



Using Federal Funds? ☐ Yes ☒ No Agreement For  
MFT PE

Agreement Type  
Original

LOCAL PUBLIC AGENCY

Local Public Agency	County	Section Number	Job Number
Lake County Division of Transportation	Lake	19-00999-65-ES	N/A
Project Number	Contact Name	Phone Number	Email
N/A	Kevin Carrier, P.E.	(847) 377-7448	kcarrier@lakecountyil.gov

SECTION PROVISIONS

Local Street/Road Name	Key Route	Length	Structure Number
Old McHenry Rd	CH32	2.1 Miles	N/A
Location Termini			
Abbey Glenn Drive to Bonnie Lane			
<div>Add Location</div> <div>Remove Location</div>			

SECTION PROVISIONS

Local Street/Road Name	Key Route	Length	Structure Number
Quentin Road	CH5	1.5 Miles	N/A
Location Termini			
Old McHenry Road to IL Route 22			
<div>Add Location</div> <div>Remove Location</div>			

Project Description  
Evaluate Old McHenry Rd and Quentin Road for widening and reconstruction, non-motorized improvements, and intersection or realignment alternatives. A grade separation of Old McHenry Road at the Canadian National railroad tracks will also be evaluated.

Engineering Funding ☒ MFT/TBP ☐ State ☐ Other Rebuild Illinois Bonds  
Anticipated Construction Funding ☒ Federal ☒ MFT/TBP ☒ State ☒ Other ICC and Railroad

AGREEMENT FOR

☒ Phase I - Preliminary Engineering ☐ Phase II - Design Engineering

CONSULTANT

Consultant (Firm) Name	Contact Name	Phone Number	Email
TranSystems Corporation	Matt Smith, P.E.	(847) 407-5300	mjsmith@transystems.com
Address	City	State	Zip Code
1475 East Woodfield Road, Suite 600	Schaumburg	IL	60173

THIS AGREEMENT IS MADE between the above Local Public Agency (LPA) and Consultant (ENGINEER) and covers certain professional engineering services in connection with the improvement of the above SECTION. Project funding allotted to the LPA 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.

Since the services contemplated under the AGREEMENT are professional in nature, it is understood that the ENGINEER, acting as an individual, partnership, firm or legal entity, qualifies for professional status and will be governed by professional ethics in its relationship to the LPA and the DEPARTMENT. The LPA acknowledges the professional and ethical status of the ENGINEER by entering into an AGREEMENT on the basis of its qualifications and experience and determining its compensation by mutually satisfactory negotiations.

WHEREVER IN THIS AGREEMENT or attached exhibits the following terms are used, they shall be interpreted to mean:

Regional Engineer	Deputy Director, Office of Highways Project Implementation, Regional Engineer, Department of Transportation
Resident Construction Supervisor	Authorized representative of the LPA in immediate charge of the engineering details of the construction PROJECT
In Responsible Charge Contractor	A full time LPA employee authorized to administer inherently governmental PROJECT activities Company or Companies to which the construction contract was awarded

#### AGREEMENT EXHIBITS

The following EXHIBITS are attached hereto and made a part of hereof this AGREEMENT:

- ☒ EXHIBIT A: Scope of Services
- ☒ ~~EXHIBIT B: Project Schedule~~
- ☒ ~~EXHIBIT C: Direct Costs Check Sheet~~
- ☒ EXHIBIT B: Qualification Based Selection (QBS) Checklist
- ☒ ~~EXHIBIT E: Cost Estimate of Consultant Services Worksheet (BLR 05540 or BLR 05544)~~
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

#### I. THE ENGINEER AGREES,

1. To perform or be responsible for the performance of the Scope of Services presented in EXHIBIT A for the LPA in connection with the proposed improvements herein before described.
2. The Classifications of the employees used in the work shall be consistent with the employee classifications and estimated staff hours. If higher-salaried personnel of the firm, including the Principal Engineer, perform services that are to be performed by lesser-salaried personnel, the wage rate billed for such services shall be commensurate with the payroll rate for the work performed.
3. That the ENGINEER shall be responsible for the accuracy of the work and shall promptly make necessary revisions or corrections required as a result of the ENGINEER'S error, omissions or negligent acts without additional compensation. Acceptance of work by the LPA or DEPARTMENT will not relieve the ENGINEER of the responsibility to make subsequent correction of any such errors or omissions or the responsibility for clarifying ambiguities.
4. That the ENGINEER will comply with applicable Federal laws and regulations, State of Illinois Statutes, and the local laws or ordinances of the LPA.
5. To pay its subconsultants for satisfactory performance no later than 30 days from receipt of each payment from the LPA.
6. To invoice the LPA, The ENGINEER shall submit all invoices to the LPA within three months of the completion of the work called for in the AGREEMENT or any subsequent Amendment or Supplement.
7. The ENGINEER or subconsultant shall not discriminate on the basis of race, color, national origin or sex in the performance of this AGREEMENT. The ENGINEER shall carry out applicable requirements of 49 CFR part 26 in the administration of US Department of Transportation (US DOT) assisted contract. Failure by the Engineer to carry out these requirements is a material breach of this AGREEMENT, which may result in the termination of this AGREEMENT or such other remedy as the LPA deems appropriate.
8. That none of the services to be furnished by the ENGINEER shall be sublet, assigned or transferred to any other party or parties without written consent of the LPA. The consent to sublet, assign or otherwise transfer any portion of the services to be furnished by the ENGINEER shall be construed to relieve the ENGINEER of any responsibility for the fulfillment of this AGREEMENT.
9. For Preliminary Engineering Contracts:
  - (a) To attend meetings and visit the site of the proposed improvement when requested to do so by representatives of the LPA or the DEPARTMENT, as defined in Exhibit A (Scope of Services).
  - (b) That all plans and other documents furnished by the ENGINEER pursuant to the AGREEMENT will be endorsed by the ENGINEER and affixed the ENGINEER's professional seal when such seal is required by law. Such endorsements must be made by a person, duly licensed or registered in the appropriate category by the Department of Professional Regulation of the State of Illinois. It will be the ENGINEER's responsibility to affix the proper seal as required by the Bureau of Local Roads and Streets manual published by the DEPARTMENT.
  - (c) That the ENGINEER is qualified technically and is thoroughly conversant with the design standards and policies applicable for the PROJECT; and that the ENGINEER has sufficient properly trained, organized and experienced personnel to perform the services enumerated in EXHIBIT A (Scope of Services).
10. That the engineering services shall include all equipment, instruments, supplies, transportation and personnel required to perform the duties of the ENGINEER in connection with this AGREEMENT (See EXHIBIT A).

#### II. THE LPA AGREES,

1. To certify by execution of this AGREEMENT that the selection of the ENGINEER was performed in accordance with the Professional Services Selection Act (50 ILCS 510) (EXHIBIT B).
2. To furnish the ENGINEER all presently available survey data, plans, specifications, and project information.

3. To pay the ENGINEER:
- (a) For progressive payments - Upon receipt of monthly invoices from the ENGINEER and the approval thereof by the LPA, monthly payments for the work performed shall be due and payable to the ENGINEER, such payments to be equal to the value of the partially completed work minus all previous partial payments made to the ENGINEER.
  - (b) Final payment - Upon approval of the work by the LPA but not later than 60 days after the work is completed and reports have been made and accepted by the LPA and DEPARTMENT a sum of money equal to the basic fee as determined in this AGREEMENT less the total of the amount of partial payments previously paid to the ENGINEER shall be due and payable to the ENGINEER.
  - (c) For Non-Federal County Projects - (605 ILCS 5/5-409)
    - (1) For progressive payments - Upon receipt of monthly invoices from the ENGINEER and the approval thereof by the LPA, monthly payments for the work performed shall be due and payable to the ENGINEER. Such payments to be equal to the value of the partially completed work in all previous partial payments made to the ENGINEER.
    - (2) Final payment - Upon approval of the work by the LPA but not later than 60 days after the work is completed and reports have been made and accepted by the LPA and STATE, a sum of money equal to the basic fee as determined in the AGREEMENT less the total of the amount of partial payments previously paid to the ENGINEER shall be due and payable to the ENGINEER.
4. To pay the ENGINEER as compensation for all services rendered in accordance with the AGREEMENT on the basis of the following compensation method as discussed in 5-5.10 of the BLR Manual.
- Method of Compensation:
- ☐ Percent
- ☐ Lump Sum
- ☐ Specific Rate
- ☒ Cost plus Fixed Fee:      Fixed
- Total Compensation = DL + DC + OH + FF
- Where:
- DL is the total Direct Labor,
- DC is the total Direct Cost,
- OH is the firm's overhead rate applied to their DL and
- FF is the Fixed Fee.
- Where  $FF = (0.33 + R) DL + \%SubDL$ , where R is the advertised Complexity Factor and %SubDL is 10% profit allowed on the direct labor of the subconsultants.
- The Fixed Fee cannot exceed 15% of the DL + OH.
5. The recipient shall not discriminate on the basis of race, color, national origin or sex in the award and performance of any US DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR part 26. The recipient shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of US DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR part 26 and as approved by US DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as violation of this AGREEMENT. Upon notification to the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C 3801 et seq.).

### III. IT IS MUTUALLY AGREED,

1. To maintain, for a minimum of 3 years after the completion of the contract, adequate books, records and supporting documents to verify the amount, recipients and uses of all disbursements of funds passing in conjunction with the contract; the contract and all books, records and supporting documents related to the contract shall be available for review and audit by the Auditor General, and the DEPARTMENT; the Federal Highways Administration (FHWA) or any authorized representative of the federal government, and to provide full access to all relevant materials. Failure to maintain the books, records and supporting documents required by this section shall establish a presumption in favor of the DEPARTMENT for the recovery of any funds paid by the DEPARTMENT under the contract for which adequate books, records and supporting documentation are not available to support their purported disbursement.
  2. That the ENGINEER shall be responsible for any all damages to property or persons out of an error, omission and/or negligent act in the prosecution of the ENGINEER's work and shall indemnify and save harmless the LPA, the DEPARTMENT, and their officers, agents and employees from all suits, claims, actions or damages liabilities, costs or damages of any nature whatsoever resulting there from. These indemnities shall not be limited by the listing of any insurance policy.
- The LPA will notify the ENGINEER of any error or omission believed by the LPA to be caused by the negligence of the ENGINEER as soon as practicable after the discovery. The LPA reserves the right to take immediate action to remedy any error or omission if notification is not successful; if the ENGINEER fails to reply to a notification; or if the conditions created by the error

or omission are in need of urgent correction to avoid accumulation of additional construction costs or damages to property and reasonable notice is not practicable.

3. This AGREEMENT may be terminated by the LPA 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 LPA all drawings, plats, surveys, reports, permits, agreements, soils and foundation analysis, provisions, specifications, partial and completed estimates and data, if any from soil survey and subsurface investigation with the understanding that all such materials becomes the property of the LPA. The LPA will be responsible for reimbursement of all eligible expenses incurred under the terms of this AGREEMENT up to the date of the written notice of termination.
4. In the event that the DEPARTMENT stops payment to the LPA, the LPA may suspend work on the project. If this agreement is suspended by the LPA for more than thirty (30) calendar days, consecutive or in aggregate, over the term of this AGREEMENT, the ENGINEER shall be compensated for all services performed and reimbursable expenses incurred prior to receipt of notice of suspension. In addition, upon the resumption of services the LPA shall compensate the ENGINEER, for expenses incurred as a result of the suspension and resumption of its services, and the ENGINEER's schedule and fees for the remainder of the project shall be equitably adjusted.
5. This AGREEMENT shall continue as an open contract and the obligations created herein shall remain in full force and effect until the completion of construction of any phase of professional services performed by others based upon the service provided herein. All obligations of the ENGINEER accepted under this AGREEMENT shall cease if construction or subsequent professional services are not commenced within 5 years after final payment by the LPA.
6. That the ENGINEER shall be responsible for any and all damages to property or persons arising out of an error, omission and/or negligent act in the prosecution of the ENGINEER's work and shall indemnify and have harmless the LPA, the DEPARTMENT, and their officers, employees from all suits, claims, actions or damages liabilities, costs or damages of any nature whatsoever resulting there from. These indemnities shall not be limited by the listing of any insurance policy.
7. The ENGINEER and LPA certify that their respective firm or agency:
  - (a) has not employed or retained for commission, percentage, brokerage, contingent fee or other considerations, any firm or person (other than a bona fide employee working solely for the LPA or the ENGINEER) to solicit or secure this AGREEMENT,
  - (b) has not agreed, as an express or implied condition for obtaining this AGREEMENT, to employ or retain the services of any firm or person in connection with carrying out the AGREEMENT or
  - (c) has not paid, or agreed to pay any firm, organization or person (other than a bona fide employee working solely for the LPA or the ENGINEER) any fee, contribution, donation or consideration of any kind for, or in connection with, procuring or carrying out the AGREEMENT.
  - (d) that neither the ENGINEER nor the LPA is/are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal department or agency,
  - (e) has not within a three-year period preceding the AGREEMENT been convicted of or had a civil judgment rendered against them for commission of fraud or criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State or local) transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property.
  - (f) are not presently indicated for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph and
  - (g) has not within a three-year period preceding this AGREEMENT had one or more public transaction (Federal, State, local) terminated for cause or default.

Where the ENGINEER or LPA is unable to certify to any of the above statements in this clarification, an explanation shall be attached to this AGREEMENT.

8. In the event of delays due to unforeseeable causes beyond the control of and without fault or negligence of the ENGINEER no claim for damages shall be made by either party. Termination of the AGREEMENT or adjustment of the fee for the remaining services may be requested by either party if the overall delay from the unforeseen causes prevents completion of the work within six months after the specified completion date. Examples of unforeseen causes included but are not limited to: acts of God or a public enemy; acts of the LPA, DEPARTMENT, or other approving party not resulting from the ENGINEER's unacceptable services; fire; strikes; and floods.

If delays occur due to any cause preventing compliance with the project schedule, the ENGINEER shall apply in writing to the LPA for an extension of time. If approved, the project schedule shall be revised accordingly.

9. This certification is required by the Drug Free Workplace Act (30 ILCS 580). The Drug Free Workplace Act requires that no grantee or contractor shall receive a grant or be considered for the purpose of being awarded a contract for the procurement of any property or service from the DEPARTMENT unless that grantee or contractor will provide a drug free workplace. False certification or violation of the certification may result in sanctions including, but not limited to suspension of contract on grant payments, termination of a contract or grant and debarment of the contracting or grant opportunities with the DEPARTMENT for at least one (1) year but not more than (5) years.

For the purpose of this certification, "grantee" or "Contractor" means a corporation, partnership or an entity with twenty-five (25) or more employees at the time of issuing the grant or a department, division or other unit thereof, directly responsible for the specific performance under contract or grant of \$5,000 or more from the DEPARTMENT, as defined the Act.

The contractor/grantee certifies and agrees that it will provide a drug free workplace by:

- (a) Publishing a statement:

- (1) Notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance, including cannabis, is prohibited in the grantee's or contractor's workplace.
- (2) Specifying actions that will be taken against employees for violations of such prohibition.
- (3) Notifying the employee that, as a condition of employment on such contract or grant, the employee will:
  - (a) abide by the terms of the statement; and
  - (b) notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than (5) days after such conviction.
- (b) Establishing a drug free awareness program to inform employees about:
  - (1) The dangers of drug abuse in the workplace;
  - (2) The grantee's or contractor's policy to maintain a drug free workplace;
  - (3) Any available drug counseling, rehabilitation and employee assistance program; and
  - (4) The penalties that may be imposed upon an employee for drug violations.
- (c) Providing a copy of the statement required by subparagraph (a) to each employee engaged in the performance of the contract or grant and to post the statement in a prominent place in the workplace.
- (d) Notifying the contracting, or granting agency within ten (10) days after receiving notice under part (b) of paragraph (3) of subsection (a) above from an employee or otherwise, receiving actual notice of such conviction.
- (e) Imposing a sanction on, or requiring the satisfactory participation in a drug abuse assistance or rehabilitation program.
- (f) Assisting employees in selecting a course of action in the event drug counseling, treatment and rehabilitation is required and indicating that a trained referral team is in place.

Making a good faith effort to continue to maintain a drug free workplace through implementation of the Drug Free Workplace Act, the ENGINEER, LPA and the Department agree to meet the project schedule. Time is of the essence on this project and the ENGINEER's ability to meet the project schedule will be a factor in the LPA selecting the ENGINEER for future projects. The ENGINEER will submit progress reports with each invoice showing work that was completed during the last reporting period and work they expect to accomplish during the following period.

10. Due to the physical location of the project, certain work classifications may be subject to the Prevailing Wage Act (820 ILCS 130/0.01 et seq.).
11. For Preliminary Engineering Contracts:
  - (a) That tracing, plans, specifications, estimates, maps and other documents prepared by the ENGINEER in accordance with this AGREEMENT shall be delivered to and become the property of the LPA and that basic survey notes, sketches, charts, CADD files, related electronic files, and other data prepared or obtained in accordance with this AGREEMENT shall be made available, upon request to the LPA or to the DEPARTMENT, without restriction or limitation as to their use. Any re-use of these documents without the ENGINEER involvement shall be at the LPA's sole risk and will not impose liability upon the ENGINEER.
  - (b) That all reports, plans, estimates and special provisions furnished by the ENGINEER shall conform to the current Standard Specifications for Road and Bridge Construction, Bureau of Local Roads and Streets Manual or any other applicable requirements of the DEPARTMENT, it being understood that all such furnished documents shall be approved by the LPA and the DEPARTMENT before final acceptance. During the performance of the engineering services herein provided for, the ENGINEER shall be responsible for any loss or damage to the documents herein enumerated while they are in the ENGINEER's possession and any such loss or damage shall be restored at the ENGINEER's expense.

#### AGREEMENT SUMMARY

Prime Consultant	TIN/FEIN/SS Number	Agreement Amount
TranSystems Corporation	43-0839725	\$2,891,632.00
Subconsultants	TIN/FEIN/SS Number	Agreement Amount
- Christopher B. Burke Engineering, LTD	36-3468939	\$2,154,359.00
- Wang Engineering, Inc.	36-3191909	\$493,763.00
- Teska	36-3051497	\$223,669.00
- Mackie Consultants	36-4394644	\$149,900.00
- HBK Engineering	46-1255956	\$140,291.00
- Gewalt Hamilton Associates	36-3426053	\$64,841.00
- Guarino Historic Resources Documentation	83-1783487	\$58,620.00
-		
Subconsultant Total		\$3,285,443.00
Prime Consultant Total		\$2,891,632.00
Total for all work		\$6,177,075.00
Add Subconsultant		

**The Total Not-to-Exceed Contract Amount shall be \$6,177,075.00 as shown above and attached.**

## AGREEMENT SIGNATURES

Executed by the LPA:

Attest: The 

Local Public Agency Type County
------------------------------------

 of 

Name of Local Public Agency Lake
-------------------------------------

By 

--

 Date 

--

By 

--

 Date 

--

Name of Local Public Agency Lake
-------------------------------------

Local Public Agency Type County
------------------------------------

 Clerk

Title Chair, Lake County Board
-----------------------------------

(SEAL)

RECOMMENDED FOR EXECUTION

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

Executed by the ENGINEER:

Attest: 

Consultant (Firm) Name TranSystems Corporation
---

By 

--

 Date 

--

Title 

--

By 

--

 Date 

--

Title 

--

**Approved**

\_\_\_\_\_  
Date  
Department of Transportation

\_\_\_\_\_  
Regional Engineer

County Engineer  
On behalf of IDOT pursuant to Agreement  
of Understanding dated May 3, 2018

**Note: Five (5) Original Executed Contracts - (2) LCDOT; (2) IDOT District 1, Local Roads; (1) Consultant**

Local Public Agency

County

Section Number

Lake County Division of Transportation

Lake

19-00999-65-ES

**EXHIBIT A  
SCOPE OF SERVICES**

To perform or be responsible for the performance of the engineering services for the LPA, in connection with the PROJECT herein before described and enumerated below

See Attached Scope of Servces

Lake County Division of Transportation

Lake

19-00999-65-ES

**EXHIBIT B**  
**Qualification Based Selection (QBS) Checklist**

The LPA must complete Exhibit D. If the value meets or will exceed the threshold in 50 ILCS 510, QBS requirements must be followed. Under the threshold, QBS requirements do not apply. The threshold is adjusted annually. If the value is under the threshold with federal funds being used, federal small purchase guidelines must be followed.

☐ Form Not Applicable (engineering services less than the threshold)

**Items 1-13 are required when using federal funds and QBS process is applicable. Items 14-16 are required when using State funds and the QBS process is applicable.**

		No	Yes
1	Do the written QBS policies and procedures discuss the initial administration (procurement, management and administration) concerning engineering and design related consultant services?	<input type="checkbox"/>	<input type="checkbox"/>
2	Do the written QBS policies and procedures follow the requirements as outlined in Section 5-5 and specifically Section 5-5.06 (e) of the BLRS Manual?	<input type="checkbox"/>	<input type="checkbox"/>
3	Was the scope of services for this project clearly defined?	<input type="checkbox"/>	<input type="checkbox"/>
4	Was public notice given for this project?	<input type="checkbox"/>	<input type="checkbox"/>
5	Do the written QBS policies and procedures cover conflicts of interest?	<input type="checkbox"/>	<input type="checkbox"/>
6	Do the written QBS policies and procedures use covered methods of verification for suspension and debarment?	<input type="checkbox"/>	<input type="checkbox"/>
7	Do the written QBS policies and procedures discuss the methods of evaluation?	<input type="checkbox"/>	<input type="checkbox"/>
Project Criteria		Weighting	
-			
Add			
8	Do the written QBS policies and procedures discuss the method of selection?	<input type="checkbox"/>	<input type="checkbox"/>
Selection committee (titles) for this project			
Top three consultants ranked for this project in order			
1			
2			
3			
9	Was an estimated cost of engineering for this project developed in-house prior to contract negotiation?	<input type="checkbox"/>	<input type="checkbox"/>
10	Were negotiations for this project performed in accordance with federal requirements.	<input type="checkbox"/>	<input type="checkbox"/>
11	Were acceptable costs for this project verified?	<input type="checkbox"/>	<input type="checkbox"/>
12	Do the written QBS policies and procedures cover review and approving for payment, before forwarding the request for reimbursement to IDOT for further review and approval?	<input type="checkbox"/>	<input type="checkbox"/>
13	Do the written QBS policies and procedures cover ongoing and finalizing administration of the project (monitoring, evaluation, closing-out a contract, records retention, responsibility, remedies to violations or breaches to a contract, and resolution of disputes)?	<input type="checkbox"/>	<input type="checkbox"/>
14	QBS according to State requirements used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15	Existing relationship used in lieu of QBS process?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	LPA is a home rule community (Exempt from QBS).	<input checked="" type="checkbox"/>	<input type="checkbox"/>





## **TranSystems**

1475 East Woodfield Road  
Suite 600  
Schaumburg, IL 60173  
Tel 847 605 9600  
Fax 847 605 9610

[www.transystems.com](http://www.transystems.com)

Old McHenry Road – Abbey Glenn Drive to Bonnie Lane (2.1 miles)  
Quentin Road – IL Route 22 to Old McHenry Road (1.5 miles)  
Phase I Preliminary Engineering  
Section No. 19-00999-65-ES  
March 22, 2021

### **EXHIBIT A – SCOPE OF ENGINEERING SERVICES**

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The Old McHenry Road and Quentin Road Phase I project includes completing the necessary Phase I Engineering and Environmental Studies to address the needs along both of these roadways located in south Lake County. The heart of the project is the evaluation of a new grade separation for the CN Railroad at Old McHenry Road that will improve safety, traffic operations, and the environment by eliminating the current at-grade crossing.

The section of Old McHenry Road between Fairfield Road and Quentin Road serves as a double link in the roadway network. Vehicles crossing this part of south Lake County heading in north-south, east-west, and northwest-southeast directions all need to access this 3,000-foot section of Old McHenry Road that provides connections to other arterial routes.

The logical termini for Old McHenry Road will be from Abbey Glenn Drive to Bonnie Lane, a length of approximately 2.1 miles. From Echo Lake Road to Quentin Road, Old McHenry Road will be evaluated for widening and reconstruction along with intersection or realignment alternatives with Echo Lake Road, Fairfield Road, Midlothian Road and Quentin Road. Additional non-motorized travel improvements will be evaluated from Abbey Glenn Drive to Echo Lake Road and from Quentin Road to Bonnie Lane.

The logical termini for Quentin Road will be from IL Route 22 to Old McHenry Road, a length of approximately 1.5 miles. Additional work west, east, and south of the Quentin/IL Route 22 intersection is possible for transition of proposed roadway geometry, non-motorized connections, drainage connections, etc. The analysis for Quentin Road will study potential widening to either a three, four or five-lane rural or urban cross section.

Traffic studies in the area will also include analysis and evaluation of future capacity and operational needs along Old McHenry Road from Quentin Road to IL Route 22. The goal of the expanded traffic study area is to study how traffic volumes and patterns will change with the creation of a grade separation and evaluate what future roadway widening or intersection improvements will be needed along this stretch of Old McHenry Road.

The project is located in the Villages of Hawthorn Woods and Lake Zurich, and in unincorporated Ela Township. A robust public involvement process will be included to include stakeholder outreach throughout all aspects of the project.



## **EXHIBIT A – SCOPE OF ENGINEERING SERVICES**

Old McHenry Road / Quentin Road – Phase I Preliminary Engineering

Based on preliminary coordination with IDOT and FHWA, Phase I Engineering is anticipated to include an initial Planning and Environmental Linkages (PEL) Study and Report in accordance with 23 U.S.C. 168, that will be followed by completion of applicable NEPA studies and coordination. For purposes of preparing this scope of services, it is assumed that the PEL Study/Report will be followed by two separate NEPA processes. The Old McHenry Road section of the project, including the CN Railroad grade separation, is expected to be processed as a Federal Categorical Exclusion (Federal CE) based on no significant environmental impacts. The Quentin Road section of the project may include widening for additional capacity and may be processed as an Environmental Assessment (EA) based on the potential for significant environmental impacts. The following is a summary of the items that are included in the proposed scope of services:

### **1. Data Collection and Evaluation**

This task will consist of the collection and consolidation of all relevant existing data required for the Phase I Study.

- A. Requests for information will be made from agencies including the Lake County Division of Transportation (LCDOT), Lake County Public Works, IDOT, the Lake County Stormwater Management Commission (LCSMC), CMAP, the Villages of Hawthorn Woods and Lake Zurich, Elia Township, Forest Lake Community Association (FLCA), CN Railroad and other agencies as necessary.

The data to be collected includes but is not limited to:

- Record roadway, drainage and structures plans
- Record roadway centerline and right-of-way plans
- Record grading and drainage plans and stormwater reports for adjacent developments
- Roadway operational, traffic and crash data (latest 5 years)
- Railroad plans, timetables and traffic data
- GIS data available through Lake County GIS Department (e.g. aerial photography, LiDAR mapping, one-foot contours, environmental resources, property lines, agreements)
- Available survey control, benchmark and survey datum information
- Survey Right-of-Entry letter from LCDOT
- Survey Right-of-Entry letter (or written permission/permit) from CN Railroad
- Tax parcel maps
- Drainage atlases, FIRM and FIS maps
- Lake County wetland inventory
- Available flooding history records and drainage complaints
- Existing and proposed land use and zoning maps



## **EXHIBIT A – SCOPE OF ENGINEERING SERVICES**

Old McHenry Road / Quentin Road – Phase I Preliminary Engineering

- Comprehensive plans
  - Existing and proposed bicycle route maps
- B. Consolidate, catalog and evaluate collected data and compile into a project GIS database for use throughout Phase I Engineering.
- C. Maintain the project GIS database throughout the course of Phase I Engineering, including updates to base project information as obtained.
- D. Initial project field reconnaissance and prepare photo log of unique issues/concerns.

### **2. Survey**

This task includes completion of a topographic survey and stream survey for the Old McHenry Road and Quentin Road project corridor in accordance with LCDOT Survey Procedures (dated 2/22/2021) which is included as Attachment A. The project stationing will follow LCDOT plat stationing as per LCDOT Survey Procedures.

The survey collection methods will consist of topographic survey, ground based topographic LiDAR (Mackie Consultants), and County LiDAR. The project survey will be based on NAVD 88 datum for correlation of the hydraulic modeling. The project survey will be compiled for use with the MicroStation OpenRoads CONNECT 3D Design application.

The survey will be prepared to be used for both Phase I and Phase II Engineering Services. The topographic survey will extend to the existing right-of-way lines and tied to the latest available Lake County one-foot contour LiDAR mapping. Ground based LiDAR will be utilized to collect survey data for the roadway curb and pavement. Topographic survey will be utilized to collect data from the curb to the right-of-way. Some survey beyond the existing right-of-way line is anticipated to be required due to anticipated voids in the County LiDAR mapping due to ground cover. Supplemental field survey will be included to pick up any development that may occur over the course of the Phase I Study and/or to resolve other topographic uncertainties. The survey limits will typically extend 1,000 feet in each direction at major intersections (or as otherwise recommended per below) that are currently signalized or anticipated to warrant new traffic signals, with adjustments based on field conditions as appropriate. The survey limits will typically extend 200 feet in each direction at all other minor unsignalized public streets (public and private) and 50 feet beyond the existing right-of-way at commercial and residential driveways. In addition, topographic survey along the CN Railroad will be completed for 2,600 feet in each direction. For purposes of preparing the level of effort required, the total survey length is estimated as follows:

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- Old McHenry Road (Abbey Glenn to Bonnie Lane) = 11,200 feet
- Quentin Road (Old McHenry to south of IL 22) = 9,400 feet
- Quentin/IL 22 (east and west) = 3,000 feet
- Quentin/Ensell (east and west) = 400 feet
- Quentin/Highland (east and west) = 1,200 feet
- Old McHenry/Midlothian (north and south) = 3,000 feet
- Old McHenry/Fairfield (north) = 1,500 feet
- Old McHenry/Echo Lake (south) = 1,500 feet
- Side street or Minor Legs (16) = 3,200 feet
- Driveways (67) = 3,350 feet
- CN Railroad (north and south) = 5,200 feet
- (Contingency Survey - See Subtask G): If Fairfield Road realignment is pursued, 6,000 feet of additional topographic survey will be completed for:
  - Fairfield Road (1,500 feet north of Old McHenry Road to Holmes Avenue) = 2,500 feet
  - Midlothian Road (1,500 feet north of Old McHenry Road to 500 feet north of Kruger Road) = 2,000 feet
  - Kruger Road = 1,500 feet

Total = 48,950 feet (9.3 miles)

On this basis, CBBEL will perform the following general survey tasks in accordance with applicable Lake County Survey Procedures:

**A. Topographic Survey:**

The overall topographic field survey will include the following sub tasks:

**Horizontal Control:** Utilizing state plane coordinates, CBBEL will set recoverable primary control utilizing our GPS equipment, tied to the control for the one-foot contour Lake County LiDAR mapping.

**Vertical Control:** CBBEL will perform a level circuit within the above identified survey limits establishing benchmarks and assigning elevations to the horizontal control points. The elevations will be based on NAVD 88 and correlated with available FIRM benchmarks (if any) and tied to the control for the one-foot contour Lake County LiDAR mapping.

**Topographic Survey:** CBBEL will field locate all driveways, signs, minor drainage structures, driveway culverts, crossroad culverts, roadway parkway, etc., within the established survey limits. Ground based LiDAR (Mackie Consultants) will be utilized to collect all pavement features and curb and gutter.

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Utility Survey: All existing storm and sanitary sewers will be surveyed to determine rim and invert elevations and pipe sizes. Above ground facilities for any additional underground utilities including water main, gas, electric, cable, etc. will also be located. A separate Level B SUE evaluation will be completed by HBK Engineering in parallel to the topographic survey as noted in Task 3 below.

Cross Sections: CBBEL will survey cross sections at 50' base intervals within the survey limits, at driveways, and at all other grade controlling features to ensure a composite set of cross sections at approximately 25' intervals. The cross sections will extend to the existing right-of-line along Quentin Road and Old McHenry Road. The LiDAR data collected for the roadway pavement will be utilized to assist with develop of the cross sections.

**B. Railroad Survey:**

Ground based LiDAR collection (Mackie Consultants) will be used to complete a conventional railroad survey within the CN Railroad right-of-way, 2,600 feet north and south of Old McHenry Road. The LiDAR data collected for the railroad right-of-way will be utilized for identification of the top of rail, ComEd cables, and topographic survey composition. Cross sections will be developed from the ground based LiDAR at 50' intervals. Topographic survey will be conducted to pick up detailed drainage features, signs, utilities, wetlands, ComEd towers, and wetland limits, and any additional identifiable above ground utility features.

**C. Stream Survey:**

CBBEL will complete stream surveys for hydraulic analysis and reports that are anticipated to be required for waterway crossings (minor and major) within the project limits and for coordination with LCSMC and IDOT. Stream surveys are anticipated to be required at the following waterway crossing locations:

- Old McHenry Road west of Echo Lake Road (Location #1)
- Quentin Road north of Heather Lane (Location #2)
- Quentin Road north of Glendale Road (Location #3)
- Quentin Road north of Ravine Drive (Location #4)
- Quentin Road south of Ensell Road (Location #5)
- IL Route 22 west of Quentin Road (Location #6)
- Quentin Road south of IL 22 (Location #7)

**D. Existing Right-of-Way:**

CBBEL will establish the existing right-of-way within the identified survey limits, based on monumentation found in the field, and based on available plats of highways, subdivision plats and any other available information.

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E. Compile CAD Base Mapping:

CBBEL will compile all of the above information into one initial CAD base file at 1'=50' scale that is representative of existing conditions for use in Phase I Engineering. The information gathered thru the Level B SUE evaluation will be incorporated into the base CAD files. IDOT CAD standards will be used based on the anticipated IDOT letting. This task may also include conversion to 1"=20' scale CAD base file for the individual Old McHenry Road and Quentin Road sections of the project, for Phase II Engineering. The CAD base file will be compiled for use with the **MicroStation OpenRoads CONNECT 3D Design application**.

F. Vegetative Area Survey:

CBBEL will provide boundary surveys for vegetative areas along the project limits. The Vegetative Area survey will extend 30 feet outside of the existing right-of-way where practical. This information will be used to quantify vegetative area impacts and establish the areas for individual tree surveys (as required) which will be completed as part of Task 5.

G. Fairfield Realignment (Contingency)

The feasibility of a potential realignment of Fairfield Road to an intersection with Midlothian (at Kruger) will be evaluated early in the project development process. If it is determined to include the Fairfield Road realignment as part of the overall proposed improvement plan, then additional Utility Identification and Coordination per Tasks A thru F above, will be completed, which includes approximately 2,000' additional areas to the north along Midlothian Road and approximately 4,000' additional along Kruger Road and Fairfield Road, for a total additional length of 6,000 feet. CBBEL will not proceed with this additional topographic survey work until authorized by Lake County.

H. Supplemental Field Survey:

CBBEL will perform supplement field surveys as necessary over the duration of the project to resolve conflicts such as utilities, drainage features, etc., to complete LiDAR mapping voids due to trees/brush, pick-up any new developments/features along the corridor as required, and to survey potential off-site compensatory storage areas (three locations assumed). It is anticipated that most (if not all) ADA curb ramp design can be completed based on the compiled TIN, however, some pickup survey for ADA curb ramp design may be required.

### **3. Utility Identification and Coordination**

Based on the expectation that utility conflicts are likely to be a substantial challenge with respect to design and construction of the proposed improvements, a separate Level B Subsurface Utility Engineering (SUE) evaluation, including utility coordination and utility locating, will be completed for the project by HBK Engineering, Inc. (HBK). The CBBEL survey



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in Task 2 will locate all above ground utilities, as well as storm and sanitary sewer inverts and pipe sizes. The HBK SUE evaluation will include horizontal location of all other underground utilities including watermain (including Aqua Illinois), fiber optics, cable, electric, gas, etc. The information gathered by HBK will be incorporated into the project base CAD files as part of Task 2.

### **A. Initial Coordination/Data Collection**

The proposed improvements will require coordination with public and private utilities that have facilities within the project corridor. HBK will coordinate with any utility companies/agencies found to have facilities located within the vicinity of the project limits through a JULIE Design Stage/Planning Information Request. A request will be made for these utilities to provide any available maps of existing facilities. It has been estimated that there will be up to ten public and private utilities to coordinate with for this project.

### **B. Utility Easement Research**

HBK will perform research at and through the Lake County Recorder's office for utility easements as granted as separate documents and on recorded plats. Research will cover parcels of un-subdivided and subdivided property on both sides of Old McHenry Road and Quentin Road through the Village of Hawthorn Woods, the Community of Forest Lake, the Village of Lake Zurich, the Village of Kildeer and unincorporated Lake County. Additional document requests will be made to both IDOT and LCDOT for records.

### **C. Utility Locating**

Descriptions of SUE quality levels are derived from the FHWA website on subsurface utility engineering. The website describes American Society of Civil Engineers (ASCE) Standard C-1 38-02, *Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*. There are four recognized quality levels of underground utility information ranging from Quality Level QL-D (the lowest level) to Quality Level QL-A (the highest level).

HBK will perform SUE Level B locating of any utility facilities located within the project limits. Level D information will be obtained from utility atlases, JULIE requests, and other reliable sources. Qualified HBK staff will perform Level B locates of underground utilities within the project limits and mark them with appropriately colored paint and/or flags. HBK staff will coordinate with the designer team's survey crew(s) when this work is performed.

SUE Level D and B locating shall include underground traffic control facilities at signalized intersections to the extent allowed by MOT limitations, worker safety, and



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the ability of the facilities to transmit a locating tone. Level A locates/potholes are not included in this proposal.

### **D. Utility Data Base Mapping**

HBK will prepare base CAD files for the results of the Level B locates for transmittal to CBBEL. The HBK base CAD files will be prepared as V8i DGN files which will be converted by TranSystems and CBBEL to MicroStation OpenRoads CONNECT format via the available conversion utility. HBK will coordinate with the roadway designer to ensure the utilities are depicted accurately in the survey data and utility base maps. This shall include time allotted for utility base map QA/QC.

