

Mississippi Department of Transportation
ACCESS MANAGEMENT MANUAL



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Section 1 - Introduction

GENERAL: This manual constitutes Mississippi Department of Transportation's policy for access location determination and procedures for coordinated development between state highways and the abutting properties which they serve. The manual will provide clarification of the administrative procedures and standards as contained in Rule No. 941-7501-04002 Right of Way Encroachment Permits; Rule No. 941-7501-04013 Driveway and Street Connections, Median Openings, Frontage Roads; and Rule No. 941-7501-03001 Processing of Permit Applications.

PURPOSE: Access management standards are in place to:

- Maintain the overall safety of the transportation system.
- Minimize congestion.
- Minimize crashes.
- Provide for efficient traffic flow.
- Preserve existing system capacity.
- Provide for pedestrian safety.
- Maintain roadway aesthetics.
- Provide appropriate access to adjacent business properties

Driveways add to the number of conflict points along a roadway and increased conflicts lead to increased crash rates and poor roadway operations. This access management policy limits the number of conflict points and is designed to minimize speed differentials between through and turning vehicles.

Access management techniques are relatively straightforward and based on established traffic engineering and roadway design principles. They involve: (1) limiting the number of conflict points; (2) separating conflict points; (3) reducing acceleration and deceleration impacts at access points; (4) removing turning vehicles from through travel lanes; (5) spacing of major intersections to facilitate progressive travel speeds along arteries; and (6) providing adequate site storage.

APPLICATION: Access management standards apply to all highways. All new construction and reconstruction projects shall incorporate access management guidelines unless the existing local road network or access to existing developments cannot be modified without the result of relocation impacts that would not otherwise occur or excessive right of way costs. The access management policy will apply to all developments or re-permitting of existing access points due changed land use.

A summary of some of the typical effects the access management techniques and standards have on highway systems are shown in Table 1 below:

Table 1
Summary of Research on the Effects of Access Management Techniques ⁽¹⁾⁽²⁾

Treatment	Effects
1. Add a continuous two-way left turn lane (TWLTL)	A. 35% reduction in total crashes B. 30% decrease in delay C. 30% increase in capacity
2. Add nontraversable median	A. >55% reduction in total accidents B. >30% decrease in delay C. >30% increase in capacity
3. Replace TWLTL with a nontraversable median	A. 15%-57% reduction in crashes on 4-lane roads B. 25%-50% reduction in crashes on 6-lane roads
4. Add a left-turn bay	A. 25-50% reduction in crashes for a 4-lane road B. up to 75% reduction in total crashes at unsignalized intersections C. 25% increase in capacity
5. Type of left-turn improvement: (a) painted (b) separator or raised divider	A. 32% reduction in total crashes B. 67% reduction in total crashes
6. Add a right-turn bay	A. 20% reduction in total crashes B. Limit interference with platooned traffic, increased capacity
7. Increase driveway speed from 5 mph	A. 50% reduction in delay per maneuver; less exposure time to following vehicles
8. Visual cues (e.g. signs) at driveways and driveway illumination	A. 42% reduction in crashes
9. Prohibition of on-street parking	A. 30% increase in traffic flow B. 20-40% reduction in crashes
10. Long signal spacing (1/2 mile) with limited access	A. 42% reduction in travel time B. 59% reduction in delay C. 57800 gallons of fuel saved per mile per year

It is important to remember that access management is the process of balancing the competing needs of traffic movement and land access. The primary purpose of Mississippi's access management policy is to provide access for land development and to provide the access as part of a well managed system. Mississippi's access management program includes the following:

1. A roadway classification system based upon functional criteria.
2. Defining allowable levels of access for each roadway classification, including criteria for signal spacing.
3. Geometric design criteria and traffic engineering analysis.
4. Adopting appropriate regulations and administrative procedures.

DEFINITIONS

For purposes of this guideline, the following definitions will apply. If not defined in the guidelines, words, terms, and phrases will have their commonly accepted meaning.

- *Access* – A public or private roadway used to enter or leave a public highway from adjacent land using an on-road motor vehicle. An access may be a driveway or a street.
- *Access Point* – The intersection of an existing or proposed access with the public right of way.
- *AADT* – Average annual daily traffic volume – The total two-way yearly traffic volume on a section of roadway, divided by 365; often referred to as the average daily traffic (ADT).
- *Applicant* – The person applying for a driveway permit.
- *Commission* – The Mississippi Transportation Commission.
- *Corner Clearance* – The minimum distance, measured parallel to a highway, between the nearest curb, pavement or shoulder line of an intersecting public way and the nearest edge of a driveway excluding its radii.
- *Department* – The Mississippi Department of Transportation.
- *Directional Median Opening* – An opening in a restrictive median which provides for U-turns and or left-turn ingress or egress movements.
- *Full Median Opening* – An opening in a restrictive median that allows all turning and through movements to be made.
- *Fully Developed (Type of Area)* – The land use adjacent to the roadway is less than 10% vacant.
- *ITE* – Institute of Transportation Engineers.

- *Joint Driveway* – 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.
- *Major Intersection* – An intersection with high volumes exceeding the MUTCD warrants for signalization.
- *MDOT* – The Mississippi Department of Transportation.
- *Median* – The portion of a divided highway separating the traveled ways for traffic in opposing directions.
- *Median Opening Spacing* – The spacing between openings in a restrictive median that allow for crossing the opposing traffic to access property or U-turns. The distance is measured from centerline to centerline of the openings.
- *MPO* – Metropolitan Planning Organization.
- *MUTCD* – Manual on Uniform Traffic Control Devices.
- *Transitioning Urbanized Areas* – The area between the existing urbanized area boundary and the future projected urbanized boundaries anticipated within the next 20 years as established by the MPO and the MDOT.
- *Posted Speed* – The speed limit set and maintained by MDOT.
- *Rural (Type of Area)* – The land use adjacent to the roadway is more than 70% vacant.
- *SOP* – Standard Operating Procedures.
- *Suburban/Urban (Type of Area)* – The land use adjacent to the roadway is between 10% and 70% vacant.
- *Urban Area* – A U.S. Bureau of Census designated area as defined and shown on maps as published by the Department or areas which are urbanized due to heavy strip development. Strip development may be either residences or businesses that are located on either or both sides of the highway and which average 200 feet or less apart for a distance of not less than 1320 feet measured along the highway.
- *Urbanized Area* – A U.S. Bureau of Census designated city and surrounding area with a population greater than 50,000.

Section 2 – Roadway Classifications

Under this section of the manual, the roadway classification system for the Mississippi Department of Transportation's roadway system will be defined. The roadway classification system is consistent with the definitions as contained in Rule No. 941-7501-04002 Right of Way Encroachment Permits. However, Type 3 - Conventional Highways have been subcategorized in order to reflect the effects of speed and the abutting land (urban versus rural development) on safety and operations. The minimum design standards for the number and locations of the connections, median type and openings, turn lane requirements, and traffic signal location and distance will all be affected by speed and existing land use development. Listed below are the definitions of the roadway classification types of highways.

TYPE 1 – FREEWAY

A freeway is defined as a highway or section thereof with full control of access which has been designated as such by order of the Commission. On freeways, no property abutting the through traffic lanes is permitted except at interchanges constructed at intersecting streets and highways. Frontage roads may be constructed on fully controlled access highways and, where constructed, vehicular access from the abutting property to the frontage road will be permitted. The frontage road will then carry such traffic to a cross road or street with an interchange for entry into the through traffic lanes. Pedestrians crossing on controlled access highways are not permitted. Utility lines may be located on the right of way of fully controlled access highways when such location conforms with the requirements of the Department's Rules. Freeways may be developed by stage construction.

