RESOLUTION NUMBER 7118

WHEREAS, the City of Beatrice ("City") has the responsibility to protect the functionality and safety of its public street network; and

WHEREAS, a method of maintaining the integrity and intended functionality of the public street network is to apply basic tenants of controlling access between the public right-of-way and private developments in the form of an Access Management Policy; and

WHEREAS, the Mayor and City Council for the City of Beatrice desire to adopt an Access Management Policy setting forth objectives and parameters for access between the public right-of-way and private developments.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF BEATRICE, NEBRASKA:

SECTION 1. That the Access Management Policy, attached hereto as "Exhibit A" and incorporated herein by reference, be and is hereby approved and adopted.

SECTION 2. That all other resolutions or parts of resolutions in conflict herewith are hereby repealed.

RESOLUTION PASSED AND ADOPTED this 21st day of August, 2023.

Attest:

Erin Saathoff, CMC, City Clerk

Robert Morgan, Mayor

Exhibit "A"

CITY OF BEATRICE

ACCESS MANAGEMENT POLICY

December 2020

BEATRICE
STAKE YOUR CLAIM

PREPARED BY JEO CONSULTING GROUP
FOR THE CITY OF BEATRICE, NEBRASKA

ACCESS MANAGEMENT POLICY

Beatrice, Nebraska

December 17, 2020

For more information, contact:
City of Beatrice
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1.0 Introduction

The City of Beatrice has the responsibility to protect the functionality and safety of its public street network. One of the methods of maintaining the integrity and intended functionality of the public street network is to apply the basic tenants of controlling access between the public right-of-way and private developments. This document is intended to serve as an educational, as well as a regulatory, guideline for the design and placement of driveway access on the public street network supplementary to the current City of Beatrice ordinances and design standards. Compliance with these guidelines to the satisfaction of the City Engineer will be required before the issuance of encroachment permits needed to construct and open new development access or modify an existing access to the public right-of-way

City Engineer Review and approval of access will be required under the following conditions:

1. All new driveways
2. New subdivision access
3. Developed Properties where:
    a. Land use is changing.
    b. Increases in parking and/or building areas are proposed.
    c. A change in the operation and geometry of an existing driveway is proposed.
    d. Proposed site operational changes that will significantly increase traffic to/from the development.

This policy applies to all roadway right-of-way as well as parcels abutting the roadway right-of-way within the City of Beatrice. It should be noted that in some cases the public roadway within the City of Beatrice will fall under the jurisdiction of multiple governmental entities, and it is the responsibility of the developer to research and coordinate access management requirements and guidance of those additional agencies. These could include, but not limited to, Gage County Planning and Zoning and Nebraska Department of Transportation Right-of-Way Permitting.

1.1 Definition and Purpose of Access Management

Access management, as defined by the Transportation Research Board (TRB) Access Management Manual, 2nd Edition, is the coordinated planning, regulation, and design of access between roadways and land development. The purpose of access management is to apply a wide range of design and planning methods to promote the efficient and safe flow of all modes of transportation by reducing conflicts on the street network. Examples of access management techniques include the following:

- Driveway designs that minimize conflicts at the entry/exit to the public street network and accommodate operating speeds consistent with the adjacent roadway.
- Limitation of direct access to major roadways, which can reduce operational efficiency and safety, by encouraging driveway sharing, on-site cross access, and taking access off the minor cross street.
- Enforcement of appropriate driveway spacing to reduce conflict points for drivers.

- Restriction of driveways within the vicinity of signalized/unsignalized intersections to reduce intersection conflicts and crash risks.
- Alignment of driveways across from each other to reduce left-turn conflicts and crash risks.
- Construction of left- and right-turn lanes, where warranted, that will remove slow or stopped vehicles from the through lanes.
- Enforcement of appropriately spaced signal control at intersections to promote efficient traffic throughput.
- Construction of medians to limit exposure of through vehicles, pedestrians, and bicycles to left-turning vehicles into a facility.

1.2 Goals

The goals of this Access Management Policy include the following:

- Define roadway functional classification and hierarchy within the City of Beatrice.
- Establish driveway, intersection, and median opening spacing guidelines.
- Establish acceptable driveway geometry and design standards.
- Define appropriate access at properties abutting alleys.
- Promote joint and cross access between adjacent properties.
- Establish auxiliary lane warrants and design standards.
- Define a Traffic Impact Study process and requirements.
- Define a consistent approval process for encroachment permits to the public right-of-way.
- Provide a deviation request and temporary access policy.

2.0 Access Management Policy

The following sections define the access management policies of the City of Beatrice going forward from the adoption date, including a Functional Classification System, Driveway and Intersection Spacing, Driveway Geometry, and Auxiliary Lane Requirements.

2.1 Functional Classification System

Defined roadway functional classifications serve as the foundation of an access management program. Defining roadway classification helps establish the planned function of that roadway and subsequently defines the priority of access versus throughput. It should be noted that functional classes do not necessarily reflect current characteristics of a roadway, but a planned function of the street, and therefore a category can have varying traffic volumes, especially where adjacent development has not occurred yet. Five levels of street classification have been defined for the street network within the City of Beatrice: Freeway/Expressway, Major Arterial, Other Arterial, Collector, and Local per the NDOT State Functional Classification Maps by City (see definitions of each in the Glossary). The NDOT City of Beatrice road classification map is shown in Figure 1. It should be noted that this map will be subject to periodic updates, and the applicant shall consult the most current version. The applicant shall verify the latest map with the City of Beatrice and NDOT.

