


Municipality	L O C A L A G E N C Y	 Illinois Department of Transportation	C O N S U L T A N T	Name TranSystems Corporation
Township				Address 1475 E. Woodfield Road S-600
County Lake County – Division of Transportation		City Schaumburg		
Section 18-00999-57-EG		Preliminary Engineering Services Agreement For Non-Motor Fuel Tax Funds		State Illinois

THIS AGREEMENT is made and entered into this _____ day of _____, _____ between the above Local Agency (LA) and Consultant (ENGINEER) and covers certain professional engineering services in connection with the improvement of the above SECTION. Non-Motor Fuel Tax Funds, allotted to the LA, ~~by the State of Illinois~~ under the general supervision of the State Department of Transportation, hereinafter called the "DEPARTMENT", will be used entirely ~~or in part~~ to finance ENGINEERING services as described under AGREEMENT PROVISIONS.

Section Description

Name Russell Road Intersections Phase I

Route CH A1 Length _____ Mi. _____ FT (Structure No. _____)

Termini Intersections of Kilbourne Road, Kenosha Road and Lewis Avenue

Description:
 Federally Funded Phase 1 Preliminary Engineering for the intersection improvements along Russell Road at the intersections with Kilbourne Road, Kenosha Road, and Lewis Avenue

Agreement Provisions

The Engineer Agrees,

1. To perform or be responsible for the performance of the following engineering services for the LA, in connection with the proposed improvements herein before described, and checked below:
 - a. Make such detailed surveys as are necessary for the preparation of detailed roadway plans
 - b. Make stream and flood plain hydraulic surveys and gather high water data, and flood histories for the preparation of detailed bridge plans.
 - c. Make or cause to be made such soil surveys or subsurface investigations including borings and soil profiles and analyses thereof as may be required to furnish sufficient data for the design of the proposed improvement. Such investigations are to be made in accordance with the current requirements of the DEPARTMENT.
 - d. Make or cause to be made such traffic studies and counts and special intersection studies as may be required to furnish sufficient data for the design of the proposed improvement.
 - e. Prepare Army Corps of Engineers Permit, **Lake County Stormwater Management Commission Permit**, Department of Natural Resources-Office of Water Resources Permit, Bridge waterway sketch, and/or Channel Change sketch, Utility plan and locations, and Railroad Crossing work agreements.
 - f. Prepare Preliminary Bridge design and Hydraulic Report, (including economic analysis of bridge or culvert types) and high water effects on roadway overflows and bridge approaches.
 - g. Make complete general and detailed plans, special provisions, proposals and estimates of cost and furnish the LA with **one (1) copy of each document in both hardcopy and electronic format**. Additional copies of any or all documents, if required, shall be furnished to the LA by the ENGINEER at the ENGINEER's actual cost for reproduction.
 - h. Furnish the LA with survey and drafts in **duplicate** of all necessary right-of-way dedications, construction easement and borrow pit and channel change agreements including prints of the corresponding plats and staking as required.
 - i. Assist the LA in the tabulation and interpretation of the contractors' proposals.

- j. Prepare the necessary environmental documents in accordance with the procedures adopted by the DEPARTMENT's Bureau of Local Roads & Streets.
 - k. Prepare the Project Development Report when required by the DEPARTMENT.
 - l. **Services as included and/or defined in the attached Scope of Services.**
2. That all reports, plans, plats and special provisions to be furnished by the ENGINEER pursuant to the AGREEMENT, will be in accordance with current standard specifications and policies **of the LA and** of the DEPARTMENT. It is being understood that all such reports, plats, plans and drafts shall, before being finally accepted, be subject to approval by the LA ~~and the DEPARTMENT.~~
 3. To attend conferences at any reasonable time when requested to do so by representatives of the LA ~~or the Department.~~
 4. In the event plans or surveys are found to be in error during construction of the SECTION and revisions of the plans or survey corrections are necessary, the ENGINEER agrees that the ENGINEER will perform such work without expense to the LA, even though final payment has been received by the ENGINEER. The ENGINEER shall give immediate attention to these changes so there will be a minimum delay to the CONTRACTOR.
 5. That basic survey notes and sketches, charts, computations and other data prepared or obtained by the ENGINEER pursuant to this AGREEMENT will be made available, upon request, to the LA ~~or the DEPARTMENT~~ without cost and without restriction or limitations as to their use.
 6. That all plans and other documents furnished by the ENGINEER pursuant to this AGREEMENT will be endorsed by the ENGINEER and will show the ENGINEER's professional seal where such is required by law.

The LA Agrees,

1. ~~To pay the ENGINEER as compensation for all services rendered in accordance with this AGREEMENT according to the following method indicated by a check mark:~~
 - a. A sum of money equal to _____ percent of the awarded contract cost of the proposed improvement as approved by the DEPARTMENT.
 - b. A sum of money equal to the percent of the awarded contract cost for the proposed improvement as approved by the DEPARTMENT based on the following schedule:

Schedule for Percentages Based on Awarded Contract Cost

Awarded Cost	Percentage Fees	
Under \$50,000	_____	(see note)
	_____	%
	_____	%
	_____	%

Note: Not necessarily a percentage. Could use per diem, cost-plus or lump sum.

2. To pay for all services rendered in accordance with this AGREEMENT at the actual cost of performing such work plus ****** percent to cover profit, overhead and readiness to serve - "actual cost" being defined as material cost plus payrolls, insurance, social security and retirement deductions. Traveling and other out-of-pocket expenses will be reimbursed to the ENGINEER at the ENGINEER's actual cost. Subject to the approval of the LA, the ENGINEER may sublet all or part of the services provided in section 1 of the ENGINEER AGREES. If the ENGINEER sublets all or part of this work, the LA will pay the cost to the ENGINEER plus an additional service charge of up to five (5) percent.

"Cost to Engineer" to be verified by furnishing the LA ~~and the DEPARTMENT~~ copies of invoices from the party doing the work. The classifications of the employees used in the work should be consistent with the employee classifications for the services performed. If the personnel of the firm, including the Principal Engineer, perform routine services that should normally be performed by lesser-salaried personnel, the wage rate billed for such services shall be commensurate with the work performed. ****See the CECS**

The Total Not-to-Exceed Contract Amount shall be \$1,257,244.00

3. That payments due the ENGINEER for services rendered in accordance with this AGREEMENT will be made as soon as practicable after the services have been performed. ~~in accordance with the following schedule:~~

- ~~a. Upon completion of detailed plans, special provisions, proposals and estimate of cost - being the work required by section 1 of the ENGINEER AGREES - to the satisfaction of the LA and their approval by the DEPARTMENT, 90 percent of the total fee due under this AGREEMENT based on the approved estimate of cost.~~
- ~~b. Upon award of the contract for the improvement by the LA and its approval by the DEPARTMENT, 100 percent of the total fee due under the AGREEMENT based on the awarded contract cost, less any amounts paid under "a" above.~~

By Mutual agreement, partial payments, ~~not to exceed 90 percent of the amount earned,~~ may be made from time to time as the work progresses.

4. That, should the improvement be abandoned at any time after the ENGINEER has performed any part of the services provided for in sections 1 and 3 of the ENGINEER AGREES and prior to the completion of such services, the LA shall reimburse the ENGINEER for the ENGINEER's actual costs plus ****** percent incurred up to the time the ENGINEER is notified in writing of such abandonment - "actual cost" being defined as in paragraph 2 of the LA AGREES.
5. That, should the LA require changes in any of the detailed plans, specifications or estimates except for those required pursuant to paragraph 4 of the ENGINEER AGREES, ~~after they have been approved by the DEPARTMENT,~~ the LA will pay the ENGINEER for such changes on the basis of actual cost plus ****** percent to cover profit, overhead and readiness to serve - "actual cost" being defined as in paragraph 2 of the LA AGREES. It is understood that "changes" as used in this paragraph shall in no way relieve the ENGINEER of the ENGINEER's responsibility to prepare a complete and adequate set of plans and specifications.

****See the CECS**

It is Mutually Agreed,

1. That any difference between the ENGINEER and the LA concerning their interpretation of the provisions of this Agreement shall be referred to a committee of disinterested parties consisting of one member appointed by the ENGINEER, one member appointed by the LA and a third member appointed by the two other members for disposition and that the committee's decision shall be final.
2. This AGREEMENT may be terminated by the LA upon giving notice in writing to the ENGINEER at the ENGINEER's last known post office address. Upon such termination, the ENGINEER shall cause to be delivered to the LA all surveys, permits, agreements, preliminary bridge design & hydraulic report, drawings, specifications, partial and completed estimates and data, if any from traffic studies and soil survey and subsurface investigations with the understanding that all such material becomes the property of the LA. The ENGINEER shall be paid for any services completed and any services partially completed in accordance with section 4 of the LA AGREES.
3. That if the contract for construction has not been awarded one year after the acceptance of the plans by the LA ~~and their approval by the DEPARTMENT,~~ the LA will pay the ENGINEER the balance of the engineering fee due to make 100 percent of the total fees due under this AGREEMENT, based on the estimate of cost as prepared by the ENGINEER and approved by the LA ~~and the DEPARTMENT.~~
4. That the ENGINEER warrants that the ENGINEER has not employed or retained any company or person, other than a bona fide employee working solely for the ENGINEER, to solicit or secure this contract, and that the ENGINEER has not paid or agreed to pay any company or person, other than a bona fide employee working solely for the ENGINEER, any fee, commission, percentage, brokerage fee, gifts or any other consideration, contingent upon or resulting from the award or making of this contract. For Breach or violation of this warranty the LA shall have the right to annul this contract without liability.

IN WITNESS WHEREOF, the parties have caused the AGREEMENT to be executed in quintuplicate counterparts, each of which shall be considered as an original by their duly authorized officers.

Executed by the LA:

County of Lake _____ of the
(Municipality/Township/County)
ATTEST: State of Illinois, acting by and through its
County Board
By _____
Lake County Clerk By _____
(Seal) Title Chair, Lake County Board

RECOMMENDED FOR EXECUTION

Shane E. Schneider, P.E.
Director of Transportation/County Engineer
Lake County

Executed by the ENGINEER:

Engineering Firm
Street Address
City, State
ATTEST:
By _____ By _____
Title _____ Title _____

Note: Three (3) Original Executed Contracts – (2) LCDOT; (1) Consultant

EXHIBIT A
SCOPE OF SERVICES



TranSystems

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Russell Road Intersections Phase 1
Kilbourne Road, Kenosha Road, Lewis Avenue
Section No. 18-00999-57-EG

EXHIBIT A - SCOPE OF ENGINEERING SERVICES

This scope of services consists of a Federally Funded Phase 1 Preliminary Engineering Study for the intersection improvements along Russell Road at the intersections with Kilbourne Road, Kenosha Road, and Lewis Avenue, and as detailed in the Lake County Division of Transportation Project Scoping Report dated August 10, 2018. The goal of this project is to develop and evaluate viable intersection alternatives that address the capacity, mobility, and safety requirements, which the public can support. From these accepted alternatives, a preferred improvement plan will be selected and documented in the Phase I Project Development Report.

Russell Road (County Highway A1) is a rural two-lane minor arterial that extends east for seven miles, along the Illinois and Wisconsin boarder, from I-94 to Sheridan Road (other principal arterial). It passes through the unincorporated town of Russell and terminates at Sheridan Road in the Village of Winthrop Harbor. Green Bay Road is located at the midpoint of the corridor. The average daily traffic (ADT) ranges from 3,400 vehicles per day (vpd) west of Kilbourne Road (County Highway W26), to 6,950 vpd near Kenosha Road (County Highway W32), and 4,650 vpd east of Lewis Avenue (County Highway W34). The posted speed limit along the corridor varies from 45-55 mph.

The intersection of Russell Road and Kilbourne Road is an all-way overhead red flashing beacon stop-controlled intersection 1.75 miles east of I-94. Kilbourne Road is classified as a minor arterial with an ADT of 2,600 vpd. The intersection of Russell Road and Kenosha Road is a two-way stop controlled intersection 2.1 miles west of Sheridan Road. Kenosha Road is a major collector with an ADT of 1,800 vpd. The intersection of Russell Road and Lewis Avenue is an all-way stop-controlled intersection 1.6 miles west of Sheridan Road. Lewis Avenue is a minor arterial with an ADT of 4,250 vpd. The posted speed limit along these side streets is 45 mph, with the exception of the north leg of Kenosha Road, which is 35 mph.

This scope of work consists of coordination, data collection, field surveys, utility identification and coordination, environmental studies, geotechnical studies, drainage studies, traffic analyses, safety studies, design studies, public involvement, preferred improvement plans, project development report, funding support and project management. Structural studies, environmental permitting, aesthetics, plats and contract plans are not included in the scope of work as they will be included in the future Phase 2 Design Engineering scope of work.

1. Project Coordination

- A. Agency meetings:
 - 1. Lake County Division of Transportation (12 meetings)
 - Kick-off – 1
 - Traffic/Safety Studies – 2
 - Geotech – 2
 - Drainage – 2
 - Alternative analysis - 2
 - Public Meeting planning – 3
 - 2. Illinois Department of Transportation (4 meetings)
 - 3. FHWA/IDOT Coordination Meetings (3 meetings)



EXHIBIT A – SCOPE OF SERVICES

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4. Lake County Stormwater Management Commission (2 meetings)
 5. CMAP and SEWRPC (2 meeting)
 6. Kenosha County Stormwater (2 meeting)
 7. USACE Chicago District (2 meeting)
 8. USACE St. Paul District (2 Skype/GoTo meeting)
- B. Local Agency meetings (assume 3 combined meetings with four groups (12 meetings total) with the local agencies listed below)
1. City of Zion
 2. Kenosha County
 3. Village of Pleasant Prairie, WI
 4. Village of Winthrop Harbor
 5. Village of Wadsworth
 6. Unincorporated Village of Russell
 7. Newport Township
 8. Benton Township
- C. Meetings with Private Businesses (assume 6 meetings total)
1. Fed Ex
 2. Lakeview Corporate Park
 3. North Point Marina
- D. Provide written correspondence with the following agencies to inform of the project and request information.
1. Local School Districts
 2. USACE Chicago District
 3. USACE St. Paul District

2. Data Collection

- A. Obtain project information from LCDOT and other appropriate agencies: roadway and bikeway plans, right-of-way data, development plans, flooding history, drainage atlases, FIRM and FIS maps, wetland maps, crash reports (5 most recent years, 2013-2017), bus routes, heavy vehicle routes, emergency response routes, public and private utility atlases, and benchmark and survey datum information.
- B. Obtain updated aerial photography from Lake County for use in the preliminary design studies. Obtain updated digital terrain model for areas surrounding project limits if available. Also, obtain updated digital parcel, topographic, plan, and utility data.
- C. Summarize data collection elements in tables and exhibits for use throughout the duration of the project including Project Location Map and Existing Roadway Typical Sections.
- D. Conduct site visit with the project team to document project features.



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3. Field Surveys

Topographic survey will be completed for each intersection based on LCDOT Survey procedures and all plans shall be prepared according to LCDOT plan preparation guidelines.

A. Topographic Survey (*By Jorgensen & Associates*):

1. Conduct topographic design survey based on the English system including the establishment of horizontal and vertical controls based on the County's coordinate system and vertical datum. Survey limits will extend 1,500 feet along each leg of the three intersections and include the entire segment of Russell Road between Kenosha Road and Lewis Avenue.
2. Complete topographic survey in the southwest corner of the Kilbourne Rd intersection (500 feet x 500 feet).
3. Limits along the east leg of the Lewis Avenue intersection will extend to a point 2,500 feet east of Lewis Avenue to include a potential bike path connection to the McClory bike path.
4. Include survey within a 500' x 250' box in the northwest quadrant of Russell Road and the McClory bike path for a potential connection.
5. The survey will extend 100 feet from the centerline in both directions with cross sections at 50-foot intervals. The survey will include topography, cross sections, utilities, drainage, trees and right-of-way verification. Drainage structures will be opened to identify inverts, pipe sizes, and condition of the structures.

B. Complete drainage surveys for the areas with major culverts (west and south legs of the Russell Road/Lewis Avenue intersection) and of the existing storm sewer system at the Kilbourne Road intersection. This will include cross sections perpendicular to the streambed for the two culvert crossings near the Lewis Avenue intersection. (*By Jorgensen & Associates*)

C. Complete existing right-of-way boundary surveys for each parcel within the survey limits. Establish existing roadway centerline. No plats are included in this contract. (*By Jorgensen & Associates*)

D. Conduct pick up survey to locate utility test holes, soil borings and wetland flags. (*By Jorgensen & Associates*)

E. Download topographic survey and cross sections for use in the preliminary design studies. (*By Jorgensen & Associates*)

F. Create project base files, digital terrain model, project design files, and project centerline and stationing for use in cross section, alignment, and profile studies.

G. Complete plan-in-hand reviews in the field to verify accuracy of displayed information.

H. Obtain drone video at each of the three intersections to observe, document, and convey any safety, capacity, and operational deficiencies.



