

All Town Sign Replacement Program - 2014

Program Overview

Continuing from last year, the Iowa Department of Transportation is reorganizing its Small Town Sign Replacement Program to provide signs to all communities in Iowa. New for this year, several additional signs qualify for replacement. With the goal to focus resources on safety, the program offers to replace the following eligible signs that are deficient, damaged or obsolete:

- Stop
- Stop Ahead
- Yield
- All Way (eligible for new locations)
- Speed Limit
- No Right Turn
- No Left Turn
- No U-turn
- Wrong Way
- One-way on Right Arrow
- One-way on Left Arrow
- One-way with Right Arrow
- Do Not Enter
- One-Direction Large Arrow
- Two-Direction Large Arrow
- Speed Reduction
- Railroad Advance Warning
- School Symbol
- Bicycle Symbol
- Pedestrian Symbol
- Crossing Diagonal Left Down Arrow
- Crossing Ahead Supplemental

The sign post for eligible signs may be replaced if:

- Sign mounting height is incorrect
- Post is damaged
- Post is warped (sign not level or perpendicular to roadway)
- Lateral post placement is incorrect
- Longitudinal placement is incorrect

Posts and fasteners are provided for each eligible sign, if needed. Individual cities may receive signs, posts and fasteners up to a total of \$5,000 in value.

The applications are submitted to the Program Coordinator for evaluation. If the application is approved, the Iowa DOT will provide the signs, posts and fasteners to the applicant. The applicant is responsible for installation of the signs and is required to notify the Program Coordinator after completion

Application information and guidance is available to on our web site or may be sent to applicants by mail, upon request.

All Town Sign Replacement Program - 2014

Program Overview (Cont'd)

Program Coordinator

John Sebastian

Phone: 515-239-1991 Fax: 515-239-1891

General Office Phone: 515-239-1557

Email: john.sebastian@dot.iowa.gov

Website: <http://www.iowadot.gov/traffic/smalltownsign.htm>

Submit Applications to:

Iowa Department of Transportation
Office of Traffic & Safety
All Town Sign Replacement Program
800 Lincoln Way
Ames, IA 50010

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Application Process

1. Identify signs and posts to be replaced

Signs eligible through this program provide replacements for signs already in place. This program does not provide signs for new installations with the exception of the All Way sign.

Applicants are required to perform an assessment of their sign needs by identifying deficient, damaged or obsolete signs.

2. Determine proper location and length of post for each sign

Applicants must verify the existing signs are properly located and mounted at the correct height. This exercise is necessary for an applicant to determine the length of replacement posts and to assure replacement signs are properly installed.

3. Fill out application

The applicant information and the sign locations from the field review are entered on the application. The preferred format of the application is the Microsoft Excel spreadsheet available from our website. The spreadsheet automatically calculates the running costs. The application may be submitted on paper, but the applicant will need to calculate the sign costs by hand. The application request cannot exceed \$5,000.

4. Obtain a signed resolution

A resolution must be prepared and approved by the applicant's City Council. The approved and signed "City Council Resolution" must be submitted to the Program Coordinator with the application to be eligible for approval.

5. Submit application & supporting documentation to Program Coordinator

Electronic submittal:

- 1.) Email the "Sign Application" spreadsheet.
- 2.) Mail, email or fax the signed resolution.

Or, hardcopy submittal:

- 1.) Mail or fax the "Application Information Sheet"
- 2.) Mail or fax the "Sign and Signpost Request Sheet(s)"
- 3.) Mail or fax the signed resolution.

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Application Review Process & Requirements

Application Review - The application is reviewed to verify all supporting documentation has been received. The requested signs and/or posts are reviewed for proper location and appropriate use. The applicant may be contacted for any clarification.

Application Approval - Once the application has been reviewed, we will determine if funding is available to approve the grant. The notification of approval or denial will be sent to the applicant.

Shipping of Materials - Signs, posts and/or fasteners for approved grants will be shipped to a DOT maintenance garage near the applicant. Upon arrival, the applicant will be notified of the arrival of the shipment and where it may be picked up. Depending on inventory availability, shipments should arrive approximately 8 weeks after the application is approved. If the grant includes both signs and posts, the shipments may arrive at different times. The signs are shipped from the DOT Sign Shop and the posts/fasteners are shipped from the DOT Warehouse.

Installation of Signs - The grant requires the installation of the signs and/or post in a timely manner. Therefore, the installation should be complete within 180 days of being furnished as per the city resolution. Please notify the Program Coordinator of any extenuating circumstances.

Notification of Installation - Within 30 days of the installation of the sign and/or posts, notify the Program Coordinator.

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Sign Inspection Guidelines

Signs may be inspected using a variety of techniques. The most common and cost effective method is visual nighttime inspection. Signs are essential to communicating regulatory, warning, and guidance information. It is critical that signs are able to fulfill this role during both daytime and nighttime periods. The ability of a sign to fulfill its role during nighttime periods is provided by a unique form of reflection known as “retroreflectivity.” The retroreflectivity of signs degrades as the signs age in the field.

Traffic signs should be properly positioned, legible and sufficiently reflective. Signs should be visible during the day and at night. They should be viewable without being obscured by such things as weeds, shrubbery, trees or any other object. Damaged or deteriorated signs should be replaced.

General Review Guidelines

- The inspection is conducted at normal roadway operating speeds.
- Signs are normally inspected from the travel lane and not the shoulder.
- The signs must be clean and free of dew or frost during the inspection.
- The weather should be normal without precipitation.

Daytime Review

During daylight hours, signs should be reviewed and the following factors should be considered:

- Sign condition and orientation
- Lateral placement
- Longitudinal placement
- Vertical placement
- Condition of support assembly
- Whether the sign is obscured

The categories listed below are the general reasons why sign are considered to be inadequate and need replacement:

- Bent
- Cracked face material
- Damaged
- Faded
- Illegible
- Missing
- Peeling face material
- Rusty
- Scratched
- Vandalized
- Other (obsolete, etc.)

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Nighttime Review

Procedures from FHWA Publication FHWA-HRT-08-026:

The usual method of inspecting signs at night is to use a two-person crew. While the driver focuses on the driving task, the passenger evaluates the signs and records the appropriate information. An alternative to a two-person crew is to use one person with a tape recorder or camcorder. If an inventory is available, signs that have been knocked down or missing for some other reason can be identified during the nighttime inspection. If no inventory exists, an inventory of existing signs can be created while conducting the nighttime inspection, but it may not account for missing signs. A nighttime inspection procedure can be performed without a sign inventory.

