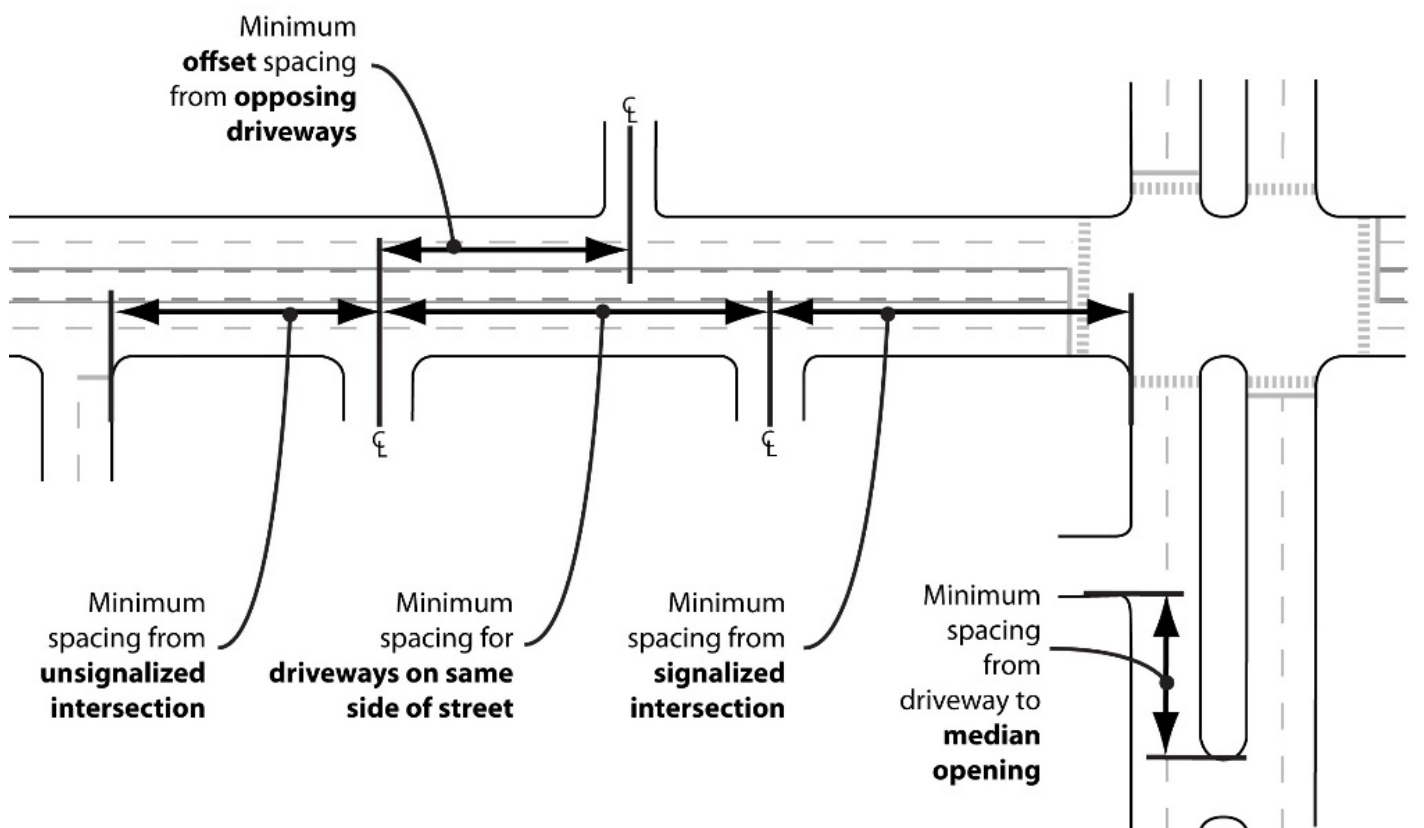


2015

# Summit County Access Management Manual

## Driveway Spacing Requirements



Summit County Council Resolution No. 2015-234

Adopted August 4, 2015

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# ACKNOWLEDGEMENTS

The publication of this manual is the result of innumerable hours of labor by the members of the Summit County Traffic Access Management Advisory Committee and the consultant team and staff of the Summit County Engineer's office.

Following the regulations in Ohio Revised Code Chapter 5552, the Summit County Engineer's Office worked with the Summit County Council to create the Traffic Access Management Advisory Committee with motion M-011-2014 on February 10, 2014. The first meeting of the Committee occurred March 19, 2014, with subsequent meetings occurring on May 20, 2014, September 23, 2014 and March 31, 2015. Three public meetings were held to gather comments from the townships on August 28, 2014, September 10, 2014 and September 11, 2014.

The members of the Committee (and their role) and the staff of the Engineer's office and consultant team are listed below; but the list of all those whose input is appreciated is too long to include.

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# SUMMIT COUNTY ACCESS MANAGEMENT MANUAL

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Manual developed by:





# INTRODUCTION TO ACCESS MANAGEMENT

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## INTRODUCTION

The intent of this manual is to provide general guidance and outline the minimum acceptable standards for design, spacing and operation of access points to the Summit County roadway system. The Access Management Manual allows for engineering judgment to be applied on a project basis; however, deviations from the guide's standards may only be considered after applying sound engineering judgment and best practices for access management.

This manual is also intended to help ensure coordinated review between the county engineer and municipalities of development proposals, such as site plans, subdivisions or changes to existing sites. The Summit County Engineer, or their designee, will review all access requests for safety and compliance with the guidelines set forth in this document. As outlined in the Manual, this applies not only to new development, but may also apply to changes in use or expansion on an existing site, particularly where the access design does not conform to the standards herein. Standards in the Manual are based on considerable national level research and publications. ODOT's Access Management Standards also provided a framework. This manual adopts those guiding documents to the specific situations in different parts of the county.

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## WHAT IS ACCESS MANAGEMENT

Access Management is a series of techniques and standards used to maximize existing street capacity and minimize the potential for crashes. Studies show reducing or limiting the number of access points, and carefully placing, spacing and designing access points can help achieve safer environments and preserve efficient traffic flow.

Access management techniques are used to improve transportation operations and increase safety while maintaining reasonable access to properties. Determination of "reasonable access" will be made by the County Engineer. Factors such as safety, and primary function of a road to move traffic efficiently shall be given primary consideration; convenience of access may be secondary. In some cases, access may be provided through shared or indirect means, but in every case, reasonable access is always maintained.

Access Management can also improve the corridor for bicyclists and pedestrians by reducing and limiting the number of potential conflict points along the corridor. Proper placement and design of access points can help improve visibility of pedestrians and bicyclists and reduce the risk involved in crossing multiple driveways and intersections.

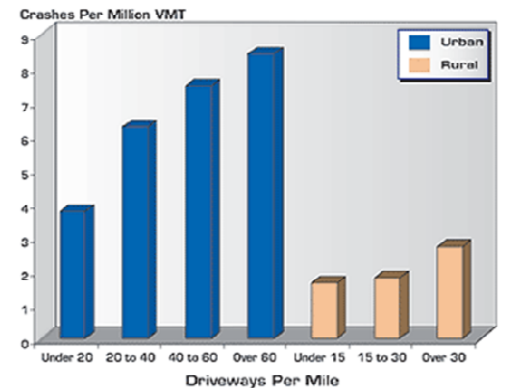
# BENEFITS OF ACCESS MANAGEMENT

By considering the relationship between access points along a roadway, all road users and property owners stand to benefit. National experience and case studies of other corridors have shown that access management can:

- Reduce crash potential by regulating the placement, spacing, and design of access points and by redesigning existing ones as opportunities arise.
- Maintain or increase travel efficiency by reducing or eliminating access points that unnecessarily slow traffic.
- Provide landowners with reasonable access to their property, though in some cases the number of access points may be fewer or more indirect than those that currently exist or are preferred by an individual land owner.
- Boost local property values and increase the vitality of adjacent businesses by reducing congestion.
- Improve air quality by reducing the need to brake or accelerate, and unnecessary vehicle idling.
- Enhance access to and from businesses, both in terms of safety and convenience.
- Preserve the public's investment in the street systems and lessen the need for costly road widening or other major improvements by maximizing the roads traffic capacity.

The following principles should be used to guide access decisions:

- **Limit the Number of Access Points.** Because the number of driveways affects traffic flow, ease of driving, and crash potential, the number of driveways on major roads should be limited.
- **Provide Sight Distance.** Proper sight distance needs to be provided at driveways and intersections to ensure a motorist can see oncoming traffic and pedestrians.
- **Separate Driveways.** Driveways need to be adequately spaced from intersections and other driveways (on both sides of a street) to assist in the reduction of turning movement conflicts.
- **Provide Cross-Access.** Connections between parking lots and shared access systems limits the number of turning movements onto the main roadway, which can reduce the potential for crashes.
- **Prioritize.** Many developed sites may not meet the recommended spacing and other standards. In such cases, the following hierarchy of access principles should be followed:
  1. Maximize spacing from signalized intersections
  2. Directly align driveways, or provide sufficient offset from access and median crossovers located across the street
  3. Maximize spacing between driveways on the same side of the street
  4. Where minimum spacing and offsets are not practical, access should be located to maximize the spacing. In some cases, a shared access system should be considered or a design to restrict certain turning movements may be required.



Source: FHWA

FIGURE 1: CRASH TO DRIVEWAY RELATIONSHIP

The Federal Highway Administration has identified a direct correlation between the number of access points (or driveways) and the number of crashes along the adjacent public road. It found that doubling of access from 10 to 20 access points per mile can result in a 40% increase in crashes.



# HOW TO USE THIS MANUAL

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## WHEN DOES THE SUMMIT COUNTY ENGINEER NEED TO REVIEW ACCESS?

1. All new driveways
2. New Subdivision Access (Minor and Major)
3. When conditions change on developed property:
  - ▶ Increases in parking
  - ▶ Additional dwellings
  - ▶ Generation of more traffic
  - ▶ Increase in particular traffic movement
  - ▶ Addition of truck access or increase in truck traffic
  - ▶ Driveway conversions from temporary or one-way to full functioning or two-way

## WHO NEEDS A PERMIT?

Anyone seeking to construct an access point (driveway, private streets, service drives) onto the County roadway system must obtain a permit.

Application forms are available at [www.summitengineer.net](http://www.summitengineer.net), at the Summit County Engineer's Office, and may also be available at local Township offices.

In addition, changes to the operations on a site that increase traffic generation, such as increases in parking, changes of use, or business expansion, trigger an access review. If the change includes additional traffic, even if the number of driveways does not change, a new access permit is required.

## THE DESIGN PROCESS

This section outlines the factors of a site's use and traffic operations that shall be evaluated in making access design decisions (a checklist is provided in Appendix A: Access Review Checklists):

1. Sight distance. Review the sight distance at potential access points for conformance to the county's standards (See Section 3.6.1)
2. Site Conditions. Review existing driveways on and around the site. Assess existing driveways to determine if they are in the best location. For new access points, assess whether any existing off-site driveways could be shared to provide access.
3. Access Needs. Anticipate the type of traffic that can be expected. Most commercial sites need only one driveway for access, so only one is allowed unless additional driveways are warranted to avoid or mitigate potential safety or congestion concerns. Dedicated truck or "service" access points may be considered where high traffic or safety concerns exist.
4. Access Location. Ideally, access points will meet the requirements in this Manual. However, in many cases this is not practical due to existing conditions or lot sizes. Access points should be spaced apart from others, both on the same or opposite side of the street. If the spacing required in this Manual cannot be provided, access points should be spaced apart to the greatest extent practical. Additional discussion of access location is discussed in the Access Tools and Techniques section below.

# ACCESS TOOLS AND TECHNIQUES

Access management can be accomplished through a variety of techniques, both physical and regulatory. Below is a brief description of the key tools recommended in the Manual. Figure 2 shows the primary tools recommended for managing access. Other tools, such as indirect or shared access can also be utilized to implement a comprehensive access management program.

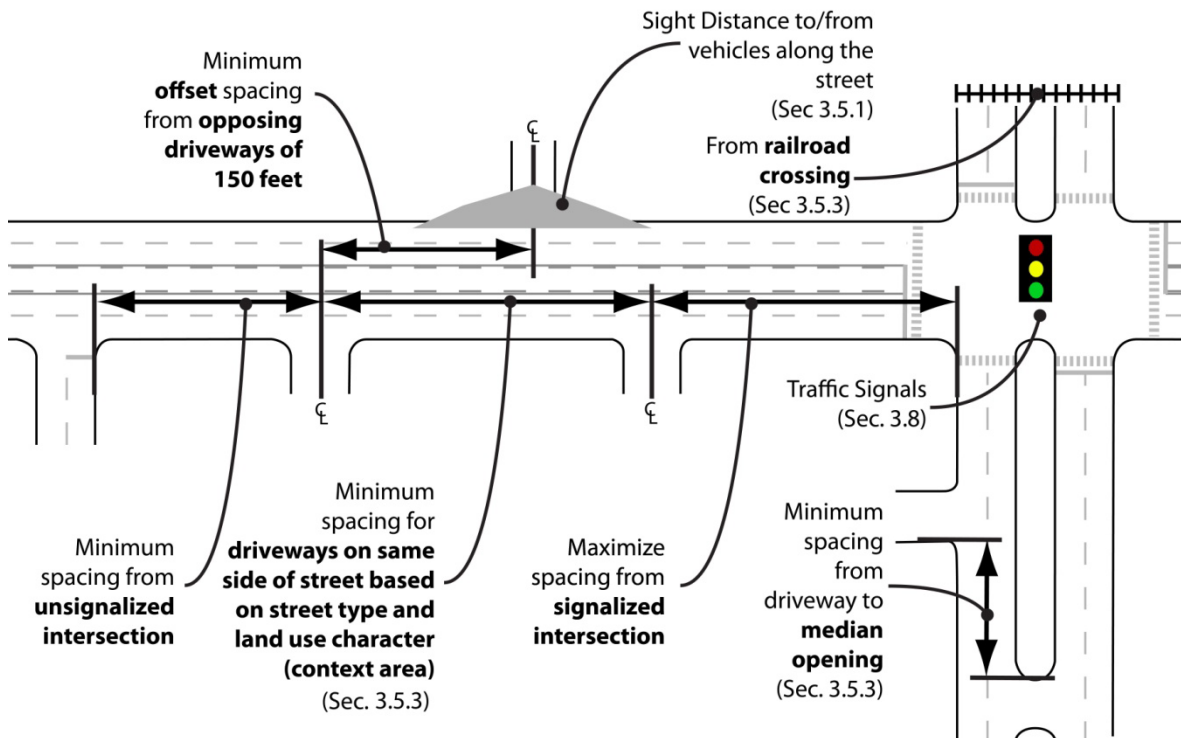


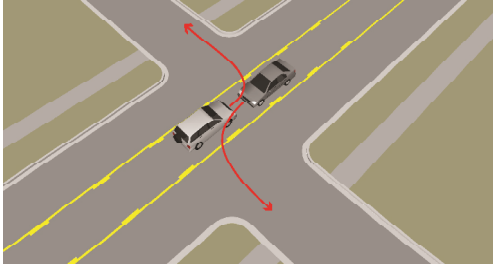
FIGURE 2: KEY ACCESS MANAGEMENT INFORMATION

## DRIVEWAY SPACING

Driveways need to be spaced far enough from intersections, especially signalized intersections, to reduce crash potential between traffic entering or exiting a driveway and intersection traffic (see Figure 2). Standards take into account the type of roadways involved, type of intersection control, and type of access requested (full- or partial-movement).

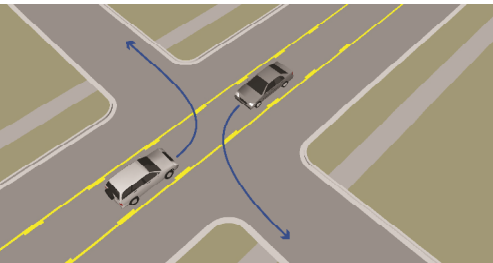
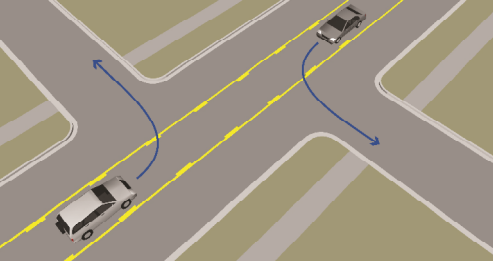
Optimum driveway spacing simplifies driving by reducing the amount of information to which a driver must react. Adequate spacing between adjacent driveways and between driveways and intersections can reduce confusion that otherwise requires drivers to watch for ingress and egress traffic at several points simultaneously while controlling their vehicle and monitoring

other traffic ahead and behind them. Reducing the amount of information related to selecting an access point and avoiding conflicting turns and traffic provides greater opportunity to see and safely react to automobiles in the street and pedestrians and bicyclists on sidewalks.



### DRIVEWAY OFFSETS

One problem with two-way left-turn lanes is the potential for opposing autos to prevent the other from safely completing their maneuver due to “left turn lock up”. To help prevent this situation, driveways should be aligned with those across the street or offset a sufficient distance to reduce left-turn turning movement conflicts. See Figure 3 for illustrations of “left turn lock up”, aligned driveways and proper driveway offset.



### MEDIAN

A median is a physical barrier, usually consisting of a grassy strip of land that divides the travel lanes along corridors (see Figure 4). Medians help to reduce crashes and improve efficiency of travel by directing all traffic in one direction. Installation of a median immediately restricts left-turning movement options, thus creating a right-in/right-out driveway.

FIGURE 3: DRIVEWAY OFFSETS

New access should be aligned with opposing access points, or offset adequately to avoid left-turning conflicts

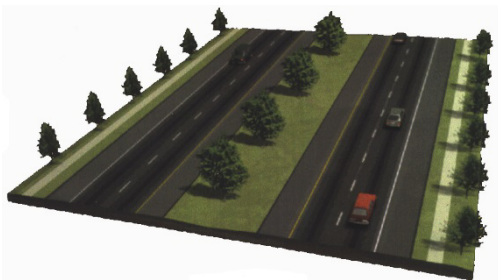


FIGURE 4: MEDIAN

Medians provide a physical divider between travel lanes and restricts the turning movements of access points to right-in / right-out

## RESTRICTED TURNING MOVEMENTS

Restricted driveways are those that prohibit specific turning movements because of the potential safety hazard that may be created. Often called right-in/right-out driveways, they usually restrict left-turns into and/or out of an access point. Restricted movements are indicated through signage and sometimes through installation of a raised median within the driveway to physically block prohibited movements or to direct traffic in the desired direction (See Figure 5).

## SHARED DRIVEWAY

A shared driveway is one that provides access to more than one property (See Figure 6). Shared driveways typically involve two property owners, where the driveway is installed along the shared property line, and shared access agreement and easements are executed to manage use and maintenance of the improvement. Driveways that serve more than two properties are usually called a Service Drive, but some shared driveways can provide access to more than one parcel.

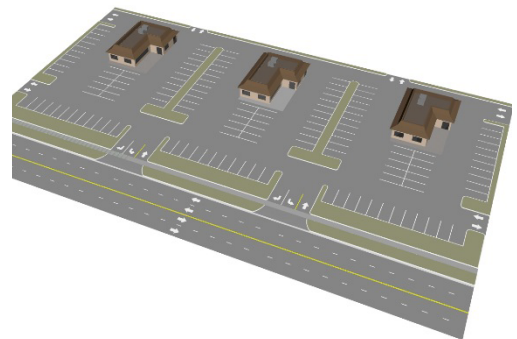
## SERVICE DRIVES

Also called frontage roads or rear service drives, such facilities are used to provide access to a shared access point, preferably at signalized locations, for several businesses or properties (see Figure 7). Service drives can be used to minimize the number of direct driveways to the public street, and as a means to accommodate more efficient and safe ingress and egress. Care should be taken to provide sufficient stacking and maneuvering area when determining the distance between the service drive and the main road.



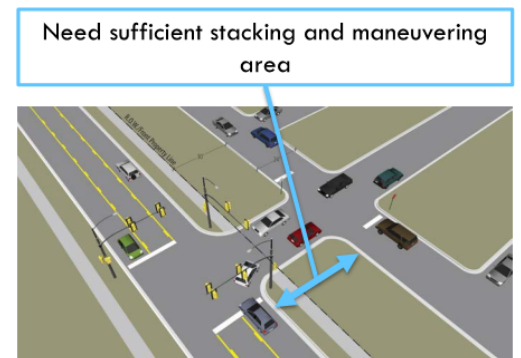
**FIGURE 5: RIGHT-IN / RIGHT-OUT DRIVEWAY**

The image shows a driveway designed to restrict left-turn movements into and out of the site.



**FIGURE 6: SHARED DRIVEWAYS**

Shared driveways avoid the need for multiple direct access points onto the public road by using one driveway to access more than one property.



**FIGURE 7: SERVICE DRIVE**

Sometimes when direct access cannot be safely provided, a service drive can be used to channel traffic from several properties to one well-located or signalized access point.

# UNDERSTANDING THE CONTEXT

The Summit County Access Management Manual is unique in that it considers not just the functional classification of roads (or their intended purpose), but

also the local development environment. Many times, development on neighboring or nearby property can affect traffic conditions on the adjacent road and the ability to separate access points. This Manual considers those impacts, and considers the varying access needs within areas experiencing different levels of development intensity.

The regional transportation planning agency (AMATS) has considered future land use contexts in its Connecting Communities Plan. These contexts were considered during development of the Summit County Access Management Manual, and provide the guiding basis for the access categories established. The Manual will apply only to roads under the County's jurisdiction, so when reviewing AMATS Planned Areas Map (see Figure 8), roads in incorporated cities and villages are removed from consideration. Those that remain under the jurisdiction of the Summit County Engineer are located within the following context areas, which are described in greater detail below:

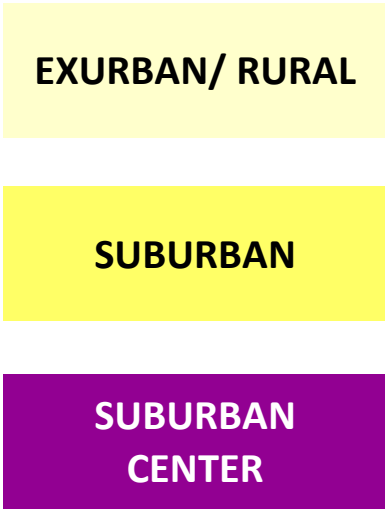
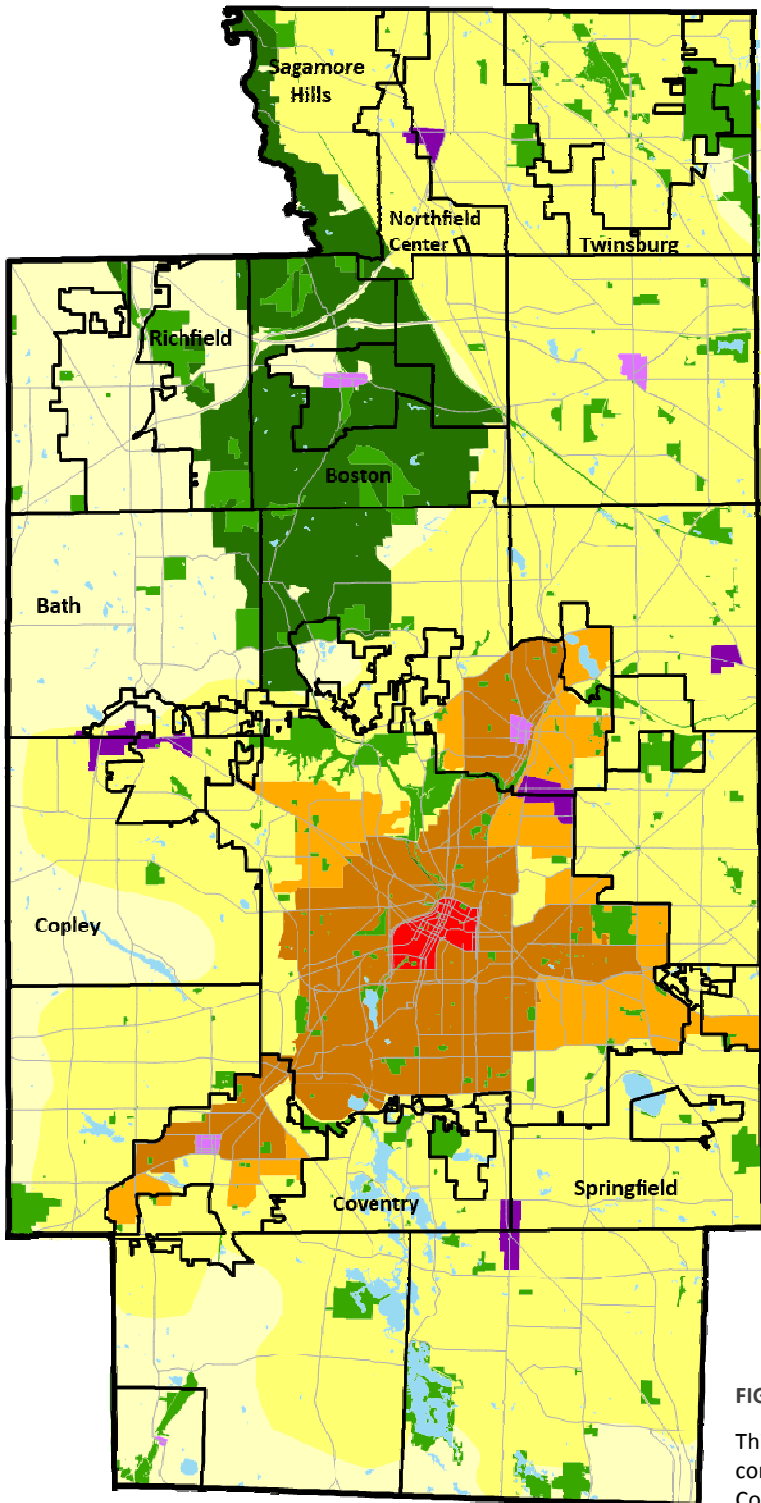


FIGURE 8: AMATS PLANNED AREAS MAP

This map shows the various development contexts that AMATS envisions for Summit County. The Manual applies only to the unincorporated areas. Within those areas, three contexts are planned – Exurban/Rural, Suburban and Suburban Center.