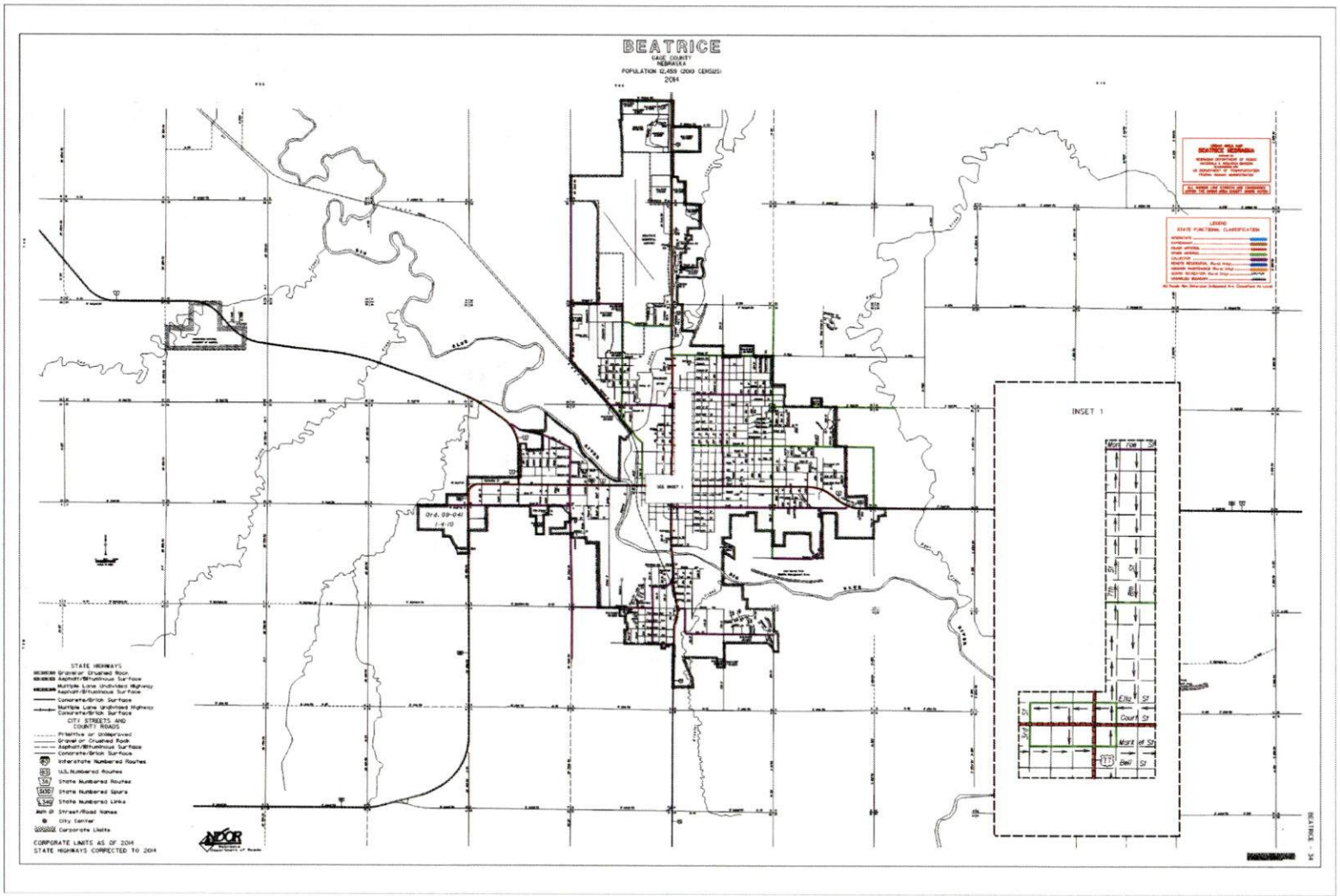


Figure 1: City of Beatrice Road Classification Map (Source NDOT Road Classification Map)

2.2 Driveway and Intersection Spacing

The following sections provide policy and guidance on maintaining appropriate corner clearances, driveway spacing, and signalized/unsignalized intersection spacing.

2.2.1 Signalized and Unsignalized Intersection, Driveway, and Median Opening Spacing

Every intersection has both a physical area and a functional area. The functional area of an intersection extends both upstream and downstream from the physical intersection where driver behavior is dictated by the intersection operations. Furthermore, the more conflicts and decision points introduced within these areas, the more likely intersection operation will be less efficient and safe. One way to reduce conflicts and decision points is to restrict the placement of driveways and intersections within these functional areas which are defined by corner clearance. Corner clearances are defined as a minimum distance between an intersection (measures from the curb to curb) and an upstream or downstream access point meant to limit encroachment into an intersection's functional area. Calculated functional areas of intersections are primarily dependent on operating speeds which, in turn, determine perception-reaction times, deceleration distances, and queue storage. Based on these concepts, minimum intersection and driveway spacing are summarized in Table 1 by functional classification and posted speed.

Table 1: Spacing Standards for Intersections and Driveways (Measured Centerline to Centerline)[1]

Minimum Intersection/Driveway Spacing (Feet)[1]					
Posted Speed (MPH)	Expressway	Arterial[2]	Other Arterial[2]	Collector[3,4]	Local[4]
25	NA	660	150	100	50
30	NA	660	330	100	50
35	NA	660	330	125	50
40	NA	1320	660	150	NA
45	2640	1320	660	180	NA
50	2640	1320	660	NA	NA
55	2640	1320	660	NA	NA

[1]In some cases, existing conditions such as short block lengths that tend to occur in Central Business District Areas may preclude the feasibility of compliance with these spacing thresholds. These situations will require consideration

[2]May be partial access only.

[3]Commercial/Industrial Driveways Only. Single residences will be allowed one driveway per resdiential lot.

[4]Distance from adjoining public street. Access will be allowed to individual properties, but shall not be less than 25' to back of curb of public street.

Signals spaced too closely can significantly increase delays and travel times especially when approach queues back up through an adjacent signal. Therefore, to ensure efficient flow and

progression on signalized street corridors, minimum signal spacing requirements have been established and are shown as part of Table 1.

Table 2 Desirable and Minimum Signal Spacing

Roadway Classification	Preferred Signal Spacing (ft)	
	Desireable Spacing	Minimum Spacing
Arterial/Other Arterial	2,640	1,320
Collector	2,640	660
Local	NA[1]	

[1]In some cases, existing conditions such as short block lengths that tend to occur in Central Business District Areas may preclude the feasibility of compliance with these spacing thresholds. These situations will require consideration on a case by case basis and coordiantion with the City Engineer.

[2]Typically signalized corridors and raised medians are not present on local streets.

2.2.2 Offset of Opposing Driveways

Opposing driveways with poor offsets tend to create opposing left-turn conflicts which can lead to crashes. An example of this left-turn conflict potential is shown in Figure 2.

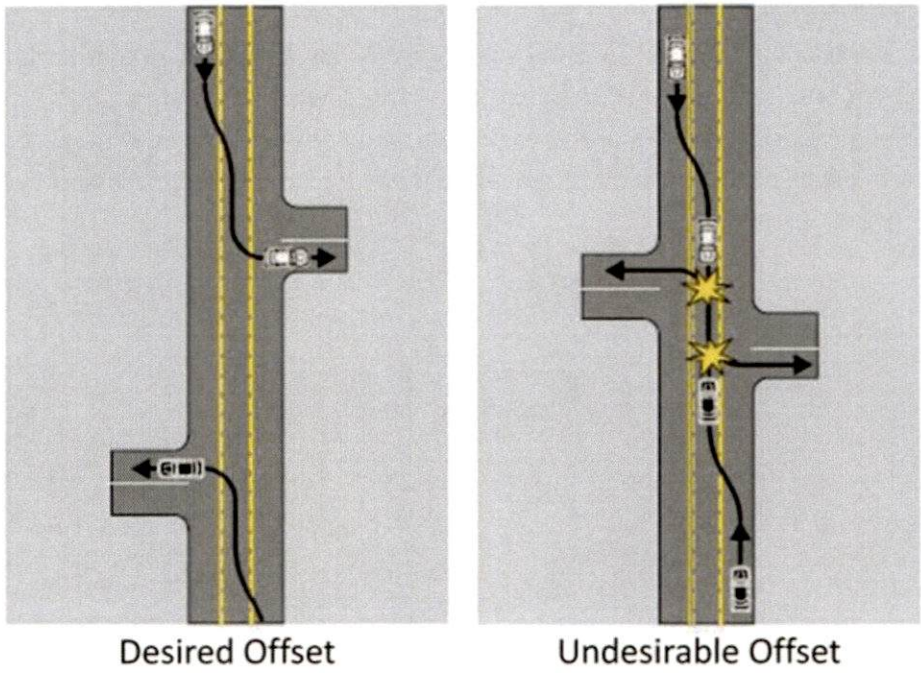


Figure 2: Opposing Driveway Offsets
Source: FHWA's Access Management in the Vicinity of Intersections

It should also be noted that opposing driveways should be offset in a manner that avoids overlapping left-turn movements. Figure 2 also indicates the desired direction of offset versus the non-desirable condition. To avoid left-turn conflicts, driveways should be aligned with each other where possible or, if the alignment is not feasible, spaced appropriately based on the operating speed of the roadway. Table 3 provides minimal spacing for opposing driveways.

Table 3: Minimum Offset for Driveways on Opposite Sides of the Roadway[1]
(Measured Centerline to Centerline)

ROADWAY SPEED LIMIT (MPH)	OFFSET (FT)
<30	175
35	330
40	660
50	990
>55	1320

[1]Not applicable to single-family or duplex residential properties.

