



City of Omaha
Jim Suttle, Mayor

January 10, 2012

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CITY OF OMAHA

Public Works Department

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Robert G. Stubbe, P.E.
Public Works Director

Honorable President

and Members of the City Council,

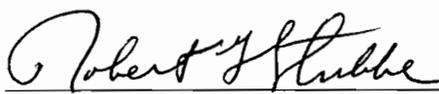
The attached Resolution approves the City of Omaha Guidelines and Regulations for Driveway Location, Design and Construction.

These regulations were previously approved by the City Council in 1991. The regulations have been updated to reflect current engineering standards and practices.

The Public Works Department requests your consideration and approval of the attached Resolution.

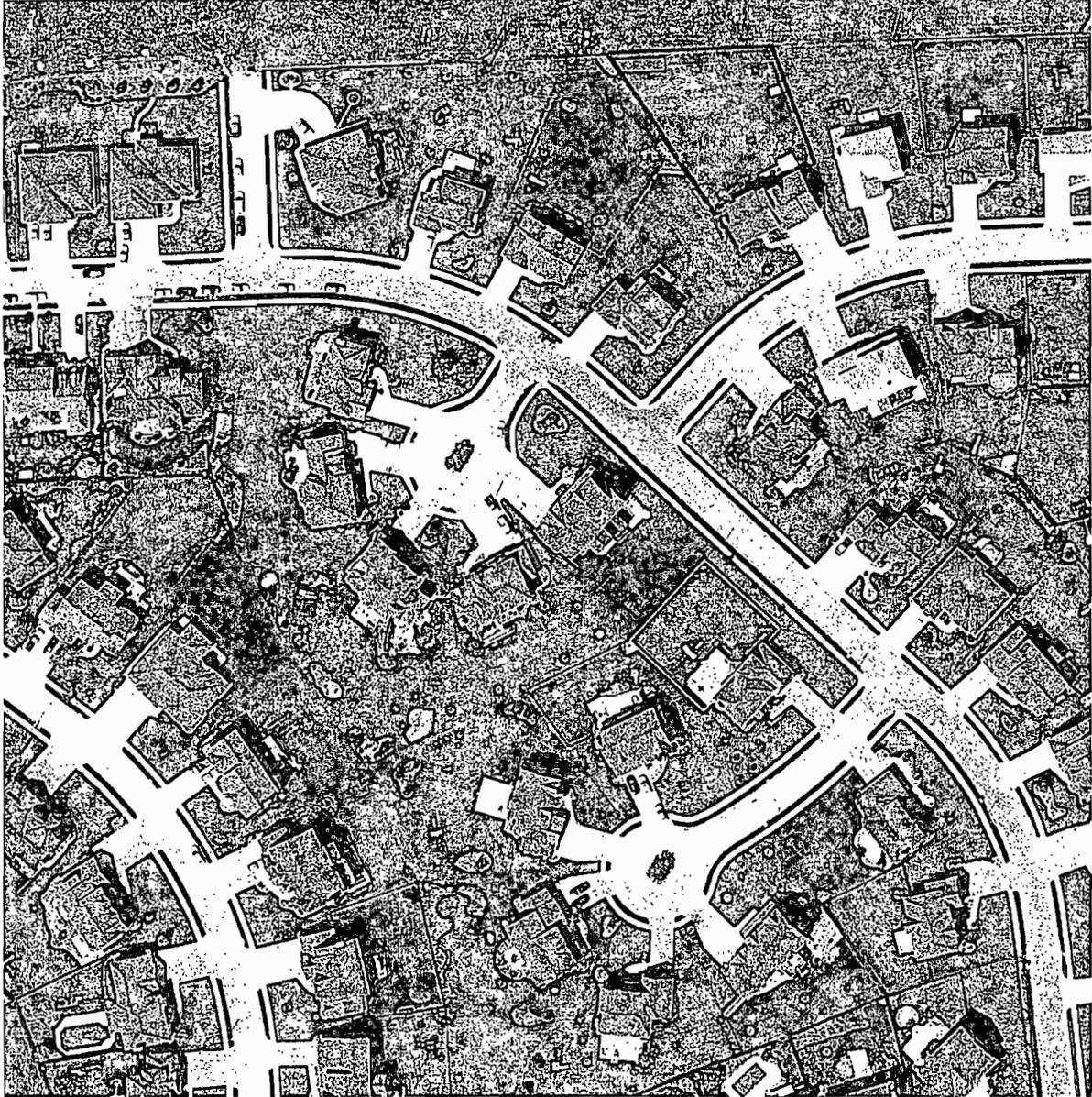
Respectfully submitted,

Referred to City Council for Consideration:

MP  12-12-11
Robert Stubbe, P.E. Date
Public Works Director

 12-21-2011
Mayor's Office Date

CITY OF OMAHA
TRAFFIC ENGINEERING DIVISION



**GUIDELINES and REGULATIONS FOR DRIVEWAY
LOCATION, DESIGN and CONSTRUCTION**

December, 2011

GUIDELINES and REGULATIONS FOR DRIVEWAY LOCATION, DESIGN and
CONSTRUCTION

Adopted by City Council Resolution _____

_____, 2011

Approved this _____ day of _____, 2011

Public Works Director

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GUIDELINES AND REGULATIONS FOR DRIVEWAY LOCATION, DESIGN and CONSTRUCTION

I. Introduction.

The purpose of this manual is to establish guidelines and regulations for the location, number and the design of driveway approaches that provide access from public streets and highways to private property. These policies and procedures conform closely to the recommended guidelines approved by the Institute of Transportation Engineers, and the American Association of Street and Highway Transportation Officials (AASHTO).

