Transportation Impact Study Guidelines for City of Citrus Heights

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CITRUS HEIGHTS
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1. INTRODUCTION

Transportation impact study (TIS) guidelines are routinely established by jurisdictions to provide guidance on how to properly analyze the potential transportation impacts of proposed projects. The following guidelines have been developed to provide a clear and consistent technical approach to transportation impact analysis for projects within the City of Citrus Heights.

BACKGROUND

The First Citrus Heights TIS Guidelines were adopted in 2011 as part of the General Plan Update. The Guidelines were update in 2021 not only because of changes in analysis techniques and methods in the 10 years since they were last prepared, but moreover because of Senate Bill (SB) 743. This landmark law requires that environmental analyses performed under the California Environmental Quality Act (CEQA) do not use level of service (LOS) as the basis for identifying impacts of a proposed project to the transportation system[1].

SB 743, passed in 2013, required the California Governor's Office of Planning and Research (OPR) to develop new CEQA guidelines that address traffic metrics under CEQA. In December 2018, OPR published the *Technical Advisory on Evaluating Transportation Impacts in CEQA*, which provided guidance for implementing SB 743. Under this guideline, Vehicle Miles Traveled (VMT) is the primary metric used to identify transportation impacts. On July 1, 2020, the provisions of Section 15064.3 became effective statewide.

Citrus Heights will evaluate land use proposals and transportation projects in a manner consistent with SB 743 and guidance contained in the *Technical Advisory*. To this end, the City has prepared its *SB 743 Implementation Guidelines for Citrus Heights* (2021). Readers should refer to that document for details on VMT analysis methods, significance criteria, and mitigation measures.

Although no longer permitted within CEQA documents, the LOS analysis (and identification of locations whose operations would be adversely affected) is still prepared to provide helpful information to decisionmakers and the public, to assist staff in understanding what types of improvements should be considered as a Condition of Approval for the project, and to evaluate the project's consistency with the City's General Plan LOS policy.

As a result of SB 743, the format of transportation impact studies prepared in Citrus Heights will be different than in the past, and will likely vary depending on the type of environmental document that is prepared:

[1] CEQA Guidelines Section 15064.3 states that "automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any."

- (Mitigated) Negative Declarations[2] – a single comprehensive TIS document (either report or technical memorandum will be prepared containing all components of the analysis.

- Environmental Impact Reports (EIRs) – will consist of the transportation chapter, which will include the VMT analysis and analysis of other topical areas (e.g., impacts to bicycle, pedestrian, transit facilities and services, hazardous conditions, emergency response, construction impacts, etc.). A separate Local Transportation Analysis (LTA) will be prepared, which presents the LOS analysis.

The above approach enables City Community Development Department staff who are preparing a (Mitigated) Negative Declaration to copy/paste relevant information from the TIS directly into that document. The TIS itself will typically not be attached to the (Mitigated) Negative Declaration, but will be included in the staff report and posted on the City's website for review by the general public.

The LTA prepared in support of an EIR will not be included as an appendix to the Draft or Final EIR. The LTA will be included in the staff report and posted on the City's website for review by the general public. This approach was successfully first undertaken on the Sunrise Tomorrow Specific Plan Draft EIR.

The City expects these guidelines to continue resulting in studies that provide comprehensive and accurate analysis of potential transportation impacts to City facilities and services.

PREPARERS OF STUDIES

The City of Citrus Heights has established on-call transportation consulting agreements with consulting firms with demonstrated expertise in preparing high-quality and unbiased TISs. The City will not accept TISs prepared by consultants directly for an applicant. Refer to Section 6 for more details.

PROJECT CONSIDERATIONS

The following types of projects may require a TIS as determined by the City Engineer:

- Transportation infrastructure modification or expansion, including capital improvement projects (CIP) on city roads and state facilities.
- Land use entitlements requiring discretionary approval by the City of Citrus Heights, which includes annexations, general plan amendments, specific plans, zoning changes, conditional use permits, design review permits, and tentative maps.
- Land use activity advanced by agencies other than the City of Citrus Heights that is subject to jurisdictional review under state and federal law.

Section 2 identifies specific project parameters or "triggers" that may necessitate a TIS.

[2] Also includes Addendums to EIRs and other types of environmental documents that do not require public circulation and review.

INTENT OF STUDY GUIDELINES

These guidelines address key elements required for preparing and reviewing transportation impact studies in Citrus Heights. This document is intended to be a resource applied in concert with professional judgment. The following major issues are addressed in this document:

- Situations and thresholds that commonly trigger the need for a TIS.
- Scope and extent of the required study.
- Transportation impact analysis methods.
- Criteria to determine if the transportation-related impacts of a proposed project are significant under the California Environmental Quality Act (CEQA).
- Mitigation measure requirements.
- Guidelines for documentation of the findings, conclusions, and recommendations.

The City of Citrus Heights will review transportation studies and reports based on the guidelines presented in this document. However, each project is unique, and TIS guidelines are not intended to be prescriptive beyond practical. Not all criteria and analyses described in this document will apply to every project. Early and consistent communication with the Community Development and General Services Departments is encouraged to confirm the appropriate type and level of analysis required on a case-by-case basis.

RELATIONSHIP TO RECENT CALTRANS POLICY DOCUMENTS

In May 2020, the California Department of Transportation (Caltrans) published the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (TISG), which replaced its Guide for the Preparation of Traffic Impact Studies (2002). The TISG generally endorses the policies, technical approaches, and recommendations from OPR's *Technical Advisory*. It also indicates that Caltrans intends to "transition away from requesting LOS or other vehicle operations analyses of land use projects", instead placing the focus on VMT and safety.

Caltrans published the *Interim Local Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance* in December 2020. This document provides guidance for conducting safety reviews of land use projects and plans that may affect the State Highway System. Although the LDIGR Safety Review Practitioners Guidance stops short of including specific thresholds of significance or providing specific recommendations for how safety evaluations should be included in CEQA documents, it does clearly indicate the State's expectation that, when appropriate, CEQA studies of land use projects should include safety investigations of the State Highway System. Furthermore, that document specifies that mitigation measures for identified safety impacts should avoid increasing roadway capacity, which may induce VMT or affect conditions for vulnerable users, such as bicyclists of pedestrians.

Citrus Heights will follow applicable analysis methods and general guidance provided in these recent Caltrans documents, to the extent they are applicable to the land use proposal or transportation project being evaluated.

GENERAL PLAN CONTEXT

The Community Development Element of the Citrus Heights General Plan specifically identified the development and adoption of transportation impact study guidelines that consider all modes of travel and establish clear guidance for analysis and significance criteria (Action 29.2.B and Policy 29.3.).

The General Plan was updated in 2011 to guide future decision-making in the City. The common vision is to be a highly livable place that is safe, has a strong sense of identity, and offers economic opportunity. As part of this vision, the City values a transportation network that supports mobility for all users, including drivers, transit users, bicyclists, and pedestrians of all ages and abilities.

For projects that are consistent with the General Plan, the impact analysis is generally limited to an evaluation of the project access points (including nearby intersections) and connectivity to the existing adjacent bicycle, pedestrian, vehicle, and transit facilities (see Sections 2 and 3 for details). Projects consistent with the General Plan that are large and/or unique (e.g., located on a corridor that is not part of the City's LOS-exempted corridor list) may trigger an expanded analysis subject to the determination of the City engineer. ***If a project is inconsistent with the General Plan, these guidelines do not apply, and a consultation with the Community Development and General Services Departments is required.***

The General Plan vision is supported by eight planning principles, with the two most relevant listed here:

> *Mobility: Increasing traffic, much of it from outside the City, will exacerbate congestion on the City's major roadways and also result in cut-through travel through residential neighborhoods, higher vehicle speeds and increased noise levels. Solutions could include street improvements, fixed-route transit (i.e., connecting key commercial districts), and improved bicycle and pedestrian routes. Where appropriate, streets should be completed and connected. In the past, roadways were viewed primarily for automobile travel. This viewpoint has evolved to one where roads are seen within a complete streets context, where the needs of all travel modes, users, and ability levels are equally important.*
>
> *Sustainability: The City should promote efforts to improve communitywide sustainability for both the existing built environment and new development. Building and site design and construction practices should include energy, water, and other conservation techniques that reduce the consumption of natural resources. In addition, the City should support a transition to cleaner, more renewable energy sources. The City should implement measures to improve air quality and reduce greenhouse gas emissions.*

Section 4 contains specific references to relevant transportation and mobility policies of the General Plan.

2. TRIGGERS REQUIRING AN IMPACT STUDY

Unless waived by the City Engineer, a TIS is required when any one of the following conditions is met:

- The project has the potential to create a significant environmental impact under CEQA (check Table 6 for a list of significance thresholds for all modes).
- The proposed project has the potential to generate 200 new (i.e., accounts for pass-by trips attracted to certain retail uses, see Section 3) passenger vehicle trips per day.
- The project requires a permit application, which is subject to discretionary approval.
- The project will substantially alter physical or operational conditions on a City roadway, bikeway, sidewalk, or other transportation facility.
- The project adversely affects transportation safety.

In general, a prepared TIS report is applicable for two years. After two or more years of inactivity, an updated TIS may be required.

Does my project require a transportation impact study?