The nighttime visual inspection method should only use the low-beam headlamps of the vehicle as the source of illumination for the signs. The interior light of the vehicle should remain off to the extent feasible. The inspection should be performed at highway speeds and from the travel lanes and not the shoulder. As the vehicle approaches the sign, the sign's overall appearance in terms of brightness and legibility is assessed. Usually the sign is given a rating defined by the agency. At a minimum, the scale should include three designations: good, fair, and poor. The inspector records the information for each sign and the rating that it is given. Signs rated as poor should be scheduled for replacement as soon as possible. Depending on the inspection schedule, signs rated as fair can be noted as requiring attention during the next set of scheduled inspections or can be identified for additional assessment, such as measurement at a later date using a handheld retroreflectometer.

The vehicle and inspector combination should be selected to provide a conservative estimate of sign retroreflectivity. The increased sales of pickup trucks and sport utility vehicles, which result in larger observation angles, make these types of vehicles appropriate for use in many regions. Relatively new vehicles, with visually/optically aimable (VOA) headlamps, should be considered. Ideally, the inspector should be older, with nighttime visual capabilities similar to older drivers. The vision of the inspector should be tested to ensure that it is within the legal limits of the State. It is important that an agency develop consistent guidelines to decrease the subjectivity of inspections. For instance, some items to consider are procedures to clean the headlamps and windshield before each night of inspections and to periodically check the headlamp aiming. A procedure to check the headlamp aim of VOA headlamps is provided in table 4.

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Table 4. Headlamp Aiming Procedure.

What you will need:

- A level area with a distance of approximately 25 feet plus the length of the vehicle from a flat lightly colored wall
- A tape measure
- Masking tape

Instructions:

- Park the vehicle so that the headlamps are precisely 25 feet from a flat lightly colored wall. The vehicle should have at least $\frac{1}{2}$ of a tank of gas and should be loaded as it would be when inspecting signs. This includes the weight of the driver (and passenger present).
- Measure the exact middle of both the windshield and rear window, and mark them with strips of tape, creating vertical centerlines, front and rear.
- Standing behind the car, sight along the centerlines, and have an assist mark the position of the vehicle centerline on the wall with a vertical strip of tape.
- Measure the distance between the vehicle centerline and the headlamp lenses. Mark that distance to the right and left of the centerline on the wall with vertical strips of tape.
- Measure the height of each headlamp from the ground (measuring to the center of the lens). Using those measurements, place horizontal strips of tape on the wall where the vertical strips have been applied. There should now be two crosses on the wall, with centers that correspond to the center of each headlamp lens.
- For headlamps with a left-side cutoff (VOL), mark a horizontal line that is 2.1 inches below the headlamp centers with a horizontal strip of tape. For headlamps with a right-side cutoff (VOR), mark a horizontal line that runs through the headlamp centers.
- Turn the vehicle headlamps on low beam. The left edge of the bright spots on the wall should just touch the vertical bars of the crosses. The top edge of the strongest gradient of light should just touch the horizontal line. Adjust the headlamp aim per manufacturer's instructions, if required.

Probably the most important element of the nighttime inspection is documenting the process and results. This can be done with a voice or video recorder, or even with paper and pencil. Whichever method is selected, it is important that inspections are properly documented and archived to provide tort protection.

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Post Inspection Guidelines

The categories listed below are the general reasons why sign posts are considered to be inadequate and need replacement:

- Leaning
- Bent (metal)
- Warped (wood)
- Damaged
- Two Posts Spliced Together where Bottom Post > 2.5' Above Ground
- Other (rotten, too short, etc.)

Signs are mounted on a variety of post types and structures. Post Types in Service are listed below:

- Building
- U Channel
- Fence
- Light Pole (metal)
- Mast Arm
- Pipe
- Signal Pole (metal)
- Square Tube (Telespar)
- Utility Pole (wood)
- Wood (round)
- Wood (4" x 4")
- Wood (4" x 6")
- Other

Replacement Post Types Available Through Program:

- U Channel
- Square Metal Tube (2" x 2" Telespar)
- Wood (4" x 4") various lengths
- Wood (4" x 6") various lengths

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Inspection Worksheet

Page ____ of ____

Sign #	<input style="width: 100%;" type="text"/>		
Sign and Post Replacement Inventory			
Sign Needs to be Replaced (Y/N)	<input type="checkbox"/>	Sign Type	<input style="width: 95%;" type="text"/>
Sign Condition (code)	<input type="checkbox"/>	Route	<input style="width: 95%;" type="text"/>
Post Needs to be Replaced (Y/N)	<input type="checkbox"/>	Side of Street	<input style="width: 95%;" type="text"/>
Post Condition (code)	<input type="checkbox"/>	Direction Facing	<input style="width: 95%;" type="text"/>
		Present Location:	
		<input style="width: 100%; height: 100%;" type="text"/>	
Installation Information Log			
Proper Sign Installation Height	<input type="checkbox"/>	Proper Lateral Location:	
Required Sign Post Length	<input type="checkbox"/>	<input style="width: 100%; height: 100%;" type="text"/>	
Sign Replacement Post Type	<input type="checkbox"/>		
Sign Location Stake Installed (Y/N)	<input type="checkbox"/>		
Installation Date Completed	<input type="checkbox"/>		
<i>make sure holes are drilled in 4X6 wood posts to provide breakaway characteristics during installation process</i>			

- Sign Condition Code:**
- B. Bent
 - C. Cracked Face material
 - D. Damaged
 - F. Faded
 - G. Good
 - I. Illegible
 - M. Missing
 - P. Peeling Face Material
 - R. Rusty
 - S. Scratched
 - V. Vandalized (shot or Painted)
 - O. Other (ex. obsolete)

- Post Condition Code:**
- 1. Satisfactory
 - 2. Leaning
 - 3. Bent (metal)
 - 4. Warped (wood)
 - 5. Damaged
 - 6. Two Posts Spliced Together where Bottom Post > 2.5' Above Ground
 - 7. Other

