

PHASE I - PRELIMINARY ENGINEERING FOR THE MIDWEST INTERSTATE TRAIL ALONG WILMOT ROAD FROM JAMES ROAD TO THE ILLINOIS/WISCONSIN STATE BORDER

MCHEMRY COUNTY DIVISION OF TRANSPORTATION

EXHIBIT A - SCOPE OF SERVICES

The McHenry County Division of Transportation, hereafter referred to as Local Public Agency (**LPA**), has initiated a project requiring professional engineering services by RS&H, Inc. (**ENGINEER**) for Phase I - Preliminary Engineering of the subject project.

UNDERSTANDING OF THE PROJECT

ENGINEER will evaluate alternatives to implement a 10' HMA multi-use path with 2' turf shoulders along Wilmot Road from James Road to the Illinois-Wisconsin state line border. It is understood that this proposed trail system will connect at the state line with a proposed trail being constructed by Kenosha County. Alternatives will be evaluated for two (2) grade-separated crossings, one across Wilmot Road and one across IL 173. Both an overpass and underpass will be evaluated. At-grade crossings at the signalized intersection of Wilmot Road and IL 173 will also be evaluated including ADA compliant pedestrian push button signals. A multi-use path will be located along the north side of James Road through the limits of the Thelen Sand & Gravel property limits, serving as the south project termini involving connections with the Chain O' Lakes State Park. Between James Road and English Prairie Road, the location of the first grade-separated crossing across Wilmot Road will be evaluated. The multi-use path will continue north to the Illinois-Wisconsin state line border along the west side of Wilmot Road. Along English Prairie Road the multi-use path will be implemented along the north side connecting west to Richardson Road. At-grade crossings on English Prairie Road for the multi-use path will be evaluated across the west leg of the English Prairie Road and Wilmot Road intersection, two crossings on the north and east legs at the Richardson Road intersection, on the west leg at the Wilmot Road intersection and one mid-block crossing at Richardson Adventure Farm..

Roadway Functional Classification. The Illinois Department of Transportation (IDOT) (**DEPARTMENT**) lists the functional classification for IL 173 as an Other Principal Arterial roadway under the jurisdiction of IDOT with 8,250 AADT and a posted speed of 45 MPH within the project area. Wilmot Road is a Minor Arterial roadway under the jurisdiction of McHenry County with 6,550 to 7,700 AADT and a posted speed of 40 MPH within the project area. English Prairie Road is a Minor Collector under the jurisdiction of the Village of Fox Lake at the east end and Spring Grove at the west end with a posted speed of 45 MPH. James Road is a Local Road under the jurisdiction of the Village of Fox Lake.

Phase I Concept Structural Design. The conceptual Phase I structural design will adhere to the requirements of Chapter 36-Bridges/Structures of the *IDOT BLRS Manual* and the *IDOT Bridge Manual*. It is assumed the structures will accommodate a minimum 10-foot multi-use path with 2-foot shoulders on both sides.

Environmental Impact Classification. It is assumed that the project will be processed as a State Approved Categorical Exclusion according to Chapter 19 of the *BLRS Manual*.

Stakeholders. Coordination is anticipated with the following stakeholders, agencies, and utilities:

- McHenry County Division of Transportation
- Federal Highway Administration
- Illinois Department of Transportation District 1 Bureau of Local Roads and Streets (IDOT BLRS)
- Illinois Department of Transportation Bureau of Bridges and Structures (IDOT BBS)
- Illinois Department of Natural Resources (IDNR)
- Kenosha County Division of Parks (KCDP)
- Kenosha County Highway Department
- Thelen Sand & Gravel
- Chain O' Lakes State Park
- Lake County Division of Transportation
- Village of Spring Grove, IL
- Village of Fox Lake, IL
- Lake County Forest Preserve District - Gander Mountain Preserve
- Property owners
- JULIE identified Utility Companies
- McHenry County Planning & Development
- McHenry County Bicycle Advocates

Subconsultants. The following subconsultants are anticipated to be used for the following services:

- Prairie Engineers, P.C.
 - Survey Control
 - Aerial Mapping
 - Preparation of Plat of Highway and Legal Descriptions
- Kaskaskia Engineering Group, LLC (**KEG**)
 - Environmental Studies
 - Wetland Delineation Report
 - Tree Inventory
 - Bridge Bat Assessment
 - Photo Log
 - PESA
 - Geotechnical Subsurface Investigation
 - Structural Geotechnical Report
 - Roadway Geotechnical Report

Summary. The *Scope of Services* for Phase I engineering involves a comprehensive preliminary engineering and environmental study that results in design approval from the **DEPARTMENT**. Included in this scope are the following tasks:

1. Data Collection and Review
2. Phase I Base Mapping
3. Utility Identification and Coordination
4. Environmental Studies
5. Traffic and Safety Analysis Report
6. Multi-Use Path Alternative Analysis

7. Intersection Design Studies
8. Geotechnical Subsurface Investigation
9. Preferred Alternative Analysis
10. Structures
11. Location Drainage Technical Memorandum (LDTM)
12. Permit Coordination
13. Traffic Management Analysis
14. Public Involvement
15. Project Development Activities and Report
16. Right-of-Way and Easement Plats
17. Meetings
18. Project Administration and Management

TASK 1 –DATA COLLECTION AND REVIEW

Coordinate with local agencies and verify project pertinent data.