### **E. Preliminary Design Review and Coordination**

HBK will coordinate with utility companies/agencies during Phase I Engineering. HBK will send preliminary plans to utility companies to verify the locations of their facilities and review preliminary design to determine if there are any significant conflicts that need to be reviewed. HBK will also coordinate with the roadway design team to develop understanding the presence of utilities, their type, and possible issues with protecting and/or relocating those utilities.

### **F. Fairfield Realignment (Contingency)**

The feasibility of a potential realignment of Fairfield Road to an intersection with Midlothian (at Kruger) will be evaluated early in the project development process. If it is determined to include the Fairfield Road realignment as part of the overall proposed improvement plan, then additional Utility Identification and Coordination per Tasks A thru E above, will be completed, which includes approximately 2,000' additional areas to the north along Midlothian Road and approximately 4,000' additional along Kruger Road and Fairfield Road, for a total additional length of 6,000 feet. HBK will not proceed with this additional work until authorized by Lake County.



**4. Geotechnical Investigation**

Geotechnical engineering services will be performed by Wang Engineering Inc. (Wang). Geotechnical investigations will include soil boring and pavement core sample collection, laboratory testing, engineering, analyses, recommendations and reporting. The scope of work assumes new bridge structures at the CN Railroad and retaining walls on the south side both east and west of the railroad underpass. Retaining walls are also assumed on the south side of Old McHenry Road, west of Midlothian Road to support the proposed bike path extension. Six retaining walls and a culvert extension are assumed along the Quentin Road corridor. Two additional retaining walls are assumed along the Midlothian Road and Kruger Road corridors. It is assumed that a full pavement management analysis is not required for this project.

**5. Environmental Data Collection, Coordination, and Analysis**

This task includes all required environmental data collection, coordination, and analysis required for completion of Phase I Engineering for the Old McHenry Road and Quentin Road sections of the project. As noted, it is anticipated that the Quentin Road section of the project will include preparation of an EA based on the scope of the proposed improvements, potential socio-economic and environmental issues/concerns, and the level of public interest in the project, which will be prepared as part of this task as described below. All project related IDOT, FHWA, and NEPA/404 coordination (if required) is included in Task 14. Specific work associated with Task 5 includes the following:

**A. Initial Environmental Coordination**

Initial environmental coordination and data collection includes initial environmental field reconnaissance work, and coordination with various agencies, including the Illinois Environmental Protection Agency (IEPA), Illinois Department of Natural Resources (IDNR), LCSMC, and others for current available environmental resource database information. Information retrieved will be added to the project GIS database.

This task also includes coordination with IDOT for COSIM air quality pre-screening. Air quality will be evaluated for the worst-case sensitive receptor within 1,000 feet of the proposed improvement per IDOT policy. Input data sheets will be provided to IDOT for conducting the air quality analysis using the Illinois Carbon Monoxide Screen for Intersection Modeling (COSIM) pre-screening tool, which is anticipated to show that air quality standards are not exceeded. As such, a separate micro-scale air quality analysis is not anticipated to be required. Specific work tasks will include:

1. Prepare COSIM input data sheets for submittal to IDOT.
2. Coordinate with IDOT and/or CMAP to ensure the project is properly included and conformed in the TIP in order for Design Approval to be received.

**B. Wetland Technical Report**

An environmental field survey of the project area will be completed to determine the limits of any Waters of the U.S./Wetlands and to assess wildlife and plant communities.

The Waters of the U.S./Wetland limits will be recorded using GPS for direct inclusion in the project mapping and design files. The delineation will be completed based on the methodology established by the U.S. Army Corps of Engineers (USACE) and will include a Floristic Quality Assessment as determined using the Chicago Region Floristic Quality Assessment Calculator (USACE, Chicago District, most recent version). A preliminary jurisdictional determination and wetland boundary confirmation site visit will be held with LCSMC.

The results of the Waters of the U.S./Wetlands field survey will be summarized in a Wetland Technical Report (WTR) that will include the USACE Routine On-Site Data Forms for the identified Waters of the U.S./Wetlands, exhibits depicting the delineated Waters of the U.S./Wetland boundaries, National Wetland Inventory sites, Lake County Wetland Inventory sites, Soil Survey information, floodplains, USGS topography, and supporting site photographs. The WTR will also summarize the assessment of wildlife and plant community qualities.

This subtask will also include completing a farmed wetland determination.

**C. ESR Submittal to IDOT**

An Environmental Survey Request (ESR) will be prepared and submitted to IDOT for processing in accordance with IDOT procedures based on right-of-way acquisition being anticipated for this project. Based on coordination with IDOT, submittal of the ESR will occur in two stages as follows:

1. An initial ESR will be submitted to IDOT for a desktop review by the Central Bureau of Design and Environment (BDE) of known environmental resources in the project area that should be considered as part of the PEL alternatives evaluation. The project team will also complete a review of other regional and local socio-economic and environmental databases that can be considered as part of the PEL alternatives evaluation. This will also include determination of the project Area of Potential Effect (APE) for review by IDOT's Cultural Resources Unit, with a request to initiate coordination of the APE with FHWA and the Illinois SHPO for initial cultural resource screening based on a database review.
2. After completion of the PEL Study/Report, a planned Addendum ESR (AESR) will be submitted to IDOT for completion of applicable environmental review for the identified Alternatives to be Carried Forward.

The AESR would typically include exhibits and preparation of photo logs (as necessary), including representative photos of the overall corridor, bridge/culverts, and structures adjacent to the project corridor that are approximately 40+ years old for IDOT completion of the cultural resource review. However, based on the advance coordination with IDOT, the consultant team will request IDOT concurrence to assist with completing the cultural resource review upfront in the project development process, to streamline the overall cultural review process. To accomplish this, it is assumed that IDOT will concur with the consultant team engaging an IDOT approved architectural historian to complete the Historic Property Inventory (HPI) to determine structure and property eligibility for the National Register of Historic Places (NRHP), and to complete the Assessment of Effects (AOE) based on the Preferred Alternative. This work will occur under Subtask K – Section 106 Coordination.

It is assumed that any field surveys for threatened or endangered species, if required, will be completed by the Illinois Natural History Survey (INHS) on behalf of IDOT through the ESR process.

#### D. Tree Survey, Tabulation and Evaluation

A field survey for all trees equal to or greater than 4 inches diameter at breast height (dbh) will be completed as part of this task using GPS location of trees within the existing right-of-way and up to 30 feet outside the existing right-of-way to include location, size and type. The trees will not be tagged or otherwise marked in the field. All surveyed trees will be tabulated and evaluated with respect to species, condition, and form. Each evaluated tree will be assigned a number rating from 1 to 5 based on general observations at the time of the inventory. A rating of 1 (excellent) has the highest value in terms of protection or preservation. A rating of 5 (poor) has the lowest value and represents lower quality individuals. An impact evaluation will be performed which consists of tree impact plans and a summary table of impacted trees by species and quality, for the Preferred Alternative. The tree inventory and impact evaluation will be included in the Project Development Report and/or Combined Design Report as applicable.

**E. Wetland Impact Evaluation Forms**

Waters of the U.S./Wetland Impact Evaluation (WIE) forms will be prepared as required by IDOT for all identified Waters of the U.S./Wetlands in the project corridor, whether impacted or not. This task will include a resource review, preparation of supporting documentation, submittal of the WIE forms and exhibits, coordination, and follow-up with the reviewer, as required. Based on a review of the Lake County Wetland Inventory (LCWI) data within the project limits, it is assumed that approximately 40 individual Waters of the U.S./Wetland sites will be identified within the environmental survey limits that will require a WIE submittal. Two WIE addendums are included to update impacts during detailed design preparation.

**F. Preliminary Environmental Site Assessment**

This task includes preparation of a Preliminary Environmental Site Assessment (PESA) for special waste, per IDOT requirements. CBBEL will prepare the PESA for the entire project area, except for areas within right-of-way owned by the State of Illinois (i.e.; IL Route 22 and Midlothian Road). As part of the ESR submittal, IDOT will be requested to complete the PESA for the IL Route 22 and Midlothian Road right-of-way per IDOT policy.

**G. Traffic Noise Analysis and Report**

A traffic noise analysis will be prepared for the project area as required by IDOT and FHWA policies and procedures, based on the proposed scope of work which includes potential roadway realignment and/or additional through traffic lanes.

Data collection for the noise analysis includes information on land uses, traffic volume and composition data, existing roadway design features (e.g., speed limits, roadway elevation, and ROW limits), and sensitive receptor locations. Noise-sensitive receptor locations will be identified within adjacent areas. Noise measurements will be obtained in order to validate the existing traffic noise model. Data inputs for the model will include a CAD file of topographical information and geometry as well as traffic characteristics.

The latest FHWA Traffic Noise Model (TNM) will be used for the traffic noise analysis. In line with IDOT and FHWA policies, three noise models will be built: an existing conditions model, a no-build model, and a proposed conditions model. Data inputs for the models will include a CAD file of topographical information and geometry, as well as traffic characteristics for the time period and condition modeled. The proposed model will be based on the 2050 peak hour traffic projection data and the proposed horizontal and vertical roadway alignment information.

A railroad noise and vibration impact assessment will be completed as necessary for the proposed improvements at the CN Railroad grade separation. Any modeling of freight rail traffic will be completed to FRA policies and procedures, which do not include an automated software package similar to the FHWA's TNM. At this time, no detailed quantitative analysis of freight rail noise is expected, as the proposed project is not anticipated to directly cause any changes in freight train volumes, composition, speed, or times. Similarly, no detailed analysis of the effects of freight rail noise caused by the track's relocation to a temporary runaround or shoofly alignment during construction is expected.

A Traffic Noise Report will be prepared which summarizes the above traffic noise analysis. If appropriate, the Traffic Noise Report may be annotated with discussions of freight rail noise.

Specific work tasks include the following:

1. Data collection for the traffic noise analysis.
2. Noise monitoring for calibration of the TNM.
3. Existing conditions (existing traffic) noise prediction using TNM.
4. 2050 No-Build conditions (2050 traffic with no roadway improvements) noise prediction using TNM.
5. 2050 Build conditions (2050 traffic with proposed roadway improvements) noise prediction using TNM(one alternative).
6. Coordination, documentation and preparation of exhibits.
7. Noise Abatement Analysis including Computer Time and Abatement options.
8. Prepare the Draft Traffic Noise Report and submit to IDOT for review/comment and approval to proceed to public coordination.
9. Completion of benefited receptor "view-point" solicitation. This is assumed to include a separate open house or virtual meeting, individual coordination meetings with benefited receptors as/if required, and potential two rounds of "view-point" solicitation.
10. Prepare the Final Traffic Noise Report including the results of the benefited receptor "view-point" solicitation.
11. Prepare railroad noise and vibration impact assessment. This will not be included in the Traffic Noise Report as the project is not expected to change freight train volumes, composition or speed.

#### H. Determine Comprehensive Impacts and Measures to Minimize Harm

This task includes evaluating/determining the comprehensive impacts for the Preferred Alternative for discussion in the EA and determining required mitigation measures and proposed sustainability treatments. This includes water quality analysis and consideration of potential water quality Best Management Practices (BMPs) at drainage outfalls, and other measures/treatments as determined appropriate.

Impacts from both construction and operation of the proposed project will be assessed for the following environmental issue areas at a minimum:

- Social/Economic
- Agricultural
- Cultural
- Air Quality
- Noise
- Natural Resources
- Water Quality/Resources
- Flood Plains
- Wetlands
- Special Waste

Specific work tasks will include:

1. Evaluation and determination of comprehensive impacts for the Preferred Alternative.
2. Consideration of suitable sustainability treatments (i.e.; Green Infrastructure) for incorporation into the Preferred Alternative, including coordination with project stakeholders.
3. This information will be utilized to develop the “Environmental Consequences” and “Commitments” Sections of the EA.
4. Water Quality Pollutant Loading Analysis. Based on Forest Lake being the natural drainage outfall for a larger portion of the project area, and being listed by the IEPA as impaired (with a TMDL), a pollutant loading analysis will be prepared using the Stochastic Empirical Loading and Dilution Model (SELDL) developed by the U.S. Geological Survey (USGS). SELDL will be used to evaluate a pre-construction and one post-construction scenario for Forest Lake to evaluate the incremental water quality impact of the proposed project, for which applicable BMP measures will be considered as appropriate.

#### I. Section 4(f) Evaluation – Public Recreation Lands

Community Park exists along the north side of Old McHenry Road near Quentin Road, and Burnett/Three-Corners Park exists within the northwest, southwest, and southeast corners of Old McHenry Road at Midlothian Road. Both parks are owned by the Village

of Hawthorn Woods. A Section 4(f) Evaluation is required if the project will impact publicly owned recreational lands (parks). While avoidance of Section 4(f) lands will be an important goal of the project, depending on the Preferred Alternative identified, this project has the potential to impact these parks.

Any use of the Hawthorn Woods park property as part of the Preferred Alternative would have to be agreeable to the Village, under which circumstances a *de minimis* impact finding would ultimately occur for each separate location by the FHWA, thus requiring *de minimis* Section 4(f) documents to be prepared. Coordination with the Village of Hawthorn Woods, LCDOT, IDOT and FHWA will be required to document the proposed use of Village park property and to facilitate the FHWA *de minimis* finding. For the purposes of preparing this proposal, it is assumed that the proposed project will require some use of property at Community Park and Burnett/Three-Corners Park that is agreeable to the Village and will require two separate Section 4(f) *de minimis* documents and coordination, one for each park.

Specific work tasks will include:

1. Coordination meetings with the Village of Hawthorn Woods concerning potential use of Village park property.
2. Develop exhibits for use with the Village of Hawthorn Woods coordination.
3. Evaluate alternatives and measures to minimize harm.
4. Prepare the Section 4(f) *de minimis* documentation for two separate locations as required for Community Park and Burnett/Three-Corners Park. This task also includes submittal of draft documents to IDOT for review/approval.
5. Prepare *de minimis* correspondence to the Village of Hawthorn Woods after the Public Meeting.

#### J. Section 6(f) Evaluation

Preliminary information gathered indicates that OSLAD funding was used for development of portions of Community Park in 1998. This task includes completing the necessary research to determine if OSLAD and/or LAWCON funding was used for either Community Park or Burnett/Three-Corners Park, and if a use of either park is unavoidable, completing all required coordination with IDOT and the IDNR to identify design commitments required to be included in the applicable NEPA document to comply with Section 6(f) guidelines and secure agency approval.

Specific work tasks will include:

1. Coordination with IDOT and the Village of Hawthorn Woods (as applicable) to retrieve records and determine the use of LAWCON and OSLAD funding at Community Park and Burnett/Three-Corners Park, or other community property adjacent to the project.

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2. Coordination with IDOT and IDNR to secure agency comments and determine Section 6(f) documentation requirements.
3. Design refinements if required by IDNR.
4. Include required commitment in the NEPA document and/or Phase I Report as applicable.

### **K. Cultural Resource Evaluation - Section 106/Section 4(f) Coordination**

As noted, the consultant team will request IDOT concurrence to assist with completing the cultural resource review, to streamline the overall cultural review process. To accomplish this, an IDOT approved architectural historian (Ms. Jean Guarino, Ph.D., Certified Historian) will be used to complete the Historic Property Inventory (HPI) to determine structure and property eligibility for the National Register of Historic Places (NRHP), and to complete the Assessment of Effects (AOE) based on the Preferred Alternative.

#### APE/HPI/AOE Evaluation

For purposes of this proposal, based on review of the project area, it is assumed that the required HPI survey forms will be completed for 36 potential resources within the established Area of Potential Effect (APE) that are 40+ years old, with up to 12 resources determined to be eligible for listing on the NRHP, for which an AOE will be prepared. The prepared survey forms will include photos, narrative description, and identifying information, such as name (if known), address, tax parcel number, style, building type, circa construction date, NRHP status, and architect name/subdivider name (if found). Research will include a review of historic resource databases to determine whether any of the potential resources were previously determined eligible for the NRHP. A NRHP evaluation/justification will be developed for each potential resource and submitted to IDOT and the Illinois SHPO for concurrence.

#### Section 106 Evaluation

It is anticipated that two structures (the Barn and Farmhouse along Quentin Road) will be determined to be eligible for the NRHP and that the proposed improvements to Quentin Road will result in an adverse effect determination based on a modified setting, viewshed, accessibility, etc. On this basis, a Section 106 Memorandum of Agreement (MOA) and an Individual Section 4(f) will be required.

The requirements for the Section 106 process are specified in IDOT Bureau of Local Roads Manual (Chapter 20-5) and IDOT Bureau of Design and Environment Manual (Chapter 26-5). Specific Section 106 work tasks include:

1. Coordination with IDOT BLRS, IDOT Cultural Unit, Advisory Council on Historic Preservation (ACHP), and other local interested parties. The objective of this coordination is to obtain the views of consulting parties of the undertaking and solicit input on ways to avoid/minimize/mitigate Adverse Effect.



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2. Geometric modifications of the preferred alternatives to address further IDOT and SHPO comments to minimize impacts.
3. Preparation of Section 106 historic documentation, via memorandum, including sections:
  - a. Description of the undertaking, including photographs, maps and drawings (as necessary)
  - b. Description of the efforts to identify historic properties
  - c. Description of the affected historic properties (using materials compiled during the evaluation of significance)
  - d. Description of the undertaking's effects on historic properties
4. The announcement or notice of the effect of the project on the eligible properties involved, which may require a separate Public Meeting, to be determined in coordination with IDOT and FHWA. The timing of this meeting is anticipated to occur after the preferred alternative is identified.
5. Memorandum of Agreement (MOA prepared by IDOT BDE) review and coordination. It is anticipated that no buildings/structures will be impacted with this project and that a Historic American Building Survey (HABS Report) will not be required as part of the MOA.

### Cultural Resource Section 4(f) Evaluation

The requirements for the Section 4(f) process are specified in IDOT Bureau of Local Roads Manual (Chapter 20-3) and IDOT Bureau of Design and Environment Manual (Chapter 26-2). The Section 4(f) documentation includes sections:

1. Introduction / Description of the proposed action, including concise statement of the project purpose and need. With the anticipated processing of this project as a Categorical Exclusion (CE), a purpose and need statement is not prepared.
2. Description of the Section 4(f) resource
3. Description of the alternatives, including avoidance alternatives
4. Description of impacts
5. Discussion of mitigation measures
6. Discussion of coordination activities
7. Documentation of coordination with the official(s) having jurisdiction of the Section 4(f) resource. This is anticipated to be the SHPO.
8. It is anticipated that the Section 4(f) documentation will be submitted to IDOT for draft review and then FHWA for draft review. The final Section 4(f) documentation will be prepared for final submittal to IDOT and FHWA for their review and approval.
9. Project coordination due to elongated schedule to complete Section 106 and Section 4(f) process.

It is anticipated that three submittals of the Section 4(f) Evaluation document will be required:

- Draft submittal to IDOT Local Roads (prior to Public Meeting)
- Draft submittal to FHWA (prior to Public Meeting)

- Final submittal to IDOT and FHWA (following Public Meeting)

The Section 4(f) process concludes following the final public meeting for the project where comments are solicited regarding the proposed Section 4(f) impacts. The outcomes of the public meeting and comments received are included in the final Section 4(f) document, which is executed by the jurisdictional agency, which is anticipated to be the SHPO for impacts to historic properties.

## **6. Drainage Studies**

This task includes development of an Existing Drainage Plan (EDP) and Proposed Drainage Plan (PDP) for the Preferred Alternative, hydrologic and hydraulic analysis and preparation of Waterway Information Tables (WITs) for up to seven minor waterway crossings, coordination with adjacent communities and LCSMC regarding drainage patterns and concerns, and coordination with IDOT regarding drainage modifications or connections to IL Route 22 and Midlothian Road (state jurisdiction roadways). Based on coordination required with IDOT, and the complexity of roadway drainage in the project study area, two formal Location Drainage Studies will be prepared. Specific subtasks include the following:

### **A. Existing Drainage Plan**

Development of the EDP includes an evaluation of existing drainage conditions through a review of record roadway plans, maps, reports and field reconnaissance trips. The consultant will coordinate with the adjacent communities, LCDOT, LCSMC and IDOT to identify any sensitive drainage areas and outlets, including evaluation of roadway flooding records and complaints, and determine adequacy of existing drainage structures to remain as part of the proposed improvement. Data collection as part of this task includes obtaining pertinent as-built plans, USGS maps, soils maps, topographic maps, existing FEMA studies and drainage reports, and other pertinent data. Off-site and on-site drainage areas and existing drainage systems will be delineated on the base project mapping. Specific work tasks associated with development of the EDP includes the following:

1. Identify the tributary drainage area.
2. Identify existing drainage outfalls.
3. Evaluate outfall sensitivity and suitability for continued use.
4. Hydrologic and hydraulic analysis will be prepared for up to seven (7) minor waterway crossings, and WITs will be developed.
5. LCSMC Base Flood Elevation (BFE) Determination at up to six (6) locations, assumed as four waterway crossings and two depressional areas.

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### **B. Proposed Drainage Plan**

Development of the Proposed Drainage Plan (PDP) includes an evaluation of proposed drainage conditions for the Preferred Alternative based on Bulletin 75 and LCSMC criteria (compensatory storage, detention requirements). Specific work tasks associated with development of the PDP includes the following:

1. Storm sewer and ditch alternatives.
2. Hydraulic modeling for up to six cross culverts.
3. Detention requirements and type (open, inline) based on Bulletin 75.
4. Evaluate the needs for additional rights-of-way and drainage easements for drainage purposes.
5. Evaluate any unique drainage requirements for main stages of construction.
6. Prepare preliminary stormwater detention analysis and design based on proposed conditions in accordance with the Lake County Watershed Development Ordinance (WDO).
7. Prepare preliminary compensatory storage analysis and design to compensate for BFE fill (as applicable) based on WDO rules.
8. Coordination with IDOT for PDP concurrence near IL Route 22 and Midlothian Road.
9. PDP Coordination meetings with Hawthorn Woods, Lake Zurich, Elia Township, Forest Lake Community Association.
10. Coordination with LCSMC on the best approach and potential alternatives for providing compensatory storage (as applicable) and stormwater detention requirements.
11. Evaluate alternatives for water quality Best Management Practices (BMP) and runoff volume reduction (RVR) requirements in accordance with the WDO.
12. Prepare Erosion and Sediment Control Table.
13. Finalize the PDP based on stakeholder coordination.

### **C. Pump Station Hydraulic Report**

For purposes of this proposal, it is assumed that a pump station will be required for the Old McHenry Road underpass at the CN Railroad.

1. Draft for LCDOT and IDOT review and comment
2. Final based on comments received, with disposition of comments, for LCDOT and IDOT review and approval.

### **D. Location Drainage Study**

Prepare Location Drainage Studies (LDS) based on IDOT format to document existing and proposed drainage conditions for the project. For purposes of this proposal, it is anticipated that two separate LDS documents will be prepared for the Old McHenry Road Federal CE (including Fairfield Road realignment, cul-de-sacs, and Midlothian Road), and the Quentin Road EA.

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1. Draft for LCDOT and IDOT review and comment
2. Coordination with Lake County Public Works
3. Final based on comments received, with disposition of comments, for LCDOT and IDOT review and approval.

### **7. Traffic Analysis**

The study area for the traffic operations analysis will extend beyond the project limits:

- Old McHenry Road: from Abbey Glenn Drive to IL Route 22
- Quentin Road: from IL Route 22 to Hawthorn Woods Community Park
- Fairfield Road: from Old McHenry Road to Kruger Road
- Midlothian Road: from March Street to Kruger Road

Study limits for the Travel Demand Modeling task will extend beyond these limits, as noted under sub-section C. The following items are anticipated to be included in the traffic analysis:

#### **A. General Data Collection Items**

1. Obtain Existing Signal Timings from LCDOT or IDOT at the following locations:
  - Old McHenry Road/Abbey Glenn Drive
  - Old McHenry Road/Fairfield Road
  - Old McHenry Road/Midlothian Road
  - Old McHenry Road/Quentin Road
  - Old McHenry Road/IL Route 22
  - Quentin Road/Ensell Road
  - Quentin Road/IL Route 22
2. Obtain and review average gate down time at the CN Railroad crossing. The County will place cameras at the railroad crossing for a period of seven consecutive days to video record the location. The video will be used to determine the amount of time the gates are down and approximate time of day of when the trains utilize the tracks. It is assumed based on preliminary conversations that this information will be documented by the County and provided to evaluate impacts to the roadway network.

#### **B. Traffic Data Collection**

Existing and historical traffic data will be compiled using multiple data sources including Miovision video-based counts, LCDOT's PASSAGE/Automated Traffic Signal Performance Measures (ATSPM), and StreetLight.

##### **Twenty-Four Hour Counts using Miovision**

Miovision cameras will be utilized at the following locations and provide 24-hour intersection turning movement counts during the same weekday, between Tuesday and Thursday. Weekend counts will be required at locations where the site peak hour traffic is

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anticipated to occur on Saturday or Sunday, such as a church or commercial development. The traffic data shall include the vehicle classification (passenger car, single unit, and multi-unit) as well as pedestrian and bicyclist counts where crosswalks are present. Turn movement volumes will be collected on two separate occasions (assumed to be May 2021 and May 2022) to assist with measuring the impacts of COVID-19 on traffic volumes in the location listed below.

1. Old McHenry Road Intersections (14 Locations):  
Abbey Glenn Drive, Echo Lake Road, Mulberry Drive, Fairfield Road, Midlothian Road, St. Matthew Church entrances (3 locations), Hawthorn Woods Public Works, Hawthorn Gardens Entrance, Quentin Road, Lagoon Drive, Bonnie Lane, IL Route 22
2. Quentin Road intersections (9 locations):  
IL Route 22, Roman Lane, Ensell Road, Highland Drive, Ravine Road, Quentin Road Baptist Church, Glendale Road, Heather Lane, Hawthorn Community Park
3. Midlothian Road Intersections (4 locations):  
March Street, Landover Parkway, Commons Circle, Kruger Road
4. Fairfield Road Intersections (1 location):  
Birch Lakes Drive/Kruger Road
5. Weekend counts will be completed for the following locations:
  - a. Old McHenry Road (6 locations): St. Matthew Church entrances (3 locations), Hawthorn Woods Public Works, Hawthorn Gardens Entrance, Hawthorn Community Park
  - b. Quentin Road (1 location): Quentin Road Baptist Church

If needed, counts conducted in 2021 will be calibrated against Streetlight data or ATSPM data provided by LCDOT.

#### StreetLight Data Collection

StreetLight is a proprietary data collection resource that allows users to place gates/zones within the study corridor to track several different metrics including AADT, origin-destination, traveler attributes (demographics, trip purpose), trip attributes (speed, duration, length and circuitry), commercial vehicles, and bicycles and pedestrians. It is anticipated that 100 gates/zones will be placed throughout the study corridor to collect the referenced data, utilizing the Advanced Analytics package for StreetLight.

#### LCDOT PASSAGE/ATSPM

LCDOT's Automated Traffic Signal Performance Measures (ATSPM) portal provides a wide range of data and metrics related to traffic volumes, signal timing parameters and performance measures at select signalized intersections. Within the study area, data from the following intersections is available from the ATSPM portal:

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- Old McHenry Road & Abbey Glenn Drive
- Old McHenry Road & Fairfield Road
- Old McHenry Road & Midlothian Road
- Old McHenry Road & Quentin Road
- Quentin Road & Ensell Road

Approach volumes, delays, estimated queue lengths, pedestrian actuation and emergency vehicle events are logged and available for the above intersection. This data will be used to validate the traffic volumes collected via Miovision and StreetLight, and to calibrate the existing conditions traffic simulation models.

#### **C. Travel Demand Model, Traffic Projections and Design Hourly Volumes**

A Travel Demand Model will be developed using Emme software for the study area to reflect the redistribution of traffic for each alternative. Travel demand modeling undertaken will be based on the regional travel demand model maintained by the Chicago Metropolitan Agency for Planning (CMAP). Using the current CMAP Conformity Analysis databanks as a starting point, a subarea travel demand model focused on the Old McHenry Road/Quentin Road corridor will be developed. A demand model focused on the corridor will accurately and more consistently reflect the impact of alternative improvements on traffic flow, especially when comparing a grade separation versus an at-grade crossing with the railroad. Development of the travel demand model will reduce coordination and turnaround time with CMAP as the project team will be able to make necessary changes dynamically and quickly. There will be additional efficiencies for calculating design hourly volumes as compared with relying on the CMAP model.

The subarea model will focus on a subset of the roadway network contained in the CMAP model. The boundaries of the subarea will be agreed to by the consultant team and Lake County DOT staff and should be large enough to address the regional travel impacts of the Project. It is anticipated that, at a minimum, the boundaries will include the area approximately bounded by IL Route 176 on the north, IL Route 22 on the south, IL Route 83 on the east, and US Route 12 on the west.

Within the subarea, the CMAP Traffic Analysis Zone (TAZ) system will be reviewed and modified as required to add more detail and better reflect local development patterns. Regional trip tables will be adjusted to be consistent with the modified TAZ structure. The model roadway network will be reviewed and adjusted as necessary to be consistent with the new TAZ structure and to better reflect observed mobility patterns (by adding new model links) and local accessibility options (by adjusting the number and placement of centroid connectors). Particular attention will be paid to the network in and immediately adjacent to the Project corridor to help assess the impacts of corridor improvements on the local street network and the regional roadway network. The Base Year model will be

calibrated to observed travel patterns as reflected in the data collection efforts undertaken for the Project as well as available IDOT and LCDOT historical counts.

A 2050 Project No-Build model will start with the CMAP 2050 regional model data. Modifications made to the Base Year model networks, TAZ structure, and trip tables will be transferred to the 2050 No-Build model. In this way the 2050 Project No-Build subarea model will reflect planned transportation projects expected to come on-line by 2050 as well as regionally adopted forecasts of growth and development. This model will be used to identify deficiencies in the 2050 Project No-Build network, develop proposed alternative improvements, and assess the impact of proposed improvements on traffic flow. The 2050 daily link volumes, developed with the subarea model for the 2050 Project No-Build and each Build Alternative evaluated, will be forwarded to CMAP for their review and concurrence.

The final 2050 link forecasts, historical traffic count data, Miovision turn movement counts, and StreetLight data will be utilized as part of a comprehensive approach to developing design year turn movement forecasts at each key intersection throughout the corridor. This approach will utilize Iterative Proportional Fitting (IPF) as described in NCHRP Report 765 – Analytical Travel Forecasting Approaches for Project-Level Planning and Design. In addition to the Project No-Build Scenario, it is anticipated that four sets of Design Hour Volumes (DHVs) will be calculated for the following Build scenarios:

1. No-build grade separation and two/three lanes on Quentin Road
2. No-build grade separation and four/five lanes on Quentin Road
3. Build grade separation and two/three lanes on Quentin Road
4. Build grade separation and four/five lanes on Quentin Road

DHVs will be developed for each intersection where traffic count data is gathered by Miovision cameras to assist with operations and traffic signal warrant analysis.

Finally, during model development and application, consideration will be given to facilitating the flow of information between the travel demand model and the microsimulation models used in detailed operational analyses.

#### **D. Latent Demand Analysis at CN Railroad Crossing**

The Travel Demand Model and Traffic Projections process will determine projected design year traffic on the segment of Old McHenry Road at CN Railroad under a range of design alternatives, including at-grade railroad crossing (No-Build conditions) and various grade separated options. It is expected that the travel demand on Old McHenry Road will be higher under the grade separated options. The difference between these travel demand projections will be used to estimate the latent demand on the corridor that is being impeded by the at-grade railroad crossing.

## E. Traffic Operations Analysis

### Level 1 Traffic Analysis (Synchro/SimTraffic, Sidra)

Synchro/SimTraffic (version 11) will be used to model and analyze the weekday AM and PM peak periods for the intersections within the corridor where traffic counts were conducted. The Existing, 2050 No-Build, and 2050 Grade Separation Only (No-Build elsewhere) scenarios will be analyzed to identify the operational and capacity issues that will aid in the development of the project Purpose and Need statement. Synchro/SimTraffic will also be used to analyze the potential design alternatives considered as part of the initial PEL Study, and for screening down the range of alternatives considered to the recommended alternatives carried forward (i.e.; Level 2).

Synchro analysis will also be used to model traffic delay at the railroad crossing during “gates down” under existing conditions and 2050 No-Build conditions to evaluate the effect of the No-Build condition, which will be included in the Purpose and Need Statement.

Traffic operations under the following scenarios will be studied using the existing and design hourly volumes developed under the traffic projections task:

1. Existing Conditions (AM and PM peaks)
2. Design Year (2050) No-Build Conditions (AM and PM peaks)
3. Design Alternatives (selected by preliminary screening) (AM and PM peaks) listed below:
  - a. Old McHenry Road (Echo Lake Road to Fairfield Road)
    1. No-build
    2. Three lanes
  - b. Old McHenry Road (Fairfield Road to Quentin Road)
    1. No-build
    2. Six lanes with center turn lane
  - c. Old McHenry Road (Quentin Road to IL Route 22)
    1. No-build
    2. Two-lane undivided with added turn lanes
    3. Four lane undivided
    4. Four lanes with continuous center turn lane
  - d. Quentin Road Corridor
    1. No-build
    2. Two-lane undivided with added turn lanes
    3. Two lanes with continuous center turn lane
    4. Four lanes undivided
    5. Four lanes with continuous center turn lane
  - e. Intersection Alternatives: Different types of improvements will be evaluated based on cross section analysis on each approach based on lane requirements from traffic analysis using high level Measures of Effectiveness (MOE) at the following



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intersections, including stop-control, traffic signals, roundabouts, re-alignments, and grade separations as outlined below:

1. Old McHenry Road/Echo Lake Road
  - Stop-control
  - Roundabout (If warranted)
  - Traffic signal (If warranted)
2. Old McHenry Road/Mulberry Drive
  - Stop-control
  - Roundabout (If warranted)
  - Traffic signal (If warranted)
3. Old McHenry Road/Fairfield Road
  - Roundabout
  - Traffic signal
  - Add lanes
  - Triple left turn lane on Fairfield
  - Two re-alignment concepts, matching Midlothian Road south approach
4. Old McHenry Road/Midlothian Road
  - Roundabout
  - Traffic signal
  - Add lanes
  - Grade Separation with a jug-handle connection
    - With Traffic Signals
    - With Roundabouts
    - With Roundabouts and Traffic Signals
5. Quentin Road/Old McHenry Road
  - Traffic Signal
  - Add-lanes
  - Roundabout (If warranted)
6. Quentin Road/Quentin Road Baptist Church Entrance
  - Stop-control
  - Traffic Signal (if warranted)
  - Add-lanes
  - Roundabout (If warranted)
7. Quentin Road/Highland Drive
  - Stop-control
  - Traffic Signal (if warranted)
  - Add-lanes
  - Roundabout (If warranted)
8. Quentin Road/Ensell Road
  - Traffic Signal
  - Add-lanes
  - Roundabout (If warranted)

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9. Quentin Road/Roman Lane
  - Stop-control
  - Traffic Signal (if warranted)
  - Add-lanes
  - Roundabout (If warranted)
10. Quentin Road/IL Route 22
  - Traffic Signal
  - Additional Aux Lanes (if warranted)
- f. Combination of Alternatives – analyze effects of the combination of the highest performing alternatives of each corridor.

Sidra (version 8.0) traffic modeling software will be used to analyze operations for roundabout alternatives and supplement the Synchro models. The roundabout intersections will be analyzed as standalone intersections. A more detailed network analysis with Vissim will be conducted for the shortlisted alternatives under Level 2 Traffic Analysis.

Analysis of weekend peak will only be conducted at driveway access/intersections where weekend data is collected. This will be used to estimate traffic operations or signal warrants for these intersections under existing, no-build and design volumes on the main road. Synchro and signal warrant analysis under weekend traffic is anticipated at seven intersections for the following scenarios:

1. Existing Conditions
2. 2050 No-Build
3. Four Design Alternatives

Weekend data collection and analysis is NOT anticipated for the rest of the study network outside of these intersections.

Signal warrant analysis at unsignalized intersections will be completed for existing and 2050 design volumes.

### Level 2 Traffic Analysis (Vissim)

The Level 2 traffic analysis will be completed for the identified Alternatives Carried Forward from the PEL Study, and as a factor with identifying the Preferred Alternative. The Level 2 analysis will be completed using VISSIM. An integrated traffic simulation model for the project area roadway network will be developed for weekday AM and PM peaks under existing conditions, No-Build, and four shortlisted design alternatives.

It is estimated that eight video recording of Vissim's 3-D simulation models will be developed (four scenarios x 2 AM/PM peaks) for presentation to LCDOT, stakeholders and/or general public.

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A second round of Miovision traffic counts is scheduled for March 2022. This data will be used to study the trend in study area traffic volumes, and compare against historical and 2020 traffic to estimate the impacts of and recovery from the current travel restrictions due to Covid-19. It is assumed that traffic projections and operational analysis will NOT be revised to reflect these updated volumes.

#### Saturation Analysis

A Saturation Analysis will be performed to estimate the horizon year under which projected AM and PM peak traffic volumes are expected to reach the operational roadway or intersection capacity. The limits of the saturation analysis will be the same as the traffic analysis study area, as defined under Section 7 and noted below:

- Old McHenry Road: from Abbey Glenn Drive to IL Route 22
- Quentin Road: from IL Route 22 to Hawthorn Woods Community Park
- Fairfield Road: from Old McHenry Road to Kruger Road
- Midlothian Road: from March Street to Kruger Road

The saturation analysis will be performed for each of the four design alternatives selected for Level 2 Traffic Analysis.

Under this analysis, AM and PM peak traffic volumes for future horizon years will be extrapolated from the annual growth rates provided by the 2050 traffic projections. The traffic conditions for these subsequent horizon years will be modeled iteratively until the volumes reach the capacity threshold ( $v/c > 1$  or LOS F for one or more critical movements). It is expected that different parts of the roadway network will reach capacity in different years. The analysis will aim to identify these horizon years independently for each of the major intersections and roadway segments. Intersection operations that are closely interconnected, such as Old McHenry Road at Fairfield Road, Midlothian Rd and Quentin Road may identify a single horizon year.

