Town of Thompson's Station Roadway Design Specifications



Last Amended 3-14-24

THESE SPECIFICATIONS AND DETAILS ARE ESTABLISHED AND REQUIRED FOR ALL DEVELOPMENT WITHIN THE TOWN RIGHT-OF-WAY FOR ALL STREETS AND ROADS PER TITLE 16, SECTION 16-202 OF THE TOWN CODE.

THE SPECIFICATION AND DETAILS LISTED BELOW ARE MINIMUM STANDARDS. ALL SPECIFICATIONS SHALL BE FOLLOWED UNLESS A DEVIATION FROM THESE STANDARDS IS PROVIDED IN WRITING FROM TOWN STAFF FOR A SPECIFIC AND UNIQUE ENGINEERING REASON.

1) ROAD DETAIL:

- a) 8" minimum mineral aggregate base shall be required on all roadways
- b) Base stone shall extend 6" minimum behind the curb.
- c) The asphalt temperature installment shall be at least 50 degrees and rising.
- d) The binder thickness shall be 3".
- e) 1.5" thickness of bituminous surface course shall be applied
- f) See Detail Section: Road Detail Section
- g) Density test on binder and topping shall be required. Testing results shall be emailed to the Town after each course is applied.

2) ROAD PATCHING AND ROW CUTS

- a) Any encroachment, excavations, or cuts into a roadway or ROW shall require a ROW Permit, per Town Code.
- b) The Town of Thompson's Station shall not permit open cuts on existing roadways. Installation of utilities across a ROW shall be through jacking or boring under the roadway.
- c) See Detail Section: Trench and Road Patch Section

3) CURB AND GUTTER DETAIL:

- a) Curb and gutter shall be permitted according to Town approved roadway cross-sections.
- b) Minimum of 3 ¹/₄" of base stone under curb and gutter shall be required.
- c) Curb or concrete flatwork may be installed at 40 degrees and rising temperature.

d) See Detail Section: Town Curb Standards

4) UTILITIES:

- a) All utilities shall have a 16" minimum of cover from subgrade elevation.
- b) All utilities casting shall be set to the slope of the roadway.
- c) All utilities shall be even with the binder course. At surface course a 1.5" adjustment ring will be added to the utilities.
- d) All utilities shall be installed before subgrade proof roll.
- e) Utilities in roadway shall be backfilled with specified material within 6" of top of subgrade then capped with a crush stone.

5) PROOF ROLL COMPACTION:

- a) Proof rolls shall be performed by a loaded tandem axle dump truck. (20 tons minimum)
- b) A loaded dump truck with a ticket shall be required before proof roll starts.
- c) Roadways shall be required to be compacted around all utility structures.
- d) There shall be NO debris or uncompacted material on the roadway at the time of proof roll. (compaction shall be 1' minimum behind the curb)
- e) Roadways shall have the required amount of roller time to reach material compaction level.
- f) If the proof roll has less than 3 issues, the contractor may repair areas with proper material and advance to the next course placement.
- g) If a roadway has more than 4 issue areas during a proof roll, it may continue, but the contractor must stabilize material in roadway and another proof roll date will be set.
- h) No additional course placement shall be allowed until the survey section is passed.

6) SURVEY:

a) A survey shall be performed before a subgrade proof roll date will be set.

- b) The survey shall ensure that subgrade and utilities are at elevations and placement, per approved plans.
- c) The survey shall include 2' OS behind curb and every 50'-centerline grade elevations.
- d) All survey information shall be emailed to Town inspectors prior to setting a date for any proof roll.
- e) The proof rolled section shall be established by survey information.

(7) STORMWATER PIPE AND STRUCTURES:

- (a) All stormwater utilities shall be inspected by the Town inspector.
- (b) TDOT standards specifications for road and bridge construction and Town standards shall apply.
- (c) RCP storm pipe shall be the only permitted pipe, per Town standard.
- (d) Structures have a minimum of 4500 psi (TDOT ASTM STANDARDS)
- (e) Poured in place structures shall be approved by Town Staff and Town Engineer
- (f) Storm pipe shall be concrete mortar applied inside and outside to seal off structure.

