8/27/18

MAYER

REQUEST FOR CITY COUNCIL ACTION						
Meeting Date:	August 27th, 2018					
Item Name:	Pedestrian Crossing Signs & Radar Speed Sign					
Originating Department:	Public Works					
Presented by:	Kyle Kuntz					
Previous Council Action (if any):						
Item Type (X only one):	Consent		Regular Session	X	Discussion Session	

RECOMMENDATIONS/COUNCIL ACTION/MOTION REQUESTED *(Include motion in proper format.)*

A motion approving the purchase of the pedestrian crossing signs and radar speed sign.

EXPLANATION OF AGENDA ITEM *(Include a description of background, benefits, and recommendations.)*

Attached are quote's from Tapco on three different types of lighted crosswalk signs. The City Engineer has received approval from MNDOT to install these signs at the crosswalk on HWY 25 and Hidden Creek BLVD. Due to visibility issues and light pole placement the City Engineer doesn't recommend placing any lighted crosswalk signs at the crosswalk on HWY 25 and 4th St NE until these issue can be resolved. It is recommended that the City purchase the Solar Power Rectangular Rapid Flash Beacon LED Crosswalk Warning System due to the fact that it is more effective than other crosswalk warning systems

(Quote #1)-Solar Rectangular Rapid Flash Beacon LED Crosswalk Warning System-**$9,004.89** plus shipping

(Quote #2)-Solar Powered LED Blinker Sign with push button activation-**$5,950.32** plus shipping

(Quote #3)-Solar Powered LED Blinker Sign-**$3,040.00** plus shipping

Council also instructed staff to get quotes on a portable radar speed signs. Staff reached out to the city of Watertown to get feedback on the radar speed sign that they purchased a couple years ago. It was recommended that we purchase a solar power sign to avoid having to change the battery on a weekly basis. They also recommend purchasing the data collection and reporting feature. The software will allow the City to track speed, car count, number of violations, etc. Overall, Watertown is pleased with the product and plans on purchasing three more.

Attached are two quotes from Tapco on a solar powered radar signs. Quote #1 is a radar sign that is Bluetooth ready, and quote #2 is a radar sign that has both Bluetooth and one year of cloud service.

(Quote #1)- Solar Radar Speed Sign with Bluetooth-**$2,655.25** plus shipping
(Quote #2)- Solar Radar Speed Sign with Bluetooth & Cloud Service-**$3,130.25** plus shipping

The total cost for both products that staff is recommending will be around- **$12,135.14**

FINANCIAL IMPLICATIONS:	*ADVISORY BOARD RECOMMENDATIONS:*
Funding Sources & Uses: **Roads Capital Outlay: $55,000**	
Budget Information:	

Pedestrian Crossing Signs

SALES QUOTE

Customer Copy

Number	Q1814375
Date	8/14/2018
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City of Mayer (MN) Kyle Kuntz P.O. Box 102 413 Blue Jay Ave MAYER, MN 55360	City of Mayer (MN) Kyle Kuntz 413 Blue Jay Ave MAYER, MN 55360 USA

Customer PO #	Expires	Slsp	Terms	Freight	Ship Via
RRFB/BLINKERSIGN	9/13/2018	Keven Nystedt	Net 30 DAYS	PREPAID	BEST RATE

Item	Description	Quantity	UM	Price	Extension
	RRFB System:				
600147	RRFB, Solar 55/48, Radio, SOP, DS, Amber, PB, H Pole X2	1	EA	6,645.25	$6,645.25
500029	12V RRFB Radio WW+S	2	Each		
2180-BRKT-R	Cabinet Bracket Set, Fits Round Poles 2-3/8 & Up,	2	Each		
101494	Battery, DEKA Solar 12V 48Ah VRLA	2	Each		
SLR-55-B	55W/12V Solar Panel Package,	2	Each		
101620	Push Button Bulldog Add-On Option Kit	2	KIT		
136760	Wire Harness, RRFB, 10' of 4C	4	Each		
136761	RRFB - Amber Light Bar,	4	Each		
138079	Bracket Mounting Kit,RRFB,Universal,	4	Each		
373-05075	W11-2,30"x30"x.080 DG3 FYG,Pedestrian Crossing (Symbol) Fed Spec - Fluorescent Yellow-Green Sign	4	EA	109.88	$439.52
373-01759	W16-7PL,24"x12" DG3 FYG,Down Diagonal Left Arrow (Fed Spec) Sign	2	EA	37.81	$75.62
373-01757	W16-7PR,24"x12" DG3 FYG,Down Diagonal Right Arrow (Fed Spec) Sign	2	EA	37.81	$75.62
109673	Sign Mounting Kit, Banded, Flared Leg, Anti-Vandal For Mounting B2B Blinker Signs to a Large Pole	4	EA	76.00	$304.00
035-00008	Flared Leg Bracket, No Bolt, no Washer	16	Each		
052-00295	Nylon washer 5/16" x 7/8" OD	16	Each		
100626	GatorLock ,Small,Fits 5/16" Nut&Bolt,Anodized	16	Each		
037-00016	Snap-Lok Assembly, Worm Clamp Bracket	8	Each		
100628	GatorLock Hex Socket,1/2"x1/4",For Use w/Small,	4	Each		