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4. Utility Identification and Coordination

- A. Coordinate with JULIE (Illinois) and Diggers Hotline (Wisconsin) to obtain listing of potential facilities within the project limits. Follow up coordination with each utility company to request atlases. Coordinate with local municipalities to identify potential facilities within the project limits. Develop coordination log for correspondence. *(By BLA)*
- B. Create existing utility base maps developed from atlas information and in combination with the topographic surveys. *(By BLA)*
- C. When preferred alternative geometry is established, conflict identification exhibits will be prepared to continue discussions with utilities that may be impacted. While relocation plan coordination is usually conducted during Phase II design, there may be utilities (municipal, township, etc.) which can carry a considerable cost to Lake County DOT or the owner of the facility and these will be identified. *(By BLA)*
- D. Conduct field checks to confirm locations of existing facilities as well as identify potential unknown structures. *(By BLA)*
- E. Subconsultant coordination and data management

5. Environmental Studies

- A. Prepare an Environmental Survey Request to obtain cultural and biological review and signoff of the project limits. Include photo log of potential historic structures in the unincorporated town of Russell near the Kilbourne Road intersection.
- B. Coordinate Endangered Species Review with Wisconsin Department of Natural Resources. Assume coordination with the Illinois Department of Natural Resources is completed through the ESR process. *(by HLR)*
- C. Complete wetland delineations report. Complete wetland jurisdictional determination for both the Chicago and St. Paul District. *(by HLR)*
- D. Prepare and submit Wetland Impact Evaluation Forms.
- E. Historic coordination with the Illinois Historic Preservation Agency may result in a finding of historic use or significance for the structures in the unincorporated town of Russell near the Kilbourne Road intersection.
 - 1. Complete database research and analysis to determine historic significance of the homes in this area.
 - 2. Prepare a technical memorandum summarize findings of an architectural/historic assessment as needed.
- F. Prepare a tree survey report summarizing the size, health, and species. *(by HLR)*



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- G. Perform assessment for suitable habitat for the threatened northern long-eared bat (*Myotis septentrionalis*).
(By HLR)
- H. Prepare Preliminary Environmental Site Assessment (PESA). Preliminary Site Investigation (PSI) report is not included in this scope. (by HLR)
- I. Prepare a Traffic Noise Model (TNM) for existing (2019) and 2050 traffic volumes for selected receptors within Common Noise Environments (CNE) within the project limits. The noise analysis will follow the current FHWA approved IDOT noise policy. Noise monitoring will be completed and existing noise levels will be developed from the model.
 - 1) Assume noise measurements at six locations
 - 2) Create 3 modeled alternatives (existing, 2050 no build, and 2050 build)
 - 3) Evaluate potential noise abatement for feasibility, reasonability, and cost effectiveness
 - 4) Prepare technical memorandum
 - 5) Assume 1 submittal to LCDOT and 2 submittals to IDOT for review
 - 6) Develop exhibits to incorporate noise study results for the public meeting
- J. Summarize the environmental studies and incorporate into the Project Development Report.

6. Geotechnical Studies (Geotechnical work by Wang, see their scope for more information)

- A. Meet and coordinate with LCDOT to discuss boring locations
- B. Conduct pavement and soils investigations to identify pavement condition, pavement composition, soils stability, and subgrade conditions. (by Wang)
 - 1. 14 soil borings and 6 pavement cores along Russell Road, Kilbourne Road, Kenosha Road, and Lewis Avenue
 - 2. Complete 8 structure borings to a depth of 50 feet
 - One boring each at the two head wall locations on the west leg and south leg of the Lewis Avenue intersection (2 borings)
 - Two structure borings for retaining wall along McClory bike trail
 - Four additional structure borings as needed for future analyses
- C. Prepare a soils investigation report with soil borings and logs including recommendations meeting IDOT and LCDOT guidelines (by Wang)
- D. Prepare a pavement design technical memorandum to present the recommended pavement design. The memorandum will use the soils report and LCDOT standards to determine an estimated thickness for the proposed pavement. (by Wang)
- E. Meet and coordinate with LCDOT to discuss soils report and pavement design recommendations

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7. Drainage Studies *(All work by BLA, see their scope for more information)*

- A. Data collection and review, including culvert crossing recommendations and scope comments listed in the Project Scoping Report (dated 8/10/2018)
- B. Storm sewer condition assessment including televising the existing storm sewers at the Kilbourne Road intersection.
- C. Location Drainage Study (LDS) – complete full LDS documenting both existing and proposed drainage analysis for submittal to LCDOT. The LDS will include the following items
 - 1. Existing conditions analysis
 - 2. Development of design criteria
 - 3. Proposed analysis and design of drainage concepts
 - 4. Report Preparation
- D. Hydraulic and Waterway Study – complete a study for the Lake Michigan Tributary stream that crosses Lewis Avenue approximately 400 feet south of Russell Road and is located within the Russell Road right-of-way east of Lewis Avenue. Eight major culverts will be studied and included in the hydraulic model. Tasks include hydraulic surveys, hydrologic and hydraulic analysis, floodplain analysis, compensatory storage, hydraulic report, and WIT.
- E. Multi-Use Trail Connection Drainage Assessment – review effects of possible multi-use trail connection on the existing drainage system.
- F. Summarize the drainage studies and incorporate into the Project Development Report.

8. Traffic Analyses

- A. Collect existing traffic count data using a video-based data collection platform
 - 1. Turning movement counts at the Kilbourne Road, Kenosha Road, and Lewis Avenue intersection
 - 3 full week day counts (Tuesday, Wednesday, Thursday)
 - 1 weekend count (Friday 6 PM to Monday 6 PM) during seasonal peak of boating activity at the Marina
 - Full vehicle classifications and pedestrian/bicyclists counts
 - 2. Data will allow full analysis of the weekday peak and effect of the week end peak related to the boating season
 - 3. Data will also allow a full signal warrant and operations analysis at each intersection
- B. Develop existing, 2050 no-build and 2050 build DHV and ADT volumes based on new existing traffic counts. Evaluate initial traffic projections against LCDOT 2040 Transportation Plan model (by TranSystems). Develop 2050 no-build and 2050 build traffic projections. Coordinate with CMAP and SEWRPC to obtain concurrence and approval of the existing, 2050 no-build and 2050 build ADT volumes. Coordinate results with LCDOT for final approval.



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- C. Balance traffic volumes between the intersections. Prepare existing, 2050 no-build, and 2050 build peak hour diagrams.
- D. Evaluate traffic signal warrant analyses for the three Russell Road intersections.
- E. Traffic operations analysis
 - 1. Complete capacity analyses for existing conditions (HCS)
 - 2. Complete capacity analyses for 2050 no-build (HCS)
 - 3. Complete capacity analyses at each intersection for three potential traffic control conditions (9 analyses total) with 2050 traffic using HCS and SIDRA (as needed)
 - All-way and two-way stop control
 - Traffic signal
 - Roundabout
 - 4. Evaluate queuing of each alternative to determine if downstream conditions effect the other intersection (Kenosha Road/Lewis Avenue intersections only)
 - Assume using Synchro for two alternatives to test and evaluate the effect of downstream conditions
 - 5. Complete VISSIM model for the following locations and conditions for use at the public meetings
 - Kilbourne Road
 - (a) Existing
 - (b) 2050 no-build
 - (c) 2050 build – 2 alternatives
 - Kenosha Road
 - (a) Existing
 - (b) 2050 no-build
 - (c) 2050 build – 2 alternatives
 - Lewis Avenue
 - (a) Existing
 - (b) 2050 no-build
 - (c) 2050 build – 2 alternatives
 - 6. Prepare traffic analysis technical memorandum
- F. Complete Intersection Design Study for each intersection. Include ADA accommodations on the Intersection Design Studies for each intersection. Assume 1 submittal to LCDOT and 2 submittals to IDOT.

9. Safety Studies

- A. Prepare crash summary tables, collision diagrams, and identify crash patterns. Studies will be based on years 2013-2017. Studies include all three Russell Road intersections as well as the segment between Kenosha Road and Lewis Avenue.
- B. Evaluate crash data, identify countermeasures and develop Crash Modification Factors (CMF) for proposed alternatives per Highway Safety Manual (HSM).
- C. Barrier warrant and shoulder analysis



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1. Guardrail along the south, east and west approaches of Lewis Avenue
 2. Shoulder paving improvements at Kenosha Road intersection at 43378 Russell Road
- D. Complete roadside safety review at each intersection location. Identify site constraints and review concerns identified in the field by meeting attendees (first responders, LCODT staff, and other agencies). Sight distance at Kenosha Road intersection will be reviewed. Document findings in a technical memorandum.

10. Design Studies

- A. Develop project base files based on information from existing roadway plans, plat of survey, right-of-way data, topographic survey, and DTM.
- B. Determine existing centerline and existing right-of-way. Create base sheets for plan and profile, drainage sheets, and Intersection Design Studies.
- C. Develop intersection geometrics for roundabouts at all three locations
1. Develop concept geometrics for roundabout intersections
 2. Verify compliance with fastest path analysis per NCHRP 672
 3. Verify turning movement of design vehicle using AutoTURN. Consider movements for city bus to approximate fire vehicles and school busses ensuring no encroachment on the truck apron for these common vehicles. Also, consider movements for commercial boat haulers using Russell Road to the east.
 4. Establish rough grading for the roundabout to establish general construction limits. This will be done to confirm the location chosen for the roundabout falls with acceptable areas of impact.
 5. Sight distance analysis will be performed to a sufficient level to confirm the intersection can function properly. Additional analysis will be performed on the final design should the roundabout be selected as the preferred method of intersection control.
 6. Develop preliminary pavement marking layout
 7. Prepare preliminary roadway profile to meet design speed and drainage requirements
 8. Cross section analysis for roundabout intersection to determine right-of-way needs and compatibility with driveways and entrances
 9. Prepare/accommodate future multi-use trail layout at each location
 10. Identify lighting requirements
- D. Develop intersection geometrics for signalized intersection/channelized intersection for all three locations
1. Develop geometrics for signalized/channelized intersection
 2. Determine proposed roadway alignment, including realigned north/south legs of Kenosha Road intersection.
 3. Prepare a preliminary proposed roadway profile to meet design speed and drainage requirements
 4. Cross section analysis for signalized intersection to determine right-of-way needs and compatibility with driveways and entrances
 5. Identify lighting requirements

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- E. Segment design and geometrics for improvements to Russell Road between Kenosha Road and Lewis Avenue
 1. Develop geometrics for connecting the ½ mile segment between Kenosha Road and Lewis avenue with a three-lane section
 2. Determine proposed roadway alignment
 3. Prepare a preliminary proposed roadway profile to meet design speed and drainage requirements
 4. Cross section analysis to determine right-of-way needs and compatibility with driveways
 5. Identify lighting requirements

- F. Alternative Analysis Matrix
 1. Create a matrix to compare the traffic and geometric alternatives and draw comparisons to costs, ROW, safety performance, public support, environmental impacts, drainage concerns, and operations.
 2. Determine preferred intersection alternative after coordination with the County, Villages, and IDOT.
 3. Prepare alternative analysis technical memorandum summarizing analysis process and selection of preferred alternative.

- G. Verify the right-of-way needs and conduct an impact analysis to the adjacent area including buildings and utility facilities based on preferred alternative. Also consider needs for during construction or access during construction.

- H. Analyze possible multi-use trail connection on Russell Road from Lewis Avenue to the Robert McClory Bikepath approximately 2,100 feet east of the Russell Road/Lewis Avenue intersection. In the existing conditions there is a connection in the SE quadrant of Russell Road and the McClory bike path. But there are no facilities along Russell Road
 1. Perform topographic surveys of the NW quadrant of Russell Road and the McClory bike path
 2. Evaluate how best to incorporate an on-street bike path within the Russell Road footprint on both the north and south sides. Complete a concept layout of the horizontal and vertical geometric design.
 3. Perform geotechnical studies for retaining wall needs for bike path connection in the NW quadrant
 4. Conduct additional hydraulic studies and evaluation for the bike path connection in the NW quadrant
 5. Preliminary cost estimate to complete this work

11. Structural Studies

Regarding the new McClory Bikepath connection, a retaining wall will be needed to make the connection from Russell Road up to the bike path. A Wall Type Study will be prepared for the retaining wall. Type, Size and Location (TSL) plans will be developed and will be submitted to the IDOT Bureau of Bridges and Structures (BBS) along with the Preliminary Bridge Design and Hydraulic Report (PBDHR) for review and approval.

No other structural analyses are included for other locations. Replacement of the headwalls along the west leg and south leg of the Russell Road/Lewis Avenue intersections are assumed to be completed using standard designs.

- A. Prepare a Retaining Wall Type Study to evaluate alternatives considering retained height, soil conditions and applied surcharge loading.



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- B. Upon selection of the preferred retaining wall alternative, a TS&L plan will be prepared for review by the County. This drawing will show the size of principal members and general configuration of the proposed improvement. These documents will serve as the basis of the final design.
- C. Prepare a Preliminary Bridge Design and Hydraulic Report (IDOT Form BLR 10210) meeting IDOT BBS requirements based on the chosen retaining wall alternative. The reports will be submitted to the County and IDOT for review and approval.

12. Public Involvement

Three public information meetings are planned for this project. The first meeting will introduce the project and present the existing conditions. Information presented will include traffic volumes, crash analysis, and environmental inventories. The process for evaluating alternatives will be discussed and a listing of potential alternatives will be presented.

The second meeting will be to present the analysis of the alternatives developed, including their relative impacts.

The final meeting (public hearing format) will focus on presentation of the preferred alternative. The traffic and safety benefits as well as the environmental, property acquisition and cost impacts of the preferred alternative will be presented combined with the completed environmental studies.

All meetings will be an open house format. Work will include preparing brochures, exhibits, comment forms, handout materials, minutes and summaries of comments received. The work also involves reserving meeting locations, creating mailing lists, preparing meeting notifications, publishing meeting notices and postings as well as mailing invite letters. Responses to comments will be prepared as needed for each meeting. A pre-recorded PowerPoint slide show is not anticipated for any of these meetings.

Drone footage will be used as a public meeting tool to show and document the existing issues. Raw video will be reviewed and edited to show traffic and safety operation issues at each location and incorporated into the public meetings.

- A. Conduct two public meetings and one public hearing in an open house format.
 - 1. Public Meeting #1 – Project introduction
 - Research and coordinate location for public meeting
 - Prepare and publish public meeting notice
 - Prepare and distribute public meeting invitation/letter
 - Prepare public meeting brochure, sign-in sheets, and comment forms
 - Prepare public meeting exhibits
 - Prepare educational materials (roundabouts)
 - Attend and staff public meeting
 - Collect, compile, and respond to public meeting comments
 - 2. Public Meeting #2 – Review Alternatives
 - Assume same location
 - Prepare and publish public meeting notice

EXHIBIT A – SCOPE OF SERVICES

Russell Road Intersections Phase 1
Kilbourne Road, Kenosha Road and Lewis Avenue
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- Prepare and distribute public meeting invitation/letter
 - Prepare public meeting brochure, sign-in sheets, and comment forms.
 - Prepare public meeting exhibits
 - Prepare educational materials (roundabouts)
 - Attend and staff public meeting
 - Collect, compile, and respond to public meeting comments
3. Public Hearing – Preferred alternative
- Assume same location
 - Prepare and publish public meeting notice
 - Prepare and distribute public meeting invitation/letter
 - Secure and coordination with court reporter
 - Prepare public meeting brochure, sign-in sheets, and comment forms.
 - Prepare public meeting exhibits
 - Prepare educational materials (roundabouts)
 - Attend and staff public meeting
 - Collect, compile, and respond to public meeting comments
- B. Drone footage will be used as a public meeting tool to show and document the existing issues. Raw video will be reviewed and edited to show traffic and safety operation issues at each location and incorporated into the public meetings.
- C. Conduct eight one-on-one meetings with project stakeholders.
- D. Provide public meeting exhibits to LCDOT to be included on the project website hosted by LCDOT.
- E. Provide response to comments and questions posed through the LCDOT project website through the Phase I process.
- F. Summarize public involvement activities for inclusion in the Project Development Report.

13. Preferred Improvement Plan

- A. Based on design studies, environmental studies, and public input prepare the preferred improvement plans for the intersections to meet LCDOT/IDOT/FHWA requirements. Plans included sheets related to each intersection project as well as the McClory Bikepath connection.
- B. Prepare proposed typical sections.
- C. Identify maintenance of traffic and detour concepts.
- D. Prepare an implementation and phasing plan to identify when specific intersection improvements should be constructed based on the project's benefit and ability to secure funding.
- E. Develop right-of-way, permanent easement, and temporary easement requirements based on proposed geometrics, review of cross sections, and access during construction. Prepare right-of-way summary tables.