## CONTEXT DESCRIPTIONS

**EXURBAN/RURAL** – the primary intent for access management regulations for roads in less developed parts of the county (defined as “exurban/rural”) is to prevent future problems by pre-planning in advance of development. This may include ensuring that access spacing standards will be met if the area along the road becomes more developed in the future. The purpose is also to regulate access to ensure efficient traffic operations and safety even if the area remains rural.

- Land Uses and Form. Planned land uses should complement the desired road function. For example, higher speed regional throughways intended to carry relatively large volumes of traffic should not be allowed to develop into auto-oriented, strip commercial with an excessive number of driveways that will create congestion and increase collisions.
- Lot Splits. Require lot sizes and widths that will accommodate alternative access concepts.
- Shared Access Locations. Seek locations for future shared access and potential access to a traffic signal. Service roads may need to be phased over time and when planned in advance, can eventually create a shared access system. In some cases, access easement for future service drive connections will be needed.
- R.O.W. Planning. Determine required right-of-way for planned service roads or street design elements like bike lanes and sidewalks, and craft zoning regulations that place buildings structures outside the future ROW to avoid late disruption (refer to county standard cross sections).
- Easements. Secure cross-access easements and, where applicable, sidewalk commitments, even if they don’t connect yet. Future developments will be required to complete those connections.
- Signalization. Traffic signals in rural and exurban areas should be provided where traffic volumes or safety conditions warrant but also when spacing allows smooth traffic flow. Coordinate signal placement to facilitate shared access locations and non-motorized crossings.

**SUBURBAN** – the primary intent in suburban areas is to prevent congestion or safety problems associated with a proliferation of driveways that are located too close together or too close to intersections. Shared access, cross-access easements and right-of-way planning will be a priority in these areas.

- Land Uses and Form. A wide variety of uses, often commercial, office or attached residential lines streets. Parking lots are typically in the front yard.
- Setbacks. Use zoning setbacks to preserve right-of-way and pre-planned service road locations if to be accommodated in the right-of-way.
- Number of Driveways. Minimize the number of driveways allowed and require connections to planned cross-access drives on adjacent property.
- Access Spacing. Ensure access points meet the Manual’s spacing and design standards as much as possible, recognizing that some situations may require flexibility.

- **Connected Streets.** Plan interconnected local streets to relieve congestion on arterials. Interconnectivity provides a variety of routes that help disburse traffic more evenly and provides alternative routes for emergency responders.
- **Non-Motorized Needs.** Identify desired non-motorized routes and determine the appropriate type of facility (e.g. sidewalks v. shared pathway). Seniors, young families and the less able need sidewalk and transit stop connections. Suggest internal parking layouts and access design that minimize conflicts with vehicles.
- **Signalization.** Signals may be needed to manage through traffic or preserve safe access to larger sites or intense land uses. Coordinate with the County Engineer when a Transportation Impact Study suggests a signal, so it can be properly spaced from other access points and other traffic signal locations.

**SUBURBAN CENTER** – sometimes developed urban centers are already experiencing congestion or higher crash rates due to the location and proliferation of driveways. Here, efforts will be made to correct the most problematic conditions and seek reasonable access, which may not necessarily be the most direct access.

- **Driveway Removal.** Removal of driveways that are most likely to contribute to congestion or increase potential for crashes, focusing on the worst conditions first. Give priority to the “Key Principles” listed on the Site Plan Review page.
- **Flexibility.** Use the performance-based standards in the Manual instead of strict dimensional requirements where the existing built environment prevents reasonable access to private property.
- **Restricted Access.** Restrict access for sites that cannot reasonably meet the spacing standards and where no other shared or indirect access options exist. Channelize driveways to require right-in, right-out only movements using physical barriers and signage.
- **Non-Motorized Movements.** Facilitate non-motorized movement along and across the street. Improving driveway design and minimizing the number of crossings can improve non-motorized conditions over time. Review sites on a case-by-case basis to match the access tool to the local conditions.
- **Signalization.** Signalization may include more complex turning movements and signal timing. Transportation Impact Studies should evaluate existing signals, pedestrian and bicycle activity and opportunities to coordinate access to other nearby sites, so the final design fits the context.

The spacing and offset requirements will differ in these three context areas and modification criteria have been established so the Summit County Engineer can review applications on a case-by-case basis. This is preferred over rigid requirements that cannot be met for many applications.

Changes to categories. In some cases, an area’s development pattern may change over time into a different pattern of land use. Section 3.5.6 describes the process to change the context classification.

# ACCESS MANAGEMENT REGULATIONS

## CHAPTER 1: INTRODUCTION

---

### 1.1 PURPOSE AND AUTHORITY

The county road system constitutes an integrated network of streets providing safe, efficient movement of people and goods. The county road system represents an irreplaceable public asset essential to the public health, safety, and welfare. The Summit County Engineer's Office has an obligation and a public-trust responsibility to preserve and maintain this system, to protect the public investment in this system, to apply standards to reduce conflicts that can contribute to accidents and to ensure the system will continue to meet local, state, and regional transportation needs.

#### 1.1.1 Purpose

Numerous published reports and recommendations, such as those listed in Appendix C, have identified a direct correlation between the proliferation of access points and crashes. Those studies also demonstrate that regulating the number, placement and design of access points (driveways and side street intersections) can reduce congestion, preserve street capacity, allow operating speeds consistent with the intended function of the street, and reduce the potential for crashes. Well-designed access can ensure that reasonable, though not always direct access is provided to private property. The management of, or conversely, the proliferation of access points can affect the function of adjacent roads. Access Management is in the best interest of private property owners - to maintain orderly access to property; and also the community - to maintain a safe travel environment.

The Summit County Access Management Manual establishes procedures and standards that are intended to:

- a. Protect the utility, function, capacity, and safety of the county road system;
- b. Preserve and manage the county road system more effectively;
- c. Improve public safety in the development, design, and operation of the county road system;



- d. Maintain and protect the county road system's function and ability to move people and goods efficiently and conveniently;
- e. Maintain the integrity of past investments in the county road system;
- f. Ensure coordination between public and private sectors in transportation planning;
- g. Maintain safety and improve accessibility to development;
- h. Preserve and enhance mobility options for those, who for economic, social or physical reasons, rely on non-motorized or public transportation systems as their primary means of travel;
- i. Preserve and maintain the intended and designed function of county roads within the overall system and within the context of the area's transportation needs and plans.

### **1.1.2 Authority**

- a. The Summit County Council adopted the regulations herein for the management of access, pursuant to Section 5552.02 of the Ohio Revised Code (ORC). The Summit County Access Management Manual was prepared pursuant to Sections 5552.04 and 5552.06 of the Ohio Revised Code.
- b. The Summit County Engineer maintains jurisdiction over all county roads designated as such pursuant to R.C. 5541.02 and located within the unincorporated areas of the county, and any other roads to the extent authorized by the Ohio Revised Code, and, to the extent authorized by agreement, over those streets maintained by the county on behalf of another local agency or jurisdiction.
- c. The Summit County Council adopted a resolution to produce a Traffic Access Management Manual with Resolution 2012-062 on February 13, 2012.

### **1.1.3 Reasonable Access**

Except in cases of purchase or appropriation of access rights, nothing in this Manual shall deny the property owner the right to reasonable access to the general, public street system. Reasonable access may not be the most convenient, but is considered to be the access scenario which best achieves the benefits of Section 1.1.2, without impacting the public health, safety or welfare or preventing the logical development of adjacent sites. This may not always mean direct access will be provided, especially where indirect (i.e. via shared or service drives) or restricted access (i.e. right-in, right-out) options will better meet the purpose of this Manual.

### **1.1.4 Consistency with Township or Municipal Policies**

Pursuant to Ohio law, Townships within Summit County may adopt policies, standards, and requirements regulating access. If a Township has adopted access standards and requirements, then, one year after

the effective date of the county regulations, the regulations adopted by the Township shall be void, and the regulations adopted by the County shall apply to those township roads. However, the Township may choose an earlier date for the county regulations to take effect by adopting a resolution establishing an earlier date. The County may coordinate and cooperate with townships in implementing access management, but shall only be responsible and have authority for enforcing the provisions contained in this Manual along County roads designated as such pursuant to R.C. 5541.02.

---

## 1.2 APPLICABILITY

The regulations and standards of this Manual shall apply to the County roadway system, which is located in the unincorporated areas of Summit County. The following applications are subject to the requirements of the Summit County Access Management Manual:

### 1.2.1 New Access Requests

Applications for new direct access (i.e. driveways and side streets) to a county road.

### 1.2.2 Land Splits and Subdivisions

Access to the county road for any major or minor subdivision, including residential developments.

### 1.2.3 Change in Use or Condition

Changes in Use or Condition shall be measured by the total cumulative change that has occurred since the adoption of this Manual. Changes in use or condition are considered to include activity that is reasonably expected to result in the following:

- a. The amount of parking required will increase by twenty (20) spaces or more, or by more than twenty percent (20%), whichever is less. Parking expansions of ten (10) or fewer new spaces shall not require access review unless a crash problem exists at the drive access point, or if it is in close proximity to a signalized intersection.
- b. The number of residential dwelling units or leasable commercial floor area will increase by more than ten percent (10%);
- c. The number of auto trips into and out of the site will increase by more than one of the following thresholds. Trips shall be estimated using the most recent edition of the ITE Trip Generation Manual.
  1. An additional twenty-five percent (25%) is expected in the peak hour; or

### WHEN DOES THE SUMMIT COUNTY ENGINEER NEED TO REVIEW ACCESS?

1. All new driveways
2. New Subdivision Access (Minor and Major)
3. When conditions change on developed property:
  - ▶ Increases in parking
  - ▶ Additional dwellings
  - ▶ Generation of more traffic
  - ▶ Increase in particular traffic movement
  - ▶ Addition of truck access or increase in truck traffic
  - ▶ Driveway conversions from temporary or one-way to full functioning or two-way

- 2. More than fifty (50) additional trips in the peak hour; or
- 3. A particular directional characteristic (such as left turns) will increase by twenty-five percent (25%) or more;
- d. The use of the access by trucks exceeding 30,000 pounds gross vehicle weight increases by twenty percent (20%) or more or an actual increase of ten (10) or more trip ends in the peak hour;
- e. Conversion of a temporary or seasonal driveway into a full functioning driveway;
- f. Conversion of a one-way driveway into a two-way driveway, or conversion of a two-way driveway into a one-way driveway.

#### **1.2.4 Conditions Subject to Review upon Change in Use**

Once a change in use that meets the thresholds stated above has been determined, the following unfavorable conditions will be under Summit County Engineer review to establish what extent of change in access, if any, is required:

- a. The existing driveway(s) does not meet the County's current geometric engineering design standards;
- b. The site is located within five hundred (500) feet of a high-crash roadway section or high-crash intersection, as defined by reports conducted by the County or the Akron Metropolitan Area Transportation Study (AMATS) and determined by the County Engineer;
- c. Any site with access that is within two hundred fifty (250) feet of a signalized intersection (measured from the nearest edge of the street);
- d. Locations where the County Engineer's judgment determines changes to the access are warranted based upon the extent of the change in use and the existing access situation.

#### **1.2.5 Exemptions**

Pursuant to Section 5552.11(a) of the Ohio Revised Code, regulations in this Manual shall not apply to:

- a. Existing access points, or those approved and on which construction has begun before the effective date of the Summit County Access Management Manual;
- b. Existing access points serving sites whose conditions do not change beyond the parameters noted in Section 1.2.3.
- c. Access to the state highway system or any other highway operated and maintained by the director of transportation under Sections 5501.31 and 5515.01 of the Ohio Revised Code.
- d. Access to streets, highways, or other roadways located in a municipal corporation.

# CHAPTER 2: ROADWAY ACCESS CATEGORIES AND CHARACTERISTICS

## 2.1 PURPOSE

This Chapter describes the Access Categories to which all sections of county roads have been assigned. Each Category describes the function of the streets included in the category and the operational standards that are applied to maintain the street's function in terms of capacity, traffic flow, and safety.

## 2.2 BASIS FOR CONTEXT AREAS

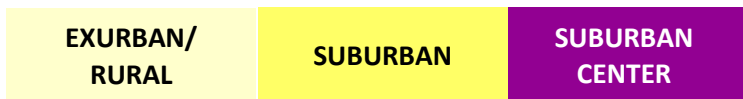
The access categories established in the Summit County Access Management Manual are based on the “Planned Areas” established by the Akron Metropolitan Area Transportation Study (AMATS) as described in its *Connecting Communities* Report.

### 2.2.1 Exurban/Rural (hereafter referred to as Exurban)

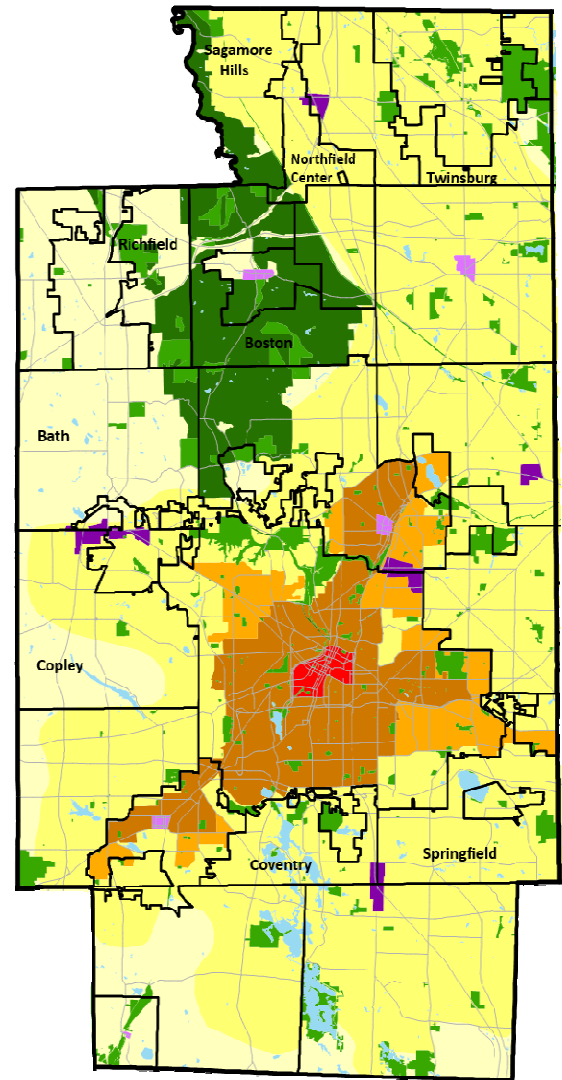
Exurban areas (exurbs) are predominantly low density and single-family, with residential housing typically along country roads or detached subdivisions surrounded by agricultural and park land. They are auto-dependent, without sidewalks, and transit is limited to individual door-to-door service.

### 2.2.2 Suburban

Suburban areas (suburbs) are predominantly single-family housing units with retail and business located in shopping centers and office parks. Residential streets are predominantly curved and terminate in cul-de-sacs. Suburbs are auto-dependent with limited transit and pedestrian activity.



AMATS PLANNED AREAS MAP



### **2.2.3 Suburban Center**

Suburban Centers are major business and retail hubs. They consist of a mix of shopping centers, big-box stores, and office parks. Usually these areas are auto-dependent and do not support transit and pedestrian activity.

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## **2.3 ACCESS CATEGORIES**

For use in the Summit County Access Management Manual, AMATS' Planned Areas are broken down into sub-categories. The Suburban context area is subdivided into three context areas. The first context area already embodies the expected/planned Suburban characteristics, the second represents areas that are starting to display those characteristics and the third context area includes conditions that are already more intense than planned. The Exurban (formerly Rural/Exurban) context area has two subcategories; one already embodying the characteristics of the context area and one beginning to exceed those characteristics. Details of the Context Areas used for this Manual include:

### **2.3.1 Exurban**

The exurban roadways' primary function is to collect and distribute traffic from local access streets and unimproved roads in the County to the principle arterials or existing freeways. These roadways move moderate amounts of traffic volumes and provide limited access to adjacent properties. Exurban classification roadways supplement the principle arterial system and existing freeway network.

Property access is a medium level priority with an emphasis on limiting the location of driveways and groups of curb cuts that access this thoroughfare type. In exurban locations minor arterials should contain sufficient ROW for two travel lanes with one in each direction, spacing for both a left turn lane and a right turn out lane, roadway shoulders and broad grassy setbacks for the roadway.

The surrounding land use for these roadways is typically residential. More specifically it is generally single family residential with parcel size at one acre or more. The speed limit is typically between 45 and 55 miles per hour.

### **2.3.2 Exurban Village**

An Exurban Village Roadway is one that typically occurs where two rural roadways intersect in an area that is surrounded by typical rural settings. The intersection of the roadways generally encourages the development of commercial buildings for essential needs, including, but not limited to, gasoline, basic convenience store, auto repair and family restaurants. To meet the qualification of Exurban Village the

number of commercial businesses on the roadway must exceed five but be less than 15. Any less than 5 would indicate a random business, while more than 15 would indicate more than a rural setting.

Property access is a medium level priority with an emphasis on limiting the location of driveways and groups of curb cuts that access this thoroughfare type. In exurban village locations minor arterials should contain sufficient ROW for two travel lanes with one in each direction, spacing for both a left turn lane and a right turn out lane, roadway shoulders and broad grassy setbacks for the roadway. In some instances a traffic signal may be present. The length on any single rural village roadway segment is typically between  $\frac{1}{4}$  of a mile and  $\frac{1}{2}$  of a mile. If the business locations are spread beyond this, it would likely fall in the exurban category.

### **2.3.3 Suburban**

The typical suburban corridor should interconnect with and augment both the rural/exurban system and the more urban roadway classifications. The suburban corridor system should provide service to trips of moderate length at a somewhat lower level of service for traffic than principal arterials. This system also distributes travel to geographic areas smaller than those identified with the higher system. Access spacing is applied with the expectations of shared access. The setbacks are to allow ample space for sidewalks and any planned multipurpose pathways in/not in the right-of-way. Typical speeds would be between 35 mph and 50 mph but could be higher in some areas.

The suburban corridor includes all arterials not classified as a principal and contains facilities that place more emphasis on land access than the higher system, and offer a lower level of traffic mobility. Such facilities may carry local bus routes and provide intra-community continuity, but ideally should not penetrate identifiable neighborhoods. This system should include urban connections to rural collector roads where such connections have not been classified as urban principal arterials. The spacing of minor arterial streets may vary from  $\frac{1}{8}$  -  $\frac{1}{2}$  mile in the more urban areas to 2 - 3 miles in the suburban fringes, but should normally be not more than 1 mile in fully developed areas.

The typical land use adjacent to suburban corridor roadways would consist of single family residential with smaller parcels of land. This would primarily be platted neighborhoods. Other land use adjacent would be multifamily residential and some commercial/industrial uses. Ideally the industrial uses would consist of such things as light industrial parks. The driveway spacing for suburban corridor roadways would typically be 1,000 feet or more.

### **2.3.4 Suburban Retrofit**

A Suburban Retrofit Roadway is one that typically contains commercial-only strip zoning with a code that treats centers and segments along a corridor differently. Retail activity should be concentrated in a series of centers along the corridor. The common suburban retrofit includes dimensional designs for transforming the strips' rights-of-way to ensure that any new buildings, their grounds, and the thoroughfares match. Street designs vary in accordance with centers and segments.

Suburban Retrofit roadways that are mostly residential in character are provided with well-landscaped sidewalks whose significant plantings screen the views from the roadway. Street design standards are complemented by form-based requirements that address elements from the private building frontage to the landscaping between the building and the curb. Centers or segments with significant potential for change are positioned for aggressive restructuring into mixed-use and pedestrian-friendly environments, with land uses and building types to match.

Segments featuring only moderate potential for change are given a planning framework that accommodates gradual transition away from the single use, auto-oriented strip commercial corridor of today.

### **2.3.5 Suburban Emerging**

The main function of suburban emerging roadways is to provide for continuity and high traffic volume movement between major activity centers (local employment and commercial centers, regional highway with limited intersection access, etc.) Property access is a low-to-medium level priority with an emphasis on limiting the location of driveways and groups of curb cuts that access this thoroughfare type. These roadways are usually divided to provide space for future left turn or through lanes once traffic conditions warrant. Hence, some suburban emerging roadways will contain four travel lanes, two in each direction with a wide median, and others will contain six travel lanes, three in each direction with a median. In addition, some existing Summit County roads will assume a greater role as principle arterials as portions of the County continue to urbanize.

The land use along a typical suburban emerging roadway would be mixed use, however it would be rather dense in its use. The development along the roadway and nearby areas is also relatively new and thus generating traffic that the roadway was not seeing just a few years prior. The speed limit along these thoroughfares would typically be between 35 mph and 45 mph. This provides reasonable mobility while still providing ample safety for turning movements.

### 2.3.6 Suburban Center

The typical suburban center roadway should serve the major centers of activity of a suburban area. The suburban center roadways also should carry a higher proportion of the total urban area travelers than other roads in the vicinity. The system should be integrated, both internally and between major rural connections. In addition, significant intra-area travels, such as between center area and outlying residential areas, between major inner city communities, or between major suburban centers should be served by this system. Frequently the principal arterial system will carry important intra-urban as well as intercity bus routes, often hosting a hub for transit activity in the area.

Because of the nature of the traffic served by the Suburban center system, almost all fully and partially controlled access facilities will be part of this functional system. The spacing of suburban center arterials will be closely related to the trip-end density characteristics of particular portions of the urban areas. While no firm spacing rule can be established which will apply in all, or even most circumstances, the spacing of suburban center arterials may vary from less than one mile in the highly developed suburban center areas to five miles or more in the sparsely developed suburban fringes. For these roadways, the concept of service to abutting land should be subordinate to the provision of travel service to major traffic movements.

The land use adjacent to suburban center roadways is almost completely commercial and typically big box type commercial. These roadways will serve regional activity centers. The travel on these roadways will be at speeds between 35 mph and 45 .mph on average. The setbacks will be marginal to provide users the ability to navigate based on sight of business. The parcel size adjacent to suburban center roadways will typically be the largest parcels in the area, generally between 1.5 acres and 10 acres.

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## 2.4 ROAD ACCESS CATEGORY MAPS

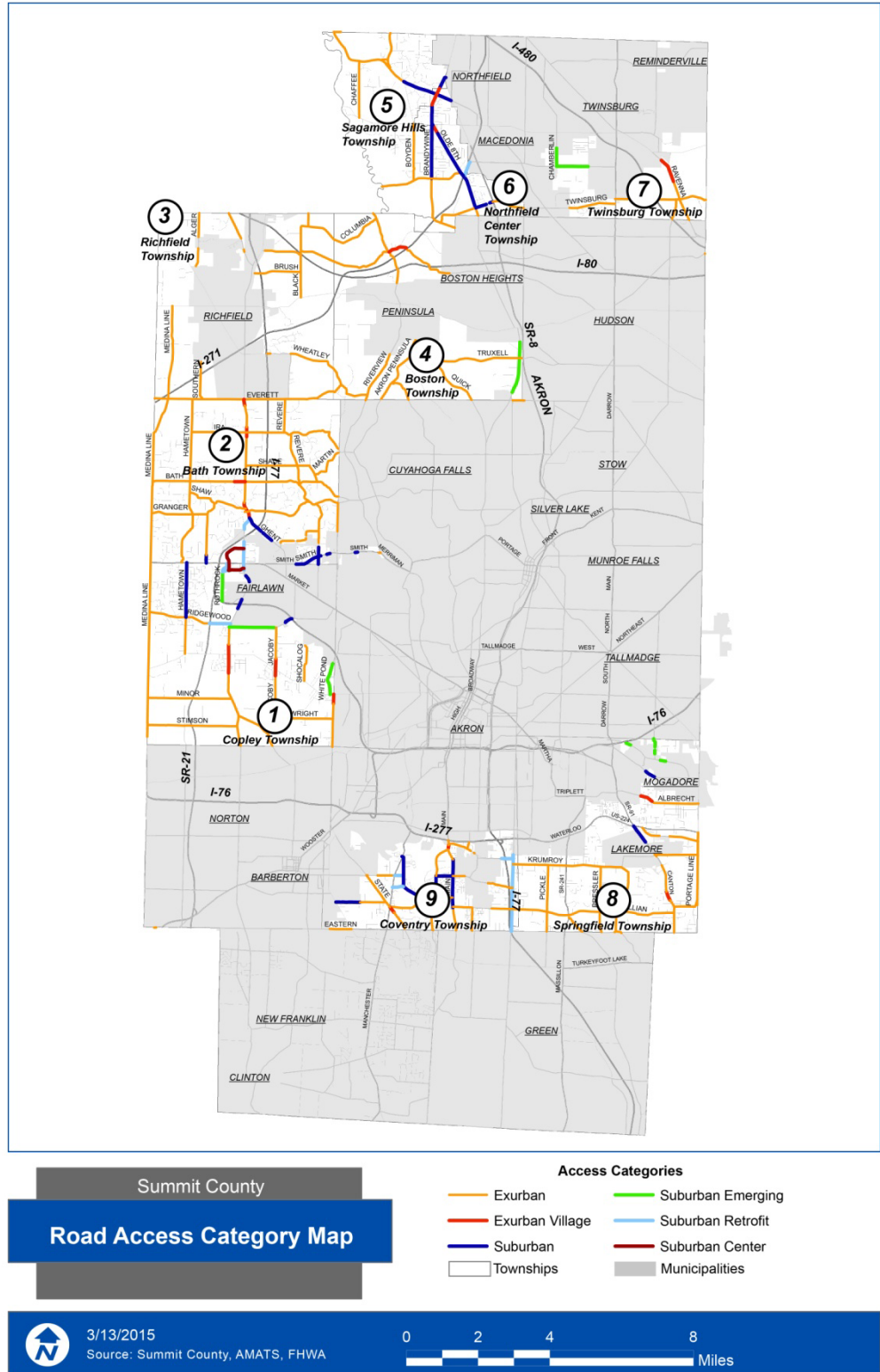
The purpose of a Road Access Category system is to create a street system which promotes local and regional connectivity, allows for the appropriate level of access and facilitates the movement of people and goods in a safe and efficient manner.

