Christopher B. Burke Engineering, Ltd.

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THE CONSULTANT NEWSLETTER

Phase II of Des Plaines Streetscape Master Plan Now Complete

City of Des Plaines

The City is enjoying the recently reconstructed Ellinwood Street project, home to the City's Taste of Des Plaines and weekly Farmers' Market. Following the Miner Street (US Rte 14) Streetscape project completed last year, the City continues to successfully implement their Streetscape Master Plan, due in large part to the efforts of Jon Duddles, Assistant Director of Public Works and Engineering. The Master Plan Team (CBBEL, SPACECO, and Lakota) continues with the design/construction engineering efforts.

Improvements at northeast corner of Ellinwood Street and Lee Street

Streetscape amenities and materials are from the Master Plan pallet: granite banding of sidewalk with clay paver inlays, trees in grates (with structural soil, irrigation and lighting outlets), irrigated landscaped medians, seatwalls, planting beds, benches, and bike racks. The roadway and diagonal parking bays were patched and resurfaced, and new ADA compliant sidewalk, crossing ramps and parking spots were constructed. The project included a 12" water main on Lee Street (US Rte 12/45), connecting the Ellinwood Street water main to the Miner Street water main. This required directional boring a casing pipe 13 feet below the three Metra/Union Pacific tracks between Ellinwood Street and Miner Street. Detailed planning and coordination between IDOT, Union Pacific, IEPA were needed to work around the multiple public/private utility crossings and comply with permit restrictions.

The vibrancy and endurance of a streetscape relies on creating a walkable corridor that balances modal use needs and aligns key stakeholder expectations. Keys to achieving these goals include creating design/contract documents that properly allocate the available space (pedestrian space, vehicle lanes, parking, bike accommodations, green space, and programmable space), material selection (aesthetics, durability, sustainability, maintenance, and cost), and infrastructure improvement needs (wet utilities, drainage, and dry utilities). The City is well on its way to accomplishing these goals.

Bryan L Luke, PE, CPESC
Project Manager, Civil Design Department

INSIDE...

A MESSAGE FROM
CHRISTOPHER B. BURKE

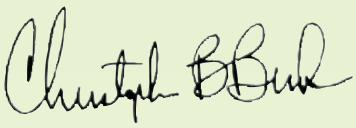
At CBBEL we have always put an emphasis on doing our part to reduce any impact on the environment. From our award-winning Bike to Work Program to our rooftop garden, we walk the walk when it comes to environmental responsibility.

All of us, however, can and must do more. That's why I'm proud to announce two new initiatives that will further our efforts toward sustainability, the first of which is this newsletter.

For the first time, our newsletter is being sent via e-mail to reduce the amount of paper consumed in its creation. We are now able to give you updates on our company, our clients and their projects in a more responsible and environmentally friendly way.

We've also started a new compost system in the office, where we provide compost bins to help put our trash to good use. Instead of throwing out biodegradable food scraps (like banana peels, coffee grounds, etc.), we can now create a nutrient-rich fertilizer for use in our rooftop garden. Instead of rotting in a landfill, these materials can have a second life.

In conjunction with our Commuter Program and Sustainability Committee, we are constantly looking forward to determine how we can continue reducing our impact on the environment, promoting sustainability in our office and making a difference in the world around us.



Christopher B. Burke, PhD, PE, D.WRE, Dist.M.ASCE
President

LED Street Lighting
Village of Chicago Ridge

Residential property owners aren't the only ones installing energy efficient products to save money on their utility bills: governmental agencies are starting to go green, too. The Village of Chicago Ridge was recently able to reduce its street lighting power consumption by 29% by switching to energy efficient luminaires.

One of the largest utility bills the Village pays is for street lighting, which helps drivers see at night and can provide a sense of security. It is important that the light emitted is focused on proper areas of the pavement and parkway, because stray light is often considered light pollution.