Shipment within _____
Acceptance By _____
Date _____
By _____

Merchandise	Freight	Tax	Total
[redacted]	$0.00	[redacted]	[redacted]

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	9/13/2018	Keven Nystedt	Net 30 DAYS	PREPAID	BEST RATE

Item	Description	Quantity	UM	Price	Extension
100326	Bolt 5/16-18x1-1/2 Hexagon S/S	16	Each		
373-1380A	Standard Aluminum Pole,13' Schedule 80 6061-T6 4.5" OD, T.O.E. Stamped,Anodized Clear	2	EA	380.00	$760.00
203-00014A	Base,Aluminum,Square,Anodized Clear Door,SP-5444-PNC	2	EA	190.00	$380.00
109482A	Collar Assembly for Square Aluminum Base PB-5325, Anodized Clear	2	EA	95.00	$190.00
111644	J-Bolt,3/4"W x 17"L, with 1 Nut and 1 Washer (four are needed for a set, sold individually)	8	EA	14.25	$114.00
030-00006	Washer Flat 1-1/16"ID x2.5OD"x.125" Galvanized For 1" A/B, for use w/item # 111644 (not incl)	8	EA	2.61	$20.88
					Quote #1 # 9004.89
	BlinkerSign with Pole Package:				
2180-00214B	BlinkerSign, W11-2, 30", Ped Xing, DG3, FYG, Solar, 8 Amb LEDs, Beam Config	2	EA	1,520.00	$3,040.00
2180-10401	BlinkerBeam Upgrade: Radio Control Cabinet for activated signs and multiple LED outputs	2	EA	912.00	$1,824.00
101620	Push Button Bulldog Add-On Option Kit Yellow, With LED	2	KT	190.00	$380.00
373-01759	W16-7PL,24"x12" DG3 FYG,Down Diagonal Left Arrow (Fed Spec) Sign	2	EA	37.81	$75.62
373-90004	Pole Package, 12', 2-3/8" OD, V-Loc Soil Anchor Includes: Pole, Cap & V-Loc	2	EA	80.70	$161.40
372-00001	Pole,Round,2-3/8"ODx12'x.095 Wall Galvanized	2	Each		
101832-10	V-Loc,Socket 23-VR3B	2	Each		
034-00004	V-Loc,Wedge, SW-1, for use with V-Loc Post Anchors	2	Each		
109-00027	Domed Pole Cap for Round Posts	2	Each		
101799	Sign Mounting Kit, Z-Bracket, 2-3/8", Anti-Vandal	4	KT	34.20	$136.80

Shipment within _____
Acceptance By _____
Date _____
By _____

Merchandise	Freight	Tax	Total

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Customer PO #	Expires	Slsp	Terms	Freight	Ship Via
RRFB/BLINKERSIGN	9/13/2018	Keven Nystedt	Net 30 DAYS	PREPAID	BEST RATE

034-00401	Mounts 1 Blinker or Static Sign to 2-3/8" OD Pole V-Loc,Installation Kit-Manual for Driving and Pulling	1 EA	332.50	$332.50
034-00011	V-Loc,Drive Cap,HD-1, Hand Drive Cap,for use with	1 Each		
034-00017	V-Loc,Wedge Puller Heavy Duty, WP-2A Model,	1 Each		
034-00016	V-Loc,Heavy Duty Wedge Puller Tip w/small hex nut	1 Each		
3290-00001	V-Loc,Long Handled Clean Out Trowel, for removing	1 Each		

Quote #2 #5,950.32

	BlinkerSign:			
2180-00214B	BlinkerSign, W11-2, 30", Ped Xing, DG3, FYG, Solar, 8 Amb LEDs, Beam Config	2 EA	1,520.00	$3,040.00

Furnish only quote. Installation is not included. Solar powered equipment requires no shading or obstructions

Quote #3 $3,040.00

TAPCO US Communities Contract # 2013-100

Thank you-Keven Nystedt
#877-804-4471
Kevenn@tapconet.com

Shipment within _____
Acceptance By _____
Date _____
By _____

Merchandise	Freight	Tax	Total
[redacted]	$0.00	[redacted]	[redacted]

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PEDESTRIAN CROSSWALK SOLUTIONS

TAPCO offers a wide selection of pedestrian crosswalk solutions proven to heighten driver awareness. Utilizing a variety of activation options, TAPCO pedestrian crosswalk solutions protect vulnerable road users in a multitude of applications.

- School zone crossings
- Multi-lane uncontrolled crossings
- High-speed pedestrian crossings