Actions That May Be Subject to CEQA

- *Infrastructure construction*
- *Adoption of an ordinance or resolution*
- *Land use changes*
- *Funding from public agency contracts, subsidies, and loans*
- *Issuance of a lease, permit, license, certificate, or other entitlement*

If the proposed project includes any of the above actions, an Initial Study (IS) should be prepared to determine the appropriate environmental clearance documents, such as an Environmental Impact Report (EIR).

PROJECT DEFINITION

The applicant shall provide a project description that, at a minimum, includes the following:

- Specific land uses intended for the site including a detailed project site plan.
- Size or intensity of the proposed development and uses (e.g., square footage, acreage, dwelling units, tonnage, number of employees or residents, etc.).

City staff will then normally determine whether the project generates 200 or more new passenger vehicle trips per day. Refer to Table 1 for typical project trip generation estimates that reach this threshold. City staff will also determine whether the project may have adverse effects on off-site transportation facilities or services including transit, roadways, bikeways, and sidewalks.

This detailed and accurate information is critical to determine if a TIS is required based on potential significant environmental impacts or trip generation.

TABLE 1: QUANTITY OF LAND DEVELOPMENT THAT TRIGGERS 200 DAILY TRIP THRESHOLD

Proposed Development Example (ITE Land Use Code)	New Daily Trips Generated [1,2]
Single Family Detached Housing (210) – 22 dwelling units	208
Multifamily Housing Mid-Rise (221)– 37 dwelling units	201
Shopping Center (820) – 7 KSF leasable area	219
General Office Building (710) – 21 KSF gross floor area	205
High-Turnover (Sit-Down) Restaurant (932) – 2.5 KSF gross floor area	218
Medical-Dental Office Building (720) – 6 KSF gross floor area	209

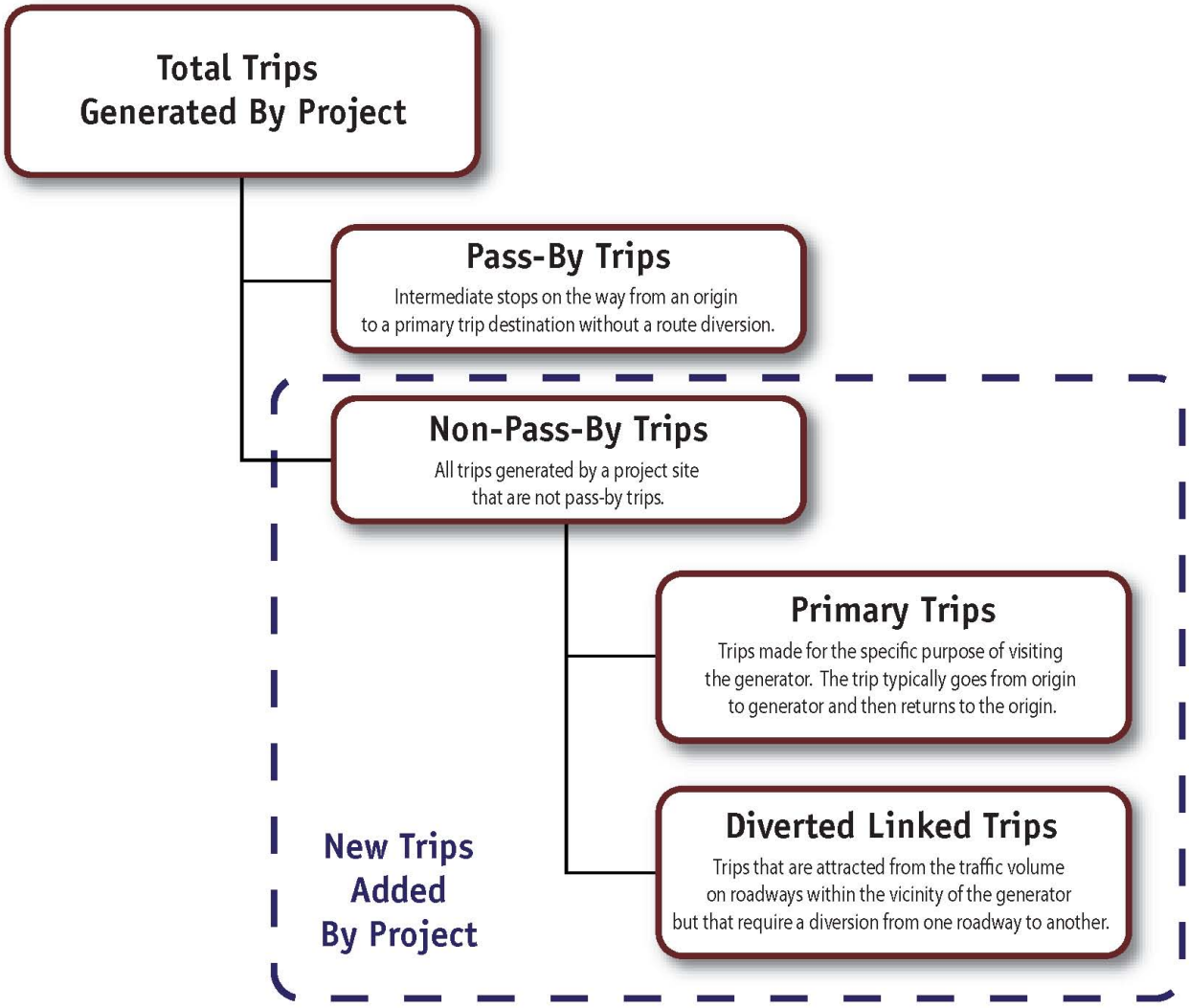
[1] Trip rates based on data published in *Trip Generation Manual, 10th Edition* (ITE, 2017).

[2] Assumes pass-by percentages of 17% for shopping center and 22% for high-turnover sit-down restaurant, based on the premise that the daily pass-by rate is half of the PM peak hour pass-by rate contained in the *Trip Generation Handbook, 3rd Edition* (ITE, 2017).

KSF = 1,000 square feet

TRIP GENERATION

The trip generation analysis shall identify the number of new daily and peak hour vehicle-trips added by the proposed project. The trip generation estimation for all new or proposed development projects shall include the summation of primary trips, pass-by trips, and diverted linked trips. The figure on the following page describes trip types relevant to trip generation and the difference between the total trips generated by the project versus new trips added by the project.


Total Trips
Generated By Project
Pass-By Trips
Intermediate stops on the way from an origin
to a primary trip destination without a route diversion.
Non-Pass-By Trips
All trips generated by a project site
that are not pass-by trips.
Primary Trips
Trips made for the specific purpose of visiting
the generator. The trip typically goes from origin
to generator and then returns to the origin.
Diverted Linked Trips
Trips that are attracted from the traffic volume
on roadways within the vicinity of the generator
but that require a diversion from one roadway to another.
New Trips
Added
By Project

The estimation of new trips generated by the proposed development project may include credit for trips associated with existing uses on the site. Existing uses are typically those actively present on the project site at the time data is gathered for the traffic impact study.

The final estimate of new daily and peak-hour trips associated with a proposed development project should represent the net contribution of the proposed project. The City will review the trip generation analysis and determine if additional analysis is required.

Trip generation analysis should be primarily based on trip generation rates derived from local empirical data. Recognizing that this is not always possible, the most recent version of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*[3] and recommendations provided in the *Trip Generation Handbook* should be used.[4] If multiple trip generation rate sources exist, the study shall provide a comparison and use the rates that best reflect local conditions and applicable regulatory constraints.

The project trip generation rate cannot be based solely on one nearby or similar land use facility. The sample used for non-standard trip generation rates shall include at least three similar facilities in Citrus Heights or neighboring jurisdictions with similar characteristics.

If the study involves comparable sites located in other communities, chosen sites and uses to be studied should be reasonably equivalent to the site and use proposed within the City.

The final trip generation rates used for the project should be a weighted average of the various trip generation rates available. A tabular summary of the final trip generation rate calculation shall be provided. Appendix A provides sample trip generation calculations.

Establishing Trip Generation for an Unknown Use

Option 1:

In the case of "shell" buildings with unidentified uses or where the ultimate tenant use of the building cannot be restricted, the City Engineer will likely recommend the use of the highest traffic intensity among all permitted uses to establish traffic impacts and to calculate project impact fees.

Option 2:

Traffic impacts may be assessed based on a use with lower traffic intensity if the City and the developer establish a trip budget threshold. The trip budget will be monitored by the Planning Department. Additional evaluation is required if the trip budget will be exceeded by a proposed project.

[1] *Trip Generation Manual*, 10th Edition, Institute of Transportation Engineers, 2017.
[2] *Trip Generation Handbook, 3rd Edition:, An ITE Recommended Practice*, Institute of Transportation Engineers, 2017.

3. SCOPE OF THE STUDY

The contents and extent of a transportation impact study depend on the location and size of the proposed development, the prevailing conditions in the surrounding area, and the technical questions being asked by decision makers and the public.

STUDY AREA

Defining a study area needs to be developed through consultation with City staff that results in substantial evidence (facts, analysis, etc.) supporting the study area delineation. The boundary should extend as far as any potential CEQA impact might occur, including across jurisdictional boundaries. The City must approve study locations before traffic data collection and analysis commences. Careful consideration of all modes and facilities (i.e., transit, pedestrian, bicycle, vehicle, rail crossings, etc.) is required when selecting the study area boundary. The study area should be viewed as the "area of influence" of a specific project. The extent of the study area should be determined based on consultation with City staff and the following guidance:

- For potential impacts to pedestrian facilities, the study area should be a minimum of ½ mile.
- For potential impacts to bicycle facilities, the study area should be a minimum of two miles.

