

9. UTILITIES

9.1 Franchising Policy and Permit Procedure

The Standards shall apply to every new placement and every planned, non-emergency replacement of existing utility poles and other utility structures within the City of Des Moines right-of-way. Every effort shall be made to meet the Standards during emergency replacement of existing utility poles and other structures.

Utilities to be located within existing and proposed city road right-of-way shall be constructed in accordance with current franchise and/or permit procedure, the City's Regulations for Accommodation of Utilities, and in compliance with these Standards. In their use of the right-of-way, utilities will be given consideration in concert with the traffic-carrying requirements of the road which are, namely, to provide safe, efficient and convenient passage for motor vehicles, pedestrians, and other transportation uses. Aesthetics shall be a consideration. Under grounding of aerial utilities is required per DMMC 12.25. Utilities are subject to City Codes and policies relating to drainage, erosion/sedimentation control, and sensitive areas as set forth in the King County Surface Water Design Manual.

Requests for exceptions to these Standards will be processed in accordance with the deviation request procedure as referenced in Section 1.9.

9.2 Standard Utility Locations within the Right-of-Way

Utilities within the right-of-way on new roads or on roads where existing topography, utilities or storm drains are not in conflict shall be located as indicated below. Where existing utilities or storm drains are in place, new utilities shall conform to these Standards as nearly as practicable and yet be compatible with the existing installations. Above ground utilities located within intersections shall be placed so as to avoid conflict with placement of accessible pedestrian routes, curb ramps, crosswalks, and bike facilities.

Notwithstanding other provisions, underground systems shall be located at least 5-feet away from the road centerline and where they will not otherwise disturb existing survey monumentation.

On crossings required to be opened to traffic, and prior to final trench restoration, steel plates shall be installed by the contractor as directed by the Public Works Director.

9.2.1 Gas and Water Lines

- A. Located in a shoulder-and-ditch section shall be a minimum of 3 feet from the edge of traveled way.
- B. Located in a curb and gutter section are preferable at 1.5 feet back from the back of curb, or at a distance which will clear root masses of street trees if present or anticipated. Otherwise, they shall be located in the street as close to the curb as practical without encroachment of the storm drainage system. Mains and service connections to all lots shall be completed prior to placing of surface materials.
- C. Shall be placed with minimum 36-inch cover from finished grade, ditch bottom, or natural ground.
- D. Gas lines shall generally be located on the South and West side of the roadway centerline.
- E. Water lines shall generally be located on the North and East side of the roadway centerline.

9.2.2 Individual Water Service Lines and Side Sewers

- A. Shall be placed with minimum 36-inch cover from finished grade, ditch bottom, or natural ground.
- B. Shall use road right-of-way only as necessary to make side connections.
- C. For any one connection, shall not extend more than 60 feet along or through the right-of-way, or the minimum width of the existing right-of-way.
- D. Water meter boxes, when placed or replaced, shall be located on the right-of-way line immediately adjacent to the property being served, unless otherwise approved by the Public Works Director.

9.2.3 Sanitary Sewers

- A. Shall be placed with minimum 36-inch cover from finished grade, ditch bottom, or natural ground.
- B. Shall generally be placed 5 feet south and west of centerline.
- C. Side Sewers shall be provided to all adjacent lots or parcels.
- D. Side Sewers shall be placed within ten (10) degrees of perpendicular to road centerline.
- E. In the case of individual sanitary sewer service lines which are force mains the pipe shall:
 - 1. Be minimum 2-inches I.D., or as required by the utility to maintain internal scouring velocity.
 - 2. If nonmetallic, contain wire or other acceptable proximity detection features; or be placed in a cast iron or other acceptable metal casing.
 - 3. Shall be placed with minimum 36-inch cover from finished grade, ditch bottom, or natural ground.
 - 4. Be placed within ten (10) degrees of perpendicular to road centerline.
 - 5. Be jacked or bored under road unless otherwise approved by the Public Works Director.
- F. Sanitary and water lines shall be separated in accordance with good engineering practice such as the Criteria for Sewage Work Design, Washington Department of Ecology, latest edition.
- G. Gravity systems, whether sanitary or storm drainage, shall have precedence over other systems in planning and installation except where a non-gravity system has already been installed under previous approved permit and subject to applicable provisions of such permits or franchises.

9.2.4 Electric Utilities, Power, Telephone, Cable TV, Fiber Optic Conduit

- A. Preferably located underground on either side of the roadway, with 36-inch minimum cover, at plan location and depth compatible with other utilities and storm drains. Otherwise, every new placement and every replacement of existing utility poles and other utility structures above grade shall conform to the following:
 - 1. Utility poles or other approved essential roadside obstacles may be placed within the right-of-way and shall be as far back from the traveled way or auxiliary lane as possible. When allowed they shall be located as follows:
 - a. On shoulder type or mountable curb roads, installation of new or relocated poles or obstacles shall be located behind existing ditches and in accordance with the criteria in Sections 8.1 and 8.2. Placement of barrier between the traveled way and the pole

or obstacle shall not satisfy this requirement unless the barrier already exists for other purposes and the pole location shall meet roadside barrier standards unless allowed by an approved deviation. Deviations will be considered only when other reasonable alternatives do not exist.

