

Section 4 - Project Understanding and Approach to Work

Revised August 11, 2017

Phase 1 Project Administration

Task 1. Project Management

The Project Manager will be the main point of contact for the duration of the contract providing project controls, coordination and scheduling of the team. This will include tracking of the project progress, permitting requirements, advising the City of the schedule status and coordination with outside Agencies. This work will include technical and cursory reviews of deliverable documents prepared by the DEA Team.

The Project Manager will provide periodic project updates through phone calls, e-mails and project transmittals to the City for general coordination, project updates, response to design inquiries and requests for clarification on City Standards and procedures.

The Project Manager will prepare and submit monthly progress reports summarizing the actual work performed, project issues, and status of the project schedule and budget. At minimum the reports will reflect the following:

- Highlights of Accomplishments
- Current Project Status and Schedule Updates
- Actual vs. Scheduled Percentages Complete by Task
- Explanation of Schedule Deviations
- Accomplishments Planned for Next Reporting Period

Deliverables: Monthly Progress Reports/Project Schedule Updates

Task 2. Project Meetings

During the course of the field review and project design, monthly meetings will be established to provide time for DEA Team and the City to meet and review the plan design process, specific project designs and presentation of critical information. Meetings will be held at the City Offices or in the field as necessary to discuss and resolve the project designs and issues. DEA will attend a kick-off meeting with the City and Three (3) design/coordination meetings to review progress of the work, and obtain additional input from City staff.

Optional Meetings (NIC)

Additional meetings will be held for coordination and plan reviews with OCHCA for review and processing of the RAW for the removal of the Arsenic materials within the OCTA right-of-way and Landscape Meetings with the City Parks Department for the Kensington-Shelley Park and the Brookhurst Parkway improvements.

Deliverables: Meeting Minutes

Task 3. Quality Control

In adherence with DEA's Quality Assurance Program, Mr. Stuetzel will work closely with Gary Hammerle as the Quality Assurance and Quality Control to develop a QA/QC plan tailored specifically to this project. The QA/QC plan will define the timing and procedures for technical peer reviews, draft plan and document checks, and technical editing of written documentation.

The project design plans and documents will be reviewed by a DEA construction engineer with recent and relevant project experience in bike trail and landscape construction operations. The DEA construction engineer will meet with the project team on a monthly basis to review plan design, and discuss quality reviews on plan preparation, utility information, details, and accuracy of the design. Comments received from the Quality Control process will be reviewed with the City, and included in the final PS&E preparation

Deliverables: *QA/QC Memorandums*

Phase 2 Preliminary Field Investigations

Task 1. Field Investigation

DEA's Team will perform site investigations to conduct a thorough site inspection of the project area to investigate and appraise the condition of existing street conditions including utilities, traffic, drainage, accessibility, landscape and general site conditions. The inspections will include a site evaluation and verifications of street widths, project length, and the visible condition of the cross street pavement surfacing, drainage patterns and site conditions along the OCTA property.

Deliverables: *Field Investigation Report*

Task 2. Drainage Review

DEA's Team will review the existing street crossing to determine the street drainage pattern at the proposed bike trail crossings. The review of the street crossings will include review of existing curb improvements and verification of street high points and drainage flow direction for use in the street intersection improvements.

This review will include an evaluation of the existing drainage conditions within the OCTA property to determine low spots, areas of offsite inflow and cross-track drainage improvements. The existing OCTA property appears to be below the existing street grades, and positive drainage from the OCTA property to the street crossing will not allow gravity flow. From our preliminary site review, it appears the OCTA property has several depressed areas where onsite drainage is collected and percolates into the soil. DEA will review these areas to determine potential site improvements to improve the drainage within the OCTA property so not to increase potential to flood the proposed Bike Trail.

Deliverables: *Technical Memorandum/Drainage Exhibits*

Task 3. Data Collection Review and Utility Research

DEA's Team will compile a comprehensive project data base, starting with the documents referenced in the RFP. These will be reviewed and catalogued, and then supplemented with record drawings for streets, drains, sewer, and water, traffic signal plans and record right-of-way maps and tract maps for the project areas. DEA will submit a notification request to Electric, Telephone, CATV, and Gas facilities and coordinate utility research with the Utility Company records to notify the agencies of proposed improvements.

Utility information obtained from the research activities will be documented and provided to the City for their project records. The utility contact information will be included on the plans for reference. At grade utility structures including manholes, vaults, valve covers, and other utility structures located within the street pavement rehabilitation areas and sidewalk improvement areas will be shown on the plans. Plotting of the utility underground conduits and pipelines located during the research phase of the project will not be shown on the final plan sheets.