EXHIBIT A – SCOPE OF SERVICES

Russell Road Intersections Phase 1
Kilbourne Road, Kenosha Road and Lewis Avenue
Page 12

14. Project Development Report

- A. Prepare Draft Project Development Report (BLR Form 22110) for a Categorical Exclusion summarizing the engineering efforts, data collection, alternative analysis, and preferred improvement plan.
- B. Prepare a preliminary estimate of cost based on the preferred improvement plan.
- C. Prepare and submit design exception forms for review and approval by LCDOT. Assume 3 design exceptions will be needed.
- D. Submit the Draft Project Development Report for LCDOT review and comment.
- E. Revise the Draft Project Development Report based on LCDOT comments received.
- F. Submit the Draft Project Development Report for IDOT review and comment.
- G. Revise the Draft Project Development Report based on IDOT comments received.
- H. Submit the Final Project Development Report to LCDOT for review and make revisions prior to final approval.
- I. Submit the Final Project Development Report to IDOT

15. Funding Support

- A. Provide assistance to LCDOT in identifying and applying for funding through available programs. CMAQ is the likely funding program.

16. Project Management and QA/QC

- A. Initiate project setup including contract administration, budget control, and internal project team meetings.
- B. Prepare and submit monthly progress reports.
- C. Provide phone and email updates and general project coordination with the County as necessary to advance the progress of the project.
- D. Prepare and monitor the project schedule and update the schedule periodically as tasks or project scheduling change, as well as perform scope of work reviews, resource planning, internal team coordination, contract administration, and invoicing.
- E. Establish and adhere to an approved project QA/QC plan.
- F. Provide project QA/QC for all major submittals.



EXHIBIT A – SCOPE OF SERVICES

Russell Road Intersections Phase 1
Kilbourne Road, Kenosha Road and Lewis Avenue
Page 13

Assumptions

The following tasks or items were not included in this phase of the project and may be included in the future Phase 2 Final Design Engineering scope of work, if needed

- A. Plat of Highways
- B. Contract Plans
- C. Aesthetics and roundabout landscaping plans
- D. Preliminary Site Investigation (PSI)
- E. Permits
- F. Intergovernmental Agreements
- G. Section 4(f) or 6(f) coordination and processing
- H. Travel Demand Modeling analyses
- I. Corridor travel time collection and analysis
- J. Pre-recorded PowerPoint slide shows for the Public Meetings and Hearing
- K. Preparation of funding applications

EXHIBIT B

MANHOUR BREAKDOWN

Lake County Division of Transportation

Russell Road Intersections

Kilbourne Road, Kenosha Road and Lewis Avenue

Phase I Estimate of Staff Hours

TASKS	TOTALS	TranSystems	Jorgensen	HLR	BLA	Wang	GHA
Phase I Engineering							
1 Project Coordination	560	560					
2 Data Collection	120	120					
3 Field Surveys	2,080	120	1,960				
4 Utility Identification and Coordination	24	24					
5 Environmental Studies	839	382		457			
6 Geotechnical Studies	262	16				246	
7 Preliminary Drainage Studies	1,469	80			1,389		
8 Traffic Analyses	834	834					Cost only
9 Safety Studies	292	292					
10 Design Studies	1,064	1,064					
11 Structural Studies	140	140					
12 Public Involvement	1,136	1,136					
13 Preferred Improvement Plan	372	372					
14 Project Development Report (PDR)	228	228					
15 Funding Support	16	16					
16 Project Management and QA/QC	200	200					
Total Manhours =	9,636	5,584	1,960	457	1,389	246	0

1 Project Coordination

Item	No. of Meetings	No. of Attendees	Hours per Meeting	Total
A. Agency Meetings				
Lake County Division of Transportation	12	3	4	144
Illinois Department of Transportation	4	3	3	36
FHWA/IDOT Coordination Meetings	3	3	4	36
Lake County Stormwater Management Commission	2	3	4	24
CMAP and SEWRPC	2	3	4	24
Kenosha County Stormwater	2	3	4	24
USACE Chicago	2	3	4	24
USACE St. Paul	2	3	4	24
				336
B. Local agency coordination meetings	12	3	4	144
C. Meetings with Private Businesses	6	2	6	72
	Letters to Agencies		Hours	
D. Written correspondence with other agencies	4		2	8
			Subtotal =	560

Note: Meeting time includes exhibit preparation, travel time to and from, and composition of meeting minutes

2 Data Collection

Item	Total
A. Obtain data, plans and info from multiple agencies around the project area	56
B. Obtain updated aerial photography, DTM and utility data	32
C. Summarize and compile data collection items	8
D. Conduct site visit (3 people * 8 hours)	24
Subtotal =	120

3 Field Surveys

Item	Total
<i>All tasks completed by Jorgensen and Associates unless noted</i>	
A. New topographic survey	0
B. Drainage and outfall surveys	0
C. Right-of-way boundary surveys for each parcel within the survey limits	0
D. Pick up survey as needed for utility test holes, soil borings, and wetland flags	0
E. Download topographic survey and cross sections <i>(By Jorgensen and Associates)</i>	0
F. Develop project base files, DTM, design files, centerline, stationing, and existing right-of-way	80
G. Conduct plan in hand reviews (2 people * 8 hours)	16
H. Obtain drone video at each of the three intersections to observe, document, and convey any safety, capacity, and operational deficiencies. Assume 6 trips * 4 hours/trip.	24
Drone video completed by HLR	
Subtotal =	120

4 Utility Identification and Coordination

Item	Total
<i>All tasks completed by BLA unless noted</i>	
A. Coordinate and compile utility data	0
B. Create utility base maps	0
C. Identify utility conflicts and potential relocation plans	0
D. Perform field checks	0
E. Coordination with subconsultant and manage data sharing	24
	Subtotal = 24

5 Environmental Studies

Item	Total
A. Prepare Environmental Survey Request (ESR)	60
B. Coordinate endangered species review with Wisconsin DNR	12
C. Wetland delineations report	
Complete wetland delineations and report and coordinate with IDOT (By HLR)	
Coordinate work and incorporate results into CAD	12
Complete wetland jurisdictional determination (JD) for both the Chicago and St. Paul District (by HLR)	
Coordination and processing of JD	4
D. Prepare and submit Wetland Impact Evaluation forms	16
E. Historic coordination	
1. Database research and analysis	24
2. Technical memorandum to summarize findings	24
F. Prepare tree survey report and summarize findings	16
G. Perform assessment for suitable habitat for northern long-eared bat (By HLR)	0
H. Special Waste (By HLR)	
Complete Preliminary Environmental Site Assessment (PESA)	0
Coordinate work and incorporate results into CAD	8
I. Noise Modeling and Analysis	
Assume noise measurements at six locations	24
Create three modeled alternatives (existing, 2050 no-build, 2050 build)	48
Evaluate potential noise abatement for feasibility, reasonability, and cost effectiveness	30
Prepare technical memorandum	40
Assume 1 submittal to LCDOT and 2 submittals to IDOT for review	24
Develop exhibits to incorporate noise study results for the public meeting	16
J. Summarize the environmental studies and incorporate into the Project Development Report	24
Subtotal =	382

6 Geotechnical Studies

Item	Total
<i>All tasks completed by Wang unless noted</i>	
A. Coordination meeting with LCDOT to discuss boring locations (TSC hours in item 1)	0
B. Pavement and soils investigations (14 soil borings, 6 pavement cores, 8 structure borings)	0
C. Prepare Soils Investigation Report	0
D. Complete pavement design technical memorandum	16
E. Coordination meeting with LCDOT to discuss recommendations (TSC hours in item 1)	0
Subtotal =	16

7 Preliminary Drainage Studies

Item	Total
<i>All tasks completed by BLA unless noted</i>	
A. Data collection and review	0
B. Storm sewer condition assessment and televising	4
C. Location Drainage Study	24
D. Hydraulic and Waterway Study	24
E. Multi-Use Trail Connection Drainage Assessment	4
F. Subconsultant management and incorporate drainage studies into the PDR	24
Subtotal =	80

8 Traffic Analyses

Item	Total
A. Collect existing traffic count data (<i>By GHA/Miovision</i>)	8
B. Determine future traffic year projections	
Develop existing, 2050 no-build and 2050 build DHV and ADT volumes	16
Evaluate initial traffic projections against LCDOT 2040 Transportation Plan	12
Develop 2050 no-build and 2050 build traffic projections.	12
Coordinate with CMAP and SEWRPC to obtain concurrence and approval of the existing, 2050 no-build and 2050 build ADT volumes.	16
Coordinate results with LCDOT for final approval.	4
C. Balance traffic volumes across Kenosha Road and Lewis Avenue intersections	4
Prepare existing, 2050 no-build, and 2050 build peak hour diagrams	8
D. Traffic signal warrant analyses for three intersections	24
E. Traffic operation analyses	
1. Complete capacity analyses for existing conditions (3 locations)	4
2. Complete capacity analyses for 2050 no-build (3 locations)	4
3. Complete capacity analyses at each intersection for three potential traffic control conditions (9 analyses total) with 2050 traffic using HCS and SIDRA as needed	
a. All-way and two-way stop control (1 hour each)	4
b. Traffic signal (6 hours each)	24
c. Roundabout (8 hours each)	32
4. Evaluate queuing of each alternative (Kenosha Road/Lewis Avenue intersections only)	12
5. Complete VISSIM model for use at the public meetings	
a. Kilbourne Road	
1. Existing	12
2. 2050 No-Build	12
3. 2050 build - two alternatives	48
b. Kenosha Road	
1. Existing	12
2. 2050 No-Build	12
3. 2050 build - two alternatives	48
c. Lewis Avenue	
1. Existing	12
2. 2050 No-Build	12
3. 2050 build - two alternatives	48
F. Intersection Design Study (IDS)	
Complete Intersection Design Study for 3 intersections	270
Include ADA ramp designs for all locations	80
Submit to LCDOT for review	4
Revise IDS and submit to IDOT (preliminary) for review	40
Revise IDS based on comments from IDOT (final) and submit for final approval	40
Subtotal =	834

9 Safety Studies

Item	Total
A. Prepare crash summary tables, collision diagrams, and identify crash patterns	80
Studies based on 2013-2017 crash data provided by LCDOT	
Evaluate all 3 intersections, and segment between Kenosha Road and Lewis Avenue	
B. Evaluate crash data, identify countermeasures and develop Crash Modification Factors	
(CMF) for proposed alternatives per Highway Safety Manual (HSM)	16
1. Stop control	8
2. Traffic signal	16
3. Roundabout	32
C. Barrier Warrant and should analysis	
1. Guardrail along the south, east and west approaches of Lewis Avenue	24
2. Shoulder paving improvements at Kenosha Road intersection at 43378 Russell Road	8
D. Roadside Safety Review	
RSR planning and coordinate with meeting attendees (phone, letters, email)	16
Identify project meeting place and coordinate transportation	8
Review safety procedures with attendees and introduce design concepts	8
Conduct field review at each intersection (4 hours per location, 3 people)	36
Document findings in technical memorandum	40
Subtotal =	292

10 Design Studies

Item	Total
A. Develop project base files	40
B. Determine existing centerline and existing right-of-way.	16
Create base sheets for plan and profile, drainage sheets, and Intersection Design Studies.	32
C. Roundabout Geometrics for 3 intersections	
1. Concept geometrics	60
2. Fastest path analysis	36
3. Evaluate turning movements for multiple scenarios	36
4. Establish gradling lines for construction limits and revise design to minimize footprint	30
5. Complete sight distance analysis	36
6. Develop preliminary pavement marking layout	36
7. Prepare preliminary roadway profile to meet design speed and drainage requirements	36
8. Cross section analysis for roundabout intersection to determine right-of-way needs	84
and compatibility with driveways and entrances	
9. Prepare/accommodate future multi-use trail layout at each location	18
10. Identify lighting requirements	24
D. Signalized/Channelized Intersection Geometrics for 3 intersections	
1. Develop geometrics for signalized/channelized intersection	36
2. Determine proposed roadway alignment, including realigned north/south legs	24
of Kenosha Road intersection	
3. Prepare a preliminary proposed roadway profile to meet design speed and	24
drainage requirements	
4. Cross section analysis for signalized intersection determine right-of-way needs	72
and compatibility with driveways and entrances	
5. Identify lighting requirements	24
E. Segment design and geometrics for Russell Road between Kenosha Road and Lewis Avenue	
1. Develop geometrics for connecting the ½ mile segment between Kenosha Road	24
and Lewis avenue with a three-lane section	
2. Determine proposed roadway alignment	8
3. Prepare a preliminary proposed roadway profile to meet design speed and	20
drainage requirements; consider reconstruction and widening/resurfacing	
alternatives	
4. Cross section analysis to determine right-of-way needs and compatibility with driveways	48
5. Identify lighting requirements	4

10 Design Studies

Item	Total
F. Alternative Analysis Matrix	
1. Create a matrix to compare the traffic and geometric alternatives and draw comparisons to costs, ROW, safety performance, public support, environmental impacts, drainage concerns, and operations	80
2. Determine preferred intersection alternative after coordination with the County, Villages, and IDOT	8
3. Prepare alternative analysis tech memo summarizing analysis process and selection of preferred alternative	32
G. Verify right-of-way needs and impact analysis	32
H. Connecting to Robert McClory Bikepath	
1. Complete topographic surveys (<i>by Jorgensen</i>)	2
2. Evaluate how best to incorporate an on-street bike path within the Russell Road footprint on both the north and south sides. Complete a concept layout of the horizontal and vertical geometric design. Develop horizontal and vertical alignments and evaluate cross sections along Russell Road and along McClory bikepath.	120
3. Perform geotechnical studies for retaining wall needs for bike path connection in the NW quadrant (<i>by Wang</i>)	2
4. Conduct additional hydraulic studies and evaluation for the bike path connection in the NW quadrant (<i>by BLA</i>)	4
5. Preliminary cost estimate to complete this work	16
Subtotal =	1064

11 Structural Studies

Item	Total
A. Prepare a Retaining Wall Type Study to evaluate alternatives considering retained height, soil conditions and applied surcharge loading.	24
B. Upon selection of the preferred retaining wall alternative, a TS&L plan will be prepared for review by the County. This drawing will show the size of principal members and general configuration of the proposed improvement.	100
C. Prepare Preliminary Bridge Design and Hydraulic Report (IDOT BLR 10210)	16
Subtotal =	140

12 Public Involvement

Item	Total
A. Public Meetings	
1. Public Meeting #1 - Project Introduction	
Research and coordinate location for public meeting	16
Prepare and publish public meeting notice	6
Prepare and distribute public meeting invitation/letter	40
Prepare public meeting brochure, sign-in sheets, and comment forms	24
Prepare public meeting exhibits (assume 16 exhibits * 8 hrs/exhibit)	128
Prepare educational materials on project	16
Attend public meeting (5 staff members * 6 hours/meeting)	30
Collect, compile, and respond to public meeting comments	24
Public Meeting #1 Subtotal:	284
2. Public Meeting #2 - Review Alternatives	
Assume same meeting location, minor coordination to secure date	2
Prepare and publish public meeting notice	6
Prepare and distribute public meeting invitation/letter	40
Prepare public meeting brochure, sign-in sheets, and comment forms	24
Prepare public meeting exhibits (assume 16 exhibits * 8 hrs/exhibit)	128
Prepare educational materials on project	16
Attend public meeting (5 staff members * 6 hours/meeting)	30
Collect, compile, and respond to public meeting comments	24
Public Meeting #2 Subtotal:	270
3. Public hearing - Preferred Alternative	
Assume same meeting location, minor coordination to secure date	2
Prepare and publish public meeting notice	6
Prepare and distribute public meeting invitation/letter	40
Secure and coordinate with a court reporter	8
Prepare public meeting brochure, sign-in sheets, and comment forms	24
Prepare public meeting exhibits (assume 16 exhibits * 8 hrs/exhibit)	128
Prepare educational materials on project	16
Attend public meeting (5 staff members * 6 hours/meeting)	30
Collect, compile, and respond to public meeting comments	32
Public Hearing Subtotal:	286
B. Drone footage will be used as a public meeting tool to show and document the existing issues. Raw video will be reviewed and edited to show traffic and safety operation issues at each location and incorporated into the public meetings.	100
C. One-on-one meetings	
Attend 8 one-on-one meetings with project stakeholders (2 people * 4 hours/meeting)	64
Prepare meeting materials	16
Complete meeting minutes and share with meeting attendees	16
D. Provide public meeting exhibits to LCDOT to be included on the project website	16
E. Provide response to comments and questions posed through the LCDOT project website through the Phase I process (30 comments * 2 hours/comment)	60
F. Summarize public involvement activities for inclusion in the Project Development Report.	24
Subtotal =	1136

13 Preferred Improvement Plan

Item	Total
A. Based on design studies, environmental studies, and public input prepare the preferred improvement plans for the intersections to meet LCDOT/IDOT/FHWA requirements.	
Kilbourne Intersection - 8 sheets * 12 hours/sheet	96
Kenosha to Lewis - 10 sheets * 12 hours/sheet	120
McClory Bikepath connection - 5 sheets * 12 hours/sheet	60
B. Proposed typical sections (3 sections * 8 hours/section)	24
C. Maintenance of traffic and detour concepts	24
D. Implementation Plan	24
E. Right-of-way	
Determine right-of-way and permanent and temporary easement requirements	12
Prepare right-of-way summary tables	12
Subtotal =	372

