

# 3. PROPOSED SOLUTION



## PROPOSED SOLUTION

Provide a concise description of the approach and process to successfully complete the work to be performed including any specific staffing or equipment resources.

### PLANNING

#### Review of Traffic Impact Studies and Concurrency

A Traffic Impact Study (TIS) is an important tool in the overall development planning process. It provides the County with information to evaluate the impact of a proposed development with respect to the need for roadway/intersection capacity, operations and safety improvements, as well as to identify the required mitigation measures for any impacts identified. FTE has performed and reviewed numerous TIS for multiple municipalities including the peer review of more than 60 developments for the City of Miami Beach within the last 4 years.

FTE prepares and reviews impact studies following the guidelines set in the Institute of Transportation Engineers' (ITE) *Transportation Impact Analyses for Site Development: An ITE Proposed Recommended Practice*, the *ITE's Trip Generation and Parking Generation manuals* and FDOT's *Transportation Site Impact Handbook 2019*.

FTE recognizes that the review of a TIS that has been presented to the County is a programmatic process as the development applications are reviewed by the Board. In addition of an expedite turnaround of comments, it is our experience that our staff has to be available to run alternative scenarios, answer questions / concerns from the County staff at a moment notice as Staff prepares the reports and recommendations for the Board or reply to concerns from board members or citizens.

From our previous experience, we clearly understand that the following requirements are critical for a TIS, which enables the FTE team to conduct the review of TIS submitted to the County and make recommendations effectively. FTE knows the importance of the accuracy of these peer reviews since staff and ourselves will have to defend the assessment before the Board.

FTE will review all the details of valet parking operations. Valet parking is a service commonly provided at hotels, restaurants and retail developments in urbanized areas. However, the proper management and design of a valet service is critical to the operations of the roadway network.

FTE will verify that number of spaces proposed to stack vehicles at the valet parking stands and that the required number of valet attendants are sufficient to ensure that the parking operations do not cause excessive stacking, waiting, or backups on to the public right-of way.

Rideshare is empowering more people to move away from dependence on car ownership and towards using the best mode of transportation that works for them, from public transit and bikeshare, to scooters and shared rides. Within recent years there has been an explosive growth of rideshare services; and with such growth, developments should move to accommodate said services, especially in a touristic and urban areas. FTE will verify not only whether the space provided for storing and queuing vehicles is appropriate, but also the design of such lanes to

improve the safety of the pedestrians and rideshare users, by trying to minimize points of conflict.

### Conduct and Review the Adopted Lake County Transportation Models and Related Transportation Studies

For urbanized areas exceeding a population of 50,000, the existence of a Metropolitan Planning Organization (MPO) is necessary to meet federal requirements for obtaining and expending federal transportation funds. To demonstrate that a 3-C planning process is being implemented, the MPO routinely prepares and adopts a 20-year Long Range Transportation Plan (LRTP) consistent with the requirements of Title 23, United States Code, Section 134 Metropolitan Transportation planning, (i) Development of Transportation Plan.

Multimodal LRTPs include transit, pedestrian facilities, bikeways, and highway components. The plan also addresses the federally required performance measures for safety, system preservation and system performance, the integration of land use, economic development, and freight and goods movement; and accessibility to airport facilities for passengers and goods.

An updated multimodal LRTP will have a target horizon year. This adopted plan will be cost feasible and implementable by the MPO Board and committees. LRTPs include long- and short-range strategies/ actions that lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods. It is developed consistent with the intent and requirements of the Federal transportation bill and requirements stipulated by the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Florida Department of Transportation (FDOT).

### PD&E Studies

FTE is evaluated existing conditions and developed improvement based on future travel demand along the corridor. Developed typical section concepts with transit lanes for the corridor in addition to bicycle and pedestrian facilities. Coordinate with adjacent studies and present updates to the Project Advisory Team.

