SCOPE OF ENGINEERING SERVICES FOR THE NOLAND ROAD MULTIMODAL CORRIDOR PROJECT

FEDERAL PROJECT NUMBER R22001
CITY PROJECT NUMBER 112402

General Project Description:

This project will include survey, comprehensive traffic study, public involvement, design, plans, specifications, permitting, bidding, and construction period services duties for complete streets improvements along Noland Road from US Highway 24 to Fair Street. The Noland Road Multimodal Corridor project will create an approximately 1.7-mile multimodal corridor along Noland Road from US Highway 24 to Fair Street. It includes adding dedicated north and south bound bicycle infrastructure, replacement of more than three miles of derelict sidewalks to be ADA complaint, push button pedestrian signals, and transit stop improvements.

The design will utilize the existing pavement where possible and will provide new pavement design at locations where existing pavement is deficient. This can include up to a full-depth replacement, mill and overlay. A Comprehensive Traffic and Public Transport Study, including Ped/Bike Study, will determine the feasibility of bike lane additions, sidewalk/trail additions, through lane reductions, and/or reallocation of ROW to improve multimodal connectivity.

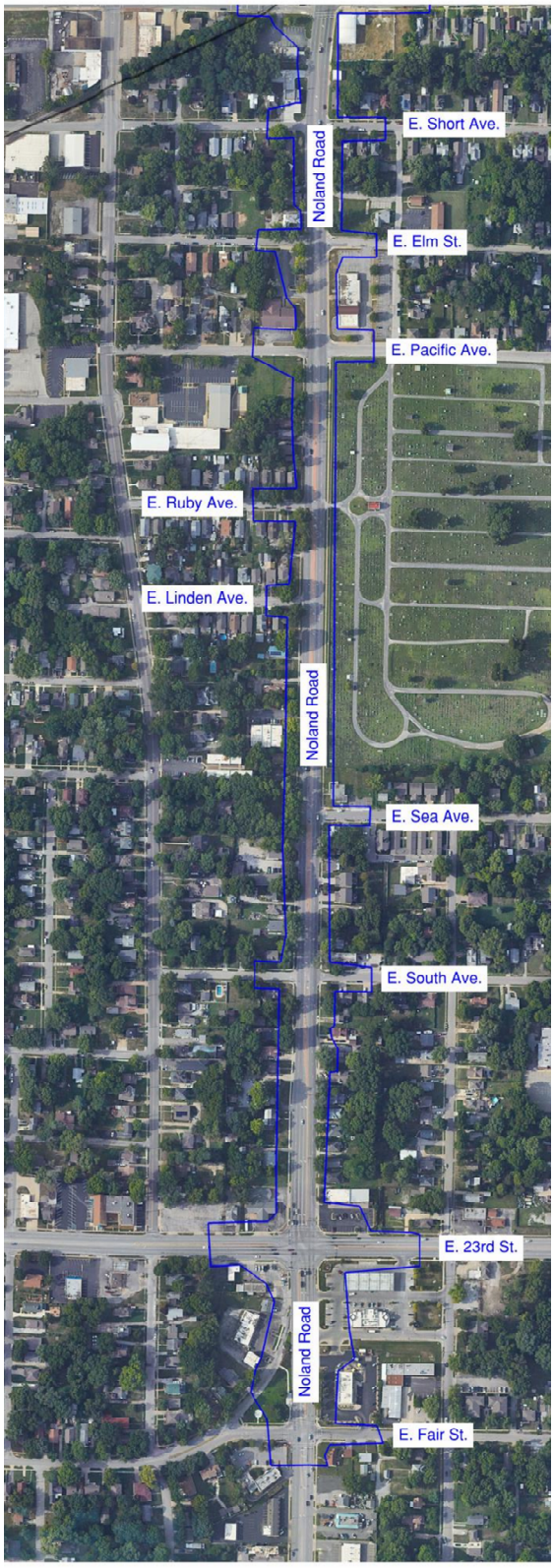

Figure 1:
General project limits are shown in the above displays. Blue lines represent approximate survey extents.

1. Project Management

1.1. Attend one predesign meeting. Design team will meet with city staff and FHWA to coordinate design decisions, schedule, construction budget, Quality Management Plan and checklists, design reviews, risk management, constructability reviews and value engineering opportunities, permitting, and any other communication needed to kickoff project design.

1.2. Meet with the city staff and FHWA on a bi-weekly basis for project coordination and progress meetings (assume 45 virtual meetings).

1.3. Meet with KCATA, MODOT for coordination or project requirements (assume 3 meetings).

1.4. Site visit and document existing site conditions through photographic imagery. (Assume 5 trips)

1.5. Create a detailed project design work breakdown structure. Project schedule will be developed based of the work breakdown structure, and will include, but not limited to, design activities, design resources, activity durations and dependencies, the design critical path, and resource leveling, major milestones, and submittals. The schedule will be tracked and maintained in a weekly manner, and status updates comparing planned versus progress will be provided to the city's staff during the bi-weekly coordination and progress meetings. Additionally, Schedule updates will be made at milestones and when major schedule changes occur.

