Access Management Standards

Prepared for:

City of Casa Grande

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1.0 INTRODUCTION

The current Access Management Standards followed by the City of Casa Grande (City) were developed in 2001 and carried forward in the Small Area Transportation Study (SATS), dated July 2, 2007, with supplemental guidance to recognize the requirements of the modern roadway network and growth of the City. The purpose of this document is to provide an update of access management issues confronting the City relative to the community's roadway network. Guidance provided herein relies heavily on the 2007 SATS report and provides updates to recommended practices for the management of vehicular access to all City-owned roadways and State highways, based on the experience and knowledge gained in this area over the past 15 years. Standards have been augmented with information presented in the Arizona Department of Transportation's (ADOT) Draft Access Management Guidelines (2014) and the Central Arizona Governments (CAG) Regional Transportation Plan (2015).

Following this Introduction, Section 2.0 presents a definition and explanation of the concept and practice of access management (also referred to access control). Section 3.0 discusses the importance of access management. Section 4.0 provides an overview of legal issues associated with a jurisdiction, such as the City, having authority over and exercising access control along the rights-of-way of roads and streets under its control. Section 5.0 identifies administrative and technical methods by which the City can manage access to the roadway network. Finally, Section 6.0 presents a set of recommended access control standards to provide a framework for assessing the need for and authorizing access to public roads and streets in Casa Grande.

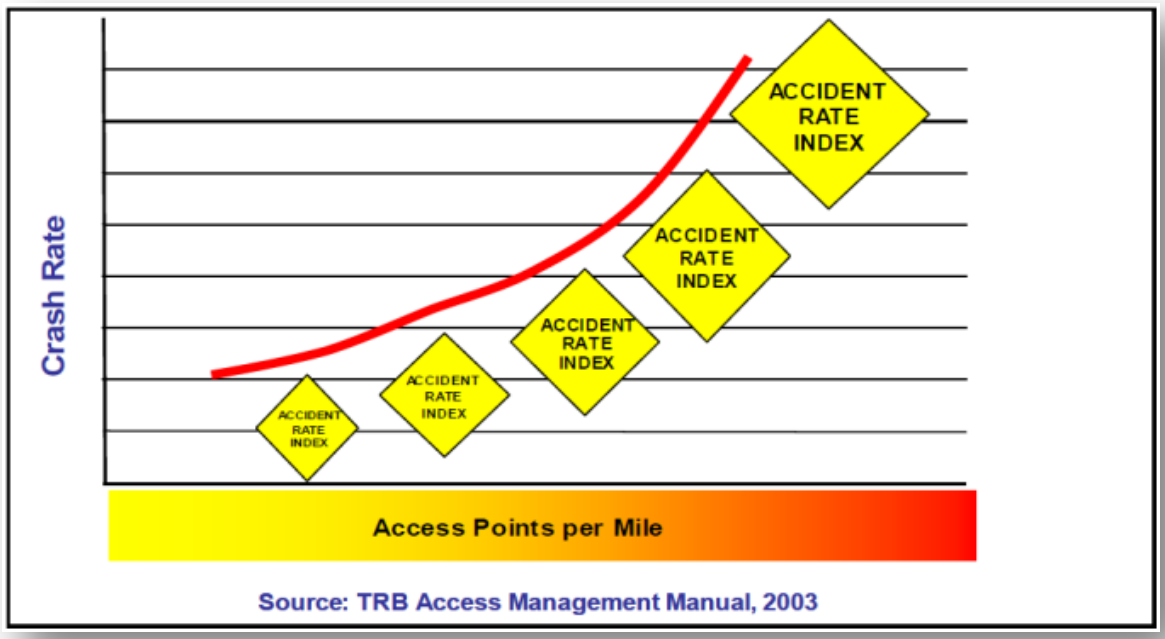
2.0 DEFINITION OF ACCESS MANAGEMENT

Access management is defined as the regulation of access to public roadways from property adjoining or abutting the roadway for the purpose of ingress to and egress from the property. Access management practices are applied by jurisdictions to establish an optimal level of control over vehicles exiting and entering roadways. Access management has proven to be effective at preserving the function, efficiency, and safety of public roadways. Access control standards aid the City in maintaining the through capacity of public roadways, ensuring reasonable access to private land adjoining the roadways, and enhancing public safety by reducing the potential for vehicle conflicts. Access management is regulated through legal, administrative, and technical strategies available to a political jurisdiction under its police powers and authority to maintain the health, safety, and welfare of the jurisdiction's residents.

Standards and recommended practices presented in Section 6.0 include basic design criteria for the location, spacing, and geometric aspects associated with permitting driveway access to City roadways. Access management initiatives at the State and local levels generally fall into two major categories: (1) land use and development strategies; and (2) technical traffic engineering and roadway design tools. The standards presented in this document are intended for use by City staff as well as developers in evaluating reasonable access provisions associated with proposed land uses, site plans, and facility designs. The availability of updated Standards and recommended practices provides a contemporary framework for reducing project review and approval time and establishes a rational framework for assuring adequate access is available to serve a proposed land use while critical roadway functions are protected.

3.0 IMPORTANCE OF ACCESS MANAGEMENT

Access management planning focuses on the development of corridor- or roadway-specific transportation and land use strategies to improve safety and functionality. Engineering and day-to-day experience indicates that the operational safety, capacity, and functional integrity of a roadway is directly affected by the number and design of access points. Each access point represents a potential location for conflicts and crashes involving motorists, bicyclists, and pedestrians. If development along a roadway and the amount of access afforded that development does not fit with the volume and type of traffic, the roadway may become congested and unsafe. As shown in the graphic below, as the number (or frequency) of access points per mile increases, the Crash Rate increases (measured by what is termed the Accident Rate Index, which equals the number of crashes per million vehicle miles traveled).



Adding more lanes to an existing highway to gain necessary capacity or reduce congestion for safety's sake is expensive and oftentimes not possible. In contrast, controlling and limiting access to highways, major roads, and even certain city streets is a cost-effective way to help maintain the capacity of the facility and improve the safety of traffic operations. Proactive solutions can include the control of entrances and exits to abutting properties, installation of medians to restrict left-turns to abutting properties, addition of left-turn lanes at prescribed locations, and establishment of connections between adjoining developments. By coordinating access locations with surrounding land uses based on traffic data, forecasted volumes, and expected roadway function (e.g., collector v. arterial), it is possible to improve safety and functionality without adding lanes. Coordination of the local street network with the state highway system also adds opportunities for implementing pro-active and cost-effective solutions to capacity and safety issues.