2.2.3 Joint, Cross, and Side Street Access

Shared access points shall be encouraged where feasible, especially on undeveloped corridors. In some situations, temporary access may be granted with the understanding that as adjacent properties develop, the temporary access will be removed and replaced with shared driveways. This concept is depicted in Figure 3. Temporary access procedures are discussed in further detail in Section 4.2

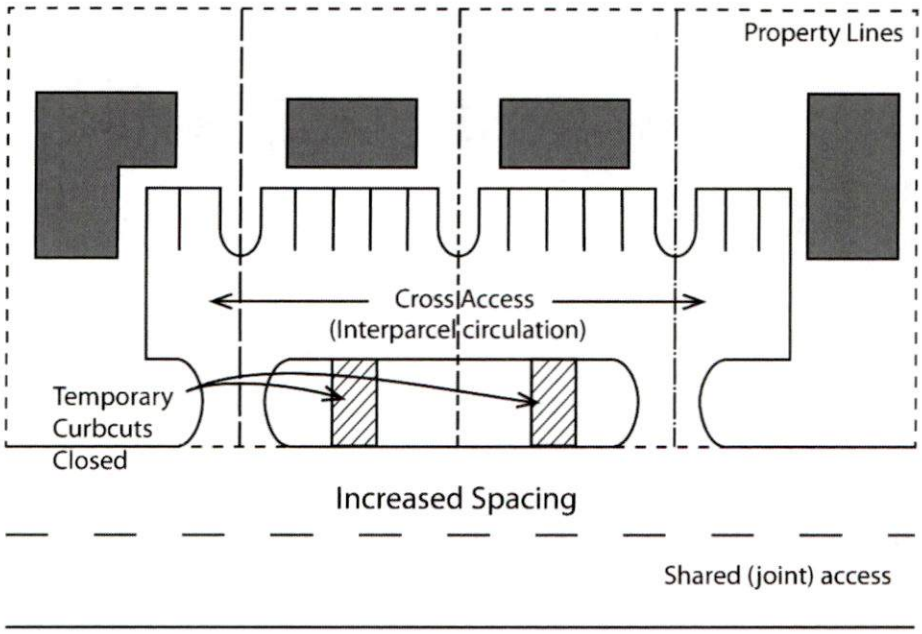


Figure 3: Cross Access and Driveway Sharing Concept

Furthermore, if the opportunity is available, direct access shall be encouraged to a side collector or local street as opposed to taking access directly off an arterial roadway. These strategies are intended to minimize the number of access points along a corridor, thereby increasing roadway safety and operating efficiency.

2.2.4 Alleyway Access

Alleyways offer abutting properties the opportunity to have effective access that is much more desirable compared to direct driveway access to an arterial or collector roadway. New developments or redevelopments proposed for parcels abutting alleyways will be required to take one full access off the alleyway and not off of the main roadway. Proposals for additional access on existing developments abutting alleys that currently have front and alley access will not be permitted.

2.3 Driveway Construction

To facilitate safe and efficient operations between the public right-of-way and adjacent properties, new driveways should adhere to minimum standards of design. Figure 4 shows typical commercial

driveway standards and their applicable reference sections providing a more detailed discussion. Figures 5 and 6 indicate standard residential with offset sidewalk and curbside sidewalk respectively.

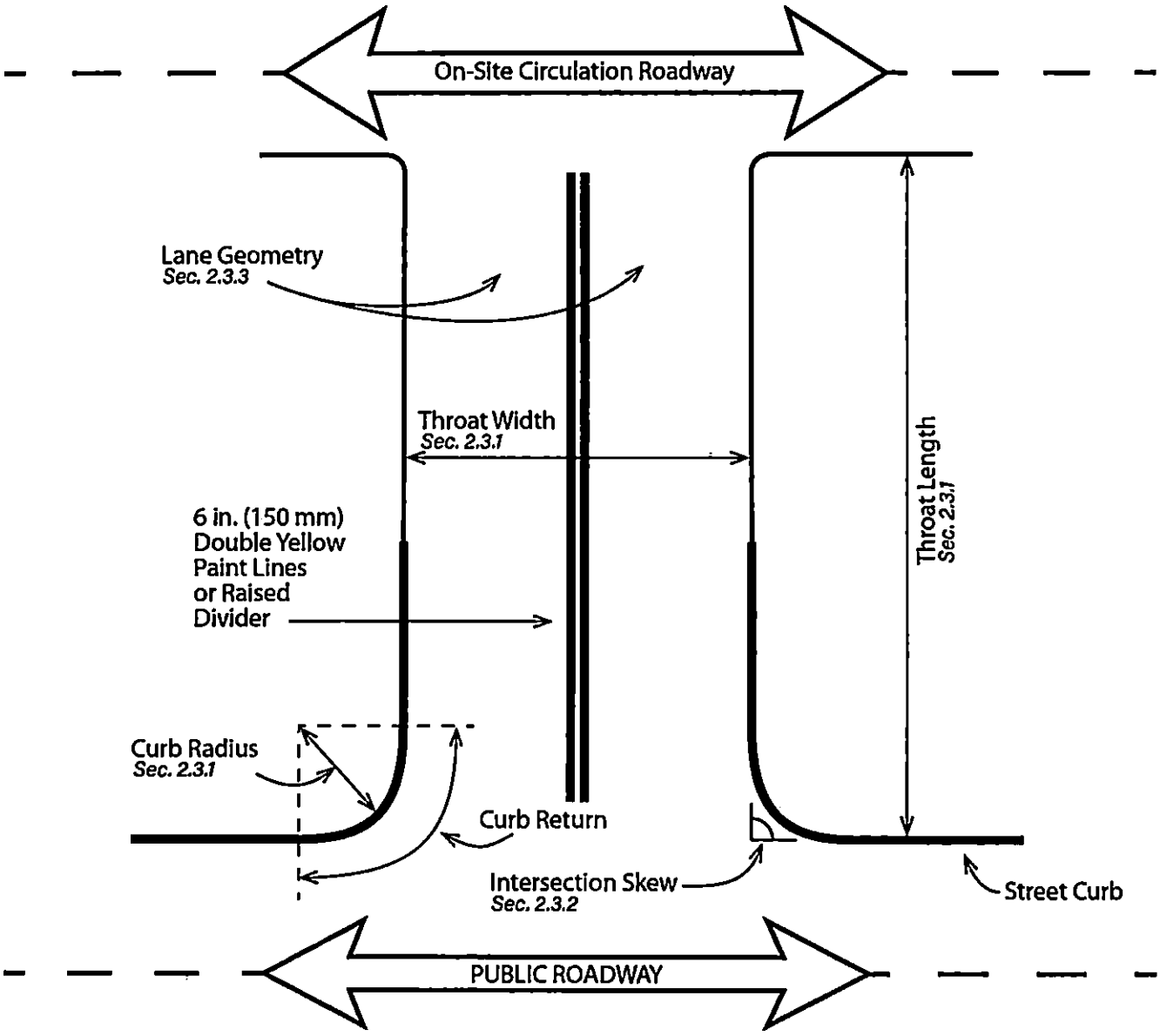
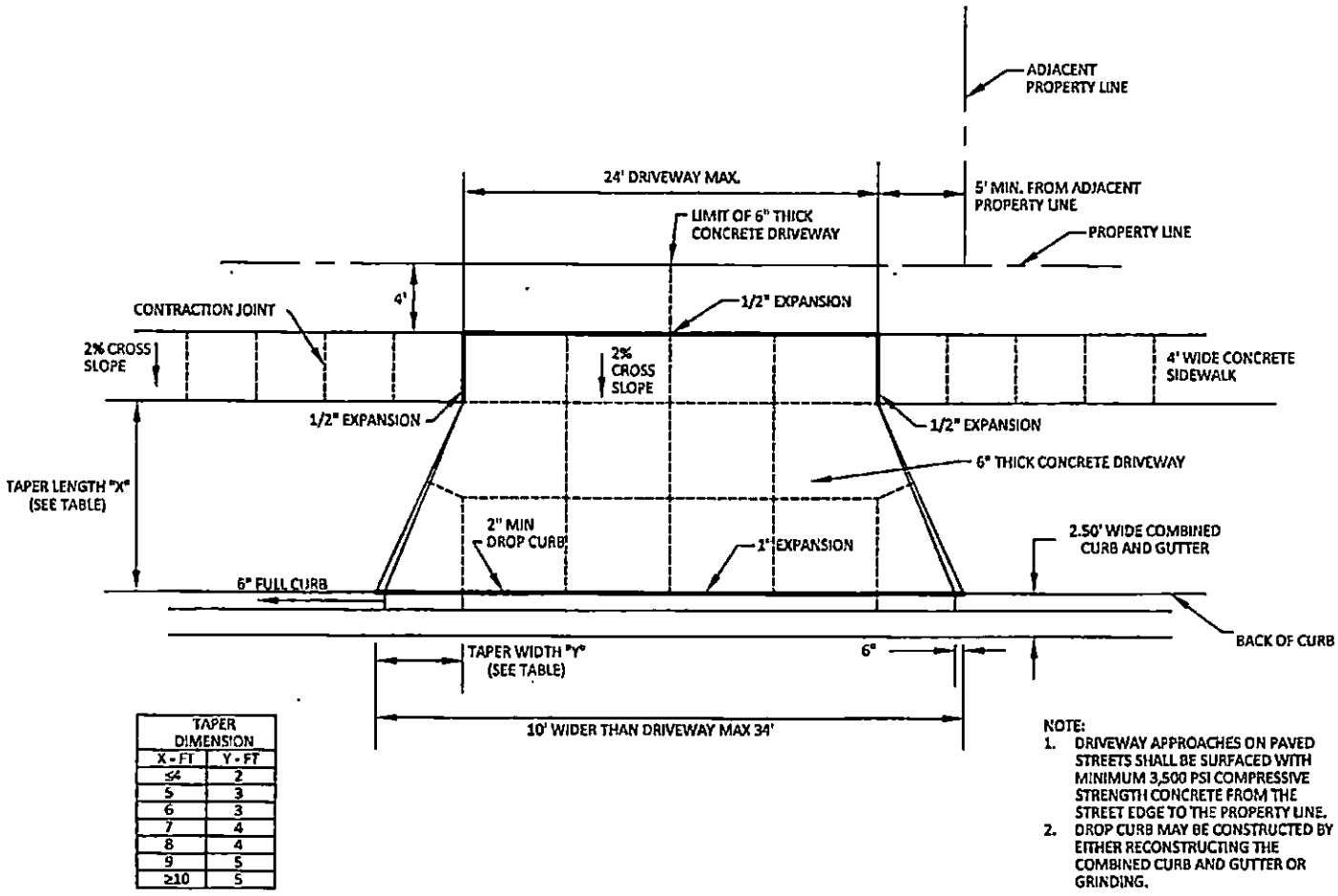