PEDESTRIAN CROSSWALK SOLUTIONS

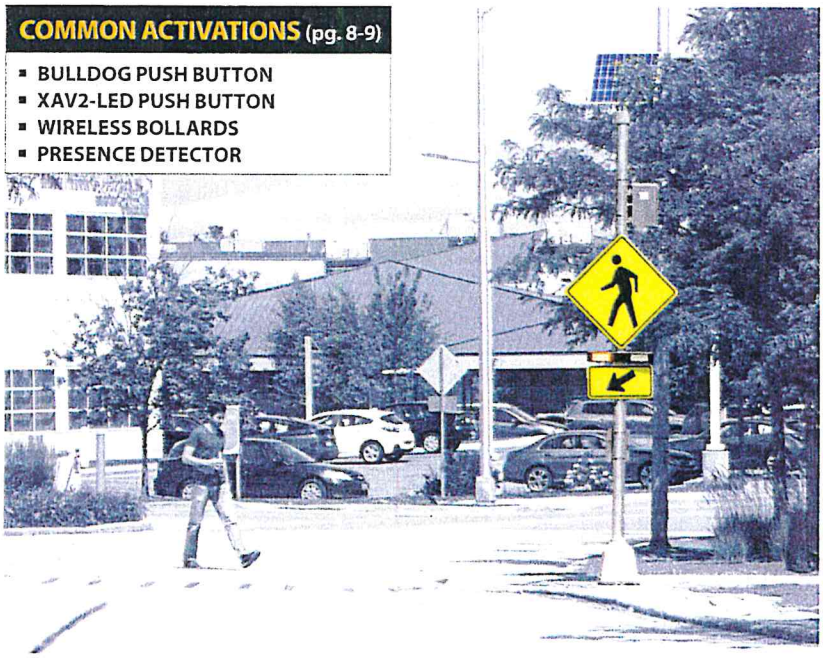
RECTANGULAR RAPID FLASHING BEACON (RRFB) CROSSWALK SYSTEM

The TAPCO Rectangular Rapid Flashing Beacon (RRFB) Crosswalk System is a one-of-a-kind crosswalk solution proven to increase driver yield rates at uncontrolled pedestrian crossings.

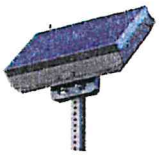
Ideal for high-speed and multilane crosswalks, TAPCO RRFB Crosswalk Systems flash the FHWA-approved wig-wag plus simultaneous (WW+S) flash pattern upon activation.

COMMON ACTIVATIONS (pg. 8-9)

- BULLDOG PUSH BUTTON
- XAV2-LED PUSH BUTTON
- WIRELESS BOLLARDS
- PRESENCE DETECTOR



Top-of-Pole Systems



Top-of-Pole self-contained control cabinet houses power supply for quick installation and clean appearance.

System Includes: 20 watt solar panel/44Ah battery package, radios installed in each cabinet and universal pole mounting hardware.

- Supports XAV2-LED push button and others
- Compact design allows for easy assembly onto new or existing poles
- No trenching or in-ground wiring required

Side-of-Pole Systems

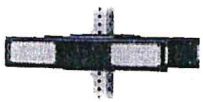
Side-of-pole control cabinet allows for easy access and flexible system configuration. Solar and 120VAC power options available.

System Includes: 55 watt solar panel/48Ah battery package, radios installed in each cabinet and stainless steel pole mounting hardware.

- Mounts onto new or existing round, square or wood posts
- Highly configurable for multiple applications
- Additional solar panel, battery and mounting options available

RECTANGULAR RAPID FLASHING BEACON SOLUTIONS

- Black RRFB and yellow push button housing comes standard. Custom housing options available upon request.
- Static signs and poles sold separately. See page 47 for common pole kits.

RRFB-XL2™	ACTIVATION	POWER	TOP-OF-POLE SYSTEM PART NUMBERS	SIDE-OF-POLE SYSTEM PART NUMBERS
SINGLE-SIDED	Bulldog	Solar	600165	600167
		AC	–	600169
	XAV2-LED	Solar	600164	600166
		AC	–	600168
 BACK-TO-BACK	Bulldog	Solar	600145	600147
		AC	–	600149
	XAV2-LED	Solar	600144	600146
		AC	–	600148

Quote #1

PEDESTRIAN CROSSWALK SOLUTIONS

ADDITIONAL BLINKERSIGN® SYSTEM PART NUMBERS

Quote #2 & #3

S1-1 BLINKERSIGN® SOLUTIONS

- Yellow push button housing comes standard; black available upon request.
- Poles sold separately. See page 47 for common pole kits.

				TOP-OF-POLE SYSTEM PART NUMBERS	SIDE-OF-POLE SYSTEM PART NUMBERS		
BLINKERSIGN®	SIZE	ACTIVATION	POWER	20W/44Ah	55W/48Ah	26W/27Ah	13W/14Ah
SINGLE	30"	Bulldog	Solar	600088	600016	600438	600152
		XAV2-LED		600090	600018	–	–
	36"	Bulldog	Solar	600092	600020	600476	600153
		XAV2-LED		600094	600022	–	–
BACK-TO-BACK	30"	Bulldog	Solar	600089	600017	600439	600477
		XAV2-LED		600091	600019	–	–
	36"	Bulldog	Solar	600093	600021	600478	600479
		XAV2-LED		600095	600023	–	–

W11-15 BLINKERSIGN® SOLUTIONS

- Yellow push button housing comes standard; black available upon request.
- Poles sold separately. See page 47 for common pole kits.

				TOP-OF-POLE SYSTEM PART NUMBERS	SIDE-OF-POLE SYSTEM PART NUMBERS		
BLINKERSIGN®	SIZE	ACTIVATION	POWER	20W/44Ah	55W/48Ah	26W/27Ah	13W/14Ah
SINGLE	30"	Bulldog	Solar	600072	600000	600480	600154
		XAV2-LED		600074	600002	–	–
	36"	Bulldog	Solar	600076	600004	600481	600155
		XAV2-LED		600078	600006	–	–
BACK-TO-BACK	30"	Bulldog	Solar	600073	600001	600482	600483
		XAV2-LED		600075	600003	–	–
	36"	Bulldog	Solar	600077	600005	600484	600485
		XAV2-LED		600079	600007	–	–

Enhanced Crosswalks

What are enhanced crosswalks?

