



MEMORANDUM

To: Regional Transportation Operations Coalition

From: CMAP Staff

Date: March 20, 2014

Re: Recommendations on CMAQ criteria and project ranking process for Highway Projects

As part of its FY 2014 staff work plan, CMAP is reviewing how it carries out the staff functions associated with the Congestion Mitigation and Air Quality Improvement program (CMAQ).¹ As a result of this review, staff recommends enhancing the project selection process by using a point-based ranking system to incorporate criteria drawn from previous work by the CMAQ modal focus groups. The point-based rankings would then be combined with committee deliberation to produce the program of projects for Board and MPO Policy Committee approval. The [Recommendations on CMAQ Criteria and Project Ranking Process memo](#) was presented to the CMAQ Project Selection Committee at their last meeting on February 13th providing an overview on the proposed point system and the criteria for all the project types. CMAP staff would like the Regional Transportation Operations Coalition's feedback and ideas on the criteria assigned to highway projects and the point scoring associated with those criteria.

Criteria for Highway Projects

CMAQ is often used for highway projects that improve traffic flow without expanding the system, such as signal modernization, turn lanes at intersections, and so on. These projects decrease delay and increase speed, helping reduce air emissions per mile traveled. The proposed transportation impact criteria for highway projects build directly on the approach developed by the [Regional Transportation Operations Coalition \(RTOC\) for its FY 2014 – 18 CMAQ evaluations](#). The proposed criteria are:

- **Travel time reliability.** RTOC previously scored reliability using the planning time index (PTI), the factor indicating the extra time a traveler needs to set aside to be sure of arriving late on no more than 5% of trips (in other words, the PTI is the 95th percentile travel time divided by the free-flow travel time). Staff proposes to combine this quantitative evaluation of reliability with a qualitative evaluation of a project type's

¹ See the [FY 14 work plan](#) under the Performance-Based Programming Core Program.

impact on reliability. Staff is seeking input from RTOC on a point system to rate the reliability improvement of proposed projects. Reliability improvements would come primarily from deploying Intelligent Transportation Systems (ITS) components as part of a project.

A draft assignment of points to projects that might improve travel time reliability is presented for RTOC review and comment in the Appendix to this memo.

- **Safety.** Although CMAQ is not a safety program, the project development process will wind up addressing safety deficiencies if they exist. Other things being equal, then, it is more important to fund a project where safety problems are more severe. While RTOC previously used the total crash rate in the project corridor, it is probably more appropriate to rate crashes by severity as well.

- **Location and type of project.**
 - **Congestion Management Process highway system.** The regional Congestion Management Process has identified a set of roadways on which it is particularly critical to minimize congestion. Projects that benefit the National Highway System and the Strategic Regional Arterial system should be awarded additional points.

 - **Innovation.** The CMAQ program can help to support new approaches to congestion management and innovative project designs. RTOC previously listed types of innovative projects that would be treated favorably by the group. This qualitative assessment would be formalized so that promising new designs or operational strategies would be given more points than traditional approaches. A list of innovations should be identified prior to releasing a call for projects so the sponsors have an idea of what will qualify for this criterion. RTOC input is requested to identify potential innovative designs.

Points and Scoring

The current staff recommendation assigns a total of 30 points to each transportation impact criteria section. How those 30 points should be split among the three criteria above requires input from RTOC. The staff recommendation would be to split the points as so:

Criteria	Max points
Travel time reliability	10
Safety	10
Congestion Management Process highway system	5
Innovation	5
Total	30

Without an overriding focus on one of the criteria over the others in term of importance, splitting the points evenly would seem the most sensible solution. The CMP and Innovation would split the points for Location and Type of Project evenly at 5 points each.

Role of the Focus Groups

The modal focus groups should continue to be part of the CMAQ program development process. During the evaluation process for the next CMAQ program, the focus groups would be asked for feedback on the projects submitted and on the project rankings developed by staff, including the air quality rankings. The focus groups would be asked for specific input on technical aspects of the projects, particularly whether there are any “fatal flaws,” as well as qualitative information that is not captured in the project rankings. Information from the focus groups would be used to refine the staff-recommended program for the Project Selection Committee to consider.

Action Requested: Discussion

Appendix

Draft Assignment of Points for Reliability Improvement Projects

Staff proposes to combine the quantitative evaluation of reliability (the planning time index) with a qualitative evaluation of a project type's impact on reliability. Staff is seeking input from RTOC on a point system to rate the reliability improvement of proposed projects. A draft assignment of points to projects that might improve travel time reliability is presented below for RTOC review and comment.

Highway Improvement Projects

Systematic Improvements

- Integrated Corridor Management: 5 points
- Workzone management (providing a legacy of traveler information improvements): 5 points
- Truck travel information systems: 4 points.
- Strategies to improve transit on-time performance: 4 points
- Ramp metering: 4 points
- Road weather management systems: 4 points
- Special event management: 3 points
- Adaptive traffic signal control: 2 points
- Traffic signal interconnect: 1 points

Spot improvements:

- CREATE highway-rail grade separation: 5 points
- Highway-rail grade separation with more than 10K AADT and more than 10K annual minutes of delay lasting > 10 minutes: 5 points
- Implementation of effective crash reduction strategy (e.g., access management) as part of highway improvement: 3 points
- Highway-rail grade separation in ICC top 20 delay list: 3 points
- Highway-rail grade separation with more than 5K AADT and >5K annual minutes of delays lasting > 10 minutes: 2 points
- Other highway-rail grade separation: 1 point

Incident Management Projects. For incidents, the typical sequence is notification, response, arrival, size-up, establish command responsibility, traffic management, patient care, and investigation. These are facilitated by communication, coordination, and cooperation under a unified command structure. Here, there are three critical traffic management tasks:

Incident Detection:

- TMC to TMC Communications 4 points
- Computer-aided dispatch (911 call center) to traffic management center (TMC) communications 4 points

- Extension or improvement of real-time traffic surveillance on regional expressways and tollways, including video and detectors: 3 points
- Integration of real-time probe data into incident detection procedures: 3 points
- Establishment of detector health program: 3 points

Incident Response:

- Expansion of response operations capabilities (e.g., minutemen): 5 points
- Dispatch improvements, including center-to-operator and supervisor-to-operator communications (including supervisor-bus communications): 4 points
- Response equipment (e.g., minuteman vehicles) 4 points

Incident Recovery:

- Expediting coroner's/medical examiner's accident investigation process: 5 points
- Dynamic message signs (DMS, multiple, including arterial DMS): 3 points
- Incident-responsive ramp meters: 3 points
- Speed Management Systems: 2 points
- On-scene communication, coordination, and cooperation: 2 points
- Development and improvement of highway closure detour routes: 2 points