II. Driveway Types.

A. Residential Driveway – An approach providing access to a single family residence, to a duplex, or to an apartment building containing five or fewer dwelling units.

B. Commercial Driveway – An approach providing access to an office, retail or institutional building or an apartment building containing more than five dwelling units.

C. Industrial Driveway – An approach providing access to an industrial facility, warehouse or truck terminal. An industrial driveway must accommodate a substantial number of truck units.

III. Permit – Required.

It is unlawful for any person to cut, break, remove, or alter any curbing, alley, driveway approach, sidewalk, or any vehicular access on any public right-of-way in the City of Omaha and surrounding 3 mile limit without a permit. Permits are issued by the Permits and Inspection Division after receiving approval of the City Traffic Engineer and payment of fees as provided.

Applications for permits shall be on forms furnished by the Permits and Inspection Division, and shall specify the name of the applicant, the location of the property of which the driveway approach is to be repaired and/or constructed, and the number of lineal feet to be repaired and/or constructed. A sketch or plot plan shall be submitted with each request. The plan shall indicate the proposed driveway construction, together with all existing street light standards, poles, signs, sidewalk boxes, fire hydrants, property lines, adjacent driveways and any other obstructions. Minimum sight distance must be provided at all access points as described in Section VII-G.

IV. Traffic Impact Study

Any development which generates more than 100 trips (2-way) during the peak hour, may require a traffic impact study identifying the impact of the development on the existing and/or planned street system. Specific requirements of this section are shown in Appendix A.

V. General Requirements.

Every driveway approach constructed or altered in the street right-of-way shall conform to the following regulations.

A. Any time that there is a land use change and/or 50% or more of the total surface area of a parcel of land under one ownership is cleared of existing surface improvements, the driveway approaches serving such a parcel must be closed or reconstructed to conform to the conditions of this ordinance.

B. No driveway approach shall be constructed or reconstructed within five feet (5') of any existing obstruction in the street right-of-way.

C. No driveway approach shall be constructed or reconstructed in such manner and in such location as, in the opinion of the City Traffic Engineer, the use thereof would constitute a hazardous condition.

D. Any adjustments to utility facilities, light standards, fire hydrants, catch basins, street signs, signals, underground conduits for street lighting or fire alarm systems, or other public improvements or installations which are necessary because of construction under a permit issued under this Article shall be accomplished without cost to the City by the permittee.

E. All driveway approaches are to be constructed in accordance with City specifications and appropriate standard plates (see Appendix). The Public Works Department may furnish an inspector to inspect driveway approaches to be constructed, whose duties shall be to check the forms for alignment grade, and materials and to see that the work is done in accordance with the specifications of the City at the time of the issuance of the permit. All work for the construction of the driveway approach shall be fully completed within 72 hours after the start, weather permitting. In the event such work has not been completed, the City will have the option of completing the work at the expense of the permittee.

F. The Public Works Department shall be notified at least twenty-four (24) hours in advance of the time of the inspections.

G. The entrance angle for all driveway approaches shall be as near ninety (90) degrees to the center line of the street as is possible. In no case shall the center line of the driveway intersect the center line of the street at an angle of less than sixty (60) degrees.

H. City street right-of-way shall not be used for private-commercial purposes. A permit for the construction of a driveway approach shall not be issued unless vehicles which will be using said driveway approach can be parked entirely on private property.

I. No permit shall be issued for access to parking or loading areas that require backing maneuvers in a public street right-of-way except for residential uses on local and collector streets.

J. A property that has frontage on more than one street will be permitted access only on those street frontages where standards can be met. If a property cannot be served by an access point meeting these standards, the City Traffic Engineer shall designate access point(s) based on traffic safety and operational needs.

K. At locations where a drainage culvert is needed under the driveway approach, the person constructing the driveway approach shall install a drainage culvert of the proper size and elevation so that the driveway and culvert are capable of handling a 50 year storm without flooding the adjacent street.

L. All driveway approaches shall be constructed of concrete with the following minimum thickness:

- Residential – 6 inches
- Commercial – 7 inches
- Industrial – 8 inches

See Standard Plate 1-70 for minimum requirements.

VI. Residential Access Design Requirements.

All residential driveway approaches hereafter constructed, relocated, or widened in the City or its extraterritorial jurisdiction shall comply with the following conditions:

A. Number of Driveways.

In any allowable location, no driveway throat width shall be less than ten feet (10') wide or greater than 30' wide. Frontages of sixty feet (60') or less shall be limited to one (1) driveway. No more than two (2) driveways shall be provided to any single property tract except for corner properties.