1.6. Monitoring scope, schedule, and fee related to design contract.

1.7. Correspondence with City on the project. Correspondence could include phone calls, Teams meetings, emails, or other forms related to miscellaneous project items.

1.8. Prepare cost estimates at each design phase. The construction cost estimates will be based on completed design plans for the phase and include an agreed upon contingency based on a list of risk items to account for construction risks and uncertainties.

1.9. Internal meetings and coordination with Olsson design staff to coordinate design efforts within and between design groups.

1.10. QA/QC for deliverables at each phase of design. As part of the quality control effort, constructability review (CR) sessions will be conducted at the 60% and 95% design completion milestones by Olsson with representatives from utilities, Associate General Contractors of America (AGC), City's Design and Construction Staff, MoDOT design and Construction Staff, environmental agency and FHWA. The CR meeting aims to assess any potential constructability issues and to update the list of potential risks associating the project as well as their assessment as more info become known. An assessment of contractor's potential means and methods is conducted at this review to evaluate if it matches the construction phases. This meeting can be held virtually or at the City of Independence Utilities Center. The risks identified in this meeting, along with the qualitative assessment and risk response strategy for each risk, shall be updated in the

Risk Register as needed. The entire CR effort must be summarized and outlined in a report and submitted to the city as part of the 60% and 95% design packages.

2. Concept Design (15% Plans)

2.1. Survey

2.1.1. Research and gather information such as boundary records, recorded plats, road plans, and right of way records to be used to support boundary and right of way determinations.

2.1.2. Horizontal control points will be established along the 1.7 Mile corridor at 600ft intervals and will be referenced tied for incorporation into plan documents for use throughout design and construction activity. Control will be reference to project coordinates and NAD 83 Missouri West Zone, State Plane coordinate system and Jackson County control monuments for ease of recovery and future project coordination.

2.1.3. Project Vertical Control will be based on NAVD88 Datum and tied to existing Jackson County vertical control network. Project benchmarks will be established along the corridor at minimum of 600ft intervals for use during and post construction of the project corridor.

2.1.4. Utility companies will be contacted through the Missouri 811 system and any utilities marked by locators will be shown traced and shown on the topography survey. On-site meetings with Missouri 811 locators will be scheduled to coordinate designation areas, marking schedule, and completion of marking activity. All above ground structures, valves, hydrants, vaults, pedestals, manholes, poles etc will be surveyed and used to coordinate with underground markings to improve accuracy. Utility depths other than Sanitary and Storm Sewers will not be obtained or indicated on the survey unless exposed through potholing activity. Utility mapping is not exact, and it is possible that not all utility lines will be located. Olsson is not responsible for miss-marked or unmarked Utilities. Additionally, Available GIS data through the City of Independence Community development website will be obtained and cross checked with above ground surveys, topographic surveys, and utility locations to verify that utilities shown in the GIS system are depicted accurately and consistently. In an effort for comprehension of collected utility information, Olsson will further reach out to utility companies requesting all maps available within the study area with respect to existing and proposed future utilities. Once obtained, Olsson will conduct further surveys to confirm the existence and depths of these utilities. This is in addition to obtaining the depths for sanitary, storm and water sewers existing within the study area. Olsson will practice their due diligence to ensure the most accurate information is depicted in the plans.

2.1.5. Olsson's field teams will perform a mobile lidar survey for data acquisition of topographic elevations, pavement, and road elements within the roadway. Point cloud data sets will be registered and based on Olsson project site control to verify accuracy tolerances between acquisition sets. Point cloud verification checks will be compared and verified to conventional hard survey shots and benchmarks throughout the roadbed and project corridor area to verify survey accuracy compliances.

2.1.6. Create a design level base map at a scale of 1" = 20ft showing contours at one-foot intervals, property lines using the plat information, field boundary data, easements, ownerships, and legal descriptions. Topographical Design limits will include a corridor extending past the right of way on each side of the road approximately 20ft to accommodate design needs. Topography features will include locations of all observed utilities, spot elevations at garage doors where adjacent drives may be affected, curb, sidewalks, pavement, signs, striping, sidewalks, trees, retaining walls, surveyed storm, and sanitary sewer structures, surveyed pipe sizes, inverts, crowns, sumps, flow lines, and materials.

2.1.7. Field checks will be performed to review completeness of topography, control, boundary, and utilities shown. Utility markings and inverts obtained will be reviewed with available mapping obtained from utility owners. Storm and sanitary systems will be reviewed for completeness and flow line accuracy.

2.1.8. Title documentation provided by the city through their third-party title company will be reviewed and easements and ownership documents affecting subject tracts will be plotted and included in the base mapping. There are currently approximately seventy (70) tracts abutting the Westerly right of way and fifty-five (55) Tracts abutting the Easterly Right of way for the subject corridor. We have included an allowance of up to sixty-five (65) parcels or approximately half of the parcels that may need Owner and Encumbrance (O&E) reports reviewed and plotted due to takings.

