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SECTION 200 – PERMITS

201 PERMIT PROCESS

No person(s), firm or corporation shall commence work on the construction, connection, alteration or repair of any facility located either in the public right-of-way or a public easement, or any project or work which may jeopardize the City's infrastructure without all necessary approvals and permit(s) first having been obtained from the City.

Any party requesting such approval or permit shall file written application therefore with the City. Such application shall include:

A complete application form signed and dated by the Developer.

A detailed set of construction drawings stamped and signed by a professional engineer currently licensed in the state of Washington.

Note: Prior to preparing construction drawings the Developer shall (a) have obtained an approved Developer's Extension Agreement from the City and (b) obtain from the City all necessary information needed to ensure that all utilities are extended in conformance with these standards and the City's current Utility Comprehensive Plans for Water, Sanitary Sewer and Stormwater. Costs incurred by the City to provide information to the Developer for the purposes of obtaining a Developer's Extension Agreement and/or preparing plans for approval by the City shall be promptly reimbursed to the City.

202 CONTENT OF CONSTRUCTION DRAWINGS

All drawings for the construction or extension of City water, sewer, street, and storm drainage systems shall bear a title showing the name of the project; the name of the owner; and the name, address, seal, date, and signature of the Washington State registered professional design engineer. The cover sheet and all drawing sheets shall include the same general title block, including consecutive sheet numbers. The title block shall generally be located in the lower right hand corner of the drawing. City standard notes, applicable standard plans, vicinity map, and legend of symbols shall also be included in the construction drawing set.

All construction drawings submitted to the City shall be clear, legible, containing north arrow, and drawn to minimal engineering scale of one inch to fifty feet (1″:50′) which permits all necessary information to be clearly shown. The size of the drawings shall be 22 inches by 34 inches (22″x 34″). Profile drawings shall have a horizontal scale of not less than one inch to fifty feet (1″:50′) or a vertical scale not less than one inch to five feet (1″:5′). Plan views shall be of a corresponding horizontal scale.

Where modifications to existing roads and utilities are to be constructed, existing features shall be "screened" or "ghost lined." New construction/improvements shall be indicated with heavy bold lines with proper symbolism.

In general, all information required to locate and construct the planned improvements shall be shown on the construction drawings. At a minimum, all engineering drawings submitted to the City for review and approval shall address the following:

Horizontal Drawing

- The owner/developer's and designing engineer's name, address, and telephone number included in the title block.
- Horizontal and Vertical control datum shall be per Section 205 "As-Built Plans" criteria.
- An approval block shall be drafted onto each sheet, see the Standard Details.
- A vicinity map with a scale of approximately one inch to one thousand feet (1″:1,000′) with the project site approximately centered.
- A brief legal description of the site, including site address, lot number, quarter section, township, and range as needed to accurately locate the project site.
- Bearings on roadway or utility centerline shall be referenced to the datum criteria established in Section 205 "As-Built Plans."
- The location, description, and elevation of the closest benchmark used in the project survey.
- A north arrow located on the upper right-hand corner of the drawings. North arrow orientation shall be consistent throughout the plan set.
- Roadway or proposed utility alignments, reading from left to right, showing stationing of points of curvature, tangency, intersection angle points, and with ties to section or quarter corners, also including all necessary curvature data.
- Right-of-way and easement lines for existing and proposed improvements, including identification of all roadways, easements (including auditors file numbers), adjacent lot and tax lot numbers, and subdivision identifications.
- Topographic features within and adjacent to the proposed improvements and within sufficient area to assess impacts of slopes, drainage, access, future extensions, availability of service connections, etc.
- Existing and proposed (if known) public and private utilities, including telephone, electrical power, cable television, natural gas, water and/or sewer districts and any other known utilities that may affect the proposed construction.
- Existing and proposed drainage facilities, including culverts, catch basins, ditches, etc., indicating direction of flow, size, type of pipe, invert and rim elevations.
- Identification of adjacent roads, subdivisions, building addresses, or any other information
- Curb return elevations shown at quarter points at all intersections, minimally (larger radii shall have more points), to verify drainage and a smooth transition.

- Each sheet within a set of original construction drawings, as well as as-built drawings, must have at least two control grid points, referenced to the horizontal and vertical datum criteria established in Section 205 "As-Built Plans," with coordinate values. The points can be placed randomly, but must be at opposite ends of the drawing and tied to existing monumentation.

- A composite utility sheet showing all proposed improvements and identifying potential horizontal and vertical conflicts.

- The locations of on-site or adjacent critical or sensitive areas.