Road categories influence and factor into transportation and land use decisions. To understand implications of street classifications, it is necessary to not only define categories used by the County, but also depict the roads and their categories on a map. To serve as a useful planning tool, local government



agencies should refer to the map when contemplating land use and thoroughfare changes.

Below is the Summit County Road Access Category Map, specific Township Access Category Maps (as numbered on the map below) can be found in Appendix B: Township Access Category Maps.



# CHAPTER 3: DESIGN STANDARDS AND SPECIFICATIONS

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## 3.1 INTRODUCTION

This chapter includes the specific driveway spacing and dimensional standards that will apply. Many of the standards depend on the access category types chosen from Chapter 2. Many of the spacing requirements are based on the ideal standard, which allows ample time for safe maneuvering patterns; in many cases these requirements cannot reasonably be met. This Manual focuses equally on providing solid spacing requirements and realistic standards that give the needed flexibility to administer them without time-consuming appeals procedures.

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## 3.2 USE OF DESIGN STANDARDS AND SPECIFICATIONS

These design standards shall apply to all applications for which access review is required, except where requirements are modified by a Transportation Impact Study prepared according to Chapter 6: Transportation Impact Studies (TIS).

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## 3.3 MEASUREMENTS

### 3.3.1 Signal Spacing

Signal spacing shall be measured from intersection of roadway centerlines to intersection of roadway centerlines.

### 3.3.2 Driveway Spacing

Driveway spacing shall be measured according to the following:

- a. Other driveways – centerline to centerline
- b. Intersections – centerline to closest edge intersecting street
- c. Roundabouts – centerline to start of approach island
- d. Median openings – centerline to leading edge of curb
- e. Interchanges – centerline to end of on/off ramp
- f. Railroad crossings – centerline to closest edge of intersecting right-of-way

### **3.3.3 Driveway Width**

Driveway widths shall be measured beyond the end of the radii or flare section, perpendicular to the centerline of the drive.

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## **3.4 ACCESS CATEGORIES**

### **3.4.1 Access Category Criteria**

Access assignments in the inventory are based on and consider the following:

- a. Current functional classification;
- b. Existing and projected traffic volumes and vehicle mix;
- c. Existing and projected capacity and level of service;
- d. Survey of existing character of land and proposed or anticipated land use adjacent to the highway, whether developed or undeveloped, and the type of development;
- e. Survey of physical features of the roadway;
- f. Adopted local transportation plans and needs;
- g. Adopted local land use and zoning plans, subdivision/commercial/ industrial regulations;
- h. Availability and reasonableness of alternative access to public street and road system rather than to the county road; and
- i. Posted or operating speed.

### **3.4.2 Category Change Requests**

Requests for changes in the access category of a county road or sections thereof may be submitted to the County Engineer. All requests must explain the need for the requested change, in consideration of the criteria listed in Section 3.4.1, Access Category Criteria, the purpose of the Summit County Access Management Manual, and the typical characteristics of each Access Category. Category changes shall not be allowed for requests that do not match the majority of the criteria listed, or when they may compromise the public health, safety, and welfare. A change in access category shall not be made solely to accommodate a specific access request or to allow the permitting of access connections that would otherwise not be permitted.

### **3.4.3 Access Priority**

When access is requested for property abutting county roads assigned to different access categories, the access should be given to the street in the lowest category.

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## 3.5 ACCESS SPACING, SIGNAL SPACING AND SIGHT DISTANCE

### 3.5.1 Sight Distance

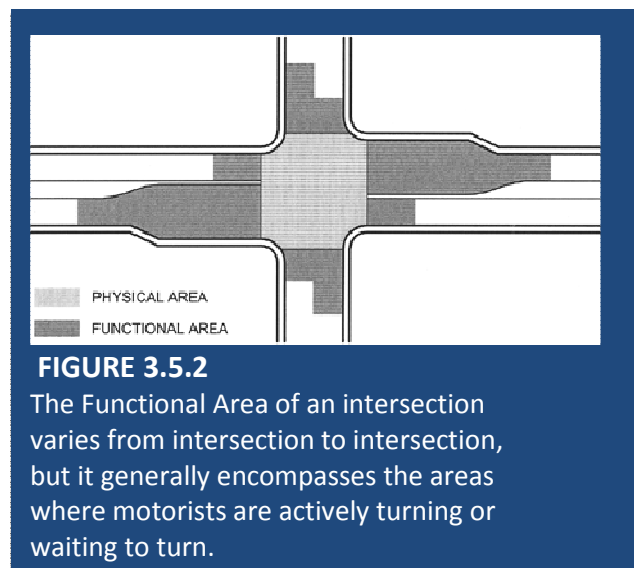
Minimum sight distances shall be as per the current AASHTO geometric standards. Stopping sight distance along the public street and intersection sight distance at the proposed driveway location are both required.

### 3.5.2 Signal Spacing

Signal Spacing shall be as shown in Table 3.5.3 under Minimum Signal Spacing. Adequate spacing,  $\frac{1}{4}$  to  $\frac{1}{2}$  mile and sometimes more, is required to preserve efficient traffic flow and progression. Adequate spacing tends to reduce rear-end collisions and “stop and go” driving by allowing traffic signals to be interconnected and synchronized. Access points within the functional area of a signalized intersection (see Figure 3.5.2) are strongly discouraged and new access points within these areas will be granted under very limited circumstances.

### 3.5.3 Driveway Spacing

Driveway placement shall be as shown in Table 3.5.3. Driveway Spacing Requirements. Modifications may be granted pursuant to 4.7 Modifications to Access Standards.



**TABLE 3.5.3  
ACCESS SPACING REQUIREMENTS**

Context Area	Functional Classification	Minimum Signal Spacing	Minimum Access Spacing From:						
			Driveways – Same Side	Driveways – Opposing Side	Intersections	Roundabouts	Median openings	Railroad Crossings	Interchanges
Rural	Arterial	½ mile	1320	990	990	570	990	155	660
	Minor Arterial	½ mile	990	660	660	410	660	60	570
	Collector	½ mile	660	330	330	330	330	60	570
	Local	½ mile	330	330	330	250	330	60	410
Rural Village	Arterial	½ mile	1320	990	990	330	660	155	660
	Minor Arterial	½ mile	990	660	660	330	330	155	570
	Collector	½ mile	660	330	330	250	330	90	570
	Local	½ mile	330	330	330	155	250	60	410
Suburban Emerging	Arterial	½ mile	330	250	250	330	330	90	660
	Minor Arterial	½ mile	330	250	250	330	250	90	570
	Collector	*½ mile	250	250	250	250	250	60	410
	Local	*½ mile	155	155	155	200	155	60	410
Suburban	Arterial	½ mile	330	250	250	330	660	155	660
	Minor Arterial	½ mile	330	250	250	330	330	155	570
	Collector	*½ mile	250	250	250	250	330	90	570
	Local	*½ mile	155	155	155	155	250	60	410
Suburban Retrofit	Arterial	½ mile	330	250	250	330	330	90	660
	Minor Arterial	½ mile	330	250	250	330	250	90	570
	Collector	¼ mile	250	155	155	250	250	60	410
	Local	¼ mile	155	155	155	200	155	60	410

\* ½ mile minimum signal spacing in Suburban Emerging and Suburban areas is the desired criteria; however, ¼ mile spacing may be allowed in certain circumstances.

Notes on measurements (see also Figure 2):

- A. Spacing is measured from driveway center line to driveway center line
- B. Spacing is from the driveway centerline to the nearest edge of the intersecting street.

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## 3.6 TURN LANES

### 3.6.1 Introduction

The principal factors affecting the design of an intersection are the traffic volume, the composition of traffic, and the design speed. Traffic volume, in particular the actual and relative volume of turning and through traffic movements, is most significant in determining turn lane configurations. Balancing traffic efficiency with financial responsibility is a factor in turn lane design. Left-turn facilities should be constructed on streets where the conflict between turning and through traffic volumes impact traffic operation or crash history is sufficient to warrant them. Engineering practice shows the provision of left-turn lanes reduces crash rates and improves service levels at intersections.

### 3.6.2 Turn Lane Warrants

Turn lanes for Suburban and Suburban Center conditions should follow the warranting process set forth below. Auxiliary lanes for turning vehicles in Exurban areas should only be provided when deemed necessary through capacity analysis procedures.

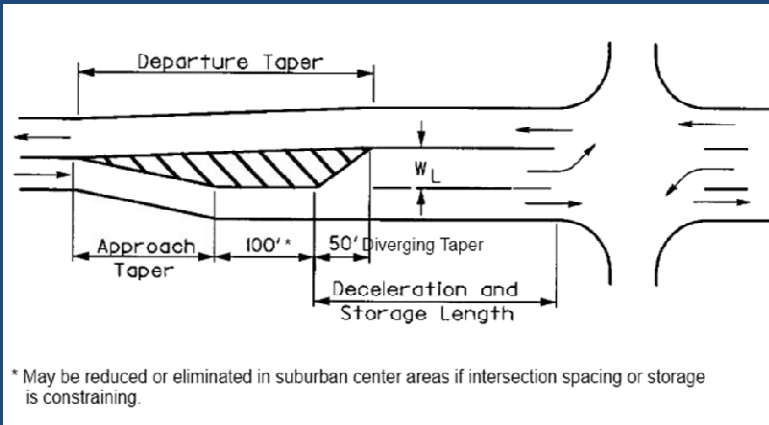
- a. Use intersection capacity analysis procedures of the Highway Capacity Manual to determine the number and use of auxiliary turn lanes for signalized intersections.
- b. Calculate level of service (LOS) of each movement and the intersection as a whole with Highway Capacity Software (HCS).
- c. For non-signalized intersections, use the Ohio Department of Transportation (ODOT) left and right turn lane warrant graphs for two-lane and four-lane highways. Worksheets utilizing these graphs can be found in Appendix C: Turn Lane Warrant Worksheets. These worksheets are included for reference only; the most current standards must be used, see note in appendix for more information.

Auxiliary lanes for turning vehicles in Exurban areas should only be provided when deemed necessary through capacity analysis procedures.

### 3.6.3 Design Standards

Required turn lanes shall be designed to acceptable standards, including:

- a. Left turn lanes should be placed opposite each other on opposing approaches to enhance sight distance.



**FIGURE 3.6.3. TURN LANE + APPROACH TAPERS**

Approach taper length is calculated as follows:

Design Speed	Taper Length Formula
≥ 50mph	WS
<50 mph	WS <sup>2</sup> /60

W = Offset width in feet

S = Design Speed

b. When required, the additional width necessary to add turn lanes at an intersection may be attained by widening on both sides of the street or fully to one side or the other.

c. An existing median of sufficient width may be repurposed as a turn lane. If there is a wide median, offset left turns may be necessary to obtain adequate sight distance.

Several different tapers are used to develop turn lanes. The Approach Taper directs through traffic to the right and is calculated based on design speed. The Departure Taper directs through traffic to the left and its length should not be less than that calculated for the approach taper. The Diverging Taper is used at the beginning of the turn lane and has a recommended length of 50 feet. See Figure 3.6.3 for taper locations.

The calculation for the Deceleration and Storage Length is dependent upon several factors, including design

speed, turn volume demand, signalization of intersection and number of vehicles in the turn lane per cycle. See Appendix C: Turn Lane Warrant Worksheets for detail design information for single and dual left and right turn lanes.

## 3.7 DRIVEWAY GEOMETRY

### 3.7.1 Introduction

A driveway is a point of access connecting an adjacent property to a street or highway. The basic tenets that govern the location and design of access points shall include the ability to aid the safe and efficient movement of vehicles along the street or highway, and the safe movement of pedestrian traffic. The type of facility serviced by the drive will determine the types of vehicles to be considered in the design. This, in turn, affects the access width along the street and the radius and/or flare dimensions. Information needed to design a driveway properly includes:

- The volume of traffic, and;
- Type of drive access (full, Right-In/Right-Out, etc.).

Full access drives allow left, right and through movements in and out of the adjoining property. Right-in/Right-out drives allow only right turns into a property and right turns from the property onto the adjoining street.

### **3.7.2 Driveway Types**

In general, the type of facility serviced by a drive can aid in selection of a design vehicle on which to base the driveway design. Therefore, the type of facility should be determined. The possible types include:

- a. Farm/Field driveways are those that serve vacant lands, farms or other low-intensity uses not discussed below.
- b. Residential driveways are those that serve fewer than five housing units, either attached or detached.
- c. Commercial driveways are those that provide access to an office, business, retail or institutional building, or residential dwelling with five or more housing units. These entities are serviced by trucks as an incidental rather than a primary driveway use. Industrial plant driveways servicing mainly employee and administrative parking are considered commercial drives.
- d. Industrial/retail driveways directly serve substantial numbers of truck movements to and from loading docks of an industrial facility, warehouse or truck terminal. A centralized retail development, such as a shopping mall, may have one or more driveways specifically designed and designated to provide access for trucks. This would be classified as an industrial driveway.

### **3.7.3 Driveway Width and Turning Radius**

Table 3.7.3 lists the recommended design vehicles, widths and radii for various types of driveways. When applying the turning radius and width recommendations in the chart it is important to keep in mind the turning limitations of the design vehicle.

- a. In order to minimize turning conflicts, encroachment on traveled lanes and the driveways opposing traffic, turning templates shall be used to evaluate the radius and width combination selected for the individual driveway. The design vehicle's swept path shall be the minimum guiding criteria.



**TABLE 3.7.3  
RECOMMENDED DRIVEWAY DIMENSIONS (IN FEET)**

	Farm/Field		Residential (including Multi)		Commercial		Industrial/Retail	
Design Vehicle	SU		Passenger Car (P)		SU-30		Semi-trailer (WB-50)	
Nominal Width	Min	Max	Min	Max	Min	Max	Min	Max
<b>One Way</b>	-	-	12	14	14	20	14	26
<b>Two Way</b>	14	20	12	24	26	32*	26	38*
<b>Right Turn Radius</b>	25	35	15	25	25	35	35	75

**\* This table assumes one entering and one exiting lane. Additional lanes will increase the width requirement.**

**Abbreviations:**  
**WB = Wheel Base**  
**SU = Single Unit Truck, such as a panel or delivery truck**  
**SU-30 = Single Unit Truck with a 30 foot wheel base**

- b. A turning radius of less than 15 feet may be permitted on a residential street. Driveway radii may also be reduced along any street with on street parking. The turning radius would be measured from the edge of the through lane.
- c. Radii drive return treatments are preferred; see ODOT Standard Construction Drawing BP-4.1, Type 1. Flared drive treatments, see ODOT Standard Construction Drawing BP-4.1, Type 2, are acceptable for residential and light commercial driveways in Exurban and Suburban areas.
- d. When a city street or any access intended to become a public street intersects with a state highway, the Ohio Department of Transportation’s design criteria shall be used within the intersection area, which is defined as that portion of the intersection located within sixty feet of the edge of the mainline pavement. Alternate design standards may be used outside of the defined intersection area.

### 3.7.4 Driveway Angles and Locations

The location and angle of a driveway, or access point, is important. Improper driveway location and angle can degrade the safety of the street as well as the safety of the drive.

- a. The effective width of the driveway will vary with the angle of the driveway and shall be restrictive enough to discourage conflicting movements. Driveways with two-way traffic shall intersect the public roadway at an intersection angle between 70° and 90°. An angle less than 70° will not be permitted on new two-way driveways. One-way operation (right in only or right out only) shall not have an angle less than 45°.

- b. If an access point is gated it shall be designed such that the longest expected vehicle can completely clear the traveled way when the gate is closed and as it is opened. A gate may not be constructed or located within the right of way of the public roadway.
- c. Driveways shall not be constructed where they will create an offset intersection with an opposite existing street or major commercial driveway.

### 3.7.5 Restricted Access and Driveway Islands

- a. **Medians.** In certain situations it is desirable to control or prohibit certain movements through the use of median islands or channelizing islands. Median islands divide ingress and egress movements and are used to prevent cross movement of internal traffic near the entrance approach of a driveway. Channelizing islands are used to control and direct turning movements on an intersection or driveway approach. Medians are also desirable when driveway turn restrictions are required for parcels with limited frontage; where a properly sized right-in/right-out drive is not feasible. See Table 3.7.6 for recommended locations.
- b. **Restricted Left-Turn Entry Drives.** When a driveway is designated as restricted access, whether it be Right-In/Right-Out (RI/RO) only or Right-In/full egress or full ingress/Right-Out, the access should be reinforced with driveway islands designed to enforce the permitted access. A properly designed channelizing island will designate the correct turning path and define the merge area thus reducing conflicting movements. The geometry of the island shall physically define the permitted movements and block the prohibited movements, while accommodating the design vehicles likely to use the driveway.
- c. **Channelization.** When used, channelizing islands shall be at least 50 square feet and preferably 100 square feet. Channelizing islands are recommended on arterials, minor arterials and some collectors, where medians are not present and left turns are being restricted. They can also be useful on one-way streets to discourage wrong way turns. All channelizing islands shall be offset at least four feet from the edge of the traveled lane to the face of curb, or the width of the paved curbed shoulder (whichever is greater) on high-speed streets.

Diagrams in Appendix D: Driveway Channelizing Island Design, produced by the Ohio Department of Transportation, show channelizing island designs for different design vehicles, street types and access situations. These diagrams are included for reference only; see the note in Appendix D to acquire current diagrams. The designs include three-centered curves to maximize

the turning radius while minimizing the overall width of the drive approach and islands are sized to balance the goal of prohibiting movements against space requirements. Not all cases are covered here, but these should be used as a standard of practice for the design of these islands.

**TABLE 3.7.6  
DRIVEWAY GEOMETRY GUIDELINES**

Context Area	Driveway Type	Driveway Access	Driveway Median Island	Driveway Channelization Island	Preferred Grade	Maximum Grade
Rural	Farm/ Field	Full	NN	NN	1-3%	8
	Residential	Full	NN	NN	3-6%	10
	Commercial	Full	BC	BC	1-3%	8
	Industrial / Retail	Full	BC	BC	1-3%	8
Suburban	Farm/ Field	Full	NN	NN	1-3%	8
	Residential	Full	NN	BC	3-6%	10
	Commercial	BC	R	R	1-3%	8
	Industrial / Retail	BC	BC	R	1-3%	8
Suburban Center	Farm/ Field	BC	NN	NN	1-3%	8
	Residential	BC	NN	BC	3-6%	10
	Commercial	RIRO*	SR	SR	1-3%	8
	Industrial / Retail	RIRO*	SR	SR	1-3%	8
<p>* RIRO – Right-In/Right-Out. Full access may be granted if no reasonable access to another street exists or a signal is installed. In this case it is recommended that drives be combined.</p> <p>Acronyms:  SR = Strongly Recommended  R = Recommended  BC = Case by Case Basis  NN = Not needed</p>						

### 3.7.6 Driveway Grade

The grade of a driveway affects the operation of the driveway and the ability of driveway users to safely access the public street. Driveway grades shall be designed to provide a smooth and safe transition for the driveway users. All grade breaks and vertical curves shall be designed with the design vehicle expected to use the driveway in mind. Drive profiles on uncurbed streets shall slope down and away from the pavement edge at the same slope as the graded shoulder. See Table 3.7.6 for preferred and maximum recommended grades for driveways.

### 3.7.7 Driveway Cross Slope

Within the clear zone, the side slopes in relation to the driveway shall be consistent with the grading of the facility. The clear zone width for a facility is based on speed, traffic volume and cross slope and stated in the ODOT Location & Design Manual, Volume 1, Section 600.2 and Figure 600-1. On streets where the roadside ditch would normally intersect the driveway, the pipe inlet/outlet shall be mitered to conform to the slope or else the ditch shall be relocated beyond the clear zone.

### 3.7.8 Pavement

Driveways shall be paved with consideration given to volume of traffic and existing driveway surface. Recommendations for driveway pavement to be located within the right of way based on type of driveway are shown in Table 3.7.8.

<b>TABLE 3.7.8 DRIVEWAY PAVEMENT DESIGN (within the Right of Way)</b>	
<b>Farm/Field Drive</b>	6" Stabilized Crushed Aggregate (Item 411) or 6" Aggregate Base (Item 304)
<b>Residential Drive</b>	To match existing: <ul style="list-style-type: none"> <li>• 6" Non-reinforced Portland Cement Concrete Pavement (Item 452)</li> <li>• 2" Asphalt Concrete Surface Course, Type 1, PG64-22 (Item 448), Prime Coat applied at 0.4 gal/yd<sup>2</sup> (Item 408), 6" Aggregate Base (Item 304) {or Stabilized Crushed Aggregate (Item 411)}</li> <li>• 1 ¼" Asphalt Concrete Surface Course, Type 1, PG64-22 (Item 448), Tack Coat applied at 0.04 gal/yd<sup>2</sup> (Item 407), 3 ½" Asphalt Concrete Base, PG64-22 (Item 301)</li> </ul>
<b>Commercial Drive</b>	To match existing: <ul style="list-style-type: none"> <li>• 8" Non-reinforced Portland Cement Concrete Pavement (Item 452)</li> <li>• 1 ¼" Asphalt Concrete Surface Course, Type 1, PG64-22 (Item 448), Tack Coat applied at 0.04 gal/yd<sup>2</sup> (Item 407), 1 ¾" Asphalt Concrete Intermediate Course, Type 2, PG64-22 (Item 448), Prime Coat applied at 0.4 gal/yd<sup>2</sup> (Item 408), 8" Aggregate Base (Item 304)</li> <li>• 1 ¼" Asphalt Concrete Surface Course, Type 1, PG64-22 (Item 448), Tack Coat applied at 0.04 gal/yd<sup>2</sup> (Item 407), 5" Asphalt Concrete Base, PG64-22 (Item 301)</li> </ul>
<b>Industrial/Retail Drive</b>	Complete pavement design for design vehicle or use Commercial Drive as needed.

### 3.7.9 Shared Access, Cross Access and Service Drives

One of the key techniques to reduce crash potential and retain efficient traffic flow is to reduce the number of access points. In some cases this may involve a sharing of an access point or driveway. Shared access is where two or more adjacent properties share a driveway and may be connected via a service drive or connection between parking lots. Shared access can also be convenient for the public, allowing travel between properties without re-entering the street.

Shared access among properties typically requires a shared access agreement or easement. County staff is available to assist townships

and property owners in the establishment of shared access systems. This section outlines the types of shared access that should be considered during site plan and permit review.

- a. Shared use of access between two or more property owners should be encouraged through use of driveways constructed along property lines, connecting parking lots and construction on-site of frontage roads and rear service drives; particularly within one-quarter mile of signalized intersections, for sites having frontage on two or more streets, where frontage dimensions are less than 300 feet, at locations with sight distance problems, and/or along roadway segments that have experienced congestion or have indicators of high crash potential. In such cases, shared access of some type may be the only access design allowed or access may be restricted to only right turn movements.
- b. In cases where a site is adjacent to an existing frontage road, parking lot of a compatible use, or rear service drive, a connection to the adjacent facility may be required by the planning commission.
- c. In cases where a site is adjacent to undeveloped property, the site should be designed to accommodate a future frontage road, parking lot connection or rear service drive.
- d. The applicant shall provide the County with letters of agreement or access easements from all affected property owners. Examples of agreements are provided in Appendix G: Sample Cross-Access Agreements.

### **3.7.10 Wayfinding and Signage**

The installation of signage for private businesses is normally not permitted in the public right-of-way (R/W). However, when a driveway/access becomes limited (RI/RO), restricted (NLT-no left turn) or closed to some traffic movements on a permanent basis for the sake of improving safety, signs indicating how to get to particular businesses, called Wayfinding, may be permitted for those businesses affected by the closure or limitation of their access to a roadway.

