Municipality	LOCAL AGENCY	**Preliminary Engineering Services Agreement**	CONSULTANT	Name: HR Green, Inc.
Township				Address: 420 Front Street
County: Lake Co. Division of Transportation				City: McHenry
Section: 15-00289-01-BT				State: Illinois

THIS AGREEMENT is made and entered into this _____ day of _____, _____ between the above Local Agency (LA) and Consultant (ENGINEER) and covers certain professional engineering services in connection with the improvement of the above SECTION.

Section Description

Name Illinois Route 137 Bike Path

Route IL Route 137 Length 5.5 Mi. 29,000 FT (Structure No. Multiple)

Termini Des Plaines River Trail to the Robert McClory Bike Path

Description:
This project includes preparation of Phase I engineering and environmental studies (Phase I Study) for a proposed new bike path.

Agreement Provisions

The Engineer Agrees,

1. To perform or be responsible for the performance of the following engineering services for the LA, in connection with the proposed improvements herein before described, and checked below:
   a. ☒ Make such detailed surveys as are necessary for the preparation of detailed roadway plans
   b. ☒ Make stream and flood plain hydraulic surveys and gather high water data, and flood histories for the preparation of detailed bridge plans.
   c. ☒ Make or cause to be made such soil surveys or subsurface investigations including borings and soil profiles and analyses thereof as may be required to furnish sufficient data for the design of the proposed improvement. Such investigations are to be made in accordance with the current requirements of the DEPARTMENT.
   d. ☒ Make or cause to be made such traffic studies and counts and special intersection studies as may be required to furnish sufficient data for the design of the proposed improvement.
   e. ☒ Prepare Army Corps of Engineers Permit, Department of Natural Resources-Office of Water Resources Permit, Bridge waterway sketch, and/or Channel Change sketch, Utility plan and locations, and Railroad Crossing work agreements.
   f. ☒ Prepare Preliminary Bridge design and Hydraulic Report, (including economic analysis of bridge or culvert types) and high water effects on roadway overflows and bridge approaches.
   g. ☐ Make complete general and detailed plans, special provisions, proposals and estimates of cost and furnish the LA with five (5) copies of the plans, special provisions, proposals and estimates. Additional copies of any or all documents, if required, shall be furnished to the LA by the ENGINEER at his actual cost for reproduction.
   h. ☐ Furnish the LA with survey and drafts in quadruplicate of all necessary right-of-way dedications, construction easement and borrow pit and channel change agreements including prints of the corresponding plats and staking as required.

Note: Four copies to be submitted to the Regional Engineer

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i. ☐ Assist the LA in the tabulation and interpretation of the contractors' proposals

j. ☒ Prepare the necessary environmental documents in accordance with the procedures adopted by the DEPARTMENT's Bureau of Local Roads & Streets.

k. ☒ Prepare the Project Development Report when required by the DEPARTMENT.

(2) That all reports, plans, plats and special provisions to be furnished by the ENGINEER pursuant to the AGREEMENT, will be in accordance with current standard specifications and policies of the DEPARTMENT. It is being understood that all such reports, plats, plans and drafts shall, before being finally accepted, be subject to approval by the LA and the DEPARTMENT.

(3) To attend conferences at any reasonable time when requested to do so by representatives of the LA or the Department.

(4) In the event plans or surveys are found to be in error during construction of the SECTION and revisions of the plans or survey corrections are necessary, the ENGINEER agrees that he will perform such work without expense to the LA, even though final payment has been received by him. He shall give immediate attention to these changes so there will be a minimum delay to the Contractor.

(5) That basic survey notes and sketches, charts, computations and other data prepared or obtained by the Engineer pursuant to this AGREEMENT will be made available, upon request, to the LA or the DEPARTMENT without cost and without restriction or limitations as to their use.

(6) That all plans and other documents furnished by the ENGINEER pursuant to this AGREEMENT will be endorsed by him and will show his professional seal where such is required by law.

The LA Agrees,

1. To pay the ENGINEER as compensation for all services performed as stipulated in paragraphs 1a, 1g, 1i, 2, 3, 5 and 6 in accordance with the attached scope and CECS form in the total amount of $1,360,893.69.

   a. ☐ A sum of money equal to _____ percent of the awarded contract cost of the proposed improvement as approved by the DEPARTMENT.

   b. ☐ A sum of money equal to the percent of the awarded contract cost for the proposed improvement as approved by the DEPARTMENT based on the following schedule:

Schedule for Percentages Based on Awarded Contract Cost

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

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

2. To pay for services stipulated in paragraphs 1b, 1c, 1d, 1e, 1f, 1h, 1j & 1k of the ENGINEER AGREES at actual cost of performing such work plus 177.4 percent to cover profit, overhead and readiness to serve - "actual cost" being defined as material cost plus payrolls, insurance, social security and retirement deductions. Traveling and other out-of-pocket expenses will be reimbursed to the ENGINEER at his actual cost. Subject to the approval of the LA, the ENGINEER may sublet all or part of the services provided under the paragraph 1b, 1c, 1d, 1e, 1f, 1h, 1j & 1k. If the ENGINEER sublets all or part of this work, the LA will pay the cost to the ENGINEER plus a five (5) percent service charge.

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

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

   a. Upon completion of detailed plans, special provisions, proposals and estimate of cost - being the work required by paragraphs 1a through 1g under THE ENGINEER AGREES - to the satisfaction of the LA and their approval by the DEPARTMENT, 90 percent of the total fee due under this AGREEMENT based on the approved estimate of cost.

   b. Upon award of the contract for the improvement by the LA and its approval by the DEPARTMENT, 100 percent of the total fee due under the AGREEMENT based on the awarded contract cost, less any amounts paid under "a" above.

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

4. That, should the improvement be abandoned at any time after the ENGINEER has performed any part of the services provided for in paragraphs 1a, through 1h and prior to the completion of such services, the LA shall reimburse the ENGINEER for his actual costs plus 177.4 percent incurred up to the time he is notified in writing of such abandonment -"actual cost" being defined as in paragraph 2 of THE LA AGREES.

5. That, should the LA require changes in any of the detailed plans, specifications or estimates except for those required pursuant to paragraph 4 of THE ENGINEER AGREEs, after they have been approved by the DEPARTMENT, the LA will pay the ENGINEER for such changes on the basis of actual cost plus 177.4 percent to cover profit, overhead and readiness to serve -"actual cost" being defined as in paragraph 2 of THE LA AGREES. It is understood that "changes" as used in this paragraph shall in no way relieve the ENGINEER of his responsibility to prepare a complete and adequate set of plans and specifications.

It is Mutually Agreed,

1. That any difference between the ENGINEER and the LA concerning their interpretation of the provisions of this Agreement shall be referred to a committee of disinterested parties consisting of one member appointed by the ENGINEER, one member appointed by the LA and a third member appointed by the two other members for disposition and that the committee's decision shall be final.

2. This AGREEMENT may be terminated by the LA upon giving notice in writing to the ENGINEER at his last known post office address. Upon such termination, the ENGINEER shall cause to be delivered to the LA all surveys, permits, agreements, preliminary bridge design & hydraulic report, drawings, specifications, partial and completed estimates and data, if any from traffic studies and soil survey and subsurface investigations with the understanding that all such material becomes the property of the LA. The ENGINEER shall be paid for any services completed and any services partially completed in accordance with Section 4 of THE LA AGREES.

3. That if the contract for construction has not been awarded one year after the acceptance of the plans by the LA and their approval by the DEPARTMENT, the LA will pay the ENGINEER the balance of the engineering fee due to make 100 percent of the total fees due under this AGREEMENT, based on the estimate of cost as prepared by the ENGINEER and approved by the LA and the DEPARTMENT.

4. That the ENGINEER warrants that he/she has not employed or retained any company or person, other than a bona fide employee working solely for the ENGINEER, to solicit or secure this contract, and that he/she has not paid or agreed to pay any company or person, other than a bona fide employee working solely for the ENGINEER, any fee, commission, percentage, brokerage fee, gifts or any other consideration, contingent upon or resulting from the award or making of this contract. For Breach or violation of this warranty the LA shall have the right to annul this contract without liability.

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

Executed by the LA:

Lake County of the
(Municipality/Township/County)

ATTEST:

By _____

_____ Clerk

(Seal)

State of Illinois, acting by and through its

_____

By _____

Title _____

Executed by the ENGINEER:

HR Green, Inc.

420 N. Front Street

McHenry, IL 60050

ATTEST:

By Stephen R. Bicking, PE, D.WRE, CFM

Title Project Director - Transportation

By _____

Title Jason Poppen, President - Transportation

Approved

_____
Date

Department of Transportation

_____
Regional Engineer

Lake County Division of Transportation
IL Route 137 Bike Path
Des Plaines River Trail to Robert McClory Bike Path
Section No. 15-00289-01-BT

Phase I Study
SCOPE OF SERVICES

I. PROJECT APPROACH

This project includes preparation of Phase I engineering and environmental studies (Phase I Study) for a proposed new bike path connecting the Des Plaines River Trail in Independence Grove Forest Preserve (LCFPD) to the Robert McClory Bike Path in North Chicago, a distance of approximately 5.5 miles. The bike path is proposed to be located generally along the IL Route 137 corridor. However, the final preferred alignment for the bike path may include sections within or just outside the IL Route 137 right-of-way (ROW) connected with sections along nearby local routes. In order to ensure the project is eligible for potential future federal funding, the Phase I Study will follow federal project development procedures and will be coordinated through the Illinois Department of Transportation (IDOT) Bureau of Local Roads (BLR) for review and approval.