2.1.9. A current aerial mosaic Image will be created using UAS (drone) technology for planning and conceptual design efforts and verification of current site conditions. Drone technology will meet the requirements of Section 889 of Pub. L. No. 115-232 and 2 C.F.R. 200.216 prohibition on certain telecommunications and video surveillance services or equipment.

2.1.10. Survey team will stake proposed soil boring locations and include their locations into survey base mapping.

2.1.11. Proposed right-of-way and easements will be staked as needed to support appraisal and acquisition needs. We have included up to 5 days of field crew effort for these services.

2.1.12. Survey team will provide supplementary survey in addition to the initial survey for potholing coordination, staking, and collecting utility location information.

2.1.13. Additional topography pick-up for needed areas outside of original scoped limits.

2.2. Geotechnical

2.2.1. Field Exploration & Laboratory Testing

(a) Olsson to contact Missouri 811 to locate underground utilities. Olsson will identify private utilities such as irrigation with reasonable standard of care. Olsson is not responsible or liable for damage to any private utilities or private service connections.

(b) Traffic control will be provided by Olsson following MUTCD standards. Right-of-way occupation permitting, street use permitting, etc. needed to complete the geotechnical investigation will be waived by the City as part of this agreement. Olsson will submit traffic control plan for city review and approval.

(c) Olsson proposes to use a truck-mounted drill rig to complete the following borings for the geotechnical exploration: Twenty (20) borings to a depth of 10 feet each. The borings will be advanced to the depths proposed, or to refusal, whichever is shallower. This proposal is based on a total drilling footage of 200 linear feet. Location of borings will be agreed upon based on the findings of the conceptual report and located in areas of proposed retaining walls, pavement widening, and other required areas based on proposed design elements.

(d) Split spoon and thin-walled samples shall be collected from the soil test borings.

(e) Olsson will obtain groundwater and bedrock levels if encountered in the test borings at the time of drilling and upon completion of the drilling operations.

(f) After obtaining groundwater level readings, Olsson will backfill the borings with soil cuttings and patch pavements as necessary.

(g) Laboratory Services - At our laboratory, unconfined compressive strength, moisture content, and in-place unit weight tests will be performed on representative portions of selected Shelby tube samples. Moisture content tests will be performed on all samples. Atterberg limits tests will also be performed upon representative samples of typical subsurface conditions encountered across this site.

2.2.2. A geotechnical engineering report will be prepared under the direction of a registered professional engineer based on the findings of the field and laboratory programs. The report will include a boring location plan, site photos at the time the samples were taken, computer-generated boring logs, results of the laboratory testing program and a description of the surface and subsurface conditions encountered at the site including a summary of groundwater elevations and bedrock elevations as evidenced form the collected borings, if encountered. In addition, the report will provide engineering recommendations regarding the pavement design and/or subgrade remediations, if necessary to accommodate the new traffic planned.

2.3. Traffic

2.3.1. Study Methodology –

Olsson will develop detailed traffic study methodology and submit to the City within seven days from Notice to Proceed. Approval of methodology will be required prior to commencing data collection. Methodology will include, count locations and type, growth rates, and analysis scenarios.

2.3.2. Data Collection –

Olsson will coordinate with the Independence Utility Center and Community Development Department to obtain information on approved developments along the corridor. Olsson will review approved traffic impact studies to understand proposed development impacts to the study area. Trips generated from approved studies will be included in the analysis.

Olsson will coordinate with KCATA, RideKC, and IndeBus to obtain current bus schedules, passenger counts, and peak times and stops along the project corridor.

Olsson will complete an on-site review of the existing infrastructure along the corridor. This review will include lane configuration, transit stops and service, existing bicycle and pedestrian facilities, and observed roadway peak hour conditions.

2.3.3. Traffic Counts –

Seven (7) day volume, speed, and classification counts will be collected at up to three locations along the corridor following locations. These counts will be utilized to determine the AM and PM peak hours.

Once determined, AM and PM peak hour turning movement counts will be collected at 21 intersections:

(a) Noland Road and US Highway 24

(b) Noland Road and St. Charles Street

(c) Noland Road and Nettleton Avenue

(d) Noland Road and College Street

(e) Noland Road and Waldo Avenue

(f) Noland Road and Farmer Avenue
(g) Noland Road and Memorial Drive
(h) Noland Road and White Oak Street
(i) Noland Road and Truman Road
(j) Noland Road and Lexington Avenue
(k) Noland Road and Kansas Avenue
(l) Noland Road and Walnut Street
(m) Noland Road and Short Avenue
(n) Noland Road and Elm Street
(o) Noland Road and Pacific Avenue
(p) Noland Road and Ruby Avenue
(q) Noland Road and Linden Avenue
(r) Noland Road and Sea Avenue
(s) Noland Road and South Avenue
(t) Noland Road and 23rd Street
(u) Noland Road and Fair Street

Turning movement counts will include vehicle classification, pedestrians, and bicycles.