Additional facilities may be studied based on circumstances unique to the site, especially those related to pedestrians, bicycles, and transit.

TRANSPORTATION ANALYSIS SCENARIOS

The potential transportation analysis scenarios are listed below. Projects consistent with the General Plan will be required to complete the Baseline Conditions analysis. Future Conditions would typically be required for projects that are proposing general plan changes or at the discretion of the City engineer depending on the project type and location.

BASELINE CONDITIONS

- **Baseline Conditions** represents transportation conditions for all travel modes in the study area based on recent field observations. The baseline condition is often the existing condition unless there is an impending planned transportation or land use projects that will be in place prior to the proposed project is constructed. Traffic volumes for roadway analysis should be based on recent count data[5]. For CEQA compliance, the transportation impact analysis should include a description of the physical environmental condition in the vicinity of the project, as they exist at the time of the notice of preparation is published, or if no notice of preparation is published, at the time environmental

[5] At the time this set of guidelines was being prepared, the COVID pandemic was still causing substantial changes in travel behaviors. Consequently, analyses are continuing to rely on "Pre-COVID" traffic volumes, which are available from the City's online count database, historic counts from vendors, and "big data" from Streetlight, Data, Inc.

analysis is commenced, from both a local and regional perspective (CEQA Guidelines Section 15125(a)).

- **Baseline Plus Project Conditions** represented by project changes to baseline transportation conditions for all travel modes in the study area. For re-use or conversion projects, this will involve accounting for any existing use of the site that remains or will be discontinued. Per SB 743, any analysis of roadways or intersections performed as part of the study would not be included in the environmental document, but may be included in a staff report so that the public and decision-makers are aware of the project's effects.

FUTURE CONDITIONS

- **Cumulative No Project Conditions** represented by transportation conditions for all travel modes in the study area reflecting all approved projects plus pending projects or expected development of other areas of the City designated for growth. In most cases, the project site will likely be vacant under this scenario. In some cases though, this scenario may need to account for any existing uses on the site that could continue and potential increases in development allowed by ministerial approvals only.
- **Cumulative Plus Project Conditions** represented by Cumulative Conditions plus changes to these conditions caused by the proposed project. This scenario needs to account for whether the project is changing any existing or planned land uses on the site.

Additional analysis scenarios may be required in the traffic impact analysis dependent on project conditions and setting. For example, other scenarios may be needed to test phasing or other interim conditions, at the discretion of the City.

TRANSPORTATION ANALYSIS TIME PERIODS

The determination of analysis time periods will depend on the travel modes being evaluated. For non-auto travel modes, the analysis may include daily, peak period, or peak hour conditions. Final determination shall be made in consultation with City staff. For roadway analysis, General Plan Policy 29.2 states that peak hour traffic volumes will be used in determining compliance with the vehicle LOS standard. These may include weekday AM, Mid-Day, and PM hours as well as Saturday Mid-Day or PM peak hours.

Based on the land use of the proposed project and upon consultation with City, the study should analyze traffic operations during the peak hour of the following time periods:

- Weekday morning peak (7:00 – 9:00 AM)
- Weekday evening peak (4:00 – 6:30 PM)

For some projects, the City may substitute or require additional peak hour analysis for the following time periods:

- Weekday afternoon or school peak (2:00 – 4:00 PM)
- Friday evening peak (5:00 – 7:00 PM)
- Weekend midday peak (11:00 AM – 1:00 PM)
- Weekend evening peak (4:00 – 7:30 PM)

The determination of study time periods should be made separately for each proposed project based upon the peaking characteristics of project-generated traffic and peaking characteristics of the adjacent street system and land uses. The time period(s) that should be analyzed are those that exhibit the maximum combined level of project-generated traffic and adjacent street traffic.

CONSULTATION WITH OTHER JURISDICTIONS

If the study area overlaps with other jurisdictions, the other jurisdictions must be consulted to verify study locations and to specify the impact significance criteria that should be used in the TIS for these locations. Section 15086 of the CEQA Guidelines shall be followed as the basis for satisfying consultation requirements. Although no longer required by CEQA, a limited/focus amount of intersection operations analysis in another jurisdiction may be warranted under certain conditions subject to the final determination of the City engineer.

MAJOR COMPONENTS OF THE STUDY

The extent and complexity of a transportation impact study can vary greatly. Table 2 provides basic transportation and circulation elements that shall be acknowledged in every project requiring a TIS. Table 3 in Section 4 identifies relevant policies by each element. Specific analysis methodologies and significance criteria for each of the listed elements are described in further detail in Sections 5 and 6. Communicating the transportation impact study results is as important as the analysis itself. Effective graphics, charts, and simulations are often necessary to successfully communicate analysis results to decision makers and the public.

TABLE 2: TRANSPORTATION AND MOBILITY ELEMENTS ADDRESSED IN AN IMPACT STUDY

Elements	Evaluation
On-site Circulation	Review and evaluate site access locations, driveway throat depths, size of major circulation features with respect to operations and safety, turning movement volumes at site access points, queuing at site access driveways, adequacy of passenger drop-off and pick-up areas, dimensions of truck loading areas, truck delivery routes, and emergency access. Address and accommodate pedestrian and bicycle access. See Appendix B for a sample.
Off-Site Traffic Operations	Study all roadway facilities using methods and procedures contained in the latest version of the *Highway Capacity Manual* (HCM).

Elements	Evaluation
Bicycle Facilities	Identify any existing or planned bicycle facilities that may be affected by the project. Focus on maintaining or enhancing connectivity and completing network gaps.
Pedestrian Facilities and Americans with Disabilities Act (ADA) compliance	Identify any existing or planned pedestrian facilities that may be affected by the project. Focus on maintaining or enhancing connectivity, completing network gaps, and removing barriers. Disclose evaluation and documentation of project features (e.g., road widening) with likely disparate impact on pedestrians (e.g., longer crossing time).
Parking	Compare the project parking plan with City standards.
Trucks (or other heavy vehicles)	For truck traffic generating projects, identify the number of truck trips that will be generated, and design facilities necessary to accommodate truck traffic.
Transit	Identify any existing or planned transit facilities that may be affected by the project. Focus on maintaining or enhancing connectivity, completing network gaps, and avoiding increases in transit vehicle travel times.
Intersection Traffic Control	The City allows roundabouts instead of traffic signals or all-way stop control. Evaluate unsignalized intersections located within the study area to determine appropriate traffic control with or without the project.
General and Related Plan Consistency	Evaluate the project against transportation-related goals, polices, and actions set forth in the General Plan, Pedestrian Master Plan, and Bikeway Master Plan. Depending on project type and location, evaluation may be needed for the Old Auburn Road Complete Streets (OARCS) Plan, Carriage/Lauppe Safe Schools Corridor Plan, Multi-Modal Transportation Safety Program (MMTSP) and City Intelligent Transportation System (ITS) Master Plan.
Other Subject Areas	Consider other subject areas on a case-by-case basis.
Other Jurisdictional Requirements	In situations where several agencies must approve a development or are responsible for affected roadways, coordination with multiple lead and responsible agencies may be necessary to finalize scope of work, analysis methods, and assumptions.
Safety	Projects subject to CEQA review should be analyzed for potential safety impacts to the state highway system in accordance with the *Interim Local Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance* (Caltrans, December 2020). Safety evaluations may also be performed for City-maintained roadways using the following available documents: *City of Citrus Heights Bikeway Master Plan* (2015) and *City of Citrus Heights Pedestrian Master Plan* (2016). By the end of 2021, a Local Road Safety Plan (LRSP) will be completed for the City's transportation system, which may also be utilized in safety evaluations.
VMT	Projects subject to CEQA review should be analyzed for VMT impacts in accordance with the *SB 743 Implementation Guidelines for City of Citrus Heights* (2021). This document includes an extensive discussion that defines VMT, describes how per capita and per employee VMT is estimated, presents recommended significance criteria for VMT impacts, and identifies feasible mitigation measures for significant VMT impacts.

4. RELEVANT POLICIES

An important aspect of a TIS is to provide sufficient information for the City to determine that a project is consistent with the General Plan and other applicable City plans. As such, individual projects must be reviewed against relevant policies contained in the General Plan. Applicants with a project within the Sunrise Tomorrow Specific Plan, Stock Ranch Guide for Development, or Boulevard Plan areas should also confirm applicable policies from these plans with the City.

Table 3 lists the most common policies associated with each element of a TIS in an abbreviated fashion. Applicants should review the full policy statement in the General Plan.

TABLE 3: PRIMARY TRANSPORTATION AND MOBILITY GENERAL PLAN POLICIES

Element	General Plan Transportation and Mobility Policy	Project Applicability (Check here)
On-site Circulation	➢ Policy 29.4: Support safe, complete and well-connected neighborhood street, bicycle, and pedestrian access and connections that balance circulation needs with the neighborhood context. ➢ Policy 29.8: Minimize the number of access points along arterial roadways, including by consolidating or relocating driveways to provide for more efficient traffic movement. ➢ Policy 30.3: Discourage the construction of private streets to ensure full public access to the City circulation system. ➢ Policy 6.5: Consider the neighborhood context when developing traffic calming devices for established rural neighborhoods ➢ Policy 13.1: Improve mobility in the Sunrise MarketPlace area to provide adequate access for vehicles, transit, bicycles and pedestrians. ➢ Policy 13.2: Create convenient connections across Sunrise Boulevard for vehicles, bicycles, pedestrians and transit.	