- Post Types:**
- B. Building
 - C. U Channel
 - F. Fence
 - L. Light Pole (metal)
 - M. Mast Arm
 - P. Pipe
 - S. Signal Pole (metal)
 - T. Square Tube (Telespar)
 - U. Utility Pole (wood)
 - V. Wood (round)
 - W. Wood (4X4)
 - X. Wood (4X6)
 - O. Other

Shaded post types are available for ordering

Sign #	<input style="width: 100%;" type="text"/>		
Sign and Post Replacement Inventory			
Sign Needs to be Replaced (Y/N)	<input type="checkbox"/>	Sign Type	<input style="width: 95%;" type="text"/>
Sign Condition (code)	<input type="checkbox"/>	Route	<input style="width: 95%;" type="text"/>
Post Needs to be Replaced (Y/N)	<input type="checkbox"/>	Side of Street	<input style="width: 95%;" type="text"/>
Post Condition (code)	<input type="checkbox"/>	Direction Facing	<input style="width: 95%;" type="text"/>
		Present Location:	
		<input style="width: 100%; height: 100%;" type="text"/>	
Installation Information Log			
Proper Sign Installation Height	<input type="checkbox"/>	Proper Lateral Location:	
Required Sign Post Length	<input type="checkbox"/>	<input style="width: 100%; height: 100%;" type="text"/>	
Sign Replacement Post Type	<input type="checkbox"/>		
Sign Location Stake Installed (Y/N)	<input type="checkbox"/>		
Installation Date Completed	<input type="checkbox"/>		
<i>make sure holes are drilled in 4X6 wood posts to provide breakaway characteristics during installation process</i>			

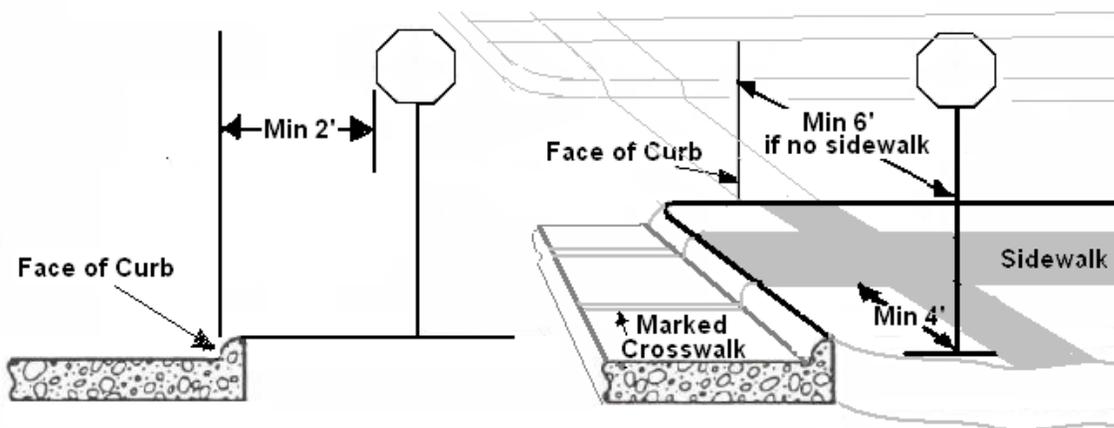
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Urban Stop Sign Placement

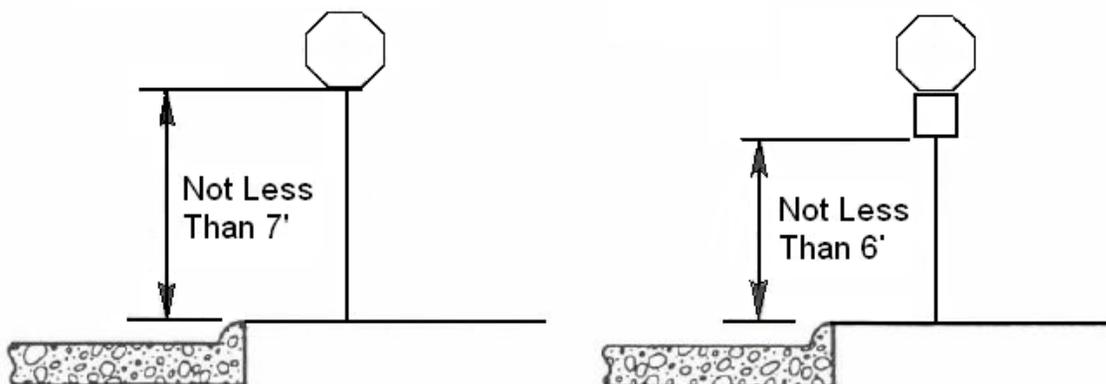
- **Urban Longitudinal Placement** -- a minimum of 6 feet from the near edge of the intersected street or a minimum of 4 feet in advance of the near edge of a marked crosswalk.
- **Urban Lateral Placement** -- Lateral clearance may be reduced to a minimum of 2 feet from the face of a curb. This minimum offset would also apply where stop signs are placed in medians or channelizing islands.

