Criteria for Project Prioritization
RSMo 21.795.3(2)

Introduction

> The information in this section is in accordance with the highlighted portion in the following section of the reporting statute. *"(2)* ***A detailed explanation of the methods or criteria employed to select construction projects,*** *including a listing of any new or reprioritized projects not mentioned in a previous report, and an explanation as to how the new or reprioritized projects meet the selection methods or criteria; ..."* Section 21.795.3(2), RSMo Supp. 2002 (L. 2003 TAFP HB 668) (emphasis added).

In the future, there will continue to be new road and bridge construction, however, more emphasis will be on rehabilitation and reconstruction. The Five-Year Highway and Bridge Construction Schedule establishes work for 2004-2008. As each year of the plan is completed, a new year is added. Except for improvements specified in sections 2B and 2C, schedules for 2004-2008 are the same as in last year's report.

Projects were determined based on safety concerns, traffic needs and public input. Factors considered in project selection included safety, public comments, pavement and bridge conditions, congestion, traffic volume and highway connections to other areas of Missouri and to other states. Depending on the project's funding category, different criteria were considered when prioritizing the projects.

The Five-Year Highway and Bridge Construction Schedule also includes three years of urban projects approved by the St. Louis and Kansas City metropolitan planning organizations. These organizations are responsible for approving highway projects in their areas.

Criteria for Project Prioritization RSMo 21.795.3(2)

Rural Statewide Major Project Selection Process

Factors

MoDOT developed a process four years ago to identify high-priority rural corridors and their needed capacity improvements. MoDOT staff determined the projects that would be the first priority corridors to study. These corridors are routes that largely represent Missouri's portion of the National Highway System (NHS).

The study also reviewed gaps remaining between previously programmed or constructed projects. The study then looked at six factors, briefly described below, to prioritize each segment of the corridor system.

Pavement Condition Rating

Pavement condition information was provided through the Transportation Management System (TMS). TMS used software to calculate the pavement condition for each segment of the corridors. The following criteria were used to determine the pavement condition: roughness index, condition of the pavement by type and remaining life of the pavement. Using a laser profilometer, roughness is identified in terms of the International Roughness Index (IRI). The condition is determined through roadway visual inspections from videotapes collected as part of the routine pavement inspection process. The combination of roughness and condition form a 40-point rating scale used to measure the overall roadway condition. In addition to the current physical condition, an estimated remaining life factor is considered. The deterioration rate is determined and preference given to pavements that are declining at a faster than normal rate.

Congestion Index Rating

The congestion index currently includes two components: level of service (how congested the roadway is) and the daily usage rating (the number of cars per lane). Level of service is a nationally accepted measure of congestion that is based on traffic volumes and roadway geometrics, such as lane width, shoulder width, terrain type and percent of truck traffic. It is generally based on a day's peak period of travel. The daily usage rating evaluates the facility's average usage compared to the theoretical maximum over the course of the entire day. The two ratings are then combined into one index rating. Future components of this factor may also include travel time (or travel rate) and intersection daily usage (the total number of entering cars divided by the number of lanes).

Safety Index Rating

The safety index combines four weighted factors. The accident factor compares the total accident rate for the corridor segment to the total average accident rate for similar roadway

segments (e.g. freeway, two lane, etc.). The severity factor measures the impact of accidents with injuries and/or fatalities. The high-accident factor assigns a value should the segment appear on MoDOT's annual high-accident listing. The wet/dry factor assigns a value should the segment appear on MoDOT's annual wet/dry-accident listing. All these factors are given scores based on the location's actual safety history in question. Weighting factors are applied, and the severity factor is given the most weight. The components and weighting factors are combined to form a safety index by the following equation.

Safety Index = .1(Accident Factor) + .6 (Severity Factor) + .15 (High-Accident Factor) + .15 (Wet/Dry Factor)

System Usage

Annual Average Daily Traffic (AADT) measures the system usage for both primary and interstate systems. AADT is often referred to as ADT (average daily traffic). ADT is the number of vehicles that pass a particular point on a roadway during a period of 24 consecutive hours averaged over a period of 365 days. The ADT is also referred to as the roadway's traffic volume.

Since it is not feasible to make continuous counts along every portion of a highway section, the raw vehicle counts are submitted to a statistical sampling procedure. Generally, counts are not performed during the weekends. The ADT gives a general description of a roadway's usage.

