



# Performance-Based Planning & Programming

## Connecting Investments to Strategic Direction

**ITE Upstate NY Section Conference**

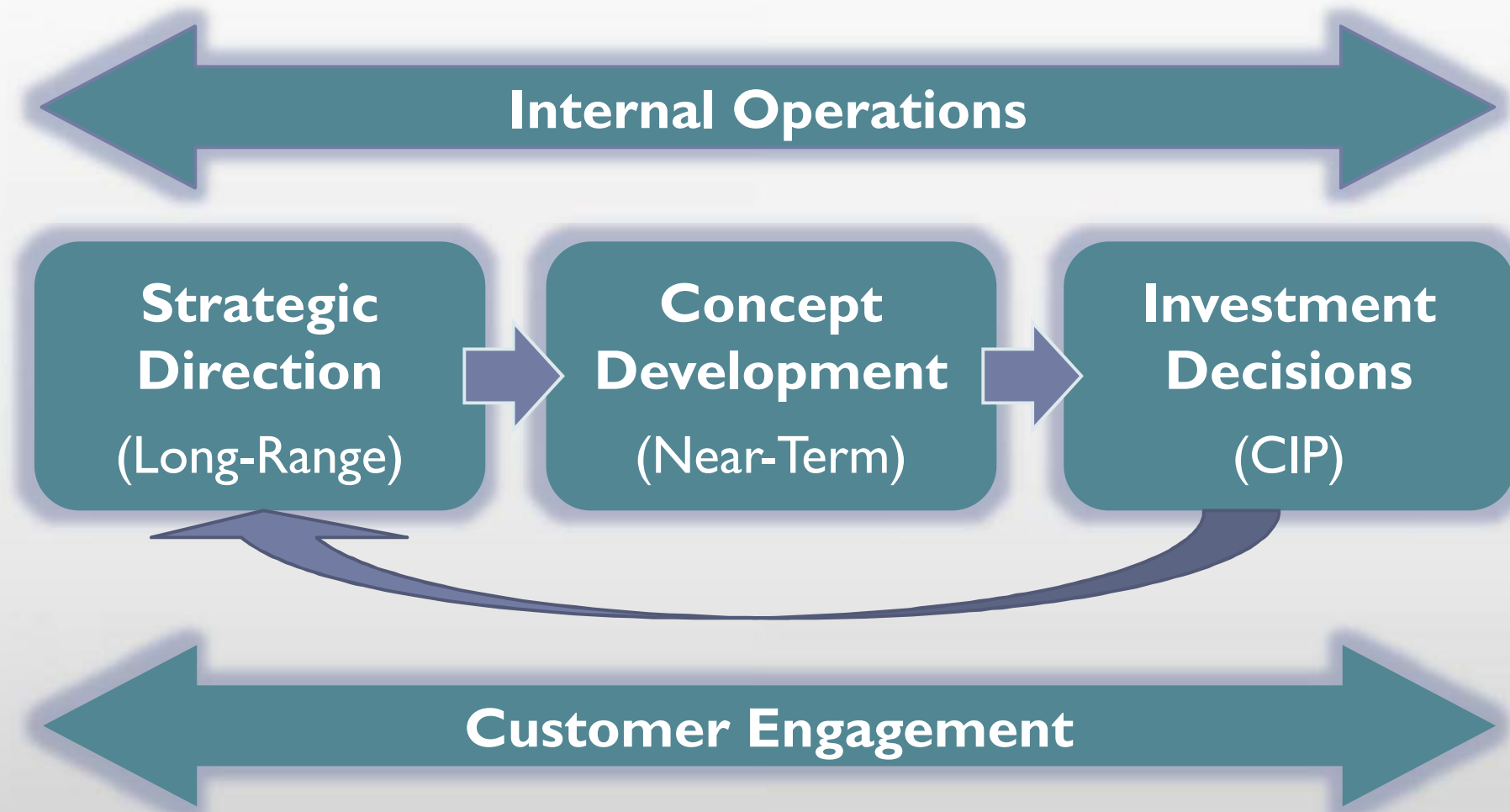
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# Transportation Planning & Programming Activities



# Performance Management versus Performance Measurement

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- ▶ More than selecting measures
- ▶ More than selecting measures and monitoring change
- ▶ More than selecting measures, monitoring change, and reporting
- ▶ Management about effecting change based on performance in key areas
  - ▶ Outcome-based measures are key to making a difference
  - ▶ Anticipated results must be incorporated and considered in long range plans, near-term plans, and capital improvement programs