Stop Sign Lateral and Longitudinal Placement

In Urban Areas



Sign Mounting Heights

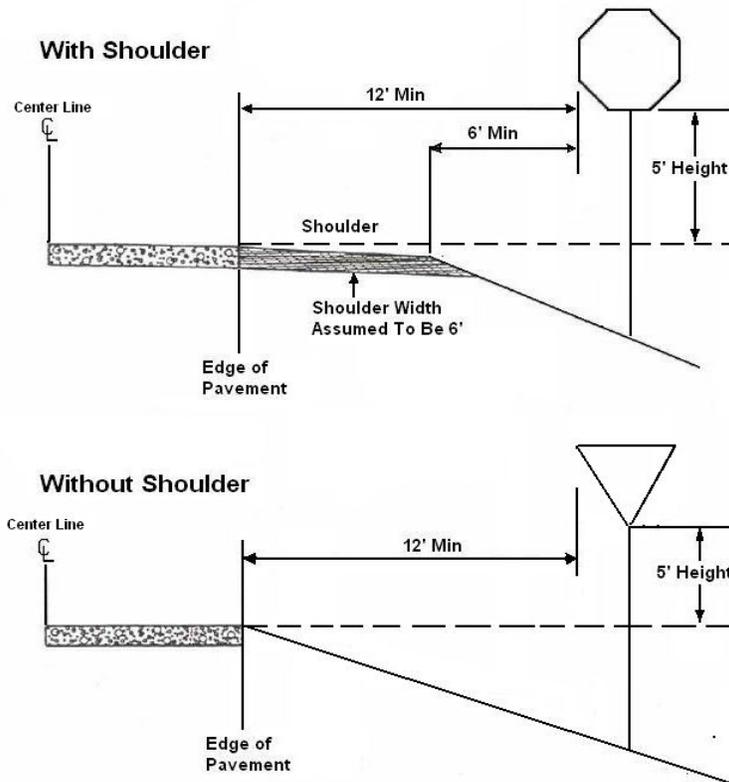


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Rural Stop Sign Placement

Lateral Placement of Signs

Rural or No Curb
Figure 5



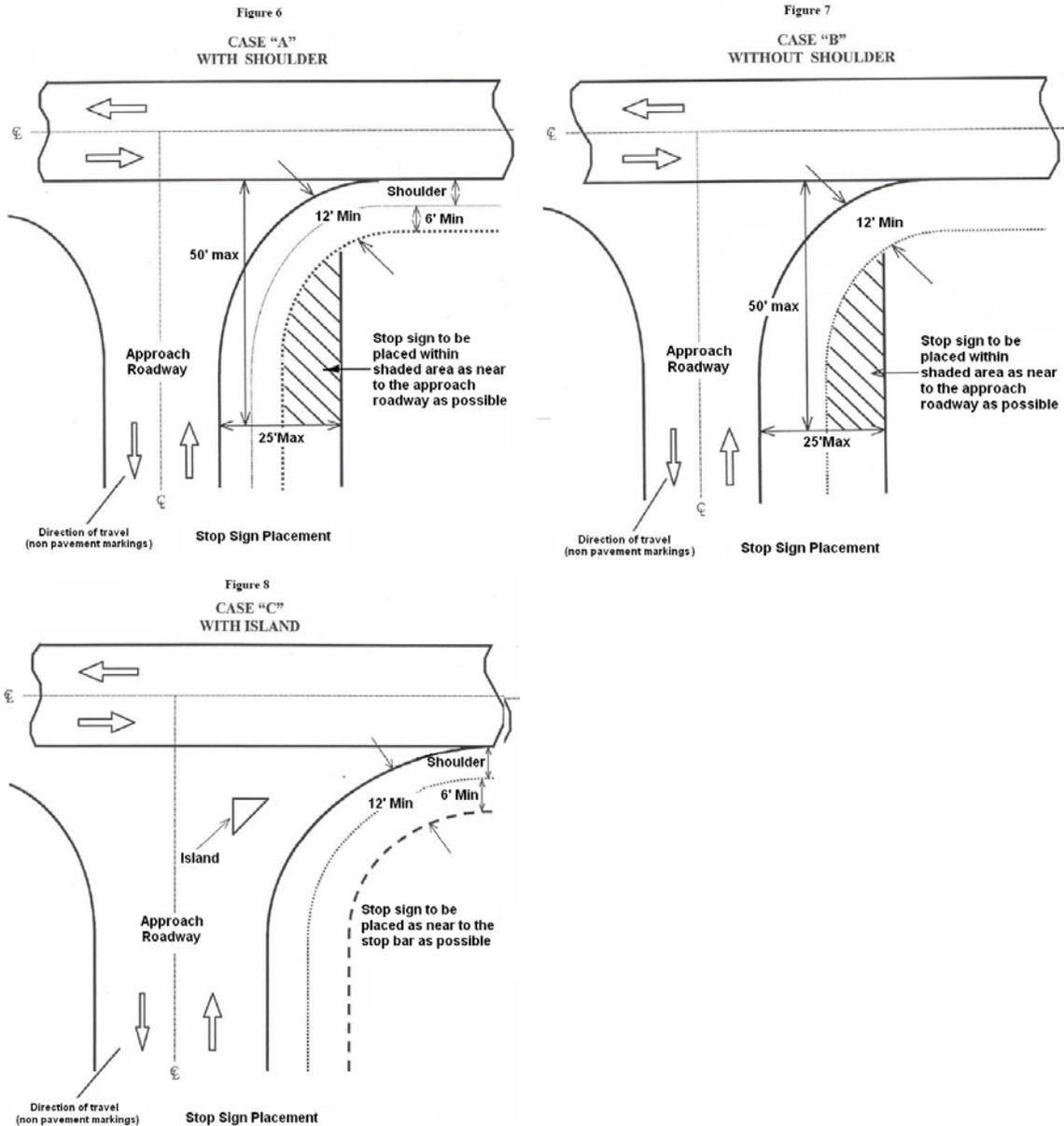
Stop signs should be placed at the point where vehicles are to stop or as near as practical thereto. The Manual of Uniform Traffic Control Devices (MUTCD) suggests that:

- **Rural Longitudinal Placement** -- Stop signs are to be located a maximum of 50 feet from the edge of the intersected street or highway.
- **Rural Lateral Placement** -- in areas where there are no curbs, the lateral clearance should be no closer than 6 feet from the edge of a usable shoulder (shoulder is assumed to be 6 feet). If a usable shoulder is nonexistent, the lateral clearance should be no closer than 12 feet from the edge of the traveled way.

These offset distances are illustrated in Figure 5. Figure 6, Figure 7, and Figure 8 illustrate stop sign locations where there is a shoulder (Case A), where there is no shoulder (Case B) and where there is an island (Case C), respectively. Stop signs should be confined to the shaded areas, but as close to the approach roadway as possible to provide the motorist with the best visibility.

Diagrams detailing cases A, B and C may be found on the following page. on the next page.

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Where only one stop sign is used, it shall be located on the right side of the approach traffic lane. Where the approach roadway consists of two lanes of traffic, a second stop sign should be placed where it is visible to traffic in the inner lane if a suitable location exists.

