Revised 12/12/25

CITY OF ANDOVER
ENGINEERING DESIGN STANDARDS
2026 CONSTRUCTION SEASON

The table is a brief summary of the design standards required by the City of Andover Engineering Department for all new development, both residential and commercial. Refer to the attached City of Andover Standard Details and the City of Andover Standard Specification for more specific information.

SANITARY SEWER

- Trunk Line Pipe
  - Material .....PVC
  - Class .....SDR 35 (0-16')
  - Class .....SDR 26 (16'-25')
  - Class .....C900 / DIP CL 50 (25' +)
  - Jet clean and televise with DVD report prior to City approval
- Manholes
  - Type.....Pre-cast (see details)
  - Maximum inlet / outlet elevation difference .....1'
  - Minimum manhole depth .....8'
  - Type of Castings.....R-1642-B
  - Outside Drop .....2' minimum (DIP)
- Services
  - Material .....PVC
  - Class .....Schedule 40 (C900 – 25'+)
  - Wyes.....PVC Schedule 40 (C900 – 25'+)
  - Cleanout.....PVC Schedule 40

WATER MAIN

- Trunk Line Pipe
  - Material ..... DIP
  - Class 52
  - Fittings..... Mech. Joint Ductile Iron - Megalugs
  - Minimum Diameter ..... 8" (6" on hydrant leads and dead end cul-de-sacs)
  - Minimum Cover ..... 8'
  - Side of street for water main ..... varies
  - Insulation (2-2" thick layers)..... <8' cover or 3' on crossings
- Hydrant
  - Type..... Waterous Pacer or American Flow Control with Alpha Restrained Joint or Megalugs
  - Depth ..... 8'6"' bury
  - Spacing ..... (400' maximum spacing / 200' radius each)
- Valves
  - Type ……..... Resilient Seated Waterous 2500 Series or American Flow Control with alpha restrained joint(<12") or megalugs
  - Type…… Butterfly Dresser 450-01 (12" +)
  - Valve Boxes ..... Tyler 6860, 3-piece cast iron with gate valve adaptor

- Locations ..... At new connection, all intersections, max. spacing 500’ commercial, 800’ all other

- Services
  - Material..... 1” Type K Copper
  - Corp Stop..... FB600 Ballcorp
  - Curb Stop..... Ford Ball Valve B22-444M
  - Curb Box..... Ford EM2-80-56

STORM SEWER

- Pipe
  - Material .....RCP or HDPE (must meet manufacturer recommendation for minimum cover and installation)
  - Class .....Manufacturers Recommendation
  - Minimum Diameter on CB Leads .....12”
  - Minimum Diameter on Laterals and Trunk.....15”
  - Minimum Culvert Size .....15”
  - Culvert Material .....RCP, HDPE or CMP (private drives only)
  - Aprons .....Required on all with Grates
  - Jet Clean and Televise with DVD report prior to City approval
- Catch Basins and Manholes
  - Material .....Precast Concrete or HDPE (if using HDPE pipe, structures must be HDPE, or RCP with integral boot connection)
  - Minimum Depth .....4’
  - Casting (Storm Manhole) .....R-1642 B
  - Casting (Catch Basin – with curb offset on radii) ...R-3250 A (Re-con Projects Only)
  - Casting (Catch Basin – Surmountable Curb) .....R-3501 TB
  - Casting (Catch Basin – Yard Inlet) .....R-2535 A
  - Casting (Catch Basin – in driveway).....R-3508C or R-3501 TB
  - Casting (Catch Basin – Barrier Curb) .....R-3067V, R-3067VB (low points)
  - Aprons .....RCP, HDPE (must be anchored per manufacturers recommendation), or CMP (on HDPE pipe only)
- Design
  - Frequency .....10-Year Design for Storm Sewer
  - Minimum Storm Sewer Design Velocity .....3.0 fps
  - Design Frequency for Detention Basins.....100-Year Event - Atlas 14 (2-100 Year or 10- Day Snowmelt for Landlocked Basins)
  - HWL below adjacent structure low opening.....2’
  - Emergency Overflow swale below low opening.....2’
  - Minimum swale grade (vegetated) .....2.0% (can go to 1% if blue topped)
  - Pond Outlets .....6” minimum diameter orifice in weir wall in outlet control structures

STORM DRAINAGE PLAN REQUIREMENTS

- Refer to City of Andover Surface Water Management Plan (Summary in Appendix D)

STREETS

(Urban sections generally have City sewer and water available within the MUSA boundary)

