BE IT RESOLVED, by the Council of the City of DeKalb, Illinois, that the following described street(s) be improved under the Illinois Highway Code:

<table>
<thead>
<tr>
<th>Name of Thoroughfare</th>
<th>Route</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinated Traffic Signal</td>
<td>Various</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade</td>
<td></td>
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</tr>
</tbody>
</table>

BE IT FURTHER RESOLVED,
1. That the proposed improvement shall consist of Preliminary design engineering (Ph I & II) for the upgrading of the existing City of DeKalb Central Traffic Signal Coordination System that operates 60 signal locations, a STU project.

and shall be constructed N/A wide and be designated as Section 11-00180-00-TL

2. That there is hereby appropriated the (additional □ Yes □ No) sum of One Hundred and Twenty Thousands Dollars ($120,000.00) for the improvement of said section from the municipality’s allotment of Motor Fuel Tax funds.

3. That work shall be done by Consultant Specify Contract or Day Labor; and,

BE IT FURTHER RESOLVED, that the Clerk is hereby directed to transmit two certified copies of this resolution to the district office of the Department of Transportation.

Approved

City of DeKalb
City, Town or Village
County of DeKalb

I, Jennifer Jeep Johnson, Clerk in and for the

Date

Department of Transportation
Regional Engineer

IN TESTIMONY WHEREOF, I have hereunto set my hand and seal this

Date

City, Town, or Village Clerk

Printed 1/27/2016
BLR 09111 (Rev. 11/06)
February 8, 2016

Ms. Jennifer Jeep Johnson
DeKalb City Clerk
200 South Fourth Street
DeKalb, IL 60115

MFT
City of DeKalb
Section No. 11-00180-00-TL

Dear Ms. Johnson:

The resolution adopted by the Council of the City of DeKalb on January 25, 2016 appropriating $120,000.00 of Motor Fuel Tax funds for this section was approved on February 8, 2016.

This resolution provides for the Preliminary design engineering (Phase I & II) for the upgrading of the existing City of DeKalb Central Traffic Coordination System that operates 60 signal locations throughout the city.

*NOTE: Approval of this resolution does not authorize expenditure of MFT funds. Proper documentation must be received by our office prior to paying any bills out of the MFT account.

If you have any further questions, please feel free to contact Steve Chery at (815) 434-8514.

Sincerely,

Paul A. Loete, P.E.
Deputy Director of Highways,
Region Two Engineer

By: Donald R. Ernat, P.E.
Local Roads and Streets Engineer

cc: Christopher B. Burke Engineering, Ltd.
    Michael Bauling, City of DeKalb Project Implementation Engineer
    Compliance Review

SC:dx/Resolution-Supplemental Approval-City_DeKalb_11-00180-00-TL
THIS AGREEMENT is made and entered into the 25th day of January, 2016 between the above Local Agency (LA) and Consultant (ENGINEER) and covers certain professional engineering services in connection with the improvement of the above SECTION. Motor Fuel Tax Funds, allotted to the LA by the State of Illinois under the general supervision of the State Department of Transportation, hereinafter called the "DEPARTMENT", will be used entirely or in part to finance ENGINEERING services as described under AGREEMENT PROVISIONS.

Section Description

Name: Coordinated Traffic Signal System Upgrade

Route: Various
Length: N/A
Mi.: N/A
FT: (Structure No.: N/A)

Termini: N/A

Description:
This project is to review the existing traffic signal system infrastructure, provide recommendations, and design the necessary upgrades to replace and expand the outdated centralized control system not supported by a vendor.

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
(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.

(7) All other services described in Exhibit B (Scope of Services).
The LA Agrees,

1. To furnish the ENGINEER all presently available survey data and information.
2. To pay the ENGINEER as compensation for all services rendered in accordance with this AGREEMENT, on the basis of the following compensation formulas per Exhibit A.

   Cost Plus Fixed Fee
   - CPFF = 14.5%[(DL + R(DL) + OH(DL) + IHDC), or
   - CPFF = 14.5%[(DL + R(DL) + 1.4(DL) + IHDC), or
   - CPFF = 14.5%[(2.3 + R)DL + IHDC]

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

   Specific Rate
   - Pay per element

   Lump Sum

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
     a) **For the first 50% of completed work**, and 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.
     b) **After 50% of the work is completed**, and upon receipt of monthly invoices from the ENGINEER and the approval thereof by the LA, monthly payments covering work performed shall be due and payable to the ENGINEER, such payments to be equal to 95% of the value of the partially completed work minus all previous partial payments made to the ENGINEER.
     c) **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.
   - Without Retainage
     a) **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.
     b) **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.

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 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:

ATTEST:
By ____________________________
Jennifer Johnson, Clerk

Seal of the City of DeKalb

Executed by the ENGINEER:

ATTEST:
By ____________________________

Title Vice President

Approved

2/16/16

Department of Transportation

Paul A. Lethe
Regional Engineer

City of DeKalb
(Municipality/Township/County)

State of Illinois, acting by and through its

City Council

By ____________________________
Title Mayor

Christopher B. Burke Engineering, Ltd.

By ____________________________
Title President
## EXHIBIT A-1

### COST ESTIMATE OF CONSULTANT SERVICES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>MANHOURS</th>
<th>PAYROLL</th>
<th>OVERHEAD &amp; FRINGE BENEFIT</th>
<th>IN-HOUSE DIRECT COSTS</th>
<th>FIXED FEE</th>
<th>OUTSIDE DIRECT COSTS</th>
<th>SERVICES BY OTHERS</th>
<th>TOTAL</th>
<th>% OF GRAND TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Meetings &amp; Coordination</td>
<td>76</td>
<td>$3,631.60</td>
<td>$4,548.94</td>
<td>$1,110.00</td>
<td>$1,347.13</td>
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<td>$1,589.35</td>
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<td>$365.82</td>
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<td>$2,888.73</td>
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</tbody>
</table>

**TOTALS**

| | 1094 | $41,048.88 | $51,147.83 | $3,850.00 | $13,965.92 | $3,600.00 | $6,078.00 | $119,960.63 | 100.00% |
# EXHIBIT A-2
## AVERAGE HOURLY RATES

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<tr>
<th>PAYROLL CLASSIFICATION</th>
<th>HOURLY RATE</th>
<th>MEETINGS &amp; COORDINATION</th>
<th>FIELD RECONNAISSANCE &amp; DATA COLLECTION</th>
<th>PROJECT DEVELOPMENT</th>
<th>SYSTEMS ENGINEERING</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HOURS</td>
<td>% PART</td>
<td>WGT&amp;D RATE</td>
<td>HOURS</td>
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</table>

**TOTALS**

|                        | 76 | 100.0% | $47.78 | 34 | 100.0% | $37.32 | 39 | 100.0% | $43.65 | 73 | 100.0% | $35.46 |
### EXHIBIT A-2
#### AVERAGE HOURLY RATES

<table>
<thead>
<tr>
<th>PAYROLL CLASSIFICATION</th>
<th>HOURLY RATE</th>
<th>Phase I Engineering</th>
<th>RFQ/RFP Assistance (CTMS)</th>
<th>Design Engineering (PS&amp;E)</th>
<th>Management &amp; Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineer VI</td>
<td>$70.00</td>
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<tr>
<td>Engineer V</td>
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<tr>
<td>Engineer IV</td>
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<tr>
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<tr>
<td>Asst CAD Manager</td>
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<tr>
<td><strong>TOTALS</strong></td>
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<td>722 87.4% $37.72</td>
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</tbody>
</table>

DATE: 01/14/2016
### EXHIBIT A-3

**DETAILED SUMMARY OF DIRECT COSTS**

**CONSULTANT:** Christopher B. Burke Engineering, Ltd.
**ROUTE:** Various
**PROJECT:**
**SECTION:** 11-00186-00-TL
**COUNTY:** DeKalb
**JOB NO.:**

#### INHOUSE DIRECT COSTS

**TRAVEL**

<table>
<thead>
<tr>
<th># of trips</th>
<th># of miles/trip</th>
<th>Mileage Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>70</td>
<td>$0.575</td>
<td>$1,610.00</td>
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- OR -

<table>
<thead>
<tr>
<th># of days</th>
<th>Mileage Rate/day</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>$6.00</td>
<td>$240.00</td>
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#### INSIDE DIRECT COSTS

**PRINTING**

- **Bond:**
  
  6 x 120 x $2.00

  $1,440.00

  $2,000.00

- **Mylars:**
  
  2 x 2 x $60.00

  $240.00

- **Reports:**
  
  4 x 80 x $1.00

  $320.00

#### OUTSIDE DIRECT COSTS

- **Technical Consultation/Vendor Survey:**

  $3,600.00
## EXHIBIT A-4

**Cost Estimate of Consultant Services (CPFF)**

**Firm:** Huff & Huff, Inc.  
**Route:** DeKalb Project  
**Section:** Barber Greene, Bethany, Annie Glidden, 1st/Pine  
**County:** DeKalb  
**Job No.:**  
**PTB & Item:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Manhours</th>
<th>Payroll</th>
<th>Overhead &amp; Fringe Benefits</th>
<th>In-House Direct Costs</th>
<th>Fixed Fee</th>
<th>Outside Direct Costs</th>
<th>Services By Others</th>
<th>Total</th>
<th>% of Grand Total</th>
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</thead>
<tbody>
<tr>
<td>PESA</td>
<td>47</td>
<td>1,563.92</td>
<td>2,316.00</td>
<td>84.45</td>
<td>574.83</td>
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| **TOTALS**       | 53       | 1,845.12 | 2,732.44                    | 84.45                 | 675.99    | 740.00               | 0.00              | 6,078.00 | 100.00%          |

Method of Compensation:
- X 14.5%[DL + R(DL) + OH(DL) + IHDC]
- □ 14.5%[DL + R(DL) + 1.4(DL) + IHDC]
- □ 14.5%[(2.3 + R)DL + IHDC]
- □ Specific Rate
- □ Lump Sum

PRINTED 1/14/2016, 11:29 AM  
Page 3
## Average Hourly Project Rates

**EXHIBIT A-5**

<table>
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<tr>
<th>Payroll Classification</th>
<th>Avg Hourly Rates</th>
<th>Total Project Rates</th>
<th>PESA</th>
<th>Project Management</th>
<th>QA/QC</th>
<th><strong>Totals</strong></th>
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<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>% Part.</td>
<td>Wgted Avg</td>
<td>Hours</td>
<td>% Part.</td>
<td>Wgted Avg</td>
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<td>Principal</td>
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<tr>
<td></td>
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<td>0.00</td>
<td>0</td>
<td>0%</td>
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<td><strong>TOTALS</strong></td>
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Date: 1/14/2016

Sheet 1 of 1
## SUMMARY OF INHOUSE DIRECT COSTS

**Project: CBBEL DeKalb PESA**

### Task 1 - PESA

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Rate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Tolls</td>
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<td>Photo sheets</td>
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<td>$1.65</td>
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**Task Total**: $84.85

### Task 2 - Project Management

**Task Total**: -

### Task 3 - QA/QC

**Task Total**: -

---

**GRAND TOTAL**: $84.85

_F:Proposals\Proposal-FY2016\CBBEL\DeKalb\61_PT00150.16 CBBEL DeKalb PESA IDOT Direct Cost Template CPFF.xls_
## HUFF & HUFF, INC.
### SUMMARY OF OUTSIDE DIRECT COSTS
**Project: CBBEL DeKalb PESA**

<table>
<thead>
<tr>
<th>Task 1 - PESA</th>
<th>OUTSIDE</th>
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<tr>
<td>Maps/Aerials</td>
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<th>Task 2 - Project Management</th>
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<tbody>
<tr>
<td><strong>Task Total</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Task 3 - QA/QC</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Task Total</strong></td>
<td>$ -</td>
</tr>
</tbody>
</table>

**GRAND TOTAL** $740.00
EXHIBIT B

SCOPE OF SERVICES

The City of DeKalb would like to upgrade the Traffic Signal Coordination System that operates 60 interconnected signal locations throughout the DeKalb Sycamore Area Transportation Study (DSATS) planning area. This project has been identified by the City of DeKalb and DSATS as a project that would have regional benefits. This system is based upon a combination of Multisonics and Eagle controller software. Therefore as part of this project the City would also like to include in the evaluation of the existing system which includes the City’s traffic signal infrastructure, but also such infrastructure maintained by the County of DeKalb and the City of Sycamore onto centralized control system to address the regional transportation issues.

This project is to evaluate the current inventory and provide recommendations as to the hardware upgrades necessary to improve the current system and position the system for future expansion. The recommendations will be communicated to city staff and together, the City and Christopher B. Burke Engineering, Ltd. (CBBEL) will identify the optimal course of action. Items to be considered include the necessary equipment upgrades required to replace the existing controllers, which cable or wireless communication medium is best suited for the system to transmit and receive the required controller data, the benefits of an upgrade to Ethernet based communications, the implementation of a central management system and phased implementation program.

This City is using $960,000.00 in federal Surface Transportation Urban funds leveraged with a local match of $240,000.00 in State Motor Fuel Tax for a project total of $1,200,000.00. Therefore the coordination with the Illinois Department of Transportation (IDOT) and the Federal Highway Authority (FHWA) will be required.

This project shall include the preparation of all documents and deliverables necessary to fulfill the IDOT Phase I and II requirements including, field surveys, special waste assessments/environmental survey requests, plans, specifications and estimates for the proposed improvements. The project plans and specifications will be prepared in accordance with IDOT federal aid requirements for IDOT letting.
EXHIBIT B

SCOPE OF SERVICES

SECTION I – BASIC SCOPE OF SERVICES

Task 1 – Meetings and Coordination:

CBBEL will provide consultation and attend Kick Off, project development and coordination meetings to facilitate the project planning and design for the Coordinated Traffic Signal System Upgrade project.

Task 1.1 – Meetings with IDOT and Federal Highway Administration (FHWA): CBBEL staff anticipates attending up to 2 meetings with IDOT (Region 2/District 3) Bureaus of Local Road and Streets (BLRS), Traffic and FHWA representatives on behalf of the City.

Task 1.2 – Meetings with DeKalb Engineering Staff: CBBEL staff will work closely with City engineering staff throughout the planning and design process and anticipates attending up to 2 meetings for this task.

Task 1.3 – Meetings with other Project Stakeholders: CBBEL staff anticipates attending 1 meeting with the City of DeKalb and other project stakeholders, which may include representatives from City of Sycamore, DeKalb County, Kishwaukee Community Hospital, Northern Illinois University and IDOT District 3 Traffic Operations regarding the systems engineering requirements and to coordinate improvements at any stakeholder owned/maintained traffic signal installation(s) included within the project limits.

Task 2 - Field Reconnaissance & Data Collection:

This task involves field surveys and observations, the collection and review of relevant information, and data collection to obtain an accurate and comprehensive record of the existing traffic signal inventory and system functionality.

Task 2.1 - Field Reconnaissance and Equipment Inventories: A field reconnaissance of the project limits will be conducted to determine the physical and operating characteristics of the traffic signals. A detailed inventory of the existing traffic signal/traffic signal system infrastructure including controller cabinets, controller; communication/interconnect equipment and infrastructure will also be performed.

Task 2.2 - Collection and Review of Existing Data and Information: The following information related to the City’s traffic signal infrastructure will be collected from the City, County, IDOT or other agencies and reviewed to assist in the development of the upgrade recommendations and design plans:

1. Existing traffic signal and interconnect plans
2. Existing traffic signal operation information
3. Aerial photography
EXHIBIT B

SCOPE OF SERVICES

4. County or City GIS data

Task 3 – Project Development:

Based on the data collected in Task 2, CBBEL will identify the recommended upgrades and equipment required to implement the propose a strategy to achieve a functional coordinated traffic signal system that will serve the needs of motorists traveling within the region. This will include engaging vendors with their equipment and evaluating the effectiveness to determine the solution that best fits the needs of the City of DeKalb. This strategy should consider the future needs of the City in the sense that the system may need to expand in the future. To this end the system should be considered an initial phase of a long term project, thus the proposed strategy should consider flexibility and compatibility to accommodate future expansion. Other considerations or potential upgrades may include the replacement of the Centralized Traffic Management System (CTMS), the communications equipment, and communication medium (fiber optic or copper) and their associated advantages and disadvantages. The proposed strategy shall be reviewed with City Staff and options shall be presented that will allow the City to utilize the budgeted expenditures in the most cost effective manner which may mean phasing the project. Also, included in this task will be recommendations and estimated costs for future maintenance of the system, which will be outlined in a memorandum. CBBEL staff will work closely with City engineering staff throughout the planning and project development process and anticipates attending up to 1 meetings for this task.