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Regulatory & Warning Sign Mounting Height

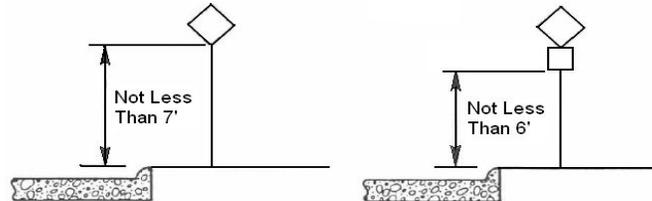
On two-lane routes in rural areas, the Manual on Uniform Traffic Control Devices specifies that signs be mounted at a height of at least 5 feet measured from the bottom of the sign to the near edge of the pavement. In areas where parking or pedestrian movements are likely to occur or where there are other obstructions to view, the clearance from the bottom of the sign to the curb or ground at the base of the sign shall be at least 7 feet. When a secondary sign is mounted below another sign, the mounting heights prescribed above may be reduced to 4 feet and 6 feet respectively.

Sign Mounting Heights

Rural Areas



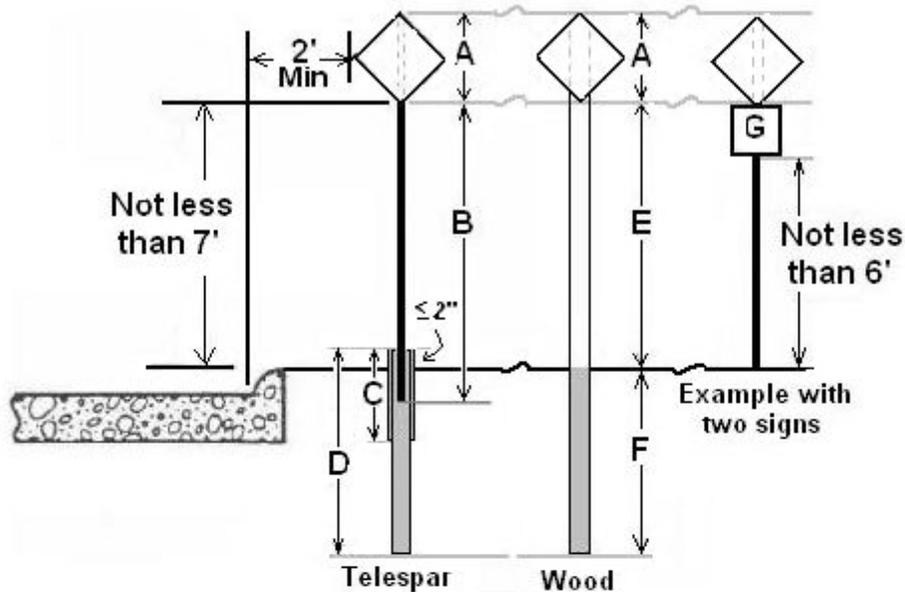
Urban Areas



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Calculating Sign Post Lengths

Urban with Curb



Calculations for Telespar

- A Sign verticle height 36"
- B 7' plus 6" to 8" inserted into base - total length of 7'6" to 7' 8".
- C 18" outer Sleeve for double wall breakaway.
- D 48" Minimum with 1" to 2" exposed above ground.

$$\text{Sign Post length in Telespar} = A+B = 10' 8''$$

$$\text{Where } A = 36'' \text{ and } B = 7' 8''$$

$$\text{Outer Sleeve} = C (18'')$$

$$\text{Anchor Base} = D (48'')$$

Calculations For Wood Posts

- A Sign verticle height
- E Height of sign from grade
- F Depth below grade

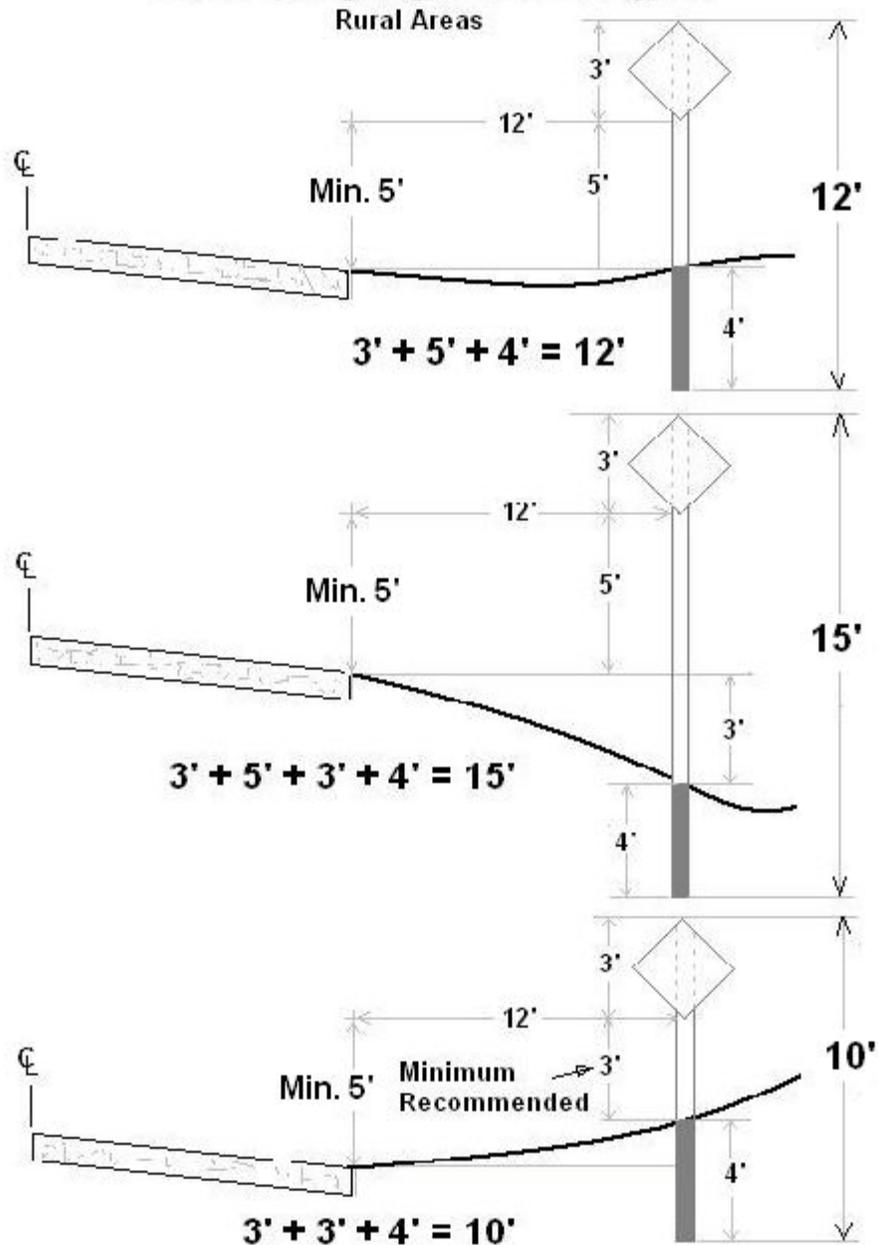
$$\text{Wood Sign Post Length} = A+E+F = 14' 7''$$

$$\text{Where } A=36'' \text{ and } E=7'' \text{ and } F=4'$$

Make adjustments for vertical height of sign "G"

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Calculating Sign Post Lengths



In cases where the sign post is either too long or too close to the ground, judgement must be exercised to adjust the position of the sign to assure reasonable mounting height and placement.