14 Project Development Report (PDR)

Item	Total
A. Prepare Draft Project Development Report (BLR Form 22110) for a Categorical Exclusion summarizing the engineering efforts, data collection, alternative analysis, and preferred improvement plan.	60
B. Prepare a preliminary estimate of cost based on the preferred improvement plan	32
C. Prepare and submit design exception forms for review and approval by LCDOT. Assume 3 design exceptions will be needed.	48
D. Submit the Draft PDR to LCDOT for review and comment	8
E. Revise the Draft PDR based on comments	32
F. Submit the Draft PDR to IDOT for review and comment	8
G. Revise the Draft PDR based on IDOT comments	20
H. Submit the Final PDR to LCDOT for comment and make final revisions	16
I. Submit the Final PDR to IDOT	4
Subtotal =	228

15 Funding Support

Item	Total
A. Provide assistance to LCDOT in identifying and applying for funding through	
available programs	16
Subtotal =	16

EXHIBIT C

COST ESTIMATE OF CONSULTANT SERVICES

PAYROLL ESCALATION TABLE FIXED RAISES

FIRM NAME TranSystems Corporation
 PRIME/SUPPLEMENT Prime
 Prepared By Matthew Smith

DATE 3/15/2019
 PTB-ITEM# 180-1

CONTRACT TERM 19 MONTHS
 START DATE 3/1/2019
 RAISE DATE 4/6/2019
 END DATE 9/30/2020

OVERHEAD RATE 150.72%
 COMPLEXITY FACTOR 0
 % OF RAISE 3%

ESCALATION PER YEAR

year	First date	Last date	Months	% of Contract
0	3/1/2019	4/6/2019	1	5.26%
1	4/7/2019	4/6/2020	12	65.05%
2	4/7/2020	10/6/2020	6	33.50%

The total escalation = 3.82%

PAYROLL RATES

FIRM NAME
PRIME/SUPPLEMENT
PTB-ITEM #

TranSystems Corporatio **DATE**
Prime
180-1

3/15/2019

ESCALATION FACTOR **3.82%**

Note: Rates should be capped on the AVG 1 tab as necessary

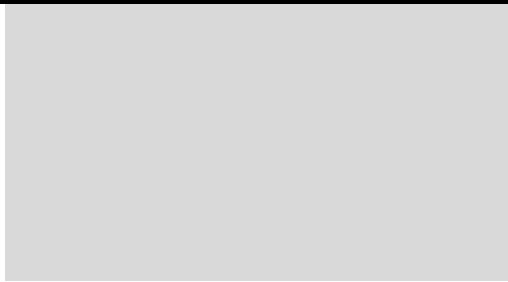
CLASSIFICATION	IDOT PAYROLL RATES ON FILE	CALCULATED RATE
Engineer 5 (E5)	\$70.00	\$70.00
Engineer 4 (E4)	\$69.01	\$70.00
Engineer 3 (E3)	\$57.34	\$59.53
Engineer 2 (E2)	\$43.59	\$45.25
Engineer 1 (E1)	\$34.34	\$35.65
Planner 5 (P5)	\$60.00	\$60.00
Planner 4 (P4)	\$59.96	\$60.00
Planner 3 (P3)	\$48.04	\$49.87
Architect 4 (AR4)	\$60.00	\$60.00
Architect 3 (AR3)	\$52.87	\$54.89
Architect 2 (AR2)	\$34.62	\$35.94
Architect 1 (AR1)	\$27.42	\$28.47
Environmental Scientist 4 (SC4)	\$60.00	\$60.00
Industry Specialist 3 (IS3)	\$52.00	\$53.99
Industry Specialist 2 (IS2)	\$38.18	\$39.64
Construction Services 4 (CS4)	\$50.39	\$52.31
Technician 5 (T5)	\$60.00	\$60.00
Technician 3 (T3)	\$30.94	\$32.12
Technician 1 (T1)	\$20.08	\$20.85
Administrative 3 (A3)	\$47.52	\$49.33
Administrative 2 (A2)	\$36.78	\$38.18
Administrative 1 (A1)	\$23.90	\$24.81

Subconsultants

FIRM NAME TranSystems Corporation
PRIME/SUPPLEMENT Prime
PTB-ITEM # 180-1

DATE 3/15/2019

NAME	Direct Labor Total	Contribution to Prime Consultant
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Total 0.00 0.00

AVERAGE HOURLY PROJECT RATES

FIRM TranSystems Corporation
PTB-ITEM# 180-1
PRIME/SUPPLEMENT Prime

DATE 3/15/2019

SHEET 1 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJ. RATES			Project Coordination			Data Collection			Field Surveys			Utility Identification			Environmental Studies		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Engineer 5 (E5)	70.00	125.0	2.24%	1.57	40	7.14%	5.00	2	1.67%	1.17						2	0.52%	0.37	
Engineer 4 (E4)	70.00	633.0	11.34%	7.94	192	34.29%	24.00	24	20.00%	14.00	2	1.67%	1.17	2	8.33%	5.83	24	6.28%	4.40
Engineer 3 (E3)	59.53	1,417.0	25.38%	15.11	200	35.71%	21.26	60	50.00%	29.76	36	30.00%	17.86	6	25.00%	14.88	54	14.14%	8.42
Engineer 2 (E2)	45.25	1,885.0	33.76%	15.28	78	13.93%	6.30	26	21.67%	9.81	60	50.00%	22.63	16	66.67%	30.17	110	28.80%	13.03
Engineer 1 (E1)	35.65	1,196.0	21.42%	7.64	50	8.93%	3.18	8	6.67%	2.38	10	8.33%	2.97				128	33.51%	11.95
Planner 5 (P5)	60.00	0.0																	
Planner 4 (P4)	60.00	0.0																	
Planner 3 (P3)	49.87	0.0																	
Architect 4 (AR4)	60.00	0.0																	
Architect 3 (AR3)	54.89	0.0																	
Architect 2 (AR2)	35.94	0.0																	
Architect 1 (AR1)	28.47	0.0																	
Environmental Scientist 4 (S)	60.00	52.0	0.93%	0.56													40	10.47%	6.28
Industry Specialist 3 (IS3)	53.99	0.0																	
Industry Specialist 2 (IS2)	39.64	0.0																	
Construction Services 4 (CS)	52.31	0.0																	
Technician 5 (T5)	60.00	0.0																	
Technician 3 (T3)	32.12	252.0	4.51%	1.45							12	10.00%	3.21				24	6.28%	2.02
Technician 1 (T1)	20.85	24.0	0.43%	0.09															
Administrative 3 (A3)	49.33	0.0																	
Administrative 2 (A2)	38.18	0.0																	
Administrative 1 (A1)	24.81	0.0																	
		0.0																	
		0.0																	
		0.0																	
		0.0																	
		0.0																	
TOTALS		5584.0	100%	\$49.62	560.0	100.00%	\$59.75	120.0	100%	\$57.11	120.0	100%	\$47.84	24.0	100%	\$50.89	382.0	100%	\$46.46

AVERAGE HOURLY PROJECT RATES

FIRM TranSystems Corporation
 PTB-ITEM# 180-1
 PRIME/SUPPLEMENT Prime

DATE 3/15/2019
 SHEET 2 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	Geotechnical Studies			Prelim Drainage Studies			Traffic Analyses			Safety Studies			Design Studies			Structural Studies		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Engineer 5 (E5)	70.00							4	0.48%	0.34	2	0.68%	0.48	6	0.56%	0.39	4	2.86%	2.00
Engineer 4 (E4)	70.00	1	6.25%	4.38	4	5.00%	3.50	34	4.08%	2.85	32	10.96%	7.67	40	3.76%	2.63	4	2.86%	2.00
Engineer 3 (E3)	59.53	7	43.75%	26.04	20	25.00%	14.88	240	28.78%	17.13	60	20.55%	12.23	298	28.01%	16.67	24	17.14%	10.21
Engineer 2 (E2)	45.25	8	50.00%	22.63	40	50.00%	22.63	288	34.53%	15.63	160	54.79%	24.80	424	39.85%	18.03	84	60.00%	27.15
Engineer 1 (E1)	35.65				16	20.00%	7.13	204	24.46%	8.72	38	13.01%	4.64	236	22.18%	7.91			
Planner 5 (P5)	60.00																		
Planner 4 (P4)	60.00																		
Planner 3 (P3)	49.87																		
Architect 4 (AR4)	60.00																		
Architect 3 (AR3)	54.89																		
Architect 2 (AR2)	35.94																		
Architect 1 (AR1)	28.47																		
Environmental Scientist 4 (S)	60.00																		
Industry Specialist 3 (IS3)	53.99																		
Industry Specialist 2 (IS2)	39.64																		
Construction Services 4 (CS)	52.31																		
Technician 5 (T5)	60.00																		
Technician 3 (T3)	32.12							40	4.80%	1.54				60	5.64%	1.81	24	17.14%	5.51
Technician 1 (T1)	20.85							24	2.88%	0.60									
Administrative 3 (A3)	49.33																		
Administrative 2 (A2)	38.18																		
Administrative 1 (A1)	24.81																		
TOTALS		16.0	100%	\$53.05	80.0	100%	\$48.14	834.0	100%	\$46.81	292.0	100%	\$49.82	1064.0	100%	\$47.45	140.0	100%	\$46.86

AVERAGE HOURLY PROJECT RATES

FIRM TranSystems Corporation
PTB-ITEM# 180-1
PRIME/SUPPLEMENT Prime

DATE 3/15/2019

SHEET 3 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	Public Involvement			Pref Improvement Plan			Project Development Report			Funding Support			PM & QA/QC			Hours	% Part.	Wgtd Avg
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg			
Engineer 5 (E5)	70.00	40	3.52%	2.46				1	0.44%	0.31				24	12.00%	8.40			
Engineer 4 (E4)	70.00	160	14.08%	9.86	4	1.08%	0.75	10	4.39%	3.07	8	50.00%	35.00	92	46.00%	32.20			
Engineer 3 (E3)	59.53	244	21.48%	12.79	24	6.45%	3.84	64	28.07%	16.71	8	50.00%	29.76	72	36.00%	21.43			
Engineer 2 (E2)	45.25	324	28.52%	12.91	152	40.86%	18.49	115	50.44%	22.83									
Engineer 1 (E1)	35.65	308	27.11%	9.67	160	43.01%	15.33	38	16.67%	5.94									
Planner 5 (P5)	60.00																		
Planner 4 (P4)	60.00																		
Planner 3 (P3)	49.87																		
Architect 4 (AR4)	60.00																		
Architect 3 (AR3)	54.89																		
Architect 2 (AR2)	35.94																		
Architect 1 (AR1)	28.47																		
Environmental Scientist 4 (S)	60.00													12	6.00%	3.60			
Industry Specialist 3 (IS3)	53.99																		
Industry Specialist 2 (IS2)	39.64																		
Construction Services 4 (CS)	52.31																		
Technician 5 (T5)	60.00																		
Technician 3 (T3)	32.12	60	5.28%	1.70	32	8.60%	2.76												
Technician 1 (T1)	20.85																		
Administrative 3 (A3)	49.33																		
Administrative 2 (A2)	38.18																		
Administrative 1 (A1)	24.81																		
TOTALS		1136.0	100%	\$49.38	372.0	100%	\$41.18	228.0	100%	\$48.85	16.0	100%	\$64.76	200.0	100%	\$65.63	0.0	0%	\$0.00

EXHIBIT D

COST ESTIMATE OF SUBCONSULTANT SERVICES

**Topographic Survey
(Jorgensen & Associates)**



JORGENSEN & ASSOCIATES, INC.
LAND SURVEYORS
Est. 1990

February 6, 2019

Mr. Mathew J. Smith, P.E.
TranSystems Corporation
1475 East Woodfield Road
Suite 600
Schaumburg, Illinois 60173-5440

Re: Lake County – Russell Road Survey Proposal

Dear Mr. Smith:

Enclosed, please find our proposal to prepare a topographic survey, stream survey and existing R.O.W. determination for the referenced project. Our proposal is based on your email of January 30th and our telephone conversations. The topographic survey will extend 75 feet either side of center line and will include the location of trees 6" in diameter and larger.

I would like to thank you for considering Jorgensen & Associates for this project. We look forward to continuing our working relationship with your firm. Should you have any questions, comments or require any further information concerning our proposal, please feel free to call me at (847)356-3371.

Respectfully submitted,
Jorgensen & Associates, Inc.


Christian H. Jorgensen, P.L.S.
President

CHJ/pt

Enclosures

E:\Transystems\Lake County\Russell Rd\Letter

Route: Russell Road
Section:
County: Lake
Job No.:

Exhibit "A"

Payroll Burden & Fringe Costs

	<u>% of Direct Productive Payroll</u>
Federal Insurance Contributions Act _____	11.81%
State Unemployment Compensation _____	0.47%
Federal Unemployment Compensation _____	0.11%
Workmen's Compensation Insurance _____	0.95%
Paid Holidays, Vacation, Sick Leave, Personal Leave _____	9.83%
Bonus _____	11.78%
Pension _____	0.98%
Group Insurance _____	<u>37.83%</u>
Total Payroll Burden & Fringe Costs	73.76%

Route: Russell Road
Section:
County: Lake
Job No.:

Exhibit "B"

Overhead and Indirect Costs

	<u>% of Direct Productive Payroll</u>
Business Insurance _____	4.72%
Depreciation _____	11.00%
Indirect wages and salaries _____	42.74%
Reproductive and printing costs _____	0.23%
Office Supplies _____	2.99%
Computer Costs _____	2.19%
Professional Fees _____	1.94%
Telephone _____	1.89%
Fees, license & dues _____	0.88%
Repairs and maintenance _____	1.77%
Business space rent _____	4.94%
Facilities - capital _____	0.72%
Travel - Meals _____	0.26%
Survey Supplies _____	2.60%
Automobile/travel expense _____	0.41%
Miscellaneous Expense _____	0.76%
State Income Tax _____	1.67%
Postage _____	0.20%
Educational & Professional Registrations _____	0.23%
Gain on Sale of Asset _____	<u>(1.33%)</u>
 Total Overhead	 80.81%

**PAYROLL ESCALATION TABLE
FIXED RAISES**

FIRM NAME Jorgensen & Associates, Inc.
PRIME/SUPPLEMENT Prime

DATE 02/06/19
PTB NO. _____

CONTRACT TERM 12 MONTHS
START DATE 3/1/2019
RAISE DATE 9/1/2019

OVERHEAD RATE 154.57%
COMPLEXITY FACTOR _____
% OF RAISE 0.00%

ESCALATION PER YEAR

3/1/2019 - 9/1/2019

9/2/2019 - 3/1/2020

6

12

6

12

= 50.00%
= 1.0000

50.00%

The total escalation for this project would be:

0.00%

AVERAGE HOURLY PROJECT RATES

FIRM Jorgensen & Associates, Inc.
 PSB _____
 PRIME/SUPPLEMENT Prime

DATE 02/06/19

SHEET 1 OF 2

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJECT RATES			(1) Field-Topographic Survey			(2) Office-Compile Field Data			(3) Office-Create Existing Topography Base File			(4) Office-Create T.I.N. & Contours			(5) QC/QA		
		Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg
Principal/Officer	46.00	2	0.12%	0.06															
Supervisor, P.L.S.	43.00	164	9.83%	4.23				136	72.73%	31.27							28	100.00%	43.00
Survey Party Chief, P.L.S.	28.50	657	39.36%	11.22	657	50.00%	14.25												
Instrument Operator	21.50	657	39.36%	8.46	657	50.00%	10.75												
Cadd Supervisor	31.50	189	11.32%	3.57				51	27.27%	8.59	120	100.00%	31.50	18	100.00%	31.50			
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TOTALS		1669	100%	\$27.53	1314	100.00%	\$25.00	187	100%	\$39.86	120	100%	\$31.50	18	100%	\$31.50	28	100%	\$43.00

AVERAGE HOURLY PROJECT RATES

FIRM Jorgensen & Associates, Inc.
 PSB _____
 PRIME/SUPPLEMENT Prime

DATE 02/06/19
 SHEET 2 OF 2

PAYROLL CLASSIFICATION	AVG HOURLY RATES	(6) Coordination Meetings																	
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg			
Principal/Officer	46.00	2	100.00%	46.00															
Supervisor, P.L.S.	43.00																		
Survey Party Chief, P.L.S.	28.50																		
Instrument Operator	21.50																		
Cadd Supervisor	31.50																		
TOTALS		2	100%	\$46.00	0	0%	\$0.00	0	0%	\$0.00	0	0%	\$0.00	0	0%	\$0.00	0	0%	\$0.00

Route: Russell Road
Section:
County: Lake
Job No.:

**Manhour Breakdown
Topographic Survey Estimate**

Russell Road & Lewis Avenue	$\pm 5,600' = \pm 1.061$ miles
Russell Road & Kenosha Road	$\pm 6,000' = \pm 1.136$ miles
Russell Road & Kilbourne Road	$\pm 6,000' = \pm 1.136$ miles
Total Length	$\pm 17,600' = \pm 3.333$ miles

1. Field – Topographic Survey

a. Measure traverse, level circuit & G.P.S. survey 49 hours x 2 men =	98 MH
b. Search & locate existing R.O.W. & section lines 133 hours x 2 men =	266 MH
c. Locate existing topography & inverts 346 hours x 2 men =	692 MH
d. Locate wetland flags 30 hours x 2 men =	60 MH
e. Locate hydraulic sections & stream survey 99 hours x 2 men =	<u>198 MH</u>
Sub-total Item #1	1,314 MH