Enhanced crosswalks are pedestrian crossing countermeasures used in addition to the pavement markings typically used at pedestrian crossings not controlled by a traffic signal or STOP sign. The most common examples of enhanced crosswalks include:

- Median refuge islands
- Curb extensions
- Street lights
- Rectangular Rapid Flashing Beacons (RRFBs)
- High-Intensity Activated CrossWalK beacon (HAWK beacon)

Curb Extensions

High-Intensity Activated Crosswalk Beacon

Rectangular Rapid Flashing Beacon

Why are enhanced crosswalks needed?

Research consistently conveys that marked crosswalks alone do NOT reduce the number or rate of pedestrian-vehicle crashes.[5] Since only marking a crosswalk is unlikely to improve pedestrian safety, the use of enhanced crossing countermeasures is suggested to improve crosswalk safety.

Although definitive rationale is not available as to why marked crosswalks alone are ineffective, theories include:

- False sense of security on the part of the pedestrians and inconsistent driving behaviors
- Distracted drivers and pedestrians
- Reduced effectiveness as a result of either overuse or warning of conditions that drivers rarely encounter

How effective are enhanced crosswalks?

Curb Extensions and Median Refuge Islands are countermeasures that reduce crossing distances. In the case of median refuge islands, allow for pedestrians to cross one direction of travel at a time. These improvements are PROVEN effective with crash reductions in the range of 40 to 45 percent.[2]

Street Lighting at isolated locations in rural areas is considered PROVEN effective, with a crash reduction in the range of 30 to 40 percent. Limited research is available on the effectiveness of pedestrian-related crashes in urban areas.

HAWK Beacons and RRBFs are relatively new technologies with promising initial research. HAWK beacons and RRFBs have crash reductions over 50 percent[4], and RRFBs have documented high yielding rates to pedestrians in excess of 80 percent.[4]

Enhanced Crosswalks

What are candidate locations for enhanced crosswalks?

The primary guidelines for installing crosswalk markings are documented in the Minnesota Manual on Uniform Traffic Control Devices (MN MUTCD).[1] To identify locations for enhanced crosswalks, the MN MUTCD guidance recommends that agencies prioritize their systems based on need and existing factors such as:

- Number of lanes
- Presence of median
- Distance from adjacent signals
- Pedestrian volume and delay
- Average daily traffic
- Speed limit
- Geometry
- Potential consolidation of nearby crossings

Although no research identifies minimum levels of pedestrian volumes that would indicate a threshold level of need, maximum vehicle volumes and speed limits are documented at approximately 12,000 vehicles per day and 40 miles per hour along multilane roadways. Therefore, it is recommended that candidate locations for enhanced crosswalks are two- or three-lane roads with speeds of 35 miles per hour or less and traffic volumes under 12,000 vehicles per day. Refer to guidelines for establishing crosswalks and consideration of a variety of enhancements.[6]

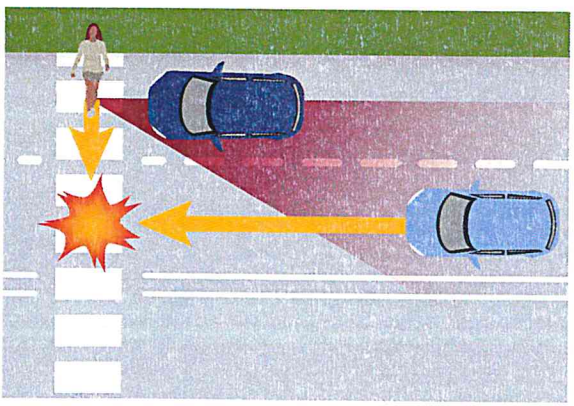
> *"Crosswalk lines should not be used indiscriminately. An engineering study should be performed before they are installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign." Section 3B.18, MN MUTCD*

Cost

Per Crossing

- Curb Extensions, Median Island, RRFB: $10,000-$25,000
- HAWK Beacon: $75,000-$150,000

Deployment should be prioritized by risk



What are the additional considerations?

A specific type of conflict at marked and unmarked crosswalks is the multi-vehicle threat. This conflict occurs on multi-lane roads when a vehicle in one lane stops for a pedestrian and a trailing vehicle (in the same direction) in an adjacent lane potentially hits the pedestrian when they emerge from in front of the stopped vehicle. This type of crash occurs as a result of both the pedestrian and driver failing to see one another.

