


Local Agency Lake County Division of Transportation	L O C A L A G E N C Y	 Illinois Department of Transportation	C O N S U L T A N T	Consultant Parsons Transportation Group Inc.
County Lake				Address 650 E. Algonquin Road, Suite 400
Section 20-00268-23-TL				City Schaumburg
Project No. -----				State IL
Job No.				Zip Code 60173
Contact Name/Phone/E-mail Address Jon Nelson 847-377-7473 JPNelson@lakecountylvil.gov				Contact Name/Phone/E-mail Address Joseph Brahm 847-925-0120 joseph.brahm@parsons.com

THIS AGREEMENT is made and entered into this _____ day of _____, 2020 between the above Local Agency (LA) and Consultant (ENGINEER) and covers certain professional engineering services in connection with the PROJECT. Federal-aid funds allotted to the LA by the state of Illinois under the general supervision of the Illinois Department of Transportation (STATE) will be used entirely or in part to finance engineering services as described under AGREEMENT PROVISIONS.

Project Description

Name	Lake County ITS PASSAGE System Integrator 2020	Route	Various	Length	Structure No.
Termini _____					

Description: Provide design and integration services for the Lake County Passage system development, Integration, and maintenance in accordance with the Schedule A Scope of Work.

Agreement Provisions

I. THE ENGINEER AGREES,

- To perform or be responsible for the performance, in accordance with STATE approved design standards and policies, of engineering services for the LA for the proposed improvement herein described.
- To attend any and all meetings and visit the site of the proposed improvement at any reasonable time when requested by representatives of the LA or STATE.
- To complete the services herein described within 1095 calendar days from the date of the Notice to Proceed from the LA, excluding from consideration periods of delay caused by circumstances beyond the control of the ENGINEER.
- The classifications of the employees used in the work should be consistent with the employee classifications and estimated man-hours shown in EXHIBIT A. If higher-salaried personnel of the firm, including the Principal Engineer, perform services that are indicated in Exhibit A to be performed by lesser-salaried personnel, the wage rate billed for such services shall be commensurate with the payroll rate for the work performed.
- That the ENGINEER is qualified technically and is entirely conversant with the design standards and policies applicable for the PROJECT; and that the ENGINEER has sufficient properly trained, organized and experienced personnel to perform the services enumerated herein.
- That the ENGINEER shall be responsible for the accuracy of the work and shall promptly make necessary revisions or corrections resulting from the ENGINEER's errors, omissions or negligent acts without additional compensation. Acceptance of work by the STATE will not relieve the ENGINEER of the responsibility to make subsequent correction of any such errors or omissions or for clarification of any ambiguities.
- That all plans and other documents furnished by the ENGINEER pursuant to this AGREEMENT will be endorsed by the ENGINEER and will affix the ENGINEER's professional seal when such seal is required by law. Plans for structures to be built as a part of the improvement will be prepared under the supervision of a registered structural engineer and will affix structural engineer seal when such seal is required by law. It will be the ENGINEER's responsibility to affix the proper seal as required by the Bureau of Local Roads and Streets manual published by the STATE.
- That the ENGINEER will comply with applicable federal statutes, state of Illinois statutes, and local laws or ordinances of the LA.

9. The undersigned certifies neither the ENGINEER nor I have:
- employed or retained for commission, percentage, brokerage, contingent fee or other considerations, any firm or person (other than a bona fide employee working solely for me or the above ENGINEER) to solicit or secure this AGREEMENT,
 - agreed, as an express or implied condition for obtaining this AGREEMENT, to employ or retain the services of any firm or person in connection with carrying out the AGREEMENT or
 - paid, or agreed to pay any firm, organization or person (other than a bona fide employee working solely for me or the above ENGINEER) any fee, contribution, donation or consideration of any kind for, or in connection with, procuring or carrying out the AGREEMENT.
 - are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from covered transactions by any Federal department or agency,
 - have not within a three-year period preceding the AGREEMENT been convicted of or had a civil judgment rendered against them for commission of fraud or criminal offense in connection with obtaining, attempting to obtain or performing a public (Federal, State or local) transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property,
 - are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (e) and
 - have not within a three-year period preceding this AGREEMENT had one or more public transactions (Federal, State or local) terminated for cause or default.
10. Scope of Services to be provided by the ENGINEER are included as Schedule A.

II. THE LA AGREES,

- To furnish the ENGINEER all presently available survey data and information
- To pay the ENGINEER as compensation for all services rendered in accordance with this AGREEMENT, on the basis of the following compensation formula. The Total compensation for this shall not exceed **\$1,625,000**.

