



**COLORADO**

Department of  
Transportation



# TAM

## Coordination with Other NHS Owners

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**COLORADO**  
Department of  
Transportation

About CDOT

# CDOT BUILDS, MAINTAINS & OPERATES

**23,000**  
TOTAL LANE MILES  
OF HIGHWAY



**1,480**  
GEOHAZARD SITES



**2,350**  
CONGESTION  
AHEAD  
INTELLIGENT  
TRANSPORTATION  
SYSTEM  
DEVICES (ITS)



**3,439**  
BRIDGES



**6,062**  
CULVERTS



**3,227**  
VEHICLES



**1,174**  
BUILDINGS



**21**  
TUNNELS



Source: Colorado Department of Transportation, 2015

## \$1.43 BILLION BUDGET



- **September 6, 2012**

- *“Does the CDOT have any inclination to revise and update their Principal Arterial network with any additions? Please alert me to the status of this action. Thanks.”*
- ***Engaged MPOs***
  - *TACs*
  - *MPO Boards*
  - *STAC*
  - *Also, rural TPRs*
  - *Explained ramifications of adding roads to the NHS*
- ***Estimated adding about 540 miles to off-system NHS***
  - *Pre-enhanced NHS = 146 miles (potential to have 686 miles of off-system NHS)*
  - *Currently 485 miles of off-system NHS*



- **Since 2015 – Participated on monthly MPO meetings discussing NPRMs**
  - Safety
  - PM2
  - PM3
- **Reduce information**
  - Memos
  - Presentations



# Step #1 – Figure Out What We Are Doing

*✓ = we do (ing)*

### Initial TAMP NHS Pavement + Bridge

	EASY	MOD	High
Asset Inventory ✓ <small>FULL NHS, regardless ownership we HAVE IT</small>	X <small>(NEMS + BRM)</small>		
NATIONAL PERFORMANCE MEASURES			
ASSET Mngmt. Objectives <i>↳ Clarification on these (Assume Perf targets)</i>			X <small>(DATA ISSUES)</small>
Description of all TAMP DEVELOPMENT PROCESSES		X	X
PERFORMANCE GAP ANALYSIS			
LIFE CYCLE PLANNING ANALYSIS P			X <small>(DATA ISSUES)</small>
Risk Mngmt. Plan P ✓ <small>(William has sheet w/ risk activities)</small>		X	
FINANCIAL Plan P <small>NHI Training ✓ (normin)</small>		X	
INVESTMENT Strategies P <small>AMS Strategies ✓ RBAMP Strategy</small>		X	

### RBAMP

Review Q + A

2 THINGS WE CAN DO

- DATA FOR PAVEMENT / BRIDGE
- EMERGENCY ASSETS
- CONSULTANT TRIAGE

Resources

- HPMS BRM
- FHWA REPORTING SYSTEM \* \* PRIORITY!
- FHWA REPORTING SYSTEM \* \* PRIORITY!
- ARTIFACT (WE NEED TO MAKE)
- ARTIFACT
- NCHRP TRB X
- FHWA Brochure on Risk NHI TRAINING
- AMS NCHRP