Transportation Management Systems provides the annual ADT numbers for each of the 428 segments in the corridors. The ADT volumes for each segment are arranged from greatest to least. The top 20 percent of the ADT volumes receive a score of "1." This means that of all the corridor segments, the busiest 20 percent receive an ADT score of "1." The next busiest 20 percent of the ADT volumes receive a "2," and so on. The actual scale is listed below.

ADT (vehicles per day)	Rating
>19539	1
12168-19539	2
8364-12167	3
5396-8363	4
<5396	5

Connectivity Rating

The connectivity rating evaluates the corridor's relative significance to the state. Interstates and other nationally significant corridors that connect metropolitan areas having a population of at least 50,000 are assigned a value of "1." A value of "2" is assigned to corridors connecting major metropolitan areas located in states adjacent to Missouri. Roads of statewide significance receive a rating of "3." Regionally significant routes receive a rating of "4," and all others are rated a "5."

Accessibility

The accessibility factor measures progress toward the 1992 Plan's goal. A corridor segment associated with a city receives a high priority (that is, a low score) if no or few destinations can be reached from the city via a four-lane expressway.

The factor asks, "Do four-lane expressways connect Missouri's cities with other Missouri cities or out-of-state metropolitan areas within 200 miles of Missouri?" The Missouri cities must have a population of at least 5,000, and the out-of-state metropolitan areas must have a population of at least 150,000. The question would be answered with a "yes" if an existing or programmed four-lane or larger expressway provides a route no more than 10 percent longer than the shortest existing route to the Missouri destination. The expressway also needs to pass within five miles of the city center. If the destination is outside of Missouri, the answer would be "yes" if an expressway exists or is programmed so the Missouri traveler can be headed directly toward his destination when leaving the state.

Two accessibility ratings components are produced. One is for how Missouri cities interconnect, and one is for how Missouri cities connect with out-of-state cities. The Missouri cities and metropolitan areas are listed on a chart to determine how Missouri's cities interconnect with themselves. Forty-four cities comprise the list. Metropolitan cities and their suburbs are counted as one destination. The "yes" ratings are summed for each Missouri city. Fourteen out-of-state metropolitan areas were also charted to determine how accessible they are via expressway to Missouri cities.

The in-state and out-of-state components for each of the Missouri cities are added and then applied to a range of one to five. A low rating receives a higher priority because it indicates that few destinations could be reached from that city utilizing a four-lane expressway.

Rural Rehabilitation and Reconstruction Projects,
Rural Major Projects and Emerging Needs Project Selection Process

Partnerships

Local input is important in statewide transportation planning. The Missouri Department of Transportation (MoDOT); the regional planning organizations (RPO); the Springfield, Columbia, St Joseph and Joplin metropolitan planning organizations; city officials and county officials formed partnerships to evaluate local input on transportation needs. These are regional partnerships. This allows the group members with common interests and goals to tailor their level of participation as they desire. Their roles can then evolve as participants gain more experience in transportation planning.

Public Comments

Although the members' roles and the specific processes may differ from group to group, some common themes exist. Public comments concerning transportation needs are gathered from many sources including county-wide public meetings, calls to MoDOT's customer service center, public surveys and comments received by local officials from constituents. The local officials, generally in conjunction with the RPO and MPO, use these comments in their process for identifying and prioritizing regional transportation needs. Each RPO and MPO will develop a prioritized list of needs for MoDOT's programming consideration.

Evaluation

MoDOT continuously evaluates the condition of Missouri's roads and bridges. State bridge inspectors evaluate the structural integrity of each bridge component. Interstate and primary system roads are evaluated every year, along with approximately one-third of the secondary system roads. During the pavement evaluation, physical factors such as rut depth, roughness, cracking and joint integrity are reviewed. The road and bridge inspection data for the entire system is analyzed to provide indices for pavement and bridges. These indices are passed along to the district offices for their use in programming.

Each district uses a combination of factors to determine the best expenditure of funds in a particular year. These factors may include public comment and priority, time necessary to produce plans and estimated cost, as well as safety factors, traffic information, condition ratings, construction scheduling and sequencing, duration of the construction, coordination with other construction projects (both MoDOT's and others), economic development and the availability of outside funding sources. The combination of these factors, and more, is evaluated and reviewed by district staff that makes draft-programming recommendations. Some districts then meet with the RPO, the MPO and local officials individually to discuss and finalize the program contents. District staff reviews any requested changes resulting from this meeting. The Missouri Highways and Transportation Commission then reviews the program for its approval.