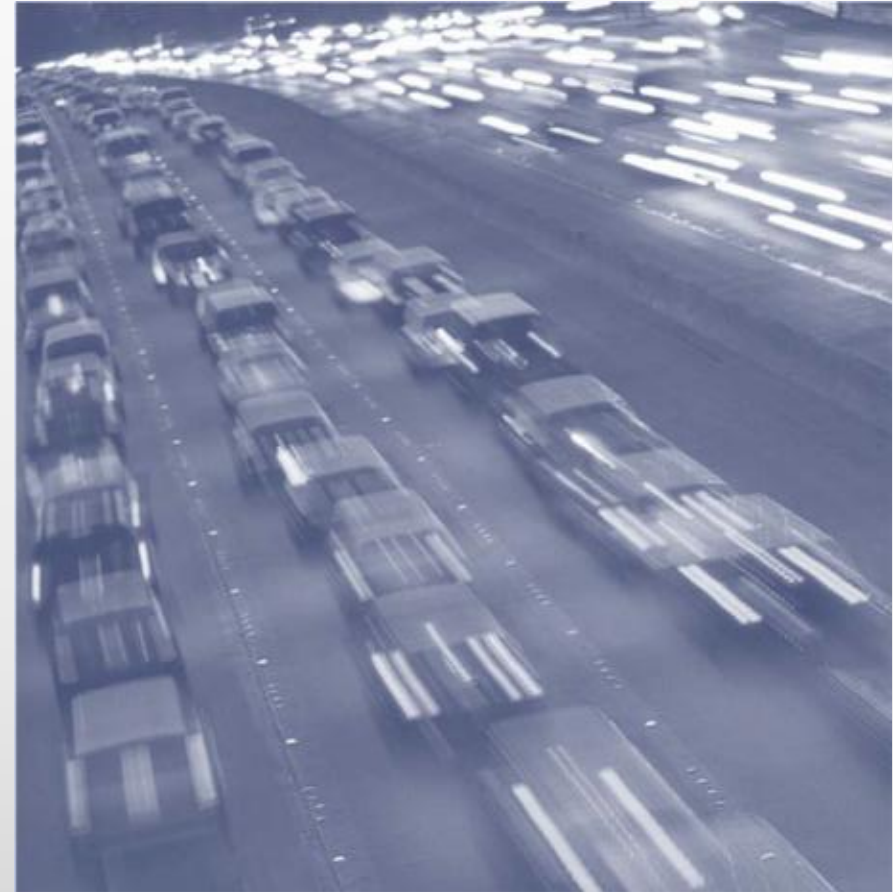
# Drivers for Performance-Based Planning & Programming

- ▶ Reduced revenues
- ▶ Increased availability of data
- ▶ Federal requirements
- ▶ Public demand for transparency and accountability



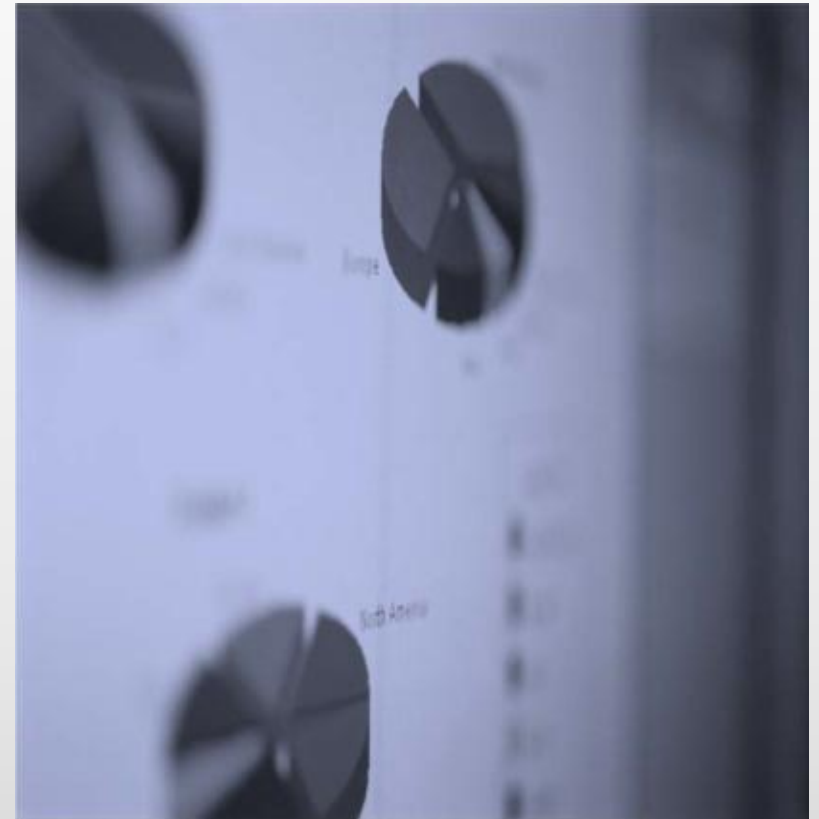
# Keys to Performance-Based Planning & Programming