B. Driveway Spacing.

Driveways serving a single parcel of property or serving any of several adjacent parcels under single ownership shall be separated by at least forty feet (40') of full height curb. Townhouse-condominium developments shall be excepted.

C. Driveway Corner Clearance.

The curb return for driveways serving corner lots shall not begin closer than two feet (2') from the tangent point of the corner radii of the intersecting street.

D. Driveway and Approach Design Standards.

Table 1 lists the basic widths of residential driveways and radii/flares for the different types of streets.

TABLE 1 – RESIDENTIAL DRIVEWAY STANDARDS

STREET	THROAT WIDTH	RETURN
Local	10 ft. min. 30 ft. max.	5 ft. flare min.* 10 ft. radius max.
Collector	10 ft. min. 30 ft. max.	5 ft. flare min. 10 ft. radius max.
Major	10 ft. min. 30 ft. max.	10 ft. radius min. 20 ft. radius max.

*For driveway widths 20' or wider, flare may be reduced to 3 ft. minimum.

VII. Commercial/Industrial Access Design Requirements.

All commercial and industrial driveway approaches shall be constructed according to the following regulations:

A. Number of Driveways.

The number of driveways shall be limited to one, two-way driveway or a pair of one-way driveways for each parcel, except when the following conditions exist.

1. Property frontages that are too narrow to satisfy the minimum driveway spacing criteria set forth in the following sections will require joint access locations at property lines: frontage roads, restricted movement driveway designs, or other modifications.
2. Joint driveways may be permitted. Reciprocal, ingress/egress easements will be required for all joint driveways.
3. If an approved traffic study indicates the need for more than one driveway, the Traffic Engineer may approve additional driveways.

B. Driveway Spacing.

The distance between adjacent driveways (on the same or adjoining properties) must be sufficient to allow vehicles to safely queue, accelerate, decelerate, and cross conflicting traffic streams without excessive interference with through traffic or traffic using adjacent driveways.

1. On major streets, a driveway spacing of 300 feet or more is desirable. Where this spacing cannot be attained, acceptable minimum spacing is shown in Table 2.

TABLE 2 – MINIMUM DRIVEWAY SPACING

ARTERIAL SPEED (mph)	MINIMUM SEPARATION (feet)
25	105
30	125
35	150
40	185
45	230
50	275

2. Closer driveway spacing than those listed above may be granted if the developer agrees to limit turning movements (i.e. right turns in and out) as required.
3. The minimum distance between two driveways on adjoining properties on collector and local streets shall be forty (40) feet. This 40 feet shall be measured from the end of each radii.
4. The radii of a commercial driveway shall not begin closer than the property line extended except for joint driveways.
5. Driveways to arterial streets will not be permitted for new developments. An internal street network serving properties shall be designed to accommodate access. Intersections with arterial streets shall be located in accordance with the Land Use Element of the City of Omaha Master Plan.

C. Driveway Corner Clearance.

Minimum corner clearances are shown in Tables 3 and 4. These corner clearances are for a 30 MPH operating speed. Higher speed conditions will require greater clearance than that shown. The minimum corner clearance on major and collector streets at signalized intersections shall be one hundred (100) feet from the projection of the intersection street curb line extended to the driveway radius point.

TABLE 3 – MINIMUM CORNER CLEARANCE – SIGNALIZED INTERSECTION CONTROL

Item	Functional Classification of Road		
	Major (L.F.)	Collector (L.F.)	Local (L.F.)
A	230	175	60
B	115	100	60
C	230	175	60
D	230	175	60
E	75	0	0

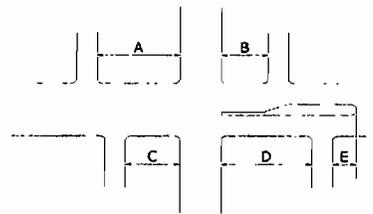
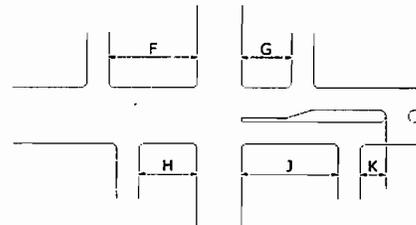


TABLE 4 – MINIMUM CORNER CLEARANCE – STOP SIGN INTERSECTION CONTROL

Item	Functional Classification of Road		
	Major (L.F.)	Collector (L.F.)	Local (L.F.)
F	115	75	60
G	85	85	60
H	115	85	60
J	115	75	60
K	75	0	0



D. Driveway and Approach Design Standards

Table 5 and Table 6 list the basic widths of commercial and industrial driveways and radii/flares for the different street classifications.

TABLE 5 – COMMERCIAL DRIVEWAY

STREET	THROAT WIDTH	RETURN
Local	22 ft. min. (16 ft.)* 30 ft. max. (16 ft.)*	10 ft. radius min. 20 ft. radius max.
Collector	25 ft. min. (16 ft.)* 35 ft. max. (20 ft.)*	10 ft. radius min. 20 ft. radius max.
Major	25 ft. min. (16 ft.)* 35 ft. max. (20 ft.)*	15 ft. radius min. 30 ft. radius max.

