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1135.01 — DESCRIPTION

(Revised 11/7/12)

This item shall include all costs associated with installing roadside traffic signs of the type, size, and at the locations shown on the Plans. The Contractor shall coordinate pick up of ACHD supplied materials (when applicable) with the ACHD Traffic Operations Supervisor a minimum of three weeks in advance.

The signs, posts, and all hardware shall conform to the details on the Plans and these Supplemental Provisions (see ACHD Standard Details TS-1109 and TS-1114).

All signs shall comply with the most recent version of the **Manual on Uniform Traffic Control Devices (MUTCD)**.

1135.02 — MATERIALS

(Revised 6/8/15)

The materials listed below are the materials typically used for roadside sign installations. Any materials required for a roadside sign installation not listed below shall be supplied by the Contractor. The cost of any such material shall be incidental to the cost of the sign installation and no further compensation shall be made therefore.

A. Sign Blanks

Flat sign blanks for signs with areas less than or equal to 9 square feet shall be .080 inch tempered aluminum alloy.

B. Sign Blank Covering (type and coloring)

1. Background color for mast arm and post mounted *public street name signs* shall be green with type III or type IV high intensity prismatic retroreflective sheeting on the copy side, conforming to the most recently adopted version of **ASTM D4956**.
2. Background color for mast arm and post mounted *private street name signs* shall be blue with type III or type IV high intensity prismatic retroreflective sheeting on the copy side, conforming to the most recently adopted version of **ASTM D4956**.
3. Colors for *stop and yield signs* shall comply with the **Manual on Uniform Traffic Control Devices (MUTCD)**. These signs shall have type III or type IV high intensity prismatic retroreflective sheeting on the copy side, conforming to the most recently adopted version of **ASTM D4956**.
4. Colors for all *school related warning signs* shall be fluorescent yellow-green and shall comply with the **Manual on Uniform Traffic Control Devices (MUTCD)**. These signs shall

have diamond grade retroreflective sheeting on the copy side. Shheeting shall be manufactured by **3M Company** or approved equal.

5. Colors for *all other signs* shall comply with the most recent update to the **Manual on Uniform Traffic Control Devices (MUTCD)**. These signs shall have type III or type IV high intensity prismatic retroreflective sheeting on the copy side, conforming to the most recently adopted version of **ASTM D4956**, unless otherwise directed by the ACHD Traffic Engineer.

C. Lettering (type, size, and other requirements)

1. All lettering for street name signs shall be made of type III or type IV high intensity prismatic sheeting, conforming to the most recently adopted version of **ASTM D4956**.
2. Main legend lettering for post mounted *public* street name signs with a speed limit less than 45 mph, any two lane roadway or *private* street shall be 6 inch Clearview font (Series "B") for the initial capital letter(s) and 4.5 inches for the subsequent lower case letters, with appropriate spacing. Directional prefixes shall be 3 inch Clearview font (Series "B") with appropriate spacing. Street designation suffixes shall be 3 inch Clearview font (Series "B") with appropriate spacing. No periods are to be used in either the directional prefix or the street designation suffix.
3. Main legend lettering for post mounted *public* street name signs on multilane roadways with a speed limit 45 mph or greater shall be 8 inch Clearview font (Series "B") for the initial capital letter(s) and 6 inches for the subsequent lower case letters, with appropriate spacing. These standards may also be used for short street names (6 letters or less) if approved by the ACHD Traffic Engineer. Directional prefixes shall be 5 inch Clearview font (Series "B") with appropriate spacing. Street designation suffixes shall be 5 inch Clearview font (Series "B") with appropriate spacing. No periods are to be used in either the directional prefix or the street designation suffix.
4. Main legend lettering for mast arm mounted *private and public* street name signs shall be 12 inch Clearview font (Series "Hwy 2-B") for the initial capital letter(s) and 9 inches for the subsequent lower case letters, with appropriate spacing. Directional prefixes, street designation suffixes and block numbers shall be 6 inch Clearview font (Series "Hwy 2-B") with appropriate spacing. No periods are to be used in either the directional prefix or the street designation suffix.
5. Letters and symbols for all other signs shall comply with the Manual on Uniform Traffic Control Devices (MUTCD). See ACHD Standard Detail TS-1109 for further details.