- ▶ Identify what's important to customers
- ▶ Make measures meaningful *and* understandable
- ▶ Embed measures in investment decisions
- ▶ Use measures to articulate results *and* needs



# Performance-Based Planning & Programming Measures

- ▶ Need to decide what to measure
  - ▶ Safety
  - ▶ Asset Condition
  - ▶ Mobility
  - ▶ Accessibility
  - ▶ Goods Movement
  - ▶ Environment
- ▶ Ultimately, what matters to the community



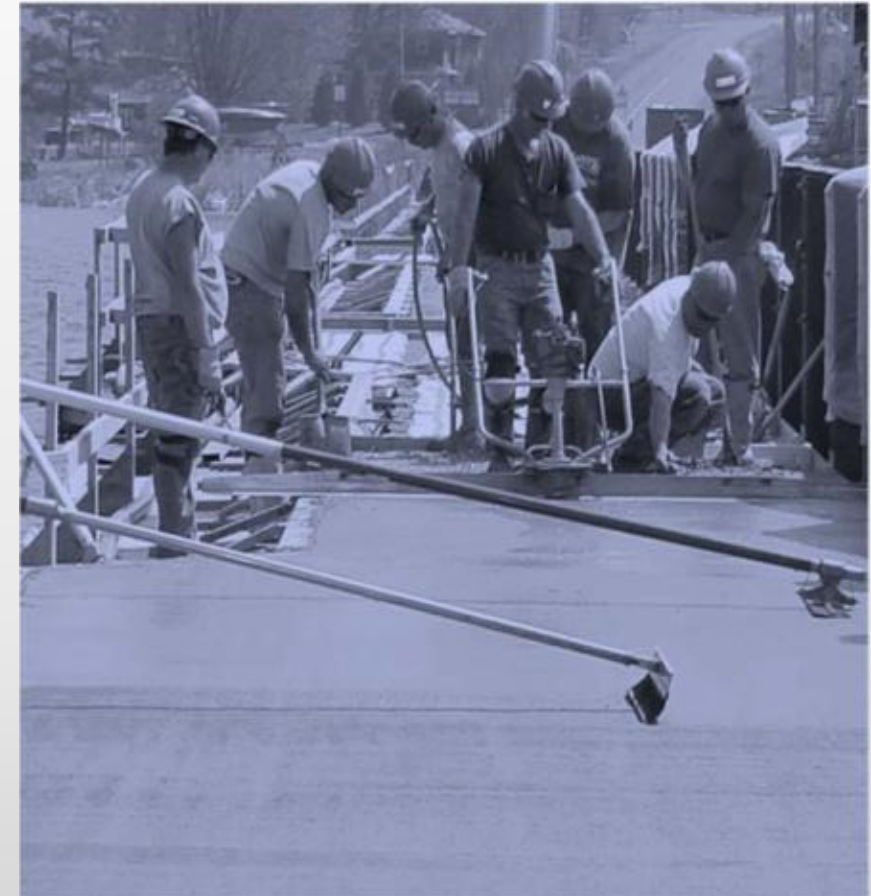
# Performance-Based Planning & Programming Measures

- ▶ Select outcome-based measures
- ▶ Clearly define each measure
- ▶ Utilize real-world data instead of modeled data
- ▶ Build on existing priorities and ensure consistency with agreed-upon goals



# Operationalizing Performance Measures

- ▶ Create project evaluation criteria that actually improve the measures you've selected
  - ▶ Directly link to strategic/long range plans
- ▶ Identify the right questions to ask
  - ▶ Include in funding requests/solicitations
- ▶ Codify the scoring of proposed projects
  - ▶ Define scores for each criterion
  - ▶ Ensure consistency among raters and across capital programs





# Operationalizing Performance Measures

- ▶ Cooperation and critical thinking are key
  - ▶ Technology and data are not replacements
  - ▶ Early and continuous involvement of stakeholders
- ▶ Quantitative does not equal Objective
  - ▶ Understand what determines system performance
- ▶ Adaptive = Structure + Flexibility
  - ▶ Can't exclude non-system performance considerations
- ▶ Reassessment is a requirement
  - ▶ Change for the sake of change is not progress...  
but there is always room for improvement



# Federal Requirements – Background

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- ▶ Multiple factors for inclusion in MAP-21 and FAST Act
  - ▶ ARRA (“Economic Stimulus” of 2009) required reporting at a greater level than was in place at time for Federal surface transportation funds
    - ▶ Activity-based
  - ▶ “Reduction” in anticipated Federal surface transportation revenues after SAFETEA-LU (i.e., less growth than in previous authorizations)
    - ▶ Greater emphasis on major highways and bridges
  - ▶ National discussion about improved transparency and accountability
    - ▶ Earmarks banned based on number and questionable merit in SAFETEA-LU

