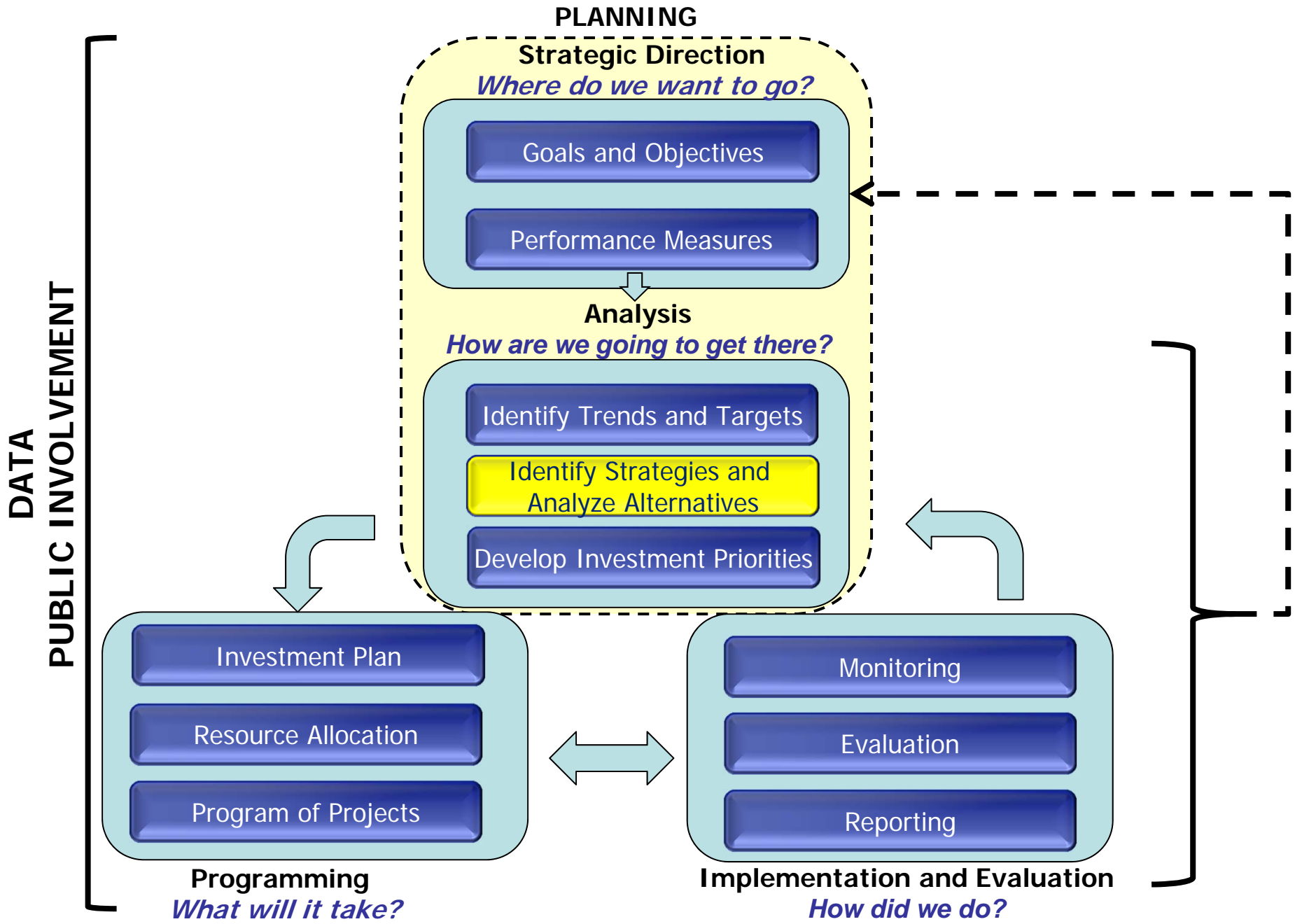


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## 5. Identify Trends and Targets

- Desired trends and numerical targets – types include:
  - Directional (desired trends)
  - Aspirational
  - Realistic
- Time frames for target-setting and planning analysis
  - Long range
  - Mid range
  - Short range
- Process for setting targets
  - Analyze baseline data and develop assumptions
  - Consider multiple factors (Financial resources, external factors, policy considerations)



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## 6. Identify Strategies and Analyze Alternatives

Common themes:

- Consider full range of strategy options (including near-term, cost-effective strategies, operations improvements, land use strategies, etc.)
- Find ways to analyze non-capacity increasing strategies despite common model limitations
- Use scenario planning and analysis to compare packages of investments and strategies