Existing street lights are directly connected to the electric utility company and are paid through a rate agreement. To reduce the electric bills from the street lights, Chicago Ridge began a two-phase project to transition the existing 250 watt high pressure sodium luminaires to 88 watt Light-emitting diode (LED) luminaires. A total of 404 luminaires were replaced during Phase 1 which is approximately half of the luminaires located on residential streets within the Village. Provisions were also made that would allow the Village to install lighting controls at a future time that could monitor the luminaires and provide dimming capabilities. These new fixtures help reduce the amount of light pollution that is reflected into the night sky. Future phases are anticipated and the Village hopes to eventually replace all of the Village owned luminaires with more energy efficient LED luminaires.

To offset some of the construction costs, the Village received $131,000 from the Illinois Department of Commerce and Economic Opportunity (DCEO) Incentive Program. This totaled 53% of the construction costs.

Andrew Pufundt, PE
Project Manager
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Katrina Ballado, PE, LEED AP
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Western Avenue Realignment

Village of Glendale Heights

Local government agencies continue to seek opportunities to generate revenue and drive economic development. To achieve this goal, the Village of Glendale Heights is capitalizing on one of its greatest geographical assets – North Avenue (IL 64). There are not many organizations that would look at a roadway as an asset considering the expenses generally associated with pavement maintenance. However, North Avenue has an Average Daily Traffic (ADT) of 60,000 vehicles per day, meaning that at least 60,000 people - not counting passengers - traveling this corridor to and from work, to go shopping, to grab a bite to eat, or to fill up their fuel tank. Many developers and business owners would love this type of exposure, yet portions of North Avenue remain undeveloped.

The Glendale Heights' Administration recognized that the roadway geometry of Western Avenue at the intersection of North Avenue would limit development in the vicinity due to the T-intersection with restricted turning movements. The Village used Tax Increment Financing (TIF) to undertake a large Capital Improvement project to realign approximately 700 feet of Western Avenue from north of 3rd Street to North Avenue to better align with Pearl Avenue. This created a four-legged intersection with no restricted turning movements and potential for a future traffic signal.

The roadway relocation included installation of all new utilities including storm sewer, water main, sanitary sewer and roadway lighting. Overhead power and communication lines were moved underground to increase the curb appeal of the North Avenue frontage. Adjacent to an existing wetland, a 1.3 acre detention pond was constructed with native emergent plants and a hemi-marsh habitat. The pond was sized to accommodate stormwater storage requirements for future development, allowing a potential developer to maximize their footprint.

Google Image

The vacated right-of-way for old Western Avenue will be combined with additional parcels fronting North Avenue and be placed on the open market. The upfront investment by the Village enabled Glendale Heights to strategically capitalize on the limited property available along North Avenue – a major thoroughfare suited for a wide variety of prospective tenants. The ultimate goal is to attract a buyer which will spur additional development within the TIF district and North Avenue corridor. This will allow the Village to recoup the upfront costs and reap the benefits of the increased revenue generated in order to keep tax rates low.

Andrew Pufundt, PE
Project Manager
Civil Engineering Department

Ryan Lindeman, PE
Resident Engineer
Construction Department

Illinois' First Adaptive Traffic Signal System — Aptakisic Road

Lake County Division of Transportation

The Lake County Division of Transportation (LCDOT) recently completed the installation and validation testing of the first Adaptive Traffic Signal Control system in the State of Illinois. This type of traffic signal control is unique because unlike the traditional closed loop signal systems, the adaptive system continuously makes dynamic signal timing changes in response to active traffic conditions. Based on the traffic volume traveling on the adaptive corridor and the vehicle spacing, the adaptive equipment determines the optimal cycle length, ideal green time and can even skip signal phases. Adaptive traffic signal control also has a distinct advantage in being able to better manage traffic incidents and special events. The flexibility to react instantaneously to roadway conditions, results in lower vehicle delay while increasing traffic flow.

