ATTACHMENT A - SCOPE

Hopkins Street Improvements: Guadalupe to Moore

The City of San Marcos (City) would like to retain engineering services for Hopkins Street Improvements from Guadalupe Street to Moore Street. The services for this phase of the project consist of topographic and boundary/ROW survey, subsurface utility engineering, and preliminary engineering for the reconstruction of street, water, wastewater, stormwater, and electric infrastructure along Hopkins Street from Guadalupe Street to Moore Street.

The objective of this project is to upgrade this segment of Hopkins Street to be compliant with the Complete Streets ordinance. Additionally, the scope of work consists of widening Comanche Street to add a dedicated left turn lane onto Hopkins Street to enhance intersection capacity and improve traffic operations and safety. The project will also consist of preliminary engineering for the replacement of substandard wastewater lines along Fredericksburg Street and the alley between Comanche Street and Fredericksburg Street.

Information to be provided by the City

The City will provide following information to the Engineer and/or perform following tasks related to the project:

- Existing reports or data the City has on file concerning this project, including existing and forecasted traffic volumes.
- Any available as-built plans for the intersection, roadways, signals, pavement markings, and public utilities
- Any available as-built plans for O/H and underground utilities within the project area
- Any available parcel and/or topographic mapping information of the project area; any available survey information of the project area
- Current or standard industry costs used by the City for unit pricing as well as cost estimates
- Fees associated with approvals and/or permits from entities if approvals deemed necessary
- Advertising for public meeting, venue for public meeting, and any other direct costs for public meeting (i.e., Court reporter or Spanish translator).
- Electrical and voltage drop requirements for the illumination system (SMEU)
- Any available proposed or known future development plans within the project limits

Services to be performed by the Engineer

The Engineer shall provide engineering and technical services for preliminary engineering for Hopkins Street Improvements from Guadalupe to Moore. The work shall be completed in accordance with the City of San Marcos, Federal Highway Administration (FHWA), National Association of City Transportation Engineers (NACTO), and TxDOT standard requirements where applicable.

1. Data Collection, Survey, and Subsurface Utility Engineering

I. Data Collection

- The engineer will meet with the City staff to review scope of engineering services, invoicing and schedule of services to be provided by the Engineer.
- Collect and review available information including existing reports, traffic data, record drawings, O/H and underground as-built utility plans and other pertinent information
- Collect and review available traffic projections
- Conduct field observation with the City Staff to identify and evaluate constraints during preliminary design process
- Obtain AM, Mid-day, and PM peak-period turning movement vehicular and pedestrian traffic counts on a weekday at the following intersections.
    - Hopkins St / CM Allen Pkwy
    - Hopkins St / N LBJ Dr
    - Hopkins St / Guadalupe St
    - Hopkins St / Comanche St
    - Hopkins St / Moore St
- Obtain travel time runs along the corridor during AM, Midday, and PM peak periods.
- Obtain crash record data from the City at above-mentioned locations.
- Obtain existing traffic signal timing data at following intersections:
    - Hopkins St / N LBJ Dr
    - Hopkins St / Guadalupe St
    - Hopkins St / Comanche St
    - Hopkins St / Moore St
- Obtain existing Synchro traffic models for Hopkins St from the City, if available.
- Obtain details of existing street lighting along Hopkins St.
- Obtain parking spaces occupancy and turn over rates from the City.

II. Topographic and Boundary/ROW Survey

- Surveyor will perform GPS survey to establish horizontal and vertical control and establish a benchmark for use as construction baseline
- Topographic and boundary survey limits will consist of:
    - Hopkins Street from 100’ south of Moore St to 100’ North of Guadalupe St
    - 100’ up side streets past radius return unless noted below
    - Fredericksburg St from Hopkins St to San Antonio St
    - Alley between Fredericksburg/Comanche from Hopkins St to San Antonio St
    - Comanche Street from Hutchinson St to San Antonio Street
- Surveyor will collect spot elevations and grade breaks along the project route at intervals conducive to precise DTM generation (no greater than 50 foot intervals).

Limits of the survey will extend 10' past the right-of-way line. The data will include curbs, gutters, culverts, and driveways, portions of parking areas, visible utilities, drainage features, structures, striping, etc.

