

**VILLAGE OF GRAYSLAKE
ENGINEERING SERVICES
WORK ORDER
GHA PROJECT NO. 4990.400**

Project Understanding

As Surface Transportation Program (STP) funds are anticipated to be utilized for construction, a Phase I engineering study in accordance with Illinois Department of Transportation (IDOT) procedures for Federal Aid Projects will be required.

It is our understanding that the project generally consists of the resurfacing of Lake Street, from Center Street to IL Rte. 83 with the addition of curb and gutter from Washington Street to IL Rte. 83. We are anticipating that the project will "gap" Washington Street, minimizing the coordination and permitting process with LCDOT, and stop south of the IL Rte. 83 right-of-way (ROW) which will eliminate the typical 6-8 month time period for IDOT Special Waste clearances to be completed for a very small portion of the overall project.

The following Scope of Services has been divided into two sections:

1. Phase I Engineering, which culminates in the completion and submittal of the Project Development Report (PDR).
2. Phase II Engineering, which will commence upon approval of the PDR and will include detailed contract plans and specifications necessary for bidding and construction (e.g. Pre-Final and Final PS&E submittals) by the Bureau of Local Roads and Streets.

Please note that these estimates are for general guidance as to the anticipated total effort that will be required to complete both of the engineering tasks. Some work items may be completed under different phases than shown here, based on actual project needs.

Scope of Services – Phase I

A. Project Initiation, Coordination & Data Collection

Coordination is a large part of any Phase I Engineering Study. GHA will coordinate with Federal, State, and local agencies throughout the duration of the project. It is assumed that as studies and analyses achieve closure on design and environmental issues the project will be presented at FHWA/IDOT BDE coordination meetings. The following tasks are anticipated during this phase of the project.

1. Coordination with the Village of Grayslake
Representatives from GHA will attend an initial kick-off meeting with the Village of Grayslake. GHA will prepare meeting minutes and distribute to all attendees.

2. **Coordination with the Lake County Stormwater Management Commission (LCSMC)**
Representatives from GHA will attend a kick-off meeting with LCSMC and Village staff to discuss any drainage requirements for the project. Because there are no proposed added impervious areas or impacts to floodplains and/or wetlands, we do not anticipate a Watershed Development Permit. However, we anticipate processing this public road improvement project through LCSMC as a General Permit #1.
3. **Coordination with IDOT**
Representatives from GHA will attend a kick-off meeting with the Illinois Department of Transportation (IDOT) and Village staff. GHA will prepare meeting minutes and distribute to all attendees. While it may be possible to combine the kickoff meetings, we have allowed for attendance at separate kickoff meetings for both Phase I and Phase II engineering. However, we anticipate combining the Phase I and Phase II meetings, as both Phases are proposed to proceed at the same time.
4. **Coordination with Federal Highway Administration (FHWA)**
GHA will attend a FHWA/IDOT coordination meeting with the FHWA and IDOT. GHA will prepare meeting minutes and distribute to all attendees.
5. **Coordination with Utility Agencies**
GHA will coordinate with local utility companies through the JULIE Design State process. Limits of the project will be provided to the utility companies and requests for atlas information will be made. Upon receipt of the utility information, the utility company data will be added to the existing drawings. As the preliminary plans are developed, they will be submitted to the respective utility companies within the project limits for the purpose of determining any potential conflicts caused by the proposed improvements.
6. **Coordination with Geotechnical Engineer/Special Waste-CCDD Soils Consultant/Wetland Consultant**
GHA will coordinate with the geotechnical engineer and Village staff for the soil and pavement evaluation. GHA will also coordinate with the Environmental CCDD soils consultant and Village staff for the evaluation of compliance with the IEPA Clean Construction & Demolition Debris (CCDD) requirements.
Soil and Material Consultants, Inc. (SMC) will provide geotechnical engineering services and assist with pavement design.
Huff & Huff, Inc. (H&H) will be responsible for the wetland and environmental components of the project.
7. **Data Collection**
GHA will request available historical data and information (i.e. engineering plans, subdivision plans, easement plats, drainage reports, as-built plans, utility atlases, roadway plans, tax maps, USGS maps, Lake County Wetland Inventory Map, FEMA maps, etc.) from the above mentioned agencies during the coordination process.