Review Existing Data. Available information from **LPA** will be obtained and reviewed including existing right-of-way and property limit data, existing County roadway plans, County-based GIS digital topographic survey data and aerial photography, crash data, traffic projections from the Chicago Metropolitan Agency for Planning (CMAP), and existing maintenance and flooding records, existing traffic counts, bike routes, bus routes, existing developer plans, waterway information tables.

Site Visit. Staff will visit the site to familiarize themselves with the existing topography, above ground utilities and underground markers, and assessment of existing site issues. These conditions will be documented for consideration when designing the multi-use path, structure(s), and other bicycle and pedestrian improvements.

Prepare Photo Log. Photograph the features of the project site and prepare a photo log.

Tile Investigation. An existing drain tile investigation, including staking, mapping, and trenching to verify the existence of drain tile will be performed in accordance with McHenry County Stormwater Ordinance Standards. An aerial markup of the investigation limits will be provided to the **LPA** for approval.

TASK 2 – PHASE I BASE MAPPING

Aerial Mapping. Aerial mapping will be collected of the survey limits shown in green on Attachment A using Freefly's ALTA X drone with GeoCue's TrueView 535 LiDAR sensor. The aerial data will be controlled by accuracy star targets plus additional ground control points, being either photo identifiable points or placed targets. Verification points, including NVA (Non-Vegetated Vertical Accuracy) and VVA (Vegetated Vertical Accuracy) will be collected throughout the survey limits. Aerial data will be processed and extracted to create a topographic survey drawing in a Bentley OpenRoads Designer drawing with terrain model. An ortho mosaic of the survey limits will be provided.

Aerial Mapping includes possible limitations and exclusions listed below:

- Heavily vegetated areas where the UAV LiDAR cannot penetrate is not included in this proposal. Heavily vegetated areas can include ground under trees, brush and tall grasses

- Supplemental field collection of the edges of pavement where vegetation overgrowth exists is not included in this proposal
- Utility surveys are not included in this proposal
- Airspace restrictions for the proposed survey area have not been researched at this time and could affect the drone collection
- Per new ASPRS Standards, accuracy level will be stated after collection

Aerial Mapping Improvement Survey. A quality improvement field walk through will be completed within the aerial mapping limits to determine areas for supplemental topographic surveys. The field review and supplemental surveys will concentrate on improving areas where the aerial mapping data is deficient including missing surface improvements, incorrectly displayed geometrics/symbology, and significant terrain model errors apparent without the use of surveying equipment. The field walk through is not a comprehensive check of the entire aerial mapping data and supplemental surveys do not guarantee a higher aerial mapping accuracy level.

TASK 3 – UTILITY IDENTIFICATION AND COORDINATION

Utility Investigation. Pertinent utility information will be collected for the project area to locate utilities that may affect design or construction of the project.

- A Joint Utility Locating Information for Excavators (JULIE) Design Stage Request for buried facilities will be submitted.
- Prepare and send utility notification letters per **LPA** template to identify utility companies.
- Information provided by utility companies will be reviewed and incorporated into the base drawing. Compare facilities in relation to the proposed improvement for potential conflicts. Compile and summarize available utility information in a spreadsheet.
- Electronic copies of all information received from or provided to the utility companies will be sent to the **LPA** for their records.

TASK 4 – ENVIRONMENTAL STUDIES

Environmental Survey Request. The Environmental Survey Request (ESR) and attachments will be prepared and submitted electronically in accordance with *BLRS Manual Section 20-2*. Inclusion of an ESR screening form is also required. An aerial markup of the ESR limits will be provided to the **LPA** for approval prior to submittal to the **DEPARTMENT**.

Wetland Delineation and Report. Wetland and/or waters are anticipated to be present in the study area. The following tasks will be performed:

- Obtain preliminary information including aerial photos, wetland maps, United States Geological Survey (USGS), soils mapping, FEMA map, hydrologic atlas, and other data necessary for the wetland delineation.
- Conduct wetland and water delineations based on methodology approved by United States Army Corps of Engineers (USACE). Wetland and waters will be differentiated to determine impacts to each.
- Field stake perimeter of wetlands and survey their locations.
- Prepare wetland delineation report, including resource evaluation, support data, and graphics.

Wetland Impact Evaluation. Based on the wetland delineation report and proposed improvements, a Wetland Impact Evaluation (WIE) will be prepared as follows:

- Prepare wetland impact exhibit and evaluate wetland impacts.
- Prepare and submit the **DEPARTMENT** Wetland Impact Evaluations (WIE) forms electronically.

Tree Inventory. For projects where right-of-way or easements are expected to have adverse impact or require removal of the trees of six (6) inches or greater as measured at Diameter at Breast Height (DBH), a tree survey will be conducted in accordance with current **DEPARTMENT** policies and D&E-18.

- Trees will be tagged, surveyed, identified, and evaluated for condition and form.
- The trees will be shown individually on the plans.
- The data should be in table format and the table headings should include tree species, size (DBH), station, offset, health, structure, impact status, and suitability for preservation.
- Deliverables include a GIS shapefile and map showing tree locations, species, and health.