D. Sign Sizes

All sign shapes and colors shall comply with the **Manual on Uniform Traffic Control Devices (MUTCD)**.

1. **Stop Signs**
(Typically Supplied by ACHD)

Stop signs at public roadway intersections shall be a minimum of 30 inches by 30 inches and shall be covered with type III or type IV high intensity prismatic retroreflective sheeting, conforming to the most recently adopted version of **ASTM D4956**. 24" stop signs may be installed on non-motorized pathway approaches to ACHD-maintained facilities.

36" stop signs may be installed under the following conditions:

- Sight distance limitations are present at a given intersection approach;
- The lateral position of the stop sign is more than 30' from the roadway centerline;
- Approaches on local or collector roadways to multilane facilities where the speed limit is 35 mph or greater on the intersecting street;
- Approaches on local or collector roadways to facilities where the speed limit is 45 mph or greater on the intersecting street.

48" stop signs may be installed under the following conditions:

- Sight distance limitations are present at a given intersection approach;
- The lateral position of the stop sign is more than 30' from the roadway centerline;
- Approaches on collector or arterial roadways where the speed limit is 45 mph or greater on the intersecting street.

Actual size shall be as shown on the Plans, unless otherwise specified by the ACHD Traffic Engineer.

Stop signs should not be placed with other competing signs on the same post. Exceptions, when the condition warrants, include but may not necessarily be strictly limited to, the following:

- R1-4 plaques ("All Way");
- R3-2 signs ("No Left Turn");
- Street name signs (SNS);
- W14-1a and W14-2a plaques ("Dead End", "No Outlet");
- W4-4p plaques ("Cross Traffic Does Not Stop").

Signs mounted back to back with stop signs shall stay within the edges of the stop sign so as not to modify the shape to oncoming traffic. If necessary, the size of the stop sign may be increased to meet this requirement. See ACHD Standard Detail TS-1114 for further details.

2. Yield Signs

(Typically Supplied by ACHD)

Yield signs at public roadway intersections (including roundabouts) shall be a minimum of 36 inches from point to point and shall be covered with type III or type IV high intensity prismatic retroreflective sheeting, conforming to the most recently adopted version of **ASTM D4956**. Actual size shall be as shown on the Plans, unless otherwise specified by the ACHD Traffic Engineer.

3. Post Mounted Street Name Signs

(Typically Supplied by ACHD)

Post mounted street name signs shall be 9 inches high by the length required to fit the text. The maximum allowed length is 48 inches.

At T-intersections, post mounted street name signs may be placed on either corner of the intersecting street at the through street curb return. It is preferable to co-locate stop signs and street name signs on the same post when feasible. When this is not feasible, such as intersections without a stop sign or where visibility is restricted on a specific corner, street name signs may be installed on a separate post. See ACHD Standard Detail TS-1114 for further details.

4. Mast Arm Mounted Street Name Signs

(Typically Supplied by Contractor)

Mast arm mounted street name signs shall be 30 inches high by the length required to fit the text. The minimum allowed length is 48 inches. The maximum allowed length is 120 inches, unless otherwise specified by the ACHD Traffic Engineer. See ACHD Standard Detail TS-1109 for further details.

5. Speed Limit Signs

(Typically Supplied by Contractor)

Speed limit signs installed on all public roadways in Ada County shall be a minimum of 24 inches wide by 30 inches tall. Consideration may be given to larger sign faces depending on the speed and number of lanes on a given roadway. Speed limit signs are generally installed along both collector and arterial roadways on the departure legs of major street crossings. Speed limit signs shall be installed on collector and arterial roadways at locations where the speed limits change. Speed limit signs may be posted between major street intersections as confirmation of the posted speed limit at the discretion of the ACHD Traffic Engineer. Signs should typically be placed 150' to 200' from the far curb line of the intersection at a location to maximize conspicuity; see ACHD Standard Detail TS-1114 for further details.