* Throat widths for one-way driveways:

One-way driveways shall be signed in accordance with the **Manual on Uniform Traffic Control Devices for Streets and Highways**. This signing shall be the responsibility of the property owner.

TABLE 6 – INDUSTRIAL DRIVEWAY**

STREET	THROAT WIDTH	RETURN
Any Street	30 ft. min. 40 ft. max.	25 ft. radius min. 40 ft. radius max.

** The industrial driveway requirements are for driveways used by trucks. Industrial driveways for passenger vehicles only shall use the same requirements as a commercial driveway on a major street.

E. Right Turn Deceleration Lane.

Right turn deceleration lanes shall be constructed with the drive approach on all commercial/industrial driveways that either:

1. Accesses a major street with a posted speed of 40 mph or greater.
2. Any development that generates over 100 vehicles per hour (two-way).

Right turn deceleration lanes shall have a minimum length of 150 feet of full width paving, plus a taper appropriate for the design speed of the street.

F. Left Turn Deceleration Lane.

Left turn deceleration lanes (left turn storage lanes) may be required with the drive approach on all commercial/industrial driveways on all streets that do not have a designated left turn lane. The need for a left turn deceleration lane will be analyzed based on the design hour volume of left turning vehicles verses opposing through traffic. Left turn deceleration lanes shall have a minimum length of 150 feet of full width paving, plus a taper appropriate for the design speed of the street.

G. Minimum Sight Distance.

Sight distance as shown in Table 7 is designed to enable vehicles to:

1. When turning left or right, accelerate to the operating speed of the street without causing approaching vehicles to reduce speed by more than 10 miles per hour.
2. When turning left, clear the near half of the street without conflicting with vehicles approaching from the left.

The distance requirements are based on a 3.5 ft. driver eye height and 4.25 ft. object height for passenger cars. The sight distance requirements for trucks will be considerably longer than for the passenger vehicle. These relationships for trucks (SU, WB-50) can be derived using appropriate assumptions for vehicle acceleration rates and turning paths.

TABLE 7 – Sight Distance for Passenger Vehicles Exiting from Private Accesses.

Speed (mph)	Minimum Sight Distance Both Directions (feet)*	Minimum Sight Distance Right in-Right out driveway
25	280	240
30	335	290
35	390	335
40	445	385
45	500	430
50	555	480
55	610	530

* Measured from the driver's eye ten feet from the edge of traveled way or pavement edge.

When the criteria for sight distances cannot be met, the safe sight distance can be reduced by prohibiting left turns by all vehicles. This restricts the turning movements to right turns in and out of a driveway.

H. Driveway profiles.

Profiles shall be designed to permit entrance and exit maneuvers at desirable speeds and provide sufficient underbody clearance for typical passenger cars. Driveway profiles with the fewest and least severe grade changes are preferred. See Appendix pg. A-6 for minimum requirements.

I. Restricted Movement Driveway Designs.

When necessary for the safe and efficient movement of traffic, the City Traffic Engineer may require access points to provide for only limited (e.g. right turns only) turning movements. The

restriction of turning movements shall not affect the number and location of access points as specified elsewhere.

The following figures are the minimum design for limited movement driveways. Deceleration lanes may be required to be incorporated in the design.