Other significant benefits of access management include:

- improved community quality of life through reduced congestion and more efficient access to goods and services;
- greater sustainability of community design through effective integration of transportation and land uses;
- improved safety for bicyclists and pedestrians, due to the reduction in conflict points at the side of the roadway and, in some cases, center islands that provide refuge;
- improved transportation corridor aesthetics through practical landscaping and streetscaping; and
- more efficient use of limited, available funding through the implementation of more affordable, less disruptive roadway improvements versus major reconstruction and widening.

4.0 LEGAL ISSUES ASSOCIATED WITH CONTROLLING ACCESS

Access management practices are used to establish a desired level of access control on roadways to help retain the capacity of public highways, while ensuring reasonable access to private land and maintaining public safety. Access management is regulated through legal, administrative, and technical strategies that are available to a political jurisdiction under its police powers and authority to maintain the health, safety, and welfare of the jurisdiction's residents. This section presents an overview of legal issues relating to access control of a jurisdiction's roadway network. The discussion is based on a review of Arizona Revised Statues (ARS) and a 1990 report prepared by the Arizona Department of Transportation (ADOT) entitled *Access Management: Practices in Other States and Improvement for Arizona*.

4.1 PROPERTY RIGHT OF ACCESS

Property rights protected by the U.S. Constitution, as well as the Arizona State Constitution, include the right of access. According to the Arizona Constitution (Article 2, Section 17), "No private property shall be taken or damaged for public or private use without just compensation…." This means the owner of a property abutting a public roadway has a private right or easement for the purpose of ingress to and egress from the owned property. This right or easement may not be taken or substantially impaired without due process and payment or just compensation for the property taken.

However, as a counterpoint, property right of access is not an absolute right and is subject to the public's right of passage. All private property rights, including right of access, are susceptible to condemnation through the power of eminent domain, which empowers the State, and local public entities, granted appropriate authority by the State to acquire and use property to further reasonable public goals and objectives. Access rights also are always subject to reasonable regulation through police powers of local governments and the State for the purposes of furthering the public health, safety, and welfare of its residents. Thus, the right of access is a right of "reasonable" access and is not a private right of direct access. That said, once direct access has been established with respect to a non-controlled-access roadway, the property owner has been deemed to have gained an access easement. The property owner has the right to retain reasonable access to the property, which is defined as access suitable for the highest and best use of the property.

4.2 AUTHORITY TO REGULATE ACCESS TO PUBLIC ROADS

As explained above, the State and local governments have the power to regulate traffic on roads and highways within their relevant jurisdictions. Such regulation could include any or all of the following roadway design applications:

- installing curbs along highways and roadways and restricting driveway location, spacing, size, and design;
- regulating traffic flow;
- determining the types of vehicles that may use a highway or roadway;
- restricting traffic movement to one direction of travel; and
- striping a highway or constructing a median divider that permanently limits property ingress and egress to one direction of travel.

Although access to a property, once established, must be maintained, State and local governments, acting in the general public interest, may close direct access to a property and provide alternative indirect access via a frontage road or another public road abutting the property. If indirect access provides reasonable access for the highest and best use of the property, the owner is not entitled to damages. Also, the property owner is not necessarily due compensation even if the access is more circuitous, unless the property owner suffers a unique injury.

5.0 METHODS TO CONTROL ACCESS

Access management includes systemwide programs, such as those that may be formulated and exercised through regional policies or local governments, as well as corridor-based improvement programs. The former focuses on development of a comprehensive framework for all roadways in a given area under the specific jurisdiction of the state or local government. The latter focuses on immediate needs of a particular roadway/corridor, often a high-priority roadway/corridor identified as having adverse operational and safety conditions. These tools and methods are discussed in this section.

5.1 PLANNING AND REGULATORY TOOLS

Planning and regulatory tools are available to the City to control access to properties along streets and highways within its jurisdiction. The following paragraphs provide guidance in the development and implementation of such tools by the City.

1. **Land Division.** Controlling lot dimensions has an impact on driveway spacing, on-site circulation, and driveway lengths. Lot dimensions can be controlled through minimum lot size, minimum lot footage, setback requirements, etc.
2. **Subdivision Regulation.** The following procedures and regulations are effective tools for assuring reasonable and appropriate access within subdivisions.
    a) **Site Review Process.** The requirement to stipulate all access points during the subdivision site plan review process can be established by the City. Traffic signals, medians, and on-site circulation controls can be required to ensure that access standards are maintained.

b) **Regulating Lot Splits and Further Subdivisions.** Various types of lot configurations encourage inadequate spacing between access points. The regulation of lot splits by jurisdictions could help to ensure increased spacing between access points, which aids driver's ability to accommodate turning vehicles.

c) **Subdivision Regulation.** Subdivision regulations at the local level can be used to ensure lots and access points to local streets are oriented away from arterials with high traffic volumes.

3. **Access Controls.** The controls cited below may be used to regulate access to properties.

a) **Location and Design.** The number of access points in relation to road deceleration and acceleration lanes can be controlled to avoid or minimize the number of conflict points. Adequate design of driveway throat length and width (i.e., the amount of space available to accommodate vehicles entering a site) can be designed to avoid conflict with the flow of through traffic. Access management design criteria can be used to ensure adherence to standards for adequate driveway spacing, corner clearance, and joint- and cross-access configurations.

b) **Retrofitting Non-Conforming Access.** Permit requests for new driveways, land use intensity changes, and site improvements can require conformance with adopted access control standards.

4. **Zoning Regulations.** There are two zoning techniques the City can use to enforce access management standards.

a) **Overlay Zoning.** Overlay zoning can be used to address areas with access control problems, as manifested by congestion or a high frequency of crashes involving vehicles entering or exiting abutting properties. Zoning stipulations can address priorities for access relative to the intensity of access, safety, and congestion problems.

b) **Flexible Zoning.** Flexible zoning can allow, even encourage, alternative site designs, buffering, and screening between incompatible uses.

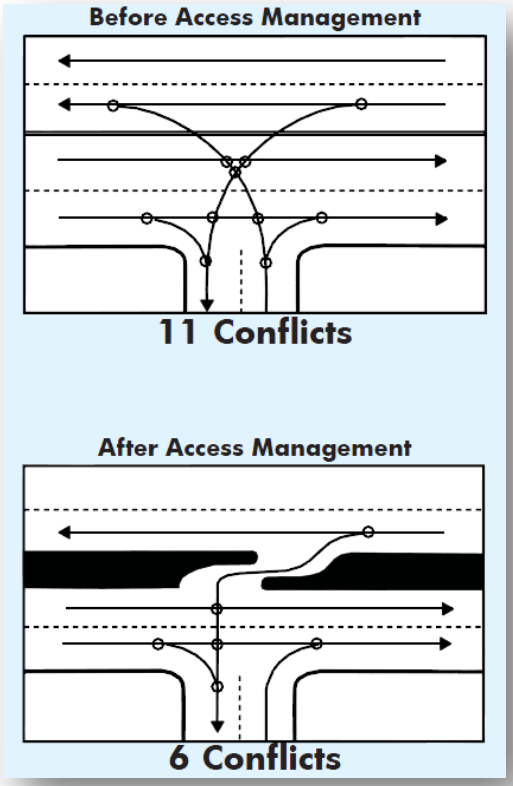
5.2 TECHNICAL METHODS OF ACCESS MANAGEMENT

Technical methods employed to control access include: driveway consolidation; joint driveway or cross-access agreements; provision of adequate corner clearance; implementation of two-way, continuous left-turn lanes; construction of alternative access roads; and construction of raised medians.