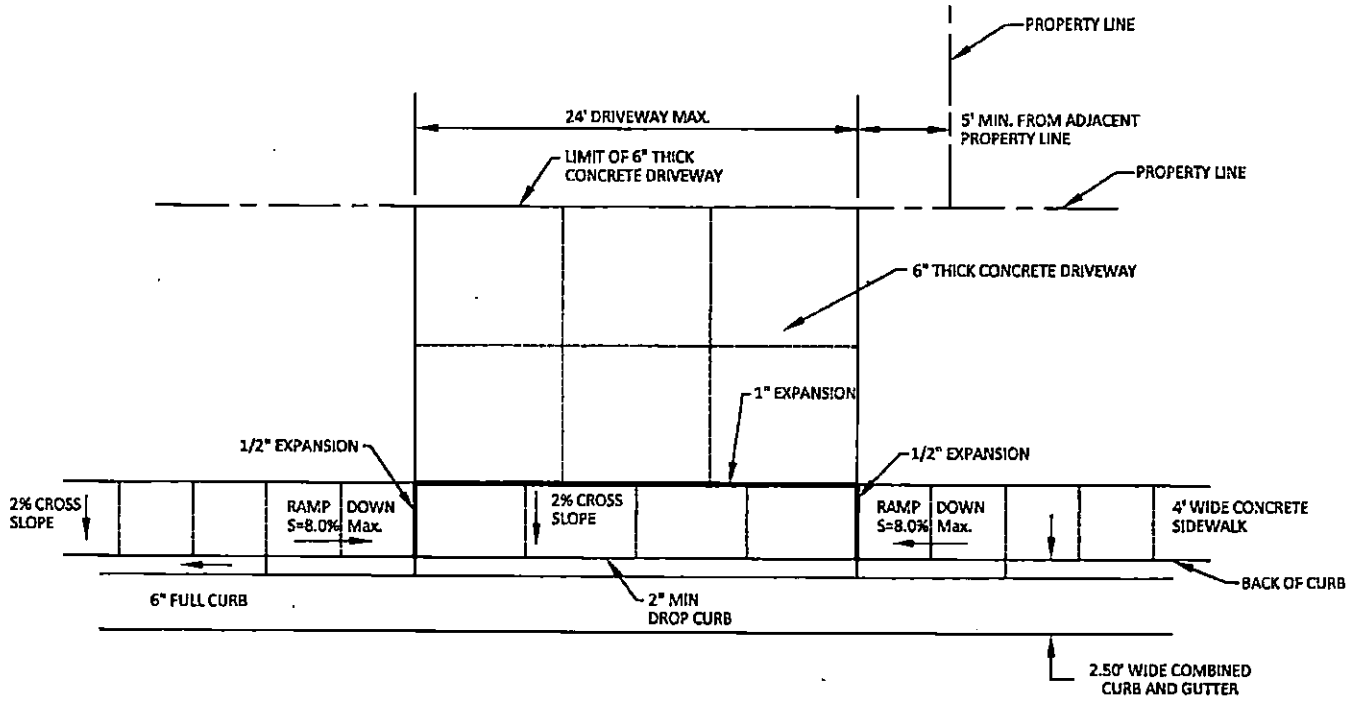
Figure 4: Commercial Driveway Design Components



TAPER DIMENSION	
X - FT	Y - FT
≤4	2
5	3
6	3
7	4
8	4
9	5
≥10	5

NOTE:
1. DRIVEWAY APPROACHES ON PAVED STREETS SHALL BE SURFACED WITH MINIMUM 3,500 PSI COMPRESSIVE STRENGTH CONCRETE FROM THE STREET EDGE TO THE PROPERTY LINE.
2. DROP CURB MAY BE CONSTRUCTED BY EITHER RECONSTRUCTING THE COMBINED CURB AND GUTTER OR GRINDING.

Figure 5 Standard Residential Driveway with Offset Sidewalk



NOTE:
1. DRIVEWAY APPROACHES ON PAVED STREETS SHALL BE SURFACED WITH MINIMUM 3,500 PSI COMPRESSIVE STRENGTH CONCRETE FROM THE STREET EDGE TO THE PROPERTY LINE.
2. DROP CURB MAY BE CONSTRUCTED BY EITHER RECONSTRUCTING THE COMBINED CURB AND GUTTER OR GRINDING.

Figure 6 Standard Residential Driveway with Attached Sidewalk

2.3.1 Throat Width/Length/Curb Radii

Driveway approaches on paved streets shall be surfaced with a minimum of 3,500 psi compressive strength concrete from the street edge to the property line. The minimum thickness of driveway approaches for single or two-family dwellings is 6" from the street edge to the property line. The minimum thickness of commercial driveway approaches shall be 6" from the street edge to the property line, and a minimum 3,500 psi compressive strength. The City Engineer may require greater thickness and/or strength for commercial driveways depending on the geometry of the approach, anticipated traffic volumes, and number and type of trucks using the driveway.

Driveway approaches on unpaved streets may be surfaced with crushed rock from the street to the property line. At such time as the street is paved, the driveways shall be surfaced with concrete in accordance with these standards.

All new driveways shall be designed in compliance with minimum/maximum throat widths, minimum throat lengths, and minimum/maximum curb radii and are dependent on land use type (residential, commercial, or industrial use). Table 4 summarizes minimum and maximum widths based on a two-way/two-lane driveway configuration. It should be noted that if a Traffic Impact Study is required (See Section 3.0), driveway throat width and length should be based on operations and queue capacity analyses and recommended lane geometry.

Table 4: Driveway Geometry Requirements

Land Use	Max. Throat Width (ft)	Min. Throat Length (ft)	Taper	Curb Radii (ft)
Residential				
Single Family/Duplex	24	Back of Curb to ROW	2:1 to a Max of 5'	5
Multi-Family	24	25	NA	15
Commercial	30	50[2]	NA	25
Industrial	Varies[3]	Varies[3]	NA	Varies[3]

[1]Throat widths shown assume a two-lane driveway (One in/One out) two lane driveways are assumed to be associated with larger trip generating land uses and those should be designed based on a Traffic

[2]Applies to most commercial land uses except those indicated in Table 5.

[3]Driveway dimensions for industrial land uses should be developed on a case by case basis and should be designed based on an appropriate design vehicle. The developer shall coordinate design with the City Engineer.