B. Project Administration & Meetings

1. **Public Meetings**
Depending upon the processing requirements, GHA will coordinate and attend one (1) public meeting. We recommend and, have planned for, an open-house format meeting to gather stakeholder input.
2. **Preparation & Submittal of Reports**
GHA will submit the pre-final reports and documents to the Village for review. We will also submit the various reports and preliminary plans to the corresponding agencies as directed by the Village. All final

plans and reports (e.g. Phase I Engineering Report, Drainage Report, Final Engineering Plans, Special Provisions, etc.) will be provided to the Village in hard copy and electronic format.

C. Topographic Survey, ROW Survey & Base Plan Preparation

1. Topographic Survey

For the portion of the project between Center Street and Washington Street, GHA recommends using publicly available aerial topography (Lake County 1-ft contour data) and supplementing that with limited detail at intersections to ensure ADA compliance can be met throughout the project limits.

GHA will prepare a complete existing conditions topographic survey and ROW survey for the portion of the project north of Washington Street in accordance with the Village of Grayslake and IDOT standards. This work will be performed according to the standards and requirements detailed in Table 3 of Chapter II, Section II, pages 2-8 for Second Order, Class II Surveys. Horizontal coordinates shall be referenced to the State Plane Coordinate System, Illinois East Zone, NAD83 adjustment. Vertical elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88). All units shall be U.S. Survey feet and decimal parts thereof.

Topographic and ROW survey limits will encompass approximately 3,800 lineal feet of roadway along Lake Street, starting at Washington Street and terminating at IL Rte. 83. The topography will extend 15-feet beyond the existing ROW. The topographic survey limits will also extend 100 feet into the intersecting public side streets along the project limits.

Our topographic survey will include the following tasks:

- ◆ Prepare a topographic and cross-section survey of the roadways meeting IDOT standards for Design Surveys (Chapter 3 of the IDOT Survey Manual).
 - ◆ Coordinate with private utility companies to obtain the most recent copies of available atlases for inclusion into our survey and to confirm JULIE locations.
 - ◆ Include the location, size and inverts of all visible drainage structures, cross culverts, drive and street culvert structures with flow directions.
 - ◆ Identify all visible/substantial site improvements including pavement, pavement markings, driveways, fences, walls, buildings, sidewalks, traffic signals, etc.
 - ◆ Identify the location and size of existing vegetation and landscaping elements.
 - ◆ Identify the visible utilities, sanitary and storm manholes, catch basins, inlets and water valves (Design JULIE) in the project area.
- #### 2. Right of Way Research and Survey
- ◆ Obtain existing plats.
 - ◆ Survey and establish the roadway centerlines based on recovered monumentation and research of available plats and property records.
 - ◆ Locate and survey the existing property monumentation in the project area and confirm the position of the property lines within the project limits.
 - ◆ Identify preliminary ROW needs, including permanent/temporary easement needs.

3. Base Plan Preparation

- ◆ Establish alignment and stationing of roadways based on record information and field surveys, and develop alignment and stationing for intersecting streets.
- ◆ Prepare standard "Alignment, Ties, and Benchmarks" sheets conforming to the guidelines of Section 63-4.06 of the IDOT BDE Manual. All surveys shall utilize the horizontal coordinate system, vertical datum and units as the topographic survey.
- ◆ Prepare cross sections on station and at 50-foot intervals including at all intersections, cross streets, and driveways, extending from ROW to ROW. Cross sections will extend up each intersecting public side streets as previously noted.

