

**ORDINANCE NO. 2020-009**

**ORDINANCE TO AMEND SECTION 3.8 MINIMUM HIGHWAY DESIGN STANDARDS**

**3-8 ROADWAY CONSTRUCTION**

**3.8.1 INTRODUCTION**

A. All developments, regardless of size, within the Town limits shall include provisions for the construction of roadways and appurtenant construction to serve each parcel of property within the development. When more than one building, other than an accessory building is located or planned on one parcel of property, the proposed construction may also include access roadways as required to serve each such building.

B. The design of all roadways proposed for construction as independent projects under the control of the Town, shall meet the technical requirements of this Section and the WDOT "Standards Specifications".

**3.8.2 STREET CLASSIFICATION**

A. Certain variables in geometric and structural design discussed in this Section are dependent on the functional classification of the street in question. For the purposes of these standards, all streets will be classified as shown in Figures 1, 2 and 3 appended to this section.

B. In developments where more than one building is located or planned on one parcel of property and a roadway is provided to serve such buildings, that roadway shall be classified as a local street unless otherwise established by the Town Engineer.

**3.8.3 GEOMETRICS**

A. Roadway geometrics shall be as set out in Figures 2 and 3.

**3.8.4 ROADWAY EXCAVATION**

A. Topsoil shall be stripped from all proposed roadway areas. The roads shall then be constructed to the lines and grades as shown on the approved drawings.

B. No Construction required by this Section shall be permitted between November 1<sup>st</sup> and April 15th without written authorization from the Town Engineer.

**3.8.5 SUBGRADE**

A. The roadway shall be constructed to within +/-0.10 feet of the proposed subgrade elevation with the average subgrade within +/-0.02 feet of the proposed subgrade elevation.

B. Roadways shall be proof rolled prior to construction of the base course. A minimum 50,000 lb. tandem-axle truck shall be provided to drive slowly over the area to be inspected. Areas that show deflections greater than 1 ½ inches shall be repaired and pass proof rolling tests before construction may proceed. The Town Engineer and/or Highway Superintendent shall be present for and should be notified 24 hours prior to proof rolling.

### 3.8.6 SUB-BASE COURSE

A. Sub-base course construction required under this section shall be crushed stone or crushed gravel complying with the applicable provisions of the (WDOT) "Standard Specifications", Gradation No. 1.

B. Geotextile fabrics, where allowed by the Village Engineer for subgrade stabilization, shall conform to (WDOT) "Standard Specifications", Type SR.

### 3.8.7 BASECOURSE

A. Base course construction required under this Section may be either asphaltic base course, crushed stone or crushed gravel in accordance with Figures 1 and 2. Materials shall comply the applicable provisions of the (WDOT) "Standard Specifications", Gradation No. 1. Roadways shall be proof rolled prior to construction of the binder course or pavement section. A minimum 50,000 lb. tandem axle truck shall be provided to drive slowly over the area to be inspected. Areas which show deflections greater than 1 inch shall be repaired and pass proof rolling tests before construction may proceed. The Town Engineer and/or Highway Superintendent shall be present for and should be notified 24 hours prior to proof rolling.

### 3.8.8 PAVEMENT AND SURFACE COURSES

A. Pavement construction required under this Section may be either asphaltic pavement or concrete pavement in accordance with Figure 1. Materials shall comply with the (WDOT) "Standard Specifications". Gradation No. 1 shall be used for asphaltic binder course and Gradation No. 3 shall be used for asphaltic surface course. For primary asphaltic and other stabilized surfaces, compliance with the applicable provisions of the (WDOT) "Standard Specifications" is required.

B. In new construction, the final surface course shall be placed no later than 3 years and no earlier than 1 year from the time in which the base is placed, without written authorization from the Town Engineer.