Bridge Bat Assessment. Conduct bat assessment according to **DEPARTMENT** Circular Letter 2022-28. The Bridge/Structure Bat Assessment form, with photographs, will be completed, signed, and submitted with the ESR.

Special Waste Assessment. A Special Waste Assessment (SWA) for the project area will be prepared to screen for potential contamination and to determine whether a Preliminary Environmental Site Assessment (PESA) is required. The SWA will be prepared following the guidelines in Section 20-12.03 of the *BLRS Manual*.

- Obtain a Radius Report from a company that provides search results of public and proprietary databases to identify any nearby CERCLIS, LUST, UST, RCRA, and other sites that may pose a risk of contamination.
- A Memorandum will be prepared that summarizes the findings of the SWA for inclusion in the Project Development Report (PDR).

Preliminary Environmental Site Assessment (PESA). A PESA will be performed for the study area not within **DEPARTMENT** jurisdiction in accordance with the following policies and standards:

- A Manual for Conducting Preliminary Environmental Site Assessments for Illinois Department of Transportation Infrastructure Projects (Erdmann et al., 2012)
- ASTM International (ASTM) standard 1527-13
- *BLRS Manual*, Chapter 20-12, Special Waste Procedures

Tasks include:

- **Historical Research.** The site's historical land use/ownership record will be developed from standard historical sources. Historic aerials will be provided by the **LPA**. Sanborn Fire Insurance Maps and historic aerials will also be requested from the records review provider. Available Sanborn Fire Insurance Maps and historic aerials will be reviewed to identify land use over time and potential areas of environmental concern, such as areas of surface disturbance and outside storage.

- **Site Evaluation.** Current environmental features and conditions of sites adjacent to the right-of-way/project area will be evaluated. A site walkover of potential right-of-way/project areas designated for excavation and/or acquisition will be conducted for first-hand evaluation of current environmental conditions within the project limits. All of the features and conditions listed above will be investigated and, as appropriate, documented in photographs. The land-use and housekeeping practices of adjacent properties also will be recorded and evaluated in accordance with ASTM protocols.
- **Records Review.** A records review will be conducted to determine potential environmental concerns within the study area. It will include a search of standard state and federal environmental record databases in accordance with the specifications of ASTM standards. This search is based on the outline of the study area. Specifically, each database will be searched to identify any potential sources requiring further investigation. As appropriate, Freedom of Information Act (FOIA) requests will be filed with the IEPA to obtain additional data pertaining to identified sites.
- **Report Preparation.** One report summarizing the results of the evaluation will be prepared. The following information will be included in this report:
 - The project location and description
 - Historical uses of corridor
 - The area geology and hydrology
 - The environmental status of sites adjacent to the corridor regarding chemical use and storage, underground and aboveground storage tanks, solid waste, special waste, and hazardous waste, and PCBs
 - An analysis of the site inspection
 - A summary of the findings regarding any environmental concerns.
 - List of locations for recommended Preliminary Site Investigation (PSI) to be performed in Phase II.

PESA Validation. PESAs need to be validated if six months or more elapse after the date of the PESA completion. This scope assumes one validation of the PESA for design approval, which includes a site visit, records review, and memorandum of validation preparation.

PESA Response. Identify sites to be avoided and, after evaluation, complete **DEPARTMENT** form BDE 2735 and required attachments.

Section 4(f) Document. Not anticipated.

TASK 5 – TRAFFIC AND SAFETY ANALYSIS REPORT

Crash Analysis. Engineer will obtain from the **LPA** or the **DEPARTMENT** the most recent five years of crash data. Engineer will summarize crash by frequency, type, and severity for the Wilmot Road at English Prairie Road and Wilmot Road at IL 173 intersections. The remainder of the corridor will be scanned and summarized for pedestrian and/or bicycle crashes.

Traffic Analysis. The **ENGINEER** will prepare a traffic analysis study at the Wilmot Road and IL 173 intersection utilizing the existing traffic data as well as the proposed design year projections. The analysis will include developing a traffic model of the intersection utilizing Synchro 11 software, with current traffic data and conducting a Level of Service (LOS) analysis using HCM methodology for the AM and PM peak periods. Current traffic data will be projected for the 2050 design year through coordination with CMAP and consider the future reclamation plans completed for Thelen Sand &

Gravel properties. The traffic analysis results will be utilized to support the preparation of the Intersection Design Study and at-grade bicycle and pedestrian facilities anticipated to be proposed at the intersection.

The following items are anticipated to be included in this task:

- Review and analyze the existing traffic data and traffic counts.
- Determine the current year Average Annual Daily Traffic (AADT), AM and PM peak Design Hour Volumes (DHV), and truck percentages for all turn movements at the intersection.
- Develop a traffic model for the current year. Determine LOS, queue, and delay for the existing geometry.
- Create a traffic model for design year (2050) which includes consideration for the reclamation plans completed for the Thelen Sand & Gravel properties. The design year model will be developed using the same format as for the current year, with the appropriate growth rates. The design year traffic analysis will be used for the design of proposed intersection geometry.
- Apply the proposed design year traffic model to the alternatives. Determine back of queue, delay and LOS.
- Prepare technical memorandum narrative and create exhibits, including turn movement diagrams, from the analysis results to be included in the project report.
- Upon completion of the above items, Intersection Design Study (IDS), if required, will be prepared based on the preferred alternative configuration. IDS will conform to the requirements of the **DEPARTMENT** BLR Manual and will utilize the **DEPARTMENT's** standard base sheets. Capacity analyses will be shown on the drawings in **DEPARTMENT** format.