D. Pavement/Soils Investigation

GHA will retain the services of Soil & Material Consultants (SMC) as a sub-consultant to provide a subsurface investigation analysis and provide recommendations and engineering analysis during the design phase. SMC will prepare a geotechnical report in accordance with the current IDOT guidelines. This report will be used to complete mechanistic pavement design recommendations based on the subgrade soils and the anticipated traffic volume. Both the topographic information and soils information will be used for the roadway cross-sections and mechanistic pavement design.

The subsurface exploration will include drilling pavement cores at approximate 500-foot intervals on alternating sides of the pavement centerline. Pavement information will be utilized to confirm the underlying pavement and soil structure is sufficient for the proposed resurfacing, and to evaluate construction methodology for the addition of the new curb and gutter segments.

Coring results will be provided to the Village but are typically not included in the Project Development Report.

E. Traffic & Crash Analyses

There are five signalized intersections within the project corridor limits. While no geometric improvements are planned, our experience is that IDOT will – at a minimum – expect confirmation that the intersections will continue to operate at an acceptable Level of Service for the project life (2040 traffic projections).

1. Existing Traffic Volumes

We anticipate conducting traffic counts at the following locations using Miovision Video Collection Units (VCUs):

- ◆ Lake Street at Center Street;
- ◆ Lake Street at Harvey Avenue/Pine Street;
- ◆ Lake Street at Hillside Avenue;
- ◆ Lake Street at Washington Street; and
- ◆ Lake Street IL Rte. 83.

This data collection process offers improved accuracy and efficiency for larger intersections. Additionally, Miovision can be deployed for a single 24-hour period and collect turning movements, as well as ADT data and vehicle classification data for all approaches. Pedestrian and bicycle data will also be collected concurrently with the traffic data.

2. Future 2040 Traffic Volumes

GHA will prepare a 2040 traffic projection for the corridor and key intersections, and will coordinate approval of those projections with CMAP. The accepted 2040 projections with vehicle classification will be utilized to confirm the necessary pavement structure.

3. Capacity Analysis

GHA will prepare capacity analysis at the signalized intersections. Using the aforementioned 2040 projections GHA will review design components such as turn-lane storage lengths, curb radii, lane widths, truck-turning templates, and transition/taper lengths and confirm level of service. The capacity analysis will be prepared and included to the PDR.

4. Crash Data & Analysis

GHA will request the most recent three years of crash statistics from the Village and the IDOT Division of Traffic Safety in Springfield. We will also access the Lake County Traffic Data Management System to review crash history. This data will be analyzed according to federal guidelines. GHA will prepare a summary of the analyses as well as collision diagrams for the intersections. Day vs. night and potential wet cluster crash locations will also be reviewed. Recommendations will be made for mitigation needs, as necessary.

F. Environmental Studies

This project will be processed through the IDOT Bureau of Local Roads and Streets (BLRS). However, as Lake Street is entirely under local jurisdiction, IDOT will not complete the Special Waste portion of the Environmental Survey for the local ROW. Additionally, a local agency Preliminary Environmental Site Assessment (PESA) will need to be completed concurrent with the IDOT review. With this in mind, we anticipate the following scope of services:

1. Environmental Survey Request Form

GHA will submit the IDOT Environmental Survey Request Form. This includes filling out the online forms and creating the required attachments.

2. Environmental Field Review/Reconnaissance

GHA will conduct an environmental field review to identify the presence of any environmental resources within the project corridor.

3. Potential Special Waste

This project is anticipated to consist of mostly pavement resurfacing. However, with the widening and reconstruction segment potentially generating earth work, it is anticipated that excavated materials and spoils will be required to leave the site. As previously indicated, IDOT will conduct the Preliminary Environmental Site Assessment (PESA) only within their ROW; therefore, it will be necessary to prepare a similar "local agency PESA" for special waste clearance within the Village's and LCDOT's rights-of-way. Huff & Huff will address special waste in the non-IDOT portions of the project corridor.

4. Wetlands

Wetland impacts are not currently anticipated. However the proximity of existing and identified wetlands may require the processing of an on-line Wetland Impact Evaluation (WIE) through IDOT. Should this be required, GHA will prepare the necessary exhibits and submittals. A complete delineation of wetlands and wetland report are not considered as part of our proposal.