- A drawing sheet labeled ESU, Equivalent Service Unit, shall be included in the set of original construction drawings and at a minimum shall include a parcel site plan with detailed impervious surface area calculations and the Stormwater ESU Table & Calculation Block as shown on Standard Detail M8.

Profile Drawing

- Profile drawing with all sanitary sewer, storm drain, street design, and, where necessary, water main plans, and with any other drawings where vertical control is deemed important.

- In general, the existing centerline profile plotted denoting grade breaks, topographic features, and any other important design information.

- The finished roadway grade and/or utility profile shown with the same stationing as on the horizontal drawing.

- Roadway profiles, including centerline elevations at a minimum of 50-foot intervals; horizontal curves, including radii, point of tangency (PT), point of curvature (PC), and super elevation; centerline grades and vertical curves, including the stations and elevations of the points of vertical curve, points of vertical intersection, points of vertical tangent [PVCs, PVIs, PVTs], the top of crest curve, the bottom of sag curve, the flow line top and bottom of curves, etc., having a minimum grade of 0.50 percent within 50 feet of the level point for a sag vertical curve.

- Sanitary sewer and storm drain profiles, including pipe slopes, diameters, lengths, invert elevations, manhole and/or catch basin locations, and rim elevations, pipe material with classifications, and any other relevant design information.

Detail Drawings

- Where special construction procedures or structures are required, special detail drawings are required; otherwise include all applicable standard plans within the construction drawings.

- Special detail drawings containing adequate dimensions, sections, views, notes, and call outs to construct the structure or permit preparation of detailed shop drawings by the fabricator when necessary.

- Detail drawings for facilities shall be prepared by or under the direct supervision of a licensed professional engineer with experience completing design of these types of facilities.

The application materials shall be submitted to the City and will be reviewed by the City for compliance with these standards. The City will not review plans until the City has approved a Developer's Extension Agreement for the proposed improvements. No permit shall be issued until the proposed work has been approved by the appropriate City official. Adjudication of disagreements regarding approvals shall be made by the Public Works Director and the decision shall be final.

No plan shall be approved nor a permit issued where it appears that the proposed work, or any part thereof, conflicts with the provisions of this ordinance or any other ordinance of the City of Bonney Lake, nor shall issuance of a permit be construed as a waiver of any ordinance requirements concerning the plan. It is the responsibility of the Developer to provide accurate information and to comply with these standards, and all applicable City ordinances. **Any plan approval or permit issued in error shall be null and void and may be revoked by the City at any time.**

The fee for right-of-way and construction permits shall be as established by the Bonney Lake Municipal Code (BLMC).

203 CONTENT OF AS-BUILT DRAWINGS

Permittees who install utility or roadway systems within, on, or below the City's public rights-of-way or public easements shall furnish the City with accurate drawings, plans and profiles, showing the location and curvature of all underground structures installed, including existing facilities where encountered and abandoned installations. Horizontal locations of utilities are to be referenced to street centerlines, as marked by survey monuments, and shall be accurate to a tolerance of plus or minus one-half (1/2) foot. The depth of such structure may be referenced to the elevation of the finished street above said utility, with depths to the nearest one-tenth foot being shown in a minimum of 50-foot intervals along the location of said utility. The datum shall be per the horizontal and vertical datum criteria established in Section 205 "As-Built Plans."

As-Built Drawing Review: Two sets of full size and two sets of half size preliminary as-built drawings shall be submitted for review by the City. The City will review the submitted drawings, and all comments must be addressed to the satisfaction of the Public Works Director or their representatives prior to approval. Preliminary as-built drawings shall be submitted to the City within thirty (30) calendar days after completion of the work. **Approved as-built drawings are required prior to the issuance of the City's final written approval of construction**.

In the event that the permittee does not have qualified personnel to finish the as-built drawings required by this section, he shall advise the Public Works Director (48 hours advance notice) in order that necessary field measurement may be taken during construction for the preparation of as-built drawings. All cost of such field inspection and measurement, to include the preparation of the as-built drawings, shall be at the sole expense of the permittee.

Drawing Standards

Minimum Scale: 1 inch = 50 feet horizontal; 1 inch = 5 feet vertical.
Detail Scale: Larger as necessary.

Revised as-built data shall replace design data and be in a bolder typeface such that the revised data is easily identified on the drawings. The use of strike out lines is not allowed. All edits must be made electronically and shall include all sheets of the approved construction drawings unless otherwise approved by the City.