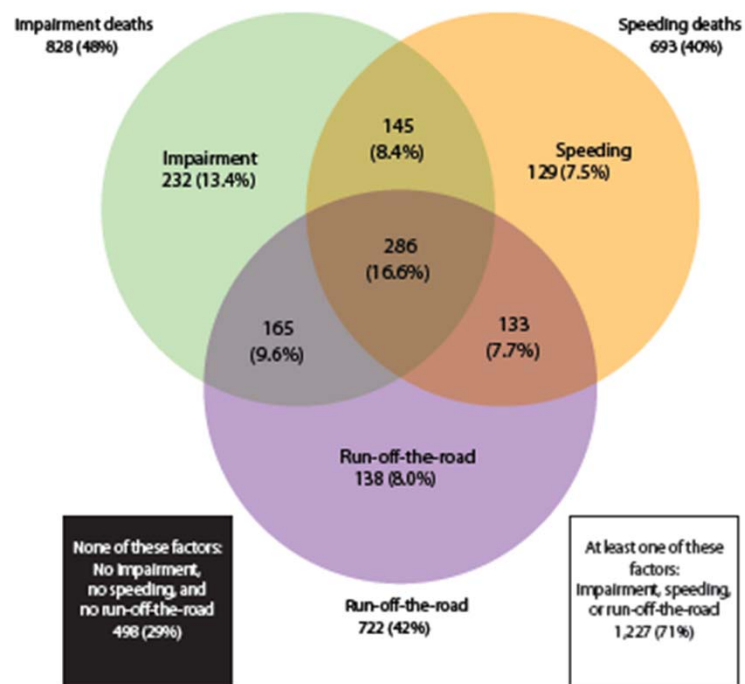
Use data and analysis tools to inform potential options:

1. Historical data
2. Forecasting tools
3. Economic analysis tools and management systems

# Example of Historical Data

## Washington State's SHSP Target Zero: Using Data to Prioritize Efforts

The role of impairment, speed, and run-off-the-road collisions in 1,725 traffic fatalities in Washington 2006-2008



Data source: FARS and WSDOT Collision Database.

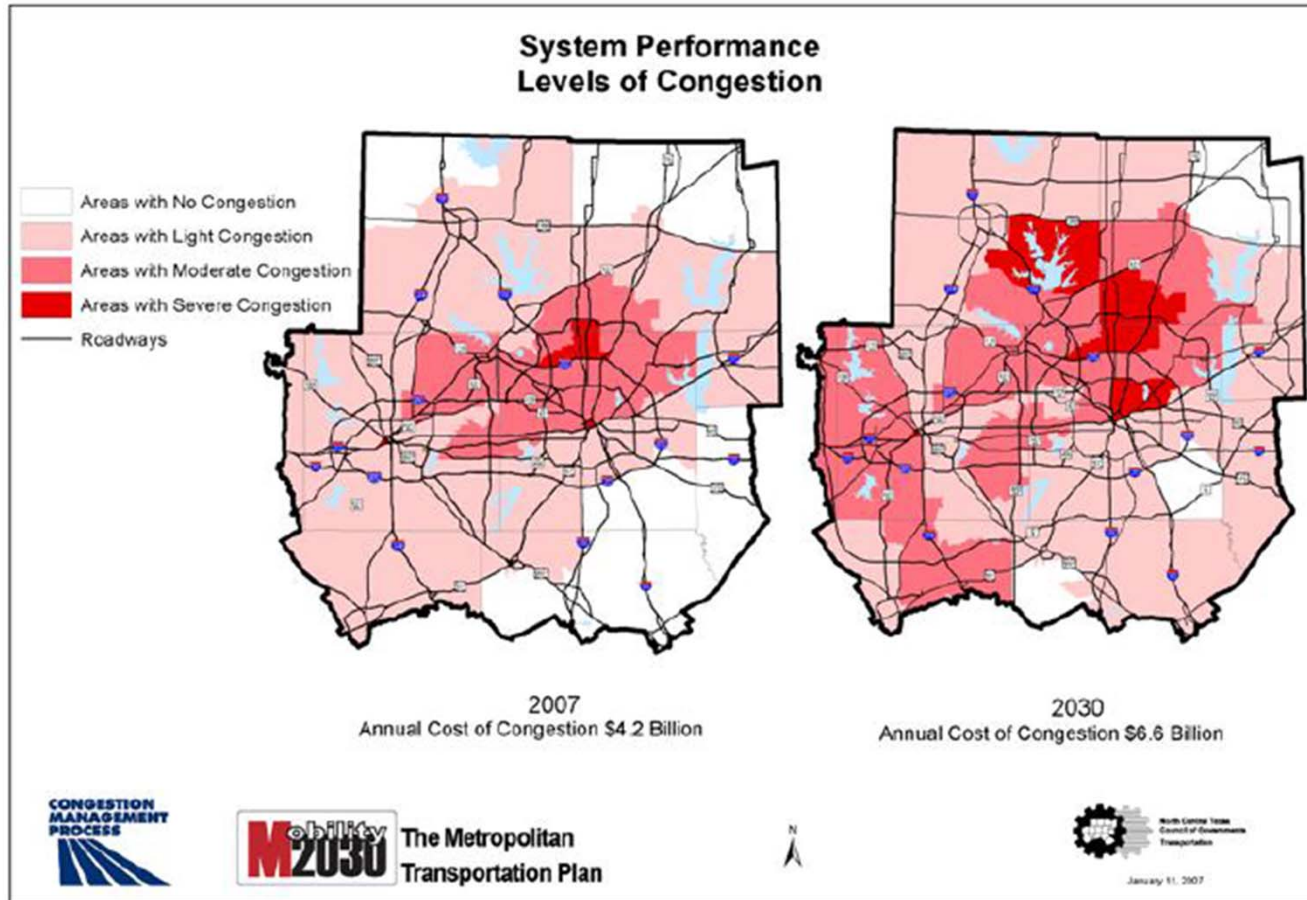
Source: Washington State DOT, <http://targetzero.com/PDF/TargetZeroPlan.pdf>