2. Office - Compile Field Data		
a. Compute traverse, level circuit & G.P.S. survey		
16 hours x 1 man =		16 MH
b. Edit & compile topographic survey		
46 hours x 1 man =		46 MH
c. Research records at Lake County Recorder's office		
2 hours x 1 man =		2 MH
d. Research records at Kenosha County Recorder's office		
3 hours x 1 man =		3 MH
e. Compute existing R.O.W. lines		
120 hours x 1 man =		<u>120 MH</u>
	Sub-total Item #2	187 MH
3. Office - Create Existing Topography Base File		
a. Layout and drafting		
120 hours x 1 man =		120 MH
4. Office - Create T.I.N. & Contours		
a. Compute contours		
18 hours x 1 man =		18 MH
5. QC/QA		
a. Check topographic survey		
24 hours x 1 man =		24 MH
b. Check contours		
4 hours x 1 man =		<u>4 MH</u>
	Sub-total Item #5	28 MH
6. Coordination Meetings		
1 meeting @ 2 hours =		<u>2 MH</u>
	Total All Items	1,669 MH

Route: Russell Road
Section:
County: Lake
Job No.:

**Breakdown of
In House Direct Costs**

Item

1. Field - Topographic Survey

a. Trips to project site - 82 each
± 40 miles/trip x 82 trips = ± 3,280 miles
± 3,280 miles @ \$0.58/mile = \$ 1,902.40

2. Office – Compile Field Data

a. Trips to Lake County Recorder's office
± 30 miles/trip x 1 trip = ± 30 miles
± 30 miles @ \$0.58/mile = \$ 17.40

b. Trips to Kenosha County Recorder's office
± 50 miles/trip x 1 trip = ± 50 miles
± 50 miles @ \$0.58/mile = \$ 29.00

c. Subdivisions & deeds from Recorder's offices = \$ 150.00

Sub-total Item #2 \$ 196.50

6. Coordination Meetings

a. Meetings at TranSystems' office - 1 each
± 60 miles/trip x 1 trip = ± 60 miles
± 60 miles @ \$0.58/mile = \$ 34.80

Total All Items \$ 2,133.60

**PAYROLL ESCALATION TABLE
FIXED RAISES**

FIRM NAME Jorgensen & Associates, Inc.
PRIME/SUPPLEMENT Prime

DATE 02/06/19
PTB NO. _____

CONTRACT TERM 12 MONTHS
START DATE 3/1/2019
RAISE DATE 9/1/2019

OVERHEAD RATE 154.57%
COMPLEXITY FACTOR _____
% OF RAISE 0.00%

ESCALATION PER YEAR

3/1/2019 - 9/1/2019

9/2/2019 - 3/1/2020

6

12

6

12

= 50.00%
= 1.0000

50.00%

The total escalation for this project would be:

0.00%

AVERAGE HOURLY PROJECT RATES

FIRM Jorgensen & Associates, Inc.
PSB _____
PRIME/SUPPLEMENT Prime

DATE 02/06/19

SHEET 1 OF 1

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJECT RATES			(1) Field-Topographic Survey			(2) Office-Compile Field Data			(3) Office-Create Existing Topography Base File			(4) Office-Create T.I.N. & Contours			(5) QC/QA		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Supervisor, P.L.S.	43.00	10	3.44%	1.48				6	37.50%	16.13							4	100.00%	43.00
Survey Party Chief, P.L.S.	28.50	122	41.92%	11.95	122	50.00%	14.25												
Instrument Operator	21.50	122	41.92%	9.01	122	50.00%	10.75												
Cadd Supervisor	31.50	37	12.71%	4.01				10	62.50%	19.69	24	100.00%	31.50	3	100.00%	31.50			
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TOTALS		291	100%	\$26.45	244	100.00%	\$25.00	16	100%	\$35.81	24	100%	\$31.50	3	100%	\$31.50	4	100%	\$43.00

Route: Robert McClory Bike Path
 Section: @ Russell Road
 County: Lake
 Job No.:

**Manhour Breakdown
 Topographic Survey Estimate**

Robert McClory Bike Path	± 500' = ± 0.095 mile
Russell Road	± <u>1,000'</u> = ± <u>0.189 mile</u>
 Total Length	 ± 1,500' = ± 0.284 mile

1. Field – Topographic Survey

a. Measure traverse & level circuit 10 hours x 2 men =	20 MH
b. Locate existing topography 86 hours x 2 men =	172 MH
c. Locate hydraulic sections & stream survey 16 hours x 2 men =	32 MH
d. Search & locate existing R.O.W. & section lines 10 hours x 2 men =	<u>20 MH</u>
Sub-total Item #1	244 MH

2. Office - Compile Field Data

a. Compute traverse & level circuit 4 hours x 1 man =	4 MH
b. Edit & compile topographic survey 8 hours x 1 man =	8 MH
c. Compute existing R.O.W. lines 4 hours x 1 man =	<u>4 MH</u>
Sub-total Item #2	16 MH

Route: Robert McClory Bike Path
Section: @ Russell Road
County: Lake
Job No.:

**Breakdown of
In House Direct Costs**

Item

1. Field - Topographic Survey

a. Trips to project site - 16 each
± 40 miles/trip x 16 trips = ± 640 miles
± 640 miles @ \$0.58/mile = \$ 371.20

2. Office – Compile Field Data

a. Subdivision & Monument Records from Recorder's office \$ 15.00

Total All Items \$ 386.20

**Drainage and Utilities
(BLA)**



BLA, Inc.
2/22/2019

PROJECT SCOPE DESCRIPTION

As a subconsultant to TranSystems Corporation, BLA, Inc. (BLA) proposes to complete Phase I Engineering Design activities for the intersection and corridor improvements along Russell Road for the Lake County Division of Transportation (LCDOT).

BLA's written scope of services also includes the written scope of services of all subconsultants contained herein and after.

Preliminary Engineering Design Activities

Data Collection and Review

BLA will request all available drainage records and data, including but not limited to: storm sewer atlases, engineering plans, as-built plans, existing drainage studies, FEMA maps and models, GIS maps, etc.). BLA will also request records of flooding and drainage problems in the project area. This information will be reviewed and incorporated into Phase I study, where applicable.

Storm Sewer Condition Assessment

BLA will review the material type and size of existing storm sewers and culverts from the topographic survey. Any corrugated metal pipes (CMP) and sewers with dissimilar materials will be replaced with reinforced concrete pipe (RCP) Cross road culverts less than 24" diameter will be replaced. The existing storm sewers will also be reviewed against the preferred alternate geometry to determine replacements/relocations.

BLA [*American Underground*] will televise all remaining storm sewer and culverts to remain in place. BLA will provide LCDOT with a report detailing the condition of the pipes and recommendations regarding maintenance, replacement or re-use.

Location Drainage Study

A Location Drainage Study (LDS) will be prepared. This shall include both an Existing and Proposed Drainage analysis which will be submitted to LCDOT for review and approval. The following scope of work will be completed:

Existing Analysis:

BLA will prepare an Existing Drainage Plan (EDP) to document the existing drainage patterns and conditions in the project area. The EDP will include delineation of drainage areas and identify major drainage features such as watershed divides, identified flooding areas, floodplains, and existing detention or depressional storage areas. Existing outlets leaving the project limits will be analyzed to determine adequacy and calculated existing flows leaving the project site.

Evaluate Design Criteria:

BLA will prepare a list of proposed drainage criteria (design storms, min. sizes, freeboard, etc.) that will be used to design the proposed drainage improvements. The drainage criteria will be



BLA, Inc.
2/22/2019

largely based in the IDOT Drainage Manual. This list will be submitted to LCDOT for prior approval.

Proposed Analysis:

BLA will prepare a Proposed Drainage Plan (PDP) after the preferred roadway improvement plan is developed. The PDP will document the proposed drainage improvements to the existing drainage system. The PDP will include the delineation of proposed drainage areas and proposed flows to each outlet determined suitable for continued use. A proposed drainage analysis will be prepared for the proposed storm sewer system, ditches and culverts according to LCDOT-approved drainage criteria. Per the scoping report, detention and retention/BMPs are anticipated for the improvements. For planning purposes, the three intersection improvements will be considered as one project in order to determine required detention and retention volumes.

Report Preparation:

BLA will prepare a formal report as part of the study. The report will follow the format detailed in the IDOT Drainage Manual and include subsections such as a narrative, exhibits, source data received, correspondence and supporting documents. Recommendations for existing drainage and/or flooding problems will be provided. Permit needs will also be detailed in this report. Permit applications and submittals are anticipated to be completed in Phase II.

Hydraulic/Waterway Study

BLA will perform a Hydraulic/Waterway Study for the Lake Michigan Tributary stream, which is mapped as Zone A floodplain and a USGS Flood of Record in the project area. The stream passes through the project limits through several culverts and also longitudinally along both Lewis Avenue and Russel Road. A total of eight (8) major culverts will be studied and incorporated into the hydraulic model. There are also two (2) longitudinal encroachments where the stream parallels alongside the roadways, which will be studied in detail.

The typical recording requirements for the hydraulic study are as follows:

Culvert Openings:

- Diameter and/or span and rise at the upstream and downstream faces.
- Inverts and flowline elevations (in different that the invert)
- Survey shots along any headwalls to accurately document shape.

Roadway profile:

- A profile shall be taken along the roadway centerline for a minimum of 500ft each side of the culvert crossing.

Cross Sections (6 per culvert crossing):

- 1000ft upstream and downstream of the culvert (2)
- 200ft upstream and downstream of the culvert (2)
- At the ROW lines upstream and downstream of the culverts (2)
- Cross sections should be perpendicular to the stream flow and extend horizontally until 2ft vertically above the lowpoint in the roadway profile.

Waterway/Stream Profile:



BLA, Inc.
2/22/2019

- A stream profile shall be taken along the lowest point in the stream every 100ft upstream and downstream of the culvert crossing.
- The profile shall extend 1000ft upstream and downstream of the culvert.

Longitudinal Encroachment/Stream Flowing Along Roadway:

- Survey cross sections every 100ft perpendicular to stream flowline

Hydrologic Analysis:

The Lake Michigan Tributary Stream is currently mapped as Zone A floodplain. Zone A designation indicates areas of known flood hazard where a detailed study to determine the Base Flood Elevation (BFE) has not been performed. A detailed hydrologic analysis must be performed to determine the peak flows from the upstream tributary areas. The peak flows determined in the hydrologic analysis will be used to determine the BFE in the hydraulic analysis. Existing and proposed drainage areas will be delineated and a HEC-HMS model will be developed to calculate the existing 2, 10, 50, and 100-year drainage flows to the stream and split at appropriate cross sections. Sub-area time of concentrations and curve numbers will also be calculated.

Hydraulic Analysis:

The peak flows determined in the hydrologic study will be used with the stream survey data to prepare a detailed hydraulic model of the Lake Michigan Tributary Stream. The hydraulic analysis will determine the existing BFE for the Zone A floodplain. Impacts resulting from proposed improvements will be evaluated based on the BFE established by the hydraulic modeling. A hydraulic model using the HEC-RAS program will be completed for the Lake Michigan Tributary. Information from the existing hydraulic survey, drainage flows, and proposed improvements will be incorporated into this model. This task will include generation of the existing hydraulic model, natural model, and a proposed model based on the preferred alternative design.

Compensatory Storage:

This task includes determining encroachments into the floodplain as determined by the hydraulic modeling. Floodplain fill impacts for both the 10 and 100-yr storms will be quantified to determine the amount of compensatory storage required. Proposed compensatory storage locations will be shown and summarized on exhibits and cut/fill cross sections provided to verify adherence with Lake County SMC criteria.

Hydraulic Report and WIT:

A formal Hydraulic Report including Waterway Information Tables (WITs) will be prepared for each culvert crossing under roadway right-of-way within the project limits. Per the Lake County aeriels and GIS, a total of five (5) culvert hydraulic reports are required. This report will include all necessary information such as a narrative, exhibits, cross sections, supporting calculations and documents.

Multi-Use Trail Connection Drainage Assessment

BLA will conduct a high-level drainage assessment of possible alternatives for a multi-use trail connection from the Russell Road and Lewis Avenue intersection to the existing Robert McClory Bike Trail overpass on either the north or south sides of Russell Road. This task also includes reviewing drainage needs for a secondary access/jughandle from Russell Road to the existing grade



BLA, Inc.
2/22/2019

separated trail in either the northeast, northwest or southwest quadrants. BLA will investigate each alternative and determine impacts to existing floodplains, right-of-way impacts and required drainage improvements. This task includes the preparation of exhibits for each alternative showing impacts and preparing preliminary costs estimates.

Utility Coordination

BLA will contact JULIE (Illinois) and Diggers Hotline (Wisconsin) to obtain a list of potential agencies with facilities (underground and overhead) which may be present. Follow up location maps of the study area will be sent requesting atlases; a coordination log will be prepared identifying all utility owners and shall be updated throughout the Phase I study with each discussion or correspondence held. In addition to dry utilities (ComEd, Nicor/North Shore Gas, AT&T, Comcast, Fiber Optic Service Providers, etc.), BLA will reach out to Newport Township, Benton Township, Pleasant Prairie (WI), Kenosha County DOT (WI), North Shore Water Reclamation District (NSWRD), and the City of Zion to identify any potential facilities within the project limits. This task does not preclude additional contacts which may be present as those agencies will also be contacted for facility maps. This task will also include requests for known utility easement language which can be incorporated into the existing right-of-way digital file.

As maps/atlas are received, BLA will reconcile the topographic survey and field books in order to generate an Existing Utility file which contains all applicable data received from the survey as well as atlas maps. This Existing Utility file will be updated throughout the design process as additional information is received from various owners/agencies.

Once preferred alternative geometry is established, conflict identification exhibits will be prepared in order to continue discussions with any utilities which may be impacted. While relocation plan coordination is typically conducted during Phase II design, there may be utilities (municipal, township, etc.) which can carry a considerable cost to Lake County DOT or the owner of the facility and these will be identified.

This task also includes field checks to confirm existing utility locations as well as identify unknown structures from the topo which require reconciliation with atlases.

Meetings

The following meetings are anticipated. Manhour breakdowns are included within the manhour breakdown portion of this proposal.

- Lake County SMC Pre-Application Meeting (1)
- Kenosha County P&D Initial Meeting (1)
- BLA-TranSystems coordination Meetings (3)
- Lake County DOT coordination meetings (2)
- Utility Meetings (3)

Task

Data Collection and Review

Obtain storm sewer atlases and GIS maps from Lake and Kenosha Counties and Villages	4
Obtain FEMA and Lake County SMC floodplain maps, studies and models	4
Request records of flooding or drainage problems from Lake and Kenosha Counties and Villages	4
Obtain subdivision/engineering plans for adjacent ponds, storm sewers, etc.	4
TOTAL WORKHOURS =	16

Storm Sewer Condition Assessment

Existing review of storm sewer materials and sizes	4
Review of storm sewer conflicts with preferred improvement	4
Televise storm sewer (American Underground)	-
Develop report for existing storm sewer recommendations	8
TOTAL WORKHOURS =	16

Location Drainage Study

Existing Analysis (per intersection)

Drainage Area Delineation/CN & Tc Calcs	16
Existing Drainage Flow/Outlet Analysis	16
Prepare General Location Drainage Map	8
Prepare Existing Drainage Plans	24
x 3 intersections (@ Kilbourne, Kenosha and Lewis)	192

Proposed Analysis

Develop proposed drainage criteria for approval	4
---	---

Proposed Analysis

Drainage Area Delineation/CN & Tc Calcs	24
Proposed Drainage Flow/Outlet Analysis	16
Drainage Alternatives and problem area recommendations	24
Storm sewer trunkline sizing, ditches, small culvert calculations	32
Detention Analysis	24
Retention/BMPs and Water Quality	16
Proposed Drainage Plans	40
Proposed Drainage Profiles	16
x 3 intersections (@ Kilbourne, Kenosha and Lewis)	576

Report Preparation

Prepare narrative, LDS checklists, permit needs, etc.	16
Assemble report binders and subsection tabs	4
TOTAL WORKHOURS =	792

Hydraulic/Waterway Study

Hydrologic Analysis

Drainage Area Delineation/CN & Tc Calcs	16
Set-up HEC-HMS Model	16
Flow Determination (2, 10, 50 and 100-yr)	8

Hydraulic Analysis

Existing HEC-RAS Model	24
Natural HEC-RAS Model	8

Proposed HEC-RAS Model	40
<u>Compensatory Storage</u>	
Prepare cross sections of cut/fill areas	24
Quantify impacts to existing floodplains	24
Develop proposed compensatory storage areas	24
<u>Hydraulic Report and WIT (5 reports)</u>	
Prepare narrative, exhibits, Waterway Information Table (WITs), permit needs, etc.	24
Assemble report binders and subsection tabs	8
	Total Hydraulic Report & WIT (each)
	x5 Reports
	TOTAL WORKHOURS =
	344