Table 5 indicates guidance for throat lengths for typical commercial uses. Throat length is measure from the curb line of the public roadway to the edge of the first on-site circulation roadway.

Table 5 Recommended Throat Lengths for Special Land Uses

Type of Use	Minimum Throat Length (ft)	
Financial Institution - Electronic Teller	55'	
Financial Institution - Personal Teller	100'	
Car Wash - Self Service	100' at entrance	
	20' perbay at exit	
Drive-Through Resteraunt	120' from menu board	
Drive-Through Coffee Shop	Driver Side Service	100' from menu board
	Passenger Side Service	55' from menu board
Drive-Through Pharmacy	55' per lane	
Service Stations	Service Islands	55' per pump lane
	Service Bays	20' per bay
	Quick Lube/Oil Change	44' per bay
	4 or more pump islands side by side 18' apart	30' per lane
Gated Parking Lot Entrance	22' from property line	
Garage Unit or Overhead Door (Category C and Above Only)	22' per door	

2.3.2 Skew

Ideally, all new driveway construction shall incorporate a 90-degree skew. However, if field conditions make a 0-degree skew infeasible, a deviation request will be required, and acceptance will be needed from the City Engineer. This procedure is discussed in Section 4.0 (Variance Procedure)

2.3.3 Lane Geometry

In most cases, one-way driveways will be expected to be a single lane and two-way driveways will be assumed to incorporate one entry and one exit lane. Furthermore, driveway geometry shall avoid offsetting lane alignment between driveways across from one another. Therefore, proposed driveway geometry incorporating medians shall be evaluated on a case by case basis and coordinated with the City Engineer. However, for developments that are expected to generate greater than 100 total peak hour trips, the number of entering and exiting lanes, including left-turn and right-turn lanes, shall be based on operations and queue capacity analyses as part of a Traffic Impact Study. (See Section 3)

2.3.4 Driveway Slopes

The driveway approach surface shall meet the sidewalk at sidewalk grade. The cross-slope of the sidewalk shall not exceed 2%. In general, the change in grade between the street cross-slope and driveway grade should not exceed 8%. For accesses onto arterial or collector streets, the maximum grade change should not exceed 3% for a high-volume driveway (multi-family or commercial) or 6% for a low volume driveway (single-family or duplex)."

2.3.5 Culverts

Along roads improved with rural-type cross-sections and a parallel ditch, a drainage culvert shall be installed under the driveway approach. The length, size, grade, and location of the culvert shall be determined by the City Engineer and in accordance with the City of Beatrice Drainage Criteria Manual. The culvert is to be purchased by the property owner and installed by the City at the owner's cost. The maximum number of residential driveways are 1 per minimum lot width allowed per zone classification.

2.3.6 Sight Distance

Appropriate sight distance should be provided at new driveways and intersections to ensure drivers can see conflicting traffic and pedestrians to make safe turning and through maneuvers. Table 6 summarizes the minimum (stopping sight distance) and the preferred intersection sight distances that should be accommodated for any new driveway and Figure 6 graphically depicts Dimensions "A" and "B" for intersection sight distance. If stopping sight distance cannot be provided, warning signs per the latest MUTCD shall be required and provided by the project developer.

Table 6 Driveway Sight Distance Guidance

Design Speed (Posted Speed + 5 MPH)	"A" Dimension					Minimum "B" Dimension
	Minimum[1]	2 Lane Major Street		4 Lane Major Street		
		Undivided	w Median/TWLTL	Undivided	w Median/TWLTL	
25 MPH	155 feet	290 feet	295 feet	295 feet	315 feet	14.5 Feet from Traveled Way
30 MPH	200 feet	335 feet	355 feet	355 feet	375 feet	
35 MPH	250 feet	390 feet	415 feet	415 feet	440 feet	
40 MPH	305 feet	445 feet	470 feet	470 feet	500 feet	
45 MPH	360 feet	500 feet	530 feet	530 feet	565 feet	
50 MPH	425 feet	555 feet	590 feet	590 feet	625 feet	
55 MPH	495 feet	610 feet	650 feet	650 feet	690 feet	
60 MPH	570 feet	665 feet	705 feet	705 feet	750 feet	

[1]Stopping Sight Distance

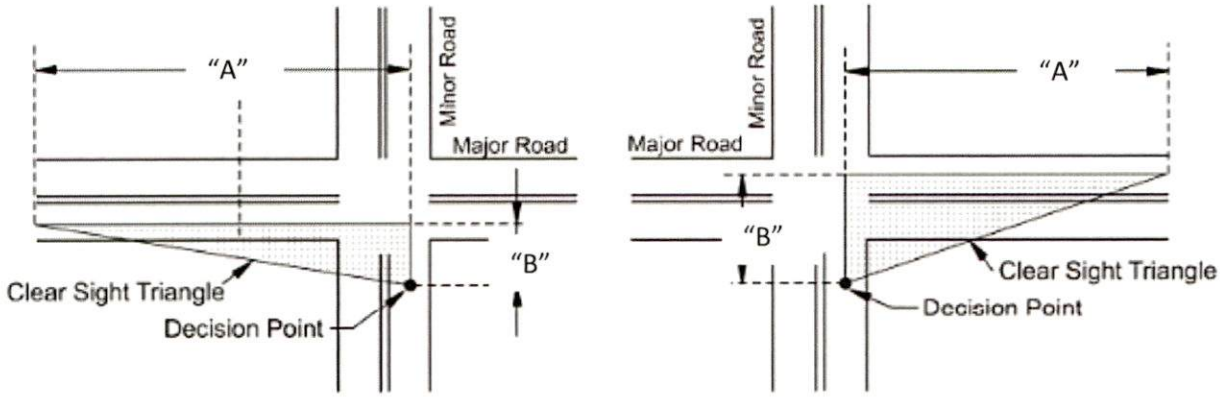


Figure 7 Graphical Representation of Dimension "A" and "B" for Intersection Sight Distance

2.3.7 Site Obstructions

If preferred or minimum intersection sight distance discussed in Section 2.3.6 is not feasible, the following section outlines absolute minimum site obstruction thresholds around intersection and driveway corners. Per the Beatrice City Code (Chapter 23, Article IV, Section 23-101), It shall be unlawful for any person to install, plant, place, set out or maintain, or to allow to be installed, planted, placed, set out or maintained, or to permit to exist any tree, hedge, shrubbery, plant, natural growth, sign or other obstruction to the view within the sight triangle, that being the triangular area bounded by a diagonal line joining points measured thirty (30) feet from the intersection point of the tangent lines of the curb or traveled way, on a property at any corner formed by intersecting streets, which is higher than two (2) feet six (6) inches above either:

1. The top of the curb return at the applicable corner of the intersection; or
2. The nearest roadway surface, where there is no curb.

Furthermore, any obstruction maintained or existing in violation of this section shall be deemed a public nuisance; however, the City Engineer may enlarge the sight triangle beyond thirty (30) foot diagonal lines for a particular intersection if he/she determines that the topography of the land near that intersection is such that a thirty (30) foot sight triangle would not provide sufficient visibility. The 30-foot triangle is shown in Figure 8.

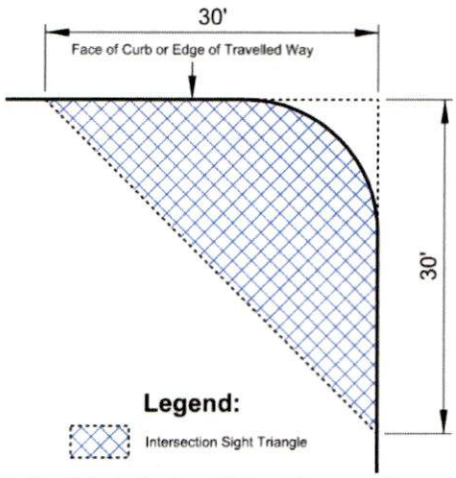


Figure 8 Minimum Sight Triangle for Sight Obstructions per Beatrice City Code

Except as permitted by Beatrice Code, sections 23-81 and 23-81.1, it shall be unlawful for any person to plant any street tree or agricultural crop closer than:

1. Fifteen (15) feet to the back of any curb or closer than fifteen (15) feet to the road surface along streets having no curbs.
2. Three (3) feet to the edge of any sidewalk.
3. No street tree and agricultural crop shall be planted closer than thirty (30) feet from any street corner, measured from the point of the nearest intersection of curbs or curb lines.