Cost Plus Fixed Fee ☒ CPFF = 14.5%[DL + R(DL) + OH(DL) + IHDC]

Where: DL = Direct Labor
IHDC = In House Direct Costs
R = Complexity Factor
OH = Consultant Firm's Actual Overhead Factor

3. To pay the ENGINEER using one of the following methods as required by 49 CFR part 26 and 605 ILCS 5/5-409:

☒ With Retainage

- Upon receipt of monthly invoices from the ENGINEER and the approval thereof by the LA, monthly payments for the work performed shall be due and payable to the ENGINEER, such payments to be equal to 90% of the value of the partially completed work minus all previous partial payments made to the ENGINEER.
- Final Payment** – Upon approval of the work by the LA but not later than 60 days after the work is completed and reports have been made and accepted by the LA and the STATE, a sum of money equal to the basic fee as determined in this AGREEMENT less the total of the amounts of partial payments previously paid to the ENGINEER shall be due and payable to the ENGINEER. For the purposes of this Agreement, LA and the State shall provide any comments or exceptions to the Engineer's reports within 20 business days following submission of the report in question. Failure to comment within this time frame shall conclusively indicate acceptance of said report by LA and the State. This same time frame shall apply upon any resubmission of a report by the Engineer following the provision of comments by LA and the State.

☐ Without Retainage

- For progressive payments** – Upon receipt of monthly invoices from the ENGINEER and the approval thereof by the LA, monthly payments for the work performed shall be due and payable to the ENGINEER, such payments to be equal to the value of the partially completed work minus all previous partial payments made to the ENGINEER.
- Final Payment** – Upon approval of the work by the LA but not later than 60 days after the work is completed and reports have been made and accepted by the LA and STATE, a sum of money equal to the basic fee as determined in this AGREEMENT less the total of the amounts of partial payments previously paid to the ENGINEER shall be due and payable to the ENGINEER.

4. The ENGINEER shall not discriminate on the basis on the basis of race, color, national origin or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE program or the requirements of 49 CFR part 26. The recipient shall take all necessary and reasonable steps under 49 CFR part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The recipient's DBE program, as required by 49 CFR part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as violation of this agreement. Upon notification to the recipient of its failure to carry out its approved program, the Department may impose sanctions as provided for under part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31U.S.C. 3801 et seq.).

III. IT IS MUTALLY AGREED,

1. That no work shall be commenced by the ENGINEER prior to issuance by the LA of a written Notice to Proceed.
2. That tracings, plans, specifications, estimates, maps and other documents prepared by the ENGINEER in accordance with this AGREEMENT shall be delivered to and become the property of the LA and that basic survey notes, sketches, charts and other data prepared or obtained in accordance with this AGREEMENT shall be made available, upon request, to the LA or to the STATE, without restriction or limitation as to their use. Notwithstanding the above, the ENGINEER shall be entitled to reuse any work product produced pursuant to this Agreement, provided that the LA and the STATE shall be responsible for any liabilities that arise in connection with such reuse.
3. The LA acknowledges that the ENGINEER will utilize and/or provide as part of its work product software (the "Software") which is currently owned either by the Engineer or a third party. The Engineer agrees to grant the LA a royalty-free, nonexclusive, nontransferable, personal, irrevocable, perpetual, license including access to all source codes and readable documentation to reproduce; use; modify; recompile; review; evaluate; maintain; upgrade or reinstall the Software, but only to the extent necessary to manage, maintain, operate, develop, and improve the transportation systems within the geographical boundaries of Lake County. This includes the use of the Software by IDOT and other Lake County municipalities to maintain and/or operate the transportation system in Lake County. The LA agrees to require third parties who wish to obtain technical information, including but not limited to, all technical documents, software documentation and source code regarding the Software to execute a Confidentiality Agreement, marked and attached as Schedule B, prior to the LA disclosure of any information. The LA shall not be restricted in any way from releasing information, including proprietary information, in response to a subpoena, court order, or other legal process but shall promptly notify ENGINEER in writing of the demand for information before the LA responds to such demand. Notwithstanding the forgoing, any Commercial Off the Shelf Software (COTS) provided to the LA through this agreement shall be subject to the terms and conditions set forth in the COTS license agreements.
4. That all reports, plans, estimates and special provisions furnished by the ENGINEER shall be in accordance with the current Standard Specifications for Road and Bridge Construction, Bureau of Local Roads and Streets Administrative Policies, Federal-Aid Procedures for Local Highway Improvements or any other applicable requirements of the STATE, it being understood that all such furnished documents shall be approved by the LA and the STATE before final acceptance. During the performance of the engineering services herein provided for, the ENGINEER shall be responsible for any loss or damage to the documents herein enumerated while they are in the ENGINEER's possession and any such loss or damage shall be restored at the ENGINEER's expense.
5. That none of the services to be furnished by the ENGINEER shall be sublet, assigned or transferred to any other party or parties without written consent of the LA. The consent to sublet, assign or otherwise transfer any portion of the services to be furnished by the ENGINEER shall not be construed to relieve the ENGINEER of any responsibility for the fulfillment of this agreement.
6. To maintain, for a minimum of 3 years after the completion of the contract, adequate books, records and supporting documents to verify the amounts, recipients and uses of all disbursements of funds passing in conjunction with the contract; the contract and all books, records and supporting documents related to the contract shall be available for review and audit by the Auditor General and the STATE; and to provide full access to all relevant materials. Failure to maintain the books, records and supporting documents required by this section shall establish a presumption in favor of the STATE for the recovery of any funds paid by the STATE under the contract for which adequate books, records and supporting documentation are not available to support their purported disbursement.
7. The payment by the LA in accordance with numbered paragraph 3 of Section II will be considered payment in full for all services rendered in accordance with this AGREEMENT whether or not they be actually enumerated in this AGREEMENT, with the exception of payment for additional work which is requested by LA and in relation to which it is agreed between the parties that additional compensation will be paid.
8. That the ENGINEER shall be responsible for any and all damages to property or persons arising out of an error, omission and/or negligent act in the prosecution of the ENGINEER's work and shall indemnify and save harmless the LA, the STATE, and their officers, agents and employees from all suits, claims, actions or damages of any nature whatsoever resulting therefrom. These indemnities shall not be limited by the listing of any insurance policy.