Element	General Plan Transportation and Mobility Policy	Project Applicability (Check here)
Off-Site Traffic Operations	➢ Policy 29.1: Strive to provide for the movement of vehicles, commercial trucks, alternative and low energy vehicles, transit, bicyclists and pedestrians appropriate for the road classification and adjacent land use. ➢ Policy 3.5 and 7.6: Plan, design, and construct neighborhood and rural residential streets to encourage walking and bicycling while discouraging high vehicle speeds and volumes consistent with Policy 29.1. ➢ Policy 6.1: Provide public improvements that are appropriate and compatible with the unique qualities of the City's rural neighborhoods. ➢ Policy 6.5: Consider the neighborhood context when developing traffic calming devices for established rural neighborhoods. ➢ Policy 29.2: Measure customer satisfaction related to vehicle travel using level of service (LOS) according to procedures in the latest version of the Highway Capacity Manual published by the Transportation Research Board. The City will strive to achieve LOS E or better conditions for City roadways and intersections during peak hours, with exception of the exempt locations identified in this policy. ➢ Policy 53.2: Minimize the impacts of vehicle emissions on air quality. ➢ Policy 29.4: Support safe, complete and well-connected neighborhood street, bicycle, and pedestrian access and connections that balance circulation needs with the neighborhood context. ➢ Policy 30.2: Require public street right-of-way dedications and improvements as development occurs.	

Element	General Plan Transportation and Mobility Policy	Project Applicability (Check here)
Bicycle Facilities	➢ Policy 30.1: Improve aesthetic features along the City's roadways and maintain landscaping in an efficient and timely manner especially when it enhances the walking and biking environment. ➢ Policy 19.1: Promote improvements to major corridors to make them more distinctive and inviting. Encourage installation and maintenance of landscaping in median and street frontages along arterial roadways. ➢ Policy 19.2: Establish a street tree planting program for major corridors. ➢ Policy 19.3: Require landscaping on commercial, residential, and institutional uses adjacent to all public street frontages. ➢ Policy 29.1: Strive to provide for the movement of vehicles, commercial trucks, alternative and low energy vehicles, transit, bicyclists and pedestrians appropriate for the road classification and adjacent land use. ➢ Policy 29.1 – Action B: Evaluate projects to ensure that the safety, comfort, and convenience of pedestrians and bicyclists are given equal level of consideration to drivers. ➢ Policy 29.1 – Action C: Consider ways to increase and improve travel choices when reviewing development or transportation infrastructure projects. ➢ Policy 29.1 – Action E: Improve the existing street network to minimize travel times and improve mobility for transit, bicycle, and walking trips between new projects and surrounding land uses to reduce vehicle trips. ➢ Policy 3.5 and 7.6: Plan, design, and construct neighborhood and rural residential streets to encourage walking and bicycling while discouraging high vehicle speeds and volumes consistent with Policy 29.1. ➢ Policy 13.1: Improve mobility in the Sunrise MarketPlace area to provide adequate access for vehicles, transit, bicycles and pedestrians. ➢ Policy 13.2: Create convenient connections across Sunrise Boulevard for vehicles, bicycles, pedestrians and transit. ➢ Policy 54.1: Encourage alternative modes of transportation and trip-reducing strategies. Policies and planned improvements contained within the *City of Citrus Heights Bikeway Master Plan* (2015) should also be reviewed.	

Element	General Plan Transportation and Mobility Policy	Project Applicability (Check here)
Pedestrian Facilities and Americans with Disabilities Act (ADA) compliance	➢ Policy 30.1: Improve aesthetic features along the City's roadways and maintain landscaping in an efficient and timely manner especially when it enhances the walking and biking environment. ➢ Policy 19.1: Promote improvements to major corridors to make them more distinctive and inviting. Encourage installation and maintenance of landscaping in median and street frontages along arterial roadways. ➢ Policy 19.2: Establish a street tree planting program for major corridors. ➢ Policy 19.3: Require landscaping on commercial, residential, and institutional uses adjacent to all public street frontages. ➢ Policy 29.1: Strive to provide for the movement of vehicles, commercial trucks, alternative and low energy vehicles, transit, bicyclists and pedestrians appropriate for the road classification and adjacent land use. ➢ Policy 29.1 – Action B: Evaluate projects to ensure that the safety, comfort, and convenience of pedestrians and bicyclists are given equal level of consideration to drivers. ➢ Policy 29.1 – Action C: Consider ways to increase and improve travel choices when reviewing development or transportation infrastructure projects. ➢ Policy 29.1 – Action D: Require sidewalks on all arterial and collector streets. Where feasible, separate sidewalks from streets on arterials and collectors with landscaping including a tree canopy to create shade ➢ Policy 29.1 – Action E: Improve the existing street network to minimize travel times and improve mobility for transit, bicycle, and walking trips between new projects and surrounding land uses to reduce vehicle trips. ➢ Policy 3.5 and 7.6: Plan, design, and construct neighborhood and rural residential streets to encourage walking and bicycling while discouraging high vehicle speeds and volumes consistent with Policy 29.1. ➢ Policy 6.6: Support development of "safe routes" to school for children residing in rural neighborhoods. ➢ Policy 13.1: Improve mobility in the Sunrise MarketPlace area to provide adequate access for vehicles, transit, bicycles and pedestrians. ➢ Policy 13.2: Create convenient connections across Sunrise Boulevard for vehicles, bicycles, pedestrians and transit. ➢ Policy 13.4: Facilitate the development of new buildings in areas currently devoted to parking to shorten distances between buildings and foster better pedestrian connections between shopping centers. ➢ Policy 30.4: Maintain street and sidewalks in rural residential areas that balance circulation needs and compatibility within the surrounding neighborhoods. ➢ Policy 54.1: Encourage alternative modes of transportation and trip-reducing strategies Policies and planned improvements contained within the *City of Citrus Heights Pedestrian Master Plan* (2016) should also be reviewed.	

Element	General Plan Transportation and Mobility Policy	Project Applicability (Check here)
Parking	➢ Policy 13.4 – Action A: Consider establishment of a maximum parking ratio for the MarketPlace area that recognizes the value of land for additional development that can increase shopping and employment opportunities while also improving the convenience of walking, bicycling, and using transit.	
Trucks	➢ Policy 29.1: Strive to provide for the movement of vehicles, commercial trucks, alternative and low energy vehicles, transit, bicyclists and pedestrians appropriate for the road classification and adjacent land use. ➢ Policy 29.5: Encourage movement of goods by truck on freeways and other appropriate designated routes.	
Transit	➢ Policy 31.1: Strive to increase fixed-route and demand responsive (i.e., paratransit) transit service coverage and frequency to Citrus Heights residents and employees. ➢ Policy 31.2: Strive to provide public transit that is an attractive, convenient, dependable and safe alternative to the automobile. ➢ Policy 31.4: Require new development to provide transit enhancements, (including, but not limited to bus pull-outs and bus shelters) where appropriate, that decrease transit travel times, improve access to transit stops, or improve the amenities, security, or travel information at transit stops. ➢ Policy 13.3: Promote installation of additional, distinctive transit stops at key activity areas and encourage covered shelters at existing and new stops. ➢ Policy 8.3: Support the creation of transit centers near Greenback Lane/Sunrise Boulevard and Greenback Lane/Auburn Boulevard. ➢ Policy 29.1: Strive to provide for the movement of vehicles, commercial trucks, alternative and low energy vehicles, transit, bicyclists and pedestrians appropriate for the road classification and adjacent land use. ➢ Policy 29.1 – Action C: Consider ways to increase and improve travel choices when reviewing development or transportation infrastructure projects. ➢ Policy 29.1 – Action E: Improve the existing street network to minimize travel times and improve mobility for transit, bicycle, and walking trips between new projects and surrounding land uses to reduce vehicle trips. ➢ Policy 13.1: Improve mobility in the Sunrise MarketPlace area to provide adequate access for vehicles, transit, bicycles and pedestrians. ➢ Policy 13.2: Create convenient connections across Sunrise Boulevard for vehicles, bicycles, pedestrians and transit. ➢ Policy 13.5: Promote transit-oriented development through reuse and redevelopment of opportunity sites near the Greenback Lane/Sunrise Boulevard intersection. ➢ Policy 54.1: Encourage alternative modes of transportation and trip-reducing strategies	

Element	General Plan Transportation and Mobility Policy	Project Applicability (Check here)
Intersection Traffic Control	➢ Policy 32.1: Evaluate and utilize technologies that can improve the performance, reliability, and safety of the transportation system (such as signal coordination, centralized traffic control, red-light cameras, and real-time travel information). ➢ Policy 53.1 – Action D: Synchronize traffic signals on roads susceptible to high emission levels from idling vehicles. ➢ Policies and planned improvements contained within the *City of Citrus Heights ITS Master Plan* should also be reviewed.	
General Plan Consistency	➢ Review other elements of the General Plan for applicable policies, especially the Community Development and Community Health chapters.	
Other Subject Areas	➢ Policy 10.8: Discourage concentration of auto intensive facilities (such as drive through and gas station uses) and ensure that drive-through businesses are allowed only where compatible with the surrounding areas. ➢ Policy 3.5 – Action A: Regulate development to limit traffic on new local residential streets to 3,000 vehicles per day.	
Other Jurisdictional Requirements	➢ Policy 29.6: Collaborate with neighboring jurisdictions when updating the General Plan and preparing the Capital Improvement Program to work toward providing a regional Complete Streets transportation network for all modes. ➢ Policy 33.2: Establish formal and informal processes with regional agencies, the City of Roseville, Sacramento County, and Placer County to review and provide input on proposed development within one-half mile of the City limits. ➢ Policy 33.1: Maintain open communication and cooperation with all public agencies that serve residents and businesses in Citrus Heights.	

