



Transportation Impact Study Guidelines

The following guidelines are intended to aid transportation planners/traffic engineers who will prepare transportation impact reports for developments located within the City of Happy Valley's planning jurisdiction. Transportation impact reports will be required for any of the following developments or land use actions:

- Any development proposing more than four dwelling units or four lots;
- All Comprehensive Plan Map Amendments/Zone Changes, Master Plans, and Planned Unit Developments (PUD's); and,
- Applicable Design Review and Conditional Use Permit (CUP) applications.

The preparation of the transportation impact report is the responsibility of the landowner or applicant. The applicant can choose any qualified traffic engineer. The City has hired a consulting firm to serve as their Transportation/Traffic Engineer. All transportation impact reports shall be reviewed by the City's Transportation Traffic Engineer (referred to as "City" in this document). The transportation impact report shall be prepared under the supervision of a Registered Traffic Engineer in Oregon or a Registered Civil Engineer in Oregon with a traffic engineering background. Studies that do not address the guidelines adequately shall be returned to the engineer for modification.

Study Scope

The firm preparing the transportation impact report should contact the City's Transportation/Traffic Engineer at the project's outset. The City will then establish the project study area, intersections for analysis, scenarios to be evaluated and any other pertinent information concerning the study. In general, studies will fall into one of two categories based on their estimated trip generation:

- Projects that generate fewer than 10 PM peak hour trips (total, in and out)
- Projects that generate 10 or more PM peak hour trips (total)

Report requirements for each project category are described below:

Report Outline(fewer than 10 PM peak hour trips)

Trip generation should be estimated for the proposed project using the latest version of the ITE Trip Generation Manual and/or trip generation surveys conducted at similar facilities¹. If the

¹ Use of trip generation surveys collected independently from ITE should be verified with the City's Transportation/Traffic Engineer prior to use.

estimated trip generation for the proposed project is less than 10 PM peak hour trips, a two-to-three-page letter report would be required, including a discussion of the following items:

- Weekday AM/PM peak hour and daily trip generation estimate
- Sight distance at project access point(s) (verified by a registered Traffic or Civil Engineer in Oregon)
- Safety evaluation within ¼ mile of project frontage (i.e. horizontal/vertical curves, sight distance, high collision locations, access spacing, street lighting/visibility, etc.)
- On site circulation and street connectivity to adjacent parcels discussion/evaluation
- Explanation of locations where 530-foot (local street) and/or 330-foot (pedestrian/bicycle) spacing cannot be met
- Pedestrian/bicycle facility discussion/evaluation with a list of nearest bicycle/pedestrian routes and potential connections to adjacent parcels
- Describe safe walking route to school for residential developments within ½ mile of a school

It is at the City's discretion whether additional analysis would be required once this initial information is collected. In general, addressing the items listed above would be sufficient analysis.

Report Outline (10 or more PM peak hour trips)

If the estimated trip generation for the proposed project is 10 or more PM peak hour trips, a full transportation impact report will be required. The report shall include the following components:

Introduction and Summary

Brief description of the project and summary of project impacts. Any recommended mitigation measures and/or operational issues shall be discussed.

Existing Conditions

This section shall include the following elements:

- description of roadways in the study area, including roadway classification (City of Happy Valley and Clackamas County), number of lanes, average daily traffic volume, roadway width, presence or absence of sidewalks and/or bicycle facilities, nearest transit route, posted speed, presence or absence of on-street parking, etc.
- existing geometric deficiencies at study intersections
- existing traffic volumes at the study intersections measured within the previous twelve months

- crash data at study intersections for the most recent three-year period available
- other pertinent features.

Study area intersections shall be determined based on the following criteria (and subsequently verified by the City):

- all intersections of regional significance (arterials, collectors, and neighborhood streets) where the traffic generated by the proposed project exceeds ten percent of existing AM or PM peak hour total intersection traffic volumes within the Happy Valley City limits
- all project access points onto the public roadway system

Intersection analysis shall be determined for study area intersections for the weekday AM and PM peak periods using the most recent version of the Highway Capacity Manual. The analysis shall include level of service, average delay, and volume to capacity ratio (traffic signal and four-way stop controlled intersections only).