As-built data shall include all pertinent data necessary to aid the location of surface and sub-surface improvements and utilities in the future, and the following data:

1. Confirm rim and invert elevations for any sanitary sewer and storm drainage structures that were installed or modified by the project.

2. Confirm slopes, lengths, size and material type of pipe installed between structures and appurtenances.

3. Detail the finished grade of storm water facilities (ponds, swales, etc.) to confirm the as-built facility meets or exceeds the design criteria and mitigation requirements for the project.

4. Provide as-built locations for appurtenances, such as fire hydrants, blow-offs, air-vacuum release assemblies, pig ports, clean outs, utility vaults, etc.

5. Provide finished grade elevations for constructed or modified walls to include the horizontal limits of the wall(s), top elevations and bottom elevations, and/or footing drains (including discharge location).

Each and every sheet shall have a statement signed by a Registered Professional Engineer attesting to the completeness and accuracy of the as-built drawings. **Easements for facilities not located in the public right-of-way shall be recorded, and the recording number shall be shown on the as-built drawings**.

Approved as-built drawings shall be submitted on permanent, stable 22-inch by 34-inch reproducible Mylar with a signature and date, which verifies the "as-built" condition of the project. All data as shown on the drawings shall be "fixed line" or ink. Nonessential data shall be removed from the Plans at the City's discretion. Stick back (glue) reproductions or "sepia" Mylars shall not be considered acceptable.

An electronic copy of the approved drawings in AutoCAD (verify version of AutoCAD with the City prior to submittal) format shall be required, unless otherwise approved by the City. In addition, the City requires all as-built drawings to be submitted to Pierce County for incorporation into the County GIS Database. The Developer is responsible for submitting approved as-built information to the County in a digital format as specified by the County.

204 PERMITS REQUIRED

Contractor/Developer shall obtain all necessary permits prior to construction unless specifically noted.

1. City of Bonney Lake permit and bond for road restoration for all work in existing City right-of-way (City of Bonney Lake Municipal Code Chapter 12.08).

2. WSDOT permit and bond for all work on State Route 410.

3. Pierce County permit and bond for road restoration for all work within the County right-of-way (City to obtain permit, Developer to obtain bond).

4. National Pollution Discharge Elimination System Permit for Construction Stormwater.

5. Any other permits required for compliance with City, State, and/or Federal regulations.

205 AS-BUILT PLANS

Upon completion of the improvements and prior to the issuance of final acceptance, the Developer shall submit full size Mylars and an AutoCAD file containing the field surveyed position of the improvements. All of the requirements of section 202 apply to the As-built plans. Horizontal control must be tied to the closest controlling monument, with supportive information identifying how the values were arrived at and what published information was used. The information contained in the AutoCAD file must be projected to Washington State Plane South, NAD83 HARN, US Survey Feet. For vertical control, all facilities shall be tied to a known North American Vertical Datum (NAVD 88) monument. The bench mark elevation, location, and designation must be shown on the plans. Assumed Horizontal and Vertical datums will not be allowed. Elevation equations shall not be used.

206 ROAD APPROACH PERMIT

No person or organization shall construct, repair, alter or use any approach to any City road without first obtaining or having a road approach permit from the City and otherwise conforming to the standards set forth herein. Road approach permit requirements include:

1. Permit fee as determined by the City at the time of application.

A minimum of a $5,000 dollar performance bond shall be posted with the City.

A $1 million dollar liability insurance policy shall be provided by the proponent naming the City as an additional insured.

Any change of use or any improvement that increases the required number of parking stalls or the actual traffic volumes from any existing approach by more than 20 percent will require the proponent to obtain a new approach permit conforming to the conditions herein.

207 TRAFFIC IMPACT ANALYSIS GUIDELINES

Sections:

Impacts to Other Jurisdictions

Selection of Horizon Years

Scope of Work

Peak Traffic Hours

Trip Generation

Estimation of Pass-By Trips

Traffic Distribution

Minimum Levels of Service

GMA Concurrency Requirements

Access Management

Safety Analysis

Sight Distance

On-Site Planning and Parking Principals

Purpose

A Traffic Impact Analysis is a specialized study of the impacts a certain type and size of development will have on the surrounding transportation system. The traffic impact analysis is an integral part of the development impact review process. It is specifically concerned with the generation, distribution, and assignment of traffic to and from the "new development". The purpose of a TIA is to determine what impact development traffic will have on the existing and proposed street network and what impact the existing and projected traffic on the street system will have on the "new development".

