



## Innovative Approaches to Addressing CMS Requirements: Highlights of National Review

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## CMS Required Elements

- Federal regulation identifies required elements of CMS, which include:
  - Establishing performance measures
  - Collecting data / monitoring system performance
  - Identifying and evaluating improvement strategies
  - Monitoring effectiveness
- However, no specific guidelines for implementation
- Consequently, a wide range of approaches have been applied

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## 1. Establishing Performance Measures

- Movement from traditional to “travel-time”-based measures
  - Traditional: V/C ratio, intersection LOS
  - Travel time: time, speed, delay, travel time index (ratio of peak to off-peak travel time)
- Benefits:
  - Easier to understand by public
  - Flexible for use at various geographic levels
  - Can be translated into other measures like user costs

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## Establishing Performance Measures (cont'd)

- Recognition that what is “acceptable” to the public varies by:
  - Location (CBD, suburban)
  - Time of day
- Reliability is important
  - Non-recurring congestion (incident-based, weather-related, special events) is perceived differently
  - MPOs desire to incorporate these measures, but face challenges due to data availability

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## Capital Area Metropolitan Planning Organization (CAMPO): Austin, TX

- Uses speed measures to identify congested locations
  - Data collected through yearly travel time surveys using GPS-enabled vehicles
- Minimum threshold speeds vary based on type of road and area

Thresholds (miles per hour)						
Area Type	Freeway Mainline	Freeway HOV	Major Arterial	Bus On Street	Rail In Street	Bicycle
CBD	32	60	18	9	10	9
CBD Fringe/Urban Residential	40	60	24	12	15	10
Suburban	50	60	29	15	20	14
Rural	55	60	32	17	25	18

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## Regional Transportation Commission (RTC) of Southern Nevada: Las Vegas, NV

- Uses V/C ratio for initial identification of roadway congestion
  - Performance thresholds for different types of roadways in different types of environments
- For congested roadways, calculate four components of congestion
  - **Intensity:** Based on V/C and percent reduction in speed
  - **Duration:** Number of hours that exceed intensity threshold
  - **Extent:** Persons or vehicles affected
  - **Reliability:** Calculated based on crash rates and non-crash incidents, obtained from Freeway Service Patrol

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## Hillsborough County MPO: Tampa, FL

- Basic tier of performance measures uses traditional data
  - Roadway (V/C ratio), transit (ridership and frequency), bicycle, and pedestrian measures included
- For corridors identified as congested, a second set of measures is also applied
  - Speeds from travel-time surveys
  - Transit on-time performance
  - Pedestrian counts

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## Additional Performance Measures

- Specific aspects of system performance
  - Accessibility
  - Transit performance
  - Freight performance
  - Availability and use of alternatives

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## 2. Collecting Data / Monitoring Performance

- Technology advances improving the prospects of data collection
  - Roadside Techniques
    - ITS systems offer potential for vast amounts of data on travel time, speeds, reliability
  - Vehicle Techniques
    - GPS techniques offer new possibilities, but challenges (limited coverage area, etc.)
- Emphasis on data sharing



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## Miami Valley Regional Planning Commission (MVRPC): Dayton, OH

- Recurring congestion monitored using traditional measures
- Non-recurring congestion tracked for five major corridors through multiple sources
  - A local radio station provides reports of volunteer-submitted traffic observations
  - MPO mines data from local newspaper articles
  - Ohio DOT's yearly construction database provides information on potential sources of congestion

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### 3. Identifying & Evaluating Improvement Strategies

- Range of approaches to prioritize strategies
- Harrisburg, PA (HATS)
  - Grouped strategies into three categories: very practical, practical, not practical.
- Las Vegas (RTC)
  - Developed hierarchical groups of strategies
  - Screens strategies based on plausibility, feasibility, and effectiveness for individual corridors

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### Identifying and Evaluating Improvement Strategies (cont'd)

- Supporting local implementation
- Chicago (CATS)
  - Created CMS Handbook to support implementation of CMS strategies
- San Diego (SANDAG)
  - **CMS Toolbox**: 40 comprehensive strategies and approaches to support a variety of objectives
  - **Trip Reduction Ordinance (TRO) Framework**: Offers guidance to local jurisdictions on developing TROs that simultaneously reduce local and regional congestion
  - **Trip Reduction Guidelines**

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## 4. Monitoring Effectiveness

- Dallas (NCTCOG)
  - Maintains a database tracking relevant projects implemented by various agencies
  - Analysts use this information to identify effective data collection locations and times for before-after studies
- Lincoln, NE
  - Conducted analysis of synchronizing traffic signals before and after modifications

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## Summary

- Wide range of innovative approaches
  - New performance measures
  - New data collection techniques
  - Varied approaches to identifying and prioritizing strategies and supporting local decision-making
- Desire to enhance CMS while limiting staff time and data collection costs

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