Committee of the Whole
Agenda Cover Memorandum

Meeting Date: Monday, May 23, 2011

Item Title: Maine South Talcott Crosswalk

Action Requested:

- ☐ Approval
- ☒ For discussion
- ☐ Feedback requested
- ☐ For your information

Staff Contact: Frank Kaminski, Police Chief / Sarah Mitchell, City Engineer
Phone Number: 847-318-5261 / 847-318-5455
Email Address: fkaminsk@parkridgepolice.org / smitchel@parkridge.us

Background:
Alderman Raspanti and Alderman Bernick requested this item be placed on the agenda as a discussion item.

City Staff (Traffic Engineering and Police) has been working with a parent group and school officials since the beginning of the school year regarding safety concerns at the Talcott crosswalk at Maine South. Specifically, the issue relates to students crossing Talcott during the beginning and end of school when vehicle traffic is the heaviest. There was increased concern this year because the school eliminated the crossing guard position due to budget cuts. Previously, the school paid the full cost of the guard.

As a result of our discussions with the parents and school, the following steps have been taken throughout the year:

- Additional signs have been installed to clearly restrict the left turn movement exiting the school drive on Talcott
- The speed trailer has been deployed to the area
- Selective traffic enforcement measures have been initiated
- The students initiated a sign campaign for the area
- Observation, data gathering, and analysis has been performed by Engineering staff
- The crosswalk is scheduled to be remarked this summer in the parallel bar style
- New data counts will be collected on Talcott before the end of the school year

On May 17, 2011, staff met at the Talcott crosswalk with parents, Principal Messmer, Alderman Raspanti, and Alderman Bernick to review our progress. It was suggested that staff look into the following additional initiatives for future discussion:

- Add a crossing/traffic control guard at the crossing for the start/finish of school for forty-five minutes in the morning and forty-five minutes in the afternoon at an approximate cost of $4,500
- Install a solar powered crosswalk system at a cost of $9,463 each, one on each side of Talcott at the crosswalk for a total cost of $18,926 (see attached)
- Add enhanced-visibility crosswalk measures such as adding parallel bars, painted triangles, or stop line set-backs (see attached)

Staff has conducted numerous hours of observation, data collection, and analysis. Results do not meet the criteria for installation of a traffic control device such as the solar powered crosswalk system as suggested by the group. Installation of traffic control devices that do not meet minimum criteria exposes the City and City staff to increased liability.

Recommendation:
We strongly recommend that Maine South reconsider funding of an adult crossing guard at the location as was in place for the previous 5 years. This proved to be effective in assisting students to cross at the appropriate time and location. Council Policy Statement #2 "Use of Adult School Crossing Guards" states "students in junior and senior high school are judged to be mature enough to travel to and from school without the assistance of adult school guards." The City historically has not funded crossing guards for any junior or senior high school students.

The City will re-stripe the existing line style crosswalk with a ladder style crosswalk this summer. This will be painted in reflective thermoplastic for enhanced visibility at night. This location is not appropriate for the installation of painted triangles or stop bars, as there is no stop or yield device in place at this location.

There is no money in the current budget for further initiatives.

Budget Implications:

Does Action Require an Expenditure of Funds:	☒ Yes	☐ No
If Yes, Total Cost:		
If Yes, is this a Budgeted Item:	☐ Yes	☒ No

Attachments: Solar Traffic Controls – Wireless Traffic Control Solutions, Traffic Control Corporation Quotation for Maine South High School, SRTS Guide – Enhanced-visibility Crosswalks

SOLAR TRAFFIC CONTROLS

"Wireless" Traffic Control Solutions

Solar Ped-X Wireless Crosswalk Systems

System Configurations

- Single or double beacons
- 8-inch or 12-inch DC LED lamps
- Available as 2-pole or 3-pole systems
- Pedestrian pushbutton or sensor-activated trigger

Features

- Maintenance-free, sealed batteries
- License-free radio link
- Microprocessor controlled
- User programmable run time
- Integrated charge/flasher control
- Multi-unit configuration possible