TYPE 2 – PARTIALLY CONTROLLED ACCESS HIGHWAY

1. Highways or sections thereof designated by the Commission as TYPE 2A may have frontage roads constructed on one or both sides of the highway. Right of way may be provided for future construction of frontage roads on one or both sides of the highway. Until such frontage road or roads are constructed, vehicular access from abutting property directly to and from through traffic lanes may be permitted in the same manner as for conventional highways unless the right of access was purchased with the right of way. Upon construction of the frontage roads, vehicular access from abutting property shall be permitted into the frontage road only and then is brought into the traffic lanes over intersecting streets or highways or over approved connections of the frontage road with the through traffic lanes. The right of way of TYPE 2A highways may be used for the construction and maintenance of utility lines and other approved installations in accordance with the Department's Rules.
2. On highways or sections thereof designated by the Commission as TYPE 2B, vehicular travel from and to the through traffic lanes is permitted only at established entrances and exits. The abutter's access rights between such entrances and exits have been or are to be purchased with the right of way. Right of way purchased for access control from the abutting property may be used for the construction and maintenance of utility lines; however, such construction and maintenance must be accomplished without vehicular travel from and to the through traffic lanes or ramps and must comply with the Department's Rules.

TYPE 3 – CONVENTIONAL HIGHWAY

A conventional highway is a highway consisting of two (2) traffic lanes or divided highways with two (2) or more lanes in each direction without frontage roads on either side, and which has not been designated by the Commission as either Freeways or Partially Controlled Access Highways. On conventional highways, vehicular ingress and egress from abutting property directly to and from the through traffic lanes is permitted, except that direct access may be restricted for safety and / or as indicated in the Access Management Manual and the Department's Rules. The right of way of conventional highways may be used for the construction and maintenance of utility lines and other approved installations in accordance with the Department's Rules.

For determining levels of access and minimum standards such as driveway spacing, conventional highways are subcategorized by speed and area type (rural versus urban).

Section 3 – Levels of Access

TYPE 1 - FREEWAY

For Type 1 – Freeways in urbanized areas, the minimum interchange spacing should not be less than 1 mile. Minimum spacing in urbanized areas between interchanges is necessary for drivers to have sufficient time to make lane changes for entering or exiting the freeway. For suburban areas minimum freeway interchange spacing provides for good route signing and for grade separations of the local road system. Minimum spacing for rural freeway interchanges on the Interstate System should not be less than 3 miles apart or 2 miles apart for non-Interstate facilities. Greater separation of interchanges for transitioning urbanized areas and rural areas may be desirable. Greater separation allows additional interchanges to be constructed as rural areas become urbanized.

A summary of the minimum interchange spacing is shown in Table 2.

Table 2 – Minimum Interchange Spacing ⁽²⁾

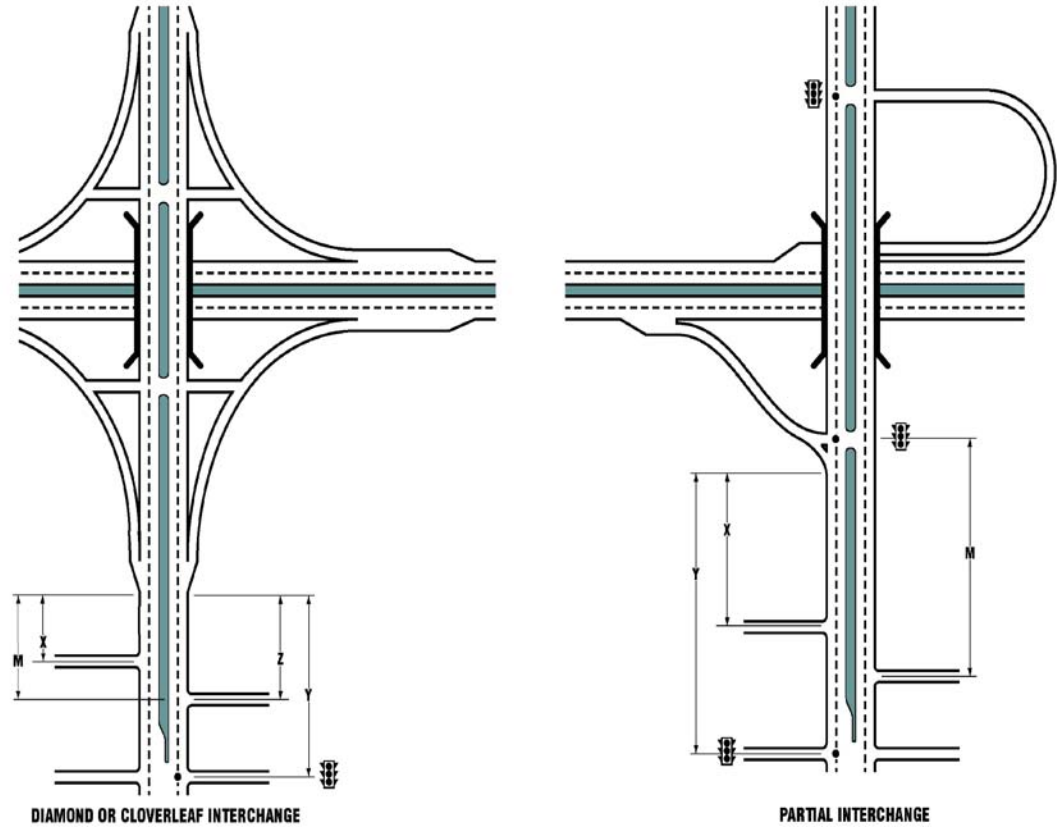
Segment Location / Type	Interchange Spacing Minimums
1. Urban / Interstate	1 MILE*
2. Urban / Non-Interstate	1 MILE*
3. Rural / Interstate	3 MILES
4. Rural / Non-Interstate	2 MILES

* In urban areas, spacing of less than 1 mile may be developed by grade-separated ramps or by C-D roads, provided that a capacity analysis results in an acceptable LOS.

Crossroad Access Spacing at Interchanges:

Minimum access spacing on crossroads for freeway interchange areas is critical for avoiding traffic backups and providing safe maneuvering distances for turning and weaving vehicles to enter the appropriate lanes. Shown in Tables 3 and 4 are minimum spacing requirements. If the proposed distances are less than the minimum spacing then a written justification demonstrating why the recommended distances cannot be met shall be submitted to the District for approval or disapproval as an exception.

Table 3
Minimum Spacing for Freeway Interchange Areas with Multilane Crossroads ⁽³⁾



Minimum Spacing Dimension

TYPE OF AREA	X	Y	Z	M
Fully Developed Area	880'	1760'	880'	880'
Suburban/Urban	880'	1760'	1760'	1760'
Rural	880'	1760'	1760'	1760'

X = distance from taper to first approach on the right; right in / right out only. Additional driveways located downstream from the first approach must be separated based on the distance requirements as specified in Table 6a.