- a. Signs similar to ODOT's specific service signs (Ohio Logos, Inc.), the blue signs that direct traffic to specific businesses off the freeways in Ohio
- b. Sign/post design will follow Summit County Engineer design guidelines
- c. Multiple businesses may be on a sign, with a maximum of 3 to 6 depending on the complexity of each logo or reference
- d. Signs will be allowed in the R/W, at decision making points during rerouting for turns
- e. Setbacks shall follow ODOT or County standards

- f. Wayfinding signs shall be installed and maintained by the property owner according to the Summit County Engineer's guidelines

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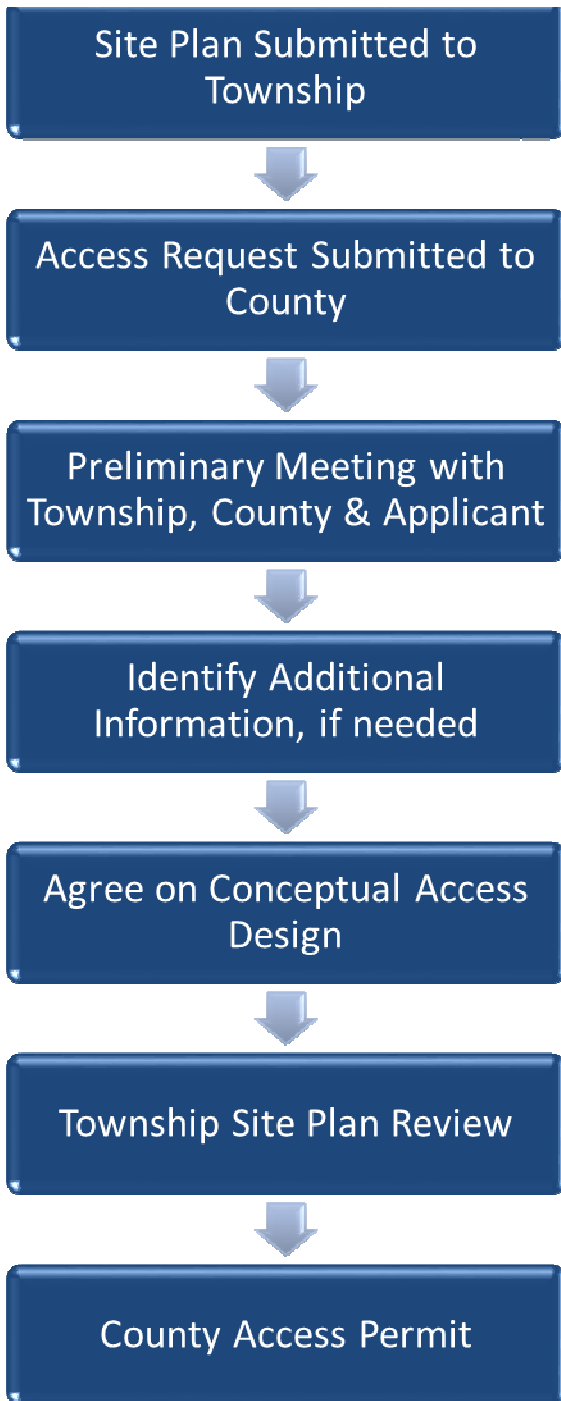
## 3.8 TRAFFIC SIGNAL POLICY

The Summit County Engineer's Office has developed a Traffic Signal Policy. The Traffic Signal Policy is a standalone document that must be requested from the Summit County Engineer's Office. This policy shall apply to:

- a. Property owners who propose a signalized private entrance to a public street in the Summit County Engineer's jurisdiction;
- b. Property owners or agencies whose driveway(s) and/or private street(s) aligns with a signalized intersection in the Summit County Engineer's jurisdiction;
- c. Governmental subdivisions with public streets that align with a signalized intersection in the Summit County Engineer's jurisdiction;
- d. Public agencies desiring to contract with the Summit County Engineer for the installation, operation and/or maintenance of traffic signals within their jurisdiction.

# CHAPTER 4: REVIEW PROCESS

**FIGURE 4.1**  
**REVIEW PROCESS**  
(Includes Coordination with Townships)



## 4.1 INTRODUCTION

Development along county roads is the result of decisions made by the Summit County Engineer and the township within which the development site is located. Each local township has jurisdiction over land use planning, zoning and site plan reviews outside the corridor right-of-way. The Summit County Engineer has the jurisdiction to review access permits and changes within the right-of-way.

Reviewing access in Summit County will require coordination with the municipality/township (and any city or village that adopts this manual or an ordinance that refers to it) and in some cases the Ohio Department of Transportation (ODOT). Each municipality can influence future access through the development review process. Early coordination with the County can alleviate conflicting reviews or permit denial later in the process. The recommended review process is shown in Figure 4.1, and includes coordination between the Townships and the Summit County Engineer.

## 4.2 PRE-APPLICATION MEETINGS

### 4.2.1 Purpose

A pre-application meeting provides an informal opportunity to review the feasibility of the access proposal and compliance with the Access Management Manual. It also provides the applicant with feedback and direction regarding submittal requirements, which if not addressed early, may delay the review process.

The information and level of detail required to review an application will vary according to the type and usage of the access connection requested. Material not relevant to the evaluation and review of the application will not be requested or required of the applicant. If a pre-application meeting is not held, the applicant will be notified of any additional information or documents required during the initial review.

### 4.2.2 Pre-Application Meetings Recommended

Pre-application meetings are highly recommended for access to large, high volume residential, industrial, and/or commercial and retail development (sites potentially generating 100 or more trip ends in the peak hour) or for access proposals whose traffic generation may require more detailed study

including a Transportation Impact Study, in accordance with Chapter 6. They are also recommended for applicants seeking direction regarding the level of detail and any additional studies or information that may be required.

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## 4.3 APPLICATION SUBMITTAL

The formal development review process begins with a submittal from an applicant to develop a property, change the use, or expand the building or parking. In some cases, the process may involve a pre-application meeting before an official submittal especially for a large project or when the desired access is notably inconsistent with the standards of the Manual. Applications for development along County Roads are submitted to townships according to the zoning ordinance. If the application involves changes to access, or other circumstances that will attract more traffic to the site (See Section 1.2 Applicability for triggers), the applicant will eventually need to obtain permits from the Summit County Engineer. Thus an early coordinated review of the access can be beneficial to all parties. Information about larger development projects within a quarter mile of a township or municipal boundaries should be sent to the adjacent community for a courtesy review and comment. Special attention should be given to the interaction of access points, traffic signals, and non-motorized facilities around these transition areas.

Access Permit Applications shall be submitted in compliance with any published rules of the Summit County Engineer's Office, and shall include the following:

- a. A completed form, provided by the Summit County Engineer;
- b. Any attachments necessary for the Summit County Engineer to review and assess the application accurately and thoroughly;
- c. Permit applications must bear the complete name(s), address(es), telephone number(s), and signature(s) of the property owner(s). Applications not signed by the property owner or their designated representative will not be accepted;
- d. Applications for permits for public road approaches and subdivision street approaches, which are to become public roads, shall include a letter or other documentation indicating approval of the developer's road or street plan by the Summit County Engineer as part of the Plat approval.
- e. Property and ownership maps showing the location of the property;
- f. Site plans, drawings, and/or construction plans as necessary showing the location of the proposed access connection with reference to the highway, right-of-way, property lines, any existing buildings, structures and parking, and existing access connections on abutting properties and on properties opposite the proposed access connection;



- g. The use to be served by the proposed connection (i.e. residential, industrial, commercial, retail and the type of business to be served);
- h. Existing property usage and conditions including existing available access, easements, and relation to abutting public roads and streets;
- i. Extent of proposed work including the type, width, radii, and location of any proposed access with respect to property lines and to the highway; the type, location, length, size, and dimensions of any existing and proposed drainage structures; and hydraulic data;
- j. Subdivision, zoning, or local development plan, if applicable;
- k. For larger and higher volume locations, such as those potentially generating 100 or more trip ends in the peak hour, or for locations identified by the Summit County Engineer as requiring further transportation analysis, transportation data for existing and future conditions including traffic generated in peak hours and daily volumes; for higher volume developments, parking and internal traffic circulation plans; and traffic controls.
- l. Existing access points on both sides of the roadway for 1000' on either side of the centerline of the proposed access point.
- m. A Transportation Impact Study, prepared in accordance with Chapter 6, shall be provided for projects that exceed the thresholds specified in Section 6.2, or if requested by the Summit County Engineer or local authority.
- n. A Traffic Maintenance Plan prepared in accordance with the Ohio Manual of Uniform Traffic Control Devices, shall be submitted for access permits involving construction impinging on the roadway or shoulders. Any needed closure of lanes or shoulders shall be described in terms of location, duration, time of day, etc.

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## 4.4 COUNTY AND TOWNSHIP REVIEW

Once received, applications are processed according to local procedures. The suggested process includes feedback loops between the municipal staff or planning commissions and the County Engineer to work with the applicant and their design professionals to modify access and circulation to be consistent with the Manual.

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## 4.5 APPLICATION REVIEW PROCESS

### 4.5.1 Authority

The Summit County Engineer, after reviewing the application and receiving recommendations of staff and local authorities, may approve, deny or approve with conditions, the access application. The Summit County Engineer may include terms and conditions deemed necessary to support and protect the public's health, safety, and welfare, and may impose terms and conditions as necessary to meet the requirements of the Access Management Manual.

### 4.5.2 Standards for Review

Permits may be issued if it is determined to the Summit County Engineer's satisfaction that the permit complies with the following standards:

- a. The request is consistent with the design standards and specifications of Chapter 3, and all other requirements of this Access Management Manual.
- b. The request is consistent, to the most reasonable extent possible, with any adopted Access Management Plans for the community or corridor that have been endorsed by the Summit County Engineer.
- c. The access proposal, as evidenced by a TIS or other studies submitted to the Summit County Engineer's satisfaction, will not degrade the operation and function of the highway.
- d. The improvements required by the proposal are consistent with this Access Management Manual.
- e. The request and any associated public improvements are feasible and implementable.
- f. The proposed method and duration of construction necessary to implement the request will not negatively affect traffic on the street. The Summit County Engineer may require additional traffic controls for maintaining traffic during construction, time limits or hours of the day when lanes or shoulders may be closed, or other prudent controls may be appended as conditions to the permit to ensure compliance with requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD), to protect traffic from unnecessary delay, or to minimize the possibility of accidents.
- g. The Summit County Engineer's staff and applicable local authorities endorse the application.

### **4.5.3 Performance Bond**

Where necessary to ensure compliance with permit conditions, the Summit County Engineer's Office may require a performance bond as a prerequisite to the issuance of a permit.

### **4.5.4 Revisions to Approved Access**

No changes, modifications, or revisions may be made to the location or design or to the conditions and terms as contained in an approved access permit by any Summit County Engineer personnel without the written approval of the Summit County Engineer and in accordance with the Access Management Manual.

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## **4.6 COUNTY ACCESS PERMIT**

After the community and road agencies have reviewed the application according to local ordinances and policies, the applicant will secure final approval for access permits from the county and a zoning certificate or other permits required by the municipality.

Where necessary to ensure compliance with permit conditions, the Summit County Engineer's Office may require a performance bond or other type of financial guarantee as a prerequisite to the issuance of a permit. Sometimes, access approvals will require execution of documents and deposit of financial guarantees to ensure future cross-access or service drive connections. Locations for shared access connections should be shown on the site plan and proper access agreements, easements, and guarantees executed that ensure construction in the future, indicating those responsible for initial construction costs and on-going maintenance. If cross-access is not feasible due to off-site conditions, temporary access may be approved. The site plan should note the temporary driveway and the terms under which it will be removed. Most often, it will be removed by the private property owner upon availability of an alternative or shared access system in the future, so provision for its removal should also be secured.

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# 4.7 MODIFICATIONS TO ACCESS STANDARDS

## 4.7.1 Purpose

It is recognized that certain existing site conditions may prohibit full compliance with the standards in this Access Management Manual. An Access Variance grants permission to depart from the standards and requirements of the Access Management Manual because of unique circumstances or existing special conditions.

## 4.7.2 Documentation of Request

An Access Variance request shall be submitted in writing to the Summit County Engineer, stating why the variance is necessary and the unique conditions or special circumstances that make it impractical and unfeasible to meet the applicable standards and/or requirements of the Access Management Manual.

## 4.7.3 Standards for Review

The Summit County Engineer may waive certain requirements of this Access Management Manual upon determination that it will be beneficial to both the planned or intended operation of the county road and will comply with the following. The Summit County Engineer may require submittal of additional reports and studies if needed to determine compliance with the following standards:

- a. The request shall be consistent with the general intent of the standards of the Access Management Manual, and published Summit County engineering standards and guidelines, including geometric design, operation, and safety elements;
- b. Summit County Engineer staff endorse the request after consideration of factors cited in Section 3.5.1 Access Category Criteria;
- c. Driveway geometrics have been improved to the extent practical to reduce impacts on traffic flow;
- d. Shared access has been provided, or the applicant has demonstrated it is not practical;
- e. The requested variance is the minimum necessary to provide reasonable access, will not impair public safety or prevent the logical development or redevelopment of adjacent sites and is not simply for convenience of the development.

- f. Conformance with an access management plan, if applicable, that has been accepted by the Summit County Engineer's Office.
- g. The variance is not being requested due to self-imposed difficulties or for actions taken without knowledge of the applicable standard or requirement.

#### **4.7.4 Allowed Modifications**

The Summit County Engineer may, after considering the criteria in Section 4.6.3, modify the standards of this Access Management Manual in the following situations:

- a. The modification will allow an existing driveway to remain that does not meet the standards of this Section but that has, or is expected to have very low traffic volumes (less than 50 in- and out-bound trips per day) and is not expected to significantly impact safe transportation operations;
- b. The use is expected to generate a relatively high number of trips and an additional driveway will improve overall transportation operations;
- c. Practical difficulties exist on the site that make compliance unreasonable (sight distance limitations, existing development, topography, unique site configuration or shape), or existing off-site driveways make it impractical to fully comply with the standards;
- d. Because of restricted turning movements or presence of a median that restricts turning movements, the driveway does not contribute to congestion or an unsafe situation;
- e. The modification is necessary to preserve reasonable access to land.

#### **4.7.5 Traffic Access Management Appeals Board**

Ohio Revised Code Section 5552.07 requires the designation of a board to hear and decide appeals when it is alleged that there is error in any order, requirement, decision, or determination made by an administrative official in the enforcement of the regulations.

The Traffic Access Management Appeals Board for the County of Summit shall be comprised of the County of Summit Executive (or a designee appointed by the Executive), the President of Summit County Council (or a designee appointed by the President) and the Summit County Engineer (or a designee appointed by the Engineer).

The appeals board shall have the authority to grant variances that are not contrary to the public interest from the terms of the regulations where, owing to special conditions, a literal enforcement of the regulations will result in unnecessary hardship, and so that the spirit of the regulations will be observed and substantial justice done.

#### **4.7.6 Owner Responsibility**

It is the responsibility of the property owner to ensure that the use of the access to the property remains in compliance with the permit terms and conditions. The terms and conditions of any permit are binding upon all assigns, successors-in-interest, heirs and occupants. If any significant changes are made or will be made in the use of the property which will affect access operation, traffic volume, or vehicle type, the permittee or property owner shall contact the Summit County Engineer to determine if a new access permit and modifications to the access are required.

# CHAPTER 5: GENERAL PROVISIONS

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## 5.1 LIMITATIONS

The granting of an access permit does not convey to the permittee or to the property served any rights, title, or interest in county road rights-of-way or in the design or operation of the county road, nor does it in any way abridge the right of the Summit County Engineer's Office in the exercise of its jurisdiction over county roads.

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## 5.2 AUTHORITY WITHIN R.O.W.

### 5.2.1 Authority

The Summit County Engineer's Office maintains authority over all land within the right-of-way of streets under its jurisdiction, including the authority to reconstruct, relocate, modify, repair, or remove any access connection or any features thereof, or to redesign the highway including installing any auxiliary lanes and modifying any allowable turning movements, if such improvements are necessary for improved safety and operations of the highway or for the benefit of the traveling public.

### 5.2.2 Roadway Changes

Any changes in roadway design that are necessary for improved safety and operation of the highway or for the benefit of the traveling public shall not require a permit modification for an access point since the permit confers no private rights to the permittee over the control of the street design. For example, in the case that the County installs a median on a road to improve safety, the County can change the access permitted along the roadway to Right-In/Right-Out only. This does not require any permission from the permit holder as the permit holder has no private rights over control of the street design.

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## 5.3 COMPLIANCE WITH PERMIT

Failure on the part of the permittee to comply fully with the provisions and conditions of the access permit may result in revocation of the access permit, use of any remaining performance guarantee to rectify the situation, fine or

other legal action. An access point remaining after the revocation of the access permit is an illegal connection and subject to action under Section 5.6.

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## 5.4 LIABILITY

### 5.4.1 Agreement to Comply

The acceptance of the permit by the party or parties to whom the permit was granted constitutes an agreement by that party to comply with all conditions, terms, and restrictions printed or written on or attached to the permit.

### 5.4.2 Hold Harmless

The permittee shall hold harmless Summit County, the State of Ohio, and all of its representatives from all suits, actions, or claims of any character, brought on account of any injuries or damages sustained by any person or property as a consequence of any neglect or on account of any act or omission as a result of the issuance of the permit.

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## 5.5 CONSTRUCTION REQUIREMENTS

### 5.5.1 Inspection

Representatives of the Summit County Engineer's Office shall inspect all work covered by the permit and ensure that the work is being performed in accordance with the permit conditions and plan specifications. If the work is not being performed as specified, the work shall be stopped and the permittee shall be notified of the Office's action and its causes, and given an opportunity to correct the problem.

### 5.5.2 Time for Completion

All work to be performed as authorized by the permit shall be completed within the time frame specified on the permit. A permit shall be considered void if the work is not completed within the required time frame, thereby rendering the access connection illegal and subject to action under Section 5.6. The permittee may request an extension from the Summit County Engineer. Requests must be made in advance of the permit expiration, and be in writing and must explain why the extension is necessary and when the work is expected to be completed.



### **5.5.3 Traffic Maintenance Plan**

Traffic shall be maintained according to the approved Traffic Maintenance Plan. Lane and shoulder closures and other work shall not commence until all Traffic Control Devices are in place. Traffic Control Devices shall be removed immediately when they are no longer needed, or as directed by the Summit County Engineer. Lane or shoulder closures or other hazards existing for a longer time period than necessary may be cause for revocation of the permit and immediate closure of the work areas, removal of all hazards, removal of all equipment, or revocation of any performance bonds submitted.

### **5.5.4 Roadway Condition upon Completion**

Upon completion of the work authorized by the permit, the permittee shall leave the street and surrounding areas clean of all rubbish, excess materials, temporary structures and equipment, and all parts of the right-of-way, and any affected private land, shall be left in a condition acceptable to the Summit County Engineer's Office.

### **5.5.5 Certificate of Compliance**

Upon satisfactory completion of the work authorized by the permit, the Summit County Engineer shall issue a Certificate of Compliance certifying that the permittee has complied with the terms of the permit. Upon receipt of the Certificate of Compliance, the permittee may request cancellation of any outstanding bonds or performance guarantees.

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## **5.6 ACCESS PERMIT VIOLATIONS**

Any access connection providing direct access to a county road that is constructed or established after the effective date of adoption of the Summit County Access Management Manual without an approved permit shall be considered an illegal obstruction within the highway right-of-way. The County reserves the right to immediately close or remove any access connection to a county road that the Summit County Engineer considers to be an illegal obstruction within the highway right-of-way at the expense of the party who owns or who constructed the obstruction.

# CHAPTER 6: TRANSPORTATION IMPACT STUDIES (TIS)

## 6.1 PURPOSE

Summit County recognizes the direct correlation between land use decisions and the resultant impact on operations and safety for traffic, pedestrians and bicyclists. The intent of this Chapter is to describe situations where transportation impact information must be provided and evaluated as part of the decision-making process. This Chapter is based on the procedures recommended in the Institute of Transportation Engineers' Transportation Impact Analyses for Site Development. As new editions are released of that document, those new guidelines shall generally be followed by the Summit County Engineer. This article is further intended to help achieve the following objectives:

- a. Help ensure safe and reasonable operating conditions on streets and intersections after development of proposed use.
- b. Establish thresholds for submittal of various types of impact studies and a procedure for preparation and review based on accepted transportation engineering procedures and guidelines in the Institute of Transportation Engineers' (ITE) "Transportation Impact Analysis for Site Development".
- c. Allow the County and local community to mutually assess the transportation-related impacts a proposed project may have on the transportation system and community and to identify possible changes to the development proposal or improvements to the transportation system to lessen that impact.
- d. Promote consistency with the goal that signalized intersections operate at a Level of Service C or better and un-signalized at D or better throughout the County.
- e. Promote a high quality of service for pedestrians and bicyclists.
- f. Provide direction to County permit staff, community decision-makers, road agencies and developers of expected impacts of a project.
- g. Alert the community, transportation agencies, and developers of improvements or modifications needed within the road right-of-way, to access or site design.

### WHEN IS A TRANSPORTATION IMPACT STUDY REQUIRED?

*(Summary of Section 6.2)*

Various level of studies may be required, as summarized below. In any case, the Summit County Engineer may require a traffic study where proposed access does not meet the standards or where access points are in areas experiencing high crashes, where they have the potential to require significant transportation improvements, or where they are located in unique or sensitive environmental areas.

#### TRAFFIC COMPARISONS

A simple table that identifies the amount of traffic that can be expected:

- a. When the use generates 100 or more trip ends for the peak hour
- b. With applications for Site plan, special conditional use, subdivision plat or rezoning.

#### TRAFFIC IMPACT ASSESSMENT

A less detailed traffic impact evaluation that is focused on expected traffic flow into and out of the site. This applies to situations such as:

- a. A change in use of an existing building
- b. When the use generates an additional 50 directional trips during a peak hour or 500 trips on a typical weekday but less than the thresholds for a TIS below.
- c. When rezoning requests are inconsistent with the future land use plans for the county or the community.

#### TRAFFIC IMPACT STUDY

A more comprehensive study that evaluates traffic operations at the site access points but also may involve a larger area and special types of analysis is required when the use will:

- a. When the use generates over 100 directional trips during a peak hour, or over 750 trips in an average day.
- b. With rezoning applications that may generate over 100 directional vehicle trips during a peak hour, or 750 trips in an average day.

- h. Protect the substantial public investment in the existing street system.
- i. Help ensure safe and reasonable traffic operation conditions on roads and intersections and protect the public health, safety, and welfare, which can be damaged by unmanaged increases in traffic congestion.
- j. Multimodal Level of Service (MM LOS) element – Operation of alternative modes at LOS C/D or better throughout the county.

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## 6.2 APPLICABILITY

Discussion of the scope of the Transportation Impact Study (TIS) may occur at the pre-application meeting or at a separate scoping meeting to discuss the Transportation Impact Study. Intersections to be evaluated shall be established by the County during such meetings. In general, the County will identify intersections they believe will be impacted by the development. Those intersections where the development would contribute an increase of 5% or more in the AM Peak, PM peak or daily traffic, shall be studied.

### 6.2.1 Traffic or Impact Comparisons

A traffic comparison helps identify the expected change in traffic conditions associated with a change in use, development, redevelopment or expansion. This comparison shall be made for the average weekday AM and PM peak hours, and daily traffic based on the most recent edition of the ITE Trip Generation. In some cases trip reduction calculations as outlined in the ITE manuals and handbooks may be used for internal trip capture, pass-by trips or person trips for walking, bicycling or transit use. A Transportation Impact Comparison helps identify if a more detailed traffic analysis is needed. Such a combination shall be required for the following:

- a. When the proposed land use for the access connection generates 100 or more trip ends for the peak hour or when the Summit County Engineer considers it necessary or desirable to determine the safe, efficient operation of the access connection.
- b. Site plan, special conditional use, condominium project, subdivision plat or rezoning.
- c. Projects that, in the opinion of the Summit County Engineer, are unusual, have the potential to require significant transportation improvements, or are located in a sensitive area due to environmental or safety conditions.

## **6.2.2 Transportation Impact Assessment**

A Transportation Impact Assessment (i.e. traffic plus assessment of “people trips” that may be walk, bike or transit trips) shall be required for the following:

- a. Projects where the comparison yields a difference greater than 50 directional trips during a peak hour or 500 trips on a typical weekday.
- b. Requests for rezoning of property that is inconsistent with the future land use plans for the county or the community;
- c. Projects that, in the opinion of the Summit County Engineer, are unusual, have the potential to require significant transportation improvements, or are located in a sensitive area due to environmental or safety conditions.

## **6.2.3 Transportation Impact Study**

A Transportation Impact Study shall be required for the following:

- a. For projects where the comparison analysis yields over 100 directional trips are expected during the peak hour of the traffic generator or the peak hour on the adjacent streets, or over 750 trips in an average day.
- b. Requests for rezoning of property that is likely to generate at least one hundred (100) directional vehicle trips during a peak hour, or over seven hundred fifty (750) trips in an average day.
- c. Projects that, in the opinion of the Summit County Engineer, are unusual, have the potential to require significant transportation improvements, or are located in a sensitive area due to environmental or safety conditions.

## **6.2.4 Intersection Warrant Analysis**

A traffic signal warrant analysis based on the procedures outlined in the Ohio Manual of Uniform Traffic Control Devices shall be performed for un-signalized intersections identified with a Level of Service D or worse for existing conditions.

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# **6.3 LEVEL OF DETAIL REQUIRED**

The level of detail required shall be determined by the County Engineer, based on the expected amount of traffic to be generated by the proposed use, based on generally accepted transportation engineering sources as described herein and the ITE handbook "Transportation Impact Analysis for Site Development." Determination of multimodal requirements shall be guided by population and

employment density within the study area. Level of detail shall be discussed at the pre-application meeting if requested by the applicant, or at a separate TIS Scoping meeting. See Appendix E: TIS Memorandum of Understanding, for a sample document.