9. This AGREEMENT may be terminated by the LA upon giving notice in writing to the ENGINEER at the ENGINEER's last known post office address. Upon such termination, the ENGINEER shall cause to be delivered to the LA all drawings, plats, surveys, reports, permits, agreements, soils and foundation analysis, provisions, specifications, partial and completed estimates and data, if any, from soil survey and subsurface investigation with the understanding that all such material becomes the property of the LA. The LA will be responsible for reimbursement of all eligible expenses to date of the written notice of termination. Furthermore, this Agreement may be terminated by the Engineer in the event that LA is in material breach of its obligations hereunder, provided that the Engineer first provides 30 days written notice of its intentions and also provided that said breach has not been remedied within the 30 day notice period. LA acknowledges and agrees that the Engineer cannot warrant the fitness of any work that is incomplete due to early termination or suspension of the work, or that is altered, revised, amended or modified without the Engineer's knowledge and consent or used for any purpose other than that for which it was originally intended.
10. This certification is required by the Drug Free Workplace Act (30ILCS 580). The Drug Free Workplace Act requires that no grantee or contractor shall receive a grant or be considered for the purpose of being awarded a contract for the procurement of any property or service from the State unless that grantee or contractor will provide a drug free workplace. False certification or violation of the certification may result in sanctions including, but not limited to, suspension of contract or grant payments, termination of a contract or grant and debarment of the contracting or grant opportunities with the State for at least one (1) year but no more than five (5) years.

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

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

- a. Publishing a statement:
 - (1) Notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance, including cannabis, is prohibited in the grantee's or contractor's workplace.
 - (2) Specifying the actions that will be taken against employees for violations of such prohibition.
 - (3) Notifying the employee that, as a condition of employment on such contract or grant, the employee will:
 - (a) abide by the terms of the statement; and
 - (b) notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction.
 - b. Establishing a drug free awareness program to inform employees about:
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's or contractor's policy of maintaining a drug free workplace;
 - (3) Any available drug counseling, rehabilitation and employee assistance program; and
 - (4) The penalties that may be imposed upon an employee for drug violations.
 - c. Providing a copy of the statement required by subparagraph (a) to each employee engaged in the performance of the contract or grant and to post the statement in a prominent place in the workplace.
 - d. Notifying the contracting or granting agency within ten (10) days after receiving notice under part (B) of paragraph (3) of subsection (a) above from an employee or otherwise receiving actual notice of such conviction.
 - e. Imposing a sanction on, or requiring the satisfactory participation in a drug abuse assistance or rehabilitation program by,
 - f. Assisting employees in selecting a course of action in the event drug counseling, treatment and rehabilitation is required and indicating that a trained referral team is in place.
 - g. Making a good faith effort to continue to maintain a drug free workplace through implementation of the Drug Free Workplace Act.
11. The ENGINEER or subconsultant shall not discriminate on the basis of race, color, national origin or sex in the performance of this AGREEMENT. The ENGINEER shall carry out applicable requirements of 49 CFR part 26 in the administration of DOT assisted contracts. Failure by the ENGINEER to carry out these requirements is a material breach of this AGREEMENT, which may result in the termination of this AGREEMENT or such other remedy as the LA deems appropriate.
12. In the event the ENGINEER fails to meet any of its contractual obligations, as set forth in this AGREEMENT, then the LA, at its option, may consider the AGREEMENT as canceled effective with the delivery of written Notice of Termination for Cause to the ENGINEER, and the ENGINEER shall have no further claims or rights against the LA except as set forth herein. The LA may, as additional remedies, and without prejudice to or waiver of any other right or remedy which it possesses hereunder or as a matter of law, and after delivering a Notice of Termination for Cause to the ENGINEER, secure services from any other available source and any reasonable cost resulting as damages incurred by the LA due to the negligence of the ENGINEER shall be charged back to the ENGINEER, or the LA may deduct any such cost from any payments due or to become due ENGINEER, if any. In addition to any difference in cost for services, incurred by the LA, the ENGINEER shall pay the LA for any costs, fees, or expenses, including administrative, engineering and legal expenses incurred by the LA due to the failure of the ENGINEER to meet such obligations. The foregoing costs, fees and expenses, may, at the direction of the LA, be deducted from any sums remaining due for services properly performed prior to the effective date of the cancellation and termination. The ENGINEER's total liability to the LA under this paragraph shall not exceed \$250,000.