These guidelines have been prepared to establish the requirements for a Traffic Impact Analysis. The Public Works Director will be the person responsible under SEPA as well as City ordinances for determining the need for a Traffic Impact Analysis. The planning department and public works staff will also have a significant role during the TIA process.

Level of Analysis

To adequately assess a "new development" traffic impact on the transportation system and level of traffic service, the Public Works Department may require a traffic impact analysis (TIA). The requirement for a TIA will be based on the size of the development proposed, existing street and intersection conditions, traffic volumes, accident history, community concerns, and other pertinent factors relating to traffic impacts attributable to "new developments". The proponent of a proposed development or redevelopment has the responsibility of preparing, for City review, a Traffic Impact Analysis (TIA) as required below:

1. Level I TIA. Trip Generation and Distribution Study. (Refer to attached Appendix 1 for Level I TIA Sample Outline.)

2. Level II TIA. Traffic Impact Analysis. (Refer to attached Appendix 2 for Sample Outline.)

Warrants for Level I Traffic Impact Analysis

A complete Level I TIA shall be required if any one of the following warrants is met:

1. The project generates 10 or more PM peak hour trips; or

2. The project requires a SEPA review.

3. A Level I TIA may be required by the City to determine the need and scope of a Level II TIA. A Level I TIA may be expanded to a Level II TIA if any of the warrants in Section 19.__.040 are met.

Warrants for Level II Traffic Impact Analysis

The following is a list of specific conditions that may dictate the requirement for preparing a Level II TIA. The Public Works Director may require the preparation of a TIA if one or more of the following conditions are satisfied:

1. The project generates more than 10 PM peak hour trips;

2. The City has required that an Environmental Assessment or Environmental Impact Statement be prepared;

3. A rezone of the subject property is being proposed;

4. Current traffic problems exist in the local area as identified by the City or a previous traffic study, such as a high-accident location, poor roadway alignment, or capacity deficiency;

5. Adjacent neighborhoods or other areas are perceived to be impacted;

6. The current or projected level of service of the roadway system in the vicinity of the development is perceived to be significantly affected, or is expected to exceed City adopted level of service standards;

7. The new development may potentially affect the implementation of the street system outlined in the Transportation Element of the comprehensive plan, the Transportation Improvement Program, or any other documented transportation project;

8. The original TIA is more than 2 years old or the proposed land use intensity increased by more than 10%.

9. The "new development" is within an existing or proposed transportation benefit area. This may include Latecomer Agreements, Local Improvement Districts (LID), or local/state transportation improvement areas programmed for development reimbursements.

10. The "new development" generates more than 25% of site-generated peak hour traffic through a signalized intersection or the "critical" movement at an unsignalized intersection.

11. The "new development" generates 100 or more peak hour trips other than the PM peak.

12. The Public Works Department is unable to determine the traffic generation characteristics of the development.

13. The developer feels further traffic analysis may clarify questions about the identified traffic mitigation assessment for the project.

14. The "new development" access to the roadway network may create an impact as determined by the Public Works Director.

15. The "new development" impacts an area identified by the Public Works Department that cannot meet the concurrency requirements of the Growth Management Act.

16. The "new development" may potentially affect the implementation of the street system outlined in the Transportation element of the Comprehensive Plan, the Transportation Improvement Program, or any other documented transportation project.

Equivalent Development Units

The Institute of Transportation Engineers (ITE) Trip Generation Manual provides trip generation rates for a variety of land uses, consisting of average rates or fitted curve equations. Some common land uses and their equivalent development units are shown below:

	PM Peak Hour Trips		
Land Use (LU code)	Basic Trip Rate	Enter	Exit
Single Family Detached Housing (LU 210)	1.01 per dwelling unit	64%	36%
Apartment (LU 220)	0.62 per dwelling unit	67%	33%
Industrial Park (LU 130)	0.92 per 1,000 sq. ft gross floor area	21%	79%
Movie Theater with Matinee (LU 444)	44.53 per movie screen	52%	48%
Day Care Center (LU565)	13.20 per 1000 sq. ft gross floor area	47%	53%
General Office Building (LU 710)	0.46 per employee	17%	83%

Land Use (LU code)	PM Peak Hour Trips		
	Basic Trip Rate	Enter	Exit
Shopping Center (LU 820)	3.74 per 1000 sq. ft gross leasable area	48%	52%
Fast Food Restaurant with Drive-Through Window (LU 834)	0.94 per Seat	53%	47%
Drive-in Bank (LU 912)	54.77 per 1000 sq. ft gross floor area	50%	50%

Report Certification

Traffic Impact Analyses (TIA) shall be conducted under the direction of a responsible individual or firm acceptable to the Public Works Director. The TIA shall be prepared by an engineer licensed to practice in the State of Washington with special training and experience in traffic engineering and who is a member of the Institute of Transportation Engineers (ITE). The developer shall provide the Public Works Director the credentials of the individual(s) selected to perform the TIA.