#### **F. Traffic Analysis Report**

TranSystems will prepare a report to document the data collection, methodology, results and recommendations resulting from this traffic analysis. The recommended improvements based on traffic operations will be incorporated into the Alternative Analysis to identify a Preferred Alternative. Exhibits are anticipated to include tables with Level of Service (LOS), delay, 95th percentile queue, and  $v/c$  ratio; intersection schematics, traffic signal warrant analyses, and maps, as necessary. The Traffic Analysis Report will be prepared in three stages:

1. Existing and 2050 No-Build (used for Purpose and Need)
2. Level 1 Analysis (used for Alternatives Carried Forward)
3. Level 2 Analysis (Final version, includes Preferred Alternative)

## **8. Safety Analysis**

The majority of the project safety analysis will be completed in parallel with the Level 1 traffic analysis and alternatives analysis, to identify key safety concerns, appropriate countermeasures, and predict safety benefits of alternatives considered to aid in overall screening of alternatives and identification of the Alternatives Carried Forward in the PEL Report. The overall safety analysis to be completed includes the following:

- A. Prepare crash summary tables, collision diagrams and identify crash patterns. Document findings in a technical memorandum. One site visit will be conducted to support technical memorandum findings. Studies will be based on crash data obtained from LCDOT for the most recent 5-year period not including 2020 (years 2015-2019). The project includes 28 intersections and 13 roadway segments:

1. Intersections

- a. Old McHenry Road Intersections (14 Locations):  
Abbey Glenn Drive, Echo Lake Road, Mulberry Drive, Fairfield Road, Midlothian Road, St. Matthew Church entrances (3 locations), Hawthorn Woods Public Works, Hawthorn Gardens Entrance, Quentin Road, Lagoon Drive, Bonnie Lane, IL Route 22
- b. Quentin Road intersections (9 locations):  
IL Route 22, Roman Lane, Ensell Road, Highland Drive, Ravine Road, Quentin Road Baptist Church, Glendale Road, Heather Lane, Hawthorn Community Park
- c. Midlothian Road Intersections (4 locations):  
March Street, Landover Parkway, Commons Circle, Kruger Road
- d. Fairfield Road Intersections (1 location):  
Birch Lakes Drive/Kruger Road

2. Roadway Segments

- a. Old McHenry Road
  - i. Echo Lake Road to Fairfield Road
  - ii. Fairfield Road to Midlothian Road
  - iii. Midlothian Road to Quentin Road
  - iv. Quentin Road to Bonnie Lane
- b. Quentin Road
  - i. IL Route 22 to Ensell Road
  - ii. Ensell Road to W Highland Drive
  - iii. W Highland Drive to Quentin Road Baptist Church
  - iv. Quentin Road Baptist Church to Heather Lane
  - v. Heather Lane to Old McHenry Road
- c. Midlothian Road
  - i. March Street to Old McHenry Road
  - ii. Old McHenry Road to Kruger Road
- d. Fairfield Road

- i. Old McHenry Road to Kruger Road
- B. Evaluate crash data, identify countermeasures and develop Crash Modification Factors (CMFs) for all alternatives considered as part of the Level 1 analysis, per the Highway Safety Manual (HSM) and/or as required by IDOT and FHWA.

## **9. Alternative Analysis**

This task will include development of the project Purpose and Need Statement, and development and evaluation of a full range of reasonable alternatives for stakeholder coordination and input. This task will be completed in conjunction with traffic analysis, agency coordination and public involvement. The individual subtasks include the following:

### **A. Preparation of the project Purpose and Need Statement**

This task includes preparation of the project Purpose and Need Statement, which will be prepared as a lead PEL Study document and used to secure IDOT and FHWA concurrence with the overall project Purpose and Need (PEL Coordination Point #1), including the justification to consider a railroad crossing grade separation. The initial project Purpose and Need Statement will be used for PEL Coordination Point #1 and refined for EA-NEPA/404 Concurrence Point #1 (if required). Based on the completed analysis of traffic operations for existing, 2050 No-Build, and 2050 Build Grade Separation Only (No-Build elsewhere) scenarios, the Purpose and Need Statement will identify existing traffic operations and safety problem areas and determine the effects of a year 2050 No-Build scenario to the surrounding roadway network and intersections, which will establish the need to consider operational, capacity, and safety improvement alternatives. The Purpose and Need Statement will summarize the analysis completed in Task 7 and Task 8 with respect to existing/projected traffic and railroad volumes (and train lengths), travel/access patterns, travel time, intersection delay, railroad crossing delay, level of service and other areas of anticipated traffic congestion. The consultant will coordinate this work with other studies in the immediate area as applicable.

Specific work tasks will include:

1. Prepare preliminary Purpose and Need Statement and submit to LCDOT and IDOT for initial review
2. Prepare a revised Purpose and Need Statement, with disposition of comments, and resubmit to LCDOT and IDOT for further review and forwarding to FHWA for initial review
3. Prepare the final Purpose and Need Statement, with disposition of comments, and resubmit to LCDOT, IDOT, and FHWA for final review and completion of PEL Coordination Point #1

4. Refine the Purpose and Need Statement (as applicable) and submit to LCDOT, IDOT, and FHWA for coordination NEPA/404 Concurrence Point #1 (if required) after initiation of the NEPA process

**B. Alternatives Development and Evaluation**

Alternatives development and evaluation will be completed in two parts:

1. Level 1 Analysis will be focused on traffic analysis (Task 7), safety analysis (Task 8) and cross section considerations, including non-motorized travel accommodations to develop a right-of-way footprint. The alternatives will be evaluated based on high level Measures of Effectiveness (MOE) including impacts to ROW, wetlands, cemetery, trees/forested acres, parks and commercial properties to eliminate fatally flawed alternatives and identify the Alternatives Carried Forward. Concept level geometric design will be completed in Level 2 only. Refer to Task 7.E.3 for the range of alternatives that are anticipated to be included in the Level 1 Analysis.
2. Level 2 Analysis consists of concept level design of the Alternatives Carried Forward (plan, limited cross sections) that may include lane width variations, access modification alternatives, shoulder/curb and gutter, and variable non-motorized accommodations. Alternatives will be compared in a Concept Alternatives Evaluation Table (environmental impacts, ROW requirements, transportation performance, safety, maintenance of traffic considerations, socio-economic impacts and costs) through which the Preferred Alternative is identified. Overpass and underpass grade separation concepts at the CN Railroad will be investigated. For purposes of this proposal, it is assumed that four distinct Alternatives Carried Forward will be identified for the Old McHenry Road Corridor and the Quentin Road corridor for concept level development and evaluation.

**C. Preparation of Alternatives Carried Forward Technical Memorandum**

This task includes preparation of the Alternatives Carried Forward Technical Memorandum (ACFTM). The ACFTM will be prepared during the PEL Study and will identify and compare the No-Build Alternative with the range of Build Alternatives considered as part of the Level 1 analysis, and present the methods for comparative analysis and results, reasons for eliminating preliminary alternatives, alternatives to avoid certain environmental resources or sensitive areas, and identify the Alternatives Carried Forward for NEPA analysis. The ACFTM will be submitted to IDOT and FHWA for review and concurrence as part of PEL Study (PEL Coordination Point #2), and refined for EA-NEPA/404 Concurrence Point #2 (if required). Specific work tasks will include:

1. Prepare preliminary ACFTM and submit to LCDOT and IDOT for initial review
2. Prepare a revised ACFTM, with disposition of comments, and resubmit to LCDOT and IDOT for further review and forwarding to FHWA for initial review
3. Prepare the final ACFTM, with disposition of comments, and resubmit to LCDOT, IDOT, and FHWA for final review and concurrence.

4. Refine ACTFM for NEPA/404 Concurrence Point #2

**10. Proposed Improvement Plans (Preferred Alternative)**

Based on the results of the analysis of alternatives and stakeholder and agency coordination, the Preferred Alternative will be identified, and will be the basis for development of the proposed improvement plans and determination of right-of-way requirements for the project. For purposes of this proposal, it is anticipated that independent sets of proposed improvement plans will be prepared for the Old McHenry Road section of the project and the Quentin Road section of the project.

The proposed improvement plans will include preliminary plan and profile sheets showing existing and proposed horizontal and vertical geometry at a scale of 1" = 50'. The proposed geometry will be designed to meet all applicable IDOT and LCDOT design criteria or approved design exceptions.

Existing and proposed cross sections will be evaluated using the 3D model throughout the corridor and at all side streets, driveways and other grade controlling features to determine right-of-way and easement requirements, wetland impacts, ditch locations and drainage patterns, and to fine-tune the proposed vertical geometry. The cross sections will show existing right-of-way, existing and proposed top surface grade elevation, and the proposed right-of-way and temporary construction easements. This task also includes development of the construction cost estimate for the Preferred Alternative.

Specific work tasks will include:

1. Prepare preliminary proposed improvement plans for the Preferred Alternative, including plan, profile and cross sections based on drainage, environmental, and non-motorized considerations, and including preliminary right-of-way requirements and submit the plans to LCDOT and to IDOT for review/comment as applicable (separate plan sets for Old McHenry Road and Quentin Road).
2. Revise the proposed improvement plans, with disposition of comments, and resubmit to LCDOT and IDOT for review/comment (separate plan sets for Old McHenry Road and Quentin Road)
3. Finalize the proposed improvement plans, with disposition of comments, and resubmit to LCDOT and IDOT for review/comment (separate plan sets for Old McHenry Road and Quentin Road)
4. Prepare a separate set of final proposed right-of-way plans for Old McHenry Road and Quentin Road.
5. Prepare preliminary engineer's estimate of construction cost for Old McHenry Road and Quentin Road. The construction cost estimates will include all costs related to construction staging per the Traffic Maintenance Analysis completed in Task 17.

**11. Intersection Design Studies (Preferred Alternative)**

After completion of the traffic analysis report and identification of the Preferred Alternative, TranSystems will prepare Intersection Design Studies (IDS) at eight intersection locations:

- A. Intersection along Old McHenry Road (5):
  - 1. Fairfield Road
  - 2. Midlothian Road (assume two locations if jug-handle is preferred option)
  - 3. Modified St. Matthew Church/Hawthorn Woods Public Works/Hawthorn Gardens entrance (If applicable)
  - 4. Quentin Road
- B. Intersections along Quentin Road (4):
  - 1. IL Route 22
  - 2. Ensell Road
  - 3. Highland Drive
  - 4. Quentin Road Baptist Church Entrance

Each IDS design will consist of the following elements:

- Evaluate preferred intersection geometrics and prepare IDS base sheets showing details for proposed roadway geometrics, pavement marking, traffic signal equipment, alignments, limits of improvements, and ROW
- Refine the intersection capacity using Synchro for unsignalized and signalized intersections. Roundabout intersection alternatives will be analyzed using Sidra. As applicable, develop optimum signal phasing and timing splits; and determine level-of-service (LOS), delays, and red-time queues. Provide summary of traffic volumes, traffic operations and signal timings on the IDS sheets.
- Identify any design exceptions
- Prepare roadway profile sheets
- Prepare turning movements sheets for the design vehicles using AutoTURN
- ADA detail Sheets at locations including pedestrian facilities
- Preliminary submittal for comment, with Final submittal (with disposition of comments received from LCDOT and IDOT).

**12. Structural Design**

This task includes Phase I structural design studies and alternatives analysis for the grade separation of the CN Railroad, retaining walls along Quentin Road and Old McHenry Road, and a culvert extension on Quentin Road north of Ravine Road. Details of this work include the following:



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- A. Grade separation of the CN Railroad at Old McHenry Road
  - 1. Analyze multiple bridge and track staging alternatives, including an overpass and underpass, and develop a Bridge Alternatives Technical Memo. Prepare concept-level exhibits showing each bridge alternative.
  - 2. Evaluate Accelerated Bridge Construction (ABC) techniques and include recommendations in the Bridge Alternatives Technical Memo.
  - 3. Evaluate Hydraulic Box-Jacking bridge alternative and coordinate with Petrucco, the contractor that has developed the construction type.
  - 4. Develop a Type, Size and Location plan for the recommended alternative.
  - 5. Prepare a Preliminary Bridge Design and Hydraulic Report (BLR Form 10210).
- B. Multiple areas within the project limits that are likely to require retaining walls greater than 7 feet in height have been identified. In accordance with IDOT requirements, the following tasks will be performed for each retaining wall:
  - 1. Prepare a Wall Type Study
  - 2. Develop a Type, Size and Location plan
  - 3. Prepare a Preliminary Bridge Design and Hydraulic Report (BLR Form 10210)

### Location of Retaining Walls along Old McHenry Road:

- 1. Southeast Retaining Wall at Railroad Grade Separation – Approx. 540 feet long
- 2. Southwest Retaining Wall at Railroad Grade Separation – Approx. 710 feet long
- 3. Bike Path Retaining Wall West of YMCA – Approx. 550 feet long
- 4. Bike Path Retaining Wall East of Echo Lake Road – Approx. 125 feet long
- 5. Bike Path Retaining Wall East of Abbey Glenn Drive – Approx. 250 feet long

### Location of Retaining Walls along Quentin Road:

- 1. Southbound Retaining Wall 400 feet South of Heather Lane – Approx. 120 feet long
- 2. Southbound Retaining Wall 300 feet North of Glendale Road – Approx. 170 feet long
- 3. Southbound Retaining Wall at Glendale Road – Approx. 330 feet long
- 4. Southbound Retaining Wall at Culvert – Approx. 215 feet long
- 5. Northbound Retaining Wall at Culvert – Approx. 105 feet long
- 6. Southbound Retaining Wall South of Highland Drive – Approx. 515 feet long

### Location of Retaining Walls along Midlothian Road and Kruger Road:

- 1. Northbound Retaining Wall North of Old McHenry Road – Approx. 200 feet long
- 2. Kruger Road Retaining Wall at Wetlands – Approx. 300 feet long

- C. Quentin Road Box Culvert (North of Ravine Road)
  - 1. Perform a culvert inspection and prepare an abbreviated inspection report.
  - 2. Prepare concept-level exhibits showing a culvert extension for each roadway alternative.
- D. Conduct a site visit to observe existing conditions at each structure.

**13. Railroad Design and Coordination**

This task includes Phase I railroad design studies and coordination with CN Railroad and ICC for the grade separation of the CN Railroad. Details of this work include the following:

- A. Establish design criteria based on CN standards for railroad track horizontal and vertical geometrics, design speed and ComEd clearances (vertical and horizontal) for the existing towers and high-tension transmission cables.
- B. Develop concept railroad geometric alternatives to 10% level. Three alternatives are assumed which include geometrics for both temporary and permanent track alignments and profiles. Consideration for a future second track will be included in this analysis.
- C. Identify high-level advantages and disadvantages of each alternative including constructability, costs, construction staging, construction duration, track outages, safety, environmental impacts, retaining walls, and appearance. Prepare concept-level exhibits showing alignments, profiles and typical cross section for each alternative.
- D. Conduct introductory project and initial review meeting with the CN Railroad and ICC
  - 1. Determine Preferred Alternative
  - 2. Request preliminary Memorandum of Understanding to address preferred structure type, cost participation and accommodation for future second mainline track
  - 3. Identify signal pad location and size for each phase
- E. Develop 30% plans for the Preferred Alternative including the following considerations:
  - 1. Track outage evaluation
  - 2. Staging schematics (shoofly geometry, drainage and grading)
  - 3. One signal pad detail sheet (signal plans will be completed in Phase II)
  - 4. Evaluate impacts (environmental, railroad operations, utilities and right-of-way)
  - 5. Determine right-of-way
  - 6. Prepare preliminary construction cost estimate
- F. Prepare technical memorandum summarizing findings
- G. Conduct three coordination meetings with CN Railroad to discuss design development and technical memorandum

**14. Agency Coordination**

This task includes all required agency coordination to complete Phase I Engineering. Agency coordination is anticipated to include coordination with IDOT and FHWA as part of the federal project development process. As noted, it is assumed that NEPA/404 Merger coordination will not occur as part of the PEL Study. Although it is unknown if NEPA/404 Merger coordination will be required as part of the future NEPA process, for purposes of this proposal, it is assumed that the NEPA process for Quentin Road will include an EA, and that NEPA/404 Merger coordination will also be required.

- A. Preparation for and attendance at IDOT and FHWA coordination meetings as part of the federal project development process and ongoing project coordination with IDOT.
  - 1. IDOT Coordination Meetings: (17 meetings)
    - a. Project kickoff meeting (one meeting)
    - b. Coordination meetings throughout Phase I Engineering to ensure critical path project development and coordination tasks are proceeding on schedule (10 meetings).
    - c. Old McHenry Road (Fed CE) Design Exceptions (one meeting)
    - d. Quentin Road (EA) Design Exceptions (one meeting)
    - e. Geometric/traffic Coordination Meetings for coordination on geometric needs at IDOT intersections (four meetings)
    - f. Each meeting above assumes 4 people for 2 hours per meeting, 20 hours for meeting preparation and 4 hours for meeting summaries.
  - 2. FHWA Coordination Meetings (seven meetings):
    - a. Initial meeting (logical termini, project development procedures)
    - b. Project status meeting (PEL, Purpose and Need Coordination Point #1)
    - c. Project status meeting (PEL, Alternatives Carried Forward Coordination Point #2)
    - d. Project status meeting (Fed CE and EA project development procedures, in advance of EA-NEPA/404 CP #1 and CP#2, if required)
    - e. Project status meeting (Fed CE and EA Preferred Alternative , in advance of EA-NEPA/404 CP#3, if required)
    - f. Project status meeting (Section 4(f) draft)
    - g. Project status meeting (Section 4(f) final)
    - h. Each meeting above assumes 4 people for 2 hours per meeting, 20 hours for meeting preparation and 4 hours for meeting summaries.
  - 3. Maintain close coordination with various bureaus in IDOT District 1 for facilitation of the important aspects of the project.
- B. Quentin Road EA NEPA/404 Merger Meeting Coordination: Although some of the upfront work with respect to Purpose and Need development and Alternatives Evaluation will be completed as part of the Planning and Environmental Linkages (PEL) Study and Report, re-coordination of the Purpose and Need (NEPA/404 Concurrence

Point #1), and Alternatives to be Carried Forward (NEPA/404 Concurrence Point #2) will occur to secure formal agency concurrence after formal initiation of the Quentin Road EA process. This is anticipated to occur as a single NEPA/404 Merger Meeting presentation. Subsequently, preparation for and attendance at a NEPA/404 Merger meeting for Concurrence Point #3 (Preferred Alternative) will occur. It is anticipated that it will require two presentations to achieve Concurrence Point #3 based on typical agency questions and comments that will need to be addressed.

- C. Permitting Agencies
  - 1. Lake County SMC
    - a. Project kickoff meeting (after authorization)
    - b. Project status meetings (two meetings)
  - 2. Environmental Resource Agencies (USACE, IEPA, US Fish and Wildlife Service, Illinois Department of Natural Resources, Illinois SHPO and others as needed)
    - a. Assume ten coordination meetings

## **15. Public Involvement**

The project team will create a public involvement program that will use the resources of TranSystems, CBBEL and Teska to create a program that is unique and tailored to fit this project. It is expected that the project will follow a Context Sensitive Solutions type of process that will include creation of a Stakeholder Involvement Group (SIG), a series of public meeting activities with the SIG, other stakeholder groups and the public in general. The following provides the overall scope of work for this task.

- A. An initial project kickoff meeting focused on public involvement activities will be held to confirm the overall public involvement approach and to confirm initial public involvement activities. Project branding will be discussed at this time. A preliminary branding exhibit with 3 brand identity options will be presented from which a brand identity can be selected and finalized for use in the website.
- B. Project stakeholder meetings – conduct 16 project stakeholder meetings with Hawthorn Woods, Lake Zurich, Elmhurst Township and up to three other groups to be determined to introduce the project team, identify stakeholders for involvement in the SIG, discuss and coordinate the project, seek input, review project specific elements (traffic movements, environmental issues, etc.) and review technical studies.
- C. Stakeholder Involvement Plan (SIP). The primary purpose of the SIP is to provide the framework for overall stakeholder involvement throughout the project development process. The SIP will remain flexible, is based on the needs of the project, and may be updated throughout the project development process as necessary. The SIP will be presented at the initial SIG meeting for acceptance.

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1. Identify and prepare list of stakeholders
  2. Develop draft SIP and submit to LCDOT for review/concurrence
  3. Update and finalize SIP and share with the SIG
  4. Prepare updates to the SIP throughout the Phase I study as needed
- D. SIG - Five separate SIG Meetings are anticipated for this project. SIG meetings are intended to be held as informational meetings with opportunities for workshop style design discussion. Each meeting would have a structured agenda with anticipated outcomes. Meetings would typically begin with a formal presentation followed by input activities designed to achieve inputs to guide the project. Input activities may include, but are not limited to:
- Guided discussion to review project alternatives and elements
  - Live mapping to graphically identify issues and opportunities to aid discussion
  - Live sketching atop drawings or photographs to graphically describe design concepts
  - Live online polling via Mentimeter or other to identify group preferences about design issues and opportunities

It is assumed that the SIG meetings will be either virtual or in person meetings.

1. Meeting 1 - Introduce team, project development process and schedule. Present and review SIP and complete a Context Audit. Present traffic and safety data and analysis.
2. Meeting 2 - Present Draft Purpose and Need statement; present 'Issues and Opportunities' exhibits; present potential alternatives and ask for additional ideas.
3. Meeting 3 – Present Preliminary Alternatives and analysis of each. Conduct a workshop to review the screening of the alternatives. Get public input on which alternatives best address the Purpose and Need. The outcome of this meeting would be direction to proceed with Public Meeting 2 and development of the finalist alternative.
4. Meeting 4 - Present the Finalist Alternatives and Analysis. The meeting would begin with a slideshow presentation, followed by a discussion about plan elements and details. The outcome of this meeting would be direction to proceed with the public hearing and development of engineering.
5. Meeting 5 - Present detailed geometric plans for the selected concept. The meeting would include a formal presentation and input activities. The outcome of this meeting would be direction to proceed with the public hearing.
6. Other tasks related to the SIG meetings include:
  - a. Identify location for each SIG meeting with assistance from LCDOT.
  - b. Prepare Meeting Agenda and submit to LCDOT for concurrence.
  - c. Prepare SIG meeting invite letters and emails, and distribute pre-meeting materials.
  - d. Prepare meeting presentation and materials.
  - e. Advance Dry Run meetings with LCDOT

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- f. Staff attendance at SIG meetings.
    - g. Prepare SIG meeting minutes/summary and distribute.
- E. Public Meetings/Hearings
  - 1. Two Public Meetings and a Public Hearing are proposed for the project. Each meeting/hearing will be conducted as both an in person and a virtual event using Zoom or another equivalent virtual meeting product. The meeting/hearing would include a formal presentation and opportunities for public engagements.
    - a. Public Meeting 1 – This meeting would be conducted after SIG Meeting 2. The purpose of the meeting is to introduce the project scope, project team, schedule, public input process and to present results of traffic and crash studies. The meeting would include a formal presentation and input activities. The meeting will also introduce the SIG process and request sign up for volunteers.
    - b. Public Meeting 2 – this meeting would be conducted after SIG Meeting 3
    - c. Public Hearing – this hearing is related to the anticipated Quentin Road Environmental Assessment. It would be conducted after FHWA signature of the EA and after SIG Meetings 4 and 5 and would follow the requirements of a Public Hearing as noted in the BLRS Manual and IDOT BDE Manual.
  - 2. Other tasks related to the public meetings/hearing include:
    - a. Compile mailing list (including stakeholders and all adjacent property owners).
    - b. Preparation of brochures/handouts.
    - c. Preparation of display exhibits (aerial displays with alternatives, cross sections, traffic data, crash data, environmental data, and other displays as appropriate).
    - d. Preparation of PowerPoint presentations
    - e. Attendance at dry run events
    - f. Secure location for public meetings
    - g. Preparation of newspaper display ads and press releases
    - h. Attendance at public meeting and hearing
    - i. Securing a court reporter for the Public Hearing
    - j. Preparation of record summaries of the meetings that will include at a minimum copies of all notices, presentation material, attendance lists, comments, and responses.
    - k. Preparation of post Public Meeting & Hearing project updates for posting on the Lake County project website (see below) that will summarize the PM/PH proceedings, general comments received and responses, and an overview of the next steps in project development.
    - l. Prepare individual response letters to uncommon comments received, or requests for information received at the Public Meeting and Public Hearing.
- F. Project Website and Branding
  - 1. An independent project website will be developed to provide a central location for the exchange of project information between the project team (LCDOT and

## **EXHIBIT A – SCOPE OF ENGINEERING SERVICES**

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- consultants) and project stakeholders. The website can also be used as a secure location for posting of project information for review by LCDOT only.
2. The website will be located on a project specific internet domain acquired by the consultant and linked to the LCDOT project website. The website will incorporate graphics and messaging developed specifically for the Old McHenry Road project.
  3. Website content will be developed and maintained throughout the Phase I project development process (assumed two years during the Phase I project) by the consultant. All website content will be reviewed and approved by LCDOT before posting. The website will include at least the following information/capabilities for the project team and stakeholders:
    - a. List of project stakeholders including contact information
    - b. Background project information including schedule
    - c. Provide a list of Frequently Asked Questions (FAQs) and responses
    - d. SIG and Public Information Meeting/Public Meeting/Public Hearing notifications
    - e. Project team contact information
    - f. Resource for submitting questions and comments
    - g. Posting of project documents for information and/or review
    - h. Subscribers are invited to receive project updates
  4. At the conclusion of the Phase I project development process, which is assumed to be 36 months after the beginning of the project, the website and domain ownership will be assumed by LCDOT unless otherwise specified. (Note: The website will be produced in WordPress. If LCDOT assumes ownership of the domain, LCDOT would be required to pay yearly costs and understand how to operate the WordPress website.)
- G. Design Visualization models will be developed to assist the public understand proposed concepts and alternatives for public meetings and the project website. Utilizing a 3D visualization model can help translate what a given proposed alternative will look like much more effectively than a 2D plan exhibit. 3D models for two alternatives per road will be prepared which will be used for the following deliverables:
1. Develop interactive 3D model to be published on the project website for the public to explore, move around the point of view to see what the project will look like (two alternatives).
  2. Create a final fly through video for the preferred alternative for use on the project website.
  3. Rendered roadway typical sections for each proposed alternative (six alternatives)
  4. Construction phasing visualization will be produced to show a time-lapse sequence of construction of the underpass (one video sequence)
  5. Produce still photo visualization images from the 3D model to be used for comparing aesthetic treatment alternatives.

**16. Aesthetics**

Based on input gained through the public outreach activities and with LCDOT staff direction, Teska will apply community input results towards streetscape design and development.

- A. Corridor context exhibits: These exhibits identify surrounding influences on the study area, including pedestrian routes and destinations, bike routes, vehicular routes, bus routes, adjacent land uses, property/business names, major destinations, critical views, mature vegetation, and historical and cultural influences. These exhibits will be presented as diagrams atop aerial photography. Annotated photographs would be provided to support the diagrams.
- B. Thematic identity exhibits: These exhibits illustrate a thematic direction to inform the eventual landscape and streetscape selections. The Old McHenry Road/Quentin Road corridor should not be treated as a 'one size fits all' corridor but should respond to existing characteristics and landscape surroundings. These exhibits will be presented as diagrams atop aerial photography and annotated photographs. Potential thematic identities that may be explored include:
  - 1. Early agricultural themes and characteristics specified to Lake Zurich, Hawthorn Woods and Elia Township.
  - 2. Sustainable landscape themes, including the communities' commitments to water quality, native plantings, dark skies initiatives, wildlife corridors and other sustainable materials and processes as appropriate to the project.
- C. Preliminary concept plans and alternatives: Based on research conducted above and coordination with the design team, two preliminary concept plan packages will be prepared each for the Old McHenry Road and Quentin Road corridors. Each corridor will be studied and conceptualized with overlapping thematic elements as appropriate. Each package would include plans, sections, elevations, and comparable photographs as required to convey design intent. Based on 3D modeling prepared by TranSystems, Teska will prepare two 3D photo-visualizations for each corridor to support each concept plan package. Alternative aesthetic treatments will be provided for each concept plan package as appropriate. The concepts will include best design practices for sustainable materials and systems which may include, but are not limited to: stormwater storage, water quality, Dark Skies initiatives for lighting, wildlife corridors, vegetative buffers, bioswales and rain gardens. Design features to be addressed in each package will be non-structural aesthetic treatments including, but not limited to: surface treatments at bridge structures and retaining walls, earthwork and grading, railings, lighting, paving, landscaping, and public art as appropriate to each design package. The structural design and photometric calculations will be performed in other tasks, not by Teska.



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- D. Participate in review meetings and presentations with staff, stakeholders and the community as described in “Public Involvement” above prior to preparing refined documents. During the outreach, concept plan materials and elements will be reviewed. Revisions may be made to the concepts to assist LCDOT staff and stakeholders in the selection of design features to be included in the refined plan package.
- E. Prepare refined concept plan based on direction received during the Public Involvement activities, one refined concept plan package for each corridor will be created. Each final concept package will include refined plans, sections, elevations and comparable photographs as required to convey design intent. Two 3D photo-visualizations for each corridor will be refined to support the plan package.
- F. Prepare cost estimates based on design work above. The cost estimating will be coordinated with the design team.
- G. Prepare outline specifications in coordination with the design team. Based on the design and public involvement activities described above, outline specifications will identify products selections, materials, finish treatments, and plant lists as appropriate to guide the next phase of design work.

### **17. Traffic Maintenance Analysis (Preferred Alternative)**

This task includes completion of the Traffic Maintenance Analysis (TMA) for construction of the Preferred Alternative. Based on the assumption that the Old McHenry Road improvements are likely to be completed in advance of the Quentin Road improvements, separate independent TMA’s will be prepared for each section of the project.

The TMA will determine the most effective method for construction staging and traffic maintenance, including an evaluation of the need for temporary railroad facilities and temporary roadway facilities. The need for additional temporary construction easements for providing temporary railroad and/or roadway facilities will also be evaluated for inclusion on the proposed right-of-way plan sheets.

This task will be summarized in a TMA report for this project that is anticipated to be included in the Project Development Report (Old McHenry Road) and the Combined Design Report (Quentin Road) as an appendix.

Specific work tasks for each TMA Report will include:

1. Determine stage construction methodology.
2. Determine traffic maintenance requirements.
3. Determine temporary construction easement need.
4. Prepare TMA report with exhibits.
5. Prepare for an attend two IDOT Detour Committee Meetings

**18. Planning and Environmental Linkage (PEL) Report**

Based on early project coordination with IDOT and FHWA, a Planning and Environmental Linkages (PEL) Study is anticipated to be completed in accordance with 23 U.S.C. 168, based on the need to evaluate potential socio-economic and environmental impacts to determine NEPA processing, and applicable NEPA timeframe constraints. This task includes preparation of the PEL Report, which will present the project Purpose and Need, the Alternatives (No-Build, Build) to be Carried Forward into the NEPA process, and all associated public involvement and agency coordination that occurred as part of the PEL Study. The work required to develop the project Purpose and Need and Alternatives Carried Forward documentation will occur under Task 9. Agency Coordination and Public Involvement completed as part of the PEL Study will occur under Tasks 14 and 15 respectively.

The intent of the PEL Study is to identify alternatives that best meet the Purpose and Need and avoid/minimize potential impacts to socio-economic and environmental resources, and therefore should be carried forward into the NEPA process for detailed analysis.

The content of the PEL Report will include the following:

- **Introduction**
  - Study Area
  - Project Background
  - PEL Objective and Approach
- **Purpose and Need**
  - Existing and Year 2050 Projected Travel Demand (*roadway and rail*)
  - Rail Travel Demand Forecasting
  - Travel Performance (*Existing and 2050 No-Build*)
  - Safety (*Existing and 2050 No-Build*)
  - Transit Facilities
  - Bicycle and Pedestrian Facilities
- **Socio-Economic and Environmental Setting**
- **Alternatives Development and Evaluation**
  - No Action Alternative
  - Alternatives Development and Evaluation
    - Transportation Performance
    - Environmental Impacts
    - Safety
    - Accessibility (motorized and non-motorized)
    - Bicycle and Pedestrian Accommodations
    - Rail and Transit
    - Utilities
    - Construction Cost

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- Recommended Alternatives to be Carried Forward (No-Build and Build)
    - Multimodal Considerations
    - Consistency with Adjacent Facilities
  - Construction Phasing
- **Agency Coordination and Public Involvement**
  - Stakeholder Involvement Group
  - Local Agency Coordination (LCDOT, LCSMC, etc.)
  - IDOT and FHWA Coordination
  - One-on-One Stakeholder Meetings
- **Next Steps**
  - NEPA Studies
  - Potential Funding Strategies
- **Appendices**
  - Transportation Performance Report (Existing Conditions and 2050 No-Build)
  - Alternatives Evaluation Report
  - Agency Coordination and Public Involvement Meeting Summaries
  - Technical Memoranda
  - Letters of Agency Support
- **Tables and Figures** (as needed)

The PEL report will be submitted to IDOT and FHWA for review and concurrence to proceed to NEPA. Development, review and concurrence of the PEL Report is anticipated to be an iterative process with submittal of an initial draft PEL Report to IDOT and FHWA for review/comment, and resubmittal with disposition of comments as required to achieve FHWA concurrence. Based on the complexity of the project scope, length, and environmental setting, three rounds of review are anticipated to be required.

Specific work tasks will include:

1. Project Construction Phasing Evaluation. Determination of the need, feasibility, and operational independence for proceeding into NEPA as multiple independent projects (as/if desired or required), summarize in a Technical Memorandum, and coordinate with IDOT and FHWA for approval.
2. Prepare preliminary PEL Report and submit to LCDOT and IDOT for initial review
3. Prepare a revised PEL Report, with disposition of comments, and resubmit to LCDOT and IDOT for further review and forwarding to FHWA for initial review
4. Prepare the final PEL Report, with disposition of comments, and resubmit to LCDOT, IDOT, and FHWA for final review and concurrence.

**19. Quentin Road Environmental Assessment (EA)**

As noted, an upfront PEL Study will be completed to determine Alternatives to be Carried Forward into the NEPA process and to evaluate construction phasing scenarios based on the limited available construction funding. It is anticipated that the PEL Study will result in two separate follow-on NEPA processes, with the Old McHenry Road/CN Railroad grade separation being completed as a Federal CE and Quentin Road being completed as an EA. This task includes preparation of the Quentin Road EA. The main elements of the Quentin Road EA development and processing will include the following:

- Section I – Purpose and Need
- Section II – Alternatives Considered
- Section III – Environmental Resources, Impacts, and Mitigation (including Section 4(f) Coordination)
- Section IV – Public and Agency Coordination
- Section V – Identification of the Preferred Alternative
- Appendices and Technical Reports

Specific work tasks/cycles will include:

- A. Upfront coordination for the EA will include preparation of the EA Timeframe Agreement as required for coordination with IDOT and FHWA, and periodic updates throughout the EA process.
- B. Preparation of initial coordination letters for IDOT and FHWA distribution to Cooperating Agencies and Section 106 Consulting Parties.
- C. Prepare the Draft EA for initial review by LCDOT and IDOT. This includes compiling all required maps, charts, graphs, tables, and exhibits for the body of the EA, and all appendices.
- D. Submit a revised Draft EA, with disposition of all review comments, for further review by IDOT and FHWA.
- E. Submit a revised Draft EA, with disposition of all review comments, for further FHWA review and legal sufficiency review.
- F. Submit Final EA, with disposition of any remaining comments, for FHWA signature, public release, and presentation at the Public Hearing.
- G. Post Public Hearing, prepare the EA Errata documenting results of the Public Hearing, and the Draft Finding of No Significant Impact (FONSI) for FHWA review.
- H. Submit revised FONSI, with disposition of review comments, for FHWA signature.

- I. Prepare Limitation on Claims documentation for FHWA inclusion in the Federal Register, as applicable.

**20. Combined Design Report (CDR)**

Based on IDOT and FHWA requirements, a Combined Design Report (CDR) will be prepared for the Quentin Road section of the project as the companion document to the Environmental Assessment that is anticipated to be required. The content of the CDR will include the following:

- Introduction (Description, History, Design Criteria)
- Purpose and Need
- Existing Conditions-Setting
- Alternatives Considered
- Evaluation of Alternatives Studied in Detail
- Identification of the Preferred Alternative
- Agency Coordination and Public Involvement
- Conclusions and Recommendations
- Appendices (Project Maps/Charts/Exhibits, Plans, Traffic Maintenance Analysis, Environmental Coordination, Public Involvement Summaries, etc.)

A Draft CDR will be prepared for LCDOT and IDOT review before the Public Hearing. A Final copy of the CDR will be prepared after the Public Hearing, incorporating results of the Public Hearing and addressing Draft version review comments. It is anticipated that two rounds of submittal/review of the Final CDR will occur before Phase I Design Approval is granted.

Specific work tasks will include:

- A. Prepare preliminary CDR and submit to LCDOT and IDOT for initial review, including compile maps, charts, graphs and exhibits for the CDR as required.
- B. Prepare a revised CDR, with disposition of comments, and resubmit to LCDOT and IDOT for further review and forwarding to FHWA for initial review and concurrence to proceed to the Public Hearing.
- C. After the Public Hearing, prepare a revised CDR, including maps, charts, graphs and exhibits (as required) based on the results of the Public Hearing, along with disposition of remaining pre-Public Hearing review comments, and submit to LCDOT, IDOT, and FHWA for review.
- D. Prepare the final CDR, with disposition of comments, and resubmit to LCDOT, IDOT, and FHWA for final review and issuance of Phase I Design Approval.



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### **21. Project Development Report (PDR)**

This task includes development of the Project Development Report (PDR) in accordance with IDOT-BLR Form 22210 (Federal CE) for the Old McHenry Road section of the project and coordinated with LCDOT and IDOT for review/approval. This task includes development of the PDR and all supporting exhibits.