VEHICLE LEVEL OF SERVICE

Historically, vehicle LOS thresholds have been the prevailing criteria applied to transportation projects. The City of Citrus Heights recognizes that vehicle LOS is one performance measure that needs to be carefully weighed against other City objectives to balance the preservation of community neighborhood values with a safe and efficient circulation system. The City's vehicle LOS standard is described in detail in the Community Development element of the General Plan (Policy 29.2) and is summarized to the right. Objectives or thresholds for other transportation modes have also been established and are addressed in these guidelines in Table 6.

If the TIS study area extends into an adjacent jurisdiction, their LOS threshold shall also be used to determine deficient operations for locations in that jurisdiction. The General Plan also states that LOS exceptions may be allowed on a case-by-case basis, where improvements are infeasible or would conflict with other community values.

City of Citrus Heights Vehicle LOS Policy

Measure customer satisfaction related to vehicle travel using LOS according to procedures in the latest version of the Highway Capacity Manual published by the Transportation Research Board. The City will strive to achieve LOS E or better conditions for City roadways and intersections during peak hours (these may include weekday AM, Mid-Day, and PM hours as well as Saturday Mid-Day or PM peak hours). The intent of the policy is to effectively utilize the roadway network capacity while balancing the desire to minimize potential adverse effects of vehicle travel on the environment and other modes.

Exceptions to LOS E are allowed at certain locations as specified in Policy 29.2 (see pages 35 and 36 in these guidelines for more details).

Source:
Citrus Heights General Plan
Policy 29.2

5. ANALYSIS METHODOLOGY

This section provides data collection and analysis procedures for conducting transportation impact studies in Citrus Heights. The City is committed to a balanced analysis for all modes of travel. The methodology presented is this section includes robust data collection and analysis techniques for pedestrian, bicycle and transit networks, in addition to vehicle circulation.

TRANSPORTATION DATA COLLECTION

Accurate data is essential to achieve a high level of confidence in transportation analysis results. Existing traffic conditions data should be collected using the guidelines set forth in Table 4.

TABLE 4: BASELINE CONDITIONS DATA COLLECTION PROTOCOL

Data Set	Procedure
Peak period turning movement counts	Collect data for all study intersections on a Tuesday, Wednesday, or Thursday during weeks without holidays, large special events, or heavy construction in the study area that results in temporary travel pattern shifts. Fall or Spring days without rain and when school is in session are preferred. ➢ Care should be taken to collect data on days when schools are in session. ➢ Consult with the City to determine if adjustments are necessary to account for seasonal variation in traffic volumes. ➢ Due to the effects of the COVID pandemic on travel, existing traffic counts should be representative of pre-COVID conditions so long as travel continues to be affected. This is often accomplished by purchasing historic counts from vendors or by purchasing anonymous "big data' from Streetlight Data, Inc, or other vendors. Once a new post-COVID condition is reached, new traffic counts may be used to represent then current conditions. Careful coordination with City staff is required to determine the appropriate count timeframe. ➢ Bicycles and pedestrians should be included in all counts. ➢ Some projects may require vehicle classification or occupancy counts. Consult with the City on a case-by-case basis.
Daily traffic counts	Collect data for all study roadway segments using the parameters described above for peak period turning movement counts with the exception of collecting bicycle and pedestrian data.
Roadway geometrics	Establish existing geometrics from a combination of aerial photography, as-built plans, and site visits.
Travel time and speed	Collect as necessary (e.g., for microsimulation validation or to document how travel speeds may change). Collect data using a floating car survey.
Signal timing	Request timing from the City and other operating agencies such as Caltrans or Sacramento County. Verify timing in the field.
Collision data	Obtain collision data from City staff and other adjacent agencies as applicable (i.e. City of Roseville). If collision analysis is required on state highway system, obtain from Statewide Integrated Traffic Records System (SWITRS) or similar database (depending on study purpose).

Data Set	Procedure
Mode split	Summarize daily and peak hour mode split from study area or communities adjacent to study area. Data sources could include the Census journey-to-work survey, the SACOG household travel survey, or other available surveys.
Transit routes and use	Map existing transit routes and stops serving the study area and identify service hours. Document amenities (benches, shelters, bicycle parking, etc.) available at transit stops and centers within ¼-mile of non-residential projects and a ½-mile of residential projects.
Bicycle and pedestrian facilities	Map existing bicycle and pedestrian facilities within the study area (include sidewalks, crosswalks, signal heads, push buttons, related signing and striping). Document barriers, deficiencies and high-pedestrian demand land uses including schools, parking, senior housing facilities, and transit stops or centers.

MULTIMODAL ANALYSIS

Evaluate the project's potential adverse effects on transportation facilities and services related to transit, bicycles, and pedestrians. The evaluation could include identification of any disruption to existing facilities and services or interference with the implementation of planned facilities and services. This effort will require identifying and mapping existing facilities. Particular attention should be made to roadway or intersection widening improvements and the addition of new driveway locations, that would increase pedestrian/bicycle crossing times or increase the potential for vehicle and pedestrian/bicycle conflicts. Consideration should also be given to how a project affects accessibility between each travel mode and the surrounding land uses.

For some projects, more detailed multi-modal analysis may be required. In these cases, the methodology shall be selected in consultation with City staff and should consider new tools, procedures, and performance measures such as those listed below.

- **Multimodal LOS** – The HCM contains multi-modal LOS analysis methods. Simulation models can also be used to measure performance (i.e., person-delay) for all modes using the transportation network.
- **Activity Connectedness** – Travel time for each mode (vehicles, transit, bicycles, and walking) between the project and surrounding land uses can be used to gauge the degree of accessibility for a project. The City desires to minimize travel time to necessary destinations while minimizing unnecessary vehicle travel. The main idea is to evaluate activity centers and destinations around projects to ensure that walk times to necessary destinations are minimized and the walking experience is comfortable.
- **Speed Management** – Desired travel speeds for each mode should be considered in project evaluation where new transportation facilities are being constructed. The City desires roadways to be designed for 40 miles per hour or less on arterial streets and 30 miles per hour or less on collector streets to reduce the severity of collisions and minimize air pollution and greenhouse gas emissions.

TRAFFIC OPERATIONS ANALYSIS

Traffic conditions shall be analyzed using standard or state-of-the-practice professional procedures for trip generation, trip distribution, and traffic assignment, which can generally be found through organizations such as Institute of Transportation Engineers (ITE), Caltrans, Federal Highway Administration (FHWA), and American Planning Association (APA).

General Plan Policy 29.2 states that vehicle LOS definitions and calculation methods must be consistent with the latest edition of the *Highway Capacity Manual* (HCM). The HCM is published by the Transportation Research Board. The most recent version is the 6th Edition. published in 2016.

Analysis Parameters

Table 5 provides guidance for use of specific analysis parameters (e.g., signal phasing, conflicting pedestrian volumes, etc.).

TABLE 5: ANALYSIS PARAMETER RECOMMENDATIONS

Parameter	Recommendation
Peak hour factor (PHF)	A PHF of 1.0 should be used for all analyses that involve City-owned and operated facilities. This approach has also been adopted by the Cities of Sacramento and Roseville, and County of Sacramento. By applying a 1.0 PHF, the reported LOS is based on conditions for the entire peak hour, versus the busiest 15-minutes of the peak hour. In selecting a 1.0 PHF, the City concluded that evaluating and reporting conditions (and sizing infrastructure) for the busiest 15-minutes of the day is overly conservative. If analyses are being performed for a Caltrans facility, coordination with District 3 traffic operations staff is recommended to confirm PHF and other assumptions.
Saturation flow rate	Prior analyses within Citrus Heights have demonstrated that use of the default ideal saturation flow rate (i.e., 1,900 vehicles per hour per lane) contained in the latest version of the HCM allows for microsimulation models to be validated to prescribed specifications. Under certain circumstances, however, field measurement of saturation flow rates may be warranted.
Yellow phase	If a traffic signal is present under baseline conditions, use existing yellow phase from city provided timing sheets. For future conditions, consult with the City and consider the most recent version of the California Manual on Uniform Traffic Control Devices (MUTCD).
All red phase	If traffic signal is present under baseline conditions, use existing all red phase from city provided timing sheets. For future conditions, consult with the City and consider the most recent version of the California MUTCD. All red phase may be greater on high-speed roadways.
Conflicting pedestrians for signalized intersections and roundabouts	Should be based on existing pedestrian counts or observations. Otherwise, refer to the most current version of the HCM to determine the amount of pedestrian activations per cycle into appropriate categories.

Parameter	Recommendation
Traffic signal cycle lengths and phasing	Replicate existing cycle length and phasing (e.g., leading left turns) from city provided timing sheets. For new signalized locations, coordinate with City staff regarding assumed signal phasing, cycle lengths, and coordination with other intersections along the study corridor.
Heavy truck percentages	Based on the existing heavy-truck percentage and adjusted to account for future planned development. In general, heavy-truck percentages should be greater on truck routes and main thoroughfares than on local streets. Minimum recommended value is 3%.
Lane utilization factor	If applicable, adjust lane utilization factors based on field observations. Otherwise, refer to the most current version of the HCM.