Task 4 – Systems Engineering:

In the event a new CTMS is recommended for inclusion in this project as part of Task 3, a Systems Engineering process will be required per the FHWA. If necessary, this task will include the development based on the current regional Intelligent Transportation Systems (ITS) architecture and submittal of proposed system engineering materials to and in coordination with the FHWA for their approval of the system engineering proposed for this project.

Task 5 – Phase I Engineering:

It is anticipated the Phase I study for this project will consist of a Categorical Exclusion Group I (CE I) with no Project Development Report (PDR). CBBEL will prepare the necessary BLR 19100 form with necessary attachments for submission to IDOT BLRS for District Approval (DA).

Task 5.1 – BLR 19100 Submittal: CBBEL will prepare the necessary BLR 19100 form with necessary attachments as specified by IDOT BLRS staff at the initial Kick Off meeting, which may include:

- Project Location Map
- Existing Typical Sections
- Special Waste Memorandum
EXHIBIT B

SCOPE OF SERVICES

- Coordination Meeting Minutes
- Cultural Screening Memorandum

Task 5.2 – Preliminary Environmental Survey Assessment (PESA): If a Preliminary Environmental Survey Assessment (PESA) is required by IDOT policy for this project, CBBEL will utilize the services of Huff & Huff, Inc. to perform the PESA within the proposed project limits in non-State right of way in accordance with the following policies and standards:

a) A Manual for Conducting Preliminary Environmental Site Assessments for Illinois Department of Transportation (IDOT) Highway Projects (Erdmann et al., 2012)

b) ASTM International (ASTM) standard 1527-13

c) The IDOT's Bureau of Design and Environment (BDE) Procedure Memorandum Number 10-07, Special Waste Procedures. This memo was incorporated into Chapter 27-3 of the IDOT BDE Manual in June 2012.


e) Public Act 96-1416


Task 5.2 will be comprised of the following sub-tasks:

Task 5.2.1 - Historical Research: The site's historical land use/ownership record will be developed from standard historical sources. Sanborn Fire Insurance Maps and historic aerials will 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.

Task 5.2.2 - 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 evaluated in accordance with ASTM protocols.

Task 5.2.3 - 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, Consultant will search each database
EXHIBIT B

SCOPE OF SERVICES

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.

**TASK 5.2.4 - Report Preparation:** One report summarizing the results of the evaluation will be prepared. The following information will be included in this report:

a) The project location and description

b) Historical uses of corridor

c) The area geology and hydrology

d) 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

e) An analysis of the site inspection

f) A summary of the findings regarding any environmental concerns. This will include IDOT's per Memo 66-10 and identification of Potentially Impacted Properties (PIPs) per Subpart F, Section 1100, 35 IAC, related to Clean Construction Demolition Debris management.

**Task 6 - RFO/RFP Assistance (CTMS):** If necessary, CBBEL will provide consultation services related to the City’s CTMS selection process. It is anticipated that this task will include the review of draft RFQ/RFPs, technical specifications and vendor submittals, and the preparation of technical memoranda to support the City’s evaluation procedures. CBBEL staff will attend up to 1 meeting for this task.

**Task 7 - Design Engineering - Plans, Specifications and Estimates (PS&E):**

The traffic signal system modification plans will be prepared for the selected alternative based upon the information collected in Task 2. All traffic signal system modification plans will be based upon existing plan information provided by the City. No topographic survey will be performed as part of this project unless required by IDOT or FHWA or determined by the engineer to be necessary to complete the project. The City will work to provide the CBBEL with all relevant and available topographic information.

**Task 7.1 - Base Sheet Preparation:** Prepare base sheets at a reasonable scale acceptable to IDOT and the FHWA for the traffic signal system modification plans using the existing traffic signal plan information to be provided by the City of DeKalb.

**Task 7.2 - Traffic Signal System Modification Plans:** CBBEL will prepare the traffic signal modification plans using the base sheet information from Task 7.1. The traffic signal system modifications plans shall be developed based on current City and IDOT standards and to
EXHIBIT B

SCOPE OF SERVICES

effectively implement the solution to the City’s needs as determined in Task 3. Some items addressed in the plan set may include the below items:

1. Proposed Traffic Signal Modifications
2. Cable Plan
3. Interconnect Plan and or Schematic
4. Schedule of Quantities for cable, cabinets, and controllers
5. Phase Designation Diagrams
6. Detector Details
7. Communication Network Schematic
8. Fiber Termination/Splicing & Cabinet Detail
9. General Notes
10. Necessary information to satisfy the requirements of IDOT and FHWA

Task 7.3 - Specifications: CBBEL will prepare specifications as to supplement the plans and meet the required City standards and the proposed upgrades for the designed project. It is anticipated that the vendor or vendors will be selected in a process by which CBBEL and City staff identify the materials and equipment desired. The specifications will then be designed to incorporate these materials so contractors are aware of the materials they will be bidding and utilizing to complete the project.

Task 7.4 - Permits

CBBEL will identify all permits that must be secured to implement the design in accordance with the regulations of the governing agencies. Once the agencies have been identified the necessary documentation shall be prepared satisfying the requirements established by the agency.

Task 8 – Management and Administration:

This task includes overall project administration and management, as well as Quality Assurance (QA) reviews associated with major project deliverables, over the duration of the Phase I project development and Phase II design processes, which are anticipated to be a total of 10 months. Project administration managing the day to day work effort on the project to ensure an efficient project development process including work force allocations, budget oversight, monthly progress reviews to ensure project milestones are being met to the extent possible, and periodic progress coordination meetings. QA reviews will occur in advance of major project deliverables in accordance with CBBEL’s established QA procedures.
SECTION II - SUPPLEMENTAL SERVICES

Normal and customary engineering services do not include service in respect to the following categories of work which are usually referred to as SUPPLEMENTAL SERVICES. If Client shall so advise Engineer and Engineer shall perform or obtain from others such services, Engineer will be paid on an hourly basis or based on subsequent proposal/contract agreements, at the option of Client. Additional Supplemental services for the project include, but are not limited to the following:

- Services due to major changes in general scope of the project.

- Increase in scope of work related to the performance of Preliminary Environmental Survey Assessments (PESA) due to any addition to the locations referenced in Task 5.2 of Section I of this attachment.

- Revising studies, reports, and design documents which have been previously approved by the City, County, IDOT, or other governmental agencies.

- Providing for full or part-time construction observation. Construction inspection, supervision, direction or surveillance of the work of the Contractor(s), his employees or agents, will not be provided and we shall not be liable for the results of any such interpretations or decisions rendered in good faith. The Contractor(s) will be informed by the Client that neither the presence of our field staff nor the observation and testing by our firm shall excuse him in any way for defects discovered in the work. We understand that full-time inspection and testing services will be provided by others. It should be understood that we will not be responsible for job and site safety on this project; job and site safety shall be the sole responsibility of the Contractor(s).

- Providing engineering design and construction services for unusual or unanticipated improvements, and for additional off-site improvements requested by the Client, municipality, other governmental agencies, or necessary to the project development beyond that being included under BASIC SERVICES herein.

- Attendance at and preparation of exhibits for Plan Commission and Board meeting and hearings not included under BASIC SERVICES. We cannot accurately estimate the time and cost of this due to the nature of these meetings and of municipal reviews.

- Giving testimony as an expert witness for the Client in litigation or other court proceedings involving this project.

- Environmental Assessment and Wetland Mitigation plans or preparation of permit
EXHIBIT B

SCOPE OF SERVICES

application and documents.

- Hydraulic channel analysis, structural design, lift station design.
- Preparation of any plats or documents not explicitly identified under BASIC SERVICES.
- Construction, soils or materials testing.
- Site Planning or landscape design.
- Conducting additional traffic counts not explicitly identified under Basic Services. This includes supplemental counts after the system has been optimized.
- Modifying previously approved reports.
February 8, 2016

Ms. Jennifer Jeep Johnson
DeKalb City Clerk
200 South Fourth Street
DeKalb, IL 60115

MFT
City of DeKalb
Section No. 11-00180-00-TL
Engineering Agreement

Dear Ms. Johnson:

The agreement dated January 25, 2016 between the City of DeKalb and Christopher B. Burke Engineering, Ltd. for engineering services to be performed in connection with this section was approved by the Department on February 8, 2016.

The costs for engineering services are permitted for Motor Fuel Tax funds and will be authorized upon receipt of a Request for Expenditure/Authorization of Motor Fuel Tax Funds (BLR 09150).

The city’s file copy of the agreement is attached.

Sincerely,

Paul A. Loete, P.E.
Deputy Director of Highways,
Region Two Engineer

By: Donald R. Ernat, P.E.
Local Roads and Streets Engineer

Enclosure

cc: Christopher B. Burke Engineering, Ltd.
Michael Bauling, City of DeKalb Project Implementation Engineer Compliance Review
REQUEST FOR PROPOSAL
COORDINATED TRAFFIC SIGNAL UPGRADE

SUBMITTED TO
JOHN LASKOWSKI
CITY OF DEKALB
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SUBMITTED BY
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November 30, 2015

City of DeKalb
200 South Fourth Street
DeKalb, IL 60115

Attention: John Laskowski, Interim Public Works Director/City Engineer

Subject: Coordinated Traffic Signal Upgrade

Dear Mr. Laskowski:

Christopher B. Burke Engineering, Ltd. (CBBEL) is pleased to submit this proposal to provide design engineering and construction services for the Coordinated Traffic Signal Upgrade project.

Our project team will be led by Mr. G. Michael Ziegler, PE, PTOE. Mr. Ziegler has served as Project Manager for several transportation projects. Under Mr. Ziegler’s direction, CBBEL staff has worked on recent ATMS projects with Lake and Cook Counties, and has prepared intersection improvement and interconnect plans for the first two Adaptive Traffic Control systems in Lake County. CBBEL staff members are also knowledgeable with NTCIP and Ethernet-based signal systems and the FHWA’s required Systems Engineering process, having been involved with similar projects with the Village of Rosemont, and Kane, Cook, and Lake Counties.

We trust that the enclosed material demonstrates our understanding of the project and our expertise to perform this assignment. The CBBEL project team looks forward to working with the City and is committed to completing the work to your satisfaction.

If you have any questions please do not hesitate to contact me or Mike Ziegler. We look forward to continuing our relationship with the City of DeKalb.

Sincerely,

Christopher B. Burke, PhD, PE, D.WRE, Dist.M.ASCE
President
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CBBEL is unique among consulting engineering and surveying firms in that we are a full-service company that can comprehensively meet the needs of both private and public sector clients. Guided by founder and President Christopher B. Burke, our “family business” corporate philosophy allows for a level of personal service that provides peace of mind. Our Illinois based staff of 197 and expansive list of specializations—civil, municipal, transportation, water resource, mechanical, structural, construction, traffic, environmental engineering and environmental resource services—provide professionalism and a depth of expertise that promote project success.
RESOURCES

Having received his doctoral degree in civil engineering from Purdue University, CBBEL President Christopher B. Burke embraces education and encourages continued learning among his employees. Our staff includes four PhDs, 79 licensed professional engineers, and a team of licensed professional land surveyors, a licensed structural engineer, a licensed landscape architect. Additionally, 3 are LEED accredited professionals, 3 are professional traffic operations engineers (PTOE), and 4 have received the designation of Diplomate Water Resource Engineer (D.WRE). Twenty-four staff are certified floodplain managers (CFM) and 18 are certified professionals in erosion and sediment control (CPESC).

Through leadership positions and active membership in a variety of professional associations and University involvement, CBBEL is able to deliver cutting-edge technology and techniques as they emerge. The outcome is a context-sensitive approach that rejects out-dated cookie-cutter remedies and instead provides the best solution for your needs. Staff take part in national and local organizations including the American Society of Civil Engineers (ASCE), the American Council of Engineering Companies, the American Public Works Association, the Illinois Association of Environmental Professionals, the Illinois Association for Floodplain and Stormwater Management, the Society of American Military Engineers, the American Academy of Water Resource Engineers, Chicago Wilderness Corporate Council, the Society of Ecological Restoration, Western Society of Engineers, the Society of Wetland Scientists, the Irish Engineers and Contractors, and the Illinois Road and Transportation Builders Association (IRTBA) to name a few.

Given CBBEL’s commitment to hiring exceptional personnel, prioritizing client relationships, and valuing education, it’s not surprising that we have received numerous prestigious awards from the American Council of Engineering Companies of Illinois, the American Public Works Association, the Illinois Section of the American Society of Civil Engineers, the Illinois Chapter of the American Planning Association, the Illinois Department of Transportation, and the Illinois Tollway. We were honored with the 2003 Employer of the Year Award from the Women in Transportation Seminar and the Private Sector Employee Recognition Award from the ASCE Illinois Section in 1997, 2003, and 2009. In 2012, we received a Governor’s Sustainability award and an honorable mention in 2013.

The Burke Group of Companies which includes CBBEL has been recognized as one of Engineering News Record’s Top 500 Design Firms, currently ranking 171st in the country.

Our resources are geographically distributed to create a network of effective and convenient service. Rosemont, Illinois, is home to our main office and other Illinois locations include New Lenox, Morris and Peoria.

SERVICES

Since its founding in 1986 the size of our company and the complexity of our projects have grown. Today we provide not only design services, but also planning, preliminary engineering, permitting, and construction observation. We have successfully completed the design, permitting and construction of numerous major transportation and local municipal roadway projects, multi-use paths, bridges, flood control reservoirs, pump stations, embankments, water mains and water systems, storm sewers, and large open channels.

We have served as lead engineer on a variety of major municipal and county undertakings. As a full-service firm we also conduct water resource related studies, perform GIS services, environmental resource assessments, mitigation planning and permitting, and a myriad of traditional civil engineering functions.
CBBEL has provided professional review services for municipalities, counties, and state agencies. Our experience includes the review of drainage, roadway, subdivision, sanitary sewer, and mechanical engineering submittals prepared by third-party consultants for both private and public sector clients.

Our office prepares an impressive number of high-quality stormwater management studies and permit applications, having obtained more than 1,000 US Army Corps of Engineers Section 404 permits with accompanying IEPA water quality certifications, more than 500 Illinois Department of Natural Resources-Office of Water Resources floodway construction permits, and 450 Federal Emergency Management Agency Letters of Map Amendment and Letters of Map Revision.

Whether you require consulting for an individual project or the full service resources from one of our departments, you can rely on Christopher B. Burke Engineering, Ltd. to take the time to thoroughly understand your needs and partner with you to create innovative, cost-effective solutions. Diversification and flexibility are the keys to our successful, long-term relationships with a wide variety of clients, including municipalities, counties, townships, sanitary districts and drainage districts throughout the Chicagoland area. We have unique knowledge and experience with various funding programs available to our County and Municipal clients from the grant writing stage to the design procedures required, as well as record keeping and funding reporting, giving our clients an added service not easily found in the engineering industry.

GREEN INITIATIVES

CBBEL is at the forefront of sustainability/green initiatives and is a corporate leader when it comes to implementation. Our Rosemont headquarters has a green roof, an aggressive composting/recycling program, and a long range plan to implement other energy saving devices courtesy of our company’s sustainability committee.

In 2012 and 2013 (Honorable Mention), CBBEL received the Governor’s Sustainability Award for achievements in improving the environment. The company received the award for our significant achievements in protecting the environment, helping sustain the future, and improving the economy. In 2014, CBBEL was selected as one of IRTBA’s Green Industry Award recipients and also received a Conservation and Native Landscaping Award from Chicago Wilderness.

One of the sustainability efforts the firm was honored for include our bike to work program where CBBEL provides mileage reimbursement, changing facilities and bicycle storage. Nearly 150 employees (from all of the Burke Group companies) have participated in the program and more than 272,000 miles have been commuted on bike.

We also have been recognized by the League of American Bicyclists as a Bicycle Friendly Business. Previously a silver status company, in 2014 the League awarded CBBEL “Platinum” status. The Bicycle Friendly Business recognizes employer’s efforts to encourage a more bike friendly atmosphere for employees and clients and honors innovative bike-friendly efforts. CBBEL is the only Illinois firm to be awarded Platinum status and is one of the few Midwestern non-bike related businesses to be awarded Gold status or higher.