(8) VEHICLE TURNING PATH MODEL:

Design Vehicles per Town Staff

- (a) Passenger Vehicle P (AASHTO)
- (b) Aerial Pumper: L-28 (DETAIL PROVIDED)
- (c) Standard Waste Removal Truck SU-33 (AASHTO)
- (d) Front-Load Waste Removal Truck SU-40 (AASHTO)**
- (e) Tractor Trailer**:

Local:	WB-40 (AASHTO)
Collector:	WB-67 (AASHTO)

*Other vehicles may be required by Staff, based on site configurations.

** Where Required for Development

ADDITIONAL REGULATIONS & NOTES:

a) For roadways, proof roll may be canceled, and a new date set, if any of the Town Roadway Design Specifications included in this document are not met.

- b) The Town shall not recommend any reduction or acceptance of any roadway public improvement that does strictly comply with the Town Roadway Design Specifications included in this document.
- c) For all roadways, the binder course shall be installed, drainage infrastructure inspected, and utilities tested before any building permits shall be issued to builders
- d) All roadways shall conform to the approved and stamped Construction Plans for each project.
- e) Field changes shall not be permitted without express approval of Town Staff and shall not be considered valid until revised Construction Plans are submitted and accepted by Town Staff.

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LOCAL, ALLEY, AND MEWS PAVEMENT SECTION





PAVEMENT SECTION DETAIL SPECIFICATIONS:

- 1. 1.5" ASPHALT WEARING SURFACE (411 E)
- 2. TACK COAT
- 3. 3" ASPHALT BINDER (B-MODIFIED)

- 4. 8" STONE BASE

RESIDENTIAL ALLEY (LOCAL) STREET







D - 1¹⁷⁄₃₂"

D - 1²⁹⁄₃₂"

6" CONCRETE CURB AND GUTTER

(PAY ITEM NO. 702-03)

22 %₁₆"

28 %₁₆"

CONCRETE CURB AND GUTTER TABLE				
TYPE	TOTAL WIDTH	WIDTH OF	VERTICAL DROP	VERTICAL DEPTH
	(W)	GUTTER (WG)	(T)	(V) OF GUTTER Ⅰ ▲
	IN INCHES	IN INCHES	IN INCHES	AT FLOW LINE

2

 $2\frac{1}{2}$

▼ VERTICAL DEPTH (V) MUST ALWAYS EXCEED SIX (6) INCHES.

30

36

6-30

6-36

		LEGEND
D	=	VERTICAL DEPTH OF GUTTER (IS BASED ON PAVEMENT DESIGN)
Т	=	VERTICAL DROP IN GUTTER FROM FRONT EDGE TO FACE OF CURB
V	=	VERTICAL DEPTH OF GUTTER AT FLOW LINE
W	=	TOTAL WIDTH OF COMBINED CURB AND GUTTER
WG	=	WIDTH OF GUTTER

QUANTITIES FOR CURB AND GUTTER			
DEPTH (D) OF GUTTER IN INCHES	TOTAL WIDTH (W) IN INCHES	6" CONCRETE CURB AND GUTTER (CY/LF)	LOWERED CONCRETE CURB AND GUTTER (CY/LF)
8	30	0.06409	0.05711
	36	0.07780	0.07085
9	30	0.07181	0.06483
	36	0.08706	0.08011
10	30	0.07953	0.07254
	36	0.09632	0.08934
11	30	0.08724	0.08026
	36	0.10558	0.09860
12	30	0.09496	0.08799
	36	0.11484	0.10786

TOWN CURB STANDARDS

LOWERED CONCRETE CURB AND GUTTER

(PAY ITEM NO. 702-03)



6" DETACHED CONCRETE CURB

(PAY ITEM NO. 702-01)

QUANTITIES FOR DETACHED	
HEIGHT OF CURB	CUBIC YARD PER L
6"	0.02950
LOWERED CURB	0.02534

GENERAL NOTES

- (A) FOR SPECIFICATIONS SEE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION, SECTION 702 - CEMENT CONCRETE CURB, GUTTER AND COMBINED CURB AND GUTTER.
- B THE FRONT FACE OF THE CONCRETE CURBS FOR ALL DEGREES OF CURVATURE SHALL CONFORM TO THE CONTOUR OF THE CURVE AND NO CHORD SECTIONS WILL BE PERMITTED.
- C CONCRETE EXPANSION JOINT MATERIAL IS TO BE 1/2" IN THICKNESS AT ALL LOCATIONS. ALL MATERIAL IS TO BE PRE-MOLDED FIBER IN ACCORDANCE WITH SECTION 905 - JOINT MATERIALS OF THE STANDARD SPECIFICATIONS.