Speed limits posted higher than 25 mph may be acceptable for some residential streets, based on a traffic engineering study. Examples include the following:

- Streets improved to a collector standard width or greater;
- Streets that have through continuity between major collectors and/or arterials;
- Streets that have official collector status on the functional classification map;
- Streets that have moderate to light parking demand;
- Streets in rural areas of the county with large acreage lots.

Speed limits in established school zones, when posted conditions apply, should be 20 mph. School speed zones that incorporate yellow flashers with a "20 mph When Flashing" sign may be installed to emphasize the posting. Other signs such as "20 mph [time of day

restrictions]” may be posted in lieu of flashing school zone beacons. Conditions may be modified to meet unique circumstances, such as year-round schools.

6. All Other Signs – Less Than or Equal to 9 SF
(Typically Supplied by ACHD)

All Regulatory, Guide and Warning signs shall be Standard size for a “conventional road” as specified in the latest edition of the **Manual on Uniform Traffic Control Devices (MUTCD)**, unless otherwise specified herein, shown on the Plans or specified by the ACHD Traffic Engineer.

7. All Other Signs – Greater Than 9 SF
(Typically Supplied by Contractor)

All Regulatory, Guide and Warning signs shall be “Standard” size as specified in the most recent edition of the **Manual on Uniform Traffic Control Devices (MUTCD)**, unless otherwise specified herein, shown on the Plans or specified by the ACHD Traffic Engineer.

The project plans should include details showing sign materials, sign thickness, text sizes and sign layout. If the project plans do not include this information, then the Contractor shall provide shop drawings for all non-standard signs greater than nine square feet that are to be furnished by the Contractor. Shop drawings shall include materials, sign thickness, text size and sign layout. Signs furnished by the Contractor shall not be installed until the shop drawings have been approved by the ACHD Traffic Engineer. The ACHD Traffic Engineer will require ten business days to review shop drawings.

E. Sign Posts

1. Metal Sign Support Upright – 2 Inch by 2 Inch
(Typically Supplied by ACHD)

Square tubing used for the sign support upright shall be 14 gauge galvanized steel of structural quality, **ASTM Spec. No. A570**, Grade 33, two inches by two inches by 12 feet in length. Longer posts may be necessary to accommodate multiple signs on one assembly. The sign post shall have 0.375 inch diameter perforations on one inch centers for the full length of the upright, on all four sides.

One metal post may support a maximum of one primary sign (less than or equal to nine square feet) and one secondary sign (less than or equal to four square feet).

Two metal posts may support a maximum of one primary sign (less than or equal to 16 square feet) and two secondary signs (less than or equal to four square feet each).

2. Metal Sign Base
(Typically Supplied by ACHD)

Square tubing used for the sign base shall be 12-gauge galvanized steel, 2.25 inches by 2.25 inches by 30 inches in length. The sign base shall have 0.375 inch diameter holes on one

inch centers for the full length of the base, on all four sides.

3. Wood Sign Post (Supplied by Contractor)

Wood sign posts shall be furnished by the Contractor. The cost of the wood post shall be incidental to the cost of the sign installation. The project plans should include details showing material type, length of post, cross sectional area of post and installation details. If the project plans do not include this information, than the Contractor shall submit shop drawings for the wood sign post installations. Shop drawings shall include material type, length of post, cross sectional area of post and installation details. Unless approved by the ACHD Traffic Engineer, the design shall be performed by an engineer registered in the State of Idaho. Sign post design shall comply with the latest edition of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals. All wood posts shall be crashworthy in accordance with NCHRP Report Number 350. If shop drawings are required, then the Contractor shall not begin installation of wood posts until the shop drawings have been approved by the ACHD Traffic Engineer. The ACHD Traffic Engineer will require ten business days to review the shop drawings.