1. **Raised Medians.** Raised medians at the approaches to intersections provide a center barrier preventing left turns into driveways near the intersection. Eliminating left-turn movements in the vicinity of intersections reduces potential conflicts there is concentrated traffic activity. Raised medians also can be used to establish a barrier the full length of a high-traffic arterial street, preventing both left turns and cross-traffic movements. Raised medians effectively eliminate left-turn access to properties abutting a roadway on the side opposite to the direction of travel, thereby eliminating conflict points which have the potential to produce crashes.

2. **Driveway Consolidation.** Consolidating driveways and ensuring adequate spacing between driveways limits the number of driveways per mile and reduces the number of potential conflicts with the flow of through traffic on the roadway.

3. **Joint Driveway/Cross-Access.** Joint driveway or cross-access agreements facilitate connections to adjacent parcels and allow for circulation between multiple parcels without using the arterial street system. In cases where lot frontage is inadequate for multiple access points, joint access/cross access agreements can help to achieve adequate driveway spacing.



4. **Corner Clearance.** This technical method involves assuring adequate corner clearance by keeping or moving driveway entrances away from intersections. Improving corner clearance reduces conflicts that cause rear-end accidents. In some cases driveways are moved from the main streets to side streets to achieve corner clearance standards.

5. **Continuous, Two-Way Left-Turn Lanes.** This technical method of access management involves adding a dedicated left-turn lane in the center of the street to separate left-turning traffic from through traffic. Generally, these left-turn lanes are used where a moderate level of turns occurs.

6. **Alternative Access Ways (Frontage and Backage Roads).** Reasonable alternative access can be provided to sites adjoining the main road by dedicated access roads; either frontage or backage roads. Dedicated access roads can be used to separate numerous turning movements, such as those associated with an intensive commercial development, from through traffic movements on a main arterial street.

6.0 RECOMMENDED ACCESS MANAGEMENT STANDARDS

The City's access permitting process includes procedures to: 1) accept and review permit applications for access; 2) identify responsibilities of the City and applicant; 3) review development plans associated with the permit application; and 4) coordinate the planning of new and relocated roadways. Although, today, much is known regarding access control methods, the City periodically should form an internal access management team to evaluate and update the access management permitting and management process.

6.1 GOAL OF ACCESS MANAGEMENT

The ultimate goal is for these access management standards to support a comprehensive program framed by a uniform application of access management principles and practices throughout the City and its municipal planning area (MPA). Therefore, it is imperative that the City also engage in and maintain an ongoing process of cooperation, collaboration, and coordination with ADOT and the neighboring local governments to ensure zoning and subdivision approvals are consistent with the general principles of access management. Collaborative initiatives will ensure access management and access control are asserted through appropriate and timely application of State and local powers. General guidance regarding access management with respect to the City's roadway network follows.

- Give high priority to access control initiatives focused on high-speed and high-volume interregional and inter-city roadways.
- Seek to employ the principles, practices, and techniques of access management early in the site plan review process to assure potential changes in access are fully evaluated and provide a means for initiating changes to improving existing access conditions.
- Focus on obvious access control situations that represent or have demonstrated qualities of unsafe traffic operations, such as strip commercial areas, where driveways are a frequent occurrence.
- Initiate a review of major arterial roadways with high traffic volumes to identify conflict points that affect vehicles, bicycles, and pedestrians to determine the potential for reducing conflicts through access control improvements.
- Outline and install a formal coordination process with ADOT to assure improvements to the local roadway network are fully compatible with the functionality of the State Highway System, and review current connections to determine whether access management methods would aid in reducing congestion and/or improving operational safety.
- Create a unified citywide approach to roadway classification system to promote consistent application of access management principles, specifically defining areas where access can be permitted and where it should be discouraged. This approach would include:
  - Defining access management categories, considering –
    - Level of importance of roadways to the City and regional road networks (i.e., function classification);
    - Roadway characteristics associated with geometric design and traffic operations;
    - Degree of urbanization, or lack thereof, and available land use controls;
  - Establishing permitted access and related access spacing and design for each category; and
  - Assigning an access management category to each roadway or roadway segment, as may be appropriate.

6.2 ACCESS MANAGEMENT PERMITTING PROCESS

A Right-of-Way Encroachment Permit is required for driveways and private easements/roads that have direct ingress to or egress from a City-maintained roadway. The Permit customarily would be issued in conjunction with a Construction Permit, which is required for any work within or directly affecting public right-of-way (including guard rails, mailboxes, regulatory signs, and fences). Both permits allow the holder to perform construction of and/or repairs to a road or driveway with access to a public roadway.

The General Guidance presented in the preceding section sets the stage for permit applicants by providing a known framework within which proposed actions will be evaluated. Also, the access permitting process should be coordinated with the requirements of Traffic Impact Analyses conducted for intersection improvements and site access requests (*Traffic Impact Analysis Procedures* of the City are provided for reference as **Attachment A**).

6.3 GENERAL POLICIES

General access control policies for the municipal roadway network within the City are presented below.

- Traffic signals should be installed only at major intersections when warranted in accordance to the *Manual on Uniform Traffic Control Devices.*
- Left- and right-turn lanes should be provided on all approaches to arterial-arterial intersections. Left-turn lanes should be provided on all approaches to all other arterial-collector and arterial-local intersections. Right-turn lanes should be provided where warranted by projected traffic demands of arterial-collector and arterial-local intersections.
- Right-turn lanes should be provided at all driveways on arterial streets. Exceptions may be permitted at the discretion of the City Traffic Engineer in cases where inadequate right-of-way or frontage is available to accommodate a right-turn lane.
- As new development and redevelopment occurs, existing roadway and driveway access points should be eliminated or consolidated, where it is reasonable and feasible to do so.
- The collector street network of proposed major land developments should provide access to streets that intersect/connect with the City's arterial street system. The review process associated with an Access Permit affecting State routes must be coordinated through the District Engineer of ADOT's Southcentral District.
- Any median opening along State routes passing through the City requires application through the District Engineer of ADOT's Southcentral District.
- The minimum spacing of signalized intersections along State routes and the City's major arterials should be one mile in rural areas and one-half mile in urban areas.