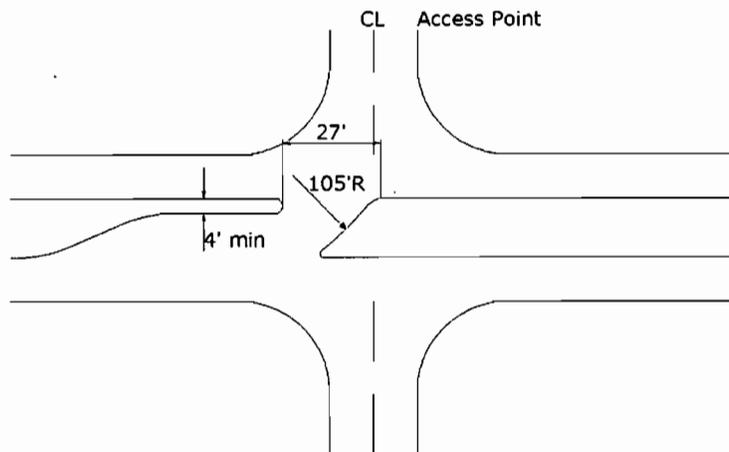


FIGURE 1: RIGHT-IN RIGHT-OUT, LEFT-IN DRIVEWAY DESIGN

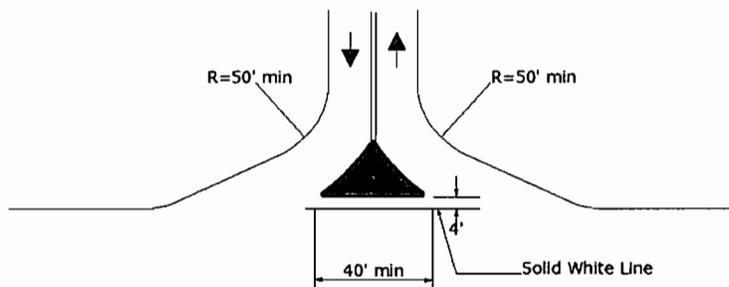


FIGURE 2: RIGHT-IN RIGHT-OUT DRIVEWAY DESIGN

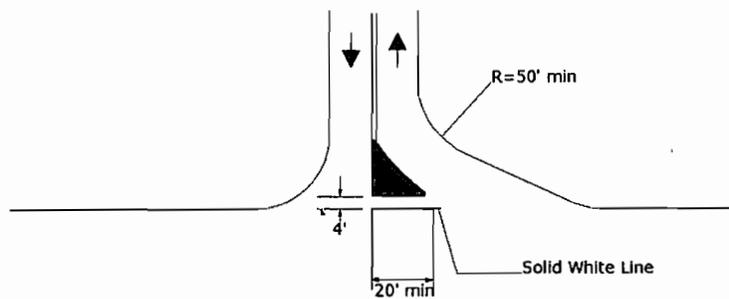


FIGURE 3: RIGHT-IN RIGHT-OUT, LEFT-OUT DRIVEWAY DESIGN

J. Driveway Alignment.

The location of access to properties on opposite sides of major and collector roadways shall be coordinated so that they do not interfere with each other. Driveways directly opposite of each other are desirable. However, if this is not possible, the resulting “T” configurations must be spaced a minimum of 100 feet apart on collectors, and 200 feet apart on major streets. This may be modified based on streets existing through traffic and the trip generation of the site. In no case will a spacing of less than 75 feet be acceptable on arterial streets.

K. Vehicle Storage.

When development is located adjacent to a public street, the parking facility must have full internal vehicular circulation and storage. Vehicular circulation must be located completely within the property and vehicle within one portion of the development must have access to all other portions without using the adjacent street system.

Adequate storage capacity must be provided for both inbound and outbound vehicles to facilitate the safe and efficient movement between the street and the development. Inbound vehicle storage areas must be of sufficient size to ensure that vehicles will not obstruct the adjacent street, sidewalk, or circulation within the facility. Outbound vehicle storage areas must be provided to eliminate backup and delay of vehicles within the development.

Recommended distances from the street to the first aisle and/or parking stall that backs into said aisle for a parking lot design are presented in Table 8. Vehicle storage equivalent to the distances shown in Table 8 must be provided at accesses serving the site. The recommended vehicle storage area needed for the entire site may be spread over several accesses if more than one access serves the site. The recommended distance may be further adjusted by the City for accesses with two approach lanes and will be subject to traffic impact study findings, roadway geometry, traffic volumes and site layout.

TABLE 8: ON SITE VEHICLE STORAGE FOR PARKING LOT ACCESS¹

Land Use	Peak Hour Exit Trips*	Size	Local (Feet)	Collector (Feet)	Arterial (Feet)
Low Rise Apts. (per unit)	0.4	0-80	20	20	20
		81-160	20	20	40
		161-300	20	40	80
High Rise Apts. (per unit)	0.1	0-300	20	40	80
Condominiums Mobile Homes Planned Unit Development (per unit)	0.5	0-60	20	40	40
		61-120	20	40	40
		121-180	20	40	60
		181-240	20	40	80
Quality Restaurant (per 1000 sq. ft.)	2.5	241-300	20	60	100
		0-15	20	20	20
		15-30	20	20	40
High Turnover Sit-Down Restaurant (per 1000 sq. ft.)	4.0	0-8	20	20	20
		8-16	20	20	40
		16-20	20	20	60
Drive-In Restaurant (per 1000 sq. ft.)	40.0	0-2	20	20	20
		2-3	20	40	80
		3-5	40	60	120
		5-7	60	80	180
Motel (per room)	0.4	0-150	20	20	40
		151-400	20	60	100
		401-700	20	100	140
Convention Hotel (per room)	1.11	0-150	40	40	80
		151-400	40	120	200
		401-700	40	200	280
Office Park (per 1000 sq. ft.)	2.0	0-20	20	20	20
		20-50	20	40	60
		50-100	20	60	140
		100-150	60	100	200
		150-300	100	200	400
		300-500	160	320	660
General Office (per 1000 sq. ft.)	1.36	0-50	20	20	40
		50-100	20	40	80
		100-150	40	60	140
		150-200	40	60	180
		200-300	60	140	280
		300-400	100	180	360
Light Industrial (per 1000 sq. ft.)	0.63	400-500	120	220	460
		0-100	20	20	40
		100-200	20	40	80
		200-300	40	60	120
		300-400	40	80	160
		400-500	60	100	200