(D) EXPANSION JOINTS ARE TO BE PLACED AS FOLLOWS:

- 1. AT TANGENT POINTS OF CIRCULAR CURBS.
- 2. BETWEEN CURBS AND ABUTTING RIGID OBJECTS.
- 3. AT OTHER PLACES WHERE STRESSES MAY DEVELOP.
- 4. TO LINE UP WITH PAVEMENT JOINTS WHERE THE ADJACENT PAVEMENT IS CONCRETE.
- 5. THE MAXIMUM SPACING IS TO BE 100 FEET.
- 6. BETWEEN CONCRETE CURBS OR CURB AND GUTTERS AND CONCRETE PAVEMENT. IT IS NOT REQUIRED WHEN CURBS OR CURB AND GUTTERS ARE ADJACENT TO ASPHALT.
- (E) CONTRACTION JOINTS ARE TO BE SPACED AT 10 FEET. THE SPACING OF 10 FEET MAY BE REDUCED FOR CLOSURES, BUT NOT LESS THAN 6 FEET.
- (F) EDGES OF JOINTS SHALL BE FINISHED ON 1/4" RADII.
- (G) THE 1/4" HEIGHT IS FOR WHEN ASPHALT PAVEMENT IS ADJACENT TO CONCRETE CURB AND GUTTER ONLY. CONCRETE PAVEMENT WILL BE FLUSH WITH THE TOP OF THE GUTTER.

LOWERED CONCRETE CURB NOTES

- A) TO BE BUILT AS COMBINED CURB AND GUTTER, DETACHED CURB OR INTEGRAL CURB AS ' NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- B) FOR DETACHED CURB, OMIT RADIUS AT FLOW LINE.
- C) TO BE USED FOR PROPOSED RAMP OPENINGS.

0.02950

RD PER LINEAR FOOT

CHED CURB





Turning Performance Analysis

 Bid Number:
 1059
 Chass

 Department:
 Williamson County Office of Public Safety
 Body:

 (TN)
 (TN)
 (Th)

Chassis:Arrow XT Chassis, 100AATBody:Aerial, 100AAT, Alum Body



*Inside Cramp Angle:	40°
Axle Track:	82.92 in.
Wheel Offset:	4.68 in.
Tread Width:	16.3 in.
Chassis Overhang:	68.99 in.
Additional Bumper Depth:	13 in.
Front Overhang:	81.99 in.
Wheelbase:	262 in.

Calculated Turning Radii:

Inside Turn:	24 ft. 11 in.
Curb to curb:	40 ft. 7 in.
Wall to wall:	44 ft. 6 in.

Comments:

Williamson County Station 28

Category	Option	Description
Tires, Front	0677592	Tires, Front, Goodyear, G296 MSA, 425/65R22.50, 20 ply, Fire Service Load Rating
Axle, Front, Custom	0767040	Axle, Front, Oshkosh TAK-4, Non Drive, 24,000 lb, AXT, 100AAT
Bumpers	0761703	Bumper, 15" Extended, Steel, Painted, 100AAT, Arrow XT
Wheels, Front	0019611	Wheels, Front, Alcoa, 22.50" x 12.25", Aluminum, Hub Pilot
Aerial Devices	0771866	Aerial, Ascendant 100' Aerial Tower

Notes:

*Actual Inside cramp angle may be less than shown.

Curb to Curb turning radius calculated for 9.00 inch curb.

Definitions:	
Inside CrampAngle	Maximum turning angle of the front inside fire.
Axle Track	King-pin to King-pin distance of front axle.
Wheel Offset	Offset from the center line of the wheel to the King-pin.
Tread Width	Width of the tire tread.
Chassis Overhang	Distance of the center line of the front axle to the front edge of the cab. This does not include the bumper depth.
Additional Bumper Wheel	Depth that the bumper assembly adds to the front overhang.
Wheelbase	Distance between the center lines of the vehicles front and rear axles.
Inside Turning Radius	Radius of the smallest circle around which the vehicle can turn.
Curb to Curb Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures a surb height of 9 inches.
Wall to Wall Turning Radius	Radius of the smallest circle around which the vehicle's tires can turn. This measures takes into account any front overhang due to chassis, bumper extensions and or aerial devices.