A Notice of Termination for Cause may be delivered to the ENGINEER upon the occurrence of any of the following:

- a. If the ENGINEER becomes insolvent, commits any act of bankruptcy, makes a general assignment for the benefit of creditors, or becomes the subject of any proceeding commenced under any statute or law for the relief of debtors;
- b. If a receiver, trustee or liquidator of any of the property or income of the ENGINEER shall be appointed;
- c. If the ENGINEER shall fail to perform the scope of services, or any part thereof, with the diligence necessary to maintain its progress and complete the scope of services as prescribed by the time schedule and shall fail to take such steps as reasonably directed by the LA to remedy such failure within thirty (30) days after written notice thereof from LA;
- d. If the ENGINEER shall violate any of the terms, provisions, conditions or covenants contained in this Agreement and shall fail to take such steps as reasonably directed by the LA to remedy such default within Thirty (30) days after written notice thereof from LA.

13. For greater certainty, the ENGINEER shall have no obligation to provide services where funds to pay compensation for such services are not available and/or approved, except as required pursuant to Section I.6.

14. Hardware purchased under this agreement will be invoiced to the LA with no mark up by ENGINEER.

Executed by the LA:

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

RECOMMENDED FOR EXECUTION

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

Executed by the ENGINEER:

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

INTRODUCTION

This agreement provides for engineering services to design and integrate upgrades to the Lake County PASSAGE Program

The work will be accomplished as detailed in the following 6 tasks.

TASK 1: PROGRAM AND PROJECT MANAGEMENT

TASK 2: ATMS ITS PASSAGE SYSTEM INTEGRATOR 2020 SYSTEM ENHANCEMENTS

TASK 3: NEW COMMUNICATIONS & FIELD ELEMENT DESIGN & INTEGRATION
SUPPORT

TASK 4: EXISTING SYSTEM MAINTENANCE FIELD

TASK 5: EXISTING SYSTEM MAINTENANCE CENTRAL

TASK 6: TRAFFIC SIGNAL OPERATIONS

Detailed task descriptions are provided in the following sub-sections

Notes:

- All project reports, documents, manuals, and training materials will be delivered in both electronic and hardcopy formats if requested. Lake County will be provided with up to 5 draft copies and 5 final copies of all key document deliverables unless otherwise noted or agreed by both parties.
- All work provided within this project will be performed on a cost-plus basis as project budget is available. All tasks will be coordinated closely with LCDOT.
- If, during the performance of a task, it appears that the task will not be completed by the initial due date, Parsons will notify LCDOT of all factors that contributed to the delay and reach an agreement on an approach and revised estimate to complete the task, or terminate the task. Any tasks that will not meet the due date and cannot be resolved at the working level will be escalated to the Parsons Regional VP and a direct call to the LCDOT PM will be made to help resolve promptly.
- The Services shall be performed with the care and skill ordinarily taken by engineers or other professionals engaged in the same services of a similar complexity in the same location as the Project.

TASK 1: PROGRAM AND PROJECT MANAGEMENT***PURPOSE:***

The purpose of this task is to help LCDOT coordinate the work and implementation of the Lake County PASSAGE program upgrades. These activities will help the project to maintain its schedule, stay within budget and ensure that all tasks are completed properly. The following outlines the anticipated work items included in this task.