CBBEL also has partnered with Enterprise CarShare, Chicago’s only local car sharing company, to provide vehicles to employees. We are the first Enterprise CarShare corporate member to reduce its own vehicle fleet by more than 50 percent and in turn use the CarShare vehicles. Employees have access to three CarShare cars and CBBEL recently installed CarShare software in two of their own fleet vehicles. We also have installed 2 electric car charging stations on the exterior of the main building in Rosemont.
Christopher B. Burke Engineering, Ltd. (CBBEL) is at the forefront of sustainability/green initiatives and is a corporate leader when it comes to implementation. Our Rosemont headquarters has a green roof, an aggressive recycling program, and a long range plan to implement other energy saving devices courtesy of our company’s sustainability committee. CBBEL has a cutting edge Bike to Work Program which has been featured in Crain’s Chicago Business, the Chicago Tribune, Reader’s Digest, American Profile, on CNBC, ABC 7’s Live Green Segment and the Chicago Sun Times.
GOVERNOR’S SUSTAINABILITY AWARD
In 2012 and 2013 (Honorable Mention), CBBEL received the Governor’s Sustainability Award for our commitment to improving the health and sustainability of Illinois. The company was recognized for our significant achievements in protecting the environment, helping sustain the future, and improving the economy.

Forty-one Illinois companies and organizations have been honored with the Governor’s Sustainability Award since it was presented by the Illinois Sustainable Technology Center (ISTC) in 1987.

CORPORATE SUSTAINABILITY PROGRAM
In an effort to conserve our resources and reduce our byproducts CBBEL has taken the following steps:

- No longer purchases Styrofoam cups, plastic utensils, paper plates or bottled water. Employees are encouraged to provide their own cups for water and coffee. Filtered drinking water is available on all floors in the building.
- Provides glass pitchers, glassware and coffee mugs for client use.
- Revitalized the building’s recycling program with additional bins and signage.
- Employees are encouraged to use the double sided printing option for document review.
- All nine floors of building elevator lobby lights have been replaced with low wattage LED lighting.
- Recently converted all interior fluorescent 2’x2’ light fixtures from T12 lamps to energy efficient T5 lamps and electronic ballasts. This initiative is proposed to save more than 205,000 kWh annually.
- Installed occupancy sensors in all non-office areas in an effort to turn off lights when the spaces are unoccupied.
- A domestic water booster pump skid was recently installed in the basement mechanical room. The pump skid provides domestic water to the nine floors of the building, utilizing variable frequency drives for the pump motors and pressure sensing devices. The new system reduces energy usage by more than 65% over the old pumping system.
- Two electric car charging stations have been installed on the exterior of the building with expansion capability built in for additional future charging stations.
- CBBEL has partnered with Enterprise CarShare (formerly I-GO), Chicago’s only local car sharing company, to provide transportation to employees. CBBEL is the first CarShare corporate member to reduce its own vehicle fleet by more than 50 percent and in turn use the CarShare vehicles. Employees have access to three CarShare cars (one of which is an electric car) and CBBEL recently installed CarShare software in two of their own fleet vehicles.
- Electrical devices have been added to some of the electric motors in the building HVAC system to increase their electrical efficiency.
- Installed LED lighting in the drive through and ATM lanes of the bank occupying the first floor of the building reducing the wattage consumed by overhead fixtures.
- Founding member of the Chicago Wilderness Corporate Council.
BIKE TO WORK PROGRAM
As a Bicycle Friendly Business, The Burke Group, which includes CBBEL, provides mileage reimbursement, changing facilities and bicycle storage for our employees while promoting bicycling for the environment, fun, fitness and transportation. Since the creation of our year-round “Bike to Work” program in 2006, employees have ridden more than 272,000 miles.

We also have been recognized by the League of American Bicyclists as a “Platinum” level Bicycle Friendly Business. The Bicycle Friendly Business recognizes employer’s efforts to encourage a more bicycle friendly atmosphere for employees and clients and honors innovative bike friendly efforts. **CBBEL is the only Illinois firm to be awarded Platinum status and is one of the few Midwestern non-bike related businesses to be awarded Gold status or higher.**

Biking to Work promotes employee health and fitness, employee morale, and helps the environment as well as corporate image. Our year-round Program consists of the following:

- Employees are paid $0.75 for every mile commuted by bike
- File Storage Apartment was converted to locker/shower facility
- Health Club shower passes are provided to female commuters
- CBBEL provides Annual Bike Giveaway for most miles
- CBBEL provides quarterly giveaways of vests, lights, flat kits, seat bags, etc.
- Pumps, bike tools, tubes, other gear and maps are kept at office
- Bike storage is allowed in offices and is provided at covered shelter and shower facility
- Commuter breakfasts are hosted monthly
- CBBEL participates in Bike to Work Week “Commuter Challenge”
- CBBEL provides assistance on routes, equipment, gear, etc.

**Results:**
Nearly 150 employees (from all of the Burke Group companies) have participated in the Program and more than 272,000 miles have been commuted on bike. That equates to approximately 528,200 pounds of CO₂ eliminated, more than 12,800,000 calories burned, and more than $60,000 in gas money saved.

**To see more about our Bike to Work program, follow this link.**

COMMUTER TRANSIT BENEFIT:
From 2010 – 2013, CBBEL has been named one of the best workplaces for commuters by the National Center for Transit Research at the University of South Florida. Best workplace for commuters members are nationally-recognized leaders offering outstanding commuter benefits to their employees. In addition, CBBEL is recognized as a reporting member by Clean Air Counts.

CBBEL offers a commuter benefits program. Through payroll deduction, employees can use pre-tax earnings to pay for public transportation and commuter parking.
PROJECT UNDERSTANDING & APPROACH

We understand the general scope of services for this project includes the evaluation of the City of DeKalb's existing traffic signal systems. This includes identifying and assessing alternatives for a design solution to provide improved traffic flow through the City's arterial corridors resulting in increased levels of service, reduced travel times and decreased emissions. This also includes the production of necessary engineering plans, specifications and bidding documents; administer the implementation of all system improvements including construction inspection and final acceptance. The design solution shall allow City staff to monitor the traffic signal system, make adjustments to signal programming as needed; identify and evaluate system interruptions and traffic operational issues. It is also our understanding the project is currently funded for construction with federal monies. Phases I, II, and III will need to be completed in accordance with applicable federal project development and construction procedures coordinated through the Illinois Department of Transportation (IDOT) and with the Federal Highway Administration (FHWA).

PROJECT UNDERSTANDING

Proposed improvements are anticipated to include the upgrade of the existing central traffic signal system comprising of 56 traffic signals interconnected through approximately 15 miles of (FSK) copper cable and 2 miles of fiber optic cable along 1st Street, 4th Street, 7th Street, Annie Glidden Road, Barber Greene Road, Bethany Road, DeKalb Avenue/Sycamore Road (Illinois Route 23), Lincoln Highway (Illinois Route 38), Lucinda Avenue, Peace Road, W. Dresser Road and to the City's Public Works building located on 200 South Fourth Street. A few years ago the City's longtime functioning Multisonics VMS central management system reached the end of its service life leaving City staff without the ability to remotely access and monitor operations at a majority of the signal locations. However, in 2012 approximately 20 signal locations were upgraded with new Siemens M50 series controllers, fiber optic interconnect and integrated in to a closed loop system with a master controller and computer running TACTICS Marc software located in the City's Public Work's office. Consideration will be given for a new Central Traffic Management System (CTMS) platform including management software and associated server hardware as well as the conversion of the existing copper serial network to a gigabyte Ethernet fiber optic network.

The selected Consultant will be responsible for the following project elements:

- Evaluations of the existing signal system and associated infrastructure including signal cabinets, controllers, switches, interconnect cabling, central system software and servers.

- Development of proposed alternatives to be incorporated in a design to improve traffic flow, reduce travel times and pollution.

- Review and assess alternatives with City staff to determine project scope to carry forward into Phase I.
• Preparation of construction plans and specifications.

Based on the potential scope of work it is anticipated the Phase I Study for this project will be processed through IDOT as a Categorical Exclusion Group I (BLR Form 19100) without a Project Development Report (PDR). Also, as required by the FHWA a System Engineering report may have to be prepared and processed through the FHWA for approval. All Phase I requirements will be coordinated with IDOT and FHWA early in the project.

(Phase II Design) Plans, Specifications and Estimates (PS&E) will be prepared in accordance with IDOT Bureaus of Environment and Design (BDE) and Local Roads and Street BLR policies.

• Assistance to the City for evaluation of vendor/contractor bids. It is anticipated the procurement of a new CTMS will require a RFP/RFQ selection process separate from and prior to the construction contract bidding. Both processes will require review and recommendations to the City.

• Provide construction engineering oversight for the implementation of the system, construction inspection and final acceptance.

PROJECT APPROACH

CBBEL has extensive experience with all of the project elements, including processing these types of projects through IDOT, and we are in the unique position to provide the City with the necessary assistance with our in-house staff. In addition, we have strong ties with the local vendor representatives in northeastern Illinois for traffic signal equipment and traffic management systems, which we will leverage to assist the City throughout the entire project cycle. We offer the City unparalleled expertise in similar project experience in all aspects of project development and implementation phases from project planning through project construction and final acceptance. CBBEL has designed numerous Ethernet based central management systems and expansions to existing systems for various municipalities as well as the first Adaptive Traffic Control projects in District 1. CBBEL staff also possess significant background in central signal system operations including use of Econolite’s CENTRACS and Siemens’ TACTICS for Lake County and Kane County respectively, and is also prequalified in Signal Coordination and Timing (SCAT) throughout the State of Illinois. Through the combination of our technical experience, industry relationships, and the following general project approach, we are the ideal choice as the City of DeKalb’s Coordinated Traffic Signal System Upgrade consultant.

CBBEL has a significant history with the City DeKalb regarding this project, including a previous evaluation and recommendations in 2009 for funding of future upgrades to the system; and a Signal Coordination and Timing (SCAT) project for the Lincoln Highway (Illinois Route 38) and Sycamore/DeKalb Road (Illinois Route 23) corridors and traffic signal re-optimization on Peace Road at Macom Drive. In addition, to these experiences, we have proficiency with systems engineering documentation; preparing design plans and specifications for Ethernet communications system networks, fiber splicing/terminations, CCTV camera systems, travel time systems, and central management software/hardware installations. Through our ongoing SCAT timing and monitoring work with Cook County, CBBEL has prepared and evaluated traffic responsive programs on various arterial routes and has consulted with the County on hardware, software, and operational requirements to connect signals and computer systems to the Lake County central management software.

Our project approach for the City of DeKalb’s Coordinated Traffic Signal System Upgrade will draw on our past project history working with the City, as well as our experiences with similar projects for Cook, Kane and Lake Counties; and the City of Naperville to identify and resolve issues related to design, specification, systems engineering, critical path, and implementation for the City. As we have demonstrated on past projects, our primary focus will be to serve the City through proactive communication, strong project management, and project accountability.

Our project methodology will be rooted in early coordination with the City, IDOT BLS, FHWA and other likely partners such as IDOT Bureau of Traffic and DeKalb County. Before the project begins, we will strive to reach a mutual understanding of how the design and consultation phases will interact, as well as to determine any unique coordination and design requirements to ensure scalability for the addition of any future systems and technologies (such as CCTV cameras, possible Transit Signal Priority (TSP) and Adaptive Signal Control (ASCT), etc.) as well as easy expandability for the addition of future traffic signal locations. Soon after the project is authorized to proceed, a Federal Coordination/"Kickoff" meeting will be held with IDOT (District 3) and the FHWA to discuss the scope and design requirements of the project, limits of the improvement, and to agree on federal environmental and systems engineering processing. CBBEL has a strong familiarity with IDOT federal aid process, and our staff has a good understanding, through prior projects, of the challenges associated with integrating project standards and specifications between multiple agencies.

We have the experience and the knowledge of similar central traffic management system projects to identify and raise potential issues or challenges early in the project and ensure that the City is aware of and properly prepared for the design, construction, and operational
elements unique to this type of project. One unique project element which has arisen recently with similar federally funded advanced technology projects is the requirement for the pre-selection of advanced vendor systems such as central traffic management systems separate from the bidding of the actual construction contract for the project. An RFO/RFP process for the selection of any central traffic management systems package may be required prior to preparing design engineering plans so that the selected system can be specified including negotiated cost in the construction contract documents to be supplied by the Contractor.

Another potential issue that has arisen more frequently on recent projects is in relation to special waste. Although it has slowed down many federally funded projects with IDOT routes, if handled appropriately, it will not be a critical path issue. Since this project is federally funded, IDOT will require the City to follow the BLRS Manual pertaining to special waste screening and processing. The local agency is responsible to conduct the special waste screening for the locally held right-of-way and based on our preliminary analysis a Preliminary Environmental Site Assessment (PESA) should not be required for this project if the current interconnect conduit and cable routings remain unchanged and don’t require the installation of new conduit or other significant excavation. If the installation of underground conduit is determined to be necessary as part of the project scope, a PESA will then be required to identify potential recognized environmental concerns (RECs) and subsequent special waste testing locations. Since the proposed project is within State right-of-way, IDOT will require an Environmental Survey Request (ESR) to be submitted for special waste and subsequently IDOT will perform the PESA for their right-of-way only, which takes six to eight months. If RECs are identified in the PESA, a Preliminary Site Assessment (PSI) will also need to be performed, which takes an additional 6 months. Upon authorization of this project, an ESR will be prepared and submitted to IDOT to limit the risk of the special waste process delaying the project development process. CBBEL has extensive experience working with IDOT to take projects through the federal project development process, which significantly limits the risk of any procedural issues affecting the desired project schedule identified by DeKalb.

Our philosophy for design projects is to work closely with the City staff, ensuring they are aware of important design decisions and are involved in project elements that affect long-term operations and maintenance. CBBEL is dedicated to maintaining close coordination with IDOT, FHWA and other partners, as well, to ensure that any unexpected challenges are identified and resolved early in the process. We will be responsive to the City’s comments and will incorporate desired elements into the plans throughout the design process to meet operational goals. We anticipate working with City staff to determine the proposed scope of improvements that fulfills the City’s vision for a citywide upgrade of the existing traffic signal system utilizing information obtained from previous inspection and evaluation of the existing system. If necessary due to a shortfall in project funding, CBBEL will coordinate with the City to develop a phasing plan for the implementation of multiple projects within a longer time frame and proposed funding program in order to meet the City’s goal of a Citywide upgrade of the system.

Specific initial design elements will likely include traffic controller replacement, controller software upgrades, cabinet replacements or upgrades, fiber optic cable installation or replacement, installation of managed Ethernet switches and fiber termination boxes, integration of new CTMS with associated hardware as well as other signal equipment and services. CBBEL will also work with the City to ensure that their computer equipment and office infrastructure is capable of operating a CTMS and will coordinate with the selected vendor to acquire or upgrade equipment and software as needed to make the selected system operational. Also, user access through Virtual Personnel Networks (VPNs) will provide easy access to the CTMS for City engineering and maintenance staff as well other partners such as IDOT Bureau of Traffic.
PRELIMINARY SCOPE OF SERVICES

The following tasks represent our understanding of the services that would be anticipated to complete the City of DeKalb’s Coordinated Traffic Signal System Upgrade. This scope will allow CBBEL to establish a schedule and budget that can be adhered to throughout the entire duration of the project. Based on our professional experience with projects of a similar scope and nature, we are confident that we can complete the entire project process for the City on time and within the budget.

PHASE I (STUDY):

TASK 1 – INITIAL PROJECT COORDINATION:
CBBEL anticipates holding initial project development meetings with the City of DeKalb staff, as well as other stakeholders as necessary, including DeKalb County, IDOT and FHWA. These meetings are intended to facilitate discussion of project goals, operational needs, systems engineering requirements, system interoperability, and other issues related to this project.

TASK 2 – FIELD RECONNAISSANCE AND EQUIPMENT INVENTORY:
CBBEL will conduct detailed field reconnaissance of the existing system infrastructure and associated corridors, noting the specific traffic signal equipment in use at each of the 56 intersections. These elements will include controller make and model, software revision number, size of cabinet, type of fiber enclosure, number of fibers installed, make and model of wireless interconnect systems, presence of combination mast arms, type of detection, number of detector channels in use, available detector slots, photographs of the entire cabinet and photographs of individual components as needed. This will be supplemented by GIS data, and available as-built plans to be provided by the City of DeKalb.