Based on the number of potential alignment alternatives, the Phase I Study will be completed in two parts. Part 1 will include a feasibility analysis that will consider a full range of potential alignment alternatives that are identified in coordination with project stakeholders, and that are narrowed as part of a multi-stepped process of comparative analysis, ranking and stakeholder coordination. Based on the larger potential study area, the Part 1 Feasibility Analysis will include only concept plan development of alternatives (no profiles or detailed cross section studies) with a comparative analysis based on available database information (contour mapping, wetlands, floodplains, land-use, etc.). The attached exhibit depicts an initial feasibility study area, which may change through the Part 1 evaluation.

The goal of the Part 1 Feasibility Analysis is to work with project stakeholders to identify a full range of reasonable alternatives and to complete a GIS based comparative analysis. The full range of alternatives will be narrowed to the finalist alternative for more detailed design development and comparative analysis during Part 2. For purposes of preparing the cost proposal for the Phase I Study, it is assumed that only one distinct finalist alternative will be carried forward for detailed analysis in Part 2.

The objective of the Part 2 Detailed Analysis is to provide a thorough analysis of the finalist alternative for completion of the Phase I Study. The Part 2 Detailed Analysis will include topographic field surveys and environmental field surveys for the finalist alternative, as well as preparation of preliminary plans, profiles, and cross sections for the finalist alternative, and all other work required to complete the Phase I Study. All documentation of this process will be captured in the Project Development Report (PDR) which is anticipated to be a Categorical Exclusion Group II (BLR 22210) based on the expectation that some ROW acquisition will be required for this project. All work

will be performed according to the LCDOT and the Illinois Department of Transportation (IDOT) standards and guidelines.

A Stakeholder Involvement Plan (SIP) will be developed and initiated during Part 1. The CONSULTANT expects that stakeholder involvement will occur throughout the course of the project. However, a more robust stakeholder/agency involvement will be needed in the second part of the project.

The following detailed scope of services is proposed for the Part 1 Feasibility Analysis and the Part 2 Detailed Analysis.

II. SCOPE OF SERVICES

The overall Phase I Study Scope of Services consists of the following Part 1 Feasibility Analysis and the Part 2 Detailed Analysis components.

PART 1 · FEASIBILITY ANALYSIS

The Part 1 Feasibility Analysis will include a concept level development and analysis of a full range of potential alternatives derived from stakeholder, agency, and consultant team input. The alternatives will be developed and evaluated based on planning level analyses. The planning level analyses will use as much available existing information as possible from existing topographic survey, contour information, Lake County GIS data, other agency websites, existing plans and maps to develop and analyze the range of alternatives developed for the study. The major components in this Feasibility Analysis include:

- Data Collection
- Concept Alternatives Development
- Benefits, Impacts, and Cost Analysis
- Agency Coordination
- Public Involvement
- Feasibility Report
- Project Administration/Management

Task 1.1 • Data Collection

CONSULTANT will obtain various maps, plans, GIS database information from Lake County and other sources, and other data relating to the IL Route 137 corridor including the following, to be used as part of the Part 1 Feasibility Analysis and/or the Part 2 Detailed Analysis:

- Aerial mapping
- USGS topographic maps
- Previous studies
- Existing roadway plans
- Existing Bridge Plans and structure inspection reports

- Bike/pedestrian counts
- Crash data (corridor, but particularly at the intersections)
- Available traffic data
- Land use, zoning, school district, park district, etc. maps and plans for all municipalities within the project limits.
- Public and private utility atlases. (This work will be coordinated with LCDOT's utility coordinator.)
- Field reconnaissance
- 100 hours of pick up survey if necessary to supplement County contours and aerial imagery.

Task 1.2 • Concept Alternatives Development

The goal of the Part 1 Feasibility Analysis is to develop six alternatives for an east-west bike path between the Des Plaines River Trail and the Robert McClory Bike Path. The analysis will identify potential path corridors via input from stakeholders, agencies, and the consulting team. The IL Route 137 corridor (both north and south sides) is the primary and logical area that will be considered for the various alternatives to be developed. However, the consulting team will also consider potential east/west corridors that may be viable just to the north/south of the IL Route 137 corridor for alignments or segments of alignments. The anticipated study area is shown in attached Exhibit 1.

Based on the number of potential alternatives, concept level plan drawings (no profiles or cross sections) will be developed and used for the comparative analysis of benefits, impacts and cost analysis (Task 1.3). For purposes of the Part 1 Feasibility Analysis, a consistent 14 feet wide bike path (10 feet path with 2 feet wide shoulders on each side) will be assumed for all concept alternatives. In addition to the six alignments (horizontal) developed, it is anticipated that typical cross-sections will be needed (up to three). These will show a standard width path, shoulders, drainage elements, etc. for varying right of way conditions. However, it may be necessary to develop location specific sections where ROW is especially tight (east end), for structural elements (bridges/culverts), or areas where a standard section may not apply. These select 'critical' cross-sections may be needed to determine costs due to unusual fill or cut requirements, or need for a retaining wall.

Lastly, under this task, various exhibits and/or renderings will be developed for the stakeholder and agency coordination elements of this project.

Task 1.3 • Benefits, Impacts and Cost Analysis

Once the viable alignments are created, a comparative analysis of the benefits, impacts and cost analysis will be completed to identify a set of preferred alternatives to study further in Part 2. They will be overlaid on the environmental constraints to determine the number and magnitude of various impacts to the natural areas (wetlands, floodplains, 4(f), trees, etc.). Additionally, the ROW acquisition needs will be determined.

The developed information will be entered into an evaluation matrix to allow evaluation and elimination of alternatives that have the most impact and cost, and that do not meet the purpose and need of the project. Connecting subdivisions, major employer centers,

recreational areas, mass transit, etc. will need to be weighed into the effectiveness of any alignment developed. The goal of this evaluation is to reduce the viable alternatives to three or less to carry into the full Phase I analysis (Part 2).

A drainage constraints map will also be developed. General tributary areas and drainage break lines will be added to the map. Existing outfalls will be added in the area of study. Drainage plans (as builts) from the recent IL Route 137 project will be reviewed to determine areas where detention was designed, and comp storage areas were built as well as any drainage mitigation areas. This map will be used to provide additional useable information for the evaluation matrix in helping to determine alternatives that will carried through for detailed analysis.

Benefits Analysis

This task will be a building block for the Part 2 Intersection Geometric Analysis. Existing traffic information will be compared with new traffic counts gathered at the eight signalized intersections. The purpose is to verify the existing data or to determine if traffic has increased or decreased compared to the available traffic data. These intersections include:

- IL Route 137 at O'Plaine Road
- IL Route 137 at I-94 West Ramp
- IL Route 137 at I-94 East Ramp
- IL Route 137 at IL Route 43
- IL Route 137 at US 41
- IL Route 137 at IL Route 131
- IL Route 137 at the METRA line west of Sheridan Road
- Sheridan Road at "D" Street

The new counts will be forecasted to 2040 volumes. The 2040 forecast will be sent to CMAP for approval. These 2040 forecasts will be used when evaluating the intersection capacity analyses and levels of service (LOS).

Additionally, crash data collected for the intersections and the IL Route 137 corridor will be reviewed. This information will be tabulated by intersection and along the IL Route 137 corridor segments between the intersections. The main information sought from this will be any crashes involving vehicles and non-vehicles (bikes, pedestrians, etc.). The corridor information will be gathered and tabulated as it is likely, regardless of the preferred location of the bike path, there will be mid-block IL Route 137 street crossings to access the path. As such, it would be prudent to determine if there are any known trouble areas within the existing corridor.

Lastly, any available bike/pedestrian count data will be compared to actual bike/pedestrian counts taken to verify the existing data, or to determine if any locations where increased or decreased activity may be occurring as compared to what is currently on file. Knowing where areas of high activity, such as Abbott Labs, subdivisions within the project limits or any other potential bike/pedestrian generators (i.e., Metra Station, etc.) are, may be an important evaluation factor.

