



REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

Introduction:

New land developments and expansions of existing developments can have a significant impact on the transportation system, particularly if adequate planning and consideration of system improvements are not addressed. In order to ensure that a roadway system can satisfactorily accommodate a proposed development, a Transportation Impact Study (TIS), also known as a Transportation Impact Analysis (TIA), may be required to analyze relevant impact issues. A TIS is a comprehensive study that analyzes all surface transportation modes that would be affected by a development, including pedestrians, bicycles, and public transportation services. The impact analysis area will generally be larger than just the immediate site. The TIS concludes whether any transportation improvements are necessary to accommodate the new traffic volumes generated by the development. These improvements could include right turn lanes, left turn lanes, additional through lanes, acceleration lanes, bicycle lanes, bus stops, sidewalks, islands, medians, access control, traffic signals, removal and/or consolidation of existing approaches, etc.

General Requirements:

The TIS documents the extent of the impact of the proposed development on the road system, including trips added, resulting level of service during AM and PM peaks, and the need for auxiliary lanes or other special capacity or safety features. Required changes in traffic control, land use, access, pedestrian or bicycle usage must also be documented.

Additionally any changes effecting safety or traffic operations on the road system including, but not limited to striping, channelization, medians, islands, signalization and/or changes in access, shall be documented by the developer to show that all adjacent and/or affected property owners and businesses have been contacted and the impacts to their property has been discussed. A list of the names and addresses of all adjacent and/or affected property owners and businesses who were contacted shall be included with the TIS.

A TIS shall be required when a new or an expanded existing development has direct access to the road system and adds a minimal number of new units as described below.

- A “full” TIS shall be required for developments that will generate 25 units or more.
- A “minor” TIS shall be required for developments that will generate between 10 and 24 new units.
- A TIS shall not be required for developments that will generate less than 10 added new units.

In some cases as determined by the Local Public Agency (LPA), lesser unit numbers may warrant a “full” or “minor” TIS when roadway sections are already at or near capacity. If the proposal is in an air quality non-attainment zone, then some analysis for air quality shall also be required as directed by the LPA.

A TIS shall bear the stamp and signature of a professional engineer registered in the State of Idaho. The engineer that performs the study must regularly consult and coordinate with the LPA and/or the ITD District Traffic Engineer. The developer is responsible for hiring the engineer to perform the TIS.

The study will be submitted by the developer to the Local Public Agency (LPA) and be in accordance with these requirements. When the State Highway System is affected the TIS shall also be submitted to

TETON COUNTY
REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

the Idaho Transportation Department (ITD) and shall be according to both these requirements and ITD's requirements. Throughout these requirements when it is stated "LPA and possibly ITD", the LPA always applies and ITD applied when it concerns them. The study must be approved by the LPA and possibly ITD before any alterations on the highway system will be allowed.

The rest of this document is devoted to the requirements of a "full" and a "minor" TIS. **The developer should contact the LPA and the ITD District Traffic Engineer to verify the extent of the Traffic Impact Study and the documentation that will be required.**

FULL Traffic Impact Study (TIS)

Impact Analysis Area:

In general, any links (streets) that will experience a directional increase of 150 ADT or 15 vehicles in the peak hour should be included in the study. The study area should extend beyond the immediate area up to a one mile (1 mi.) outside the development boundaries and shall include any link or street that experiences a 15% directional increase in traffic and the effects of other developments which may coincide with the immediate development. At a minimum, the area should include the entire frontage of the property(ies) involved plus a distance equal to the access spacing distance for the facility in each direction from the property, or to the nearest intersecting collector or arterial street, whichever is greater. Additionally, the TIS requires the inclusion of:

- All state highways and major city or county streets that serve the proposed development or land use change.
- All collectors and arterials that lead to specific areas in the valley. These areas are:
 - Ashton (Hwy 32 North)
 - Canyon Creek (Hwy 33 East)
 - Driggs
 - Grand Targhee Resort
 - Jackson
 - Pine Creek Pass (Hwy 31 South)
 - Tetonia
 - Victor
- Any other local streets that directly serve the proposed area or feed major arterials and collectors that serve the proposed development.