CBBEL will also review the existing characteristics of the interconnected corridors to identify the best solution with respect to the proposed installation of interconnect hardware between aerial cable, underground conduit or a wireless technology.

TASK 3 – TRAFFIC MANAGEMENT SYSTEM DEVELOPMENT AND SCOPING:
Based on information gathered in Tasks 1 and 2 (of Phase I), the CBBEL team will coordinate with the City to develop a project scope or scopes for any alternatives and perform a cost analysis(s) with the goal to keep the estimated project cost within the proposed project budget and available funding. If the cost of ultimate project scope desired by the City is significantly greater than current available funding, a staging and programming plan will be developed for completing portions of the scope and or proposed system locations through multiple projects over a defined time-frame identifying possible additional outside funding sources. An emphasis will be placed on providing the City with a reasonable level of system functionality in the first project stage. As needed, CBBEL staff will assist the City in applying for any additional outside funds through providing the paperwork and coordination necessary for the grant approval process.

TASK 4 – PROJECT CONSULTATION:
CBBEL will assist the City in developing the necessary RFO/RFP process and documents for soliciting proposals for a CTMS. CBBEL will prepare, if needed, a System Engineering Report for a CTMS. CBBEL will provide recommendations to the City regarding content and technical elements that should be incorporated to meet the City’s requirements or to satisfy the FHWA’s systems engineering procedures.

Upon completion of the Systems Engineering and RFO/RFP process, CBBEL will provide additional consultation services to the City as needed during the selection process.

After product selection, CBBEL staff will assist the City with the CTMS implementation. CBBEL staff will assist with coordination between the City and the equipment vendor, as well as interpreting system requirements to ensure that the CTMS is configured to the City’s satisfaction.

TASK 5 – SPECIAL WASTE:
CBBEL will submit an Environmental Survey Request Form (ESRF) to IDOT for processing in accordance with IDOT procedures for special waste for the state
right-of-way and also to environmentally screen out any easement acquisition. Development of the ESRF includes preparation of a 100 scale plans depicting the ESR boundary, location map, photo log, and ESRF form based on aerial photographs, GIS data, and other readily available information.

Pertaining to special waste, CBBEL will conduct the screening to determine in coordination with IDOT if a Preliminary Environmental Site Assessment (PESA) report is required, and if it is required, we will prepare the required documentation for the affected areas.

PHASE II (DESIGN):
Upon receipt of Phase I approval from IDOT, CBBEL will proceed with the following Phase II Design Tasks.

TASK 1 – DATA COLLECTION
AND TOPOGRAPHIC SURVEY:
This task will include reviewing the as-built roadway plans, traffic signal plans, interconnect plans, and other related data available from the City of DeKalb. The accuracy of these materials will be verified by a field reconnaissance of the entire corridor and of each intersection. If there are locations where insufficient existing conditions information exists to prepare design plans, a limited horizontal topographic survey may be conducted of the specific intersections and roadway segments. This information will be used as the base for the traffic signal modernization plans.

The survey will be used as a base map for design purposes and will include the following survey tasks:

1. Horizontal Control: Utilizing state plane coordinates; CBBEL will establish recoverable primary control.
2. Research at the DeKalb County Recorder’s Office.
3. Field recon and survey to locate existing monumentation and boundary evidence.
4. Analyze Record and Field Data necessary to compute approximate Right-of-Way throughout project limits.

5. All above ground utilities including, but not limited to: water, sanitary sewer, storm sewer, telephone, electric, cable and gas, etc. Identify type, invert and rim elevations as well as pipe sizes.

6. Existing hardscape improvements located in the project limits including curbs, light fixtures, walks, street signs, fencing and gates, approximate R-O-W, and buildings (if any).

7. Office calculations and plotting of field and record data.

8. Drafting of an Existing Conditions Plan at a scale of 1” = 20’.

TASK 2 – TRAFFIC SIGNAL IMPROVEMENT PLANS:
Based on the performance and operational requirements determined in coordination with any systems engineering documents, and the functional requirements of any selected CTMS, CBBEL will evaluate the existing traffic signal equipment and will prepare design engineering plans, specifications, and opinion of probable cost as needed to accommodate the proposed improvements.

TASK 2.1 - BASE SHEET PREPARATION:
Prepare base sheets at a scale of 1” = 20’ for the traffic signal modernization plans and 1” = 50’ for the traffic signal interconnect system using the existing traffic signal plan information obtained in Tasks 1.

TASK 2.2 - TRAFFIC SIGNAL IMPROVEMENT PLANS:
Prepare the traffic signal improvement plans using the base sheet information from Task 2.1. The traffic signal plans shall be developed based on City standards current at the time said plans are prepared, or County or IDOT standards if applicable. The traffic signal modernization plans shall include the following:

a. Preliminary, pre-final and final traffic signal modification plans.

b. Cable plan and schedule of quantities.

c. Phase Designation Diagrams.

d. Traffic signal interconnect plan.

e. Traffic signal interconnect schematic.

f. Fiber splice and network communications diagrams, including notes regarding the installation of any wireless communication hardware.

g. Technical specifications employing City, County, and IDOT special provisions to the extent that they apply.

TASK 2.3 – SUPPLEMENTAL DATA:
Prepare an engineer’s opinion of probable cost for the project and an estimate of time for construction in
accordance with IDOT BLR requirements. CBBEL will also prepare all materials necessary to obtain any required permits from IDOT, DeKalb County and the Union Pacific Railroad and will assist the City in completing the permit applications and other paperwork.

PHASE III (CONSTRUCTION ENGINEERING):
CBBEL will perform the following Phase III Construction Engineering Tasks.

TASK 1 – PRE-CONSTRUCTION SERVICES:

TASK 1.1 – CONSTRUCTABILITY REVIEW:
Upon completion of pre-final plans, CBBEL construction staff will review the plans and specifications for potential conflicts or problems, so that solutions can be developed prior to construction.

TASK 1.2 – PRE-CONSTRUCTION MEETING:
Attend a pre-construction conference with the contractor, City, and other parties to discuss goals, objectives, and issues of the project. CBBEL shall prepare a project contact list, including 24-hour emergency numbers, for distribution with the meeting minutes.

Obtain and distribute all permits issued for the construction of the project.

TASK 1.3 – SUBCONTRACTORS:
Obtain from the contractor a list of proposed suppliers and subcontractors. Make recommendations to the City regarding the suitability of the subcontractors for the proposed work. If CBBEL or the City have not previously worked with a proposed sub-contractor, we will make every effort to check references.

TASK 1.4 – PROGRESS SCHEDULE:
Review the construction schedule submitted by the contractor for compliance with the contract. CBBEL will review it in relation to the milestone dates in the specifications. CBBEL will review the constructability of their plan to insure that the work is being completed in a logical sequence.

TASK 1.5 – DOCUMENTATION OF EXISTING CONDITIONS:
CBBEL shall document all existing conditions with videotapes and photographs to insure that all disrupted areas have been restored per the plan or existing conditions.

TASK 2 – SHOP DRAWING REVIEW:
Check and approve, or reject and request resubmittal of, any submittals made by the Contractor for compliance with the contract documents. Provide the contractor with a list of required submittals at the pre-construction meeting, so shop drawings are submitted in a timely manner.

TASK 2.1 – CONTRACTOR SUBMITTALS:
Record data received, maintain a file of drawings and submissions, and check construction for compliance with them. The shop drawing log will be distributed at progress meetings, so all parties are aware of what still needs to be submitted.

TASK 2.2 – CONTRACTOR SUBMITTAL REVIEW:
Review Contractor’s submittals for compliance with contract documents. Notify the City of any deviations or substitutions. With the notification, provide the City with a recommendation for acceptance or denial, and request direction from the City regarding the deviation or substitution. A draft of our review comments will be submitted to the City for their concurrence prior to returning them to the contractor.

TASK 3 – CONSTRUCTION LAYOUT:
Provide, as needed, layout of project control and QA Survey as detailed in IDOT Check Sheet #10. In addition, our Resident Engineer will have a level set-up to check any found discrepancies or if stakes are moved due to construction activities.

TASK 4 – CONSTRUCTION OBSERVATION:
Provide extensive full-time on-site observation of the work in progress and field checks of materials and equipment through a Resident Engineer, who shall:

- Observe the progress and quality of the executed work. Determine if the work is proceeding in accordance with the Contract Documents. CBBEL shall keep the City informed of the progress of the work, guard the City against defects and deficiencies in the work, and advise the City of all observed deficiencies of the work and disapprove or reject all work failing to conform to the Contract Documents.
- Serve as the City’s liaison with the contractor working principally through the contractor’s field superintendent.
- Be present whenever the contractor is performing work on-site, associated with the project.
• Cooperate with the contractor in dealing with the various local agencies and utility companies having jurisdiction over the Project in order to complete service connections to public utilities and facilities.

• Attend all construction conferences. Arrange a schedule of progress meetings and other job conferences as required. Maintain and circulate copies of records of the meetings.

• Review contractor's progress on a bi-weekly basis and update the progress schedule. Compare actual progress to the contractor's approved schedule. If the project falls behind schedule, work with the contractor to determine the appropriate course of action to get back on schedule. If the contractor falls behind by 14 calendar days, he is required to submit a revised schedule showing how the completion dates will be met. No further payments will be made until a revised schedule is submitted.

• Maintain orderly files of correspondence, reports of job meetings, shop drawings and other submissions, original contract documents including all addenda, change orders and additional drawings issued subsequent to the award of the contract.

• Record names, addresses and telephone numbers of all contractors, subcontractors, and major material suppliers.

• Determine if the project has been completed in accordance with the contract documents and if the contractor has fulfilled all obligations.

• Except upon written instruction from the City, the Resident Engineer or Inspector shall not authorize any deviation from the Contract Documents.

• Alert the Contractor's field superintendent when materials or equipment are being installed before approval of shop drawings or samples, where such are required, and advise the City when it is necessary to disapprove work as failing to conform to the Contract Documents.

• Discuss the truck routes with the Contractor and monitor that the identified routes are being used.

• Respond to any Requests for Information from the Contractor.

• Observe and coordinate with the Contractor and City regarding the integration and installation of the CTMS and establishment of the Ethernet communications network. Provide review and approval of the Contractor's integration and testing plan for the CTMS system and Ethernet communications network prior to their integration to insure the new CTMS and associated network is implemented per the design plans and functions as designed to meet the City's needs.

TASK 5 – CONSTRUCTION DOCUMENTATION:
The Resident Engineer will document all work in accordance with IDOT's Construction Manual and Project Procedures Guide for materials. For federally funded projects, CBBEL utilizes IDOT's ICORS program for documentation of quantities and the MISTIC program for all material inspection. This will include the following, at a minimum:

• Keep Inspector's Daily Reports (IDOT Form BC 628), which shall include the hours on the job site, weather conditions, general and specific observations, daily activities, quantities placed, inspections, decisions, and a list of visiting officials.

• Document and measure all quantities in accordance with the IDOT Construction Manual.

• Prepare the Daily Diary and Resident's Weekly Report (IDOT Form BC 239) based from the IDR's.

• Prepare and submit all Prior Approvals (IDOT Form BC 2256) for approval prior to beginning any extra work.

• Prepare and submit all Authorizations (IDOT Form BC 22) to City for their concurrence and IDOT for approval.

• Prepare and submit all Pay Estimates to City for their concurrence and IDOT for approval.

TASK 6 – TRAFFIC CONTROL INSPECTION:
As required on all federally funded projects, CBBEL will perform barricade checks as outlined in Section 700: Work Zone Traffic Control of IDOT's Construction Manual. This requires that CBBEL complete the following:

• Submit Form OPER 725, Traffic Control Authorization Request to IDOT prior to the start of construction.

• One detailed daytime inspection per week and two detailed nighttime inspection per month. These inspections shall be recorded on Form BC 726, Traffic Control Inspection Report and delivered to City and IDOT weekly.

TASK 7 – PROJECT CLOSE-OUT:
CBBEL will monitor completion of the punch list and complete all required paperwork and submittals for federally funded projects to IDOT.

• Prior to final inspection, submit to the Contractor a list of observed items requiring correction and verify that each correction has been made.

• Conduct final inspection with the City and prepare a final list of items to be corrected.

• Verify that all items on the final list have been corrected and make recommendations to the City concerning acceptance.
• Prepare final pay estimate in ICORS for the City’s approval.
• Prepare and submit IDOT final papers including:
  BC 71, Final Inspection Report
  BC 111, Checklist for Engineer’s Final Pay Estimate
  BC 608, Local Agency Certification
  M-411, Net Cost of Section
  D1 PI0008, Contract Finalization Procedures
• Verify all necessary material inspection has been received, entered into IDOT’s MISTIC Program, and accepted by IDOT.
• Submit the complete job box to the City with all pertinent project information, including Record Drawings (see Task 1.8).

**TASK 8 – RECORD DRAWINGS:**
As required on federally funded projects, CBBEL shall submit a half-size (11x17) set of red-lined contract drawings showing changes to the original design.
COORDINATED TRAFFIC SIGNAL UPGRADE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PRINCIPAL-IN-CHARGE
G. Michael Ziegler, PE, PTOE

PROJECT MANAGER
Thomas Szabo, TOPS, TSOS

PHASE I ENGINEERING ENVIRONMENTAL
Matthew Huffman, PE

TRAFFIC MANAGEMENT SYSTEM/NETWORK DESIGN AND INTEGRATION
Frank Nemes, PE, PTOE
Anthony DeRicco, PE, LEED

DESIGN ENGINEERING PLANS
Elizabeth Jensen, PE
Bobby Gunnells, EI

CONSTRUCTION ENGINEERING
Kevin Betke, PE
CBBEL has extensive experience with the evaluation and design of Ethernet based systems. Our project background includes previous system evaluation for the City of DeKalb as well as the design of Ethernet based signal projects for Lake County, Illinois as part of their Passage system and the design of an Ethernet based Centralized Traffic Management System (CTMS) for the City of Naperville. This also included the design of the first Adaptive Signal Control projects in IDOT District 1. In addition, we have designed the conversion of the closed loop signal systems on Randall Road to an Ethernet based CTMS for the Kane County Division of Transportation. Further, CBBEL under its Electrical Services contract with the Cook County Department of Transportation and Highways, recently assisted Cook County with integrating one of its existing closed loop signal systems on Lake Cook Road into the Lake County Passage system.

CITY OF DEKALB

In 2009, CBBEL performed a study for the DeKalb to upgrade the City of DeKalb's Central Traffic Signal Coordination system. The goal was to upgrade the existing City of DeKalb Central Traffic Signal Coordination System that at the time operated 54 interconnected signal locations. The system was based upon Multisonics controllers and VMS software but was no longer supported through a local vendor. CBBEL performed extensive data collection and hardware review to determine the best options for the City to transition to an Ethernet based central signal system. Although the project did not ultimately receive funding as had been hoped using FTA funds, our experience with the earlier project will serve as a solid foundation for the City's latest effort to move forward with an Ethernet based signal system.

CITY OF NAPERVILLE CENTRAL TRAFFIC MANAGEMENT SYSTEM

The project includes the preparation of contract plans and specifications for converting 3 existing closed loop signal systems consisting of 34 signaled intersections running Aeries closed loop monitoring software to an Ethernet based CTMS running Advance Traffic Management System. The project located largely within the City's downtown central business district, consisted of upgrades at each intersection including Ethernet switches, upgrading controllers to current National Transportation Communications for Intelligent Transportation System Protocol (NTCIP) standards, CCTV cameras, installation of over 8 miles of new fiber optic cable, radio interconnect locations where construction of underground conduit was not feasible and installation of CENTRACS Advance Traffic Management System software on existing City servers. CBBEL evaluated the existing signal hardware, including controller functionality as well as the fiber optic interconnect requirements for an Ethernet based signal system. This work included a complete inventory of equipment/hardware at existing signalized locations and development of recommendations and cost estimates for various alternatives for system communication and video monitoring at select locations. In addition, CBBEL developed a communications network design for fiber (optic) routing/termination to provide optimum redundancy and insure communications is maintained throughout the network in the event of system failure at isolated location along the network. This also included coordination with City IT staff to select conduit routing into the City's engineering building as well as the server location to interface the network with the CTMS software. The project was funded with a combination of local and federal Congestion Mitigation and Air Quality (CMAQ) and Surface Transportation Program (STP) - URBAN funds. CBBEL prepared the Phase I documentation to receive CE I design approval as well as the Phase II engineering design documents for the project.