6.4 ACCESS MANAGEMENT PLANS

Access management plans should be prepared on selected city streets and for state routes. These plans should include at least the following five components to provide the City with guidance as growth occurs and new roads are added to the municipal roadway network.

- An introduction defining the study corridor and discussing the purpose of the access management plan.
- An existing conditions section documenting;
  - traffic and geometric conditions on the existing or proposed roadway under evaluation; and
  - a comprehensive review of existing driveways to identify driveways that have not been permitted and driveways that can be consolidated as redevelopment or new development

occurs (Note: Driveways on City streets and State routes that have not been permitted should be closed by the City and ADOT, respectively).

- A specific access management plan that includes: locations for existing and future signalized intersections locations; driveway access policies; median type and location, if recommended; and median break spacing, as applicable. The plan should be presented in tabular form, graphically through the use of aerial photos, and other graphics, as may be necessary to provide an adequate description of the proposed actions to assert management of access.
- An implementation section that outlines how the access management plan will be carried out, including responsibilities of the City and developers, as well as guidance for necessary intergovernmental cooperation and coordination.
- A procedure to adopt the access management plans, including how the plans can be updated.

6.5 LAND USE AND LOCAL ACCESS

The City should use its zoning and subdivision powers to influence the location and design of access to the City's major arterial streets and State routes. Future access standards for various land uses, relative to major City arterials and State routes, should be established to guide and expedite review of Access Permit applications. A review process should be instituted to permit adequate and timely evaluation of Access Permit applications with respect to access to major City arterials and State routes. A critical issue will be whether to maintain or relocate existing access points. The concept of relocating existing access points to maintain minimum spacing between access points must be carefully examined to ensure property rights are upheld.

6.6 DRIVEWAY SPACING & LOCATION COORDINATION

An important element of the City's access management practice focuses on minimum driveway spacing for all City streets. Standards relating to driveway spacing need to be updated regularly to align with transportation goals for the surface transportation system and current facility types defined in the City's Circulation Element and applicable regional and statewide transportation plans. Standards regarding driveway spacing are provided below. Specific recommendations regarding minimum corner clearances are provided in Table 6-1. Additional standards for access spacing for varying roadway facility types are presented in **Attachment B** and summarized in Table 6-2.

1. A request to change access for an existing driveway (or road) or access for a new driveway (or road) should not be approved under the following conditions:
   - Within 10 feet (10') of any commercial property line, except when it is a joint-use driveway serving or intended to serve two abutting commercial properties and access agreements have been exchanged and recorded by the two abutting property owners;
   - Within 25 feet (25') of the end of a guardrail;
   - Within 100 feet (100') of a bridge or other structure, except canal service roads;
   - Within the minimum spacing as established in Table 6-2;
   - When adequate sight distance cannot be provided for vehicles on the driveway (or road) that would attempt to access the street – such movements shall be prohibited;

- When the nearest edge of any driveway flare or radius is less than two feet from the nearest projection of a fire hydrant, utility pole, drop inlet and/or appurtenances, traffic signal, or light standards; and
- Where parking or loading areas would require backing maneuvers into a public right-of-way, except for single-family or duplex residential uses on local roads.

2. If a property has frontage on more than one street, access will be permitted only on those street frontages where standards provided under these access management standards and other applicable City Regulations can be met.
3. If any access point meeting the standards presented herein cannot serve a property:
   - The City may designate one or more access points by waiving one or more standards; and
   - Designation of an access point(s) with waiver of standards can be based on a traffic safety analysis, operational needs, and conformance to as many of the requirements in these standards as possible.
4. The location of access for properties on opposite sides of a roadway or highway shall be coordinated, to the degree practicable, so they do not interfere with each other. The following standards should be followed in coordinating opposing driveway locations:
   - Driveways should be located directly opposite each other to ensure a single access point is shared with respect to the roadway.
   - Where lots are not sufficiently large to allow access points on opposite sides of the street to be aligned, driveway centerlines not in alignment normally will be offset a minimum of 150 feet (150') on all collector roads and 330 feet (330') on arterial roads – greater distances may be required, if left-turn storage lanes are present.
   - Joint access may be implemented for two adjacent developments, where the proposed new access will not meet spacing requirements set forth herein, subject to review and approval by the City of Casa Grande.

Exceptions to these standards may be made by the City Traffic Engineer in cases where application of access control practices, standards, or design parameters would create an undue hardship to property owners abutting a City street and good traffic engineering practice can be maintained. However, these standards for driveway spacing do not constitute a guarantee by the City to provide access to a property.

6.7 APPEALS PROCESS

Should an applicant make a request of City staff for approval of a proposed access that does not meet these standards, and staff does not feel it is in the City's best interest to approve the request, the applicant may appeal the staff decision. The applicant shall make an appeal to the Planning and Zoning Commission within ten (10) business days of receipt of the staff decision. The Planning and Zoning Commission will then review the request. In the event the Planning and Zoning Commission concurs with the staff decision and subsequently denies the appeal, a second appeal may be made by requesting City Council review. The request for review by City Council shall be made within ten (10) business days of the decision made by the Planning and Zoning Commission.

Table 6-1 Minimum Corner Clearances

FULL ACCESS DRIVEWAYS (NO RIASED MEDIAN)			
Driveway Type	All Arterials	Collector	Local
A - Driveway Downstream of Intersection	¼ mi	175 ft	30 ft
B - Driveway Upstream of Intersection	¼ mi	175 ft	30 ft
RIGHT-IN, RIGHT-OUT DRIVEWAYS WITH RAISED MEDIAN			
C – Driveway Upstream of Intersection	440 ft	85 ft	-
D – Driveway Downstream of Intersection	660 ft	175 ft	-

NOTES:
1. Refer to figure below for depiction of driveway types A-D.
2. Urban is defined as located in an area with a surrounding population of 5,000 or greater.
3. Minimum connection spacing criteria for corner clearance should only be considered when greater spacing cannot be achieved.
4. It is desirable to maximize the distance between the corner parcel connection and adjacent intersections.