Impacts Analysis

Environmental resources will be reviewed and inventoried as part of the Part 1 Feasibility Analysis to compare the alternatives. The environmental information used will include evaluation of available database information and completion of field screenings. These results will be presented in the matrix developed to evaluate and compare alternatives. A partial list of data sources and the resources evaluated are summarized as follows:

- Lake County GIS data
- Lake County Wetland Inventory
- USDA Soil Survey
- Current and Historic Aerial Photography
- National Wetland Inventory (NWI) maps
- Illinois Historic Preservation Agency (HAARGIS database)
- Illinois Environmental Protection Agency (LUST and SRP database)
- Illinois Department of Natural Resources (EcoCAT Review)
- Office of the State Fire Marshal (UST database)
- U.S. Environmental Protection Agency (CERCLIS and RCRA database)
- Field screening of wetlands (visual delineation only)
- Constraints map development
- Field reviews

Based on the data collected, the impacts will be inventoried for alternative comparison purposes. The resource evaluation is anticipated to include the following:

Socio-Economic
- Parcels (number)
- ROW acquisition (acres)
- Cemetery impacts (acres)

Cultural Resources
- Adjacent historic buildings (number)
- Adjacent historic districts (number)
- Potential archaeological sites (number)

Natural Resources
- Potential T&E species (number)
- Potential T&E species habitats (acres)
- Woodland areas (acres)

Wetlands/Waters of the U.S.
- Wetlands impacted (acres)
- Stream Crossings (number)

Groundwater
- Wells (number)

Special Waste

- Number of special waste sites (LUST, UST, SRP, CERCLIS and RCRA)

Special Lands

- Special lands crossed (number and acres)

Cost Analysis

Additionally, high level cost estimates will be developed for each of the alignments. The cost estimates will factor in length, number of structures, additional ROW, impacts to environmental lands, mitigation, etc. A comparative evaluation of the potential costs associated with each concept alternative. This analysis will principally include an assessment of costs relative to path construction, ROW acquisition, and structural elements.

Task 1.4 • Agency Coordination

Agency coordination will be a major component of this project and will be especially important in the feasibility analysis (Part 1). There are numerous agencies that will need to be coordinated with early and often. However, it is anticipated that during the feasibility portion (Part 1), nine agencies (as well as four potential others, to be determined (TBD)) will need to be involved. Four other meetings have been included for planning purposes to coordinate with groups identified through the process. These include the following with the anticipated number of meetings:

- LCDOT (3 meetings)
- LCSMC (2 meetings)
- IDOT (1 meeting)
- FHWA (1 meeting)
- LCFPD (3 meetings)
- Village of Libertyville (2 meetings)
- Village of Green Oaks (2 meetings)
- City of Waukegan (2 meetings)
- City of North Chicago (2 meetings)
- Other Agencies/Organizations TBD (4 meetings)

Task 1.5 • Public Involvement

The goal of the public involvement process is to promote a proactive and responsive approach that seeks input from the general public as well as the above project stakeholders at key points in the project decision making process. It is not anticipated that any advisory groups will be needed or created for this project.

The full Phase I study process will include three public involvement events. Two general Public Information Meetings (PIM) are anticipated during the Part 1 Feasibility Analysis (and a Public Hearing in Part 2). The first will be a PIM to introduce the project to stakeholders and solicit their input on potential alignments for the bike path. The second PIM will occur near the end of the feasibility analysis portion of the project and will generally serve as the

transition point between Part 1 and Part 2 of the study. The range of alternatives will be presented at the second PIM with the preferred corridor(s) presented for input.

Below is a more detailed list of anticipated tasks to be completed for each PIM:

- Selection and coordination with meeting venue.
- Preparation of invitation letters to stakeholders (mailing list developed by LCDOT).
- Preparation of public meeting newspaper display advertisement.
- Preparation of public meeting brochure.
- Mailing of PIM notification letters to area residents and businesses.
- Preparation of public meeting exhibits.
- Typical section renderings for up to five cross sections of the proposed conditions.
- Preparation of PowerPoint presentation (not anticipated).
- Preparation for and attendance at PIM dry run with county staff.
- Attendance at PIM meeting. (Consultant team anticipates 5 to 8 attendees.)
- Preparation of PIM summary and disposition of comments.
- Provide text and exhibits for county and appropriate municipal website(s).

Task 1.6 • Feasibility Report

This task will involve integration of project data, project related text, maps, alignments, and engineering studies into a Draft/Final Feasibility Report. Specifically, this work item will include the following:

- Prepare report exhibits including location, constraints, and land use maps, typical sections, and plan exhibits, etc.
- Write/draft, edit, and internal QC/QA review prior to submitting the Draft Feasibility Report.
- Print, bind and deliver the Draft Feasibility Report to LCDOT (hardcopy/paper and electronic/PDF).
- Address review comments.
- Reissue as Final Feasibility Report.
- Attend review meeting with LCDOT, if required.

Task 1.7 • Project Administration/Management

This task includes project setup, monthly preparation of progress reports and invoicing, client coordination meetings as needed and in-house coordination meetings. The expectation is that the Part 1 (feasibility analysis) will take 10 to 12 months.

A QC/QA plan will be developed and in place to provide quality deliverables to the client. The CONSULTANT will have internal mechanisms in place to review work due to the overlap in expertise within the Project Team to provide a 'fresh set of eyes' on deliverables prior to completion and submittal to LCDOT or IDOT.

PART 2 • PHASE I STUDY/DETAILED ANALYSIS

The more detailed design development and comparative analysis occurs during Part 2, the Phase I Study/Detailed Analysis for the finalist alternative carried forward from the Part 1 Feasibility Analysis. The Part 2 Detailed Analysis work would include detailed topographic field surveys and environmental field surveys for the finalist alternative, and all other work required to complete the Phase I Study following federal project development procedures per IDOT BLR manual to ensure the project is eligible to use federal funding. The major components of the Part 2 Detailed Analysis include:

- Data/GIS Collection (supplement the information from Part 1 as needed)
- Ground/Topographic Survey for the finalist alternative(s)
- Preliminary geometric studies (plan, profile, cross sections) for the finalist alternative(s) and final geometric studies for the preferred alternative
- Intersection Design Studies for the preferred alternative
- Preliminary drainage studies for the finalist alternative(s) and preparation of a Proposed Drainage Plan and Location Drainage Study for the preferred alternative
- Environmental Studies/Reports
- Structural Studies/Design/Analysis
- Continuing Agency Coordination
- Continuing Public Involvement
- Geotech Studies/Investigations
- Cost Estimate/Opinion of Probable Costs
- Project Development Report (BLR 22210)
- Project Administration/Management

Task 2.1: Data/GIS Collection

Supplement and/or update information secured in Part 1. This will include requesting railroad info (commercial/freight and Metra) train counts/schedules, requesting PACE bus info (number of routes and schedules), refreshing bike/pedestrian count info (use STRAVA tool), IDOT may require collecting crash data at intersections/corridor throughout the study process). The CONSULTANT will need to monitor various sites for updated data and GIS info.

Task 2.2: Surveying

Surveying will be performed according to the Lake County Division of Transportation, DESIGN SURVEY PROCEDURES (Revised 12/4/2014) including Horizontal Alignment, Alignment and Tie Sheet, Vertical Alignment reference to NAVD88, Topography, Railway Survey and Deliverables.

Survey will include approximately 5.5 miles of the proposed route from the Des Plaines River Trail to the Robert McClory Bike Path. As a lead Part 2 task, topographic surveys will be completed for the finalist alternative emerging from the Part 1 Feasibility Analysis, with the assumption being that one full finalist alternative is advanced. Although the actual survey coverage requirements will not be known until completion of the Part 1 analysis, for

purposes of estimating length and level of effort for survey in Part 2, it is assumed that survey will be completed along either the north or south side of IL Route 137, and along one side of major cross streets, for the full project limits at a general width of 100 feet from the adjacent curb line (north or south side) outward. Topographic survey will be taken at 50 foot intervals. Survey within the project limits of existing visible improvements, visible utilities and markings, storm and sanitary sewer, water main structures including rim and invert elevation, pipe size, direction and material as observed at unlocked manholes, trees six inches in diameter and greater, wetland flags marked by others. Survey base map drawing will be generated in MicroStation.

ROW Survey – The existing dedicated or conveyed ROW will be surveyed per provided plats and documents from LCDOT and IDOT, along with research performed at the Lake County Recorder for adjoining subdivision plats. Survey will be based on documents and field survey/recovery of existing monuments.

Cross Streets – Survey will be required along seven major cross streets extending 500 feet on each leg. These major crossing including; O'Plaine Road, I-94, IL 43, U.S. 41, IL 131, IL 137/Metra Parking Lot and Sheridan Road. All other minor side streets will be surveyed 150 feet on each leg within the project limits.

Stream Survey – Survey will include Des Plaines River, Skokie River and one additional stream crossing. This information is needed for hydraulic analysis and modeling effort for existing condition, proposed conditions and development of the new structures clearance and freeboard elevations. A number of cross sections will also be needed along these waterways north and south of IL 137. IDOT stream survey requirements for major structures are at the face and three cross sections upstream and downstream at 100', 500' and 1000' from the structure as well as a survey of the bridge deck, low beam, wing walls, headwalls and roadway/stream profile shots. Stream profile is required every 100 feet (50 feet within 250 feet of ROW). Larger streams that already have cross sections may require less survey detail and will be determined during the feasibility study.