Potential strategies to address the multi-vehicle threat include:

- The addition of an RRFB or HAWK to provide approaching drivers with a warning of the presence of a pedestrian attempting to cross the road.
- Four-to-three-lane road conversions (road diet) since the multi-vehicle threat occurs on roads with more than three lanes. END

References

1. Minnesota Department of Transportation (MnDOT). 2015. *Minnesota Manual on Uniform Traffic Control Devices.* http://www.dot.state.mn.us/trafficeng/publ/mutcd/. Accessed June 2017.
2. Preston, H., Nikki Farrington, and Charles Zegeer. 2013. *Minnesota's Best Practices for Pedestrian/Bicycle Safety.* MnDOT Report 2013-22. http://www.dot.state.mn.us/research/TS/2013/201322.pdf. Accessed June 2017.
3. Transit Cooperative Research Program. 2006. *Improving Pedestrian Safety at Unsignalized Crossings.* NCHRP Report 562. https://nacto.org/wp-content/uploawds/2010/08/NCHRP-562-Improving-Pedestrian-Safety-at-Unsignalized-Crossings.pdf. Accessed June 2017.
4. U.S. Department of Transportation (DOT) and Federal Highway Administration (FHWA). 2011. *Evaluation of Pedestrian and Bicycle Engineering Countermeasures: Rectangular Rapid-Flashing Beacons, HAWKs, Sharrows, Crosswalk Markings, and the Development of an Evaluation Methods.* Publication FHWA-HRT-11-039. https://www.fhwa.dot.gov/publications/research/safety/pedbike/11039/11039.pdf. Accessed June 2017.
5. Zegeer, C. 2005. *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations.* Report FHWA HRT-04-100. https://www.fhwa.dot.gov/publications/research/safety/04100/04100.pdf. Accessed June 2017.
6. Minnesota Department of Transportation (MnDOT). 2015. *Pedestrian Crossing Facilitation.* Technical Memorandum No. 15-01-T-01. http://dotapp7.dot.state.mn.us/edms/download?docId=1552495. Accessed June 2017.
7. National Cooperative Highway Research Program (NCHRP). *NCHRP Report 500: Guidance for Implementation of the AASHTO Strategic Highway Safety Plan.* The National Academies of Sciences, Engineering, Medicine. http://www.trb.org/Main/Blurbs/175381.aspx. Modified March 2017.

Radar Speed Signs

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	9/22/2018	Keven Nystedt	Net 30 DAYS	PREPAID	BEST RATE

Item	Description	Quantity	UM	Price	Extension
138890	SafePace 250 EV,12"Radar Feedback Sign,YOUR SPEED 50W Solar,HIP White Face,23"x29",BluetoothReady	[redacted]	EA	2,655.25	[redacted]

Bluetooth Quote #1

Shipment within _____
Acceptance By _____
Date _____
By _____

Merchandise	Freight	Tax	Total
[redacted]	$0.00	$0.00	[redacted]

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Customer PO #	Expires	Slsp	Terms	Freight	Ship Via
	9/22/2018	Keven Nystedt	Net 30 DAYS	PREPAID	BEST RATE

Item	Description	Quantity	UM	Price	Extension
137971	Safe Pace 250 EV,12" Radar Feedback Sign,50 Watt Solar Panel,White HIP Face,1 Year Cloud Service	[redacted]	EA	3,130.25	[redacted]

Cloud Service for 1 year Quote #2

Shipment within _____
Acceptance By _____
Date _____
By _____

Merchandise	Freight	Tax	Total
[redacted]	$0.00	$0.00	[redacted]

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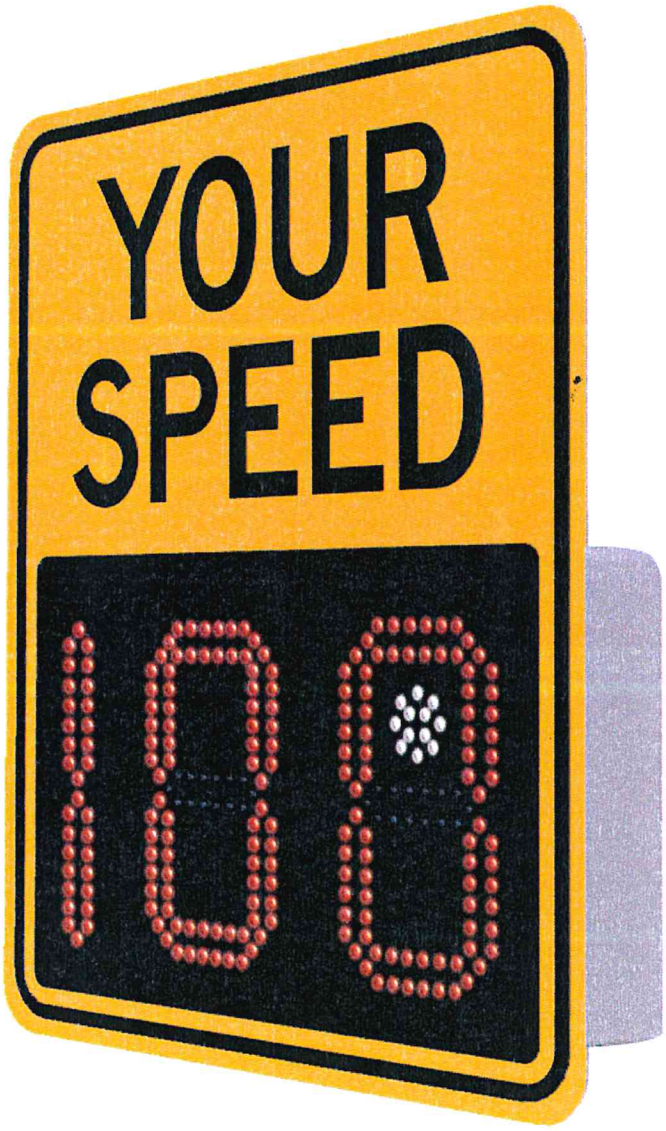
TRAFFIC LOGIX®
SAFEPACE® EVOLUTION12 PRODUCT SPECIFICATIONS