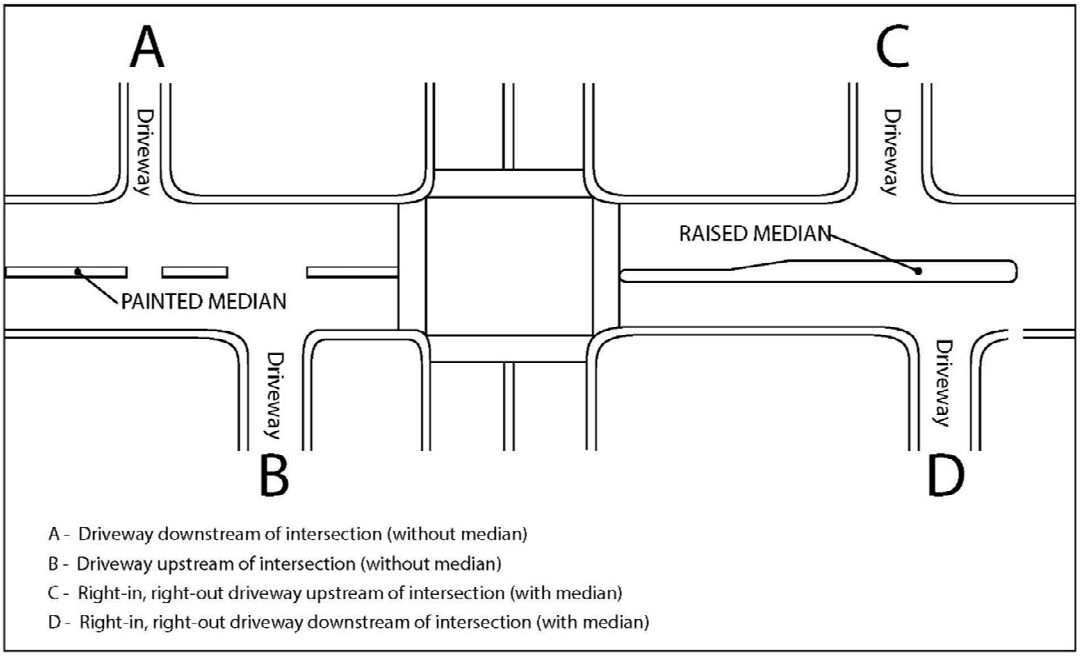


Table 6-2 Minimum Driveway Spacing (Centerline to Centerline)

Facility Type	Right-in, Right-out Spacing	Full Access Spacing
Principal Arterial	660 ft	¼ mile
Minor Arterial	450 ft	¼ mile
Collector	150 ft	300 ft
Local	n/a	30 ft

ATTACHMENT A

CASA GRANDE TRAFFIC IMPACT ANALYSIS PROCEDURES

City of Casa Grande Traffic Impact Analysis Procedures

As first prepared for the Casa Grande Multimodal Transportation Study (Lima & Associates, 2001), reproduced in the Casa Grande Small Area Transportation Study (Wilson & Company, 2007), and updated in 2015, 2019, and 2024.

The following provides uniform standards for preparing a Traffic Impact Analysis (TIA) Report for new developments or additions to existing developments within the City of Casa Grande. These procedures will provide the developer, the developer's consultant, City Council, and City Staff with information necessary to provide a balance between land use and transportation infrastructure needs.

PURPOSE

In general, the purposes of the TIA procedures are to:

- Provide information to the permit applicant on specific requirement of the analysis
- Ensure consistency in the preparation and review of TIA reports

REQUIREMENT

A TIA Report for City streets will be required for all new developments, or additions to existing developments, where the ultimate development of the site generates 100 or more peak hour trips per average weekday. A more detailed analysis will be required for sites generating 500 or more peak hour trips per day (see Table 9-1). The specific level of detail for a particular impact statement may vary according to the density of the proposed development, existing and planned development, and the existing roadway conditions. Those who prepare the analysis must obtain agreement from the City of Casa Grande Department of Public Works (Department) on the specific requirements. Traffic analyses for developments on State highways must be performed in accordance with ADOT's *Traffic Impact Analysis for Proposed Development.*

Table 9-1. Traffic Impact Analysis Report Requirements

Proposed Action	Standard Report (>500 peak hour trips)	Limited Report (100-500 peak hour trips)
Proposed Development	X	X
Study Area	X	
Analysis of Existing Conditions	X	X
Future Traffic Forecasts	X	
Site Access	X	X
Level of Service	X	X
Improvement Analysis	X	X
Traffic Control Needs	X	X
Traffic Safety	X	X
Improvement Costs	X	X

The analysis of roadway improvements in the TIA will be coordinated with the City's Access Management Standards.

The City makes the final decision on requirements for a TIA Report. A developer will first estimate the number of vehicle trips generated by proposed development action to determine if a TIA Report is required. Developer must obtain concurrence of the Department on number of trips generated by the development.

COORDINATION

Preparer of a TIA Report must coordinate with the Department and, where appropriate, Pinal County and ADOT. At least one meeting must be held with the Department to review the scope of the analysis and to agree on specific requirements. **Prior to the meeting, a scoping checklist must be prepared and submitted to the Department to document key elements of the proposed development and confirm requirements associated with the TIA Report. The Scoping Checklist is provided as Appendix A.**

TIA REPORT CONTENTS

The TIA should be prepared to include content in the order outlined below, using no smaller than 11 point font (with the exception of tables and figures)., and submitted in a searchable pdf format. **Please use the Submittal Checklist included in Appendix A to confirm submitted TIAs meet required specifications. Those TIAs submitted that do not conform to these specifications will be rejected until such time as specifications are met.**

Cover Sheet

The cover sheet shall include:

- original document submittal date
- submittal numbers and dates of any subsequent/revised submittals
- contact information for the preparer of the report, including email and phone number

Table of Contents (with page numbers) All pages, including those containing tables and figures, shall be numbered continuously.

List of Figures (with page numbers)

List of Tables (with page numbers)

Executive Summary

The Executive Summary shall provide details on the proposed development and ultimate findings and recommendations of the analysis. Subsequent sections will provide additional detail regarding the analyses and conclusions.

Proposed Development

The TIA Report should include a description of the following:

- Proposed site location and site plan
- Land use
- Development phasing

A site plan exhibit is required. In addition, please include an exhibit that depicts the location of and distance between proposed driveways, their location and distance relative to any existing driveways adjacent to or across from the proposed driveways, and the proposed driveway corner distance from adjacent intersections. The description of the proposed development should provide as much detail as possible including:

- Specific tenants, if known
- Specific types of uses such as banks, fast food restaurants, etc.
- Intensity of each land use in terms of number of dwelling units or square feet of gross building area

The projected opening date for the proposed development action must be included. In the case of a large, multi-phased development, the specific project completion dates for each phase must also be included.