TASK 6 – MULTI-USE PATH ALTERNATIVES ANALYSIS

Design Alternatives. Alternatives will be developed for the alignment of the multi-use path utilizing the planning documents provided in Task 1, IDOT BLRS Chapter 42, and physical characteristics of the corridor. Alternatives to be evaluated include the following as broken out by section of the corridor:

- Wilmot Road – James Road to English Prairie Road
 - Grade separated facility crossing Wilmot Road at James Road. Both an overpass and an underpass will be evaluated. Multi-use path would connect trail running along the west side of Wilmot Road between English Prairie Road and James Road to the east side where the trail continues along the north side of James Road.
 - An alternate grade separated crossing Wilmot Road between English Prairie Road and James Road to potentially reduce impacts or take advantage of the natural landscape and roadway profile that exists through this section.
- Wilmot Road – English Prairie Road to north project limit
 - The multi-use path will be located along the west side of Wilmot Road through this section of roadway.
 - Between English Prairie Road and IL 173 alternatives will evaluate a multi-use trail that is located both along the east side and around the west side of the parcel for the property located at 10219 Wilmot Rd, Spring Grove, IL 60081.
 - At IL 173 alternatives will evaluate a multi-use trail that is located both along the east side and around the west side of the parcel for the Mobil gas station located on the

southwest corner of the Wilmot Road and IL 173 intersection. Both an overpass and an underpass will be evaluated for the western alternative and an at-grade crossing at the existing signalized intersection will be explored for the eastern option.

- At-grade pedestrian and bicycle accommodations across the west leg and south leg of the IL 173 and Wilmot Road signalized intersection will be evaluated.
- English Prairie Road
 - The multi-use path will be located along the north side of English Prairie Road from Wilmot Road to Richardson Road.
 - At-grade pedestrian and bicycle accommodations across the west leg of English Prairie Road at Wilmot Road intersection will be evaluated considering IDOT TRA-23 guidance.
 - At-grade crossing at Richardson Farm will be evaluated considering IDOT TRA-23 guidance.
 - At-grade pedestrian and bicycle accommodations across the north and east legs of the English Prairie Road at Richardson Road intersection will be evaluated.
- James Road
 - From James Road through the Chain O' Lakes property limits, the multi-use path is proposed along the north side of James Road on Thelen Sand & Gravel property.
 - On James Road on the Chain O' Lakes property, bicycle accommodation are assumed to be accommodated through a shared on-street facility to be designed and completed by the Chain O' Lakes State Park.

Each alternative will be summarized to define results associated with cost and ability to be accommodated within the corridor and impacts associated with, but not limited to, right-of-way, wetlands, floodplain, floodway, soils, and drainage.

TASK 7 – INTERSECTION DESIGN STUDIES

Prepare the Intersection Design Studies (IDS) for Wilmot Road at IL 173 intersection. The task is scoped for bicycle and pedestrian improvements. The IDS submittal will include:

- Intersection Design Study
- AutoTurn sheets

TASK 8 – GEOTECHNICAL SUBSURFACE INVESTIGATION

Structure borings, soil borings, pavement cores, and design recommendations will be performed and/or provided. Geotechnical services and report will conform to the requirements of the **DEPARTMENT Geotechnical Manual**. An aerial markup of the boring and core locations will be provided to the **LPA** for approval. A **LPA** Facility Installation Permit is required prior to performing this work.

Structure Borings. Structure borings are to be performed for the geotechnical investigation. The boring locations shall be based on the proposed structure layouts, currently estimated to be four (4) trail crossings of existing underground conveyor systems. Eight (8) Structure borings for the proposed structure crossings to depths of 30 feet each. Two (2) Sign Structure borings at the Intersection of Highway 173 and Wilmont Road to depths of 30 feet each.

Trail (Subgrade) Borings. Twenty-two (22) roadway borings drilled to a depth of 10 feet are to be performed to determine topsoil and unsuitable soil depths, groundwater, and soil conditions for the construction of the proposed trail.

Laboratory Testing. The scope will include per AASHTO/ASTM guidelines testing for moisture contents, particle size distribution, Atterberg limits, soil settlement potential, shear strength of soil, soil classification, and Illinois Bearing Ratio (IBR) and Standard Proctors and testing for pavement design and grading.

Traffic Control. The geotechnical subconsultant's scope of service will include all necessary traffic control and flagman required to complete subsurface drilling and testing operations. Any required permits will be obtained from the **LPA** or Villages.

Structure Geotechnical Report. One (1) Structure Geotechnical Report will be prepared to document findings and recommendations in accordance with **DEPARTMENT** Geotechnical Manual dated 2020, and All Geotechnical Manual User Memos (AGMU). Design recommendations for foundation type, allowable loads, slope stability, settlement, and constructability will be provided for up to four (4) structures, as described above.

