



August 3, 2022

Ben Thatcher  
City Manager  
City of Boerne  
447 N. Main Street  
Boerne, Texas 78006

**RE: *Cascade Cavern Capital Improvement Project  
Scope and Fee Proposal (Preliminary Engineering and PS&E Design Services)***

Dear Mr. Thatcher:

Kimley-Horn is pleased to submit this scope and fee proposal for professional engineering services for preliminary design and plans, specifications, and estimate (PS&E) for the expansion of Cascade Cavern. This reconstruction and expansion project is comprised of the following street segments:

- Cascade Cavern – IH 10 NB Frontage Road to Buckskin Drive
- Old San Antonio Road – Cascade Cavern to +/- 800-feet north
- Scenic Loop Drive – IH 10 NB Frontage Road to +/- 300' north of Cascade Cavern

## **PROJECT UNDERSTANDING**

It is our understanding that this project was selected for grant funding by the recent TxDOT's Call for Projects program and will adhere to Local Government Project Procedures (LGPP) guidelines. Cascade Cavern will be locally managed and will require frequent communication with TxDOT's Local Government (LG) representative from the San Antonio District to ensure compliance with the grant program and Federal Highway Administration (FHWA) guidelines. TxDOT is currently in the process of developing the Statewide Transportation Improvement Program (TIP) that officially confirms project funding, and the TIP is expected to be finalized by late fall of 2022. TxDOT will not allow an Advanced Funding Agreement (AFA) to be negotiated and executed with the City until the TIP is made official.

Through discussions with City staff, it is our understanding that the City intends to proceed with preliminary design services while TxDOT finalizes the TIP program. The preliminary design services generally include preliminary schematic design, survey, National Environmental Policy Act (NEPA) compliance, geotechnical and subsurface utility investigations, traffic and drainage analysis, and public involvement. Upon completion of the preliminary schematic phase and once authorized by the City, Kimley-Horn will continue with the PS&E phase to finalize construction drawings. The PS&E services will include preparing the plans, specifications, and estimate for advertisement and bidding. Construction phase services will also be provided followed by preparation of record drawings and project closeout services. Consulting services for this project will be assigned as Task Order No. 2 under Kimley-Horn's Professional Services Contract, which was fully executed on July 6, 2022. Execution of this contract will be split into two separate phases. These are noted on the fee summary page and the attached project work plan.

In total, this project includes the expansion and reconstruction of approximately 4,700 linear feet of roadway per the segments noted above, and the final typical street section(s) will be in accordance with the City's Major Thoroughfare Plan. Improvements will include expansion of the existing roadway with major drainage improvements expected, a proposed roundabout (RAB) at the intersection of Cascade Cavern and Old San Antonio Road, one new signalized intersection at Cascade Cavern and Scenic Loop, modifications to the

existing signal at Scenic Loop and IH 10 Frontage Road, sidewalks and bike lanes off pavement in the form of a shared use path, street lighting, landscape architecture and irrigation features, and utility relocations to be determined during the preliminary schematic phase (and designed as part of a separate work authorization). Since these roadway segments are considered “off-system” and are locally owned by the City, it is Kimley-Horn’s understanding that TxDOT will allow the project to follow the City’s preferred design submittal schedule. The proceeding sections outline the responsibilities of the City and Kimley-Horn and proposed scope of services required to complete the preliminary engineering schematic phase and the PS&E phase of this project.

## **RESPONSIBILITIES OF THE CITY**

In conjunction with and in order for the completion of the professional services detailed below, the City of Boerne agrees to complete the following tasks:

- Assist in developing a project stakeholder’s list
- Schedule and hold a Project Kickoff Meeting with relevant Stakeholders
- Attend project coordination meetings. Kimley-Horn has assumed that meetings will be held both virtually and in-person, with in-person meetings being held at the City of Boerne office
- Provide As-Built plans, block maps and record drawings for utility owned infrastructure, and any relevant design files for previous projects along Cascade Cavern, Old San Antonio, and Scenic Loop.
- Provide timely reviews and comments on interim and milestone submittals in order for the Consultant team to maintain agreed upon schedules, which will be set after Kimley-Horn receives Notice to Proceed (NTP) from the City
- Coordinate and facilitate processing of the AFA with TxDOT
- City to have Rights-of-Way (ROW) mowed within project limits prior to mobilization of survey crews

## **SCOPE OF SERVICES TO BE PROVIDED BY KIMLEY-HORN**

Kimley-Horn’s services consist of the services specifically described in Tasks 1 – 14, including the specific engineering services to be performed through the following consulting disciplines as a Subcontractor to Kimley-Horn:

- (1) Stantec – Environmental Documentation
- (2) Maestas and Associates (Maestas) – Survey, Right-of-Way (ROW), Metes and Bounds
- (3) CP&Y – SUE
- (4) 7 Arrows Land Staff (7 Arrows) – Title Research and Curing, Right-of-Entry (ROE) Support, Land Acquisition, and Land Appraisal
- (5) ROCK Engineering and Testing Laboratory, Inc. (ROCK) – Geotechnical Engineering and Pavement Design
- (6) Quality Counts – Traffic Counts
- (7) FD2S – Graphics Design Studio
- (8) WV Consulting – TDLR Project Registration, Plan Review, and Inspection

The following tasks outline the proposed scope of services to be completed by Kimley-Horn for this project and the assumptions made to develop the proposed fee:

## **BASIC SERVICES**

### **Task 1: Project Administration and General Coordination**

The Engineer will complete the following sub-tasks to administer this project through the preliminary schematic phase:

- 1.1 Perform daily management and coordination duties to ensure the approved schedule is maintained, notwithstanding unforeseen circumstances beyond the control of Kimley-Horn. This includes frequent design team coordination meetings with both internal Kimley-Horn staff and Subcontractors listed above
- 1.2 Develop subcontract agreements with Subcontractors noted above and coordination to manage scope completion and performance for the duration of services to be performed
- 1.3 Prepare monthly invoice statements to include progress report summaries
- 1.4 Develop and maintain a Preliminary Engineering and PS&E project design schedule for the estimated timeline of this project, which is assumed to be twenty-four (24) months. This detailed schedule will include set production parameters and milestone delivery dates
- 1.5 Conduct Project Meetings
  - Conduct one internal project kickoff meeting with all Kimley-Horn staff expected to participate in project
  - Conduct one project kickoff meeting with all Subcontractors that will support Kimley-Horn on this project
  - Conduct in-person project kickoff meeting with City Staff at City office
  - Conduct twenty-four (24) in-person monthly progress meetings with City staff and necessary Stakeholders (including TxDOT). Kimley-Horn will prepare agendas and necessary documents and exhibits to present project status and discuss design details
  - Conduct twenty-four (24) monthly virtual coordination calls with City staff. Kimley-Horn will prepare agendas and necessary documents and exhibits to present project status and discuss design details
  - Document meetings, prepare meeting notes and send out to all attendees for review and approval. Minutes and meeting notes will confirm discussions and decisions made at each meeting. All parties will be required to acknowledge minutes, provide comment and feedback, and ultimately approve.

### **Task 2: TxDOT Meetings and LGPP Coordination and Documentation**

Kimley-Horn will support the City with coordination meetings with TxDOT and LGPP project requirements through the project design phase. The exact scope of work for this task will be finalized after the City has entered into an AFA with TxDOT, at the first project coordination meeting. Kimley-Horn has anticipated effort for coordination and consultation and will complete this task on an hourly not to exceed basis, to include completion of specific forms and individual meetings with TxDOT's SAT District Engineers. These are broken out as follows:

- 2.1 TxDOT LGPP Coordination and Documentation
- 2.2 Control Section Job (CSJ) number and Public Interest Finding (PIF) submittal to TxDOT
- 2.3 Prepare for and attend TxDOT Design Criteria Conference (DCC). This meeting will confirm the proposed design criteria to be used for the project. Kimley-Horn anticipates the following design criteria and standards to be utilized:

- City of Boerne Engineering Design Manual and Development Code, TxDOT Roadway Design Manual, TxDOT Bridge Design Manual – LRFD, TxDOT Hydraulic Design Manual, Highway Capacity Manual, the American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (Green Book), AASHTO LRFD Bridge Design Specifications, Texas Manual on Uniform Traffic Control Devices, ADA Accessibility Guidelines, Texas Pollutant Discharge Elimination System (TPDES) Guidelines, required applicable state and federal guidelines or standards
  - Specifications and Bid Items will be developed using the latest TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges. City of Boerne technical standards and specifications will be used as needed, but these require approval from TxDOT. Effort for obtaining approval for City of Boerne specifications and standards is not included in this scope
- 2.4 Prepare for and attend Drainage Meetings with TxDOT and City of Boerne. These meetings will present Kimley-Horn's hydrologic analysis findings and proposed hydraulic design to TxDOT's San Antonio District Hydraulic Engineer to achieve concurrence:
- One Meeting to review the hydrologic computations and runoff flows to achieve TxDOT's acceptance
  - One initial Meeting to review proposed hydraulic design and get initial comments
  - One final Meeting to review proposed hydraulic design to achieve TxDOT's acceptance
- 2.5 Meeting with City of Boerne and TxDOT to review TxDOT's 60% Comments. Kimley-Horn will prepare responses to TxDOT's 60% comments and will review the proposed resolution to ensure approach is acceptable to both TxDOT and City of Boerne.
- 2.6 Meeting with City of Boerne and TxDOT to review TxDOT's 90% Comments. Kimley-Horn will prepare responses to TxDOT's 90% comments and will review the proposed resolution to ensure approach is acceptable to both TxDOT and City of Boerne.