A Draft PDR will be prepared for LCDOT and IDOT review before the Public Information Meeting for the Old McHenry Road section of the project. A Final copy of the PDR will be prepared after the Public Information Meeting, incorporating results of the Public Information Meeting and addressing Draft version review comments. It is anticipated that two rounds of submittal/review of the Final PDR will occur before Phase I Design Approval is granted

Specific work tasks will include:

- A. Compile Maps, Charts, Graphs and Exhibits for the PDR.
- B. Prepare preliminary PDR and submit to LCDOT and IDOT for initial review.
- C. Prepare a revised PDR, with disposition of comments, and resubmit to LCDOT and IDOT for further review and forwarding to FHWA for initial review and concurrence to proceed to a Public Information Meeting.
- D. After the Public Information Meeting, prepare a revised PDR, including maps, charts, graphs and exhibits (as required) based on the results of the Public Information Meeting, along with disposition of remaining pre-Public Information Meeting review comments, and submit to LCDOT, IDOT, and FHWA for review.
- E. Prepare the final PDR, with disposition of comments, and resubmit to LCDOT, IDOT, and FHWA for final review and issuance of Phase I Design Approval

### **22. Project Funding Assistance**

This task includes assistance to LCDOT staff through two working sessions with the intent of identifying and developing a strategy to pursue state and federal funding sources.

- A. Assist application process for funding through the STP Shared Fund program.
- B. Strategize and write federal grant applications. Due to the current change in administration, federal funding opportunities are likely to be released sometime during

the 1<sup>st</sup> or 2<sup>nd</sup> quarter of 2021. There are several approaches that can be used for the pursuit of funding for engineering and construction. A baseline competitive grant application can be prepared to compete for these funding opportunities. Once a baseline is created, TranSystems can adjust the application and prepare a benefit cost analysis to meet the specific grant program requirements and selection criteria.

As it stands, the Old McHenry/Quentin Road Project would be eligible for the following discretionary grant opportunities: BUILD, INFRA and CRISI.

- C. Conduct two meetings with LCDOT staff, elected officials and other project advocates to strategize ways to promote the project to be successful with competitive grant funding programs.

### **23. Project Management and Administration**

- A. Prepare and submit monthly progress reports.
- B. Project management including contract administration, budget control, and internal project team meetings. Prepare and monitor the project schedule using Microsoft Project or other scheduling software, as well as perform scope of work reviews, resource planning, internal team coordination, contract administration, and invoicing.
- C. The project team and LCDOT staff will participate in biweekly virtual project meetings to coordinate work efforts, review the project schedule, discuss technical topics, prepare for upcoming meetings, and other project management subjects.
- D. Maintain Web Based Project Management System: The consultant will establish and maintain a web based file management system that facilitates information sharing and stores project documents which will be available to LCDOT staff. The web based project management system will consist of two components, a project SharePoint site and ProjectWise site. The SharePoint site will store electronic copies of a wide variety of information including data collected, meeting minutes, reports, schedules and budget information. The ProjectWise site will store CAD/MicroStation files to facilitate sharing of CAD files between the project team and LCDOT staff.
- E. Coordination with LCDOT QA/QC consultant.



## **EXHIBIT A – SCOPE OF ENGINEERING SERVICES**

Old McHenry Road / Quentin Road – Phase I Preliminary Engineering

### **24. QA/QC**

- A. This task includes establishment and adherence to an approved Quality Management Plan (QMP).
- B. QA/QC reviews will be performed in accordance with TranSystems' Quality Process prior to all major submittals.

### **Assumptions**

The Statement of Interest described this project as Phase I engineering services with an option to perform Phase II design engineering. It is assumed that a future scope of work will be developed by this consultant team to complete the Phase II engineering tasks, including plan developments, detailed cost estimates, permitting, plats, etc.

The following tasks or items were not included in this scope of services.

- A. Completion of Plat of Highways is deferred to Phase II Engineering
- B. If the Preferred Alternative includes a railroad shoofly for construction, it is assumed that a railroad noise impact assessment will not be required based on the temporary condition of the shoofly
- C. Permits
- D. Intergovernmental Agreements



## ATTACHMENT A



# DESIGN SURVEY PROCEDURES



## **DESIGN SURVEY PROCEDURES** (Revised 2/22/21)

### **HORIZONTAL ALIGNMENT**

Unless otherwise specified in the services contract, the CONSULTANT is to provide the horizontal alignment. The CONSULTANT will conduct all surveying, stationing, and preparation of required plans using English units of measure and the U.S. Survey Foot. The CONSULTANT'S SURVEYOR will try to re-establish the original horizontal alignment as shown on the recorded R.O.W. plats. The CONSULTANT shall contact LCDOT's Land Surveyor to obtain R.O.W. plats and field notes before establishing the horizontal alignment and stationing. The CONSULTANT shall notify LCDOT's Surveyor immediately if the alignment cannot be reproduced or if in the CONSULTANT'S opinion the existing alignment information is in error.

The CONSULTANT'S SURVEYOR, prior to construction, shall stake the PCs, PIs, PTs, and POTs so that the alignment location can be verified before construction staking is initiated. The CONSULTANT'S SURVEYOR will provide four reference ties to all U.S. Public Land Survey Monuments that are located within the construction limits. The reference points should be located outside of the anticipated construction limits if practical, so that they can be used after construction to replace the monuments. The CONSULTANT shall record Monument Records for all Section and Quarter Section corners set or found within the construction limits.

The CONSULTANT will mark the baseline for relocated alignments when off pavement at the PCs, PTs, and POTs with iron rods. The rods shall be set one foot below the surface in farmed land. The CONSULTANT will advise the County of any pavement alignment variations. In cases where the proposed centerline of construction or survey baseline is different from the existing centerline of R.O.W., both shall be shown and the relationship between them shall be indicated on an Alignment & Tie sheet.

### **ALIGNMENT & TIE SHEET**

An Alignment & Tie Sheet shall be provided as part of the final plans. The plans are to be prepared using English units of measure and the U.S. Survey Foot. The station, offset, and coordinates of the alignment points (PCs, PTs, PIs, and POTs) and survey control (traverse) points shall be shown. Coordinates for all projects shall be on the Illinois State Plane Coordinate System, - East zone, NAD83 (Adjustment). The grid (combination) factor for the project shall be shown. A list of traverse points with station, offset, and coordinates shall be provided.



## **VERTICAL ALIGNMENT**

The North American Vertical Datum of 1988 (NAVD 88) shall be used for vertical control. Lake County Mapping Benchmarks are available on-line (<http://gis.lakeco.org/maps/>). NAVD88 benchmarks are available on-line from the National Geodetic Survey. LCDOT's Land Surveyor may also be contacted for benchmarks that may be in the area. The primary benchmarks and site benchmarks shall be listed and described on the Alignment & Tie Sheet. The location of the site benchmarks shall also be shown on the plan sheets with a symbol. Site benchmarks are to be located at less than 1000-foot intervals with a minimum of two (2) on each project.

All benchmarks shall be located on stable objects. LCDOT prefers these objects to be outside the construction limits. Some acceptable benchmark examples are, spikes in poles, bolts on fire hydrant rings, and concrete foundations.

## **TOPOGRAPHY**

The CONSULTANT shall cut cross-sections on station at 50-foot intervals (i.e. XX+00.00 and XX+50.00) and at all points needing clarification. For areas of superelevation or requiring greater detail, cross-sections shall be cut on station at 25-foot intervals. The cross section interval should be defined in the engineering services contract.

Full cross-section profiles will be taken at all cross streets, alleys, cross road culverts, and entrances (commercial, private, and field). Half cross-sections will not be accepted because they skew the computer terrain model.

The CONSULTANT will locate and identify all trees (6 inches in diameter or greater) within the area either side of the centerline, defined by the proposed ROW or construction limits (whichever is greater) plus an additional 10 feet. The trees shall be identified by species and size. The trees shall be located by station/offset and have a ground elevation.

Streams, tributaries, or major drainage ditches located within a lateral distance of 250 feet from centerline (upstream and downstream) shall be surveyed. Alignment, profiles, and cross-sections shall be taken. The stream width shall be shown as the distance measured between the tops of the stream banks. Profile elevations along the bottom of the watercourse shall be taken at a minimum of 50-foot intervals.

The survey shall extend a minimum of 200 feet beyond the roadway construction limits. Cross-sections shall be taken a minimum of 10 feet beyond the proposed R.O.W. or construction limits (whichever is greater). Cross-sections will extend 30 feet beyond the proposed R.O.W. at entrances and 150 feet at minor side roads.

All survey data shall be collected in Illinois State Plane Coordinates – East Zone. The collected survey data for the existing topography shall have a minimum of 3<sup>rd</sup> Order Accuracy horizontally with readings to the nearest 0.1 feet for vertical on gravel or ground and readings to the nearest 0.01 feet for vertical on all other surfaces.

For ADA ramps: The Consultant shall not use GPS devices to collect vertical data or elevations for hard surfaces e.g. curb and gutter, sidewalk, bike paths etc.

### **RAILROAD INSURANCE**

The CONSULTANT will comply with the railroad's requirements when conducting a survey on the railroad's R.O.W. Usually, this includes obtaining a permit, paying a fee, obtaining Railroad Protective Liability Insurance, notification of a flagman to be present near the rails during the survey operations, and any other requirements of the railroad. The CONSULTANT is responsible for all of the foregoing requirements.

### **DELIVERABLES**

- I. Copies from the CONSULTANT'S field books, showing benchmarks, level circuits, & structure details, such as size and inverts etc.
- II. The Base Drawing at 1:1 scale. All the topographic information shall be plotted electronically. The data shall be in Illinois State Plane Coordinates – East Zone and be recorded in a MICROSTATION (dgn) format. All CAD work shall be according to LCDOT CAD Standards. ASCII files, gpk files, and/or InRoads files containing all point information as described below shall be included. A filename “ID” acronym explanation sheet shall be provided. Backup CDs shall be provided.
- III. Point Information:
  - (1) Point number
  - (2) Northing and Easting coordinate values
  - (3) "Z" elevations
  - (4) Point identification by code
  - (5) Notes

## EXHIBIT B

### MANHOUR BREAKDOWN

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
 Quentin Road - IL Route 22 to Old McHenry Road  
 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

Task and Description		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
<b>Task 1 - Data Collection and Evaluation</b>										
1a	Retrieve and catalog project data from Lake County, Hawthorn Woods, Lake Zurich, IDOT, and others: Available traffic and crash data, record roadway and drainage plans, plat of highways, current FEMA maps and models as applicable, property owner information, utilities, zoning maps, bike/pedestrian facilities and plans, public lands ownership and use as applicable, soils data, school/transit/mail/emergency service routes, etc.	272	160	112						
1b	Compile collected data into a project GIS database	56		56						
1c	Maintain project GIS database throughout Phase I	48		48						
1d	Field reconnaissance (project photo log, resolve questions from data collection and review)	80	48	32						
<b>Task 1 Subtotal:</b>		<b>456</b>	<b>208</b>	<b>248</b>	-	-	-	-	-	-
<b>Task 2 - Survey</b>										
2a	Topographic survey (Horizontal/Vertical Control, Surface Topography, Utilities, Cross Sections)	2,391	64	1,280			1,047			
2b	Railroad Survey	176	48	128						
2c	Stream survey	186	32	154						
2d	Existing Right-of-Way	320	64	256						
2e	Base Mapping Compilation (MS OpenRoads CONNECT). Coordination with LC GIS Department for available LiDAR mapping and control data, and incorporate LiDAR mapping. Incorporate HBK Utility Data.	376	96	280						
2f	Vegetative Area Survey	72		72						
2g	Fairfield Road Realignment Area (contingency)	609	48	318			243			
2h	Supplemental Field Survey (Boundary Conditions, Identified BFE locations per LCSMC coordination, Resolve LiDAR Voids, New Development, Potential Compensatory Storage Areas, etc.)	132	36	96						
<b>Task 2 Subtotal:</b>		<b>4,262</b>	<b>388</b>	<b>2,584</b>	-	-	<b>1,290</b>	-	-	-
<b>Task 3 - Utility Identification and Coordination</b>										
3a	Coordination with subconsultant (HBK Engineering) to coordinate Level B SUE and Level A SUE (as needed) with topographic survey and compilation of base CADD files. See separate proposal from HBK Engineering.	88	48	40						
3b	Initial coordination / data collection	40						40		
3c	Utility easement research	20						20		
3d	Utility Locating	1,112						1,112		
3e	Utility base mapping	216	80	96				40		
3f	Preliminary design review and coordination	114	32					82		
<b>Task 3 Subtotal:</b>		<b>1,590</b>	<b>160</b>	<b>136</b>	-	-	-	<b>1,294</b>	-	-

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
 Quentin Road - IL Route 22 to Old McHenry Road  
 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
<b>Task 4 - Geotechnical Investigation</b>										
4a	Coordination with subconsultant (Wang Engineering) for roadway, culvert, and retaining wall pavement/soil borings. See separate proposal from Wang Engineering.	88	80	8						
4b	Desk study and site visit	-								
4c	Geotechnical drilling, coring, and sampling	-								
4d	Laboratory testing	-								
4e	Engineering analysis, recommendations and reporting	-								
<b>Task 4 Subtotal:</b>		<b>1,678</b>	<b>80</b>	<b>8</b>	<b>1,590</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Task 5 - Environmental Data Collection, Coordination &amp; Analysis</b>										
5a	Initial Environmental Coordination and COSIM Air Quality Pre-Screening	60		60						
5b	Wetland Delineation and Technical Report (includes Preliminary Jurisdictional Determination and Boundary Confirmation with LCSMC). Includes field work (62 hours), data processing and data sheet completion (32 hours) , exhibit preparation (60 hours), report preparation (56 hours)	210	6	204						
5c	Initial ESR preparation (during PEL) and submittal to IDOT, including photo logs. Includes field review and photo logs (72 hours), preparation of ESR exhibits (72 hours) and prepare/submit ESR form (12 hours). Prepare and submit planned Addendum ESR at start of NEPA process (54 hours).	210	24	186						
5d	Tree Survey (GPS location, size, type) @ 14 days (1 person). Tree Tabulation and Evaluation for Preferred Alternative (includes anticipated impact summary with exhibits).	260	12	248						
5e	Wetland Impact Evaluation Forms (estimated 44 sites) original submittal plus up to 2 addenda	362	32	330						
5f	Preliminary Environmental Site Assessment (Non-IDOT right-of-way). Includes property research and special waste data collection (72 hours), field review and photo collection (48 hours), data evaluation and identification of RECs (32 hours) and report preparation (48 hours).	200	18	182						
5g	Traffic noise analysis and report									
	1. Data collection	16	16							
	2. Noise Monitoring	48	48							
	3. Existing conditions noise prediction	56	56							
	4. 2050 No-Build conditions noise prediction	8	8							
	5. 2050 Build conditions noise prediction	44	44							
	6. Coordination, documentation and prep of exhibits	32	32							
	7. Noise Abatement Analysis	48	48							
	8. Draft Traffic Noise Report and submit to IDOT for review/comment	56	56							
	9. Benefited receptor view-point solicitation, including separate meetings (assume 3 meetings)	44	32	12						
	10. Final Traffic Noise Report	60	36	24						
	11. Railroad noise and vibration impact analysis assessment	16	16							

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
Quentin Road - IL Route 22 to Old McHenry Road  
Phase I Preliminary Engineering  
EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
5h	Determine comprehensive impacts and measure to minimize harm	352	32	320						
5i	Section 4(f) evaluation - public recreation lands	208	16	192						
5j	Section 6(f) evaluation	108	12	96						
5k	Cultural resource evaluation - Section 106/Section 4(f) coordination									
	1. Cultural Resource Evaluation (APE, HPI, AOE). Estimated 36 potential resources to be reviewed and documented.	688	8	204						476
	2. Cultural Resource Evaluation (Section 106 - Adverse Effect to NRHP eligible property). 2 properties assumed.	144	8	136						
	3. Cultural Resource Evaluation (Section 4(f) - Use of NRHP eligible property). 2 properties assumed.	144	8	136						
	<b>Task 5 Subtotal:</b>	<b>3,374</b>	<b>568</b>	<b>2,330</b>	-	-	-	-	-	<b>476</b>
<b>Task 6 - Drainage Studies</b>										
6a	Existing drainage plan									
	1. General Location Maps	28	4	24						
	2. Existing Drainage Plan Sheets	414	288	126						
	3. Field Visits	52	28	24						
	4. Seven LCSMC Base Flood Elevation Determinations	410	230	180						
	5. Eight major waterway crossing H&H analyses with WITs	280	80	200						
6b	Proposed drainage plan									
	1. Design Criteria	12	6	6						
	2. Proposed Drainage Plan Sheets	504	312	192						
	3. Temporary Drainage Plan Sheets (EDP & PDP)	160	160	-						
	4. Outlet Evaluation	56	32	24						
	5. Detention & RVR Analysis and Design	270	162	108						
	6. Compensatory Storage Analysis and Design	156	84	72						
	7. ROW Analysis for Drainage Items	66	44	22						
	8. Drainage Alternatives (including drainage evaluation for preliminary alternatives)	138	82	56						
6c	Pump Station Hydraulic Report. Includes existing/proposed conditions analysis (120 hours), alternatives analysis including tributary area(s) (120 hours), outlet evaluation (60 hours), Draft PSHR preparation including all exhibits and calculations (260 hours), revised PSHR per County and IDOT comments and finalize report (60 hours).	628	8	620						
6d	Location Drainage Study									
	Location Drainage Study for Old McHenry Road Corridor (including Fairfield/Kruger Realignment, cul de sacs, and Midlothian Road)	272	272	-						
	Location Drainage Study for Quentin Road Corridor (Including IDOT IL 22 Intersection)	188	-	188						
	<b>Task 6 Subtotal:</b>	<b>3,634</b>	<b>1,792</b>	<b>1,842</b>	-	-	-	-	-	-



Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
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 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
<b>Task 7 - Traffic Analysis</b>										
7a	General data collection items									
	1. Review signal timing controller printouts, compile peak hr timing parameters. (7 intersections x 4 hrs).	28	28							
	2. Review Railroad gate data from video provide by LCDOT Compile gate down times for 15-min time periods over 7 days.	24	24							
7b	Traffic data collection									
	1. Intersection Turning Movement Counts (Miovision counts through Gewalt Hamilton. Includes TS hours for coordination with GHA)	88	88							
	2. Streetlight Data	248	248							
	3. LCDOT PASSAGE/ATSPM	64	64							
7c	Travel demand model, traffic projections and design hourly volumes									
	1. Travel Demand Modeling (2020 Base Year)									
	a. Extract AM & PM subarea trip tables and network from regional model	8	8							
	b. Verify socioeconomic data assumptions at the trip generation zone level	40	40							
	c. Refine TAZ structure in subarea to reflect local development patterns	16	16							
	d. Modify AM & PM trip tables to match refined TAZ structure	16	16							
	e. Modify network	64	64							
	f. Model Calibration	184	184							
	2. Travel Demand Modeling (2050 Future Year)									
	a. Extract AM & PM subarea trip tables and network from regional model	8	8							
	b. Verify socioeconomic data assumptions for reasonableness and consistency with 2020	40	40							
	c. Create 2050 No-Build Scenario	96	96							
	d. Alternative Scenarios N = 1, 4	116	116							
	3. 2050 DHV (AM, PM) via IPF or growth factor: 28 intersections (AM & PM) & 6 intersections (Sat) Volume Balancing - all scenarios. Scenarios: No-Build + 4 design alternatives 12 hr volume projections for 7 intersections for signal warrant analysis	334	334							
7d	Latent demand analysis at CN Railroad crossing (included in item 7c.1)									
7e	Traffic operations analysis - Level 1 Traffic Analysis (Synchro/SimTraffic)									
	1. Existing Condition Synchro/SimTraffic Model (AM, PM)	120	120							
	2. 2050 No-Build Model (AM/PM)	20	20							
	3. 2050 Design Alternatives	564	564							
	4. Analysis of at-grade RR crossing	60	60							
	5. Weekend Peak Analysis (7 intersections)	12	12							
	6. Traffic Signal Warrants	80	80							
	7. Sensitivity/Saturation Analysis	160	160							

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
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 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
	Traffic operations analysis - Level 2 Traffic Analysis (Vissim)									
	1. Existing Condition (AM, PM)	180	180							
	2. 2050 No-Build Model (AM/PM)	40	40							
	3. 2050 Design Alternatives (AM/PM)	520	520							
	4. Video Recordings for Agency/Public presentations	32	32							
7f	Traffic analysis report									
	1. Existing and 2050 No-Build	108	108							
	2. Level 1 Analysis	120	120							
	3. Level 2 Analysis	120	120							
	4. Revisions	120	120							
	<b>Task 7 Subtotal:</b>	<b>4,108</b>	<b>3,630</b>	-	-	-	-	-	<b>478</b>	-
<b>Task 8 - Safety Analysis</b>										
8a	Crash summary technical memorandum									
	1. Data collection	60	60							
	2. Site Visit	16	16							
	3. Crash Analysis	95	95							
8b	Evaluate crash data, crash prediction analysis, identify countermeasures and develop CMFs	305	305							
	<b>Task 8 Subtotal:</b>	<b>476</b>	<b>476</b>	-	-	-	-	-	-	-
<b>Task 9 - Alternative Analysis</b>										
9a	Preparation of the project Purpose and Need Statement									
	1. Preliminary Purpose and Need Statement for IDOT/FHWA review - PEL Study. Includes preparing all required charts, tables, figures, exhibits.	128	36	92						
	2. Revised Purpose and Need Statement, with disposition of comments, for IDOT/FHWA review - PEL Study	48	16	32						
	3. Final Purpose and Need Statement, with disposition of comments - PEL Coordination Point #1	48	16	32						
	4. Refine Purpose and Need Statement - NEPA/404 Concurrence Point #1	48	16	32						
9b	Alternative development and evaluation									
	1. Level 1 Alternatives Development and Evaluation (Typical Section Design)	468	288	180						
	2. Level 2 Alternatives Development and Evaluation (4 Alts, Concept Plan Design w/ limited cross sections, iterative per review comments and public input)	624	384	240						

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
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 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
9c	Preparation of alternative carried forward technical memorandum									
	1. Preliminary Alternatives Carried Forward Technical Memorandum (ACFTM) for LCDOT and IDOT review - PEL Study. Includes preparing all required charts, tables, figures, exhibits, and attachments.	204	24	180						
	2. Revised ACFTM, with disposition of comments, for LCDOT, IDOT, and FHWA review - PEL Study	96	16	80						
	3. Final ACFTM, with disposition of comments - PEL Study Coordination Point #2	52	12	40						
	4. Refine ACFTM - NEPA/404 Concurrence Point #2	84	24	60						
	<b>Task 9 Subtotal:</b>	<b>1,800</b>	<b>832</b>	<b>968</b>	-	-	-	-	-	-
<b>Task 10 - Proposed Improvement Plans (Preferred Alternative)</b>										
10a	Preliminary proposed improvement plans (34 sheets @ 50 scale, 24 hours/sheet)	808	384	424						
10b	Revise the proposed improvement plans, with disposition of comments, and resubmit to LCDOT and IDOT for review/comment (separate plan sets for Old McHenry Road and Quentin Road)	440	240	200						
10c	Final proposed improvement plans	292	192	100						
10d	Prepare final ROW plans	188	128	60						
10e	Prepare preliminary engineer's estimate of construction	592	392	200						
	<b>Task 10 Subtotal:</b>	<b>2,320</b>	<b>1,336</b>	<b>984</b>	-	-	-	-	-	-
<b>Task 11 - Intersection Design Studies (Preferred Alternative)</b>										
11a	Prepare Preliminary IDS (9 locations, 94 hours each) with ADA curb ramp design (4 quadrants each intersection @ 10 hours each) and submit to LCDOT and IDOT for review.	1,206	670	536						
11b	Revise IDS (30 hours each) and ADA curb ramp designs (4 hours each) based on review comments, prepare disposition of comments and resubmit to LCDOT and IDOT.	414	230	184						
11c	Finalize the IDS (12 hours each) and ADA curb ramp designs (2 hours each) based on remaining comments, prepare disposition of comments, and resubmit to IDOT and LCDOT for approval.	180	100	80						
	<b>Task 11 Subtotal:</b>	<b>1,800</b>	<b>1,000</b>	<b>800</b>	-	-	-	-	-	-

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
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 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
<b>Task 12 - Structural Design</b>										
12a	Grade separation of the CN Railroad at Old McHenry Road									
	1. Bridge Alternatives Memo (includes ABC)	600	600							
	2. Prepare Type Size and Location Plan	150	150							
	3. BLR 10210 Form	16	16							
12b	Retaining walls along Old McHenry Road Includes: Wall type study, prepare TS&L plans & BLR Form 10210)									
	1. Bridge Southeast Retaining Wall - 540' long	266	266							
	2. Bridge Southwest Retaining Wall - 710' long	266	266							
	3. Bike Path Retaining Wall (West of YMCA) - 550' long	186	186							
	4. Bike Path Retaining Wall East of Echo Lake Road - 125' long	146	146							
	5. Bike Path Retaining Wall East of Abbey Glenn Drive - 250' long	80	80							
	Retaining walls along Quentin Road Includes: Wall type study, prepare TS&L plans & BLR Form 10210)									
	6. Southbound Retaining Wall 400' South of Heather Lane - 120' long	80		80						
	7. Southbound Cut Retaining Wall 300' North of Glendale Road - 170' long	146		146						
	8. Southbound Retaining Wall at Glendale Road - 330' long	186		186						
	9. Southbound Retaining Wall at Culvert - 215' long	241		241						
	10. Northbound Retaining Wall at Culvert - 105' long	146		146						
	11. Southbound Retaining Wall South of Highland Drive - 515' long	80		80						
	12. Midlothian Northbound Retaining Wall North of OMR - 200' long	80	80							
	13. Kruger Road Retaining Wall at Wetlands - 300' long	146	146							
12c	Quentin Road box culvert									
	1. Culvert & Wall Inspection	10		10						
	2. Inspection Report and Structure Sketch	40		40						
12d	Conduct site visit	16	16							
	<b>Task 12 Subtotal:</b>	<b>2,881</b>	<b>1,952</b>	<b>929</b>	-	-	-	-	-	-

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
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Phase I Preliminary Engineering  
EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
<b>Task 13 - Railroad Design and Coordination</b>										
13a	Establish design criteria for CN standards	8	8							
13b	Develop concept railroad geometric alternatives to 10% level (three alternatives)	96	96							
13c	Evaluate advantages and disadvantages of alternatives	24	24							
13d	Conduct coordination and review meetings with CN Railroad and ICC (3 meetings)	72	72							
13e	Develop 30% plans for the Preferred Alternative									
	1. Track outage evaluation	24	24							
	2. Staging schematics (shoofly geometry, drainage and grading)	96	96							
	3. Signal pad detail sheet	24	24							
	4. Evaluate impacts (environmental, railroad operations, utilities and right-of-way)	48	48							
	5. Determine right-of way from 30% cross sections	144	144							
	6. Prepare preliminary construction cost estimate	32	32							
13f	Prepare technical memorandum to summarize alternatives and recommend preferred alternative	120	120							
13g	Conduct three coordination meetings with CN Railroad to discuss design development and the technical memorandum	108	108							
	<b>Task 13 Subtotal:</b>	<b>796</b>	<b>796</b>	-	-	-	-	-	-	-
<b>Task 14 - Agency Coordination</b>										
14a	FHWA / IDOT coordination meetings									
	1. IDOT Meetings (17 meetings)	544	306	238						
	2. FHWA Meetings (7 meetings)	224	112	112						
	3. General IDOT coordination (6 hours/month * 12 months * 3 years)	216	108	108						
14b	Quentin Road EA NEPA/404 merger meeting coordination	240	60	180						
14c	Permitting agencies (LCSMC, USACE, IEPA, USF&WS, IDNR, ISHPO)	128	32	96						
	<b>Task 14 Subtotal:</b>	<b>1,352</b>	<b>618</b>	<b>734</b>	-	-	-	-	-	-
<b>Task 15 - Public Involvement</b>										
15a	Project kickoff meeting to confirm overall public involvement approach	68	26	20		22				
15b	Project stakeholder meetings and coordination (16 meetings)	700	320	240		140				
15c	Stakeholder involvement plan (SIP)	86	54	8		24				
15d	Stakeholder Involvement Group (SIG) meetings (five)									
	1. Meeting 1	196	78	54		64				
	2. Meeting 2	196	78	54		64				
	3. Meeting 3	196	78	54		64				
	4. Meeting 4	196	78	54		64				
	5. Meeting 5	196	78	54		64				
15e	Public meetings (conducted as in person and virtual)									
	1. Meeting 1	412	134	96		182				
	2. Meeting 2	412	134	96		182				
	3. Meeting 3 (Public Hearing)	412	134	96		182				
15f	Interactive website for public meetings	-								
15g	Project website and branding	204	24	20		160				
15h	Design visualization models									

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
 Quentin Road - IL Route 22 to Old McHenry Road  
 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
1. Develop interactive 3D model to be published on the project website for the public to explore, move around the point of view to see what the project will look like (two alternatives).	236	172	64							
2. Create a final fly through video for the preferred alternative for use on the project website.	148	124	24							
3. Rendered roadway typical sections for each proposed alternative (six alternatives)	92	60	32							
4. Construction phasing visualization will be produced to show a time-lapse sequence of construction of the underpass (one video sequence)	76	64	12							
5. Produce still photo visualization images from the 3D model to be used for comparing aesthetic treatment alternatives.	88	40	24		24					
<b>Task 15 Subtotal:</b>	<b>3,914</b>	<b>1,676</b>	<b>1,002</b>	-	<b>1,236</b>	-	-	-	-	-
<b>Task 16 - Aesthetics</b>										
16a Corridor context exhibits	20				20					
16b Thematic identify exhibits	20				20					
16c Preliminary concept plans and alternatives	194	30	24		140					
16d Review meetings and staff presentations, stakeholders and community (covered in Task 15)	-									
16e Refined concept plan	174	30	24		120					
16f Cost estimate	32	8			24					
16g Outline specifications	24				24					
<b>Task 16 Subtotal:</b>	<b>464</b>	<b>68</b>	<b>48</b>	-	<b>348</b>	-	-	-	-	-
<b>Task 17 - Traffic Maintenance Analysis</b>										
17a Determine stage construction methodology for the Preferred Alternative and prepare typical sections and concept stage construction plan.	144	96	48							
17b Determine temporary construction easement requirements for stage construction.	46	32	14							
17c Prepare Traffic Maintenance Analysis (TMA) Report with exhibits for review by LCDOT and inclusions in the Combined Design Report as an appendix.	196	160	36							
17d Attend one IDOT Detour Committee meeting as/if required. Includes prepare meeting materials/presentation, attend (2 ppl), and prepare meeting summary.	80	40	40							
<b>Task 17 Subtotal:</b>	<b>466</b>	<b>328</b>	<b>138</b>	-	-	-	-	-	-	-

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
Quentin Road - IL Route 22 to Old McHenry Road  
Phase I Preliminary Engineering  
EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
<b>Task 18 - Planning and Environmental Linkage (PEL) Report</b>										
18a	Project construction phasing evaluation.	148	48	100						
18b	Prepare preliminary PEL Report per outline in scope, and submit to LCDOT and IDOT for initial review.	252	12	240						
18c	Prepare revised PEL Report with disposition of comments, and resubmit to LCDOT and IDOT for further review and forwarding to FHWA for review.		4	72						
18d	Prepare the final PEL Report with disposition of comments and resubmit to LCDOT, IDOT and FHWA for final review and concurrence.	42		42						
<b>Task 18 Subtotal:</b>		<b>518</b>	<b>64</b>	<b>454</b>	-	-	-	-	-	-
<b>Task 19 - Quentin Road Environmental Assessment (EA)</b>										
19a	EA timeframe agreement	80		80						
19b	Initial coordination letters for IDOT and FHWA distribution	62		62						
19c	Draft EA for initial review by LCDOT and IDOT	248	16	232						
19d	Revised EA, with disposition of comments for further review by IDOT and FHWA	60		60						
19e	Revised EA, with disposition of comments, for FHWA and legal sufficiency review	60		60						
19f	Final EA, with disposition of comments for FHWA signature	60		60						
19g	Post public hearing, prepare EA Errata documenting results of public hearing	76	4	72						
19h	Submit revised FONSI for FHWA signature	32		32						
19i	Prepare limitation on claims documental for FHWA including in federal register	12		12						
<b>Task 19 Subtotal:</b>		<b>690</b>	<b>20</b>	<b>670</b>	-	-	-	-	-	-
<b>Task 20 - Combined Design Report (CDR)</b>										
20a	Prepare preliminary report and submit to LCDOT and IDOT for initial review, including compile maps, charts, graphs and exhibits	220		220						
20b	Prepare revised report, with disposition of comments and resubmit and forward to FHWA for review and concurrence to proceed to Public Hearing	88	8	80						
20c	Prepare revised report (post Public Hearing), with disposition of comments and resubmit	80		80						
20d	Prepare final report, with disposition of comments and resubmit to LCDOT, IDOT & FHWA for final review and issuance of Phase I Design Approval	64	4	60						
<b>Task 20 Subtotal:</b>		<b>452</b>	<b>12</b>	<b>440</b>	-	-	-	-	-	-

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
 Quentin Road - IL Route 22 to Old McHenry Road  
 Phase I Preliminary Engineering  
 EXHIBIT B - Workhour Breakdown

<u>Task and Description</u>		Total Workhours	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino
<b>Task 21 - Project Development Report (PDR)</b>										
21a	Compile maps, charts, graphs and exhibits	108	108							
21b	Prepare preliminary report and submit to LCDOT and IDOT for initial review	64	64							
21c	Prepare revised report, with disposition of comments and resubmit and forward to FHWA for review and concurrence to proceed to PIM	92	92							
21d	Prepare revised report (post PIM), with disposition of comments and resubmit	74	74							
21e	Prepare final report, with disposition of comments and resubmit to LCDOT, IDOT & FHWA for final review and issuance of Phase I Design Approval	60	60							
<b>Task 21 Subtotal:</b>		<b>398</b>	<b>398</b>	-	-	-	-	-	-	-
<b>Task 22 - Project Funding Assistance</b>										
22a	Assist application process for STP and STP Shared Fund programs	40	40							
22b	Strategize and write federal grant applications (BUILD, INFRA, CRISI)	40	40							
22c	Conduct two meetings with LCDOT staff, elected officials and others to strategize project promotion to be successful with competitive grant funding programs	32	32							
<b>Task 22 Subtotal:</b>		<b>112</b>	<b>112</b>	-	-	-	-	-	-	-
<b>Task 23 - Project Management and Administration</b>										
23a	Prepare and submit monthly progress reports	332	168	144		20				
23b	Project scheduling and management, administration, budget control, internal team meetings	408	336	72						
23c	Project meetings with LCDOT staff (every other week)	514	226	288						
23d	Maintain web based project management system (SharePoint and ProjectWise)									
	1. SharePoint	192	152	40						
	2. ProjectWise	152	112	40						
23e	Coordinate with LCDOT QA/QC consultant	104	64	40						
<b>Task 23 Subtotal:</b>		<b>1,702</b>	<b>1,058</b>	<b>624</b>	-	<b>20</b>	-	-	-	-
<b>Task 24 - QA/QC</b>										
24a	Quality management plan (QMP)	72	48	24						
24b	QA/QC reviews in accordance with quality process and QMP									
	1. Report Submittals	190	110	60		20				
	2. Design Calculations	170	110	60						
	3. Plan Submittals	170	110	60						
	4. Audits	170	110	60						
<b>Task 24 Subtotal:</b>		<b>772</b>	<b>488</b>	<b>264</b>	-	<b>20</b>	-	-	-	-
<b>Total:</b>		<b>40,015</b>	<b>18,060</b>	<b>15,203</b>	<b>1,590</b>	<b>1,624</b>	<b>1,290</b>	<b>1,294</b>	<b>478</b>	<b>476</b>



## EXHIBIT C

### COST ESTIMATE OF CONSULTANT SERVICES



EXHIBIT E  
COST ESTIMATE OF CONSULTANT SERVICES WORKSHEET  
FIXED RAISE

<b>Local Public Agency</b>	<b>County</b>	<b>Section Number</b>
Lake County Division of Transportation	Lake	19-00999-65-ES
<b>Consultant (Firm) Name</b>	<b>Prepared By</b>	<b>Date</b>
TranSystems	MJS	3/22/2021

**PAYROLL ESCALATION TABLE**

<b>CONTRACT TERM</b>	36	<b>MONTHS</b>	<b>OVERHEAD RATE</b>	148.69%
<b>START DATE</b>	5/1/2021		<b>COMPLEXITY FACTOR</b>	
<b>RAISE DATE</b>	4/3/2021		<b>% OF RAISE</b>	2.00%
<b>END DATE</b>	4/30/2024			

**ESCALATION PER YEAR**

Year	First Date	Last Date	Months	% of Contract
0	5/1/2021	4/3/2021	-1	-2.78%
1	4/4/2021	4/3/2022	12	34.00%
2	4/4/2022	4/3/2023	12	34.68%
3	4/4/2023	4/3/2024	12	35.37%
4	4/4/2024	5/3/2024	1	3.01%

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The total escalation = 4.28%

<b>MAXIMUM PAYROLL RATE</b>	<b>78.00</b>
<b>ESCALATION FACTOR</b>	<b>4.28%</b>

## PAYROLL RATES

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

[illegible]



**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00999-65-ES

**COST ESTIMATE WORKSHEET**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

**OVERHEAD RATE** 148.69%**COMPLEXITY FACTOR** 0

TASK	STAFF HOURS	PAYROLL	OVERHEAD & FRINGE BENEFITS	DIRECT COSTS	FIXED FEE	SERVICES BY OTHERS	TOTAL	% OF GRAND TOTAL
1. Data Collection and Evaluation	208	10,116	15,041		3,338		28,495	0.46%
2. Survey	388	18,979	28,219		6,263		53,461	0.87%
3. Utility Identification and Coordination	160	8,884	13,210		2,932		25,026	0.41%
4. Geotechnical Investigation	80	5,001	7,436		1,650		14,087	0.23%
5. Env. Data Collection, Coordination & Analysis	568	31,854	47,363		10,512		89,729	1.45%
6. Drainage Studies	1,792	89,580	133,196		29,561		252,337	4.09%
7. Traffic Analysis	3,630	200,290	297,812		66,096		564,198	9.13%
8. Safety Analysis	476	24,546	36,498		8,100		69,144	1.12%
9. Alternative Analysis	832	46,185	68,673		15,241		130,099	2.11%
10. Proposed Improvement Plans (Preferred Alt)	1,336	66,035	98,188		21,792		186,015	3.01%
11. Intersection Design Studies (Preferred Alt)	1,000	43,401	64,533		14,322		122,256	1.98%
12. Structural Design	1,952	101,112	150,343		33,367		284,822	4.61%
13. Railroad Design and Coordination	796	44,025	65,460		14,528		124,013	2.01%
14. Agency Coordination	618	39,010	58,005		12,873		109,888	1.78%
15. Public Involvement	1,676	94,906	141,116		31,319		267,341	4.33%
16. Aesthetics	68	3,854	5,730		1,272		10,856	0.18%
17. Traffic Maintenance Analysis	328	17,326	25,762		5,718		48,806	0.79%
18. Planning and Environmental Linkage Report	64	3,103	4,614		1,024		8,741	0.14%
19. Quentin Road Environmental Assessment	20	1,321	1,964		436		3,721	0.06%
20. Combined Design Report (Quentin Rd)	12	815	1,212		269		2,296	0.04%
21. Project Development Report (Old McHenry Rd)	398	18,740	27,864		6,184		52,788	0.85%
22. Project Funding Assistance	112	8,706	12,945		2,873		24,524	0.40%
23. Project Management and Administration	1,058	70,197	104,376		23,165		197,738	3.20%
24. QA/QC	488	35,559	52,873		11,735		100,167	1.62%
Direct Costs		-	-	78,757	-		78,757	1.27%
CBBEL		-	-		-	2,154,359	2,154,359	34.88%
Wang Engineering		-	-		-	493,763	493,763	7.99%
Teska		-	-		-	223,669	223,669	3.62%
Mackie Consultants		-	-		-	149,900	149,900	2.43%
HBK Engineering		-	-		-	140,291	140,291	2.27%
Gewalt Hamilton Associates		-	-		-	64,841	64,841	1.05%
Guarino Resources Documentation		-	-		-	58,620	58,620	0.95%
Subconsultant DL					42,327		42,327	0.69%
<b>TOTALS</b>	<b>18,060</b>	<b>983,545</b>	<b>1,462,433</b>	<b>78,757</b>	<b>366,897</b>	<b>3,285,443</b>	<b>6,177,075</b>	<b>100.00%</b>

2,445,978

The subconsultant fee has been adjusted due to 15% fixed fee cap.