Street trees and agricultural crops shall not be planted upon any alley.

2.4 Auxiliary Lane Requirements

Auxiliary lanes such as left-turn and right-turn lanes generally improve operations and safety on streets, especially on high-speed facilities. Turn lanes effectively move slower moving and stopped traffic out of the higher speed through movements, thereby improving efficiency and reducing the risk for rear-end crashes.

2.4.1 Left and Right-Turn Requirements

Table 7 summarizes when a left and/or right-turn lane should be provided at unsignalized approaches to intersections and driveways.

Table 7: Left-Turn and Right-Turn Lane Requirements at Uncontrolled Intersections

SPEED LIMIT	TURN VOLUME (VPH)[1]			
	Left Turn Lane		Right Turn Lane	
	Two-Lane	Four-Lane	Two-Lane	Four-Lane
≤30 MPH	45	55	45	55
35-40 MPH	35	45	40	45
45-55 MPH	25	35	35	40

[1]Turn volume shown or greater
VPH = vehicles per hour

Left and right-turn lanes at stop and signal-controlled approaches will be determined on a case by case basis by analyzing the 95th percentile queues expected for a horizon year should a development require a traffic impact study.

2.4.2 Auxiliary Lane Lengths

Auxiliary lane length requirements are dependent on facility speed limits, queue demands, and intersection approach control (uncontrolled, stop sign, yield, or signal). Auxiliary lane lengths include storage length and taper length as shown in Figure 9.

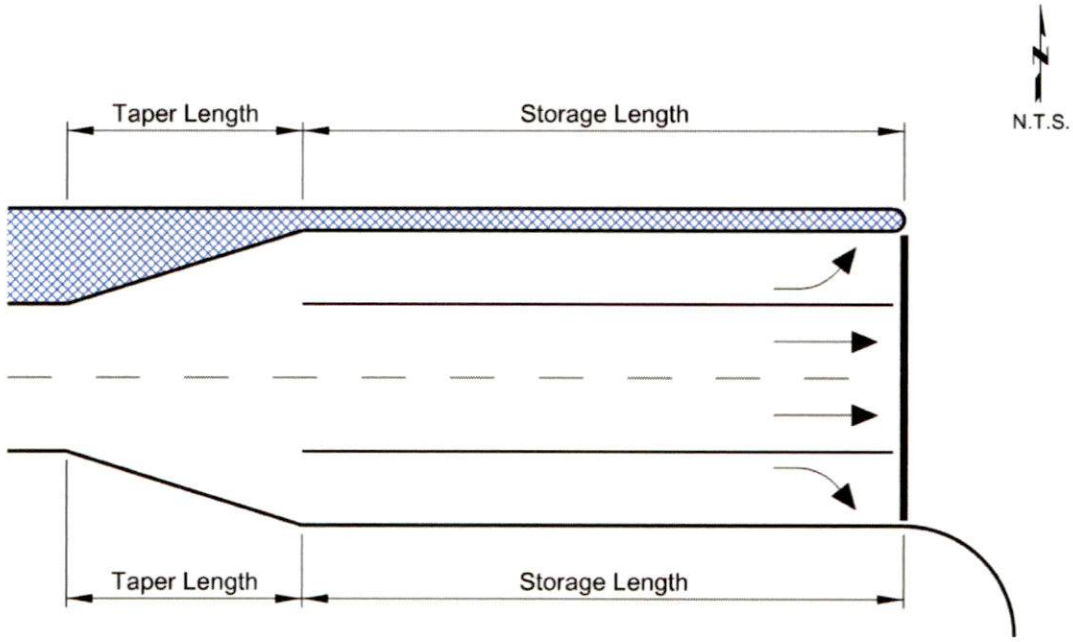


Figure 9 Auxiliary Lane Length Components

Both minimum and preferred left-turn lane lengths for uncontrolled approaches are shown in Table 8. Minimum lengths are based on deceleration lengths required to slow from the signed speed limit to a complete stop assuming a deceleration rate of 9.9 ft/s^2. Preferred storage lengths assume a deceleration rate of 6.5 ft/s^2, use of the 100-foot taper for deceleration, and a 75-foot queue storage

length. Therefore total lane lengths include storage length, deceleration length, taper length requirements.

Table 8: Left-turn Lane and Taper Length Requirements

SPEED LIMIT	LEFT-TURN STORAGE LENGTH (FT)		TAPER LENGTH (FT)
	Minimum[1]	Preferred	
<25 MPH	100		100
30 MPH	100	150	
35 MPH	150	200	
40 MPH	175	250	
45 MPH	225	325	
50 MPH	300	400	
55 MPH	350	475	
60 MPH	400	575	

[1]All proposed lane lengths less than preferred shall be coordinated with and accepted by the City Engineer
[2]A 12-foot wide lane was assumed.

Both minimum and preferred right-turn lane lengths for uncontrolled approaches are shown in Table 9. Minimum lengths are based on deceleration lengths required to slow from the signed speed limit to a 15 mph turning speed assuming a deceleration rate of 9.9 ft/s^2. Preferred storage lengths assume a deceleration rate of 6.5 ft/s^2, use of the 100-foot taper for deceleration.

Table 9: Right-Turn Lane and Taper Length Requirements

SPEED LIMIT	RIGHT-TURN STORAGE LENGTH (FT)		TAPER LENGTH[2] (FT)
	Minimum[1]	Preferred	
<25 MPH	100		100
30 MPH	100	125	
35 MPH	100	150	
40 MPH	100	200	
45 MPH	100	225	
50 MP	150	300	
55 MPH	175	350	
60 MPH	225	425	

[1]All proposed lane lengths less than preferred shall be coordinated with and accepted by the City Engineer
[2]A 12-foot wide lane was assumed.

Left- and right-turn lane lengths at stop and signal-controlled approaches will be determined on a case by case basis should a development require a traffic impact study.

2.5 Mid-Block Crosswalk Guidance

Ideally, pedestrian crosswalks should be located at controlled legs of intersections. However, there are times when pedestrian crossings are infrequent (spaced less than 400 feet apart) and current pedestrian routes are already occurring at mid-block locations. Mid-block pedestrian crosswalks shall only be considered if the following criteria are satisfied:

1. If Average Daily Traffic (ADT) is 12,000 vehicles per day or less or less than 15,000 ADT on multi-lane roadways if a raised pedestrian refuge median is provided.
2. On roads with speed limits less than 40 mph.
3. There must be a minimum pedestrian crossing volume of 25 pedestrians per hour for at least four hours on a typical day.
4. There must be adequate sight distance for pedestrians and motorists.
5. Mid-block crosswalks shall be located at least 100 feet from the nearest side street or driveway to allow turning vehicles to safely yield to crossing pedestrians.

Beyond the satisfaction of the above criteria, all proposed mid-block pedestrian crosswalks shall be coordinated with the City Engineer for final concurrence. Any mid-block pedestrian crosswalk that is accepted by the City, shall conform to local signing and striping standards, MUTCD guidance (Sections 2c.50 Non-Vehicular Warning Signs and 3B.18 Crosswalk Markings).

3.0 Traffic Impact Study Procedure

Traffic Impact Studies (TIS) are conducted for the following purposes:

1. To determine potential impacts to the adjacent transportation network caused by redevelopment or new development that generates significant traffic demands.
2. Identify any deficient operational, geometric, and/or safety conditions related to proposed site impacts.
3. If required, assess the need for the project developer to construct and/or contribute to mitigation measures.

