

E

Appendix E: Highway Interchange Requests: Evaluation Criteria and Review Procedures

Background

The evaluation criteria and review procedures for highway interchange requests have been established by the Metropolitan Council to meet the objectives of Policy 11.

The Council will work with the Minnesota Department of Transportation and local units of government to ensure the Metropolitan Highway System and its supporting road system are built and designed to adequately serve travel demand to the extent possible, to provide for the safety of users and to minimize negative impacts on the environment.

The procedures are primarily intended for reviewing requests for either new interchanges on existing Metropolitan Highways that are controlled-access, freeway-design facilities, or for additional interchange capacity (such as new or wider ramps) on those freeways. However, the basic principles of need, spacing and design are also applicable to those parts of the Metropolitan Highway System that are not freeways (such as TH 7 and TH 65), and are useful in planning new highways such as TH 610.

These criteria and procedures are based on work originally done in 1979 by a joint committee of the Transportation Advisory Board and the Metropolitan Council. They have been revised and simplified to reflect policy changes, revised state and federal laws and regulations and experience with applying the criteria.

Procedures

The basic premise of these procedures is that the petitioner has the responsibility to prove that new interchange or additional interchange capacity is required. Typically this will require a detailed analysis of existing and forecasted highway access needs. Therefore, informal discussion of interchange requests with Minnesota Department of Transportation and Metropolitan Council staff is encouraged before the applicant initiates a potentially expensive and time-consuming study.

The following steps should be taken to obtain Council approval to add or expand a Metropolitan Highway System interchange:

1. A request for an interchange addition or expansion is made to the Metropolitan Council as a comprehensive plan amendment. The applicant must respond to each of the criteria shown below. The response to the criteria should be a separate report from the plan amendment, but may include information from the plan by reference.
2. The Metropolitan Council and implementing agency staff (typically, the Minnesota Department of Transportation) jointly evaluate the response to the criteria.

This evaluation process will begin with a review of the proposal for compliance with the first six qualifying criteria. These six criteria must be met before a proposal is examined for compliance with the technical criteria.

3. The results are forwarded to the Technical Advisory Committee of the Transportation Advisory Board for information.
4. As part of the comprehensive plan amendment review process, Council staff will analyze the consistency of the proposed interchange with regional and local plans.
5. If the proposed interchange is consistent with regional plans, and the Council approves the plan amendment, it can become an element in the local unit of government's approved comprehensive plan.
6. The approved request is transmitted to the implementing agency, which considers its inclusion in a study program or implementation program.

Criteria

Qualifying Criteria

1. Additional interchange capacity should be considered only when it supports the Metropolitan Council's Regional Development Framework and the Transportation Policy Plan, and local comprehensive plans approved by the Metropolitan Council.

Discussion: This is a critical objective. In addition to solving highway capacity deficiencies, new interchanges or major interchange modifications should be consistent with regional plans and regionally approved local plans, and should support development in desirable locations. In most cases, a new interchange should be in the Metropolitan Urban Service Area (MUSA) or census urbanized area (see Figure E-1). New interchanges should be adjacent to an existing interchange unless the intermediate access can be modified or managed to address safety concerns.

2. The need for additional capacity or safety improvements must be demonstrated and documented before a new interchange, new ramps or expanded ramp capacity are considered.

Discussion: Subjective arguments alone should not be used to justify interchange design revisions. Volume forecasts and capacity calculations are required to document the need for a design revision. Volume and capacity figures should be consistent with Council-approved land use plans and with the transportation element of those local plans.

3. Metropolitan Highway System interchanges should only connect Metropolitan Highways (Principal Arterials) to other Metropolitan Highways or to an "A" minor arterial as defined in the functional classification system adopted by the Transportation Advisory Board and approved by the Metropolitan Council. Exceptions to this criteria will be allowed only under extraordinary circumstances and with the approval of the Council, Mn/DOT and the local road authorities.