- Surveyor will also obtain flow line elevations & pipe sizes (if ascertainable) for each wastewater and storm drain manhole within the limits of the survey area & for one structures or manholes downstream and upstream of the point of connection.
- Surveyor will obtain water line locations utilizing Texas 811 and City locates. Surveyor will obtain water line appurtenances (valves, fire hydrants, water meters, etc.) including the top of nut elevation on all water line valves.
- Trees having a diameter or 6" or larger will be located, tagged and identified (by their common name). Critical root zones will be drawn based on City of San Marcos standards
- Provide contours and drawing showing data outlined above
- Surveyor will utilize TxDOT Right-of-Way (ROW) Maps, tax appraisal maps, and recorded plats as a base map to recover monumentation, including ROW monuments, record/non-record monumentation and evidence of boundary lines (fence corners, etc.). This survey will also include deed research of adjacent properties for ownership data and locating property corners, and City, TxDOT, and railroad rights-of-way. Surveyor will not abstract tracts adjacent to the ROW for easements of record but will show easements adjacent to the roadway as depicted on recorded plats. The survey will show right-of-way lines with a best fit to found property corners and record ownership lines.

III. Subsurface Utility Engineering (SUE)

- SUE provider will perform QL"B" SUE services for the Hopkins Street Improvement Project. The limits of the SUE investigation match the limits of survey noted above.
- The SUE provider will attempt to designate the following utilities within this area: potable water, reclaimed water, chilled water, natural gas/crude oil/refined product pipelines, communication duct banks, fiber optic, cable television, telephone, and electric. Wastewater and storm drain facilities will be inverted at manholes, and will be depicted as QL"C" information Irrigation lines and utility services lines are excluded from this scope of work. The SUE provider will also perform an inventory of overhead utilities within the project limits.
- SUE Provider will obtain ROW permits from the City of San Marcos.
- Designed traffic control plans will be required. SUE provider will acquire the services of a qualified temporary traffic control engineering subcontractor, and ensure that all traffic control plans meet required City standards.
- Non-routine traffic control measures will be required. SUE Provider will acquire the services of a qualified Maintenance-Of-Traffic (MOT) Subcontractor and ensure that adequate traffic control is provided.

Definition of SUE Quality levels included is below:

QL"D" and "C" – Records Research and Surface Feature Survey

It is the responsibility of the SUE provider to perform due-diligence with regard to records research and the acquisition of available utility records. The due-diligence provided for

this project will consist of contacting the applicable One Call agency and associated utility owners/municipalities, visually inspecting the work area for evidence of utilities, and reviewing available utility record information. Additional utilities not identified through these efforts will be referred to as Unknown utilities.

QL"B" – Designating

Following a review of the project scope and available utility records with the project manager, TRG field personnel will begin designating the approximate horizontal position of known subsurface utilities within the project area. A suite of geophysical equipment that includes magnetic and electromagnetic induction will be used to designate conductive utilities. Where access is available, a sonde will be inserted into non-conductive utilities to provide a medium for transmission which can then be designated using geophysical equipment. Non-conductive utilities can also be designated using other proven methods, such as rodding and probing. TRG will make a reasonable attempt to designate Unknown utilities identified during field work; however, no guarantee is made that all Unknown utilities will be designated. Utilities will be marked and labeled to distinguish type and ownership. Field data depicting the designated utilities, as well as relevant surface features, will be produced to ensure accuracy and completeness of subsequent survey data. The TRG project manager will review the collected survey data, field data, and utility records for accuracy and completeness.

IV. Deliverables

- Traffic Counts
- ROW base map in a 2D CAD file
- Topographic survey in a 2D and 3D CAD file
- Survey points file in a text file format
- A utility file in CAD format depicting all designated utilities.
- 11" x 17" SUE Plan Sheets depicting all designated utilities. These plans will be signed and sealed by a Professional Engineer and delivered to the Client in electronic PDF form.

2. Preliminary Engineering Services (30%)

I. Project Management & Meetings

- The engineer will manage engineering services to complete the project on time including, progress reports, milestones and invoicing.
- The engineer will attend and document up to 4 progress/comment resolution meetings. The engineer will prepare meeting minutes including action items to help maintain project schedule
- The engineer will attend and document up to 2 utility coordination meetings to discuss and coordinate taking overhead utilities underground.
- The engineer will prepare monthly status reports to be included with the monthly invoice.