District Responsibility

The public input MoDOT receives is valuable. However, the final determination of which projects to submit for programming remains the responsibility of the MoDOT district office staff. Using the local input process ensures that MoDOT remains aware of customer concerns, rather than focusing entirely on internally generated information for use in the programming effort.

Transportation Management Area Selection Process

Kansas City Area

The Mid-America Regional Council (MARC) sends notices to the state and local officials to request project status updates and to solicit new projects for its Transportation Improvement Program (TIP). During this process, MARC receives information about changes to a project's scope, estimated cost and schedule. In addition, new projects are submitted for the last year of the TIP.

For the projects seeking federal funding, MARC staff evaluates the candidate projects using approved criteria. The results are presented to MARC's Missouri Highway Priorities Committee. This committee uses the scoring system as one tool in its decision-making process to prioritize projects for federal funding.

In order for projects to be eligible for federal funding, the project must be consistent with MARC's Long-Range Transportation Plan (LRTP) and located on a federally classified road.

The TIP must conform to the air quality requirements and must be made available to the public for its review and comments. After consideration of any public comments, the TIP receives final approval from the MARC Board of Directors.

In the evaluation process, a project is prioritized using 13 factors. A maximum score of 100 is possible. The factors that contribute 10 points each to the total score are (1) the estimated V/C (volume/capacity) ratio (without the improvement), (2) the projected traffic volumes, (3) the extent to which existing level of service is improved, (4) the extent to which future level of service is improved, (5) the anticipated improvements in safety, (6) whether the project is located within or parallel to a corridor identified as being deficient and (7) the extent the project reduces identified deficiencies. The factors that contribute five points each to the total score are (1) the existing level of service (V/C ratio), (2) the existing accident rate, (3) the number of accidents per year, (4) the number of motorists using the facility, (5) the extent the project has positive economic benefits and (6) the extent the project has positive benefits to the regions.

St. Louis Area

The St. Louis Metro District's prioritization process is somewhat different from MARC's process. For the years 2002, 2003 and 2004, specific funding amounts have been set aside for preservation, and these funds are listed below.

Preservation Category	FY 2002	FY 2003	FY 2004
Pavement	$22,832,000	$37,500,000	$37,500,000
Bridges	$94,456,000	$69,119,000	$44,000,000

Once the above funding targets have been met, remaining projects focused on preservation will go through a three-tier prioritization process and compete with projects in all other categories for the remaining district funding.

The three tiers in the prioritization process are as follows.

Tier 1 - Engineering Considerations

Projects are evaluated based on quantifiable data. A total of 100 possible points is awarded in the categories of preservation (35 points comprised of 15 points for pavement, 15 points for bridges and five points for signals), safety (30 points), congestion (25 points) and goods movement (10 points). The total points for each project in this tier is used in the cost effectiveness calculations along with the project's average daily traffic, its route's functional classification and a usage value based on the two previously mentioned factors. The cost effectiveness calculation uses an annualized cost and does not include life-cycle costs such as operation and maintenance.

Tier 2 - Planning Considerations

Projects are evaluated based on non-technical elements. These elements include environmental impacts (30 points), regional objectives (25 points), sustainable development (20 points), resource conservation (10 points), funding (10 points) and adoption of modern technology (five points). A total of 100 points is possible. The points each project receives in this tier will supplement the tier one total point and will also be used as a comparison factor.

Tier 3 - Public and Political Support

Projects are given points based on whether they have support from the general public, businesses and political entities. An overview of projects is also conducted in this tier to determine if money is being spent in an equitable manner among the counties in the district. The percentage of funding for the City of St. Louis and each county in the district is compared to the vehicle miles traveled (VMT), lane miles, population and employment in the City of St. Louis and each county. Information from this tier supplements the tier one total points and cost-effectiveness rating and is used as a comparison factor.

Beginning in state fiscal year 2005, the Springfield area MPO known as the Ozarks Transportation Organization (OTO) will be programmed as a Transportation Management Area. The project selection process for OTO and the entire state will be consistent with the proposed planning framework process. The proposed planning framework is currently being developed by MoDOT in conjunction with its local planning partners. This proposed planning framework will include a transparent and open project prioritization and selection process. This project prioritization and selection process will continue the use of public involvement. MoDOT's goal is to assure that all planning partners and the involved public will understand and consent to the project prioritization and selection process.