TABLE 8: ON SITE VEHICLE STORAGE FOR PARKING LOT ACCESS¹

Land Use	Peak Hour Exit Trips*	Size	Local (Feet)	Collector (Feet)	Arterial (Feet)
Industrial Park (per 1000 sq. ft.)	0.15	0-500	20	20	40
Discount Store (per 1000 sq. ft.)	2.0	0-30	20	20	20
		30-50	20	40	60
		50-75	20	40	100
		75-100	40	60	140
Shopping Center 0-49,999 gross sq. ft. (per 1000 sq. ft.)	7.2	0-10	20	20	40
		10-20	20	40	100
		20-30	40	80	140
		30-40	60	100	180
		40-50	60	120	200
Shopping Center 50,000 to 299,999 gross sq. ft. (per 1000 sq. ft.)	3.0	50-100	60	120	200
		100-150	80	140	300
		150-200	100	200	400
		200-250	120	240	500
		250-299	140	300	600
Shopping Center over 300,000 gross sq. ft. (per 1000 sq. ft.)	1.3	300-400	140	300	600
		400-500	140	300	600
		500-600	140	300	600
		600-700	160	300	600
		700-800	180	340	700
		800-900	200	400	780
		900-1000	220	440	860
Drive-In Bank (per 1000 sq. ft.)	12.3	1000-1500	340	660	1300
		0-10	20	20	40
		10-20	40	40	160
		20-30	60	120	240
		30-40	80	160	320
Supermarket (per 1000 sq. ft.)	3.3	40-50	120	200	400
		0-20	20	20	20
		20-30	20	40	60
		30-40	20	40	80
Medical Clinic (per employee)	0.62	40-50	20	60	120
		0-100	20	20	40

*Peak hour exit trips per 1000 sq. ft. are as determined by the Institute of Transportation Engineers' publication "Trip Generation".

¹ Distance is measured from the flow line of the street to the first parking stall or aisle. These vehicles are based on a vehicle length of 20 feet.

VIII. Drive-In Facilities Storage Requirements

Locations that provide drive-through or drive-in services are subject to minimum storage requirements. The purpose of minimum storage requirements is to ensure that vehicles can queue on site without blocking access to parking areas, public sidewalks or streets. Table 9 shows the minimum storage requirements for various land uses. Land uses not listed shall provide on site storage for a minimum of two vehicles, or as determined by an engineering study.

TABLE 9: DRIVE THROUGH LANE STACKING REQUIREMENTS

Type of Operation	Minimum stacking Requirement (vehicles)
Automatic Teller Machine	3 vehicles
Drive Through Bank	8 vehicles per lane
Self Service Car Wash	2 vehicles per bay
Car Wash – drive through or automatic conveyor	12 vehicles per entrance, 2 vehicles per exit*
Fast Food Restaurant	12 vehicles**
Gas station	2 vehicle per pump
Drive Through Coffee Stand	11 vehicles per lane**
Drive Through Pharmacy	2 vehicles

* Chapter 55-765 (b) of the Omaha Municipal Code requires 300 feet stacking for car washes.

** May be reduced to 8 vehicles if subject property is located greater than 300 feet from any street with an ADT of 20,000 or more.

Storage requirements include the vehicle being served. Vehicle storage should not be located in setback areas where parking of vehicles is prohibited. Allow 25 feet per vehicle storage.

IX. Residential on-street parking requirements

Applicants wanting to construct on-street parking similar to what is shown on Figure 4 to serve residential land uses need to follow these requirements.

1. Plans must be prepared by an Engineer registered in the State of Nebraska, and submitted to the Public Works Department as Public Improvement Plans with the proper bonds and insurance requirements. The plans need to meet the following minimum requirements:
 - a. Slope the parking area to drain to the street.
 - b. Paving material must be minimum seven inch concrete with curb and gutter.
 - c. Minimum parking stall dimensions shall be 9' x 20'.

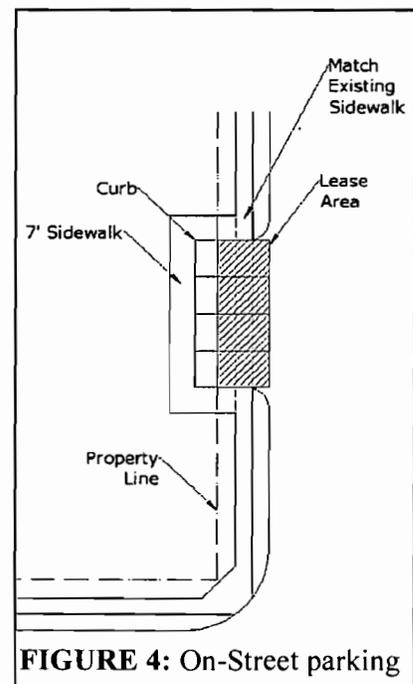


FIGURE 4: On-Street parking

- d. Refer to Standard Plate 1-70 for curb removal and expansion joint details.
2. A seven foot sidewalk needs to be installed in front of the parking stalls, and a public access easement granted over the new sidewalk. Connect to the existing sidewalks.
3. No more than 80% of the lots front footage can be used for parking.
4. Plant one street tree for every 500 square feet of parking. Submit a landscape plan to the Planning Department for approval.
5. Parking area will be open to the public unless the space is leased. The area of parking within right of way is subject to lease from the City. Contact the Planning Department for information regarding lease applications.
6. Private maintenance of the parking area is required. The City will not make repairs or remove snow from on-street parking areas.
7. If required, the applicant must obtain a waiver from the Zoning Board of Appeals to allow for reduction of setbacks or parking in required setbacks prior to approval of the plans

X. *Deviation from Regulations.*

Permission to deviate from the requirements and regulations of this article may be granted only where unusual conditions or strict adherence to this article would cause unusual and extreme hardship.