Analysis Tools and Methods

Traffic operations analysis should be conducted using tools and methods approved by the City of Citrus Heights.

Intersection Analysis – Traffic Operations

Microsimulation models, such as SimTraffic or VISSIM, should be used at the majority of intersections in the City. These models better consider the effects of signal coordination, upstream/downstream bottlenecks, turn lane overflow effects, imblanced lane utilization, congested conditions, and other factors than deterministic models such as Synchro. They also produce 95th percentile queue lengths that are more accurate than deterministic models. In instances, where the intersection is isolated (i.e., not coordinated), under-capacity, and does not have a critical turn movement whose storage is to be evaluated, deterministic models are suitable to use.

Microsimulation analysis requires at least 10 runs to be performed, statistical outliers to be removed, and reported results to be the average of 10 runs. For oversaturated conditions, it may be necessary to perform a 15-minute or 30-minute, pre-peak hour seeding runs so that congested conditions are present at the beginning of the peak hour of analysis. Microsimulation models should be validated to existing conditions using a variety of performance standards such as average travel time, queue lengths, and vehicles served. The level of variance between the ten runs should be checked to ensure that it is not excessive (e.g., the average delay is 90 seconds and variance is 60 seconds would be considered excessive). High variance results are typically indicative of including a run where "a vehicle gets stuck" or randomness inherent to this type of analysis has a material effect on the outcome.

Intersection Analysis – Signal Phasing / Swept Path Analysis

When changes are being proposed at a signalized intersection that would result in changes in signal phasing, the AutoTurn software program should be used to determine whether simultaneous left-turn movements are possible in the event protected left-turn phasing is being considered. Exhibits should be prepared as part of the TIS to illustrate these swept paths (e.g., for a bus or WB-50 type truck). Coordination with City staff is required to determine the appropriate design vehicle(s).

Roundabout Analysis – Traffic Operations

Roundabouts may be analyzed using the Sidra software program or microsimulation analysis. The volume-to-capacity (V/C) ratio should be checked on each approach to the roundabout to verify that they are less than 0.85. Values over 0.85 suggest the potential for lengthy queuing and delays and require supplemental review to determine its appropriateness. Microsimulation would be particularly appropriate if a roundabout is proposed at a busy (with many vehicles, bicyclists, and pedestrians) intersection on an existing four-lane arterial.

Roundabout Analysis – Geometric Review

The geometric configuration of a proposed roundabout should be analyzed to determine its ability to accommodate buses or a truck using the AutoTurn software program. Coordination with City staff is required to determine the appropriate design vehicle(s). Other considerations in the geometric review are the placement of crosswalks, and the required amount of lateral transition to maintain slow speeds through the roundabout.

ON-SITE TRANSPORTATION REVIEW

A detailed site plan review is required for every project. The following site plan elements should be reviewed in detail. Other elements may also need to be studied depending on the type of project.

- Driveway spacing, width, permitted turning movements, curb return radii, and sight distance.
- Minimum required throat depth (for inbound and outbound travel) at project driveways based on minimum requirements as described in Section 106 of the City's Municipal Code. For special circumstances, throat depth may be calculated using either microsimulation or the method described in *Estimation of Maximum Queue Lengths at Unsignalized Intersections* (ITE Journal, 2001). Use of 95th percentile queue lengths from Synchro is discouraged due to known limitations in accuracy.
- Need for deceleration lanes at driveways.
- Truck turning movement adequacy including refuse, delivery trucks, etc.
- Presence/adequacy of pedestrian paths from the project site to adjacent sidewalks.
- Need for median treatments along adjacent roadways to accommodate project access.
- Review of on-site circulation including width of drive aisles, parking lot layouts, drive-through lane storage, pedestrian pathways, and other circulation-related considerations.

Appendix B includes several sample illustrations of site plan review recommendations.

Parking

Coordination with City staff is required to determine if analysis of the project's parking supply is required. In many instances, City staff will verify that the project's parking supply is consistent with requirements from the City's Municipal Code. However, in special cases, a focused parking supply and demand analysis may be

warranted as part of the TIS. This could include projects that propose less parking than the code requires or projects that propose a mix of complementary mix of land uses that provide opportunities for shared parking. In the latter case, the latest version of the Shared Parking spreadsheet (jointly published by the Urban Land Institute and National Parking Association in 2020) should be used.

TRAFFIC FORECASTS

Most TISs require one or both of the following types of traffic forecasts of the roadway system:

1. "Plus Project" Traffic Forecasts
2. Cumulative Traffic Forecasts

These forecasts may be used for peak hour intersection operations or for daily roadway segments to be used as inputs into air or noise analyses. The need for cumulative forecasts and analysis is subject to the discretion of the City engineer based on the project type and location.

1. "Plus Project" Traffic Forecasts

Most "Plus Project" forecasts rely on the standard four-step method in transportation planning: trip generation, mode split, trip distribution, and traffic assignment. Each of these steps is discussed below:

Trip Generation

Chapter 2 of these guidelines provided a detailed recommended approach for estimating a project's trip generation.

Mode Split

Mode split refers to the method of travel a resident, employee, customer, etc. selects to travel to/from a proposed project. Mode split can be estimated in a number of ways, such as the following:

- Mode of travel observed at nearby, similar facilities.
- Estimates derived from the US Census, American Community Survey, or SACOG 2018 Household Survey.
- Use of a mixed-use trip generation model that has been demonstrated to be validated to local conditions.

Note that if ITE trip generation estimates are used for the trip generation estimate, those rates already have a certain (but not discernable) amount of non-auto travel built into them. This is because those rates were collected primarily in suburban settings with limited transit options, and free parking. Despite this, some (modest) levels of external travel by walking, biking, and transit likely occurred.

Trip Distribution

Trip distribution refers to the directionality of external trips made by a resident, employee, customer, etc. to/from a proposed project. Trip distribution can be estimated in a number of ways, such as the following:

- Review of existing turning movements and complementary land uses.
- Use of "big data" (using anonymous cell phone records) to measure the trip distribution of similar land uses located near the proposed project.
- Use of a travel demand model to track trips from a specific Traffic Analysis Zone (TAZ) that represents the project site.
- Other trip distribution specific data, such as school district boundaries, ZIP codes of students/employees, general population distribution, and presence of similar/competing facilities (e.g., coffee shop) nearby.

Trip distribution patterns often differ by land use type. They may also differ by time-of-day or for the inbound/outbound travel directions. These and other factors should be considered when developing trip distribution estimates.

Trip Assignment

Trip assignment refers to the specific path of travel expected to be used by project vehicle trips. Trip assignment is typically determined in one of the following ways:

- Review of existing turning movements (e.g., relative amount of left-turn traffic from two parallel routes).
- Travel time comparisons among potential routes (collected via in-person travel time runs or based on Google Maps travel time comparisons).
- Permitted driveway and adjacent intersection turning movements. Trip assignment will likely change if left-turns into or out of the project driveway are permitted versus prohibited. The availability of u-turns at a nearby intersection may also influence trip assignment.

In some instances, a project may result in changes in background travel. This could occur if new roadways are being constructed that provide new travel options. The introduction of certain land uses to an area that currently have none may background travel patterns.[6]

Consultants should submit a Project Travel Characteristics memo to City staff for review/approval prior to initiating next steps in the analysis. Doing so avoids having to redo work should there need to be updates to parts of the trip generation and distribution elements.

[6] As an example, the City of Citrus Heights does not current have any hotels within its boundaries. A proposed hotel could be evaluated by using "big data" to reveal travel patterns from nearby hotels outside the City limits to understand how much and where travel from these facilities is occurring within the City.

2. Cumulative Traffic Forecasts

The City of Citrus Heights does not have its own travel demand model that has been calibrated to local conditions. This is a fairly common situation for cities that are nearly built out and not expecting large amounts of new development. The City's roadway network and land uses are contained in both the SACMET and SACSIM versions of the Sacramento Area Council of Governments (SACOG) travel demand models. The SACSIM model is SACOG's officially adopted model as it was utilized for its now adopted 2020 MTP/SCS. The SACMET model has been used for several project-level applications in the City over the past decade. The SACMET model is trip-based while the SACSIM model is activity-based. The SACSIM model is very complicated and time-consuming to use, requiring many hours to make land uses changes and to run.

Consultants working on TISs in the City should coordinate with City staff regarding the most appropriate model to use. This will depend on the type of project, location of project, and any prior studies within the study area that may have been performed.

The difference method forecasting process should be used to develop cumulative traffic forecasts. This approach generally adds the growth in traffic between base and future year models to existing counts. This approach is used because it effectively accounts for base year model errors (e.g., underprediction of traffic on a certain roadway) that could otherwise translate to the future year forecasts if not accounted for by this method.

Consultants are recommended to coordinate with City staff regarding the most appropriate means for developing Cumulative Plus Project traffic forecasts. Several options are available as described below:

- Manually add project trips on top of Cumulative No Project forecasts.
- Add project to the travel demand model and develop Cumulative Plus Project forecasts. Manually subtract project trips to obtain Cumulative No Project forecasts.
- Allow the travel demand model to develop both Cumulative No Project forecasts and Cumulative Plus Project forecasts.

As there are distinct advantages and disadvantages to each method, ccollaboration with City staff is required to determine the most appropriate method.