Roadway Geotechnical Report. A Roadway Geotechnical Report (RGR) for the trail improvements within the project limits will be developed utilizing relevant available information provided by the **ENGINEER**, and *Forty-Four borings along the alignment(s) as described above.*

- The RGR will present information required as stated in the IDOT Geotechnical Manual dated 2020, and all current applicable Department AGMUs. The RGR will include:
 - Project description, location and scope
 - Geology and Pedology
 - Generalized subsurface conditions from subsurface exploration
 - A generated soil profile sheet
 - Geotechnical evaluations, including settlement, slope stability, and pavement subgrade recommendations, as required
 - Construction considerations

TASK 9 – PREFERRED ALTERNATIVE ANALYSIS

Preliminary Design. A preliminary roadway design of the preferred alternative will be developed in accordance with criteria prescribed in the *BLRS Manual*. Plan and profile sheets (1"=100' on 11"x17" sheets) and typical sections will be developed based on the proposed elevation of the multi-use path. The geometry, typical sections for the crossings, and plans will be prepared in accordance with the applicable requirements of *BLRS Manual Section IV – Project Design*. Preliminary cross sections will be prepared to the extent necessary so that right-of-way and easement needs, wetland impacts, floodplain and floodway impacts, and compensatory stormwater requirements can be identified and evaluated.

The following documents will be produced for inclusion in the PDR based on the details of the Preferred Alternative:

- Plan & Profile (1"=100' on 11x17 sheets)

- Typical Sections
- Cross Sections (every 100' and at critical section)
- ADA Details (12 corners)
- Intersection Design Study (1) at IL 173
- Maintenance of Traffic Plan
- Cost Estimate

Design Exceptions. Elements to be constructed at less than the design guidelines will be identified, and a clear description of required exceptions and appropriate justification will be provided (*BLRS Manual Section 27-7*). **DEPARTMENT** form BLR 22120 will be completed. These items will be discussed at the FHWA meeting.

Barrier Warrant Analysis. A barrier warrant analysis will be performed for any proposed appurtenance to the multi-use path within the roadway clear zone and presented for review in a memorandum that includes a narrative, plan, calculations, and documentation.

Sight Distance Analysis. A sight distance analysis for the multi-use path using bicycle criteria will be performed and presented for review in a memorandum that includes a narrative, plan, calculations, and documentation.

TASK 10 – STRUCTURES

Phase I preliminary design will be performed for structures within the project limits as described below. Design services will include development of a Structure Alternatives Analysis Memorandum, and Type, Size, and Location (TS&L) plans.

Structures located within the project limits are located at the intersection of Midwest Interstate Trail and

- IL 173
- Wilmont Road (at James Road)

Preliminary Design. Preliminary design calculations will be performed to establish structure and foundation types, sizes and appropriate details. Up to two (2) alternatives, pre-approved by the **LPA**, will be evaluated at each of the structure locations for a maximum of four (4) unique designs. The two alternatives at each structure location may both be overpass structures, underpass structures, or a combination of one overpass structure and one underpass structure. Walls (2 per alternative) may be required for the bridge alternative due to nearby roadways and right-of-way along the project limits.

Structure Alternatives Analysis Memorandum. The findings of the preliminary bridge design will be presented in Memorandum format for the **LPA'S** selection of a preferred alternative at each structure location. The memorandum will include a narrative, exhibits (aerial plan with impacts identified and elevation), evaluation matrix, preliminary opinion of probable construction cost, and supporting documentation. Accelerated Bridge Construction (ABC) methods will be considered to reduce the duration of construction and traffic detours. Detailed evaluation of time and cost differences between standard construction methods and ABC methods will not be provided.

Type, Size and Location (TS&L) Drawing(s). General plan and elevation, sections and details will be provided. TS&L drawing content will adhere to the Bridge Manual 2023, Section 2.3.13. TS&L

drawings will be prepared only for the preferred alternative at each structure location identified from the Structure Alternatives Analysis Memorandum.

TASK 11 – LOCATION DRAINAGE TECHNICAL MEMORANDUM (LDTM)

An analysis will be performed to determine existing drainage patterns and existing drainage collection and conveyance along the adjacent roadway. Analyses and documentation shall be in accordance with the McHenry County Stormwater Ordinance and the latest 2024 ACEC/IDOT Drainage seminar guidelines. A LDTM will be prepared containing the existing and proposed conditions drainage analysis and design for the project limits.

Drainage Analysis Approach. Existing drainage structures, such as sideroad or driveway culverts, shall be identified and assessed for replacement based on condition or proposed design. The proposed Trail may impact existing drainage patterns and drainage conveyance alongside existing parallel roadways. Based on aerial imagery of the project limits, there are approximately seventeen existing side road, driveway and/or access crossings potentially impacted by the project that may require construction or replacement of a culvert to convey the roadside ditches. A field visit will be conducted to evaluate existing drainage structures along the project limits. The existing hydraulic outfalls shall be evaluated to determine the presence of sensitive outlets or a need for storm water detention.