Signs should be placed a minimum of 6' from the edge of a paved shoulder. Shoulders are assumed to be a min. of 6'. If the shoulder is wider, then the sign should be placed at least 6' beyond the shoulder. (ie, with a 10' shoulder the sign would be 16' from the edge of the pavement.

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Posts Available Through Program

Wood

4" x 4" - 12ft

4" x 4" - 14ft

4" x 6" - 16ft

4" x 6" - 18ft

Steel

U-Channel 14ft Galvanized

Square Steel Tubing (Telespar)

2" x 2" - 12ft Telespar

Telespar Hardware

Pre-cut 4ft Anchor Base 2-1/4" x 2-1/4"

Telespar Concrete Mounting Base

Corner Bolt 2-1/4" to 2-1/2" (medium)

Drive Rivet 3/8" x 5/8"

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Installation of Wood Sign Posts (4"X 4" and 4"X 6" posts)

Posthole and filling requirements

Hole Size -- Wood posts shall be set in holes which are 12 inches (300mm) in diameter. Posts for smaller signs with less than 10 sq. ft. of area should be installed approximately 4 feet below the ground surface.

Backfilling -- Postholes should be backfilled with suitable soil tamped in place. In cases where the soil is unsuitable, crushed rock or crushed concrete should be used. Care should be taken in the process to see that the posts are plumb, insofar as possible, at all times. If properly placed, posts should remain firmly in position without needing further attention.

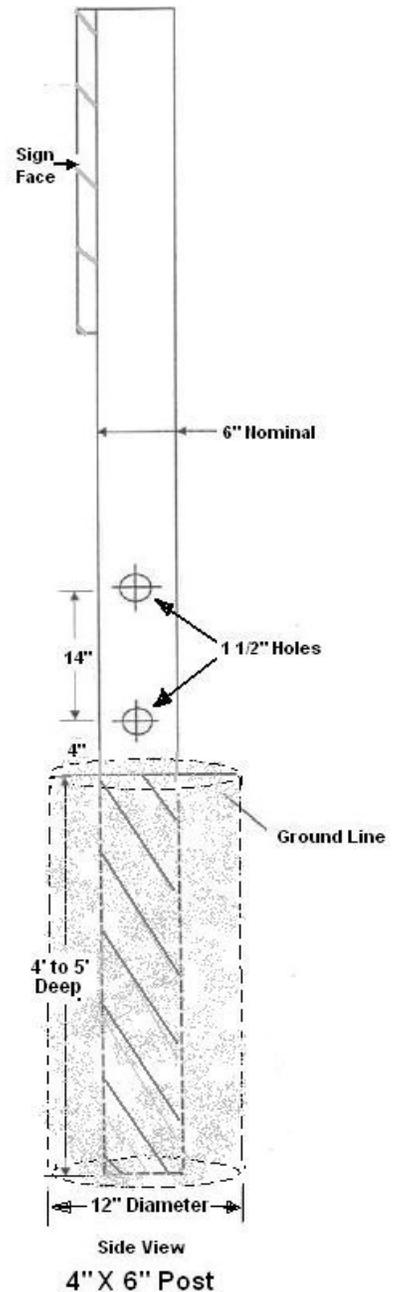
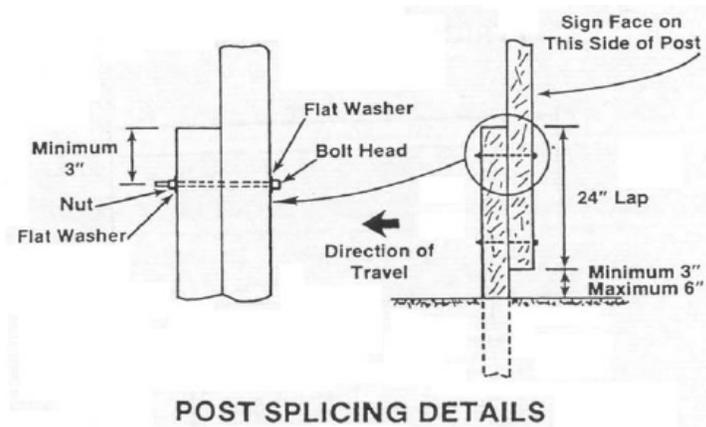
Breakaway Modifications for 4" X 6" Posts (see right)

Based upon crash tests, each 4 inch by 6 inch (100mm by 150mm) wood sign post shall be modified after installation by field drilling a horizontal 1-1/2 inch (38mm) diameter hole, parallel to the sign face and centered on the side of the post at 4 inches (100mm) above the ground line and another at 1 foot 6 inches (460mm) above the ground line.

4 inch by 4 inch posts do not require holes to be drilled as they are already considered to have sufficient breakaway characteristics.