Wood posts that are 4 inches by 4 inches in size, shall be constructed of select heart grade redwood; No. 1 heart structural grade redwood; No. 2 heart structural grade redwood; light framing construction grade Douglas fir, free of heart center; or structural light framing No. 1 grade Hem-Fir, free of heart center. Wood posts that are 4 inches by 6 inches in size, shall be constructed of select heart grade redwood; select heart structural grade redwood; No. 1 heart structural grade redwood; structural joists and planks, No. 2 grade Douglas fir, free of heart center; or structural joists and planks, No. 1 grade Hem-Fir, free of heart center. Posts larger than 4 inches by 6 inches in size shall be constructed of select heart grade redwood; No. 1 heart structural grade redwood; posts and timbers No. 1 (structural) grade Douglas fir, free of heart center; or posts and timbers select structural grade Hem-Fir, free of heart center.

Sweep shall not exceed .08 foot in 10 feet. Before preservative treatment, Douglas fir and Hem-Fir posts shall be seasoned to a moisture content of not more than 25% as measured at the midpoint of the post in the outer inch, using an approved type of moisture meter, in accordance with ASTM Designation D 4444.

Sign posts shall be pressure treated with pentachlorophenol in AWPA P-9 oil, chromated copper arsenate, or ammoniacal copper zinc arsenate in accordance with the requirements of the American Wood Preservers Association Standards (AWPA) C-14 and P-5, except that the minimum retention of preservative as determined by assay shall be 0.4 pound of ammoniacal copper zinc arsenate, chromated copper arsenate, or net pentachlorophenol per cubic foot of wood.

Sign posts treated with waterborne preservatives shall be air dried a minimum of thirty days prior to installation. During the period of September 1 through May 31, the air drying shall be under cover. During the 30-day drying period, each layer of posts shall be separated using spacers that are at least 1/2 inch thick.

Treated posts and blocks shall be subject to inspection by the Engineer after arrival at the site. A previous inspection at the plant shall not bar rejection.

Certified treating reports shall be furnished for all treated timber products to be shipped. A certificate of compliance shall be furnished to ACHD stating the species of the material and that it conforms to the specified grading rules.

Handling and care of pressure treated timber products shall conform to the requirements of AWPA Standard M4.

The treating plant shall imprint legible symbols in the end of all timber products treated indicating the name of the treating company and the type and year of treatment in accordance with AWPA Standards M1 and M6.

At the time of delivery to the job site, all treated posts shall have a moisture content of not more than 25% when tested as described above. The posts shall conform in all respects to the specified grading requirements at the time of delivery to the job site.

The cutting of the ends of wood posts in the field will be permitted. Where field cutting or boring of wood posts is performed after treatment, all cuts and holes shall be thoroughly swabbed, sprayed or brushed with two applications of the same type of preservative as initially used or copper naphthenate. Application of preservative in the field shall conform to the requirements specified herein.

Wood block spacers, inserted between the post and the sign panel on single post installations as shown on the plans, shall be treated with preservative in the same manner as specified for wood posts.

Unless specified in the special provisions or shown on the plans, wood posts and blocks shall not be painted.

4. Mounting Hardware (Typically Supplied by ACHD)

The following mounting hardware is typically supplied by ACHD:

1. 5/16 inch **Vandalguard**[™] carriage bolts and vandal proof nuts or an ACHD approved equal.
2. Vandal-proof drive rivets.

Any other mounting hardware required for construction shall be supplied by the Contractor. The cost of furnishing additional hardware shall be incidental to the cost of the sign installation.

1135.03 — GENERAL INSTALLATION REQUIREMENTS

(Revised 6/5/15)

A. General Installation Guidelines

Installation of signs should be considered based on the following priority:

1. *Visibility of a sign for the approaching drivers.* Signs shall be placed where they can easily be seen and not blocked by hills, curves, obstructions and/or vegetation growth. The most visible positions should be reserved for the most critical signs, such as warning signs and red regulatory signs (“Stop”, “Yield”, etc.) where applicable. Signs should be placed a minimum of 50’ apart (100’ preferred) on roadways where the posted speed limit is less than 45 mph. Signs should be separated by a minimum of 100’ (200’ preferred) on roadways where the posted speed limit is 45 mph or greater.
2. *Ease of sign maintenance.* Signs should not be placed less than 5’ from a driveway edge or in close proximity to a mailbox accessible from the roadway. With minor exceptions, signs should not be placed close to the edge of pavement, at a pavement constriction, close to the pavement inside a curve, or at an intersection corner rounding. Care shall be used to avoid possible locations of sprinkler lines, storm drains, water facilities or other utilities that might exist in the area of the installation. Signs installed on the same post (curve warning sign with a speed advisory plaque, e.g.) should not overlap.
3. *Reducing the visual impact on an adjacent property.* Signs should be placed on property lines or other locations to lessen conflict with the adjacent property owner’s wishes. If feasible, the adjacent property owner should be accommodated.