Identify long-range regional transportation needs based on travel demand forecasts from the long range transportation planning models. Consider impacts to the corridor from pending land-use changes and comprehensive plan amendments. Develop and evaluate typical sections and corridor alternatives, including geometric alignment, environmental features (cultural, natural, and physical), and right-of-way needs. Evaluate design traffic projections and capacity analyses, using HCM and Synchro. Prepare and present materials for small group meetings and public information meetings with residents and business owners, as needed.

### Review of Development of Regional Impact Studies (DRI)

The process usually begins when the applicant (developer) contacts the County to discuss the proposed development and methodology. Prior to conducting any DRI, it is necessary for the developer and the County staff to agree to a methodology to establish the minimum technical responsibilities and analyses that will be required. It is FTE's experience that the involvement of

the reviewer in this phase is highly beneficial. However, if the methodology has been agreed to by the County prior to the reviewer's involvement, FTE will carefully review the agreed upon methodology and verify that all the expectations and requirements from the County are being met.

### Transit Development Plan Update

FTE will assist with Transit Development Plan Major Updates by gathering and analyzing census, ridership data, develop GIS maps of municipalities' local bus/trolley routes, and research master plans of other transportation agencies. As a sub consultant for Miami-Dade Transit (MDT), FTE provided similar services.

### Interregional Transportation Study or Investigation, Neighborhood Studies

Typically, performing a traffic circulation and analysis of conceptual alternatives is needed. A transportation study is needed to support a redesign to enhance the corridor. Elements could include decorative pavement, improved drainage, and enhanced aesthetics. Tasks could include crash analysis, on-street parking and valet operation, and level of service. Stakeholder and agency coordination is often required.

## **TRAFFIC ENGINEERING**

### Arterial Analysis

Arterial analysis involves a comprehensive, systematic review of a particular arterial from a safety and operational perspective. FTE currently provides Active Arterial Management (AAM) services for FDOT and some municipalities which have been instrumental in identifying and addressing signal hardware/software malfunctions as well as prolonging the effective life of individual signal retiming projects. The latest approved versions of Synchro and Tru-Traffic software are used to model existing conditions and to develop the future models. SimTraffic and Miovision video turning movement count files are used to calibrate the Synchro model. FTE never leaves the job! We have a proven track record of open communication with stakeholders as well as prompt and professional response to any post implementation issues.

### Preliminary Engineering Plans

FTE's highway design experience consists of preliminary design, cost estimating and preparation of construction plans for projects which include arterial widening and reconstruction, complex traffic control plans, resurfacing, intersection improvements and sidewalks.

Preliminary plans such as for an intersection improvement would include widening a two-lane roadway to provide for left turn and right lanes. The conceptual 30% plan would identify drainage improvements, potential utility adjustment, mast arm signal drilled shaft foundations, intersection lighting, potential areas for landscaping.

### Traffic Signal Warrant Analysis

The purpose of traffic signal warrant studies is to provide a specific determination whether or not an intersection meets warrants for signalization and, if so, whether or not a signal should be

considered for installation or removal. FTE understands that the primary factor in performing a successful analysis of an un-signalized intersection is a true understanding the nature of the request. Open communication between the County, FTE and the requester is essential in defining potential safety issues and appropriate mitigation.

The Intersection Control Evaluation (ICE) process developed by FDOT quantitatively evaluates several intersection control scenarios (alternatives) at intersection on the state highway system and ranks these alternatives based on their operational and safety performance. The tools use in the ICE process are: Capacity Analysis at Junctions (CAP-X) which provides generalized capacity information as part of the initial ICE stage; Safety Performance for ICE (SPICE) for safety performance evaluations, which are required for stages 1 and 2 of the ICE process; and an ICE Tool for comparing life-cycle and benefit costs of top alternatives during the final stage of evaluation.

### Traffic Signal Design

Design & permitting of a new traffic signal must consider emergency vehicle preemption, where applicable. Services included R/W and topo survey; pedestrian ramps & crosswalks design; signalization plans; ITS; SUE; geotechnical exploration; structural analysis; and post design services.