2.3.4. Traffic Analysis -

Capacity analysis based on the Highway Capacity Manual will be performed at all signalized and unsignalized intersections along the project corridor. Olsson will update the current Operation Green Light (OGL) Noland Road Sim Traffic model to add non-signalized intersections, verify current lane configuration, and update volumes per new traffic counts.

Olsson will conduct capacity and queuing analysis for the typical weekday AM and PM peak hours for the following six (6) scenarios:

(a) Existing Conditions
(b) Existing Conditions plus Proposed Improvements
(c) Future Year (2035) – Existing Conditions
(d) Future Year (2035) – Proposed Improvements
(e) Future Year (2045) – Existing Conditions
(f) Future Year (2045) – Proposed Improvements

Capacity analysis will provide the basis for determining appropriate traffic control and geometric improvements. Queuing analysis will provide the basis for determining the needed length of any auxiliary lanes and signal phasing.

Highway Capacity Software (HCS) will be used to complete capacity analysis along the segments between signalized intersections (5 segments) for the same six scenarios. HCS's 45 mph setting will be utilized as it is the minimum speed allowable to complete the analysis.

Pedestrian and Bicycle Level of Service will be calculated for the existing and proposed conditions. Kansas City, MO's process to calculate these Level of Services which will be followed.

2.3.5. Crash History Review -

Crash data for the last 5 full years will be collected from State and Local agencies and reviewed/analyzed by Olsson staff. The crash data will be summarized and categorized into mode, severity, and location, and used to review potential crash patterns or histories along the corridor.

2.3.6. Alternative Development -

Olsson will identify potential alternative configurations along Noland Road within the study area and review the positive and negative attributes for each alternative option for discussion. A draft report will be provided and used as a point of discussion to further discuss the benefits and drawbacks, as well as identify potential impacts associated with each alternative condition. Preferred alternative will be recommended based on both the benefits to all modes of transportation while also considering the cost and impact along the corridor.

2.3.7. Traffic Operations Report

All information collected and developed in Task 1.4 will be summarized into a report, concluding with recommendations for Noland Road for bicycle, pedestrian, and transit improvements / enhancements to the network.

2.3.8. Traffic Simulation

Traffic simulations will be developed for each scenario utilizing Sim Traffic. Simulations will be provided to the city for use with public engagement or to share with City Council.

2.4. Roadway

2.4.1. Once the traffic study report is approved by the city, and a recommendation for best potential alternative is made, Olsson will begin the design process through the generation of lane configurations and geometrics.

2.4.2. Establish concept level sidewalk/trail/bike lane configuration design.

2.4.3. Establish concept level intersection configurations.

2.4.4. Establish concept level grading and end condition design including grading limits.

2.4.5. Create concept level strip map. Strip map will include conceptual level design of proposed roadway geometrics including pavement, curbs, sidewalks/trails, signal locations, and driveways.

2.4.6. Railroad conceptual coordination including conceptual submittal for diagnostic review.

(a) *Diagnostic meeting with Union Pacific Railroad (UPRR)*

(b) *Coordinate with UPRR, MODOT and the city to schedule a diagnostic review meeting.*

(c) *Prepare 20 scale RR crossing exhibit showing recommended improvements at the crossing and adjacent intersection.*

(d) *Prepare diagnostic review meeting minutes (Draft and Final)*

2.4.7. Generate concept level quantities for the purpose of generating a conceptual level cost estimate.

2.5. Drainage and Stormwater Report

2.5.1. Develop Drainage Area Maps - Existing & Proposed Conditions

2.5.2. Evaluate impacts on impervious area and the need for water treatment/detention based on the criteria outlined in the MARC and APWA 5600 manuals.

2.5.3. Submit the drainage study report for approval and recommendations as part of the conceptual design package.

2.6. Utility Coordination

2.6.1. Establish utility list and point of contacts of the utility entities with facilities within the project limits.

2.6.2. Coordination with each utility to acquire facility maps or other information available of the facilities within the project limits.

2.6.3. Import and compare facility maps with utilities located and surveyed for accuracy and completeness.

2.7. Public Involvement

2.7.1. Provide design materials for city-maintained online presence. Material will include project description narrative, strip map, or other information readily available from the design process.

2.7.2. Prepare for and present concept to council (1 meeting). Presentation will include a comparison of each of the proposed alternatives versus the existing condition, along with a traffic simulation of the preferred alternative. Olsson will be available for questions or comments from Council.

2.7.3. Prepare for and attend conceptual level informational open house public meeting (1 meeting). Meeting materials will include strip map, typical section display, traffic findings and a Sim Traffic traffic simulation of the preferred, proposed alternative, sign-in sheet, and comment forms. Meeting will not include a presentation, but Olsson staff will be present to explain project concept to attendees and answer questions on an individual basis.

2.8. Environmental Studies and National Environmental Policy Act (NEPA) Document Preparation

2.8.1. Prepare a documented categorical exclusion report with a Categorical Exclusion (CE) Form coversheet for Direct Recipients in accordance with the guidelines outlined in the FHWA NEPA Checklist for Direct Recipients. Will provide copies of all maps, surveys, reports, permits, etc. described in the Checklist.