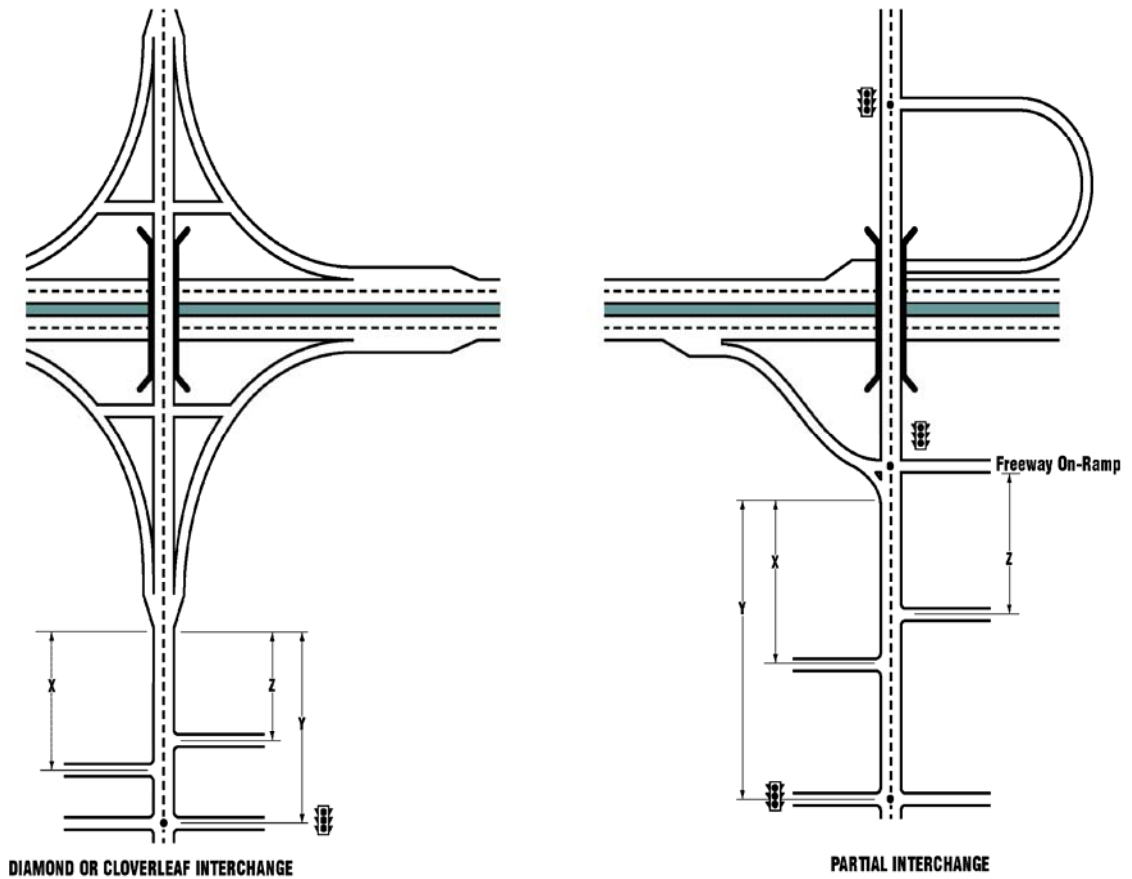
Y = distance to first major intersection. No four-legged intersections may be placed between ramp terminals and the first major intersection.

Z = distance between the last access connection and the start of the taper for the on-ramp.

M = distance to first possible directional median opening, provided the LOS for the weave, merge, and queue are acceptable. M applies to the tip of the taper closest to the crossover. No full median openings are allowed in nontraversable medians up to the first major intersection.

Free-flow ramps are generally discouraged in fully developed urban areas and are questionable in suburban/urban areas because pedestrian and bicycle movements are difficult. For high speed free flow ramps, higher minimum spacing dimensions may be required.

Table 4
 Minimum Spacing for Freeway Interchange Areas with Two-Lane Crossroads ⁽³⁾



Minimum Spacing Dimension

TYPE OF AREA	X OR Z	Y
Fully Developed Area	880'	1760'
Suburban/Urban	880'	1760'
Rural	880'	1760'

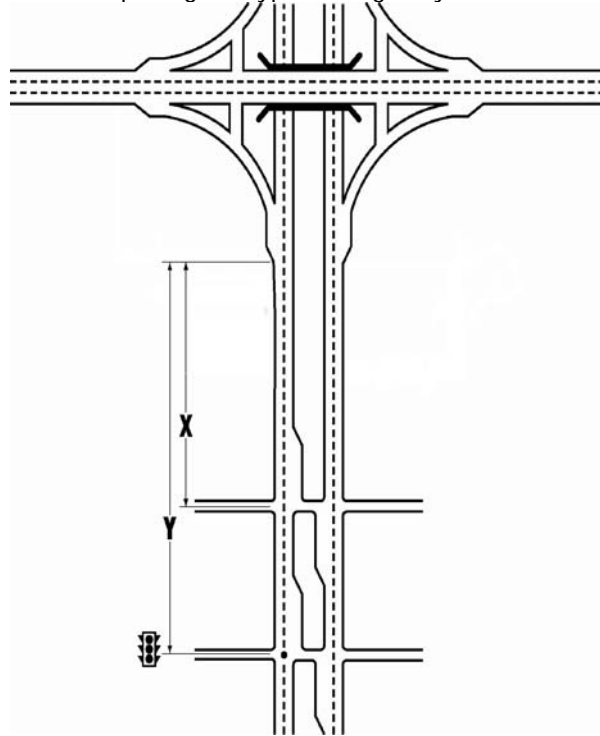
X or Z = distance to first access connection from the taper of the off-ramp or on-ramp. This dimension provides for either X or Z. However, X and Z should not be the same distance in order to avoid the creation of a four-legged intersection. Additional driveways located between the first access connection and the first major intersection must be separated based on the distance requirements as specified in Table 6a.

Y = distance to first major intersection. No four legged intersections may be placed between ramp terminals and the first major intersection. Y applies to the tip of the taper closest to the crossover.

TYPE 2 – PARTIALLY CONTROLLED ACCESS HIGHWAYS

For Type 2 – The minimum spacing for signalized intersections is 1/3 mile for urban areas and 2/3 mile spacing for rural areas. Median opening spacing requirements are defined in Section 5 - Median Policy. Minimum median opening spacing requirements on Type 2B Highways for interchange areas are shown in Table 5. The Type 2B Highway interchange area may include Type 1, 2, or 3 facilities.

Table 5
Minimum Access Spacing on Type 2B Highways for Interchange Areas



Minimum Spacing

TYPE OF AREA	X	Y
Fully Developed Urban	1760'	1760'
Suburban/Urban	1760'	1760'
Rural	1760'	3520'

X = distance from taper to first approach on the right; right in / right out only or the first possible directional median opening provided the LOS for the weave, merge, and queue are acceptable.
Y = distance to first major intersection. No four-legged intersections may be placed between ramp terminals and the first major intersection.

Free-flow ramps are generally discouraged in fully developed urban areas and are questionable in suburban/urban areas because pedestrian and bicycle movements are difficult. For high speed free flow ramps, higher minimum spacing dimensions may be required.

TYPE 3 – CONVENTIONAL HIGHWAYS

For Type 3 – The minimum spacing for signalized intersections will be 1/3 mile for urban areas and 2/3 mile for rural areas. Distances between signals should not vary by more than 10% in order that good progression of traffic may be maintained in both directions.

For Type 3 – Conventional Highways, the minimum driveway spacing for commercial driveways are shown in Table 6a.

Table 6a
Minimum Connection Spacing for Commercial Driveways

POSTED SPEED	DISTANCE
≤30 mph	185'
35 mph	245'
40 mph	300'
45 mph	350'
≥50 mph	425'

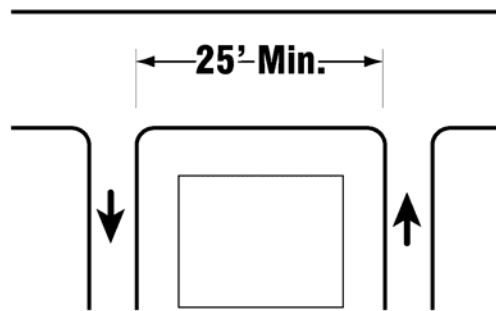
Exceptions to the minimum connection spacing as shown in Table 6a may be approved for the following conditions if it is determined that MDOT does not want to purchase the right-of-way.