### **6.3.1 Transportation Impact Comparison**

A comparison of the current and number of vehicle, pedestrian and bicycle trips to the number of trips expected to be generated during the a.m. peak hour, p.m. peak hour and on a typical weekday for any existing use of the subject site.

### **6.3.2 Transportation Impact Assessment**

A breakdown of current and future inbound and outbound vehicle trips at site access points.

### **6.3.3 Transportation Impact Study**

An analysis that evaluates current, background, and future operations at site access points and major signalized or non-signalized intersections in proximity to the site.

### **6.3.4 Impact Study or Assessment Updates**

A transportation impact study or assessment shall also be required for new phases, expansions or changes to a development that require Township site plan review, based on the thresholds established above, except where such report was approved (date of site plan approval) within two years of the new site plan submittal date, and a demonstration by the applicant's transportation engineer that traffic volumes have not increased by over two (2) percent annually.

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## **6.4 REQUIRED CONTENT**

The following information is required for both transportation impact assessments and transportation impact studies unless otherwise specified:

### **6.4.1 Existing Site Conditions**

Illustrations and a narrative which describe the characteristics of the site and adjacent roadway system (planned and existing right-of-way, functional classification, lane configuration, speed limits, any sight distances limitations, locations and potential conflicts with operations at existing access points or intersections within 250 feet of the site's frontage, current transportation conflicts, etc.). This description should include surrounding land uses, expected development in the vicinity which could influence future transportation conditions, special site features and a description of any committed roadway

improvements. The study should define and justify the study area selected for analysis.

#### **6.4.2 Existing Transportation Conditions**

Illustrations, narratives, tables and capacity analysis that reflects existing transportation conditions including:

- a. Roadway alignment, including any problems with sight distance, number of lanes, lane width and lane configurations;
- b. Existing pedestrian, bicycle and transit facilities, including the presence of bike lanes, sidewalks, multi-use pathways, paved road shoulders exceeding 4 feet in width, bus routes, and other amenities within proximity of the site;
- c. High-Occupancy vehicle lanes;
- d. Parking Management;
- e. Transit or multimodal level of service; Posted speed limits for various segments;
- f. Existing transportation control;
- g. Existing signal timing, as applicable;
- h. Existing peak-hour weekday traffic volumes and daily volumes, or peak period counts (7—9 AM—4—6 PM), to support the selection of the evaluated peak hour (if applicable) on street(s) adjacent to the site. For uses with weekend peak characteristics, the County may require new counts be taken on typical weekend days during the anticipated peak hours of the proposed use. All counts shall be collected using accepted practices and shall not be over two (2) years old;
- i. Existing pedestrian, bicycle or transit activity observed at the closest nearby intersection within 2000 feet of the site, or within an area determined during the scoping meeting. As a general guide, activity surpassing more than 15 pedestrians per hour at these locations should be noted, as well as common bicycle movements/routes, transit ridership patterns, and transit fixed-route service within study area.
- j. Established land uses within one quarter mile (1/4) of the subject site, and their general context (using table below).
- k. For projects that require a transportation impact study, existing counts and levels of service for intersections in the study area shall be performed; and
- l. For a transportation impact study, crash data shall be provided and analyzed for projects that generate 500 or more peak hour trips. Crash data for the most recent three (3) year period for which information is available shall be provided for sites in close

proximity to intersections identified by the County. The Summit County Engineer may waive this requirement upon a finding that the crash potential would not be significantly impacted by the proposed project. Crash data shall also be obtained and analyzed if a signal warrant analysis must be performed where existing or projected level of service is D or worse for un-signalized intersections. The signal warrant analysis should contain, at a minimum, Warrants 1, 2,3, and 7.

### **6.4.3 Background Transportation Conditions**

A background transportation report shall be prepared that evaluates the existing road system, (including existing multimodal facilities), plus programmed improvements where funding has been committed. The report shall include the following:

- a. Historic counts to acknowledge general growth trends in the area, plus transportation associated with approved developments either currently under construction or approved (and would be operational before the build out year of this proposed project), in the project area.
- b. A level of service analysis shall be performed for each intersection in the study area. No unfunded mitigation shall be provided under the background conditions.
- c. Background transportation turning movements shall be illustrated in the report.
- d. Planned or committed improvements to multimodal facilities within the study area;
- e. Projects that are not expected to be completed and occupied within one year of site plan approval shall provide a separate evaluation of background transportation for the expected completion date of the proposed development.

### **6.4.4 Proposed Use or Future Conditions**

Future conditions shall be described for comparison to the background transportation report. The following factors shall be included:

- a. Number and types of dwelling units,
- b. Gross and usable floor area,
- c. Number of employees and shift change factors,
- d. Intended phasing or future expansions;
- e. Connectivity to adjacent properties including multimodal analysis
- f. For a rezoning, a description of the potential uses which could result, compared to representative uses allowed under current zoning. Future conditions shall be evaluated using the most intense potential land use that could result under current zoning regulations.

### 6.4.5 Trip Generation Forecast

Forecasted trip generation of the proposed use for the a.m. peak hour, the p.m. peak hour and average day shall be provided for the overall project and each phase. The forecasts shall be based on the data and procedures outlined in the most recent edition of Trip Generation published by the Institute of Transportation Engineers (ITE). The applicant may use other commonly accepted and published sources of data or supplement the standard data with data from at least three (3) similar projects in Ohio, as agreed to by the County.

### 6.4.6 Trip Reduction

Any trip reduction for pass-by trips, transit, ride-sharing, other modes and internal capture rates shall be based both on ITE findings and documented survey results acceptable to the County and applicable road agency.

The County may reduce the trip rates according to Table 6.4.6. The County may also elect to revise the trip reduction rates based on specific knowledge of the subject area or past trends that indicate a different rate should be used.

<b>TABLE 6.4.6 TRIP REDUCTION AVAILABLE TO RESIDENTIAL AND BUSINESS LAND USES*</b>	
<b>RESIDENTIAL AND BUSINESS LAND USES</b>	
<i><b>Pedestrian</b></i>	
Pedestrian facilities on more than 95% of roadways	4%
Pedestrian facilities on 91 to 95% of roadways	3%
Pedestrian facilities on 80 to 90% of roadways	2%
<i><b>Bicycle</b></i>	
Bicycle accommodation on 50% or greater of roadways	1%
<i><b>Transit</b></i>	
Route has frequency of more than 6 buses per hour, and operates 19-24 hours per day	3%
Route has frequency of 5 to 6 buses per hour, and operates 17-18 hours per day	2%
Route has frequency of 3 to 4 buses per hour, and operates 14-16 hours per day	1%
<b>BUSINESS LAND USES ONLY</b>	
<i><b>Transportation Demand Management (TDM)</b></i>	
TDM plan includes at least 4 strategies	2%
TDM plan includes at least 3 strategies	1%



**\* Notes to Table 6.4.6:**

- The “roadway network” refers only to the portion of the roadway network within the ½ mile radius that is adjacent to developed land uses.
- Bicycle Accommodation is defined as one of the following:
  - a. street with a design speed of 25 MPH or less that carries 3,000 vehicles per day or less;
  - b. on-street bike lanes;
  - c. paved shoulders of roadways that are at least four feet wide;
  - d. or exclusive and shared off-street bicycle paths.
- Transit routes considered include those within ¼ mile of the land use.
- TDM strategies may include one of the following:
  - a. Parking pricing (employees must pay share of parking expense)
  - b. Telecommuting
  - c. Compressed/ Flexible Work Schedule
  - d. Guaranteed Ride Home
  - e. Locker and showers, and place to store bikes
  - f. Car-sharing or car-matching services

Free transit pass Pedestrian Assumptions are valid only if the following are true:

- The roadway connectivity index as described in the Smart Transportation Guidebook (see below) is within the ½ mile radius is equal to or higher than 1.4 (roadway connectivity is the number of street links divided by nodes or street ends); and
- There are at least two of the following six major land use classifications, as defined in ITE Trip Generation, within the ½ mile radius: residential, institutional (schools and colleges only), medical, office, retail, services (banks and restaurants only); and
- The development has a gross density of at least three housing units per acre (for residential uses only).

Bicycle Assumptions are valid only if the following are true:

- The connectivity index within the ½ mile radius is equal to or higher than 1.4 and
- There are at least two of the following six major land use classifications, as defined in ITE Trip Generation, within the ½ mile radius: residential, institutional (schools and colleges only), medical, office, retail, services (banks and restaurants only); and
- The development has a gross density of at least three housing units per acre (for residential uses only).
- Bike rack is provided at or within 200 feet of the business (for commercial uses only).

Transit Assumptions shall be taken only if over 90% of the primary routes between the development and the bus stop have sidewalks.

**CONNECTIVITY INDEX:**

**Internal Connectivity.** Use either of the following two measures:

- **Beta Index** — This is equal to the number of street links divided by the number of nodes or link ends. A higher ratio indicates higher street connectivity. Traditional developments generally rate above 1.4.
- **Intersections per square mile** — Strict grid systems have about 25 intersections per square mile, while conventional branching systems have about one-third to one-half that many.

**External Connectivity**

- All neighborhoods in the community should be connected to the larger street system at least every ¼ mile.

**Route Directness**

This measures the distance a pedestrian would walk between two points compared to the straight line (or radial) distance between the same two points. The closer the ratio is to 1.0, the more direct the route; route directness values of 1.2-1.5 describe reasonably connected walkable networks.

## 6.4.7 Trip Distribution

The projected traffic generated shall be distributed (inbound v. outbound, left turn v. right turn) onto the existing street network to project turning movements at site access points, and nearby intersections where required. Projected turning movements shall be illustrated in the report. A description of the application of standard engineering procedures for determining the distribution should be

provided such as trip distribution model, market studies or counts at existing driveways.

#### **6.4.8 Levels of Service**

A multimodal and roadway level of service or "capacity" analysis is required at the proposed access points using the procedures outlined in the Highway Capacity. The capacity analysis should be provided in the appendix of the report.

#### **6.4.9 Intersection Level of Service**

Transportation impact studies shall provide capacity analyses for all nearby street intersections identified by the County under the following conditions:

- a. Existing traffic under existing road conditions;
- b. Future projections for existing road conditions with programmed road improvements that will be completed before the build out year of this proposed project; and,
- c. Future traffic, including project and background, under background road conditions. Background road conditions shall include the existing road system plus programmed improvements where funding has been committed.

#### **6.4.10 Signal Warrant Analysis**

The signal warrant analysis should contain, at a minimum, OMUTCD Warrants 1, 2, 3, and 7. For un-signalized intersections projected to operate at Level of Service D or worse under background or future conditions, an assessment using the peak hour (Warrant 3) shall be provided.

#### **6.4.11 Access design**

The report shall include a map and description of the location and design of proposed access (driveways or new street intersections) including:

- a. Sight distance limitations and sketches from field notes;
- b. Dimensions from adjacent driveways and intersections within 250 feet on either side of the main roadway;
- c. Potential for shared access facilities;
- d. Data to demonstrate that the number of driveways proposed is the fewest necessary;
- e. Support that the access points will provide safe and efficient transportation operation and be in accordance with the standards of this Manual; and

- f. Comments shall also be provided on internal circulation design such as the adequacy of queuing (stacking) at site access points and other features that may affect transportation operations and safety.

#### **6.4.12 Mitigation**

The study shall outline mitigation measures and demonstrate any changes to the level of service achieved by these measures for the proposed future conditions. Sketches should be provided of suggested mitigation. The responsibility and timing of roadway improvements shall be described. The mitigated capacity analysis should be provided in the appendix of the report.

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## **6.5 REQUIRED MITIGATION**

### **6.5.1 Proposed Mitigation Measures**

- a. Mitigation shall be provided in order to meet the County's required Levels of Service for each mode, as discussed below.
- b. Any alternatives or suggested phasing of improvements should be described and illustrated. The mitigation measures may include items such as, but not limited to
  - 1. Roadway widening
  - 2. Change to road intersection alignment or grades
  - 3. Inclusion of bypass lanes or deceleration tapers/lanes
  - 4. Signalization changes
  - 5. Relocation
  - 6. Change in design
  - 7. Reduction in number of access points
  - 8. Reduction in the proposed density or intensity of use
  - 9. Inclusion of development plan changes that will result in an improved level of service for pedestrians and bicyclists by at least one letter grade.

### **6.5.2 Required Vehicle Level of Service**

The following Levels of Service shall be met:

- a. *Existing Signalized Intersection* - LOS shall not decline more than what would otherwise occur without the development. Evaluation of critical movements, approaches and queues shall be evaluated to ensure adequate storage.
- b. *Existing Unsignalized Intersection* - LOS shall not decline, but also measures of effectiveness, such as volume to capacity (v/c) ratios and queue lengths, shall also be considered.
- c. *New intersection* - must operate at a LOS C or better in rural areas and LOS D or better in urban areas.

- d. LOS E may be considered on a case-by-case basis, with a full TIS considering the context and pedestrian mobility needs. The following are examples of where this may occur:
  1. If the existing LOS is E or F
  2. If the LOS E is a non-critical or minor movement
  3. If D is not practical and will worsen the LOS elsewhere
  4. If LOS E results in better/ safer pedestrian movements
- e. Any mitigation that involves changes to optimize signal timing must demonstrate that such changes will benefit the overall operations and will be acceptable to the applicable road agency.

### 6.5.3 Required Level of Service for Pedestrian Circulation

Pedestrian circulation must operate at a Level of Service D or better during the peak hours of the day. This standard applies only where planned or existing pedestrian facilities are located and may not be required. Levels of Service shall be evaluated using the following:

<b>TABLE 6.5.3 REQUIRED LOS FOR PEDESTRIAN CIRCULATION</b>			
<b>Pedestrian Circulation Evaluation</b>		<b>Points Possible</b>	<b>Points Earned</b>
Facility (Max. value = 10)	Not continuous or non-existent	0	
	Continuous on one side	4	
	Continuous on both sides	6	
	Minimum 5' wide & barrier free	2	
	Sidewalk width is less than 5'	1	
	Off-street/parallel alternative facility	1	
Conflicts (Max. value = 10)	Driveways & side streets	1	
	Ped. Signal delay 40 sec. or less	0.5	
	Reduced turn conflict implementation	0.5	
	Crossing width is 60' or less	0.5	
	Posted speed	0.5	
	Medians present	1	
Amenities (Max. value = 2)	Buffer not less than 3'5" wide	1	
	Benches or pedestrian scale lighting	0.5	
	Shade trees	0.5	
Motor Vehicle LOS (Max. value = 2)	LOS = E, F, or 6+ travel lanes	0	
	LOS = D	1	
	LOS = A	2	
TDM/Multi Modal (Max. value = 1)	No support	0	
	Support exists	1	
<b>TOTAL POINTS EARNED:</b>			
<b>FOR PEDESTRIAN LOS RATING OF:</b>			<b>POINTS REQUIRED</b>
A			>17
B			>14-17
C			>11-14
D			>7-11
E			>3-7
F			3 or less

### 6.5.4 Required Level of Service for Bicycle Travel

Bicycle traffic must operate at a Level of Service D or better during the peak hours of the day. The bicycle Level of Service applies only where planned or existing bicycle facilities are located. Where no bicycle facility exists, present or planned, this additional Level of Service analysis may not be required. Levels of Service shall be evaluated based on the parameters in Table 6.5.4.

<b>TABLE 6.5.4 REQUIRED LOS FOR PEDESTRIAN CIRCULATION</b>			
<b>Bicycle</b>		<b>Points Possible</b>	<b>Points Earned</b>
Facility (Max. value = 10)	Outside lane 3.66 m (12')	0	
	Outside lane 3.66-4.27m (12-14')	5	
	Outside lane >4.27m (14')	6	
	Off-street/parallel alternative facility	4	
Conflicts (Max. value = 10)	Driveways & side streets	1	
	Barrier free	0.5	
	No on-street parking	1	
	Medians present	0.5	
	Unrestricted sight distance	0.5	
Speed Differential (Max. value = 4)	Intersection Implementation	0.5	
	>48 KPH (>30 MPH)	0	
	40-48 KPH (25-30 MPH)	1	
Motor Vehicle LOS (Max. value = 2)	24-30 KPH (15-20 MPH)	2	
	LOS = E, F, or 6+ travel lanes	0	
	LOS = D, & < 6 travel lanes	1	
TDM/Multi Modal (Max. value = 1)	LOS = A, B, C, & < 6 travel lanes	2	
	No support	0	
	Support exists	1	
<b>TOTAL POINTS EARNED:</b>			
<b>FOR BICYCLE LOS RATING OF:</b>			<b>POINTS REQUIRED</b>
			A >17
			B >14-17
			C >11-14
			D >7-11
			E >3-7
			F 3 or less

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## 6.6 QUALIFICATIONS OF PREPARER

The engineering firm or person responsible for the preparation of the transportation impact study shall be ODOT pre-qualified in the preparation of traffic impact studies. The preparer shall have at least three (3) years of recent experience in the preparation of traffic impact studies, provide evidence of ongoing experience and familiarity with the Highway Capacity Manual and other transportation operation evaluation techniques, preferably be an associate (or higher) member of one or more professional transportation-related organizations, and be a registered engineer (PE). Any study involving roadway or traffic signal design work shall be prepared by or under the supervision of a registered engineer (PE) who is qualified in transportation engineering.

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## 6.7 PROCEDURES

### 6.7.1 Transportation Impact Questionnaire

The applicant shall submit a transportation impact questionnaire, on a form provided by the Summit County Engineer. A copy of this form is located in Appendix H: Transportation Impact Questionnaire. In addition to completing the questionnaire, the applicant must include a description of the proposed development, the ITE Trip Generation Land Use(s), and the anticipated number of directional trips generated during the a.m. and p.m. peak hours of the traffic generator or the a.m. and p.m. peak hours on the adjacent streets, as well as for an average day. The Summit County Engineer shall review the transportation impact questionnaire and determine the level of transportation impact analysis required (i.e. transportation impact comparison, transportation impact assessment or transportation impact study) and establish the study intersections based on the proposed development and size.

### 6.7.2 Requests for Additional Information or Detail

If the Summit County Engineer determines there are deficiencies in the transportation impact analysis, a report of such deficiencies shall be provided to the applicant and the applicant shall be required to revise and resubmit the transportation impact analysis. Any transportation impact analyses with noted deficiencies will not be re-reviewed until all elements have been addressed. All partial re-submittals will be rejected.

### **6.7.3 Coordination with Townships**

The County Engineer may consider comments and input provided from other agencies and communities prior to any consideration of the proposed development.

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## **6.8 JOINT TRANSPORTATION IMPACT STUDIES**

A single transportation impact study may be submitted by two or more applicants provided the following conditions exist:

- a. Both applicants submit plans (rezoning, site or subdivision) for sites adjacent or in close proximity to one another; and
- b. The County Engineer determines that both applicants need to submit transportation impact studies; and
- c. The transportation impact study conforms to the requirements of this Chapter, including the required analysis for both sites.

# CHAPTER 7: GLOSSARY OF TERMS AND LIST OF ACRONYMS

The following terms are used in this manual and defined below for your convenience.

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## 7.1 GLOSSARY

*Average day:* A Tuesday, Wednesday, or Thursday for most uses. The average day may be a Saturday for uses that have higher peak-hour traffic volumes on a Saturday rather than mid-week.

*Background transportation:* Traffic anticipated to occur, regardless of the decision on the subject application, based on overall trends such as annual traffic increases and associated with specific approved projects. Data such as historic counts and long-range transportation projections from the AMATS model shall be considered as part of the background traffic calculation.

*Clear zone:* The unobstructed, traversable area provided beyond the edge of the through traveled way for the recovery of errant vehicles. The clear zone includes shoulders, bike lanes, and auxiliary lanes, except those auxiliary lanes that function like through lanes. The width of the zone is based on traffic speed and volume, cross slope and road curvature. Clear zone widths can be found in the ODOT Location & Design Manual, Volume 1, Figures 600-1 and 600-2.

*Comprehensive plan:* The plan adopted by Summit County which illustrates the intended future land use pattern, includes information on utilities and natural resources and may also describe intended improvements to the transportation system (i.e. master plan, future land use plan, etc.).

*Development:* A site plan, subdivision tentative preliminary plat, condominium project, mobile home park, redevelopment, reuse or expansion of a use or building.

*Driveway Types:* The four major types of driveways are Farm/Field, Residential, Commercial, and Industrial/Retail. These driveway types are defined in Section 3.8.2.

*DU/ac:* This is an abbreviation for dwelling unit per acre. The higher this number the denser the development of the area.

*Gap (critical):* The median time headway (in seconds) between vehicles in a major traffic stream which will permit side-street vehicles at STOP or YIELD controlled approach to cross through or merge with the major traffic stream under prevailing transportation and roadway conditions.



*Level of service (LOS):* A quantitative stratification of a performance measure or measures that represent quality of service, measured on an A to F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst. (*Highway Capacity Manual 2010, Transportation Research Board, 2010*) Operating conditions such as speed and travel time, delay, freedom to maneuver, transportation interruptions, comfort and convenience and safety are used to calculate this measure. MM LOS is the multimodal LOS measure which includes various modes of transportation, not limited to vehicles.

- a. LOS A: Free flow traffic or very low control delay occurring with favorable progression and/or short cycle lengths
- b. LOS B: Stable traffic flow with low control delay occurring with good progression and/or short cycle lengths
- c. LOS C: Restricted traffic flow with average control delays resulting from fair progression and/or longer cycle lengths; individual signal cycle failures begin to appear; generally acceptable at signalized intersections
- d. LOS D: High density traffic flow with longer control delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios; freedom to maneuver, comfort and convenience have declined though traffic flow remains stable; generally acceptable at unsignalized intersections
- e. LOS E: Unstable flow at or near capacity with long control delays
- f. LOS F: Forced traffic flow that exceeds capacity of the street or intersection; characterized by stop and go waves, poor travel times, low comfort and convenience and higher crash exposure

*Peak hour:* A one hour period representing the highest hourly volume of traffic flow in the adjacent street system during the morning (a.m. peak hour), during the afternoon or evening (p.m. peak hour); or representing the hour of highest volume of traffic entering or exiting a site (peak hour of generator).

*Study area:* The geographic area containing those critical arterial intersections (and connecting roadway segments) which are expected to be affected by the site-traffic generated by a development.

*Transportation Impact Study (TIS):* A study done to determine if a planned development or change to a road system will effect the existing traffic flow in an area.

*Trip (i.e. directional trip, trip end):* A single or one direction vehicle movement with either the origin of the destination (exiting or entering) inside a study site.

*V/C:* V/C is an abbreviation for volume to capacity ratio. It is a measure of how crowded a road is based on collected traffic data compared to the amount of traffic a road can theoretically handle. A roadway with a v/c ratio of 1.0 is said to be operating at its full capacity.

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## 7.2 ACRONYMS

AASHTO: American Association of State Highway and Transportation Officials

AMATS: Akron Metropolitan Area Transportation Study

HCM: Highway Capacity Manual\*

HCS: Highway Capacity Software\*

ITE: Institute of Transportation Engineers

LOS: Level of Service

ODOT: Ohio Department of Transportation

OMUTCD: Ohio Manual of Uniform Traffic Control Devices\*

ORC: Ohio Revised Code

R/W: Right of Way

RI/RO: Right In/Right Out, refers to a restricted access driveway that only allows vehicles to make right turn maneuvers into and out of the property.

R.O.W.: Right of Way

SCE: Summit County Engineer

TDM: Transportation Demand Management

TIS: Transportation Impact Study (see above)

TRB: Transportation Research Board

\*The citation of standard engineering reference works always refers to the latest publication or edition of the work as amended.

