



SAWSTM

SOLAR ADVANCED WARNING SYSTEMS

Solar Advanced Warning Systems

Utilizing Smart Work Zone Technology, SAWS is able to detect on-coming traffic, advise drivers to stop or yield, and warn the traveling public of approaching dangers.



What is predominantly done now....

ZIP
NADA
ZILCH
NOTHING

Traditional Safety Measures

- ❖ Doing absolutely nothing at all
- ❖ Placing Static Signs upstream of driveways
- ❖ Painting stripes on the roadway denoting driveway boundaries



Added Safety Measure for Current Signage

- ❖ 24-7 Flashing Lights, Strobes, and Beacons
- ❖ Effective short term but statistically become ineffective over time



Work Zone Incidents

Year	Work Zone			Truck-Involved Work Zone		
	Total Crashes	Injury-Involved Crashes	Injuries	Total Crashes	Injury-Involved Crashes	Injuries
2007	53,000	15,000	25,000	7,000	1,000	2,000
2008	38,000	11,000	16,000	6,000	1,000	1,000
2009	84,000	19,000	30,000	6,000	1,000	2,000
2010	87,000	26,000	36,000	3,000	1,000	1,000
2011	91,000	25,000	39,000	9,000	2,000	3,000
2012	76,000	20,000	30,000	9,000	2,000	4,000
2013	68,000	17,000	25,000	9,000	2,000	3,000
2014	89,000	22,000	31,000	16,000	2,000	3,000
2015	97,000	25,000	35,000	16,000	3,000	4,000
2016***	158,000	42,000	61,000	23,000	3,000	4,000

Source: Data shown is an estimate for the 50 states and District of Columbia, and comes from the General Estimates System (GES) and the Crash Report Sampling System (CRSS), National Highway Traffic Safety Administration, U.S. Department of Transportation.



The SAWS Solution

The patented SAWS system was initially developed in response to construction haul road and intersection crossing incidents.



Design Technology

- Created through the joint efforts of several established vendors
- A combination of existing technologies
- A work zone awareness system to help prevent accidents



LED Regulatory Sign Trailer



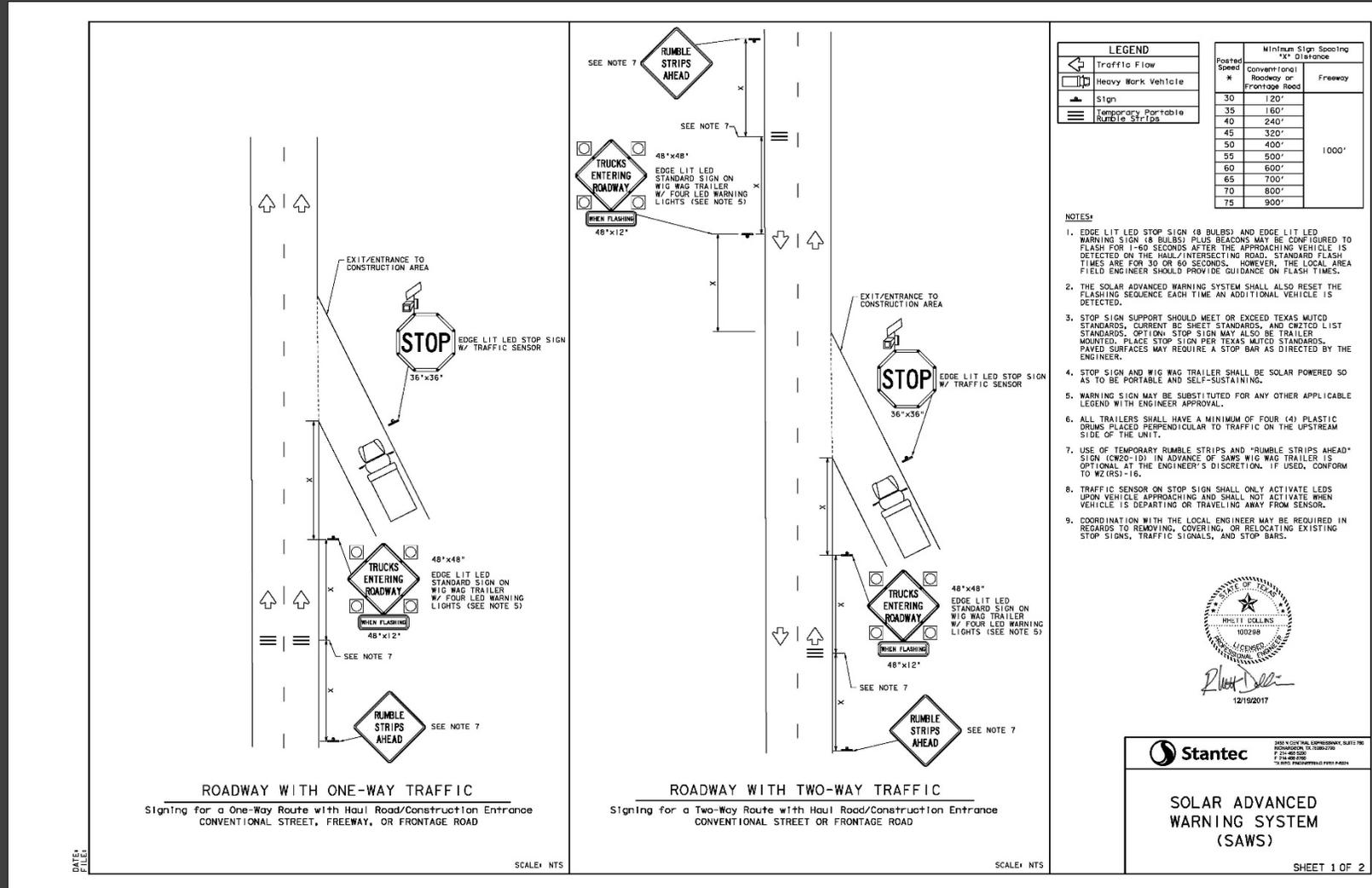
- Battery powered
- Self sustaining with solar panels
- 8 LED flashing lites on edge of sign
- Various sign legends available
- Receives signal from microwave radar for activation
- Timed flash
- Radio frequency sending unit
- Field tested and proven for many years in various states with varying sun exposure
- DOT approved and used