Deliverables: Record Plans, Utility Correspondence Log

Task 4. Topographic Survey

DEA's Team will utilize the City's most recent bench mark elevations as shown in the NAVD 88 for vertical design control. Horizontal control for the survey will be tied into found survey monuments and centerline control within the project limits.

Perform research at the City of Garden Grove and County of Orange for the latest available Vertical and Horizontal Bench mark control (NAVD 88). Provide GPS field topographic services for bench mark and ground control for the aerial survey and supplemental ground survey for the project. Survey control includes setting aerial targets, and coordinate control based on the County of Orange State Plane Geodetic Control Database.

Complete aerial photogrammetry of project limits using field control. GPS post processing of aerial ground control with NAVD 88 elevations and County of Orange Geodetic Control database. Aerial Photogrammetry will be compiled and mapped at 40-scale with contour intervals at 0.5 FT. The topographic mapping will be strip mapping along the Project alignment as listed in the City's RFP with a scribed width equal to the 25-FT beyond the OCTA right of way. Strip mapping width at the street crossings will be expanded to include cross street approaches and sidewalk panels to a distance of 100 Ft beyond the UPRR Property width at the proposed street crossings.

The aerial photogrammetry will be supplemented by detailed field topographic survey at the project intersections. This topo will be obtained through standard GPS based ground survey targets and Laser 3D scanning process to obtain the elevation controls and street features along the sidewalk areas for use in cross street path of travel and curb improvements. Elevations will be obtained for Top of curb, flow line, crown line,

back of walk, lip of gutter and grade breaks in the sidewalk areas. All topographic data will be obtained digitally and converted for use in AutoCad design software.

***Deliverables:** Digital Topographic Survey/Aerial Photogrammetry Mapping*

Phase 3 Preliminary Design

Task 1. Preliminary Bike Trail Alignment Plans

DEA's Team will utilize existing City maps, GIS files and the DEA topographic survey to prepare improvement base plans for proposed project improvements. The plans will be prepared at a plan view only scale (1"=40') to show proposed improvements within the project limits. Composite project title sheet will be developed for project listing project locations and Capital Project Information and General Construction Notes. Special construction details sheets will be prepared to show street sections, construction details, Accessibility Ramps, grading details and other project related construction notes and general contractor information.

The plans will include the proposed trail alignment as shown on the City's Active Transportation Program application (ATP). The bike trail alignment shall be based on a minimum trail width of 12 ft, with an adjacent 8 ft pedestrian DG trail. Minimum width for the property lines shall be maintained at 10 ft.

Preliminary designs for the street crossings will be provided at Brookhurst Street, Lampson Avenue, Nutwood Street and Stanford Avenue. The street crossings will include curb alignments, drainage flow patterns, and curb ramp designs.

***Deliverables:** Project Base Plans*

Task 2. Preliminary Landscape Plans

DEA's Landscape Architectural Team will provide preliminary site plans for the park modifications at Kensington-Shelley Park and the Brookhurst Parkway. The Park improvement plans will include relocation of the existing basketball court, and new tree planting in the area of conflict with the new bike trail.

Optional Task (NIC)

The preliminary plans for the Brookhurst Parkway modifications will provide landscape concept for the replacement and enhancement of the existing landscape materials impacted by the trail connection at Brookhurst Street. The preliminary plans will address potential redesign and modification of the Brookhurst Median Improvements as a result of the new bike trail crossing at Brookhurst.

***Deliverables:** Project Base Plans*

Task 3. Geotechnical Investigation Review

DEA will review the City provided geotechnical investigation report for the bike trail project. The report will be reviewed for trail grading and drainage requirements, and remediation for the removal of the residual Arsenic soil materials.