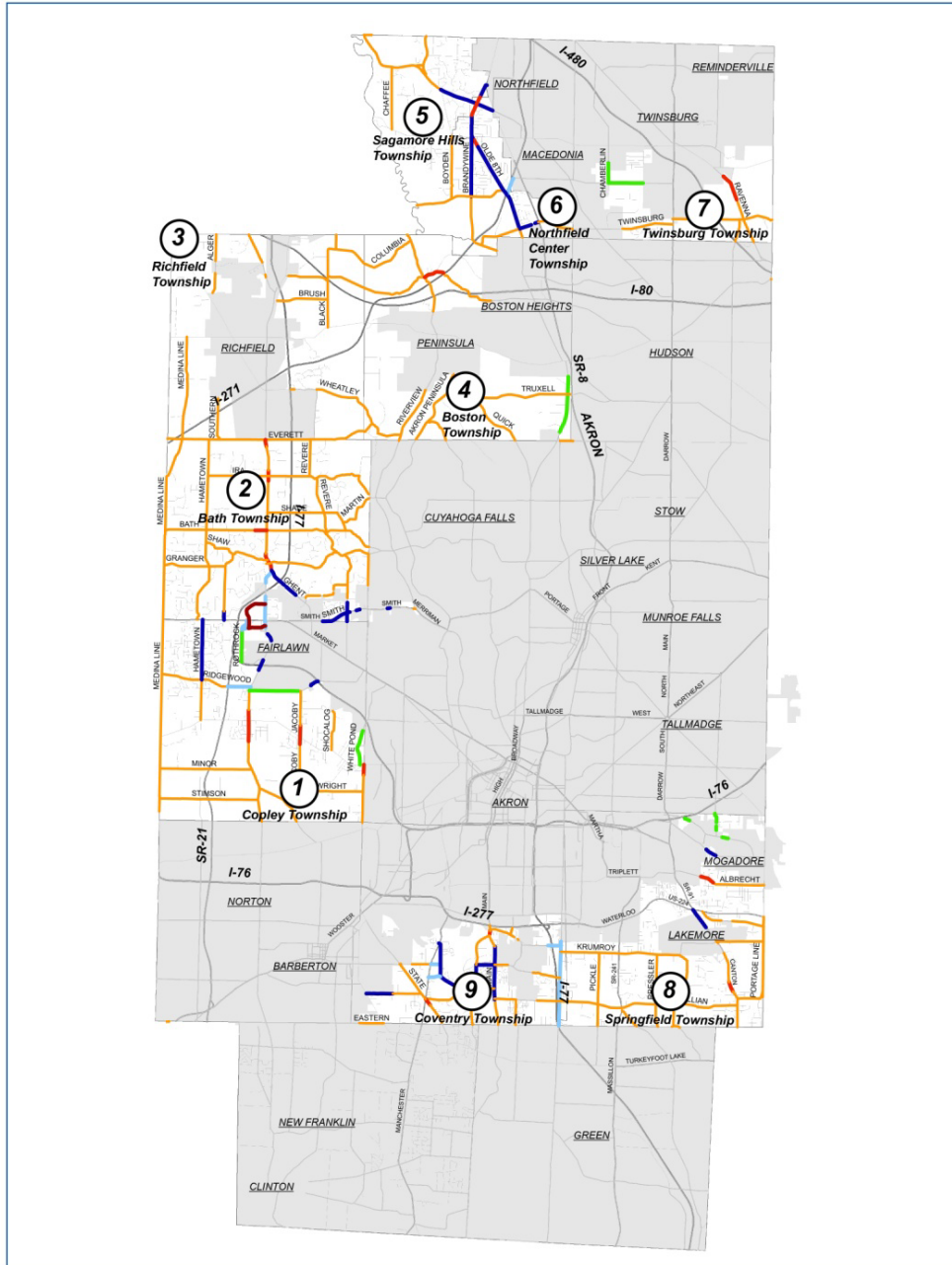
# APPENDICES

## APPENDIX A: ACCESS REVIEW CHECKLISTS

Access Checklist							
	Events/Evaluation Criteria	Lot Split	Intensification of use	Expansion of building	Site redevelopment	New development (site plan, subdivision)	Road parking or reconstruction
Shared Access	Look for opportunities to close existing access	✓			✓		✓
	Look for opportunities to construct shared access or provide easements	✓	✓		✓	✓	✓
	Look for opportunities for shared access in future (to adjacent lots) or "parent parcel" or new outlots	✓					
	Is there a potential to provide an alternative shared access system?	✓			✓	✓	
	Redesign existing driveways to current standards		✓	maybe	✓		✓
Driveway Placement	Is sight distance adequate?	✓			✓	✓	✓
	Would access or driveways be spaced from intersections per sec. ___?	✓	✓		✓	✓	✓
	Are driveways placed to minimize conflicts at driveways across the street (offset)? Per sec. ___		✓		✓	✓	✓
	Are driveways spaced from other driveways in accordance with sec. ___?				✓	✓	✓
	If not any of the above, should the driveway be restricted to right turns or denied?	✓	✓	✓	✓	✓	✓

Site Plan or Subdivision Plan Review Checklist							
Events/Evaluation Criteria	Lot Split	Intensification of use	Expansion of building	Site redevelopment	New development (site plan, subdivision)	Road parking or reconstruction	
Has the plan been submitted to Summit Co (and ODOT) contact person for their review and comments?			✓	✓	✓	✓	
Is the site in an area with specific recommendations?	✓	✓	✓	✓	✓	✓	
Does the site plan illustrate all of additional access related information required?	✓	✓	✓	✓	✓	✓	
Can the site meet spacing standards between access points?				✓	✓	✓	
Does the number of access points meet minimum requirements for reasonable access		✓	✓	✓	✓	✓	
Is the access point properly aligned with, or spaced from, existing or future driveways?				✓	✓	✓	
Has sight distance information been provided?				✓	✓		
Is there a need for a traffic impact study? (see Chapter 6)			✓	✓	✓		

# APPENDIX B: TOWNSHIP ACCESS CATEGORY MAPS



Summit County

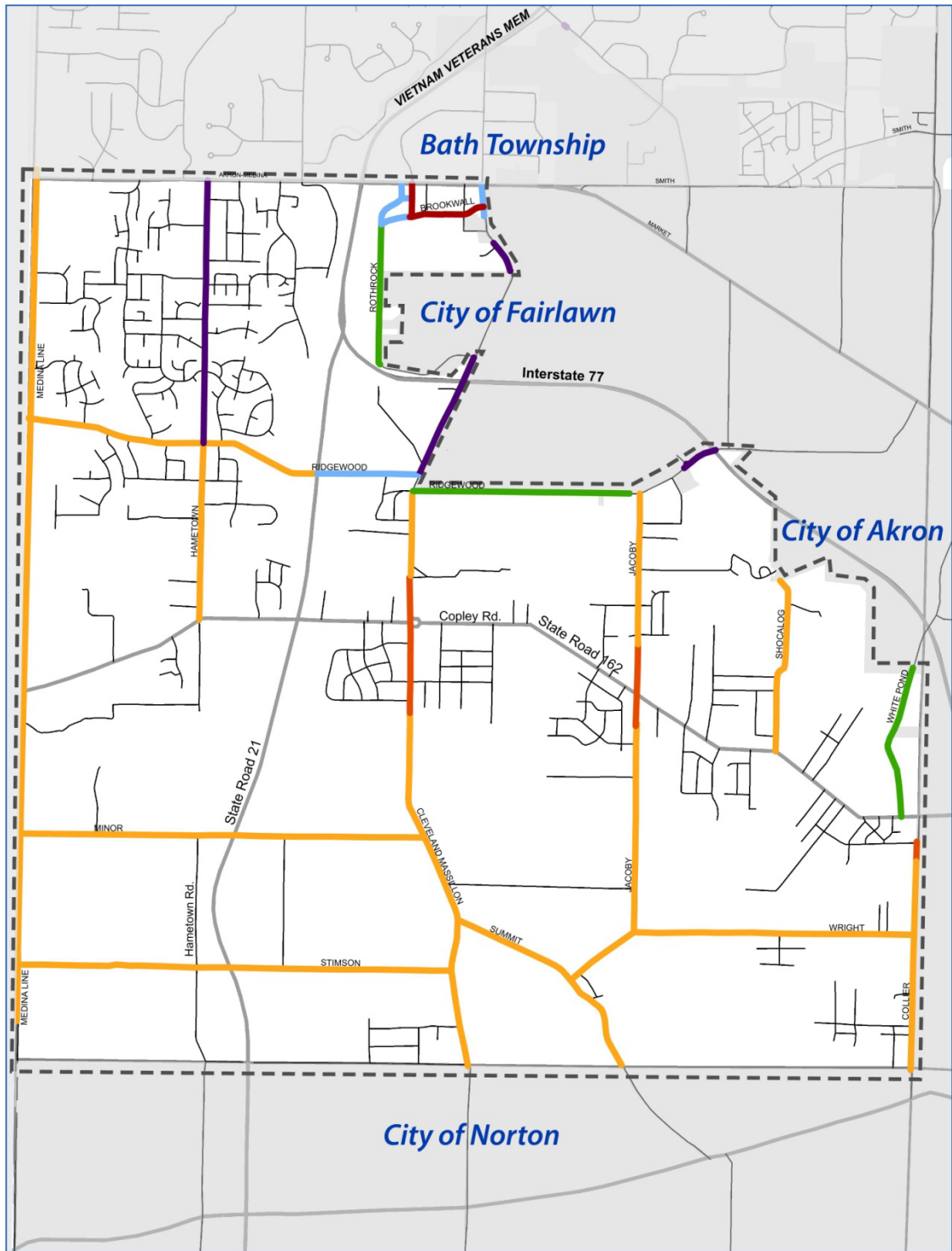
**Road Access Category Map**

**Access Categories**

<span style="color: orange;">—</span> Exurban	<span style="color: green;">—</span> Suburban Emerging
<span style="color: red;">—</span> Exurban Village	<span style="color: lightblue;">—</span> Suburban Retrofit
<span style="color: blue;">—</span> Suburban	<span style="color: darkred;">—</span> Suburban Center
<span style="border: 1px solid grey; display: inline-block; width: 10px; height: 10px;"></span> Townships	<span style="background-color: lightgrey; display: inline-block; width: 10px; height: 10px;"></span> Municipalities

3/13/2015  
Source: Summit County, AMATS, FHWA

0 2 4 8 Miles



Summit County

**Map 1: Copley Township**

Road Access Category Map

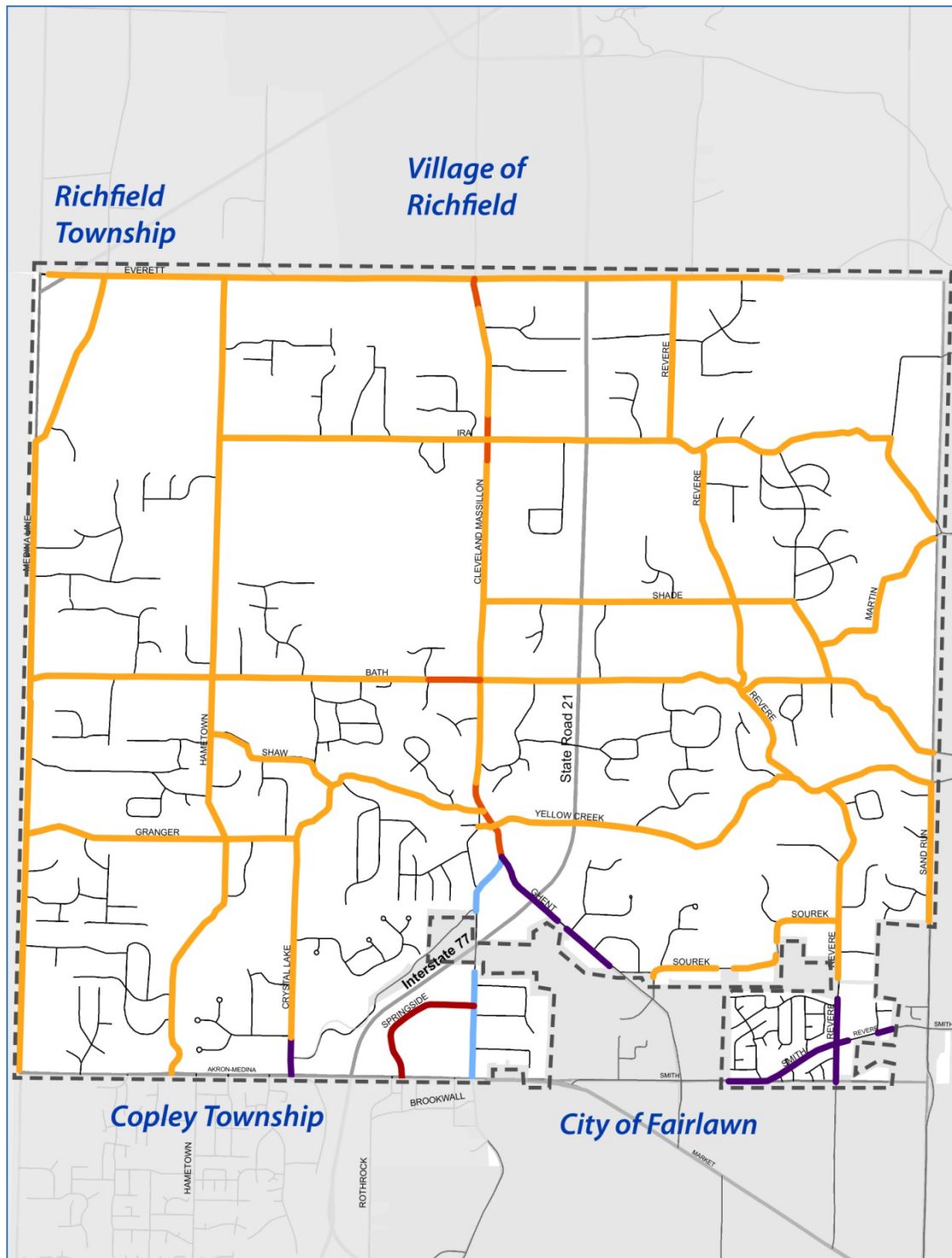
**Access Categories**

<span style="color: orange;">—</span> Exurban	<span style="color: green;">—</span> Suburban Emerging
<span style="color: red;">—</span> Exurban Village	<span style="color: blue;">—</span> Suburban Retrofit
<span style="color: purple;">—</span> Suburban	<span style="color: red;">—</span> Suburban Center
<span style="border: 1px dashed black;"> </span> Copley Township	<span style="background-color: lightgray;"> </span> Municipalities
<span style="color: black;">—</span> Local Roads	<span style="color: gray;">—</span> State Roads

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.45    0.9    1.8

Miles



Summit County

**Map 2: Bath Township**

Road Access Category Map

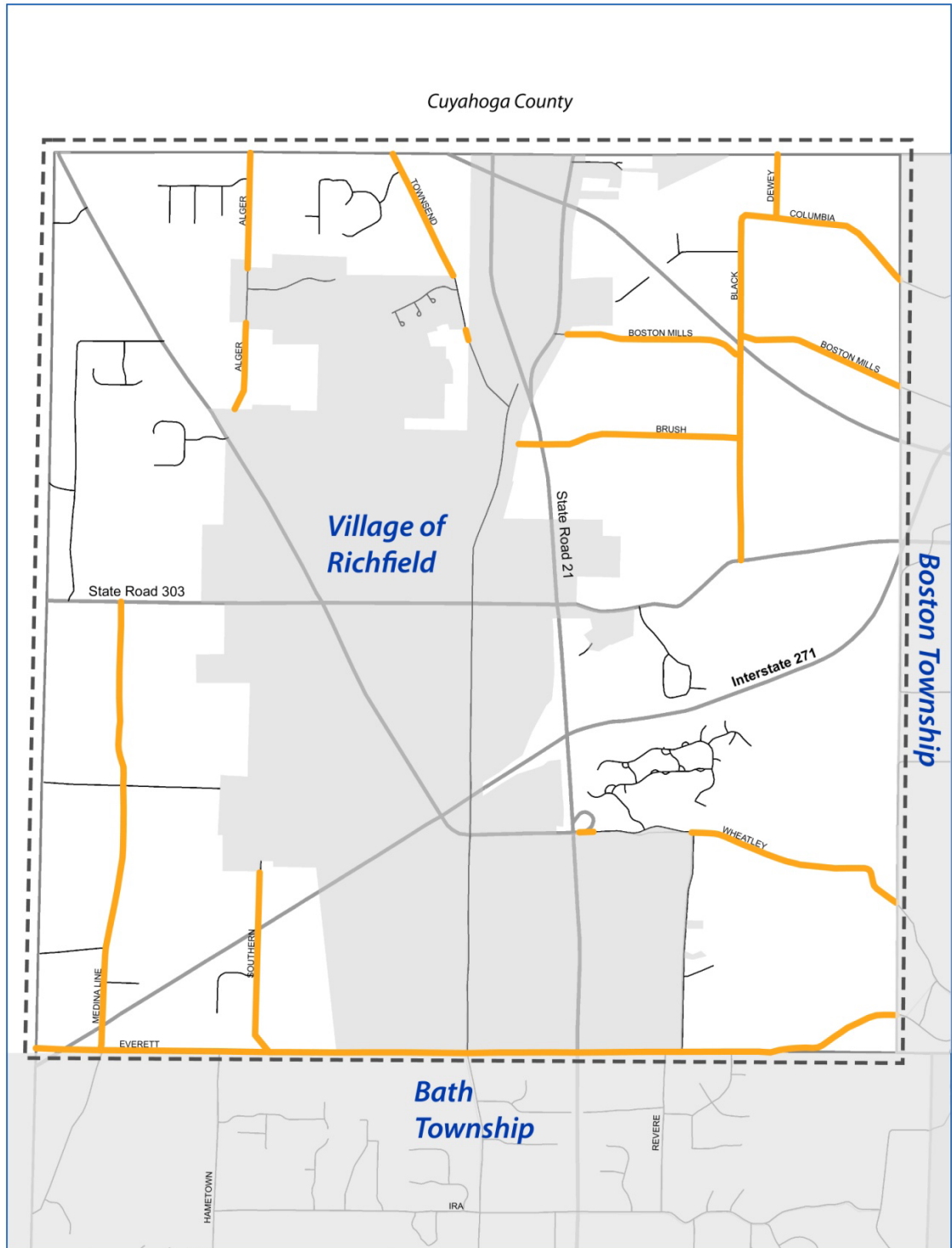
**Access Categories**

<span style="color: orange;">—</span> Exurban	<span style="color: green;">—</span> Suburban Emerging
<span style="color: red;">—</span> Exurban Village	<span style="color: blue;">—</span> Suburban Retrofit
<span style="color: purple;">—</span> Suburban	<span style="color: brown;">—</span> Suburban Center
<span style="border: 1px dashed black;"> </span> Bath Township	<span style="background-color: lightgray;"> </span> Municipalities/Other Townships
<span style="color: black;">—</span> Local Roads	<span style="color: gray;">—</span> State Roads

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.45    0.9    1.8

Miles



Summit County

**Map 3: Richfield Township**

Road Access Category Map

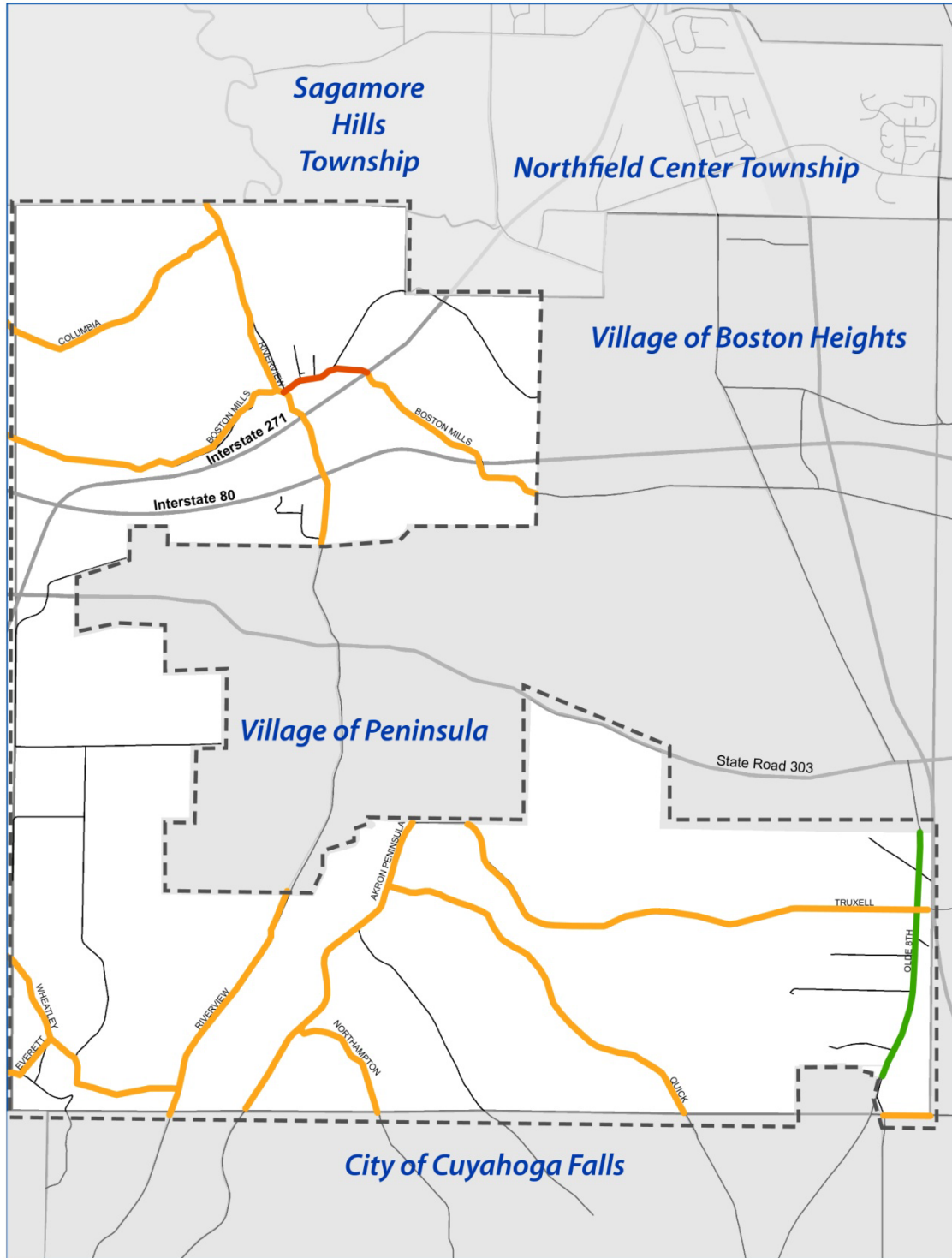
**Access Categories**

<span style="color: orange;">—</span> Exurban	<span style="color: green;">—</span> Suburban Emerging
<span style="color: red;">—</span> Exurban Village	<span style="color: blue;">—</span> Suburban Retrofit
<span style="color: purple;">—</span> Suburban	<span style="color: darkred;">—</span> Suburban Center
<span style="border: 1px dashed black; display: inline-block; width: 10px; height: 10px;"></span> Richfield Township	<span style="background-color: lightgray; display: inline-block; width: 10px; height: 10px;"></span> Municipalities/Other Townships
<span style="border-bottom: 1px solid black; width: 10px; display: inline-block;"></span> Local Roads	<span style="border-bottom: 1px solid gray; width: 10px; display: inline-block;"></span> State Roads

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.45    0.9    1.8

Miles



Summit County

**Map 4: Boston Township**

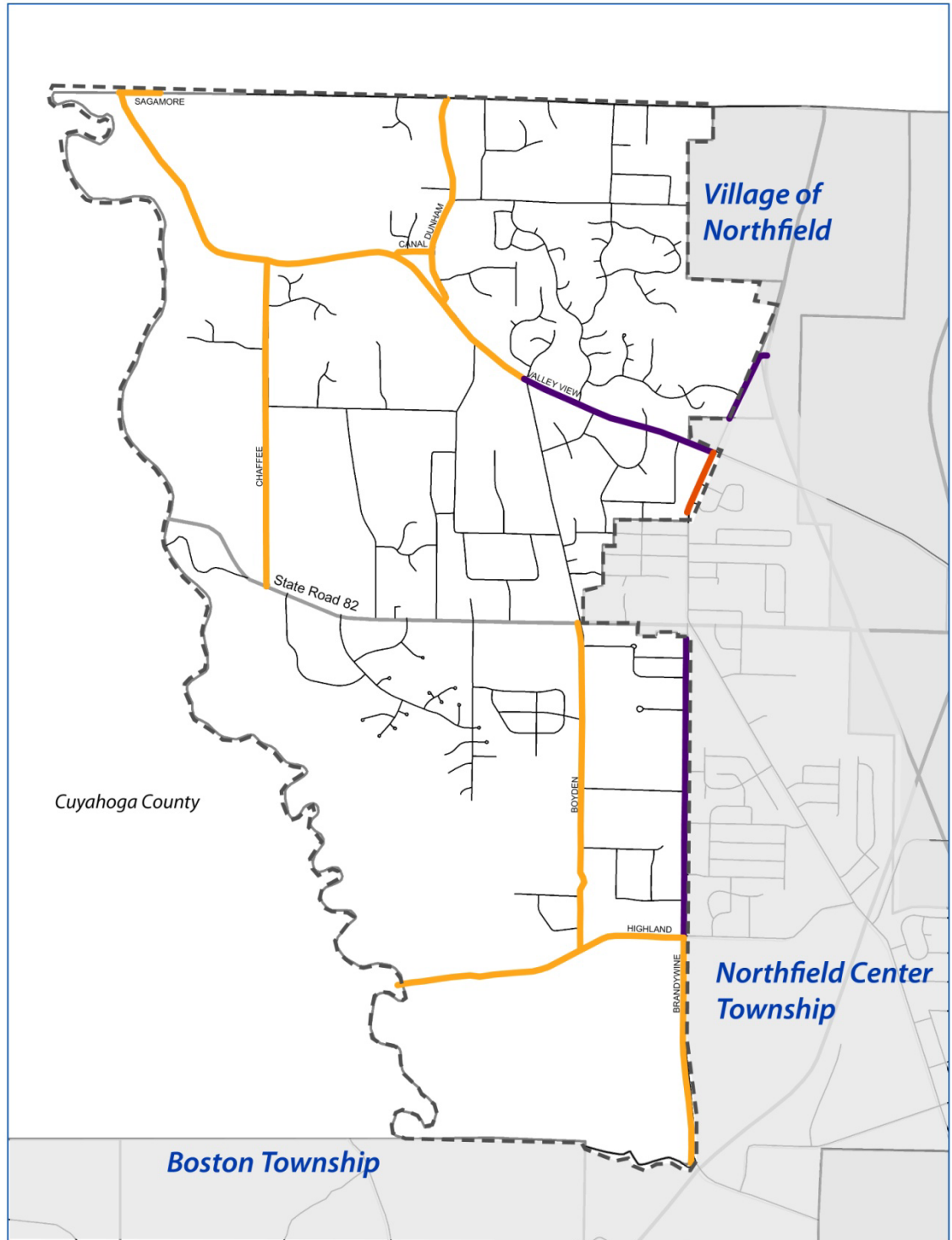
Road Access Category Map

Access Categories	
Exurban	Suburban Emerging
Exurban Village	Suburban Retrofit
Suburban	Suburban Center
Boston Township	Municipalities/Other Townships
Local Roads	State Roads