Lake County Division of Transportation

Lake

19-00999-65-ES

## Exhibit E Cost Estimate of Consultants Services Worksheet Fixed Raise

**SHEET** 1 **OF** 5

Printed 3/22/2021 11:53 AM

## Local Public Agency

Lake County Division of Transportation

## County

Lake

## Section Number

19-00999-65-ES

## AVERAGE HOURLY PROJECT RATES

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 2 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	6. Drainage Studies			7. Traffic Analysis			8. Safety Analysis			9. Alternative Analysis			Improvement Plans (Preferred Alt)			11. Intersection Design Studies (Preferred Alt)		
		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)	78.00	24	1.34%	1.04	28	0.77%	0.60	4	0.84%	0.66	34	4.09%	3.19	12	0.90%	0.70	8	0.80%	0.62
Engineer 4 (E4)	77.66	142	7.92%	6.15	434	11.96%	9.28	12	2.52%	1.96	136	16.35%	12.69	82	6.14%	4.77	24	2.40%	1.86
Engineer 3 (E3)	65.96	362	20.20%	13.32	1162	32.01%	21.11	118	24.79%	16.35	178	21.39%	14.11	288	21.56%	14.22	36	3.60%	2.37
Engineer 2 (E2)	48.42	572	31.92%	15.45	1244	34.27%	16.59	258	54.20%	26.24	306	36.78%	17.81	418	31.29%	15.15	382	38.20%	18.50
Engineer 1 (E1)	36.04	628	35.04%	12.63	738	20.33%	7.33	84	17.65%	6.36	178	21.39%	7.71	468	35.03%	12.62	466	46.60%	16.79
Environmental Scientist 4 (SC)	78.00																		
Technician 3 (T3)	38.67	64	3.57%	1.38	24	0.66%	0.26							68	5.09%	1.97	84	8.40%	3.25
Technician 1 (T1)	20.65																		
Administrative 3 (A3)	55.27																		
Administrative 2 (A2)	37.40																		
Administrative 1 (A1)	26.59																		
<b>TOTALS</b>		1792.0	100%	\$49.99	3630.0	100%	\$55.18	476.0	100%	\$51.57	832.0	100%	\$55.51	1336.0	100%	\$49.43	1000.0	100%	\$43.40

**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00999-65-ES

**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 3 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	12. Structural Design			13. Railroad Design and Coordination			14. Agency Coordination			15. Public Involvement			16. Aesthetics			17. Traffic Maintenance Analysis		
		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)	78.00	32	1.64%	1.28	28	3.52%	2.74	38	6.15%	4.80	76	4.53%	3.54						
Engineer 4 (E4)	77.66	128	6.56%	5.09	54	6.78%	5.27	98	15.86%	12.31	252	15.04%	11.68				12	3.66%	2.84
Engineer 3 (E3)	65.96	504	25.82%	17.03	248	31.16%	20.55	186	30.10%	19.85	408	24.34%	16.06	32	47.06%	31.04	92	28.05%	18.50
Engineer 2 (E2)	48.42	706	36.17%	17.51	358	44.97%	21.78	146	23.62%	11.44	356	21.24%	10.28	36	52.94%	25.63	182	55.49%	26.87
Engineer 1 (E1)	36.04	478	24.49%	8.83	84	10.55%	3.80	62	10.03%	3.62	388	23.15%	8.34				42	12.80%	4.61
Environmental Scientist 4 (SC)	78.00							88	14.24%	11.11	94	5.61%	4.37						
Technician 3 (T3)	38.67	104	5.33%	2.06	24	3.02%	1.17				102	6.09%	2.35						
Technician 1 (T1)	20.65																		
Administrative 3 (A3)	55.27																		
Administrative 2 (A2)	37.40																		
Administrative 1 (A1)	26.59																		
<b>TOTALS</b>		1952.0	100%	\$51.80	796.0	100%	\$55.31	618.0	100%	\$63.12	1676.0	100%	\$56.63	68.0	100%	\$56.67	328.0	100%	\$52.82



**Local Public Agency**

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**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 4 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	18. Planning and Environmental Linkage Report			19. Quentin Road Environmental Assessment			20. Combined Design Report (Quentin Rd)			21. Project Development Report (Old McHenry Rd)			22. Project Funding Assistance			23. Project Management and Administration		
		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
Engineer 5 (E5)	78.00													24	21.43%	16.71	72	6.81%	5.31
Engineer 4 (E4)	77.66	4	6.25%	4.85	2	10.00%	7.77	2	16.67%	12.94	18	4.52%	3.51	88	78.57%	61.02	156	14.74%	11.45
Engineer 3 (E3)	65.96	8	12.50%	8.24	10	50.00%	32.98	10	83.33%	54.97	32	8.04%	5.30				622	58.79%	38.78
Engineer 2 (E2)	48.42	18	28.13%	13.62	4	20.00%	9.68				102	25.63%	12.41						
Engineer 1 (E1)	36.04	30	46.88%	16.89							212	53.27%	19.20						
Environmental Scientist 4 (S4)	78.00	4	6.25%	4.88	4	20.00%	15.60				34	8.54%	6.66				62	5.86%	4.57
Technician 3 (T3)	38.67																		
Technician 1 (T1)	20.65																		
Administrative 3 (A3)	55.27																64	6.05%	3.34
Administrative 2 (A2)	37.40																82	7.75%	2.90
Administrative 1 (A1)	26.59																		
<b>TOTALS</b>		64.0	100%	\$48.48	20.0	100%	\$66.03	12.0	100%	\$67.91	398.0	100%	\$47.08	112.0	100%	\$77.73	1058.0	100%	\$66.35

**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00999-65-ES

**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 5 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	24. 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)	78.00	8	1.64%	1.28															
Engineer 4 (E4)	77.66	142	29.10%	22.60															
Engineer 3 (E3)	65.96	204	41.80%	27.57															
Engineer 2 (E2)	48.42																		
Engineer 1 (E1)	36.04																		
Environmental Scientist 4 (SC4)	78.00	134	27.46%	21.42															
Technician 3 (T3)	38.67																		
Technician 1 (T1)	20.65																		
Administrative 3 (A3)	55.27																		
Administrative 2 (A2)	37.40																		
Administrative 1 (A1)	26.59																		
<b>TOTALS</b>		488.0	100%	\$72.87	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00

**COMPANY NAME: TranSystems**
**PTB NUMBER: Old McHenry Road and Quentin Road Phase I**
**TODAY'S DATE: 3/12/2021**

ITEM	ALLOWABLE	UTILIZE W.O. ONLY	QUANTITY J.S. ONLY	CONTRACT RATE	TOTAL
Per Diem (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum			\$0.00	\$0.00
Lodging (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost (Up to state rate maximum)			\$0.00	\$0.00
Lodging Taxes and Fees (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost			\$0.00	\$0.00
Air Fare	Coach rate, actual cost, requires minimum two weeks' notice, with prior IDOT approval			\$0.00	\$0.00
Vehicle Mileage (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum	X	3,360	\$0.560	\$1,881.60
Vehicle Owned or Leased	\$32.50/half day (4 hours or less) or \$65/full day			\$0.00	\$0.00
Vehicle Rental	Actual cost (Up to \$55/day)			\$0.00	\$0.00
Tolls	Actual cost			\$0.00	\$0.00
Parking	Actual cost			\$0.00	\$0.00
Overtime	Premium portion (Submit supporting documentation)			\$0.00	\$0.00
Shift Differential	Actual cost (Based on firm's policy)			\$0.00	\$0.00
Overnight Delivery/Postage/Courier Service	Actual cost (Submit supporting documentation)	X	60	\$25.00	\$1,500.00
Copies of Deliverables/Mylars (In-house)	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Copies of Deliverables/Mylars (Outside)	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Project Specific Insurance	Actual cost			\$0.00	\$0.00
Monuments (Permanent)	Actual cost			\$0.00	\$0.00
Photo Processing	Actual cost			\$0.00	\$0.00
2-Way Radio (Survey or Phase III Only)	Actual cost			\$0.00	\$0.00
Telephone Usage (Traffic System Monitoring Only)	Actual cost			\$0.00	\$0.00
CADD	Actual cost (Max \$15/hour)			\$0.00	\$0.00
Web Site	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Advertisements	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Public Meeting Facility Rental	Actual cost (Submit supporting documentation)	X	10	\$1,500.00	\$15,000.00
Public Meeting Exhibits/Renderings & Equipment	Actual cost (Submit supporting documentation)	X	10	\$2,000.00	\$20,000.00
Court Reporter for Public Meeting	Actual cost	X	2	\$4,500.00	\$9,000.00
Transcriptions (specific to project)	Actual cost			\$0.00	\$0.00
Courthouse Fees	Actual cost			\$0.00	\$0.00
Storm Sewer Cleaning and Televising	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Traffic Control and Protection	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Aerial Photography and Mapping	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Utility Exploratory Trenching	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Testing of Soil Samples*	Actual cost			\$0.00	\$0.00
Lab Services*	Actual cost (Provide breakdown of each cost)			\$0.00	\$0.00
Equipment and/or Specialized Equipment Rental*	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Intersection Turning Movement Counts (GHA)					\$0.00
Streetlight Traffic Information		X	1	\$25,800.00	\$25,800.00
Postage for Public Meetings		X	2,500	\$0.55	\$1,375.00
Printing - B/W		X	2,000	\$0.15	\$300.00
Printing - Color		X	1,000	\$1.50	\$1,500.00
Printing - Public meeting boards		X	200	\$12.00	\$2,400.00
				\$0.00	\$0.00
				\$0.00	\$0.00
<b>TOTAL DIRECT COST</b>					<b>\$78,756.60</b>

\*If other allowable costs are needed and not listed, please add in the above spaces provided.

**LEGEND**

W.O. = Work Order

J.S. = Job Specific

## EXHIBIT D

### WORK HOUR AND FEE SUMMARY

Old McHenry Road - Abbey Glenn Drive to Bonnie Lane  
Quentin Road - IL Route 22 to Old McHenry Road  
Phase I Preliminary Engineering  
EXHIBIT D - Workhour & Fee Summary

Task	Description	Total Workhours	Total Fee	TS	CBBEL	Wang	Teska	Mackie	HBK	GHA	Guarino	% of Project
Task 1	Data Collection and Evaluation	456	\$60,300	\$28,495	\$31,805							0.98%
Task 2	Survey	2,972	\$542,474	\$53,461	\$339,113			\$149,900				8.78%
Task 3	Utility Identification and Coordination	1,590	\$185,127	\$25,026	\$19,810				\$140,291			3.00%
Task 4	Geotechnical Investigation	1,678	\$508,965	\$14,087	\$1,115	\$493,763						8.24%
Task 5	Environmental Data Collection, Coordination & Analysis	3,374	\$466,200	\$89,729	\$317,851						\$58,620	7.55%
Task 6	Drainage Studies	3,634	\$503,584	\$252,337	\$251,247							8.15%
Task 7	Traffic Analysis	4,108	\$629,042	\$564,198	\$0					\$64,844		10.18%
Task 8	Safety Analysis	476	\$69,144	\$69,144	\$0							1.12%
Task 9	Alternative Analysis	1,800	\$260,309	\$130,099	\$130,210							4.21%
Task 10	Proposed Improvement Plans (Preferred Alternative)	2,320	\$320,563	\$186,015	\$134,548							5.19%
Task 11	Intersection Design Studies (Preferred Alternative)	1,800	\$232,743	\$122,256	\$110,487							3.77%
Task 12	Structural Design	2,881	\$425,710	\$284,822	\$140,888							6.89%
Task 13	Railroad Design and Coordination	796	\$124,013	\$124,013	\$0							2.01%
Task 14	Agency Coordination	1,352	\$215,517	\$109,888	\$105,629							3.49%
Task 15	Public Involvement	3,914	\$586,940	\$267,341	\$146,152		\$173,447					9.50%
Task 16	Aesthetics	464	\$60,444	\$10,856	\$5,940		\$43,648					0.98%
Task 17	Traffic Maintenance Analysis	466	\$65,948	\$48,806	\$17,142							1.07%
Task 18	Planning and Environmental Linkage (PEL) Report	518	\$74,947	\$8,741	\$66,206							1.21%
Task 19	Quentin Road Environmental Assessment (EA)	690	\$98,323	\$3,721	\$94,602							1.59%
Task 20	Combined Design Report (CDR)	452	\$62,148	\$2,296	\$59,852							1.01%
Task 21	Project Development Report (PDR)	398	\$52,788	\$52,788	\$0							0.85%
Task 22	Project Funding Assistance	112	\$24,524	\$24,524	\$0							0.40%
Task 23	Project Management and Administration	1,702	\$302,000	\$197,738	\$100,975		\$3,287					4.89%
Task 24	QA/QC	772	\$147,701	\$100,167	\$44,247		\$3,287					2.39%
	Direct Costs <sup>1</sup>		\$115,297	\$78,757	\$36,540							1.87%
	Subconsultant DL		\$42,327	\$42,327								0.69%
<b>Total:</b>		<b>38,725</b>	<b>\$6,177,078</b>	<b>\$2,891,632</b>	<b>\$2,154,359</b>	<b>\$493,763</b>	<b>\$223,669</b>	<b>\$149,900</b>	<b>\$140,291</b>	<b>\$64,844</b>	<b>\$58,620</b>	<b>100%</b>

**Notes:**

- 1 Direct costs include: Streetlight traffic data, Public meeting related expenses, printing, deliveries, mileage and railroad liability insurance for survey.

EXHIBIT E

COST ESTIMATE OF SUBCONSULTANT SERVICES

CHRISTOPHER B. BURKE ENGINEERING, LTD.



EXHIBIT E  
COST ESTIMATE OF CONSULTANT SERVICES WORKSHEET  
FIXED RAISE

<b>Local Public Agency</b>	<b>County</b>	<b>Section Number</b>
Lake County Division of Transportation	Lake	19-00099-65-ES
<b>Consultant (Firm) Name</b>	<b>Prepared By</b>	<b>Date</b>
Christopher B. Burke Engineering, Ltd. (CBBEL)	MJM	3/12/2021

**PAYROLL ESCALATION TABLE**

<b>CONTRACT TERM</b>	36	<b>MONTHS</b>	<b>OVERHEAD RATE</b>	132.36%
<b>START DATE</b>	5/1/2021		<b>COMPLEXITY FACTOR</b>	0
<b>RAISE DATE</b>	1/1/2022		<b>% OF RAISE</b>	2.00%
<b>END DATE</b>	4/30/2024			

**ESCALATION PER YEAR**

Year	First Date	Last Date	Months	% of Contract
0	5/1/2021	1/1/2022	8	22.22%
1	1/2/2022	1/1/2023	12	34.00%
2	1/2/2023	1/1/2024	12	34.68%
3	1/2/2024	5/1/2024	4	11.79%

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**The total escalation = 2.69%**



<b>Local Public Agency</b>	<b>County</b>	<b>Section Number</b>
Lake County Division of Transp	Lake	19-00099-65-ES

<b>MAXIMUM PAYROLL RATE</b>	<b>78.00</b>
<b>ESCALATION FACTOR</b>	<b>2.69%</b>

## PAYROLL RATES

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

CLASSIFICATION	IDOT PAYROLL RATES ON FILE	CALCULATED RATE	
Principal	\$78.00	\$78.00	max allowed
Engineer VI	\$76.40	\$78.00	max allowed
Engineer V	\$67.87	\$69.70	
Engineer IV	\$56.24	\$57.75	
Engineer III	\$45.95	\$47.19	
Engineer I/II	\$34.03	\$34.95	
Survey V	\$75.50	\$77.53	
Survey IV	\$67.50	\$69.32	
Survey III	\$59.50	\$61.10	
Survey II	\$48.50	\$49.81	
Survey I	\$35.83	\$36.80	
Engineering Technician V	\$66.42	\$68.21	
Engineering Technician IV	\$52.17	\$53.58	
Engineering Technician III	\$48.13	\$49.43	
Engineering Technician I/II	\$22.33	\$22.93	
CAD Manager	\$63.67	\$65.38	
CAD Technician II	\$47.25	\$48.52	
GIS Specialist III	\$51.00	\$52.37	
GIS Specialist I/II	\$34.00	\$34.92	
Landscape Architect	\$58.00	\$59.56	
Landscape Designer I/II	\$32.00	\$32.86	
Environmental Resource Specialist V	\$70.00	\$71.89	
Environmental Resource Specialist IV	\$53.80	\$55.25	
Environmental Resource Specialist III	\$41.00	\$42.10	
Environmental Resource Specialist I/II	\$28.00	\$28.75	
Environmental Resource Technician	\$40.00	\$41.08	
Engineering Intern	\$16.10	\$16.53	

**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00099-65-ES

**COST ESTIMATE WORKSHEET**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

**OVERHEAD RATE** 132.36%**COMPLEXITY FACTOR** 0

TASK	STAFF HOURS	PAYROLL	OVERHEAD & FRINGE BENEFITS	DIRECT COSTS	FIXED FEE	SERVICES BY OTHERS	TOTAL	% OF GRAND TOTAL
1. Data Collection & Evaluation	248	11,986	15,864		3,955		31,805	1.48%
2. Survey (Option B w/LiDAR)	2584	127,794	169,147		42,172		339,113	15.74%
3. Utility Identification & Coordination	136	7,465	9,881		2,464		19,810	0.92%
4. Geotechnical Investigation	8	420	556		139		1,115	0.05%
5. Env Data Collection, Coordination, & Analysis	2330	119,781	158,542		39,528		317,851	14.75%
6. Drainage Studies	1842	94,682	125,320		31,245		251,247	11.66%
7. Traffic Analysis		-	-		-		-	0.00%
8. Safety Analysis		-	-		-		-	0.00%
9. Alternatives Analysis	968	49,069	64,948		16,193		130,210	6.04%
10. Proposed Improvement Plans (Preferred Alt)	984	50,704	67,112		16,732		134,548	6.25%
11. Intersection Design Studies (Preferred Alt)	800	41,637	55,110		13,740		110,487	5.13%
12. Structural Design	929	53,093	70,274		17,521		140,888	6.54%
13. Railroad Design & Coordination		-	-		-		-	0.00%
14. Agency Coordination	734	39,806	52,687		13,136		105,629	4.90%
15. Public Involvement	1002	55,077	72,900		18,175		146,152	6.78%
16. Aesthetics	48	2,238	2,963		739		5,940	0.28%
17. Traffic Maintenance Analysis (Preferred Alt)	138	6,460	8,550		2,132		17,142	0.80%
18. Planning & Environmental Linkages Report	454	24,950	33,023		8,233		66,206	3.07%
19. Quentin Road Environmental Assessment	670	35,650	47,187		11,765		94,602	4.39%
20. Combined Design Report (Quentin Rd)	440	22,555	29,854		7,443		59,852	2.78%
21. Project Development Report (Old McHenry Rd)		-	-		-		-	0.00%
22. Project Funding Assistance		-	-		-		-	0.00%
23. Project Management & Administration	624	38,052	50,366		12,557		100,975	4.69%
24. QA/QC	264	16,674	22,070		5,503		44,247	2.05%
Direct Costs (see attached Direct Cost detail)		-	-	36,540	-		36,540	1.70%
		-	-		-		-	
		-	-		-		-	
		-	-		-		-	
		-	-		-		-	
Subconsultant DL					0		-	
<b>TOTALS</b>	15203	798,093	1,056,354	36,540	263,372	-	2,154,359	100.00%

1,854,447

**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00099-65-ES

**AVERAGE HOURLY PROJECT RATES**

## Exhibit E Cost Estimate of Consultants Services Worksheet Fixed Raise

SHEET 1 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJ. RATES			1. Data Collection & Evaluation			2. Survey (Option B w/LiDAR)			3. Utility Identification & Coordination			4. Geotechnical Investigation			5. Env Data Collection, Coordination, & Analysis		
		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	78.00	0.0																	
Engineer VI	78.00	1,144.0	7.52%	5.87													80	3.43%	2.68
Engineer V	69.70	544.0	3.58%	2.49													38	1.63%	1.14
Engineer IV	57.75	2,984.0	19.63%	11.34	54	21.77%	12.58	32	1.24%	0.72	40	29.41%	16.99	4	50.00%	28.88	346	14.85%	8.58
Engineer III	47.19	2,732.0	17.97%	8.48	64	25.81%	12.18	24	0.93%	0.44	32	23.53%	11.10	4	50.00%	23.59	286	12.27%	5.79
Engineer I/II	34.95	1,456.0	9.58%	3.35	58	23.39%	8.17	24	0.93%	0.32							180	7.73%	2.70
Survey V	77.53	48.0	0.32%	0.24				48	1.86%	1.44									
Survey IV	69.32	60.0	0.39%	0.27				60	2.32%	1.61									
Survey III	61.10	60.0	0.39%	0.24				60	2.32%	1.42									
Survey II	49.81	860.0	5.66%	2.82				860	33.28%	16.58									
Survey I	36.80	860.0	5.66%	2.08				860	33.28%	12.25									
Engineering Technician V	68.21	0.0																	
Engineering Technician IV	53.58	0.0																	
Engineering Technician III	49.43	0.0																	
Engineering Technician I/II	22.93	0.0																	
CAD Manager	65.38	786.0	5.17%	3.38				478	18.50%	12.10	32	23.53%	15.38						
CAD Technician II	48.52	853.0	5.61%	2.72				138	5.34%	2.59	32	23.53%	11.42						
GIS Specialist III	52.37	428.0	2.82%	1.47	24	9.68%	5.07										120	5.15%	2.70
GIS Specialist I/II	34.92	640.0	4.21%	1.47	24	9.68%	3.38										180	7.73%	2.70
Landscape Architect	59.56	0.0																	
Landscape Designer I/II	32.86	420.0	2.76%	0.91													180	7.73%	2.54
Environmental Resource Specialist V	71.89	706.0	4.64%	3.34	24	9.68%	6.96										330	14.16%	10.18
Environmental Resource Specialist IV	55.25	342.0	2.25%	1.24													310	13.30%	7.35
Environmental Resource Specialist III	42.10	280.0	1.84%	0.78													280	12.02%	5.06
Environmental Resource Specialist I/II	28.75	0.0																	
Environmental Resource Technician	41.08	0.0																	
Engineering Intern	16.53	0.0																	
<b>TOTALS</b>		15203.0	100%	\$52.50	248.0	100.00%	\$48.33	2584.0	100%	\$49.46	136.0	100%	\$54.89	8.0	100%	\$52.47	2330.0	100%	\$51.41

**Local Public Agency**

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**County**

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**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 2 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	6. Drainage Studies			7. Traffic Analysis			8. Safety Analysis			9. Alternatives Analysis			10. Proposed Improvement Plans (Preferred Alt)			11. Intersection Design Studies (Preferred Alt)		
		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	78.00																		
Engineer VI	78.00	120	6.51%	5.08							48	4.96%	3.87	80	8.13%	6.34	48	6.00%	4.68
Engineer V	69.70	40	2.17%	1.51							48	4.96%	3.46	48	4.88%	3.40	48	6.00%	4.18
Engineer IV	57.75	480	26.06%	15.05							242	25.00%	14.44	240	24.39%	14.09	220	27.50%	15.88
Engineer III	47.19	480	26.06%	12.30							262	27.07%	12.77	240	24.39%	11.51	160	20.00%	9.44
Engineer I/II	34.95	278	15.09%	5.27							180	18.60%	6.50	220	22.36%	7.81	160	20.00%	6.99
Survey V	77.53																		
Survey IV	69.32																		
Survey III	61.10																		
Survey II	49.81																		
Survey I	36.80																		
Engineering Technician V	68.21																		
Engineering Technician IV	53.58																		
Engineering Technician III	49.43																		
Engineering Technician I/II	22.93																		
CAD Manager	65.38	120	6.51%	4.26							32	3.31%	2.16	40	4.07%	2.66	44	5.50%	3.60
CAD Technician II	48.52	180	9.77%	4.74							92	9.50%	4.61	116	11.79%	5.72	120	15.00%	7.28
GIS Specialist III	52.37	48	2.61%	1.36							32	3.31%	1.73						
GIS Specialist I/II	34.92	96	5.21%	1.82							32	3.31%	1.15						
Landscape Architect	59.56																		
Landscape Designer I/II	32.86																		
Environmental Resource Specialist V	71.89																		
Environmental Resource Specialist IV	55.25																		
Environmental Resource Specialist III	42.10																		
Environmental Resource Specialist I/II	28.75																		
Environmental Resource Technician	41.08																		
Engineering Intern	16.53																		
<b>TOTALS</b>		1842.0	100%	\$51.40	0.0	0%	\$0.00	0.0	0%	\$0.00	968.0	100%	\$50.69	984.0	100%	\$51.53	800.0	100%	\$52.05

**Local Public Agency**

Lake County Division of Transportation

**County**

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**Section Number**

19-00099-65-ES

**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 3 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	12. Structural Design			13. Railroad Design & Coordination			14. Agency Coordination			15. Public Involvement			16. Aesthetics			17. Traffic Maintenance Analysis (Preferred Alt)		
		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	78.00																		
Engineer VI	78.00	120	12.92%	10.08				90	12.26%	9.56	120	11.98%	9.34				4	2.90%	2.26
Engineer V	69.70	54	5.81%	4.05				90	12.26%	8.55							4	2.90%	2.02
Engineer IV	57.75	320	34.45%	19.89				104	14.17%	8.18	232	23.15%	13.37	16	33.33%	19.25	32	23.19%	13.39
Engineer III	47.19	220	23.68%	11.17				106	14.44%	6.81	230	22.95%	10.83	16	33.33%	15.73	26	18.84%	8.89
Engineer I/II	34.95							64	8.72%	3.05	60	5.99%	2.09	16	33.33%	11.65	24	17.39%	6.08
Survey V	77.53																		
Survey IV	69.32																		
Survey III	61.10																		
Survey II	49.81																		
Survey I	36.80																		
Engineering Technician V	68.21																		
Engineering Technician IV	53.58																		
Engineering Technician III	49.43																		
Engineering Technician I/II	22.93																		
CAD Manager	65.38	40	4.31%	2.82															
CAD Technician II	48.52	175	18.84%	9.14															
GIS Specialist III	52.37							40	5.45%	2.85	60	5.99%	3.14				16	11.59%	6.07
GIS Specialist I/II	34.92							80	10.90%	3.81	60	5.99%	2.09				32	23.19%	8.10
Landscape Architect	59.56																		
Landscape Designer I/II	32.86							80	10.90%	3.58	80	7.98%	2.62						
Environmental Resource Specialist V	71.89							80	10.90%	7.83	160	15.97%	11.48						
Environmental Resource Specialist IV	55.25																		
Environmental Resource Specialist III	42.10																		
Environmental Resource Specialist I/II	28.75																		
Environmental Resource Technician	41.08																		
Engineering Item	16.53																		
<b>TOTALS</b>		929.0	100%	\$57.15	0.0	0%	\$0.00	734.0	100%	\$54.23	1002.0	100%	\$54.97	48.0	100%	\$46.63	138.0	100%	\$46.81

**Local Public Agency**

Lake County Division of Transportation

**County**

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**Section Number**

19-00099-65-ES

**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 4 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	18. Planning & Environmental Linkages Report			19. Quentin Road Environmental Assessment			20. Combined Design Report (Quentin Rd)			21. Project Development Report (Old McHenry Rd)			22. Project Funding Assistance			23. Project Management & Administration		
		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	78.00																		
Engineer VI	78.00	60	13.22%	10.31	60	8.96%	6.99	40	9.09%	7.09							208	33.33%	26.00
Engineer V	69.70	24	5.29%	3.68	60	8.96%	6.24	24	5.45%	3.80									
Engineer IV	57.75	108	23.79%	13.74	120	17.91%	10.34	120	27.27%	15.75							208	33.33%	19.25
Engineer III	47.19	78	17.18%	8.11	110	16.42%	7.75	120	27.27%	12.87							208	33.33%	15.73
Engineer I/II	34.95	48	10.57%	3.69	80	11.94%	4.17	64	14.55%	5.08									
Survey V	77.53																		
Survey IV	69.32																		
Survey III	61.10																		
Survey II	49.81																		
Survey I	36.80																		
Engineering Technician V	68.21																		
Engineering Technician IV	53.58																		
Engineering Technician III	49.43																		
Engineering Technician I/II	22.93																		
CAD Manager	65.38																		
CAD Technician II	48.52																		
GIS Specialist III	52.37	24	5.29%	2.77	40	5.97%	3.13	24	5.45%	2.86									
GIS Specialist I/II	34.92	48	10.57%	3.69	40	5.97%	2.08	48	10.91%	3.81									
Landscape Architect	59.56																		
Landscape Designer I/II	32.86				80	11.94%	3.92												
Environmental Resource Specialist V	71.89	32	7.05%	5.07	80	11.94%	8.58												
Environmental Resource Specialist IV	55.25	32	7.05%	3.89															
Environmental Resource Specialist III	42.10																		
Environmental Resource Specialist I/II	28.75																		
Environmental Resource Technician	41.08																		
Engineering Item	16.53																		
<b>TOTALS</b>		454.0	100%	\$54.95	670.0	100%	\$53.21	440.0	100%	\$51.26	0.0	0%	\$0.00	0.0	0%	\$0.00	624.0	100%	\$60.98

**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00099-65-ES

**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 5 OF 5

PAYROLL CLASSIFICATION	AVG HOURLY RATES	24. 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
Principal	78.00																		
Engineer VI	78.00	66	25.00%	19.50															
Engineer V	69.70	66	25.00%	17.42															
Engineer IV	57.75	66	25.00%	14.44															
Engineer III	47.19	66	25.00%	11.80															
Engineer I/II	34.95																		
Survey V	77.53																		
Survey IV	69.32																		
Survey III	61.10																		
Survey II	49.81																		
Survey I	36.80																		
Engineering Technician V	68.21																		
Engineering Technician IV	53.58																		
Engineering Technician III	49.43																		
Engineering Technician I/II	22.93																		
CAD Manager	65.38																		
CAD Technician II	48.52																		
GIS Specialist III	52.37																		
GIS Specialist I/II	34.92																		
Landscape Architect	59.56																		
Landscape Designer I/II	32.86																		
Environmental Resource Specialist V	71.89																		
Environmental Resource Specialist IV	55.25																		
Environmental Resource Specialist III	42.10																		
Environmental Resource Specialist I/II	28.75																		
Environmental Resource Technician	41.08																		
Engineering Intern	16.53																		
<b>TOTALS</b>		264.0	100%	\$63.16	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00

**COMPANY NAME: Christopher B. Burke Engineering, Ltd. (CBBEL)**

PTB NUMBER: **n/a**

TODAY'S DATE: **3/12/2021**

ITEM	ALLOWABLE	UTILIZE W.O. ONLY	QUANTITY J.S. ONLY	CONTRACT RATE	TOTAL
Per Diem (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum			\$0.00	\$0.00
Lodging (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost (Up to state rate maximum)			\$0.00	\$0.00
Lodging Taxes and Fees (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost			\$0.00	\$0.00
Air Fare	Coach rate, actual cost, requires minimum two weeks' notice, with prior IDOT approval			\$0.00	\$0.00
Vehicle Mileage (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum	X	3,800	\$0.560	\$2,128.00
Vehicle Owned or Leased	\$32.50/half day (4 hours or less) or \$65/full day	X	12	\$65.00	\$780.00
Vehicle Rental	Actual cost (Up to \$55/day)			\$0.00	\$0.00
Tolls	Actual cost			\$0.00	\$0.00
Parking	Actual cost			\$0.00	\$0.00
Overtime	Premium portion (Submit supporting documentation)			\$0.00	\$0.00
Shift Differential	Actual cost (Based on firm's policy)			\$0.00	\$0.00
Overnight Delivery/Postage/Courier Service	Actual cost (Submit supporting documentation)	X	48	\$25.00	\$1,200.00
Copies of Deliverables/Mylars (In-house)	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Copies of Deliverables/Mylars (Outside)	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Project Specific Insurance (CNRR Liability for RR Survey)	Actual cost	X	1	\$9,300.00	\$9,300.00
Monuments (Permanent)	Actual cost			\$0.00	\$0.00
Railroad Flaggers (per day)	Actual cost	X	4	\$1,500.00	\$6,000.00
2-Way Radio (Survey or Phase III Only)	Actual cost			\$0.00	\$0.00
Telephone Usage (Traffic System Monitoring Only)	Actual cost			\$0.00	\$0.00
CADD	Actual cost (Max \$15/hour)			\$0.00	\$0.00
Web Site	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Advertisements	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Public Meeting Facility Rental	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Public Meeting Exhibits/Renderings & Equipment	Actual cost (Submit supporting documentation)	X	30	\$100.00	\$3,000.00
Wetland JD and Boundary Verification	Actual cost	X	1	\$1,000.00	\$1,000.00
Environmental Data Report for preparation of PESA.	Actual cost	X	1	\$3,000.00	\$3,000.00
Equipment and/or Specialized Equipment Rental*	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
8 1/2 x 11 Color Stock	Actual Cost Per Page	X	5,865	\$0.10	\$586.50
8 1/2 x 11 Card Stock	Actual Cost Per Page	X	800	\$0.12	\$96.00
8 1/2 x 11 Color Laser	Actual Cost Per Page	X	1,230	\$0.90	\$1,107.00
11x17 B/W Copies	Actual Cost Per Page	X	5,800	\$0.12	\$696.00
11x17 Card Stock	Actual Cost Per Page	X	800	\$0.19	\$152.00
11x17 Color Paper	Actual Cost Per Page	X	5,800	\$0.16	\$928.00
11x17 Color Laser	Actual Cost Per Page	X	1,200	\$1.50	\$1,800.00
Scan Setup	Actual Cost Per Sheet	X	200	\$0.50	\$100.00
Scan to File	Actual Cost Per Sheet	X	200	\$2.00	\$400.00
Digital Bond Prints	Actual Cost Per Square Foot	X	1,500	\$0.14	\$202.50
Color Inkjet Prints	Actual Cost Per Square Foot	X	1,500	\$2.40	\$3,600.00
8 1/2 x 11 B/W Copies	Actual Cost Per Page	X	5,800	\$0.08	\$464.00
<b>TOTAL DIRECT COST</b>					<b>\$36,540.00</b>

*\*If other allowable costs are needed and not listed, please add in the above spaces provided.*
**LEGEND**

W.O. = Work Order

J.S. = Job Specific



WANG ENGINEERING, INC

March 19, 2021

Matthew D. Santeford PE, SE, LEED Green Associate  
Assistant Vice President  
Structural Manager  
**TranSystems**  
1475 East Woodfield Road, Suite 600  
Schaumburg, IL 60173-5440

Re: Geotechnical Engineering Services  
Old McHenry Road and Quentin Road  
Phase I and II Design Services  
Hawthorn Woods and Lake Zurich  
Lake County, Illinois  
**Wang P201018**

Dear Mr. Santeford:

Wang Engineering Inc. (Wang) is pleased to present this proposal for geotechnical engineering services to support widening and reconstruction of Old McHenry Road (OMR) between Abbey Glenn Drive and Bonnie Lane and of Quentin Road (QR) between IL Route 22 (Lake Zurich Road) and OMR in the Villages of Hawthorn Woods and Lake Zurich.

## **SCOPE OF WORK**

Our project understanding is based on documents provided by and discussions with TranSystems and a site visit carried out on October 27, 2020. In addition to roadway widening and, possibly, pavement reconstruction, we understand the scope of work includes the design of a new OMR underpass at the Elgin, Joliet, and Eastern Rail. New retaining walls may support the entrance and exit south sides of the OMR underpass, whereas slopes may be cut back for the north sides. The underpass may also require a RR shoofly.