1. As a result of an MDOT action such as construction modifications the property would become land-locked.
2. In order to replace reasonable access that may be lost due to MDOT highway reconstruction or modification.

Table 6a lists the minimum distances between commercial driveways for sites that generate greater than 50 in or out directional trips per peak hour based on the most recent edition of the ITE Trip Generation Manual. Note in Appendix 2 there are examples of facilities generating greater than 50 trips. The commercial driveway criteria in Table 6a will apply for highways with AADT's equal to or greater than 2,000. For commercial driveways located on highways with less than 2,000 AADT or generating 50 trips or less per peak hour, the minimum driveway spacing shall be 100 feet. The 2,000 AADT volumes should be measured based on current traffic.

Distances between adjacent one-way driveways with inbound traffic upstream from the outbound drive may have a minimum separation distance of 25 feet (Figure 1). Islands having a minimum length of 25 feet measured parallel to the highway will be built between the closely spaced driveways to form definite entrances and exits to the degree needed to channelize traffic and prevent paving of the entire frontage, thereby eliminating parking on the highway right of way directly in front of the business places and immediately adjacent to the roadway.

Figure 1
Minimum Distance Between Adjacent One-Way Driveways



For non-commercial driveways located on roads with less than 2,000 AADT the minimum distance will be 25 feet and for non-commercial driveways on roads with AADT's equal to or greater than 2,000 AADT the driveway spacing minimum will be 50 feet. These distances are shown in Table 6b.

Table 6b
Minimum Connection Spacing for Non-Commercial Driveways

AADT	DISTANCE
>2000	50'
≤2000	25'

A summary table of the commercial and non-commercial driveway spacing is shown in Appendix 4. A summary table of the levels of access for Type 2 and Type 3 highways is in Appendix 3.

Where the minimum permitted non-commercial driveway spacing is 25 feet, the driveways shall be so located within the applicant's frontage that the flared portion or return adjacent to the traveled way will not encroach on adjacent frontage. A minimum distance of 12½ feet should be reserved between driveway and boundary property line so as to preserve a 25 foot neutral area between non-commercial driveways. Applications for joint use driveways (two adjacent property owners using the same driveway) or for driveways with less than the required 25 foot neutral area between non-commercial driveways will be reviewed for approval on a case by case basis; however, in all such applications, both property owners' signatures are required on the permit.

No more than two (2) combined driveway entrances and exits shall be permitted for any parcel of property which has a frontage of 300 feet or less. Additional entrances or exits for parcels having a frontage in excess of 300 feet shall only be permitted if an additional entrance would create a safer condition. Additional entrances or exits, or if a

second entrance cannot meet the minimum connection spacing requirements as described in this Access Management Guide, must be reviewed and approved as part of the exception process.

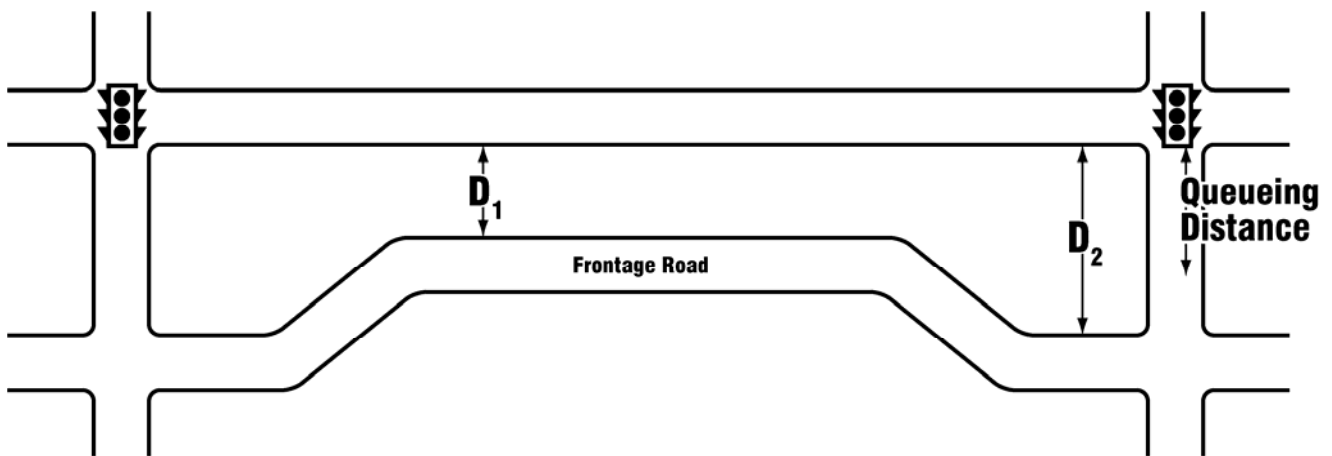
Where frontage is 50 feet or less, only one (combined) entrance and exit is permitted, the width of which shall not exceed 25 feet measured parallel to the centerline of the highway.

Spacing between driveways is measured from near edge to near edge of adjacent driveways. On undivided highways, access on both sides of the road should be aligned. Where this is not possible, driveways should be offset by at least 150 feet when two minor traffic generators are involved, and/or 300 feet when two major traffic generators (greater than 50 directional trips per peak hour) are involved.

FRONTAGE ROADS

Frontage roads for both Type 1 and Type 2 Highways shall meet the driveway access requirements as specified for Type 3 highways. Minimum frontage road separation from the main highway is shown in Figure 2.

Figure 2
Minimum Frontage Road Separation



Where: D_1 = Minimum midblock separation (>25 ft.)
 D_2 = Minimum separation at intersection (minimum 150 ft.; >300 ft. preferred)

Section 4 – Geometric Requirements

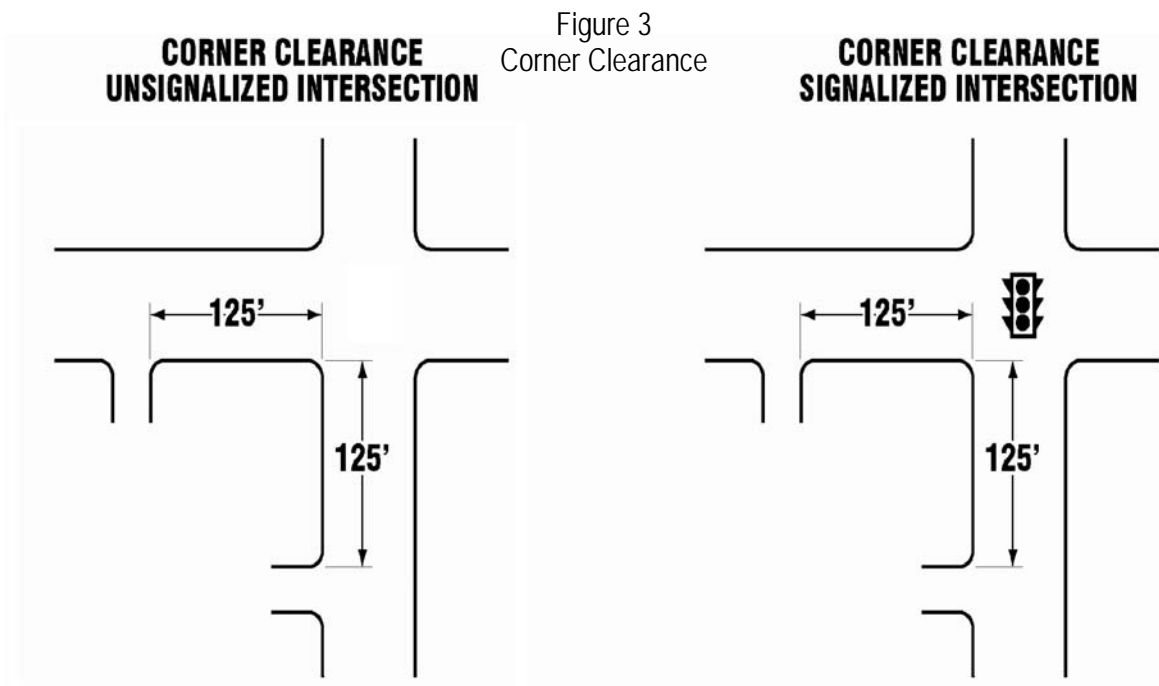
The Mississippi Roadway Design Manual ⁽⁴⁾ establishes the geometric requirements for intersections/interchanges and urban arterials.