2.8.2. Complete wetland delineation field study and habitat assessment for threatened and endangered species and prepare report summarizing findings. Field studies to be completed by qualified biologists.

2.8.3. Complete cultural resources surveys (may include both architectural and archaeological), as required, and prepare report summarizing findings. Surveys to be completed by historic preservation professionals.

2.8.4. Based on results of field investigations, assist City of Independence in completing necessary permitting and/or consultation with U.S. Fish and Wildlife Service (USFWS), Missouri State Historic Preservation Officer (SHPO), Tribes (as part of Section 106 consultation), and U.S. Army Corps of Engineers (USACE). Prepare consultation packets and/or Section 404 permit application.

2.8.5. Using desktop resources, evaluate potential impacts to remaining environmental resources, including socioeconomic and environmental justice populations; traffic; farmland; air quality; noise; public lands; floodplains and floodways; hazardous waste.

2.8.6. Prepare project maps and project photolog.

3. Preliminary Design (35% Plans)

3.1. Traffic

3.1.1. Layout traffic signal pole locations based on recommendations outlined in the approved traffic study report with respect to Traffic signal timing and coordination required to maintain acceptable LOS. (Assumes modifications at each of the 5 signalized intersections along the corridor).

3.1.2. Review existing street lighting conditions along the corridor and identify street lighting modifications to enhance safety the visibility of the future roadway network based on recommended alternative (Assumes new lighting along Noland Road). Voltage drop calculations will be completed. New streetlight poles will be placed for this plan set.

3.1.3. Permanent pavement marking and signing plans will be developed.

3.1.4. An initial phasing plan will be developed for review. Traffic design shall follow City of Independence standards and specifications and meet the criteria established in the Manual of Uniform Traffic Control Devices (MUTCD).

3.2. Roadway

3.2.1. Horizontal geometry development including tapers, storage lengths, sidewalks, driveways, and road shifts.

3.2.2. Layout ADA ramps (Assume 60 ramps). Preliminary ramp layout will include horizontal layout on plan sheets.

3.2.3. Vertical geometry for improvements. Geometry will generally follow existing roadway grade with modifications to edge of pavement and curb based on lane modifications.

3.2.4. Curb return design at public street intersections.

3.2.5. Intersection sight distance/turning movements at public streets and entrances where modifications are made.

3.2.6. Road template and surface model will be generated based on the proposed improvements.

3.2.7. Entrance design based on the improved roadway and ADA compliance for sidewalks.

3.2.8. Grading limits will be developed based on the proposed improvements.

3.2.9. Bus stop layout. Preliminary layouts will be designed with coordination and direction given from KCATA. Bus stop design will be limited to sidewalk and ramp components. Structure and amenities will be allotted for in design, but design of structure and amenities will be by others.

3.2.10. Railroad coordination of roadway items with Union Pacific Railroad for preliminary improvements at the railroad crossing including sidewalk crossing and needed safety improvements at the signal and road intersection.

3.2.11. Determine utilities that need potholes and conduct necessary potholes through Olsson's allocated sub.

3.2.12. Prepare utility master plan in color.

3.2.13. Preliminary Plans including the following sheets:

(a) Title sheet

(b) General layout with list of acronyms and abbreviations and legend.

(c) *Alignment layouts, table & Survey Reference Sheet*

(d) *General Notes*

(e) *Demo plans*

(f) *Typical sections*

(g) *Road plan sheets (Scale 1"=20' horizontal) (Assume 15 Mainline)*

(h) *Road profile sheets (Scale1"=20' horizontal - 1"=10' vertical) (Assume 15 Mainline)*

(i) *Standard details*

(j) *Preliminary storm sewer plan and profiles*

(k) *Drainage area map and catchment plans*

(l) *Storm sewer details*

(m) *Traffic Plans (pavement marking, lighting, signing, MOT)*

(n) *Road Cross Sections (every 25 feet)*

(o) *Utility display with existing utilities and any known relocation plans*

3.3. Storm Drainage and Sanitary

3.3.1. Pipe network layout. Layout assumes using 80% of the existing storm system in place. Pipes will be added based on needed capacity, replaced storm systems in place, and/or based on the recommendation of the drainage/hydrology study to meet specific discharge needs/patterns/directions. The need for additional catch basins and pipes shall also be derived based on spread and spacing requirements. Condition assessment will be completed by a subconsultant. Olsson's coordination with the subconsultant is included in this task.

3.3.2. Hydrology of the project limits will be analyzed to determine capacity of the existing storm sewer system and capacity deficiencies.

3.3.3. Pavement spread and inlet spacing Calcs will be analyzed to determine capacity of the existing storm sewer system and capacity deficiencies. New storm inlets maybe provided to ensure spreads and inlet spacing meet required criteria.

3.3.4. Storm sewer pipe calcs for the proposed system.

3.3.5. Plot existing sanitary sewer lines on storm sewer profiles and verify minimum slopes, covers, and clearance requirements are met.