The geotechnical review will include review of the Remedial Action Workplan (RAW) report prepared by the City. DEA review services will include attendance at preliminary scoping and notification meeting with OCHCA to review the RAW report and discuss the project design to implement the remediation process into the trail grading design

Deliverables: *Technical Memorandum/OCHCA Meeting*

Task 4. Traffic Study

DEA will prepare a Traffic Study report to present the proposed/recommended improvements for the trail project. The traffic analysis will consist of the preparation of a warrant analysis for traffic control devices at the four trail public street crossing locations. The proposed OCTA Railroad trail will be crossing Brookhurst Street, Lampson Avenue, Nutwood Street, and Stanford Avenue. Potential traffic control devices for the crossings/intersections include traffic signals and flashing beacons (RRFB's – Rapid Reflective Flashing Beacons). The traffic analysis will be based on available traffic data provided by the City and Traffic Counts conducted by DEA. Daily (ADT) and AM and PM peak hour turn movement counts will be conducted at the four trail street crossing locations. The traffic counts will be used to analyze the existing traffic conditions and develop traffic recommendations. The Traffic Report will include discussions on existing conditions and traffic recommendations for the project. The recommendations outlined in the report will be used for the preparation of the Conceptual Geometric Plans for City input.

Deliverables: *Traffic Engineering Reports*

Task 5. Conceptual Traffic Geometric Plans

DEA will prepare Conceptual Geometric Plans for the project, which will present the conceptual striping layouts at the four trail street crossing locations. The geometrics will be based on the recommendations presented in the Traffic Study. The proposed geometric designs will include Green Street/LID measures, crosswalk enhancements, bike lane, and pedestrian/ADA facilities. The designs will conform to City of Garden Grove Design Guidelines, Green Streets Manual, California Manual of Uniform Traffic Control Devices (CAMUCTD), the City General Plan, and ADA Standards.

Deliverables: *Geometric Plans at Street Crossings*

Phase 4 Final Design PS&E

Task 1. Final Bike Trail Plans

The DEA Team will complete the final construction plans based on all previous correspondence and plan check comments received from the City, permitting agencies,

and public utility companies. Construction plans will be prepared at 1"=40 scale in plan only format from base maps prepared in Phase 3, and reflect the City proposed bike trail alignment, construction details, notes and typical sections showing the proposed work required for the roadway. Spot grades will be provided on the plan for use by the Contractor for grade control and determination of the earthwork removals required for the project.

Final design will include detail street profiles for the street crossings and Lampson Avenue, Nutwood Street and Stanford Avenue locations. Plans will include curb profiles and sidewalk construction improvements for the street crossings. Improvement plans will include the additional of bollards, fencing, grading and miscellaneous improvements.

Deliverables: Bike Trail Plans and Construction Details

Task 2. Landscape Architecture Plans

2.1 - Project Meetings / Agency Coordination

DEA landscape architects will attend two meetings with staff throughout the duration of the project for the purpose of coordinating project tasks and submittals. This task also includes a site visit to review the existing conditions at Kensington-Shelley Park and to determine the most appropriate and cost effective modifications necessary for the basketball court relocation, fencing, signage, restriping and planting / irrigation improvements based on the City's preliminary bike trail park plan.

2.2 – Park Improvement Plans

This task includes the preparation of a site plan for Kensington-Shelley Park improvements including the relocation of the basketball court and park elements affected by the trail construction, in addition to trailhead improvements at the Brookhurst entry point. Also included are the planting and irrigation modification plans to address these affected areas.

The plant legend will indicate the botanical and common names, quantity, size, and remarks (such as variety and staking procedure). The plans will provide an appropriate palette utilizing sustainable landscape materials including native and drought tolerant plants. Plant selections will be consistent with city standards and grant guidelines.

Details irrigation design will not be completed as part of the design. DEA will develop a performance specification that will be included on the plans for use by the Contractor to install new irrigation piping and materials to the new park tree wells. Please note that we have not included irrigation calculations in accordance with AB1881 or the City / State water ordinance, given this is a retrofit project.

2.3 - Construction Details

DEA will prepare construction details for the basketball court, fencing, gates, hardscape elements, planting components.

2.4- Project Specifications / Bid Documents / Cost Estimates

DEA landscape architects will prepare technical project specifications for the park improvements including the basketball court, planting and irrigation in addition to line items for the bid schedule. Cost estimates will be prepared for each of the 60%, 90% and 100% submittals.

2.5 – Median Improvement Plans (Optional)

Should improvements to the median on Brookhurst Street be required, DEA landscape architects will prepare planting and irrigation retrofit plans which will be included as part of the street improvement plans.

Task 3. Bike Trail Pavement Delineation Plans

Work under this task is the preparation and processing of the traffic engineering plans for the proposed bike trail improvements. The plans will be prepared in accordance with City of Garden Grove requirements, California Manual of Uniform Traffic Control Devices (CAMUCTD) and Section 1000 of the Caltrans Highway Design manual. The plans will be processed for approval with the submittal of 50%, and 90% reviews. This will allow for City input in the design and review of the plans.