The LPA and possibly the ITD is responsible for approving the impact analysis area.

Existing Background Information

The gathering of existing information is the next step in developing the TIS. One of the most important pieces of information is current traffic volumes. The developer's engineer will obtain average daily traffic counts at key locations in the vicinity of the proposed project. These counts should show turning volumes as well as through traffic.

The traffic volumes can either be obtained by setting out traffic recorders or by using existing traffic counts that are not more than three years old. Traffic volumes for many areas can be obtained from the Local Highway Jurisdiction (LHJ) and the ITD Traffic Survey and Analysis section. Requests for volumes from the LHJ shall be coordinated through the Road and Bridge Supervisor or the County Engineer. Requests for volumes from ITD should be coordinated through the ITD District Traffic Engineer. Additional required counts shall be paid for by the developer.

TETON COUNTY
REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

The traffic volumes are then adjusted to obtain the peak hour of travel at each key location by using peak hour factors or hourly counts. The peak hour volume shall also be adjusted to reflect seasonal variations using reliable documented historic data. The peak hour and seasonal variations will assist in deriving the peak hour of the peak month. The peak hour usually used in the analysis is the PM peak hour.

The Teton County Engineer and possibly the ITD District Traffic Engineer can answer most traffic volume questions or make sure that the assumptions are reasonable and acceptable.

The engineer studying the proposed area is also required to review and address other background information in the TIS. Some key information to review is as follows:

- Type of highway facility that will be impacted to define the access category, spacing requirements, and Level of Service (LOS) limitations for the facility.
- Existing traffic signal system information to determine signal timing and coordination. The existing operational information of the state highway and street system is very important.
- Committed and planned roadway improvements in the area. Local comprehensive land use and transportation plans including zoning areas, approved, preliminary and anticipated development projects in the area must be in the TIS.
- Local government's applicable codes and policies.

An expanded list of background data that may be considered in the TIS is in Appendix A.

Non-Site Traffic Forecast

When the present peak hour traffic has been identified and developed, then the future year background traffic volumes can be developed. This non-site traffic consists of the future through traffic and the generated traffic of all other future developments up to one mile (1 mi.) from the immediate area. There are many different methods for calculating the background traffic.

One method is to use existing models of the area. Currently there are no models for Teton County.

Another method available is to use growth rates or trends. Growth projections for future years must be based on current documented historical data for the study area with the density projections in line with current documented data. The method chosen by the consultant to develop the background traffic must be approved by the LPA and possibly the ITD District Traffic Engineer.

In addition to the existing traffic growth projections, potential traffic increases due to other developments (planned and anticipated) in the area must also be required. In addition, some assumptions for development of other vacant lands in the vicinity of the project shall be identified and included in the total background non-site traffic. This additional traffic is important in areas where developmental growth may not be represented sufficiently in the traditional growth trends. The LPA and the ITD District Traffic Engineer should be consulted to determine requirements for assessing other developments in the TIS.

Site Traffic Generation

The LPA and ITD will generally only accept the methods outlined in the most current edition of the Institute of Transportation Engineers (ITE) Trip Generation manual. However, other trip generation methods may be acceptable, subject to LPA and possibly ITD concurrence prior to their use.

The ITE Trip Generation manual contains rates and equations for typical weekday and weekend daily trip ends, both AM and PM peak hour trips for weekday and weekend trips and the corresponding entering/exiting split. These trip ends will need to be adjusted for seasonal variations such as the Christmas holiday season, ski season, and summer season. Variations or adjustments may also be required to account for local conditions such as public transportation (the start bus). Pass-by trip

TETON COUNTY
REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

reductions may be allowed, but the final assumption of pass-by rates and any other adjustments must be reviewed and accepted by the LPA and possibly the ITD District Traffic Engineer.

All assumptions for adjustments must be documented and discussed in the TIS.

The TIS must contain a table showing the total weekday trips generated, total weekend trips, AM, Noon, and PM peak hour trips at all intersections and accesses which are included in the study area, and entering and exiting volumes for each proposed development use. A separate table with other anticipated and possible developments that could occur due to local plan amendments or other land use changes could also be included.