Railroad Survey – There are four crossings (two at-grade and two grade separated). It is assumed no survey will be required at the easternmost grade separated crossing carrying the UP/Metra. However, the CP grade separated crossing just east of I-94 will need a new grade separated structure, so survey will be required there, as well as along the UP at grade crossing just east of U.S. 41 and the CN at grade crossing further east of there. Survey will include 1,000 feet direction including top of rails, top of ballast, ditches, ROW, signals, point of switch and frogs. Additional expenses for railroad survey include flaggers and coordination of right of entry permits (insurance not required for the survey task). These expenses will be included in the direct costs.

Survey of Existing Bike Paths – Partial survey of trails and paths that the IL Route 137 bike path will tie into at Independence Grove and at Robert McClory Bike Path for the preferred alternative.

Survey Items Not Included

- Plat of Highways – ROW and easement acquisition

- Plats of Dedication or Easement
- Alignment and Tie Sheets
- Alignment staking
- Topographic survey within IL Route 137 pavement

Task 2.3: Phase I Geometric Studies/ Preferred Alternative Development

The CONSULTANT will develop the detailed geometrics for the preferred alternative both horizontally and vertically. In addition, template cross-sections will be required to be cut every 100 feet and at inflection points. This will allow the CONSULTANT to determine cut/fill needs and locations and lengths for retaining walls. Intersection crash analysis will be updated to reflect new yearly information during the study. The full alternative development will allow for determination of environmental impacts as well as ROW requirements needed to accommodate the preferred alternative. The CONSULTANT estimates 41 plan sheets using 50 scale plan drawings. This estimate assumes 1,500 feet per page (linear alignment) and accounts for sheets for major cross roads and tying into the Robert McClory Bike Path at Sheridan Road.

- Prepare concept horizontal geometries on aerial base sheets for the preferred alternative(s).
- Define concept profiles geometry including preliminary review of proposed roadway cross sections.
- Determine preliminary ROW acquisition needs.
- Revisions to concept preferred design based upon review comments.

Task 2.4: Intersection Geometric Analysis

The CONSULTANT will prepare and compile information to analyze the geometry for the following eight (8) intersections:

- IL Route 137 at O'Plaine Road
- IL Route 137 at I-94 West Ramp
- IL Route 137 at I-94 East Ramp
- IL Route 137 at IL Route 43
- IL Route 137 at US 41
- IL Route 137 at IL Route 131
- IL Route 137 at the METRA line west of Sheridan Road
- Sheridan Rd at "D" Street

The analysis and its supporting documentation will be submitted to LCDOT for concurrence prior to being submitted to the IDOT for review and approval. It is assumed that only two (2) submittals will be required to obtain approval. The analysis will include the following:

- Use the forecast design year traffic/pedestrian volumes for a weekday morning and evening peak hour and approved by CMAP in Part 1.
- Evaluate the intersection based on the forecasted traffic data using HCS with the existing geometry to calculate red time queues.

- Evaluate the intersection based on the forecasted traffic data using HCS with the existing geometry again and adding in an All-Red bike/pedestrian phase to the analysis to calculate the new red time queues.

Task 2.5: Location Drainage Study and Hydraulic Reports

A Location Drainage Study will be completed for the final selected alignment. Only one alternate is proposed to be studied as part of the detailed analysis. Hydraulic Reports will be prepared for the crossing of the Des Plaines River, Tributary #1, Middle Fork North Branch Chicago River and the Skokie River.

The Drainage Constraints Map from Part 1 will be utilized and updated with additional information as needed. The CONSULTANT will verify existing tributary areas, existing outfalls and drainage break lines for the preferred alternative ensuring the general information collected is applicable for the preferred alternative. The CONSULTANT will try to maintain existing outfalls to minimize diversions and develop an existing drainage plan for the final selected alignment. The CONSULTANT will perform hydraulic analysis of other streams/creeks/seasonal waterways with drainage areas greater than 20 acres. The CONSULTANT will model the hydrology for these features using discharges from previous studies if available, or use HEC-HMS analysis for hydrology (checked with StreamStats) and HEC-RAS or HY-8 for hydraulic analysis (bridges and culverts) for all required storm frequencies.

Prior to starting the detailed analysis phase, the CONSULTANT will establish and coordinate the design criteria to be used with the bike path. The CONSULTANT may be able to use less restrictive criteria than is normally used to design roads, which will minimize the size of drainage structures needed for the project, as well as minimizing the compensatory storage that will be required when traversing floodplains.

Location Drainage Study and Hydraulic Report

- The drainage related work will be completed to ensure conformance to the latest Lake County Stormwater Ordinances and the 2014 IDOT/ACEC-IL Drainage Seminar guidance, except the EDP and PDP will be combined.
- A review and analysis will be completed for 48 outlets. The outlets for the bike path will be analyzed from a qualitative standpoint and each outlet will be checked for suitability and sensitivity.
- The bike path will be drained via ditches, swales and storm sewer, depending on the location, ROW and outlet sensitivity. Design Criteria will be established in Part 1. The storm sewer (if necessary, the consultant will try to minimize the use of storm sewer) will be modeled with Hydraflow or equivalent and ditches will be designed using Manning's equation and spreadsheets. It is assumed that storm sewer and ditch design will be needed for eight (8) outlets.
- Analysis and design is anticipated for five (5) Minor Waterways. Minor Waterways will be analyzed with HY-8 and HEC-HMS, with discharges checked using StreamStats when available. These are considered to be non-floodplain crossings between 20 and 200 acres in tributary area. A waterway information table will be

completed for each crossing and a narrative describing existing and proposed conditions for each culvert will be included in the LDS. Crossings less than 20 acres will be analyzed during the design phase of the project.

- Identified Floodplains and Floodways
    A. Des Plaines River – Floodplain AE and Floodway
    B. Tributary #1 - Floodplain AE and Floodway
    C. Meadow Haven Creek - Floodplain AE and Floodway
    D. Irondale Creek - Floodplain AE and Floodway
    E. Tributary to Middle Fork North Branch Chicago River – Floodplain AE
    F. Middle Fork North Branch Chicago River – Floodplain AE
    G. Skokie River - Floodplain AE and Floodway
- Crossings A, B, F and G are anticipated, other crossings may be required depending on the final alignment.
- Separate Hydraulic Reports will be completed for the floodplain crossings and crossings greater than 200 acres in tributary area. It is assumed that four (4) hydraulic reports will be required for the possible crossings. A Floodplain Encroachment Evaluation as outlined in the 2014 IDOT/ACEC-IL Drainage Seminar will be completed for crossings of the floodplain to determine the amount of compensatory storage required for the project based on the ratios outlined in the Lake County Stormwater Ordinance. Flood Insurance Study (FIS) information will be used for to determine the discharges at the floodplain crossings. Hydrology calculations are not included at this point and will be required if FIS discharges are not available or there is a need to verify FIS discharges.
- Complete a Location Drainage Study in accordance with requirements outlined in the 2011 IDOT Drainage Manual and the 2014 IDOT/ACEC-IL Drainage Seminar Manual. An existing drainage plan and a proposed drainage plan will be combined together into one set of plans. Tributary areas to outlets will be identified. Storm sewers and ditches will be shown in profile view. The Hydraulic Grade Line will be determined for the design event in the storm sewer (as well as check events) and shown in profile view. A Location Drainage Study will be the deliverable for this portion of the project.
- Detention should not be necessary based on the amount of new impervious area, but may be required for sensitive or unsuitable outlets. The CONSULTANT will include hours for determining detention for six (6) outlets. Detention will be calculated using a hydrograph method and a control structure schematic will be provided.
- Water Quality retention volumes will be calculated based on the retention of the first one inch (1") of runoff. The CONSULTANT will include hours for determining retention for six (6) outlets.
- It is assumed that there will be two (2) drainage problems that will need to be investigated within the final alignment. The investigation will be quantitative and qualitative and will include proposing a solution to the problem and options to avoid the problem.
- No pump station hydraulic analysis or design is anticipated.

Task 2.6: Environmental Studies/Reports

As noted, this project is being developed based on federal project development procedures

which require a comprehensive environmental review. The environmental review will include with submittal of the Environmental Survey Request Form (ESRF) as part of the Part 2 evaluation. For the purpose of schedule management, it is recommended that the CONSULTANT conduct the wetland delineation on behalf of Lake County DOT for the project. The ESR will be used for the special waste evaluation, biological resources and cultural resource review.[1]

Environmental Data Collection

The Part 2 analysis will be initiated with the submittal of the Environmental Survey Request Form (ESRF) to IDOT BLR.

- Conduct two environmental field reviews to evaluate existing conditions and verification of received data
- Prepare an Environmental Survey Request Form (ESRF) and supporting documents, exhibits, and ground photos for submittal to IDOT District One. It is anticipated that ESRF will be submitted after the determination of a preferred alternatives. This includes:
    - Completed ESRF
    - Location map from USGS quadrangle map
    - Aerial photograph with existing ROW (if available) and ESR limits
    - National Wetlands Inventory (NWI) map
    - Photos of project corridor and buildings (except those recently constructed)

Cultural Resources

A photograph documentation log for the project corridor will be submitted along with the ESRF for evaluation of historic buildings and districts. Based on the review of the Illinois Historic Preservation Agency's database, portions of the Great Lakes Naval Station are part of a designated historic district on the south side of IL 137. Involvement with the State Historic Preservation Office (SHPO) will be dependent on the determination of an adverse impact. Based on the location of the historic district relative IL 137, it is anticipated that no effect will occur. A Section 106 document is not anticipated as part of this scope of services.