Study Area

A description of existing and future land uses in the study area must be described in the TIA Report. The study area will vary according to the extent of the proposed development. A large development will generate more traffic and influence a larger geographical area than a smaller development. The project type and size will determine the minimum study area. Table 9-2 provides guidance with respect to the size of the study area. The preparer of the TIA Report must contact the Department to obtain agreement on the study map. A map of the study area is required.

Table 9-2. Casa Grande TIA Study Area Requirements

Ultimate Development Characteristics	Study Horizons [a]	Minimum Study Area On City Road(s) [b]
Small Development (100 - 500 peak hour trips)	Opening year 3 years after opening year	Site access drives Adjacent signalized intersections and/or major unsignalized street intersections within ¼ mile
Moderate, single phase (>500- 1,000 peak hour trips)	Opening year 5 years after opening	Site access drives All signalized intersections and/or major unsignalized street intersections within ½ mile
Large, single phase (> 1,000 peak hour trips)	Opening year 5 years after opening 10 years after opening	Site access drives All signalized intersections and/or major unsignalized street intersections within one mile
Multi-phased Development (>500 peak hour trips)	Opening year Interim phase years Full buildout 10 years after full buildout	Site access drives All signalized intersections and major unsignalized street intersections within 3 miles

(a) Assume full occupancy and build-out.
(b) An enlarged study area may be required for certain projects.

Analysis of Existing Conditions

The TIA Report must include an analysis of the existing roadway and traffic conditions including a discussion of the following aspects of the proposed action:

- Physical roadway conditions
- Traffic volumes
- Traffic control of roadways and intersections (stop signs, traffic signals, etc.)
- Roadway and intersection level of service
- Safety conditions

The description of existing roadway conditions should include:

- Roadways serving the site
- Roadway cross-section and lane configuration
- Lane configuration of intersection approaches
- Posted speed limits
- Location of existing driveways
- Existing traffic signal timing and phasing

Information on 24-hour traffic volumes on the major roads in the study area should be provided. With the approval of the Department, estimated 24-hour traffic volumes can be used in the case of low volume roads. Recent and available traffic counts can be used, if they are less than two years old. Several factors may be used to adjust the traffic volumes. There should be peak-hour turning-movement counts taken at all major intersections within the study area. Traffic counts should be conducted on Tuesday-Thursday from 6-9 AM and 3-6 PM unless otherwise directed by the City Traffic Engineer. At the discretion of the Department, the requirement for turning movement counts at low volume intersections may be waived.

Capacity analyses will be conducted for all required locations using the procedures prescribed in the latest edition of the *Highway Capacity Manual* (HCM). The peak hour factors (PHF) used for the analysis shall be those of the current existing conditions as demonstrated by the traffic counts. Applicant may submit justification for use of any other PHF during project scoping, which is subject to approval by the City Traffic Engineer. The existing roadway system should be reviewed from a safety perspective. The three-year crash history should be analyzed to identify potential conflict areas, operational problems, geometric issues, and patterns over time.

Future Traffic Forecasts

Future traffic volumes will be estimated for the roadways in the study area for both site and non-site traffic. The estimation of future traffic volumes will include:

- Generation of site traffic
- Estimation of non-site traffic (including pass-by trips, if applicable to the type of land use)
- Distribution of site traffic to other land uses and activity centers
- Assignment of site traffic to the study area roadways

Site traffic estimation will be done for each horizon year to be analyzed, as indicated in Table 9-2. Traffic volumes for the site will be estimated using the trip generation rates or equations published in the latest edition of the Institute of Transportation Engineer's (ITE) Tr*ip Generation Manual.* Local or other trip generation rates may be used, if approved by the Department.

The distribution of site traffic to and from the site relative to potential origins and destinations must be estimated. The distribution should be indicated in a tabular form or illustrated in a figure as percentages of total site traffic.

Projected site traffic volumes will be assigned to the roadways using the distributions previously discussed and added to the non-site traffic. Non-site, or background, traffic is the traffic that would be on the roadways, if the site were not developed. Non-site traffic may be estimated using:

- Trends and growth rates
- Combination of trends and the estimation of other proposed land uses
- Application of the Casa Grande traffic forecast model or other forecasting model, as may be approved by the Department

The site and non-site traffic volumes will be combined to give the total estimated traffic volumes on the roadways.

Traffic and Improvement Analysis

The roadways in the study area will be analyzed using the projected total traffic volumes. The analysis of the roadways and intersections will include:

- Site access
- Level of service of affected roadways and intersections
- Improvement analysis
- Traffic control needs
- Traffic safety
- Turn lane storage requirements
- Improvement costs

Site Access

The access drives should be analyzed with respect to capacity, traffic operations, and safety considerations. Access drives should be designed and located in accordance with the Department Access Management Standards.

Level of Service

Level of service (LOS) analysis will be conducted for the major intersections for the following conditions:

- Base roadway conditions without site traffic for the horizon year(s)
- Base roadway conditions with total traffic (non-site plus site traffic) for the horizon years(s)
- Roadway and intersection improvements, if required, for horizon year(s)

Base roadway conditions include the existing conditions plus any improvements programmed for implementation by the City that will be completed by the horizon year(s).

The LOS analysis for signalized and unsignalized intersections will be conducted in accordance with the procedures in the latest edition of the HCM. The peak hour factors (PHF) used for the analysis of nearer term conditions (0-10 years) shall be that of the current existing conditions. A PHF no greater than 0.9 shall be used for any longer-term horizon year (10+ years). Applicant may submit justification for use of any other PHF during project scoping, which is subject to approval by the City Traffic Engineer. Analysis shall be presented in tabular form, to included delay and LOS with and without development traffic.

Improvement Analysis

Roadways and intersections within the study area will be analyzed with and without the proposed development action to identify any projected impacts that potentially would affect LOS and safety. The following conditions need to be noted:

- Where the roadway will operate at LOS D or better without the development, the traffic impact of the development on the highway will be mitigated to LOS D.
- Where the highway will operate below LOS D in the horizon year(s) without the development, the traffic impact of the development will be mitigated to provide the same LOS and delay at the horizon year(s).

Improvements will be required if either of the above conditions are noted.

For a limited TIA, the traffic impact assessment should focus on whether the existing surface type/condition is appropriate for the proposed development.

For developments that will be completed in multiple phases, improvements shall be identified by phase.

A table must be provided showing the resulting delay and level of service for the mitigated condition.