C. Each lift of asphaltic pavement shall not exceed 2 1/2 inches.

### 3.8.9 COMBINATION CONCRETE CURB AND GUTTER

Curb and gutter construction where applicable, shall comply with the (WDOT) "Standard Specifications", and conform to a 36 inch Type D or Type L (See Figure 2) concrete curb and gutter, shown in the (WDOT) Standard Details. The sawing of the curb head to facilitate a driveway is at the discretion of the Town Engineer and written authorization is needed to do so.

### 3.8.10 STANDARD DESIGN METHOD FOR PAVEMENTS

When, in the opinion of the Town Engineer, the volume and composition of the traffic anticipated to be carried by the pavement can be estimated within reasonable limits and in all cases, where the roadway is designed as a four or more lane facility, the structural design for pavements shall be based on the latest revision of the (WDOT) Facilities Development Manual. However, in no case shall the design result in a pavement of lesser strength than those shown in Figure 1.

### 3.8.11 SPECIAL REQUIREMENTS FOR UNDERGROUND UTILITIES

#### A. Structure Adjustment

1. Where finished grade or alignment for existing underground structures, such as inlet catch basins, catch basins, manholes or valve vaults is affected by proposed work, the project drawings shall provide for the adjustment of such structures as required.
2. Where a project is to be constructed under two or more construction contracts, one or more which includes the construction of pavement, the contract documents for those contracts including paving work should provide for the adjustment of underground structures that may be constructed under other contracts as may be required to fit the proposed pavement.

#### B. Utility Crossing Protection

1. For new construction or when required by the Town Building Inspector, all concrete sidewalk, curb, gutter and driveways over excavated areas or utility trenches shall be reinforced with a minimum of two No. 4 bars, 12 inches on center for a length of 20 feet.

### 3.8.12 CULVERTS

- A. Where deemed appropriate, culverts are to be placed for the proper flow of water. Culvert size should be determined by an engineer and labeled appropriately on any applicable plan.
- B. The preferred material for culver pipe is dual wall HDPE (High-density polyethylene). CMP (Corrugated metal pipe) may be substituted by written engineer recommendation. All culverts must have end walls or flares.
- C. Culverts must be installed in accordance to the (WDOT) Construction and Materials Manual, Chapter 5 (Structures), Section 50 (Pipe Culverts).
- D. Residential driveway culverts must be a minimum of 12" in diameter.
- E. Commercial driveway culverts must be a minimum of 15" in diameter.
- F. Minor residential street culverts must be a minimum of 15" in diameter.
- G. Major residential street culverts must be a minimum of 18" in diameter.
- H. Design calculations will be required to verify sizing.
- I. Downstream culverts shall be no smaller than upstream culverts.

### 3.8.13 SIDEWALKS

All sidewalks shall be a minimum of 4 inches thick. Sidewalks shall be continuous through residential driveways with a minimum thickness of 6 inches through the driveway section. Sidewalk width shall be 4 feet or as determined by the Town Board when a greater width is justified on the basis of anticipated traffic. All public walks should be constructed approximately on both sides of the street and 1 foot outside the property line and meet the State of Wisconsin Handicapped Access Requirements.

### 3.8.14 BRIDGES

- A. All bridges shall meet the minimum requirements of state and federal law. In the event that it is decided by the Town Board that the construction of a bridge would be of a size and cost that it would create a hardship to the owner of the land required to build such bridge, then the Town Board may proceed to accept the road, complete as required above, except that part extending 100 feet on each side of said bridge.

This portion of the road shall be known as the "approach." The approach will be accepted incomplete, with the reservation that the Town will bill back to the owner a portion of the cost of construction of such bridge. The Town will proceed to build said bridge and approach with the

help of bridge aid, if available, and the balance not covered by the aid shall be billed back to the owner.

#### 3.8.15 AUTHORITY FOR HIGHER STANDARDS DETERMINATION OF APPLICABLE STANDARDS

A. Authority for higher standards. The road design standards, as stated above, are intended to be minimum design standards. The Town Board shall have the discretion to impose higher design standards, where in the opinion of the Town Board, local conditions require higher standards or anticipated traffic in quantity or quality will require higher standards.