Adaptive Signal Control Equipment

LCDOT was encouraged by the Federal Highway Administration (FHWA) to identify possible corridors that would be candidates for adaptive signal timing after FHWA's acceptance of Adaptive Traffic Signal Control systems for Federal Projects. LCDOT ultimately selected the Aptakisic Road corridor between Parkway Drive and Brandywyn Lane as the first candidate location for the implementation of an adaptive traffic signal control system. The corridor contains eight signalized intersections, including a railroad interconnected signal. There are diverse land uses within the corridor ranging from retail to office space to single-family homes. A primary reason for selecting Aptakisic Road was to take advantage of the substantial traffic signal infrastructure that the County had already installed along the corridor and to integrate the new adaptive traffic signal control system into LCDOT's PASSAGE system.

CBBEL worked closely with LCDOT and Jon Nelson, Engineer of Traffic to develop and prepare the Congestion Mitigation and Air Quality (CMAQ) application for the adaptive traffic signal control demonstration project. As part of the application process, CBBEL developed detailed cost estimates and system evaluation parameters to meet FHWA standards for a demonstration project. The project subsequently received approval for federal funding for Phase III Construction and Construction Engineering. LCDOT decided to fund the Phase I and Phase II engineering to expedite the overall project schedule. Subsequently CBBEL performed all Phase I and Phase II engineering related services while LCDOT developed the Systems Engineering Report for the adaptive traffic signal control system.

CBBEL coordinated the Phase I environmental documentation and processing through LCDOT and developed detailed engineering plans and specifications for the proposed adaptive traffic signal control system. This consisted of a detailed field reconnaissance for each intersection to evaluate equipment upgrades and detection requirements. This also included evaluating the existing cabinet space available to accommodate the adaptive equipment and ultimately resulted in determining that five of the existing traffic signal cabinets would need to be replaced.

One of the design challenges was coordinating the County's video detection equipment and adaptive equipment to operate simultaneously so that intersections could still be able to communicate with the

Adaptive Detection Camera

County's PASSAGE system with the adaptive system activated. The project also involved the incorporation of additional video detection cameras specific to the adaptive traffic signal control system. Additional detection included in the project consisted of Bluetooth detectors that independently calculated the roadway's travel time which was used in the Validation Study.

CBBEL also developed the system's Validation Study specification that established the requirements that the contractor needed to follow to evaluate the traffic signal performance in both the before and after condition, which was a key component of satisfying the Systems Engineering Analysis. The project was locally let in December of 2013 and the system has been running the adaptive programming with some restrictions in place since late 2014. With the adaptive programming active, the County reports that the corridor can carry as much as 40% more vehicles in the AM peak period and 15% more in the PM peak period when comparing the same travel time to an optimized time-of-day interconnect system.

G. Michael Ziegler, PE, PTOE
Vice President
Head, Traffic Operations Department

CBBEL Energy Reduces Energy Cost for iFLY

Village of Rosemont

Clients like iFLY, the indoor skydiving company, rely on CBBEL Energy (an Illinois Commerce Commission licensed energy broker) for competitive pricing, preferred contract terms and conditions and access to multiple retail supply offers. Working with several different energy suppliers CBBEL Energy was able to help iFLY focus on their core competency and provide significant bottom-line savings. Ultimately, CBBEL Energy wants to offer the best energy options with a variety of choices that fit the customer's specific needs.

"It was a pleasure working with David Novak from CBBEL Energy," said Bill Adams, Vice President at Skyventure. "David called me and asked if he could do some checking on electrical rates because we are a large energy user. He found a cheaper rate, did all of the paperwork and now we save thousands of dollars per month on our energy bill. I have never been a part of an easier process to save our facility so much money."

iFLY has multiple locations across the country including Rosemont, Naperville and opening Spring 2016 in Chicago (Lincoln Park).

CBBEL Energy's mission in working with iFLY and all of our clients is to offer the best energy options with a variety of choices that fit the customer's specific needs. This way they stay focused on offering their clients an enjoyable experience.