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.45    0.9    1.8  
Miles





Summit County

**Map 5: Sagamore Hills Township**

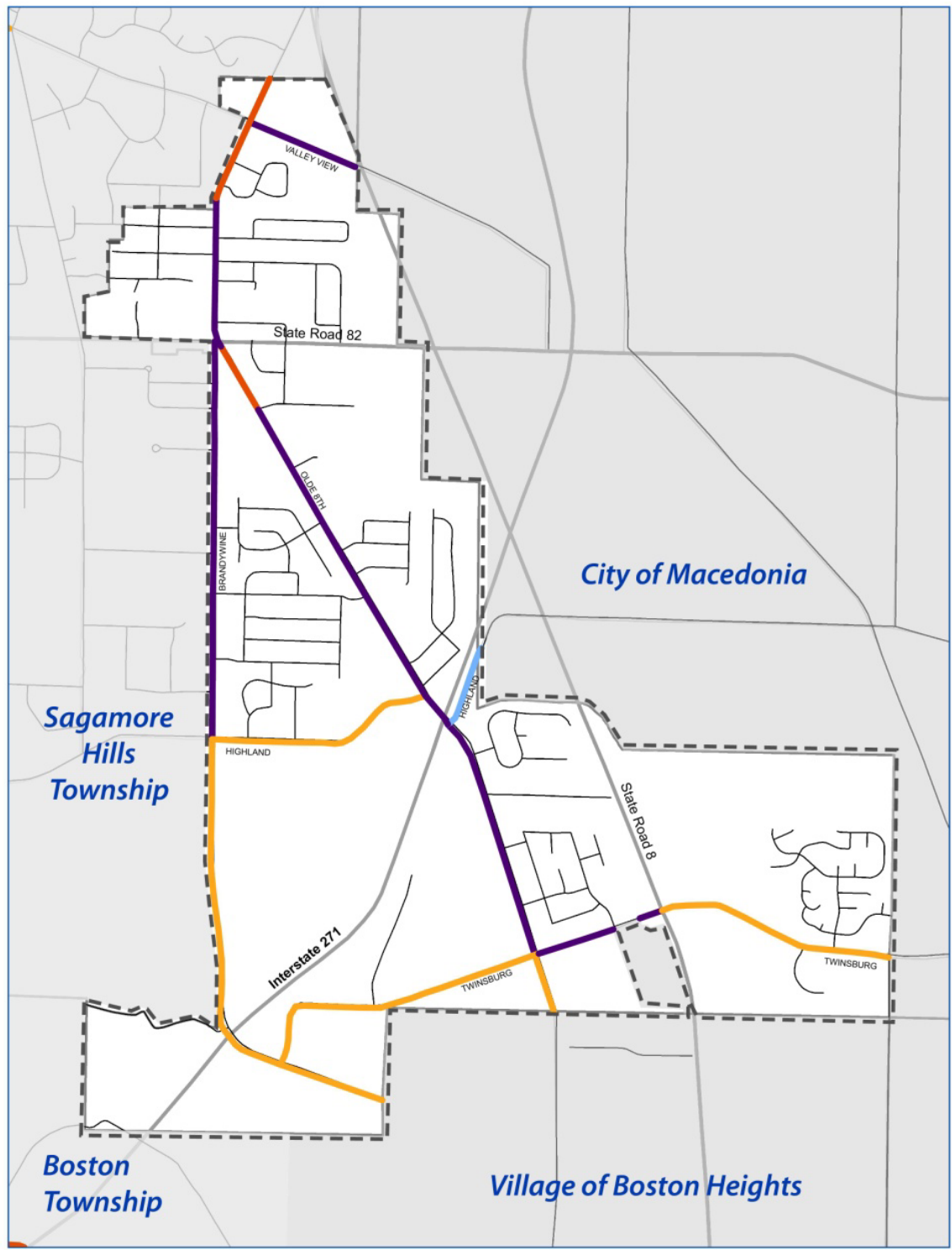
Road Access Category Map

Access Categories	
<ul style="list-style-type: none"> <li><span style="color: orange;">—</span> Exurban</li> <li><span style="color: red;">—</span> Exurban Village</li> <li><span style="color: purple;">—</span> Suburban Corridor</li> <li><span style="border-bottom: 1px dashed black; width: 20px; display: inline-block;"></span> Sagamore Hills Township</li> <li><span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Local Roads</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: green;">—</span> Suburban Emerging</li> <li><span style="color: blue;">—</span> Suburban Retrofit</li> <li><span style="color: red;">—</span> Suburban Center</li> <li><span style="background-color: lightgray; width: 20px; height: 10px; display: inline-block;"></span> Municipalities/Townships</li> <li><span style="border-bottom: 1px solid gray; width: 20px; display: inline-block;"></span> State Roads</li> </ul>

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.375    0.75    1.5

Miles



Summit County

**Map 6: Northfield Center Township**

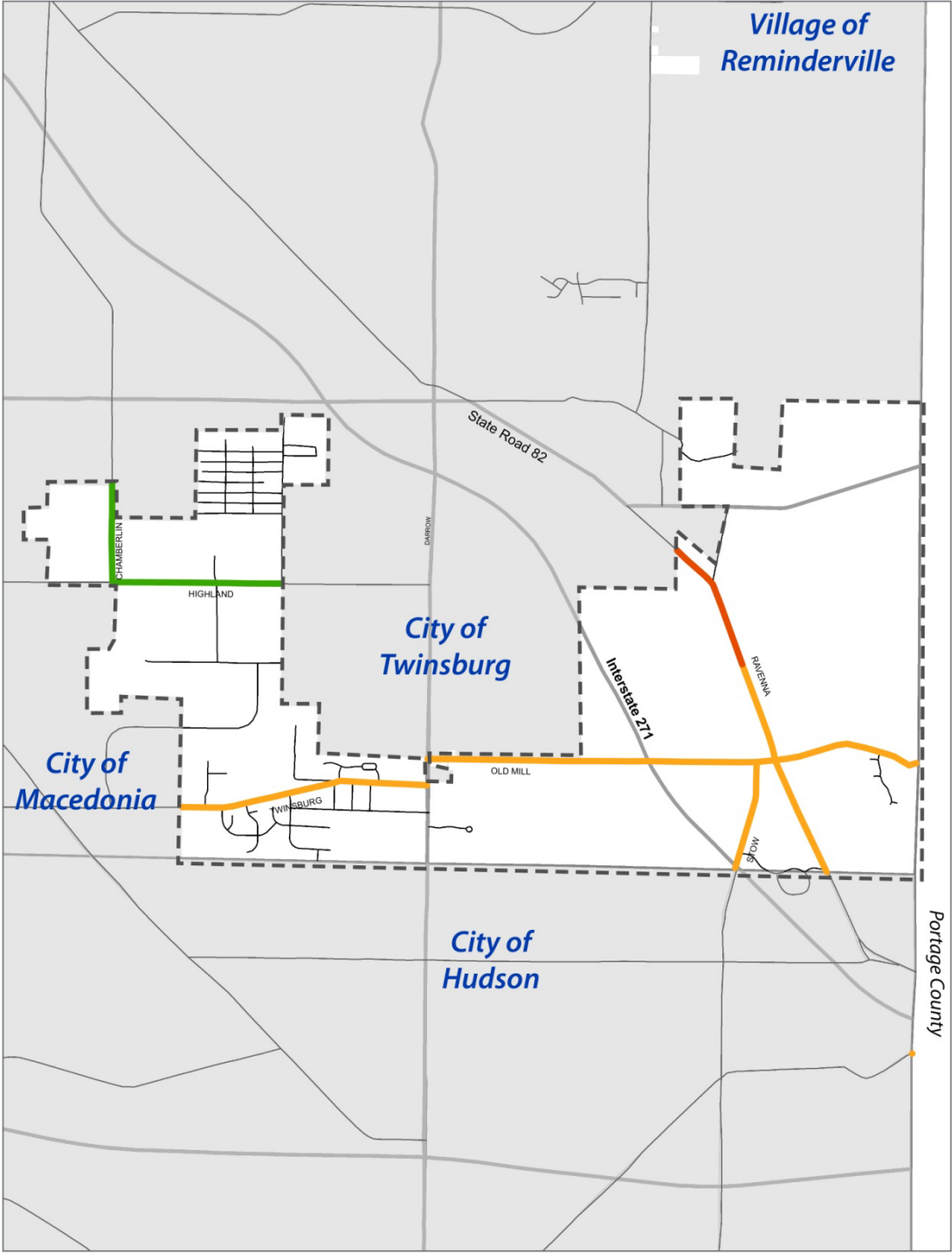
Road Access Category Map

Access Categories	
<ul style="list-style-type: none"> <li><span style="color: orange;">—</span> Exurban</li> <li><span style="color: red;">—</span> Exurban Village</li> <li><span style="color: purple;">—</span> Suburban</li> <li><span style="border: 1px dashed black; display: inline-block; width: 10px; height: 10px;"></span> Northfield Center Township</li> <li><span style="border-bottom: 1px solid black; width: 10px; display: inline-block;"></span> Local Roads</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: green;">—</span> Suburban Emerging</li> <li><span style="color: blue;">—</span> Suburban Retrofit</li> <li><span style="color: darkred;">—</span> Suburban Center</li> <li><span style="background-color: lightgray; width: 10px; height: 10px; display: inline-block;"></span> Municipalities/Townships</li> <li><span style="border-bottom: 1px solid gray; width: 10px; display: inline-block;"></span> State Roads</li> </ul>

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.375    0.75    1.5

Miles



Summit County

**Map 7: Twinsburg Township**

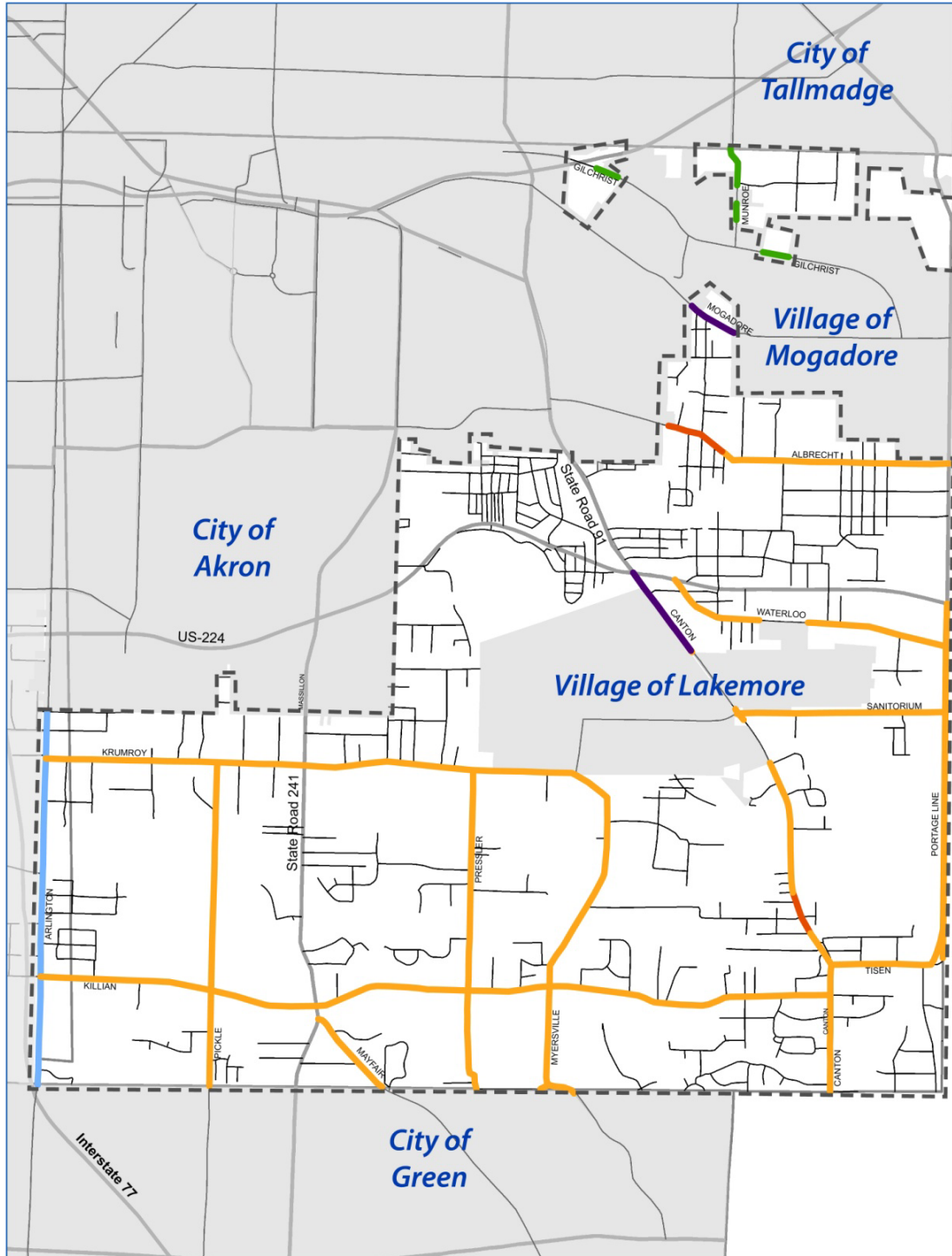
Road Access Category Map

Access Categories	
<ul style="list-style-type: none"> <li><span style="color: yellow;">—</span> Exurban</li> <li><span style="color: orange;">—</span> Exurban Village</li> <li><span style="color: purple;">—</span> Suburban</li> <li><span style="border: 1px dashed black; display: inline-block; width: 1em; height: 1em;"></span> Twinsburg Twp</li> <li><span style="border-bottom: 1px solid black; width: 1em;"></span> Local Roads</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: green;">—</span> Suburban Emerging</li> <li><span style="color: lightblue;">—</span> Suburban Retrofit</li> <li><span style="color: red;">—</span> Suburban Center</li> <li><span style="background-color: lightgray; width: 1em; height: 1em; display: inline-block;"></span> Municipalities/Other Townships</li> <li><span style="border-bottom: 1px solid gray; width: 1em;"></span> State Roads</li> </ul>

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.4    0.8    1.6

Miles



Summit County

**Map 8: Springfield Township**

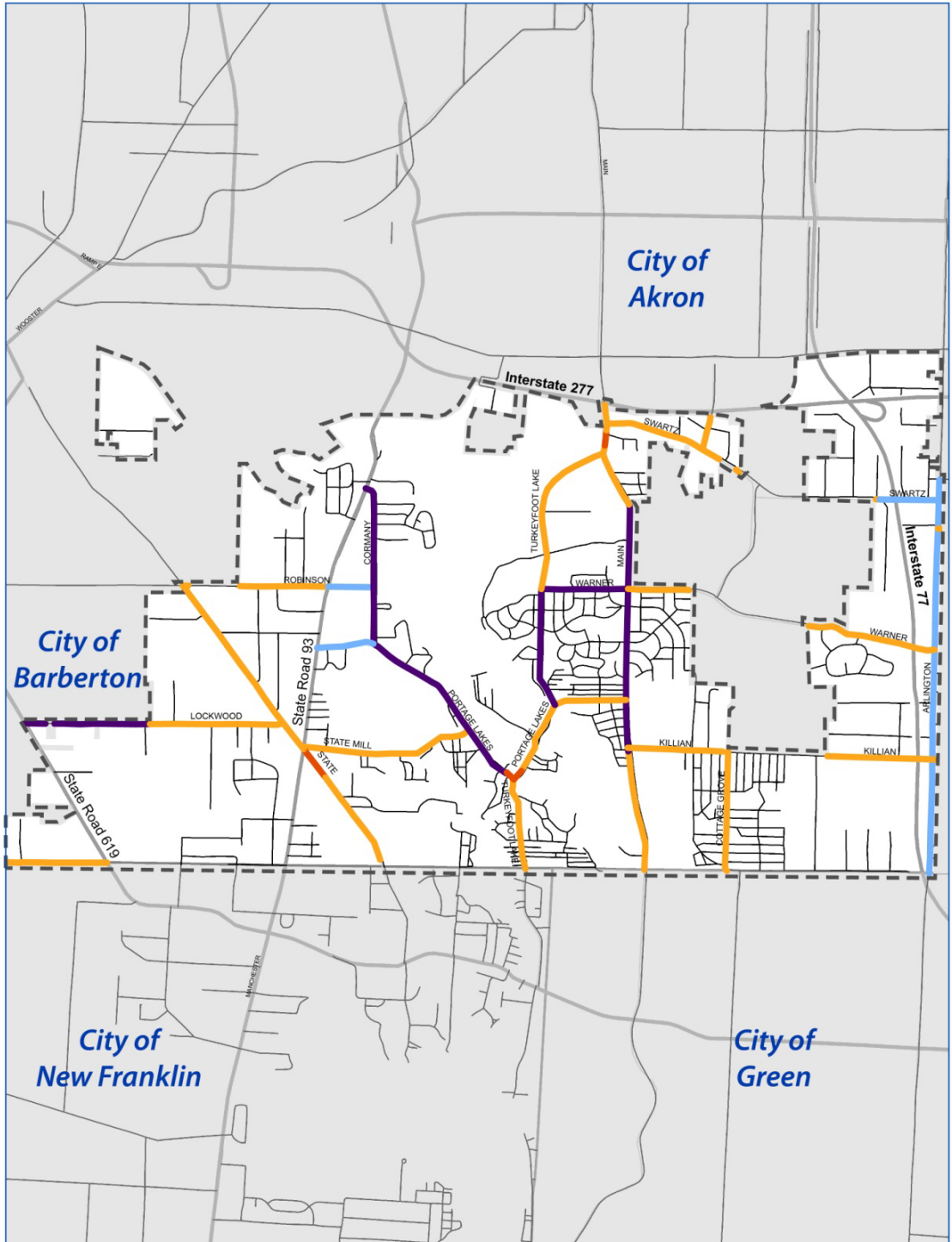
Road Access Category Map

Access Categories	
<span style="color: orange;">—</span> Exurban	<span style="color: green;">—</span> Suburban Emerging
<span style="color: orange;">—</span> Exurban Village	<span style="color: blue;">—</span> Suburban Retrofit
<span style="color: purple;">—</span> Suburban	<span style="color: red;">—</span> Suburban Center
<span style="border: 1px dashed black;"> </span> Springfield Twp	<span style="background-color: lightgray;"> </span> Municipalities/Other Townships
<span style="color: black;">—</span> Local Roads	<span style="color: gray;">—</span> State Roads

3/13/2015  
Source: Summit County, AMATS, FHWA

0    0.45    0.9    1.8

Miles



Summit County

**Map 9: Coventry Township**

Road Access Category Map

**Access Categories**

<span style="color: orange;">—</span> Exurban	<span style="color: green;">—</span> Suburban Emerging
<span style="color: red;">—</span> Exurban Village	<span style="color: lightblue;">—</span> Suburban Retrofit
<span style="color: purple;">—</span> Suburban	<span style="color: darkred;">—</span> Suburban Center
<span style="border: 1px dashed black; display: inline-block; width: 15px; height: 10px;"></span> Coventry Twp	<span style="background-color: grey; width: 15px; height: 10px; display: inline-block;"></span> Municipalities/Other Townships
<span style="border-bottom: 1px solid grey; width: 15px; display: inline-block;"></span> Local Roads	<span style="border-bottom: 1px solid grey; width: 15px; display: inline-block;"></span> State Roads

3/13/2015

Source: Summit County, AMATS, FHWA

0    0.425    0.85    1.7

Miles

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# APPENDIX C: TURN LANE WARRANT WORKSHEETS

Use the following worksheets based on existing or proposed roadway conditions to determine if a left and/or right turn lane is warranted. The lane warrant graphs are from the Ohio Department of Transportation's *State Highway Access Manual, Version 8-15-03*.

It is the responsibility of the user to check for the latest version of the *State Highway Access Management Manual* and the following worksheets. The current Ohio Department of Transportation website address for the manual is:

<http://www.dot.state.oh.us/Divisions/Engineering/Roadway/AccessManagement/>

## **Left Turn Lane Warrants:**

- 2-Lane Highway Left Turn Lane Warrant ( ≤40 mph Posted Speed)
- 2-Lane Highway Left Turn Lane Warrant ( >40 mph Posted Speed)
- 4-Lane Highway Left Turn Lane Warrant (all speeds)

## **Right Turn Lane Warrants:**

- 2-Lane Highway Right Turn Lane Warrant ( ≤40 mph Posted Speed)
- 2-Lane Highway Right Turn Lane Warrant ( >40 mph Posted Speed)
- 4-Lane Highway Right Turn Lane Warrant ( ≤40 mph Posted Speed)
- 4-Lane Highway Right Turn Lane Warrant ( >40 mph Posted Speed)

## 2-Lane Highway Left Turn Lane Warrant (= < 40 MPH)

Project: \_\_\_\_\_

Project No: \_\_\_\_\_ PID: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared for: \_\_\_\_\_ Calculated by: \_\_\_\_\_ Checked by: \_\_\_\_\_

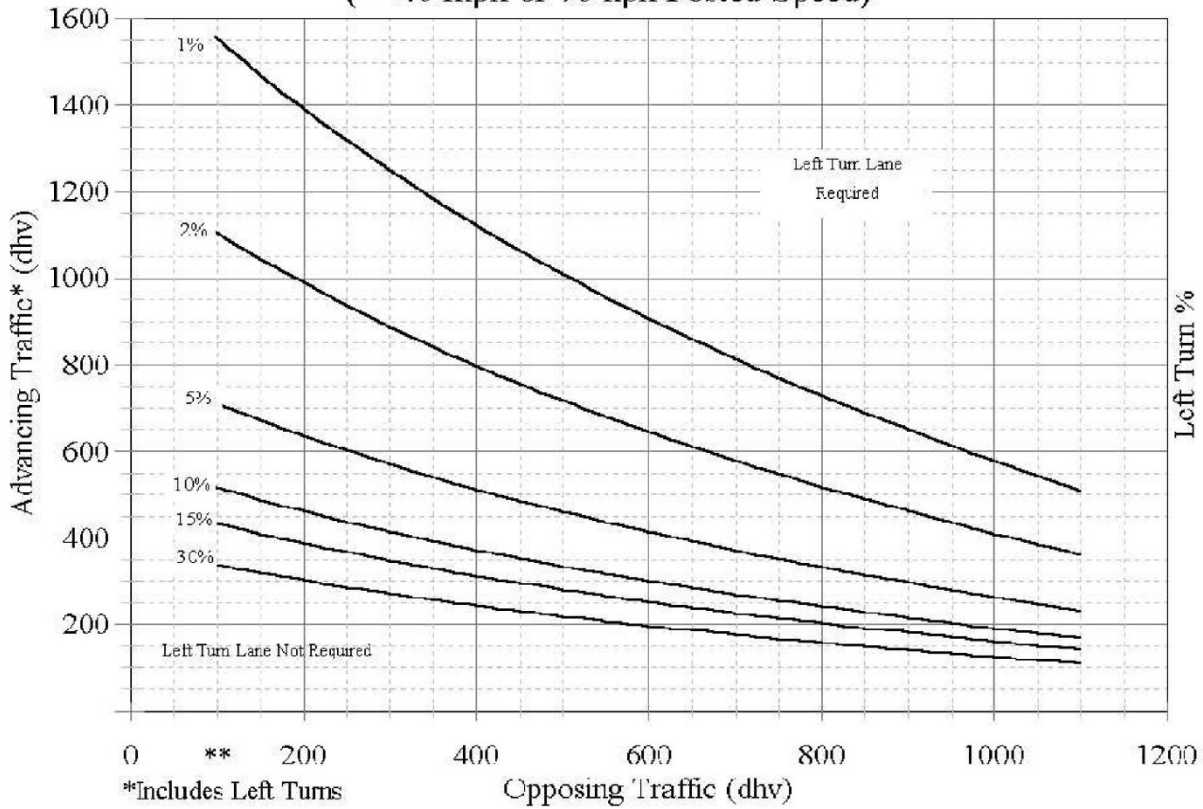
Posted speed: \_\_\_\_\_

Traffic Volumes:  Based on Turning Movement Count, Date: \_\_\_\_\_

Based on Certified Traffic Projections, Year: \_\_\_\_\_

Other \_\_\_\_\_

### 2-Lane Highway Left Turn Lane Warrant (= < 40 mph or 70 kph Posted Speed)



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol

## 2-Lane Highway Left Turn Lane Warrant ( > 40 MPH)

Project: \_\_\_\_\_

Project No: \_\_\_\_\_ PID: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared for: \_\_\_\_\_ Calculated by: \_\_\_\_\_ Checked by: \_\_\_\_\_