3.4. Utility Coordination

3.4.1. Submit preliminary plans to utilities owners for verification of existing facilities and conflict analysis.

3.4.2. Consideration of utility owner identified conflicts and assist with develop of relocation solutions. Utility owner designed relocation plans will be displayed in plans.

3.4.3. Provide electronic base maps to all utilities for their use in developing relocation plans.

3.5. Public Involvement

3.5.1. Prepare for and attend preliminary level informational open house public meeting (1 meeting). All stakeholder, including property owners in the vicinity of the project area will be invited to attend this meeting. Olsson shall work with the City Communications Office to prepare flyers and mailers. Meeting materials could include strip map, typical section display, sign-in sheet, traffic simulation and comment forms.

3.5.2. Provide design materials for city-maintained online presence. Material could include project status narrative, preliminary plan information, or other information readily available from the design process as deemed necessary by the City of Independence Staff.

3.5.3. Individual meetings with stakeholders (assume 10 meetings). Meeting could be to discuss individual concerns from homeowners or business owners related to impacts of the design to their property. All individual meetings and public discussions will be summarized and submitted by Olsson for the City of Independence for further documentation and public release arrangements.

4. ROW Design (60% Plans)

4.1. Traffic

4.1.1. Once the initial layouts of traffic signals are approved, the traffic signal plans will be advanced to include all conduits and component modifications as needed (assumes modifications at each of the 5 signalized intersections along the corridor).

4.1.2. Street lighting conduits and controllers will be added to the plans as needed and circuits will be identified.

4.1.3. Modifications will be made to permanent pavement marking and signing plans based on any comments on 35% plans.

4.1.4. Maintenance of traffic plans will be developed based on the approved phasing plan to identify work zone requirements for signing, pavement markings, channelizers, message boards, and other temporary elements. Pedestrian detour will be developed.

4.2. Roadway

4.2.1. Address preliminary design comments.

4.2.2. Identify construction phasing, sequencing, staging areas, proposed temporary and permanent ROW impacts based on Limit of Disturbance. At this stage, Olsson will start coordinating with the city to initiate and complete ROW appraisals and Acquisition.

4.2.3. Right-of-way and Easement Preparation. We have included an allowance for easement preparation for up to sixty-five (65) parcels. Signed and sealed easement exhibits will be provided and will include title block, ownership boundaries, existing rights-of-way and easements, proposed takings with text and graphically depicted, legend for taking type, scale, north arrow, existing ownership information, and legal descriptions. Legal descriptions will be provided in digital format compatible with Microsoft word.

4.2.4. Update plan/profile sheets with right of way information and design changes.

4.2.5. Update cross sections based on design changes and refinement.

4.2.6. Coordinate design and materials with ROW agent during appraisal and acquisition process.

4.2.7. Railroad coordination for at grade crossing including applicant concept comment response.

(a) Prepare railroad preemption calculations.

(b) Prepare railroad preemption calculation exhibit.

(c) Prepare UPRR preemption request form.

(d) Coordinate preparation of UPRR license exhibits with surveyor/ROW agent.

4.3. Public Involvement

4.3.1. Individual stakeholder/landowner meetings (assume 20 meetings). Meeting could be to discuss individual concerns from homeowners or business owners related to impacts of the design to their property.

4.3.2. Provide design materials for city-maintained online presence. Material could include project status narrative, right of way plan information, or other information readily available from the design process.

5. Final Design (95% Plans)

5.1. Traffic

5.1.1. Address ROW plan comments regarding traffic signal modifications, develop quantities, and add any special details.

5.1.2. Finalize street lighting plans to include quantities and any special details.

5.1.3. Finalize permanent pavement marking and signing plans based on any comments. Quantities and any special details will be completed.

5.1.4. Maintenance of traffic plans will be finalized based on any comments. Cost estimates and specifications will be developed for all traffic items.

5.2. Roadway

5.2.1. Address ROW plan comments.

5.2.2. Update and refine road template and surface model based on design changes and refinement which may include, but not limited to, adding gutters, sidewalks, and ADA ramps to the corridor surfaces.

5.2.3. Railroad Coordination including

(a) *Refine railroad preemption calculations based on UPRR comments.*

(b) *Refine railroad preemption calculation exhibit based on UPRR comments.*

(c) *Refine UPRR preemption request form based on UPRR comments.*

5.2.4. Update preliminary design and plan set sheets based on design refinement, changes, and final plan details.

5.2.5. Coordinate construction phasing with traffic group for traffic control sheets. Similarly, coordinate construction phasing with drainage system to verify efficiency is obtained during construction. Additionally, provide temporary and permanent sediment and erosion control measures along with Operation and Maintenance plans to ensure efficiency is obtained throughout construction phases.