Warrants for auxiliary left-turn and right-turn lanes are shown in Chapter 6 of the Mississippi Roadway Design Manual. ⁽⁴⁾

Driveways shall be built so that vehicles will not have to back into the roadway when exiting.

CORNER CLEARANCES

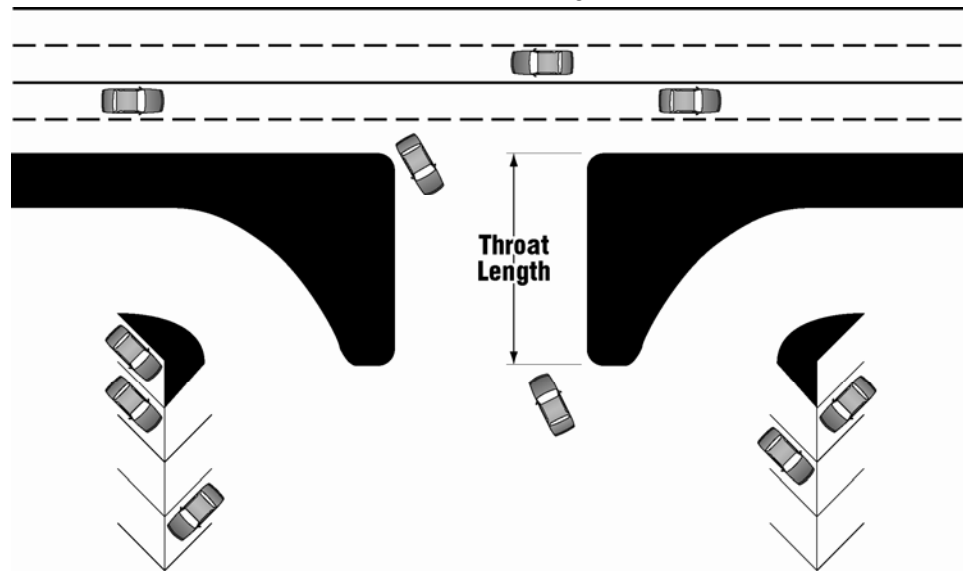
Corner clearance is the distance between an intersection and the first point of ingress or egress to a corner property's driveway. The purpose of corner clearance is to remove conflicting movements from the functional area of intersections and provide sufficient stacking space for queued vehicles at intersections so that the driveways are not blocked. No driveway will be permitted to enter directly into an intersection. Driveways must turn traffic into the traffic stream of the highway and/or intersecting road or street before it is permitted to pass through the intersection. Unless an exception is granted, the minimum corner clearance for entrances on TYPE 2 and TYPE 3 Roads will be established by a queuing analysis or 125 feet for unsignalized intersections and 125 feet for signalized intersections whichever is larger. If an exception is requested and approved at an intersection where no provision has been made for sight distance or clear vision areas (flared right of way), no part of a driveway entrance or exit may be permitted to connect with either the highway or crossroad or street within 50 feet from the outside shoulder line of the adjacent street and the access will be a right-in/right-out. Exceptions may be approved if as a result of MDOT action the property would become landlocked. No part of a driveway entrance or exit may be permitted within a corner radius.



THROAT LENGTH DISTANCES

The connection depth of a driveway (throat length) as measured from the edge of the abutting roadway to the near edge of the internal circulation road or buffer area shall be of sufficient length to allow a driver to enter the site without interfering with the mainline of traffic. Table 7 shows the minimum throat lengths based on the site activities.

Table 7
Minimum Throat Lengths ⁽⁵⁾



SITE ACTIVITY

THROAT LENGTHS

Regional Shopping Centers (Malls)	250'
Community Shopping Center (Supermarket, Drug Store)	80'
Small Strip Shopping Center	30'
Regional Office Complex	250'
Office Center	80'
Small Commercial Developments	30'

SIGHT DISTANCE REQUIREMENTS

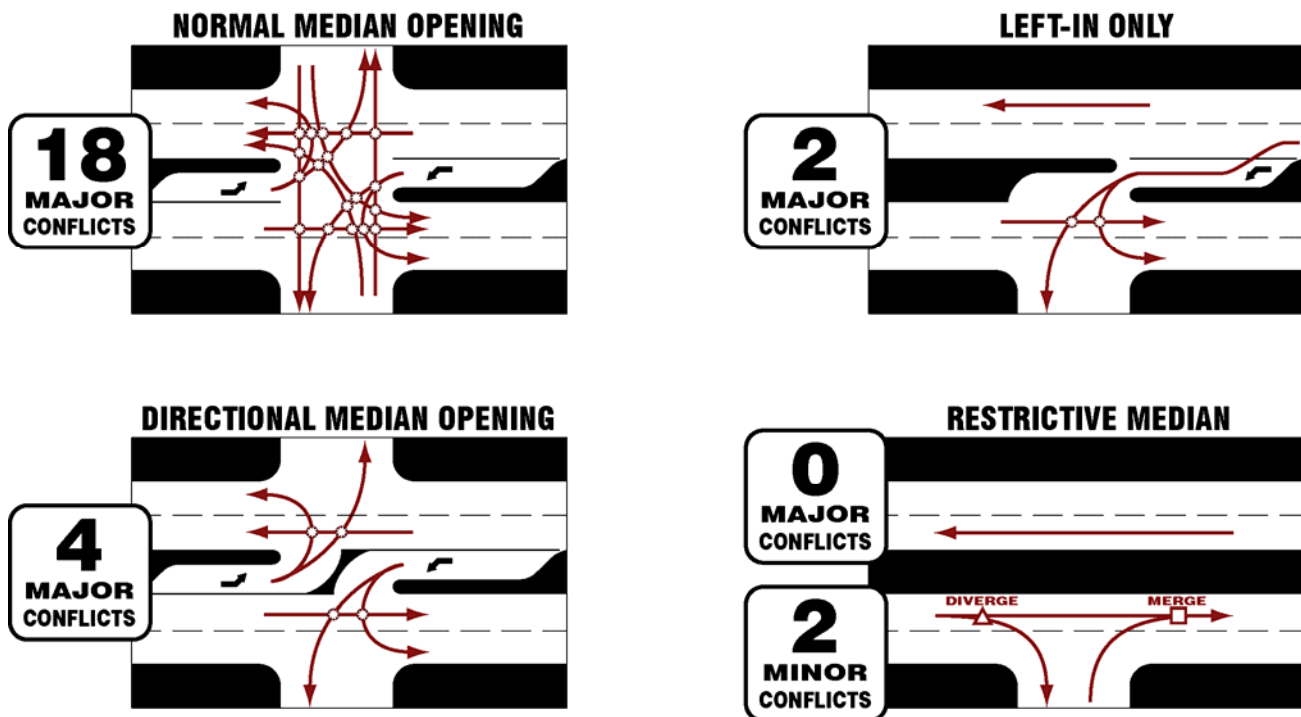
Driveways shall not be permitted to connect with any highway, road, street or frontage road at a location if it does not meet the minimum stopping sight distance (as outlined in the current edition of the MDOT Roadway Design Manual-using 3R Criteria), based on vertical or horizontal alignment, terrain or other reasons which will cause an undue hazard to the traveling public. Any driveway application that does not provide adequate sight distance as outlined in the above listed design manual shall be denied. In order to provide adequate sight distance in both directions when entering the highway, driveway entrances and exits should be at a 90 degree angle. Angles less than 90 degrees should not be constructed unless justified by an engineering analysis and in no case shall be less than 60 degrees with the highway.