*750-31000*

*2 DOCS:  
1. PAVEMENT  
2. BRIDGE*

**C-DOT**

*Mackenzie S. Johnson*



# Step #2 – Figure Out What They Are Doing

## Department of Transportation

MPO - National Performance Measures Requirements (9/22/17 - source: CDOT-PAMI)												
Performance Group	Part 490 Subpart	Performance Measure	Proposed Metrics	Applicability	Formulae	Period of Report	Reporting Frequency	MPO Requirement	MPO Report	Target Periods	State Target Adjustment	Data Source
PM1	Safety	Five-year average performance of fatalities and serious injuries on public roadways	<ul style="list-style-type: none"> <li>Number of Fatalities</li> <li>Fatalities per 100 million VMT</li> <li>Number of Serious Injuries</li> <li>Serious Injuries per 100 million VMT</li> <li>Number of non-motorized fatalities and non-motorized serious injuries</li> </ul>	All public roads	N/A	2018-2022	Biennial Reporting	MPOs can choose to set quantifiable targets or support State targets	MPO targets are reported to the DOT, which must be able to provide to the FHWA upon request	Annually - MPOs will establish targets for the same five safety performance measures for all public roads in the MPO planning area within 180 days after the State establishes each target.	Annual target setting	<ul style="list-style-type: none"> <li>State Crash Records</li> <li>FARS - Fatality Analysis Reporting System</li> </ul>
PM2	Pavement	Percent of NHS and Interstates in Good or Poor Condition	<ul style="list-style-type: none"> <li>% of Interstate in Good/Poor condition</li> <li>% of non-Interstate NHS in good/poor condition</li> </ul>	Interstate and non-Interstate NHS	$\frac{\sum_{a=1}^R (L_{a,Good} - Reg_{a,Good}) + \sum_{a=1}^R (L_{a,Through} - Reg_{a,Through})}{\sum_{a=1}^R (L_{a,Good} + Reg_{a,Good}) + \sum_{a=1}^R (L_{a,Through} + Reg_{a,Through})}$	2018 to 2022	Biennial Reporting	MPOs can choose to set quantifiable targets or support State targets	MPO shall report baseline conditions and progress toward achieving targets in their metropolitan transportation plan	<ul style="list-style-type: none"> <li>2-year and 4-year for non-Interstate NHS</li> <li>4-year for Interstate</li> </ul>	<ul style="list-style-type: none"> <li>If a State changes its four-year target, and an MPO originally chose to support the State's target, an MPO has 180 days to:</li> <li>Agree to plan a program of projects to contribute to the adjusted State target or</li> <li>Commit to a new, quantifiable MPO target</li> </ul>	HPMS - Highway Performance Monitoring System
	Bridge	FHWA performance measures for assessing bridge condition and setting targets for NHS bridges	<ul style="list-style-type: none"> <li>% of NHS bridges by deck area classified as Good condition</li> <li>% of NHS bridges by deck area classified as Poor condition</li> </ul>	NHS	$100 \times \frac{\sum_{a=1}^R (Length_a \times WBS_{a,Good})}{\sum_{a=1}^R (Length_a \times WBS_{a,Good}) + \sum_{a=1}^R (Length_a \times WBS_{a,Poor})}$	2018 to 2022	Biennial Reporting	MPOs can choose to set quantifiable targets or support State targets	MPO shall report baseline conditions and progress toward achieving targets in their metropolitan transportation plan	2-year and 4-year	<ul style="list-style-type: none"> <li>If a State changes its four-year target, and an MPO originally chose to support the State's target, an MPO has 180 days to:</li> <li>Agree to plan a program of projects to contribute to the adjusted State target or</li> <li>Commit to a new, quantifiable MPO target</li> </ul>	NBI - National Bridge Inventory
PM3	Performance of the National Highway System (NHS) Reliability	Percent of the Interstate System providing Reliable Travel Times	Level of Travel Time Reliability (LOTR)	Interstate System mileage within the State of MPA	$LOTR = \frac{80th\ Percentile\ Travel\ Time}{50th\ Percentile\ Travel\ Time}$	2018 to 2022	Biennial Reporting	MPOs can choose to set quantifiable targets or support State targets	<ul style="list-style-type: none"> <li>Targets to respective State DOT(s) in a manner that is documented and mutually agreed upon by both parties.</li> <li>Baseline level and progress toward targets in Metropolitan Transportation Plan</li> </ul>	<ul style="list-style-type: none"> <li>2-year and 4-year for the DOT</li> <li>4-year for the MPO regardless of if they support the DOT target or set their own.</li> </ul>	<ul style="list-style-type: none"> <li>If a State changes its four-year target, and an MPO originally chose to support the State's target, an MPO has 180 days to:</li> <li>Agree to plan a program of projects to contribute to the adjusted State target or</li> <li>Commit to a new, quantifiable MPO target</li> </ul>	<ul style="list-style-type: none"> <li>NPMRDS - National Performance Management Research Data Set</li> <li>equivalent data set</li> </ul>
