



July 20, 2016

City of Midland - Engineering Services, Fire Department, & Utilities
Policy Statement - City Standards & Development Requirements

Ladies and Gentlemen,

The City of Midland Engineering Services, Fire Department, and Utilities would like to issue the following clarification of their existing standards and to notify the development community of several new changes that should be implemented as part of all new development proposals. This Policy Statement will go into full effect on November 1, 2016.

The policies included in this document are the standard for all development within the City of Midland and its extraterritorial jurisdiction. Requests for variances to these standard policies will be evaluated case-by-case based on the specific circumstances of the project in question. Any variances requested must be submitted in writing and will be subject to review and approval or denial by the Engineering Services Director, the Fire Code Official, and the Director of Utilities of the City of Midland or their representative. If a variance request is denied it may be appealed to the City Manager.

City of Midland: Policy Standards

Paving

1. All new City of Midland (COM) streets will be roof-top crowns with a 2.0% cross-slope rather than parabolic crowns.
2. The minimum Hot Mix Asphalt Concrete (HMAC) pavement thickness for COM streets is 2.0", and the minimum flexible compacted base thickness is 8.0".
3. New developments that include drill sites must designate one or more primary drill-site access routes, and the pavement designs for all such designated routes are required to have a minimum of 1" HMAC pavement thickness added to the standard street thickness.
4. All cul-de-sacs must have a minimum paved surface (*asphalt or concrete*) diameter of 96', not including curbs. All cul-de-sacs must have a minimum public Right-of-Way (R.O.W.) diameter of 112', and a 5' wide franchise utility easement at the property line outside the public R.O.W. These requirements only apply to cul-de-sacs whose length exceeds 200' measured from the mouth of the street approach to the end of the cul-de-sac pavement.

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5. All concrete pavement in COM streets and alleys shall be fiber reinforced jointed concrete pavement with a minimum thickness of 6"; joints shall typically be 10'x10' or no greater than 15'x15' saw-cut joints. Rebar reinforcement shall only be allowed in fillets at the designer's preference. *(Note that this is in no way intended to reflect on the design or construction of structural concrete.)*
6. All concrete pavement joints must be sealed with Texas Department of Transportation (TxDOT) DMS-6310 SL-2 sealant, an American Society for Testing and Materials (ASTM) D 1190 Hot-Applied Single Component Joint Sealant, or a COM approved equal.
7. The standard curb for the COM is 6" stand-up curb. 7" stand-up curb will be allowed when tying to existing curb that is 7" stand-up.
8. Any mountable curb will be 5" tall with sidewalk offset no closer than 2' horizontally from the back-of-curb.
9. In subdivisions prior to acceptance of the public improvements by the COM, the developer shall be responsible for constructing sidewalk along the frontage of all arterials, collectors, common areas, designated drill sites, and drainage easements. All other sidewalks shall be required at the time of the building permit.
10. The minimum sidewalk width is 5' with fiber reinforcement, 5'x5' tooled joints, and full construction joints every 50'. Arterial R.O.W. sidewalk is to be 6' wide.
11. Pedestrian access ramps must be constructed as part of any new road improvement, and must be completed prior to COM acceptance of the road.
12. Elevated pedestrian crossings are to be used where pedestrian routes and traffic, such as sidewalks, cross surface drainage that passes through street curb.
 - Elevated crossings are only required to pass the 5-year storm event beneath the crossing structure, but may pass more than the 5-year storm event if desired by the developer.
 - Scuppers are to be used when surface drainage exits the street while passing through the street curb.
 - Steel plates may be used for elevated pedestrian access crossings in place of scuppers if all of the following criteria are met:
 - i. The plates are no longer than 3' each along the pedestrian access route.
 - ii. There shall be a minimum 4" of concrete surface, broom finished, between any two plate edges at the vertical concrete supports for the elevated crossing.
 - iii. The crossing shall consist of no more than 4 steel plates in a series.
 - iv. Steel plates shall be diamond plate and no less than 3/8" thick.
 - v. Steel plates shall be secured with countersunk bolts or an equivalent method approved by the COM.