Traffic Control Needs

The TIA Report will indicate the appropriate type and location of traffic control, such as stop signs or traffic signals. If a traffic signal is proposed, the signal must meet the requirements of Department traffic signal warrants. Also, if a signal is proposed, the TIA Report will discuss the following:

- Location of the signal in relation to intersections and access drives
- Traffic signal actuation and phasing
- Traffic signal progression, if appropriate

Traffic Safety

The TIA Report will include a review of roadways and site access for safety, including the following considerations:

- Access drives designed to permit vehicles to enter the site without impeding traffic
- The need for auxiliary speed-change lanes
- Adequate storage length for turning vehicles
- Adequate sight distance at intersections and access drives
- Alignment of intersections and driveways opposite the site's access drives, where possible
- Analysis of three years of accident data

Turn Lane Warrants and Storage Requirements

The TIA report will provide a table showing existing (if applicable), required (as calculated during conduct of the TIA), and recommended turn lane storage lengths for all analyzed intersections and driveways. Turn lane warrant analysis shall be determined using ADOT TGP 245 for all state routes and major arterials, and per Pinal County standards for all other roadways. All minimum required storage lengths shall be determined per ADOT TGP 430 for all state routes and major arterials, and per Pinal County standards for all other roadways, provided that minimum storage of 250 feet on arterials and 100 feet on all other roadways is provided (excluding required taper lengths).

Improvement Costs

The TIA Report will include estimated costs of the proposed improvements and recommend the allocation of these costs among the developer, City, County, State, and other jurisdictions, as appropriate.

Certification

The TIA Report will be prepared under the supervision of a Professional Engineer (Civil) registered in the State of Arizona. The report must be sealed and signed.

ATTACHMENT A – APPENDIX A

Scoping Checklist for Traffic Impact Analysis

CHARACTERISTICS OF PROPOSED DEVELOPMENT

Site Location (Attach Site Plan)

Is site located within ¼ mile of an existing school? ___Y ___N
If checked yes, additional discussion and/or queuing analysis may be required.

Proposed Development Phasing (include opening year, buildout year, and any interim year phases)

Proposed Land Use (land use type and size at buildout and any interim phases; include anticipated hours of operation)

Proposed Peak Hours of Development Trip Activity

__ AM Peak __ PM Peak __ Weekend __ Other
(If other peak hours are required for unique generators, such as schools, places of worship, special event uses – please specify)

Queuing

Are the proposed uses anticipated to result in any substantial queuing? (i.e. schools, places of worship, commercial uses with drive-thrus, etc.)

__ Yes __ No __ Unknown at this time

If checked "Yes" or "unknown at this time", the City Traffic Engineer may request additional queuing analyses to demonstrate that the proposed site plan has been designed to safely accommodate anticipated queuing without interruption of traffic on adjacent public roadways.

Development Trip Generation

Attach table documenting daily, and peak hour entering, exiting, and total traffic volumes. Include applicable Land Use Code (LUC) from the latest edition of the Institute of Transportation Engineer's Trip Generation Manual and SF/units/employees/etc. assumed for trip generation calculations, or provide a description of alternate trip generation source. Provide trip generation for buildout and all interim phases).

Sample Table Format

Land Use	Size	IT LUC	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				Enter	Exit	Total	Enter	Exit	Total

Trip Generation Adjustments

Will any reduction in total trip generation be assumed?

__ N/A __ Pass-by trip reduction __ Mixed-use trip reduction __ Other

(If other trip reduction is requested – please specify)

If trip reduction is assumed, please specify amount and justification:

What percentage of the development traffic will be attributable to large vehicles (trucks, buses)?

Trip Distribution

Attach a figure depicting anticipated regional distribution of development traffic (to/from north, south, east, and west)

SCOPE OF STUDY

Proposed Study Area (attach map or provide list of relevant intersections to be included in the analysis based on the requirements found in Table 9-2)

Proposed Study Horizons (based on the requirements found in Table 9-2)

Table 9-2. Casa Grande TIA Study Area Requirements

Ultimate Development Characteristics	Study Horizons [a]	Minimum Study Area On City Road(s) [b]
Small Development (100 - 500 peak hour trips)	Opening year 3 years after opening year	Site access drives Adjacent signalized intersections and/or major unsignalized street intersections within ¼ mile
Moderate, single phase (>500- 1,000 peak hour trips)	Opening year 5 years after opening	Site access drives All signalized intersections and/or major unsignalized street intersections within ½ mile
Large, single phase (> 1,000 peak hour trips)	Opening year 5 years after opening 10 years after opening	Site access drives All signalized intersections and/or major unsignalized street intersections within one mile
Multi-phased Development (>500 peak hour trips)	Opening year Interim phase years Full buildout 10 years after full buildout	Site access drives All signalized intersections and major unsignalized street intersections within 3 miles

(a) Assume full occupancy and build-out.
(b) An enlarged study area may be required for certain projects.

DATA SOURCES AND KEY ASSUMPTIONS

Source of Existing Traffic Volumes (cite source if using available traffic data or proposed dates of new data collection; dates/times will be approved by the Department based on peak periods identified previously. Typical peak hour data collection is Tuesday-Thursday, 6-9 AM and 3-6 PM unless otherwise approved by the City Traffic Engineer.)

Proposed Future Background Growth Rate and Source

Proposed Annual Growth Rate: _____ **Source:**

__ N/A __ Historical Traffic Data__ MAG Travel Demand Model __ Other

(If other peak – please specify)

Peak Hour Factor

Will an adjustment in PHF factor be requested? If so, please justify.

Other Known Developments (to be considered in addition to annual background growth)

Planned/Programmed Improvements (improvements by others assumed to be in place prior to opening of proposed development)

CITY OF CASA GRANDE

SUBMITTAL CHECKLIST FOR TRAFFIC IMPACT ANALYSIS

When submitting the TIA, please complete this form as an attachment to the TIA. **TIAs submitted that do not conform to these requirements will be rejected until such time as specifications are met.**

Requirement	**Please check below to confirm inclusion**
TIA is sealed by a Professional Engineer registered in Arizona	
Study Area Map showing location of analyzed intersections and driveways	
Site Plan	
Graphic showing the location of and distance between proposed driveways, their location and distance relative to any existing driveways adjacent to or across from the proposed driveways, and the proposed driveway corner distance from adjacent intersections.	
Development trip distribution graphic	
Turning movement graphic for existing conditions	
Turning movement graphic for background traffic conditions for each horizon year	
Turning movement graphic for new development trips for each horizon year	
Turning movement graphic for combined traffic conditions for each horizon year	
Sight distance analysis for new driveways	
Turn lane analysis (including storage lengths)	
Appendices (as required)	
Approved Scoping Checklist	
Traffic Count Data	
Trip Generation Calculations	
Detailed LOS Analysis Output	
Crash Data	
Queuing Analysis Worksheets	
Traffic Signal Warrant Analysis Worksheets	
Response to Review Comments	

ATTACHMENT B

ACCESS MANAGEMENT STANDARDS

Table 6-1 Minimum Corner Clearances (Edge to Edge)

FULL ACCESS DRIVEWAYS (NO RIASED MEDIAN)			
Driveway Type	All Arterials	Collector	Local
A - Driveway Downstream of Intersection	¼ mi	175 ft	30 ft
B - Driveway Upstream of Intersection	¼ mi	175 ft	30 ft
RIGHT-IN, RIGHT-OUT DRIVEWAYS WITH RAISED MEDIAN			
C – Driveway Upstream of Intersection	440 ft	85 ft	-
D – Driveway Downstream of Intersection	660 ft	175 ft	-

NOTES:
5. Refer to figure below for depiction of driveway types A-D.
6. Urban is defined as located in an area with a surrounding population of 5,000 or greater.
7. Minimum connection spacing criteria for corner clearance should only be considered when greater spacing cannot be achieved.
8. It is desirable to maximize the distance between the corner parcel connection and adjacent intersections.