The cultural review through the ESR will include an assessment of potential archaeological sites within the project corridor. Given the location of the Des Plaines River and Lake Michigan relative to the project limits, the potential exists for a determination that archaeological sites may exist. It is anticipated that no archaeological surveys will be completed as part of this scope of services.

- Prepare photo log for submittal to IDOT with the ESRF.

[1] IDOT will typically conduct the wetland delineation for project corridors along state right-of-way. This approach will need to be reviewed with IDOT District 1 to determine if a wetland delineation completed by the local agency would be acceptable. For portions of the preferred alternative that are not located in or adjacent to the state right-of-way, Lake County DOT will be responsible for completing the wetland delineation and special waste review, regardless of the agreement reached for areas along state ROW.

- Coordinate with IDOT Central Office and/or SHPO assuming a no effect determination.

Natural Resources

Biological resources will be reviewed as part of the ESRF coordination with IDOT. Based on the location of the Des Plaines River and the adjacent natural areas of Independence Grove Forest Preserve, it is likely the biological resources review (BRR) will indicate the presence of threatened and endangered species. The information obtained from the BRR will be included in the PDR. A Biological Assessment is not anticipated as part of this scope of services. However, dependent on the ESR results, a habitat survey may be needed to evaluate the potential for listed species. Additionally, a request for information from the U.S. Fish and Wildlife Service (USFWS) through a Section 7 informal consultation may be needed depending on the results of the BRR.

Trees and vegetation will be reviewed for high quality species, and if required due to the BRR, habitat will be reviewed for potential bat habitat. It is anticipated that a full tree survey will be completed in Phase II. High quality trees will be identified and surveyed as part of this Scope of Services. Due to the presence of the Lake County Forest Preserve, it is anticipated that a tree survey will be required for portions of the project within the boundaries of the Forest Preserve. All trees four inch and greater will be surveyed. For purposes of this scope of services, it is assumed that up to 1,000 trees will be surveyed.

- High quality tree survey (tree type, size and location).
- Habitat survey based on BRR results.
- Tree survey (tree, type, size and location) for potential tree impacts in Forest Preserve boundary (up to 1,000 trees).
- Section 7 Informal Consultation with USFWS (as needed based on results of IDOT BRR and alternative alignments).

Wetlands/Waters of the US

A wetland delineation will be completed for the preferred alternative(s). CONSULTANT will delineate wetlands for the preferred alternative, and this information will be included as part of the ESRF submittal to IDOT. The delineation will use methods described in the U.S. Army Corps of Engineers Wetlands Delineation Manual and the Midwest supplement of the manual. Wetland borders and stream features will be flagged for survey where identified. The delineation will identify all wetlands and stream features within the proposed project limits.

Based on the delineation, wetland impacts will be inventoried for the preferred alternative and coordinated with IDOT using the Wetland Impact Evaluation (WIE) forms. A report will be completed and include the following: project background, delineation methods, delineation results, and discussion. Water resources will also be reviewed for quality based on available database information.

- Evaluate potential wetland impacts for alternatives based on existing database information.

- Delineate wetlands and open water resources, including completion of wetland delineation report, for areas not covered by the ESR.
- Complete WIEs for all wetlands delineated for preferred alternative.
- Coordinate with USACOE for jurisdictional determination.
- Coordinate with Lake County Stormwater Management Commission.
- Assess qualitatively water resources.

Special Waste Review

A special waste evaluation will be completed using available database information and field review for the areas outside of State ROW. The results will be documented in a Preliminary Environmental Site Assessment (PESA) that will supplement the PESA prepared by IDOT for the state ROW areas. The results of the PESA will identify areas of Recognized Environmental Concerns (RECs) and will be summarized in the PDR. Environmental soil sampling will not be completed as part of this scope of services and may be recommended as part of the Phase II evaluation for areas where the RECs are not avoided by the preferred alternative.

- Complete PESA (non-state ROW).
- Identify areas with identified RECs that will not be avoided by preferred alternative.

Special Lands

Special lands coordination will be completed as part of the stakeholder involvement process. Land uses within the corridor will be reviewed to determine which lands, if any, will require coordination through the Section 4(f) process. Due to the project corridor connection with the Des Plaines River Trail in the area of the Independence Grove Forest Preserve, it is likely that some areas will need to be addressed through Section 4(f). It is anticipated that the processing can occur as a de minimis evaluation given the recreational nature of the project. Other potential areas to be evaluated as Section 4(f) land include the Village of Green Oaks park at Lake Kathryn and the Great Lake Naval Station historic district if there is an adverse effect. For purposes of this scope of services, it is assumed that two Section 4(f) documents will be required and will be processed as a de minimis impact for lands associated with the Lake County Forest Preserve and the Village of Green Oaks.

- Assist Lake County DOT as needed for Section 4(f) coordination with Lake County Forest Preserve.
- Assist Lake County DOT as needed for the Section 4(f) coordination with the Village of Green Oaks.
- Document Section 4(f) evaluation(s) as de minimis impact.

Permitting

No permitting is anticipated as an element of the Part 2 Phase I Scope of Services. Wetlands will be coordinated with IDOT using the Wetland Impact Evaluation (WIE) forms. Coordination with the USACOE is expected in order to obtain a jurisdictional evaluation and

is included in the wetlands effort.

Analyses Not To Be Conducted

- Agricultural – no agricultural land present
- Traffic Noise – not a highway project

Task 2.7: Structural Studies/Design/Analysis

Structure Inspections and Bridge Condition Reports

In Part 2, the CONSULTANT will provide the following services for one final alternative.

Coordination

Once a single preferred alternate is established, provide preliminary structural loads to be used by the geotechnical engineer for the preparation of Geotechnical Design Memorandum for the proposed structures.

Structure Inspections and Bridge Condition Reports

Perform a review of existing structure plans and related data for each of existing structure within the preferred alignment.

Perform inspections of the existing IL Route 137 bridge over 1-94 and the existing IL Route 137 bridge over CPRR. Inspection will include a top of deck survey and inspection of the girders and bottom of deck from ground level. Substructure will be visually inspected. It is anticipated that shoulder closures will be required for the I-94 bridge inspection and railroad liability insurance, Right of Entry agreement and flagging will be required for the railroad bridge inspection. The railroad bridge is due for its biannual inspection in May 2015, and the I-94 bridge biannual inspection is due in May 2016. Both structures are currently rated in the 6-7 range, indicating that minor deterioration/problems are present. Both structures are also substandard for width, so it is possible that if widening is considered for the bike path, additional widening may be required to meet roadway width requirements as well. The CONSULTANT will coordinate with the relevant agencies to determine what minimum level of inspection will be considered acceptable, since complete replacement and general repairs are not the intent of the inspection and BCR. The CONSULTANT will also inspect the existing abutments south of IL Route 137 at the Des Plaines River and determine if they are suitable for reuse. The results will be documented in a BCR.

Bridge Studies

This item includes engineering services required for bridge type studies for structures at the following locations for one preferred alternative:

- Crossing at I-94
- Crossing at Canadian Pacific Railroad
- Crossing at IL Route 43
- Des Plaines River Crossing
- U.S. 41 & UPRR
- Skokie River

These preliminary level studies will establish lengths, limits, span arrangements and bridge types of new bridge structures as well as potential widening/rehabilitation of existing bridge structures. It is assumed that four (4) grade separation locations will be investigated for the final alignment being studied. Preliminary cost estimates will be developed based on major pay item estimates for the bridge structures.

The team will prepare detailed concept sketches for inclusion with the Final BCRs or Bridge Type Studies. The sketches will be adequate for concurrence by the railroads and agencies and can built up into TS&L drawings in Phase II.

Culvert Studies

This item includes engineering services required to develop culvert type studies for culverts within the project limits. It is assumed that five (5) culverts locations will be investigated. Investigations will determine lengths of new culverts and/or rehabilitation, reconstruction or extension requirements of existing culverts. Preliminary cost estimates will be developed based on major pay item estimates for each culvert location.

Detailed concept sketches for inclusion with the Final BCRs or Culvert Type Studies will be prepared for each of the five culvert locations along the preferred alternate.

Retaining Wall Studies

This item includes engineering services required to develop preliminary type studies for new retaining walls which may be required at each grade separation. These studies will determine locations, types and limits of retaining walls. It is assumed that four (4) walls will be required at each grade separation location for the final alignment being studied. Preliminary cost estimates will be developed based on major pay item estimates for the retaining walls.

A detailed concept sketch will be prepared for each of the retaining walls along the preferred alternate will be produced. The Retaining Wall concept sketches will be adequate for more geotechnical investigation and SGRs in Phase II and to initiate ROW acquisition.

Other Field Investigations

A field walk-through of each structure location will be included prior to completion of each BCR to confirm field conditions and information included in the reports and plans.