Drainage

1. A 5 year storm event pre-development and post-development drainage analysis is required in addition to the 100-year pre-development and post-development drainage analysis. A storm conveyance system is required in any development where the 5-year event cannot be conveyed in the streets at or below the top-of-curb elevations.
2. The typical drainage pattern shall be from lot to alley to street to drainage infrastructure to basin/channel. Cul-de-sac to street or street to cul-de-sac drainage patterns through a flume structure are allowed.

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3. Any alley conveying runoff from a street, drainage structure, basin, or channel must be constructed as a drainage alley with concrete pavement for the full width of the alley as well as concrete curbs. *(Note that this doesn't apply when runoff is merely conveyed across an alley.)*
4. A minimum 1.0' of freeboard is required for basins with a designed storage of less than 5 acre-ft, and a minimum 0.5' of freeboard is required for basins with a designed storage equal to or greater than 5 acre-ft. *(Excluding designed discharge openings such as weirs.)*
5. All basin designs shall include and identify an emergency outflow for the basin for a storm event that exceeds the 100-year event. *(Basins with a designed surface outfall such as a weir may also designate it to function as the emergency outfall.)*
6. Rock riprap is required along the perimeter of all flumes and drainage inlet/outlet structures in or on the side slopes of drainage basins, drainage channels, etc. Erosion control geotextile mats are required beneath all rock riprap. Rock riprap must have a gradation matching the following:

Table: Rock Riprap Gradation & Size Requirements								
Size	Size _{max}	90% Size ¹	50% Size ²	8% Size ³	D _{max}	D90	D50	D8
(in)	(lbs)	(lbs)	(lbs)	Min. (lbs)	(in)	(in)	(in)	(in)
12	200	80-180	30-75	3	13.76	10.14-13.29	7.31-9.92	3.39
1. Defined as that size such that 10% of the total riprap stone, by weight, is larger and 90% is smaller. 2. Defined as that size such that 50% of the total riprap stone, by weight, is larger and 50% is smaller. 3. Defined as that size such that 92% of the total riprap stone, by weight, is larger and 8% is smaller. 4. Based on a Specific Gravity = 2.5 and the following equation for the intermediate axis diameter $D = ((12 * W) / (G_s * 64.2 * 0.85))^{1/3}$ where: D = intermediate axis diameter in inches. W = weight of stone in pounds. G _s = specific gravity of stone. 5. Based on the 2014 Texas Department of Transportation Item 432, Part 2.3.4, Tabeles 1 & 2.								

- 70% established vegetation for the entire drainage basin, drainage channel, etc. including all side slopes would be accepted in lieu of rock riprap along the side slopes of flumes and drainage inlet/outlet structures. *(Note that this does not remove the requirement for rock riprap at the toe of all such drainage structures.)*
7. Concrete pilot channels no less than 2.0' wide are required to connect any sub-surface outfall structure with the inlet structures for detention basins.

Utilities

1. Fire Line - That portion of underground pipe from the water main to a building dedicated to a fire sprinkler or standpipe system.
2. Pressure and volume studies are required for all new developments tying to the public water distribution system for the full extents of the new public distribution system. Developments 5-acres or larger OR 20 residences or more OR multi-use developments trigger this requirement for evaluations or increased burden on existing utilities.
 - The developer is to provide the information required to perform the stated studies to the COM Utilities and to provide payment to the COM Utilities equal to the current rate paid by the COM to its currently hired consultant.
3. Capacity studies are required for all new developments tying to the public wastewater collection system for the full extents of the new public collection system, through the existing public collection system, and to the public wastewater treatment plant.

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Developments 5-acres or larger OR 20 residences or more OR multi-use developments trigger this requirement for evaluations or increased burden on existing utilities.