Splicing Posts (see below)

Post splices should be made just above the ground surface to allow the breakaway features to function properly. No part of the splice is to be placed below the ground surface. The splice is to be made in the direction of traffic with the upper post on the front and the lower post on the back. The distance from the bottom of the splice to the ground should be not less than 3" or more than 6". The overlap should be 24" using at least two bolts



All Town Sign Replacement Program - 2014

RESOLUTION NO. _____

IOWA DEPARTMENT OF TRANSPORTATION ALL TOWN SIGN REPLACEMENT PROGRAM

WHEREAS the City of _____, Iowa recognizes the importance of maintaining the regulatory and warning signs on the street system in conformance with the Manual on Uniform Traffic Control Devices, Federal Highway Administration, U.S. Department of Transportation, and

WHEREAS a review of signs has been conducted by the City of _____ or its agent to identify deficiencies in those signs eligible for replacement under the rules of the program, and

WHEREAS the Iowa Department of Transportation will provide up to \$5,000 worth of conforming regulatory and warning signing materials to the City of _____ at no cost, and

WHEREAS it is understood that applications will be considered in order of receipt and will be limited to Stop, Stop Ahead, Yield, All Way, Speed Limit, No Right Turn, No Left Turn, No U-turn, Wrong Way, One-way on Right Arrow, One-way on Left Arrow, One-way with Right Arrow, Do Not Enter, One-Direction Large Arrow, Two-Direction Large Arrow, Railroad Advance Warning, School Symbol, Bicycle Symbol, Pedestrian Symbol, Crossing Diagonal Left Down Arrow and Crossing Ahead Supplemental signs.

NOW THEREFORE BE IT RESOLVED BY THE CITY COUNCIL OF _____, IOWA THAT:

The mayor is hereby directed to submit the grant application and request for signing materials to replace signs the city has identified as deficient in their review. This application is to be submitted to the Iowa Department of Transportation's Program Coordinator for the All Town Sign Replacement Program, and

BE IT FURTHER RESOLVED THAT:

- A) All signing materials will be installed by the City of _____, Iowa within 180 days after the sign materials are furnished, and,
- B) All signs will be installed in compliance with the Manual of Uniform Traffic Control Devices, Federal Highway Administration, U.S. Department of Transportation, as adopted per Iowa Administrative Rules 761, Chapter 130, and,
- C) The City of _____, Iowa will certify in writing to the Department of Transportation's Program Coordinator within 30 days after the sign materials and/or signs have been installed.
- D) The City of _____, Iowa recognizes that submission of this resolution along with an application, requesting signs and sign posts, represents approval by the city to participate in the All Town Sign Replacement Program.

PASSED AND APPROVED THIS _____ DAY OF _____, 20__

Mayor

Clerk

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Date _____

Application Information Sheet

Contact Information

Applicant City Name

First Name (Contact)

Last Name (Contact)

Title (Contact)

Email Address

Business Phone # () - ext.

Business Fax # () -

Mailing Information

Address1

Address2

City (Mailing Address) _____, Iowa Zip _____

City EIN (Fed. Tax ID)

Send to: Iowa Department of Transportation
Office of Traffic & Safety
All Town Sign Replacement Program
800 Lincoln Way
Ames, IA 50010

The Program Coordinator may be reached at 515-239-1991

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Sign and Signpost Request Sheet

Applicant City Name: _____ **Application Date:** _____

Please fill in Sign Type & Size and Post Type & Length in the appropriate columns below. Make your selections from available stock and cost found on the "Materials Price List." Location Description information for each sign is required and may be supplied in the Location Description section on the right hand side of the Application. If more space is need for a location description use a second line. Subtotals for each sheet may be made at the bottom of each sheet. Remember, the program allows grants to total \$5,000 or less per community.

Signs, Posts and Bolt Sets						Location Description			
#	Sign Type & Size	Sign Cost	Post Type & Length <small>(includes bolt set)</small>	Post Cost <small>(includes bolt set)</small>	Subtotal	Route	Location	Side of Street	Dir. Facing
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

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Materials Price List			
Sign Code	Sign Type & Size	MUTCD#	Cost
S-30	Stop 30"x30" (Single-lane)	R1-1	\$38.08
S-36	Stop 36"x36" (Multi-lane)	R1-1	\$54.92
Y-36	Yield 36"	R1-2	\$28.55
AW-18	All Way 18"x6"	R1-4	\$5.86
SL__-24	Speed Limit 20-25-30-35-40-45 24"x30" (Single-lane)	R2-1	\$36.62
SL__-36	Speed Limit 20-25-30-35-40-45-50-55 36"x48" (Multi-lane)	R2-1	\$105.01
NRT-24	No Right Turn 24"x24" (Single-lane)	R3-1	\$29.29
NRT-30	No Right Turn 30"x30" (Multi-lane)	R3-1	\$46.13
NLT-24	No Left Turn 24"x24" (Single-lane)	R3-2	\$29.29
NLT-30	No Left Turn 30"x30" (Multi-lane)	R3-2	\$46.13
NUT-24	No U-turn 24"x24" (Single-lane)	R3-4	\$29.29
NUT-36	No U-turn 36"x36" (Multi-lane)	R3-4	\$65.90
DNE-30	Do Not Enter 30"X30" (Single-lane)	R5-1	\$46.13
DNE-36	Do Not Enter 36"X36" (Multi-lane)	R5-1	\$65.90
WW-36	Wrong Way 36"x24" (Single-lane)	R5-9	\$43.93
WW-42	Wrong Way 42"x30" (Multi-lane)	R5-9	\$64.08
OWORA-36	One Way on Right Arrow 36"x12" (Single-lane)	R6-1	\$21.97
OWORA-54	One Way on Right Arrow 54"x18" (Multi-lane)	R6-1	\$52.50
OWOLA-36	One Way on Left Arrow 36"x12" (Single-lane)	R6-1	\$21.97
OWOLA-54	One Way on Left Arrow 54"x18" (Multi-lane)	R6-1	\$52.50
OWWRA-24	One Way with Right Arrow 24"x30"	R6-2	\$35.21
ODLA-48	One-direction Large Arrow 48"X24"	W1-6	\$100.44
TDLA-48	Two-direction Large Arrow 48"X24"	W1-7	\$100.44
SA-36	Stop Ahead 36"X36"	W3-1	\$100.16
SR__-36	Speed Reduction 35-40-45-50 36"x36"	W3-5	\$99.66
RR-36	Railroad Advance Warning 36" dia.	W10-1	\$79.01
BIKE-30	Bicycle 30"x30" (Conventional)	W11-1	\$70.11
PED-30	Pedestrian 30"x30" (Conventional)	W11-2	\$70.11
CDLDA-24	Crossing Diagonal Left Down Arrow 24"x12" (Conventional)	W16-7	\$22.26
AHEAD-24	Crossing Ahead Supplemental 24"x12" (Conventional)	W16-9	\$21.98
SCH-30	School 30"x30" (Minimum)	S1-1	\$52.30
SCH-36	School 36"x36" (Conventional)	S1-1	\$75.67
	Post Type & Length (includes bolt set)		
	Wood 4X4 12ft		\$12.93
	Wood 4X4 14ft		\$15.95
	Wood 4X6 16ft		\$32.83
	Wood 4X6 18ft		\$35.09
	U-Channel 14ft Galv		\$19.90
	Telespar 2X2 12ft & Precut Base		\$34.49
	Telespar 2X2 12ft & Flat Concrete Base		\$121.56
	Two Telespar 2X2 12ft & Precut Base		\$68.98
<p>Note: When tightening nuts on sign bolts make sure to hold the head of the bolt to prevent movement on the front of the sign while turning the nut at the rear of the post until tight. This will prevent the bolt head and washers from spinning on the face sign and tearing the reflective material laminated on the front.</p>			