Task 2.8: Agency Coordination

As previously noted, agency coordination will be a major component of this project to ensure its acceptance and success. The Part 2 coordination will build off the initial coordination conducted in Part 1. Numerous additional agencies will need to be coordinated with aside from the eight original agencies. The Stakeholder Involvement Plan (SIP) will be updated from Part 1 to include the additional agencies and is anticipated to include:

- IDOT Rail (1 meeting)

- IDOT DPIT (1 meeting)
- Illinois Tollway (3 meetings)
- ICC (1 meeting)
- Canadian National Railroad (2 meetings)
- Canadian Pacific Railroad (2 meetings)
- Union Pacific Railroad (2 meetings)
- Metra (2 meetings)
- PACE (1 meeting)
- Lake County SMC (2 meetings)

It is likely face-to-face meetings (noted in the parenthesis) will be required. Some agencies are only anticipated to be corresponded with via letter. Response to correspondence and meeting minutes will be expected elements for any meeting or correspondence for this task.

Utility Coordination – This will be a subsection of agency coordination. Letter coordination along with a set of plans showing the preferred alternative will be sent to each of the utilities discovered to be involved. The consulting team will work with LCDOT Utilities Section to develop the comprehensive list of anticipated involved utilities. Some of these entities that will be coordinated with include, but will not be limited to:

- Peoples Gas
- Northern Gas
- Com Ed
- Time Warner
- AT & T
- Comcast
- QualComm

Task 2.9: Public Involvement

The public involvement process will continue from Part 1 (Feasibility Analysis) and carry through the Part 2 (detailed analysis). This task will continue to promote a proactive and responsive approach that seeks the input of all affected stakeholders, and provides an opportunity for input at key points in the project decision making process.

This task will incorporate coordination with additional stakeholders within the corridor. This list includes the numerous residents and business owners within the project limits developed in Part 1 and gathered from the two PIMs held in Part 1. Three of the businesses that will specifically need to be coordinated with include:

- Abbott Labs
- Ascension Cemetery
- Navy/Department of Defense

Additionally, other agencies such as emergency responders, school districts, bike advocacy groups, etc. will also warrant additional coordination.

A Public Hearing (PH) will be held toward the end of Part 2. The PH will bring the finalist alternative to the stakeholders for their input on the alternative.

Below is a more detailed list of anticipated tasks to be completed for the PH:

- Selection of and coordination with meeting venue.
- Preparation of invitation letters to stakeholders (mailing list developed by LCDOT, and names/addresses recorded from PIMs 1 and 2).
- Preparation of Public Hearing newspaper display advertisement.
- Preparation of Public Hearing brochure.
- Mailing of Public Hearing notification letters to area residents and businesses.
- Preparation of Public Hearing exhibits.
- Typical section renderings for up to five cross sections of the proposed conditions.
- Securing of a multi-lingual (likely Spanish) Court Reporter.
- Preparation of PowerPoint presentation (not anticipated).
- Preparation for and attendance at Public Hearing dry run with county staff.
- Attendance at Public Hearing. Consultant team anticipates 5 to 8 attendees
- Preparation of Public Hearing summary and disposition of comments.
- Provide text and exhibits for county and appropriate municipal website(s).

Task 2.10: GeoTech Studies/Investigations

It is anticipated that soil borings will be needed at proposed structure locations (culverts or bridges). Additionally, some soil borings may be needed along the preferred alignment of the path once that is determined. The boring program is anticipated near the end of Part 2. The geotechnical engineer will take 5 bridge borings. It is assumed that one bridge boring 100 feet depth will be taken at each bridge location in order to determine the most cost effective foundation type and approximate cost. Culvert borings will be deferred to Phase II.

A pre-meeting will be held with the boring consultant, Rubino. The purpose of the meeting will be to show Rubino's map with the desired locations for the borings and for the LCDOT to approve or adjust the locations as needed. Additionally, the meeting will be used to over the IDOT Bureau of Traffic permitting process for various permits that may be required, i.e., temp lane closures, etc.

The geotechnical engineer will write and assemble Geotechnical Design Memorandums for the following crossings:

- Des Plaines River
- I-94
- CPRR
- US 41/UPRR
- IL Route 43

Twelve retaining wall borings are also included, with location to be determined once the preferred alternative is selected. These borings will be sufficient (along with the adjacent bridge borings) to allow the geotechnical engineer to generate a Geotechnical Design Memorandum for each retaining wall. The CONSULTANT will assume 30 feet for these 12

borings. Additional borings and an SGR would be required during detailed design in order to complete the drawings for each of the twelve (12) assumed retaining walls.

Task 2.11: Cost Estimate/Opinion of Probable Costs

There will be the need for detailed Phase I cost estimates as the surviving feasibility alternative(s) are being further refined and evaluated. Cost will be one of the factors that will help in the selection of the final alternative. This cost estimate will included all elements associated with the implementation of the project; cost of the path, cost of the individual structures, utility impacts, mitigation, ROW costs, traffic signals, drainage, etc.

Task 2.12: Project Development Report

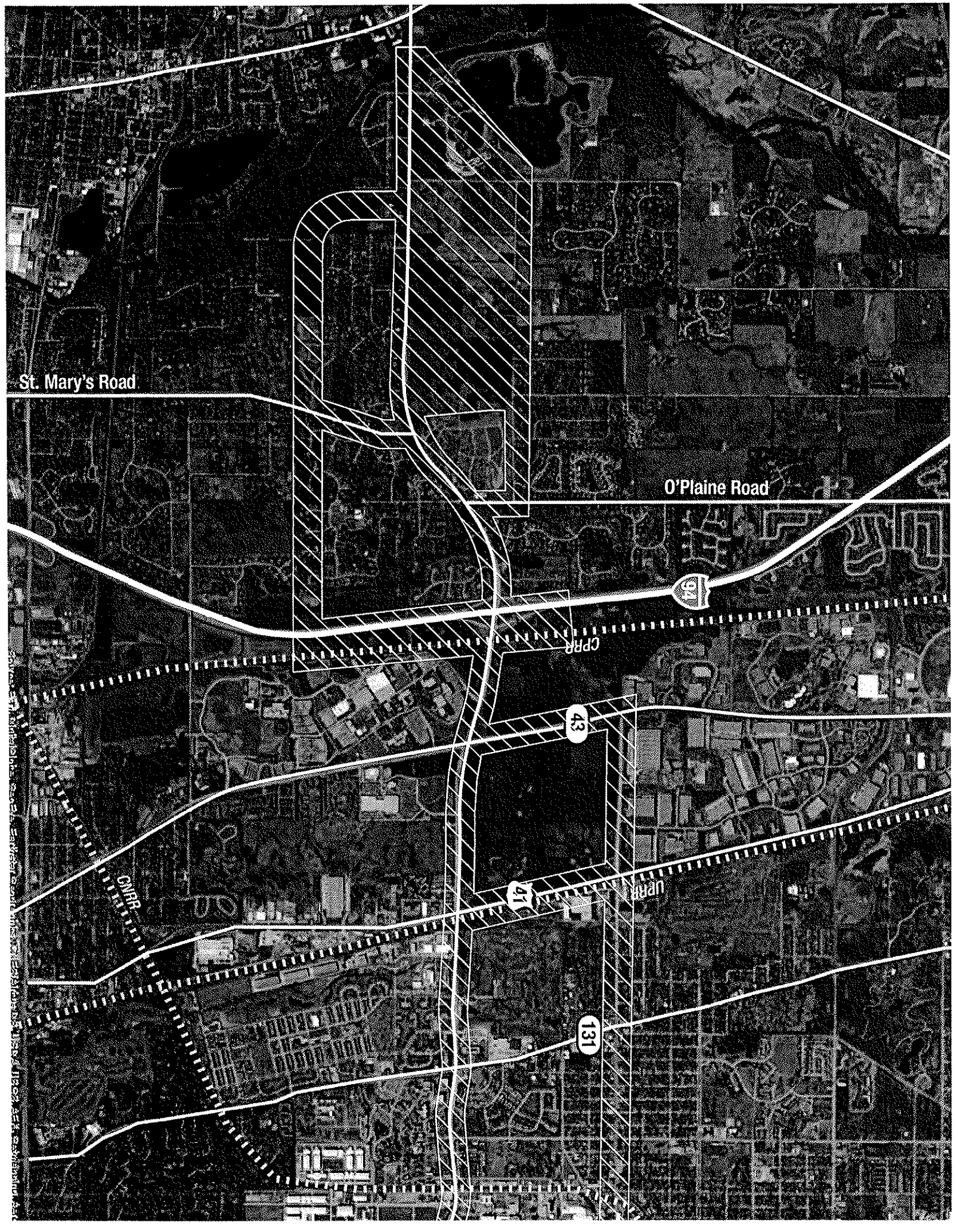
This project will be assumed to be and requested to be processed as a CE Group II. The Project Development Report (PDR) will follow the IDOT format and will house all the relevant findings from the Phase I study. Text will be added to describe the existing conditions, alternatives considered, preferred alternative, exhibits, plans, and IDS's as needed. All documentation will be placed in the report providing a history of environmental coordination, stakeholder coordination, utility coordination, etc. Additionally, the Feasibility Report will be bound into the PDR in the supplemental section of the report. A Draft PDR and Final PDR will be developed for this project. Specifically, this work item will include the following:

- Prepare report exhibits including location, constraints, and land use maps, typical sections, and plan exhibits, etc.
- Write/draft, edit, and internal QC/QA review prior to submitting the Draft PDR.
- Print, bind and deliver the Draft PDR to LCDOT (hardcopy/paper and electronic/PDF) for their review.
- Address review comments and resubmit the Draft PDR to LCDOT.
- Submit Draft PDR to IDOT BLR for review.
- Address IDOT comments and final PDR after the Public Hearing is completed and that information is included into the PDR along with all other final items.
- Submit Draft Final PDR to LCDOT for their review.
- Address any comments and submit Draft Final PDR to IDOT for review.
- Address any IDOT comments on the Draft Final PDR and reissue as Final PDR to IDOT for Design Approval.
- Attend review meeting(s) with LCDOT and/or IDOT, if required.