3.1 Study Thresholds

A TIS will be required if the development is expected to generate 100 (total entering and existing traffic) peak hour trips or more during the adjacent roadway's peak hour. Trip generation should be determined based on the latest Institute of Transportation Engineers (ITE) published Trip Generation Manual. In many cases, the Trip Generation Manual provides the option to apply either an average or an equation-based rate to calculate trip generation. If both average and equation-based rates are provided for given land use, the City of Beatrice will require the greater of the two options. Any alternative trip generation methodology such as site-specific data collection shall be coordinated and approved by the City Engineer. If a site is expected to equal or exceed TIS thresholds the development project shall coordinate a TIS scope with the City Engineer (See Section 3.2) The project developer shall provide trip generation calculations and a preliminary site plan to the City Engineer for TIS need determination. If the City Engineer requires a TIS, the preparation of the study shall be the responsibility of the project developer and should be prepared by a currently licensed Nebraska Professional Civil Engineer.

3.2 Scoping Procedure

If trips to and from a proposed development are expected to exceed 100 peak hour trips, the project representative shall coordinate a TIS scoping meeting with the City Engineer. The scoping meeting can either be via telephone conference call or in-person and should cover the following:

1. A review of the current proposed site plan
2. Determination of required study intersections
3. Data collection requirements
4. Validate trip generation calculation
5. Identification of horizon years for analysis
6. Discussion of near-term, concurrent projects, and traffic demand growth rate methodology needed to develop background traffic.
7. Required traffic analysis and methodology

It should be noted that additional discussions and scope requirements not mentioned above, may be added at the discretion of the City Engineer.

Upon completion of the scoping meeting, the project developer is recommended to prepare TIS scope meeting notes and distribute them to all scope meeting attendees.

3.3 Traffic Impact Study Analysis Requirements

At a minimum, the following traffic data, analyses, and discussion will typically be required for every TIS:

1. Both AM and PM peak hour turning movement count at all study intersections. Data shall be collected on a Tuesday, Wednesday, or Thursday and collected in 15-minute intervals. Collection times during the day will be determined on a case by case basis through coordination with the City Engineer. In some cases where special adjacent land uses such as schools are present, data should be collected 30 minutes before and after school dismissal. Data should also include pedestrian, bicycle, and truck counts as well as peak hour factors.
2. Using the latest ITE Trip Generation Manual and/or other City Engineer approved methodology, site-generated trips to and from the site shall be estimated.
3. Distribution of trips to and from the site shall be estimated. The methodology of trip distribution shall be logical and defendable.
4. Distributed site trips shall be assigned to the adjacent street network within the study area.
5. Conduct AM and PM peak hour capacity analysis, per the latest Highway Capacity Manual methodologies, for all study intersections under existing and horizon year (Build and No Build) conditions.
6. Applying the latest Highway Capacity Manual methodology, 95th Percentile queue demands shall be calculated for all study intersection approaches.
7. Mitigation options shall be assessed and resulting recommendations offered for intersections and movements operating at LOS D or worse for horizon year conditions.
8. Assess site compliance with City of Beatrice access management policies. This would include but is not limited to, driveway spacing, geometry, locations, sight distance, and the need for left- and right-turn auxiliary lanes.
9. Assess on-site circulation and pedestrian connectivity.
10. Provide supporting documentation as well as data, assumptions, and calculations, as required by the City Engineer, compiled into a reviewable technical appendix.

It should be noted that the City Engineer reserves the right to require additional analyses not mentioned in this policy based on site-specific operational and safety needs. These additional requirements should be made known to the project development representative at the scoping meeting.

Generally, TIS analyses and calculations shall be based on methodology and guidance found in the most recent editions of the following references:

1. Highway Capacity Manual (HCM)
2. Manual of Uniform Traffic Control Devices (MUTCD)
3. Highway Safety Manual (HSM)
4. A Policy on Geometric Design of Highways and Streets (AASHTO Green Book)
5. City of Beatrice Access Management Policy

TIS submittals shall include one draft study submittal for the City of Beatrice review, which should be provided digitally in pdf format. The City of Beatrice will provide comments, feedback, and mitigation requirements to the project developer for the preparation of the final TIS document. Final TIS submittals shall include one signed and stamped copy of the TIS and accompanying appendices and a comment resolution summary documenting all City of Beatrice draft study comments and how they were addressed. The final study document shall be signed and stamped by a currently licensed State of Nebraska Civil Engineer.

3.4 TIS Approval

Encroachment permits shall not be issued before City Engineer approval of a required TIS (See Section 0). TIS approval will be provided by the City of Beatrice in a formal letter and/or email indicating that all comments have been addressed to the satisfaction of the City Engineer. City approval will also outline the construction of mitigation requirements and/or contribution to the cost of required project mitigation. In some cases, multiple entity (e.g. NDOT & Gage County) approvals will be required before permit issuance. Any access constructed without approval after the adoption of this policy or not in compliance with the City of Beatrice TIS approval conditions shall be considered illegal non-conforming access and a violation notice will be issued. Furthermore, the illegal access may be closed or removed.

4.0 Deviation Request Procedures

It is recognized by the City of Beatrice that conformance with this Access Management Policy may not be feasible in some situations due to current field conditions and site constraints. The following section is intended to provide a proposed development with the opportunity to be granted a deviation request when compliance with this Access Management Policy is infeasible.

4.1 Requests for Deviation request

The standards outlined in this Access Management Policy may be altered or waived on a case by case basis by the City of Beatrice to accommodate existing street or property conditions that limit the feasibility of a compliant design. A formal Request for Deviation from (see attached as Appendix A) would need to be sent to the City Engineer and shall require documentation justifying the need for the deviation request. City Engineer acceptance of the proposed deviation request will be required before the issuance of access and construction permits.

4.2 Temporary Access

If development cannot feasibly comply with the City of Beatrice driveway spacing standards and has no other alternative means of access to a public road, a temporary driveway may be permitted. The temporary access permit will be terminated once adjacent properties are developed and alternative joint access can be constructed. Temporary access will be approved and granted with the following conditions:

1. The development agrees to coordinate and contribute to the construction of the future consolidated driveway.
2. The development agrees to remove the temporary access when a future acceptable, shared driveway becomes feasible.
3. Regardless of the need for a Traffic Impact Study (See Section 0), temporary access requirements, as well as permanent access, shall be coordinated with the City Engineer.

Depending on its size and expected trip generation, a development may be required to be constructed in phases with later phases allowed to be constructed when acceptable shared access is feasible.

5.0 Glossary

The following glossary provides definitions of terms found in this Access Management Policy. Definitions have been taken from the Transportation Research Board's publication *Access Management Manual* with small modifications to incorporate local context.

Access
The ability to enter upon a parcel of land from an abutting public roadway and to return to the roadway from the same parcel.

Access Management
The coordinated planning, regulation, and design of access between roadways and land development.

Access Point
Any driveway, street, alleyway, or other means of providing for the movement of vehicles to or from the public roadway system.

Approach
The set of lanes making up one leg of an intersection.

Arterial
A major roadway intended primarily to serve through traffic where direct access is carefully controlled. Arterials are roadways of regional importance, intended to serve moderate to high volumes of traffic traveling relatively long distances at greater speeds.

Auxiliary Lane
A lane striped for non-through traffic use. Uses can include speed-change, hill climbing, and turn lanes.

Capacity
The maximum rate of flow at which vehicles reasonably can be expected to traverse a point on a lane or road during a specific period under prevailing traffic, roadway, and intersection control conditions, usually expressed as vehicles per hour. Capacity is often considered the maximum amount of traffic that can be accommodated by a roadway during the peak hours of demand.

Collector Classification
Collectors provide for traffic movement between arterials and local streets and that carry moderate traffic volumes over moderate distances. They provide a mix of the functions of mobility and access and therefore do not function as well as Arterials or as Local Streets for those purposes, respectively. Collector streets may provide direct access to abutting commercial properties, but streets with higher traffic volumes may have restrictions on direct access for individual residences.

Conflict Point
An area in which intersecting traffic either merges, diverges, or crosses.

Corner Clearance
The distance from an intersection of a public or private road to the nearest access connection, measured from the closest edge of the pavement of the intersecting road to the closest edge of the pavement of the connection along the traveled way.

Cross access
An easement or service drive providing vehicular access between two or more contiguous sites, so the driver does not have to re-enter the public roadway system.

Driveway
The physical connection for vehicular traffic between a roadway and abutting land.

Driveway Curb Radii
A circular pavement transition at the entrance of a driveway that facilities turning movements.