### **Task 3: Data Collection**

Kimley-Horn and Subcontractors noted above will collect data to supplement Kimley-Horn's design, including record requests, survey and ROW, Subsurface Utility Engineering (SUE), Geotechnical Engineering and Pavement Design, and Traffic Counts. The following data collection tasks will be completed for this project:

#### **3.1 Internal Data Collection**

- Research and request records for City owned utility infrastructure along roadway segments within project boundary. Kimley-Horn will prepare and submit a map to City Project Manager outlining area for City to provide any and all utilities within existing ROW or City owned easements. Kimley-Horn recommends that the City extract out City owned utilities from their GIS system and provide a shapefile for Kimley-Horn's use
- Research and request records for TxDOT IH-10 and City of Boerne as-builts. Kimley-Horn will prepare and submit a map to both agencies requesting any and all infrastructure within the project boundary
- Kimley-Horn will conduct site visits during this phase to help identify data collection limits and also to initially review the project site

### 3.2 Survey and ROW Mapping

- Kimley-Horn will coordinate with Maestas for the survey of this project. Maestas will complete scope of services identified below to produce a digital terrain model (DTM) to be utilized by Kimley-Horn for the project design. The survey parameters will follow that of the latest City of San Antonio (CoSA) Design Guidance Manual, as outlined with the following scope
- Provide Topographic Surveying and Base Mapping to include the following:
  - Establish Primary and Secondary Project Control with 811 locates
    - Provide sufficient primary and secondary control at a maximum spacing of 250' within project limits, adding additional control at a maximum spacing of 250' within project limits. Add additional control points as necessary to account for maintaining line of sight. Each control point shall be outside of the currently proposed construction footprint
    - Coordinate 811 utility locates and obtain as-built record drawings or block maps from utility owners within the project corridor
  - Survey topographic features and improvements
    - Full topographic and improvements survey within project corridor
    - Locate and pick up noticeable sags/crests within the project corridor, in addition to the requested cross sections
    - Locate curbing, sidewalks, curb ramps, driveways, roadway pavement limits, striping and signage
    - Locate all fences, buildings, parking lots and any obvious features located within project boundary
    - Pick up visible irrigation fixtures
  - Obtain visible monumentation (including TxDOT), confirmed rights-of-way, property pins and parcel boundaries. Surveyor shall cure ROW if required
    - If available, locate TxDOT monumentation set near the IH-10 Frontage Road
  - Survey cross sections/spot elevations to develop DTM
    - Obtain elevations in grid format at all intersections
    - 50' cross sections for topo (roadway) and drainage areas as directed by Kimley-Horn
    - Cross section for topographic boundary shall extend 25' past 100' boundary on each side. Full improvements survey of this additional 25' are not required, but surveyor must obtain cross section and continue ROW survey
  - Utility survey
    - Survey all visible surface utility features and obtain utility survey at Quality Level C and D
    - Locate and pick up all utility poles and overhead utility lines within project limits. Surveyor shall pick up height of utility line at road crossing and the connection to each pole
    - Pick up all drainage and sanitary sewer infrastructure including pipe/box culverts, size, flow line/inverts and direction of flow
    - Locate and pick up earthen and concrete lined channels, including CL, flow line, toe and top
    - Obtain measure downs to top of nut for all valve boxes
  - Tree survey in accordance with City of Boerne requirements
    - All trees shall be tagged with an identification number

- Survey structures within ROW
- Research, locate and include all existing easements within the project boundary
- Include property ownership with volume and page for each parcel
- Survey Ordinary High-Water Mark (OHWM). Maestas to coordinate with Environmental Subcontractor for location of OHWM
- Locate and pick up an estimated fifteen (15) geotechnical soil borings
- Coordinate with SUE sub-consultant to locate and pick up 15 QL-A testholes with associated QL-B markings (Phase 1 SUE effort)
- All survey shall be performed in English Units – US Survey Feet, NAD 83 State Planes, South Central Zone, surface coordinates. All control will be assumed
- Produce the following deliverables:
  - ASCII file with all point numbers and descriptions, X, Y and Z, P-code format, and a DGN file with a full description of all control and benchmark information
  - Complete topographic Microstation v8i 2D and 3D files including surface, code lists, field notes and sketches
  - Microstation triangular irregular network (TIN) surface file
  - Separate base files for ROW, utilities and geotechnical data
  - Project control sheet with pertinent benchmark and control points, to be signed and sealed by RPLS. Project layout to be included in the final construction drawings
  - Develop and submit a parcel and easement strip map signed and sealed by RPLS, to be included in final construction drawings
  - Plat and Field notes for up to twelve (12) parcels
    - Set new property corners for proposed easements
  - .XLS with all trees to include species, size and tag number

### 3.3 Subsurface Utility Engineering

- Kimley-Horn will coordinate with CP&Y for the SUE investigation of this project. CP&Y will complete scope of services identified below and Coordinate with Maestas to produce a .DGN base file of all QL-A and B utility information gathered during SUE investigation. The survey parameters will also follow the latest City of Boerne Engineering Design Manual, and supplemented with the CoSA Design Guidance Manual.
  - Records Research to be performed within designated QL-A/B areas
    - Contact the applicable “one call” agency and acquire records from all available utility owners including local municipalities
    - Perform in-field visual site inspection. Compare utility record information with actual field conditions. Record indications of additional utility infrastructure and visual discrepancies with record drawings
    - Interview available utility owners for needed clarification including site visits, resolution of found discrepancies, and details not provided on the record drawings
  - Designating/QL-B
    - Scope includes mapping of underground utilities within the designated SUE limits. Utility service lines not included in SUE scope of work
    - Select and employ the appropriate suite of industry standard geophysical equipment to search for existing utilities within the limits specified on the project. For metallic/conductive utilities electromagnetic induction, and magnetic equipment will be employed. SUE provider will attempt to designate



- non-metallic/non-conductive utilities using other proven methods, such as rodding and/or probing.
  - Mark indications of utilities with paint and coordinate with Maestas to locate for survey
  - Correlate data with utility records and above ground appurtenances obtained from visual inspection to resolve differences and discrepancies. Denote any utilities found where ownership/utility type is not available from records as “unknown” facilities
- QL-A (Testholes)
  - Horizontally and vertically locate up to fifteen (15) testholes via QL-A vacuum excavation techniques
  - After utility is located, record utility type, size, material, depth to top of utility and general direction
  - Backfill with approved materials. Sidewalk cores will be epoxied back in place. Core through street surfaces will be backfilled with flowable fill
  - Coordinate with Maestas to locate for survey final utility test hole locations according to project control
- Provide traffic control including Truck Mounted Attenuators (TMAs) for all work within street surface
- Obtain necessary ROW permits for TxDOT. It is assumed fees for work permits within City of Boerne ROW will be waived.
- Provide the following deliverables:
  - Test hole summary sheet for all QL-A locations signed and sealed by Texas Licensed PE
  - 8.5” x 11” Test Hole Data Forms for all test hole locations completed, signed and sealed by Texas Licensed PE

### 3.4 Geotechnical Engineering and Pavement Design

- Kimley-Horn will coordinate with ROCK Engineering and Testing to obtain soil borings for the pavement design. The scope of the subsurface soil investigation and pavement design includes the following:
  - Follow City of Boerne Pavement Design Criteria. Any criteria not available will be supplemented with criteria from the City of San Antonio (CoSA) Pavement Design Manual with approval from City staff first
  - Obtain twelve (12) soil borings up to a maximum depth of twenty (20) feet per hole
  - Two (2) bulk samples of the subgrade soil will be obtained in order to perform moisture/density, California Bearing Ratio (CBR), lime series, pH and sulfate testing in laboratory
  - Soil samples will be obtained at 2-foot intervals to 10-feet, and 5-foot intervals thereafter unless subsurface conditions warrant additional sampling
  - Observe presence of groundwater during and upon completion of drilling operations, notate presence and depth on boring logs
  - Backfill boreholes with bentonite hole plug and cuttings upon completion of drilling. Surface patches will be installed where required
  - Perform GPR scanning at each boring location
  - The laboratory testing program may consist of the following
    - Supplementary visual classification (ASTM D2487)