In addition, a future bike path on the south side of OMR, west of Midlothian Road (MR), may require three new retaining walls (RWs). Six other RWs and a culvert extension or replacement are anticipated along the QR corridor. Another design alternative would allow for the widening of MR from March Street to the south to approximately 500 feet north of Kruger Road. A version of this alternative would realign Kruger Road from MR to Fairfield Road. A 300-foot and 10-foot high long retaining wall may be necessary on the north side of Kruger Road, whereas a 200-foot long and 5-foot high retaining wall may be required along MR, just north of the OMR intersection.

Within the project area, the top of bedrock lies deeper than 240 feet below the ground surface. The overburden is made up of relatively competent glacial deposits, but 5- to 20-foot thick, weak, compressible, organic-rich soils may be anticipated near the ground surface in the NE quadrant of the OMR and MR intersection, on the north side of Kruger Road, and on OMR west of YMCA.

The objectives of the geotechnical engineering services will be to define general subsurface soil and groundwater conditions, develop parameters for foundation and subgrade soil stability and deformation analyses, and provide geotechnical recommendations for roadway and foundation design and construction.

Given the design uncertainties related to the MR widening and OMR and QR RWs, we propose a Phase 1 staged geotechnical approach. During a preliminary Stage One, exploratory borings will be drilled for the OMR and QR roadways and RWs. The geotechnical investigation and reporting for the OMR and QR RWs, MR widening, and Kruger Road realignment will be completed during a second stage when the design will clarify RW alternatives. A complete geotechnical investigation for the QR and OMR will be carried out during Phase 2, and it is not part of the current scope of work and budget estimate.

A detail presentation of the scope of work and proposed geotechnical approach is included in the following table:

Stage	Improvement	Name	Pavement Cores	Borings	Depth	Footage
1	Roadway	QR	9	7	10	70
1	Roadway	OMR	13	10	10	100
1	RR Track	Shoefly		6	15	90
1	Bridge	OMR Underpass		3/2	90/50	270/100
1	RW	SE Underpass		7	50	350
1	RW	SW Underpass		9	50	450
1	Slope	NE Underpass		1	50	50
1	Slope	NW Underpass		1	50	50
1	RW	OMR Bike Path RWs		3	30	90
2	RW	OMR Bike Path RWs		9	30	270
1	RW	QR RWs		6	30	180
2	RW	QR RWs		13	30	390
2	Roadway	MR	6	16	10	160
2	Roadway	Kruger Rd		7	10	70
2	RW	Kruger Rd RW		4	20	80
2	RW	MR RW		3	20	60
		<b>Totals</b>		<b>105/2</b>		<b>2730/100</b>

To accomplish the above geotechnical investigation program, Wang proposes the following tasks:

**Desk Study and Site Visit:** Wang will study and analyze existing roadway and foundation drawings, boring logs, and subsurface geological information to check for factors that might impact the proposed engineering works. Ground surface features, potential construction limitations and impacts on nearby structures, evidence of distress or deformation in the existing pavements and foundations, and signs of approach settlement will be examined during a site visit and boring layout.

**Geotechnical Drilling, Coring, and Sampling:** Wang will provide equipment, labor, and associated materials to drill and sample roadway and structure borings and take full-depth pavement cores. For Phase

1 (Stage One and Two), we will drill and sample an estimated 2,830 feet of soil in 107 boreholes and collect 22 pavement cores. The borings will be drilled using both truck- and ATV-mounted rigs. We assume that traffic control will be allowed only between the hours of 9:00 AM and 3:00 PM.

Full-depth pavement cores will be collected with a 4-inch diameter, diamond-impregnated core barrel. The borings will be advanced with hollow stem augers. Soil samples will be collected with split barrel samplers according to AASHTO T206, "Penetration Test and Split-Barrel Sampling of Soils."

Soil samples will be collected at 2.5-foot intervals to 30 feet bgs and at 5.0-foot intervals thereafter in the bridge borings and at 2.5-foot intervals to the termination depth in the RW and slope stability borings. Roadway borings will be sampled continuously. Two piezometers for long-term water table monitoring will be installed at the OMR underpass.

Structure boreholes will be grouted after completion. The roadway boreholes will be backfilled with soil cuttings. Where necessary, the cored-through pavement will be patched, and the surface will be restored as close as possible to the original condition.

**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, log samples, measure groundwater elevations, and prepare soil and cores samples for transport to our laboratory. The field engineer will also perform penetrometer and Rimac unconfined compressive strength tests on cohesive soil samples and observe and record the SPT values on 6 inches of penetration. The as-drilled boring/coring northing and easting locations will be measured using a mapping-grade GPS. Boring elevations will be checked against the project's TIN model.

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

**Engineering Analyses, Recommendations, and Reporting:** Wang will prepare Structure Geotechnical Reports (SGRs) for every structure that will require a TSL plan. Less formal geotechnical letter reports will be prepared for structures that will not require TSL plans (e.g., retaining walls of less than 7.0 feet in height). Preliminary reports will be prepared for the roadway alignments.

The geotechnical reports will include site location maps, description of the subsurface investigation methods, soil boring location plans, boring logs, pavement core photographs and measurements, laboratory test results, and assessments of the site soil and groundwater conditions. Analyses for foundation type, pile capacity and settlement evaluations, recommendations for foundation design and construction, seismic site classification, slope and global stability analyses, as well as criteria and procedures for temporary excavation, dewatering, backfilling, and compaction will be provided. The reports will be prepared as per the current IDOT requirements.

We assume draft reports will be submitted for review by TranSystems and the County; final reports will address issues raised by reviewers. Our estimate includes participation to four meetings with the Lake County Division of Transportation.

## **SCHEDULING**

Wang will start the project expediently upon prior written authorization to proceed. We estimate the site visit will require three working days. The proposed Phase 1 subsurface investigation program will be completed in about 47 working days using just one drilling rig. If necessary, Wang may mobilize more than one rig at any given time to meet the project schedule demands. The laboratory testing program will be completed within four weeks after the subsurface investigation. Draft SGRs will be submitted for review within three weeks after receiving preliminary TSL plans. Final SGRs will be issued two weeks after receiving comments on the draft reports.

## **COST ESTIMATE**

We propose to provide the above services on a time and materials basis according to the attached cost estimates. We understand that the Phase 2 geotechnical scope of work and fee will be part of a separate contract.

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-Mircea Iordache, PG  
Principal



Corina T. Farez, PE, PG  
Vice President



EXHIBIT E  
COST ESTIMATE OF CONSULTANT SERVICES WORKSHEET  
FIXED RAISE

<b>Local Public Agency</b>	<b>County</b>	<b>Section Number</b>
Lake County Department of Transportation	Lake	19-00999-65-ES
<b>Consultant (Firm) Name</b>	<b>Prepared By</b>	<b>Date</b>
Wang Engineering, Inc.	Liviu Iordache	3/19/2021

**PAYROLL ESCALATION TABLE**

<b>CONTRACT TERM</b>	36	<b>MONTHS</b>	<b>OVERHEAD RATE</b>	175.14%
<b>START DATE</b>	5/1/2021		<b>COMPLEXITY FACTOR</b>	0
<b>RAISE DATE</b>	1/1/2022		<b>% OF RAISE</b>	2.00%
<b>END DATE</b>	4/30/2024			

**ESCALATION PER YEAR**

Year	First Date	Last Date	Months	% of Contract
0	5/1/2021	1/1/2022	8	22.22%
1	1/2/2022	1/1/2023	12	34.00%
2	1/2/2023	1/1/2024	12	34.68%
3	1/2/2024	5/1/2024	4	11.79%

---

**The total escalation = 2.69%**

BLR 05514 (Rev. 02/01/21)  
Payroll Escalation

<b>MAXIMUM PAYROLL RATE</b>	<b>78.00</b>
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<b>ESCALATION FACTOR</b>	<b>2.69%</b>
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## PAYROLL RATES

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

[illegible]

Lake County Department of Transportation

Lake
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19-00999-65-ES
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## Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

<b>Total</b>	<b>0.00</b>	<b>0.00</b>
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Lake County Department of Transportation

Lake
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19-00999-65-ES

## Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

**COMPLEXITY FACTOR** 0

TASK	STAFF HOURS	PAYROLL	OVERHEAD & FRINGE BENEFITS	DIRECT COSTS	FIXED FEE	SERVICES BY OTHERS	TOTAL	% OF GRAND TOTAL
Desk Study, Permitting & Boring Layout	65	2,784	4,876		919		8,579	1.74%
Field Work & Logging	470	18,054	31,620	242,795	5,958		298,427	60.44%
Laboratory Testing	5	160	280	24,087	53		24,580	4.98%
Data Analyses & Engineering	530	24,073	42,161		7,944		74,178	15.02%
Report Preparation	425	22,916	40,135		7,562		70,613	14.30%
Project Management	95	5,642	9,882		1,862		17,386	3.52%
		-	-		-		-	
		-	-		-		-	
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Subconsultant DL					0		-	
TOTALS	1590	73,629	128,954	266,882	24,298	-	493,763	100.00%

Lake County Department of Transportation

Lake

19-00999-65-ES

## Exhibit E Cost Estimate of Consultants Services Worksheet Fixed Raise

**SHEET** 1 **OF** 2

PAYROLL  CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJ. RATES			Desk Study, Permitting & Boring Layout			Field Work & Logging			Laboratory Testing			Data Analyses & Engineering			Report Preparation		
		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 in Charge	78.00	5.0	0.31%	0.25															
Project Manager	67.55	60.0	3.77%	2.55															
Senior Engineer	67.55	215.0	13.52%	9.13	5	7.69%	5.20							85	16.04%	10.83	125	29.41%	19.87
Project Engineer/Project Geologist	45.48	795.0	50.00%	22.74	40	61.54%	27.99	235	50.00%	22.74				310	58.49%	26.60	210	49.41%	22.47
Assistant Engineer/Assistant Geologist	31.34	435.0	27.36%	8.57	20	30.77%	9.64	235	50.00%	15.67				135	25.47%	7.98	45	10.59%	3.32
Laboratory Technician	32.01	5.0	0.31%	0.10							5	100.00%	32.01						
Administrative Assistant	39.97	30.0	1.89%	0.75															
QC/QA Reviewer	78.00	45.0	2.83%	2.21													45	10.59%	8.26
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TOTALS		1590.0	100%	\$46.31	65.0	100.00%	\$42.83	470.0	100%	\$38.41	5.0	100%	\$32.01	530.0	100%	\$45.42	425.0	100%	\$53.92

**Local Public Agency**

Lake County Department of Transportation

**County**

Lake

**Section Number**

19-00999-65-ES

**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

SHEET 2 OF 2

PAYROLL CLASSIFICATION	AVG HOURLY RATES	Project Management																	
		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 in Charge	78.00	5	5.26%	4.11															
Project Manager	67.55	60	63.16%	42.66															
Senior Engineer	67.55																		
Project Engineer/Project Geo	45.48																		
Assistant Engineer/Assistant	31.34																		
Laboratory Technician	32.01																		
Administrative Assistant	39.97	30	31.58%	12.62															
QC/QA Reviewer	78.00																		
<b>TOTALS</b>		95.0	100%	\$59.39	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00

Name: Old McHenry Rd Phase 1  
RFP/PTB/PSB/Item: NA  
Contract/Job: NA

Date: 03/19/2021  
Wang No.: P201018

Task Description	Units	Unit Price	Extended Cost
<b>DRILLING, SAMPLING &amp; INSITU TESTING</b>			
Drilling Coordination, Utilities Clearance, Site Access	45.0 Hours	\$112.00 /Hour	\$5,040.00
Mobilization (ATV mounted)	2	\$1,440.00 /Each	\$2,880.00
Stand-by Hourly Rate	0.0 Hours	\$400.00 /Hour	\$0.00
<u><b>Drilling &amp; Sampling - Hourly</b> (SPT, Penetrometer, Rimac, Visual Classification Included)</u>			
Two-man crew - normal working hrs	360.0 Hours	\$400.00 /Hour	\$144,000.00
Two-man crew - overtime (2 hrs per day)	90.0 Hours	\$450.00 /Hour	\$40,500.00
<u><b>Hand Augering, Pavement/ Deck Coring &amp; Testing</b></u>			
Two-man crew - normal working hrs	0.0 Hours	\$400.00 /Hour	\$0.00
Two-man crew - overtime (2 hrs per day)	0.0 Hours	\$450.00 /Hour	\$0.00
Asbestos content testing on deck cores	0 Tests	\$185.00 /Test	\$0.00
<u><b>Surveying of Boring Locations</b> (Two-man crew)</u>	0.0 Hours	\$230.00 /Hour	\$0.00
<u><b>Monitoring Well or Inclinator Installation</b></u>			
<u><b>2.0- or 4-inch monitoring wells</b></u>			
Two-man crew - normal working hours	16.0 Hours	\$400.00 /Hour	\$6,400.00
Two-man crew - overtime (2 hours per day)	4.0 Hours	\$450.00 /Hour	\$1,800.00
<u><b>Inclinator casing installation</b></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><b>Other items - at cost</b></u>			
55-gallon DOT containment drums	0.0 Drums	\$45.00 /Drum	\$0.00
Digital datalogger and barometer	0.0 Each	\$1,450.00 /Each	\$0.00
Well and Casing Materials	At Cost		\$750.00
<u><b>Drilling and Sampling - per Foot</b> (SPT, Penetrometer, Rimac, Visual Classification Included)</u>			
Between 0 and 75 feet	0.0 Feet	\$40.00 /Foot	\$0.00
Between 75 and 150 feet	0.0 Feet	\$57.00 /Foot	\$0.00
Drill without sampling	0.0 Feet	\$29.00 /Foot	\$0.00
Shelby tube samples	0 Samples	\$88.00 /Sample	\$0.00
Rock core setup	0 Setups	\$415.00 /Setup	\$0.00
Set casing and rock coring	0.0 Feet	\$88.00 /Foot	\$0.00
Borehole backfilling	0.0 Feet	\$11.00 /Foot	\$0.00
Pavement patching	0 Patches	\$23.00 /Each	\$0.00
Drilling crew daily travel	0 Days	\$206.00 /Day	\$0.00
<u><b>Other Insitu Tests</b></u>			
Pressuremeter testing	0 Days	\$2,800.00 /Day	\$0.00
Vane shear	0 Tests	\$255.00 /Test	\$0.00
Dilatometer testing	At Cost		\$0.00
Cone penetration testing (CPT/CPTu)	At Cost		\$0.00
Photoionization detector (PID)	0 Days	\$105.00 /Day	\$0.00
Double ring infiltrometer test (ASTM D3385)	0 Tests	\$1,400.00 /Test	\$0.00
Single ring infiltrometer test (Chicago Stormwater Ordinance)	0 Tests	\$700.00 /Test	\$0.00
<u><b>Boring Location Accessibility, Railroad Fees, State/County/Municipal Fees, Barge Drilling</b></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 (application, permit, and utility location fees)	At Cost		\$2,350.00
Railroad protective insurance	At Cost		\$500.00
Railroad flagman	At Cost		\$2,600.00
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
			<b>\$206,820.00</b>

Name: Old McHenry Rd Phase 1  
RFP/PTB/PSB/Item: NA  
Contract/Job: NA

Date: 03/19/2021  
Wang No.: P201018

Task Description			Units	Unit Price	Extended Cost
<b>LABORATORY TESTING</b>					
T265	D2216	Water Content	1105 Tests	\$10.50 /Test	\$11,602.50
--	D7263	Unit Weight (Density)	0 Tests	\$38.00 /Test	\$0.00
T100	D854	Specific Gravity	0 Tests	\$69.00 /Test	\$0.00
--	D4972	pH of Soil	0 Tests	\$62.00 /Test	\$0.00
T267	D2974	Organic Content by LOI	10 Tests	\$63.00 /Test	\$630.00
T194	--	Organic Content by Wet Combustion	16 Tests	\$140.00 /Test	\$2,240.00
<b>Particle Size Distribution</b>					
T88	D422	Sieve Analysis	0 Tests	\$80.00 /Test	\$0.00
T88	D422	Combined Sieve and Hydrometer	46 Tests	\$129.00 /Test	\$5,934.00
--	D1140	Percent Finer than No. 200 Sieve	0 Tests	\$53.00 /Test	\$0.00
<b>Atterberg Limits</b>					
T89, T90	D4318	Liquid and Plastic Limits	46 Tests	\$80.00 /Test	\$3,680.00
T92	D427	Shrinkage Factors	0 Tests	\$95.00 /Test	\$0.00
<b>Classification of Soils</b>					
--	D2488	Visual Manual	0 Samples	\$20.00 /Sample	\$0.00
--	D2487	Unified Soil Classification System	0 Samples	\$205.00 /Sample	\$0.00
M145	--	AASHTO Classification	0 Samples	\$205.00 /Sample	\$0.00
--	--	USDA Classification	0 Samples	\$129.00 /Sample	\$0.00
<b>Soil Settlement, Swelling, and Collapse Potential</b>					
T216	D2435	One-Dimensional Consolidation	0 Tests	\$585.00 /Test	\$0.00
--	D4546	One-Dimensional Swell	0 Tests	\$567.00 /Test	\$0.00
--	D5333	Collapse Potential	0 Tests	\$315.00 /Test	\$0.00
<b>Shear Strength of Soil</b>					
		Rimac Unconfined Compressive Strength	0 Tests	\$16.00 /Test	\$0.00
T208	D2166	Unconfined Compressive Strength	0 Tests	\$85.00 /Test	\$0.00
T236	D3080	Direct Shear of Soils (3 points)	0 Tests	\$750.00 /Test	\$0.00
T296	D2850	UU Triaxial Compression (3 points)	0 Tests	\$352.00 /Test	\$0.00
T297	D4767	CU Triaxial Compression (3 points)	0 Tests	\$1,160.00 /Test	\$0.00
T297	D4767	CD Triaxial Compression (3 points)	0 Tests	\$1,160.00 /Test	\$0.00
	D7012	Peak Uniaxial Compressive Strength of Rock Core	0 Tests	\$172.00 /Test	\$0.00
<b>Laboratory Compaction Tests</b>					
T99	D698	Moisture-Density of Soils (Standard Effort)	0 Tests	\$210.00 /Test	\$0.00
T180	D1557	Moisture-Density of Soils (Modified Effort)	0 Tests	\$220.00 /Test	\$0.00
T193	D1883	California/Illinois Bearing Ratio (3 points)	0 Tests	\$975.00 /Test	\$0.00
<b>Coefficient of Permeability</b>					
T215	D2434	Hydraulic Conductivity (Constant Head)	0 Tests	\$475.00 /Test	\$0.00
--	D5084	Hydraulic Conductivity (Flexible Wall)	0 Tests	\$500.00 /Test	\$0.00
<b>Additional Sample Preparation Procedures</b>					
		Removal of Organic Matter	0 Samples	\$92.00 /Sample	\$0.00
		Extrusion & Preservation of Undisturbed Samples	0 Samples	\$30.00 /Sample	\$0.00
		Logging & Classification of Undisturbed Samples	0 Samples	\$68.00 /Sample	\$0.00
		Remolding and Trimming of Samples	0 Samples	\$65.00 /Sample	\$0.00
<b>Planting Soil Mix Testing</b>					
		<i>Chemical Analyses &amp; Mitigation Recommendations (300 g sample required)</i>			
		pH, CEC, Soluble Salts, OM, P, K, Other Nutrients	0 Tests	\$120.00 /Test	\$0.00
		Residual Chemicals , Herbicides Full Screen	0 Tests	\$680.00 /Test	\$0.00
		<i>Mechanical Analyses &amp; Mitigation Recommendations (1,000 g sample required)</i>			
T88	D422	Combined Sieve and Hydrometer	0 Tests	\$129.00 /Test	\$0.00
<b>Analytical Laboratory Services - for CCDD</b>					
		Volatile Organic Components (VOC)	0 No	\$54.00 /Each	\$0.00
		SemiVOC including PNA's	0 No	\$107.00 /Each	\$0.00
		PCB	0 No	\$60.00 /Each	\$0.00
		Total Metals	0 No	\$48.00 /Each	\$0.00
		PH Determination	0 No	\$8.00 /Each	\$0.00
<b>Corrosion Testing</b>					
		(Resistivity, Chlorides, pH, Redox, and Sulfates)	0 No	\$350.00 /Each	\$0.00
					<b>\$24,086.50</b>

**Name:** Old McHenry Rd Phase 1  
**RFP/PTB/PSB/Item:** NA  
**Contract/Job:** NA

**Date:** 03/19/2021  
**Wang No.:** P201018

Task Description	Units	Unit Price	Extended Cost
<b>TRAFFIC CONTROL</b>			
<u><i>Expressway (1/2 mile)</i></u>			
Shoulder Closure	0.0 No.	\$900.00 /Each	\$0.00
One-lane Closure	0.0 No.	\$3,000.00 /Each	\$0.00
Two-lane Closure	0.0 No.	\$3,200.00 /Each	\$0.00
Three-lane Closure-Only Saturday	0.0 No.	\$3,650.00 /Each	\$0.00
Ramp Closure (Exit-Entrance)	0.0 No.	\$950.00 /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.	\$800.00 /Each	\$0.00
One-lane Closure	36.0 No.	\$900.00 /Each	\$32,400.00
Two-lane Closure	0.0 No.	\$1,000.00 /Each	\$0.00
Detour	0.0 No.	\$900.00 /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
Driver with multiple short closures (10-hour day)	0.0 No.	\$1,750.00 /Each	\$0.00
<u><i>Impact Attenuator with Driver</i></u>			
Port-to-Port	0.0 Hours	\$205.00 /Hour	\$0.00
<u><i>Roadway Flagmen (two-man crew)</i></u>			
Port-to-Port	0.0 Hours	\$220.00 /Hour	\$0.00
			<b>\$32,400.00</b>
Note: Prices are for weekday only (Monday through Friday). Weekend rates (Saturdays and Sundays) are higher and will be provided per project			
<b>FIELD VEHICLES &amp; MILEAGE</b>			
<u><i>Field Vehicle</i></u>			
Field Vehicle Mileage (>100 Miles per Day)	0.0 Miles	\$0.575 /Mile	\$0.00
Field Vehicle Daily (<100 Miles per Day)	55 Days	\$65.00 /Day	\$3,575.00
			<b>\$3,575.00</b>
<b>OUT-OF-TOWN EXPENSES</b>			
<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
			<b>\$0.00</b>
<b>SUMMARY</b>			
<i>DRILLING, SAMPLING &amp; INSITU TESTING</i>			\$206,820.00
<i>LABORATORY TESTING</i>			\$24,086.50
<i>TRAFFIC CONTROL</i>			\$32,400.00
<i>FIELD VEHICLES &amp; MILEAGE</i>			\$3,575.00
<i>OUT-OF-TOWN EXPENSES</i>			\$0.00
			<b>\$266,881.50</b>

TESKA



**March 11, 2021**

**To:** Matt Smith, TranSystems, [mjsmith@transystems.com](mailto:mjsmith@transystems.com)

**From:** Jodi Mariano, Teska Associates, [jmariano@teskaassociates.com](mailto:jmariano@teskaassociates.com)

**Re:** Old McHenry Road / Quentin Road, Public Involvement and Aesthetic Design Scope

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## **15. Public Involvement**

The project team will create a public involvement program that will use the resources of TranSystems, CBBEL and Teska to create a program that is unique and tailored to fit this project. It is expected that the project will follow a Context Sensitive Solutions type of process that will include creation of a Stakeholder Involvement Group (SIG), a series of public meeting activities with the SIG, other stakeholder groups and the public in general. The following provides the overall scope of work for this task.

- A. An initial project kickoff meeting focused on public involvement activities will be held to confirm the overall public involvement approach and to confirm initial public involvement activities. Project branding will be discussed at this time. A preliminary branding exhibit with 3 brand identity options will be presented from which a brand identity can be selected and finalized for use in the website.
- B. Project stakeholder meetings – conduct 16 project stakeholder meetings with Hawthorn Woods, Lake Zurich, Elmhurst Township and up to three other groups to be determined to introduce the project team, identify stakeholders for involvement in the SIG, discuss and coordinate the project, seek input, review project specific elements (traffic movements, environmental issues, etc) and review technical studies. Up to two stakeholder meetings may include attendance at community events, such as a local farmers market. The purpose of attendance at community events is to promote the project to the wider community and to engage those who may not otherwise participate in the planning. Teska will staff a booth at an event and provide exhibits and materials designed to engage participants and to solicit inputs.
- C. Stakeholder Involvement Plan (SIP). The primary purpose of the SIP is to provide the framework for overall public and stakeholder involvement throughout the project development process. The SIP will remain flexible, is based on the needs of the project, and may be updated throughout the project development process as necessary. The SIP will be presented at the initial SIG meeting for acceptance.



1. Identify and prepare list of stakeholders
  2. Develop draft SIP and submit to LCDOT for review/concurrence
  3. Update and finalize SIP and share with the SIG
  4. Prepare updates to the SIP throughout the Phase I study as needed
- D. SIG - Five separate SIG Meetings are anticipated for this project. SIG meetings are intended to be held as informational meetings with opportunities for workshop style design discussion. Each meeting would have a structured agenda with anticipated outcomes. Meetings would typically begin with a formal presentation followed by input activities designed to achieve inputs to guide the project. Input activities may include, but are not limited to:
- Guided discussion to review project alternatives and elements
  - Live mapping to graphically identify issues and opportunities to aid discussion
  - Live sketching atop drawings or photographs to graphically describe design concepts
  - Live online polling via Mentimeter or other to identify group preferences about design issues and opportunities

It is assumed that the SIG meetings will be either virtual or in person meetings.

1. Meeting 1 - Introduce team, project development process and schedule. Present traffic and safety data and analysis.
  2. Meeting 2 - Present Draft Purpose and Need statement; present 'Issues and Opportunities' exhibits; present potential alternatives and ask for additional ideas.
  3. Meeting 3 – Present Preliminary Alternatives and analysis of each. Conduct a workshop to review the screening of the alternatives. Get public input on which alternatives best address the Purpose and Need. The outcome of this meeting would be direction to proceed with Public Meeting 2 and development of the finalist alternative.
  4. Meeting 4 - Present the Finalist Alternatives and Analysis. The meeting would begin with a slideshow presentation, followed by a discussion about plan elements and details. The outcome of this meeting would be direction to proceed with the public hearing and development of engineering.
  5. Meeting 5 - Present detailed geometric plans for the selected concept. The meeting would include a formal presentation and input activities. The outcome of this meeting would be direction to proceed with the public hearing.
  6. Other tasks related to the SIG meetings include:
    - a. Identify location for each SIG meeting with assistance from LCDOT.
    - b. Prepare Meeting Agenda and submit to LCDOT for concurrence.
    - c. Prepare SIG meeting invite letters and emails, and distribute pre-meeting materials.
    - d. Prepare meeting presentation and materials.
    - e. Staff attendance at SIG meetings.
    - f. Prepare SIG meeting minutes/summary and distribute.
- E. Public Meetings
1. Three public meetings are proposed for the project. Each meeting will be conducted as both an in person and a virtual event using Zoom or another equivalent virtual meeting product. The meeting would include a formal presentation and opportunities for public engagements
    - a. Public Meeting 1 – This meeting would be conducted after SIG Meeting 2. The purpose of the meeting is to introduce the project scope, project team, schedule, public input process and to present results of traffic and crash studies. The meeting would include a

formal presentation and input activities. The meeting will also introduce the SIG process and request sign up for volunteers.

- b. Public Meeting 2 – this meeting would be conducted after SIG Meeting 4
  - c. Public Hearing – this meeting would be conducted after SIG Meeting 5 and would follow the requirements of a public hearing as noted in the BLRS Manual and IDOT BDE Manual.
2. Other tasks related to the public meetings include:
- a. Compile mailing list (including stakeholders and all adjacent property owners).
  - b. Preparation of brochures/handouts.
  - c. Preparation of display exhibits (aerial displays with alternatives, cross sections, traffic data, crash data, environmental data, and other displays as appropriate).
  - d. Preparation of PowerPoint presentations
  - e. Attendance at dry run events
  - f. Secure location for public meetings
  - g. Preparation of newspaper display ads and press releases
  - h. Attendance at public meeting and hearing
  - i. Securing a court reporter for the Public Hearing
  - j. Preparation of record summaries of the meetings that will include at a minimum copies of all notices, presentation material, attendance lists, comments, and responses.
  - k. Preparation of post Public Meeting & Hearing project updates for posting on the Lake County project website (see below) that will summarize the PM/PH proceedings, general comments received and responses, and an overview of the next steps in project development.
  - l. Prepare individual response letters to uncommon comments received, or requests for information received at the Public Meeting and Public Hearing.

F. Project Website and Branding

- 1. An independent project website will be developed to provide a central location for the exchange of project information between the project team (LCDOT and consultants) and project stakeholders. The website can also be used as a secure location for posting of project information for review by LCDOT only.
- 2. The website will be located on a project specific internet domain acquired by the consultant and linked to the LCDOT project website. The website will incorporate graphics and messaging developed specifically for the Old McHenry Road project.
- 3. Website content will be developed and maintained throughout the Phase I project development process (assumed two years during the Phase I project) by the consultant. All website content will be reviewed and approved by LCDOT before posting. The website will include at least the following information/capabilities for the project team and stakeholders:
  - a. List of project stakeholders including contact information
  - b. Background project information including schedule
  - c. Provide a list of Frequently Asked Questions (FAQs) and responses
  - d. SIG and Public Information Meeting/Public Meeting/Public Hearing notifications
  - e. Project team contact information
  - f. Resource for submitting questions and comments
  - g. Posting of project documents for information and/or review
  - h. Subscribers are invited to receive project updates
  - i. Interactive map function allows unique inputs to be identified at specific map locations.

4. At the conclusion of the Phase I project development process, which is assumed to be 36 months after the beginning of the project, the website and domain ownership will be assumed by LCDOT unless otherwise specified. (Note: The website will be produced in Wordpress. If LCDOT assumes ownership of the domain, LCDOT would be required to pay yearly costs and understand how to operate the Wordpress website.)
- G. Design Visualization models will be developed to assist the public understand proposed concepts and alternatives for public meetings and the project website. Utilizing a 3D visualization model can help translate what a given proposed alternative will look like much more effectively than a 2D plan exhibit. 3D models for two alternatives will be prepared by others which will be used for the following deliverables:
  1. Produce still photo visualization images from the 3D model (by others) to be used for comparing aesthetic treatment alternatives.

## **16. Aesthetics**

Based on input gained through the public outreach activities and with LCDOT staff direction, Teska will apply community input results towards streetscape design and development.

- A. Corridor context exhibits: These exhibits identify surrounding influences on the study area, including pedestrian routes and destinations, bike routes, vehicular routes, bus routes, adjacent land uses, property/business names, major destinations, critical views, mature vegetation, and historical and cultural influences. These exhibits will be presented as diagrams atop aerial photography. Annotated photographs would be provided to support the diagrams.
- B. Thematic identity exhibits: These exhibits illustrate a thematic direction to inform the eventual landscape and streetscape selections. The Old McHenry Road/Quentin Road corridor should not be treated as a 'one size fits all' corridor but should respond to existing characteristics and landscape surroundings. These exhibits will be presented as diagrams atop aerial photography and annotated photographs. Potential thematic identities that may be explored include:
  1. Early agricultural themes and characteristics specified to Lake Zurich, Hawthorn Woods and Ela Township.
  2. Sustainable landscape themes, including the communities' commitments to water quality, native plantings, dark skies initiatives, wildlife corridors and other sustainable materials and processes as appropriate to the project.
- C. Preliminary concept plans and alternatives: Based on research conducted above and coordination with the design team, two preliminary concept plan packages will be prepared each for the Old McHenry Road and Quentin Road corridors. Each corridor will be studied and conceptualized with overlapping thematic elements as appropriate. Each package would include plans, sections, elevations, and comparable photographs as required to convey design intent. Based on 3D modeling prepared by TranSystems, Teska will prepare two 3D photovisualizations for each corridor to support each concept plan package. Alternative aesthetic treatments will be provided for each concept plan package as appropriate. The concepts will include best design practices for sustainable materials and systems which may include, but are not limited to: stormwater storage, water quality, Dark Skies initiatives for lighting, wildlife corridors, vegetative buffers, bioswales and rain gardens. Design features to be addressed in each package will be non-structural aesthetic treatments including, but not limited to: surface treatments at

bridge structures and retaining walls, earthwork and grading, railings, lighting, paving, landscaping, and public art as appropriate to each design package. The structural design and photometric calculations will be performed in other tasks, not by Teska.

- D. Participate in review meetings and presentations with staff, stakeholders and the community as described in “Public Involvement” above prior to preparing refined documents. During the outreach, concept plan materials and elements will be reviewed. Revisions may be made to the concepts to assist LCDOT staff and stakeholders in the selection of design features to be included in the refined plan package.
- E. Prepare refined concept plan based on direction received during the Public Involvement activities, one refined concept plan package for each corridor will be created. Each final concept package will include refined plans, sections, elevations and comparable photographs as required to convey design intent. Two 3D photovisualizations for each corridor will be refined to support the plan package.
- F. Prepare cost estimates based on design work above. The cost estimating will be coordinated with the design team.
- G. Prepare outline specifications in coordination with the design team. Based on the design and public involvement activities described above, outline specifications will identify products selections, materials, finish treatments, and plant lists as appropriate to guide the next phase of design work.

## **23. Project Management**

- A. One Teska Principal will serve as project manager for the duration of this assignment. The team assigned to this project will include a planner and a landscape designer. The Teska team will work closely to ensure seamless coordination within Teska’s office and the design team.
- B. The role of the planner will be to guide website development / management and public outreach activities. The role of the landscape designer will be to guide aesthetic design tasks and to assist with the production of materials.

## **24. QA/QC**

- A. The project manager will be in close communication with TranSystems for the duration of the project. All project materials, including written documents, website materials and graphic documents will be reviewed thoroughly to ensure the materials are technically accurate and appropriate for their audience.
- B. The project manager will review all materials before they are submitted to the team, LCDOT and public.

**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00999-65-ES

**Consultant (Firm) Name**

Teska Associates

**Prepared By**

Jodi Mariano

**Date**

3/11/2021

**PAYROLL ESCALATION TABLE**

CONTRACT TERM 36 MONTHS  
START DATE 5/1/2021  
RAISE DATE 1/1/2022

OVERHEAD RATE 142.90%  
COMPLEXITY FACTOR  
% OF RAISE 2.00%

END DATE 4/30/2024

**ESCALATION PER YEAR**

Year	First Date	Last Date	Months	% of Contract
0	5/1/2021	1/1/2022	8	22.22%
1	1/2/2022	1/1/2023	12	34.00%
2	1/2/2023	1/1/2024	12	34.68%
3	1/2/2024	5/1/2024	4	11.79%

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The total escalation = 2.69%

Lake County Division of Transportation

19-00999-65-ES

MAXIMUM PAYROLL RATE	78.00
ESCALATION FACTOR	2.69%

## PAYROLL RATES

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

[illegible]

Lake County Division of Transportation

Lake

19-00999-65-ES







PTB NUMBER:

TODAY'S DATE: **3/11/2021**

*\*If other allowable costs are needed and not listed, please add in the above spaces provided.*

## LEGEND

W.O. = Work Order

J.S. = Job Specific

MACKIE CONSULTANTS



March 10, 2021

**2<sup>nd</sup> REVISION  
E-MAIL**

Mr. Matthew J. Smith, PE  
Assistant Vice President  
TranSystems  
1475 East Woodfield Road, Suite 600  
Schaumburg, IL 60173

**Re: LiDAR Scanning  
LCDOT Old McHenry Road & Quentin Road  
Lake County, Illinois**

Dear Mr. Smith:

We are pleased to submit this revised proposal to provide professional land surveying and scanning services required to create an LiDAR scanning topographic survey of roadway surfaces and improvements located in Lake County, Illinois. This proposal is based on maps, roadway locations, and information provided by Christopher B. Burke Engineering, Ltd, who is tasked with the overall topographic survey for the project.

**PROJECT UNDERSTANDING**

A large-scale LiDAR scanning project in Lake County existing conditions along the proposed roadway surfaces as described below. Scan data and details will be collected then presented as a point cloud exported to a file format with as-built information provided as a full topographic map complete with both horizontal and vertical points. Additionally, providing a published point cloud file with 3D photo overlay which will include all data obtained for the scans.

*The survey limits will typically extend 1,500 feet in each direction at major intersections that (or as otherwise recommended per below) are currently signalized or anticipated to warrant new traffic signals, with adjustments based on field conditions as appropriate. The survey limits will typically extend 200 feet in each direction at all other minor unsignalized public streets (public and private). In addition, survey along the CN Railroad will be completed for 2,600 feet in each direction. Survey will be broken out related to the potential Fairfield Road realignment, which includes parcel survey. For purposes of preparing the level of effort required, the total survey length is estimated as follows:*

**Base Survey**

- Old McHenry Road (Abbey Glenn to Bonnie Lane) = 11,200 feet
  - Quentin Road (Old McHenry to south of IL 22) = 9,400 feet
  - Quentin/IL 22 (east and west) = 3,000 feet
  - Quentin/Ensell (east and west) = 400 feet
  - Quentin/Highland (east and west) = 1,200 feet
  - Old McHenry/Midlothian (north and south) = 3,000 feet
  - Old McHenry/Fairfield (north) = 1,500 feet
  - Old McHenry/Echo Lake (south) = 1,500 feet
  - Side street or Minor Legs (16) = 3,200 feet
  - CN Railroad (north and south) = 5,200 feet
- Total = 39,600 feet (7.5 miles)

Fairfield Road Re-Alignment (via Kruger Road) to Midlothian Road

- Fairfield Road (1,500 feet north of Old McHenry Road to Holmes Avenue) = 2,500 feet
- Midlothian Road (1,500 feet north of Old McHenry Road to 500 feet north of Kreuger Road) = 2,000 feet
- Kruger Road (1,300 feet Fairfield Road to Midlothian Road; 200 feet along Birch Lakes Drive) = 1,500 feet
- Parcels (north & South of Kruger Road: 1409200033, 1409200029, 1404400010 (partial), 1404400017 (partial), and 1403300014 (partial)) = 45 acres (LiDAR only)  
Total = 6,000 feet (1.1 miles) & 45 acres

**I. 3D SCANNING SERVICES**

Scanning & Topographic Deliverables

- Obtain 3-Dimensional point cloud of the roadway surfaces.
- Create a topographic map with locations and elevations of existing above ground structures and visible utilities. The CAD deliverable will be processed in the most recent Bentley ORD Connect version with current IDOT CAD standards.
- The file will include horizontal and vertical measurements of point data and information of each scanned area within the point cloud.
- Data will also include a published point cloud for the entire collection area, including parkways.
- Points will be produced at a 25 foot interval along roadway surfaces.