Proposed drainage design will include proposed conveyance to maintain offsite drainage, sideroad and driveway culverts to convey flow to existing ditches, and evaluation and potential regrading of existing ditches that may be impacted by construction of the Trail. Ditch capacity checks, culvert sizing, and proposed stormwater collection and conveyance will be evaluated in the proposed drainage design. For the crossing alternatives, proposed ditch grading and pipe conveyance options will be evaluated.

TASK 12 – PERMIT COORDINATION

Phase I tasks include the following:

McHenry County Stormwater Management Permit. Coordination with the McHenry County Planning and Development, including a preliminary jurisdictional determination request and a pre-application meeting with McHenry-Lake Soil and Water Conservation District.

TASK 13 – TRAFFIC MANAGEMENT ANALYSIS

The project improvements will be designed with staged construction anticipating partial roadway closure. Analyze aspects of traffic management including traffic capacity, detour concepts, roadway, or route limitations, motoring public impacts, stakeholder coordination, and documentation.

- Detour analysis exhibits and stakeholder coordination for full and/or partial roadway closure. Upon analysis, submit finding and recommendation to the **LPA** for concurrence.
- For detours anticipated using **DEPARTMENT** routes, a presentation at a **DEPARTMENT/District1** Detour Committee meeting and processing of the **DEPARTMENT** Transportation Management Plan form (D1 OP0042) will be required. An impact analysis will

be required if the **DEPARTMENT** route is significant per the **DEPARTMENT** Work Zone Safety and Mobility Policy.

The **ENGINEER** will coordinate with the **DEPARTMENT** for their concurrence.

TASK 14 - PUBLIC INVOLVEMENT

Public Involvement Plan. A Public Involvement Plan (PIP) will be created at the beginning of the project to outline stakeholder involvement activities and ensure a consistent engagement strategy is used throughout the life of the project.

Project Advisory Group (PAG). At the beginning of the project a PAG will be established comprising of the key stakeholders located along the corridor. The goal of the PAG is to streamline coordination with all stakeholders, expand on the original trail concept, establish project goals and expectations, develop concept plans and vet those concepts through PAG coordination. Key stakeholders will be identified in the PIP with input from the **LPA**. Three (3) PAG meetings are included in this scope, one at the onset of the project, one to present alternatives, and one to present the final preferred alternative.

Stakeholder Coordination. This includes up to three (3) additional one-on-one meetings with individual key stakeholders, such as Thelen Sand & Gravel, resulting from the presentations or comments received at the PAG meetings.

Impacted Property Coordination. Per *BLRS Manual Section 21-3.01*, projects with minimal right-of-way (ROW) acquisition shall contact affected property owners via certified mail. Letters and exhibits depicting proposed ROW or easements will be prepared and provided to the **LPA** to mail. This includes up to three (3) one-on-one meetings with individual property owners, not included in the PAG coordination, to discuss potential impacts to their property.

Public Meeting. Prepare for and lead one (1) open house public informational meeting in accordance with Chapter 21 of the BLRS Manual. The following tasks are included:

- Prepare a schedule, project brochure, display exhibits, and newspaper ad.
- Identify stakeholders, compile a mailing list, and determine the location of the meeting.
- Attend a dry run and update materials. Two (2) staff will attend the dry run.
- Attend the meeting. Up to three (3) staff will attend the meeting to answer public questions.
- Prepare a meeting summary and responses to comments.
- The meeting will be advertised by the **ENGINEER** in local papers twice (three weeks and one week prior to the public meeting)
- The meeting will be advertised on the County website and social media by the **LPA**.
- A public hearing is not anticipated.

Website. The **LPA** will develop and maintain a project website. The **ENGINEER** will be responsible for contributing exhibits and responding to public comments.

TASK 15 – PROJECT DEVELOPMENT ACTIVITIES AND REPORT

Prepare a Project Development Report (PDR) for each intersection location using **DEPARTMENT** form BLR 22210 including exhibits and documentation to obtain design approval for the project. The PDR will follow the guidelines outlined in the *BLRS Manual Section 22-2.11*.

Existing Condition Analysis. Evaluate existing conditions and design criteria, then determine deficiencies. Develop project purpose and need. (*BLRS Manual Section 22-2.11(b)(2-5)*).

Crash Analysis. Crash data obtained from the **LPA** for the past five years will be summarized, including a spot map showing crash locations. The types of crashes will be detailed and include collision diagrams, especially at cluster sites. Provide recommendations to address crash issues. (*BLRS Manual Section 22-2.11(b)(9)*).

Draft Project Development Report. The draft PDR with exhibits and documentation will be assembled and submitted to the **LPA** for review and comment. The **LPA** comments will be addressed before submitting the draft report to **DEPARTMENT**. A disposition of comments will be prepared.

Final Project Development Report. The final PDR will be revised based on review comments from **DEPARTMENT** and resubmitted to **DEPARTMENT** for design approval. A disposition of comments will be prepared.

TASK 16 – RIGHT-OF-WAY AND EASEMENT PLATS

Land boundary surveys will be performed to support land acquisition efforts. Boundary surveys will include establishing existing roadway right of way lines and adjoining boundary lines within the project design limits outlined in green on Attachment A. Adjoining boundary lines will not be established in areas where the project design limits do not extend past the existing right of way.