Encroachment Permit
Authorization by a governmental agency for the construction, maintenance, and use of a driveway or public street connecting to a public street or highway.

Freeway/Expressway Classification
These roads serve high volumes of traffic traveling long distances. Their function is to provide mobility through traffic. Access is limited and controlled to reduce interference and facilitate movements. Access management for this road category is controlled by the Nebraska Department of Roads (NDOR).

Functional Area (intersection)
That area beyond the physical intersection of two controlled access facilities that constitute decision and maneuver distance, plus any required vehicle storage length, and is protected through corner clearance standards and connection spacing standards.

Functional Classification
A system used to group public roadways into classes according to purpose in moving vehicles and providing access.

Full Movement Driveway
A driveway that allows all movements to and from the adjacent roadway including left-turns to, left-turns from, right turns to, and right-turns from.

Highway Capacity Manual (HCM)
A publication published by the Transportation Research Board containing concepts, guidelines, and computational procedures for analyzing the capacity and quality of service of various highway facilities including freeways, highways, arterial roads, roundabouts, signalized, and unsignalized intersections, rural highways, and the effects of mass transit, pedestrians, and bicycle on the performance of these systems.

Highway Safety Manual (HSM)
A publication published by the American Association of State Highway Transportation Officials. It contains concepts, guidelines, and computational procedures for predicting the safety performance of various highway facilities. The HSM was published in 2010 and is divided into four sections: Part A - Introduction, Human Factors, and Fundamentals of Safety; Part B – Roadway Safety Management Process; Part C – Predictive Methods; and Part D – Crash Modification Factors.

Horizon Year
A Traffic Impact Study analysis year (usually the year a new development is expected to open) which forecasts expected traffic demands and roadway conditions based on trip generation, historical annual growth, regional model forecasts, anticipated adjacent development, and expected roadway construction projects. Capacity and queue analysis are then calculated under these forecasted conditions. Horizon years should be coordinated with the City Engineer during the scoping process of a Traffic Impact Study if needed.

Intersection Sight Distance
The distance along the through street that, from the perspective of a driver waiting at a driveway or street intersection, provides the driver with a sufficient line of sight to ascertain whether it is safe to attempt to turn onto or cross the through street.

Joint Use Connection
A single access point connecting two or more contiguous sites to a public roadway that serves more than one property or development, including those in different ownership or in which access rights are provided in legal descriptions.

Level of Service (LOS)
A qualitative measure describing the operational conditions within a stream of traffic. The measure uses factors such as speed, travel time, ability to maneuver, traffic interruptions, safety, waiting periods (delay), and driver comfort and convenience. LOS is represented by one of the letters A through F, where A designates free flow and F the most congested.

Local Road
Local streets are intended solely to provide access to abutting properties, carry low traffic volumes, serve short trips, and provide connections to higher category streets.

Major Arterial Classification
These streets are of regional importance and are intended to serve high volumes of traffic traveling relatively long distances. This category is intended primarily to serve through traffic and access is limited. Access to National Highway System roadways must be obtained from the Nebraska Department of Roads in consultation with the Director of Public Works and Utilities or designee. Access to Major Arterials that are not on the National Highway System must be obtained from the City Engineer or designee.

Manual of Uniform Traffic Control Devices (MUTCD)
A publication issued by the Federal Highway Administration (FHWA) to specify the standards by which traffic signs, road surface markings, and signals are designed, installed, and used. These specifications include shapes, colors, and fonts used in road markings and signs. In the United States, all traffic control devices must legally conform to these standards. The manual is used by state and local agencies as well as private construction firms to ensure that the traffic control devices they use conform to the national standard. The National Committee on Uniform Traffic Control Devices (NCUTCD) advises the FHWA on additions, revisions, and changes to the MUTCD.

Median
The portion of a highway separating opposing traffic flows. Medians can be depressed, raised, or flush with the traveled way, as well as traversable or non-traversable.

Median Opening
An opening in a non-traversable median that provides for crossing and/or turning traffic.

Partial Movement Driveway
A driveway that restricts some turn movements to and from the adjacent roadway. This could include the elimination of left-turn in or left-turn out to/from the driveway.

Other Minor Arterials
This category is similar in function to Arterial Classification but operates under lower traffic volumes and speeds serve trips of shorter distances and provide a higher degree of property access than Arterial Classification.

Peak Hour
The 60 minutes during 24 hours in which the largest number of vehicles passes over a designated section of a roadway.

A Policy on Geometric Design of Highways and Streets (AASHTO Green Book)
A publication that provides guidance in the functional design of roads and highways including such things as the layout of intersections, horizontal curves, and vertical curves.

Queue
A line of vehicles waiting to act, such as waiting at a traffic signal or turning left from the roadway to an access drive.

Side Street Access
Access is taken from the cross-street (either collector or local street) versus taking direct access to an arterial roadway.

Sight Distance
The distance that is visible to the driver of a passenger vehicle is measured along the normal travel path of a roadway from a designated location and to a specified height above the roadway when the view is unobstructed by traffic.

Sight Triangle
An area of unobstructed sight distance along both approaches of an access connection.

Stopping Sight Distance
The distance required by a driver of a vehicle traveling at a given speed to bring the vehicle to a stop after an object on the roadway becomes visible. It includes the distance traveled during driver perception and reaction times and the vehicle braking distance.

Storage Length
Additional lane footage added to a deceleration lane to store the maximum number of vehicles likely to accumulate during a peak period so as not to interfere with the through travel lanes.

Taper
The widening of pavement to allow the redirection and transition of vehicles around or into an auxiliary lane. There are two types of tapers: (a) redirect tapers necessary for the redirection or horizontal shifting of vehicles along the traveled way and (b) transition tapers for auxiliary lanes that allow the turning vehicle to transition from or to the traveled way or to or from an auxiliary lane.

Temporary Access
Access that is permitted for use until alternative access becomes available.

Throat Length
The distance parallel to the centerline of a driveway to the first on-site location at which a driver can make a right or a left turn. On roadways with a curb and gutter, the throat length is measured from the face of the curb. On roadways without a curb and gutter, the throat length is measured from the edge of the shoulder.

Throat Width
The distance from the edge of pavement to the edge of the pavement for a driveway is measured at the right-of-way line.

Traffic Count
A tabulation of the number of vehicles, trucks, bicycles, or pedestrians passing a certain point during a specific period.

Traffic Impact Study
A report analyzing anticipated roadway conditions with and without an applicant's development. The report includes an analysis of mitigation measures and a calculation of fair share financial contributions.

Trip
A single or one-directional vehicle movement with either the origin or the destination inside a study area. A vehicle leaving the highway and entering a property is one trip; the vehicle leaving the property is a second trip.

Trip Distribution
The proportion of vehicles or passenger movements that are or will be made between geographic areas.

Variance
Permission to depart from a regulatory standard when conditions at a location are such that compliance with the standard requirement is impractical or will result in an unsafe situation.

Vehicles per Hour (vph)
The number of vehicles passing a point on a roadway or traveling on a specific segment of roadway in a one-hour (60 minutes) interval of time.

Warrant
The criteria by which the need for a safety treatment or roadway improvement can be determined.

Appendix A: City of Beatrice Request for Deviation

City of Beatrice Request for Deviation

A request for deviation must be complete and submitted in writing to the City Engineer or designee and may be approved if it satisfies the requirements outlined in the City of Beatrice Access Management Policy. The City Engineer has ten (10) working days from receipt of a completed form to approve or deny such a request. The City Engineer reserves the right to request additional information from the Applicant to make a determination.

Property Owner: _____

Applicant Name: _____

Contact Phone: _____ Email: _____

Property Address/Location: _____

Deviation(s) Requested:

_____

_____

_____

_____

_____

Justification for deviation(s):

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Signature_____ Date_____

Attach maps, drawings, and other information to aid in understanding the request for deviation.

_____

_____

City of Beatrice Use Only

Date Received:_____

Deviation: ☐ Approved ☐ Denied

Comments:_____

_____

_____

_____

_____

_____

Signature_____ Date_____

City Engineer

cc:

Nebraska Department of Transportation (if involving a State Highway)