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# Example of Forecasting Tools

## North Central Texas Council of Governments (NCTCOG): Modeling of Traffic Congestion Levels

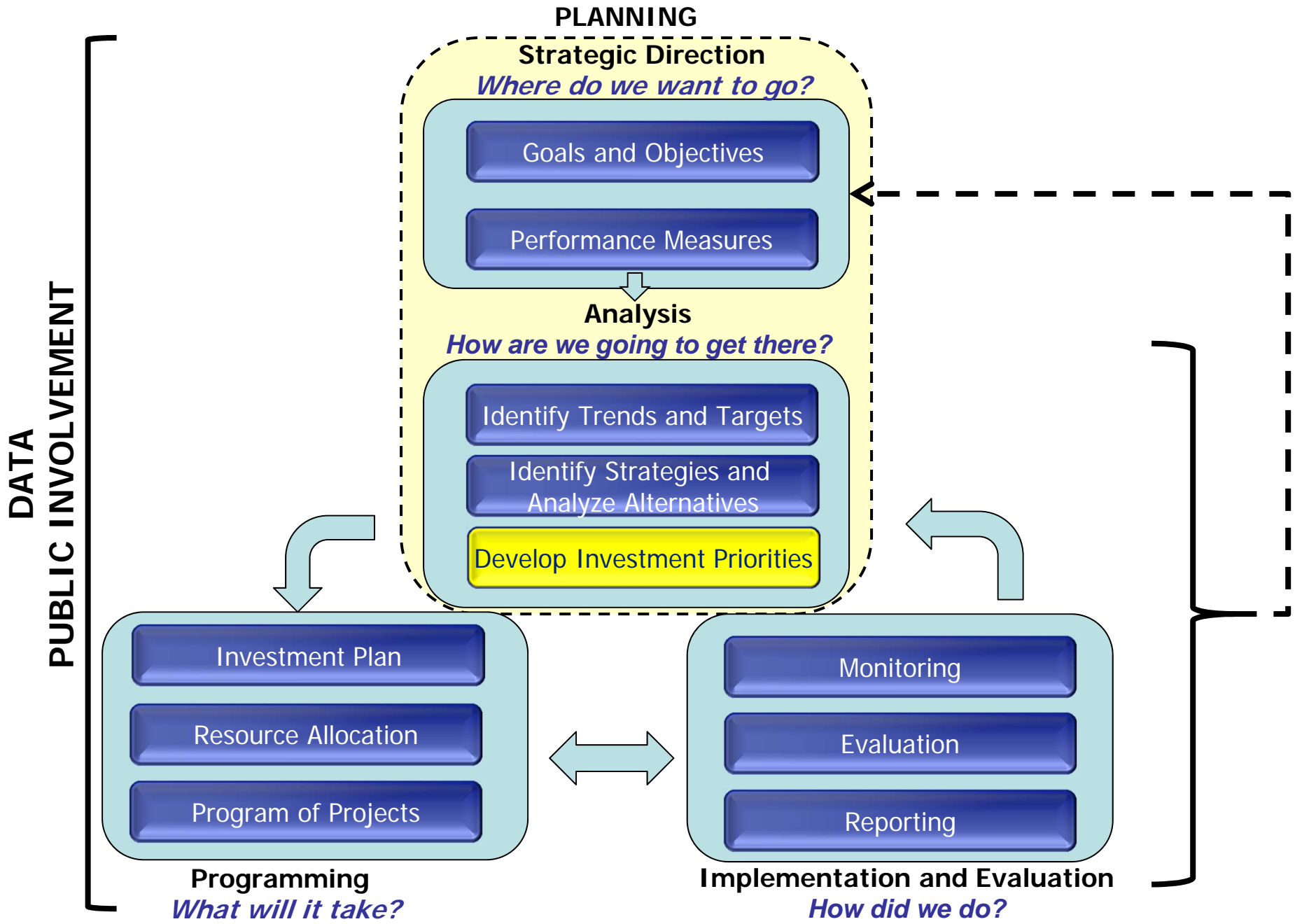


Source: NCTCOG.

## 6. Identify Strategies and Analyze Alternatives (ctd.)

- Scenario planning and analysis – examples:
  - Alternative transportation and land use policies
    - Denver Regional Council of Governments
  - Anticipated performance at a variety of funding levels
    - San Diego Association of Governments
  - Asset management scenarios linking funding and performance
    - Vermont Agency of Transportation:
  - Projected outcomes for baseline, 2035 plan, and aspirational scenarios
    - North Jersey Transportation Planning Authority (NJTPA)





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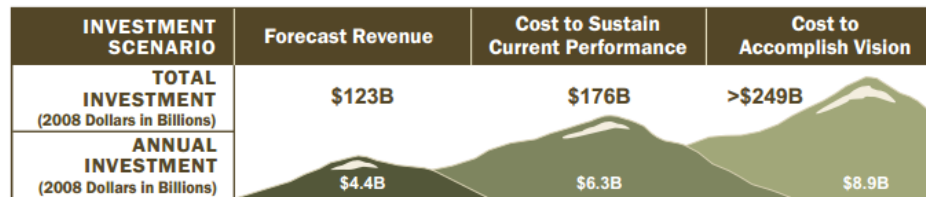
## 7. Develop Investment Priorities in the LRTP

- LRTP elements include:
  - Set of goals, performance measures, and desired trends and targets
  - Status report of current conditions
  - Assessment of needs
  - Identification of investment priorities, policies, and strategies
- Primary outputs of LRTP include:
  - Program level investment priorities
  - Major projects or priority corridors for improvement
  - Identification and consensus on expected performance levels
  - Policy level discussion and decisions
  - Stakeholder input that informs development of project selection criteria