Design elements to be considered include: proposed SOP; identify mast arm location; develop design criteria; clear zone; conduct a field review; develop design concepts with turn lanes where applicable; identify R/W and topo survey limits; request a utility design ticket; submit aerials to UAO and request green lines or no conflict letters; request utility relocation work schedules, where applicable; field verify survey and utilities; identify potential overhead or underground conflicts; request SUE at signal pole locations and ped poles, where applicable; place signal heads - protected, permitted, flashing yellow arrow; identify vehicle detection type; place pedestrian signals and buttons based on MUTCD and ADA requirements; propose intersection and crosswalk lighting; provide lighting photometric calculations;

Additional design elements to be considered include: coordinate ITS communication infrastructure (CCTV cameras, EVP); design ITS connection to existing backbone; develop yellow, red and flashing don't walk intervals for initial controller timings; propose pavement markings and bicycle key holes, where applicable; propose advance street name signs with cantilever or multi post signposts, where applicable; propose yield to pedestrian in crosswalk signs, where applicable; identify pay items, general notes, and details.

### Traffic Safety Studies and Design

Our fundamental philosophy towards traffic engineering is a "hands on" approach which requires a local presence, local knowledge, and an established working relationships with the City, County and FDOT. We have conducted numerous unsignalized and signalized intersection studies, speed studies, fatal crash reviews, corridor studies, high crash spot and segment reviews, skid reviews, access management studies, qualitative assessments, signal retiming, signal

warrants, and RRR safety reviews. Our staff has been trained in Synchro, Tru Traffic HCS, VISSIM, SimTraffic, and roadway safety audits.

We will evaluate the feasibility of Rectangular Rapid Flashing Beacons (RRFBs) and Pedestrian Hybrid Beacons (PHB) for midblock crossings. Traffic counts, pedestrian and bicycle volumes, and vehicle speeds will be collected along the corridor. We identify generators along the corridor that would attract pedestrian and bicycle activity, such as schools.

Midblock crosswalks are an integral part of a designated shared use path and should be considered regardless of demand. Other considerations are sight distances and sight obstructions; grades, curvature, and pavement widths; street lighting; and vehicle and pedestrian crash data.

As part of an RSA process, advanced gathering of relevant information will be imperative in order to assess efficiently the existing and proposed conditions where constructability will play a most relevant role. Amongst the elements to address pedestrian safety, the RSA team will evaluate connectivity, ADA design compliance, lighting, parking, transit access, visibility (daylight and nighttime), roadway characteristics and driver behavior in conjunction with special deliberations for elderly, disabled, and school zones users.

#### Intersection Design, Sidewalk, Streetlight Studies and Design

The objective of the Safe Routes to Schools program is to increase the number of children who walk or bicycle to school by funding projects that remove the barriers currently preventing them from doing so. These barriers may include a lack of infrastructure or unsafe pedestrian facilities. Our services may include planning and coordination with the potential schools, cost estimation, design, and post design construction assistance.

The vertical illuminance method will be used to evaluate pedestrian visibility in the crosswalk, which is influenced by the light pole location on the approach to the crosswalk as well as the background lighting conditions. The vertical illuminance will be calculated for the left, through, and right movements on each approach. We use the illuminance method for design and the polygon method for photometric calculations using the AGI32 lighting software. The photometric zone of each signalized intersection will be bounded by back of sidewalk and stop bar.

#### Traffic Counts

FTE has a reputation of being a pioneer in the use of state-of-the-art data collection technology in the state of Florida. We have a large inventory of Miovision Scout units (47) and uses this passive and verifiable technology for vehicle turning movement counts and pedestrian & bicycle counts. FTE also has a large inventory of Peek Pulsar Units which is the latest technology in tube counting hardware/ software. For travel time / delay studies, FTE utilizes portable Bluetooth detection devices which provide passive and unbiased travel time data. FTE also routinely uses radar “speed spy” units for speed studies.