Sign installation shall follow the most recently adopted version of the MUTCD by the State of Idaho. Field adjustments may be made if specific details are not provided and changes are necessary to satisfy safety and maintenance considerations. Significant variations from standards should have approval of the Traffic Engineer or the Traffic Engineering Supervisor.

Design details for sign installation may be found in the District’s list of Traffic Standard Details (TS-1114).

B. Height Requirements

Height of the signs shall be a minimum distance of seven feet from the pavement or sidewalk, if sidewalk exists, to the bottom edge of the sign. If additional signs are added to the bottom of the pole, the height from the pavement to bottom of the lowest sign shall be a minimum distance of six feet. On rural roadway sections, when conditions exist that make the seven foot mounting height impractical, a five foot mounting height is acceptable.

C. Side Clearance Requirements

On urban roadway sections, the side clearance between the face of curb and the edge of sign shall be a minimum of two feet. On rural roadway sections, the side clearance between the edge of roadway and the edge of sign shall be a minimum of six feet. Minor variations from this standard may be accepted, with the approval of the ACHD Traffic Engineer, due to roadside conditions that would hinder sign visibility.

D. Other Requirements

Signs shall be installed and covered prior to revisions or additions to the roadway channelization. ACHD will authorize uncovering of the signs. When new signs are uncovered, ACHD may require warning flags to highlight new signs. Warning flags shall be provided by ACHD. Installation of the warning flags shall be incidental to the sign installation and no additional compensation will be made therefore.

All existing signs that conflict with the new signs being installed shall be removed at the appropriate time, as determined by ACHD, and delivered to the ACHD Traffic Operations Sign Shop. If the conflicting signs are not shown on the plan, then verify the removal with the ACHD. The ACHD Traffic Operations Sign Shop is located at the following address:

3700 Adams St.
Garden City, ID 83714

All deliveries shall be coordinated with the Traffic Operations Supervisor a minimum of two business days prior to delivery. Any sign damaged or destroyed due to the Contractor's negligence shall be replaced by the Contractor at no cost to ACHD.

1135.04 — REMOVE AND SALVAGE ROADSIDE SIGN

(Revised 6/3/05)

All existing traffic signs, posts and related hardware to be removed and salvaged shall remain the property of ACHD.

Contractor shall remove and salvage traffic signs, poles and related hardware as shown on the Plans or as directed by the ACHD Traffic Engineer. All sign removals shall be done at the appropriate time as determined by the ACHD Traffic Engineer or the ACHD Resident Project Representative. Regulatory signs (stop, yield, speed limit, etc) shall remain in operation the length of the project unless specifically mentioned otherwise in the plans.

Signs may need to be relocated one or more times before final removal. All costs associated with these relocations shall be incidental to other items in the contract.

Removed signs, poles and hardware shall be delivered to the ACHD Traffic Operations Sign Shop. The ACHD Traffic Operations Sign Shop is located at:

3700 Adams St.
Garden City, ID 83714

All deliveries shall be coordinated with the ACHD Traffic Operations Supervisor a minimum of two days in advance. Signs shall be carefully removed to prevent damage. Any sign damaged or destroyed due to the Contractor's negligence shall be replaced by the Contractor at no cost to ACHD.

Payment for removal and salvage of roadside signs shall be as provided in the contract documents. If the contract documents do not provide a specific bid item for removal and salvage of roadside signs, then removal and salvage of roadside signs shall be incidental to other items in the contract.