B. Application for determination of applicable standards. Any person may apply to the Town Board to determine what design standards should apply in a particular location, giving the description of the proposed highway and proposed design standards being requested to be approved for any proposed highway being proposed to be built. No person shall commence construction of any highway anticipated to be turned over to the Town without having written approval of the proposed highway design signed by the Town Board and Town Engineer.

#### 3.8.16 FINAL INSPECTION AND ACCEPTANCE BY TOWN

A. Upon completion of the proposed highway, the Town Board will proceed to make final inspection. The Town may choose to utilize its Engineer for the purpose of review and recommendation of any corrective action(s) needed. The Town Board may accept or reject the road(s) as the case may be, at the discretion of the Engineer and/or Town Board. If the road(s) is (are) rejected, then corrections must be made as stated by the Town Board before final inspection will be made again. If final acceptance is made by the Town Board, the owner or owners will turn over to the Town a warranty deed, free and clear of any liens, necessary to convey free and clear title to the Town for the roadway(s).

## **Street Sign Specifications**

### **Sign Post**

- A. Sign post shall be square, 2" x 2", 14 gauge, full punch galvanized steel. Posts must be a minimum of 10' in length. 12' posts may be used in applications when deemed necessary per MUTCD standards.
- B. The base or post anchor shall be square 2.25" x 2.25" 12/14 gauge full punch galvanized steel. The base/anchor length shall be 36".

### **Signs**

- A. Sign blades for street identification signs shall be as follows:
  1. Sign height when placed on a road with a speed limit less than 45 mph is 6 inches.
  2. Sign height when placed on a road with a speed limit 45 mph or greater is 9 inches.
  3. Blades are to be of aluminum material.
  4. Blades that are 6" can be printed both sides.
  5. Blades that are 9" must be printed single sided only.
  6. Base sheeting must be green with white lettering and sheeting must be reflective material (high intensity).
- B. Regulatory signs must be to MUTCD standards for low volume roads.
  1. Stop signs must be a minimum of 30" x 30"
  2. Speed limit signs must be a minimum of 18" wide and 24" tall but may be larger as required by a specific plan.
  3. Signs must be made of high intensity reflective material as a minimum.
  4. Other signage is to be per approved engineering plans or MUTCD standards.

### **Hardware**

- A. All signage must be installed with stainless steel drive rivets.
- B. Signs may also be fixed to posts using bolt, washers and lock nut where deem.

**STREET CLASSIFICATION**

**MINIMUM PAVEMENT REQUIREMENTS**

Major Commercial

6" crushed stone or crushed gravel sub-base  
7" P.C. concrete with wire fabric  
-or-  
6" crushed stone or crushed gravel sub-base  
7" asphaltic base course  
1 1/2" binder course  
1 1/2" surface course

Industrial

6" crushed stone or crushed gravel sub-base  
8" P.C. concrete with wire fabric  
-or-  
6" crushed stone or crushed gravel sub-base  
8" asphaltic base course  
1 1/2" binder course  
1 1/2" surface course

Collector and  
Minor Commercial

6" crushed stone or crushed gravel sub-base  
6" P.C. concrete  
-or-  
8" crushed stone or crushed gravel sub-base  
4" binder course  
2" surface course

Local Street

9" crushed stone or crushed gravel basecourse  
2" binder course  
1 1/2" surface course