		Percent of the non-Interstate NHS providing Reliable Travel Times	Level of Travel Time Reliability (LOTR)	Non-Interstate NHS mileage within the State or each MPA	$LOTR = \frac{80th\ Percentile\ Travel\ Time}{50th\ Percentile\ Travel\ Time}$	2018 to 2022	Biennial Reporting	MPOs can choose to set quantifiable targets or support State targets	<ul style="list-style-type: none"> <li>Targets to respective State DOT(s) in a manner that is documented and mutually agreed upon by both parties.</li> <li>Baseline level and progress toward targets in Metropolitan Transportation Plan</li> </ul>	<ul style="list-style-type: none"> <li>2-year and 4-year for the DOT</li> <li>4-year for the MPO regardless of if they support the DOT target or set their own.</li> </ul>	<ul style="list-style-type: none"> <li>If a State changes its four-year target, and an MPO originally chose to support the State's target, an MPO has 180 days to:</li> <li>Agree to plan a program of projects to contribute to the adjusted State target or</li> <li>Commit to a new, quantifiable MPO target</li> </ul>	<ul style="list-style-type: none"> <li>NPMRDS - National Performance Management Research Data Set</li> <li>equivalent data set</li> </ul>
	Freight Movement	Percent of the Interstate System Mileage providing for Reliable Truck Travel Times	Truck Travel Time Reliability [TTTR]	Interstate System mileage within the State or each MPA	$100 \times \frac{\sum_{a=1}^R SL_a}{\sum_{a=1}^R SL_a}$	2018 to 2022	Biennial Reporting	MPOs can choose to set quantifiable targets or support State targets	<ul style="list-style-type: none"> <li>Targets to respective State DOT(s) in a manner that is documented and mutually agreed upon by both parties.</li> <li>Baseline level and progress toward targets in Metropolitan Transportation Plan</li> </ul>	<ul style="list-style-type: none"> <li>2-year and 4-year for the DOT</li> <li>4-year for the MPO regardless of if they support the DOT target or set their own.</li> </ul>	<ul style="list-style-type: none"> <li>If a State changes its four-year target, and an MPO originally chose to support the State's target, an MPO has 180 days to:</li> <li>Agree to plan a program of projects to contribute to the adjusted State target or</li> <li>Commit to a new, quantifiable MPO target</li> </ul>	<ul style="list-style-type: none"> <li>NPMRDS - National Performance Management Research Data Set</li> <li>equivalent data set</li> </ul>
CMAQ Program	Annual Hours of Peak-Hour Excessive Delay Per Capita	Total Peak-Hour Excessive Delay person-hours.	NHS roads in urbanized area over 1 million that are part designated as nonattainment or maintenance areas	N/A	N/A	2018 to 2022	Biennial Reporting	<ul style="list-style-type: none"> <li>CDOT and MPO coordinate on a single unified target.</li> <li>Triple-threat MPO has to set their own target.</li> </ul>	<ul style="list-style-type: none"> <li>Targets to respective State DOT(s) in a manner that is documented and mutually agreed upon by both parties.</li> <li>Baseline level and progress toward targets in Metropolitan Transportation Plan</li> </ul>	<ul style="list-style-type: none"> <li>A MPO must develop both 2-year and 4-year quantifiable targets if any part of a designated nonattainment and maintenance area overlaps the boundary of an urbanized population 1 million* or more</li> <li>Otherwise, only 4-year targets are needed</li> </ul>	<ul style="list-style-type: none"> <li>If a State changes its four-year target, and an MPO originally chose to support the State's target, an MPO has 180 days to:</li> <li>Agree to plan a program of projects to contribute to the adjusted State target or</li> <li>Commit to a new, quantifiable MPO target</li> </ul>	<ul style="list-style-type: none"> <li>US Decennial Census</li> <li>HPMS</li> <li>NPMRDS</li> <li>Hourly continuous traffic counts or derived AADT from HPMS</li> <li>Annual traffic volume counts or AADT as reported to HPMS</li> <li>other data provided by FHWA</li> </ul>