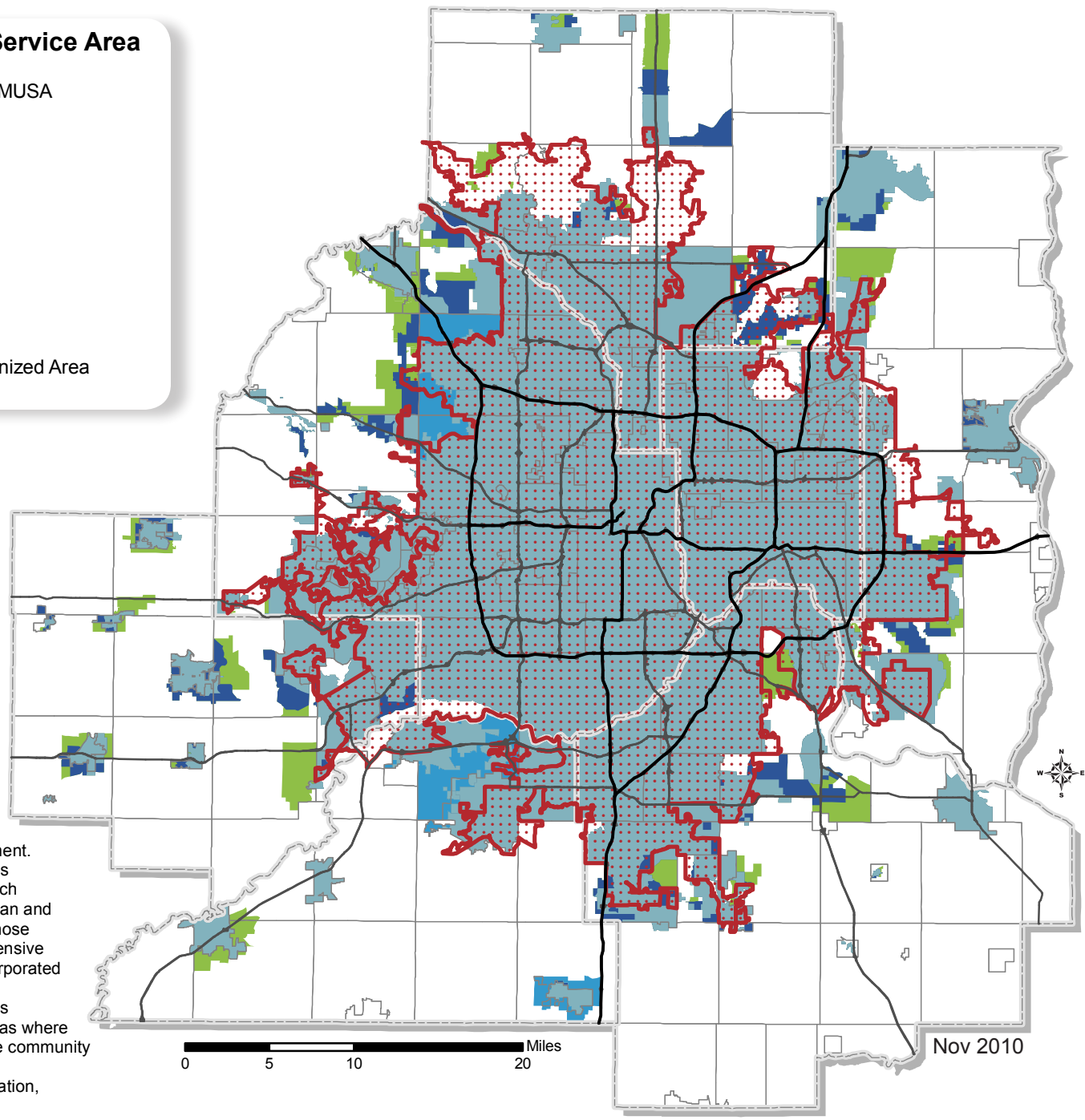
Figure E-1: MUSA and Urbanized Area

Metropolitan Urban Service Area

- Undesignated MUSA
- 2010 MUSA
- 2020 MUSA
- 2030 MUSA

Urban Area

- US Census Urbanized Area



NOTE: This map is not a legal document. The Metropolitan Urban Service Areas (MUSA) shown are compiled from each community's 2030 comprehensive plan and subsequent plan amendments. For those communities where a 2030 comprehensive plan has not been reviewed and incorporated into GIS, data reflects their 2020 comprehensive plan. Areas defined as "Undesignated MUSA" designate areas where an agreed upon acreage between the community and the Council will be added to the 2010 MUSA. For exact MUSA information, please contact the community.

Discussion: The intent of this criterion is to ensure that Metropolitan Highways connect to adequate arterials in the state and local road system. These roads should be continuous and connect to other principal arterials or “A” minor arterials.

4. New or expanded interchanges are not to be provided if the need for additional capacity is justified only:
 - As a convenience for short trips;
 - To compensate for lack of an adequate complementary minor arterial or collector system;
 - To compensate for deficient minor arterial or frontage road capacity; or
 - To correct collector or minor arterial capacity deficiencies caused by poor design or excessive access to adjacent parcels.

Discussion: The purpose of the Metropolitan Highway System is to serve regional trips, not to replace or substitute for inadequate local access and circulation capacity.

5. When an interchange is to be constructed or expanded, the operational integrity of the mainline and associated weaving sections must be maintained. The new interchange or related system change must be acceptable in terms of route design and standards as specified by the Minnesota Department of Transportation or the implementing agency, conforming to such factors as basic number of lanes, lane continuity, lane balance, lane drops, continuity of mainline levels of service and other general design criteria.

