



AMERICAN  
**STRUCTUREPOINT**  
INC.

# 3. PROPOSED SOLUTION

SUBMITTED TO LAKE COUNTY, FLORIDA

SEPTEMBER 21, 2021

# PROJECT APPROACH + UNDERSTANDING OF CRITICAL ISSUES

The purpose of this contract is to serve as an extension of Lake County's staff and support a wide range of engineering services to evaluate, assist, and bring to completion a wide range of planning and traffic engineering projects. We understand the importance of having a strong grasp of the County's impact fees, transportation models, and transit development plan. Those elements are critical to the success of the reviews of traffic impact studies, impact fee analysis, and PD&E studies.

## PLANNING SERVICES

Our team currently serves as the on-call engineer for multiple municipalities around the country, providing a wide range of traffic engineering services, from study reviews to on-call signal system engineering. This experience would be utilized to best serve Lake County from the smallest impact study review to a complex mixed-use (development of regional impact) DRI review. Depending on the County's needs, these services will begin at project inception to ensure that the applicant understands the requirements; we will work together to develop an agreed upon methodology of understanding (MOU), which in the case of a traffic study, would result in a better submittal allowing for a quicker review. Our recent experience has included multi-jurisdictional review coordination with state, county, and local agencies being involved on a single project. Our responsibility was to ensure that the County's requirements and needs were being met by the applicant to ensure future success. We will review each submittal and provide comments and direction, as needed, and track all comments and responses to ensure they are addressed at each submittal stage.

## INTERSECTION ANALYSIS

The American Structurepoint team has a vast resume of intersection improvement project experience from minor turn lane improvements to innovative intersection configurations. We have experience reviewing crash data and preparing condition diagrams. Determining the best crash countermeasure to remedy the crash issue(s) is vital to a successful project. Our team has a depth of experience on signal Synchro/SimTraffic analysis and Sidra roundabout analysis. In addition, our benefit-cost analysis and concepts have presented quality solutions to unique intersection challenges. Our experience is further supported by American Structurepoint's nationally recognized roundabout design portfolio of over

300 roundabouts across the US, including FDOT D5's SR 44 at Kepler Road in DeLand.

Our team has extensive experience with studies of all sizes, so we understand what factors are critical to review during the process to ensure compliance and accurate results. Our team is well versed in intersection capacity analyses and design, including conventional stop sign, signalized, and roundabout intersections, as well as innovative interchange designs such as diverging diamond interchange, dog-bone roundabout interchange, single-point urban interchange, etc. We are very familiar with evaluations on complex intersections that are context sensitive and unique to the project location. We have analyzed and designed restricted crossing U-turn (RCUT), median U-turn (MUT), Green-T, signals with Bus Rapid Transit accommodations to account for transit signal priority, roundabouts with railroad crossing (preemption), and many others.

## SIGNAL WARRANT ANALYSIS

Our team has completed hundreds of signal warrant analyses using all nine warrants, in a variety of rural and urban settings, and have used warrants to recommend signal removals. Two of our recent analyses are US 41B/N Florida Avenue at E. Harrison Street in downtown Tampa and a rural signal at SR 52 and Saint Leo University in Pasco County. Our signal experience has included upgrades from diagonal strain poles to box spans and mast arms, delay analysis, signal inventory, and signal retiming across FDOT districts one, five, and seven.

## ARTERIAL ANALYSIS

Our team has vast experience utilizing traffic count data, along with crash records, to find the crash issue(s) and perform analysis to make the best-fit recommendations for each location. We have performed countless composite studies such as ICE (intersection control evaluation),

roundabout inventory and review, and speed studies for FDOT districts one and seven using sound engineering judgement during the analysis and recommendations to move the project to a safer design. These studies have ranged from small, residential intersections to urban intersections driven by pedestrian crossings, to university pedestrian/bicycle operations, to studies along tourist-packed beach roadways. Our team will help keep the County up to date on the latest safety research and focus on your safety priorities. We implement best practices from other projects, which are crucial to identifying measures that can enhance safety and provide the highest reduction in crashes on your infrastructure. We have multiple engineers who are registered safety professionals (RSPs), which certifies our knowledge of safety. While each assignment is unique, we will analyze existing crash data combined with field observations, such as evidence of vehicle off-tracking and damaged roadside safety devices, to develop practical alternatives. As necessary, benefit-cost analysis will be conducted to identify the most appropriate solution for the project budget.

### **INTERSECTION DESIGN, SIDEWALK, STREETLIGHT STUDIES, AND DESIGN**

Safety is always the focal point of our proposed design solutions. We have a depth of experience on traffic and roadway design projects, including RRFBs, HAWK/PHBs, green bike lane, sidewalk, multi-use paths, signals, signal retiming, and roundabout design. Variations and exceptions will be used in line with the “practical design approach,” provided that safety is proven not to be adversely impacted and mitigation strategies can be provided. American Structurepoint specializes in “complete streets” projects that improve safety and mobility for all modes of travel on systems across Florida and throughout the United States. Our local design experience includes the Old 41 PD&E and US 98 PD&E in FDOT D1, SR 44/Kepler Road roundabout in FDOT D5, and Central Avenue bike lanes for the City of St. Petersburg. Our specialized experience includes bicycle key holes at intersections, curb ramp grade improvements, installation of detectable warning devices, and extensive, innovative solutions on the award-winning Smart Streets Two-Way Conversion project in South Bend, Indiana. The Smart Streets project included road diets

to accommodate bicycle tracks, widened sidewalks, bicycle traffic signals, decorative crosswalks, and street lighting and streetscaping to improve safety for all travel modes and to revitalize the downtown area.