CBBEL Energy not only works with private sector clients to find the most competitive energy rates, but also provides consulting services for the municipal aggregation. CBBEL Energy's knowledgeable team with local expertise is dedicated to a transparent aggregation process. We offer our customers locked-in fixed prices, renewable energy options, and innovative demand response options to ensure a smooth and seamless transition to 3rd party supply.

If you would like more information about CBBEL Energy, please contact David Novak at 847-823-0500, email info@cbbel.com or visit www.cbbelenergy.com.

David Novak
Project Manager
CBBEL Energy

Lansing Pump Station – Pump Replacement Project

City of Chicago Heights

The City of Chicago Heights receives potable water from the City of Hammond, Indiana via a 36" diameter water transmission main which fills a reservoir adjacent to the City's Lansing Pump Station near 175th Street and Torrence Avenue. The pump station distributes water not only to the City of Chicago Heights but also provides water to the neighboring communities of Glenwood, Thorton, South Chicago Heights and Ford Heights. The original pumps were installed in the early 1980's and were nearing the end of their service life. Replacement of the pumps and valves was warranted as repair costs and pump out-of-service time were increasing and becoming a nuisance to this critical part of the City's infrastructure. Three 7,000 gpm pumps, along with associated isolation butterfly valves and flow check valves, were replaced as part of the project while reusing the existing 200 Hp electric motors controlled by variable frequency drives. A new insertion flow meter was also furnished and installed as part of the work. The City's Water Superintendent, Tena Marquie, is spearheading the revitalization of the City's critical potable water distribution infrastructure in order to meet the current and future potable water demands and provide reliable, efficient potable water distribution service.

John P. Caruso, PE
Vice President
Head, Mechanical/Electrical Engineering Department

[CBBEL NEWS]

The Christopher B. and Susan S. Burke Poster Competition is held annually for Ph.D. graduate students in Civil Engineering at the University of Illinois at Chicago (UIC). The award winners are chosen based on poster presentation as well as GPA, research track record and GRE scores. The 2015 winners were: 1st Place: Erin Yargicoglu; 2nd Place: Saeed Karim Baba Najad Mamaghani and 3rd Place: Ahmadreza Talebian.

Rosemary Burke Scholarship – UIC

The Rosemary Burke Scholarship went to four students this year, all of them incoming freshman studying Civil and Materials Engineering. Congratulations to Patricia Zareba, Sania Ali, Marvin Ambrocio and Jonathan Sandoval.

The Burke Leadership Fund for Purdue Chi Epsilon:

Dr. Mark D. Bowman – Edmund M. Burke Outstanding Civil Engineer Professor Award. Once a year, a civil engineering professor is nominated by an undergraduate member of Chi Epsilon or a graduate student who has been active in the Purdue chapter.

Jacob S. Bubalo – Rosemary K. Burke Outstanding Student Award. Each year, for the fall and spring semesters, a student member of Chi Epsilon will be given this award. The student must hold the highest cumulative grade point average among civil engineering students in the seventh semester of their program.

Chicago Bike Week June 12-19

Along with 650 other Chicagoland companies, CBBEL once again participated in the Bike Commuter Challenge. Thirty employees rode 1,480 miles during the week-long event which was held June 12-19. CBBEL also hosted a Bike Pit Stop at the Rosemont CTA Blue Line station to encourage commuting by bicycle.

As part of Bike to Work Week, CBBEL pledged a portion of miles commuted to Bikes for Lesotho, an organization that has donated over 2,000 used bikes to the developing nation. On July 13th, Christopher B. Burke, PhD, PE along with Jonathan O'Connell, PE presented Dave Gorman from Working Bikes (the parent organization of Bikes for Lesotho) with a check for $3,500. For more information about Bikes for Lesotho, email Dave at bikesforlesotho@gmail.com.

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