Figures showing the study area roadway network and AM and PM peak hour intersection turn movement volumes shall be provided. A speed survey shall be conducted at predetermined locations (as required by the City).

Impacts

A detailed description of the proposed project shall be provided including the intended land use and intensity of use. Trip generation shall be estimated using the most recent version of the *ITE Trip Generation Manual* (as discussed previously), or other sources previously agreed upon with the City and shown in a table.

The following figures shall be provided (combining them is allowable as long as data is clearly shown):

- Existing peak hour traffic volumes (AM and PM—listed previously)
- Project trip distribution (percentages)
- Added project peak hour traffic volumes (AM and PM)
- Existing plus project peak hour traffic volumes (AM and PM)
- Existing plus approved project (trips from projects that have been approved but not yet constructed/occupied) peak hour traffic volumes (PM)
- Total peak hour traffic volumes (existing plus project plus approved PM)
- If applicable, planning horizon future peak hour traffic volumes (PM)

Intersection analysis shall be conducted for the following scenarios:

- Existing plus project (AM and PM)
- Existing plus approved (PM)

- Existing plus project plus approved (PM)
- In the case of Comprehensive Plan Map Amendments/Zone Changes, the applicant must demonstrate conformance with the Transportation Planning Rule, including PM peak period analysis to the applicable Planning Horizon Year of the most recent Transportation System Plan and/or City-County Joint Capital Improvement Plan.

Information regarding approved project traffic will be provided by the City.

Information to be provided in the appendix includes the following:

- Map showing location of approved projects in the City
- Trips associated with each approved project (i.e. remaining trips associated with unoccupied portion of project)
- Figures from individual projects' transportation impact reports showing trip generation, distribution, and assignment, if available.

The intersection analysis for each scenario shall be summarized in a table with the calculation sheets provided in an appendix to the report.

A list of planned improvements (City of Happy Valley CIP and Clackamas County CIP) assumed in the intersection analysis shall be provided.

Signal warrant analysis based on the *Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)* shall be conducted at unsignalized study area intersections that are at or below minimum level of service thresholds (LOS E for the City of Happy Valley). The peak hour warrant (Warrant 3) should be checked and, if met, Warrants 1 and 2 (8-hour and 4-hour warrants) should be checked.

Left-turn and right-turn lane needs shall be evaluated using the current ODOT left turn and right turn siting criteria of the *Highway Design Manual (Appendix F)*.

Sight distance at project access points shall be evaluated using *American Association of State Highway and Transportation Officials, AASHTO* methodology.

A brief review of the site plan, including a site plan layout shall be provided. On-site circulation/connectivity issues shall be discussed. An explanation of locations where 530-foot (local street) and/or 330-foot (pedestrian/bicycle) spacing cannot be met should be provided.

Bicycle and pedestrian issues shall be discussed, and planned facilities shall be compared with the *Happy Valley Transportation System Plan (TSP)* to make sure any facilities proposed in the TSP on the proposed project site are included as part of the proposed project. For those projects within ½ mile of a school, a safe (walking) route to school shall be described. Potential path connections to adjacent parcels shall be determined and discussed.

The project site plan shall be evaluated for conformance to the City's Design Guidelines and specific traffic calming measures (traffic circles, speed humps, chokers) shall be utilized where necessary.

Mitigation

Project specific and area-wide specific mitigation measures shall be recommended where study intersections don't meet minimum level of service standards (provided in Happy Valley Transportation System Plan). At a minimum, the study shall consider improvements identified in the City of Happy Valley CIP and Clackamas County CIP. The study shall clearly state the mitigation measures recommended by the analysis to mitigate project impacts.

Appendix

The following items shall be in the appendix:

- Existing traffic counts
- Approved project information
- Level of service calculations
- Current site plan