5.2.6. Final plan sheets

(a) *Title sheet*

(b) *General layout with list of acronyms and abbreviations and legend.*

(c) *Alignment layouts, table & Survey Reference Sheet*

(d) *General Notes*

(e) *Quantity sheets*

(f) *Demo plans*

(g) *Typical sections*

(h) *Road plan sheets (Scale 1"=20' horizontal) (Assume 15 Mainline)*

(i) *Road profile sheets (Scale1"=20' horizontal - 1"=10' vertical) (Assume 15 Mainline)*

(j) *Standard details*

(k) *Preliminary storm sewer plan and profiles*

(l) *Drainage area map and catchment plans*

(m) *Storm sewer details*

(n) Traffic Plans (pavement marking, lighting, signing, MOT)

(o) Road Cross Sections (every 25 feet)

(p) Utility display with existing utilities and any known relocation plans

(q) Intersection detail sheets

(r) Entrance sheets

(s) Bus stops sheets

(t) Sidewalk ramp sheets

(u) Storm sewer calc sheets

5.2.7. Erosion control plans/SWPPP document creation.

5.2.8. Final Bus stop layout creation and coordination with KCATA.

5.2.9. City of Independence, APWA, or MoDOT specifications will be used where possible. Technical specifications and JSP's will be provided where standard specifications are not available.

5.3. Utility Coordination

5.3.1. Review each utility company's relocation plans.

5.3.2. Obtain and import digital plans of relocation layout from each utility.

5.3.3. Coordinate and assist utility conflict resolutions.

5.4. Public Involvement

5.4.1. Prepare for and attend final level informational open house public meeting.

5.4.2. Provide design materials for city-maintained online presence.

5.4.3. Individual meetings with stakeholders (assume 10 meetings)

6. PSE (100% Plans)

6.1. Traffic

6.1.1. Address Final plan/specification/estimate comment regarding traffic signal modifications.

6.1.2. Address Final plan/specification/estimate comment regarding street lighting modifications.

6.1.3. Finalize permanent pavement marking and signing plans/specification/estimate.

6.1.4. Finalize temporary traffic control plans/specifications/estimate.

6.2. Roadway

6.2.1. Address final plan/specification/estimate comments.

6.2.2. Railroad coordination including

(a) Refine railroad preemption calculations based on UPRR comments.

(b) Refine railroad preemption calculation exhibit based on UPRR comments.

(c) Refine UPRR preemption request form based on UPRR comments.

(d) Coordinate with UPRR to obtain railroad signal and surface estimates.

(e) Coordinate with UPRR to obtain a construction and maintenance (C&M) agreement.

6.2.3. Coordinate submittals/documentation with FHWA

7. Bidding Phase

7.1. Coordinate plan room implementation for bidding

7.2. Provide plans and specs to additional plan rooms.

7.3. Prepare written addenda to the bidding documents.

7.4. Attend and prepare for the pre bid meeting to address any potential biddability related issues to ensure the package is biddable and to verify that the 95% CR comments were addressed (assumed 1 meeting) and prepare minutes.

7.5. Answer Contractor questions during the bid period.

7.6. Prepare bid tabs in MS Excel

7.7. Attend bid letting.

7.8. Assist the City in analyzing bids and making recommendations.

7.9. Provide electronic and hard copy plans – up to 10 sets (6 full-size and 4 half-size sets) to the Contractor.

7.10. Provide up to 5 sets of half size (11x17) color utility relocation plans to Contractor.

8. Construction Period Services

8.1. Shop Drawings & Submittals

8.2. Construction questions/RFI's

8.3. Plan Revisions

8.4. Prepare Final Record Drawings/As-builts.

8.5. Attend monthly construction progress meetings (Assume 12 meetings.)

8.6. Railroad coordination including.

(a) Coordinate traffic signal cutover with UPRR.

(b) Lead traffic signal controller testing with UPRR.

(c) Lead traffic signal cutover meeting with UPRR

9. Signal Timing

9.1. Signal Timing Development. Based on the completed and approved traffic analysis, existing signal timings will be updated. Consideration will be taken to the existing timings along the corridor and signals outside of the study corridor.

9.2. Input Signal Timings to ATMS. Olsson will coordinate with OGL staff to input implementation-ready timing data into the ATMS. The dates that old data is archived, and new parameters are implemented will be recorded, so that an accurate record of traffic signal timing parameter changes are accurately documented should there be a need to recall the operational settings of a traffic signal operation. The timing data will include all basic timing revisions and new coordination timing, as approved by the city, and time-of-day settings. The initial timing data will be reviewed by city staff for comment and approval. Olsson will revise the timings plans, as needed, based on city comments.

9.3. Implementation. Olsson will work with city staff and OGL to implement the new timing plans in the central signal system software or remotely shortly after geometric modifications are in-place. Implementation will be for the six (6) signals along corridor during typical conditions when school is in session.

9.4. Field Adjustments. Olsson staff will conduct thorough field reviews after the deployment of the timing plans. The corridors will be driven to ensure that signals are serving all movements, sequences match the model, and no major queues/delays have developed from the implementation of each plan. If necessary, Olsson will make adjustments to the timings to address issues noted during field observations. Special attention will be given to left-turn movements, the interaction of cross-corridors, and existing coordinated crossing arterials. Revised timing plans will be submitted, as needed, based on changes made during the field review and adjustment task. The city will assist during implementation to correct field related issues including issues related to detection and controller firmware nuances in a timely manner.