II. Prepare Preliminary Engineering Report

- Prepare paving exhibits (plan view only) and opinion of probable construction cost (OPCC) of Hopkins Street reconstruction and widening of Comanche Street at Hopkins Street. Prepare up to two (2) alternatives for Hopkins Street configuration.

- Prepare typical sections for up to two (2) alternatives for Hopkins Street
- Prepare exhibit and OPCC for sidewalk connection on Comanche Street between Hopkins Street and San Antonio Street
- Prepare three (3) horizontal alignment options for the proposed water lines and three (3) horizontal and vertical alignment options for the proposed sanitary sewer. OPCCs will be prepared for each option.
- Prepare two (2) alternatives to capture and convey 25-year flow (using Atlas14 rainfall data) to existing downstream storm sewer system. OPCCs will be prepared for each alternative.
- Review Purgatory Creek 2D model for area to identify drainage improvements needed for the area. Model will be used to determine peak overland flow and pipe flow within the project corridor.
- Determine preliminary size and cost of stormwater quality device(s).
- Prepare landscape, streetscape, and pedestrian lighting exhibit for up to two (2) landscape/streetscape alternatives. Prepare OPCC for each alternative.
- Traffic Analysis
    - Develop Synchro base model for the corridor to use it to develop VISSIM model
    - Use VISSIM microsimulation tool to develop a traffic model for the study corridor along E Hopkins St from CM Allen Pkwy to Moore St. include exclusion of intersections language for side streets.
    - Develop AM and PM peak-period models and calibrate appropriately to simulate existing conditions.
    - Evaluate if any elements of 'Protected Intersection' concept may be applied to the corridor to enhance pedestrian and bike safety.
    - Evaluate up to four (4) different alternatives (lane assignment, signal timing, bike & pedestrian crossings, and parking locations) at the following intersections:
        - E Hopkins St / N LBJ Dr
        - E Hopkins St / Guadalupe St
        - E Hopkins St / Comanche St
    - Project future traffic volumes for appropriate year using historical traffic volumes along the corridor and growth rates observed by the City.
    - Develop future conditions VISSIM models for one (1) preferred alternative for AM and PM peak conditions for the corridor for an appropriate year.
    - Develop one (1) VISSIM simulation video for the PM peak period showing plan view of the peak 15-minute traffic operations for the "Preferred Alternative" for the corridor Public Meetings.
    - Summarize the findings, and recommendations of the traffic study in a Technical Memorandum.
- Consider access management measures that may be incorporated to consolidate driveways/access points to Hopkins Street.
- Determine City of San Marcos, TCEQ, and applicable permitting requirements for limits of project.
- Prepare Utility Conflict exhibit and conflict analysis spreadsheet.
- Perform internal quality control review
- Submit Draft Preliminary Engineering Report to the City for review/comment

- Respond to and address City comments and submit final Preliminary Engineering Report

III. Public Involvement

- Public Meetings
    - Support up to two (2) Public Meetings (understood to be an Open House format) with staff, materials, and displays. Engineer will not provide translation services.
    - Engineer will prepare Public Meeting materials including roll plot of up to two (2) paving options), typical section alternatives, blank map (if needed at first open house), project information displays, enhanced typical section rendering, Vissim model visualizations, and project handouts.
    - Engineer will provide attendee Sign-in sheets and comment cards for written comments.
    - Engineer will review and summarize comments submitted via comment cards and those submitted during appropriate public comment periods after the meeting. Engineer will prepare and submit a Draft and Final Public Meeting Summary.
    - Engineer will provide draft language for a public notice. Engineer understands that the City will post the notice in appropriate media and provide a suitable venue for the event.
- Stakeholder meetings: The engineer will attend and document up to 4 stakeholder group meetings to discuss and gain input on the project. The engineer will use exhibits developed for public meetings to aid in the discussion at stakeholder meetings.

IV. Deliverables

- Monthly Status report included with monthly invoice
- Public meeting exhibits and handouts
- Draft preliminary engineering report
- Approved preliminary engineering report

Additional Services:

Services not specifically identified in the Scope of Services above shall be considered additional and shall be performed on an individual basis upon authorization by the City.