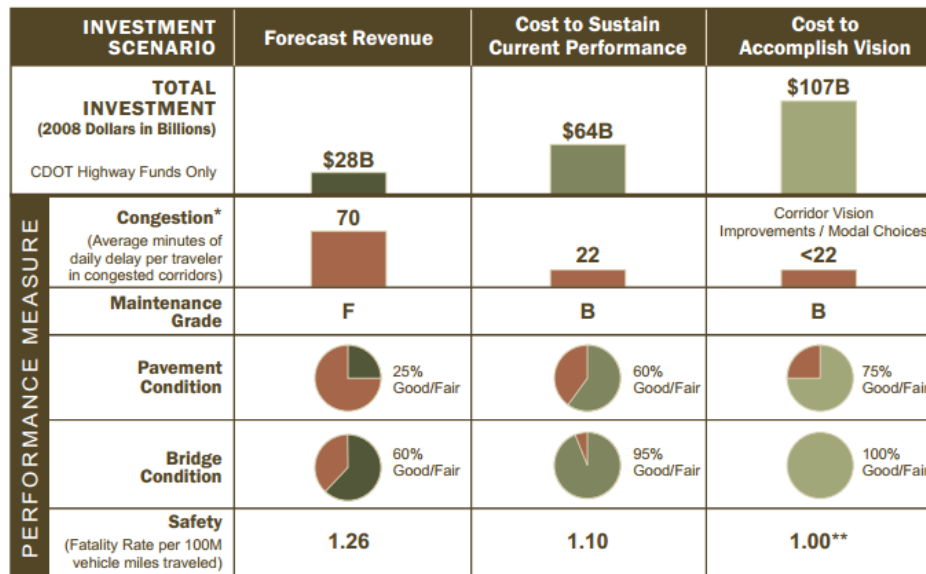


# Example of LRTP showing Performance Scenarios Colorado Statewide Transportation Plan

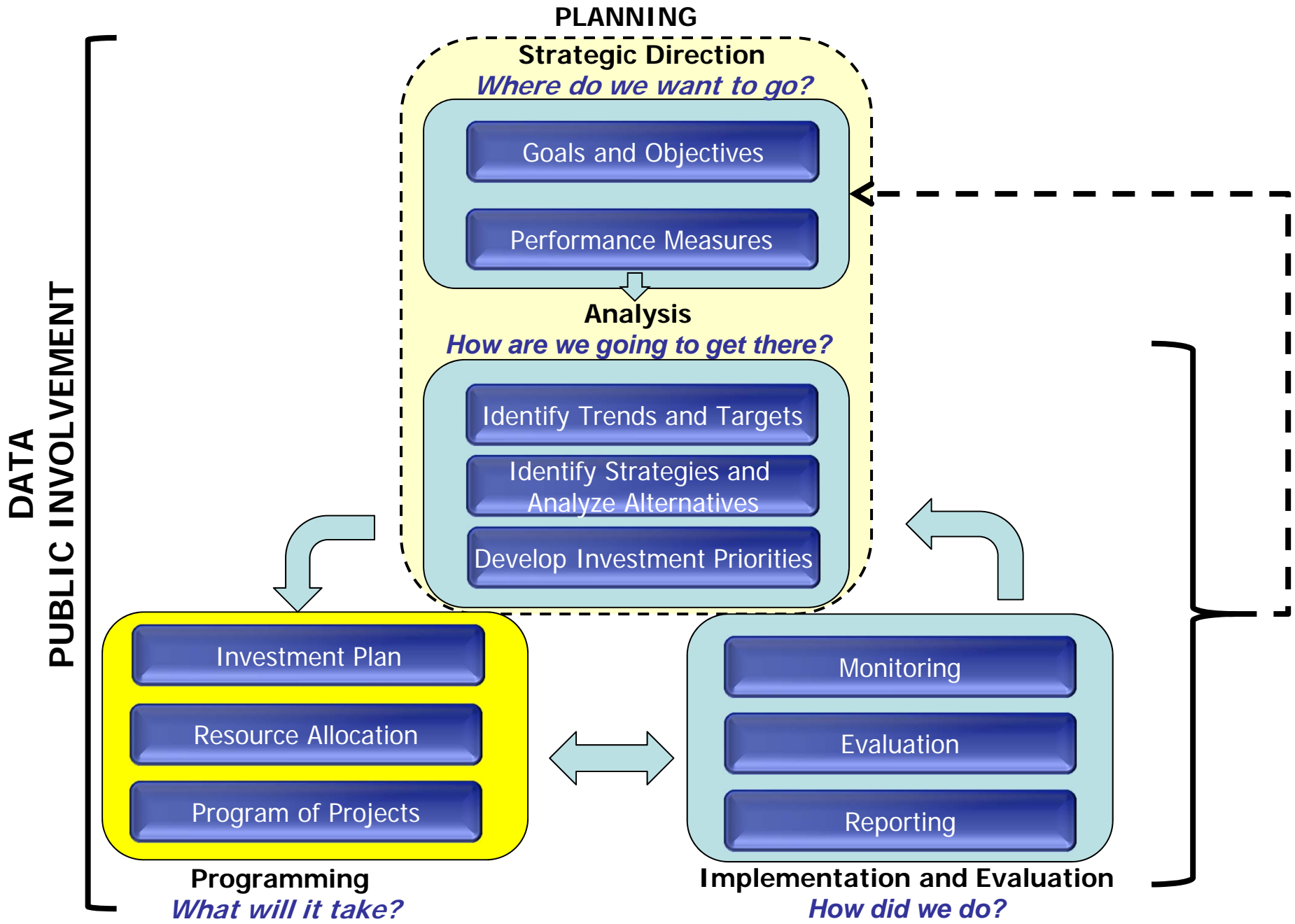
**Total Plan Costs 2008-2035**



**Estimated 2035 State Highway System Performance Outcomes**



\*Congestion is one component of the mobility investment category  
\*\*Fatality Rate may decrease with the passage of a primary seat belt law



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## 8. Programming – Develop Investment Priorities in the TIP/STIP (ctd.)