INPUTS:

- Document set from the Lake County TMC Feasibility Study and Implementation Plan.
- Documents from Phase 1, 2, 3, 4, & ITS PASSAGE INTEGRATION 2016 design and deployments.
- Parsons Project Management Information System.

- Regular updates from all members of the project team concerning work completed and any outstanding issues.
- This Scope of work.
- Biweekly status meetings.
- Outputs from previous phase work.

ACTIVITIES:

- Maintain project schedule, budget and scope.
- Coordinate and manage day-to-day project activities with the Parsons Team and the client project team.
- Provide project invoices and status reports.
- Continuously monitor and track project schedules, budgets and critical path items. To the extent possible, anticipate potential problems so they can be addressed prior to causing unrecoverable damage to the project schedule, budget or scope.
- Work closely with the LCDOT project management team to resolve any identified issues.
- Work with LCDOT and IDOT to identify, prioritize and track potential system enhancements to be included in Task 2 or future phases of system development.
- Work with LCDOT and IDOT to promote the regional program and procure future system funding allocations.
- Work with LCDOT in coordinating project details with the local agencies including meeting preparation and attendance.
- Work with LCDOT to facilitate the development of interagency agreements as needed for the project.
- Support ongoing funding request efforts.

DELIVERABLES TO LAKE COUNTY:

- Monthly status reports on progress of the project with potential problems highlighted.
- Monthly invoices detailing work accomplished against anticipated progress.
- Bi-weekly agendas with the notes from the previous 2 months included for all relevant items.
- Build schedules and applicable schedule updates as well as cost reports with any problems explained and solutions proposed.
- Correspondence relevant to project.

ASSUMPTIONS

- The budget provided under this task is based on the anticipated schedule and a three year project life.
- The project management budget assumes the program proceeds in accordance with this Scope of Work. Significant deviations from this program plan may affect project management costs.
- Biweekly status meetings similar to what we have been doing with ITS PASSAGE SYSTEM INTEGRATION 2016.
- Travel Expenses shall be billed in accordance with Illinois State standards, as determined by the Department of Central Management Services. The up to date rates can be found at <http://www.illinois.gov/cms/employees/travel/pages/travelreimbursement.aspx> . Any travel from out of State must be discussed and coordinated with LCDOT prior to approval.

TASK 2: ATMS PHASE 6 SYSTEM ENHANCEMENTS*PURPOSE:*

The purpose of this task is to design, develop and integrate upgrades into the Lake County PASSAGE ATMS. LCDOT anticipates that they will identify additional modifications as they continue to use the ATMS. Under this Task, LCDOT will issue task orders for Parsons to review, design and deploy ATMS upgrades. Typically, system upgrades will be developed under two Task Orders. First LCDOT will issue a Task Order to review and provide a preliminary budget and design for a potential upgrade or upgrades. Under this Design Task Order Parsons will provide LCDOT with a write-up, and possibly a presentation for larger tasks, describing what would be required to make the requested changes, what it would cost and provide a potential schedule for deployment. Based on the results of the Design Task Order, LCDOT may choose to issue an Upgrade Task Order to develop and deploy the upgrade as outlined in the Design Task Order.

INPUTS:

- This Scope of Services
- Lake County ATMS Manuals
- Inputs from LCDOT and other stakeholders
- Results of Design Task Orders

ACTIVITIES TO BE COMPLETED BY PARSONS:

ATMS enhancement tasks will be managed and assigned as described in this document. In order to optimize LCDOT's return on their investment, many of these enhancements will be based on the reuse of software from other Parsons systems.

Each Task Order will include a clear definition of the work to be performed, clear and defined deliverables, expected completion date, estimated work hours, and a task budget. Task Orders that include the deployment of system upgrades may include a description of acceptance criteria for the upgrade. All Task Orders will be approved by the County Traffic Engineer or a LCDOT designee assigned in writing by the County Engineer or County Traffic Engineer.

Parsons will be compensated for work completed under this task in accordance with the terms of this contract. Parsons will not be authorized to exceed the budget or time limits defined in a Task Order without prior written approval from the County Traffic Engineer or his designee.

Upon the Request of LCDOT, Parsons will be authorized up to 8 hours to put together a Task Order. Parsons will not expend more than 8 hours developing a Task Order without prior approval from the County Traffic Engineer or his designee.

The following are some of the system modifications that will be looked at under this task:

- Development of a "Lite" version of ATMS accessible by Webapp
- Support for color and graphics on message signs
- Implementation of a security audit and vulnerability scanning

- Advanced signal control from the ATMS software, if needed due to central software API constraints
- Upgrade existing modules to utilize HTML5
- Video streaming server
- Implement Disaster Recovery Plan

DELIVERABLES TO LAKE COUNTY:

- Draft and final Task Orders in Word format with track changes as necessary.
- Deliverables as defined in individual Task Orders.
- Tested and deployed system upgrades as defined in Upgrade Task Orders.
- Acceptance criteria for system Upgrade Task Orders.
- System documentation upgrades as defined with each Upgrade Task Order.
- Training for system upgrades as defined in individual Task Orders.