- Moisture Content (ASTM D2216)
- Atterberg limits (ASTM D4318)
- Percent material finer than #200 sieve (ASTM D1140)
- Unconfined compressive strength (ASTM D2166)
- Standard proctor (ASTM D698) (bulk samples)
- Sulfate content determination (TEX Method 145E) (bulk samples)
- Lime series (TEX Method 121E) (bulk samples)
- pH test (ASTM D5464) (bulk samples)
- California Bearing Ratio (ASTM D1883) (bulk samples)
- o The following deliverables will be provided as part of this task:
  - o Boring logs with soil classification based on the Unified Soil Classification System (ASTM D2487)
  - o A discussion of the engineering properties of the subsurface materials encountered and generalized site stratigraphy
  - o Soil boring plan that depicts borehole locations
  - o Depth where groundwater was encountered during drilling and its impact on construction
  - o Recommendations for excavations
  - o Recommendations for pavements along three segments noted above

### 3.5 Traffic Counts

- Kimley-Horn will coordinate with Quality Counts to obtain the necessary traffic counts to be used in Task 5 as part of the traffic model and analysis. Twenty Four hour tube counts, including both AM and PM peak hour turning movement counts, will be obtained and shall be collected when school is in session. Counts will be obtained at the following locations:
  - o Turning Movements at the following intersections
    - Cascade Cavern and IH 10 Frontage Road
    - Cascade Cavern (dual leg) and Old San Antonio Road
    - Cascade Cavern and Scenic Loop Road
    - Scenic Loop Road and IH 10 Frontage Road
    - Cascade Cavern and Buckskin Drive
  - o Tube Counts
    - Old San Antonio Road north of Proposed RAB
    - Scenic Loop between IH 10 Frontage Road and Cascade Cavern
    - Scenic Loop (private drive) north of Scenic Loop/Cascade Cavern intersection
    - Cascade Cavern east of Scenic Loop intersection

### **Task 4: Utility Coordination**

Significant utility coordination efforts will be required for this project due to the heavy drainage improvements expected. Kimley-Horn will provide detailed utility coordination efforts in accordance with the City of San Antonio Design Guidance Manual, and will include the following specific tasks on this project:

- 4.1 Utility service provider coordination and documentation
- 4.2 Prepare utility layout sheets, 11" x 17" double plan sheets, at 1" = 40' scale, noting existing utilities located during data collection task



- Utility layout sheets will include existing utilities at Quality Level designation, type and size, and limits of conflict with proposed improvements
- 4.3 Identify conflicts and prepare preliminary utility conflict matrix
  - Incorporate proposed underground and cross drainage network into utility layout sheets and utilizing utility information collected in the data collection task, identify conflicts with existing utilities and note in a conflict matrix. Matrix to include conflict number, utility owner, utility type and size (if available), station range, and recommendation on conflict resolution
- 4.4 Prepare utility coordination report
  - Prepare detailed utility coordination report to include correspondence with utility service providers, conflict matrix and utility layout sheets
- 4.5 Meetings
  - Prepare for, attend, and conduct single project kickoff meeting with utility service providers
  - Prepare for, attend, and conduct single interim utility coordination with all impacted providers. Providers will be expected to participate and provide comments/feedback on proposed improvements and draft relocation limits. Kimley-Horn will evaluate comments from service providers and coordinate with City staff on all requests
  - Prepare for, attend, and conduct one final utility coordination meeting with all impacted providers to discuss relocations required as part of this project, and proposed schedule
- 4.6 Submittals
  - Draft utility coordination report, conflict matrix and layout sheets
  - Final utility coordination report, conflict matrix and layout sheets
  - Kimley-Horn will maintain utility contact list and provide .XLS with service provider information at each submittal
- 4.7 Clear utilities and identify relocations
  - Utilize information collected to clear utilities from relocation and notate utility relocations required due to the proposed scope of this project.

### **Task 5: Preliminary Engineering Design**

Kimley-Horn will complete the following:

- 5.1 Design Summary Reports (TxDOT Form 2440)
  - Prepare a design summary report to document controlling design criteria
- 5.2 Preliminary Roadway Design
  - Prepare horizontal plan and vertical geometrics with topographic survey data, including Roundabout at the intersection of Cascade and Old San Antonio
  - Prepare roadway pavement markings
  - 3D corridor modeling
  - Incorporate drainage plan and vertical geometrics into corridor model and roll plot schematic utilizing results from preliminary drainage design
  - Ongoing schematic design refinements
    - Throughout the project it is anticipated that refinements to the overall schematic will be required at the conclusion of meetings with the City and TxDOT. This task assumes that the general concept will remain intact and significant adjustments to the typical section and drainage network will not be required

### 5.3 Preliminary Drainage Design

- Establish baseline existing conditions
  - Data collection – obtain studies, models, terrain, surveys, and plans from local jurisdiction
  - Terrain – merge field survey with available LiDAR to create a terrain model
  - Hydrology – define methodology, delineate basin, determine parameters, estimate existing and future urbanized land use conditions
- Create revised effective HEC-HMS model – update the existing HEC-HMS model with project location and apply Atlas 14 rainfall intensities to the model
- Create existing HEC-RAS – 1 Unnamed Tributary from IH-10 to Buckskin Drive – create hydraulic model of the unnamed tributary from record LiDAR and survey
- Create proposed HEC-HMS Model assuming no detention – update with Roadway additions and apply Atlas 14 rainfall intensities to the model
- Create proposed HEC-RAS Model – Option 1 – all flow crossing through a culvert at Old San Antonio Road, at the north end of the project site (Culvert 1). Option will not analyze any channel improvements.
- Create Proposed HEC-RAS Model – Option 2 – channel improvements approximately 600-feet downstream Old San Antonio Road (Culvert 1) and west of Scenic Loop Rd (Culvert 7). Option 2 is in addition to and includes the proposed improvements from Option 1.
- Create proposed HEC-RAS/Storm CAD Model – Option 3 – partially diverting flow between the culvert at Old San Antonio road at the north end of the site (Culvert 1) through the project storm sewer system, and out falling at culvert crossing on west side of Cascade Cavern and Scenic Loop Road intersection (Culvert 5). Develop channel improvement concept to route flow to the bridge near Scenic Loop Road and east of Fairfield
- Create HEC-HMS model with detention – determine detention pond size and volume, outfall size, and emergency overflow size to mitigate increase in 100-year peak flow in proposed conditions
- Prepare summaries of the proposed options prepared in D-H. Kimley-Horn will endeavor to prepare each option to result in no adverse impact; however, no adverse impact is not and cannot be guaranteed
- HY-8 culvert sizing of Culverts 2, 3, 4, 5 and 6
- Storm CAD design
  - Produce exterior drainage area maps at 1" = 200' scale
  - Produce interior drainage area maps at 1" = 100' scale
  - Calculate run-off to each inlet and produce inlet hydraulic information using "GEOPAK Drainage" software and City of Boerne drainage design criteria
  - Produce storm drain calculations per the City of Boerne drainage design criteria manual using GEOPAK drainage software. Design frequency to be established in coordination with the City.
- Detention pond concept designs – prepare preliminary plan of detention pond improvements for proposed conditions including concept grading, outfall configuration, and emergency overflow configuration
- Stormwater quality options to be explored and coordinated. Prepare preliminary layouts to assist in confirming any additional Rights of Way (ROW) needs

- Drainage plan and vertical geometrics – prepare preliminary design of drainage infrastructure in model software and convert to GEOPAK drainage software
- Drainage deliverables will consist of two (2) hard copies and one (1) electronic copy of the Preliminary Drainage Design Report summarizing H&H modeling and exhibits noted above
- Respond to one round of ordinary and reasonable review comments provided by the City and TxDOT. Ordinary and reasonable is defined as comments that are minor and corrective in nature and do not alter the concept and scope of work. As noted in Task 2, Kimley-Horn will hold initial hydrologic review and hydraulic analysis review meetings with the City and TxDOT to ensure the methodology and concept is accepted

5.4 Preliminary Traffic Analysis (Level of Service – LOS) – Analyze the existing conditions and the proposed improvements for Cascade Cavern project, to include operational analysis using the microsimulation software VISSIM. The following intersections will be analyzed for the AM and PM peak hours for the existing year, the opening year, and an agreed upon horizon year:

- Scenic Loop Road and IH-10 southbound Frontage Road
- Scenic Loop Road and IH-10 northbound Frontage Road
- Cascade Cavern and IH-10 northbound Frontage Road
- Cascade Cavern and Old San Antonio Road
- Cascade Cavern and Scenic Loop Road
- Cascade Cavern and Buckskin Drive
- Attend DCC
- Site visits for VISSIM software experts
- Data compilation and post processing
  - Analyze the existing roadway network and review online data to collect intersection geometries, lane assignments, traffic control, signal timings, congestion and queues, turning movement speeds and posted speed limits
  - Review aerial photography
  - Review speed and travel time data from available sources
  - Utilize traffic count data to be obtained with project. Traffic counts for existing conditions will be collected for the six (6) study intersections listed under the scope of services. Traffic counts will be collected when school is in session to capture school-based traffic. Speed and travel time data will be collected using INRIX
  - Review historical growth rates
- Traffic Projections – Develop traffic projections based on data collected. Traffic projections will be based on available data sources and may include historical traffic counts at nearby permanent count stations or background projects within the study area that could increase traffic
- Existing models and calibration – Development and Calibration – AM and PM
  - Develop an existing conditions VISSIM model based on data collected in data collection task and calibrate to VDOT calibration parameters, which is a nationally accepted industry standard. As this project is in the preliminary engineering phase, the existing models will be calibrated to reasonable standards to simulate the conditions observed during data collection. If TxDOT requires the VISSIM model to follow NEPA and 2019 FHWA calibration thresholds, then Kimley-Horn will require an additional service as the effort to prepare the VISSIM model in accordance with these standards is significantly higher with a much tighter tolerance.

- Future Build Analysis
  - model development utilizing the Cascade Cavern typical section submitted as part of the Call for Projects application phase. This includes a 4-lane pavement section with a median lane along Cascade (5-lane section in total)
  - model analysis opening year (AM and PM) (two models)
  - model analysis horizon year (AM and PM) (two models)
  - each model will utilize forecasted volumes developed in traffic projection task
- Report and documentation
  - Develop a model report that documents project details, existing conditions, traffic operational analysis for the future build analysis, and a summary of findings. The report will include a project location map, scenario MOE comparison tables, traffic volume exhibits, calibration tables, and scenario exhibits.
  - submittal content review meeting
  - address one round of ordinary and reasonable comments
  - submit final models and report

5.5 Geometric Schematic Layout – Kimley-Horn shall develop a geometric design schematic similar to the layout included in Attachment C. The geometric schematic will be provided on 2 – 36” x 72” roll plots at a 50:1 scale and will include:

- Typical sections of existing and proposed roadways
- Horizontal curve data shown in tabular format
- Pavement edges, curb lines, sidewalks and shared-use-paths for all roadway improvements
- Anticipated structural locations
- Existing utilities
- Existing property lines and respective property ownership information
- Existing ROW and easements
- Proposed ROW and easement requirements adequate for preparation of ROW Maps
- Existing and projected traffic volumes
- Traffic line diagram
- Lane lines, shoulder lines, and direction of traffic flow arrows indicating the number of lanes on all roadways
- Profile – grade and vertical curve data including “K” values
- Profile – existing ground line profiles
- Preliminary drainage and traffic improvements

5.6 Preliminary Traffic Design

- Photometric Analysis
  - Develop a photometric model of the project street segments using TxDOT standard luminaire
  - Placement of luminaires will be based on City of Boerne requirements and IESNA roadway lighting guidance
  - Camp Bullis Dark Sky requirements will govern for the project corridor
- Lighting Pole Layout
  - Develop light pole layout sheets to show proposed locations of light poles based on photometric analysis
  - Coordinate with Utility Coordination task to perform conflict checks with underground and overhead utilities

- Aesthetic Lighting Concept Review and Coordination for proposed RAB and Corridor
  - Coordinate with Roadway and Landscape Architect for potential aesthetic lighting options within the corridor and the proposed RAB

#### 5.7 Landscape Architecture Concept Coordination and Refinement

- Concept Refinement and Scope Area Confirmation Plan for proposed design for purposes of adding tree, shrubs and irrigation. Includes design intent document and artwork preparation for graphic design sub-consultant FD2S
- Prepare Preliminary Plan Design to verify the design palettes and hardscape materials per the approved CoB Urban Corridor Design Enhancement Master Plan. Includes schematic design layouts for graphic design sub-consultant FD2S
- Provide preliminary irrigation coordination and layouts, utility and lighting sleeving
- Review of proposed irrigation features to identify potential water sources, controller locations and main line routing. Coordinate sleeving and utility landscape lighting for project area

#### 5.8 Exhibits for Meetings with Affected Property Owners (MAPOs)

#### 5.9 Cross Section Layout

#### 5.10 Conceptual Traffic Control Plan Layouts

#### 5.11 Public Schematic Layout

#### 5.12 Constructability Review

#### 5.13 QC/QA

#### 5.14 Preliminary Opinion of Probable Construction Cost (OPCC)

#### 5.15 Schematic Package Submittal and City of Boerne Review

- Due to the extensive effort required to complete the geometric schematic and preliminary engineering phase, Kimley-Horn recommends this Task 5 take the place of the 30% PS&E design submittal package, and upon approval from the City, proceed to Task 8 60% Design

#### 5.16 Address Summary Report Comments and Finalize Geometric Schematic

### **Task 6: Environmental Compliance and Public Involvement**

The environmental documentation phase includes compliance with NEPA requirements via Subcontractor Stantec:

#### 6.1 Social, Economic and Environmental Studies and Public Involvement

##### 6.1.1 Work Plan Development and Scope Forms

- Coordinate project limits and scope of work with Stantec and draft a project description and necessary responses to the Work Plan Development (WPD) forms in TxDOT's Environmental Compliance Oversight System (ECOS)

##### 6.1.2 Hazardous Materials Initial Site Assessment (HazMat ISA), Project Impact Evaluation Report, Issues Identification and Resolution (IIR), and Phase I

- Perform an Initial Site Assessment (ISA) to identify potential hazardous materials impacts within the project study area. The goal of the ISA is to identify known or potential hazardous materials and wastes sites within the study area and determine if those sites would be anticipated to impact the project development process. Prepare a Hazardous Materials Impact Evaluation Report for all "unresolved" or "resolved" concerns identified in the ISA. The Report will follow the most recent TxDOT Environmental Toolkit guidance. An IIR will be prepared for any properties that require additional analysis.

- Project assumption is that a single Phase I ESA will be required for the Valero Gas Station parcel. The Phase I ESA will include investigations and reporting in accordance with ASTM 1527-13 and will include interior and exterior site observations (as available); regulatory database record review; interview(s) with knowledgeable persons, as applicable; and other appropriate inquiries. Phase I ESA investigations will focus on the identification of Recognized Environmental Conditions (REC) within the project area and potential hazardous materials issues on nearby parcels. Results will be provided in a Phase I ESA Report, prepared following ASTM E 1527-13.

#### 6.1.3 Historic Resources

- Conduct database searches of the Texas Historical Commission's (THC) Sites Atlas to identify properties and districts listed on the National Register of Historic Places (NRHP), National Historic Landmarks (NHLs), State Antiquities Landmarks (SALs), Registered Texas Historic Landmarks (RTHLs), and the Texas Department of Transportation's (TxDOT) Historic Districts and Properties of Texas and NRHP-Listed and Eligible Bridges of Texas maps. All information will be presented in the Historic Resources Project Coordination Request (PCR) form, compliant with the current TxDOT Environmental Toolkit. Historic resources survey is not anticipated to be required, but if determined to be required approval of supplemental funds will be needed for the additional effort.

#### 6.1.4 Archeological Resources

- Prepare an archeological background study that will be used to determine if archeological survey is warranted. The study will include review of the Texas Historic Commission's (THCs) Texas Archeological Sites Atlas maintained by the Texas Archeological Research Laboratory (TARL) for all known sites and previous cultural resources studies, as well as historic cemeteries, historical markers, NRHP listed properties and districts, and SALs within one kilometer of the project area. Other resources used in the study would include soils, geology, and historic maps and on-line-available aerial photographs. The archeological background will be prepared in the format that complies with TxDOT's Review Standard for Archeological Background Studies, compliant with current TxDOT Environmental Toolkits and Templates, not to exceed the level of effort described in this proposal.
- Archeological investigations will ensure project compliance with the Antiquities Code of Texas. If federal funding or permitting are associated with the project, the investigations will also comply with Section 106 of the National Historic Preservation Act of 1966, as amended. Using the information gathered during the production of the background study, a Texas Antiquities Permit Application will be composed in compliance with the Antiquities Code of Texas.
- Once a valid permit is obtained, an archeological field survey will be conducted by qualified archeologists and will include pedestrian survey and shovel testing in accordance with THC/CTA standards along the proposed project area. It is assumed that no mechanical trenching would be required for this project. An archeological report will be prepared in compliance with THC/CTA reporting standards. This documentation would be in compliance with current TxDOT Environmental Toolkits and Templates, not to exceed the level of effort described in this proposal. Any additional required scope due to updated TxDOT



requirements will require a separate proposal and task order. This report will include background information, results of the fieldwork, and recommendations regarding further work.