- The developer is to provide the information required to perform the stated studies to the COM Utilities and to provide payment to the COM Utilities equal to the current rate paid by the COM to its currently hired consultant.
4. Public water and wastewater mains are to be extended across the full limits of all platted property.
 5. The developer shall construct all water mains, wastewater mains, and appurtenances, including major distribution facilities, necessary to connect the development with the approved water supply and distribution system or wastewater collection and disposal system.
 6. No other utilities are ever to be installed in the same ditch as public utilities.
 7. All new NON-METALLIC buried public utility mains must have locator (i.e. detector) wire installed over and parallel to the pipe.
 - All new buried fire lines and laterals must have both locator (i.e. detector) wire and locator tape installed over and parallel to the pipe.
 8. All public water mains must be looped. Water service to each lot included on the final plat shall be from a looped water main. In addition, the water supply to the subdivision as a whole shall be based on a plan for an area-wide looped system of trunk lines which will supply water flow from two directions or sources.
 9. The minimum size for water mains in residential and retail development is 8" in diameter, and the minimum size for water mains in non-residential and non-retail development is 12" in diameter.
 10. All valves for public water mains shall be gate valves.
 11. Valves 16" and larger are to be placed in valve vaults.
 12. All valves and fittings must be restrained, and all valves on the branch side of a tee shall be flanged.
 13. 16" diameter or larger water mains shall not be tapped for water service lines.
 14. Irrigation service laterals and meter locations shall be shown on all construction drawing submittals, including residential developments.
 15. Commercial developments are required to have irrigation meters or a water well to be used for irrigation.
 16. Non-residential developments with fire lines must provide a 6" or 8" manifold from the existing or proposed water main in the public R.O.W. and tap all fire, water, and irrigation service laterals off of the manifold pipe.
 17. Meters must be placed to enable meter reading without hazards and be in R.O.W. or an easement accessible to the R.O.W. to allow for vehicle access.
 18. The required width of public wastewater easements are to be based upon the depth of the public wastewater mains. The minimum width of public wastewater easements is 20', and if the wastewater main is deeper than 10' at its flow line then the minimum width of the public wastewater easement shall be 30'.
 19. Wastewater mains placed deeper than 16' of cover must have a thicker pipe wall thickness meeting or exceeding SDR-26 ASTM D3034.
 20. Drop connections to new manholes shall always be external drop connections. External drop connections to existing manholes are to be used unless a variance is approved by the COM Utilities Director.

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21. New wastewater mains connecting no more than 24" above the flowline invert of a manhole don't have to provide a drop structure.
22. Wastewater service laterals that connect to public manholes must be no less than 6" diameter and constructed in the public R.O.W. to the same standards as a public wastewater main.
23. Cleanouts are required at the property line for all residential lots tying into the public wastewater system. Cleanouts are to be constructed as part of the building permit.
24. All abandoned/unused water mains are to be capped and all abandoned/unused wastewater mains are to be plugged. This also applies to the ends of active water main and active wastewater main pipe stub-outs.
25. The required accuracy for utility Global Positioning System (GPS) coordinates shall be within 1" to 3" of the actual location. GPS coordinates are required on all as-built drawings at all manholes, valves, taps, appurtenances, and at no less than 50' intervals along all public mains.
26. All water system designs shall meet the criteria of the adopted International Fire Code (IFC) as amended and all applicable requirements of the most recent edition of National Fire Protection Association (NFPA) 24. NFPA standards are effective on the January 1st of the year following the effective date printed in the standard. All water system designs shall also meet the requirements set forth in adopted ordinances and COM utility standards.
27. Dedicated fire lines must be separate from domestic lines.
28. Fire flow requirements may be ascertained by applying Appendices B and C of the adopted IFC to the building in question.
29. Fire flow data older than one year will not be accepted.