5. Archaeological and Historic Preservation

GHA will initiate coordination for archaeological and historic preservation consultation through the submittal of the ESR for Cultural clearance.

6. Threatened and Endangered (T/E) Species

GHA will initiate coordination for federal and state threatened and endangered species through the submittal of the ESR for Biological clearance.

G. Preliminary Drainage & Analysis

With the addition of curb and gutter between Washington Street and IL Route 83, the following work scope will be completed:

1. Research Drainage Areas

- ◆ Identification of all drainage paths and major drainage features.
- ◆ Review of reports of flooding problems (flood prone areas, roadway overtops, etc.) of both adjacent properties and the highway facility. GHA will coordinate with the Village of Grayslake, LCSMC, LCDOT, and IDOT for information regarding historical flooding issues throughout the project limits.

2. Evaluate Design Criteria

- ◆ Evaluation of design criteria (return frequencies for storm sewers, ditches, and culverts, if applicable).
- ◆ Preparation of inlet spacing calculations.

3. Hydraulic Analysis & Report

- ◆ Hydraulic analysis of major drainage features (major culvert crossings, detention facilities, channels, etc.).
- ◆ Evaluation of existing outlets to determine adequacy.
- ◆ Storm sewer design and hydraulic grade line computations.

4. Detention Analysis

Storm water detention analysis is not anticipated to be required and not included as part of our proposed scope of services.

H. Preliminary Design

GHA will prepare all necessary planning documents according to the requirements for a federally funded project.

1. Preliminary Plans

This task will include the preparation of a Preliminary Engineering Plan, Typical Pavement Sections, and Plan and Profile Sheets. GHA will prepare preliminary engineering documents that will be submitted to the Village of Grayslake and all permitting agencies for review and approval. The drawings shall be full size (22" x 34") that must be fully legible when reduced to ½ size (11" x 17") and contain the following information:

- ◆ Existing conditions.
- ◆ Geometrics of proposed road layout (no changes anticipated).

- ◆ Existing right-of-way and individual lot property lines.
 - ◆ Proposed right-of-way survey including any necessary easements and/or right-of-way dedication (not anticipated to be required).
 - ◆ Approximate location of existing and proposed utilities.
 - ◆ Proposed road profile and typical road pavement sections based on IDOT standards and applicable Village standard details.
 - ◆ Proposed sidewalk layout. No sidewalk expansion is anticipated. However, it is our experience that even simple resurfacing projects are required to bring adjacent sidewalk ramps/crossings/crosswalks into compliance with current ADA compliance.
 - ◆ Utilizing the hydraulic analysis, preliminary detention, and storm sewer design and calculations, a Location Drainage Technical Memorandum will be prepared for submittal to IDOT, if necessary.
2. Typical Cross Section Design
GHA will propose recommended cross section(s) based on the results of the traffic analyses and pavement recommendation.
3. Utility Coordination
GHA will meet with Village staff to determine anticipated Village utility needs (e.g. water main, storm, sewer, sanitary sewer) and design utility replacements/repairs as needed. Relocation or redesign of sanitary sewer and/or water main will be considered an additional service to this contract. Should these services be needed, GHA will provide a separate man-hour estimate.
4. Traffic Control & Construction Phasing
We anticipate the project will be constructed in a single phase using typical IDOT Standards for traffic control.

1. Preliminary Plans & Project Development Report

GHA will provide a complete Phase I Engineering Study in accordance with the latest IDOT guidelines for a federally funded project. As previously noted, we are anticipating a Categorical Exclusion Group I (CE-I) with a report utilizing BLR Form 22210. This task shall include preparation of both a Draft and Final Project Development Report (PDR), as well as a preliminary estimate of cost for the project, as outlined above:

1. Project Development Report
GHA will prepare a Phase I Engineering – Project Development Report (PDR) in accordance with the procedures outlined in the BDE Manual.
2. Plans and Documentation
GHA will compile existing maps, plans, and other existing documents describing the proposed area and conditions. GHA will identify the purpose and guidelines that will be used for the proposed improvements, as well as describe the type of work to be accomplished by this project and items affecting improvements. GHA will identify each aspect to be constructed at less than the design guidelines and provide a description of variances, as well as appropriate justification, if necessary. The PDR shall include existing conditions, proposed improvements, right-of-way, crash analysis, environmental information, engineering opinion of probable construction costs, and all necessary exhibits.

