



Highway Maintenance Manual

Bureau of Highway Maintenance

Chapter 9 Right-of-Way Use & Permits

December 2010

Section 15 Utility Accommodation

Subject 25 Location Requirements

1.0 General

Locate utility facilities in the R/W in such a way that minimizes the need for future adjustment in order to:

- 1) Accommodate proposed highway improvements.
- 2) Permit servicing or expanding such lines without obstruction or interference to the free flow of traffic.
- 3) Provide adequate vertical and horizontal clearance between an underground utility facility and a structure or other highway facility to allow maintenance of all facilities.
- 4) Be outside the 45-degree cone of support for highway structure footings and geodetic control monuments¹.

2.0 Crossing

Utility facilities shall cross the highway on a line as nearly perpendicular to the highway alignment as possible.

Conditions which are generally unsuitable or undesirable for underground crossings should be avoided. Crossing locations to be avoided include:

- 1) Deep cuts.
- 2) Near footings of bridges and retaining walls.
- 3) Across highway intersections at grade or ramp terminals (end of the ramp meets the crossroad or street).
- 4) At cross drains where the flow of water may be obstructed.
- 5) Within basins of an underpass drained by a pump.
- 6) In wet or rocky terrain where it will be difficult to attain minimum bury.

2.1 Depth of Bury

The depth of bury for underground facilities within the R/W shall be a minimum of 24 inches as measured from the finished ground surface to the top of the facility at the time of installation.

The depth of bury for underground facilities crossing the highway shall be a minimum of 30 inches as measured from a straight line connecting the lowest points of the finished ground or pavement surface on each side of the R/W to the top of the facility at the time of installation.

Where minimum bury is not feasible, the facility shall be rerouted or protected with a casing, concrete slab, or other suitable measures. In solid rock, the depth of bury may be reduced if adequate protection is provided. A utility shall obtain prior approval from WisDOT before burying any facility less than the minimum depth required.

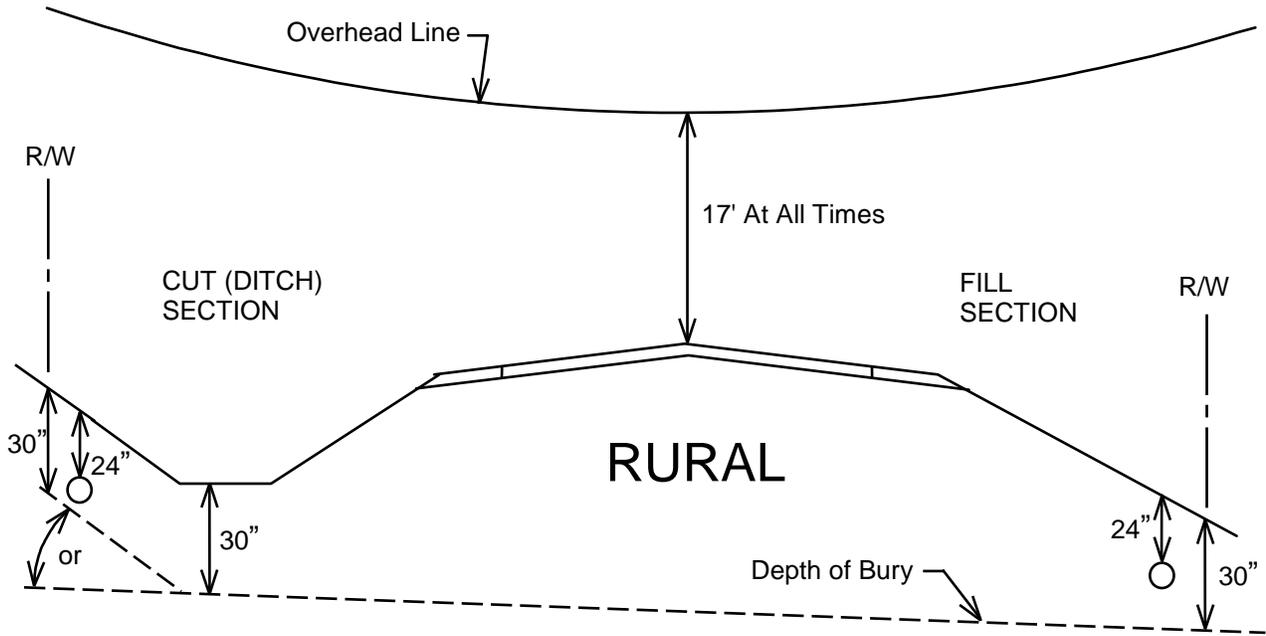
2.2 Overhead Clearances

Vertical clearances for overhead utility facilities shall comply with all applicable state and national electrical codes. In all cases, facilities crossing over the highway shall at no time be less than 17 feet above the high point of the traveled way.