- A final draft report addressing any comments from the Client, TxDOT, or the THC will be submitted to the Client for review. Upon direction of the client, Stantec will curate all necessary project materials at an approved curational facility and close out the associated Antiquities Permit.

#### 6.1.5 Biological Resources

- Perform desktop and field analysis to support preparation of TxDOT's Species Analysis Spreadsheet and Species Analysis form. Utilize current County lists maintained by the USFWS and TPWD to identify threatened and endangered species with the potential to occur within the project area. Qualified Ecologists will determine if the project area contains suitable habitat for any state or federally listed species. Note that any compliance-related activities or formal coordination with resource agencies would be carried out under an additional scope and budget. No presence/absence surveys are included with this scope.
- The Cascade Caverns project is located within the Lower Glen Rose Protection Zone (LGRPZ); therefore, per the City of Boerne (CoB) Unified Design Code (UDC) CMEC will conduct a Geologic Assessment (GA). CMEC will provide a State of Texas Licensed Professional Geoscientist to conduct a GA in compliance with the CoB UDC Section 8.9A through 8.9E. A report containing all required elements in the UDC section 8.9D will be provided.

#### 6.1.6 Surface Waters Analysis Form & Waters of the US Delineation

- Conduct a site visit that will identify and delineate wetland boundaries and ordinary high-water marks of jurisdictional waters within the project area. If aquatic features are found during the site visit, a Jurisdictional Waters Delineation Report will be prepared using the TxDOT guidance and templates in the TxDOT Environmental Toolkit, identifying specific impacts of the project on the Waters of the U.S. (including special aquatic sites), measures to minimize the impacts will be identified, and discuss applicable Section 404 options in accordance with current permits and conditions based on data collection and field reconnaissance. Prepare a surface water analysis form and Section 404/10 Impacts Spreadsheet, as necessary.
- If it is determined, after the Jurisdictional Waters Delineation Report, that a pre-construction notification (PCN) is required; a supplemental work authorization would be required. The Jurisdictional Waters Delineation Report and NWP with PCN are subject to the U.S. Army Corps of Engineers Forth Worth District review and issuance of a permit.

#### 6.1.7 Community Impacts Assessment Technical Report Form

- Prepare a community impacts assessment technical report form. It is anticipated that the assessment requires a community profile, displacement analysis (residential, commercial, and other), access and travel pattern analysis, community cohesion analysis, environmental justice analysis, and limited English proficiency analysis.

#### 6.1.8 Noise Analysis Technical Report

- Prepare a noise analysis technical report. The report will follow current TxDOT Guidance and would include computer modeling of existing and predicted noise levels, field measurements of existing noise levels and validation of existing model, determine predicted noise impact contours for undeveloped property, and a barrier analysis for impacted receivers.

## 6.2 Public Involvement

- Prepare a public meeting documentation packet with comment/response table for one virtual/ in-person public meeting. The task also includes the preparation, notification, and submittal of a Notice Affording an Opportunity for Public Hearing once the environmental reporting has been completed. This scope includes:
  - Make meeting arrangements (presentation materials, advertisements, etc.),
  - Provide notices to major, local and Spanish newspapers,
  - Compile public comments received and responses to comments in a Public Meeting Summary Report,
  - Compile, maintain and update a mailing list of people, adjacent landowners, agencies and organizations interested in the project,
  - Attend a pre-public meeting with the Client and TxDOT, providing public meeting exhibits (welcome board, station signs, memorandum of understand (MOU) board, environmental constraints board); and
  - Obtain the TxDOT and the Clients approval for all legal notices, exhibits, and other materials.
  - Prepare the Notice Affording Opportunity for a Public Hearing (NAOPH), publish notification in local media sources, send notification letters to adjacent landowners and elected officials, and compile responses from the public.

## **Task 7: Land Acquisition Support**

Kimley-Horn will coordinate with Subcontractor 7 Arrows to complete the following services as part of the preliminary engineering phase:

### 7.1 Kimley-Horn Right-of-Entry (ROE) Support

- Kimley-Horn will coordinate with Subcontractor 7 Arrows until all ROEs within project corridor are fully executed

### 7.2 Kimley-Horn Land Acquisition Support

- Kimley-Horn will coordinate with Subcontractor 7 Arrows until all land acquisition has been finalized.

### 7.3 Pre-Acquisition Services (7 Arrows)

- Acquire ROE for up to sixteen (16) parcels
- Research contact information for landowners to obtain ROE
- Mail ROE letters and forms to property owners wherein it will be necessary to access property for design, survey, geotechnical, utility, environmental investigations and/or appraisal purposes
- Contact property owners or their designated representative to obtain signatures on ROE forms
- Negotiate terms of ROE (if needed). Approval of all terms will require City approval
- Provide ROE tracker identifying all parcels and status of ROE, including property owner contact information
- Provide fully executed ROEs to City

- Provide package for TRO (survey injunction) if ROE cannot be obtained and data cannot be collected from adjoining properties

#### 7.4 Acquisition Services

- Title Research and Curing support for up to twelve (12) parcels
- Review preliminary title commitment (Schedules A, B & C) or preliminary title search information for all properties
- Secure title commitments and updates in accordance with insurance rules and requirements for parcel payment submissions for properties which will be acquired in fee simple and for ROW easements
- Secure title insurance for all parcels, insuring acceptable title. Cure all exceptions on Schedule C, when applicable. Written approval by City will be required for any exceptions to coverage
- Acquisition Negotiation
- Acquisition Closing Services
- Condemnation services not included in the base scope of work

#### 7.5 Appraisal Services

- Appraisal services for up to ten (10) parcels
- Appraisal services for up to two (2) additional parcels that are more complex and require additional appraisal service effort

#### 7.6 Land Management Meetings and Coordination

- Attend meetings and coordinate with Kimley-Horn on status of Title work, ROEs, acquisition, and appraisals.

In the event a parcel or parcels are unable to negotiate sale with the City and enter into condemnation services, Kimley-Horn will submit an additional services proposal for both Kimley-Horn and sub-consultant services.

### **Task 8: 60% PS&E Design**

The preliminary engineering phase will progress the design of the project to a level consistent with that of a 60% PS&E plan set, so that ROW Acquisition and Utility Relocation design can begin. The following will be included as part of the 60% PS&E design phase:

- 8.1 Prepare General Sheets and Task, to include design summary report (DSR), cover, sheet index, project layout, existing and proposed typical sections, complete quantity takeoffs and summary sheets, and general notes
- 8.2 Utility Coordination – Continued utility coordination efforts will be required thru the 60% PS&E phase to accommodate required utility relocations and update documents developed during Task 5. The following will be included as part of the Utility Coordination effort:
  - Update 60% Utility Layout Sheets
  - Update 60% Utility Conflict Matrix and Report
  - Update 60% Utility Coordination Meeting
- 8.3 Traffic Control Plan – Kimley-Horn will complete a detailed traffic control plan consisting of up to four (4) phases of traffic control and based on the conceptual traffic control plan developed during the preliminary engineering design phase. Traffic Control Plan will include:
  - Construction Phasing Typical Sections
  - Construction Phasing and Sequence of Work