Extent of Study Area

The study area shall include all site access drives, adjacent roadways, and major roadways and intersections in all directions from the site that are impacted by 10 or more inbound and outbound PM peak hour trips, or less as required by the City. Once the trip distribution for the new development has been approved by the Public Works Director, a formal "scoping" meeting shall be conducted to clearly identify study area and contents expected in the TIA.

Impacts to Other Jurisdictions

The City will cooperate with Pierce County and other cities within the county to expeditiously review the transportation impacts of developments within the respective jurisdictions.

Selection of Horizon Years

The Horizon Year shall be the anticipated build-out/full occupancy year for the development. Development with several stages of construction activity shall select a number of horizon years corresponding with the opening of each phase.

Scope of Work

The level of detail and scope of work of a TIA may vary with the size, complexity, and location of the "new development. A TIA shall be a thorough review of the immediate and long-range effects of the "new development" on the transportation system.

If a Traffic Impact Analysis is required, the engineer shall submit 4 copies of a Scoping Report to the Public Works Department to assist the City of Bonney Lake in the development of the scope of work for the TIA.

A. "New Development" Prospectus

1. Provide a reduced copy of the site plan showing the type of development, street system, right-of-way limits, access points, and other features of significance in the "new development". The site plan shall also include pertinent off-site information, such as locations of adjacent intersections, driveways, land use descriptions, street right-of-way limits with respect to the existing roadway and other features of significance.

2. Provide a vicinity map of the project area showing the transportation system to be impacted by the development.

3. Discuss specific development characteristics such as type of development proposed (single-family, retail, industrial, etc.), internal street network, proposed access locations, parking requirements, zoning, and other pertinent factors attributable to the "new development".

4. Discuss project completion, phasing plan and occupancy schedule for the "new development". Identify horizon years for traffic analysis purposes.

B. Existing Conditions

1. Discuss street characteristics including functional classification, number of travel lanes, lane width, shoulder treatment, bicycle path corridors, pedestrian facilities, transit routes and traffic control at study intersections. A "Figure" may be used to illustrate existing transportation facilities.

2. Identify safety and access problems including discussions on accident history, sight distance restrictions, traffic control, and pedestrian conflicts.

3. Obtain all available traffic data from the City of Bonney Lake. If data is unavailable, the individual or firm preparing the TIA shall collect the necessary data to supplement the discussions and analysis in the TIA.

4. Conduct manual peak hour turning movement counts at study intersections if traffic volume data is more than 2 years old unless otherwise required by the City.

5. A "Figure" shall be prepared showing existing average daily traffic (ADT) and peak hour traffic volumes on the adjacent streets and intersections in the study area. Complete turning movement volumes shall be illustrated. This "Figure" shall represent the base line traffic volumes for analysis purposes.

C. Development Traffic

1. This element of the TIA shall be conducted initially to identify the limits of the study area. The threshold requirement of development traffic exceeding 10 PM peak hour trips shall apply. A graphical distribution map shall be submitted showing site-generated PM peak hour traffic. This map shall clearly identify all traffic movements and the percentage of site traffic.

D. Future Traffic

1. Future Traffic Conditions Not Including Site Traffic

    a. Future traffic volumes shall be estimated using information from transportation models and/or applying an annual growth rate to the base line traffic volumes. The future traffic volumes shall be representative of the horizon year for project development. The Public Works Director will determine an appropriate growth rate if that option is utilized.

    b. In addition, proposed pipeline development projects shall be taken into consideration when forecasting future traffic volumes. A pipeline project is defined as a development in the project area that is either under construction, approved for construction, or in the permitting process. The increase in traffic from proposed pipeline projects shall be compared to theforecasted traffic volumes to show the total traffic conditions. A Figure will be required showing daily and peak period turning movement volumes for each traffic study intersection.

2. Future Traffic Conditions Including Site Traffic

    The site-generated traffic shall be assigned to the street network in the study area based on the trip distribution model. The site traffic shall be combined with the forecasted traffic volumes to show the total traffic conditions estimated at development completion. A "Figure" will be required showing daily and peak period turning movement volumes for each traffic study intersection.

E. Traffic Operations

1. LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). Level of Service D is the concurrency standard adopted by the City of Bonney Lake.