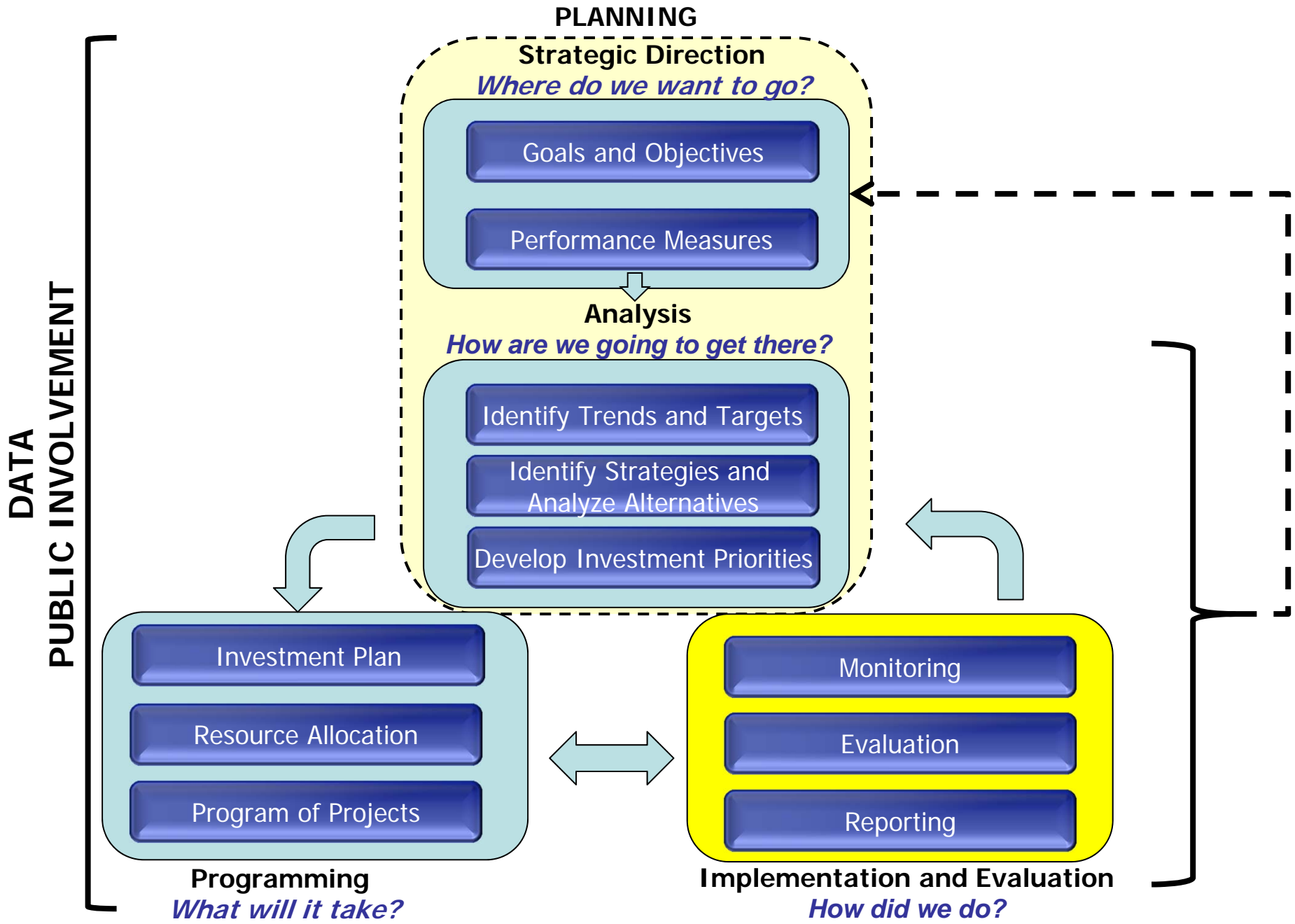
- Linking planning to programming remains a challenge for many transportation agencies
- Effective tools/approaches:
  - Project prioritization methodologies
  - Asset management plans to help in establishing the link between the LRTP and the STIP
  - Investment plans to identify projects, programs, and strategies at a more detailed level than in the LRTP



## 8. Programming – Develop Investment Priorities in the TIP/STIP (ctd.)

- Communicating the connections to performance - TIP documents can:
  - Track consistency of projects in the TIP/STIP with investment levels identified in the LRTP
  - Provide qualitative information on the connections between projects and goals or objectives in the LRTP (data field can identify which goals projects support)
  - Identify project scores or rankings in order to select for funding (can include benefit/cost analyses or composite scores)
  - Provide information to enable summaries of projects of different types addressing different factors or goals
  - Include information on the evaluated impacts of projects in terms of performance improvements