6. IMPACT ASSESSMENT

The main intent of the TIS is to determine potential transportation impacts of proposed projects. This information is essential for decision makers and the public when evaluating individual projects. This section explains what operating conditions shall be used when determining an impact. These guidelines also establish criteria for when a project impact is considered significant.

SCENARIO EVALUATION

Transportation impact determination for a proposed development project shall be based upon the comparison of the following scenarios using the significance criteria cited below:

- Baseline Conditions vs. Baseline Plus Project Conditions
- Cumulative No Project Conditions vs. Cumulative Plus Project Conditions

SIGNIFICANCE CRITERIA

A project impact is considered significant when it meets the criteria listed in Table 6. Several of these criteria warrant further discussion, as provided below:

1. Pursuant to SB 743, significance criteria are not provided for potential roadway network LOS impacts. Instead, a new VMT impact significance criterion is provided. Refer back to the *SB 743 Implementation Guidelines for Citrus Heights* (2021) for more information about the significance criteria.

2. The third bullet under On-Site Circulation pertains to hazardous conditions including insufficient storage in turn lanes. The City has determined that on arterial roadways, a left- or right-turn lane whose 95th percentile vehicle queue exceeds the available turn lane storage as a result of a proposed project would be deemed to substantially increase hazards. This would be considered a significant impact. The above interpretation is more typically applied at intersections with collector streets or driveways, but not necessarily at the intersection of two arterials. This is because greater delays and queuing are typical at these arterial-arterial intersections and drivers expect more frequent stop-and-go traffic. The City Engineer will make the final determination with regard to the significance of turn pocket queuing exceedances.

3. Disruptions to transit service could include measurements of project-related increases in bus running time along high-frequency bus routes, along with the reported on-time performance of that route from SacRT. Studies show that late running buses can contribute to declining ridership.

TABLE 6: SIGNIFICANCE CRITERIA

Elements	The project would cause a significant impact if it would:
On-Site Circulation	➢ Include designs for on-site circulation, access, and parking areas that fail to meet City or industry standard design guidelines. ➢ Fail to provide adequate accessibility for service and delivery trucks on-site, including access to truck loading areas. ➢ Substantially increase hazards due to geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
Off-Site Traffic Operations	Pursuant to SB 743, off-site traffic impacts are no longer considered significant under CEQA. Therefore, no significance criteria are provided.
Bicycle Facilities	➢ Disrupt existing or planned bicycle facilities or conflict with adopted City bicycle plans, guidelines, adopted complete streets plans, policies, or standards. ➢ Add trips to an existing bicycle facility which adversely affects the operation or safety of the transportation system.
Pedestrian Facilities	➢ Fail to provide accessible and safe pedestrian connections between buildings and to adjacent streets and transit facilities. ➢ Disrupt existing or planned pedestrian facilities or conflict with adopted City pedestrian plans, adopted complete streets plans, guidelines, policies, or standards. ➢ Add trips to an existing pedestrian facility, which adversely affects the operation or safety of the transportation system.
Parking	The direct effect of a given supply of parking is not considered a potential area of significance. However, the extent to which a given supply of parking results in searching for parking may be considered an indirect significant impact.
Trucks (or other heavy vehicles)	➢ Fail to provide safe accommodation of forecast truck traffic or temporary construction-related truck traffic.
Transit	➢ Disrupt existing or planned transit facilities and services or conflicts with adopted City transit plans, guidelines, policies, or standards.
Emergency Vehicle Response	➢ Result in inadequate emergency access during construction and/or operation.
General Plan Consistency	➢ Conflict or create an inconsistency with General Plan policies.
Construction-Related Impacts	➢ Create a temporary but prolonged impact due to lane closures, need for temporary signals, emergency vehicles access, traffic hazards to bikes/pedestrians, damage to roadbed, or truck traffic on roadways not designated as truck routes.
Other Jurisdictional Requirements	➢ Exceed established significance criteria thresholds for locations under the jurisdiction of other agencies.
VMT Impacts	➢ Not qualify under one of several potential exemption categories (small projects, affordable housing, transit priority, etc.), and its VMT exceeded 85 percent of the regional per capita, per employee, or per visitor average VMT. [1]
[1] *Refer to Senate Bill 743 Implementation Guidelines for Citrus Heights* (2021) for details.	

CUMULATIVE IMPACTS

Cumulative impact analysis must comply with the California Environmental Quality Act (CEQA). Land use development and infrastructure projects that are consistent with the General Plan, are expected to rely on the General Plan cumulative traffic analysis and EIR conclusions. Specific Plans will require updated cumulative traffic analysis consistent with the following definitions:

- The cumulative scenario is required per CEQA Guidelines Section 15130.
- The general definition of cumulative as a scenario is that it represents past, present, and reasonably foreseeable actions regarding land use development and the transportation network (see CEQA Guidelines Section 15355).

The General Plan environmental impact report (EIR) was based on a full build out of the City's land use designations and will generally cover the cumulative traffic effects of consistent development projects. However, over time, it is likely that general plan amendments or regional growth will influence background traffic volumes. If this occurs, individual projects may be required to conduct a project-specific cumulative analysis based on the determination of the City Engineer.

7. MITIGATION MEASURES

All significant project impacts should be mitigated consistent with the policies of the Citrus Heights General Plan. Table 7 shows the appropriate CEQA mitigation actions for each analysis scenario.

Each mitigation measure will require detailed review to assess resulting significance after mitigation. Table 7 provides a list of common mitigation measures that may be applicable to a proposed project. Other mitigation strategies may also be applied if supported by substantial evidence demonstrating their effectiveness.

TABLE 7: EXAMPLE MITIGATION MEASURES

Mitigation measures may include, but are not limited to, the following examples:	
Roadway Capacity Improvements	The following would be considered improvements to improve upon deficient conditions, but not mitigations for significant impacts under CEQA. ➢ Optimize location of access driveway(s) ➢ Provide additional through traffic lane(s), right-turn lane(s), and left-turn lane(s) if they don't adversely impact other modes or are prohibited per Policy 29.2 (see following page) ➢ Improve sight distances at intersections and driveways to acceptable standards
Traffic Control Modifications (warrants must be met)	➢ Provide for yield or stop control ➢ Install roundabouts ➢ Provide coordination/synchronization or modified signal phasings at traffic signals along a corridor ➢ Provide turn-lane channelization through raised islands ➢ Restrict certain turn movements ➢ Optimize location of access driveway(s) and cross-parcel access
Transit Facilities	➢ Provide bus turn-outs, bus shelters, additional bus stops, park-and-ride lots, and/or prioritized transit treatments (e.g., bus queue jump lanes)
Pedestrian and Bicycle Facilities	➢ Provide for access to, from, and through the development for pedestrians and bicyclists ➢ Designate Class I bicycle paths, Class II bicycle lanes, Class III routes, or Class IV protected facilities
Land Use Changes	➢ Alter density or diversity of uses to achieve vehicle trip reductions
Project Access and On-Site Circulation	➢ Relocate/design driveways and/or restrict certain turn movements ➢ Lengthen turn pockets ➢ Construct right-turn deceleration lanes at driveways ➢ Modify site to provide adequate driveway throat depths ➢ Reconfigure on-site parking, drive-through lanes, or other on-site amenities
Transportation Demand Management (TDM) for VMT Impacts	Refer to *SB 743 Implementation Guidelines for Citrus Heights* (February 2021) for discussion of potential TDM strategies.
Construction-Related	➢ Implement Construction Traffic Management Plans

In accordance with Policy 29.2, no roadway widening to provide additional vehicle capacity to the streets listed below will be permitted:

- Sunrise Boulevard – south City limits to north City limits
- Greenback Lane – west City limits to east City limits.
- Old Auburn Road – Sylvan Road to Fair Oaks Boulevard
- Antelope Road – I-80 to Auburn Boulevard
- Auburn Boulevard – Old Auburn Road to northern City limits

Development projects that impact these locations according to these transportation impact study guidelines would require mitigation, including, but not limited to, the following options:

- Actions that reduce vehicle trips or provide non-auto improvements to the transportation network or services
- Signal timing and/or phasing modifications
- Lengthening of turn pockets

For non-auto mitigation improvements, the mitigation measures should consider the planned bikeway, pedestrian, and transit needs as identified in the Citrus Heights General Plan, the *City of Citrus Heights Bikeway Master Plan (2015), and the City of Citrus Heights Pedestrian Master Plan* (2016).

In addition, Policy 29.2 allows the City Council to provide additional exceptions to the LOS E policy where physical mitigation is infeasible or would conflict with other community values, such as:

- Impacts on general safety, particularly pedestrian, bicycle, and transit safety.
- The right-of-way needs and the physical impacts on surrounding private or public properties.
- The visual aesthetics of the required improvement and its impact on community identity and character.
- Environmental impacts including air quality and noise impacts.
- Impacts on quality of life as perceived by residents.

Based on Policy 29.2 and these guidelines, identifying improvements for locations where roadway widening is prohibited includes the following key analysis steps:

- Identify locations where the project will not comply with the General Plan LOS policy.
- Consult with City staff to determine which mitigation option(s) should be applied.
- If actions to reduce project vehicle trips is one of the desired mitigation options, determine the number of project vehicle trips that are feasible to remove from the impacted location to reduce or mitigate the project impact. This step should be conducted in consultation with City staff.
- Identify vehicle trip reducing measures and quantify the trip reduction by referring to a study or source that confirms the vehicle trip reduction by citing or relying on substantial evidence.