FIGURE 1

URBAN STREET GEOMETRIC CRITERIA

ROADWAY CLASSIFICATION	MAJOR COMMERCIAL	INDUSTRIAL	MINOR COMMERCIAL COLLECTOR	LOCAL
Right-of-way width	80 ft	66 ft.	66 ft.	66 ft.
Roadway width <sup>(1)</sup>	45 ft.	39 ft.	33 ft.	31 ft.
Sidewalk width <sup>(2) (1)</sup>	6 ft.	N/A	4 ft.	4 ft.
Curb type <sup>(3)</sup>	30"-TYPE D	30"-TYPE D	30"-TYPE D	30"-TYPE L
Number of traffic lanes <sup>(4)</sup>	4	2	2	2
Lane width	12 ft	12 ft.	15 ft	10 ft.
Parking	Both sides	N/A	N/A	One side
Minimum cut-de-sac pavement radius <sup>(5)</sup>	55 ft	55 ft.	N/A	45 ft.
Maximum cut-de-sac length <sup>(6)</sup>	1000 ft	1000 ft.	N/A	750 ft.
Minimum sight distance	200 ft	200 ft.	200 ft.	100 ft.
Maximum grade	6%	6%	8%	10%
Minimum grade	0.5%	0.5%	0.5%	0.5%
Design speed	30 mph	30 mph	40 mph	30 mph
Minimum center line radius <sup>(7)</sup>	300 ft.	300 ft.	300 ft.	100 ft.
Return radius	30 ft.	40 ft.	30 ft.	25 ft.
Crown	1.5%	1.5%	1.5%	1.5%

(1) Dimensions are measured back to back of curb.  
 (2) Minimum gutter flag depth shall be 8 inches.  
 (3) Cut-de-sac R.O.W. radius shall be 75 feet for commercial and industrial streets and 60 ft. for all others. (See Detail Exhibit D.)  
 (4) The combined length of the street and diameter of the cut-de-sac.  
 (5) To be introduced when the centerline deflects at any one point by more than 5 degrees. A tangent of at least 100 ft. shall be introduced between reverse curves on major and secondary streets.  
 (6) Sidewalk shall be placed on both sides of the street and within the public right-of-way, 1-foot from the property line unless otherwise approved by the Town.  
 (7) Sidewalk designated as bike path shall be a minimum width of 8 feet.  
 (8) Four (4) lanes required for traffic volumes over 15,000 ADT.

FIGURE 2

## RURAL STREET GEOMETRIC CRITERIA

ROADWAY CLASSIFICATION	MAJOR COMMERCIAL 80 ft.	INDUSTRIAL 75 ft.	MINOR COMMERCIAL COLLECTOR 66 ft.	LOCAL 66 ft.
Right-of-way width	48 ft.	30 ft.	26 ft.	22 ft.
Roadway width <sup>(1)</sup>	6 ft.	6 ft.	4 ft.	4 ft.
Shoulder width	2.5 ft.	2.5 ft.	2.5 ft.	2.5 ft.
Minimum ditch depth <sup>(2)</sup>	4	2	2	2
Number of traffic lanes <sup>(3)</sup>	N/A	55 ft.	N/A	45 ft.
Minimum cul-de-sac pavement radius <sup>(4)</sup>	N/A	1000 ft.	N/A	750 ft.
Maximum cut-de-sac length <sup>(4)</sup>	200 ft.	200 ft.	200 ft.	100 ft.
Minimum sight distance	6%	6%	8%	10%
Maximum grade	0.5%	0.5%	0.5%	0.5%
Minimum center-line grade	1.0%	1.0%	1.0%	1.0%
Minimum ditch grade	30 mph	30 mph	40 mph	30 mph
Design speed	300 ft.	300 ft.	300 ft.	100 ft.
Minimum center line radius <sup>(5)</sup>	30 ft.	40 ft.	30 ft.	25 ft.
Return radius	2.0%	2.0%	2.0%	2.0%
Crown	4.0%	4.0%	4.0%	4.0%
Shoulder Slope				

(1) Dimensions are measured edge of pavement to edge of pavement.

(2) As measured from centerline elevation.

