

Description of SRPEDD's Transportation Evaluation Criteria

April 15, 2004

The Southeastern Massachusetts Metropolitan Planning Organization (SMMPO) has determined that the selection of highway projects for funding in southeastern Massachusetts will be based on evaluation criteria. The MPO has directed the SRPEDD transportation planning staff and the Joint Transportation Planning Group to devise an evaluation process that will be used to select transportation projects for inclusion in the regional Transportation Improvement Program (TIP), and to report back to the MPO with the draft results. Each project must be reviewed to estimate the impact on, or sensitivity to each of the criteria categories listed. The application of the criteria will require brief comments to explain the assumptions, measures of effectiveness, source and reliability of data, etc. The evaluation of transit projects for SRTA and GATRA, and MassHighway bridge projects are not covered in this memo.

Project Status

The specifics of the project should be identified including the following: project description; intended purpose (i.e. addresses safety, congestion, etc.); authority responsible for the entire project or various aspects of the project (i.e. local community responsible for design and right-of-way, MassHighway responsible for construction); Project Review Committee (PRC) status; project design status; MEPA review status; completion of right-of-way requirements. Project estimated construction cost should include contingencies.

Condition

Pavement Evaluation (PCI) - A pavement conditions survey is required. In the absence of a municipally prepared survey, information gathered by SRPEDD or MassHighway will be used. The survey rating process must consider all types of pavement distress (longitudinal, transverse, alligator, and edge cracking; surface rutting, and drainage issues, etc). The survey will result in a Pavement Condition Index (PCI). A PCI in the range of 0 to 69 generally indicates a need for reconstruction; 52 to 78 indicates rehabilitation; 76 to 92 indicates routine maintenance; and 88 to 100 indicates no maintenance is needed.

The PCI will be used to determine the extent of pavement deterioration. The proposed improvement should be consistent with the recommended repair strategy from a Pavement Management Program or engineering evaluation.

Improvements to Other Infrastructure - Identify all improvements to be made to the corridor or intersection in addition to the pavement. Utility improvements (such as sewer or water installations), drainage or stormwater improvements, traffic signals, sidewalk and bicycle

accommodations are examples of “Other Infrastructure”. Specify whether the infrastructure improvements are included in the project’s cost estimate.

Scoring Guidance - If the current pavement condition will be changed prior to the need for federal or state transportation funding because of a pending utility project, the minimum condition score will be a +1, or a maximum of +2 if the PCI is already poor. If the deteriorated pavement slows traffic flow or encourages erratic driving to avoid damaged roadway surfaces, a +3 is a possible score under condition. Documentation of an expected improvement in travel time, or statistics proving a safety hazard will be necessary to affect the Mobility or Safety criteria scoring. The extent of infrastructure improvements will determine the second score in this factor.

Mobility

Congestion (v/c ratio ; level of service) - Traffic congestion adversely impacts the movement of people and goods. Congestion is measured based on traffic volume and its impact on the road or intersections’ ability to handle that volume. It is calculated in terms of volume to capacity (v/c) ratio and travel delay, and is normally expressed as level of service.

Traffic congestion can be either an existing measurable condition or it can be a projected future condition. Within the SRPEDD region, we generally consider conditions to warrant attention if the volume to capacity ratio of a corridor is at or above 0.8. This is calculated using the regional Travel Demand Model which determines v/c ratios for all major roadways in a base year (currently year 2000) and future years (to the year 2025).

Intersections are generally handled through a detailed capacity analysis that determines the level of service (LOS) and delay for the intersection as a whole or in fine detail by specific turning movement. Generally a LOS of D or worse is considered to have a congestion problem. Changes in traffic controls must be determined by an detailed analysis of the overall characteristics of the intersection. An appropriate warrants analysis should be used as an important component in the ultimate decision to change or install traffic controls.

Four separate scores will be possible under the Mobility Criteria.

1. How well the project addresses the existing or projected congestion. Documentation of claimed improvements is necessary. Improvements to travel time should be stated here.
2. If the project improves overall connectivity and/or access for the corridor or for connecting and parallel corridors.
3. The existence of intermodal benefits from the project such as freight movement, public transit or commuter rail.
4. The importance of the project to regional traffic movement. Average daily traffic, functional classification and NHS designation will assist in this evaluation.

Scoring Guidance - The measures of improved LOS, delay and queue will determine the score for congestion. If there is fixed route bus service on the corridor, or through the intersection, a minimum score of +1 will be given for the Intermodal score.

Safety

Documented Safety Problem (EPDO rate ; ACC/MEV rate ; ACC/MVM rate) - Safety has traditionally been considered the foremost element of a project's importance in the SRPEDD region. The MPO's Regional Transportation Plan currently considers safety problems as pre-existing conditions that merit maximum consideration for corrective measures. The importance of this priority decision raises the top score for safety projects from +3 to +6.

The region identifies problem intersections using two measures: the Equivalent Property Damage Only (EPDO) index which considers crash severity; and the Accidents per Million Entering Vehicles (ACC/MEV) rate which is a measure of vehicular exposure. Any intersection with an EPDO exceeding 20.0 is considered a problem. Any intersection with an ACC/MEV rate exceeding .89 for signalized intersections or .67 for unsignalized intersections is considered a problem. Problem corridors are identified using the Accidents per Million Vehicle Miles (ACC/MVM) rate. Based on experiences in other states, a rate of 2.50 or greater is considered a problem.