8. RECOMMENDED PROCESS AND DOCUMENTATION

The transportation impact analysis shall be performed under the supervision of either a professional traffic or civil engineer, or a certified professional planner specializing in transportation. It is recommended that the work occur in a phased manner and seek City acceptance before initiating the next task.

- **Transportation Study Scope of Work** detailing project description, site location, analysis method, area-wide assumptions, study intersections and/or roadways, peak hours for analysis, and traffic data collection.
- **Project Trip Generation and Trip Distribution** documenting all key technical assumptions, data sources, and references.
- **Administrative Draft Transportation Study Report** prepared according to the Scope of Work, Project Trip Generation, and Trip Distribution approved by the City.
    - As discussed in Section 1 of these guidelines, the type of project and environmental review will dictate the format of this report. Refer to Section 1 for details.
- **Draft Transportation Study Report** addressing the City's comments on the Administrative Draft Report (see Appendix C for recommended outline).
- **Final Transportation Study Report / Response to Public Comments** addressing comments from the City, Caltrans, neighboring jurisdictions, etc.

For small projects that require a limited scope of study, it may be suitable to prepare a Technical Memorandum in lieu of a full report.

Appendix A:
Sample Trip Generation Calculations

The following table exemplifies how trip generation information and assumptions should be prepared and documented for submittal to the City of Citrus Heights.

TABLE A-1: SAMPLE ESTIMATED PROJECT TRIP GENERATION

Land Use	Size	Unit	Daily		Trip Rates						Trips					
			Rate	Trips	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Single-Family[1]	200	du	9.44	1,888	0.18	0.56	0.74	0.62	0.37	0.99	37	111	148	125	73	198
Commercial[2]	100	ksf	60.12	6,012	1.25	0.77	2.02	2.60	2.83	5.43	125	77	202	260	283	543

Notes: du = dwelling units; ksf = 1,000 square-feet

1. Trip generation based on *Trip Generation, 10th Edition* (Institute of Transportation Engineers ITE, 2017) weighted average trip rates for Single-Family Detached Housing (Land Use Code 210)
2. Trip generation based on *Trip Generation, 10th Edition* (Institute of Transportation Engineers ITE, 2017) fitted curve equations for Shopping Center (Land Use Code 820):
   Daily : Ln (T) = 0.68 Ln (X) + 5.57 (50% Inbound, 50% Outbound)
   AM Peak Hour: T = 0.5 X + 151.78 (62% Inbound, 38% Outbound)
   PM Peak Hour: Ln (T) = 0.74 Ln (X) + 2.89 (48% Inbound, 52% Outbound)
   Where: T = trips generated, X = 1,000 square-feet, Ln = natural log

Additional Notes:

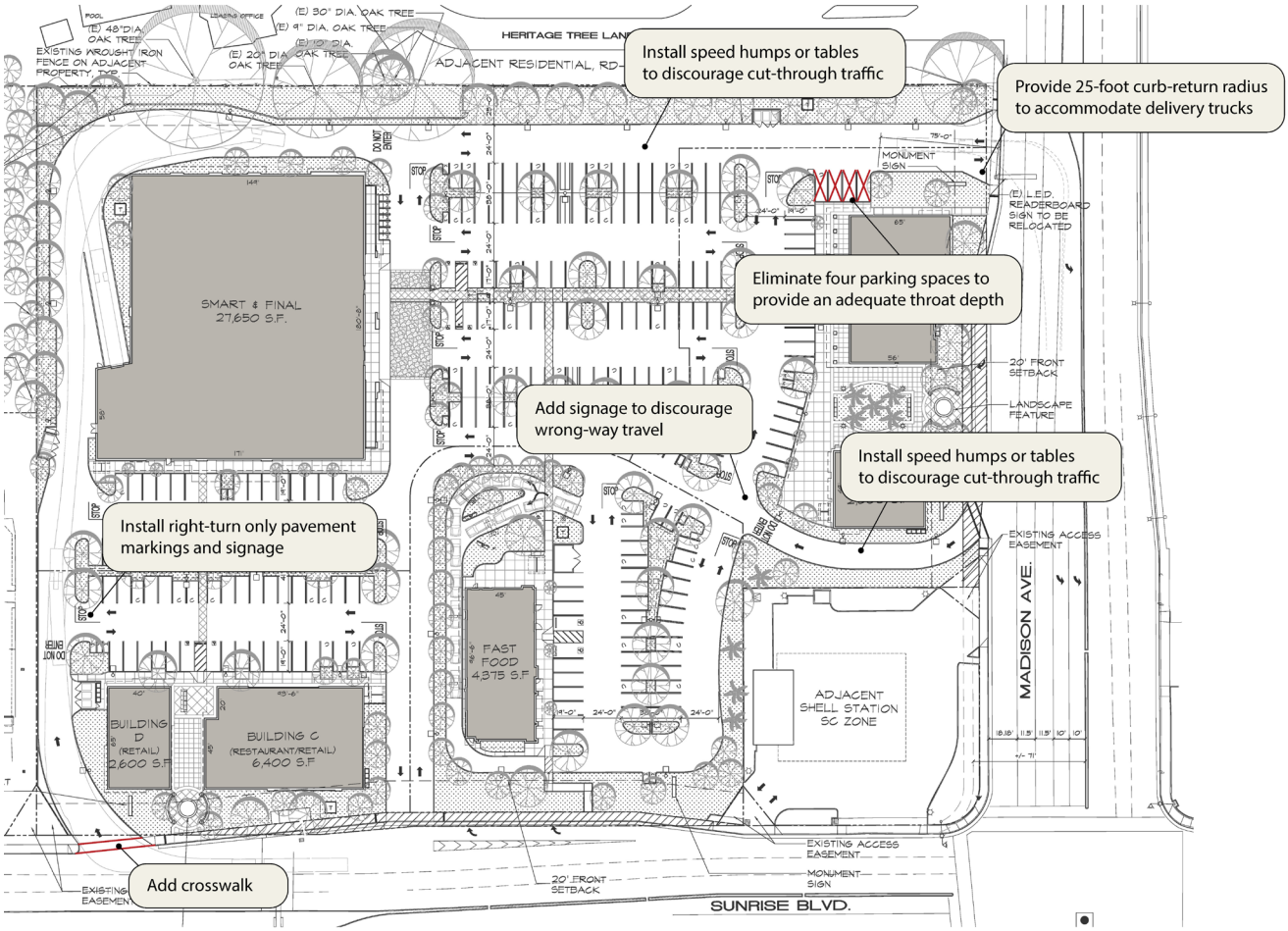
- Survey data or the most recent version of ITE should be used to calculate trip generation.
- Pass-by reductions should also be considered for commercial uses where applicable.
- For mixed use developments, an internalization estimate should be included based on proven methods or models such as the US EPA MXD model, MXD+ model developed by Fehr & Peers, or other tools that are supported by substantial evidence.

Appendix B:
Sample Site Plan Review

Notes:
1. Improvements shown here represent changes in lane configurations relative to what currently exists.
2. Signalized study intersections 3, 5, 7, and 9 would be modified to each operate with eight-phase protected left-turn signal phasing.
3. These recommendations are based on the Projected Development scenario.These recommendations could change if the quantity/type of land use is altered or if the placement of parking facilities changes.

Figure 11
Project Site Recommendations

Retail Center in Northeast Quadrant of Sunrise/Madison Intersection



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Appendix C:
TIS Report Format Outline

1. **Introductory Items**
    - Front Cover/Title Page
    - Table of Contents, List of Figures, and List of Tables
    - Executive Summary
2. **Introduction/Background**
    - Project description
    - Type and size of development
    - Site plan (include proposed driveways, roadways, traffic control, parking facilities, emergency vehicle access, and internal circulation for vehicles, bicyclists, and pedestrians)
    - Location map (include major streets, study intersections, and neighboring zoning and land uses)
3. **Baseline Conditions**
    - Roadway system within project site and surrounding area
    - Location and routes of nearest public transit system serving the project
    - Location and routes of nearest pedestrian and bicycle facilities serving the project
    - Figure of study intersections with peak hour turning movement counts, lane geometries, and traffic control
    - Map of study area showing ADT of study roadways
    - Table of baseline peak hour average vehicle delay and LOS
4. **Baseline Plus Project Conditions**
    - Table of trip generation for project
    - Figure/map of trip distribution (in percent)
    - Maps of study area with applicable peak hour turning movements (Project Only and Baseline Plus Project)
    - Table of Baseline and Baseline Plus Project intersection peak hour average vehicle delay and LOS
    - Traffic signal and other warrants
    - Findings of project impacts
    - Mitigation measures for project impacts (include a map showing physical mitigation)
    - Scheduling and implementation responsibility of mitigation measures
    - Impacts of mitigation measures

5. **Cumulative and Cumulative Plus Project Conditions**
    - Map of study area with Cumulative No Project peak hour turning movements
    - Map of study area with Cumulative Plus Project peak hour turning movements
    - Table of Cumulative and Cumulative Plus Project intersection peak hour average vehicle delay and LOS
    - Traffic signal and other warrants
    - Findings of project impacts
    - Mitigation measures for project impacts (include a map showing physical mitigation)
    - Scheduling and implementation responsibility of mitigation measures
    - Impacts of mitigation measures
6. **Construction Impacts**
7. **Phasing Impacts (for large projects only)**
8. **Appendices**
    - List of references
    - Traffic counts
    - Technical calculations for all analyses