Scope of Services – Phase II

A. Pre-Final Plans

GHA will proceed with the continued development of Pre-Final Plans and specifications and a Pre-Final Estimate of Cost. The Pre-Final design documents will be based upon the approved Phase I preliminary plans, and will include the Pre-Final Special Provisions Booklet and Pre-Final Engineer's Opinion of Probable Cost.

B. Final Plans, Specifications & Estimate

After the comments have been received by all agencies for the Pre-Final contract documents, GHA will finalize the Plans, Specifications and Estimate (PS&E) documents and submit to the appropriate agencies for final approval.

1. Final Engineering Plans

Plans will include a title sheet, general notes, summary and schedule of quantities, typical cross section sheets, alignment, ties and benchmark sheets, traffic maintenance and stages of construction, erosion control and landscaping sheets, plan and profile sheets, pavement marking and signage sheets, traffic signal sheets, and details for construction. Roadway cross-sections taken at 50-foot intervals and at all driveways (proposed and existing) adjacent to the road will also be included. The plans will be prepared in accordance with IDOT and FHWA procedures and design criteria.

2. Special Provisions Booklet

Special Provisions booklet for the overall project will be prepared in accordance with IDOT and FHWA procedures and design criteria.

3. Quantity Calculations

GHA will prepare a separate schedule of detailed quantity calculations and pay items bases on the improvements as applicable to the respective governmental agencies.

4. Engineer's Opinion of Probable Cost

GHA will prepare a detailed engineer's opinion of probable construction cost based upon the completed final engineering plans.

5. Hydraulic Report

GHA will prepare the necessary hydraulic report in accordance with the Lake County Watershed Development Ordinance for approval by LCSMC, if necessary.

6. LCSMC Permitting

The project will require a permit from LCSMC in compliance with the Watershed Development Ordinance. GHA will prepare and submit the necessary Watershed Development Permit applications and supporting documents to LCSMC, with copies to the Village of Grayslake for permit.

7. LCDOT Permitting

If improvements are within the Washington Street Right of Way, LCDOT will require a permit. GHA will meet with LCDOT staff and the Village and submit the required plans and documentation necessary for LCDOT approval of the project (if work is proposed in LCDOT ROW). At this time, no work within the Washington Street ROW is anticipated.

8. Stormwater Pollution Prevention Plan

GHA will prepare a Storm Water Pollution Prevention Plan (SWPPP) for compliance with the Illinois NPDES program for construction activities for construction over 1 acre. The SWPPP will serve as a supplement to the erosion control plan that provides the forms and directions to the contractor to conform to State requirements.

9. Bidding Coordination

GHA will assist the Village with coordination of the project letting with the State, and assist the Village with award of contract through the State.

C. CCDD Compliance Testing

As part of the Phase II services, GHA will again retain Huff & Huff (H&H) as a sub-consultant for environmental compliance with Clean Construction & Demolition Debris (CCDD) regulations. H&H will follow the current State guidelines regarding site research and testing/analysis needed for the completion of the proper LPC-662 or 663 forms.

Focus during this phase will be on any Potentially Impacted Properties (PIP) identified in Phase I. Huff & Huff has already identified five (5) potential LUST sites in the area, as well as a remediation site associated with a dry cleaner. The work is being planned during this phase due to the time restrictions associated with the soils testing. The results of the analysis are only valid for one year, so it is in the Village's interest to complete the work as close to bid document completion as possible.