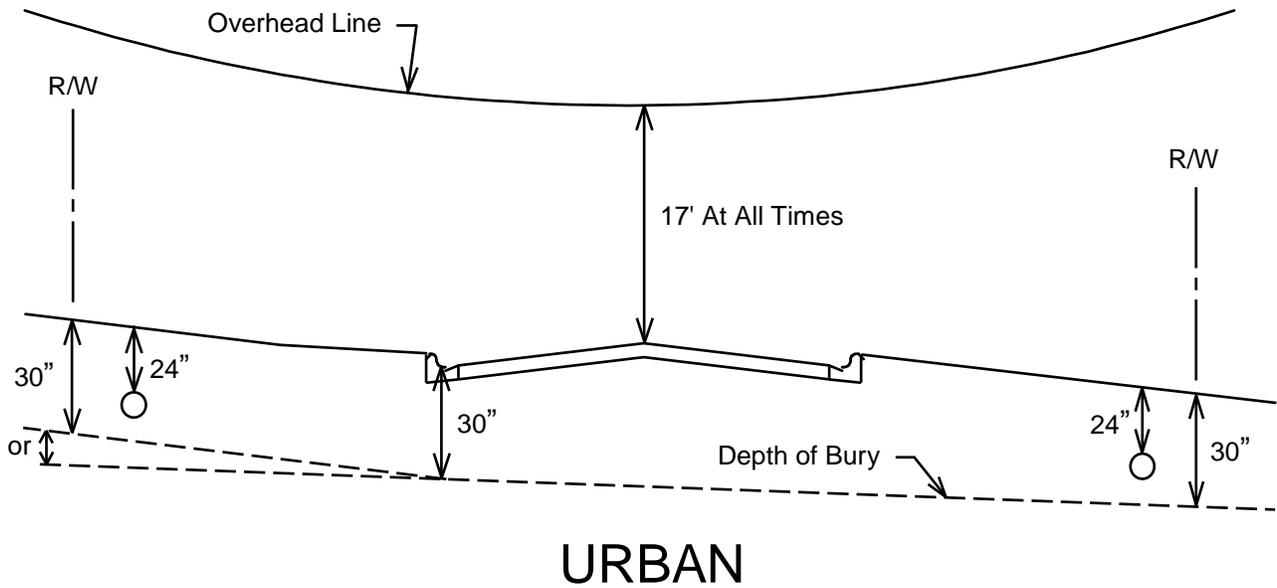
See [Figure 1](#) for a diagram of both underground and overhead clearances.

¹ The 45-degree cone of support is measured from the top of the monument due to lateral movement potential, whereas it is measured from the bottom for a footing.

Figure 1: Highway Clearance Diagram



Minimum Clearances



3.0 Underground Longitudinal

The longitudinal location of underground utility facilities within the R/W shall provide as much clearance from the traveled way as conditions will allow. Such lines shall be on uniform alignment and located as near as practical to the R/W line without affecting the R/W and geodetic control monuments referenced in [HMM 09-15-35](#).

To maintain a reasonably uniform utility alignment, location variances may be allowed when irregular shaped portions of the R/W extend beyond the normal R/W limits.

3.1 Aboveground Longitudinal

The longitudinal location of aboveground utility facilities shall be outside of the clear zone. Such lines shall be on uniform alignment and be located as near as practical to the R/W line without affecting the R/W and geodetic control monuments referenced in [HMM 09-15-35](#). Exceptions may be allowed when no other location is feasible or when the clear zone extends to the R/W line.

If any aboveground utility facility is within the clear zone or is determined to be in a location that has a higher than average accident potential, WisDOT may require:

- 1) The utility facility to be of approved yielding or breakaway construction, or
- 2) The utility facility to be protected by WisDOT approved barrier such as beam guard, crash cushion, etc.

To maintain a reasonably uniform utility alignment, location variances may be allowed when irregular shaped portions of the R/W extend beyond the normal R/W limits.