Standard Sign on Wig Wag Trailer

- Battery powered
- Self sustaining with solar panels
- 8 LED flashing lites on edge of sign
- Two 12" Wig Wag beacons
- Various advance warning sign legends available
- Mast-ed design allows for easy transport and pointing toward on-coming traffic
- Standard 2" coupler for towing allows for portability
- Receives signal from radio transmitter for activation or "steady flash" mode
- Timed flash activation



Engineered Drawings



LEGEND

	Traffic Flow
	Heavy Work Vehicle
	Sign
	Temporary Portable Rumble Strips

Posted Speed #	Minimum Sign Spacing "X" Distance	
	Conventional Roadway or Frontage Road	Freeway
30	120'	1000'
35	160'	
40	240'	
45	320'	
50	400'	
55	500'	
60	600'	
65	700'	
70	800'	
75	900'	

- NOTES:**
- EDGE LIT LED STOP SIGN (8 BULBS) AND EDGE LIT LED WARNING SIGN (8 BULBS) PLUS BEACONS MAY BE CONFIGURED TO FLASH FOR 1-60 SECONDS AFTER THE APPROACHING VEHICLE IS DETECTED ON THE HAIL/INTERSECTING ROAD. STANDARD FLASH TIMES ARE FOR 30 OR 60 SECONDS. HOWEVER, THE LOCAL AREA FIELD ENGINEER SHOULD PROVIDE GUIDANCE ON FLASH TIMES.
 - THE SOLAR ADVANCED WARNING SYSTEM SHALL ALSO RESET THE FLASHING SEQUENCE EACH TIME AN ADDITIONAL VEHICLE IS DETECTED.
 - STOP SIGN SUPPORT SHOULD MEET OR EXCEED TEXAS MUTCD STANDARDS, CURRENT BC SHEET STANDARDS, AND CWTCD LIST STANDARDS. OPTIONAL STOP SIGN MAY ALSO BE TRAILER MOUNTED. PLACE STOP SIGN PER TEXAS MUTCD STANDARDS. PAVED SURFACES MAY REQUIRE A STOP BAR AS DIRECTED BY THE ENGINEER.
 - STOP SIGN AND WIG WAG TRAILER SHALL BE SOLAR POWERED SO AS TO BE PORTABLE AND SELF-SUSTAINING.
 - WARNING SIGN MAY BE SUBSTITUTED FOR ANY OTHER APPLICABLE LEGEND WITH ENGINEER APPROVAL.
 - ALL TRAILERS SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE UNIT.
 - USE OF TEMPORARY RUMBLE STRIPS AND "RUMBLE STRIPS AHEAD" SIGN (CW20-1D) IN ADVANCE OF SAWS WIG WAG TRAILER IS OPTIONAL AT THE ENGINEER'S DISCRETION. IF USED, CONFORM TO WZ (RS)-16.
 - TRAFFIC SENSOR ON STOP SIGN SHALL ONLY ACTIVATE LEDS UPON VEHICLE APPROACHING AND SHALL NOT ACTIVATE WHEN VEHICLE IS DEPARTING OR TRAVELING AWAY FROM SENSOR.
 - COORDINATION WITH THE LOCAL ENGINEER MAY BE REQUIRED IN REGARDS TO REMOVING, COVERING, OR RELOCATING EXISTING STOP SIGNS, TRAFFIC SIGNALS, AND STOP BARS.



Stantec

SOLAR ADVANCED WARNING SYSTEM (SAWS)

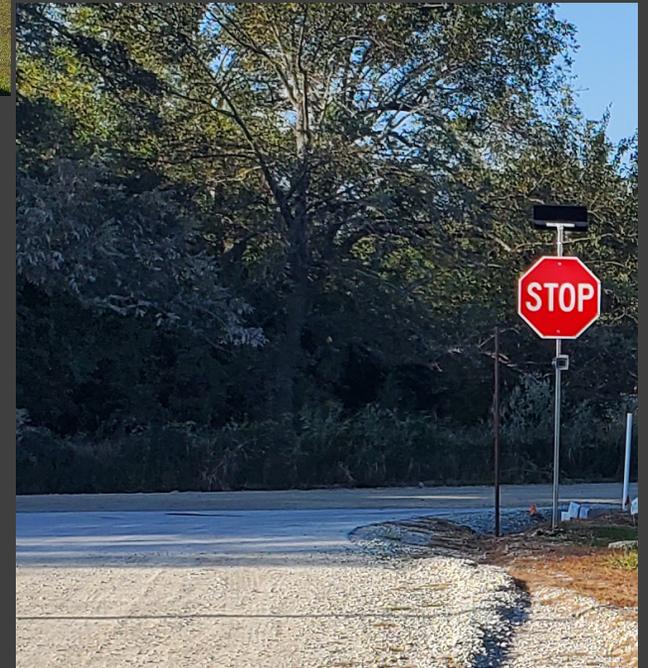
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SHEET 1 OF 2



Permanent Application

- ❖ Design and Installation must be approved by TXDOT District Engineering
- ❖ Can be custom tailored to the application as necessary
- ❖ Battery-Solar or A.C. grid power systems available





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