**II. LIDAR 75 ACRE PARCEL**

- Scan will include Parcel Pins 1409200033, 1409200029, 1404400010 (partial), 1404400017 (partial), and 1403300014 (partial). Surface scan will include point cloud, surface contour data, and field data collection for the approximately 45 acre area (LiDAR only).

The survey work will be separated into two tasks:

- Task 1 – Base Survey as described in the project understanding.
- Task 2 – Fairfield Road Re-alignment as described in the project understanding. (Mackie Consultants will not proceed with Task 2 until authorized by Lake County)

**FEES**

Based on the above Scope of Service, our Estimate of Fee, as shown in the attached CECS is

**Direct Cost – \$ 13,895.00**

**Labor Fee – \$ 136,005.00**

**Total Cost: \$ 149,900.00**


**CONDITIONS**

- A. The attached General Terms and Conditions are expressly incorporated into and are an integral part of this contract for professional services.
- B. The staff hourly rates and other approved expenses referred to in this proposal shall not exceed the limits per the approved IDOT BLR Form.

Mackie Consultants, LLC reserves the right to increase these rates and costs by 2 percent annually.

If the above services, fees and conditions are acceptable, please return an executed copy of this proposal to us. The signed copy will serve as our agreement and authorization to proceed.

Very truly yours,  
MACKIE CONSULTANTS, LLC

  
\_\_\_\_\_  
Jeffrey D. DeRango, PLS  
Senior Project Surveyor II

**ACCEPTED:**

\_\_\_\_\_  
**TRANSYSTEMS**

\_\_\_\_\_  
**DATE**

Cc: Matt Huffman, Christopher B. Burke Engineering, Ltd.

N:\PROPOSALS\2021\TranSystems.LCDOT Old McHenry Road and Quentin Road.Lake County IL-LiDar Survey-2nd Rev.docx

**MACKIE CONSULTANTS, LLC**  
**GENERAL TERMS AND CONDITIONS**

1. Relationship Between Engineer and Client: Mackie Consultants, LLC (Engineer) shall serve as Client's professional engineer consultant in those phases of the Project to which this Agreement applies. This relationship is that of a buyer and seller of professional services and as such the Engineer is an independent contractor in the performance of this Agreement and it is understood that the parties have not entered into any joint venture or partnership with the other. The Engineer shall not be considered to be the agent of the Client. Nothing contained in this Agreement shall create a contractual relationship with a cause of action in favor of a third party against either the Client or Engineer.

Furthermore, causes of action between the parties to this Agreement pertaining to acts of failures to act shall be deemed to have accrued and the applicable statute of limitations shall commence to run not later than the date of substantial completion.

2. Responsibility of the Engineer: Engineer will strive to perform services under this Agreement in accordance with generally accepted and currently recognized engineering practices and principles, and in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation, express or implied, and no warranty or guarantee is included or intended in this Agreement, or in any report, opinion, document, or otherwise.

Notwithstanding anything to the contrary which may be contained in this Agreement or any other material incorporated herein by reference, or in any Agreement between the Client and any other party concerning the Project, the Engineer shall not have control or be in charge of and shall not be responsible for the means, methods, techniques, sequences or procedures of construction, or the safety, safety precautions or programs of the Client, the construction contractor, other contractors or subcontractors performing any of the work or providing any of the services on the Project. Engineer is not responsible for the implementation of the Storm Water Pollution Prevention Plan (SWPPP), including maintenance and/or repair of soil erosion and sediment control measures, for compliance with the General NPDES Permit for storm water discharges from construction site activities. Nor shall the Engineer be responsible for the acts or omissions of the Client, or for the failure of the Client, any architect, engineer, consultant, contractor or subcontractor to carry out their respective responsibilities in accordance with the Project documents, this Agreement or any other agreement concerning the Project. Any provision which purports to amend this provision shall be without effect unless it contains a reference that the content of this condition is expressly amended for the purposes described in such amendment and is signed by the Engineer.

3. Changes: Client reserves the right by written change order or amendment to make changes in requirements, amount of work, or engineering time schedule adjustments, and Engineer and Client shall negotiate appropriate adjustments acceptable to both parties to accommodate any changes, if commercially possible.
4. Suspension of Services: Client may, at any time, by written order to Engineer (Suspension of Services Order) require Engineer to stop all, or any part, of the services required by this Agreement. Upon receipt of such an order, Engineer shall immediately comply with its terms and take all reasonable steps to minimize the costs associated with the services affected by such order. Client, however, shall pay all costs incurred by the suspension, including all costs necessary to maintain continuity and for the resumption of the services upon expiration of the Suspension of Services Order. Engineer will not be obligated to provide the same personnel employed prior to suspension, when the services are resumed, in the event that the period of suspension is greater than thirty (30) days.
5. Termination: This Agreement may be terminated by either party upon thirty (30) days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party. This Agreement may be terminated by Client, under the same terms, whenever Client shall determine that termination is in its best interests. Cost of termination, including salaries, overhead and fee, incurred by Engineer either before or after the termination date shall be reimbursed by Client.
6. Documents Delivered to Client: Drawings, specifications, reports, and any other Project Documents prepared by Engineer in connection with any or all of the services furnished hereunder shall be delivered to the Client for the use of the Client. Engineer shall have the right to retain originals of all Project Documents and drawings for its files. Furthermore, it is understood and agreed that the Project Documents such as, but not limited to reports, calculations, drawings, and specifications prepared for the Project, whether in hard copy or machine readable form, are instruments of professional service intended for one-time use in the construction of this Project. These Project Documents are and shall remain the property of the Engineer. The Client may retain copies, including copies stored on magnetic tape or disk, for information and reference in connection with the occupancy and use of the Project.

When and if record drawings are to be provided by the Engineer, Client understands that information used in the preparation of record drawings is provided by others and Engineer is not responsible for accuracy, completeness,

nor sufficiency of such information. Client also understands that the level of detail illustrated by record drawings will generally be the same as the level of detail illustrated by the design drawing used for project construction. If additional detail is requested by the Client to be included on the record drawings, then the client understands and agrees that the Engineer will be due additional compensation for additional services.

It is also understood and agreed that because of the possibility that information and data delivered in machine readable form may be altered, whether inadvertently or otherwise, the Engineer reserves the right to retain the original tapes/disks and to remove from copies provided to the Client all identification reflecting the involvement of the Engineer in their preparation. The Engineer also reserves the right to retain hard copy originals of all Project Documentation delivered to the Client in machine readable form, which originals shall be referred to and shall govern in the event of any inconsistency between the two.

The Client understands that the automated conversion of information and data from the system and format used by the Engineer to an alternate system or format cannot be accomplished without the introduction of inexactitudes, anomalies, and errors. In the event Project Documentation provided to the Client in machine readable form is so converted, the Client agrees to assume all risks associated therewith and, to the fullest extent permitted by law, to hold harmless and indemnify the Engineer from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising therefrom or in connection therewith.

The Client recognizes that changes or modifications to the Engineer's instruments of professional service introduced by anyone other than the Engineer may result in adverse consequences which the Engineer can neither predict nor control. Therefore, and in consideration of the Engineer's agreement to deliver its instruments of professional service in machine readable form, the Client agrees, to the fullest extent permitted by law, to hold harmless and indemnify the Engineer from and against all claims, liabilities, losses, damages, and costs, including but not limited to attorney's fees, arising out of or in any way connected with the modification, misinterpretation, misuse, or reuse by others of the machine readable information and data provided by the Engineer under this Agreement. The foregoing indemnification applies, without limitation, to any use of the Project Documentation on other projects, for additions to this Project, or for completion of this Project by others, excepting only such use as may be authorized, in writing, by the Engineer.

7. Reuse of Documents: All Project Documents including but not limited to reports, opinions of probable costs, drawings and specifications furnished by Engineer pursuant to this Agreement are intended for use on the Project only. They cannot be used by Client or others on extensions of the Project or any other project. Any reuse, without specific written verification or adaptation by Engineer, shall be at Client's sole risk, and Client shall indemnify and hold harmless Engineer from all claims, damages, losses, and expenses including attorney's fees arising out of or resulting therefrom.

The Engineer shall have the right to include representations of the design of the Project, including photographs of the exterior and interior, among the Engineer's promotional and professional materials. The Engineer's materials shall not include the Client's confidential and proprietary information if the Client has previously advised the Engineer in writing of the specific information considered by the Client to be confidential and proprietary.

8. Standard of Practice: The Engineer will strive to conduct services under this agreement in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as of the date of this Agreement.
9. Compliance With Laws: The Engineer will strive to exercise usual and customary professional care in his/her efforts to comply with those laws, codes, ordinance and regulations which are in effect as of the date of this Agreement.

With specific respect to prescribed requirements of the Americans with Disabilities Act of 1990 or certified state or local accessibility regulations (ADA), Client understands ADA is a civil rights legislation and that interpretation of ADA is a legal issue and not a design issue and, accordingly, retention of legal counsel (by Client) for purposes of interpretation is advisable. As such and with respect to ADA, Client agrees to waive any action against Engineer, and to indemnify and defend Engineer against any claim arising from Engineer's alleged failure to meet ADA requirements prescribed.

Further to the law and code compliance, the Client understands that the Engineer will strive to provide designs in accordance with the prevailing Standards of Practice as previously set forth, but that the Engineer does not warrant that any reviewing agency having jurisdiction will not for its own purposes comment, request changes and/or additions to such designs. In the event such design requests are made by a reviewing agency, but which do not exist in the form of a written regulation, ordinance or other similar document as published by the reviewing agency, then such design changes (at substantial variance from the intended design developed by the Engineer), if effected and incorporated into the project documents by the Engineer, shall be considered as Supplementary Task(s) to the Engineer's Scope of Service and compensated for accordingly.



10. Indemnification: Engineer shall indemnify and hold harmless Client up to the amount of this contract fee (for services) from loss or expense, including reasonable attorney's fees for claims for personal injury (including death) or property damage to the extent caused by the sole negligent act, error or omission of Engineer.

Client shall indemnify and hold harmless Engineer under this Agreement, from loss or expense, including reasonable attorney's fees, for claims for personal injuries (including death) or property damage arising out of the sole negligent act, error or omission of Client.

In the event of joint or concurrent negligence of Engineer and Client, each shall bear that portion of the loss or expense that its share of the joint or concurrent negligence bears to the total negligence (including that of third parties) which caused the personal injury or property damage.

Engineer shall not be liable for special, incidental or consequential damages, including, but not limited to loss of profits, revenue, use of capital, claims of customers, cost of purchased or replacement power, or for any other loss of any nature, whether based on contract, tort, negligence, strict liability or otherwise, by reasons of the services rendered under this Agreement.

11. Opinions of Probable Cost: Since Engineer has no control over the cost of labor, materials or equipment, or over the Contractor(s) method of determining process, or over competitive bidding or market conditions, his/her opinions of probable Project Construction Cost provided for herein are to be made on the basis of his/her experience and qualifications and represent his/her judgment as a design professional familiar with the construction industry, but Engineer cannot and does not guarantee that proposal, bids or the Construction Cost will not vary from opinions of probable construction cost prepared by him/her. If prior to the Bidding or Negotiating Phase, Client wishes greater accuracy as to the Construction Cost, the Client shall employ an independent cost estimator Consultant for the purpose of obtaining a second construction cost opinion independent from Engineer.

12. Governing Law & Dispute Resolutions: This Agreement shall be governed by and construed in accordance with Articles previously set forth by (Item 9 of) this Agreement, together with the laws of the **State of Illinois**.

Any claim, dispute or other matter in question arising out of or related to this Agreement, which can not be mutually resolved by the parties of this Agreement, shall be subject to mediation as a condition precedent to arbitration (if arbitration is agreed upon by the parties of this Agreement) or the institution of legal or equitable proceedings by either party. If such matter relates to or is the subject of a lien arising out of the Engineer's services, the Engineer may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to resolution of the matter by mediation or by arbitration.

The Client and Engineer shall endeavor to resolve claims, disputes and other matters in question between them by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect. Requests for mediation shall be filed in writing with the other party to this Agreement and with the American Arbitration Association. The request may be made concurrently with the filing of a demand for arbitration but, in such event, mediation shall proceed in advance of arbitration or legal or equitable proceedings, which shall be stayed pending mediation for a period of sixty (60) days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

13. Successors and Assigns: The terms of this Agreement shall be binding upon and inure to the benefit of the parties and their respective successors and assigns: provided, however, that neither party shall assign this Agreement in whole or in part without the prior written approval of the other.

14. Waiver of Contract Breach: The waiver of one party of any breach of this Agreement or the failure of one party to enforce at any time, or for any period of time, any of the provisions hereof, shall be limited to the particular instance, shall not operate or be deemed to waive any future breaches of this Agreement and shall not be construed to be a waiver of any provision, except for the particular instance.

15. Entire Understanding of Agreement: This Agreement represents and incorporates the entire understanding of the parties hereto, and each party acknowledges that there are no warranties, representations, covenants or understandings of any kind, matter or description whatsoever, made by either party to the other except as expressly set forth herein. Client and the Engineer hereby agree that any purchase orders, invoices, confirmations, acknowledgments or other similar documents executed or delivered with respect to the subject matter hereof that conflict with the terms of the Agreement shall be null, void and without effect to the extent they conflict with the terms of this Agreement.

16. Amendment: This Agreement shall not be subject to amendment unless another instrument is duly executed by duly authorized representatives of each of the parties and entitled "Amendment of Agreement".



17. Severability of Invalid Provisions: If any provision of the Agreement shall be held to contravene or to be invalid under the laws of any particular state, county or jurisdiction where used, such contravention shall not invalidate the entire Agreement, but it shall be construed as if not containing the particular provisions held to be invalid in the particular state, county or jurisdiction and the rights or obligations of the parties hereto shall be construed and enforced accordingly.
18. Force Majeure: Neither Client nor Engineer shall be liable for any fault or delay caused by any contingency beyond their control including but not limited to acts of God, wars, strikes, walkouts, fires, natural calamities, or demands or requirements of governmental agencies.
19. Subcontracts: Engineer may subcontract portions of the work, but each subcontractor must be approved by Client in writing.
20. Access and Permits: Client shall arrange for Engineer to enter upon public and private property and obtain all necessary approvals and permits required from all governmental authorities having jurisdiction over the Project. Client shall pay costs (including Engineer's employee salaries, overhead and fee) incident to any effort by Engineer toward assisting Client in such access, permits or approvals, if Engineer performs such services.
21. Designation of Authorized Representative: Each party (to this Agreement) shall designate one or more persons to act with authority in its behalf in respect to appropriate aspects of the Project. The persons designated shall review and respond promptly to all communications received from the other party.
22. Notices: Any notice or designation required to be given to either party hereto shall be in writing, and unless receipt of such notice is expressly required by the terms hereof shall be deemed to be effectively served when deposited in the mail with sufficient first class postage affixed, and addressed to the party to whom such notice is directed at such party's place of business or such other address as either party shall hereafter furnish to the other party by written notice as herein provided.
23. Limit of Liability: The Client and the Engineer have discussed the risks, rewards, and benefits of the project and the Engineer's total fee for services. In recognition of the relative risks and benefits of the Project to both the Client and the Engineer, the risks have been allocated such that the Client agrees that to the fullest extent permitted by law, the Engineer's total aggregate liability to the Client for any and all injuries, claims, costs, losses, expenses, damages of any nature whatsoever or claim expenses arising out of this Agreement from any cause or causes, including attorney's fees and costs, and expert witness fees and costs, shall not exceed the total Engineer's fee for professional engineering services rendered on this project as made part of this Agreement. Such causes included but are not limited to the Engineer's negligence, errors, omissions, strict liability or breach of contract. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law.
24. Client's Responsibilities: The Client agrees to provide full information regarding requirements for and about the Project, including a program which shall set forth the Client's objectives, schedule, constraints, criteria, special equipment, systems and site requirements.

The Client agrees to furnish and pay for all legal, accounting and insurance counseling services as may be necessary at any time for the Project, including auditing services which the Client may require to verify the Contractor's Application for Payment or to ascertain how or for what purpose the Contractor has used the money paid by or on behalf of the Client.

The Client agrees to require the Contractor, to the fullest extent permitted by law, to indemnify, hold harmless, and defend the Engineer, its consultants, and the employees and agents of any of them from and against any and all claims, suits, demands, liabilities, losses, damages, and costs ("Losses"), including but not limited to costs of defense, arising in whole or in part out of the negligence of the Contractor, its subcontractors, the officers, employees, agents, and subcontractors of any of them, or anyone for whose acts any of them may be liable, regardless of whether or not such Losses are caused in part by a party indemnified hereunder. Specifically excluded from the foregoing are Losses arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications, and the giving of or failure to give directions by the Engineer, its consultants, and the agents and employees of any of them, provided such giving or failure to give is the primary cause of Loss. The Client also agrees to require the Contractor to provide to the Engineer the required certificate of insurance.

The Client further agrees to require the Contractor to name the Engineer, its agents and consultants as additional insureds on the Contractor's policy or policies of comprehensive or commercial general liability insurance. Such insurance shall include products and completed operations and contractual liability coverages, shall be primary and noncontributing with any insurance maintained by the Engineer or its agents and consultants, and shall provide that the Engineer be given thirty days, unqualified written notice prior to any cancellation thereof.

In the event the foregoing requirements, or any of them, are not established by the Client and met by the Contractor, the Client agrees to indemnify and hold harmless the Engineer, its employees, agents, and consultants from and against any and all Losses which would have been indemnified and insured against by the Contractor, but were not.

When Contract Documents prepared under the Scope of Services of this contract require insurance(s) to be provided, obtained and/or otherwise maintained by the Contractor, the Client agrees to be wholly responsible for setting forth any and all such insurance requirements. Furthermore, any document provided for Client review by the Engineer under this Contract related to such insurance(s) shall be considered as sample insurance requirements and not the recommendation of the Engineer. Client agrees to have their own risk management department review any and all insurance requirements for adequacy and to determine specific types of insurance(s) required for the project. Client further agrees that decisions concerning types and amounts of insurance are specific to the project and shall be the product of the Client. As such, any and all insurance requirements made part of Contract Documents prepared by the Engineer are not to be considered the Engineer's recommendation, and the Client shall make the final decision regarding insurance requirements.

25. Information Provided by Others: The Engineer shall indicate to the Client the information needed for rendering of the services of this Agreement. The Client shall provide to the Engineer such information as is available to the Client and the Client's consultants and contractors, and the Engineer shall be entitled to rely upon the accuracy and completeness thereof. The Client recognizes that it is impossible for the Engineer to assure the accuracy, completeness and sufficiency of such information, either because it is impossible to verify, or because of errors or omissions which may have occurred in assembling the information the Client is providing. Accordingly, the Client agrees, to the fullest extent permitted by law, to indemnify and hold the Engineer and the Engineer's subconsultants harmless from any claim, liability or cost (including reasonable attorneys' fees and cost of defense) for injury or loss arising or allegedly arising from errors, omissions or inaccuracies in documents or other information provided by the Client to the Engineer.

26. Payment: Client shall be invoiced once each month for work performed during the preceding period. Client agrees to pay each invoice within thirty (30) days of its receipt. The client further agrees to pay interest on all amounts invoiced and not paid or objected to for valid cause within said thirty (30) day period at the rate of eighteen (18) percent per annum (or the maximum interest rate permitted under applicable law, whichever is the lesser) until paid. Client further agrees to pay Engineer's cost of collection of all amounts due and unpaid after sixty (60) days, including court costs and reasonable attorney's fees, as well as costs attributed to suspension of services accordingly and as follows:

Collection Costs. In the event legal action is necessary to enforce the payment provisions of this Agreement, the Engineer shall be entitled to collect from the Client any judgment or settlement sums due, reasonable attorneys' fees, court costs and expenses incurred by the Engineer in connection therewith and, in addition, the reasonable value of the Engineer's time and expenses spent in connection with such collection action, computed at the Engineer's prevailing fee schedule and expense policies.

Suspension of Services. If the Client fails to make payments when due or otherwise is in breach of this Agreement, the Engineer may suspend performance of services upon five (5) calendar days' notice to the Client. The Engineer shall have no liability whatsoever to the Client for any costs or damages as a result of such suspension caused by any breach of this Agreement by the Client. Client will reimburse Engineer for all associated costs as previously set forth in (Item 4 of) this Agreement.

27. When construction observation tasks are part of the service to be performed by the Engineer under this Agreement, the Client will include the following clause in the construction contract documents and Client agrees not to modify or delete it:

Kotecki Waiver. Contractor (and any subcontractor into whose subcontract this clause is incorporated) agrees to assume the entire liability for all personal injury claims suffered by its own employees, including without limitation claims under the **Illinois** Structural Work Act, asserted by persons allegedly injured on the Project; waives any limitation of liability defense based upon the Worker's Compensation Act, court interpretations of said Act or otherwise; and to the fullest extent permitted by law, agrees to indemnify and hold harmless and defend Owner and Engineer and their agents, employees and consultants (the "Indemnitees") from and against all such loss, expense, damage or injury, including reasonable attorneys' fees, that the Indemnitees may sustain as a result of such claims, except to the extent that **Illinois** law prohibits indemnity for the Indemnitees' own negligence. "The Owner and Engineer are designated and recognized as explicit third-party beneficiaries of the Kotecki Waiver within the general contract and all subcontracts entered into in furtherance of the general contract."

28. Jobsite Safety/Supervision & Construction Observation: The Engineer shall neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences of procedures, or for safety precautions and programs in connection with the Work since they are solely the Contractor's rights and

responsibilities. The Client agrees that the Contractor shall supervise and direct the work efficiently with his/her best skill and attention; and that the Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction and safety at the job site. The Client agrees and warrants that this intent shall be carried out in the Client's contract with the Contractor. The Client further agrees that the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work; and that the Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to all employees on the subject site and all other persons who may be affected thereby. The Engineer shall have no authority to stop the work of the Contractor or the work of any subcontractor on the project.

When construction observation services are included in the Scope of Services, the Engineer shall visit the site at intervals appropriate to the stage of the Contractor's operation, or as otherwise agreed to by the Client and the Engineer to: 1) become generally familiar with and to keep the Client informed about the progress and quality of the Work; 2) to strive to bring to the Client's attention defects and deficiencies in the Work and; 3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Engineer shall not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. If the Client desires more extensive project observation, the Client shall request that such services be provided by the Engineer as Additional and Supplemental Construction Observation Services in accordance with the terms of this Agreement.

The Engineer shall not be responsible for any acts or omissions of the Contractor, subcontractor, any entity performing any portions of the Work, or any agents or employees of any of them. The Engineer does not guarantee the performance of the Contractor and shall not be responsible for the Contractor's failure to perform its Work in accordance with the Contract Documents or any applicable laws, codes, rules or regulations.

When municipal review services are included in the Scope of Services, the Engineer (acting on behalf of the municipality), when acting in good faith in the discharge of its duties, shall not thereby render itself liable personally and is, to the maximum extent permitted by law, relieved from all liability for any damage that may accrue to persons or property by reason of any act or omission in the discharge of its duties. Any suit brought against the Engineer which involve the acts or omissions performed by it in the enforcement of any provisions of the Client's rules, regulation and/or ordinance shall be defended by the Client until final termination of the proceedings. The Engineer shall be entitled to all defenses and municipal immunities that are, or would be, available to the Client.

29. Insurance and Indemnification: The Engineer and the Client understand and agree that the Client will contractually require the Contractor to defend and indemnify the Engineer and/or any subconsultants from any claims arising from the Work. The Engineer and the Client further understand and agree that the Client will contractually require the Contractor to procure commercial general liability insurance naming the Engineer as an additional named insured with respect to the work. The Contractor shall provide to the Client certificates of insurance evidencing that the contractually required insurance coverage has been procured. However, the Contractor's failure to provide the Client with the requisite certificates of insurance shall not constitute a waiver of this provision by the Engineer.

The Client and Engineer waive all rights against each other and against the Contractor and consultants, agents and employees of each of them for damages to the extent covered by property insurance during construction. The Client and Engineer each shall require similar waivers from the Contractor, consultants, agents and persons or entities awarded separate contracts administered under the Client's own forces.

30. Hazardous Materials/Pollutants: Unless otherwise provided by this Agreement, the Engineer and Engineer's consultants shall have no responsibility for the discovery, presence, handling, removal or disposal of or exposure of persons to hazardous materials/pollutants in any form at the Project site, including but not limited to mold/mildew, asbestos, asbestos products, polychlorinated biphenyl (PCB) or other toxic/hazardous/pollutant type substances.

Furthermore, Client understands that the presence of mold/mildew and the like are results of prolonged or repeated exposure to moisture and the lack of corrective action. Client also understands that corrective action is a operation, maintenance and repair activity for which the Engineer is not responsible.



**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00099-65-ES

**Consultant (Firm) Name**

Mackie Consultants, LLC

**Prepared By**

Kelsey Dollens

**Date**

3/10/2021

**PAYROLL ESCALATION TABLE**

CONTRACT TERM	36
START DATE	4/1/2021
RAISE DATE	6/1/2021

MONTHS

OVERHEAD RATE	91.54%
COMPLEXITY FACTOR	0
% OF RAISE	2.00%

END DATE	3/31/2024
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**ESCALATION PER YEAR**

Year	First Date	Last Date	Months	% of Contract
0	4/1/2021	6/1/2021	2	5.56%
1	6/2/2021	6/1/2022	12	34.00%
2	6/2/2022	6/1/2023	12	34.68%
3	6/2/2023	4/1/2024	10	29.48%

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The total escalation = 3.71%

**Local Public Agency****County****Section Number**

Lake County Division of Transportation

Lake

19-00099-65-ES

**MAXIMUM PAYROLL RATE** 78.00**ESCALATION FACTOR** 3.71%**PAYROLL RATES**

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

CLASSIFICATION	IDOT	CALCULATED RATE
	PAYROLL RATES	
Principal	\$78.00	
Sr. Project Manager II	\$68.10	\$70.63
Sr. Project Manager I	\$62.50	\$64.82
Sr. Project Engineer III	\$53.83	\$55.83
Sr. Project Engineer II	\$49.40	\$51.23
St. Project Engineer I	\$41.50	\$43.04
Sr. Engineer	\$43.77	\$45.40
Engineer III	\$40.24	\$41.73
Engineer II	\$34.05	\$35.31
Engineer I	\$30.18	\$31.30
Sr. Survey Manager	\$62.50	\$64.82
Sr. Land Surveyor	\$58.07	\$60.23
Sr. Project Surveyor II	\$52.75	\$54.71
Sr. Project Surveyor I	\$48.40	\$50.20
Project Surveyor	\$37.50	\$38.89
Land Surveyor	\$37.00	\$38.37
Land Surveyor Tech	\$38.00	\$39.41
Sr. Survey Crew Chief II	\$37.43	\$38.82
Sr. Survey Crew Chief I	\$32.75	\$33.97
Survey Crew Chief	\$30.25	\$31.37
Instrument Person II	\$24.95	\$25.88
Instrument Person I	\$18.33	\$19.01
CAD Technician II	\$33.83	\$35.09
CAD Technician I	\$20.00	\$20.74
Business Personnel	\$35.35	\$36.66
Intern-Engineer	\$13.94	\$14.46
Intern- Survey	\$18.00	\$18.67

Lake County Division of Transportation

Lake

19-00099-65-ES

## Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

**COMPLEXITY FACTOR** 0

118,265

### Cost Estimate Worksheet

## Local Public Agency

Lake County Division of Transportation

## County

Lake

## Section Number

19-00099-65-ES

## AVERAGE HOURLY PROJECT RATES

Exhibit E Cost Estimate of Consultants Services Worksheet Fixed Raise

SHEET 1 OF 1

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJ. RATES			Task 1 - Base Survey			Task 2 - Fairfield Road Re-Alignment											
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Sr. Project Manager II	70.63	0.0																	
Sr. Project Manager I	64.82	0.0																	
Sr. Project Engineer III	55.83	0.0																	
Sr. Project Engineer II	51.23	0.0																	
St. Project Engineer I	43.04	0.0																	
Sr. Engineer	45.40	0.0																	
Engineer III	41.73	0.0																	
Engineer II	35.31	0.0																	
Engineer I	31.30	0.0																	
Sr. Survey Manager	64.82	240.0	18.60%	12.06	185	17.67%	11.45	55	22.63%	14.67									
Sr. Land Surveyor	60.23	0.0																	
Sr. Project Surveyor II	54.71	315.0	24.42%	13.36	255	24.36%	13.32	60	24.69%	13.51									
Sr. Project Surveyor I	50.20	315.0	24.42%	12.26	255	24.36%	12.23	60	24.69%	12.39									
Project Surveyor	38.89	100.0	7.75%	3.01	80	7.64%	2.97	20	8.23%	3.20									
Land Surveyor	38.37	0.0																	
Land Surveyor Tech	39.41	0.0																	
Sr. Survey Crew Chief II	38.82	160.0	12.40%	4.81	136	12.99%	5.04	24	9.88%	3.83									
Sr. Survey Crew Chief I	33.97	0.0																	
Survey Crew Chief	31.37	0.0																	
Instrument Person II	25.88	0.0																	
Instrument Person I	19.01	160.0	12.40%	2.36	136	12.99%	2.47	24	9.88%	1.88									
CAD Technician II	35.09	0.0																	
CAD Technician I	20.74	0.0																	
Business Personnel	36.66	0.0																	
Intern-Engineer	14.46	0.0																	
Intern- Survey	18.67	0.0																	
		0.0																	
TOTALS		1290.0	100%	\$47.86	1047.0	100.00%	\$47.49	243.0	100%	\$49.49	0.0	0%	\$0.00	0.0	0%	\$0.00	0.0	0%	\$0.00





PTB NUMBER:

TODAY'S DATE: 3/11/2021

*\*If other allowable costs are needed and not listed, please add in the above spaces provided.*

### LEGEND

W.O. = Work Order

J.S. = Job Specific



HBK ENGINEERING

March 11, 2021

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

Re: Scope and Fee for Quentin Road Roadway Improvements  
Section 19-00999-65-ES  
Quentin Road and Old McHenry Road, Lake County, IL

Dear Mr. Smith,

HBK Engineering, LLC, is pleased to present this proposal to TranSystems. This Phase I Engineering Study centers around the roadway reconstruction of Quentin Road and Old McHenry Road in Lake County. This project will require the locating of existing utilities throughout the project limits, utility coordination, preliminary design review, and utility easement research which HBK will provide.

Total proposal cost estimate is \$140,291.00. HBK's scope and fees for the project are broken into three (3) components, as follows:

Utility Locating – Utility Easement Research, Quality Level B Locates, Utility Survey

Pricing Total: \$101,771.00

Utility Coordination:

Pricing Total: \$20,129.00

Potential Fairfield Road Realignment – Utility Identification and Coordination

Pricing Total: \$18,391.00

HBK appreciates the opportunity to assist TranSystems on this project. Please contact me if there are questions or a need for additional information. Upon acceptance of this proposal, HBK Engineering will provide a Professional Services Agreement for execution with TranSystems.

Sincerely,



John Grieger, P.E.  
Senior Project Manager

Attachments:

- CBBEL\_QuentinRd\_HBK\_205347\_SOW\_UtilityCoordination\_03112021
- CBBEL\_BDE\_HBK\_205347\_UtilCoord-Locating\_03112021.pdf
- CBBEL\_BDE\_HBK\_205347\_FairfieldContingent\_03112021.pdf

cc: Bethany Turk, PE, Robert Kolar and Project Files

(CBBEL\_LCDOT\_QuentinRoad\_HBK\_205347-CoverLtr\_03112021.DOC)



# Lake County DOT – Quentin Road/Old McHenry Road

## Section 19-00999-65-ES

At the request of Transystems, **HBK Engineering, LLC (HBK)** has prepared a scope of services for Utility Locating, Subsurface Utility Engineering (SUE) and Utility Coordination for the Quentin Road/Old McHenry Road roadway improvement project in Lake County, Illinois. A manhour and fee estimate for this improvement project is also attached.

### **Project Limits**

The project limits for purposes of utility identification and utility locating will extend to the existing right-of-way lines and extend 1,500 feet in each direction at major intersections (or as otherwise recommended per below), 200 feet in each direction at all other minor unsignalized public streets (public and private) and 50 feet beyond the existing right-of-way at commercial and residential driveways. In addition, survey along the CN Railroad will be completed for 2,600 feet in each direction. The total utility locating length is estimated as follows:

- Old McHenry Road (Abbey Glenn Drive to Bonnie Lane) = 11,200 feet
- Quentin Road (Old McHenry Road to south of IL Route 22) = 9,400 feet
- Quentin Road/IL Route 22 (east and west) = 3,000 feet
- Quentin Road/Ensell Road (east and west) = 400 feet
- Quentin Road/Highland Drive (east and west) = 400 feet
- Old McHenry Road/Echo Lake Road (south) = 1,000 feet
- Old McHenry Road/Fairfield Road (north) = 1,500 feet
- Old McHenry Road/Midlothian Road (1,500 south, 2,000 north) = 3,500 feet
- Side street or Minor Legs (16) = 3,200 feet
- CN Railroad (north and south) = 5,200 feet

Total = 38,800 feet (7.4 miles)

Utility coordination and utility locating (Subsurface Utility Engineering, or SUE) for this project will be completed by HBK, as a subconsultant to TranSystems.

### **Utility Identification and Coordination**

Based on the expectation that utility conflicts are likely to be a substantial challenge with respect to design and construction of the proposed improvements, a separate Level B Subsurface Utility Engineering (SUE) evaluation, including utility coordination and utility locating, will be completed for the project by HBK. The information gathered by HBK will be incorporated into the project base CAD files.

### **Initial Coordination/Data Collection**

The proposed improvements will require coordination with public and private utilities that have facilities within the project corridor. HBK will coordinate with any utility companies/agencies found to have facilities located within the vicinity of the project limits through a JULIE Design Stage/Planning Information Request. A request will be made for these utilities to provide any available maps of existing facilities. It has been estimated that there will be up to ten public and private utilities to coordinate with for this project. HBK will provide copies of the atlases obtained to TranSystems for their files.

### Utility Easement Research

HBK will perform research at and through the Lake County Recorder's office for utility easements as granted as separate documents and on recorded plats. Research will cover parcels of un-subdivided and subdivided property on both sides of Old McHenry Road and Quentin Road through the Village of Hawthorn Woods, the Community of Forest Lake, the Village of Lake Zurich, the Village of Kildeer and unincorporated Lake County, Illinois. Additional document requests will be made to both IDOT District 1 and LCDOT for records.

### Utility Locating

Descriptions of SUE quality levels are derived from the FHWA website on subsurface utility engineering. The website describes American Society of Civil Engineers (ASCE) Standard C-I 38-02, *Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*. There are four recognized quality levels of underground utility information ranging from Quality Level QL-D (the lowest level) to Quality Level QL-A (the highest level).

HBK will perform SUE Quality Level B locating of any utility facilities located within the project limits. Quality Level D information will be obtained from LCDOT, utility company atlases, JULIE requests, and other reliable sources. Qualified HBK staff will perform Level B locates of underground utilities within the project limits and mark them with appropriately colored paint and/or flags or identify, as is applicable.

SUE Level D and B locating shall include underground traffic control facilities at signalized intersections to the extent allowed by MOT limitations, worker safety, and the ability of the facilities to transmit a locating tone.

### Utility Survey

After Level B locating is completed, HBK survey crews will survey the colored paint and/or flag locations to bring the located utility locations and information into a base utility CAD file.

HBK will perform the field survey work as a subconsultant to TranSystems. All work proposed is within existing roadway right-of-way and should not require private property/parcel access. HBK will survey the previously located utilities, the rims of existing storm sewer and water structures, and will measure down to top of existing water main and confirm the diameter.

On this basis, HBK will perform the following survey tasks in accordance with applicable IDOT and LCDOT Survey Procedures:

#### *GPS Field Location:*

Utilizing state plane coordinates, HBK will locate all marked utilities, conflicts and potholed utilities utilizing GPS equipment. It is assumed that the coordinates or field information will be on Illinois State Plane East, NAD83 (2011).

#### *Vertical Control:*

It is assumed that either TranSystems and/or Lake County has benchmarks available in the vicinity of the project or that HBK will be allowed to establish vertical control (NAVD88) utilizing GPS and the nearest NGS vertical monuments. TranSystems will provide the benchmark(s) and control data for HBK's use in its data collection.

Survey will include existing visible utility structures, including telecommunication, gas, electric, watermain, and other utilities found within the project limits. Survey will include manhole rim elevations, pedestals, and utility poles within the project limits only. HBK will survey all utility locate marks provided by public utilities (as indicated in previous 'Utility Locating' work scope).

### Utility Data Base Mapping

HBK will compile all the above information into one base map MicroStation drawing suitable for plotting at 1"=20' scale that is representative of existing utility locations for use in all Phase I and Phase II engineering work in developing the detailed plan, profile and cross sections for the preferred alternative. Survey base map drawing will be generated in MicroStation V8i SS4.

HBK will coordinate with the roadway designer so that utilities can be depicted accurately in the survey data and utility base maps. This shall include time allotted for utility base map QA/QC.

### Preliminary Design Review and Coordination

HBK will coordinate with utility companies/agencies during Phase I Engineering. HBK will send preliminary plans to utility companies to verify the locations of their facilities and review preliminary design to determine if there are any significant conflicts that need to be reviewed. HBK will also coordinate with the roadway design team to develop understanding the presence of utilities, their type, and possible issues with protecting and/or relocating those utilities.

As part of this scope, HBK will complete a conflict analysis between the existing utility location information and the proposed Phase I roadway reconstruction plan set to identify potential utility conflicts, notify utilities of proposed roadway reconstruction project and potential conflicts, and host one (1) utility coordination meeting to discuss utility relocations required as part of the proposed roadway project.

