

Transportation Impact Study Guidelines

Olathe, Kansas

The following tasks represent the minimum recommended guidelines for a transportation impact study when such a study is deemed appropriate. The purpose of such a study is to assess the impact of new development or redevelopment on the public street system and to evaluate access and circulation for automobile and truck traffic, pedestrians, bicyclists, and transit.

1. Identify the specific development plan under study and any existing development on and/or approved plans for the site (land use types and intensities and the arrangement of buildings, parking and access). Also identify land uses (including types and the arrangement of buildings, parking and access) on property abutting the proposed development site, including property across public streets.
2. Identify the land uses shown in the Olathe Comprehensive Plan for the proposed development site under study, as well as the ultimate arterial and collector street network in the vicinity of the site (at least the first arterial or collector street in each direction around the site).
3. Identify the functional classification of the public street(s) bordering the site and those streets on which access for the development is proposed. The functional classification is shown on the latest Olathe Major Street Map.
4. Identify allowable access to the development site as defined by criteria included in the latest edition of the Olathe Access Management Policy.
5. Document current public street characteristics adjacent to the site, including the nearest arterial and collector streets (number and types of lanes, speed limits or 85th percentile speeds, and sight distances along the public street(s) from proposed access).
6. Compare proposed access with established design criteria (driveway spacing, alignment with other streets and driveways, width of driveway, and minimum sight distances). If appropriate, assess the feasibility of access connections to abutting properties, including shared access with the public street system, in order to comply with access guidelines in the Olathe Access Management Policy.
7. Estimate the number of trips generated by existing and proposed development on the site for a typical weekday and weekday peak hours using the latest edition of Trip Generation published by the Institute of Transportation Engineers. Local trip generation characteristics may be used if deemed to be properly collected and consistent with the subject development application. The City Traffic Engineer shall make such determination. Calculate the net difference in trips between existing and proposed uses. If the development site already has an approved plan, also estimate the number of trips that would be generated by the approved land uses. If the development application is proposing a land use different than indicated in the Olathe Comprehensive Plan, also estimate the number of trips that would be generated by the land use indicated in the Comprehensive Plan. The City Traffic Engineer shall approve the potential land use intensity in such cases.

8. Document current peak hour traffic volumes on a typical weekday (Tuesday, Wednesday, and/or Thursday). Traffic volumes should be measured at any existing site driveway(s) and on the adjacent collector streets, including the nearest collector/arterial street intersection in each direction along streets bordering the development site. The time periods in which existing traffic is counted should generally coincide with the highest combination of existing traffic plus traffic expected to be generated by the proposed development. Traffic volume counts at intersections shall document left-turn, through and right-turn movements on all approaches and shall be tabulated in no greater than 15-minute increments. The City Traffic Engineer shall determine, based on the nature of the development, additional time periods in which current traffic volumes shall be documented.
9. Estimate future P.M. peak hour traffic volumes for the intersections included in the study area using the Olathe Traffic Model and the recommended practices established by the City Traffic Engineer.
10. Distribute and assign the net development trips through the site driveway(s) plus the nearest collector/arterial street intersections in each direction along streets bordering the development site. If applicable, this and subsequent tasks shall be repeated based on approved land uses and/or land uses identified in the Olathe Comprehensive Plan.
11. Conduct volume/capacity analyses for the peak hours at site driveway(s) and other intersections using methodologies outlined in the latest edition of the Highway Capacity Manual published by the Transportation Research Board. The analyses should be conducted for 1) existing conditions, 2) existing plus development conditions, and 3) future conditions. The analysis of future conditions shall be based initially on the street network characteristics included in the Olathe Traffic Model.
12. Compare existing plus development conditions and future conditions with established City of Olathe guidelines/policies for acceptable levels of service and turn lane requirements.
13. Identify geometric and traffic control improvements needed to mitigate deficiencies and/or comply with established guidelines/policies.
14. Prepare a typewritten report outlining the findings and conclusions of the study, including exhibits illustrating the site plan, traffic volumes (current and projected), and existing street conditions. Any deviation from established guidelines/policies shall be clearly identified and justification provided as to the basis for such a condition and its potential ramifications on the public street system.

Possible Additional Requirements

1. Extend the study to additional street segments and/or intersections on the public street system. The City Traffic Engineer shall make this determination based on the scale, location, and/or nature of the proposed development and the condition or state of development of the street network in the vicinity of the site.

WARRANTS FOR TRANSPORTATION IMPACT STUDIES

The necessity to review all land development applications from a transportation perspective as well as the wide variety of land use types and intensities suggest that multiple thresholds or triggers be

established to warrant a transportation impact study. The following triggers are recommended for the City of Olathe.