LAKE COUNTY DIVISION OF TRANSPORTATION

IL ROUTE 83 TRAFFIC SIGNAL INTERCONNECT PROJECT

CBBEL prepared design plans and specifications to install 6.2 miles of fiber optic interconnect along IL Route 83, integrating 10 signalized intersections into the LCDOT PASSAGE Ethernet network and onto the County's Centracs Advanced Transportation Management System. The project located in the Villages of Antioch, Lake Villa, and Round Lake Beach, consisted of upgrades at each intersection including: Ethernet switches, upgrading controllers to current NTCIP standards, Bluetooth detectors to calculate vehicle travel times occurring in real-time, as well as PTZ cameras and video encoders to transmit the data to the LCDOT Traffic Management Center. In addition the project included plans and exhibits for attaching conduit to an IDOT maintained structure in the Canadian National Railroad right-of-way. The project was let through IDOT and used CMAQ funds.
GILMER ROAD ADAPTIVE SIGNAL CONTROL PROJECT
CBBEL prepared design plans and specifications to install adaptive signal control equipment along the Gilmer Road corridor from Midlothian Road to Fremont Center Road and the IL Route 176 corridor from Gilmer Road to Hawley Street. The project located in the Villages of Mundelein and Hawthorn Woods, combined two different types of vehicle detection creating a more accurate adaptive signal control system to adjust signal timings in real-time based on the changing vehicle demand in the network. The project consisted of: installing the adaptive cabinet equipment, adaptive video detection, additional detector loops, controller replacement and upgrades to NTCIP standards, Bluetooth detectors, PTZ cameras, Ethernet repeaters, relocating ITS equipment, ensuring the traditional video detection equipment and adaptive video equipment can operate simultaneously, and that intersections can communicate with the County's Centracs Advanced Transportation Management System. The project specifications also required a before study, with a validation study comparing it to both an optimized signal timed network, and a calibrated adaptive signal control network. In addition, the project also included the removal and replacement of all the existing traffic signal equipment at the intersection of Gilmer Road and Hawley Street.

APTKASIS ROAD ADAPTIVE CONTROL TRAFFIC SIGNAL SYSTEM
CBBEL prepared design plans and specifications for the first adaptive signal control project in Illinois along Aptakisic Road from Parkway Drive to Brandywyn Lane for the Lake County Division of Transportation. The project located in Buffalo Grove, consisted of installing the adaptive equipment, replacing controller cabinets, installing contact closure cards, queue detection, Bluetooth detectors, relocating ITS equipment and video detection. The project specifications outlined before and after study requirements for the timing consultant concerning the new adaptive signal system by establishing a baseline study and comparing it to both an optimized system and configured adaptive system.

IL ROUTE 120 AND US 45 TRAFFIC SIGNAL INTERCONNECT PROJECT
CBBEL prepared design plans and specifications to install 3.6 miles of fiber optic interconnect along IL Route 120, linking 6 intersections to the LCDOT PASSAGE Ethernet network and onto the County's Centracs Advanced Transportation Management System. The project also consisted of installing additional single mode fiber optic cable along US 45 from Winchester Road to Peterson Road and from Casey Road to IL Route 120 in order to support the additional amount of data. Proposed project scope at the intersections included: Ethernet switches, controller upgrades to the current NTCIP standards, PTZ cameras, video encoders, and Bluetooth detectors. The project also includes removal and replacement of all the existing signal equipment at the intersections of IL Route 120 at IL Route 134 and IL Route 120 at Hainesville Road.

DELANY ROAD TRAFFIC SIGNAL AND ROADWAY IMPROVEMENTS
Improvements to Delany Road, from Sunset Avenue to Wadsworth Road, included the reconstruction of the existing two lane rural pavement to provide a four lane undivided urban highway with curb and gutter. The intersection of Delany Road & Blanchard Road was improved by adding an auxiliary right turn lane on the south leg and auxiliary left turn lanes on the north and east legs. The intersection of Delany Road & York House Road was enhanced with auxiliary left turn lanes on the north and south approaches, right turn lane on the west and south leg, and increased corner radii and tapers to accommodate the design vehicle. The intersection of Delany Road & Wadsworth Road was improved by adding auxiliary left turn lanes and providing two through lanes on all four legs of the intersection. The traffic signals at the intersections of Delany Road & York House Road and Delany Road & Wadsworth Road were upgraded to meet the current design standards. Temporary traffic signals were erected for construction staging and the newly installed permanent signals included the latest technology for controllers and signal heads. With the completion of the project, the signals are now integrated into Lake County's PASSAGE Ethernet network.
GREEN BAY ROAD AND WADSWORTH ROAD TRAFFIC SIGNAL AND ROADWAY IMPROVEMENTS

The project consisted of the preparation of Phase I Engineering and Environmental Study and Phase II construction plans for the signalized intersection of Green Bay Road (IL Route 131) and Wadsworth Road. This intersection was reconstructed with additional turn lanes and through lanes to provide additional capacity based on projected 2040 design year traffic volumes. Traffic signal design plans were prepared detailing the removal of existing traffic signal equipment, multiple temporary traffic signal stages to accommodate the proposed maintenance of traffic plans, and installation of the permanent traffic signals. In addition, the traffic signals at Green Bay Road and Wadsworth Road and the traffic signal on Wadsworth Road at Cambridge Crossing entrance were connected into the existing fiber back bone along Delany Road to the west so that these could be integrated into LCDOT's Ethernet based Passage system.

KANE COUNTY CENTRAL TRAFFIC MANAGEMENT SYSTEM

RANDALL ROAD: DEAN STREET TO MAIN STREET

The project consisted of traffic signal modifications, installations of uninterruptible power supplies (UPS), installation pan-tilt-zoom cameras, controller upgrades and replacements and Ethernet switches as well as fiber optic interconnect cable of the existing traffic signals along Randall Road between Dean Street and Main Street an integration of the existing traffic signals along IL Route 38 to create the new Ethernet-based communication system. This project was funded under the Congestion Mitigation and Air Quality (CMAQ) Program, which is awarded to projects that will provide a benefit in terms of reducing vehicular congestion and improving the overall air quality of the region. The system consisted of twenty-four signalized intersections and 2.0 miles of new and existing fiber optic interconnect. The project focused on the modification of existing traffic signals to accommodate the Ethernet-based communication system to a new centralized traffic signal management system, as well as the integration of IDOT's IL Route 38 signal system into the Randall Road system. Phase II engineering services included field reconnaissance of the intersections to verify existing conditions, including equipment inventories and signal phasing, preparation of plans, specifications and estimates for the project based on IDOT and FHWA standards. This included traffic signal modification plans, traffic signal installation plans, cable plans, closed loop signal system interconnect plans, signal system schematic plans, Ethernet system schematic plans and fiber optic termination schematic plans. Also included was project coordination with Kane County, IDOT and FHWA regarding design elements and project letting schedule.

RANDALL ROAD: RED HAW LANE TO BINNIE ROAD

The project consisted of the installation of a new fiber optic interconnect cable and modification of the existing traffic signals along Randall Road between Red Haw Lane and Binnie Road for the first stage of the County's Ethernet-based advanced traffic management communication system. This project was funded under the Congestion Mitigation and Air Quality Program, which is directed at projects that will provide a benefit in terms of reducing vehicular congestion and improving the overall air quality of the region. The system consisted of twenty-eight signalized intersections and 4.0 miles of new fiber optic interconnect. The project focused on the modification of existing traffic signals to accommodate the Ethernet-based communication system to a new centralized traffic signal management system, as well as the installation of a new traffic signal at Crane Road, PTS cameras for traffic monitoring at various locations and construction of the fiber optic system interconnect. Phase II engineering services included field reconnaissance of the intersections to verify existing conditions, including equipment inventories and signal phasing, preparation of plans, specifications and estimates for the project based on IDOT standards. This included traffic signal modification plans, traffic signal installation plans, cable plans, closed loop signal system interconnect plans, signal system schematic plans, Ethernet system schematic plans and fiber optic termination schematic plans. Work included extensive project coordination with Kane County and IDOT regarding design elements and project letting schedule.
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Mr. Ziegler is a professional engineer experienced in transportation engineering. His background includes transportation studies and the design of numerous infrastructure improvements for State agencies, counties and several local municipalities. In addition, his experience includes serving as an adviser to our municipal clients on various traffic and transportation committees. Through his municipal experience, he understands the dynamics associated with municipal transportation systems and the need to balance modal demands. This includes accommodating pedestrian and bicyclists as well as a robust public transportation system.

ILLINOIS DEPARTMENT OF TRANSPORTATION
Signal Coordination and Timing (SCAT):
- Central Office, PTB 162-35
- Central Office, PTB 158-38
- Central Office, PTB 138-26
- Central Office, PTB 134-14
- Central Office, PTB 130-14
- Central Office, PTB 124-58
- Central Office, PTB 113-51

Traffic Signal Design Services:
- District 1, PTB 164-10
- District 1, PTB 111-14
- District 1, PSB 99-09
- District 1, PSB 95-07
- District 1, PSB 91-07

Des Plaines River Road Phase I: US Route 12 to Devon Avenue

District 1 Specialty Engineering Reports: Land Acquisition – Various/Various

LAKE COUNTY DIVISION OF TRANSPORTATION
Gilmer Road (Midlothian Road to IL Route 176): Phase I and II Adaptive Traffic Signal System, and Permanent Traffic Signal and Ethernet System Improvements (PASSAGE)

Aptakisic Road (Brandywine Lane to Park): Phase II Adaptive Traffic Signal System, Permanent Traffic Signal Improvements (PASSAGE)

Cedar Lake Road (Hart Road to Rollins Road): Phase I and II Traffic Signal System, Permanent Traffic Signal and Ethernet System Improvements (PASSAGE)

IL Route 83 (North Avenue to Millstone Drive): Phase I and II Traffic Signal System Fiber Optic Interconnect and Ethernet System Improvements (PASSAGE)

US Route 12 (Rand Road) - IL 176 to Miller Road: Phase I and II Adaptive Traffic Signal System and Permanent Signal and Ethernet System Improvements (PASSAGE)

IL Route 120 (Belvidere Road) - IL 134 to US 45: Phase I and II Adaptive Traffic Signal System and Permanent Signal and Ethernet System Improvements (PASSAGE)

Wadsworth Road and Green Bay Road: Phase I and II, Intersection Design Studies, Temporary and Permanent Signal Improvements, Video Detection System and Ethernet System Improvements

IL Route 21 (Milwaukee Avenue) and Winchester Road: Phase I and II, Intersection Design Study, Intersection Widening, Temporary and Permanent Signal Improvements

COOK COUNTY DEPARTMENT OF TRANSPORTATION AND HIGHWAYS
Traffic Signal and Electrical Engineering Design Services:
- 12-TSDS-12-ES
- 09-TSDS-08-ES
- 03-TSDS-06-ES
- 01-TSDS-05-ES
- 99-TSDS-03-ES
KANE COUNTY DIVISION OF TRANSPORTATION
Randall Road (Dean Street to Main Street): Traffic Signal Modifications, Fiber Optic Interconnect and Ethernet Improvements

Randall Road (Red Haw to Binnie Road): Traffic Signal Modifications, Fiber Optic Interconnect and Ethernet Improvements


MCHEMRY COUNTY DIVISION OF TRANSPORTATION
Randall Road (Harnish Drive to Miller Road): Signal Coordination and Timing Study

Traffic Signal Timing Assistance and Review: Various

Chapel Hill Road and Bay Road: Intersection Channelization and Traffic Signal Installation

River Road and Miller Road: Temporary Traffic Signal Improvements

CITY OF NAPERVILLE
US Route 34 (Ogden Avenue) and 5th Avenue: Intersection Design Study and Permanent Traffic Signal Improvements

111th Street and Thatcher: Permanent Traffic Signal Improvements and Signal System Interconnect

Brach/Brodie Property, IL Route 59 and 75th Street: Intersection Design Studies and Traffic Signal Improvements

Ondeal Nalco, Diehl Road and East Entrance: Permanent Traffic Signal Improvements and Fiber Optic Closed Loop System

OTHER PROJECTS
IL Route 60 (Towline Road) and Field Drive/Saunders Road, Lake Forest: Phases I and II, Intersection Design Study, Roadway and Traffic Signal Improvements

Kildeer Commons, US Route 12 (Rand Road) and Quentin Road, Kildeer: Intersection Design Studies, Temporary and Permanent Traffic Signal Improvements and Fiber Optic Closed Loop System

IL Route 62 (Algonquin Road) and IL Route 58 (Golf Road), Rolling Meadows: Intersection and Traffic Signal Improvements with In-Pavement Lighting

IL Route 58 (Golf Road) and New Wilke Road, Rolling Meadows: Phase I and II Intersection Design Studies, Intersection and Traffic Signal Improvements.

Balmoral Avenue (Des Plaines River Rd to N. Pearl St), Rosemont: New Traffic Signal Installations, Fiber Optic Interconnect and Video Monitoring Improvements.
THOMAS SZABO  
Traffic Operations Project Manager

YEARS EXPERIENCE: 27  
YEARS WITH CBBEL: 2

EDUCATION  
Pre-Engineering  
Elgin Community College

CERTIFICATIONS  
Traffic Operations Practitioner Specialist (TOPS) (TPCB)  
Traffic Signal Operations Specialist (TSOS) (TPCB)  
Traffic Signal Inspector (IMSA)  
Traffic Signals, Senior Level III (IMSA)  
Fiber Optics for ITS, Level I (IMSA)  
Work Zone Traffic Control (IMSA)  
Signing and Marking, Senior Level III (IMSA)  
Traffic Control Technician/Supervisor (ATSSA)  
National Incident Management System (NIMS) IS100b, IS 200b, IS 700a and IS 800b (FEMA)

PROFESSIONAL AFFILIATIONS  
Institute of Transportation Engineers (ITE)  
International Municipal Signal Association (IMSA)

ITS Midwest

Project Manager with experience in multiple aspects of arterial traffic engineering operations and design; including traffic signals, ITS/ATMS systems, traffic studies, signing/marking, work zone traffic control, agency coordination as well as familiarity with IDOT Local Roads and federal aid project processes.

Extensive experience in Department of Transportation (DOT) project management, policy and operations including 26 years with Kane County Division of Transportation where he performed a variety of project management duties related to design and construction engineering, planning, and operations including 14 years as Traffic Section Manager where he was responsible for day to day traffic operations as well as project related traffic planning and engineering.

PROJECTS:

Centralized Transportation Management System, City of Naperville: Project Manager responsible for design and submittal of Phase 2 plans and specifications. The project consisted of the integration of four existing closed loop traffic signal systems into a new traffic management network including the addition of traffic management software to be utilized by City Traffic Engineers. Traffic signal cabinets at (34) Thirty-Four locations primarily along the Washington Street corridor including the City's downtown business district were upgraded for Ethernet communications to create a Giga-Byte fiber optic network. Approximately Two (2) miles of underground steel conduit and over Eight (8) miles of new fiber optic cable were installed. Also, (P/TZ) Pan/Tilt/Zoom monitoring cameras were installed at Six (6) locations throughout the project limits.

143rd Street (IL Route 7) Improvements, Village of Orland Park: Responsible for traffic modeling (through the use of Synchro/SimTraffic software) of existing and proposed (2040) geometric alternatives as part of Phase 1 engineering studies. The project included widening (from two to four lanes) of 143rd Street (IL Route 7) from Compton Court to Beacon Street necessitating the development and evaluation of various alternatives for the re-configuration of the intersections at Union Street and Southwest Highway (IL Route 7). Two existing stop controlled intersections were also evaluated for traffic signal control.

East River Road Traffic System Re-Optimization (Work Order No. 7), Cook County Division of Transportation and Highways: Responsible for the development, field implementation of revised timing plans and agency coordination with IDOT and Cook County. The project consisted of the re-optimization of an existing IDOT closed loop traffic signal system (along Golf Road) for the addition of the intersection of East River Road and the I-294 SB exit ramp. Three (3) new time-of-day (TOD) plans were developed for the intersection; and the existing plans at the intersection of Golf Road and East River Road were revised both to improve progression of traffic on the expressway ramp and along this section of East River Road under Traffic Responsive Programming (TRP) operations.