ASSUMPTIONS:

- Upgrades will typically be designed and deployed in groups to improve build efficiency.
- Builds will be coordinated with LCDOT through the biweekly meeting process
- Software change control will be managed with an issue tracking system.

TASK 3: NEW COMMUNICATIONS & FIELD ELEMENT DESIGN & INTEGRATION SUPPORT*PURPOSE:*

Over the next three years LCDOT will continue to expand their ITS communications and field element infrastructure. The purpose of this task is to support this effort on an as needed basis. Under this task LCDOT will direct Parsons to provide these support tasks through calls, meetings, issue tracking system or via email notifications. LCDOT will communicate project instructions and information (intersection list, equipment list, proposed changes, and / or redlined schematics and fiber diagrams), as well as a due date for the required plans.

New communications and field equipment may be procured, setup and deployed under this task as requested by LCDOT. Field equipment purchases will be coordinated with, and approved by LCDOT, prior to submitting the purchase order.

INPUTS:

- Existing LCDOT network diagram
- Existing LCDOT network configurations
- Existing schematics
- Existing ITS field communications network
- Previously developed field element and communications plans
- Redlined schematics
- Redlined fiber drawings
- Project instructions

ACTIVITIES TO BE COMPLETED BY PARSONS:

This task includes support for ITS PASSAGE System Integrator 2020 field communications design, management, oversight and deployment as requested. Work will include support for communications upgrade planning, schematics and fiber diagram management and updates. This task also includes miscellaneous communications and wireless planning, design and deployment support as requested by LCDOT.

It is imperative that Parsons keep accurate records of equipment that has been designed and installed in the field. Lake County will notify Parsons that items have moved from a proposed state to being installed and operational. Parsons will be required to track the current state of the equipment in order to have a true picture of the system while designing future expansion projects.

DELIVERABLES TO LAKE COUNTY:

- Revised or updated schematics delivered every 6 months or as requested.
- Fiber splicing diagram updates
- Programming and deployment of field communications equipment as requested
- Communications planning documents as needed
- Other deliverables as requested by LCDOT to support the expansion of the ITS communications and field infrastructure.
- Wireless site survey (including possible subcontracts as necessary)

ASSUMPTIONS

- The setup, programming and debugging of switches and encoders to support other construction contracts will typically completed outside of this project.

TASK 4: EXISTING SYSTEM MAINTENANCE FIELD*PURPOSE:*

The PASSAGE System components will require maintenance and repairs for continued proper operation. This task allows for a structured approach to providing routine maintenance and on call troubleshooting and repair. Maintenance will be divided into two parts, field and central system maintenance (Task 5). Upon notification of a field issue or a JIRA ticket creation, Parsons will investigate the problem and either resolve the issue (if it can be fixed within the authorized 8 hours), submit a task proposal if more than 8 hours are needed (also known as a Problem Correction Plan), or advise LCDOT to assign the problem to the field Electrical Maintenance Contractor (if it is determined that the problem is related to a field device covered under their contract). In all scenarios, the process shall be tracked in JIRA to document what happened as well as the steps needed to fix it.

The Problem Correction Plans will describe the issue and what Parsons believes it will take to correct the problem, as well as provide an estimate on the number of hours expected. LCDOT will review Problem Correction Plans and may authorize Parsons to proceed with execution of the Correction Plan. Approval of the Correction Plans by LCDOT will authorize Parsons to spend up

to the estimated hours to resolve the problem. If additional issues are identified while attempting to correct the problem, Parsons will not exceed the estimated hours without prior written approval by LCDOT.

INPUTS:

- Input from system monitoring and evaluation tools.
- Email notifications and an issue tracking system ticket
- Problem Correction Plans.