## Federal Requirements – State DOTs & MPOs

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- ▶ Support seven national goals by setting *targets* for established *measures* and *tracking progress* in critical outcomes via *management*
- ▶ Coordinate target setting to the maximum extent *practicable*
- ▶ MPOs set targets within 180 days of State DOT and public transportation providers setting theirs
  - ▶ Agree to contribute to State DOT target or set separate one for metro area
- ▶ Integrate goals, objectives, measures, and targets from essentially all other plans and processes

# Federal Requirements – National Performance Measures

- ▶ Safety
  - ▶ Number of Fatalities
  - ▶ Number of Serious Injuries
  - ▶ Rate of Fatalities per 100 million Vehicle Miles Travelled
  - ▶ Rate of Serious Injuries per 100 million Vehicle Miles Travelled
  - ▶ Number of Non-motorized Fatalities and Non-motorized Serious Injuries



# Federal Requirements – National Performance Measures

- ▶ Pavements & Bridges
  - ▶ Percent of Pavements on the Interstate System in Good Condition
  - ▶ Percent of Pavements on the NHS (excluding Interstate System) in Good Condition
  - ▶ Percent of Pavements on the Interstate System in Poor Condition
  - ▶ Percent of Pavements on the NHS (excluding Interstate System) in Poor Condition
  - ▶ NHS Bridges Classified as in good condition
  - ▶ NHS Bridges Classified as in poor condition



# Federal Requirements – National Performance Measures

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- ▶ Performance of NHS, Freight Movement on Interstates, and CMAQ Program
  - ▶ Percent of Reliable Person-Miles Traveled on the Interstate System
  - ▶ Percent of Reliable Person-Miles Traveled on the Non-Interstate NHS
  - ▶ Percentage of Interstate System Mileage Providing Reliable Truck Travel Time (Truck Travel Time Reliability Index)
  - ▶ Total Emissions Reductions by Applicable Pollutants under CMAQ Program
  - ▶ Annual Hours of Peak Hour Excessive Delay Per Capita
  - ▶ Percent of Non-Single Occupancy Vehicle Travel (including travel avoided by telecommuting)

# Federal Requirements – Freight Reliability

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- ▶ Percentage of Interstate System Mileage Providing Reliable Truck Travel Time
  - ▶ Intended to consider use during all hours of the day as most intense use of system (regardless of time of day) can negatively impact goods movement
  - ▶ Truck Travel Time Reliability Index
    - ▶ Five periods – 1) M-F Morning Peak, 2) M-F Midday, 3) M-F Afternoon Peak, 4) Weekend 6 a.m.-8 p.m., 5) All Days 8 p.m.-6 a.m.
    - ▶ Ratio of 95<sup>th</sup> percentile time divided by 50<sup>th</sup> percentile (normal time) for each segment
    - ▶ Each segment's largest ratio of the five periods multiplied by its length then the sum of all length-weighted segments divided by the total length
    - ▶ Good graphical overview on slides 25-29 of the FHWA's Final Rule webinar of June 1, 2017 at <https://www.fhwa.dot.gov/tpm/rule/170601pm3.pdf>



## § 490.613 Calculating Freight Reliability Measure (Example)

$$\text{TTTR Index} = \frac{\sum \text{All segment length weighted TTTR}}{\sum \text{All segment lengths}}$$

Segment length (mi.)	0.500	0.500	1.000	1.000	5.000
MaxTTTR	x 1.49	x 1.59	x 1.50	x 1.41	x 1.36
Length-weighted TTTR	= 0.75	= 0.80	= 1.50	= 1.41	= 6.80

$$\text{TTTR Index} = \frac{11.25}{8.000 \text{ mi}} = \mathbf{1.41}$$

**Measure: TTTR Index, full extent of the Interstate system**



U.S. Department of Transportation  
Federal Highway Administration

29



# Learning Assessment

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1. "Number of miles paved annually" is an example of what type of measure
  - ▶ A. Activity-Based
  - ▶ B. Outcome-Based
  - ▶ C. Neither A. nor B.
  - ▶ D. Both A. and B.

## Learning Assessment

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2. Which is not one of the Federal performance management measures?

- ▶ A. Percent of Pavements on the Interstate System in Poor Condition
- ▶ B. Number of Serious Injuries
- ▶ C. Greenhouse Gas Emissions Per Capita
- ▶ D. Annual Hours of Peak Hour Excessive Delay Per Capita

## Learning Assessment

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3. True or False: modeled data is preferable to real-world data?

- ▶ A. True
- ▶ B. False

4. Why is codifying scoring criteria for proposed projects important?

- ▶ A. Prioritizes highway expansion
- ▶ B. Overcomes deficiencies in data quality
- ▶ C. Ensures consistency among raters and capital programs
- ▶ D. Is a federal requirement for project selection

# Questions

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