All Town Sign Replacement Program - 2014

Technical Reference Overview

One of the main goals for the All Town Sign Replacement Program is to ensure that replacement signs are properly installed. They must be installed at the correct lateral and longitudinal location, set at the correct height and proper orientation.

The installation requirements are found in the Manual on Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration. Another reference is the Traffic and Safety Manual (T&S Manual) published by the Iowa Department of Transportation.

MUTCD:

The following sections are highlights from the 2009 MUTCD. Contact the Program Coordinator if you have any questions.

Link:

http://mutcd.fhwa.dot.gov/pdfs/2009/pdf_index.htm

For all eligible signs:

- Section 2A.16 Standardization of Location
- Section 2A.18 Mounting Height
- Section 2A.19 Lateral Offset
- Section 2A.20 Orientation
- Section 2A.21 Posts and Mountings
- Section 2A.22 Maintenance

For eligible regulatory signs:

- Section 2B.03 Size of Regulatory Signs
- Section 2B.05 STOP Sign (R1-1) and ALL WAY Plaques (R1-3P)
- Section 2B.06 STOP Sign Application
- Section 2B.08 YIELD Sign (R1-2)
- Section 2B.09 YIELD Sign Applications
- Section 2B.10 STOP Sign or YIELD Sign Placement
- Section 2B.13 Speed Limit Sign (R2-1)
- Section 2B.18 Movement Prohibition Signs (R3-1 through R3-4, R3-18, and R3-27)
- Section 2B.37 DO NOT ENTER Sign (R5-1)
- Section 2B.38 WRONG WAY Sign (R5-1a)
- Section 2B.40 ONE WAY Signs (R6-1, R6-2)

All Town Sign Replacement Program - 2014

Technical Reference Overview (cont'd)

For eligible warning signs:

- Section 2C.04 Size of Warning Signs
- Section 2C.05 Placement of Warning Signs
- Section 2C.06 Horizontal Alignment Warning Signs
- Section 2C.07 Horizontal Alignment Signs (W1-1 through W1-5, W1-11, W1-15)
- Section 2C.12 One-Direction Large Arrow Sign (W1-6)
- Section 2C.36 Advance Traffic Control Signs (W3-1, W3-2, W3-3, W3-4)
- Section 2C.38 Reduced Speed Limit Ahead Sign (W3-5, W3-5a)
- Section 2C.47 Two-Direction Large Arrow Sign (W1-7)
- Section 2C.49 Vehicular Traffic Warning Signs (W8-6, W11-1, W11-5, W11-5a, W11-8, W11-10, W11-11, W11-12P, W11-14, W11-15, and W11-15)
- Section 2C.50 Non-vehicular Warning Signs (W11-2, W11-3, W11-4, W11-6, W11-7, W11-9, and W11-16 through W11-22)

For signs on low-volume roads:

- Chapter 5A. General, All sections
- Chapter 5B. Regulatory Signs, All Sections
- Chapter 5C. Warning Signs, All Sections
- Chapter 5F. Traffic Control for Highway-Rail Grade Crossings, All Sections
- Chapter 5H. Traffic Control for School Areas

For school signs:

- Chapter 7B. (School) Signs, All Sections

For railroad crossing signs:

- Section 8B.06 Grade Crossing Advance Warning Signs (W10 Series)

All Town Sign Replacement Program - 2014

Technical Reference Overview (cont'd)

Traffic and Safety Manual:

The following sections are highlights from the Traffic and Safety Manual. Contact the Program Coordinator if you have any questions.

Link:

<http://www.iowadot.gov/traffic/manuals/tsmanual.aspx>

For all eligible signs:

- Section 2A-1 Purpose of Signing
- Section 2A-2 Standards and Guidelines - MUTCD
- Section 2A-3 Types of Signs
- Section 2A-6 Installation Guidelines
- Section 2A-7 Mounting Requirements
- Section 2A-8 Sign Placement
- Section 2A-9 Miscellaneous Requirements
- Section 2A-10 Typical and Additional Figures

For STOP, YIELD and DO NOT ENTER signs:

- Section 2B-1 General
- Section 2B-2 Stop and Yield Signs
- Section 2B-3 Speed Limits Signs
- Section 2B-4 Alignment and Movement Signs
- Section 2B-6 Other Regulatory Signs

For One-Direction Large Arrow, Two-Direction Large Arrow and STOP AHEAD (Advance Traffic Control):

- Section 2C-1 Roadway Related Signs
- Section 2C-2 Traffic Related Signs

All Town Sign Replacement Program - 2014

Technical Reference Overview (cont'd)

Additional Information on the Installation of Tubular Steel Sign Posts (Telespar® Square Sign Supports)

Tubular steel sign post systems are offered under the Small Town Sign Replacement Program. It is important to note that not all the post types and accessories are available through the program. The list of available items is included in the STSRP Materials List. This may be found either on the website or in the grant application packet.

The URL's listed below are for your convenience in the event your city is interested in acquiring additional Telespar square posts or accessories. Drive caps are available on the accessories page.

If you are experiencing difficulty locating items feel free to contact the program coordinator for assistance.

Posts

<http://www.alliedtube.com/sign-support/traffic-sign-posts/telespar-square.asp>

Accessories

<http://www.alliedtube.com/sign-support/traffic-sign-posts/sign-accessories.asp>

Installation Instructions and Product Information

http://www.alliedtube.com/pdf/ATC_Telespar_Sign_Support.pdf

If you are in need of advice regarding the installation of this post system contact the Program Coordinator.