30. Hydrant Placement

- Hydrants should be placed at intersections for increased flexibility. Where this is not possible, a hydrant may be placed along a curb or in a parking lot island. Access turning radius must always be in consideration.
 - Hydrants should be located on the same side of the street as the building.
 - Avoid putting hydrants at the end of dead end streets.
 - Hydrants shall be located so the center of the large diameter outlet is not less than 18-inches above final grade.
 - Hydrant coverage does not extend across arterial or major collector streets.
31. Hydrant spacing shall meet the requirements of Appendix C of the current adopted IFC.
 32. If a fire hydrant needs to be set to meet the distance requirement to a Fire Department Connection (FDC) and the fire hydrant cannot be set at a typical, common location (e.g. street corner, lot line, etc.), then the fire hydrant needs to be set on site as a private fire hydrant and painted red.
 33. If a FDC is required, a hydrant shall be within 100 feet of the FDC as a hose would lay off the truck.

34. Fire Lines

- Fire lines shall be installed by a licensed underground contractor registered for "Underground Fire Main", Texas Insurance Code Chapter 6003, Section 34.710 (i) (3).
- Each fire line underground firm shall have a registered Responsible Managing Employee (RME Underground Fire Main), Texas Insurance Code 6603 Section 34.716 (3).

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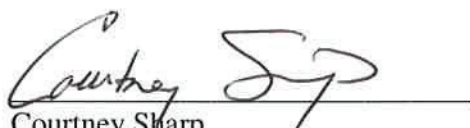
- Each fire line shall be hydrostatically tested and flushed according to NFPA-24 Chapter 10 Underground Piping.
 - Thrust blocks shall be approved by the Authority Having Jurisdiction (AHJ) prior to backfilling.
 - After January 1, 2016 fire laterals may be C-900 Polyvinyl Chloride Pipe (PVC) rather than Ductile Iron Pipe (DIP) if the developer wishes to do so. All fire line Chlorinated Polyvinyl Chloride (CPVC) pipe shall be Pressure Class 305 (DR 14) American National Standards Institute/American Water Works Association (ANSI/AWWA) C900.
 - All approved PVC piping shall be identified using a listed copper clad steel insulated tracer wire of #14 minimum American Wire Gage (AWG) or greater. The tracer wire shall be laid within 6 inches of the PVC pipe where practical and directly above if possible. Tracer wire should not be wrapped around pipe or connectors except the riser. Splicing shall be according to the manufactures recommendations.
 - Approved warning tape shall be installed during backfilling and placed 6 inches below grade level.
 - All trench depth, bedding and backfill shall be to COM Engineering or NFPA 24 standards.
 - Where meters are required by other authorities, they shall be listed for fire service.
35. Post Indicator Valves (PIV) shall be installed on fire lines according to NFPA-13 and NFPA-24. All PIV's shall be secured by a KNOX® padlock #3770. All PIV's shall be Fire Department Red in color.

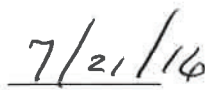
Traffic

1. Permanent Type 3 Barricades shall be placed at the ends of any street pavement that dead-ends in anticipation of a future street extension.
2. Pavement markings and typical traffic signs, except permanent street name markers, shall be included in the design and construction of all new and extended public streets and alleys and are to conform to the current standards in the Texas Manual on Uniform Traffic Control Devices (MUTCD) and TxDOT standards as applicable.

The City of Midland Engineering Services, Fire Department, and Utilities are available to discuss any of these standards.

Approved:

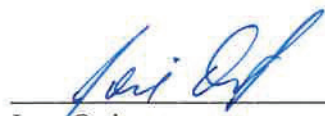

 Courtney Sharp
 City Manager
 City of Midland


 Date

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Engineering ▪ 300 N. Loraine, Midland TX 79701 ▪ 432-685-7286

Recommended:



Jose Ortiz
Engineering Services Director
City of Midland

7/21/16

Date

Recommended:



David Hickman
Fire Marshal
City of Midland

7/21/16

Date

Recommended:



Laura R. Wilson, PE
Director of Utilities
City of Midland

7/21/16

Date