Discussion: Highway design standards should be maintained to the greatest extent possible. Operational integrity is measured by the forecasted level of service and safety considerations, including freedom or ease of lane changing and vehicle spacing on the through lanes of a freeway or arterial.

6. Generally, interchanges on the Metropolitan Highway System on the I-494/I-694 ring or inside should be spaced at a minimum of one mile (center to center). Interchanges outside the ring should be spaced at a minimum of 2 miles (center to center) unless physical constraints or the density of existing or planned development requires closer spacing. If it is determined appropriate to locate an interchange at less than one or 2 miles apart or modify an existing interchange, the safe operation of the main roadway must be maintained.

Discussion: Experience has shown that interchanges spaced less than one mile apart have inadequate weaving distance and require special design features such as auxiliary lanes to maintain safety. Outside of the I-494/I-694 ring, other Metropolitan Highways or “A” minor arterials are typically not needed closer than 2 miles due to the lack of intense development.

Technical Criteria

Development Criteria

1. An interchange may be warranted when access to new urban development cannot be adequately or safely served by existing or new minor arterials or by existing ramps at an adjacent interchange.
Discussion: New local urban development must be provided with good local arterial access before Metropolitan Highway System access is considered. Local comprehensive plans should establish the level of development expected (land use element) and the local arterial system (transportation element) proposed to serve the expected development pattern.
2. Interchange additions or revisions to support new development must be subordinate to current, adopted corridor plans for the route.
Discussion: Regional travel demand for the Metropolitan Highway System will take precedence over local or land parcel development and related access needs. Access needs should be evaluated as part of an overall corridor plan when such plans are done.
3. The proposed ramp configuration may not serve a single development exclusively.
Discussion: Legal as well as policy requirements dictate that a public highway facility may not be designated for the sole benefit of a property owner.
4. Public benefits, as well as estimated costs of the interchange, should be evaluated.
Discussion: Detailed cost-benefit analyses normally are not used for interchange justification because of inadequate estimates of benefits. However, cost data for an interchange proposal should be developed during review and the public benefits summarized, at least subjectively.
5. Local governments and the owners and developers of properties that would benefit from an additional interchange should share the cost of additional construction or right-of-way to the extent that they receive tangible benefits.
Discussion: If the interchange is essential to initiating or expanding a development project, contribution by the benefited individual or group may be warranted through such means as right-of-way dedication, negotiation of damages or construction costs. Emphasis should be placed on tangible benefits.
6. When the implementation of the interchange would require delaying other improvements of regional facilities, an additional contribution toward the interchange project development and construction costs may be required.
Discussion: Such extra contributions would prevent delaying the implementing agency's previously programmed project.

Design Criteria

1. Whenever possible, standard ramp and interchange configurations should be used for design.

Discussion: Standard ramp designs minimize driver indecision, prevent abrupt changes in operating speeds and reduce accident potential.

2. Interchange ramp configuration and design should be based on traffic forecasts developed and adopted by the Metropolitan Council and the Minnesota Department of Transportation.

Discussion: Regional traffic forecasts have been developed jointly by the transportation department and Council staffs. They are based on socioeconomic data developed for the entire region. Local units of government and developers may submit revised forecasts based on more detailed land development plans, but such forecasts must be analyzed and accepted by the transportation department and the Council before they are used to evaluate design changes.

3. Traffic backups resulting from interchange ramp designs must occur on cross streets and frontage roads rather than on the Metropolitan Highway.

Discussion: If traffic backups at an interchange are unavoidable for short periods, the design should ensure that they occur on the slower-speed, lower-function roadways.

4. "A" minor arterial roadways connecting with the proposed interchange must be adequate for the anticipated volumes on the interchange.

Discussion: An interchange justification must demonstrate that the connecting and other supporting roadways critical to its safe and adequate operation are or will be available at the time the interchange is open to traffic.

5. Ramp configurations must be capable of being signed for safe and expeditious movement prior to construction approval.

Discussion: Signing is a critical element of roadway design, ensuring safe and adequate operations. Signing should be part of the design development, not added after construction is approved.

6. Interchange ramp configuration and design should provide for preferential treatment of transit and rideshare vehicles.

Discussion: Because of the desirability of higher vehicle occupancies, transit incentives such as bypass ramps should be considered in the initial interchange design even if their construction is not immediately warranted.

7. If local cross-street improvements are needed in conjunction with the interchange, their construction must be coordinated with construction of the interchange.

Discussion: Local cross-street improvements necessary for safe and adequate operations should be part of the interchange design, not a prerogative of another jurisdiction after operational problems develop. A common problem is that the cross-street restrictions must be implemented by an agency other than the one designing the higher function route. Since such restrictions may affect the safe operation of the higher function route, the cross-street restrictions must be agreed upon before the higher function route design is committed.