Section 5 – Median Policy

Well designed medians and median openings are an important part of a safe and efficient highway system. The design and placement of these medians is an integral part of a state's access management program. The benefits of medians include:

1. Safety – fewer vehicle crashes and pedestrian accidents due to reduced conflicts and creation of refuge areas.
2. Vehicular Efficiency - reduction of conflicts and removal of turning in the through lanes increases highway speeds and reduces delays.
3. Aesthetics – creates room for landscaping and streetscaping applications.

There are four major types of raised restrictive medians as shown below:



MEDIAN PLACEMENT

In order to promote safety and preserve capacity, multilane highways with design speeds greater than 40 miles per hour and annual average daily traffic exceeding 30,000 should be designed with a raised or restrictive median. Facilities having a design speed of 40 miles per hour or less and AADT's of less than 30,000 should include restrictive medians where appropriate to improve safety and traffic operations.

MEDIAN OPENINGS PRIORITY

In keeping with the principles of functional design adopted by the AASHTO "Green Book" ⁽⁶⁾, the following is a suggested hierarchy of median openings:

1. Intersection of freeway ramps and at-grade arterials.
2. Intersection of major arterial to arterial.
3. Other signalized intersections (public street or private access connection) which conform to the signalized intersection spacing standard.
4. Other intersections on major arterials which conform to the signalized intersection spacing but which are not as yet signalized.
5. Signalized intersections (public street or private access connection) which do not conform to the signalized intersection standard.
6. U-turn or left-turn/u-turn opening serving 2 or more public and/or private connections. U-turn/left turn ingress should normally be given priority over left turn out egress because ingress capacity is higher and produces less conflict than the left turn out movement.

MEDIAN OPENING PLACEMENT

The unsignalized median opening is essentially an intersection. Under most traffic conditions the median should be designed with auxiliary lanes to allow left turning vehicles to decelerate without interfering with the through movement of the leftmost through lane. To allow for safe operations and based on a queue analysis, the following provisions will apply to the construction of new and additional median openings and left turn bays on conventional or partial controlled access highways on which access rights between the median openings were not purchased with the right of way:

	MINIMUM MEDIAN OPENING SPACING (DIRECTIONAL)	MINIMUM MEDIAN OPENING SPACING (FULL)
Urban Areas:		
Speed \geq 45 MPH	1760'	1760'
Speed <45 MPH	880'	1760'
Rural Areas	1760'	1760'

The normal spacing between full median openings will not be less than 1760 feet in rural areas. The minimum spacing for full medians in urban areas will not be less than 1760 feet. Urban areas are defined and shown on maps published by the Department or areas which are urbanized due to heavy strip development. Strip development may be either residences or businesses that are located on either or both sides of the highway and which average 200 feet or less apart for a distance of not less than 1320 feet measured along the highway.

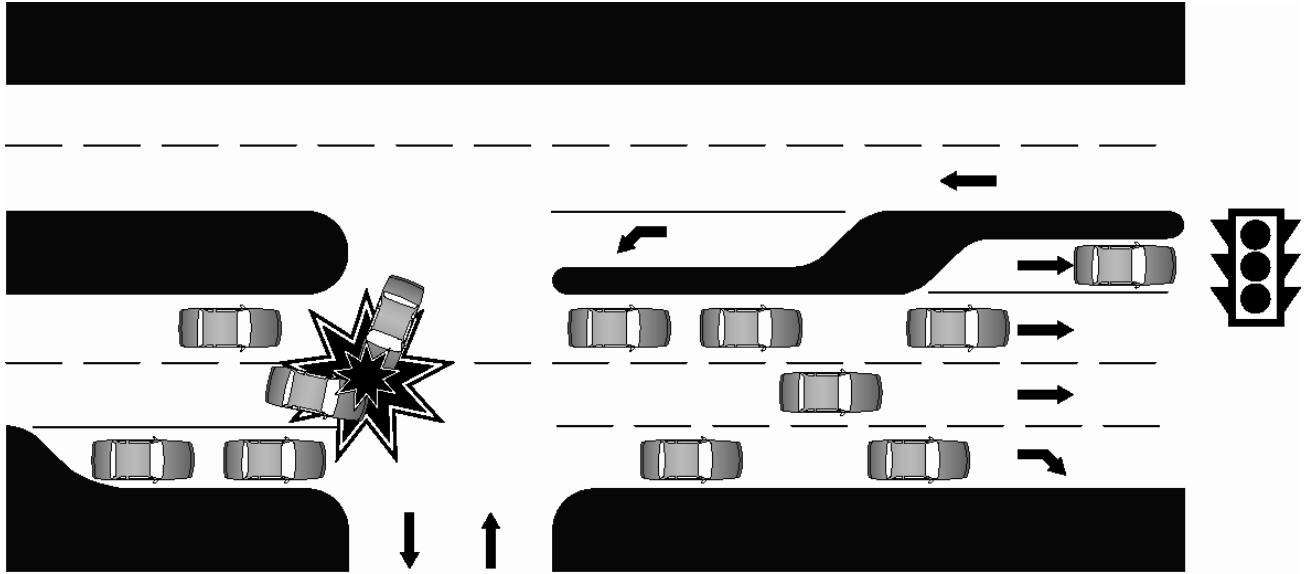
The normal spacing between directional median openings shall not be less than 1760 feet for rural areas. For urban roads with posted speeds equal to or greater than 45 miles per hour the minimum spacing for directional

median openings will not be less than 1760 feet and for posted speeds less than 45 miles per hour the minimum spacing is 880 feet.

If access rights have been purchased between the median openings, no additional median openings shall be considered.

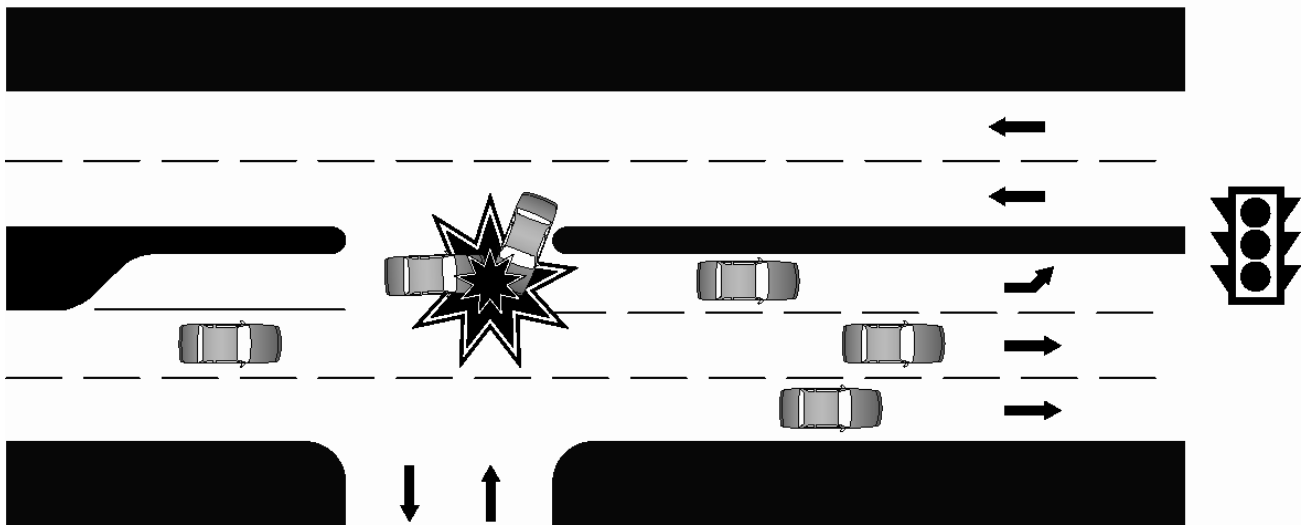
Median openings as shown in Illustration 1 that allow traffic to cross exclusive right turns or across regularly formed queues from a nearby intersection should not be permitted.