Four separate scores are possible under the Safety Criteria.

1. The project must address the documented safety problem. Paving a corridor that has a high crash problem may not score high if specific relevant safety improvements are not planned. The proponent must provide SRPEDD with copies of the last 3 most current years of police crash reports to substantiate the predominant safety problem(s), or the results of a safety analysis.
2. The measure of proposed improvement to the crash rate is required.
3. The measure of the project's affect on the severity of crashes is required.
4. If the project improves pedestrian or bicycle safety by installing new sidewalks, pedestrian phasing on traffic signals, bicycle lanes or wider shoulders that accomplish a measure of improvement.

Scoring Guidance - A location or corridor that is listed in SRPEDD's top 100 crash locations will score high in this criteria. SRPEDD's list is arranged in EPDO severity, so correcting the conditions that may have caused numerous injuries or fatalities will maximize the Safety score.

Other Impact Criteria

Community Effects and Support

Residential Effects - How does the project positively or negatively impact residential neighborhoods? Are land takings or extensive easements necessary? If so, are they being opposed? Will the project increase or reduce the traffic noise? Are aesthetic improvements part of the project? Will the project help discourage or encourage the use of cut through traffic on residential streets?

Environmental Justice - Every project must consider environmental justice principles as defined

by the U.S. Department of Transportation and the SMMPO's Public Participation Program.

1. To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

A chief measure for meeting the Environmental Justice criteria will be documentation of a public participation process early in the planning of a project, as it progressed from the concept stage to actually becoming an accepted project by MassHighway. A review of each proponent's efforts to inform all affected parties will be considered, and the community support or opposition duly noted.

Document the project's potential to address access to jobs by providing improved connections between high-density residential neighborhoods and major employment centers.

Regional Support - Does the project have local government, neighboring community, or Rhode Island support if appropriate? Have state or federal legislators endorsed the project? Was the project recommended in a transportation planning study, master plan or environmental document? Document any legislative support claimed.

Scoring Guidance - Early attempts at public outreach to inform and gather local support for the project, and projects resulting from community group recommendations will score high under Environmental Justice. Projects resulting from SRPEDD traffic studies, studies endorsed by the SMMPO or environmental impact statements or reports, and votes of the City Council or Town Meeting to secure right-of-way will score high under Regional Support.

Land Use

Projects will be evaluated on their specific effects on existing land use and potential to impact future land use. Consistency with local or regional Master Plans, Economic Development Plans, Land Use Plans or Open Space Plans will be critical in this evaluation.

Business Effects - How does the project positively or negatively impact commercial or industrial areas? Are land takings or extensive easements necessary? If so, are they opposed? Is the parking supply affected? Will the project incorporate access management techniques in commercial corridors? Will freight movement and intermodal connections be enhanced by the project? Will the project increase or reduce the traffic noise?

Sustainable Development - Does the project meet the sustainable development principals not otherwise identified in this list of criteria? Specifically "Redevelop First", "Concentrate Development" and "Expand Housing Opportunities". These concepts include the revitalization of downtowns and town centers, reuse of Brownfields, encouraging the preservation of existing structures and promoting compact development that conserves land. If the project in some way

promotes the development or re-development of housing (except in rural *greenfield* areas), documentation will be required.

Economic Development - Does the project impact a designated priority development area? This could include a review of the impacts to the community in the immediate vicinity of the project or the impacts to the entire southeastern Massachusetts region. Does the project positively effect job creation in the region (other than jobs related to the construction project itself)?

Emergency Evacuation Route / Public Safety - Is the corridor or intersection on an established emergency evacuation route as identified by SRPEDD? Does the project enhance or ensure adequate access to/from emergency facilities important to public safety such as hospitals, police and fire stations? ***This criteria is either a "0" for no or a "+1" for yes.***

Scoring Guidance - Projects within municipalities designated as priority development areas will score one point under Economic Development. Projects identified in SRPEDD's Comprehensive Economic Development Strategy will score a second point under Economic Development. Projects that promote or are seen essential to the redevelopment of Brownfields will score three points under Sustainable Development and Economic Development. Projects that reduce traffic congestion at access points to industrial parks will score high. If average score is used, the score given for Emergency Evacuation Route / Public Safety will be added to the average score of the Land Use column after the other scores in the column are divided by 3.

Environmental

Air Quality - Every project should be reviewed for its impact on air quality, either positive or negative. This review will include a statement on how and why the project impacts air quality and the magnitude of that impact.

Water Quality and Wetlands - Does the project include stormwater or drainage improvements? Did the GRRIP analysis identify sensitive environmental areas in the vicinity of the project? Will the project impact wetlands? If so, will the project seek to replicate, repair or improve on its negative impact? Will the project adversely affect either public or private water supplies?

Historic / Cultural Resources - Will the project have an impact (positive or negative) on historical or cultural resources? Will the project have an impact on scenic and recreational resources?

Wildlife Habitat - Does the project impact areas that have significant habitat or wildlife? Does the completed project have a noise impact on wildlife?

Scoring Guidance - If SRPEDD's Geographic Roadway Runoff Inventory Program (GRRIP) identified a drainage or stormwater problem along the corridor, or adjacent to the intersection, a score of "-3" in Water Quality will be given unless the project specifically improves the problem. If an improvement is demonstrated a score of "+3" will be given.