4.0 Relocating Existing Utilities

Existing utilities may remain within existing or proposed highway R/W provided they do not adversely affect the highway's safety, maintenance or operation in WisDOT's view. Existing utilities shall be relocated if they:

- 1) Conflict with any construction activities, or
- 2) Are located longitudinally under the pavement or shoulder for a reconditioning or reconstruction project.

Exceptions may be allowed based upon sound engineering judgment and economic considerations.

5.0 Intersections and Roundabouts

Section under development...

6.0 Appurtenances

Appurtenant facilities such as pedestals, manholes, vents, drains, rigid markers, valve and regulator pits, etc., should be located outside of the clear zone and near or at the R/W line. Manholes, valve pits, etc., should be installed so that their uppermost surfaces are flush with the adjacent undisturbed surface.

6.1 Buildings

Do not locate utility buildings on the R/W. Exceptions may be allowed where the building can be located on WisDOT-owned R/W other than a state trunk highway. Examples include, but are not limited to, Park-n-Ride lots, rest areas and remnant parcels. Locate buildings outside of any clear zone when applicable.

6.2 Cabinets

Cabinets should not be located on the R/W. When cabinets are allowed on the R/W, they shall be placed at a location not vulnerable to an errant vehicle and at or as near as practical to the R/W line.

6.3 Manholes and Handholes (Vaults)

Manholes shall not be located in the pavement and should not be located in the shoulders of heavily traveled highways. Exceptions may be allowed on highways where manholes are essential parts of existing lines. New manhole installations shall be avoided at highway intersections.

7.0 Median Installations

On both crossing installations and longitudinal installations, poles, guys, or other related facilities shall not be located in a highway median. WisDOT may grant an exception for a crossing installation on a controlled-access highway. See [HMM 09-15-40, 5.1](#).

7.1 Median Work

No work shall be performed in the median of any highway without prior approval from WisDOT. When median work is authorized, it shall conform to the following provisions unless otherwise stated within a utility's permit:

- 1) The permittee or their contractor shall follow its approved traffic control plan, which will likely include a lane closure system notification. See [HMM 09-15-60, 4.0](#). It may also include State Patrol or other county/local law enforcement agency notification of the expected start and finish time of the median work.
- 2) All equipment, operations, and spoil material shall be located within the center of the median.
- 3) No openings, vehicles, equipment, nor materials of any type shall be located within the median overnight.
- 4) All vehicles used to conduct the work operation shall be equipped with conspicuously visible roof-mounted revolving or strobe lights. These lights shall be in operation just prior to and during the work operation. Hazard warning lights on the vehicles shall also be operating.

8.0 Scenic Considerations

When feasible, WisDOT strives to enhance visual qualities of the highway system by:

- 1) The retention and/or planting of trees, shrubs and other vegetation.
- 2) The selection of special alignments and corridors.
- 3) The acquisition of scenic easements.

Utilization of highways by utilities requires that the type and size of its facilities and the manner and extent of its installations shall not materially impair the scenic quality, appearance, or view of highway roadsides and adjacent areas. A utility shall reimburse WisDOT the value of any scenic easement that is released for a utility installation. The value shall be determined by a qualified appraiser hired or employed by WisDOT.

8.1 Scenic Areas

Areas which have been acquired or set aside for their scenic quality, such as scenic strips, overlooks, rest areas, recreation areas, public parks, historic sites, etc., and the R/W which traverses these areas, are in a special category and new utility installations shall not be permitted except as provided in this section.

- 1) New underground utility installations may be permitted within scenic areas when the installation does not require extensive removal or alteration of trees or other natural features visible to the highway user and does not impair the visual quality of the lands being traversed.
- 2) New overhead installations shall be prohibited at such locations where there is a feasible and prudent alternative to the use of scenic areas by the overhead facility. When this is not the case, installations will be considered only where:
 - a) Other locations are unusually difficult, unreasonably costly, or are undesirable from the standpoint of visual quality,
 - b) An underground installation is not technically feasible or is unreasonably costly, and
 - c) The proposed installation can be made at a location (and will employ suitable designs and materials) which gives adequate protection to the visual qualities of the area being traversed.
- 3) These controls shall also be followed in the location and design of utility installations that are needed for a highway purpose, such as for continuous highway lighting, or to serve a weigh station, rest or recreational area.