- b. Notwithstanding other provisions regarding pole locations described in these standards, no pole shall be located so that it poses a roadside safety concern to the general public. Utilities shall place and replace poles with primary consideration given to public safety.
 - c. Every effort shall be made to meet the requirements of these Standards during emergency replacement of existing utility poles and other structures. After a pole has been replaced, all utilities sharing that pole shall have a maximum of 30 days to relocate their facilities to the new pole and remove the old pole.
2. The above constraints on pole and obstacle location will not apply to locations not accessible by moving vehicles, “breakaway” structures whose break-off resistance does not exceed that of a single 4-inch x 4 inch wood post, a standard Telspar style post, or to “breakaway” fire hydrants installed to manufacturer’s specifications.
 3. Deviations from these pole and obstacle clearance criteria will only be allowed through an approved deviation when justified by suitable engineering study considering traffic safety. For franchised utility permits, the Utility may request a deviation from pole and obstacle clearance criteria. Up to three contiguous damaged or weakened poles may be replaced at existing locations under permit in accordance with emergency procedures; however, sequential permits resulting in continuous replacement of a pole line shall not be allowed. A pole or other obstacle, which incurs repeated damage from errant vehicles, shall be relocated outside the clear zone in accordance with Section 8.1 and 8.2.
 4. Locations of poles shall also be compatible with driveways, intersections, and other road features, and shall not interfere with sight distances, road signing, traffic signals, culverts, etc. To the extent possible, utilities shall share facilities so that a minimum number of poles are needed.
 5. Where road uses leave insufficient overhang, anchor, and tree-trimming space for overhead utilities, additional easements and/or right-of-way may be required. The costs associated with additional easements and/or right-of-way for this purpose shall be borne by the applicant, builder, or other party initiating the improvement. The associated cost of relocating the utility shall not be borne by the City.

9.3 Underground Installations

All hard surface roadways shall be jacked or bored. Exceptions shall be reviewed on a case-by-case basis through the Right-of-Way Permit approval process. The current WSDOT/APWA Standard Specifications will generally apply unless otherwise stated. Refer to Standard Drawings DM.A7.1 through DM.A7.5.

9.3.1 Existing Roadways

A. Cuts on Traveled Way:

All hard surface roadways shall be jacked or bored. Exceptions will be on a case-by-case basis with the express written permission of the Public Works Director if it can be shown that jacking or boring are not possible due to conflicts or soil conditions, or unless the utility, including drainage structures, can be installed just prior to reconstruction or overlay of the roadway.

B. Cuts Parallel to Road Alignment:

In cuts parallel to the road alignment, the entire trench shall meet the requirements of Standard Drawings DM.A7.1 through DM.A7.5. Trench restoration shall also satisfy these requirements when cuts occur within the traveled way. All cuts outside the traveled way that are located in paved areas shall be restored. The restoration shall include but is not limited to repairing all failures and cracking of the paved surface, repairing failures caused by the construction activity, rebuilding the cross slope to uniformity, and overlaying 2 inches for the full-lane or half street widths.

C. Cuts Transverse to Road Alignment:

Without exception, the entire trench shall be backfilled with 5/8-inch minus crushed surfacing top course meeting the requirements of Section 9-03.9(3) of the WSDOT/APWA Standard Specifications, or a Controlled Density Fill (CDF). Backfill shall be placed and compacted mechanically in 6-inch lifts to 95 percent of the maximum density as determined by the compaction control tests described in Section 2-03.3(14)D of the WSDOT/APWA Standard Specifications. If the capability can be demonstrated, based on compaction equipment or quality of backfill to achieve 95 percent density in thicker lifts, the depth of backfill lifts may be increased up to 1 foot. If the Inspector approves use of CDF, it shall meet the requirements of Section 9.4 of these Standards.

After backfill and compaction, an immediate cold mix patch shall be placed and maintained in a manner acceptable to the Public Works Director.

Restoration of a trench within an asphalt pavement shall include full trench depth of crushed surfacing material and HMA the same thickness as the existing asphalt pavement or a minimum of 4 inches, whichever is the greater. Pavement shall then be overlaid full width as indicated on the approved plans, with a minimum of 2-inches compacted depth HMA. Restoration of roadways paved within 5 years shall be overlaid a minimum of 25 feet in each direction from trench. Roads older than 5 years shall have pavement restoration limits set by the Public Works Director or his/her designee. Prior to the overlay, transverse joints and vertical curb lines shall be planed in accordance with Standard Drawing DM.A7.2. Concrete pavement shall be restored to be consistent with Sections 5-05 and 6-02 of the WSDOT/APWA Standard Specifications. Any concrete pavement traffic lane affected by the trenching shall have all affected panels replaced.