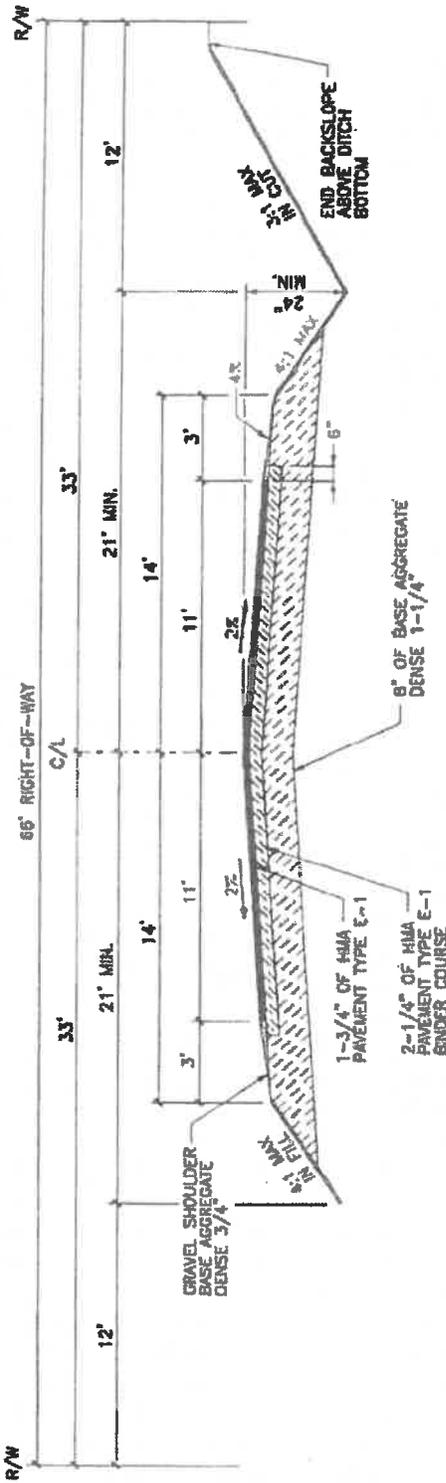
(3) Cul-de-sac R.O.W. radius shall be 75 feet for minor commercial and industrial streets and 65 ft. for all others.  
(See Detail Exhibit E.)

(4) The combined length of the street and diameter of the cul-de-sac.

(5) To be introduced when the centerline deflects at any one point by more than 5 degrees. A tangent of at least 100 ft. shall be introduced between reverse curves on major and secondary streets.

(6) Four (4) lanes required for traffic volumes over 15,000 ADT

FIGURE 3



TYPICAL CROSS SECTION FOR RESIDENTIAL ROADWAYS

N.T.S.

PROJECT NO.: 20040D15.01

DATE: 5/04

BY: MNP

PROJECT MGR.: MNP

SCALE: N.T.S.

FILE:

04/27/2004  
01:04:53 PM

L:\Jobs2004\20040015-06\CAD\_Site\dm\00\C\_C\_DO\_SECTION01.dgn

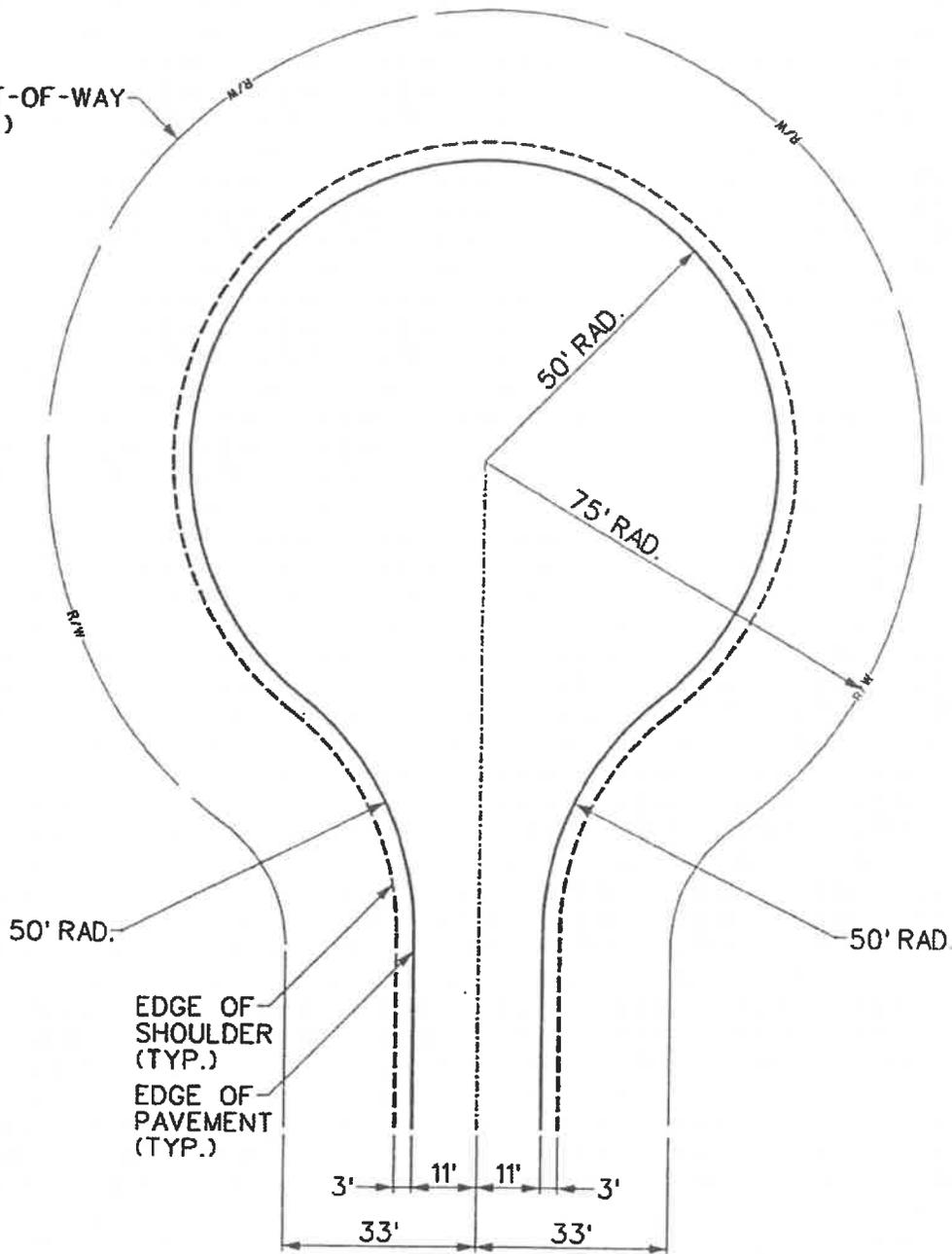


One Honey Creek Corporate Center  
125 South 84th Street, Suite 401  
Milwaukee, WI 53214-1470  
414 259-1500  
FAX 259-0037  
Web Site: www.gasol.com

TOWN OF LINN

TYPICAL ROAD SECTION

RIGHT-OF-WAY (TYP.)



PROJECT NO.: 20040015.13

DATE: 11/22/2004

BY: JRM

PROJECT MGR.: MNP

SCALE: 1"=20'

FILE:



One Honey Creek Corporate Center  
 125 South 84th Street, Suite 401  
 Milwaukee, WI 53214-1470  
 414 259-1500  
 FAX 259-0037  
 Web Site: www.gasai.com

TOWN OF LINN  
 TOWN STANDARDS  
 CUL-DU-SAC LAYOUT

01:19:40 PM L:\Jobs\2004\20040015\CAD\Site\dgn\00\Lin\_Turn\_Template\_2.dgn

Dated at the Town of Linn, Wisconsin, this 11<sup>th</sup> day of May, 2020.

TOWN OF LINN

BY: James R. Weiss  
James Weiss, Chairman

ATTEST

Rose Miller  
Rose Miller, Clerk