Benefits

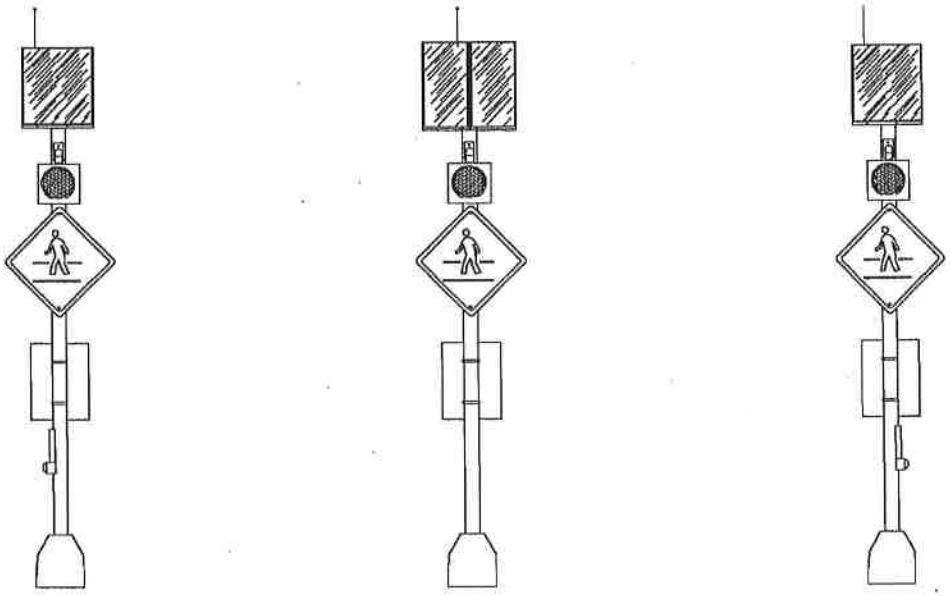
- Complete documentation package included
- Solar power, a free energy source eliminates need for utility hook-up
- Cost effective, affordable prices to fit your budget
- Low installation and operating costs
- Virtually no maintenance
- Quick to deploy in most locations
- High level of integration minimizes installation time
- Increases public safety
- No power drop; no trenching; no boring; no sweat
- Designed specifically for user's application site**

Wireless crosswalk systems from Solar Traffic Controls can help you meet your requirements for crosswalk safety quickly and affordably. Systems are configured for ease of use and installation.

Applications

- Mid-block crosswalks
- School crossings
- Equestrian crossings

***We need your project's location, load and duty cycle. Insure that your system is properly designed with a Sizing Report – the basis of your warranty – call STC or visit our Website; click on* Provide Your Requirements. *Fax or email completed form to STC.*



Solar Power: a free source of energy
Our solar-powered systems are designed for quick and easy installation in the field. STC's careful front-end engineering minimizes your installation costs and provides years of trouble-free operation. The standard solar power system includes the solar array, system enclosure with all the necessary electronics, color-coded wiring harnesses, sealed batteries and full documentation. DC LED lamp kits can also be purchased. These include the LED beacon, lamp housing, and mounting hardware.

STC Systems are Cost Effective
Our solar traffic systems allow you to stretch your budget to obtain the traffic safety devices you need at affordable prices. Most systems are equivalent to the cost of obtaining an AC power drop. Battery life for these systems is typically three to six years: less expensive than grid electricity for the same period of time.

Solar Traffic Controls (STC) designs and manufactures solar-powered traffic control systems for city, state and federal DOTs across the U.S. Our primary products are solar-powered flashing beacon systems used for school zones and 24-hour applications. We also supply specialized flasher systems using environmental sensors and custom communications packages to control the flashing beacon systems. Our product spectrum also includes wireless power systems for ITS, EMS and HAR. STC's products and services are sold through a network of regional distributors who offer technical support for your project.

STC
SOLAR TRAFFIC CONTROLS

For more information
Joe Wise
Solar Traffic Controls, LLC
1930 East Third Street, Suite 21
Tempe, Arizona 85281-2929 USA
Phone: 480-449-0222
Fax: 480-449-9367
Email: joe.wise@solar-traffic-controls.com
Website: www.solar-traffic-controls.com

Distributed by:

TRAFFIC CONTROL CORPORATION
10435 Argonne Woods Drive
Woodridge, IL 60517
(630) 543.1300 • Fax (630) 543.5050
www.trafficcontrolcorp.com

Quotation

Quotation # E03777-00
Quotation Date: 04/29/2011
Customer Number: 000001
Salesperson:

For the City of Park Ridge
Main South High School

PHONE: ( ) - FAX: ( ) -
Attention : CLARIS OLSON

Book/ Contract: ***MAIN SOUTH HIGH SCHOOL. PARK RIDGE***

Item	Part No. /Description	Quantity	Unit Price	Extended Price
001	80SPXM050H-1 50W Solar PED-X flasher crosswalk master unit with 50W top of pole solar array, 2B enclosure with pole mounts, wiring package including RF cable and antenna kit, control panel with integrated charge/flasher control and radio/logic package, one sealed 80Ah battery, security hardware kit, pedestrian push button assembly and documentation (one required per site)	1.00 EA	3,610.00	$ 3,610.00
002	80SPXS050H-1 50W Solar PED-X flasher crosswalk slave unit with 50W top of pole solar array, 2B enclosure with pole mounts, wiring package including RF cable and antenna kit, control panel with integrated charge/flasher control and radio/logic package, one sealed 80Ah battery, security hardware kit, Pedestrian push button assembly and documentation. (one required per site)	1.00 EA	3,598.00	$ 3,598.00
003	8412A2385 1F 1S 12" polycarbonate signal housing assembly, 12" tunnel visor, 12" amber DC LED, generation 2, 196 individual LEDs, multifaceted UV stabilized lens, color coded output wiring with fork terminals, and gasket, 1100 Candela optical output on center, meets ITE beam spread requirements and 12" polycarbonate signal mounting brackets.	1.00 EA	275.00	$ 275.00
004	TCC-14' POST ASSY 14' signal post assembly including, cast iron galvanized octagonal base, 13' galvanized TS pole threaded one end, and screw in type helix foundation with mounting bolts	2.00 EA	895.00	$ 1,790.00
005	S&H shipping and handling charges	1.00 EA	190.00	$ 190.00

TRAFFIC CONTROL CORPORATION
10435 Argonne Woods Drive
Woodridge, IL 60517
(630) 543.1300 • Fax (630) 543.5050
www.trafficcontrolcorp.com

Quotation

Quotation # E03777-00
Quotation Date: 04/29/2011
000001

Salesperson:

For the City of Park Ridge
Main South High School

PHONE: ( ) - FAX: ( ) -
Attention : CLARIS OLSON

MAIN SOUTH HIGH SCHOOL. PARK RIDGE

Item	Part No. /Description	Quantity	Unit Price	Extended Price
		Total Items Price		$ 9,463.00

Thank you for your request for information on the Solar Ped-X project for Main South High School in Park Ridge IL.
Solar Traffic Controls' Solar Ped-X System are installed right at the crosswalk. This system uses a frequency hopping, spread spectrum radio (FHSS) to link the units. There are microprocessors in each unit: one unit is the master and the other a slave. The pedestrian push button is on the same pole with the flasher and the solar-power system. The user approaches and presses the button; the system detects the contact closure from the button and starts flashing. The units are constantly "talking" to each other. They have fault modes so when the units stop "talking" to each other, the system goes into a known-fault condition so the user knows the system needs service.

The Solar Ped-X system is very flexible in that you can have up to four flashers in a network. Two can be placed in advance of the crosswalk and two at the crosswalk. A common configuration is to have one on each curb and one on the median with a signal head facing both directions of traffic.

The project parameters are as follows:

Location: Park Ridge, IL (CHICAGO, IL solar data used)

Load: Dual 12" amber DC LED lamps, STC Gen 2B, >1000 Cd optical output on center
Pedestrian Pushbutton
Solar Ped-X control circuit

Duty cycle: Lamps, 50-60FPM, 50% duty cycle
Operation is 115 activations/day at an assumed duration of 30 sec/activation mid August-mid June. (0.95 hours/day)
Operation is 30 activations /day at an assumed duration of 30 sec/activation mid June- mid August. (0.6 hrs./day)
SPX controls and button, continuous

TRAFFIC CONTROL CORPORATION
10435 Argonne Woods Drive
Woodridge, IL 60517
(630) 543.1300 • Fax (630) 543.5050
www.trafficcontrolcorp.com

Quotation

Quotation # E03777-00
Quotation Date: 04/29/2011
000001

Salesperson:

For the City of Park Ridge
Main South High School

PHONE: ( ) - FAX: ( ) -
Attention : CLARIS OLSON

MAIN SOUTH HIGH SCHOOL. PARK RIDGE

Item	Part No. /Description	Quantity	Unit Price	Extended Price

Notes: All equipment is designed for a 4.5" O.D. pole
Other mounting packages are available as an option
Design assumes that the lamps will operate in max bright at all times

On the following pages you will find the sizing report for this project. The sizing report calculates the wattage and battery bank necessary to obtain optimal results and it forms the basis of the system's warranty. Regardless of whom you obtain pricing from, you should always ask for a sizing report to support their design practices. When looking at a sizing report, we focus on the rightmost columns which show the Array/Load ratio and the State of Charge (SOC) of the battery. For a logic activated flashing beacon application, it is a common practice to go with an array/load ratio as low as 1.1 for the worst month. This is equivalent to producing 10% more from the system than what is consumed by the load on average. Also, we compare the equivalent days of back up provided by the battery bank with the suggested days of back up from the weather pattern database in our sizing design software (PVCAD). Keep in mind that the days of back up provided by the battery bank assumes there is absolutely no solar radiation being absorbed by the array. We know that this is not the case since even on a cloudy day there is still a fractional amount of solar radiation that gets through the clouds. We just do not have a way of quantifying this amount to be considered in the sizing report. The sizing report shows that we will need one 50W solar module and one 80 Amp-hour (C/100) battery to run the system for the given duty cycle and provide 9.2 days of back up.

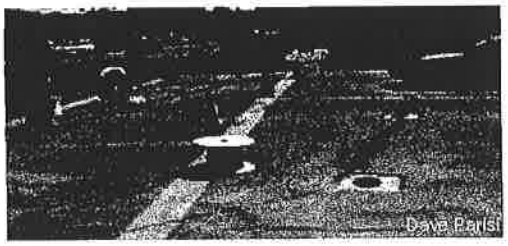
TERMS: BASED ON CREDIT APPROVAL AT TIME OF ORDER
PRICES FIRM FOR 30 DAYS
PRICES BASED ON PURCHASING ALL ITEMS IN QUANTITIES LISTED

SRTS guide
saferoutesinfo.org

Enchanced-visibility Crosswalks

Lighted Crosswalks

Crosswalks with in-roadway warning lights, also referred to as 'flashing crosswalks', may be used to further alert drivers to crosswalks and hopefully enhance the safety of children crossing the street. Lighted crosswalks consist of a series of lights that are embedded into the pavement along the crosswalk lines that are activated when a pedestrian pushes a button or starts walking into the crosswalk.



In-pavement flashers at crosswalks are also an option that can be considered.

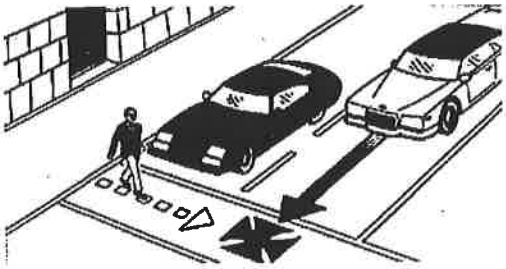
As with any traffic control devices, they have certain advantages and disadvantages. A 2009 review of literature on in-pavement flashing lights may be found on the Pedestrian and Bicycle Information Center's Web site.

For more information on case studies related to in-roadway warning lights visit 2004 PEDSAFE "School Zone Improvements" Cupertino, California case study. Evaluations of use of in-roadway warning lights are available from Washington and Florida.

Yield Lines and Set-Back Stop Lines

Yield lines and set-back stop lines in advance of crosswalks improve a driver's view of the pedestrian in the crosswalk, reduce the number of motor vehicles encroaching on the crosswalk, and indicate that motorists should yield to pedestrians in advance of crosswalks. Stop lines are used in advance of marked crosswalks at signalized intersections, while yield lines are placed in advance of unsignalized crosswalks.

A clear and simple marked crosswalk with set-back yield markings placed well in advance of the crosswalk can reduce the chance of a multiple-threat collision. A multiple-threat collision is a pedestrian crash type that occurs when pedestrians have to cross more than one lane in each direction. A motor vehicle in one lane stops and provides a visual screen to the motorist in the adjacent lane. The motorist in the adjacent lane continues to move and hits the pedestrian.