Traffic Signal System Maintenance & Operations, Village of Rosemont: Responsible for the continuous maintenance and operational oversight of the Village’s closed loop traffic signal system including Sixteen (16) traffic signals located primarily along Des Plains River Road and Balmoral Avenue through the Rosemont Entertainment District. The task consists of the monitoring of traffic signal operations by utilizing ARIES signal management software, remote traffic monitoring cameras and actual field review on a regular basis to identify operational deficiencies including issues with signal equipment health and programming. Identified deficiencies are in turn either addressed through direct coordination with the Village’s traffic signal maintenance contractor for signal equipment maintenance attention or by CBBEL staff for any needed adjustments to current traffic signal programming.

103rd Street and 248th Avenue Traffic Signal Installation, City of Naperville: Responsible for the design/submittal of Phase 2 plans and specifications for the installation of a new traffic signal installation. The project consisted of a new traffic signal installation at the intersection of 103rd Street and 248th Avenue, which was 4-way Stop controlled. Also included was a wireless interconnect system (along 248th Avenue) to adjacent traffic signals between 111th Street and Wolf's Crossing. Sidewalk and curb ramp modifications at the intersection for ADA/PROWAG compliance were also included in the project.

Washington Street Adaptive Signal Control Technology, City of Naperville: Project Manager responsible for phase 1 engineering study and phase 2 engineering design for the deployment of Adaptive Signal Control Technology (ASCT) along the Washington Street

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corridor in downtown Naperville. The Phase 1 engineering Study consisted of the performance of a system engineering analysis and preparation of systems engineering document outlining proposed concept of operations, systems requirements, proposed validation and verification plans. Phase 2 Engineering Design consisted of consultation to the City regarding product selection of an ASCT system and the preparation of plans, specifications and estimates for the traffic signal modifications necessary to deploy ASCT.

Weber Road and Caton Farm Road Traffic Signal Installation, City of Crest Hill: Responsible for the design of Phase 2 plans, specifications and estimates for the modernization of an existing span-wire (long term temporary signal). The project consisted of the widening of Caton Farm Road, installation of a temporary traffic signal, installation of a new permanent traffic signal and wireless interconnect (along Caton Farm and Weber Roads) to adjacent traffic signals.

Emergency Vehicle Priority System Installation, Village of Crestwood: Project Manager responsible for the design of Phase 2 traffic signal plans, specifications and estimates to modify existing traffic signals with Emergency Vehicle Priority (EVP) systems. The project consisted of the installation of EVP systems at Seventeen (17) signalized locations along IL 50 (Cicero Road), IL 83 (Ca Sag Road), 127th Street and 135th Street within the Village of Crestwood. The EVP systems provided also for the future application of Global Positioning System operations. The project was funded with federal Surface Transportation Urban (STU) program funds and also included assistance to the Village for the preparation of all funding applications and agreements per the IDOT federal aid process.

Highway Safety Improvements – Various Routes, Kane County Division of Transportation: Project Manager responsible for the design of Phase 2 signal plans, specifications and estimates for the implementations of various safety countermeasures along various Kane County highways. The project consisted of the modernization of Twenty-Seven (27) for improved signal head positioning (for one head per lane/center of lane) and addition of Flashing Yellow Arrow (FYA) for all permissive only and permissive/protected left turns as well the addition of driver feedback (YOUR SPEED IS) signs and various signing and pavement markings along Fabyan Parkway, Orchard Road and Randall Road. The project also included the implementation of various safety countermeasures for rural roadway departure crashes on Hughes Road including various signing and pavement markings.

KANE COUNTY DIVISION OF TRANSPORTATION, 1988 – 2014:
Skills and Experience:

- Management of the operations and maintenance of approximately one hundred and fifteen traffic signal installations including Kane County’s ATMS/ITS network, numerous closed loop systems and approximately one thousand street lights.

- Oversight of various phases (planning, funding acquisition, design engineering and construction inspection) of various county ITS projects including ATMS network, future AOC, RWIS and DMS improvements.

- Competence with the design, installation and maintenance of Ethernet fiber optic communications.

- Knowledge of IDOT District 1 and regional agencies’ traffic signal design policies.

- Aptitude with traffic signal controllers and TACTICS/TransSuite advance traffic management systems.

- Participation in the development of regional ITS/traffic operation policy and projects as a member of the CMAP (Chicago Metropolitan Agency for Planning) ATTF (Advance Technology Task Force) and RTOC (Regional Transportation Operation Coalition).

- Oversight over the preparation of Plans, Specification and Estimate (PS&E) for various traffic related bid contracts.

- Proficiency in traffic signal timing and intersection capacity analysis using Synchro and HCS traffic analysis software.

- Interact/respond to public complaints/requests regarding traffic related issues including traffic signal operations, safety concerns, etc.

- Presenter of educational and informational materials for seminars, workshops and public hearings and committees (including County Board Transportation Committee meeting).

- Provide technical guidance and review of traffic related elements for phases 1, 2 and 3 including IDS, PS&E, MOT plans and constructability issues for capital and permit improvement projects.

- Formulation of planning recommendations for future improvement projects and preparation of funding requests for solicitation to outside funding sources including CMAQ, HSIP/ HRRRP and ARRA.

- Development of various departmental policies and guidelines.

- Performance of various traffic engineering investigations for intersection control (Stop/signal warrants), speed limit alteration, parking prohibition, crash analysis, benefit-cost studies, etc.

- Substantial knowledge of various accepted traffic engineering standards and guidance provided in the Manual for Uniform Traffic Control Devices (MUTCD), ITE Traffic Engineering Handbook, IDOT BDE and other guidelines.

- Good understanding of various traffic related laws set forth in Illinois Vehicle Code and Road and Bridge laws.
Traffic Engineer with experience in traffic operations analysis, signal design, speed studies, intersection capacity analysis, and signal coordination and timing (SCAT). Experience includes analysis, design, coding, and field observation, as well as preparing reports, meeting exhibits, agendas, and participating in public information meetings and local official coordination meetings. Responsibilities include preparation of construction plans, intersection design studies, emergency signal preemption, signal interconnects, and traffic control warrant analysis.

Software Experience: VISSIM Microscopic Simulation program (PTV America), CORSIM Microscopic Simulation program (McTrans), Synchro/Sim Traffic Modelling (Trafficware), HCS+ (McTrans), HCS 2010 (McTrans), ArcGIS Geographic Information Systems (ESRI), MicroStation V8i (Bentley), AutoCAD 3D Modeling (Autodesk), MySQL databases, Microsoft Office

IL Route 83 Traffic Signal Interconnect, LCDOT: Project Engineer responsible for preparing design plans and specifications to install 6.2 miles of fiber optic interconnect along IL Route 83, integrating 10 signalized intersections into LCDOT PASSAGE Ethernet network and onto the County's Centracs Advanced Transportation Management System. Project located in the Villages of Antioch, Lake Villa, and Round Lake Beach, consisted of upgrades at each intersection including: Ethernet switches, upgrading controllers to current NTCIP standards, Bluetooth detectors to calculate vehicle travel times occurring in real-time, as well as PTZ cameras and video encoders to transmit data to LCDOT Traffic Management Center. In addition, project included plans and exhibits for attaching conduit to an IDOT maintained structure in Canadian National Railroad ROW. Project was let through IDOT and used CMAQ funds.

Gilmer Road Adaptive Signal Control, LCDOT: Project Engineer responsible for preparing design plans and specifications to install adaptive signal control equipment along Gilmer Rd. Project located in the Villages of Mundelein and Hawthorn Woods, combined two different types of vehicle detection creating a more accurate adaptive signal control system to adjust signal timings in real-time based on changing vehicle demand in the network. Project consisted of: installing adaptive cabinet equipment, adaptive video detection, additional detector loops, controller replacement and upgrades to NTCIP standards, Bluetooth detectors, PTZ cameras, Ethernet repeaters, relocating ITS equipment, ensuring traditional video detection equipment and adaptive video equipment can operate simultaneously, and that intersections can communicate with County's Centracs Advanced Transportation Management System. Project specifications also required a before study, with validation study comparing it to both an optimized signal timed network, and calibrated adaptive signal control network. In addition, project also included removal and replacement of all existing traffic signal equipment at the intersections of Gilmer Rd and Hawley St. Project was let through LCDOT and used CMAQ funds.

Aptakisic Road Adaptive Signal Control, LCDOT: Project Engineer responsible for preparing design plans and specifications to install adaptive signal control equipment along Aptakisic Rd from Parkway Dr to Brandwyyn Ln. Project located in Buffalo Grove, consisted of: installing adaptive equipment, replacing controller cabinets, installing contact closure cards, queue detection, Bluetooth detectors, relocating ITS equipment, ensuring video detection equipment and adaptive equipment can operate simultaneously, and that intersections are able to communicate with County's Centracs Advanced Transportation Management System. Project specifications also outlined before and after study requirements for timing consultant concerning new adaptive signal system by establishing a baseline study and comparing it to both an optimized system and configured adaptive system. Project was locally let through LCDOT and used CMAQ funds.

Traffic Signal Modernization (IL Route 50 and Southwest Highway), IDOT: Project Engineer responsible for preparation of contract plans and specifications for intersection which is interconnected to a railroad grade crossing. Project consisted of removal and replacement of all traffic signal equipment at the intersection while maintaining the interconnect to adjacent at-grade railroad crossing and fiber optic interconnected signal system in addition to enhancing pedestrian accommodations at the intersection.

Traffic Signal Modernization (Wolf Road and Winters Drive), Northlake: Project Engineer responsible for design and submittal of traffic modernization plans. Assisted with required coordination with IDOT and the City. Project consisted of removal and replacement of all existing signal equipment and upgrading the pedestrian accommodations to current standards.

**Traffic Signal Modification (IL Route 64 and Hillside Avenue), Northlake, Bolingbrook, IDOT:** Project Engineer responsible for design and submittal of traffic modification plans. Project consisted of retrofitting LED pedestrian signal equipment within the existing incandescent system and upgrading the pedestrian accommodations to current ADA policy.

**Intersection Design Study (IL 53 and Royce Road), Bolingbrook, IDOT:** Project Engineer responsible for analyzing proposed intersection lane configuration and auxiliary lane storage lengths using Highway Capacity Software 2010 according to IDOT District 1 standards and IDOT Bureau of Design requirements.

**Capacity Analysis (IL 50 and Southwest Hwy), Oak Lawn, IDOT:** Project Engineer responsible for coding and analysis of the intersection using Highway Capacity Software 2010 according to IDOT District 1 standards. This analysis was used to determine if protected-only left turn phasing could be implemented at the intersection to reduce angle and turning type crashes.

**Work Zone Queue Analysis, Various Locations, IDOT:** Project Engineer responsible for developing supporting materials for a Preliminary Transportation Management Plan for 2 work zone locations in Cook and Lake Counties. The analysis determined if proposed work zone would meet Safety Policy Memorandum 03-7 Work Zone Safety and Mobility Rule, and the Bureau of Design’s Work Zone Management Goals.

**SCAT, Collinsville and Godfrey, IDOT:** Engineer Intern responsible for assisting with developing timing plans for intersections in closed loop traffic signal systems. Responsibilities included: conducting field visits and observations, and assisting with the network coding.

**Traffic Signal Modification (Lake Cook Road and Green Bay Road), FPDC:** Project Engineer responsible for design of retrofitting existing signals with pedestrian accommodations, proposed curb ramps, and pavement markings. Project was partnered with Lake Cook Rd Multi-Use Path whose project limits traversed the intersection. Signal project intention was to provide a safe passage for path users. Project followed IDOT District 1 Traffic Signal Design Guidelines 2009 edition.

**Balmoral Avenue at I-294 Phase I, Illinois Tollway, Rosemont:** Engineer Intern. Project consisted of Phase I and Phase II Engineering for the entrance ramp onto SB I-294 and an exit ramp for NB I-294 from Balmoral Avenue, also new signal installations on Balmoral Avenue. Responsibilities included: assisting with the network coding, capacity analysis, and modeling for the signal interconnect.

**ITS Project, River Road and Balmoral Avenue Corridors, Rosemont:** Engineer responsible for programming Queue Detector initiated Split Demand signal patterns for the Balmoral and I-294 interchange. Also conducted remote monitoring of the intersection detectors’ functionality.

**River Road at I-190 WB Ramp/CTA Station, Rosemont:** Engineer responsible for developing CMAQ application supporting documents to acquire allocation of CMAQ funds according to CMAP Programming and Management Policies.

**EVP Installation, Various Locations, Park Ridge:** Engineer Intern. Assisted with traffic signal design. Responsibilities included: assisting with field visits, drafting plan sheets in CAD, and assembling the signal plans.

**Traffic Signal Modernization (Cedar Lake Road and Clarendon Drive), LCDOT:** Project Engineer responsible for preparation of contract plans and specifications in addition to proposed fiber optic signal interconnect for 3 signalized intersections along Cedar Lake Rd. Project was funded by CMAQ.

**Predictive Crash Analysis (Aptakisic Road), Buffalo Grove and Long Grove, LCDOT:** Project Engineer responsible for network coding and analysis. Project consisted of analyzing a one mile corridor of Aptakisic Rd from Buffalo Grove Rd to IL Route 83 using Federal Highway Administration’s Interactive Highway Design Model (IHSDM) based on Highway Safety Manual’s Predictive Crash Methodology. Model compared 3 roadway design alternatives: no-build alternative, 3-lane alternative, and a 5-lane alternative.
Traffic Engineer involved in projects concerned with traffic signals, signal coordination and timing (SCAT), and traffic operations analysis. Responsibilities include preparation of intersection design studies, traffic signal design, railroad sequences, isolated intersection capacity analysis and development of closed system signal timings.

**SIGNAL COORDINATION AND TIMING**
McHenry County Division of Transportation: Signal Coordination and Timing (SCAT) project for eighteen intersections along Randall Road/Rakow Road, Algonquin Road, Virginia Road and Pyott Road.

**IDOT, District 2-5:** Signal Coordination and Timing (SCAT) projects for 29 intersections in DeKalb and Sycamore along IL Route 38 and IL Route 23, three intersections in Rock Island along US Route 67 (15th Street), three intersections in Ottawa along IL Route 23, four intersections in Machesney Park along IL Route 251 (2nd Street) and five intersections in Champaign along Mattis Avenue.

**IDOT, District 2-5:** Signal Coordination and Timing (SCAT) projects for four intersections in Princeton along IL Route 26 (Main Street), eleven intersections in Champaign along Springfield Avenue and Mattis Avenue, eleven intersections in Freeport along IL Route 26 and South Street and nine signals in Dixon along IL Route 26.

**IDOT, District 6-9:** Signal Coordination and Timing (SCAT) project for 13 intersections along Madison Street, Jefferson Street and Walnut Street in the City of Springfield.

**IDOT, District 2-5:** Signal Coordination and Timing (SCAT) projects for IL Route 47 (eight intersections in Yorkville) and IL Route 23 (six intersections in Ottawa).

**IDOT, District 2-5:** Signal Coordination and Timing (SCAT) projects for IL Route 5 (five intersections in Moline), IL Route 102 (four intersections in Bourbonnais), IL Routes 18 and 23 (ten intersections in Streator), 42nd Avenue (four intersections in East Moline) and IL Route 92 (three intersections in Rock Island).

**IDOT, District 2:** Signal Coordination and Timing (SCAT) for forty-nine intersections in the central business district of Rockford, Illinois. The IDOT routes included Business Route 20, IL Route 2 and IL Route 251.

**Cook County Highway Department:** Signal Coordination and Timing (SCAT) project consisting of nine intersections on Lake Cook Road and three intersections on IL Route 83.

**Cook County Highway Department:** Signal Coordination and Timing (SCAT) project consisting of four intersections on Meacham Road from Nerge Road to K-Mart entrance/Texas Street.

**Cook County Highway Department:** Signal Coordination and Timing (SCAT) project consisting of twenty-one intersections on Lake Cook Road from Portwine Road to US Route 41 ramps.

**Cook County Highway Department:** Signal coordination and timing project funded through the Congestion Mitigation and Air Quality (CMAQ) program. The project consists of seventeen intersections along Schaumburg Road from Martingale Road to Knollwood Drive.

**Cook County Highway Department:** Signal coordination and timing project funded through the CMAQ program. The project consisted of six intersections on Arlington Heights Road from Devon Avenue to Oakton Street.

**Rosemont:** Signal coordination and timing project funded through the CMAQ program. The project consisted of nine intersections on Des Plaines River Road from Balmoral Avenue to Devon Avenue.

**McHenry County Highway Department:** Signal coordination and timing project for three intersections on Randall Road from Huntington Drive/Bunker Hill Drive to Acom Lane.