9.4 Controlled Density Fill (CDF)

9.4.1 General

As an alternative to mechanical compaction, trench backfill above the bedding and below the base course or ATB may be accomplished by use of controlled density backfill (CDF) in a design mixture according to Section 2-09.3(1) E of WSDOT/APWA Standard Specifications if requested and approved by the Public Works Director.

CDF may be required by the Public Works Director in situations where even a small amount of trench settlement cannot be tolerated, such as installation of transverse trenches on arterial roads.

CDF shall be used as fill above pipe zones at all street crossings and other areas, as specified by the Public Works Director, where consolidated, non-settling backfill is required to prevent settlement. The Public Works Director Engineer may limit the use of CDF in cases where trenching has penetrated the till layer and disruption of natural groundwater flow would occur.

9.4.2 CDF Composition

CDF shall be a mixture of Portland cement, fly ash, aggregates, water and admixtures which have been batched and mixed in accordance with WSDOT/APWA Standard Specifications

The contractor and/or the design engineer may request the use of an alternative mix design. The contractor shall provide a mix design in writing and the CDF shall not be placed until the Engineer has reviewed the mix design. CDF shall meet the requirements of Section 6-02.3(5)C of the WSDOT/APWA Standard Specifications

9.4.3 Certificate of Compliance

The producer shall provide a Certificate of Compliance for each truckload of control density fill. The Certificate of Compliance shall verify that the delivered material is in compliance with the Standard or approved mix design. Testing of CDF shall be in accordance with ASTM D4832.

9.4.4 CDF Placement

CDF shall be discharged from the mixer by any reasonable means into the area to be filled. The CDF shall be brought up uniformly to the elevation shown on the plans.

CDF shall not be placed on frozen ground. CDF patching, mixing, and placing may be started if weather conditions are favorable and the temperature is at least 34 degrees F. and rising. At the time of placement, CDF must have a temperature of at least 40 degrees F. Mixing and placing shall stop if the temperature drops to 38 degrees F. or less. Each filling stage shall be as continuous a process as possible.

Trench sections to be filled with CDF shall be contained at either end of the trench section by bulkheads or earth fill. The contractor shall provide steel plates to span the utility trenches and prevent traffic contact with the CDF for a minimum of 24 hours after placement or until the CDF is hard enough to prevent rutting by construction equipment or traffic.

9.4.5 CDF Compaction

For pourable CDF, compaction is not necessary for placement. The contractor may, as an option, adjust the water content only to obtain a 1-inch maximum slump mixture that shall be compacted in lifts not to exceed 12 inches. Compaction shall be accomplished by a manually operated vibratory plate/compactor.

9.5 Traffic Control Plan

A traffic control plan is required for any construction on or along traveled roadways. The traffic control plan shall be as required in Chapter 15 of these Standards.

9.6 Notification and Inspection

Consistent with Chapter 14 of these Standards, any applicant, utility, or others intending to trench existing or proposed City roads shall notify the City as set forth in Section 14 of these Standards for all work associated with a right-of-way permit, and not less than a working day prior to beginning utility construction. This notification shall include:

1. Location of the work
2. Method of compaction to be used

3. Day and hour when compaction is to be done
4. Day and hour when testing is to be done.

As set forth in Section 14 of these Standards, failure to notify may necessitate testing or retesting by the city at the expense of the Applicant or Utility. Furthermore, the work may be suspended pending satisfaction of test results.

9.7 Final Adjustment to Finish Grade

All utility covers, including storm drainage, which are located on proposed asphalt roadways, shall be temporarily placed at subgrade elevation prior to placing crushed surfacing material.

Final adjustment of all covers and access entries shall be made following final paving by:

1. Saw-cutting or neat-line jack hammering of the pavement around lids and covers. Opening should not be larger than 12 inches beyond the radius of the cover.
2. Removing base material, surfacing course, and frame; adding raising bricks; replacing frame and cover no higher than finished grade of pavement and no lower than 1/2 inch below the pavement.
3. Filling and mechanically compacting around the structure and frame with crushed surfacing material or ATB, or pouring in 5-inch minimum thickness of cement concrete Class 3000 to within 2 inches of the top.
4. Filling the remaining 2 inches with HMA compacted and sealed to provide a dense, uniform surface.
5. Final adjustment of all covers and access entries shall be completed within 30 days of final paving.

9.8 Utility Certification

All permits for new placement and replacement of existing utilities and utility structures shall be accompanied by written certification from the utility's professional engineer or from an agent authorized by the utility to certify that the installations conform to these Standards, and that the proposed work is in conformity with sound engineering principles relating to highway safety.