Land acquisition surveys are based on the following assumptions:

- Setting of proposed right of way and easement monuments will occur one (1) time only and is limited to one (1) mobilization
- Alignment establishment will be completed by others and is not included in this scope of services
- Right of way PLAN sheet development is not included in this proposal
- It is anticipated that twenty-five (25) parcels will be affected by trail improvements
- Time to address one (1) round of McHenry County Division of Transportation (DOT) plat of highway review comments is included in the proposed work hours

Review & Research. Information provided by McHenry County DOT will be reviewed. To supplement McHenry County DOT provided information, boundary research will be performed at the McHenry County Recorder's Office. Plats, strip maps, monument records, recorded easements, and deeds for properties within the project design limits will be searched for. This scope does not guarantee that all recorded documents will be located. At project completion, the collected information will be organized and provided to McHenry County DOT for inclusion in their records.

Right of Entry Coordination. Field surveys may require access on private property to collect boundary evidence needed for existing boundary determination. Coordination with property owners

when access on their property is required will be attempted. McHenry County DOT will provide the Right of Entry letter template to the consultant team for distribution to the affected property owners.

Boundary Reconnaissance & Data Collection. Field surveys will be performed within the project design limits to locate centerline monumentation, right of way monuments, and boundary evidence to support the establishment of existing right of way lines and private boundary lines that tie to the existing right of way. It is assumed that surveyed total holding areas (in lieu of the Accessor's office record acreage) are not required for right of way takes and easements; therefore, locating boundary evidence to determine rear boundary lines is not included.

Boundary Calculations. An Illinois Professional Land Surveyor will determine the existing right of way lines and adjoining boundary lines within the project design corridor. The determined existing right of way information will be compiled into a Bentley OpenRoads Designer drawing for use during design and as a base file for future plat of highways and plan development. It is assumed that surveyed total holding areas (in lieu of the Accessor's office record acreage) are not required for right of way takes and easements; therefore, determining rear boundary lines is not included. Easements within the project design limits that are found at the McHenry County Recorder's Office will be plotted in the land acquisition CADD file.

Public Land Survey System Corner Monument Reestablishment & Records. Required PLSS corner monuments will be set with a minimum of three ties per corner established. Monument records for required monuments set in the PLSS sections along the design corridor will be developed, signed, sealed, and supplied to McHenry County DOT. It is assumed that monument records will be recorded at the Recorder's Offices by McHenry County DOT in a later phase of the project.

Plat & Boundary Description Development. It is assumed that twenty-five (25) parcels will be affected by the trail improvements. Boundary descriptions (up to 25) for the assumed two (2) right of way takes and twenty-three (23) permanent easements will be prepared. One (1) plat of survey will be prepared for each right of way or permanent easement acquisition and is limited to twenty-five (25) total plats.

Proposed right of way and permanent easement corners will be field marked with 5/8" Ø x 30" rebar and plastic cap. Temporary easement corners will not be marked. Work hours include time to mark proposed corners one (1) time only and is limited to one (1) weeklong mobilization trips.

The plat of surveys (25) will be signed and sealed by the project's surveyor and supplied to McHenry County DOT for recording. It is assumed that the plat of highways and legal descriptions will be recorded at the County Recorder's Office by McHenry County DOT in a later phase of the project.

Proposed work hours for plat of highway and boundary description development are based on preliminary design limits and additional acquisition needs will require supplemental fee.

TASK 17 – MEETINGS

Meetings will serve to discuss and resolve issues in the preliminary design process. Meeting materials will be prepared and provided to the **LPA** in advance for review. The **ENGINEER** will lead meetings. Notes of all meetings will be prepared and distributed within five working days of the meeting. A list of action items will be maintained and updated at each meeting. The following meetings are anticipated:

- One (1) project initiation meeting with the **LPA**
- One (1) project initiation meeting at the **DEPARTMENT**
- One (1) project site meeting with the **LPA**
- Two (2) additional project meetings with the **LPA** to review comments at key milestone submittals, assumptions are one after alternatives analysis and one after submittal of preferred alternative preliminary design and project report submittal
- One (1) FHWA/**DEPARTMENT** meeting
- One (1) pre-application meeting with the McHenry County Planning and Development
- Three (3) additional coordination or progress meetings, not included in the stakeholder involvement task with project stakeholders

TASK 18 – PROJECT ADMINISTRATION AND MANAGEMENT

The successful management of a Phase I project requires scheduling and reporting of the progress of the project. Services will include the following tasks:

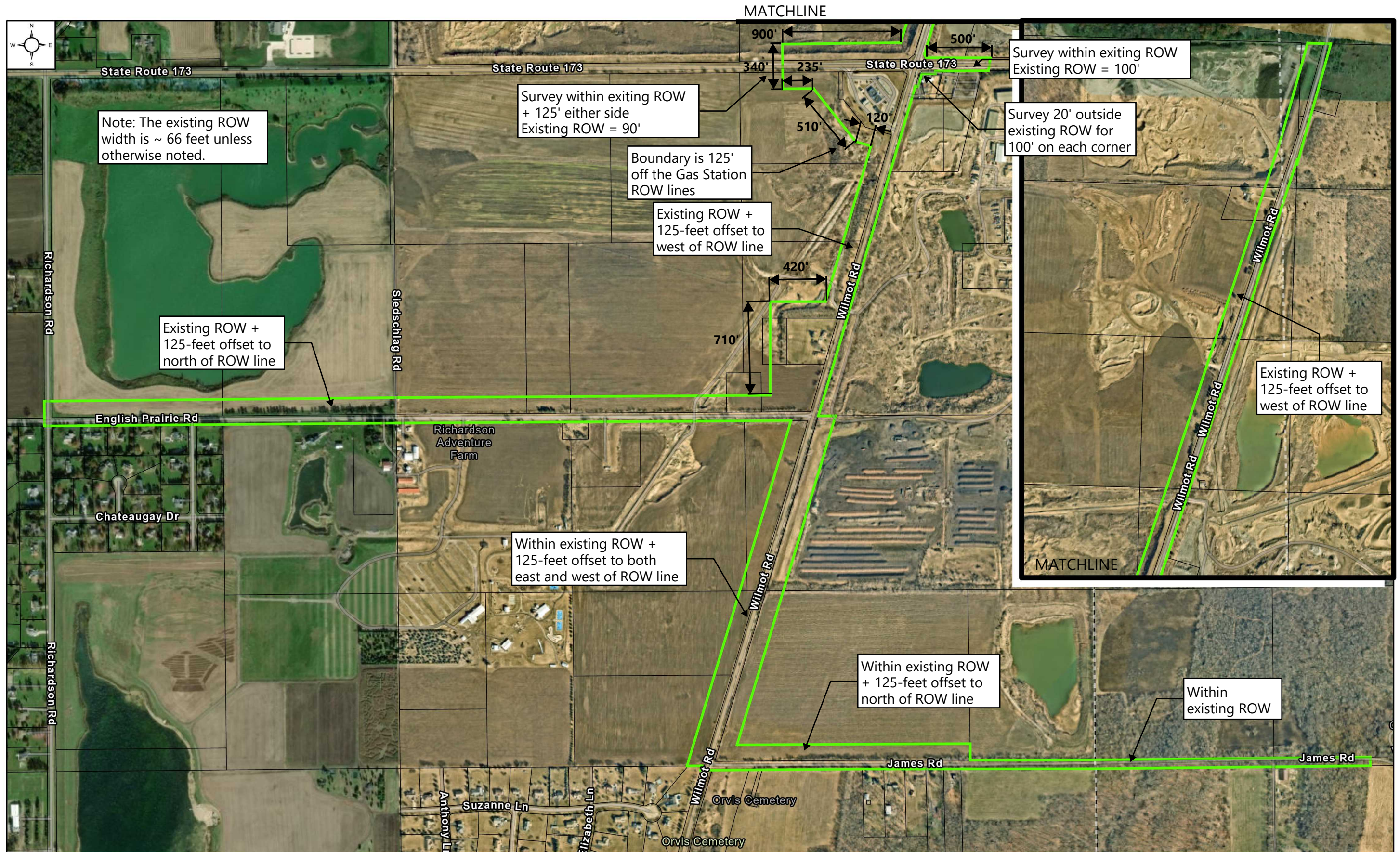
- Project setup including contract administration, budget control and internal project team meetings.
- Prepare and submit monthly invoices and progress reports during months when engineering activities occur, and invoices are due. Progress reports are due by the first of the month.
- Provide phone and email updates and general project coordination with the **LPA** as necessary to advance the progress of the project. A one-hour virtual progress meeting is assumed per month.
- Prepare and monitor a project schedule and update quarterly as tasks or project scheduling change, as well as perform scope of services reviews, resource planning, internal team coordination and contract administration and invoicing.
- Establish, submit to the **LPA**, and adhere to an approved project QA/QC plan. Submit certification of QA/QC for each submittal attesting the QA/QC plan has been implemented on the contract documents.

EXCLUSIONS TO THE SCOPE OF SERVICES

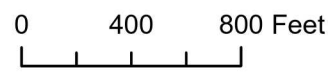
The following tasks or items were deemed unnecessary and would be considered as additional services if required:

- Public hearing
- Architectural Renderings
- Traffic noise analysis
- Noise analysis and COSIM modeling
- Wetland bank fee
- Permit applications and fees will be completed in Phase II
- Subsurface Utility Exploration (SUE) utility study
- Soil remediation design
- Grant and funding applications and assistance
- Land acquisition services (appraisals, negotiations, closings, and certification) (By **LPA**)
- Conditional Letter of Map Revision (CLOMR)/Letter of Map Revision (LOMR)

- Environmental work on any Section 4(f) properties, including the SE quadrant of the Wilmot and James intersection owned by Chain O' Lakes State Parks which has been identified as a LAWCON site.
- Alternatives considering a tie into on-site future planned facilities on the Chain O' Lakes property.
- Section 4(f) coordination
- Section 6(f) or 106 coordination
- Roadway or Pedestrian Lighting (to be completed in Phase II if needed)
- A Preliminary Environmental Site Assessment response will be completed in Phase II to determine the need for a Preliminary Site Investigation
- Coordination with McHenry County Farm Bureau and/or McHenry County Conservation District
- Title commitments will be obtained in Phase II
- Pavement Design
- Right-of-way Staking for Appraisals



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Legend

- Parcel Boundaries
- Survey Limits