Radar Sign Specifications



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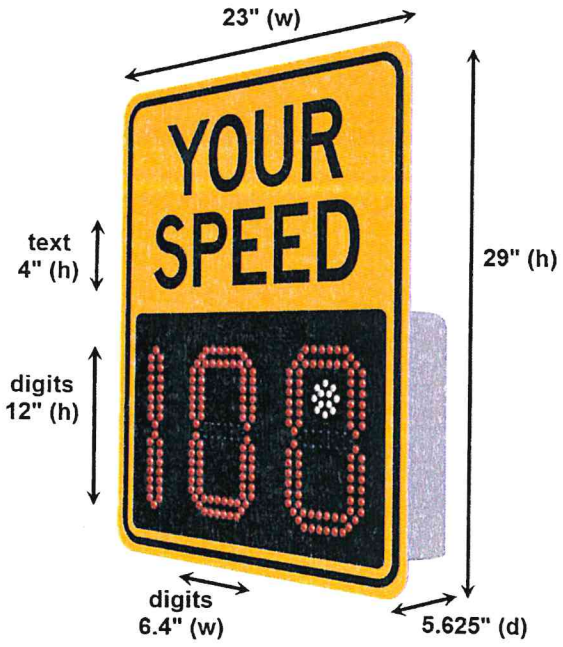
DIMENSIONS

- Digit Size:
  - First digit: 12"(h) x 1.125"(w), 56 LEDs (3-digit signs only)
  - Other digits: 12"(h) x 6.4"(w), 196 LEDs per digit
- Sign Face Text: Letters 4"(h) spell "YOUR SPEED" fixed message, 2 lines
- Unit alone: 17.25"(h) x 23"(w) x 5.625"(d)
- Unit with "YOUR SPEED" sign mounted:
  - Full size sign: 29.0"(h) x 23.0"(w) x 5.625"(d)
- Sign Weight (includes "YOUR SPEED" sign)
  - AC Powered Model: 20 lbs
  - Battery Powered Model: 20 lbs (not including batteries)
  - Solar Powered Model: 20 lbs (does not include solar panel or bracket)
- Accessories (*optional*)
  - 4 Cell Lithium Ion Battery: 4 lbs
  - Lead Acid Battery: 12 lbs
  - Universal Mounting Bracket System
    - Sign Bracket: 2 lbs
    - Pole Bracket: 5 lbs

All Specifications Subject to Change Without Notice



TECHNICAL SPECIFICATIONS

- 3-Digit Speed Display
  - Miles Per Hour (mph): 3-99 mph
  - Kilometers Per Hour (km/h): 5-160 km/h
- High-Intensity prismatic reflective sheeting on "YOUR SPEED" signs with black colored text
- MUTCD approved colors and format
- Operating Temperatures F (C): -40° (-40°) to 185° (85°)
- Conformal coating on all circuit boards

Power

- Power input:
  - 100~240 V AC @ 150 mA
  - 12 V DC (11-14.5 V @ 1A)
  - Built in ambient light sensing and automatic brightness control
  - Wireless battery charge monitoring (via software interface)
- Power Options
  - AC power input: 100~240 V AC
  - DC (battery) power input: 12 V DC

    DC (battery) power options:
    - 12V, 18Ah Lead acid batteries
    - 4 Cell, 12.8V, 15Ah Lithium-Ion Phosphate batteries
  - Solar power: 50W solar panel

Radar

- Internal Radar: Doppler (FCC approved)
- Model: DF 600
- Radar RF out: 5 mW maximum
- Radar f-center: 24.125 GHz or 24.200 GHz
- Pickup distance: Up to 400 feet
- Beam angle: 24° (vertical) x 12° (horizontal)
- Beam polarization: Linear
- CE Mark (Radar): Yes

Display

- LEDs: 460
  - Digits (Yellow): 224 LEDs

- Color: Yellow (590 nm)
- Viewing angle at 50% IV: 30°
- Partial Flux (Brightness): 9000 – 22400 Ev,[lux]/LED

- Digits (Red): 224 LEDs
  - Color: Red(633 nm)
  - Viewing angle at 50% IV: 30°
  - Partial Flux (Brightness): 7100 – 18000 Ev,[lux]/LED
- Speed Violator Strobe: 12 LEDs
  - Color: White (2700 K – 6500 K)
  - Viewing angle at 50% IV: 150°
  - Luminous Flux: typically 33lm @ 4000 K
  - Luminous Efficacy: typically 176 lm/W @4000 K

» Ambient light sensor and automatic brightness adjustment

Enclosure

» Vandal resistant, lightweight polymer
» Matte black front for reduced glare and maximum contrast
» Light gray body to minimize heat absorption
» Weatherproof, NEMA 4X-12, IP65 level compliant
» Non-sealed and ventilated

All Specifications Subject to Change Without Notice

COMMUNICATIONS

- Bluetooth (standard)
- GSM/GPRS (optional, for use with SafePace Cloud)