Development Triggers	Minimum Study Requirements
All Applications (1)	Conduct Tasks 1-7.
Development Plan Generates 100 to 499 Trips in a Peak Hour (2)	Conduct Transportation Impact Study (Tasks 1-14)
Development Plan Generates 500 or More Trips in a Peak Hour	Conduct Transportation Impact Study (Tasks 1-14) plus extend the study in each direction along arterial streets serving the development site to at least the next intersecting arterial street.
Proposed Land Use Deviates from Comprehensive Plan	Conduct Transportation Impact Study (Tasks 1-14) plus extend the study in each direction along streets serving the development site to at least the next intersecting arterial street and conduct comparative studies using the proposed land use versus the land use in the Comprehensive Plan.

- (1) Rezoning, Special Use Permits, Preliminary Site Development Plans, Land Use Allocation Maps, or Preliminary Plats
- (2) Residential development with a density of less than four (4) dwelling units per acre is excluded.

OTHER TRANSPORTATION ISSUES ASSOCIATED WITH SITE PLANNING

While transportation impact studies primarily address automobile traffic, recognition of other vehicle types and travel modes is appropriate, particularly in a community that strives for multi-modal choice. The following text by no means, however, represents a comprehensive list of site planning elements.

Trucks

Site driveways and internal circulation must be designed to accommodate the largest truck anticipated to serve the development. Vehicle turning paths need to be provided such that trucks do not encroach over curbs and medians. Encroachment into opposing turning lanes should be minimized but can be consistent with the scale of the development and the frequency and timing of truck movements. Truck circulation through a development site should minimize conflicts with customer traffic and loading docks should be configured such that parked trucks do not impede normal traffic flow.

Pedestrians

The investment in sidewalks along public streets or off-street paths is diminished if pedestrians cannot readily travel between public sidewalk facilities and adjacent land uses. All development plans should provide this connectivity whether it is made via proposed parking lot facilities and/or additional sidewalks or paths. The Residential Neighborhood Design Manual, Traditional Neighborhood Design Manual, and Trails & Greenways Plan, all published by the City of Olathe, provide guidance on appropriate pedestrian connectivity, circulation, access, and design standards.

Bicycles

Similar to pedestrians, development plans should provide reasonable opportunities to travel between adjacent public streets or bicycle trails and the land use. This does not imply that separate facilities are needed; rather, the conditions within a development site should be comparable to conditions adjacent to and near the site. Adequate and properly placed parking facilities for bicycles are a key component to encouraging bicycle travel. The Olathe Trails & Greenways Plan highlights planned facilities and desirable linkages to developed property.

Public Transportation

Bus transportation is currently provided by several private and publicly funded agencies, generally to targeted customers. More widespread public transit could be implemented in the future. Site development should account for both current and potential bus services. Some of these considerations are similar to trucks due to the relatively large size of buses; however, the primary difference is that buses need to circulate with customer traffic flow. One other consideration is that large parking lots can potentially be used as park-and-ride facilities in conjunction with bus transit service.

QUALIFICATIONS TO CONDUCT A TRANSPORTATION IMPACT STUDY

The parties involved in a land development application sometimes have different objectives and perspectives. Further, the recommended elements of a transportation impact study require skills found only in a trained professional engineer with specific experience in the field of traffic engineering.

For these reasons, the person conducting and the person reviewing the study must be registered professional engineers with demonstrated experience either in the preparation or review of transportation impact studies for land development.

The City Traffic Engineer shall determine whether an individual professional engineer is qualified to conduct a transportation impact study in the City of Olathe.

REVIEW AND USE OF A TRANSPORTATION IMPACT STUDY

A transportation impact study should be viewed as a technical assessment of existing and projected transportation conditions. The extent to which individual professional judgment has to be applied will be minimized by provision of community polices and practices with respect to street and traffic control design and land development. It is imperative, therefore, that City documents clearly spell out elements such as acceptable levels of service, warrants for and design of auxiliary turn lanes, proper spacing of driveways and side streets, street functional classifications, preferred methods of intersection design, and policies and guidelines for accommodating pedestrian and bicycle travel between public and private facilities.

Access management guidelines and warrants for turn lanes are included in the Olathe Access Management Policy.

The recommended minimum levels of service (LOS) that would guide the need for improvements are LOS D on arterial streets and LOS C on all other streets. This standard would apply to peak hour conditions typically experienced during the early morning and late afternoon peak periods of a typical weekday. This standard would also apply to other peak conditions associated with a proposed development.