Street lighting is a vital component of urban arterials and intersections. A public street with adequate lighting improves safety not only for vehicular traffic but also pedestrians and bicyclists alike during late evening and nighttime hours. Our traffic design engineers have successfully completed illumination design on numerous arterials, intersections (signalized and roundabout), freeway corridors, interchanges, underpasses, and trails in Florida, Indiana, Ohio, and Texas. The first step in an illumination design is the photometric evaluation that determines the lighting performance of a chosen luminaire/fixture and light distribution. We will work with the County to determine the needs of the lighting study to ensure safety for all users. Our team has extensive experience ranging from pedestrian lighting (bollards), sidewalks, cycle tracks (on and off road), and multi-use trail lighting to roadway corridor and intersection lighting design. If retrofitting a location or providing a continuation of existing lighting, we will ensure continuity so as not to create an unsafe environment.

Our transportation engineering and our community planning team experts have a solid background experience on transportation planning including local and regional thoroughfare planning, land-use planning, corridor alignment, pedestrian/bicycle planning, and streetscape planning. This involves the study of the best roadway alignment in the overall picture of the neighborhood area, as well as the regional connectivity of roadways passing through the area. For pedestrians and bicycles, we review the existing conditions as well as the demand, then look at the future projected demand and multi-modal planning to be inclusive for all users of the roadway. We pay close attention to providing bicycle lanes, sidewalks, multi-use paths, bus bays at stops, and other various treatments based on the agency and community feedback, which is always context sensitive. Streetscape planning has been done in downtown and neighborhood settings, to give or maintain a character in the area. These can be used as attractors or gateways to a particular area. The transition from

planning to design is vital to be cognizant of consistency and incorporating community feedback.

## TRAFFIC DATA COLLECTION

Adams Traffic, Inc., a specialty firm providing traffic data collection services throughout Florida, will be responsible for traffic counting services on our team. Adams Traffic has been responsible for hundreds of data collection assignments

for FDOT and many local government agencies. Nancy Adams is president of Adams Traffic, and she provides hands-on service and is personally involved in the management, scheduling, collection, reporting, and quality review of each Adams Traffic assignment. Nancy reviews every count before submittal to the client and has been responsible for the collection of thousands of accurate traffic counts in the past 20 years.

## FOCUS ON QUALITY

The most important aspect of delivering on time and on budget is producing a high-quality product. American Structurepoint is committed to avoiding schedule delays due to rework and minimizing construction claims through development and adherence to our Quality Control/Quality Assurance Plan (QCQAP). The specific approach will be tailored to each assignment depending on scope but consists of the following key elements:

**Quality Staffing Plan** – Identifies qualified individuals for each assignment. This defines the engineer of record (EOR), lead technical professional (LTP), and quality control reviewer (QCR) by discipline or respective deliverable.

**Production Reviews** – The LTP leads the American Structurepoint standard five-step QC process that consists of an originator, checker, backchecker, corrector, and verifier. Additionally, the LTP works with the EOR to develop deliverable-specific checklists to specify the appropriate design criteria and standards, sheet content, and applicable County procedures and preferences.

**Coordination Reviews** – For multidiscipline projects, internal coordination reviews will be performed by the respective EORs to check for

consistency of all project elements and the inclusion of project requirements and conditions.

**Field Reviews** – We conduct plans-in-reviews prior to final design to verify compatibility of preliminary design and survey with the site conditions that will be encountered during construction.

**Constructability/Biddability** – This review is conducted by a CEI professional prior to final plans submission to check for errors and omissions, verify that appropriate construction details are included, and validate the identification of appropriate pay items and quantities.

**Management Review** – Prior to each submission, this review is conducted by the project manager to verify the deliverable has been developed according to the agreed-upon scope and that documented elements that have been directed by the County, including previous review comments, have been appropriately addressed.

**Quality Assurance Review** – Prior to each submission, the quality assurance manager (QAM) reviews the final deliverable and QC documents to verify the deliverable has been developed in compliance with the QCQAP. Each product is certified by the QAM and the certification is provided in the deliverable package.

## COMMUNICATION PLAN

Another crucial component of successful project delivery is effective communication. Our project manager, Patrick O'Connor, will serve as the primary point of contact between the County and the American Structurepoint team. For each assignment, Patrick will assign the appropriate task manager based on technical expertise as well as availability, and these task managers will be the go-to individuals for specific project issues. Patrick will be involved in the day-to-day operations of the contract and will be available and accountable to the County's project manager on our performance and status of each assignment.

## TRACKING/MANAGING TASKS

One thing making our team unique is our ability to track and manage tasks with efficiency and collaborative communication within our team and with the County. Our project manager, Patrick O'Connor, has managed multiple contracts of this type for FDOT and various local municipalities, where multiple tasks were being managed at the same time under multiple contracts. Patrick has a proven ability to track the tasks and deadlines on spreadsheets and databases and communicate with the County to ensure their needs are being met for each task item. Additionally, the American Structurepoint Traffic Group utilizes the Monday.com web-based application for resource and allocation tracking that allows assignments, deadlines, and assigned staff to be tracked and updated in real time. Providing access to this portal will allow the County to get a live snapshot of project status anytime one is needed, without waiting for a regular update.

## BUDGET CONTROL

An important facet of budget control is managing the task budget. Upon issuance of a task order, we propose holding a scoping meeting with the County's project manager to clarify the scope, include the work required to deliver, and eliminate unnecessary elements to minimize the potential for supplemental agreements or change orders.

The task fee is then monitored using American Structurepoint's Vision system. The budget for American Structurepoint and our subs is reviewed by Patrick on a monthly basis to verify that the progress or work completed is congruent with the anticipated invoice amount. The invoice, along with a progress report, is submitted to the County on a monthly basis.