### Potential Fairfield Road Realignment

The feasibility of a potential realignment of Fairfield Road to an intersection with Midlothian Road (at Kruger Road) will be evaluated early in the project development process.

If it is determined to include the Fairfield Road realignment as part of the overall proposed improvement plan, then additional 'Utility Identification and Coordination' tasks outlined above will be completed, which includes approximately 2,000 feet of additional areas to the north along Midlothian Road and approximately an additional 4,000 feet along Kruger Road and Fairfield Road, for a total additional length of 6,000 feet. HBK will not proceed with this additional work until authorized by Lake County.

### Assumptions/Exclusions

HBK did not include recording office fees that may be required for the utility easement research document copies. HBK assumes that these document fees will be treated as a pass-through cost to TranSystems.

The cost of railroad permitting fees that were included in the overall contract price were estimated. Actual railroad permitting fees may be more than what was estimated. The difference between the estimated fees and actual costs will be passed through as a direct cost to Transystems.

End of Document



EXHIBIT E  
COST ESTIMATE OF CONSULTANT SERVICES WORKSHEET  
FIXED RAISE

<b>Local Public Agency</b>	<b>County</b>	<b>Section Number</b>
Lake County Division of Transportation	Lake	19-00999-65-ES
<b>Consultant (Firm) Name</b>	<b>Prepared By</b>	<b>Date</b>
TranSystems	J. Grieger	3/10/2021

**PAYROLL ESCALATION TABLE**

<b>CONTRACT TERM</b>	36	<b>MONTHS</b>	<b>OVERHEAD RATE</b>	126.42%
<b>START DATE</b>	5/1/2021		<b>COMPLEXITY FACTOR</b>	
<b>RAISE DATE</b>	1/1/2022		<b>% OF RAISE</b>	2.00%
<b>END DATE</b>	4/30/2024			

**ESCALATION PER YEAR**

Year	First Date	Last Date	Months	% of Contract
0	5/1/2021	1/1/2022	8	22.22%
1	1/2/2022	1/1/2023	12	34.00%
2	1/2/2023	1/1/2024	12	34.68%
3	1/2/2024	5/1/2024	4	11.79%

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The total escalation = 2.69%

Section Number

19-00999-65-ES

ESCALATION FACTOR	2.69%
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## Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

[illegible]

## Lake County Division of Transportation

Lake
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19-00999-65-ES

## Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

**COMPLEXITY FACTOR** 0

102,240



**Local Public Agency**

Lake County Division of Transportation

**County**

Lake

**Section Number**

19-00999-65-ES

**AVERAGE HOURLY PROJECT RATES**

Exhibit E Cost Estimate of Consultants Services Worksheet Fixed Raise

SHEET 1 OF 1

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJ. RATES			SUE LEVEL B UTILITY LOCATING - PHASE I			UTILITY COORDINATION - PHASE I			POTENTIAL FAIRFIELD ROAD REALIGNMENT								
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
Sr Proj Manager	57.33	54.0	4.17%	2.39	30	3.26%	1.87	16	8.79%	5.04	8	4.17%	2.39						
Project Manager	46.05	136.0	10.51%	4.84	60	6.52%	3.00	60	32.97%	15.18	16	8.33%	3.84						
Engineer	40.49	136.0	10.51%	4.26	40	4.35%	1.76	80	43.96%	17.80	16	8.33%	3.37						
Locator 3	26.52	208.0	16.07%	4.26	160	17.39%	4.61	16	8.79%	2.33	32	16.67%	4.42						
Locator 2	22.70	192.0	14.84%	3.37	160	17.39%	3.95				32	16.67%	3.78						
Lic Prof Surveyor	52.85	58.0	4.48%	2.37	50	5.43%	2.87				8	4.17%	2.20						
Analyst 2	41.55	58.0	4.48%	1.86	40	4.35%	1.81	10	5.49%	2.28	8	4.17%	1.73						
Field Lead	37.66	182.0	14.06%	5.30	150	16.30%	6.14				32	16.67%	6.28						
Field Tech	25.02	182.0	14.06%	3.52	150	16.30%	4.08				32	16.67%	4.17						
Designer 3	40.17	88.0	6.80%	2.73	80	8.70%	3.49				8	4.17%	1.67						
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<b>TOTALS</b>		1294.0	100%	\$34.90	920.0	100.00%	\$33.58	182.0	100%	\$42.63	192.0	100%	\$33.86	0.0	0%	\$0.00	0.0	0%	\$0.00

**COMPANY NAME: HBK Engineering, LLC**

PTB NUMBER: **LCDOT - Old McHenry/Quentin Imp - Utility Coord./Locating**

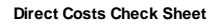
TODAY'S DATE: **12/20/2020**

ITEM	ALLOWABLE	UTILIZE W.O. ONLY	QUANTITY J.S. ONLY	CONTRACT RATE	TOTAL
Per Diem (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum			\$0.00	\$0.00
Lodging (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost (Up to state rate maximum)			\$0.00	\$0.00
Lodging Taxes and Fees (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost			\$0.00	\$0.00
Air Fare	Coach rate, actual cost, requires minimum two weeks' notice, with prior IDOT approval			\$0.00	\$0.00
Vehicle Mileage (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum	X	235	\$0.575	\$135.13
Vehicle Owned or Leased	\$32.50/half day (4 hours or less) or \$65/full day	X	46	\$65.00	\$2,990.00
Vehicle Rental	Actual cost (Up to \$55/day)			\$55.00	\$0.00
Tolls	Actual cost			\$1.50	\$0.00
Parking	Actual cost			\$25.00	\$0.00
Overtime	Premium portion (Submit supporting documentation)			\$0.00	\$0.00
Shift Differential	Actual cost (Based on firm's policy)			\$0.00	\$0.00
Overnight Delivery/Postage/Courier Service	Actual cost (Submit supporting documentation)			\$150.00	\$0.00
Copies of Deliverables/MyIars (In-house)	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Copies of Deliverables/MyIars (Outside)	Actual cost (Submit supporting documentation)			\$100.00	\$0.00
Project Specific Insurance	Actual cost			\$0.00	\$0.00
Monuments (Permanent)	Actual cost			\$0.00	\$0.00
Photo Processing	Actual cost			\$0.00	\$0.00
2-Way Radio (Survey or Phase III Only)	Actual cost			\$0.00	\$0.00
Telephone Usage (Traffic System Monitoring Only)	Actual cost			\$0.00	\$0.00
CADD	Actual cost (Max \$15/hour)			\$0.00	\$0.00
Web Site	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Advertisements	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Public Meeting Facility Rental	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Public Meeting Exhibits/Renderings & Equipment	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Recording Fees	Actual cost			\$0.00	\$0.00
Transcriptions (specific to project)	Actual cost			\$0.00	\$0.00
Courthouse Fees	Actual cost			\$0.00	\$0.00
Storm Sewer Cleaning and Televising	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Traffic Control and Protection	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Aerial Photography and Mapping	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Utility Exploratory Trenching	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Testing of Soil Samples*	Actual cost			\$0.00	\$0.00
Lab Services*	Actual cost (Provide breakdown of each cost)			\$0.00	\$0.00
Equipment and/or Specialized Equipment Rental*	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Locating equipment supplies (per case paint)	Actual cost	X	6	\$42.97	\$257.82
Locating equipment supplies (per case flags)	Actual cost	X	2	\$142.12	\$284.24
Railroad Permit Fees (application, flagger assist, COI)	Actual cost	X	1	\$17,953.75	\$17,953.75
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
<b>TOTAL DIRECT COST</b>					<b>\$21,620.94</b>

*\*If other allowable costs are needed and not listed, please add in the above spaces provided.*
**LEGEND**

W.O. = Work Order

J.S. = Job Specific



TODAY'S DATE: **12/20/2020**

BDE 436 (Rev. 02/02/17)

GEWALT HAMILTON ASSOCIATES

March 12, 2021 – Updated  
January 12, 2021

Mr. Matt Baldwin, PE, PTOE  
Senior Project Manager  
TranSystems  
1475 East Woodfield Road, Suite 600  
Schaumburg, IL 60173-5440

Re: Agreement for Professional Services  
Traffic Data Collection – Turning Movement Counts  
Lake County - Quentin & Old McHenry Rd  
GHA Proposal No. 2021.D011

Dear Mr. Baldwin:

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 the information received from your office via email.

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) 821-6200.

*William J. Klewin*

William J. Klewin  
Director of Data Collection Division  
[bklewin@gha-engineers.com](mailto:bklewin@gha-engineers.com)

Encl.: GHA Proposal No. 2021.D011

Agreement for Professional Services  
Traffic Data Collection – Turning Movement Counts  
Lake County - Quentin & Old McHenry Rd  
GHA Proposal No. 2021.D011

625 Forest Edge Drive, Vernon Hills, IL 60061  
TEL 847.478.9700 ■ FAX 847.478.9701

[www.gha-engineers.com](http://www.gha-engineers.com)

TranSystems (Client), having an address at 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 27 **24-hour Turning Movement Counts (TMC's)** on a Typical Weekday, six (6) of which will include additional 24 hours on a Saturday, and two (2) locations will include bicycles and pedestrians on the crosswalks.

Vehicle classification consisting of lights (automobiles), mediums (single-unit vehicles), and articulated trucks (MU). All counts will take place on the same Weekday and/or Saturday.

GHA will complete Phase 1 in 2021. Phase 2 is expected to be completed in 2022.

## **II. Traffic Data Collection Services**

GHA will provide the counts at the following locations based on the email received from TranSystems dated January 8, 2021. Please refer to the attached Exhibit 1 – Location Map:

### **A. 24-Hour Weekday**

1. North Old McHenry Road & North Abbey Glenn Drive
2. North Old McHenry Road & North Echo Lake Road
3. North Old McHenry Road & Mulberry Drive
4. North Old McHenry Road & North Fairfield Road
5. North Old McHenry Road & North Midlothian Road
6. Old McHenry Rd & St. Matthew Church entrances (3 locations)(West Entrance)
7. Old McHenry Rd & St. Matthew Church entrances (3 locations)(Center Entrance)
8. Old McHenry Rd & St. Matthew Church entrances (3 locations)(East Entrance) & Hawthorn Woods Public works
9. Old McHenry Rd & Hawthorn Gardens Entrance
10. North Old McHenry Road & Lagoon Drive
11. North Old McHenry Road & Bonnie Lane
12. North Old McHenry Road & Illinois 22
13. Quentin Road & Illinois 22
14. Quentin Road & Roman Lane
15. Quentin Road & West Highland Drive
16. Quentin Road & Ravine Road
17. Quentin Rd & Quentin Road Baptist Church
18. Quentin Road & West Glendale Road
19. Quentin Road & Heather Lane
20. Old McHenry Road & Hawthorn Community Park

21. North Midlothian Road & March Street
22. North Midlothian Road & Kruger Road
23. Midlothian Rd & Landover Parkway
24. Midlothian Rd & Commons Circle
25. Fairfield Rd & Birch Lakes Drive/Kruger Road
26. North Old McHenry Road & Quentin Road
  - a. Includes all vehicle movements plus bicycles & pedestrians in the crosswalks.
27. Quentin Road & Ensell Road
  - a. Includes all vehicle movements plus bicycles & pedestrians in the crosswalks.

#### B. 24-Hour Saturday

1. Old McHenry Rd & St. Matthew Church entrances (3 locations)(West Entrance)
2. Old McHenry Rd & St. Matthew Church entrances (3 locations)(Center Entrance)
3. Old McHenry Rd & St. Matthew Church entrances (3 locations)(East Entrance) & Hawthorn Woods Public works
4. Old McHenry Rd & Hawthorn Gardens Entrance
5. Quentin Rd & Quentin Road Baptist Church
6. Old McHenry Road & Hawthorn Community Park

#### *Collection Details*

- Weekday (T, W or TH) and/or Saturday
- 12AM-12AM
- Lights / Mediums / Articulated Trucks
- **Bikes/Peds at 2 TMC's**

#### 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. William J. Klewin, the Director of the Data Collection Division, will oversee placement and retrieval of count equipment. They will be assisted by additional professional and technical staff with years of experience.

## V. Compensation for Services

See CECS IDOT Form BLR 05514 for fees.

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 per phase, totaling two deployments for this project. If additional 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 approved CECS (BLR 05514).

*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.

  
\_\_\_\_\_  
William J. Klerin  
Director of Data Collection Division

TranSystems

\_\_\_\_\_  
Print Name: \_\_\_\_\_

Date: \_\_\_\_\_

Encl.: GHA Hourly Rates  
Exhibit A



# Exhibit A

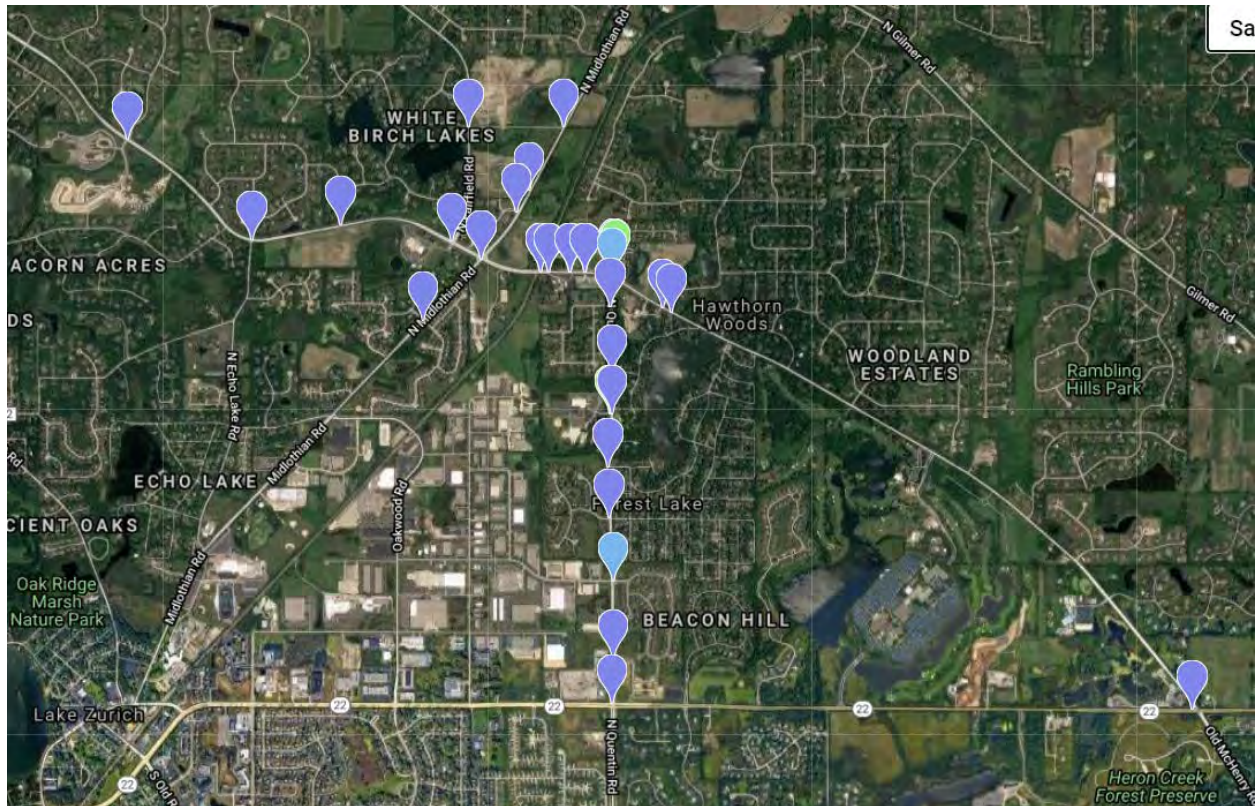




EXHIBIT E  
COST ESTIMATE OF CONSULTANT SERVICES WORKSHEET  
FIXED RAISE

<b>Local Public Agency</b>	<b>County</b>	<b>Section Number</b>
Lake County DOT	Lake	
<b>Consultant (Firm) Name</b>	<b>Prepared By</b>	<b>Date</b>
Gewalt Hamilton Associates, Inc.	William J. Klewin	3/10/2021

**PAYROLL ESCALATION TABLE**

<b>CONTRACT TERM</b>	36	<b>MONTHS</b>	<b>OVERHEAD RATE</b>	160.00%
<b>START DATE</b>	5/1/2021		<b>COMPLEXITY FACTOR</b>	0
<b>RAISE DATE</b>	5/28/2021		<b>% OF RAISE</b>	2.00%
<b>END DATE</b>	4/30/2024			

**ESCALATION PER YEAR**

Year	First Date	Last Date	Months	% of Contract
0	5/1/2021	5/28/2021	1	2.78%
1	5/29/2021	5/28/2022	12	34.00%
2	5/29/2022	5/28/2023	12	34.68%
3	5/29/2023	4/28/2024	11	32.43%

---

The total escalation = 3.88%

Local Public Agency	County	Section Number
Lake County DOT	Lake	

MAXIMUM PAYROLL RATE 78.00  
 ESCALATION FACTOR 3.88%

## PAYROLL RATES

Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

CLASSIFICATION	IDOT PAYROLL RATES ON FILE	CALCULATED RATE
Advising Principal	\$35.50	\$36.88
Principal	\$75.08	\$78.00
CE VI	\$75.08	\$78.00
CE V	\$69.65	\$72.35
CE IV	\$59.11	\$61.41
CE III	\$47.58	\$49.43
CE II	\$34.26	\$35.59
CE I	\$27.78	\$28.86
LS IV	\$49.38	\$51.30
LS II	\$38.63	\$40.13
GISP III	\$55.00	\$57.14
EC II	\$32.75	\$34.02
ET V	\$57.88	\$60.13
ET IV	\$39.04	\$40.56
ET III	\$31.15	\$32.36
ET II	\$28.53	\$29.64
ET I	\$21.84	\$22.69
AD I	\$24.40	\$25.35

Lake County DOT

Lake
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## Exhibit E Cost Estimate of Consultant Services Worksheet Fixed Raise

**COMPLEXITY FACTOR** 0

36,428

Lake County DOT

Lake

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## Exhibit E Cost Estimate of Consultants Services Worksheet Fixed Raise

**SHEET** 1 **OF** 1

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**COMPANY NAME: Gewalt Hamilton Associates, Inc.**

PTB NUMBER:

 TODAY'S DATE: **3/11/2021**

ITEM	ALLOWABLE	UTILIZE W.O. ONLY	QUANTITY J.S. ONLY	CONTRACT RATE	TOTAL
Per Diem (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum			\$0.00	\$0.00
Lodging (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost (Up to state rate maximum)			\$0.00	\$0.00
Lodging Taxes and Fees (per GOVERNOR'S TRAVEL CONTROL BOARD)	Actual cost			\$0.00	\$0.00
Air Fare	Coach rate, actual cost, requires minimum two weeks' notice, with prior IDOT approval			\$0.00	\$0.00
Vehicle Mileage (per GOVERNOR'S TRAVEL CONTROL BOARD)	Up to state rate maximum			\$0.000	\$0.00
Vehicle Owned or Leased	\$32.50/half day (4 hours or less) or \$65/full day	X	56	\$65.00	\$3,640.00
Vehicle Rental	Actual cost (Up to \$55/day)			\$0.00	\$0.00
Tolls	Actual cost			\$0.00	\$0.00
Parking	Actual cost			\$0.00	\$0.00
Overtime	Premium portion (Submit supporting documentation)			\$0.00	\$0.00
Shift Differential	Actual cost (Based on firm's policy)			\$0.00	\$0.00
Overnight Delivery/Postage/Courier Service	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Copies of Deliverables/Mylars (In-house)	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Copies of Deliverables/Mylars (Outside)	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Project Specific Insurance	Actual cost			\$0.00	\$0.00
Monuments (Permanent)	Actual cost			\$0.00	\$0.00
Photo Processing	Actual cost			\$0.00	\$0.00
2-Way Radio (Survey or Phase III Only)	Actual cost			\$0.00	\$0.00
Telephone Usage (Traffic System Monitoring Only)	Actual cost			\$0.00	\$0.00
CADD	Actual cost (Max \$15/hour)			\$0.00	\$0.00
Web Site	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Advertisements	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Public Meeting Facility Rental	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Public Meeting Exhibits/Renderings & Equipment	Actual cost (Submit supporting documentation)			\$0.00	\$0.00
Recording Fees	Actual cost			\$0.00	\$0.00
Transcriptions (specific to project)	Actual cost			\$0.00	\$0.00
Courthouse Fees	Actual cost			\$0.00	\$0.00
Storm Sewer Cleaning and Televising	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Traffic Control and Protection	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Aerial Photography and Mapping	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Utility Exploratory Trenching	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Testing of Soil Samples*	Actual cost			\$0.00	\$0.00
Lab Services*	Actual cost (Provide breakdown of each cost)			\$0.00	\$0.00
Equipment and/or Specialized Equipment Rental*	Actual cost (Requires 2-3 quotes with IDOT approval)			\$0.00	\$0.00
Data Processing Fees	Actual cost	X	1	\$20,150.00	\$20,150.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
				\$0.00	\$0.00
<b>TOTAL DIRECT COST</b>					<b>\$23,790.00</b>

*\*If other allowable costs are needed and not listed, please add in the above spaces provided.*
**LEGEND**

W.O. = Work Order

J.S. = Job Specific

## GUARINO RESOURCES DOCUMENTATION

January 21, 2021

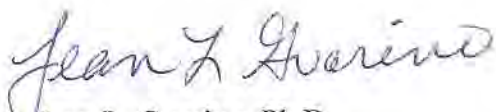
Matthew J. Smith, PE  
Assistant Vice President  
TransSystems  
1475 East Woodfield Road, Suite 600  
Schaumburg, IL 60173-5440

Dear Mr. Smith:

Thank you for the opportunity to submit this proposal to prepare an Historic Property Inventory and an Assessment of Effects for the Old McHenry Road and Quentin Road Project in Lake County. I have worked as an independent architectural historian for the past 23 years and have extensive experience in documenting cultural resources, including the preparation of Section 106 surveys/reports.

Please let me know if you have any comments or questions in relation to this work and I would be happy to discuss.

All the best,

  
Jean L. Guarino, Ph.D.



## Section 106

# Proposal to prepare an Historic Property Inventory and an Assessment of Effects for the Old McHenry Road and Quentin Road Phase I project in Lake County

Prepared for:  
TransSystems  
1475 East Woodfield Road, Suite 600  
Schaumburg, IL 60173-5440

Prepared by:  
Jean L. Guarino, Ph.D., Principal  
Guarino Historic Resources Documentation  
844 Home Ave., Oak Park, IL 60304  
[guarinojl@gmail.com](mailto:guarinojl@gmail.com) | [jeanguarino.com](http://jeanguarino.com)

January 21, 2021

## **I. INTRODUCTION**

This proposal was developed in response to a Request for Proposal by TransSystems for the preparation of a Historic Property Inventory (HPI) and an Assessment of Effect (AOE) for the Old McHenry Road and Quentin Road Phase I project in Lake County, to be undertaken on behalf of the Illinois Department of Transportation (IDOT).

Jean Guarino, Ph.D. will serve as the primary investigator (PI) for this project, working in conjunction with staff from Christopher B. Burke Engineering (CBBEL). Dr. Guarino has twenty-three years of experience in the documentation of cultural resources, which includes the preparation of Section 106 documentation, National Register nominations, and Historic American Buildings Survey reports. Her experience exceeds the Secretary of the Interior's *Professional Qualifications Standards in Architectural History*.

## **II. SCOPE OF WORK AND HOURS**

### **PHASE 1: HISTORIC PROPERTIES INVENTORY**

#### **Task 1A: Coordination Meetings and Phone Calls**

PI and CBBEL staff will participate in project kickoff meeting and communicate over the course of the project through virtual meetings, phone calls, and emails as needed.

PI hours: 20

CBBEL staff hours: 20

#### **Task 1B: Research, Write, Edit, and Compile HPI Report**

PI will develop all aspects of the HPI Report, which will include researching and writing contextual essays on the history and development of the Village of Hawthorn Woods, the Village of Lake Zurich, and Ela Township in Lake County, which fall within the Area of Potential Effects (APE). Materials to be reviewed will include, but are not limited to, local and county histories, historic plat maps, historic photos, aerial photography, and contemporary newspaper articles.

PI will also write all other narrative portions of the report, including the Introduction and Description of Undertaking; Historic Resource Survey Methodologies; National Register of Historic Places (NRHP) Summary and Recommendations; and Qualifications of Survey and Research Personnel. PI will compile the Table of Contents, List of Figures, List of Tables, List of Photos, and Bibliography. Relevant plat maps, historic and current photos, and tables will be inserted within the text of the report. PI will address any comments received from IDOT staff within one month of receipt.

PI hours: 220

### **Task 1C: Construction Date Research and Field Work**

It is understood that the project corridor for Old McHenry Road extends from Abbey Glenn Drive to Bonnie Lane, a length of approximately 2.1 miles. The Quentin Road corridor extends from IL Route 22 to Old McHenry Road, a length of approximately 2.1 miles.

Prior to commencement of field work, CBBEL staff will generate an initial list of addresses of the approximately 200 buildings that appear to fall within the APE along both corridors. Preliminary research will ascertain whether those buildings were constructed on, or before, 1981, as only those resources 40 years old and older will be included in the survey of historic resources, per IDOT's standard procedures. The Lake County Assessor's website will be reviewed to help determine which buildings meet the 40-year age requirement, as will historic aerial photographs and plat maps for varying years.

During the field work phase, CBBEL staff will take color digital photographs of those resources constructed in 1981 or earlier. Those photos will be used in the historic inventory table and in the photo log. PI will make site visits to project corridor to view any resources considered potentially eligible for NRHP listing.

PI hours: 16

CBBEL staff hours: 160

### **Task 1D: Develop Map Set as an Appendix 1 to HPI Report**

CBBEL staff will develop a Locator Map and a set of Historic Resources Maps showing segments of the Old McHenry Road and Quentin Road corridors. All historic (1981 and earlier) and post-1981 resources will be identified on those maps, as will any resources that may warrant NRHP consideration. PI will coordinate with CBBEL staff re: historic/non-historic resources to be identified on the maps and will review all maps prior to submittal.

PI hours: 16

CBBEL staff hours: 40

### **Task 1E: Development of Historic Resources Summary Table as Appendix 2 to HPI Report**

The Historic Resources Summary Table will include a thumbnail photo and the following information on each property: resource number; map number; address; name (if known); village; township; decade built; property type; building style; and the NRHP determination (either "Not Eligible" or "Warrants NRHP Consideration"). PI will identify the building style and help identify the circa decade of construction, based on a review of a building's physical details, such as style/type/materials. She will also make the NRHP determination and include notes providing

justification for each of those evaluations. CBBEL staff will design the table and insert all other information and the thumbnail photos.

PI hours: 24

CBBEL staff hours: 120

### **Task 1F: Prepare Photolog as an Appendix 3 to HPI Report**

CBBEL staff will develop a photo log as an Appendix to the HPI Report. Each building will be labeled by address and identified by its resource and map number. PI will review the photo log upon completion.

PI hours: 8

CBBEL staff hours: 60

## **PHASE 2: ASSESSMENT OF EFFECTS**

### **Task 2A: Research, Write, Edit, and Compile AOE Report**

PI will develop all written portions of the AOE Report, which will include the following sections:

Introduction

Project Overview and Description

Identification, Description, and History of NRHP Eligible Properties within the APE

Assessment of Effects

Methodology (Definitions and Guidelines; Noise, Traffic, and Visual Analysis

Methodology; Description and AOE on all specific resources determined eligible for the NRHP); Cumulative Effects (Methodology; Analysis; Conclusion)

Consulting Party and Public Involvement

Avoidance and Minimization of Effects

Conclusions

References

List of Tables

PI will address any comments received from IDOT within one month of receipt.

PI hours: 160

### **Task 2B: Compile Appendices to AOE Report**

CBBEL staff will compile all Appendices to the AOE Report, which may include:

Exhibits and Tables (i.e. Project Locations, Maps showing NRHP Eligible Resources etc.)

Figures (i.e. proposed roadway work)  
 Existing Conditions Photos – Historic Properties  
 Visual Impact Analysis (Streetview Analysis Locations; Viewshed Locations)  
 Agency Correspondence  
 Public Involvement (i.e. Consulting Party Participant List; Consulting Party Meeting Summaries;  
 Consulting Party Comments on Draft AOE; Public Comments and Responses)

PI will review all Appendices.

PI hours: 12

CBBEL hours: 160

### III. BUDGET FOR PI HOURS

Task Number	Hours	Cost
1A	20	2,400
1B	220	26,400
1C	16	1,920
1D	16	1,920
1E	24	2,880
1F	8	960
2A	160	19,200
2B	12	1,440
Subtotal		
Overhead/Expenses (not to exceed amount)		1,500
TOTAL		\$ 58,620

Cost is based on hourly rate of \$120

#### IV. PRINCIPAL INVESTIGATOR QUALIFICATIONS

All work pertaining to this project will be undertaken by Jean L. Guarino, Ph.D., Principal of Guarino Historic Resources Documentation. Jean has twenty-one years of experience in cultural resources documentation and her experience exceeds the *Secretary of the Interior's Professional Qualifications Standards in Architectural History*. Her clients include municipalities, developers, architecture and engineering firms, and educational institutions.

Jean's project work over the past twenty-one years has involved conducting intensive research to develop Section 106 documentation, National Register of Historic Places landmark nomination reports, Historic Illinois Building Survey (HIBS) reports, Historic American Building Survey (HABS) reports, as well as architectural surveys and studies for a wide range of buildings/structures/districts. All projects include site visits, digital photography, primary and secondary source research, as well as the development of architectural descriptions, integrity assessments, and historical context essays. Descriptions and photos of Jean's building documentation projects can be seen on her website: [jeanguarino.com](http://jeanguarino.com).

Relevant recent projects include developing a Historic Properties Survey for the I-55 at Lorenzo Road Reconstruction Project in Wilmington Township, Will County, which involved 86 historic buildings. Jean was subcontracted by Midwest Archaeological Research Services to develop the report for this project, which was submitted to IDOT in August 2020. She is currently assisting Bauer Latoza Studio with a survey of industrial buildings in Chicago's Kinzie and Pilsen industrial corridors and writing contextual essays related to this project. This project is undertaken on behalf of the city's Department of Planning.

Jean received both her M.A. and Ph.D. from the University of Illinois at Chicago. The focus of her doctoral studies was twentieth-century architecture and urbanism. She has a deep understanding of the urban development of both large and mid-size cities as a result of research conducted for her dissertation, "Urban Renewal in the Interwar Era: The Remaking of Chicago's Loop, 1918 to 1942."

Jean co-authored a book with John Zukowsky titled, *Benjamin H. Marshall, Chicago Architect* (Acanthus Press, 2016), which profiles an important early twentieth-century architect/developer, whose notable buildings include Chicago's Drake Hotel and luxury apartment buildings along adjacent East Lake Shore Drive. She contributed essays on six 1920s skyscrapers for the book, *Art Deco Chicago: Designing Modern America* (Yale University Press, 2018).

Jean served as a lecturer at The School of the Art Institute from 2004 to 2009, where she taught the required Archival Documentation course in the Historic Preservation Program. She later taught a Survey of Design History course in the SAIC's Art History Department from 2016-18, which provided a chronological review of major movements and themes in the history of modern design from the late nineteenth-century to the present.

## V. JEAN L. GUARINO, PH.D., RESUME

### EDUCATION

Ph.D., Art History Department, University of Illinois at Chicago  
(Focus on 20<sup>th</sup> century architecture and urbanism; Dissertation Title: *Urban Renewal in the Interwar Era: The Remaking of Chicago's Loop, 1918 to 1942*)  
M.A., Art History Department, University of Illinois at Chicago  
B.A., Political Science, Saint Mary's College in Notre Dame, Indiana  
L'Universite Catholique de l'Ouest, Angers, France (foreign study program)

### SELECTED PROJECTS

#### Section 106 Surveys

- Caton Farm-Bruce Road Project in Will Co., 2021 (Client: CBBEL)
- IL 53 Road Reconstruction Project in Will Co., 2020 (Client: CBBEL)
- I-55 at Lorenzo Road Reconstruction Project in Will Co., 2020 (Client: MARS)
- Harlem Ave./IL 43 at Chicago Sanitary and Ship Canal Bridge Study Project in Cook Co., 2020 (Client: CBBEL)

#### Architectural Surveys

- Chicago Industrial Survey, Chicago, 2020-21 (Client: Bauer Latoza Studio)
- Industrial Buildings Survey, Bloomington, 2018 (Client: City of Bloomington)
- Mid-Century Modern Houses, Deerfield, 2016 (Client: J.K. Wilmot LLC)
- Residential Buildings Survey, Downers Grove, 2013 (Client: Lakota Group)
- Architectural Survey for the CTA's Red Line Extension Project, 2013 (Client: CDM Smith)
- Architectural Survey for the CTA's Red and Purple Line Modernization Project, 2012 (Client: CDM Smith)
- Village of River Forest Survey, 2012 (Client: Lakota Group)
- Residential buildings on Woodlawn and University Avenues, Chicago, 2010 (Client: South Side Planning Board)
- Chicago Bank Survey, 2005 (Client: Chicago Dept. of Planning & Development – Landmarks Division)
- Commercial District in LaSalle, 2004 (Client: Canal Corridor Association)
- St. James Farm, Warrenville, 2003 (Client: Forest Preserve District of DuPage County)
- Historic Railroad Bridges in Chicago, 2001 (Client: Johnson/Lasky Architects)

#### National Register of Historic Places Nominations

- Pendarvis Historic Site, Mineral Point, WI, 2020 (Client: Wisconsin Historical Society)
- Solomon Juneau House, Theresa, WI, 2019 (Client: Wisconsin Historical Society)
- Nels and Nellie Johnson House, Wisconsin Rapids, WI, 2018 (Client: Wisconsin Historical Society)
- Downtown Commercial District, LaSalle, 2017 (Client: City of LaSalle)
- Fifth Street School, Milwaukee, WI, 2017 (Client: MacRostie Historic Advisors)
- Carl Schurz High School, Chicago, 2010 (Client: Schurz High School Centennial Committee)
- Wing Park Golf Course, Elgin, 2008 (Client: City of Elgin)

- William Hatch House, River Forest, 2007 (Client: property owner)
- Robert Allerton Estate Historic District, Piatt County, 2006 (Client: Johnson/Lasky Architects)
- Central Park Theater, Chicago, 2005 (Client: Landmarks Illinois)
- William Glasner House, Glencoe, 2004 (Client: Vinci/Hamp Architects)
- Garden Homes District, Chicago, 2004 (Client: Chicago Dept. of Planning & Development)
- Ninth Street Seven-Arch Limestone Bridge, Lockport, 2004 (Client: City of Lockport)
- Domestic style filling station, 419 E. 83<sup>rd</sup> St., Chicago, 1999 (Client: property owner)

#### **National Historic Landmark Nomination**

- Illinois and Michigan Canal NHL (a 97-mile historic waterway and its 150 canal-related resources), 2014-15 (Client: National Park Service)

#### **Historic American Buildings Survey and Historic American Engineering Reports (HABS/HAER) reports**

- Westwood Evangelical Lutheran Church, 2021 (Client: Village of Elmwood Park)
- Modernist ranch house, Bensenville, 2020 (Client: Midwest Archaeological Research Services)
- McDonald Plaza Building, Oak Brook, 2019 (Client: Hines)
- Chicago Magnet Wire Building, Elk Grove Village, 2019 (Client: Midwest Archaeological Research Services)
- Brookfield Zoo, Brookfield, 2019 (Client: Chicago Zoological Society)
- Maywood Park Racetrack, Melrose Park, 2019 (Client: Midwest Archaeological Research Services)
- Clow-Patterson Farmstead, Naperville, 2019 (Client: Pulte Homes)
- WBBM Transmitter Building, Itasca, 2018 (Client: Midwest Archaeological Research Services)
- Chicago Avenue Bridge, Chicago, 2018 (Client: Sullivan|Preservation)
- Morton Salt Headquarters Building at 110 N. Wacker Dr., Chicago, 2017 (Client: Riverside Investment)
- Cuneo Estate outbuildings, Vernon Hills, 2016 (Client: Manhard Consulting)
- Seven Gables Farm, Wheaton, 2016 (Client: Cemcon)
- Crane and Moreland Building, Chicago, 2013 (Client: Midwest Archaeological Research Services)
- Cook County Hospital Complex, Chicago, 2003 (Client: Johnson/Lasky Architects)
- North Avenue and Halsted St. (Canal) Bridges, Chicago, 2004 and 2002 (Client: Johnson/Lasky Architects)
- Burks-Rueckert Farmstead in Kendall County, 2001 (Client: Farnsworth Group)
- William Patrick Farmstead in DuPage County, 2001 (Client: Concord Development Corporation)
- Maxwell Street Market area, Chicago, 1999-2000 (Client: Gilmore/Franzen Architects)
- Elgin Mental Health Center, Elgin, Illinois, 1998 (Client: Gilmore/Franzen Architects)

#### **City of Chicago Landmark Nomination Reports (2002 to 2011)**

Developed landmark designation reports on the following buildings: CNA Building; Home Bank and Trust Co. Building; New Canaan Baptist Church; Indian Boundary Park Fieldhouse, Chicago Printed String Co. Building, Rockefeller Memorial Chapel, Garfield Park Administration Building, James Ward School, Chicago Vocational School, New York Life Building.

#### **PUBLICATIONS**

*Art Deco Chicago* (Yale University Press, 2018)



Contributor of essays on the following Art Deco skyscrapers: Palmolive Building, Chicago Motor Club, Merchandise Mart, Carbide and Carbon Building, Civic Opera Building, Field Building.

*Benjamin H. Marshall, Chicago Architect* (Acanthus Press, 2016)

Co-authored with John Zukowsky a book on Benjamin Marshall, a prolific early 20th century Chicago architect/developer, whose notable buildings include the South Shore Country Club (now Cultural Center), Blackstone Theater, Drake Hotel, and luxury apartment buildings along East Lake Shore Drive.