2. Level of service calculations for intersections determine the amount of 'control delay' (in seconds) that drivers will experience while proceeding through an intersection. Control delay includes all deceleration delay, stopped delay, and acceleration delay caused by the traffic control device. The level of service is directly related to the amount of delay experienced. For signalized intersections the overall LOS grade represents the weighted average of all movements at the intersection. For intersections under minor street stop-sign control, the LOS of the most difficult movement (typically the minor street left-turn) represents the intersection level of service. The LOS criteria for stop-sign controlled intersections are different than for signalized intersections because driver expectation is that a signalized intersection is designed to carry higher traffic volumes and experience greater delay. The following tables show the level of service criteria for signalized and stop-sign controlled intersections.

Level of Service Criteria for Signalized Intersections	
Level of Service	Average Control Delay (seconds/vehicle)
A	≤ 10
B	> 10 – 20
C	>20 – 35
D	>35 – 55
E	> 55 - 80
F	> 80

Level of Service Criteria for Stop-Sign Controlled Intersections	
Level of Service	Average Control Delay (seconds/vehicle)
A	≤ 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

3. The Level of Service (LOS) and capacity analysis shall be conducted for each pertinent intersection in the study area as determined by the Public Works Department. The methodology and procedures for conducting the capacity analysis shall follow the guidelines specified in the most recent edition of the Highway Capacity Manual. The individual or firm preparing the TIA shall calculate the intersection LOS for each of the following conditions:

    a. Existing PM peak hour traffic volumes (Figure required)

    b. Existing PM peak hour traffic volumes including site-generated traffic (as required by the City)

c. Future PM peak hour traffic volumes not including site traffic (Figure required)

d. Future PM peak hour traffic volumes including site traffic (Figure required)

e. Level of service results for each traffic volume scenario (Table required)

4. The Level of Service table shall include LOS results for PM peak periods. The table shall show LOS conditions with corresponding vehicle delays for signalized intersections.

5. The capacity analyses for existing signalized intersections shall include existing phasing, timing, splits and cycle lengths in the analysis as observed and measured during the peak hour traffic periods. All traffic signal system operational data will be made available by the City of Bonney Lake.

6. If the "new development" is scheduled to be completed in phases, the TIA shall conduct a LOS analysis for each separate development phase. The incremental increases in site traffic from each phase shall be included in the LOS analysis for each succeeding year of development completion. A "Figure" will be required for each horizon year of phased development.

7. If the "new development" impacts a traffic signal coordination system currently in operation, the Public Works Director may require the TIA to include operational analysis of the system. Timing plans and proposed modifications to the coordination system may be required.

8. The capacity analysis shall be conducted using computer software. The individual or firm preparing the TIA shall use SIGNAL2000, or an approved equivalent, for capacity analysis of signalized intersections. The computer worksheets shall be submitted concurrently with the TIA document to the Public Works Department. For unsignalized intersections, the Highway Capacity Manual methodology shall be used. SIDRA software shall be used for analyzing modern roundabout intersections. A copy of the capacity analysis worksheets shall be submitted concurrently with the TIA document.

F. Mitigation

1. The TIA shall include a proposed mitigation plan. The mitigation may be either the construction of necessary transportation system improvements and/or contributions to the City for the new development's fair share cost of identified future transportation improvements. Mitigation measures shall be required to the extent that the transportation facilities operate at or above the City's adopted Level of Service (LOS) standards.

2. The following guidelines shall be used to determine appropriate mitigating measures of traffic impacts generated by new developments:

   a. On transportation facilities where the need to construct improvements by the horizon year of the "new development", the cost for the mitigation will be entirely borne by the "new development". However, in the event the Public Works Department and the Planning Department identify more than one development under simultaneous review, cumulative impacts and distribution of mitigation costs may be considered. A latecomers agreement could be formulated by the "new development" for reimbursement of mitigation costs.

b. On transportation facilities programmed for new improvements as part of a City project, the adverse traffic impacts of the "new development" will be considered mitigated by providing a proportionate share contribution of the costs for the proposed improvements. The proportionate share costs for the improvements shall be based on the percentage of "new development" traffic generated through the intersection. The percentage shall be based on the total projected peak hour volumes for the horizon year of the transportation study.

c. On transportation facilities where the existing Level of Service is less than the adopted concurrency standard, and where no improvements are programmed to improve capacity and traffic operations, the "new development" shall mitigate the intersection to an acceptable Level of Service condition or wait until the improvements are implemented by the City or other developments. Improvements made by the City prior to the development of the subject project shall be reimbursed by the "new development" based on a proportionate fair share cost of the facility improvements.