Task 2.13: Project Administration/Management

This item includes project setup, monthly preparation of progress reports and invoicing, internal project coordination, and quality assurance reviews. It is anticipated that Part 2 (detailed analysis) will take 24 months to complete.

A QC/QA plan will be developed and in place to provide quality deliverables to the client. The CONSULTANT will have internal mechanisms in place to review work due to the overlap in expertise within the Project Team to provide a 'fresh set of eyes' on deliverables prior to completion and submittal to LCDOT or IDOT.


St. Mary's Road
O'Plaine Road
CPRR
43
47
CNRR
UPRR
131

PAYROLL ESCALATION TABLE
FIXED RAISES

FIRM NAME: HR Green, Inc.
PRIME/SUPPLEMENT: Prime

DATE: 04/27/15
PTB NO.: N/A

CONTRACT TERM: 36 MONTHS
START DATE: 7/1/2015
RAISE DATE: 4/1/2016

OVERHEAD RATE: 177.40%
COMPLEXITY FACTOR:
% OF RAISE: 3.00%

ESCALATION PER YEAR

7/1/2015 - 4/1/2016	4/2/2016 - 4/1/2017	4/2/2017 - 4/1/2018	4/2/2018 - 7/1/2018	
9 / 36	12 / 36	12 / 36	3 / 36	
= 25.00%	34.33%	35.36%	9.11%	

= 1.0380

The total escalation for this project would be: **3.80%**

PAYROLL RATES

FIRM NAME	**HR Green, Inc.**	**EXHIBIT**	**C**
PRIME/SUPPLEMENT	**Prime**	**DATE**	**04/27/15**
PSB NO.	**N/A**		

ESCALATION FACTOR **3.80%**

CLASSIFICATION	CURRENT RATE	CALCULATED RATE
Principal	$70.00	$70.00
Senior PM	$65.78	$68.28
Senior Engr	$70.00	$70.00
Project Manager	$50.82	$52.75
Lead Engr	$54.60	$56.68
Professional Engr II	$40.80	$42.35
Professional Engr I	$33.72	$35.00
Staff Engineer II	$29.16	$30.27
Staff Engineer I	$27.18	$28.21
Senior Design Tech	$34.37	$35.68
Project Scientist I	$29.87	$31.01
Strategic Client Mgr	$70.00	$70.00
Operations Mgr Survey	$52.19	$54.17
Project Land Surveyor II	$42.44	$44.05
Survey Crew Chief	$33.52	$34.79
Staff Land Surveyor II	$31.30	$32.49
Project Coordinator	$23.08	$23.96
		$0.00
		$0.00
		$0.00
		$0.00
		$0.00
		$0.00
		$0.00

COST PLUS FIXED FEE
COST ESTIMATE OF CONSULTANT SERVICES

FIRM	HR Green, Inc.		DATE 04/27/15
PSB	N/A	OVERHEAD RATE	1.774
PRIME/SUPPLEMENT	Prime	COMPLEXITY FACTOR	0

DBE DROP BOX	ITEM	MANHOURS (A)	PAYROLL RATE	PAYROLL Costs (DL) (B)	OVERHEAD & FRINGE BENF (C)	SERVICES BY OTHERS (G)	IN-HOUSE DIRECT COSTS (D)	Profit (E)	TOTAL (B-G)	% OF GRAND TOTAL
	2.1.1 Data Collection	368	$41.99	15,453.93	27,415.27	12,558.47	280.00	6,256.63	61,964.30	4.55%
	2.1.2 Concept Alts Development	366	$37.45	13,705.84	24,314.16	52,566.67		5,512.90	96,099.58	7.06%
	2.1.3 Benefits, Impacts, Cost Analy	262	$50.30	13,178.03	23,377.83		1,500.00	5,518.10	43,573.97	3.20%
	2.1.4 Agency Coordination	140	$68.92	9,648.77	17,116.91		868.00	4,006.88	31,640.56	2.32%
	2.1.5 Public Involvement	284	$46.51	13,210.25	23,434.99	16,144.78	6,489.00	6,254.47	65,533.49	4.82%
	2.1.6 Feasibility Report	100	$48.44	4,843.61	8,592.56			1,948.24	15,384.41	1.13%
	2.1.7 Project Admin/QA-QC	80	$55.16	4,412.49	7,827.76	10,226.68		1,774.84	24,241.77	1.78%
	2.2.1 Data/GIS Collection	104	$35.26	3,666.56	6,504.48	5,305.18		1,474.80	16,951.03	1.25%
	2.2.2 Surveying	1525	$36.33	55,400.92	98,281.22		11,488.00	23,949.67	189,119.81	13.90%
	2.2.3 Phase I Geometric	656	$34.88	22,883.90	40,596.03			9,204.59	72,684.52	5.34%
	2.2.4 Intersection Design Studies	48	$55.34	2,656.35	4,712.37			1,068.46	8,437.19	0.62%
	2.2.5 Location Drainage/Hyd Rpt	473	$42.97	20,324.05	36,054.86	130,054.00		8,174.94	194,607.85	14.30%
	2.2.6 Environmental Studies/Rpts	342	$52.36	17,907.65	31,768.17	29,387.00	419.58	7,263.83	86,746.24	6.37%
	2.2.7 Structural Analysis	253	$44.20	11,181.75	19,836.42	146,885.68		4,497.64	182,401.49	13.40%
	2.2.8 Agency Coordination	232	$63.80	14,802.30	26,259.28	23,832.46	1,148.00	6,120.39	72,162.43	5.30%
	2.2.9 Public Involvement	184	$48.14	8,857.12	15,712.53	8,127.39	3,856.80	4,121.83	40,675.67	2.99%
	2.2.10 GeoTech Studies	12	$51.57	618.83	1,097.80	64,884.54		248.91	66,850.08	4.91%
	2.2.11 Cost Estimates	88	$50.45	4,439.29	7,875.30			1,785.61	14,100.20	1.04%
	2.2.12 Project Development Rpt	158	$37.21	5,879.27	10,429.82		56.00	2,372.94	18,738.02	1.38%
	2.2.13 Project Admin/QA-QC	228	$62.43	14,234.82	25,252.57	13,768.04		5,725.67	58,981.09	4.33%
	TOTALS	5903		257,305.72	456,460.34	513,740.89	26,105.38	107,281.36	**1,360,893.69**	100.00%

AVERAGE HOURLY PROJECT RATES

RM HR Green, Inc.

SB N/A

IME/SUPPLEMENT Prime

DATE 04/27/15

SHEET 1 OF 4

PAYROLL CLASSIFICATION	AVG HOURLY RATES	TOTAL PROJECT RATES			2.1.1 Data Collection			2.1.2 Concept Alts Develop			2.1.3 Benefits, Impacts, Co			2.1.4 Agency Coordination			2.1.5 Public Involvement		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
incipal	70.00	20	0.34%	0.24	0			0											
nior PM	68.28	963	16.31%	11.14	10	2.72%	1.86	28	7.65%	5.22	104	39.69%	27.10	88	62.86%	42.92	64	22.54%	15.39
nior Engr	70.00	434	7.35%	5.15	46	12.50%	8.75				12	4.58%	3.21	48	34.29%	24.00	32	11.27%	7.89
oject Manager	52.75	66	1.12%	0.59	0						2	0.76%	0.40						
ad Engr	56.68	150	2.54%	1.44	32	8.70%	4.93				8	3.05%	1.73						
ofessional Engr II	42.35	653	11.06%	4.69	44	11.96%	5.06	90	24.59%	10.41	40	15.27%	6.47				64	22.54%	9.54
ofessional Engr I	35.00	14	0.24%	0.08	10	2.72%	0.95				4	1.53%	0.53						
aff Engineer II	30.27	393	6.66%	2.02	72	19.57%	5.92				12	4.58%	1.39				16	5.63%	1.71
aff Engineer I	28.21	693	11.74%	3.31	6	1.63%	0.46	116	31.69%	8.94							60	21.13%	5.96
nior Design Tech	35.68	541	9.16%	3.27	40	10.87%	3.88	132	36.07%	12.87							48	16.90%	6.03
oject Scientist I	31.01	146	2.47%	0.77	8	2.17%	0.67				80	30.53%	9.47						
ategic Client Mgr	70.00	12	0.20%	0.14	0									4	2.86%	2.00			
erations Mgr Survey	54.17	63	1.07%	0.58	2	0.54%	0.29												
oject Land Surveyor II	44.05	342	5.79%	2.55	8	2.17%	0.96												
rvey Crew Chief	34.79	340	5.76%	2.00	50	13.59%	4.73												
aff Land Surveyor II	32.49	880	14.91%	4.84	40	10.87%	3.53												
oject Coordinator	23.96	193	3.27%	0.78	0														
		0																	
		0																	
		0																	
		0																	
		0																	
		0																	
		0																	
		0																	
		0																	
TOTALS		5903	100%	$43.59	368	100.00%	$41.99	366	100%	$37.45	262	100%	$50.30	140	100%	$68.92	284	100%	$46.51