Multi-Use Trail Connection Drainage Assessment

Analyze drainage needs of each bike path alternative	8
Develop exhibits with impacts and a summary.	24
Prepare a preliminary cost estimate of the alternatives	8
	TOTAL WORKHOURS =
	40

Utility Coordination

JULIE; contact Newport Township, Benton Township, Pleasant Prairie (WI), Kenosha Cty DOT, NSWRD, City of Zion & dry utility agencies for atlases; letters & followup	16
Reconcile Topo, Create X_Util File with Atlases	32
Conflict Identification Exhibits	32
Field Checks	32
Easement Coordination & Research	16
	TOTAL WORKHOURS =
	128

Meetings

Lake County SMC Pre-Application Meeting (1 meeting x 2 people x 2hrs)	4
Kenosha County P&D Initial Meeting (1 meeting x 2 people x 4hrs)	8
BLA - TranSystems Coordination Meetings (3 meetings x 2 people x 2 hrs)	12
Lake County DOT Coordination Meetings (2 meetings x 2 people x 2 hours)	8
Utility Meetings (3 meetings x 2 people x 3 hours + minutes of meeting @ 1/ea)	21
	TOTAL WORKHOURS =
	53

Total Workhours 1389

PAYROLL ESCALATION TABLE FIXED RAISES

FIRM NAME BLA, Inc
PRIME/SUPPLEMENT Subconsultant
Prepared By DB

DATE 02/22/19
PTB-ITEM# 0

CONTRACT TERM 18 MONTHS
START DATE 3/1/2019
RAISE DATE 1/1/2020

END DATE 8/31/2020

OVERHEAD RATE 104.18%
COMPLEXITY FACTOR 0
% OF RAISE 3%

ESCALATION PER YEAR

year	First date	Last date	Months	% of Contract
0	3/1/2019	1/1/2020	10	55.56%
1	1/2/2020	9/1/2020	8	45.78%

The total escalation = 1.33%

PAYROLL RATES

FIRM NAME BLA, Inc DATE 02/22/19
 PRIME/SUPPLEMENT Subconsultant
 PTB-ITEM # 0

ESCALATION FACTOR 1.33%

Note: Rates should be capped on the AVG 1 tab as necessary

CLASSIFICATION	IDOT PAYROLL RATES ON FILE	CALCULATED RATE
Principal	\$70.00	\$70.00
Senior Project Manager	\$66.83	\$67.72
Project Manager	\$52.29	\$52.99
Project Engineer	\$35.64	\$36.12
Design Engineer	\$30.38	\$30.79
Public Info Coordinator	\$30.48	\$30.89

AVERAGE HOURLY PROJECT RATES

FIRM BLA, Inc
 PTB-ITEM# 0
 PRIME/SUPPLEMENT Subconsultant

DATE 02/22/19

SHEET 1 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJ. RATES			Data Collection			Sewer Assessment			Location Drainage Study			Hydraulic Study			MUP Drainage Assessment		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Principal	70.00	34.0	2.45%	1.71							24	3.03%	2.12	10	2.91%	2.03			
Senior Project Manager	67.72	116.0	8.35%	5.66							80	10.10%	6.84	34	9.88%	6.69	2	5.00%	3.39
Project Manager	52.99	296.0	21.31%	11.29	2	12.50%	6.62	2	12.50%	6.62	158	19.95%	10.57	69	20.06%	10.63	8	20.00%	10.60
Project Engineer	36.12	546.0	39.31%	14.20	8	50.00%	18.06	8	50.00%	18.06	316	39.90%	14.41	138	40.12%	14.49	16	40.00%	14.45
Design Engineer	30.79	397.0	28.58%	8.80	6	37.50%	11.54	6	37.50%	11.54	214	27.02%	8.32	93	27.03%	8.32	14	35.00%	10.77
Public Info Coordinator	30.89	0.0																	
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TOTALS		1389.0	100%	\$41.66	16.0	100.00%	\$36.23	16.0	100%	\$36.23	792.0	100%	\$42.26	344.0	100%	\$42.17	40.0	100%	\$39.20

AVERAGE HOURLY PROJECT RATES

FIRM BLA, Inc
PTB-ITEM# 0
PRIME/SUPPLEMENT Subconsultant

DATE 02/22/19
SHEET 2 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	Meetings			Utility Coordination														
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Principal	70.00																		
Senior Project Manager	67.72																		
Project Manager	52.99	25	47.17%	24.99	32	25.00%	13.25												
Project Engineer	36.12	28	52.83%	19.08	32	25.00%	9.03												
Design Engineer	30.79				64	50.00%	15.39												
Public Info Coordinator	30.89																		
TOTALS		53.0	100%	\$44.07	128.0	100%	\$37.67	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00

Russell Road Intersections: Kilbourne Rd, Kenosha Rd & Lewis Ave
BLA Manhours Attachment
Direct Costs

(2 copies to LCDOT, 2 copies to LC SMC, 1 copy Kenosha County, 1 copy TS) = 6 copies

<u>Location Drainage Study</u>	<u>Size</u>	<u># of Sheets</u>	<u>Rate</u>	<u>Total</u>
Location Drainage Study Reports (Draft)	Binder	6	\$9.00	\$54.00
Location Drainage Study Reports (Final)	Binder	6	\$9.00	\$54.00
Location Drainage Study Reports (Draft)	8.5"x11"	1200	\$0.10	\$120.00
Location Drainage Study Reports (Draft)	11"x17"	180	\$0.15	\$27.00
Location Drainage Study Reports (Final)	8.5"x11"	1200	\$0.10	\$120.00
Location Drainage Study Reports (Final)	11"x17"	180	\$0.15	\$27.00
Vehicle Days - Field Checks		4	\$65.00	\$260.00
Location Drainage Study Total				\$662.00

<u>Hydraulic / Waterway Study</u>	<u>Size</u>	<u># of Sheets</u>	<u>Rate</u>	<u>Total</u>
Hydraulic / Waterway Study Reports (Draft)	Binder	6	\$9.00	\$54.00
Hydraulic / Waterway Study Reports (Final)	Binder	6	\$9.00	\$54.00
Hydraulic / Waterway Study Reports (Draft)	8.5"x11"	1200	\$0.10	\$120.00
Hydraulic / Waterway Study Reports (Draft)	11"x17"	120	\$0.15	\$18.00
Hydraulic / Waterway Study Reports (Final)	8.5"x11"	1200	\$0.10	\$120.00
Hydraulic / Waterway Study Reports (Final)	11"x17"	120	\$0.15	\$18.00
Location Drainage Study Total				\$384.00

<u>Meetings</u>				
Full Size Exhibits, B&W	22"x34"	30	\$2.00	\$60.00
Full Size Exhibits, Color	22"x34"	15	\$3.00	\$45.00
Vehicle Days - Meetings		10	\$65.00	\$650.00
Public Involvement Total				\$755.00

<u>Sewer Televising (American Underground)</u>			
Televising Fee	1.5 days	\$3,275.00	\$4,913.00
Sewer Televising Total			\$4,913.00

Grand Total \$6,714.00

BLA, Inc.
Dan Bruckelmeyer, P.E.
333 Pierce Road, Suite 200
Itasca, IL 60143

February 11, 2019

Re: Preparation Cleaning & CCTV Inspection of Storm Sewers – Russell Road, Benton Township, Illinois

(QUOTATION)

We are pleased to submit a quotation for the preparation cleaning and CCTV inspection of targeted storm sewer lines, as indicated on your February 05, 2019 email RFP, located along Russell Road within Benton Township, Illinois.

Light Clean (2 sweeps) & CCTV Inspection: \$3,275.00 Per 8 Hour Day/Port To Port
Heavy Cleaning Upon Prior Authorization: \$365.00 Per Hour

Quoted costs include all mobilization, equipment and labor charges incurred throughout the duration of the above-identified undertaking. Municipal water usage license, fees, permits and deposits are not considered a part of this quotation. Payment for said fees and any unforeseen costs become the responsibility of the client.

Upon completing necessary cleaning procedures, each individual line segment shall be recorded in a narrated data DVD format, utilizing a color 360-degree pan & tilt type camera. Each recording shall be accompanied by a computer-generated report of all conveyed observations recorded throughout the inspection process.

For light cleaning and CCTV inspection we estimate a project completion time of one and a half days.


Although no guarantees are implied or suggested, the above quoted client upon authorized signature below hereby agrees to pay to the contractor all amounts due in connection with the above-identified project immediately upon receipt of invoice. Any invoiced amounts not paid within thirty (30) days shall accrue simple interest at a rate of eighteen percent (18%) annually. In the event that any incurred costs relating to efforts to collect any amounts due pursuant to this Quotation, or in the event that any dispute or issue relating to this Quotation or work on the identified project arises, the client shall reimburse and indemnify the contractor for those costs relating to collection efforts or resolution of the dispute or issue, including but not limited to, payment of the contractors attorneys' fees, expenses and court costs in the event that any dispute or issue resolution results in any payment to the contractor or the contractor otherwise prevails.

We appreciate your quotation request and hope that we have the opportunity to provide service to you.

Agreed And Accepted - Date: ___/___/___

American Underground Inc.

By: _____
Authorized Signature

By: 
David Kerber, Vice – President

Print Name: _____

Title: _____

**Geotechnical
(Wang Engineering)**

February 22, 2019

Matthew J. Smith, PE
Senior Professional
Assistant Vice President
TranSystems
1475 East Woodfield Road, Suite 600
Schaumburg, IL 60173-5440

Geotechnical Engineering Services
Russell Road Improvements
Section No. 18-00999-57-EG
Lake County Department of Transportation
Wang P190131

Dear Mr. Smith:

Wang Engineering, Inc. (Wang) is pleased to submit this proposal for geotechnical engineering services to support the proposed roadway improvements to Russell Road at its intersections with Kilbourne Road, Kenosha Road, and Lewis Avenue in Lake County, Illinois.

The following sections describe our proposed scope of work, cost estimate, and assumptions made in developing the cost estimate.

SCOPE OF WORK

Based on information provided by TranSystems, we understand the project scope will consist of the following items:

- Improvements on Russell Road at the intersections with Kilbourne Road, Kenosha Road, and Lewis Avenue.
- The resurfacing of approximately 3,000 feet of Russell Road between Kenosha Road and Lewis Avenue.
- The possible replacement/resurfacing of about 800 feet of the southbound shoulder of Kenosha Road south of the Kenosha Road and Russell Road intersection.
- Two structure borings for a potential retaining wall along the McClory bike trail, located about 2,000 feet east of the intersection of Russell Road and Lewis Avenue.
- Two structure borings at culvert head walls on the west and south legs of the intersection of Russell Road and Lewis Avenue.
- Four additional structure borings, as needed.

Our project understanding together with the proposed geotechnical exploration program is summarized in the following table.

Proposed Improvement	Estimated Length (feet)	Borings	Depth (feet)	Full-depth Pavement Cores
Russell Road Resurfacing from Kenosha Road to Lewis Avenue	3,000	10	10	4
Kenosha Road Shoulder Reconstruction	800	3	10	--
Russell Road Improvements (Culverts, Retaining Walls, etc.)	NA	8	50	--
Intersection Improvements	NA	4	10	2

The objective of our geotechnical engineering services will be to define general subsurface conditions, develop soil parameters for subgrade and foundation soil stability and deformation analyses, and provide geotechnical recommendations for pavement and foundation design and construction. Wang proposes the following tasks:

Geotechnical Drilling and Sampling: Wang will provide equipment, labor, and associated materials to drill and sample a total footage of 570 feet of soil in 25 boreholes and collect six full-depth pavement cores. The roadway borings will be drilled to 10 feet below ground surface (bgs) and sampled continuously. The structure borings will be drilled to 50 feet bgs and sampled at 2.5-foot intervals to a depth of 30 feet and at 5-foot intervals thereafter to the boring termination depths. The boring locations will be accessed by a truck-mounted drilling rig, and the boreholes will be advanced with hollow stem augers. Soil samples will be collected with split-barrel samplers according to AASHTO T 206, "Penetration Test and Split-Barrel Sampling of Soils." The borings will be backfilled with soil cuttings and bentonite chips upon completion.

Full-depth pavement cores will be collected with a 4.0-inch diameter, diamond-impregnated, core barrel. Boring and coring locations will be repaired with an asphalt patch.

Field Supervision: Prior to the start of the investigation, Wang will coordinate the location of utilities with respect to the proposed boring locations. A Wang field engineer will monitor drilling activities, maintain field notes, and log the samples. The field engineer will also perform penetrometer and Rimac unconfined compressive strength tests on cohesive soil samples.

Laboratory Testing: Soil samples will be transported to our IDOT- and AASHTO-certified laboratory. Soil testing will include moisture content, Atterberg limits, particle size analysis, and total organic matter content tests.

Engineering Analyses and Recommendations: A Roadway Geotechnical Report (RGR), Structure Geotechnical Report (SGR), Pavement Design Memorandum, and/or letter reports will be prepared in accordance with IDOT requirements. The reports and memorandums will include site location maps, boring location plans, boring logs, laboratory test results, a description of the subsurface investigation methods, and an assessment of the site soil and groundwater conditions. Furthermore, the reports will present geotechnical engineering analysis and recommendations for pavement design, subgrade

stabilization, and design and construction of the structures. Any compressible and/or organic soils encountered requiring further delineation, testing, and/or ground improvement recommendations will be completed as a separate task.

SCHEDULING

Wang will start the project expediently upon prior written authorization to proceed. We estimate the field investigation will require seven working days after utility clearance. The laboratory testing program will be completed within two weeks after completion of the field investigation. The draft reports will be submitted for review within three weeks after completing the laboratory work and receiving structure design drawings and roadway plan, profile, and cross-section drawings.

ESTIMATED COST AND ASSUMPTIONS

Wang will provide these services according to the attached cost estimate. Our cost estimate was prepared assuming the following conditions:

- Traffic control will be required and working hours will not be restricted;
- Other additional insurance, beyond our standard coverage, is not included in the cost estimate; if required, it will be considered a reimbursement item;
- No hazardous materials will be encountered; and
- The site is accessible to a truck mounted rig.

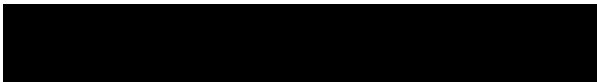
Wang Engineering, Inc. appreciates the opportunity to present this proposal. If you have questions, or if you require additional information, please contact us at (630) 953-9928.

Sincerely,

WANG ENGINEERING, INC.



Liviu Iordache, PG
Principal



Azza Hamad, PE
Project Engineer

PAYROLL ESCALATION TABLE FIXED RAISES

FIRM NAME Wang Engineering, Inc.
 PRIME/SUPPLEMENT PRIME
 Prepared By Azza Hamad

DATE 02/22/19
 PTB-ITEM# 185

CONTRACT TERM 18 MONTHS
 START DATE 3/1/2019
 RAISE DATE 1/1/2020
 END DATE 8/31/2020

OVERHEAD RATE 134.05%
 COMPLEXITY FACTOR 0
 % OF RAISE 2%

ESCALATION PER YEAR

year	First date	Last date	Months	% of Contract
0	3/1/2019	1/1/2020	10	55.56%
1	1/2/2020	9/1/2020	8	45.33%

The total escalation = 0.89%

PAYROLL RATES

FIRM NAME
PRIME/SUPPLEMENT
PTB-ITEM #

Wang Engineering, Inc. DATE
PRIME
185

02/22/19

ESCALATION FACTOR 0.89%

Note: Rates should be capped on the AVG 1 tab as necessary

CLASSIFICATION	IDOT PAYROLL RATES ON FILE	CALCULATED RATE
Principal in Charge	\$70.00	\$70.00
Project Manager	\$62.97	\$63.53
Senior Engineer	\$62.97	\$63.53
Project Engineer/Project Geologist	\$38.42	\$38.76
Assistant Engineer/Assistant Geologist	\$26.58	\$26.82
Laboratory Technician	\$26.28	\$26.51
Administrative Assistant	\$34.60	\$34.91
QC/QA Reviewer	\$70.00	\$70.00

COST PLUS FIXED FEE COST ESTIMATE OF CONSULTANT SERVICES

Bureau of Design and Environment

Prepared By: Consultant

FIRM
PTB-ITEM #
PRIME/SUPPLEMENT

Wang Engineering, Inc.
185
PRIME

OVERHEAD RATE 134.05%
COMPLEXITY FACTOR 0

DATE 02/22/19

DBE DROP BOX	ITEM	MANHOURS (A)	PAYROLL (B)	OVERHEAD & FRINGE BENF (C)	DIRECT COSTS (D)	FIXED FEE (E)	SERVICES BY OTHERS (G)	DBE TOTAL (H)	TOTAL (B-G)	% OF GRAND TOTAL
DBE	Desk Study, Site Access & Permitting	9	289	388		95		772	772	1.06%
DBE	Field Activities	74	2,032	2,724	42,643	671		48,070	48,070	66.12%
DBE	Laboratory Testing		-	-	4,860			4,860	4,860	6.68%
DBE	Data Analysis & Engineering	83	3,080	4,129		1,016		8,225	8,225	11.31%
DBE	Report Preparation	65	3,111	4,171		1,027		8,309	8,309	11.43%
DBE	Project Management	15	924	1,239		305		2,468	2,468	3.39%
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Name: Russel Road Intersection Improvements
Project: NA
Contract/Job: NA