**PERFORMANCED-BASED PLANNING AND PROGRAMMING**

## 9. On-going Monitoring, Evaluating, and Performance Reporting

- Reasons to monitor and evaluate:
  - Enhance understanding of system performance and which strategies are effective and why
  - Determine whether objectives have been met through target attainment
  - Inform adjustments to projects and programs based on results
  - Support reexamination and refinement of objectives and targets
  - Provide information to calibrate/refine planning tools
- Monitoring vs. Evaluating
  - Monitoring is the process of tracking performance of the system in terms of goals, objectives, and targets set in the planning process
  - Evaluation is the process of interpreting results to understand the impacts that investments and policies have had on performance
- Two levels of evaluation:
  - System level
  - Project- or program-level



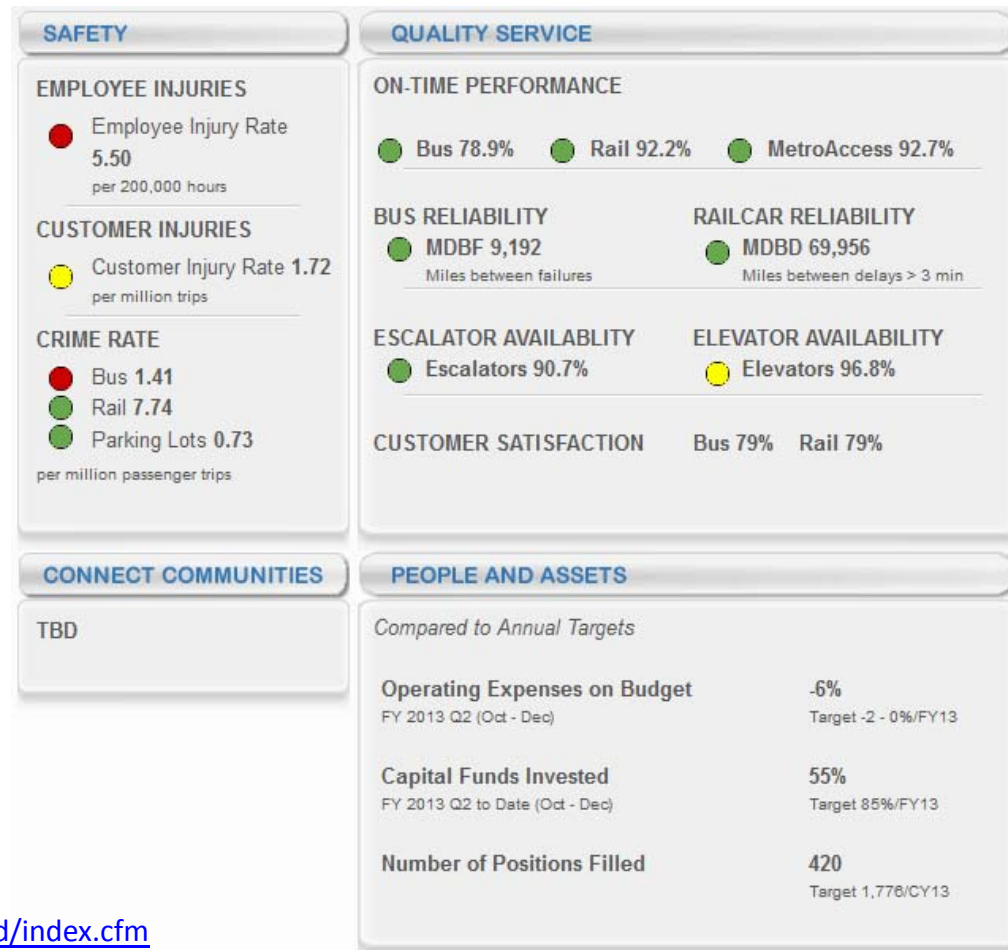
## 9. On-going Monitoring, Evaluating, and Performance Reporting (ctd.)

- Performance journalism involves the combination of quantitative reporting and narrative storytelling. Key principles include:
  - Good writing (clear, concise, jargon-free)
  - Good data
  - Good graphics
  - Good format and presentation
  - Good timing
  - Telling stories
- Reporting tools include performance scorecards, reports, interactive