AVERAGE HOURLY PROJECT RATES

IRM HR Green, Inc.
SB N/A
RIME/SUPPLEMENT Prime

DATE 04/27/15

SHEET 2 OF 4

PAYROLL CLASSIFICATION	AVG HOURLY RATES	2.1.6 Feasibility Report			2.1.7 Project Admin/QA-QC			2.2.1 Data/GIS Collection			2.2.2 Surveying			2.2.3 Phase I Geometric			2.2.4 Intersection Design St		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
incipal	70.00	0			8	10.00%	7.00												
enior PM	68.28	26	26.00%	17.75	48	60.00%	40.97	3	2.88%	1.97				36	5.49%	3.75	8	16.67%	11.38
enior Engr	70.00	16	16.00%	11.20				5	4.81%	3.37									
oject Manager	52.75																40	83.33%	43.96
ead Engr	56.68																		
ofessional Engr II	42.35	18	18.00%	7.62				22	21.15%	8.96				142	21.65%	9.17			
ofessional Engr I	35.00																0		
aff Engineer II	30.27	10	10.00%	3.03				24	23.08%	6.99									
aff Engineer I	28.21	10	10.00%	2.82				16	15.38%	4.34				354	53.96%	15.23			
enior Design Tech	35.68	8	8.00%	2.85				16	15.38%	5.49				124	18.90%	6.74			
oject Scientist I	31.01	4	4.00%	1.24															
rategic Client Mgr	70.00																		
perations Mgr Surv	54.17										61	4.00%	2.17						
oject Land Survey(	44.05										334	21.90%	9.65						
urvey Crew Chief	34.79										290	19.02%	6.62						
aff Land Surveyor	32.49										840	55.08%	17.90						
oject Coordinator	23.96	8	8.00%	1.92	24	30.00%	7.19	18	17.31%	4.15									
TOTALS		100	100%	$48.44	80	100%	$55.16	104	100%	$35.26	1525	100%	$36.33	656	100%	$34.88	48	100%	$55.3

AVERAGE HOURLY PROJECT RATES

IRM HR Green, Inc.
SB N/A
RIME/SUPPLEMENT Prime

DATE 04/27/15

SHEET 3 OF 4

PAYROLL CLASSIFICATION	AVG HOURLY RATES	2.2.5 Location Drainage/Hyd F			2.2.6 Environmental Studies/F			2.2.7 Structural Analysis			2.2.8 Agency Coordination			2.2.9 Public Involvement			2.2.10 GeoTech Studies		
		Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg	Hours	% Part.	Wgtd Avg
incipal	70.00																		
enior PM	68.28				200	58.48%	39.93				140	60.34%	41.20	50	27.17%	18.55			
enior Engr	70.00	70	14.80%	10.36				52	20.55%	14.39	58	25.00%	17.50	19	10.33%	7.23	4	33.33%	23.3
oject Manager	52.75																		
ead Engr	56.68	110	23.26%	13.18															
ofessional Engr II	42.35							117	46.25%	19.59				44	23.91%	10.13	8	66.67%	28.2
ofessional Engr I	35.00																		
aff Engineer II	30.27	225	47.57%	14.40										14	7.61%	2.30			
aff Engineer I	28.21							55	21.74%	6.13				20	10.87%	3.07			
enior Design Tech	35.68	64	13.53%	4.83	40	11.70%	4.17	29	11.46%	4.09				32	17.39%	6.20			
oject Scientist I	31.01				54	15.79%	4.90												
rategic Client Mgr	70.00										8	3.45%	2.41	0					
perations Mgr Surv	54.17																		
oject Land Survey	44.05																		
urvey Crew Chief	34.79																		
aff Land Surveyor	32.49																		
oject Coordinator	23.96	4	0.85%	0.20	48	14.04%	3.36				26	11.21%	2.68	5	2.72%	0.65			
TOTALS		473	100%	$42.97	342	100%	$52.36	253	100%	$44.20	232	100%	$63.80	184	100%	$48.14	12	100%	$51.5

AVERAGE HOURLY PROJECT RATES

IRM HR Green, Inc.
SB N/A
RIME/SUPPLEMENT Prime

DATE 04/27/15

SHEET 4 OF 4

PAYROLL CLASSIFICATION	AVG HOURLY RATES	2.2.11 Cost Estimates			2.2.12 Project Development R			2.2.13 Project Admin/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
incipal	70.00							12	5.26%	3.68									
enior PM	68.28	16	18.18%	12.41	22	13.92%	9.51	120	52.63%	35.94									
enior Engr	70.00	16	18.18%	12.73	8	5.06%	3.54	48	21.05%	14.74									
oject Manager	52.75							24	10.53%	5.55									
ead Engr	56.68																		
ofessional Engr II	42.35	44	50.00%	21.18	20	12.66%	5.36												
ofessional Engr I	35.00																		
aff Engineer II	30.27	12	13.64%	4.13	8	5.06%	1.53												
aff Engineer I	28.21				56	35.44%	10.00												
enior Design Tech	35.68				8	5.06%	1.81												
oject Scientist I	31.01																		
rategic Client Mgr	70.00																		
perations Mgr Surv	54.17																		
oject Land Survey	44.05																		
urvey Crew Chief	34.79																		
aff Land Surveyor	32.49																		
oject Coordinator	23.96				36	22.78%	5.46	24	10.53%	2.52									
TOTALS		88	100%	$50.45	158	100%	$37.21	228	100%	$62.43	0	0%	$0.00	0	0%	$0.00	0	0%	$0.00

Lochner Scope of Work and Budget

1.1 Data Collection – 16 hours - $2,134.47
- Database Coordination
- Existing Bridge Plans
- Structure Inspection Reports
- Field reconnaissance

1.2 Concept Alts Development – 373 hours - $52,566.67
- Bridge Studies
- Culvert Studies
- Retaining Wall Studies
- Field Investigation
- Existing Bridge Plans
- Structure Inspection Reports

1.5 Public Meeting – 2 meetings - $10,144.78

1.7 Project Administration – 52 hours - $8,426.68

2.1 Coordination and Data Collection – 40 hours – 5,305.18

2.7 Structural Analysis – 966 hours - $146,885.68
- Structure Inspections and Bridge Condition Reports
- Bridge Studies
- Culvert Studies
- Retaining Wall Studies
- Field Investigations

2.8 Agency Coordination – 12 meetings - $12,978.83

2.9 Public Hearing – 1 meeting - $5,127.39

2.13 Project Administration/QA-QC – 60 hours - $10,168.04

Total – $253,737.72

CBBEL Scope of Work and Budget

1.1 Data Collection – 91 hours - $10,424
- Database Coordination
- Field Review
- T&E Habitat Review

1.5 Public Meeting – 2 meetings - $6,000

1.7 Project Administration – 10 hours - $1,800

2.5 Drainage - 4 Hydraulic Reports – 604 - $78,520
- Floodplain/Floodway
- Compensatory Storage Calculations
- FIS Hydrology
- HEC-RAS Hydraulics
- LCSMC and IDNR-OWR permitting/Coordination

2.5 Half LDS – approximately 2.75 miles – 409 hours - $51,534
- 2 minor waterway
- 1 drainage problem
- Storm sewer / ditch design for 4 outlets
- Outlet evaluation 24 outlets
- ROW analysis 3 outlets
- EDP and PDP combined
- Detention analysis 3 outlets
- LDS narrative for assigned section
- Meetings part of agency coordination

2.6 Environmental (Wetlands, Trees) – 214 hours - $29,387
- ESRF Submittal
- Wetland Delineation/Report
- Wetland Impact Evaluation Forms
- Coordination (USACE JD, LCSMC)
- Tree Survey (assume 1,500 trees)
- PDR and Supporting Documentation

2.8 Agency Coordination – 12 meetings - $8,880

2.9 Public Hearing – 1 meeting - $3,000

2.13 Project Administration/QA-QC – 20 hours - $3,600

Total – $193,145.00

Rubino Scope of Work and Budget

2.8 Agency Coordination – 4 meetings - $1973.63

2.10 Geotech Studies – 283 Hours - $64,884.54

Total – $66,858.17