Site Generated Traffic Distribution and Assignment

A Trip Distribution diagram must be included in the TIS. The project-generated traffic must be assigned and distributed onto the existing street network to accurately analyze the effects of the proposed development or land use change. Any of the distribution and assignment methods recognized by ITE are acceptable.

Trip assignments can be developed with computer models or by manual calculations. All assignment assumptions must be agreed to by the LPA and possibly the ITD District Traffic Engineer, and must verify the distribution pattern developed above.

Study Horizon Years

The selection of which horizon years to analyze is important. A general rule of thumb is to include the current year, year(s) of completion of a major phase or build-out, and a future date of 5 to 10 years beyond build-out, for a minimum of 20 years. Local comprehensive plan amendments or other land use changes will generally require the future analysis year to be 20 years or more beyond build-out. Both a build and a no-build alternative should be analyzed for each period. The current period requires only a no-build analysis (background traffic).

Traffic Flow Diagrams

A traffic flow diagram is required for all intersections in the study area and all accesses to the proposed development or land use change. The diagram will show generated trips, background traffic and the combined volumes of both background and generated traffic. A separate diagram is required for each intersection or each access for each analysis year, including both through volumes and turning volumes.

Analysis Topics

Items that require analysis:

- Level of Service for all intersections and access points for each analysis year;
- Level of Service for critical links for each analysis year
- Left turn warrants
- Signal warrants
- Weaving and merge analysis
- Sight distance
- Queue length analysis
- Impacts to other transportation modes (bicycle, pedestrian and transit)
- Signal progression
- Acceleration/deceleration lanes
- Transportation Demand Management measures
- Any mitigation measures suggested by the consultant
- Geometrics

TETON COUNTY
REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

- Air quality
- Internal circulation and stacking; and
- Frontage or backage roads; and
- Approach spacing; and
- Driveway conflicts; and
- Turning movement restrictions, i.e (islands, medians, etc.): and
- Compliance with Idaho Transportation Dept. access policy, I.D.A.P.A Rule 39.03.42.
(<http://www2.state.id.us/adm/adminrules/rules/idapa39/0342.pdf>)

Refer to Appendix A for a more detailed listing.

Analysis Guidelines

One of the goals of the analysis is to identify areas that are now or will be operating inefficiently in the future. Level of Service (LOS) or capacity analysis is usually based on volume to capacity (v/c) ratio. The LPA and ITD will accept most software analysis packages, which base LOS results on v/c ratios.

A delay-based LOS software analysis may be included in the TIS, but the LPA and ITD will generally rely on v/c ratios. Under certain circumstances, if the LOS computed by v/c is marginal and the vicinity's traffic characteristics warrant, then delay-based calculations may be considered. If the intersection is to accommodate pedestrian traffic then pedestrians must be incorporated into the LOS calculation.

Left turn lanes, acceleration and deceleration lanes, and signal warrants will be based on LPA and possibly ITD standards. Traffic signal progression analysis should use the latest version of PASSER software or other software specified by the LPA and possibly ITD. The analysis package TRANSYT-7F shall only be used in urban system or link analysis.

Copies of all calculations and analysis results, including all capacity analyses and all warrants analyses for each study year, shall be submitted as an appendix to the TIS.

Additional Considerations

If the proposal is in an air quality non-attainment zone, then the effects of the development on air quality must be addressed. ITD's Environmental section can answer questions about non-attainment areas and air quality regulations.

When an intersection or link is identified as operating at a LOS equal to or below the minimum level specified in local transportation plans or ITD's Congestion Management System Work Plan, then mitigation measures shall be developed to bring the LOS back to an acceptable level.

Mitigation measures must be compatible with state corridor plans, local system plans, Metropolitan Planning Organization plans and state design principles. The mitigation measures should be addressed individually to explain and illustrate their efforts to improve the impacts of the development or land use action. An example is how the addition of a traffic signal at an access location will improve the level of service for the access while not hindering traffic progression.

Mitigation Approval

All geometric or roadway improvements, including turn lanes, deceleration lanes, islands, medians, curbs, sidewalks and transit pull outs, must be approved by an LPA official and possibly the ITD District Engineer. LPA and ITD personnel may also be required to review and/or approve certain proposed mitigation measures. For example, signal improvements or installation on the State Highway System requires the approval of the ITD Traffic Engineer.