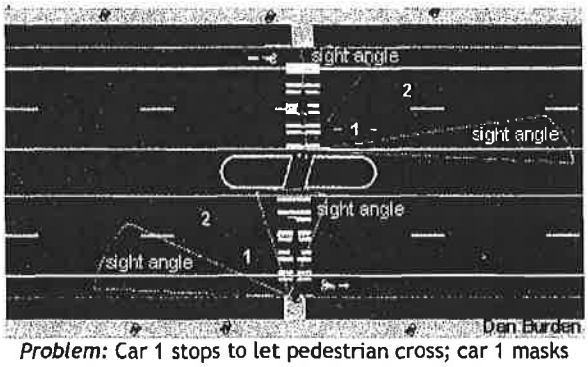

This image illustrates a multiple-threat collision.

A line of painted triangles, also referred to as "shark's teeth" yield markings are appropriate for use as the yield line at unsignalized locations, as per the MUTCD 2003 Edition.[2] Some state laws call for the placement of lines 30 to 50 feet prior to crosswalks at unsignalized locations. This distance is far enough away to provide for improved sight distance in the adjacent lanes. If the bars are placed more than 50 feet away, motorists are more likely to ignore the line and stop only a few feet prior to the crosswalk.

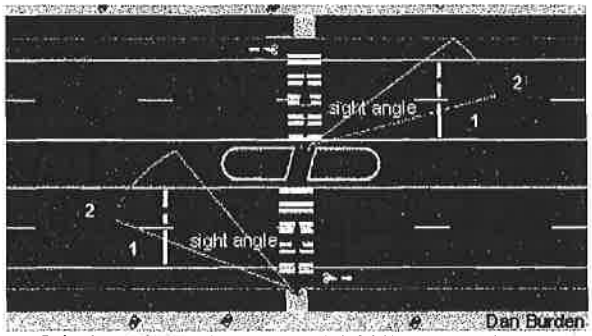
Advance stop lines at midblock signals can help improve the visibility of that signal as motorists may not expect to stop at a midblock traffic signal. Advance stop lines at signals results in the need for longer change intervals for motorists (yellow plus all-red times).


Painted triangles (shark's teeth) are used as the yield line at unsignalized locations.

Also Consider changing crosswalk to have parallel cross bars rather than a parallel lines



Problem: Car 1 stops to let pedestrian cross; car 1 masks car 2, obstructing the pedestrian's and car 2's view of one another. Car 2 doesn't stop and may hit the pedestrian at a high rate of speed.



Solution: place advance stop/yield line so car 1 stops further back; car 1 no longer masks car 2, which can better see and be seen by the pedestrian.

Parking Restrictions at Corners

Restricting parking at corners will improve visibility of the crossing for both drivers and pedestrians. At a minimum, 30 feet should be kept clear in advance of marked crosswalks to help pedestrians and drivers see each other better. Distances greater than 30 feet are generally better, but parking restrictions have to be balanced with the need of the motorist. For example, if parent parking is severely restricted or completely removed near schools, parents may ignore all parking restrictions.

Removing parking from corners can improve visibility between pedestrians and approaching motorists.

Treatment: Parking Restrictions at Corners

Description/Purpose

Restricting how close motor vehicles may park to a crosswalk (20 foot minimum per MUTCD) to improve pedestrian and motorist sight distance.

Expected Effectiveness

Eliminating parking spaces too close to a crosswalk will improve pedestrian and motor vehicle visibility, which can reduce the likelihood of pedestrian-vehicle conflicts and collisions.

Costs

Costs involve new street markings, signs, enforcement and public education efforts. Roadway reconstruction issues may also affect the overall cost (NCHRP Report 500, Volume 10, 2004).[33]

Keys to Success

- Accurately identifying problem locations and appropriate improvements.
- Educating the public about the purpose of proposed improvements.
- Enforcing parking restrictions.

Key Factors to Consider

- Potentially strong resistance to the loss of parking spaces by business owners and local residents, especially in areas with limited parking.

Evaluation Measures

- Number of crossing pedestrian crashes.
- Number of pedestrian-vehicle conflicts.

This guide was developed by the Pedestrian and Bicycle Information Center (PBIC) in collaboration with SRTS experts from around the country and support from the National Highway Traffic Safety Administration (NHTSA), Federal Highway Administration (FHWA), Centers for Disease Control and Prevention (CDC) and Institute of Transportation Engineers (ITE). View full list of contributors.