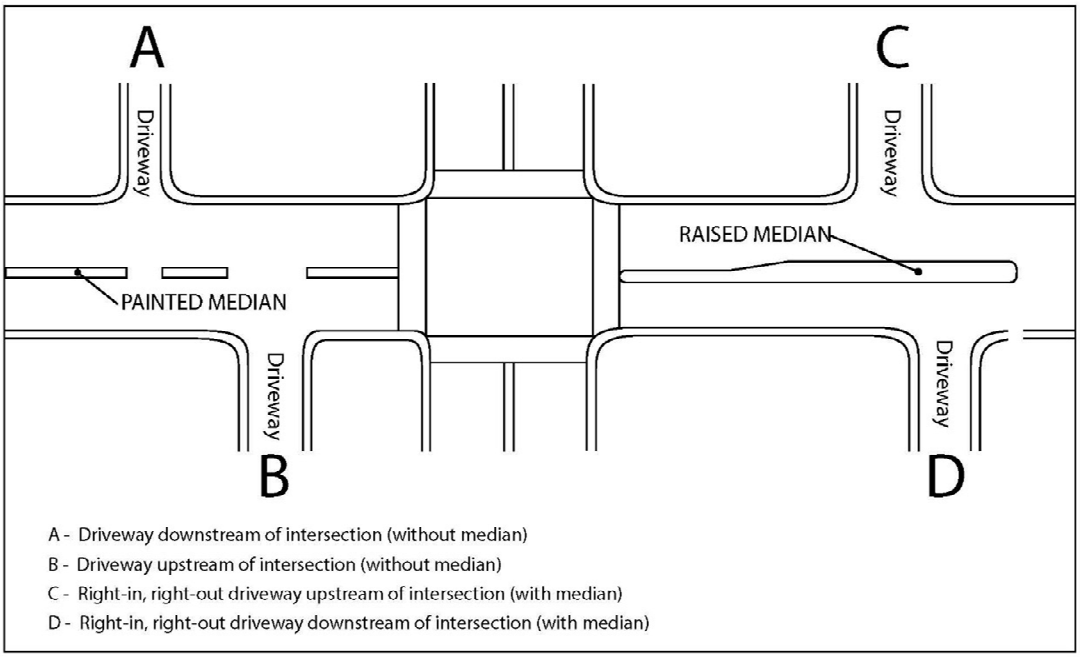


Table 6-2 Minimum Driveway Spacing (Centerline to Centerline)

Facility Type	Right-in, Right-out Spacing	Full Access Spacing
Principal Arterial	660 ft	¼ mile
Minor Arterial	450 ft	¼ mile
Collector	150 ft	300 ft
Local	n/a	30 ft

ATTACHMENT B

ACCESS MANAGEMENT STANDARDS
City of Casa Grande, Arizona
February 2024

Facility Type	Design Speed	Posted Speed	Public Road Access	Grade-Separated Interchange Spacing	Grade-Separated Interchange Type	Frontage Roads	Typical Traffic Control	Traffic Signal Spacing	Parking	Private Property Access	Private Access Spacing
Expressway	65 mph	55 mph	1 mile	Two miles	Single–Point Urban Interchange (SPUI), Tight Diamond, System-to-System, where warranted and feasible	Possible, but not desirable with SPUI's	N/A	N/A	Prohibited, except in Emergencies	No	N/A
Arizona Parkway	55 mph	50 mph	1/2 mile minimum; 1 mile preferred	One mile locations, where possible and warranted	Single–Point Urban Interchange (SPUI), Tight Diamond, System-to-System, Parkway Grade-Separated Interchange (PGSI), where warranted and feasible	Possible, but not desirable with SPUI or PGSI	Signalized; Two-way stop	1 mile; 1/2 mile, where warranted and permitted	Prohibited, except in Emergencies	Right-in/Right-out only; Left turns are discouraged, but can be accommodated by aligning U-turn crossover with side-street or driveway	N/A
Principal Arterial	45-55 mph	40-45 mph	1/4 mile minimum; ½ mile preferred	One mile locations, where warranted	SPUI or Tight Diamond, if warranted and feasible	Possible	Signalized; Two-way stop; Interim – Roundabout allowed	1/2 mile and 1 mile locations, where warranted, fully coordinated and progressed; 1/2 mile Minimum in Urban areas	Prohibited	Right-in/Right-out (RI/RO) preferred; Full access where approved, but limited	RI/RO: 660 feet minimum, 1,320 feet preferred Full Access: ¼ mile minimum
Minor Arterial	45-55 mph	40-45 mph	1/4 mile minimum; ½ mile preferred	N/A	N/A	N/A	Signalized; Two-way stop; Interim – Roundabout allowed	1/2 mile and 1/4 mile locations, where warranted, fully coordinated and progressed; 1/2 mile Minimum in Urban areas	Prohibited	RI/RO preferred; Full access, where approved	RI/RO: 450 feet minimum Full Access: ¼ mile minimum
Collector	35-55 mph	30-45 mph	1/4 mile minimum	N/A	N/A	N/A	Signalized; Roundabout stop; Two-way stop	1/2 mile locations; 1/4 mile locations, where warranted	Restricted	Full access, where approved, otherwise limited	RI/RO 150 feet minimum Full Access: 300 feet minimum
Minor Collector	35 mph	30-35 mph	660 foot minimum	N/A	N/A	N/A	Signalized; Roundabout stop; Two-way stop	1/2 mile locations; 1/4 mile locations, where warranted	Restricted	Full access, where approved, otherwise limited	RI/RO 150 feet minimum Full Access: 300 feet minimum
Local Streets	30 mph	25 mph	N/A	N/A	N/A	N/A	Roundabout stop; Two-way stop; all way stop	NA	Unrestricted	Full access	30 feet minimum