1135.05 — RELOCATE ROADSIDE SIGN

(Revised 5/20/99)

All signs, poles and related hardware shown on the plans to be relocated shall be removed and delivered to the ACHD Traffic Operations Sign Shop. The ACHD Sign Crew Chief shall inspect the condition of the sign, pole and related hardware. If the sign, pole and hardware are in an acceptable condition, they shall be reissued. Any sign, pole or related hardware that is not in an acceptable condition shall be replaced by ACHD. If ACHD determines that a sign is not in an acceptable condition and does not have the replacement sign in stock, then ACHD will either make or purchase a new replacement sign. Replacement signs should be provided to the Contractor within three weeks of sign inspection.

All sign removals shall be done at the appropriate time as determined by the ACHD Traffic Engineer or the ACHD Resident Project Representative.

Signs may need to be relocated one or more times before final relocation or removal. All costs associated with these relocations shall be incidental to other items in the contract.

The ACHD Traffic Operations Sign Shop is located at:

3700 Adams St.
Garden City, ID 83714

All deliveries shall be coordinated with the ACHD Traffic Operations Supervisor a minimum of two days in advance. Signs shall be carefully removed to prevent damage. Any sign damaged or destroyed due to the Contractor's negligence shall be replaced by the Contractor at no cost to ACHD.

Sign removal shall be paid for as provided in the contract documents. If the contract documents do not provide a specific bid item for removal and salvage of roadside signs, then removal and salvage of roadside signs shall be incidental to other items in the contract. Sign installation shall be paid for as provided herein.

1135.06 — MEASUREMENT AND PAYMENT

(Revised 6/3/05)

A. Measurement

1. Roadside Traffic Sign Installation (Single Metal Post)

Roadside sign installations with one metal post shall be measured by the unit from actual count. One or more sign panels mounted on a single post installation will be counted as one single post roadside sign installation.

2. Roadside Traffic Sign Installation (Two Metal Posts)

Roadside sign installations with two metal posts shall be measured by the unit from actual count. One or more sign panels mounted on a two post installation will be counted as one two post roadside sign installation.

3. Roadside Traffic Sign Installation (Single Wood Post)

Roadside sign installations with one wood post shall be measured by the unit from actual count. One or more sign panels mounted on a one post installation will be counted as one single post roadside sign installation.

4. Roadside Traffic Sign Installation (Two Wood Posts)

Roadside sign installations with two wood posts shall be measured by the unit from actual count. One or more sign panels mounted on a two post installation will be counted as one two post roadside sign installation.

5. Furnish Roadside Sign Face

Roadside sign faces shall be measured by the square foot for the actual area of sign sheeting attached to sign blanks provided by the Contractor. Contractor shall only be paid for sign faces that have been installed.

6. Remove and Salvage Roadside Sign

Roadside sign removal and salvage shall be measured by the unit from actual count. One or more sign panels mounted on a post will be counted as one single roadside sign removal and salvage.

7. Relocate Roadside Sign

Roadside sign relocation shall be measured by the unit from actual count. One or more sign panels mounted on a post will be counted as one single roadside sign relocation.

B. Payment

The unit contract prices for the bid items listed below shall be considered full compensation for furnishing all labor, tools, materials and equipment necessary or incidental for the completion of the work as shown on the Plans and these Supplemental Provisions. All signs shall comply with the latest edition of the **Manual on Uniform Traffic Control Devices (MUTCD)** and these Supplemental Provisions (see ACHD Standard Detail TS-1114). Payment shall be made for the following bid items:

<u>Ref.</u>	<u>Bid Item</u>	<u>Unit</u>
1135.01.01	Roadside Traffic Sign Installation (one metal post)	each (EA)
1135.01.02	Roadside Traffic Sign Installation (two metal posts)	each (EA)
1135.01.03	Roadside Traffic Sign Installation (one wood posts)	each (EA)
1135.01.04	Roadside Traffic Sign Installation (two wood posts)	each (EA)
1135.01.05	Furnish Roadside Sign Face	square foot (SF)
1135.01.06	Remove and Salvage Roadside Sign	each (EA)
1135.01.07	Relocate Roadside Sign	each (EA)