ACTIVITIES TO BE COMPLETED BY PARSONS:

- Investigate Problem issues
- Resolve problems related to PASSAGE communications or field elements.
- Write up Problem Correction Plans for issues that cannot be resolved within the initial 8 hour investigation of a Problem Ticket
- Advise LCDOT when Problem Tickets should be assigned to the Electrical Maintenance Contractor for problems that appear to be related to field devices that are covered under the electrical maintenance contract
- Procure, program and install replacement equipment as needed and authorized by LCDOT
- May also procure additional spare components as requested and authorized by LCDOT

DELIVERABLES TO LAKE COUNTY:

- Field reviews and assessments
- Problem Resolution Reports
- Problem Correction Plans
- System problem resolutions
- Replacement parts procured under this task
- Annual Report of field maintenance expenditures
- Monthly inventory updates

ASSUMPTIONS:

- Parsons is only required to provide maintenance as budget is available. Nothing in this agreement is interpreted to be a guarantee that the budget allocated will be sufficient to cover all annual maintenance. However, the budget was based on our best expectation.
- As long as budget is available, Parsons will respond to field maintenance problems within 48 hours of written notification from authorized LCDOT staff. If Parsons does not respond within 48 hours, the LCOT project manager may notify the Parsons project manager.
- For high severity issues, Parsons will respond within 30 minutes during standard Lake County TMC business hours. At all other times, a response shall be provided by the following morning.
 - High severity shall be defined as greater than 10% of the network being down or at LCDOT's discretion.
- Response will follow this workflow:
 - Issue will be submitted into the issue tracking system by LCDOT , by Parsons at the request of LCDOT or if the issue is identified by Parsons. If the issue is of

- high severity, a direct phone call to the Parsons team using the predefined on-call phone tree may accompany.
- Parsons will attempt to diagnose and resolve the problem remotely.
- If the problem is not able to be resolved remotely, Parsons will respond to the created issue ticket requesting authorization to begin field work.
- Once authorization is received, Parsons will begin field work to diagnose and fix the issue.
- For clarity, response will not necessarily mean the problem is solved. However, if Parsons cannot solve the problem at the first response, they will provide LCDOT with an assessment of the issue and an action plan, or suggestion, to resolve it. Any communication with outside vendors shall include or be shared with LCDOT.

TASK 5: EXISTING SYSTEM MAINTENANCE CENTRAL

PURPOSE:

The PASSAGE System components will require maintenance and repairs for continued proper operation. This task allows for a structured approach to providing routine maintenance and on call troubleshooting and repair. Maintenance will be divided into two parts, field (Task 4) and central system maintenance. Parsons will provide routine maintenance for the central ATMS and ITS communications system in accordance with the outline below. Maintenance shall also includes maintenance and software/firmware upgrades to switches, servers, firewall, website, and the JIRA tracking system located at the TMC, Waukegan server room, or in the cloud. When system problems or failures occur, the agency who discovers the issue will notify the other via an issue tracking system, currently Jira. Upon receipt of a notification, Parsons will investigate the problem and either resolve the issue (if it can be fixed within the authorized 8 hours) or submit a task proposal if more than 8hrs are needed (also known as a Problem Correction Plan).

The Problem Correction Plans will describe the issue and what Parsons believes it will take to correct the problem, as well as provide an estimate on the number of hours expected. LCDOT will review Problem Correction Plans and may authorize Parsons to proceed with execution of the Correction Plan. Approval of the Correction Plans by LCDOT will authorize Parsons to spend up to the estimated hours to resolve the problem. If additional issues are identified while attempting to correct the problem, Parsons will not exceed the estimated hours without prior written approval by LCDOT.

Issues relating to ATMS functionality may be referred to the project management team for resolution and distribution with a future build.

INPUTS:

- Installed and integrated system.
- Input from system monitoring and evaluation tools.
- Email notifications and an issue tracking system ticket
- Problem Correction Plans.

ACTIVITIES TO BE COMPLETED BY PARSONS:

- Monthly system maintenance and status checks
 - Review operating system and ATMS logs looking for record errors
 - Check process status to verify all ATMS processes are running properly
 - Check disk storage reserves for process and databases
 - Monitor ATMS security and user rights
 - Review switch maintenance logs
 - Investigate system anomalies identified during monthly reviews
 - Resolve anomalies identified during monthly review or create a Problem Ticket
- Quarterly system maintenance
 - Run diagnostic and restart application
 - Consider applying OS patches and applications as needed and coordinated with LCDOT
- Investigate Problem issues
- Resolve problems related to the ATMS
- Write up Problem Correction Plans for issues that cannot be resolved within the initial 8 hour investigation of a Problem Ticket

DELIVERABLES TO LAKE COUNTY:

- Problem Resolution Reports
- Problem Correction Plans
- System problem resolutions

ASSUMPTIONS:

- Parsons will not be required to expend any time above and beyond those specifically authorized by LCDOT to resolve system problems.
- Parsons is only required to provide maintenance as budget is available. Nothing in this agreement is interpreted to be a guarantee that the budget allocated will be sufficient to cover all annual maintenance. However, the budget was based on our best expectation.
- As long as budget is available, Parsons will respond to central maintenance problems within 48 hours of written notification from authorized LCDOT staff. If Parsons does not respond within 48 hours, the LCOT project manager may notify the Parsons project manager.
- For high severity issues, Parsons will respond within 30 minutes during standard Lake County TMC business hours. At all other times, a response shall be provided by the following morning.
 - High Severity level issues shall include system failure that causes an inability for operations to continue.
- Response will follow this workflow:
 - Issue will be submitted into the issue tracking system by LCDOT, by Parsons at the request of LCDOT or if the issue is identified by Parsons. If the issue is of high severity level, a direct phone call to the Parsons team using the predefined on-call phone tree may accompany.
 - Parsons will attempt to diagnose and resolve the problem remotely.
 - If the problem is not able to be resolved remotely, Parsons will respond to the created issue ticket requesting authorization to begin work.
 - Once authorization is received, Parsons will begin work to diagnose and fix the issue.
- For clarity, response will not necessarily mean the problem is solved. However, if Parsons cannot solve the problem at the first response, they will provide LCDOT with an assessment

of the issue and an action plan, or suggestion, to resolve it. Any communication with outside vendors shall include or be shared with LCDOT.

TASK 6: TRAFFIC SIGNAL OPERATIONS

In addition, Parsons is able to perform any additional SCAT type work as requested.

Sub Task 6A - Lake County Traffic Responsive programming for IDOT Systems in Centrac

The purpose of this sub task is to help LCDOT & IDOT develop and monitor Traffic Responsive System plans (TRP) for the signal system sections running under the traffic signal software - Centrac. The scope will provide for the development and fine-tuning of the plans to ensure satisfactory operation. For existing systems, a weekly report outlining the performance shall be created and emailed. This report shall define what systems are running TRP and any plans to change TRP operations.

Inputs:

- Existing system detector locations and numbers
- Current time-of-day plan for starting point of traffic responsive operation

Activities to be completed by Parsons:

The following describes activities related to this task:

Verify System detectors, graph daily plots and select Level thresholds

The purpose of this is to ensure that there are adequate system detectors available for traffic responsive operation, to verify proper volume data and to graph the data and select the various Cycle and Offset levels to select the proper timing plans.

Key activities include:

- Accessing the detector locations in the traffic signal software
- Reviewing the detector volumes to determine proper vehicle counting
- Plot each satisfactory detector to be used in the Pattern Matrix
- Selecting appropriate values from the plots for the AM, MD, PM and Free profiles

Enter all Level profile values

Parsons will input all of the parameters to build each TRP plan. Using the values derived above, all of the level thresholds will be developed. To maintain consistency Level 1 will choose Plan 1 or the Midday plan, Level 2 will choose Plan 2 or the AM plan, Level 3 will choose Plan 3 or the PM plan. For signal systems assigned to Parsons for Traffic Responsive System Plans (TRP) that involve Eagle controllers, Parsons will work with the IDOT Standards for timing plan numbering of Eagle signal systems.

Key activities include:

- Q/A assurance checking of all parameters entered by the engineer and making sure only the test controller will be affected by the enabling of the TRP plan until the plan is ready to be live implemented.

Enable the TRP plan into Centrac and monitor operations

Each TRP plan developed will be enabled in Centrac before actually running the plan in the field.

Key activities include:

- Enable the developed TRP plan and enable in Centrac but not in the field.
- Adjust parameters as needed and collect new traffic graphs to make adjustments to Level thresholds and other parameters.
- Evaluate the Pattern selection as compared to the expected time-of-day pattern changes.
- Check weekend pattern changes

Enable TRP plan to Live Control Section and Monitor

At the completion of the previous task, the developed TRP plan should be operating satisfactorily. However, since it has not been used on live controllers, a subsequent monitoring period will be conducted to ensure proper operations once the plan has been enabled.

Key activities include:

- Enable the TRP plan and monitor for a minimum two week period.
- Make adjustments as necessary to ensure proper operations.

Monitor and report TRP on a regular basis

Parsons will continue to monitor and report on the TRP functions on a regular basis. This includes creating tables showing the times each system switches between plans. Any irregularities will be noted and adjustments made as needed.

Deliverables to Lake County:

Traffic responsive plan for each section or group of signals as defined by Lake County, IDOT and Parsons.

Assumptions

The following assumptions were made for the scope of work to be carried out:

- The cost is developed on a per section basis or per TRP plan developed.
- Each TRP plan will include roughly 20 or less system detectors.
- No complex TRP plans are included in this scope. The TRP plan will include a simple 4 plan (AM, MIDDAY, PM and FREE) operation.

- All system detectors are set up and functioning correctly. Parsons will provide verification of the detectors and report to Lake County any problems for resolution.