In general, the work will include:

- ◆ Collection of soil samples throughout the project limits. More frequent sampling allows for tighter control of unknown materials, should they be encountered;
- ◆ Analysis of soil samples for VOCs, SVOCs, and PNAs, as deemed necessary;
- ◆ Preparation of a summary report (documentation of assessment and soil sampling for LPC-663 form);
- ◆ Preparation and execution of the necessary LPC-662 or 663 forms.

Due to the nature of the planned improvements and the primarily residential setting, we do not anticipate any significant issues will be discovered in the course of this work.

Estimate of Manhours and Fee

Phase I Service:

A. Project Initiation, Coordination & Data Collection (97 hours):	\$ 11,134.00
B. Project Administration & Meetings (80 hours):	\$ 8,904.00
C. Topographic Survey, ROW Survey & Base Plan Preparation (264 hours):	\$ 27,316.00
D. Pavement/Soils Investigation (36 hours):	\$ 4,056.00
E. Traffic & Crash Analyses (52 hours):	\$ 5,652.00
F. Environmental Studies (89 hours):	\$ 9,968.00
G. Preliminary Drainage & Analysis (156 hours):	\$ 18,232.00
H. Preliminary Design (258 hours):	\$ 26,948.00
I. Preliminary Plans & PDR (92 hours):	\$ 8,512.00
J. Reimbursable Expenses:	<u>\$ 2,000.00</u>
Total Phase I Services (1124 hours):	\$ 122,722.00

Phase II Service:

A. Pre-Final Plans (474 hours):	\$ 53,532.00
B. Final Plans, Specifications & Estimate (PS&E) (486 hours):	\$ 54,716.00
C. PSI/CCDD Compliance Testing (71 hours):	\$ 13,528.00
D. Reimbursable Expenses:	<u>\$ 3,000.00</u>
Total Phase II Services (1031 hours):	\$ 124,776.00

Total Phase I and Phase II Service (2155 hours): \$ 247,498.00

Note: Proposed upper limit of compensation is \$ 247,498.00. The fee will not exceed without prior written approval of the Village.

Proposed Schedule

It is proposed to commence Phase I and Phase II simultaneously. IDOT will require that Design Approval of Phase I is granted prior to acceptance of Phase II Pre-Final engineering plans for review. Our experience is that Environmental Clearances (i.e. Biological and Cultural) as part of Phase I approval from IDOT have been taking 6-9 months to receive, even for projects without widening or geometric improvements. The below schedule is subject to IDOT's review time and processing of documents to other permitting agencies and may be subject to modifications. Please note that if the clearances take as long as we anticipate, the desired letting schedule will be impacted.

Date	Task / Milestone
August 27, 2015	Authorization to Proceed
September 15, 2015	Local Kick-Off Meeting
September 15, 2015	Traffic Data Collection
September 2015	Commence Topographic and ROW Survey
October 2015	Authorize Sub-Consultants to proceed (w/ PESA and Pavement Cores)
October 2015	Environmental Survey Request (allow at least 6 months for clearances)
October 9, 2015	IDOT BLRS Kickoff Meeting for Phase I and Phase II
August 2016	Design Approval (subject to IDOT review time)
October 2015 – August 2016	Preparation of Preliminary Design Plans / Pre-Final Engineering
August 19, 2016	Pre-Final Plans Due to IDOT Schaumburg for July 29, 2016 Letting
August 2016 – October 2016	Preparation of Final Plans Specifications & Estimates (PS&E)
October 17, 2016	Draft Agreements due to IDOT BLRS
October 17, 2016	Final Plans Specifications & Estimates Due for January 20, 2017 Letting
November 25, 2016	Final Construction Engineering Agreements & Joint Agreements to IDOT BLRS
January 17, 2017	IDOT Letting Date

Gewalt Hamilton Associates, Inc.

Submitted By:



Todd P. Gordon P.E.

Director of Transportation Services

Village of Grayslake

Accepted By:



Name: Mike Ellis

Title: Village Manager

Date: 9/28/15