**RAILROAD QUIET ZONE**
**New Lenox:** Preparation of submittal to the Federal Railway Administration to create a new 24 hour Quiet Zone for six at-grade railroad crossing along the Elgin, Joliet & Eastern Railway line. The quiet zone limits were from Gougar Road to School House Road.
West Central Municipal Conference: Project consisting of the preparation of a final submittal to the Federal Railway Administration to create a new 2.9 mile railroad quiet zone through the City of Berwyn, Village of Riverside and the Village of North Riverside. The proposed quiet zone will include 8 at-grade highway-railroad crossings and one at-grade pedestrian-railroad crossing along the Chicago Central & Pacific (CCP).

Elmwood Park: Project consisting of the preparation of a final submittal to the Federal Railway Administration to create a new partial 0.69 mile railroad quiet zone through the Village of Elmwood Park. The proposed partial quiet zone will include four at-grade highway-railroad crossings and two at-grade pedestrian-railroad crossing along the Northeastern Illinois Commuter Rail Corporation’s ("Metra") tracks.

STUDIES
Glendale Heights: Traffic Signal Warrant Study on IL Route 64 and Pearl Avenue/Western Avenue.


Orland Park: Traffic Signal Warrant Study for IL Route 7 (159th Street) and 113th Court.

DuPage County: IL Route 19 at York Road Grade separation project-accident analysis, Sim Traffic simulation, and traffic operations analysis.

IDOT, District 1, Phase I Study: Traffic operations analysis of IL Route 60 (Half Day Road) and Interstate 94. Traffic modeling using Synchro, Sim Traffic and HCS for alternatives analysis and operational evaluation.

Elmwood Park: Traffic study on 75th and 77th Avenues to identify existing traffic patterns and to evaluate alternatives for traffic calming.

Elmwood Park: At grade, railroad crossing study on Grand Avenue at 73rd, 75th and 76th Avenues.

DESIGN
Naperville: Traffic signal and system design for West Street from Emerald Drive to Martin Avenue.

IDOT, District 1: Grounding research and design. Developed specifications and design standards for grounding systems at signalized intersections.

Safespeed: Red Light Camera Installation plans for Dempster Street and McCormick Boulevard Street in Skokie.

Safespeed: Red Light Camera Installation plans for IL Route 43 (Harlem Avenue) and Cermak (22nd Street) in North Riverside.

Safespeed: Red Light Camera Installation plans for IL Route 50 (Cicero Avenue) and 87th Street in Hometown.

ADDITIONAL EXPERIENCE
Chicago Ridge: Project consisted of securing a grant from the Illinois Clean Energy Community Foundation to retrofit incandescent traffic lights with LED traffic lights for 14 intersections.

Northlake: Project consisted of securing a grant from the Illinois Clean Energy Community Foundation to retrofit incandescent traffic lights with LED traffic lights for 6 intersections.

IDOT, District 1: Sequence of Operation, Railroad Sequence of Operation and Emergency Vehicle Sequence of Operation for various intersections in Cook, DuPage, Lake and Will Counties; Developed new format for railroad sequence of operation.

Hanover Park: Developed plans and specifications for emergency vehicle preemption at the intersection of Barrington Road at IL Route 19 (Irving Park) and Barrington Road at US Route 20 (Lake Street).

Chicago Ridge: Local project development report to add a right turn lane at the intersection of IL Route 7 (Southwest Highway) and Ridgeland Avenue.
Traffic Engineer responsible for a variety of transportation and traffic projects. Primary duties include data analysis, Synchro modeling, conducting field reconnaissance, travel time studies, and preparing project deliverables.


2012-2014 SCAT Monitoring, Cook County Highway Department: Traffic Engineer. Actively monitoring 30 closed loop traffic signal systems throughout suburban Cook County on a weekly basis remotely using Aries and MARC-NX software. Responsible for manually verifying failed comparisons, preparing detailed weekly report and summary table for County staff, and maintaining record of construction activities, system status, and both approved and unapproved controller data changes.

SCAT Study (IL 17 and IL 50), IDOT: Traffic Engineer. Tasks include field data collection and review, preparing Synchro models, assisting with field implementation, conducting travel time studies, and preparing exhibits and project documentation. Project includes Signal Coordination and Timing for 26 intersections in the Central Business District of Kankakee.

SCAT Study, US Business Route 20 (East State Street), IDOT: Traffic Engineer. Tasks include field data collection and review, preparing Synchro models, assisting with field implementation, conducting travel time studies, and preparing exhibits and project documentation. Project includes Signal Coordination and Timing for 20 intersections within the busy commercial and retail corridor in eastern Rockford.

SCAT, IDOT Districts 6-9: Traffic Engineer responsible for field data collection and review, preparing Synchro models, assisting with field implementation, conducting after studies, and preparing final deliverables including exhibits, Aries intersection graphics, and SCAT report. Project consists of SCAT Studies for 58 intersections on eight state traffic signals systems located in Springfield, Quincy, Charleston, Alton, Bethalto, Roxana, Waterloo, Harrisburg, and Mt. Vernon.

Balmoral Avenue SCAT and Operational Review, Rosemont: Traffic Engineer responsible for conducting field observations during special events including concerts and movie premieres, conducting ongoing review of traffic signal system timing data, preparing Aries graphics, collecting and processing traffic data, and researching alternative control and communications equipment. Project consists of field observations, conducting traffic counts, development of Time of Day plans, fine tuning timing plans, actively monitoring of traffic operations and developing new traffic control strategies to accommodate changing traffic conditions.

Aptakisic Road Phase I, Buffalo Grove & Long Grove, LCDOT: Traffic Engineer responsible for tabulating crash data and summarizing crash trends, processing and analyzing raw traffic volume data for entry into Synchro model, conducted gap studies for future conditions using SimTraffic to meet LCDOT requirements for alternatives analysis. Project is a Phase I Study evaluating alternative roadway improvements along two lane section of Aptakisic Road.

Safety Assessment Project, IDOT: Traffic Engineer. Assisted Safety Assessment Project Engineer with data tabulation and crash report review, as well as arranged contacts with local police departments and Lake County Sheriff's Department to obtain police insight regarding crash history and roadway deficiencies within the study corridor.

153rd Street and Ravinia Avenue Traffic Signal Installation, Orland Park: Traffic Engineer. Performed field observations during weekend conditions to evaluate queueing and delay at the existing all-way stop controlled intersection. Conducted equipment inventory with Village staff to determine what existing Village-owned equipment could be reused in proposed traffic signal installation. Project included designing permanent span-wire traffic signal installation for intersection to accommodate traffic generated by new commercial developments and short-term detour routes around Orland Park.

Citywide Equipment Inventory and Sign Assessment, Evanston: Traffic Engineer. Project included a field inventory of all City-owned traffic signs, traffic signals, and street lights using GIS and GPS data collection for use within Evanston's GIS system. Also included evaluation of traffic sign retro reflectivity to comply with FHWA requirements.
Professional Electrical Engineer with experience in a wide array of construction projects focusing on electrical applications. Experience includes design of roadways/site lighting, sports lighting, recreational facilities, wastewater and storm/flood control pump stations, potable water pump stations, generator applications and site irrigation. Responsibilities include assessing initial design criteria, evaluating design scenarios, creating photometric design submittals, creating exhibits, designing and constructing complete CAD drawings, generator sizing, developing cost estimates, shop drawing review, QA/QC review and construction observation.

Extensive computer capabilities include: AGI 32 and Lumen Micro for photometric calculations; MicroStation and AutoCAD for plan drawings; Excel and EDR (Electrical Designers Reference) for voltage drop calculations, panelboard circuit loads/schedules and fault current calculations; Kohler Spec Sizer, Caterpillar Spec Sizer and Cummins Power Suite for generator sizing; Power Point and Paint Shop Pro for creating exhibits and image manipulation.

ROADWAY LIGHTING DESIGN

Wilson Street Streetscape, Batavia: Project Engineer responsible for photometric design, electrical design, irrigation design, utility coordination, plan preparation, specifications and cost estimate. Project included 12 ornamental roadway light poles, 12 pedestrian scale light poles, 19 tree receptacles, 1 new controller, 1 relocated controller and irrigation.

Houston and River Streets Streetscape, Batavia: Project Engineer responsible for photometric design, electrical design, irrigation design, utility coordination, plan preparation, specifications and cost estimate. Project included 41 new ornamental light poles, 43 tree receptacles, monument lighting, 2 new lighting controllers and irrigation.

Balmoral Extension (Stage 2), Rosemont: Project Engineer responsible for photometric design, electrical design, utility coordination, plan preparation, specifications and cost estimate. Project included 15 new roadway light poles, 41 underpass luminaires, 1 lighting controller, new pump station and controller, and relocation of underground primary electric lines.

Balmoral Avenue Extension (Stage 3), Rosemont: Project Engineer responsible for photometric design, electrical design, utility coordination, plan preparation, specifications and cost estimate. Project included 83 roadway light poles, 15 underpass luminaires, new electric sliding gate, relocation of 6 light poles, removal of 20 light poles, and 1 new lighting controller.

Prospect Avenue Lighting Improvements, Mt. Prospect: Project Manager responsible for electrical design, utility coordination, plan preparation, contract document preparation, bidding assistance, shop drawing review and construction observation. Project included 18 new pedestrian scale LED poles, 12 new roadway LED poles, 2 new and 1 rehabbed lighting control cabinet, 2 festival electric cabinets, 4 remote receptacle cabinets, 71,000’ of wiring and provisions for future electric vehicle charging stations.

Uptown Streetscape (Phase 4), Park Ridge: Project Manager responsible for photometric design, electrical design, irrigation design, utility coordination, plan preparation, specifications and cost estimate. Project included 43 new ornamental roadway poles, 26 new pedestrian scale light poles, 68 tree receptacles, 1 lighting controller, irrigation and over 89,000’ of wire.

Stearns Road Bridge, Kane County: Project consisted of 12 50w metal halide ornamental luminaires on 15’ light poles mounted to bridge parapet wall. All other lighting design aspects of major river bridge were performed such as circuit sizing/design, embedded conduits/junction boxes, controls, and parapet foundations. This project was designed to IDOT standards and all lighting design and related coordination was performed in-house. Services included photometric calculations, electrical design, creation of contract drawings and specifications, summary of quantities, engineers cost estimate and new electric service coordination.

Balmoral Avenue at I-294 (Phase III) Contract No. 11001, Rosemont: Project Engineer responsible for photometric design, electrical design, gas and electric utility coordination, generator sizing, HVAC design, plan preparation, specifications, cost estimate and construction observation. Project included new off-ramp for SB I-294 at Balmoral Avenue. This included an all-electronic two-lane toll plaza with building, 2,500’ of ramp lighting, and 3,800’ of roadway lighting encompassing 5 signalized intersections and modifications to 4 existing lighting systems.

YEARS EXPERIENCE: 24
YEARS WITH CBBEL: 15

EDUCATION
Bachelor of Science, 1990
Electrical Engineering
University of Illinois at Chicago

PROFESSIONAL REGISTRATION
Professional Engineer, IL, 062.057484, 2004
Professional Engineer, WI, 42880-6, 2013

CERTIFICATIONS
LEED Accredited Professional
USGBC

Lighting Certified Professional
NCQLP

PROFESSIONAL AFFILIATIONS
Illuminating Engineering Society of North America (ESNA)

Consulting Electrical Engineers (CEE), Division of the Electric Association
US Route 14 (Miner Street) Streetscape, Des Plaines: Project Engineer responsible for electrical design. Project included 33 tree receptacles, relocating 3 light poles, new electrical controller, irrigation and over 26,000' of wiring.

IL Route 83 and Plainfield Road Intersection Lighting, Willowbrook: Project Manager. Duties included photometric design and construction observation, electrical design, utility coordination, plan preparation, specifications and cost estimate. This project included 26 new light poles and 1 new lighting controller for intersection and transitional lighting for approximately 2,500' of roadway.

111th Street Lighting, Naperville: Project Engineer. Duties included photometric design, electrical design, utility coordination, plan preparation, specifications and cost estimate. This project included 20 new light poles and 2 new lighting controllers along 2,800' of roadway.

Wood Sage Road and Ring Road Lighting Improvements, Peoria: Project Manager. Duties included photometric design, electrical design, utility coordination, plan preparation, specifications, cost estimate and shop drawing review. This project included 22 new light poles and 1 new lighting controller along 3,100' of roadway.

Midwest Club Roadway Lighting, Oak Brook: Project Manager. Duties included electrical design, utility coordination, plan preparation, cost estimate, shop drawing review and construction observation. This project included 33 new ornamental light poles, 2 new lighting controllers, and removal of 32 existing light poles.

Spartan Drive Lighting and Aeration, Elgin: This project included 25 new poles, 1 new lighting controller and replacement of 32 existing poles along 7,500' of roadway. The new poles were made up of two LED luminaries, one roadway type fixture and one ornamental pedestrian fixture. Also included was irrigation for new landscaped bioswale median. Duties included photometric design, electrical design, utility coordination, plan preparation, specifications, cost estimate, shop drawing review and construction observation.

Lockport Streetscape, Plainfield: This project included 65 relocated light standards and 2 new lighting controllers along 1,800' of roadway in downtown district. Also included were landscape lighting, LED lighted seat walls, receptacles for holiday lighting, power distribution cabinets for local events, sound system, irrigation system, LED wayfinding/street signs and undergrounding of all overhead utility lines within the project limits. The existing light poles were removed, retrofitted with speakers, repainted, changed from high pressure sodium lamps to metal halide and reinstalled at new locations. Duties included photometric design, coordination and review of utility relocations, electrical design, plan preparation, irrigation design, specifications, cost estimate, shop drawing review and construction observation.

Project included 10 new light poles, 9 lighted bollards, and 1 remote receptacle cabinet for local events and a well pump.

Marshfield Plaza, Chicago: Project included parking lot and sign lighting which included 2 major anchor stores (each with own design criteria) and numerous mini-anchors. 76 new light poles were installed and controlled in 4 locations. New underground electric service and communication lines were designed and coordinated to feed all tenant spaces. Duties included photometric design, electrical plan design and preparation, utility coordination, cost estimate and shop drawing review.

DuPage County Courtyard, Wheaton: Project included 11 ornamental roadway light poles, 35 ornamental walkway light poles, 8 ornamental parking lot light poles and a remote receptacle for events. Existing electrical panels were upgraded to accommodate new lighting. Duties included photometric design, plan design and preparation, and cost estimate.

Orland Park Metra Station Site Lighting: Project included 22 new light poles and new lighting controller. Duties included photometric design, plan design & preparation, & cost estimate.

Addison Creek Path Lighting, Northlake: Project included 35 ornamental light poles and a new controller. Due to proximity to floodplain all wiring connection splices were to be in luminaries housing and in pedestal controller. Duties include plan design and preparations, cost estimate and shop drawing review.

Community School District 303 Bus Maintenance Facility, St. Charles: Project included lighting bus and staff parking lots using 17 light poles controlled from inside maintenance building. Electrical provisions were made for bus engine block heaters. Duties included photometric design, plan design and preparation, and cost estimate.

Brickyard Site Lighting, Chicago: Project included lighting the parking lot for newly reconstructed mall which included 3 main anchor stores (each with own lighting design criteria) and over 12 mini anchors. 86 poles were used and were controlled in 5 locations. Duties included photometric calculations and exhibits, plan design & preparation, cost estimate & shop drawing review.

Metra Parking Lot Lighting, Wilmette: Project included 35 parking lot type light poles, 9 ornamental type light poles and a new lighting controller. Also include were relocation of a ComEd utility transformer, removal of 36 existing light poles and existing lighting controller. Duties included photometric design, plan design and preparation, cost estimate, and shop drawing review.

National Street Metra Station, Elgin: Project included 50 parking lot light standards in which 13 were located on the train platform deck. Also, included one lighting controller and 12 ornamental poles along the Fox River. Duties included photometric design, cost estimate and production of CAD drawings.
Professional Engineer responsible for field construction projects as Resident Engineer. Duties include construction observation to ensure adherence to drawings and specifications, measurement and tracking of job quantities for as-built records and pay estimates, monitoring and reporting Contractor progress and serving as the owner representative.