- Pavement
  - Width (Urban) ..... 33’ back to back (parking allowed on both sides of roadway for non-MSA routes)
  - Width (Rural) ..... 31’ back to back (parking allowed on both sides of roadway for non-MSA routes)
  - Cul-de-sacs ..... 93’ diameter back to back (120’ ROW)
  - Temporary cul-de-sacs ..... 80’ diameter back to back with 13.5’ street, drainage and utility easement. Required if stub 210’ or longer at plat boundary.
  - Bituminous Wear Course (SP 9.5 (2,C)) ..... 1.5”
  - Bituminous Base Course (SP 12.5 (2,C)) ..... 1.5”
  - Class V Aggregate Base ..... 5”
  - Subgrade ..... Must be approved granular
- Boulevard
  - Width (Urban) ..... 13.5’
  - Width (Rural) ..... 14.5’
  - Grade ..... + 2% from back of curb to right of way
  - Restoration ..... 4” Topsoil and Seed/Sod
- Concrete Curb and Gutter
  - Type ..... Surmountable
  - Type ..... B618 around radii and offset catch basins
- Bituminous Trails
  - Width ..... 8’ (10’ Regional)
  - Section ..... 2.5” Bit Wear Course, 4” Class V
  - Longitudinal Grades ..... See MnDOT Bicycle Design Manual
  - Pedestrian Curb Ramps ..... Truncated Domes at all intersections
- Concrete Sidewalks
  - Width ..... 5’ (6’ if adjacent to parking stalls)
  - Section ..... 6” concrete on approved subgrade
  - Longitudinal Grades ..... 5% maximum to meet ADA requirements
  - Pedestrian Curb Ramps ..... Truncated Domes at all intersections
- Miscellaneous
  - Roadway Crown 3.0%
  - Longitudinal Grades ..... 0.5% minimum, 7.0% maximum
  - Driveway Grades ..... 8% maximum
  - Maximum intersection approach grade ..... 2.0% within 30’ of an intersection
  - Horizontal Curves ..... Minimum 50’ radius (minimum of 50’ tangent between reverse curves)
  - Design Vehicle ..... City Aerial Fire Truck (City Detail 522)
  - Vertical Curves ..... MnDOT charts, 30 mph (55 mph rural)
  - Sight Triangle at intersections ..... Based upon MnDOT Design Charts, Case IIIB and IIIC.

- Maximum Cul-de-sac length ..... 500’
- Cul-de-sac radii ..... 30’ (into bubble)
- Minimum Intersection Radius ..... 20’ (30’ minimum at County Roads)
- Minimum Bituminous Width ..... Utilize standard urban or rural typical section details. For PUD’s, minimum of 27’ (for emergency vehicle access)
- Right-of-way ..... 60’ (120’ for cul-de-sacs)
- Right-of-way Corners ..... 20’ radius City Street, 30’ abutting County Roads
- Seed Type ..... MnDOT 25-151 (lawn areas) or 25-121 (roadside, non-lawn)
- Fertilizer ..... MnDOT 3881, Analysis 20-10-10

DRIVEWAYS

- Areas with City Sewer and/or Water
  - Surface Material ..... Paved Concrete, Bituminous, or Brick Pavers
  - Subsurface ..... Class 5
  - Width ..... 30’ max. at ROW, 24’ max. in cul de sac
  - Section ..... 2.5” Bit Wear Course (Min), 4” Class V (Min.) or Geotechnical Engineer Recommendation
- Areas without City Sewer and/or Water
  - Surface Material (Street to ROW or Prop. Line)..... Concrete, Bituminous, or Brick Pavers
  - Surface Material (ROW or Prop. Line to Garage)… Class 5 (4” minimum)
  - Subsurface ..... Class 5 (4” minimum)
  - Width ..... 12’ Minimum, 30’ maximum at ROW (24’ maximum in cul-de-sac)
  - Section ..... 2.5” Bit Wear Course (Min), 4” Class V (Min.) or Geotechnical Engineer Recommendation

PARKING LOTS (City Code 12-13-8)

- Required Parking Stalls ..... contact Planning Dept and refer to City Code
- Stall Dimensions ..... 10’ wide x 18’ long minimum
- Drive Aisle Width ..... 24’ for 60-90 degree stalls. 20’ for stalls less than 60 degree angle.
- Drive Aisle Radii ..... Minimum of 16’ for passenger vehicles and/or 25’ for truck access. Provide turning movement templates.
- Required Grades ..... between 1% and 5%
- Surface Material..... Same as Driveway surfacing requirements
- Striping ..... 4”wide white for parking stalls
- Curbing ..... concrete curb and gutter required, except in areas where future parking expansion is planned.
- Parking Lot Setbacks ..... 20’ (front); 10’ (side and rear); 20’ (side and rear if abutting ROW of a residential district)