d. Unsignalized intersections that currently operate at less than a Level of Service "D" condition, including the urban core area, shall be analyzed for traffic signal and intersection improvements. If two or more traffic signal warrants are satisfied, signal and intersection improvements will be required as a mitigating measure for the "new development". If at least 2 traffic signal warrants are not satisfied by the "new development's" horizon year, the TIA shall determine if traffic signal warrants and intersection improvements would be needed within a 5-year period after the "new development's" horizon year. The "new development" would be required to provide a proportionate share cost towards future traffic signal and intersection improvements if warranted with the 5-year period.

e. However, if traffic signal warrants are not satisfied after a 5-year period from the "new development's" horizon year, mitigating impacts would not be required from the "new development" for traffic signal and intersection improvements.

f. Signalized intersections in the city where the projected Level of Service condition is at "D" but where one or more of the Level of Service conditions on the approaches falls below Level of Service "D", mitigating measures may be required to improve the capacity and traffic operations at the intersection. The City reserves the right to review all adverse traffic impacts at these intersections and to determine appropriate mitigating measures.

Peak Traffic Hours

For traffic analysis, the PM peak hour conditions shall be used. The PM peak hour is defined as the 60-minute period between 4:00 p.m. and 6:00 p.m. with the greatest sum of traffic volumes on a roadway segment or passing through the area of the project. Reversed flow at intersections from morning to afternoon, and other unusual conditions, shall require analysis for both AM and PM peak hour conditions, as required by the City.

Trip Generation

1. Site-generated traffic of "new developments" shall be estimated using the latest edition of the Trip Generation Manual as published by the Institute of Transportation Engineers (ITE). Variations of trip rates will require the approval of the Public Works Department. Average trip rates as described in

Section 19.__.050 above shall be used for all land-use categories where applicable. Trip rate equations will be allowed for those land uses without average rates.

a. Variations from the trip rates will be considered in the scoping process. The consultant shall submit a letter explaining the reason for the variation and all supporting documentation. Trip generation studies shall follow standard ITE methodology.

2. Site generated traffic shall be estimated for daily and PM peak hour periods. For certain types of developments, the Public Works Director may also require site traffic estimates for the AM peak period.

3. For multi-use and/or phased projects, a trip generation table shall be prepared showing proposed land use, trip rates, and vehicle trips for daily and peak hour periods and appropriate traffic volume discounts if applicable.

Estimation of Pass-by Trips

Adjustments to trip generation made for "pass-by" or "mixed-use" traffic volumes shall follow the methodology outlined in the latest edition of the ITE Trip Generation Manual.

Traffic Distribution

1. The directional distribution of traffic to and from the project shall be estimated using local traffic volume data provided by the City of Bonney Lake, Pierce County, and the Washington State Department of Transportation Traffic Data Office. The City Public Works Department shall approve the trip distribution for a "new development" during the scoping process.

2. A graphical distribution map shall be submitted showing site-generated PM peak hour traffic. This map shall clearly identify all traffic movements and the percentage of site traffic.

3. The TIA shall identify other transportation modes that may be applicable, such as transit use, bicycle and pedestrian facilities. New developments are encouraged to implement Transportation

4. Demand Management practices, such as "flex time" for employees and ridesharing programs including carpools, van pools, shuttle buses, etc.

Minimum Levels of Service

The minimum level of service (LOS) for roads within the city limits shall be as shown in the transportation element of the city's comprehensive plan.

GMA Concurrency Requirements

1. The State Growth Management Act and Chapter 19.02 of the Bonney Lake Municipal Code require that a proposed development undergo a concurrency review and determination. Concurrency describes the situation in which road facilities are available when the impacts of development occur. For road facilities, this time period is statutorily established as within six years from the time of development. To satisfy concurrency:

2. The existing transportation system, functioning at the City's adopted minimum level of service, must have adequate capacity for the additional trips generated by the project at the time of preliminary plat or project approval, or

3. The development must have, at the time of final project approval, a financial guarantee for transportation improvements required to achieve City adopted minimum levels of service with the additional trips generated by the project to be in place within six years of final project approval, or

4. The applicant shall construct the transportation improvements required to achieve City adopted minimum levels of service with the additional trips generated by the project to be in place at the time of final project approval.

Access Management

Requests for site access shall be addressed in the Traffic Impact Analysis. Recommendations shall include site access and transportation improvements needed to maintain traffic flow to, from, within, and past the site at an acceptable and safe level of service.