Date: 02/21/2019
Wang No.: P190131

Task Description	Units	Unit Price	Extended Cost
DRILLING, SAMPLING & INSITU TESTING			
Drilling Coordination, Utilities Clearance, Site Access, Permitting	2 Hours	\$98.76 /Hour	\$172.83
Mobilization	0	\$1,400.00 /Each	\$0.00
Stand-by Hourly Rate	0 Hours	\$400.00 /Hour	\$0.00
<u>Drilling & Sampling - Hourly (SPT, Penetrometer, Rimac, Visual Classification Included)</u>			
Two-man crew - normal working hrs	56 Hours	\$400.00 /Hour	\$22,400.00
Two-man crew - overtime (2 hrs per day)	14 Hours	\$450.00 /Hour	\$6,300.00
Two-man crew and field supervisor- normal working hrs	0 Hours	\$480.00 /Hour	\$0.00
Two-man crew and field supervisor - overtime (2 hrs per day)	0 Hours	\$530.00 /Hour	\$0.00
<u>Hand Augering, Pavement/ Deck Coring & Testing</u>			
Two-man crew and equipment	0 Hours	\$400.00 /Hour	\$0.00
Asbestos content testing on deck cores	0 Tests	\$175.00 /Test	\$0.00
<u>Surveying of Boring Locations (Two-man crew)</u>	0 Hours	\$205.00 /Hour	\$0.00
<u>Monitoring Well or Incliner Installation</u>			
<u>2.0- or 4-inch monitoring wells</u>			
Two-man crew - normal working hours	0.0 Hours	\$400.00 /Hour	\$0.00
Two-man crew - overtime (2 hours per day)	0.0 Hours	\$450.00 /Hour	\$0.00
<u>Incliner casing installation</u>			
Two-man drilling crew - normal working hours	0.0 Hours	\$400.00 /Hour	\$0.00
Two-man crew - overtime (2 hours per day)	0.0 Hours	\$450.00 /Hour	\$0.00
<u>Other items</u>			
55 gallon dot containment drums	0 Drums	\$42.00 /Drum	\$0.00
Digital datalogger and barometer	0 Each	\$1,300.00 /Each	\$0.00
Well and Casing Materials	At Cost		\$0.00
<u>Drilling and Sampling - per Foot (SPT, Penetrometer, Rimac, Visual Classification Included)</u>			
Between 0 and 75 feet	0.0 Feet	\$39.00 /Foot	\$0.00
Between 75 and 150 feet	0.0 Feet	\$55.00 /Foot	\$0.00
Drill without sampling	0.0 Feet	\$28.00 /Foot	\$0.00
Shelby tube samples	0 Samples	\$85.00 /Sample	\$0.00
Rock core setup	0 Setups	\$403.00 /Setup	\$0.00
Set casing and rock coring	0.0 Feet	\$85.00 /Foot	\$0.00
Borehole backfilling	0.0 Feet	\$11.00 /Foot	\$0.00
Pavement patching	0 Patches	\$22.00 /Each	\$0.00
Drilling crew daily travel	0 Days	\$200.00 /Day	\$0.00
<u>Other Insitu Tests</u>			
Pressuremeter testing	0 Days	\$2,500.00 /Day	\$0.00
Vane shear	0 Tests	\$200.00 /Test	\$0.00
Dilatometer testing	At Cost		\$0.00
Cone penetration testing (CPT/CPTu)	At Cost		\$0.00
Photoionization detector (PID)	0 Days	\$100.00 /Day	\$0.00
Double ring infiltrometer test (ASTM D3385)	0 Tests	\$1,117.00 /Test	\$0.00
Single ring infiltrometer test (Chicago Stormwater Ordinance)	0 Tests	\$608.00 /Test	\$0.00
<u>Boring Location Accessibility, Railroad Fees, State/County/Municipal Fees, Barge Drilling</u>			
Private utility determination	At Cost		\$0.00
Tree clearance	At Cost		\$0.00
Guardrail removal and replacement	At Cost		\$0.00
Dozer / equipment rental	At Cost		\$0.00
Railroad permitting	At Cost		\$0.00
Railroad protective insurance	At Cost		\$0.00
Railroad flagman	At Cost		\$0.00
Pavement opening permit	At Cost		\$0.00
State/municipal insurance and bonding	At Cost		\$0.00
Barge drilling on a navigable waterway	At Cost		\$0.00
			\$28,872.83

Name: Russel Road Intersection Improvements
Project: NA
Contract/Job: NA

Date: 02/21/2019
Wang No.: P190131

Task Description			Units	Unit Price	Extended Cost
LABORATORY TESTING					
T265	D2216	Water Content	198 Tests	\$9.80 /Test	\$1,940.40
--	D7263	Unit Weight (Density)	0 Tests	\$36.00 /Test	\$0.00
T100	D854	Specific Gravity	0 Tests	\$66.00 /Test	\$0.00
--	D4972	pH of Soil	0 Tests	\$59.00 /Test	\$0.00
T267	D2974	Organic Content by LOI	0 Tests	\$60.00 /Test	\$0.00
T194	--	Organic Content by Wet Combustion	4 Tests	\$133.00 /Test	\$532.00
<u>Particle Size Distribution</u>					
T88	D422	Sieve Analysis	0 Tests	\$77.00 /Test	\$0.00
T88	D422	Combined Sieve and Hydrometer	12 Tests	\$122.00 /Test	\$1,464.00
--	D1140	Percent Finer than No. 200 Sieve	0 Tests	\$50.00 /Test	\$0.00
<u>Atterberg Limits</u>					
T89, T90	D4318	Liquid and Plastic Limits	12 Tests	\$77.00 /Test	\$924.00
T92	D427	Shrinkage Factors	0 Tests	\$90.00 /Test	\$0.00
<u>Classification of Soils</u>					
--	D2488	Visual Manual	0 Samples	\$19.00 /Sample	\$0.00
--	D2487	Unified Soil Classification System	0 Samples	\$195.00 /Sample	\$0.00
M145	--	AASHTO Classification	0 Samples	\$195.00 /Sample	\$0.00
--	--	USDA Classification	0 Samples	\$122.00 /Sample	\$0.00
<u>Soil Settlement, Swelling, and Collapse Potential</u>					
T216	D2435	One-Dimensional Consolidation	0 Tests	\$556.00 /Test	\$0.00
--	D4546	One-Dimensional Swell	0 Tests	\$540.00 /Test	\$0.00
--	D5333	Collapse Potential	0 Tests	\$300.00 /Test	\$0.00
<u>Shear Strength of Soil</u>					
		Rimac Unconfined Compressive Strength	0 Tests	\$14.50 /Test	\$0.00
T208	D2166	Unconfined Compressive Strength	0 Tests	\$81.00 /Test	\$0.00
T236	D3080	Direct Shear of Soils (3 points)	0 Tests	\$715.00 /Test	\$0.00
T296	D2850	UU Triaxial Compression (3 points)	0 Tests	\$335.00 /Test	\$0.00
T297	D4767	CU Triaxial Compression (3 points)	0 Tests	\$1,100.00 /Test	\$0.00
T297	D4767	CD Triaxial Compression (3 points)	0 Tests	\$1,100.00 /Test	\$0.00
	D7012	Peak Uniaxial Compressive Strength of Rock Core	0 Tests	\$163.00 /Test	\$0.00
<u>Laboratory Compaction Tests</u>					
T99	D698	Moisture-Density of Soils (Standard Effort)	0 Tests	\$200.00 /Test	\$0.00
T180	D1557	Moisture-Density of Soils (Modified Effort)	0 Tests	\$210.00 /Test	\$0.00
T193	--	Illinois Bearing Ratio (1 point)	0 Tests	\$500.00 /Test	\$0.00
T193	D1883	California Bearing Ratio (3 points)	0 Tests	\$920.00 /Test	\$0.00
<u>Coefficient of Permeability</u>					
T215	D2434	Hydraulic Conductivity (Constant Head)	0 Tests	\$450.00 /Test	\$0.00
--	D5084	Hydraulic Conductivity (Flexible Wall)	0 Tests	\$475.00 /Test	\$0.00
<u>Additional Sample Preparation Procedures</u>					
		Removal of Organic Matter	0 Samples	\$87.00 /Sample	\$0.00
		Extrusion & Preservation of Undisturbed Samples	0 Samples	\$28.00 /Sample	\$0.00
		Logging & Classification of Undisturbed Samples	0 Samples	\$65.00 /Sample	\$0.00
		Remolding and Trimming of Samples	0 Samples	\$62.00 /Sample	\$0.00
<u>Planting Soil Mix Testing</u>					
<i>Chemical Analyses & Mitigation Recommendations (300 g sample required)</i>					
		pH, CEC, Soluble Salts, OM, P, K, Other Nutrients	0 Tests	\$115.00 /Test	\$0.00
		Residual Chemicals, Herbicides Full Screen	0 Tests	\$645.00 /Test	\$0.00
<i>Mechanical Analyses & Mitigation Recommendations (1,000 g sample required)</i>					
T88	D422	Combined Sieve and Hydrometer	0 Tests	\$122.00 /Test	\$0.00
<u>Analytical Laboratory Services - for CCDD</u>					
		Volatile Organic Components (VOC)	0 No	\$200.00 /Each	\$0.00
		SemiVOC including PNA's	0 No	\$335.00 /Each	\$0.00
		PCB	0 No	\$135.00 /Each	\$0.00
		Total Metals	0 No	\$210.00 /Each	\$0.00
		PH Determination	0 No	\$23.00 /Each	\$0.00
<u>Corrosion Testing</u>					
		(Resistivity, Chlorides, pH, Redox, and Sulfates)	0 No	\$330.00 /Each	\$0.00
					\$ 4,860.40

Name: Russel Road Intersection Improvements
Project: NA
Contract/Job: NA

Date: 02/21/2019
Wang No.: P190131

Task Description	Units	Unit Price	Extended Cost
TRAFFIC CONTROL			
<u><i>Expressway (1/2 mile)</i></u>			
Shoulder Closure	0.0 No.	\$1,200.00 /Each	\$0.00
One-lane Closure	0.0 No.	\$3,200.00 /Each	\$0.00
Two-lane Closure	0.0 No.	\$3,400.00 /Each	\$0.00
Three-lane Closure	0.0 No.	\$3,650.00 /Each	\$0.00
Ramp Closure	0.0 No.	\$1,250.00 /Each	\$0.00
Additional 1/2 mile	0.0 No.	\$100.00 /Each	\$0.00
<u><i>Arterial (1/2 mile)</i></u>			
Shoulder Closure	0.0 No.	\$1,000.00 /Each	\$0.00
One-lane Closure	0.0 No.	\$1,100.00 /Each	\$0.00
Two-lane Closure	0.0 No.	\$1,200.00 /Each	\$0.00
Detour	0.0 No.	\$1,100.00 /Each	\$0.00
U-2	0.0 No.	\$1,200.00 /Each	\$0.00
Additional 1/2 mile	0.0 No.	\$100.00 /Each	\$0.00
<u><i>Truck with Driver</i></u>			
Port-to-Port	20.0 Hours	\$200.00 /Hour	\$4,000.00
<u><i>Roadway Flagmen (two-man crew)</i></u>			
Port-to-Port	50.0 Hours	\$185.00 /Hour	\$9,250.00
			\$ 13,250.00
FIELD VEHICLES & MILEAGE			
<u><i>Field Vehicle</i></u>			
Field Vehicle Mileage (>100 Miles per Day)	0.0 Miles	\$0.535 /Mile	\$0.00
Field Vehicle Daily (<100 Miles per Day)	8 Days	\$65.00 /Day	\$520.00
			\$ 520.00
OUT-OF-TOWN EXPENSES			
<u><i>Lodging</i></u>			
	0 Days	\$100.00 /Day	\$0.00
<u><i>Per Diem</i></u>			
	0 Days	\$50.00 /Day	\$0.00
			\$ -



GEOTECHNICAL SERVICES
UNIT PRICES
2018



Name: Russel Road Intersection Improvements
Project: NA
Contract/Job: NA

Date: 02/21/2019
Wang No.: P190131

Task Description	Units	Unit Price	Extended Cost
SUMMARY			
<i>DRILLING, SAMPLING & INSITU TESTING</i>			\$28,872.83
<i>LABORATORY TESTING</i>			\$4,860.40
<i>TRAFFIC CONTROL</i>			\$13,250.00
<i>FIELD VEHICLES & MILEAGE</i>			\$520.00
<i>OUT-OF-TOWN EXPENSES</i>			\$0.00
			\$ 47,503.23

**Environmental and Drone Services
(HLR)**



Hampton, Lenzini and Renwick, Inc.

Civil Engineers • Structural Engineers • Land Surveyors • Environmental Specialists
www.hlrengineering.com

Russel Road Environmental Scope

The environmental scope is included below. We have separated out the additional hours for the tree survey, wetland delineation and PESA that would be required for the additional area associated with the McCrory bike path on the CECS form.

Task 1: Tree Survey and Memorandum

A Certified Arborist will conduct a tree survey of all trees 6 inches and greater within the project limits. All trees will be tied with ribbons and numbered accordingly to be surveyed by others. We will identify all trees by type, diameter, health and structure. During the tree survey we will evaluate potential bat habitat. The finding of the tree survey will be summarized in a tree memorandum.

Task 2: Wetland Delineation and Report

HLR will perform a formal wetland delineation of the proposed project area. The wetland delineation will be conducted to meet the requirements of Executive Order 11990, "Protection of Wetlands", Section 404 of the Federal Water Pollution Control Act as amended by the Clean Water Act (Corps of Engineers, Section 404 Permit), and Illinois Environmental Protection Agency (IEPA Section 401 Guidelines) regulations. These regulations pertain to the placement of fill or alterations of drainage within wetlands of any type and apply to private as well as publicly owned wetlands. The investigation will meet the requirements of these regulations by identifying the type, functions, and boundary of the involved wetlands.

"Wetlands" are defined by the U.S. Army Corps of Engineers (USACE) for jurisdictional purposes as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 323.3(c)).

HLR will conduct a map review of the project. The following maps and documents will be reviewed prior to conducting the field investigation:

- U.S. Geological Survey Topographic Maps
- National Wetlands Inventory Maps
- Lake County Advanced Identification (ADID) Maps
- USDA Soil Survey
- Hydric Soils of the United States
- Regulatory Flood Map

It appears from a cursory map review that approximately 15 wetlands are mapped on the Lake County Wetland and National Wetland Inventory Maps associated with the Kilbourne, Kenosha and Lewis Avenue intersections with Russell Road as well for the areas associated with the McCrory bike path.

The field investigation will be conducted by our environmental personnel who are experienced in Federal methods for conducting wetland delineations. Our staff will classify and define hydric soils, hydrophytic vegetation, and evidence of hydrology to determine if wetlands are present. The wetland perimeter (s) will be staked and surveyed. Wetland boundary stake locations will be surveyed using a handheld Trimble R1 GNSS receiver.

Wetlands found will be classified according to type using the "Classification of Wetlands and Deep Water Habitats of the United States" by Cowardin. Wetland boundaries will be defined in accordance with the Corps of Engineers Wetlands Delineation Manual: Midwest Region. This includes a soil investigation to determine the presence or absence of hydric soils and an analysis of the dominant plant species. Field observations will be made on any evidence indicating the hydrology of the area and on water sources that are supporting these wetlands. Functions of these wetlands will be evaluated from field observations.

A farmed wetland determination will be required for the portion of the project that is used for agricultural purposes which would include the southwest corner of Kilbourne and Russell Road. Farmed wetland areas are determined according to National Food Security Act Methodology (NFSAM). This requires areas that are currently or have recently been farmed (within 5 years) to be reviewed as potential farmed wetland areas. Aerial photographs are reviewed for wetland signatures, and areas that appear in more than fifty (50) percent of reviewed aeriels are verified in the field.

A wetland delineation letter report will be prepared summarizing the findings of the fieldwork. Included in the report will be the required wetland delineation data sheets that summarize the findings of the field investigation as well as figures that detail the maps reviewed and current wetland boundaries of the site.

It appears that the project area involves two USACE Districts: Chicago (Illinois portion) and St. Paul (Wisconsin portion).

We have included in this task a jurisdictional determination to be completed on the wetlands delineated, assuming one JD for the Chicago District and one JD for the St. Paul District.

Task 3: Preliminary Environmental Site Assessment

This scope includes completing a Preliminary Environmental Site Assessment. The PESA will be prepared using historical and geological information. The specific methods used to conduct the assessment are contained in 1) ASTM Standards E1527-13, 2) A Manual for Conducting Preliminary Environmental Site Assessments for Illinois Department of Transportation Highway Projects (Erdmann et al., 2012), 3) Special Wastes Procedures for Local Highway Improvements (IDOT Local Roads Manual, July 22, 2004), and 4) "IDOT Bureau of Design and Environment Manual (BDE Manual), Section 27-3.03 (b), October 2015). The PESA will include a database search, review of historical records, an on-site evaluation, and review of other project conditions that may give us insight into the existing environmental conditions along the route.