Illustration 1



Median openings as shown in Illustration 2 that allow traffic to cross exclusive left turns should not be permitted.

Illustration 2

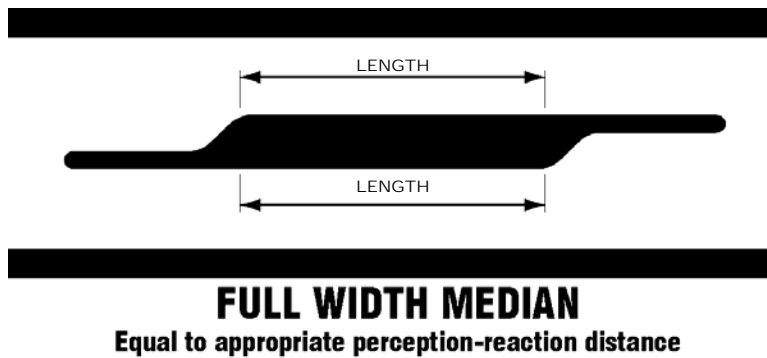


MEDIAN GEOMETRIC DESIGN

Design criteria for median openings are provided in the Department's Roadway Design Manual.

A full width median is a desirable feature that should be incorporated in the design. The length of the full median width should be equal to the perception-reaction distance. Typical perception-reaction time would be 1.5 seconds. For a 30 mph facility the full width median distance would be equal to 66 feet (1.5 x 44 fps). Full width medians provide space for signing and greater visibility to drivers. An illustration of a full width median is shown below.

Illustration 3



At a minimum for medians in urban areas, left turn lane storage areas will be 100 feet in length and for medians in rural areas the minimum will be 50 feet. These lengths will satisfy the queue storage requirements for 4 and 2 vehicles respectively. Longer left turn storage areas should be provided if needed based on a queue analysis study. In urban areas turn lane length may be determined by the queue length in the adjacent through lanes to prevent the queue from blocking access to the turn lane(s).

The type and placement of signs and traffic control devices will be based on the guidance provided in the Manual on Uniform Traffic Control Devices.

BUSINESS IMPACTS

Access management as part of site development and road projects can help businesses, even those operating on existing corridors, in numerous ways. Some of the benefits and advantages businesses experience due to access management include:

- Reduced road delays and improved speeds which will preserve and potentially expand the market area of businesses in the corridor;
- Expanded site area parking due to multiple businesses sharing access and driveways;
- Improved business community image by landscaping and other site amenities with installation of medians; and
- Easier internal circulation between businesses by construction of internal connections.

The construction of a landscaped median improves the visual appearance of a corridor and may assist in attracting new investments. In fact, access management projects have had positive impacts on property values and studies in Texas, Minnesota, Iowa, and Florida have documented either stable or increased land values for corridors after construction of access control management projects.

Where medians are constructed or median openings are closed, studies have reported relatively little effect on the number of customers making left turns into a business on congested roadways or during peak travel periods due to high volumes of opposing traffic. Other studies have reported where direct left-turns are prohibited some motorists will change their driving or shopping patterns to continue patronizing specific establishments.

An important aspect of minimizing the impact of access management projects and medians is to maintain open access to businesses during the construction phase. Potential actions to mitigate construction impacts include:

- Clearly sign business entrances from the roadway;
- Provide temporary and/or secondary business access points, where feasible;
- Schedule construction during after-business hours or during times of low usage for seasonally-oriented businesses;
- Avoid blocking business entrances with construction equipment or construction barriers;
- Provide alternative parking, if possible and avoid taking or blocking parking spaces;
- Establish a single point of contact in the agency about the construction project to communicate with property and business owners; and
- Provide regular project progress reports to business and property owners.

Section 6 - General Requirements

DOUBLE FRONTAGE LOTS

Where an applicant's lot has frontage on more than one public street, access shall be given from the lower functional road to the extent possible.

JOINT DRIVEWAY USAGE

If an applicant is unable to comply with the access spacing requirements shown in Tables 6a and/or 6b and requests an exception, the applicant must attempt to obtain an access or mutual driveway easement from the adjacent property so as to allow for one egress to serve two properties. If located all or partially on the applicant's property then the adjacent property owner(s) must agree to relocate any existing access to the proposed access and the relocation must be performed in conjunction with the applicant's development of the property.

If the applicant is unable to obtain an access or mutual driveway easement from an adjacent property owner, then the access to the applicant's property shall be located on its property in an area acceptable to MDOT. Documentation of the applicant's attempt to obtain an access or mutual driveway easement from the adjacent property will be included in the submission of an exception.

LOCAL COORDINATION

All applications for driveways to sites that will generate more than 100 peak hour directional trips will be submitted by the applicant to the appropriate local planning agency for review and comment prior to submission to the MDOT.

Section 7 - Traffic Impact Analysis

A traffic impact study shall be required and submitted by an applicant for any proposed site that would generate 100 or more directional trips during the peak hour of the traffic generator or the peak hour of the adjacent street. A change or expansion at an existing site that results in an expected increase of 100 or more directional trips will require a traffic impact study. A traffic impact study will also be required if the resident engineer determines that the proposed development will have a significant impact on the operations at the proposed access point. The estimate of the number of directional trips for the sites will be based on the latest edition of the ITE Trip Generation Report. Listed below in Table 8 are examples of land use size thresholds that will generate 100 peak hour directional trips.

Table 8
Typical Land Use Thresholds ⁽⁶⁾

LAND USE	100 PEAK HOUR DIRECTIONAL TRIPS
Residential:	
Single Family	150 units
Apartments	245 units
Condominiums/Townhouses	295 units
Mobile Home Park	305 units
Shopping Center – Gross Leasable Area	15,500 sq. ft.
Fast Food Restaurant With drive-in – Gross Floor Area (GFA)	5,200 sq. ft.
Convenience Store w/gas (GFA)	1,300 sq. ft. or 5 pumps
Banks w/drive-in (GFA)	4,400 sq. ft.
Hotel/Motel	250 rooms
General Office	55,000 sq. ft.
Medical/Dental Office	37,000 sq. ft.
Research & Development	85,000 sq. ft.
Light Industrial	115,000 sq. ft.
Manufacturing	250,000 sq. ft.