DEA will prepare and process the signing and striping plans for the proposed bike trail. The Plans will include any specific signing on the trail and centerline striping.

Deliverables: *Bike Trail Delineation and Striping Plans*

Task 4. Street Crossing Pavement Delineation Plans

Work under this task includes the preparation and processing of the traffic engineering plans for the proposed public street crossings with the proposed the bike trail improvements. The plans will be prepared in accordance with City of Garden Grove requirements, California Manual of Uniform Traffic Control Devices (CAMUCTD) and Section 1000 of the Caltrans Highway Design manual. The plans will be processed for approval with the submittal of 50%, and 90% reviews. This will allow for City input in the design and review of the plans.

DEA will prepare and process the striping and signing plans for the project. The signing and striping plans will be prepared for the four trail crossing locations. The plans will include the design of the pedestrian traffic control devices as outlined in the Traffic Study Report. The pedestrian traffic control devised solar powered flashing beacons, signing, pavement legends, and markings. Preparation of the Traffic signal modification at Brookhurst Street will be included in Task 6 of this scope of work.

Deliverables: *Street Crossing Delineation and Striping Plans*

Task 5. Bike Trail Lighting Design

DEA Engineers will work with Sol Lighting Company for the design and layout of the proposed solar bike trail lighting improvements. This work includes meeting with the Sol Lighting Design team to review illumination lighting levels for the bike trail and intersection crossings for the project. The average maintained horizontal illumination level of 5 to 22 lux (0.5 to 2.0 fc) shall be used as a guide for layout and spacing of the new solar light improvements. Light fixtures utilized for the project shall match those light fixtures installed as part of trail segment 1 south of Stanford and manufactured by Sol Lighting Co.

Deliverables: *Solar Lighting Plans /Construction Details*

Task 6. Traffic Signal Plans

Work under this task includes the preparation and processing of the traffic engineering plans for the proposed traffic signal modifications at Brookhurst Street and Bixby Avenue to include the new pedestrian phase or modification of the Bixby Avenue phase to include an additional crosswalk movement north of the intersection. The plans will be prepared in accordance with City of Garden Grove requirements, California Manual of Uniform Traffic Control Devices (CAMUCTD) and Section 1000 of the Caltrans Highway Design manual. The plans will be processed for approval with the submittal of 50%, and 90% reviews. This will allow for City input in the design and review of the plans.

Deliverables: *Traffic Signal Plan at Brookhurst Street*

Task 6. OCHCA Permit (Optional Task – NIC)

DEA engineers will submit and process through OCHCA the City prepared and provided RAW plans for the soil remediation of the arsenic concentrated soil within the OCTA property. This work will include attendance at meetings with OCHCA staff to review the RAW plan, final design documents prepared by the DEA team, and coordination with the City to obtain issuance of the OCHCA remediation permit.

Deliverables: *OCHCA Remedial Action Workplan Permit*

Task 7 – Construction Cost and Quantity Estimates

During the course of the project, the DEA Team will prepare three (3) construction cost estimates (60%, 90%, and Final) for the project. Construction items and quantities will match those items from the Bid Schedule and final contract documents.

Deliverables: *Construction Cost Estimates*

Task 8. Construction Specifications

The DEA Team will prepare the technical specifications and bid schedules required for inclusion in the City's standard contract documents. Technical specifications will encompass the work and material required for construction of all proposed project segments. Bid schedules will be developed and reviewed with the City's Project Manager to obtain a consensus on the type, detail, and listing of the work to be

completed. Submitted documents will be based on the City's standard boilerplate documents, edited for application to this project

Deliverables: *Project Special Provisions and Bid Schedules*

Phase 5 Construction Services – Optional Services (NIC)

Task 1. Preconstruction Support Services

The DEA Team will provide 48 hours of engineering plan support during the bid phase and provide the following services to facilitate construction bidding:

- Responding to Contractor RFI's
- Attend Pre-bid conference
- Preparation of Addendums
- Analyze and Recommend Bid Award

Deliverables: *Technical Bulletins/Addendums/Bid Support Services*

Task 2. Construction Support Services

The DEA Team will provide 60 hours of engineering plan support during the construction phase and provide services listed below in support of the construction plans and documents during the Construction phase:

- Attend Pre-construction conference
- Review of Shop Drawings/Project Submittals
- Review Contractor Issued RFI's
- Review and respond to construction issues
- Attendance at Construction Meetings
- Preparing as-built drawings

Deliverables: *Construction Support Services*