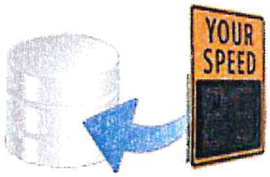
PROGRAMMING

- SafePace® Pro management software
- SafePace® Cloud remote management
- 24/7 365 day unlimited programming and scheduling
- Display Settings:
  - Display On/Stealth Modes (In Stealth Mode, speed is not displayed but data is collected)
  - Display Minimum Speed, Display Maximum Speed
  - Digit Flashing Speed Threshold (digits flash above specified speed threshold)
  - LEDs Flashing Speed (for digits)
    - Fast: 1.5 Hz
    - Medium: 1 Hz
    - Slow: 0.75 Hz
  - Speed activated, dual-color digit display (speeds above a specified value are displayed in red)
  - Speed Violator Strobe (pulsing strobe flashes above specified speed)

All Specifications Subject to Change Without Notice

Data Collection, Statistical Analysis and Reporting (optional feature)

- Traffic data collected and stored by location
- Stealth Mode (captures baseline traffic data with speed display turned off)
- Download through wireless connection
- Statistical Reporting & Charts
  - Summary Reports
  - Weekly Reports
  - Period Comparison Reports
  - Full custom reports and charts
  - Reporting Parameters:
    - Average Vehicle Count
    - Total Vehicle Count
    - Average Speed
    - Average Number of Speed Violations
    - Total Number of Speed Violations
  - Other Features:
    - Minimum and Maximum Speed
    - 85% Speed
    - Counters by Speed Bins
    - 5 MPH Bin Resolution
    - Reports print directly or can be exported into CSV format, MS Excel, Adobe Acrobat PDF and HTML
    - Charts may be printed directly or converted into Adobe Acrobat PDF and image formats



All Specifications Subject to Change Without Notice

WARRANTY

Two Year Warranty

Two year warranty on parts and labor excluding damage related to vandalism, abuse, and/or theft

Subject to the following conditions, Traffic Logix Corporation ("Traffic Logix") warrants that the SafePace EV12 sign (the "Product") is free from defects in materials and workmanship.

This limited warranty begins on the invoice date of your purchase of the Product and extends:

- For TWO (2) calendar years on the sign, and
- For ONE (1) calendar year on the batteries.

This limited warranty extends only to the original purchaser of the Product when purchased either directly through Traffic Logix or through an authorized Traffic Logix distributor and is not assignable or transferable to any subsequent purchaser or end-user. Traffic Logix's obligation and liability under this warranty are expressly limited to repairing or replacing, at Traffic Logix's option, defective products. In no circumstances shall Traffic Logix's liability, whether in contract or tort, under any warranty, in negligence, or otherwise, exceed the amount of the purchase price of the product. Traffic Logix shall not be liable for special, indirect, or consequential damages of any kind. This warranty does not cover damages resulting from normal wear and tear, incorrect installation or operation, use other than for the product's intended purposes, vandalism, and extraordinary environmental circumstances. Traffic Logix reserves the right to charge for these damages to the product at rates normally charged for repairing such products not covered under this warranty. Damages resulting from any physical changes or alterations made to the product other than Traffic Logix will render this warranty **VOID**. Using any parts or accessories not supplied or approved by Traffic Logix, such as battery chargers, will further render the warranty **VOID**.

Traffic Logix neither assumes, nor authorizes any person to assume for it, any other liability in connection with the sale of the Product, and there are no agreements or warranties collateral to or affecting this limited warranty.

THE LIMITED WARRANTY SET FORTH IN THIS AGREEMENT IS THE EXCLUSIVE AND SOLE WARRANTY APPLICABLE TO THIS PURCHASE. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED.

Traffic Logix does not warrant that any of its products will meet or comply with the requirements of any applicable federal, state or local safety code, law, regulation or ordinance ("Applicable Safety Laws"). Buyer acknowledges that Traffic Logix's products are to be used only in accordance with the attached Conditional Terms of Use and any Applicable Safety Laws. Buyer agrees that there shall be no coverage or benefits of any kind under this limited warranty if it is determined by Traffic Logix that the Product was not installed or used in accordance with the Conditional Terms of Use or Applicable Safety Laws, or if the Product has been

altered in any way by anyone other than Traffic Logix, or if the Product has been subject to any misuse or accident. In addition, Buyer assumes and agrees to indemnify Traffic Logix for all risk, liability or expense that results from any installation or use of the Product that is not in accordance with the Conditional Terms of Use or any Applicable Safety Laws.

Warranty Replacement Procedure

In order to submit a claim for the repair or replacement of the Product under this limited warranty, proceed as follows:

1. Contact Technical Support. **Do *NOT*** ship your defective product to Traffic Logix prior to contacting Technical Support.
2. A Technical Support Agent will evaluate the Product to determine if it is defective. You may be required to do some troubleshooting as part of this evaluation.
3. If the Product is defective, then you will need to submit your contact information, and proof of purchase (including the date of purchase), in order to obtain repair or replacement parts.
4. The Technical Support Agent will provide you with a Return Materials Authorization number and instructions on how to have the defective parts repaired or replaced.