The traffic impact analysis should contain the following information:

1. Description of the site surroundings and study area: Through a narrative and illustrations the characteristics of the site should be described. This would include surrounding land uses and expected development in the vicinity that would influence future traffic conditions.
2. Description of the current and proposed land use: The description would include characteristics such as the number and type of dwelling units, gross and leasable floor area, the number of employees, and schedule for construction of the development.
3. Description of existing traffic conditions: Existing conditions include existing peak-hour traffic volumes adjacent to the site and existing counts and levels of service for intersections in the vicinity which are expected to be impacted. Traffic crash data near the proposed site access point during the most recent 3 year period should be included in the analysis.
4. Estimate of background traffic growth: If the planned completion date for the project or the last phase of the project is beyond 1 year of the study an estimate of background traffic growth for the adjacent street network will be made and included in the analysis.
5. Estimate of trip generation: The site forecasted trips will be based on the most recent edition of the ITE Trip Generation Manual. Any reductions due to internal trip capture and pass-by trips will be justified and documented. Projects that will be developed in phases will calculate the trips generated by phase.
6. Estimate of trip distribution and traffic assignment: The distribution (inbound versus outbound, left turn versus right turn) of the estimated trip generation to the adjacent street network and nearby intersections will be included in the report.
7. Estimate of impact analysis: A level of service will be calculated at the access points, the arterial, and any intersection where the expected traffic generated at the site will comprise at least five percent (5%) of the intersection capacity. The levels of service will be based on the procedures in the latest edition of the Highway Capacity Manual.
8. Access Management Standards: The report shall include a map and description of the proposed access including any sight distance limitations, adjacent driveways and intersections, and a demonstration that the number of driveways proposed is the fewest necessary and they provide safe and efficient traffic operations.
9. Site circulation: A site circulation plan will be included in the report.
10. Traffic signalization: If a traffic signal is being proposed, a signal warrant analysis will be included in the study. An arterial analysis including the impact the proposed signalization will have on traffic progression will be conducted.
11. Mitigation and alternatives: The traffic impact study should include proposed improvements or access management techniques that will mitigate any changes in the levels of service.

Section 8 - Administrative Procedures

PERMIT REQUIREMENTS

For State Highways a permit is required for:

1. New driveways.
2. Alterations to existing drives.
3. Changes of use on the property serviced by the existing driveway/entrance that result in a daily trip increase of 10% or 100 daily trips whichever is greater.
4. Property use changes from non-commercial to commercial.

Application for a driveway permit will follow the procedures as specified in Rule Number 941-7501-04002. If the access to a site is of such a magnitude that it is expected to exceed 100 peak hour directional trips a traffic impact study must be submitted as described in the Traffic Impact Analysis section of this guide.

Should the land use for the property for which the driveway was originally permitted be changed (i.e. residential to commercial), the permit shall be revoked and a new permit must be applied for reflecting the new land use. This requirement is applicable to all permits granted by the Department prior to and after approval of this guide.

APPEALS

If an applicant's permit is denied by the Department, the applicant may submit within 10 days after the receipt of a notification of the adverse decision a written appeal to the District Engineer who will then forward the appeal, along with supporting documentation, to the State Maintenance Engineer. The State Maintenance Engineer will then send the appeal to the Access Management Review Committee. The Committee shall consist of representatives appointed by the Chief Engineer. The Committee shall review the appeal and determine whether any means exist by which the reasons for the decision may be mitigated and an exception approved.

MAINTENANCE & PERMIT TRANSFER

The access must be maintained according the standards and specifications at the time the permit was granted.

APPENDIX 1 – LAND USE SIZE THRESHOLDS FOR 50 PEAK HOUR DIRECTIONAL TRIPS ⁽⁷⁾

LAND USE	50 PEAK HOUR DIRECTIONAL TRIPS
Residential:	
Single Family	70 Units
Apartments	115 Units
Condominiums/Townhouses	125 Units
Mobile Home Park	140 Units
Shopping Center (GLA)	5,200 Sq. Ft.
Fast Food Restaurant w/Drive In (GLA)	2,600 Sq. Ft.
Convenience Store w/Gas (GFA)	650 Sq. Ft Or 3 Pumps
Banks w/Drive-In (GFA)	2,200 Sq. Ft.
Hotel/Motel	120 Rooms
General Office	22,000 Sq. Ft.
Medical/Dental Office	18,600 Sq. Ft.
Research And Development	37,000 Sq. Ft.
Light Industrial	58,000 Sq. Ft.
Manufacturing	125,000 Sq. Ft.

GLA – GROSS LEASABLE AREA
 GFA – GROSS FLOOR AREA

APPENDIX 2 – DRIVEWAY ACCESS REVIEW CHECKLIST ⁽⁷⁾

The following checklist is intended to be used by MDOT staff for an initial review of access permit requests. Standards to be applied are from the Mississippi Roadway Design Manual, Mississippi's Rules and this guideline.

Checklist

YES	NO	
<input type="checkbox"/>	<input type="checkbox"/>	The distance between driveways and adjacent intersections or other intersections meet corner clearances and spacing standards. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	Sight distance at the proposed location is sufficient. Proposed signs and/or landscaping do not obscure sight distance. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	Driveway grades and widths meet standards. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	The driveway throat length meets standards and is sufficient to provide storage for vehicles waiting to enter or exit without creating conflicts. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	Shared driveways, frontage roads, rear service driveway or connecting driveways have been considered if appropriate. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	Driveway radii for both inbound and outbound are sufficient to accommodate the type of vehicular traffic that is expected to enter the site. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	Pedestrian traffic has been accommodated and ADA requirements have been met. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	Alternative access to a side street has been considered where available. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	Where possible the driveway is aligned with driveways across the street. Comment: _____
<input type="checkbox"/>	<input type="checkbox"/>	For driveways that meet the trip generation standards a traffic impact analysis was conducted. The need for bypass lanes, turn lanes, deceleration lanes, deceleration tapers, and width and number of ingress/egress lanes has been evaluated. Comment: _____

APPENDIX 3 – LEVELS OF ACCESS

ACCESS CLASS	AREA TYPE	MEDIAN TREATMENT	MINIMUM MEDIAN OPENING SPACING			SIGNAL SPACING
			DIRECTIONAL ACCESS		FULL ACCESS	
			≥45mph	<45mph		
TYPE 2A	URBAN	RESTRICTIVE	1760'	880'	1760'	1760'
	RURAL	RESTRICTIVE	1760'	1760'	3520'	3520'
TYPE 2B	URBAN	RESTRICTIVE	1760'	880'	1760'	1760'
	RURAL	RESTRICTIVE	1760'	1760'	3520'	3520'
TYPE 3	URBAN	NON-RESTRICTIVE	NA	NA	NA	1760'
		RESTRICTIVE	1760'	880'	1760'	1760'
	RURAL	NON-RESTRICTIVE	NA	NA	NA	3520'
		RESTRICTIVE	1760'	1760'	1760'	3520'

Note: Less than the minimum signal distance is only permitted if there is no reasonable alternative and a weave and queue analysis shows adequate spacing.

APPENDIX 4 – MINIMUM CONNECTION SPACING

		POSTED SPEED	DISTANCE
COMMERCIAL DRIVEWAY	>50 PEAK HOUR TRIPS AND >2000 AADT	≤30mph 35mph 40mph 45mph ≥50mph	185' 245' 300' 350' 425'
	≤50 PEAK HOUR TRIPS OR ≤2000 AADT	NA	100'
NON-COMMERCIAL DRIVEWAY	>2000 AADT	NA	50'
	≤2000 AADT	NA	25'

REFERENCES

1. S&K Transportation Consultants, Inc. *Access Management, Location and Design*. Participant notebook for NHI Course 133078. Federal Highway Administration April 2000.
2. *Access Management Manual*, Transportation Research Board, Washington D. C. 2003.
3. Gluck, J., H.S. Levinson, and V. Stover. *NCHRP Report 420: Impacts of Access Management Techniques*. TRB National Research Council, Washington D.C., 1999.
4. *Mississippi Roadway Design Manual*, Mississippi Department of Transportation.
5. *Florida Site Impact Handbook*, Florida Department of Transportation.
6. *AASHTO Green Book, A Policy on Geometric Design of Highways and Streets*.
7. *Evaluating Traffic Impact Studies – A Recommended Practice for Michigan Communities* – Michigan Department of Transportation 1994.