Once the review has been completed, a written report will be completed and submitted as documentation to the on-site analysis. This report will accompany various site photographs, maps, and the above referenced documentation, which will be utilized to assist the project evaluation and any applicable recommendations.

Task 4: Drone flights for video

Scope includes an HLR employee that is Part 107 licensed to visit the site 9 times to take approximately 1 hour of video at 3 the three different intersections at 3 different times of day. Video will be recorded from a height no greater than 350 feet above ground level. Flights will be on days that weather conditions are deemed suitable by the HLR employee that is Part 107 licensed. Raw video files split into approximately 20-minute intervals will be delivered in 1080p format on external hard drives or USB sticks.

Task 5: Coordination

HLR will plan to attend the pre-application meeting with the County and other involved agencies. HLR will also plan to attend 3 public meetings.

PAYROLL ESCALATION TABLE FIXED RAISES

FIRM NAME Hampton, Lenzini and Renwic
 PRIME/SUPPLEMENT N/A
 Prepared By Erica Spolar

DATE 03/15/19
 PTB-ITEM# 1

CONTRACT TERM 18 MONTHS
 START DATE 3/1/2019
 RAISE DATE 1/1/2020
 END DATE 8/31/2020

OVERHEAD RATE 159.00%
 COMPLEXITY FACTOR 0
 % OF RAISE 3%

ESCALATION PER YEAR

year	First date	Last date	Months	% of Contract
0	3/1/2019	1/1/2020	10	55.56%
1	1/2/2020	9/1/2020	8	45.78%

The total escalation = 1.33%

PAYROLL RATES

FIRM NAME Hampton, Lenzini and Re **DATE** 03/15/19
PRIME/SUPPLEMENT N/A
PTB-ITEM # 1

ESCALATION FACTOR **1.33%**

Note: Rates should be capped on the AVG 1 tab as necessary

CLASSIFICATION	IDOT PAYROLL RATES ON FILE	CALCULATED RATE
Principal	\$70.00	\$70.93
Engineer 6	\$57.75	\$58.52
Engineer 5	\$50.97	\$51.65
Engineer 4	\$48.00	\$48.64
Engineer 3	\$41.33	\$41.88
Engineer 2	\$33.56	\$34.01
Engineer 1	\$26.79	\$27.15
Technican 3	\$40.83	\$41.37
Technican 2	\$34.75	\$35.21
Technican 1	\$24.83	\$25.16
Intern/Temporary	\$15.00	\$15.20
Land Acquisition	\$41.17	\$41.72
Survey 2	\$41.83	\$42.39
Survey1	\$33.63	\$34.08
Environmental 2	\$43.00	\$43.57
Environmental 1	\$22.75	\$23.05
Administration 2	\$41.00	\$41.55
Administration 1	\$20.79	\$21.07
Structural 2	\$63.17	\$64.01
Structural 1	\$49.63	\$50.29

AVERAGE HOURLY PROJECT RATES

FIRM Hampton, Lenzini and Renwick, Inc.
PTB-ITEM# 1
PRIME/SUPPLEMENT N/A

DATE 03/15/19

PAYROLL CLASSIFICATION	AVG HOURLY RATES	Project Administration			Tree Survey and Memorandum			Wetland Delineation and Repo			PESA - bikepath location			Drone Flights			Drone Data processing		
		Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg	Hours	% Part.	Wgt'd Avg
Principal	70.00																		
Engineer 6	58.52	12	100.00%	58.52									18	100.00%	58.52	4	100.00%	58.52	
Engineer 5	51.65																		
Engineer 4	48.64																		
Engineer 3	41.88																		
Engineer 2	34.01																		
Engineer 1	27.15																		
Technican 3	41.37																		
Technican 2	35.21																		
Technican 1	25.16							1	3.45%	0.87	1	5.88%	1.48						
Intern/Temporary	15.20																		
Land Acquisition	41.72																		
Survey 2	42.39																		
Survey1	34.08																		
Environmental 2	43.57				30	50.00%	21.79	14	48.28%	21.04	8	47.06%	20.51						
Environmental 1	23.05				30	50.00%	11.53	14	48.28%	11.13	8	47.06%	10.85						
Administration 2	41.55																		
Administration 1	21.07																		
Structural 2	64.01																		
Structural 1	50.29																		
TOTALS		12.0	100%	\$58.52	60.0	100%	\$33.31	29.0	100%	\$33.03	17.0	100%	\$32.83	18.0	100%	\$58.52	4.0	100%	\$58.52

PROJECT Direct Cost

Item			Cost	Unit	Total	Subtotal
Tree Survey and Memorandum						
Mileage	4 Trips @	143 Miles round trip	0.58	\$/Mile	\$ 331.76	
GPS	2 day		100	\$/day	\$ 200.00	
						\$ 531.76
Wetland Delineation and Report						
Mileage	4 Trips @	143 Miles round trip	0.58	\$/Mile	\$ 331.76	
GPS	2 day		100	\$/day	\$ 200.00	
Historic Aerials					\$ 110.00	
						\$ 641.76
PESA						
Mileage	1 Trips @	143 Miles round trip	0.58	\$/Mile	\$ 82.94	
Database Report (EDR)	3	reports	400	\$/Report	\$ 1,200.00	
						\$ 1,282.94
Drone Flights						
Mileage	4 Trips @	143 Miles round trip	0.58	\$/Mile	\$ 331.76	
						\$ 331.76
Drone Data processing						
						Total Direct Cost \$ 2,788.22
						In-house Direct Cost \$ 1,488.22
						Outside Direct Cost \$ 1,300.00

Note Red items are Outside Direct Costs

**Traffic Counts
(GHA)**

January 29, 2019

Matthew J. Smith, P.E.
Assistant Vice President
TranSystems
1475 East Woodfield Road, Suite 600
Schaumburg, IL 60173-5440

Re: Agreement for Professional Services
Traffic Data Collection – Turning Movement Counts
Russell Road
GHA Proposal No. 2019.D025

Dear Mr. Smith:

Gewalt Hamilton Associates, Inc., (GHA) is pleased to submit our proposal for traffic data collection services for the above referenced project.

Our proposal is based on GHA's understanding of the project based on our recent correspondence with you.

If our proposal is acceptable, please sign and return one complete copy to our office. Should you have any questions or if we can be of additional assistance, please feel free to contact me at (847) 478-9700 x 6221.

Sincerely,
Gewalt Hamilton Associates, Inc.



Associate/Senior Engineer
Director – Data Collection Division
apenn@gha-engineers.com

Encl.: GHA Proposal No. 2019.D025

Agreement for Professional Services
Traffic Data Collection – Turning Movement Counts
Russell Road
GHA Proposal No. 2019.D025

TranSystems, 1475 East Woodfield Road, Suite 600, Schaumburg, IL 60173-5440, and Gewalt Hamilton Associates, Inc. (GHA), 625 Forest Edge Drive, Vernon Hills, IL 60061, agree and contract as follows:

I. Project Understanding

TranSystems is requesting three (3) Turning Movement Counts (TMC's) on Russell Road in Lake County, Illinois, over the span of 5.5 days (132 hours total, per location). Three (3) days (72 hours) will take place on a Tuesday, Wednesday, and Thursday (consecutively). The weekend counts will start on a Friday evening and end on a Monday morning (60 hours).

Vehicle classifications consist of lights, mediums, and articulated trucks, with bicycles and pedestrians at the crosswalks. All locations will be counted on the same days.

II. Traffic Data Collection Services

GHA will provide the counts at the following locations based on the email received from TranSystems dated January 29, 2019. Please refer to the attached Exhibit A – Location Map:

A. TMC's

1. Russell Rd & Kilbourne Rd
2. Russell Rd & Kenosha
3. Russell Rd & Lewis

Collection Details

- Weekday (T-TH)
 - 12AM – 12 AM
 - 72 hours
- Weekend (F-M)
 - 6PM (Friday) – 6AM (Monday)
 - 60 hours
- Lights / Mediums / Articulated Trucks

Deliverables

- Studies will be shared via Miovision DataLink

III. Project Schedule

GHA will schedule the work within two weeks of written authorization to proceed, weather permitting.

Data collection will be processed for 72-hour turn-around through Miovision and will be provided to the Client, via DataLink, as soon as it is available.

IV. Key Personnel

Mr. Arthur J. Penn, P.E., an Associate of the firm and Senior Engineer, will function as the Project Manager. Mr. Penn has managed numerous similar data collection efforts. He will be assisted by additional professional and technical staff.

V. Compensation for Services

GHA proposes to complete the above work for a lump sum fee as outlined below.

<u>TMC's w bikes/peds at Crosswalks</u>	<u>Fee</u>
Weekday: 3 locations x 72 hours (\$60/hr)	\$12,960.00
24-Hour 25% Off Incentive	<i>-\$3,240.00</i>
<u>Crosswalks: 3 locations x 72 (\$3/hr)</u>	<u>\$648.00</u>
Weekday Total	\$10,368.00
Weekend: 3 locations x 60 hours (\$60/hr)	\$10,800.00
24-Hour 25% Off Incentive	<i>-\$2,700.00</i>
<u>Crosswalks: 3 locations x 60 (\$3/hr)</u>	<u>\$540.00</u>
Weekend Total	\$8,640.00
Total Lump Sum Fee	\$19,008.00

The proposed fee includes all necessary equipment and deployment. Reimbursable expenses, including items such as photos, postage, messenger services, printing, mileage, etc., are included in the fee indicated above. An invoice will be submitted upon completion of the study and will detail charges made against the project and services provided.

Please note that our proposal assumes the study will be completed within one deployment. If multiple deployments are requested, an adjustment to the fee will be necessary. GHA will provide the Client a written estimate of any additional fees prior to commencing with such work.

Any additional services requested and authorized by the Client will be billed on a time-and-materials (T&M) basis in accordance with the attached *GHA Hourly Rates*.


Any required permits, if needed, from applicable regulatory agencies are to be obtained by the Client prior to the study date.

VI. Authorization

By signing below you indicate your acceptance of this Agreement in its entirety.

Gewalt Hamilton Associates, Inc.

TranSystems



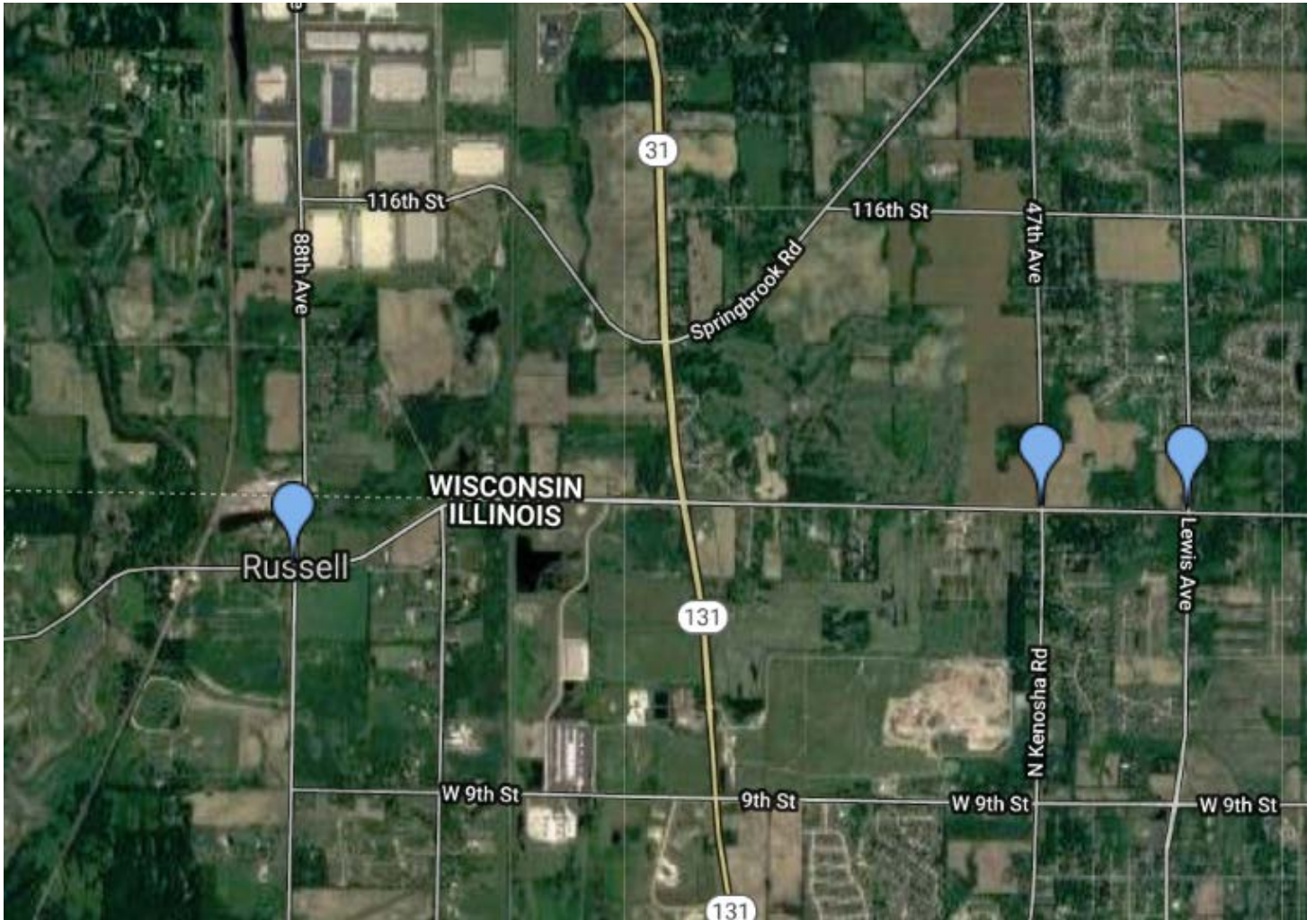
Arthur J. Penn, P.E.
Associate / Senior Engineer
Director – Data Collection Division

Matthew J. Smith, P.E.
Assistant Vice President

Date: _____

Encl.: Exhibit A – Location Map
GHA Hourly Rates

Exhibit A



Hourly Billing Rates Gewalt Hamilton Associates, Inc.

The following rates will remain in effect until December 31, 2019, at which time they are subject to an annual increase.

Category	Rates
Principal	\$208.00
Civil Engineer VI	\$178.00
Civil Engineer V	\$176.00
Civil Engineer IV	\$174.00
Civil Engineer III	\$154.00
Civil Engineer II	\$144.00
Civil Engineer I	\$124.00
Land Surveyor IV	\$146.00
Land Surveyor III	\$128.00
Land Surveyor II	\$122.00
Land Surveyor I	\$116.00
Engineering Technician V	\$174.00
Engineering Technician IV	\$130.00
Engineering Technician III	\$120.00
Engineering Technician II	\$106.00
Engineering Technician I	\$78.00
GIS Professional II	\$134.00
GIS Professional I	\$126.00
Environmental Consultant II	\$130.00
Environmental Consultant I	\$120.00
Administrative I	\$64.00

Services provided under this Agreement will be billed according to the rates in effect at the time services are rendered.

EXHIBIT E
DIRECT COSTS

EXHIBIT E
Direct Cost Summary

1.	<u>Project Coordination</u>				
	Mileage				
		45 trips @	60 miles/trip	\$ 0.585 /mile	\$ 1,580
	Parking				
		12 meetings @		\$ 40.00 /meeting	\$ 480
	FedEx/Messenger Service				
		12 deliveries @		\$ 25.00 /delivery	\$ 300
				Subtotal	<u>\$ 2,360</u>
2.	<u>Data Collection</u>				
	Mileage				
		2 trips @	120 miles/trip	\$ 0.585 /mile	\$ 140
				Subtotal	<u>\$ 140</u>
3.	<u>Field Surveys</u>				
	Mileage				
		6 trips @	120 miles/trip	\$ 0.585 /mile	\$ 421
				Subtotal	<u>\$ 421</u>
9.	<u>Safety Studies</u>				
	Mileage				
		3 trips @	120 miles/trip	\$ 0.585 /mile	\$ 211
				Subtotal	<u>\$ 211</u>
12.	<u>Public Involvement</u>				
	Mileage				
		35 trips @	120 miles/trip	\$ 0.585 /mile	\$ 2,457
	Printing Exhibits				
		3 meetings @	25 exhibits/mtg	\$ 100.00 /exhibit	\$ 7,500
	Postage				
		3 meetings @	300 mailings/mtg	\$ 0.60 /stamp	\$ 540
	Room Reservation				
		3 meetings @		\$ 500.00 /meeting	\$ 1,500
	Parking				
		3 meetings @		\$ 40.00 /meeting	\$ 120
				Subtotal	<u>\$ 12,117</u>
14.	<u>Project Development Report</u>				
	FedEx/Messenger Service				
		8 deliveries @		\$ 25.00 /delivery	\$ 200
				Subtotal	<u>\$ 200</u>
				TOTAL DIRECT COSTS	<u><u>\$ 15,449</u></u>