# Example of Reporting Tools

## WMATA Vital Signs Report



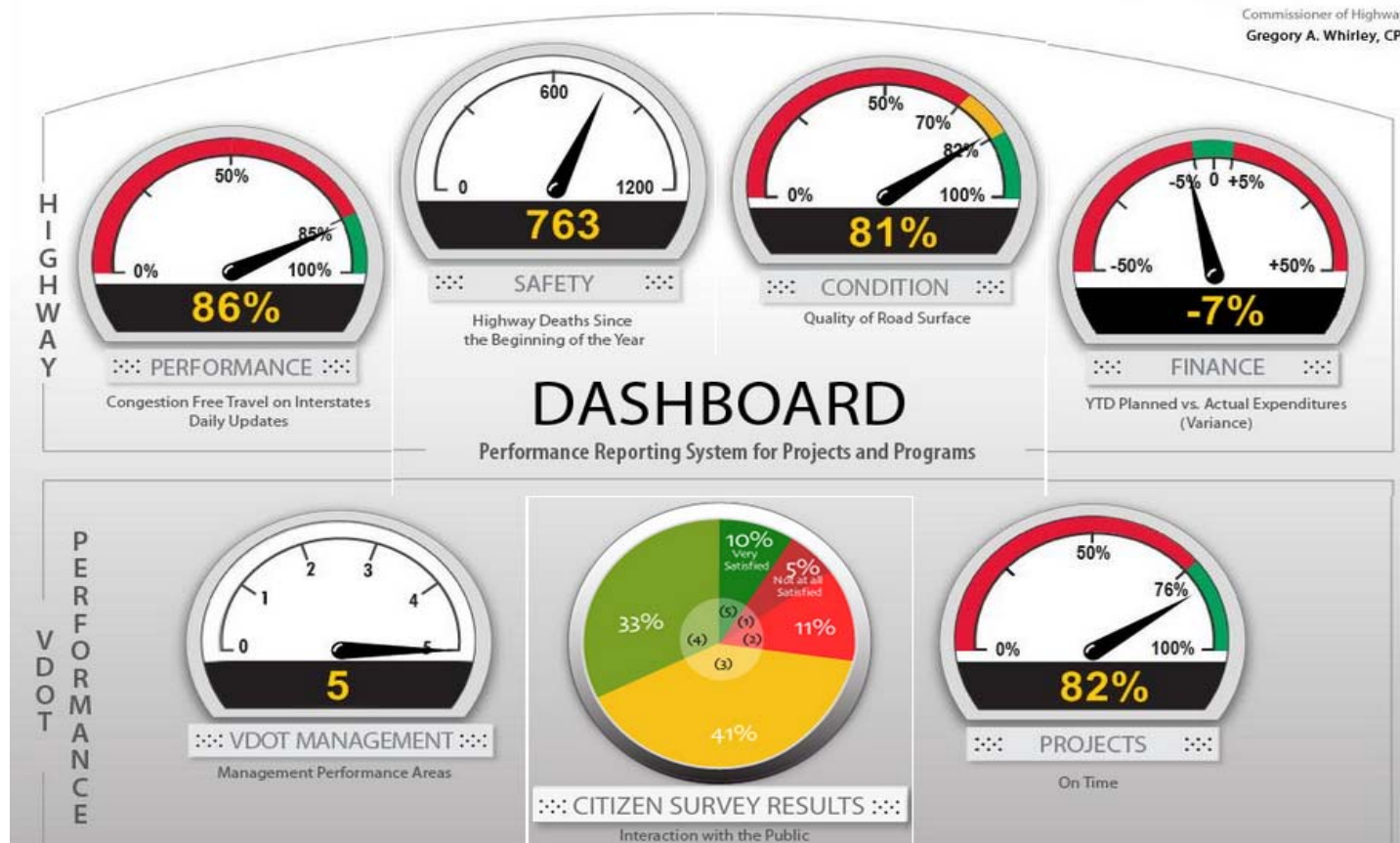
For more information, see:

[http://www.wmata.com/about\\_metro/scorecard/index.cfm](http://www.wmata.com/about_metro/scorecard/index.cfm)



# Example of Reporting Tools: Dashboard

## VDOT Interactive Online Dashboard



For more information, see <http://dashboard.virginia-dot.org/>.

## 10. Keys to Success

- Measure what matters
- Select a limited set of measures
- Build on existing performance-based planning processes
- Consider the big picture and tradeoffs
- Coordinate and collaborate across agencies
- Communicate successes and constraints
- Tell a story rather than just releasing data
- PBPP requires dedicated resources
- Consider the role transportation plays in achieving goals in a variety of areas

## 11/12. Case Studies and Additional Resources

- Case studies:
  - Minnesota Department of Transportation
  - Champaign Urbana Urbanized Area Transportation Study
  - Southeast Michigan Council of Governments
  - Washington Metropolitan Area Transit Authority
- Additional resources:
  - Glossary (including links to federal resources)
  - References and sources



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