Atkinson Road Extension, Grayslake: Resident Engineer for improvements to Atkinson Road. The new Atkinson Road from Route 137 to Route 120 consists of 2,500’ of new pavement and 1,000’ of improved pavement, storm sewer and drainage ditches and improvements to two signalized intersections. The work included over 60,000 CY of earthwork through two wetlands and construction of a pond and depressional storage area. Work was substantially completed on accelerated schedule in only 18 weeks with a construction cost of almost $4 Million.

Highland Road Improvements, Grayslake: Resident Engineer for improvements to Highland Road. Curb and gutter and sidewalk were added to both sides of the road and storm sewer was constructed to relieve flooding conditions.

2011 Road Program, Zion: Resident Engineer for annual road program in Zion. Scope of work included full depth reconstruction of residential streets, spot curb and sidewalk repairs and drainage improvements.

2010, 2011, 2012 Road Program, Cary: Resident Engineer for annual road program that includes curb and gutter and sidewalk repair, storm sewer improvements, full depth removal and replacement of asphalt pavement and improvements to subgrade.

Midlothian Sanitary Sewer, Hawthorn Woods: Resident Engineer for installation of sanitary sewer between Hawthorn Woods and Lake Zurich. The project included 2 new lift stations, approximately 5,000’ of gravity sewers and 10,000’ of forcemain.

Northside Park, Wheaton Park District: Resident Engineer for a project involving hydraulic and environmental improvements to a series of ponds in Northside Park. The work included dredging, slope restoration, establishment of a vegetative buffer, installation of bridges and docks, and a detention pond.

Downtown Development, Lincolnshire: Resident Engineer for a site development involving mass clearing and grading, stormwater detention, revegetation, water main and a 10’ tall decorative concrete retaining wall.

IL-21 at Olde Half Day Road Improvements, Lincolnshire: Project involved re-alignment and reconstruction of Olde Half Day Road at IL-21. Sewer and water were relocated to upgrade the systems and fit the new alignment and a new traffic signal was constructed.

Quentin Road Watermain, Hawthorn Woods: Project involved installation of over 5,000’ of 12” watermain to service new residential developments. Due to access difficulties, wetlands considerations and the desire to save trees in a forested section, over half of the watermain was installed by directional bore. One section was bored using HDPE pipe to accommodate a 15’ grade change under a creek that was pulled using a continuous, fusion-welded section of pipe 650’ long.
Experienced in transportation planning and design, geometric design including roundabouts, alternative design analysis and evaluation, feasibility studies, traffic modeling and simulation, intersection design studies, public involvement incorporating Context Sensitive Solutions, facilitation of stakeholder involvement groups to solicit stakeholder input, environmental studies and processing, and the federal Phase I project development process. Mr. Huffman manages one of the two design squads within the Phase I Engineering Department, with two direct reporting staff. He is responsible for all project related coordination with the various departments of CBBEL in order to successfully meet the needs of each project, including: survey, traffic, structural, drainage, water resources, mechanical/electrical, and environmental. Duties include the preparation and coordination of all necessary components of the Phase I engineering and environmental process to achieve design approval. This includes preparation of various federal Phase I Reports from Categorical Exclusions to Environmental Assessments.

Software Experience: MicroStation, Geopack, HCS, Synchro Version 8, Auto Turn, Microsoft Word, Microsoft Excel, Microsoft Power Point, Microsoft Project, Deltek.

**US Route 45 (IL 132 to IL 173) & Millburn Bypass, Lindenhurst and Old Mill Creek:**

Lead Project Engineer (Millburn Bypass) and Project Manager (US 45). Project consisted of preparation of Phase I Engineering and Environmental Studies to secure Phase I Design Approval for a US Route 45 Bypass around the Millburn Historic District, a National Register Place. Based on coordination with IDOT and FHWA, this project required the completion of an EA to address logical termini issues. Federal funding (SAFETEA-LU) required assessment of the purpose and need for improvements to US Route 45 by the 2040 regional planning horizon, the need for a bypass and a full range of potential alternatives, and a public involvement program consistent with CSS principles. Scope included preparation of a Design Report and LDS for the bypass area (1.5 miles), and an EA from IL Route 132 to IL Route 173 (5.5 miles). Subsequently, CDRs and LDSs were prepared for the segments of US 45 from IL 132 to the Millburn Bypass and from the Millburn Bypass to IL 173, through IDOT.

**North Lake Shore Drive (Grand Avenue to Hollywood Avenue), Chicago:** Project Manager. CBBEL is a subconsultant on the Phase I Engineering and Environmental Study of North Lake Shore Drive project team. The scope of work is to conduct full Phase I Study for the section of Lake Shore Drive, a distance of approx. 7.7 miles. CBBEL's role is to assist general project development, alternative development and geometric studies, public involvement using CSS, and transportation/ geometric design of the north section. The study is proceeding through the NEPA/404 merge process and is ongoing.

**Wadsworth Road Intersection – Dilleys Road, US 41 & Kilbourne Road, Lake County:** Project Manager. The project consists of preparation of Phase I Engineering and Environmental Studies to secure Phase I Design Approval through the federal project development process for 3 intersections along Wadsworth Rd. Two of the intersections involved other County Routes and the other with US 41. An initial alternatives feasibility study is being conducted investigating various alternative designs that include roundabouts and other unique intersection/interchange design solutions. A full Phase I study is anticipated that will require coordination with IDOT for any improvements to US 41. A full range of alternatives will be developed and carried through a robust public involvement process that will involve a stakeholder involvement group and series of public meetings using CSS principles.

**143rd Street (IL Route 7) – Southwest Highway to Wolf Road, Orland Park:** Project Manager for the preparation of Phase I Engineering and Environmental Studies to secure Phase I Design Approval through the federal project development process. The scope includes roadway widening from an existing 2-lane cross section to a 5-lane cross section which includes five existing signalized intersection and one proposed signal. Additionally, an initial feasibility study was conducted for the 143rd St/Southwest Highway/Union St intersection to look at various intersection alternatives, which is adjacent to the Norfolk Southern Rail Road and required coordination with the ICC. The CCFPD also has frontage along 143rd St of approx. 4,000' and numerous coordination meetings were held. The design of 143rd St is unique to District with rolling terrain with roadway grades over 5% along the main line. A section of 143rd St will be raised approx. 5’ due to flood plain encroachment of the roadway. A variety of high quality wetlands also exists along the roadway corridor. CCDTH also has jurisdiction of two cross roadways roadway. The project is ongoing and is anticipated to be processed at a CE Group II with a 30 month Phase I schedule.
Plum Grove Road (Higgins Road to Commerce/Wiley Road), Schaumburg: Project Manager. The project consists of Phase I Engineering and Environmental Studies to secure Phase I Design Approval through the federal project development process. The project included reconstruction of Plum Grove Rd due to pavement condition and to also make some geometric improvements including a new signalized intersection. The section of Plum Grove Rd north of Golf Rd underwent a "road diet" from a 4-lane cross section to a 3-lane cross section two existing all-way stop control intersections converted to modern single lane roundabouts. When constructed, the roundabouts would be the first within the Village. Pedestrian and bicycle accommodations were also enhanced to meet current design standards. The project is ongoing and is being processed as a CE Group II with an 18 month project schedule.

Caton Farm – Bruce Road, Will County: Project Engineer/Manager. This project consists of Phase I Engineering and Environmental Studies of a new strategic regional arterial roadway running in the east/west direction to create a new crossing the Des Plaines River Valley with an approx. distance of 11.5 miles. A range of alternatives alignments and river crossing locations were considered, and eventually a single alternative was selected. A transportation corridor committee was formed to facilitate public involvement with the many stakeholders in the large project study area. The proposed crossing of the Des Plaines River is a 4,200' bridge that required resource agency coordination for the federally endangered Hines Emerald Dragonfly as well as various historical sites. Project proceeded through the NEPA/404 merger process and required an EA and Design Report that required IDOT and FHWA approval.

Aptakisic Road Phase I, Buffalo Grove & Long Grove: Project Manager. The project consists of Phase I Engineering and Environmental Studies evaluating alternative roadway improvements along a 2-lane section. Alternatives included a 3-lane cross sections and a 5-lane cross section with various alignments. An impact evaluation, ROW analysis, and traffic modeling was performed for the alternatives being considered. Advanced engineering was required early on to determine necessary ROW near the Buffalo Grove Rd intersection, which was an ongoing add-lanes project entering into Phase II Engineering through LCDOT. A stakeholder involvement group was formed to facilitate ongoing involvement with project stakeholders and to solicit input on the various stages of project development. Close coordination occurred with the Villages of Long Grove and Buffalo Grove as well as the many stakeholders along the corridor, which included a vineyard, two park districts, a synagouge/school, commercial developments, and many residential properties. This project will follow federal project development procedures and be coordinated with, and ultimately approved by IDOT and FHWA.

Ardmore Avenue Extension, Oakbrook Terrace: Project Engineer. Project included preparation of Phase I Engineering and Environmental studies for the extension of Ardmore Avenue from 16th St to IL 56 (Butterfield Rd), approx. 1500'. A PDR was prepared in accordance with IDOT/FHWA procedures and included: horizontal and vertical geometry, drainage systems, accident analysis and traffic/capacity analysis, IDS, warrant analysis, presentation at public information and coordination meetings, and a wetland report. The EA was approved by FHWA in 2010. Based on the results of coordination with adjacent project stakeholders, the City decided not to pursue construction of this project.

I-294 at Balmoral Avenue Interchange, Illinois Tollway: Lead Project Engineer. This project included a new NB exit ramp and additional interchange improvements. The project used federal funds and thus went through the IDOT phase I project development process and included a CE II PDR, drainage study, and BCR. Balmoral Ave is a densely commercial and industrial corridor connecting to I-294, US-45/12, and River Road. Detailed traffic modeling was required to analyze the intersection of Balmoral Ave with the on and off ramps of I-294. Analysis also included an assessment of potential future improvements to I-294 in the project area to ensure compatibility, as well as analysis of projected traffic volumes based on the proposed extension of Balmoral Ave into O'Hare Airport. This project was coordinated with the Tollway, Village of Rosemont, and IDOT concerning adjacent planned improvements to I-190. Phase I Design Approval was granted in 2010; construction was completed and opened to traffic in 2011.

Deerfield Road Bike Path (East), Lake County: Project Engineer. Prepared Phase I study for a 0.25 mile new bike path crossing the Des Plaines River in Riverwoods. The project aimed at providing access to the Des Plaines River Trail, running parallel to Deerfield Rd and a separate bridge structure over the Des Plaines River. A range of river crossing alignments were looked at and were coordinated with LCFPD, Village of Riverwoods, and IDOT. A CE II project design report was prepared, which also required Section 4(f) consultation for ROW acquisition from LCFPD. Phase I Design Approval was granted in June 2009 with construction completed in 2011.

Deerfield Road Bike Path (West), Lake County: Project Engineer. Prepared Phase I study for a 0.40 mile new bike path crossing Milwaukee Avenue to meet the existing Buffalo Grove bike path. Close coordination with the Village of Riverwoods and adjacent property owners was initiated early in the project to gather comments and seek input during the alternative development process. Phase I Design Approval was granted in June 2013 and Phase II engineering is anticipated to be completed in 2016.

Lawrence Avenue Streetscape, Harwood Heights: Lead Project Engineer. This project included streetscape improvements to provide designated parking areas for adjacent businesses, high visibility pedestrian cross walks, drainage improvements, as well as new sidewalks, decorative street lighting, planters, bicycle racks, etc. ITEP funding was awarded to this project. Phase I Design Approval was granted in July 2007 and construction was completed in 2008.
Irving Park – York Road, DuPage County: Assisted the Project Manager in writing the CDR, composition of the IDS, bicycle analysis, and PESA. The project aimed at alleviating traffic congestion, vehicle delay and accidents at Irving Park Road (IL 19) and York Rd created by the CPRR in Bensenville. This project is in the program of Chicago Region Environmental and Transportation Efficiency (CREATE), which is a public/private partnership between the City of Chicago, the nation’s railroads, and the State.

Feasibility Study for Busse Woods Forest Preserve Golf Course, Rolling Meadows: Assisted the City investigate the possibility of creating a recreational public golf course at the northwest corner of the Busse Woods Forest Preserve. The study looked into enhancing wetland, woodland and prairie environments while creating an economic benefit for the FPDCC. An 18 hole golf course lay out was designed, while tying into the already existing wetlands and wooded areas.

95th Street Extension, Will County: Assisted the Project Manager for the Phase I Study extending 95th St approx. 1 mile on new alignment from its current east terminus in Naperville to the intersection Boughton Rd and Kings Rd in Bolingbrook. The project is being designed through the IDOT ECAD process. The project includes IDS for two existing intersections with lane additions based on projected capacities. The preferred alignment includes a new crossing of the DuPage River.

Wrightwood Metra Station, Chicago: Assisted in improving the Wrightwood Station on the southwest service line for Metra in the City of Chicago. Project included conducting engineering and construction observation for Phase II and was designed using a combination of Metra and City of Chicago standards. All work was coordinated through the City’s Department of Construction and Permits process and included drainage, pavement, landscaping, and site lighting. Milestone design, submittals of plans, specifications and opinion of cost were prepared.

Old Orchard Country Club, Prospect Heights: Assisted the Project Engineer with general contracting services for the development and permitting of the improvements to the 16th and 17th holes. The project included operational and course changes to enhance the playability and ease of maintenance for the course. A new green was created on the 16th hole. The tee for the 16th was repositioned to enhance play and to eliminate errant shots from leaving the property. The 17th hole was improved by adding a new tee, a wetland area with plantings, reducing goose intrusion on the course. A “boardwalk” cart path traverses the wetland area providing the golfer with a new and unique view of the picturesque landscape. The services were used to develop a design that met the needs of the client and was permissible by the USACE, FEMA and the Village of Mount Prospect. Assisted in engineering design and drafting for all necessary plans for engineering studies required for review and approval relevant to wetland and floodplain. Assisted in assembling construction documents and cost estimates for earthwork, dredging, and golf course elements (greens, tees, bunkers).

Village Improvement Program Phase I, Forest Park: Responsibilities included preparing plans and exhibits and estimates for design-build project. The project included water main replacement and sewer spot repair improvements for 8 streets and 19 alleys. Pavement upgrades included reconstruction and resurfacing. All areas were made ADA compliant. Brick streets were reconstructed using the same material. Traffic calming measures were installed at two intersections to reduce vehicle speeds, improve safety, and enhance quality of life. The measures include benches, ornamental lighting, and decorative landscaping.

North Avenue Streetscape, Elmwood Park: Developed a streetscape and road widening for the Village’s restaurant district. North Ave was widened to provide safer street parking along the project site. The entire streetscape was resurfaced with a new sidewalk, decorative stamped concrete, new planter boxes, decorative street lights to give the area a more aesthetically pleasing look.

Fire Station No. 26 Bikeway Study, Wilmette: Consulted the Village on eliminating bicycles/ pedestrian traffic from the Green Bay Trail from cutting through the Fire Station #26 parking lot. The existing bike route in this area is currently on a brick road, which is hard to navigate. The project consisted of providing several alternates of a proposed bike path through the existing Fire station property. Prepared the engineering exhibits and cost estimates for the proposed bike path and signage according to the MUTCD Standards. Many safety concerns were present as a major arterial road bordered the site to the south, the existing site is a fire station, and Metra railroad tracks bordered the site to the west.

Irving Park Road Landscape Medians, Schaumburg: Assisted the Project Manager for the preliminary design of raised landscape median planters and parkway tree planting along a one mile stretch. The design also included a pocket park and landscape treatments at cross street intersections with the Elgin O’Hare Expressway. Plans, specifications and opinions of cost were prepared. Colored presentation boards were mounted for use in the public hearing process for local review and approval. Local and IDOT standards were used. The design will allow for the future inclusion of a bikeway through the area.

GIS Survey, Rolling Meadows: Assisted survey of GIS. The project consisted of mapping the sanitary sewer, storm sewer, and water main.
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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 10/7/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. IF SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

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COVERAGES CERTIFICATE NUMBER: 2015-2016

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

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DESCRIPTION OF OPERATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

General liability policy includes blanket additional insured status, primary and non-contributory coverage and waiver of subrogation per form CO D3 81 09 07. Workers compensation policy includes waiver of subrogation per form WC 00 03 13. Automobile liability policy includes blanket additional insured status per form CA 20 48 02 99 and waiver of subrogation per form CA T3 40 02 99.

CERTIFICATE HOLDER

CANCELLATION

Proof of Coverage

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
W. Donne, CFCU, ARMA

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