MAYER, MN
*Expenditure Guideline

Current Period: August 2018

Account Descr	2018 YTD Budget	August 2018 Amt	2018 YTD Amt	Enc Current	2018 YTD Balance	% of YTD Budget
E 100-42260-406 800 Mgz Radios	$0.00	$0.00	$1,705.00	$0.00	-$1,705.00	0.00%
E 100-42260-417 Uniform Rental	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42260-500 Capital Outlay (GEN	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42260-517 PPE Purchase	$100,000.00	$0.00	$22,624.87	$0.00	$77,375.13	22.62%
E 100-42260-580 New Equipment	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42260-720 Transfer Out	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42280-210 Operating Supplies	$150.00	$0.00	$405.66	$0.00	-$255.66	270.44%
E 100-42280-321 Telephone	$1,500.00	$41.19	$578.57	$0.00	$921.43	38.57%
E 100-42280-381 Electric Utilities	$1,800.00	$164.29	$936.29	$0.00	$863.71	52.02%
E 100-42280-383 Gas Utilities	$2,600.00	$0.00	$1,789.57	$0.00	$810.43	68.83%
E 100-42280-400 Repairs & Maint Co	$3,000.00	$92.59	$1,961.52	$0.00	$1,038.48	65.38%
E 100-42280-500 Capital Outlay (GEN	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42280-600 Debt Srv Principal	$7,399.00	$0.00	$3,840.42	$0.00	$3,558.58	51.90%
E 100-42280-601 Debt Srv Interest	$909.00	$0.00	$313.58	$0.00	$595.42	34.50%
E 100-42282-600 Debt Srv Principal	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42282-601 Debt Srv Interest	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42285-600 Debt Srv Principal	$19,293.00	$0.00	$0.00	$0.00	$19,293.00	0.00%
E 100-42285-601 Debt Srv Interest	$2,456.00	$0.00	$0.00	$0.00	$2,456.00	0.00%
E 100-42290-124 Fire Pension Contrib	$3,800.00	$0.00	$3,726.00	$0.00	$74.00	98.05%
E 100-42400-300 Professional Srvs	$25,000.00	$3,484.66	$23,281.27	$0.00	$1,718.73	93.13%
E 100-42400-430 Miscellaneous (GEN	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42500-381 Electric Utilities	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42500-400 Repairs & Maint Co	$450.00	$0.00	$250.00	$0.00	$200.00	55.56%
E 100-42500-500 Capital Outlay (GEN	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-42700-300 Professional Srvs	$650.00	$0.00	$0.00	$0.00	$650.00	0.00%
E 100-43000-360 Insurance (GENER	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-43000-720 Transfer Out	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-43100-100 Wages and Salaries	$23,928.75	$1,382.92	$18,946.03	$0.00	$4,982.72	79.18%
E 100-43100-120 Employer Contrib R	$1,794.66	$0.00	$0.00	$0.00	$1,794.66	0.00%
E 100-43100-131 Employer Paid Healt	$4,800.00	$0.00	$0.00	$0.00	$4,800.00	0.00%
E 100-43100-133 Employer Paid Dent	$280.10	$0.00	$0.00	$0.00	$280.10	0.00%
E 100-43100-134 Employer Paid Life	$28.00	$0.00	$0.00	$0.00	$28.00	0.00%
E 100-43100-180 Employee Witholdin	$1,830.55	$115.92	$2,128.43	$0.00	-$297.88	116.27%
E 100-43100-208 Training and Instruc	$1,000.00	$0.00	$150.00	$0.00	$850.00	15.00%
E 100-43100-210 Operating Supplies	$5,000.00	$370.42	$2,553.42	$0.00	$2,446.58	51.07%
E 100-43100-212 Motor Fuels	$3,000.00	$0.00	$2,979.15	$0.00	$20.85	99.31%
E 100-43100-300 Professional Srvs	$1,375.00	$40.14	$399.73	$0.00	$975.27	29.07%
E 100-43100-303 Engineering Fees	$7,500.00	$0.00	$0.00	$0.00	$7,500.00	0.00%
E 100-43100-304 Legal Fees	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-43100-310 Contract Services	$2,500.00	$0.00	$1,500.00	$0.00	$1,000.00	60.00%
E 100-43100-321 Telephone	$180.00	$81.01	$325.55	$0.00	-$145.55	180.86%
E 100-43100-331 Travel Expenses	$400.00	$0.00	$377.36	$0.00	$22.64	94.34%
E 100-43100-360 Insurance (GENER	$2,000.00	$0.00	$1,815.47	$0.00	$184.53	90.77%
E 100-43100-400 Repairs & Maint Co	$15,000.00	$219.99	$12,622.40	$0.00	$2,377.60	84.15%
E 100-43100-430 Miscellaneous (GEN	$1,000.00	$0.00	$33.43	$0.00	$966.57	3.34%
E 100-43100-500 Capital Outlay (GEN	$55,000.00	$0.00	$21,530.23	$0.00	$33,469.77	39.15%
E 100-43124-300 Professional Srvs	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%
E 100-43125-229 Sand & Salt	$7,000.00	$0.00	$4,714.90	$0.00	$2,285.10	67.36%
E 100-43125-300 Professional Srvs	$20,000.00	$0.00	$30,384.50	$0.00	-$10,384.50	151.92%
E 100-43150-303 Engineering Fees	$2,500.00	$0.00	$0.00	$0.00	$2,500.00	0.00%
E 100-43150-430 Miscellaneous (GEN	$0.00	$0.00	$0.00	$0.00	$0.00	0.00%