Access onto State Highways in the City Limits and within three (3) miles of the City Limits, and on County roads with three (3) miles of the City Limits will be subject to the approval of the City of Omaha and the respective jurisdictions.

XI. *Appeals.*

Any person aggrieved by the issuance, denial or cancellation of any permit issued under the provision of this section may appeal any issuance, denial or cancellation to the Administrative Appeals Board by giving written notice of such appeal to the Omaha City Planning Director.

APPENDIX

A-1. Traffic Impact Study Requirements

1. Introduction

For any new development to be successful, adequate traffic service to this development must be provided. In many cases in the past, the problem of adequate traffic service was considered only after traffic service had deteriorated to such a point that it was adversely affecting the success of the development. Also, the traffic generated by any large development may affect the overall traffic service of the street system in the vicinity of the development, thus impacting on other business, industrial and residential areas.

Principal elements which should be indicated in most traffic impact studies include the following:

- Data on existing peak hour traffic volumes and conditions.
- Directional distribution estimates of site generated traffic.
- Projections of added traffic volumes for the appropriate critical hours.
- Determination of needed improvements, controls, driveway locations and their design.
- Identification of any need for additional right of way.

2. Proposed Development and Access Routes

This section of the report contains information on the type, size, shape and area of the development, as well as the location of proposed street access. A map should be included that relates the site to the street network. Estimated daily and peak hour trips (AM and PM) for the development should be calculated based on the publication "Trip Generation" by the Institute of Transportation Engineers. When provided, the equation should be used in lieu of average rates. If site-specific or local data is available that is believed to be a better predictor of generated trips, that data should be used upon approval by the Traffic Engineer.

3. Existing Traffic Conditions

Existing traffic conditions should show the peak hour turning movement volumes and levels of service at the locations anticipated to be affected by the development. At a minimum, all adjacent streets and intersections should be analyzed. Intersections within one mile of the development should be considered for analysis as well. In the case of very large developments, or developments which generate very high numbers of new trips, the City may request additional analysis beyond this area. Industrial developments which generate a high percentage of truck traffic may require analysis of extended areas as well.

4. Traffic Impact or Capacity Analysis

This section should contain narrative and appropriate figures and tables to identify intersection turning movement volumes and levels of service. Opening day is the expected opening of the development and horizon year is typically 25 years in the future. Capacity analyses should be run for the AM and PM peak hours for the following scenarios:

- Existing geometry and control: opening day background volumes.
- Existing geometry and control: opening day base plus site volumes
- Recommended opening day improvements and controls: opening day base plus site volumes.
- Existing geometry and control: horizon year background volumes
- Recommended opening day improvements and controls: horizon year base plus site volumes.
- Recommended horizon year improvements and controls: horizon year base plus site volumes.

The report should be of a technical nature and need not contain cost estimates or construction schedules. The developer will be responsible for ensuring that adequate improvements and controls are provided for to ensure the highest possible level of service and safety, as well as promoting efficient access to the development.

5. Queue length analysis

Queue length analyses should be performed at all intersections to ensure the recommendations contain adequate storage for turning vehicles. Through movements should not experience excessive queues or extend past intersections or driveways. 95th percentile queue lengths should be used to determine required vehicle stacking. Values should be rounded up to the nearest 25 feet.

6. Conclusions and recommendations

The conclusions of the report should be summarized and recommendations for improvements made. Recommendations should include all geometric and control improvements to maintain the existing level of service, or provide a minimum level of service "C" as defined in the Highway Capacity Manual.

All recommendations (including turn lane storage lengths) should be provided for the opening day scenario, as well as the horizon year. Any right of way required from the development for the horizon year improvements should be dedicated during the initial platting of the development. When turn lane storage requirements are similar from the opening day scenario to the horizon year, the recommendation should be to construct the lanes to the length required by the horizon year traffic.

As a general rule, the developer will be responsible for the construction and payment of all improvements identified in the study for the opening day scenario.

7. Appendix

The appendix of the report should contain copies of the capacity analyses performed, queue length analyses, background data and any other relevant information, data and computer output to support the recommendations of the report.

A-2. Traffic Impact Study General Information

1. Purposes of the Impact Report

There are three primary reasons the City requires traffic impact reports:

- a. To enable the Public Works Department, Planning Department, Planning Board, City Council and other jurisdictions to verify whether capacity improvements will be needed on streets or at intersections.
- b. To enable the Traffic Engineering Division to check the access design. This includes location, width, radii, allowable movements, control and estimated turning movements during one or more critical design hours.
- c. To allow a fair and equitable determination of cost sharing between the developer (or developers), the City of Omaha and other public agencies for any needed intersection or access improvements, including geometric and control improvements.

2. Need for Studies

Any development that will generate over 100 vehicles (two way) has the potential to have significant traffic impact and may be required to submit a traffic impact study to the City Planning Department. The traffic impact significance of individual developments should be discussed with the City Planning Department and the City Traffic Engineer. Table A-1 gives examples of sizes of several common types of development which meet the above criteria.