Areas to address include:

- Separate conflict areas. Reduce the number of access points or increase their spacing so conflict areas or maneuver areas do not overlap.

- Limit the type of conflict areas by preventing certain maneuvers.

- Remove turning vehicles or queues from through lanes

- Safety of a proposed access (sight distance both horizontally and vertically), including pedestrian features.

- Reduce the speed differential in through lanes between through vehicles and turning vehicles.

- Consider the impact of access points on adjacent or nearby properties on both sides of the roadway.

- Improvements include such things as: relocation, restriction, or elimination of access point, roadway widening, turning lanes, traffic signals, modern roundabouts, and pedestrian facilities.

Safety Analysis

Intersections and roadway segments within the influence area shall be evaluated to determine if the probability of accidents will increase with the addition of project traffic. The following analysis shall be required:

1. Accident records are to be analyzed to determine whether patterns of accidents are forming within the influence zone and what alternative treatments should be considered to correct the problem. Examples of reoccurring accidents include:

    a. Right-angle collisions at an intersection

b. Rear-end collisions at an intersection

c. High frequency of vehicles leaving the roadway

Sight Distance

Sight distance restrictions shall be addressed in the TIA. Sight distance is the length of roadway visible to the driver. Specified areas along intersection approach legs and across their included corners should be clear of obstructions that might block a driver's view of potentially conflicting vehicles. These specified areas are known as clear sight triangles. The dimensions of the legs of the sight triangles depend on the design speeds of the intersecting roadways and the type of traffic control used at the intersection.

- Intersection sight distance calculations shall be based on AASHTO Chapter IX, Intersection Sight Distance.

- The vertical clearance area within the sight distance triangle shall be free from obstructions to a motor vehicle operator's view between a height of 3 feet and 10 feet above the existing surface of the street.

On-Site Planning and Parking Principles

The number of vehicle access points should be minimized by sharing driveways and linking parking lots between adjacent uses. Commercial developments shall provide coordinated internal circulation and connected parking facilities. Well-defined walkways must be designed into all parking lots, with interconnections between walkways to create safe walking conditions.

TRANSPORTATION IMPACT ANALYSIS

LEVEL I STUDY REPORT FORMAT

I. INTRODUCTION AND SUMMARY

1. Report Certification

2. Purpose of Report and Study Objectives

II. PROPOSED DEVELOPMENT

1. Description

2. Location and Vicinity Map

3. Site Plan
4. Proposed Zoning
5. Proposed Land Use and Intensity
6. Phasing and Timing of the Project

III. EXISTING CONDITIONS

1. Study Area
    a. Limits of traffic study
    b. Existing zoning
    c. Existing land uses
2. Site Accessibility
    a. Area roadway system
    b. Transit service
    c. Pedestrian and Bicycle Facilities

IV. TRIP GENERATION AND DISTRIBUTION

1. Trip Generation
2. Trip Distribution

V. APPENDICES

1. Trip Generation Calculations
2. Passer-by and Origin-Destination Studies
3. Reference

TRANSPORTATION IMPACT ANALYSIS

LEVEL II STUDY REPORT FORMAT

I. INTRODUCTION

1. Report Certification
2. Project Overview
    a. site vicinity map
3. Study Context

II. PROJECT DESCRIPTION

1. Development proposal
    a. Site plan
    b. Proposed zoning
    c. Proposed land use and intensity
    d. Phasing and timing of project

III. BACKGROUND INFORMATION

1. Area Land Uses
2. Roadway Inventory
3. Traffic Volume Data
    a. Figure illustrating existing PM peak hour traffic volumes
4. Public Transportation

IV. TRAFFIC GENERATION AND DISTRIBUTION

1. Traffic Generation
2. Traffic Distribution
    a. Figure illustrating project traffic on roadway network

V. FUTURE TRAFFIC CONDITIONS

1. Roadway Improvements
2. Pipeline Development Projects
    a. Figure showing pipeline projects traffic volumes at study intersections
3. Future Traffic Volumes
    a. Figure illustrating projected traffic without project
    b. Figure illustrating projected traffic with full project

VI. TRAFFIC OPERATIONS ANALYSIS (EXISTING & FUTURE)

1. Capacity Analysis
2. Signalized Intersections
3. Unsignalized Intersections
4. Project Driveways

VII. MITIGATION

VIII. APPENDICES

1. Trip generation calculations
2. Turning Movement Count worksheets
3. Passer-by and origin-destination studies
4. Pipeline traffic volumes worksheets
5. Capacity analysis worksheets