		Percent of Non-SOV Travel	%Non-SOV	Urbanized areas with a population over 1M/200k in nonattainment or maintenance for any of the criteria pollutants under the CMAQ program.	N/A	2018 to 2022	Biennial Reporting	<ul style="list-style-type: none"> <li>CDOT and MPO coordinate on a single unified target.</li> <li>Triple-threat MPO has to set their own target.</li> </ul>	<ul style="list-style-type: none"> <li>Targets to respective State DOT(s) in a manner that is documented and mutually agreed upon by both parties.</li> <li>Baseline level and progress toward targets in Metropolitan Transportation Plan</li> </ul>	<ul style="list-style-type: none"> <li>A MPO must develop both 2-year and 4-year quantifiable targets if any part of a designated nonattainment and maintenance area overlaps the boundary of an urbanized population 1 million* or more</li> <li>Otherwise, only 4-year targets are needed</li> </ul>	<ul style="list-style-type: none"> <li>If a State changes its four-year target, and an MPO originally chose to support the State's target, an MPO has 180 days to:</li> <li>Agree to plan a program of projects to contribute to the adjusted State target or</li> <li>Commit to a new, quantifiable MPO target</li> </ul>	<ul style="list-style-type: none"> <li>American Community Survey table DP03</li> <li>Local Survey</li> <li>Modal Counts</li> </ul>
	Total Emissions Reduction	NOx, VOx, CO, PM10, PM2.5	All nonattainment and maintenance areas for CMAQ criteria pollutants.	N/A	2018 to 2022	Biennial Reporting	<ul style="list-style-type: none"> <li>CDOT and MPO coordinate on a single unified target.</li> <li>Triple-threat MPO has to set their own target.</li> <li>A MPO shall establish quantifiable targets for each applicable pollutant and precursors for the nonattainment or maintenance areas within the Metropolitan Planning Area boundary.</li> <li>Targets shall reflect the anticipated cumulative emission reduction to be reported in the CMAQ Public Access System</li> </ul>	MPO shall report in the CMAQ Performance Plan to the DOT	<ul style="list-style-type: none"> <li>Triple-threat MPO has to set 2 and 4-year targets.</li> <li>A MPO must develop both 2-year and 4-year quantifiable targets if any part of a designated nonattainment and maintenance area overlaps the boundary of an urbanized population 1 million* or more</li> <li>Otherwise, only 4-year targets are needed</li> <li>CDOT and MPO coordinate on a single unified target.</li> <li>State target is a roll-up</li> </ul>	<ul style="list-style-type: none"> <li>If State(s) adjust 4-year target(s) in the Mid Performance period, and the MPO* established a target to support the State target(s), the MPO shall report to State(s) within 180 days that it:</li> <li>Agrees to plan a program of projects to contribute to the State's target or</li> <li>Commits to a new quantifiable target</li> <li>Only applies to MPOs with 1 million or less population</li> </ul>	<ul style="list-style-type: none"> <li>Nonattainment or maintenance areas - 40 CFR part 81 or EPA Green Book</li> <li>Applicable States and MPOs - FHWA will post on website</li> <li>Emission reduction estimated for each CMAQ funded project by pollutant and precursor - CMAQ Public Access System</li> </ul>	

Note: This information is subject to change. Grey areas represent uncertainty in the requirement.  
 Triple-threat = non-attainment, maintenance, and >1M population.



- **FHWA Colorado Division recommendation**
  - **Work with DRCOG to develop a model for other Colorado MPOs to follow.**
  - **PM1 (Safety) “process could have gone better”.**
  - **To date:**
    - **Identified point(s) of contact**
    - **Clarified/reviewed requirements**
    - **Established data/information exchange mechanisms and deadlines**
    - **Identified applicable documents – MPA vs. technical guidance**
    - **Continue to investigate grey areas – PM3/CMAQ.**



1. Complete draft #1 of the process document.
2. Present document to other MPOs – December 8.
3. Deliver data – January 2018.
4. Present initial statewide target recommendations – February 2018