- Construction Phasing Layouts to be performed for up to two (2) phases that directly impact TxDOT facilities
  - Detour and Barricade Plans
  - Temporary Signal at Cascade Cavern and Scenic Loop (Install and Adjustment)
- 8.4 Roadway Design – Kimley-Horn will complete roadway design tasks and prepare 60% level construction drawings in accordance with tasks listed in the project work plan. It is assumed that the horizontal and vertical alignments, roadway and roundabout geometrics, and driveways will require revisions to what was submitted in the finalized geometric schematic, but the overall concept will remain the same. Kimley-Horn will design the pedestrian improvements, street cross sections, roundabout grading plan and contours, intersection grading layouts, and miscellaneous roadway details.
- 8.5 Drainage Design – Kimley-Horn will update the preferred drainage design option selected during the preliminary engineering phase with the roadway changes and prepare 60% level construction drawings in accordance with the tasks listed in the project work plan. It is assumed that the channel improvements, detention pond design, culvert and bridge class cross drainage structures, and the associated hydrologic calculations determined in the design of these major drainage structures will not require significant revisions to what was submitted in the finalized geometric schematic. Kimley-Horn will design the driveway culverts, miscellaneous drainage details, the design of the inlet and manhole placements for the storm sewer system, storm water quality design features, the sizing and profile of the storm sewer conduits, the horizontal and vertical geometrics of the roadside ditch, and will determine the hydrologic runoff values associated with both the storm sewer's and roadside ditch's hydraulic design. Kimley-Horn will also design the extension of the culvert lateral crossing Scenic Loop at the Northeast corner of the intersection with the Westbound IH-10 Frontage Road.
- 8.6 Traffic Design – Kimley-Horn will complete traffic design tasks and prepare 60% level construction drawings that will include:
- Traffic signal plans for the Cascade Caverns and Scenic Loop intersection
  - Traffic signal modification plans for the relocation of the single mast arm and pedestrian pole located at the eastern corner of the Scenic Loop and Westbound IH-10 Frontage Road intersection
  - Pavement Marking and Signing Plans
  - Prepare illumination plans in accordance with TxDOT standards for roadway lighting. The plans shall include light pole locations, luminaire types, conduct and conductor sizes, and electric utility alignment
  - Prepare illumination plans for aesthetic lighting at proposed RAB to include light locations, electric utility alignment, conduit and conductors, and details
- 8.7 Landscape Architecture Design
- Kimley-Horn will complete landscape architecture tasks and prepare 60% level construction drawings that will include the scope areas identified in the Concept Design package, including the proposed RAB.
  - Refine scope from concept design task and prepare irrigation layouts to include updated main line routing, controller locations, tie-ins to main water source, and valves and head locations
  - Prepare landscape lighting plans in accordance with the illumination electrical plan
  - Refine scope of work area for irrigation sleeves, utility and landscape lighting
  - Graphic schematic design updates for sub-consultant FD2S

- 8.8 Environmental – Kimley-Horn will complete environmental design task and prepare 60% level construction drawings that will include:
- SW3P plans
  - SW3P narrative
  - EPIC sheet
- 8.9 Permitting
- TDLR – Kimley-Horn will engage a Registered Accessibility Specialist (RAS) to register the project and complete a preliminary plan review of the 60% construction drawings.
- 8.10 Constructability Review
- 8.11 Internal QC/QA
- 8.12 Construction Contract Time Determination
- 8.13 Standards and Specifications – Kimley-Horn will compile and include all applicable standards required in the construction plan set. A list of governing specification will also be prepared and will cover all applicable specifications, special provisions, and special specifications.
- 8.14 Opinion of Probable Construction Cost (OPCC)
- 8.15 Milestone Submittal/Comment Responses
- Prepare complete submittal of all disciplines and submit plans, list of details, list of governing specifications, and OPCC.
  - Attend one (1) design review meeting with City to discuss 60% submittal documents and City review comments
  - Prepare responses to City comments utilizing bluebeam or adobe software and submit to City for approval of the 60% design phase. Adjustments to design and plans from City review comments will be completed during the next design phase.
- 8.16 Public Meeting – Kimley-Horn will prepare a presentation and exhibits to support the City in presenting project updates to the public.

### **Task 9: 90% PS&E Design**

Kimley-Horn will further progress the construction drawings, specifications and OPCC to a 90% design level. The following tasks for the 90% design phase will supplement tasks noted in Task 8 (60% PS&E Design):

- 9.3 Traffic Control Plan
- Detailed construction phasing layouts for full four (4) phase traffic control plan. Up to two (2) phases that impact TxDOT facilities designed during the 60% design phase will be modified and up to two (2) additional phases will be designed new and correlate with the approved traffic control project phasing layout.
  - Schedule of Barricades and Advanced Warning Devices
- 9.13 Standards and Specifications
- Prepare supplemental conditions
  - Prepare draft specifications package

PS&E submittal documents and requirements will be consistent with Task 8: 60% Design Phase. A public meeting is not anticipated for the 90% design phase.

**Task 10: Final PS&E Design**

Kimley-Horn will review City comments provided for the 90% design documents and attend a design review meeting to coordinate any final modifications to the plans. Construction drawings, specifications, and contract documents will be finalized, sealed and submittal as bid ready documents. Kimley-Horn will also review the Utility Conflict Report and address any pending items. This task assumes that the general project scope remains intact and only minor revisions to the plans will be required.

Kimley-Horn will submit signed and sealed plans and specifications with the final OPCC for this task. Additionally, final signed and sealed plans will be submitted to TDLR within 20-days of seal date.

**Task 11: Bid Phase Services**

The following bid phase services will be provided for this project:

- 11.1 Assist the City in preparing advertising documents
- 11.2 Distribute plans and specifications to contractors and plan rooms, maintain plan holders list
- 11.3 Prepare meeting agenda and attend pre-bid meeting
- 11.4 Prepare pre-bid meeting notes
- 11.5 Document and review contractor questions
- 11.6 Prepare and distribute necessary addenda
  - This task assumes up to a maximum of two (2) addenda will be required
- 11.7 Attend bid opening
- 11.8 Contractor qualification and bid evaluation
- 11.9 Prepare bid tabulation
- 11.10 Prepare construction contract award recommendation
- 11.11 Prepare conformed plan set

**Task 12: Construction Phase Services**

The following construction phase services will be provided for this project:

- 12.1 Pre-Construction Meeting
- 12.2 Progress meetings and site visits (est. 18-month construction schedule)
  - Monthly construction progress meetings with combined site visit
  - Monthly standalone site visit (to occur monthly, two weeks after progress meetings)
  - Prepare meeting notes for monthly progress meetings and submit within three (3) days of progress meeting
  - Prepare construction observation report for each site visit
- 12.3 General Construction coordination
  - Kimley-Horn will make site visits in accordance with proposed basic scope of work in order to observe the progress of the work. Such observations will not be exhaustive or extend to every aspect of Contractor's work. Observations will be limited to spot checking, selective measurement, and similar methods of general observation. Based on information obtained during site visits, Kimley-Horn will evaluate whether Contractor's work is generally proceeding in accordance with the Contract Documents, and Kimley-Horn will keep the City informed of the general progress of the work.
  - Additionally, Kimley-Horn will not supervise, direct, or have control over Contractor's work, nor shall Kimley-Horn have authority to stop the Work or have responsibility for the means, methods, techniques, equipment choice and usage, schedules, or procedures of



construction selected by Contractor, for safety programs incident to Contractor's work, or for any failure of Contractor to comply with any laws. Kimley-Horn does not guarantee the performance of any Contractor and has no responsibility for Contractor's failure to perform its work in accordance with the Contract Documents.

- 12.4 Review Contractor Pay Estimates (monthly and final payment)
  - Kimley-Horn will review and approve or take other appropriate action in reviewing Contractor application for payment, including recommendations to reject request for payment if quantities are not accurate and in line with the Contract Documents or progress of work
- 12.5 Review Shop Drawings and Submittals
  - Kimley-Horn will review and jointly approve with CoB Inspections or take other appropriate action in respect to Shop Drawings and Material Submittals and other data the Contractor is required to submit, but only for conformance with the information given in the Contract Documents. Such review and approvals or other action will not extend to means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction or to related safety precautions and programs
- 12.6 Requests for Information (RFIs)
  - Kimley-Horn will respond to reasonable and appropriate Contractor requests for information and issue necessary clarifications and interpretations of the Contract Documents to the City as appropriate to the orderly completion of Contractor's work. Any variations from the Contract Documents will require authorization and approval from the City
- 12.7 Request for Proposals (RFPs) and Change Orders (COs)
  - Kimley-Horn will review up to four (4) change orders or request for proposals requested by the City
- 12.8 Substantial and Final Completion Walk-Throughs
  - Kimley-Horn will conduct a substantial and final completion walkthrough with the City to determine if the completed Work of Contractor is in general conformance with the Contract Documents. Kimley-Horn will develop a list of deficient items at the conclusion of the substantial completion walk and submit to the City and Contractor. Upon notification by the City that deficient items have been addressed to the City's satisfaction, Kimley-Horn will recommend final payment to the Contractor and submit a Notice of Acceptability of Work
- 12.9 TDLR Inspection – Kimley-Horn's sub-consultant will complete a post construction inspection to review final improvements and prepare and submit a violations/no-violations letter. Violations will be required to be addressed by the Contractor before the project can be officially closed out with TDLR. Kimley-Horn will help the City coordinate violations with the Contractor and complete a post TLDR walk with City staff to confirm violations are properly addressed. The TDLR inspection will be conducted in conjunction with the substantial completion walkthrough.