TETON COUNTY
REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

The design of the signal will be performed by the applicant's engineering consultant under the terms of an agreement and must be reviewed and approved by the State Traffic Engineer. Right of way acquisitions or dedications that are required for the State Highway System must be approved for acquisition by the Teton County Engineer and possibly the ITD Right of Way section.

An Encroachment permit for access to the County or the State Highway System will be required for all changes in access, such as new approaches or changes to an existing approach. Such changes may include changes to location, width or use. An encroachment permit will not be issued without a deed for the parcel involved being provided with the request. The deed must be for the current parcel owner. A developer may act on behalf of the existing property owner if a letter of authorization is provided to the LPA and possibly the required ITD Department at the time of permit application. Requests for changes in access SHALL be addressed for the current parcel owner ONLY, pending sales or future owners do not qualify. Access to a state highway and designation of access control during a Department highway project must be approved through the use of an ITD-606, Access Control form.

Site and Off-Site Improvements

A detailed vicinity map and a proposed site plan for the development are required in the TIS. The site plan should include schematic drawings and discussions of the following:

1. All access locations to the site (include dimensions, drainage and cross section).
2. The size of the study area.
3. All impacted intersections in the study area.
4. Any existing or proposed signals and appropriate timing information.
5. Proposed highway or local street improvements (e.g. alignment, added lanes, and cross section).
6. Bicycle, pedestrian, and public transit considerations and plans.
7. Site circulation patterns and parking.
8. Snow storage areas as required.

All proposed improvements must be checked for conformance with land use and access control requirements.

Recommendations and Conclusions

A recommendations and conclusion section will detail the engineer's recommendations for mitigation measures. A summarized version should be included in the executive summary section of the TIS. Refer to Appendix B for a suggested outline for the TIS.

Review and Conceptual Approval of the TIS

The LPA and possibly the ITD must review and approve the contents and conclusions of the TIS. Regular contact and consultation with the LPA and possibly ITD throughout the process is recommended to resolve issues early and save costly engineering and time delays later on. The LPA and possibly ITD shall review and comment on any completed TIS within thirty (30) calendar days of receiving the TIS.

TETON COUNTY
 REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

The following is the difference between the Full and Minor TIS.

FULL (25 Units or more)	MINOR (10 to 24 Units)
Impact area: 150 ADT or 15 vehicles Development + 1 mile Any link with 15% directional increase All major roads that serve the subdivision. All major collectors that lead to specific areas	Impact area: Links with 75 ADT or 8 vehicles Development + 1 mile All major roads that serve the subdivision
Background information: Any existing data 3years old or newer ADT counts at key locations Adjust to show peak volumes	Background information: Any existing data 3 years old or newer ADT counts at major roads directly adjacent to the development
Site Traffic Generation table for development and other anticipated and possible developments	Site Traffic Generation table for development
Background traffic for the future, including future land development	Future traffic from the development only
A Trip Distribution diagram showing the project – generated traffic and where it goes,	A Trip Distribution diagram showing the project – generated traffic and where it goes,
Study Horizon: 20 years minimum or build out, whichever is greater.	Study Horizon: to build out.
Traffic Flow Diagrams for: All intersections in study area. All access to the proposed development.	Traffic Flow Diagrams for: All adjacent intersections. All access to the proposed development.
If Intersection or link LOS falls below min. level: Develop mitigation measures	If Intersection or link LOS falls below min. level: Develop mitigation measures
Site and off-site improvements	Site and off-site improvements
Recommendations and Conclusions	Recommendations and Conclusions

TETON COUNTY
 REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

APPENDIX A: Suggested background data:

The following general categories and specific items should be considered for discussion in the TIS:

Traffic Volumes	<ul style="list-style-type: none"> • Current and (if needed for analysis) historic daily and hourly volume counts • Recent intersection turning movement counts • Seasonal variations • Projected volumes from previous studies or regional plans • Relationship of count day to both average and design days
Land Use	<ul style="list-style-type: none"> • Current land use, densities, and occupancy in vicinity of site • Approved development projects and planned completion dates, densities, and land use types • Anticipated development on other undeveloped parcels • Land use master plan • Zoning in vicinity • Absorption rates by type of development
Demographics	<p>Current and future population and employment within the study area by census tract or traffic zone (as needed for use in site traffic distribution)</p>
Transportation System	<ul style="list-style-type: none"> • Current street system characteristics: • Functional classifications • Posted speed limits and prevailing operating speeds (if significantly different than posted speeds) • Direction of flow • Geometrics • Lane widths and uses • Curves and grades • Sight distances • Vertical and lateral clearances • Parking availability and regulations • Illumination • Right-of-way • Access control • Existing approaches serving sites across from or adjacent to the site • Type of traffic control • Traffic signal locations, phasing, timing and coordination • Adopted local and regional plans • Planned thoroughfares in the study area and local streets in the vicinity of the site, including improvements • Public transportation service and use • Pedestrian and bicycle linkages and uses • Obstacles to the implementation of planned projects • Implementation timing and certainty of funding for study area transportation improvements
Other Transportation Data	<ul style="list-style-type: none"> • Origin-destination or trip distribution data • Accident history (3 years if available) adjacent to site and at nearby major intersections if a hazardous condition is identified

TETON COUNTY
REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

APPENDIX B

SAMPLE TRANSPORTATION IMPACT STUDY OUTLINE

The following outline is a guide for preparing the Transportation Impact Study. Some studies can be easily documented using this outline; however, additional sections may be warranted because of specific issues or results of the study and inapplicable sections may be omitted.

- I. Introduction and Summary**
 - A. Purpose of Report and Study Objectives
 - B. Executive Summary
 - 1. Site location and study area
 - 2. Development description
 - 3. Principal findings
 - 4. Conclusions
 - 5. Recommendations
- II. Proposed Development**
 - A. Off-site Development
 - B. Description of On-site Development
 - 1. Land use and density
 - 2. Location
 - 3. Site plan
 - 4. Zoning
 - 5. Project phasing and timing
- III. Area Conditions**
 - A. Study Area
 - 1. Area of influence
 - 2. Area of significant traffic impact
 - B. Study Area Land Use
 - 1. Existing land uses
 - 2. Existing zoning
 - 3. Anticipated future development
 - C. Site Accessibility
 - 1. Area roadway system
 - a) Existing
 - b) Future
 - 2. Traffic volumes and conditions
 - 3. Public transportation service
 - 4. Other as applicable
- IV. Projected Traffic**
 - A. Site Traffic (Each Horizon Year)
 - 1. Trip generation
 - 2. Trip distribution
 - 3. Modal split
 - 4. Trip assignment
 - B. Through Traffic (Each Horizon Year)
 - 1. Method of projection
 - 2. Non-site traffic for anticipated development in study area
 - a) Method of projections
 - b) Trip generation
 - c) Trip distribution

TETON COUNTY
REQUIREMENTS FOR TRANSPORTATION IMPACT STUDIES:

- d) Modal split
 - e) Trip assignment
 - 3. Through traffic
 - 4. Estimated volumes
 - C. Total Traffic (Each Horizon Year)
- V. Traffic Analysis**
 - A. Site Access
 - B. Capacity And Level Of Service
 - C. Traffic Safety
 - D. Traffic Signals
 - E. Site Circulation and Parking
 - F. Percentage increase anticipated in traffic on each road to each specific area in the valley.
 - G. Whether the development will cause the LOS to fall below level “C” on any of the same roads in F above.
- VI. Improvement Analysis**
 - A. Improvements to Accommodate Base Traffic
 - B. Additional Improvements to Accommodate On-Site and Off-Site Traffic
 - C. Alternative Improvements
 - D. Status of Improvements Already Funded, Programmed or Planned
 - E. Evaluation
- VII. Conclusions**
 - A. Site Accessibility
 - B. Traffic Impacts
 - C. Need for Improvements
 - D. Compliance With Applicable Local Codes
- VIII. Recommendations**
 - A. Site Access/Circulation Plan
 - B. Roadway Improvements
 - 1. On-site
 - 2. Off-site
 - 3. Project phasing, if appropriate
 - C. Other