Client Provided Information:

The City shall provide the Consultant with the follow:

- General Design Criteria
- Latest version of standards and specifications
- Pavement Type and design requirement is to be derived based on the Pavement Condition Index "PCI" provided by the COI as well as based on the final design and lane configuration selected for each segment of the corridor.

- Available city project plans and permit project plans along the corridor
- Crash Reports
- Traffic Count History, if available
- As-built plans for all infrastructure systems, if available
- GIS database files
- Grant application and Information

Project Assumptions:

We have made several assumptions in the preparation of this proposal. These assumptions and subsequent explanations are as follows:

- Pavement design will match the existing paving section or standard arterial roadway section standards for material and thickness and will not be independently developed or evaluated by the Consultant.
- Access is available to the land and right-of-way to obtain geotechnical borings. Drilling equipment may cause disturbance to natural surroundings including but not limited to soil indentations, concrete and asphalt cracking, and disturbance to pavement subgrade. Olsson will not be liable or responsible for any site disturbance that may occur as a result of bringing equipment on site. Olsson will practice reasonable standard of care and take safety precautions to protect the safety of the public and minimize damage to existing infrastructure.
- City will provide sanitary sewer service line location and elevation information, as available, necessary to design storm systems.
- Private irrigation modifications on will be investigated but handled with a performance specification of required repair method in the construction plans or negotiated during right of way acquisition.
- Environmental:
- Consultant assumes that the project will qualify for a Categorical Exclusion (CE) NEPA determination by FHWA.
- Consultant assumes only one site visit for permitting evaluation.
- Consultant assumes that the project will not require formal ESA Section 7 consultation with USFWS.
- Consultant assumes that the project will not require a Section 404 Individual Permit from USACE.
- Cultural Resources:
- Client will provide electronic mapping and any necessary information in a timely fashion.
- The project will primarily be in an urban setting with no more than 160 shovel probes conducted.
- There will be no significant delays to fieldwork schedule due to weather, landowner permission, or client delays.

- The architectural field survey will take place from the public right-of-way. No private properties will be accessed by architectural historians.
- Only one field mobilization will be necessary for each survey (archaeology and architectural history).
- The APE for the built environment is defined as a 50 ft buffer surrounding any areas of new ROW, permanent easement, or temporary construction easement associated with sidewalk construction. If ROW is not yet determined at the time of the survey, a 50 ft buffer surrounding the entire corridor will be considered.
- No more than 100 historic architectural sites will be recorded.
- Formal consultation or mitigation of adverse effects (HABS/HAER recording, etc.) is not considered a component of this proposal. Similarly, the preparation of mitigation plans or agreement documents are beyond the scope of this proposal.
- Storm Drainage pipe network layout assumes that 80% of the existing system will be used in place.
- Railroad coordination will follow the requirements of the Union Pacific Railroad Public Projects Manual (https://www.up.com/cs/groups/public/@uprr/@corprel/documents/up_pdf_nativedocs/pdf_up_public_projects_manual.pdf)
- Temporary traffic signal designs will be handled via job special provision stating the design will be the responsibility of the contractor or designed by the Consultant via contract amendment.
- Consultant will provide the Client PDF and CAD files on CD or an online file exchange system.
- Consultant assumes that acquisitions will be negotiated using 60% Right-of-way Plan set, which will allow changes to be incorporated into the final PS&E. Design and plan change requests due to property negotiations after final plans are submitted may require a contract amendment.
- Permitting and mitigation fees encountered during design will be paid by the city.
- City shall provide Title Reports/Owner and Encumbrance (O&E) Reports
- Boiler plate front-end, contract documents provided by the city.

Exclusions:

The following items, in addition to any items not specifically listed above are not included in this proposal but can be provided under a supplemental agreement:

- Utility Design (water, sewer, gas, electric, and communications)
- Septic system design
- Concrete pavement design or joint layouts. Roadway is assumed to be asphalt pavement.
- Detailed structural design, including retaining wall design. Cut walls less than four feet tall will be integral sidewalk retaining walls constructed from a standard

construction detail. If a different type of retaining wall is required, a performance specification will be included in the plans that the contractor will be able to provide to a will manufacturer for design.

- Bridge/structural load ratings.
- Flood Zone modeling
- Environmental investigation and permitting beyond those noted in the scope.
- Vehicular detours. Assumed that traffic will be maintained through construction.
- Fiber Optic Interconnect
- Temporary Traffic Signal Design. If required, a performance specification will be provided for contractor-provided design.
- Sign Detail Designs and Cross Sections
- Hardscape, amenity, signage, monumentation, and sculpture design
- Landscaping Design other than those noted in the scope.
- Irrigation Design
- Right-of-way appraisals and negotiations
- 3D renderings and visualizations other than traffic simulations
- Public Meeting Webhosting
- Construction observations, testing, and inspection
- Architectural services
- Any services not specifically detailed in the scope.