### **Task 13: Record Drawings and Project Closeout**

The following record drawing and project closeout services will be completed for this project:

- 13.1 Prepare Record Drawings from Contractor As-Built – The Contractor is responsible for providing a redlined set of construction drawings to Kimley-Horn identifying all changes made

to the approved design during construction. Based on redlines provided by the Contractor, Kimley-Horn will prepare record drawings.

- 13.2 Draft Submittal – Kimley-Horn will prepare and submit a draft set of record drawings to the City for review and comment.
- 13.3 Address Comments and Submit Final Record Drawings – Kimley-Horn will review City comments, update record drawings and submit final record drawings for project closeout. Final deliverable will include:
  - One (1) CD containing final record drawings in .pdf format
  - One (1) CD with final unsealed drawings in Microstation (.dgn) format

#### **Task 14: Reimbursable Project Expenses**

The following reimbursable expenses are expected for this project:

- 14.1 Mileage for site visits/meetings
  - Multiple site visits to the project site and City offices will be required to facilitate the scope of this project. This also includes site visits with property owners during the environmental documentation phase
  - The active federal IRS mileage reimbursement rate will be utilized throughout the complete project duration. The current IRS mileage reimbursement rate is \$0.625 per mile, effective June 9, 2022.
- 14.2 Plotting/Submittals
  - Includes plotting for progress meetings with City, utility coordination meetings, public involvement meeting, schematic roll plots, and PS&E submittals
- 14.3 Miscellaneous Expense Reimbursement
  - Includes miscellaneous expenses not covered by tasks 14.1 and 14.2.
  - Expenses for sub-consultant FD2S for proposed scope of work

#### **SUPPLEMENTAL SERVICES**

The following supplemental services will only be implemented if required and with prior approval from the City. If supplemental services not specified herein are determined necessary for this project, those services will be negotiated at that time and approved by the City prior to commencing work. Written approval and NTP of supplemental services must be given by City prior to Kimley-Horn proceeding.

#### **Task S1: Supplemental Data Collection**

- S1.1 Supplemental Survey
  - Additional ROW Retracement and Boundary Survey for up to four (4) parcels
  - Additional Plat and Field Notes for up to four (4) parcels
  - Surveying for up to an additional twenty (20) SUE QL-A test holes with corresponding QL-B markings. Includes survey locating and processing time for sub-consultant and coordination and review efforts for Kimley-Horn
  - Supplemental survey as directed by Kimley-Horn. Effort will be evaluated upon each request and a separate scope and fee proposed will be provided by survey sub-consultant, and ultimately Kimley-Horn, to obtain supplemental survey
  - Standards noted above in the Data Collection task will continue to govern for supplemental survey work

#### S1.2 Supplemental Geotech

- Supplemental Geotech work as specified by Kimley-Horn. Effort will be evaluated upon each request and a separate scope and fee proposed will be provided by geotech sub-consultant, and ultimately Kimley-Horn, to obtain supplemental survey

#### S1.3 Supplemental SUE

- Up to an additional twenty (20) QL-A testholes with corresponding QL-B markings
- Includes sub-consultant effort and coordination and review efforts to be completed by Kimley-Horn

### **Task S2: Supplemental Environmental Compliance and Public Involvement**

#### S2.1 Historic Resources Research Design and Survey for up to one (1) parcel

#### S2.2 In-Person Public Hearing Preparation, Meeting and Summary Report

- If determined through Task 6.2.4, environmental sub-consultant will support Kimley-Horn with an In-Person Public Hearing, including material preparation, planning and coordination, attend and conduct meeting, and prepare a Public Hearing Summary Report

#### S2.3 Phase I ESA for Individual parcels

- Effort noted in work plan includes a separate phase I ESA for up to fifteen (15) parcels. Separate Phase I ESAs are sometimes required for properties where ROW acquisition is needed, also known as fee simple purchase. Kimley-Horn will consult with the City, City's Attorney, and TxDOT to determine the extent of individual Phase I ESAs needed for this project.

### **Task S3: Supplemental Preliminary Engineering Design Services**

#### S3.1 For engineering scope items that may be required as part of this project and not specified in this scope and fee proposal, Kimley-Horn will prepare an additional service proposal and submit to the City for review, comment and ultimate approval. Kimley-Horn will proceed with supplemental design services upon written receipt and NTP from the City.

#### S3.2 Conceptual/3D Renderings. One of the Roundabout intersection and one of the Cascade Caverns and Scenic Loop Intersection is estimate. City may choose different locations if desired.

#### S3.3 For landscape architecture scope items that may be required as part of this project and not specified in this scope and fee proposal, Kimley-Horn will prepare an additional service proposal and submit to the City for review, comment and ultimate approval. Kimley-Horn will proceed with supplemental design services upon written receipt and NTP from the City. Additional tasks for landscape architecture may include, but are not limited to 3D modeling, pre-construction plant coordination, and signage wayfinding design and displays

### **Task S4: Supplemental Land Acquisition Support**

Additional land acquisition and appraisal support is included as a supplemental service in the event the City is required to pursue easements or ROW outside the scope of work noted in the base services. Those supplemental services include:

#### S4.1 Supplemental Acquisition Services

#### S4.2 Supplemental Appraisal Services

#### S4.3 Supplemental Condemnation Services

#### S4.4 Kimley-Horn Land Acquisition Support

Condemnation services is specifically excluded from the scope of work.

## **ASSUMPTIONS**

The following assumptions were made by Kimley-Horn and the participating Subcontractors in development of this fee:

- Project scope will be similar to improvements identified in Attachment C
- Total design schedule for preliminary engineering and PS&E phase to be twenty-four (24) months
- Total schedule for construction phase services to be eighteen (18) months
- City will request and coordinate development and execution of Advance Funding Agreement (AFA) and State Letter of Authority (SLOA) with TxDOT, with Kimley-Horn providing guidance and consulting. Any modifications to the proposed scope of work due to the AFA will require approval of an additional service
- City of Boerne design criteria will be utilized and supplemented with TxDOT and/or City of San Antonio for items not specifically called out in the City's design manual
- This project does not require archeological testing or data recovery or historic above-ground resources survey
- The proposed water system improvement site is assumed to be privately owned at the time of the archeological coordination and survey; therefore, it is assumed that collection/curation of artifacts would not be required
- TxDOT will coordinate and maintain the Environmental Compliance Oversight System (ECOS) file of record for the project
- With exception to drainage design, it is assumed that TxDOT will attend monthly progress meetings at City to review proposed roadway and traffic improvements
- TxDOT standard fixtures will be utilized for illumination design.
- Utility relocation design will be completed under an amendment to the executed contract, with exact limits defined as part of the preliminary engineering phase

## **EXCLUSIONS**

The following services are excluded from the basic scope of this project, but can be completed by Kimley-Horn upon execution of an additional service should the City request it:

- Roadway and Drainage improvements north of the Cascade Cavern and Scenic Loop intersection on private school roadway
- City owned and franchise utility relocation design, including additional traffic control plans required to facilitate relocations
- Overhead Electric Redesign
- Modifications to TxDOT owned drainage and traffic infrastructure, with exception to the eastern leg of the Scenic Loop/IH-10 Frontage Road intersection
- Structural or retaining wall design. Should this be warranted additional geotech will also be required, to be completed as an additional design service
- Aesthetic lighting design. Kimley-Horn will design proposed illumination in accordance with TxDOT standard illumination details and requirements. Kimley-Horn will review potential options for aesthetic lighting along the project corridor and proposed roundabout as part of the Preliminary Engineering task, but design of such will be considered a supplemental task.
- Construction inspection, construction staking, and materials testing
- Appearing as an expert witness in any litigation for the City
- Formal coordination with the USFWS

- Historic resources survey, NRHP nominations, HABS/HAER documentation, archaeological monitoring, testing, or data recovery, human remains evaluation/coordination/removal are excluded from the scope of work
- USACE pre-construction notification or individual permit preparation
- Threatened and endangered species presence/absence surveys.
- No regulatory coordination under Section 7 or Section 10(a) of the Endangered Species Act will be conducted
- Waters of the US determination and wetland delineation
- Documentation or coordination with the TCEQ or USFWS for the Geologic Assessment
- Construction monitoring nor designed solutions for mitigating karst features found during completion of the Geologic Assessment or exposed during construction
- Hazardous materials phase I or II analysis
- Preparing final conditions Letter of Map Revision for FEMA
- Condemnation support services
- Meetings and design milestones in addition to what is proposed for this project
- Any other services not listed in the basic scope of services

## SCHEDULE

Upon approval of scope and fee by both the City Project Management Team and City Council, Kimley-Horn will prepare and submit a detailed design schedule to the City for review and approval. Kimley-Horn will provide updated design schedules and will be included with project invoices at a monthly interval.