Table A-1 Traffic Generators
Developments likely to generate peak
hour Volumes of 100 vehicles

Type of Development	Size
Residential	
Single Family	100 units
Apartment	150 units
Retail	
Hardware/Paint store	15,000 square feet
General Shopping Center	10,000 square feet
Supermarket	7,000 square feet
Discount Store	15,000 square feet
Restaurants	

Drive-in	All
Quality Restaurant	15,000 square feet
High Turnover Sit-Down	5,00 square feet
Banks	
Walk-in	3,000 square feet
Drive-up	All
Car Washes	All
Offices	
General	50,000 square feet
Medical	20,000 square feet
Industrial	100,000 square feet
Hospitals	All
Schools	All

For a more complete guide to trip generation rates, refer to "Trip Generation" published by the Institute of Transportation Engineers. Other trip generation reference documents may be used, if approved in advance by the Traffic Engineer. Local data on trip generation may be used, if available.

The Impact Study should be submitted with the preliminary plat or rezoning application. If the land is properly zoned and subdivided, a traffic impact study will need to be submitted prior to issuing a building permit.

3. Data Provided by the City of Omaha

Traffic consultants should discuss their traffic impact reports with the City Traffic Engineer prior to starting. Doing so will provide the traffic consultant with a further understanding of what should be provided in the traffic impact report. The City Traffic Engineer will also be able to provide the consultant with his knowledge of the present traffic situation in the vicinity of the proposed development.

The City of Omaha will provide the consultant with any traffic counts presently on file in the Traffic Engineering Office for their use. Locations that the city does not have counts for will need to be counted and documented in the report. Previous traffic impact studies in the vicinity of the proposed development may also be available to the consultant to use as reference or background information.

4. Coordinated studies

When there are multiple proposed developments at an intersection, or in close proximity to each other, the city may request a single study be performed to address the impacts of all developments. These studies should address any improvements that are for the benefit of a single development and those that serve more than one development.

Coordinated traffic studies will be the basis for approval of and determining the required improvements for the proposed developments. Developers and their engineers are encouraged to

work together to prepare these studies and share the costs of preparation. The City will not withhold approval of a development included in a coordinated traffic study if they have not participated in the costs of the study, provided they agree to construct and fund the required improvements.

5. Consultant Qualifications

Traffic Impact reports must be prepared by a Professional Engineer registered in the State of Nebraska. The engineer should have knowledge of traffic engineering principles, and if requested must show evidence of prior experience in traffic engineering studies. Engineers registered in another state may prepare reports as allowed by Nebraska State Law.

C. Glossary of Terms

Alley – A street intended to provide access to the rear or side of lots or buildings in urban districts and not intended for the purpose of through vehicle traffic.

Curbside – Sidewalk paved immediately behind the curb.

Deceleration Lane – A speed change lane including tapered areas for the deceleration of vehicles leaving the through traffic lanes. These deceleration lanes shall also include a taper.

Driveway (Driveway Approach) – The area, construction, or improvement between the edge of the street or proposed curb line and the property line, to provide ingress and egress for vehicles from the alley, street, or roadway to a definite area of the private property. This is also called the driveway approach.

Driveway Return – The flare or radius that connects the edge or throat of a driveway with the edge of the nearest travel lane.

Driveway Width (Throat) – That portion of the street curbing that is removed, excluding driveway returns or transitions, to provide ingress to the egress from abutting property. This is also called the driveway throat.

Frontage – The distance along the street right-of-way line of a single property or development within the property lines. Corner property at an intersection would have a separate frontage along each street.

Intersection – The area embraced within the prolongation or connection of the lateral curb lines or, if none, then the lateral boundary lines of the roadways of two (2) or more roadways which join one another, or approximately at right angles, or the area within which vehicles traveling upon different roadways joining at any other angle may come in conflict.

Sidewalk – That portion of a street between curb lines or the outer lateral lines of a roadway and the adjacent property lines, intended for use by pedestrians.

Sight Distance – Drivers ability to see an object at a safe distance, which assumes the driver's eye is 3.75 feet above the ground and the object is 2 feet above the ground for stopping sight distance and 3.75 feet above the ground for passing and sight triangle distances.

Street – A public way for the purpose of vehicular and pedestrian travel which affords a primary means of access to the abutting properties. All streets are functionally classified in the following categories in the City of Omaha Comprehensive Plan.

Arterial Street – Any street classified higher than local or collector. A high capacity roadway designed to provide continuity between neighborhoods and the expressway/freeway systems. Direct access to property is a minor function.

Collector Street – A moderate capacity roadway designed to penetrate neighborhoods from which local traffic is collected and channeled to the arterial street system.

Local Street – A low speed, low volume street with no continuity which provides direct access to abutting properties.

Right-of-Way – A strip of ground dedicated or set apart for public transportation use between approximately parallel boundaries including the improved and unimproved portions thereof.

Traffic – Pedestrians, vehicles, and other conveyances, either singly or together, while using any street, alley, or roadway for purposes of travel