## FEE AND BILLING

Kimley-Horn will perform the above outlined basic scope of services, including reimbursable expenses and Subcontractor services, for a total fee not to exceed **\$2,818,925**, in accordance with the fee summary table below and attached project work plan. Basis of compensation will be a mixture of lump sum and hourly, both with a not to exceed amount as specified in the project work plan. Supplemental Services including both Kimley-Horn and Subcontractor services in the amount of \$566,478 has been included, also noted in the fee summary table and attached project work plan. Total compensation, inclusive of both basic scope and supplement services, is an amount not to exceed **\$3,385,403**. These amounts are reflected in the following fee summary table:

Cascade Cavern Fee Summary	
Base Services	\$ 2,818,925.00
Supplemental Services	\$ 566,478.00
<b>TOTAL</b>	<b>\$ 3,385,403.00</b>

The following task and fee table also illustrates total fee for this project, but with base services and supplemental services split between two separate work authorizations. Both authorizations will be executed as part of Task Order No. 2 with the second authorization serving as an amendment to the original task order contract. Should supplemental or additional design services be required in either work authorization, Kimley-Horn will submit a separate scope and fee proposal to the City for review and

authorization and will proceed with additional work upon written NTP from the City. Funds for supplemental design tasks will be drawn from supplemental service tasks noted in the project work plan and increase the base service contract amount, but the total contract amount will remain the same.

Task	Description of Service	Task Amount	Basis of Compensation
	<b>TASK ORDER NO. 2 - WORK AUTHORIZATION NO. 1</b>		
	<b>BASE SERVICES</b>		
1	Project Administration and General Coordination (40%)	\$ 107,960.00	Lump Sum
2	TxDOT Meetings/LGPP Coordination and Documentation	\$ 54,490.00	Hourly
3	Data Collection	\$ 331,351.00	Lump Sum
4	Utility Coordination Preliminary Phase	\$ 61,835.00	Lump Sum
5	Preliminary Design	\$ 588,065.00	Lump Sum
7	Land Acquisition Support	\$ 245,210.00	Lump Sum
14	Expenses (40%)	\$ 9,080.00	Lump Sum
	<b>Work Authorization No. 1 Subtotal (Base Services)</b>	<b>\$ 1,397,991.00</b>	
	<b>SUPPLEMENTAL SERVICES</b>		
S1	Supplemental Data Collection (Approximately 25%)	\$ 41,367.00	Lump Sum
S2	Supplemental Environmental Compliance and Public Involvement	\$ -	Lump Sum
S3	Supplemental Engineering Design Services (Approximately 33%)	\$ 60,470.00	Lump Sum
S4	Supplemental Land Acquisition Support	\$ -	Lump Sum
	<b>Work Authorization No. 1 Subtotal (Supplemental Services)</b>	<b>\$ 101,837.00</b>	
	<b>WORK AUTHORIZATION NO. 1 TOTAL (BASE SERVICES + SUPPLEMENTAL)</b>	<b>\$ 1,499,828.00</b>	
	<b>TASK ORDER NO. 2 - WORK AUTHORIZATION NO. 2</b>		
	<b>BASE SERVICES</b>		
1	Project Administration and General Coordination (60%)	\$ 161,940.00	Lump Sum
6	Environmental Compliance and Public Involvement	\$ 146,554.00	Lump Sum
8	60% PS&E Design	\$ 478,895.00	Lump Sum
9	90% PS&E Design	\$ 288,600.00	Lump Sum
10	Final PS&E Design	\$ 51,550.00	Lump Sum
11	Bid Phase Services	\$ 39,385.00	Lump Sum
12	Construction Phase Services	\$ 220,905.00	Lump Sum
13	Record Drawings and Project Closeout	\$ 19,485.00	Lump Sum
14	Expenses (60%)	\$ 13,620.00	Lump Sum
	<b>Work Authorization No. 2 Subtotal (Base Services)</b>	<b>\$ 1,420,934.00</b>	
	<b>SUPPLEMENTAL SERVICES</b>		
S1	Supplemental Data Collection (Approximately 75%)	\$ 117,372.00	Lump Sum
S2	Supplemental Environmental Compliance and Public Involvement	\$ 124,179.00	Lump Sum
S3	Supplemental Engineering Design Services (Approximately 67%)	\$ 125,590.00	Lump Sum
S4	Supplemental Land Acquisition Support	\$ 97,500.00	Lump Sum
	<b>Work Authorization No. 2 Subtotal (Supplemental Services)</b>	<b>\$ 464,641.00</b>	
	<b>WORK AUTHORIZATION NO. 2 TOTAL (BASE SERVICES + SUPPLEMENTAL)</b>	<b>\$ 1,885,575.00</b>	
	<b>TOTAL CONTRACT (WA NO. 1 AND NO. 2) (BASE + SUPPLEMENTAL)</b>	<b>\$ 3,385,403.00</b>	



Invoices will be submitted to the City on a monthly basis and will be reflective of progress within the appropriate project milestone, and will include monthly progress reports of services performed. Design schedule updates will be submitted at the conclusion of each submittal milestone.

We are excited for the opportunity to serve the City on this very important project and look forward to successfully completing this project. Please don't hesitate to contact me at [stephen.aniol@kimley-horn.com](mailto:stephen.aniol@kimley-horn.com) or (210) 321-3404 should you have any questions on the proposed scope and fee.

Sincerely,

**KIMLEY-HORN AND ASSOCIATES, INC.**  
**TBPE# 928**



By: Stephen J. Aniol, P.E.  
Sr. Project Manager

Attachments

- A – Work Authorization Forms
- B – Project Work Plan
- C – Cascade Cavern Improvements Exhibit

## TASK ORDER FORM

### **Task Order No. 2 – Cascade Cavern Capital Improvement Project**

#### **Work Authorization No. 1 – Per Scope and Fee Proposal Dated August 3, 2022**

Execution of this Work Authorization by Client and Consultant shall make it subject to the agreed upon terms and conditions, which was fully executed by the City of Boerne, TX on [ **July 6, 2022** ] . Engineer is authorized to begin performance upon its receipt of a copy of this Work Authorization signed by Client.

The Effective Date of this Work Authorization is [ \_\_\_\_\_ ].

CLIENT:

CONSULTANT:

By: \_\_\_\_\_

By: \_\_\_\_\_

Print Name: Ben Thatcher

Print Name: Jeffrey A. Farnsworth, PE

Title: City Manager

Title: Asst. Secretary

Engineer License or Firm's  
Certificate No. (if required): 80190  
State of: Texas

DESIGNATED REPRESENTATIVE FOR WORK ORDER:

DESIGNATED REPRESENTATIVE FOR WORK ORDER:

Name: Cheryl Rogers, PE

Name: Stephen J. Aniol, PE

Title: City Engineer

Title: Sr. Project Manager

Address: 447 N. Main Street, Boerne, TX 78006

Address: 10101 Reunion Place, Ste. 400, San Antonio, TX 78216

E-Mail  
Address: crogers@boerne-tx.gov

E-Mail  
Address: stephen.aniol@kimley-horn.com

Phone: 830-248-1510

Phone: 210-321-3404

## TASK ORDER FORM

### **Task Order No. 2 – Cascade Cavern Capital Improvement Project**

#### **Work Authorization No. 2 – Per Scope and Fee Proposal Dated August 3, 2022**

Execution of this Work Authorization by Client and Consultant shall make it subject to the agreed upon terms and conditions, which was fully executed by the City of Boerne, TX on [ **July 6, 2022** ] . Engineer is authorized to begin performance upon its receipt of a copy of this Work Authorization signed by Client.

The Effective Date of this Work Authorization is [ \_\_\_\_\_ ].

CLIENT:

CONSULTANT:

By: \_\_\_\_\_

By: \_\_\_\_\_

Print Name: Ben Thatcher

Print Name: Jeffrey A. Farnsworth, PE

Title: City Manager

Title: Asst. Secretary

Engineer License or Firm's

Certificate No. (if required): 80190

State of: Texas

DESIGNATED REPRESENTATIVE FOR WORK ORDER:

DESIGNATED REPRESENTATIVE FOR WORK ORDER:

Name: Cheryl Rogers, PE

Name: Stephen J. Aniol, PE

Title: City Engineer

Title: Sr. Project Manager

Address: 447 N. Main Street, Boerne, TX 78006

Address: 10101 Reunion Place, Ste. 400, San Antonio, TX 78216

E-Mail

Address: crogers@boerne-tx.gov

E-Mail

Address: stephen.aniol@kimley-horn.com

Phone: 830-248-1510

Phone: 210-321-3404