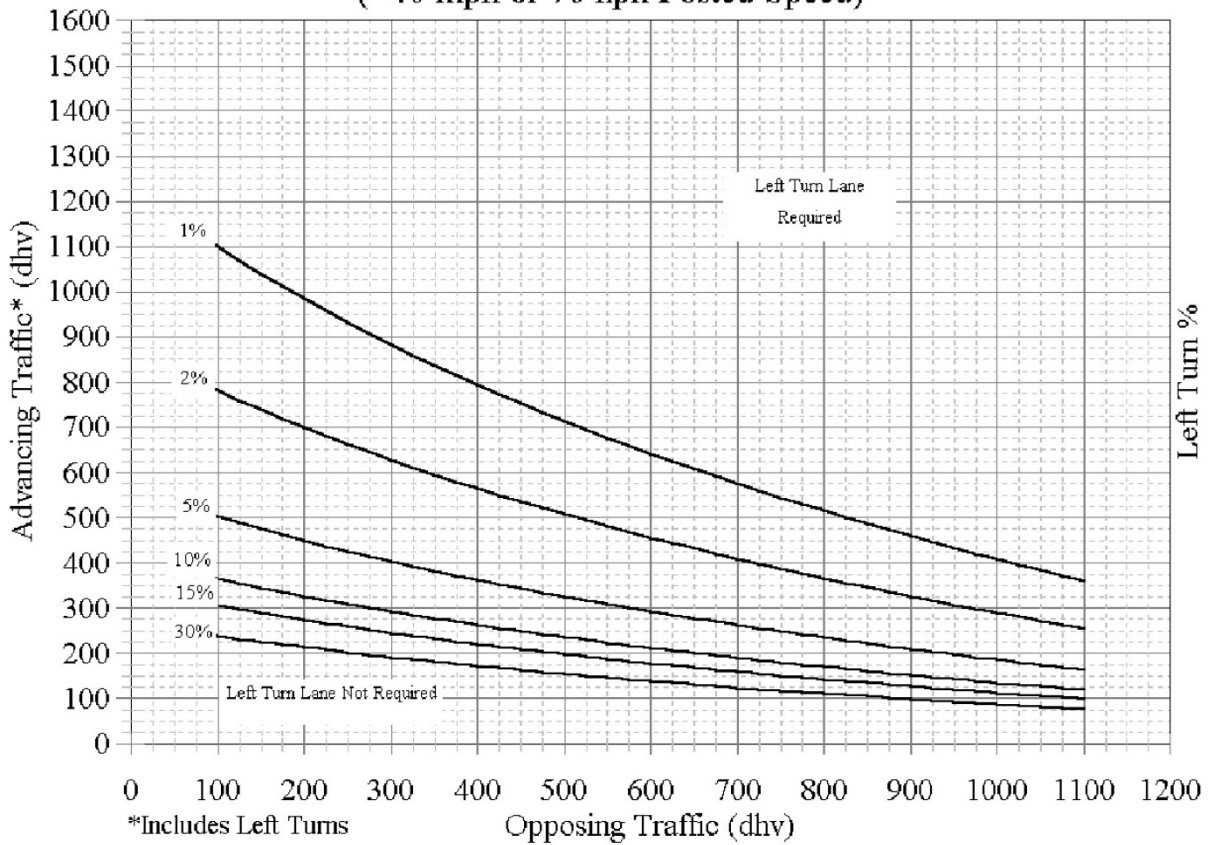
Posted speed: \_\_\_\_\_

Traffic Volumes:  Based on Turning Movement Count, Date: \_\_\_\_\_

Based on Certified Traffic Projections, Year: \_\_\_\_\_

Other \_\_\_\_\_

### 2-Lane Highway Left Turn Lane Warrant (>40 mph or 70 kph Posted Speed)



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol



## 4-Lane Highway Left Turn Lane Warrant (all speeds)

Project: \_\_\_\_\_

Project No: \_\_\_\_\_ PID: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared for: \_\_\_\_\_ Calculated by: \_\_\_\_\_ Checked by: \_\_\_\_\_

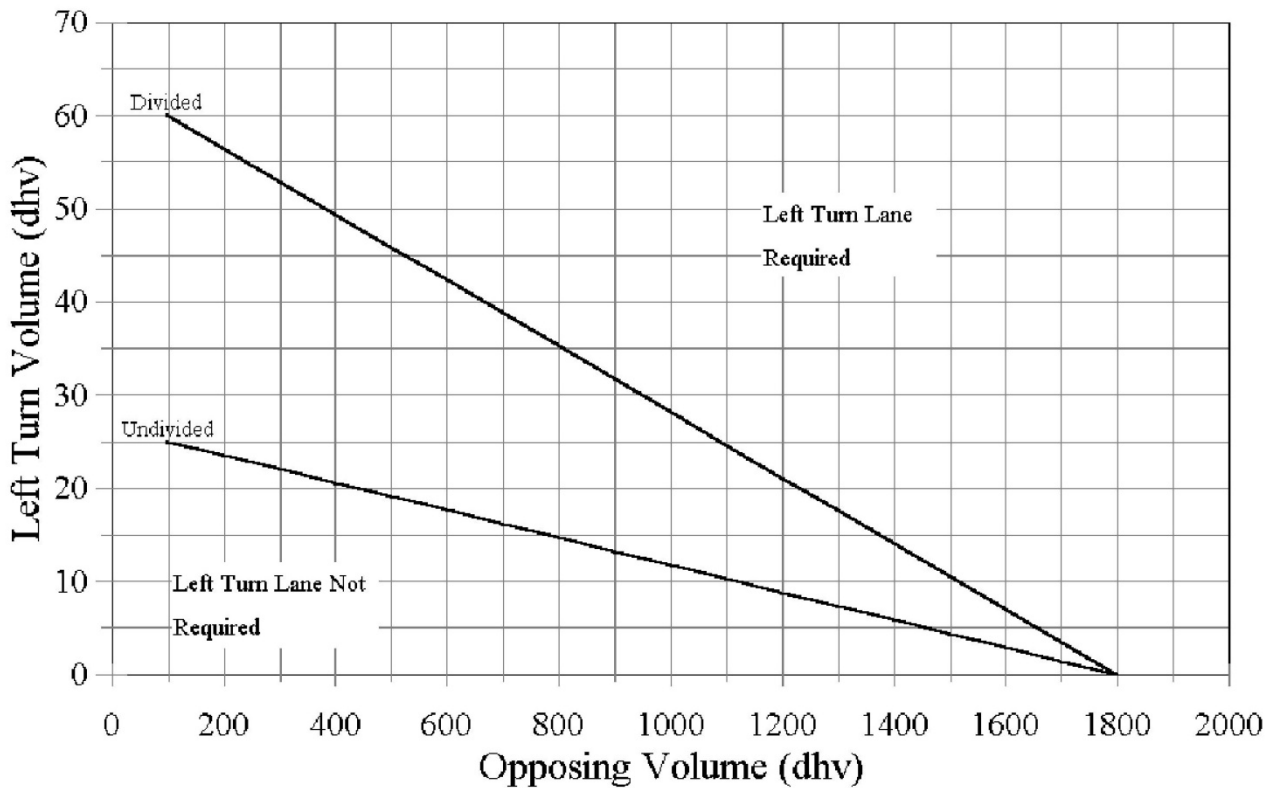
Posted speed: \_\_\_\_\_

Traffic Volumes:  Based on Turning Movement Count, Date: \_\_\_\_\_

Based on Certified Traffic Projections, Year: \_\_\_\_\_

Other \_\_\_\_\_

## 4-Lane Highway Left Turn Lane Warrant



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol

## 2-Lane Highway Right Turn Lane Warrant ( =< 40 MPH)

Project: \_\_\_\_\_

Project No: \_\_\_\_\_ PID: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared for: \_\_\_\_\_ Calculated by: \_\_\_\_\_ Checked by: \_\_\_\_\_

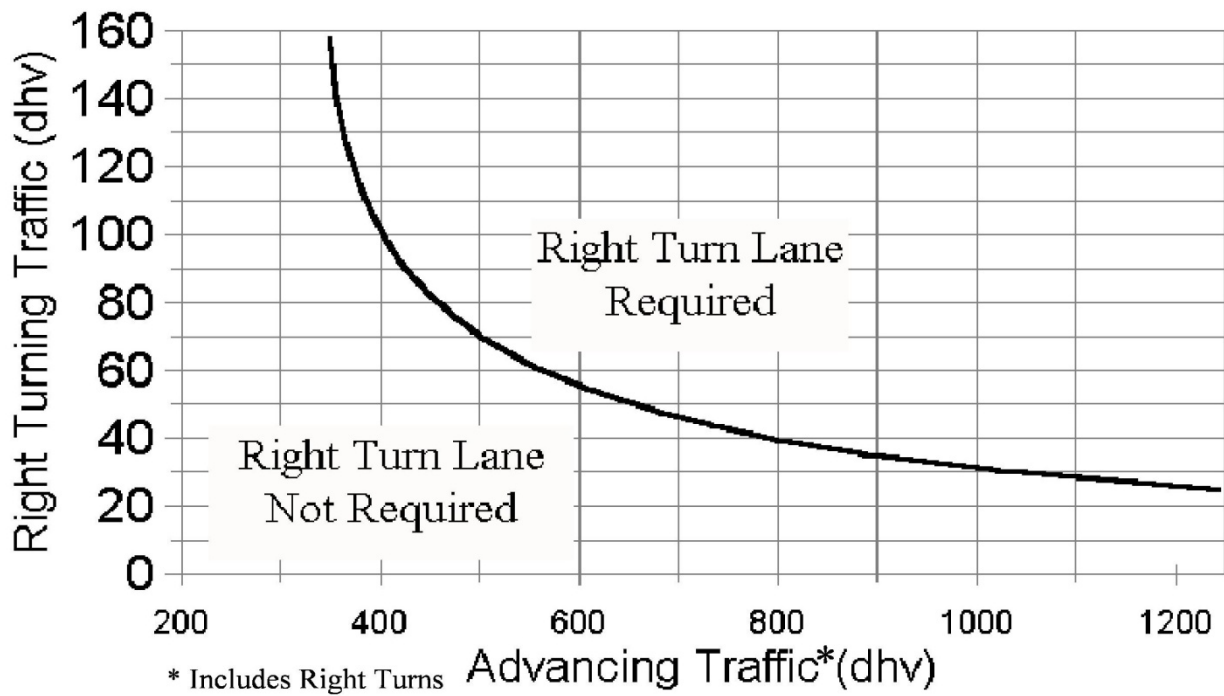
Posted speed: \_\_\_\_\_

Traffic Volumes:  Based on Turning Movement Count, Date: \_\_\_\_\_

Based on Certified Traffic Projections, Year: \_\_\_\_\_

Other \_\_\_\_\_

## 2-Lane Highway Right Turn Lane Warrant =< 40 mph or 70 kph Posted Speed



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol

## 2-Lane Highway Right Turn Lane Warrant (> 40 MPH)

Project: \_\_\_\_\_

Project No: \_\_\_\_\_ PID: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared for: \_\_\_\_\_ Calculated by: \_\_\_\_\_ Checked by: \_\_\_\_\_

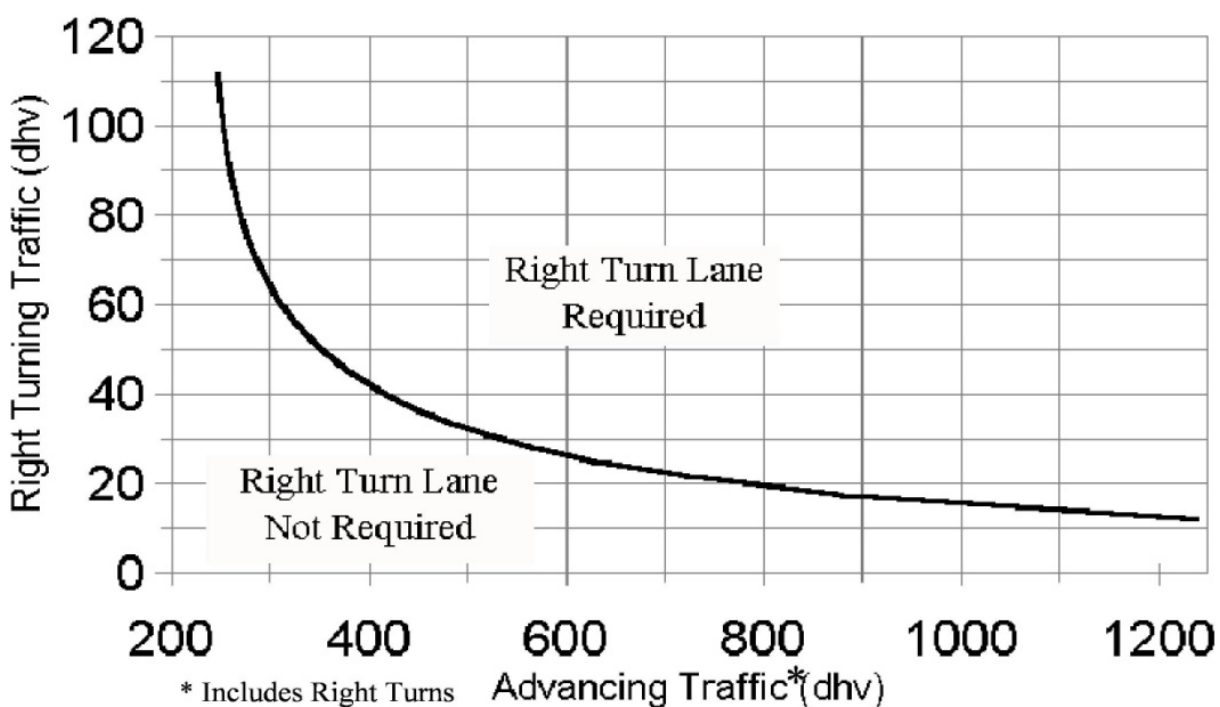
Posted speed: \_\_\_\_\_

Traffic Volumes:  Based on Turning Movement Count, Date: \_\_\_\_\_

Based on Certified Traffic Projections, Year: \_\_\_\_\_

Other \_\_\_\_\_

## 2-Lane Highway Right Turn Lane Warrant > 40 mph or 70 kph Posted Speed



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol

### 4-Lane Highway Right Turn Lane Warrant ( =< 40 MPH)

Project: \_\_\_\_\_

Project No: \_\_\_\_\_ PID: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared for: \_\_\_\_\_ Calculated by: \_\_\_\_\_ Checked by: \_\_\_\_\_

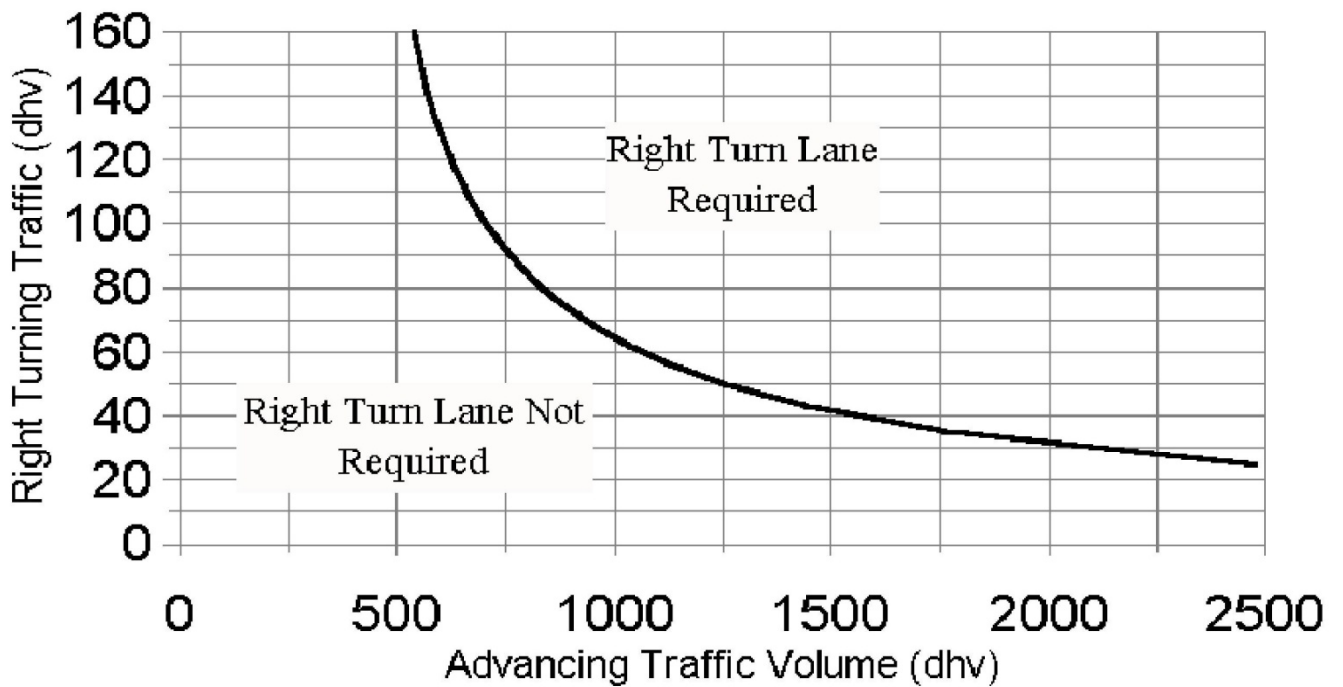
Posted speed: \_\_\_\_\_

Traffic Volumes:  Based on Turning Movement Count, Date: \_\_\_\_\_

Based on Certified Traffic Projections, Year: \_\_\_\_\_

Other \_\_\_\_\_

### 4 Lane Highway Right Turn Lane Warrant (=<40 mph or 70 kph Posted Speed)



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol

### 4-Lane Highway Right Turn Lane Warrant (> 40 MPH)

Project: \_\_\_\_\_

Project No: \_\_\_\_\_ PID: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_

Prepared for: \_\_\_\_\_ Calculated by: \_\_\_\_\_ Checked by: \_\_\_\_\_

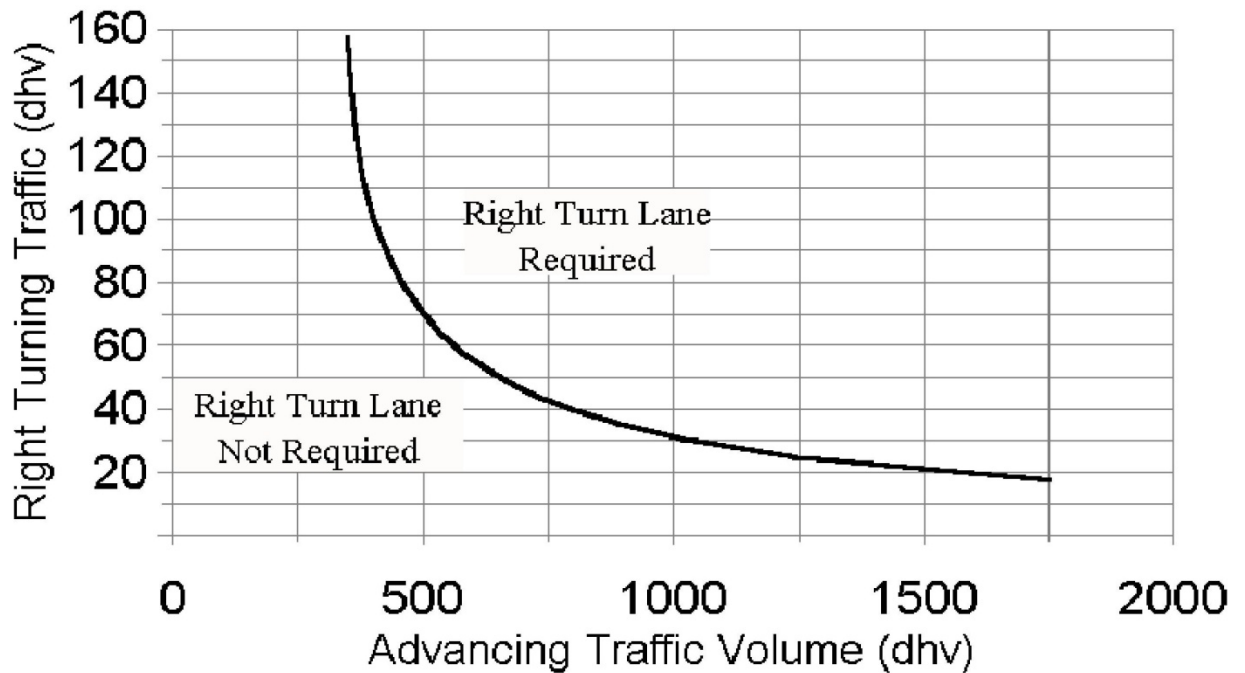
Posted speed: \_\_\_\_\_

Traffic Volumes:  Based on Turning Movement Count, Date: \_\_\_\_\_

Based on Certified Traffic Projections, Year: \_\_\_\_\_

Other \_\_\_\_\_

### 4 Lane Highway Right Turn Lane Warrant (>40 mph or 70 kph Posted Speed)



Direction	Advancing Volume	Opposing Volume	% Left Turns	Warrants (Yes or No)	Data Point Graph Symbol

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## APPENDIX D: DRIVEWAY CHANNELIZING ISLAND DESIGN

Listed below are drawings developed by the Ohio Department of Transportation to use as the standard of practice. These design aids are from the Ohio Department of Transportation's *State Highway Access Management Manual, Issued December 2001, Version 8-15-03*.

It is the responsibility of the user to check for the latest version of the *State Highway Access Management Manual* and the following documents. The current Ohio Department of Transportation website address for the manual is:

<http://www.dot.state.oh.us/Divisions/Engineering/Roadway/AccessManagement/>

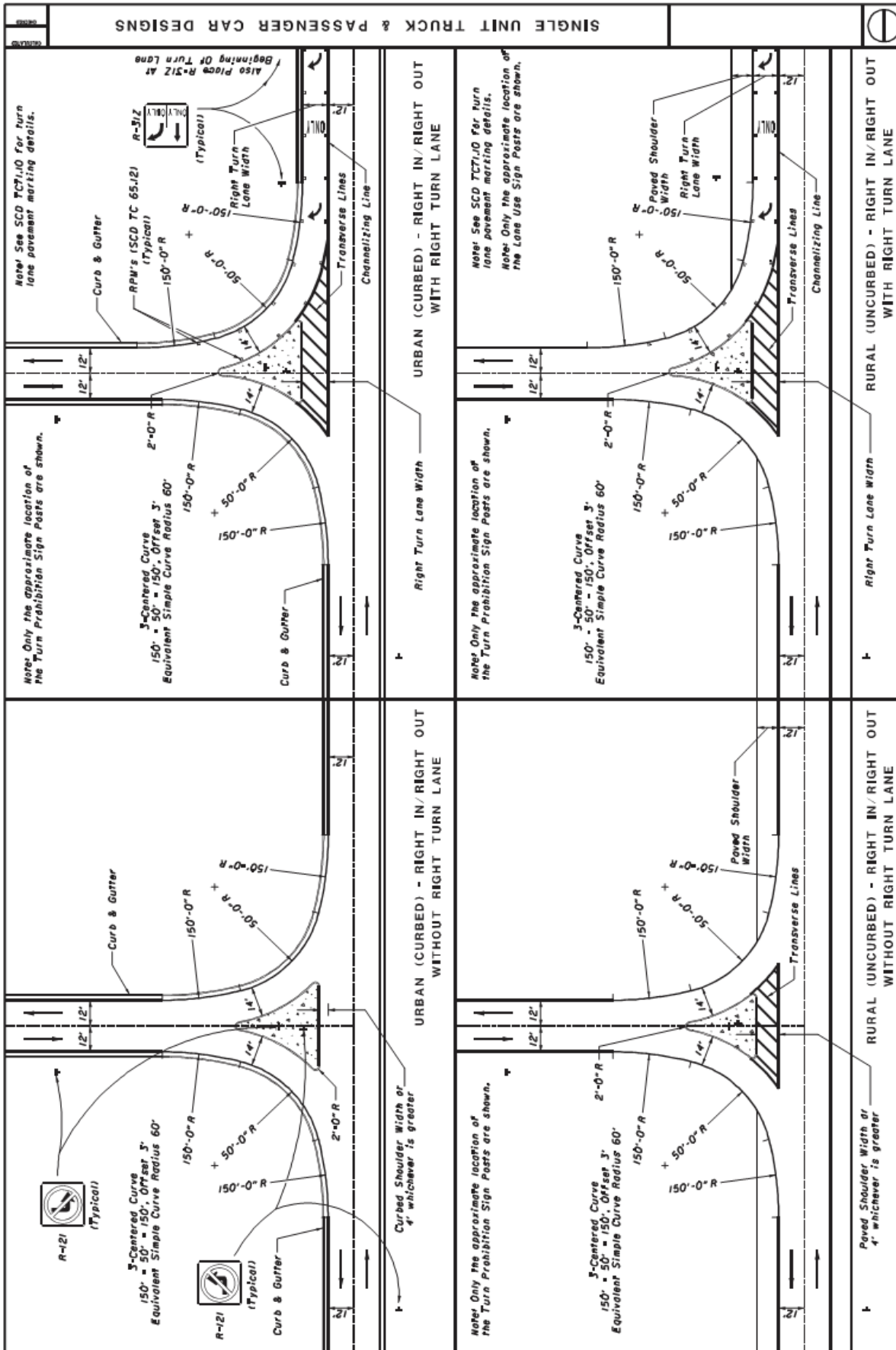
### Design Aids:

Figure 1a. Designs for Channelizing Islands – Single Unit Truck and Passenger Car Designs

Figure 1b. Designs for Channelizing Islands – Single Unit and Minimum WB-50 Truck Designs

Figure 1c. Designs for Channelizing Islands – WB-50 Truck Designs

Figure 1d. Designs for Channelizing Islands – Typical Islands with Permitted Left Turns



**Figure 1a. Designs for Channelizing Islands - Single Unit Truck and Passenger Car Designs**

Issued December 2001  
Version 3-12-03

Ohio Department of Transportation  
State Highway Access Management Manual



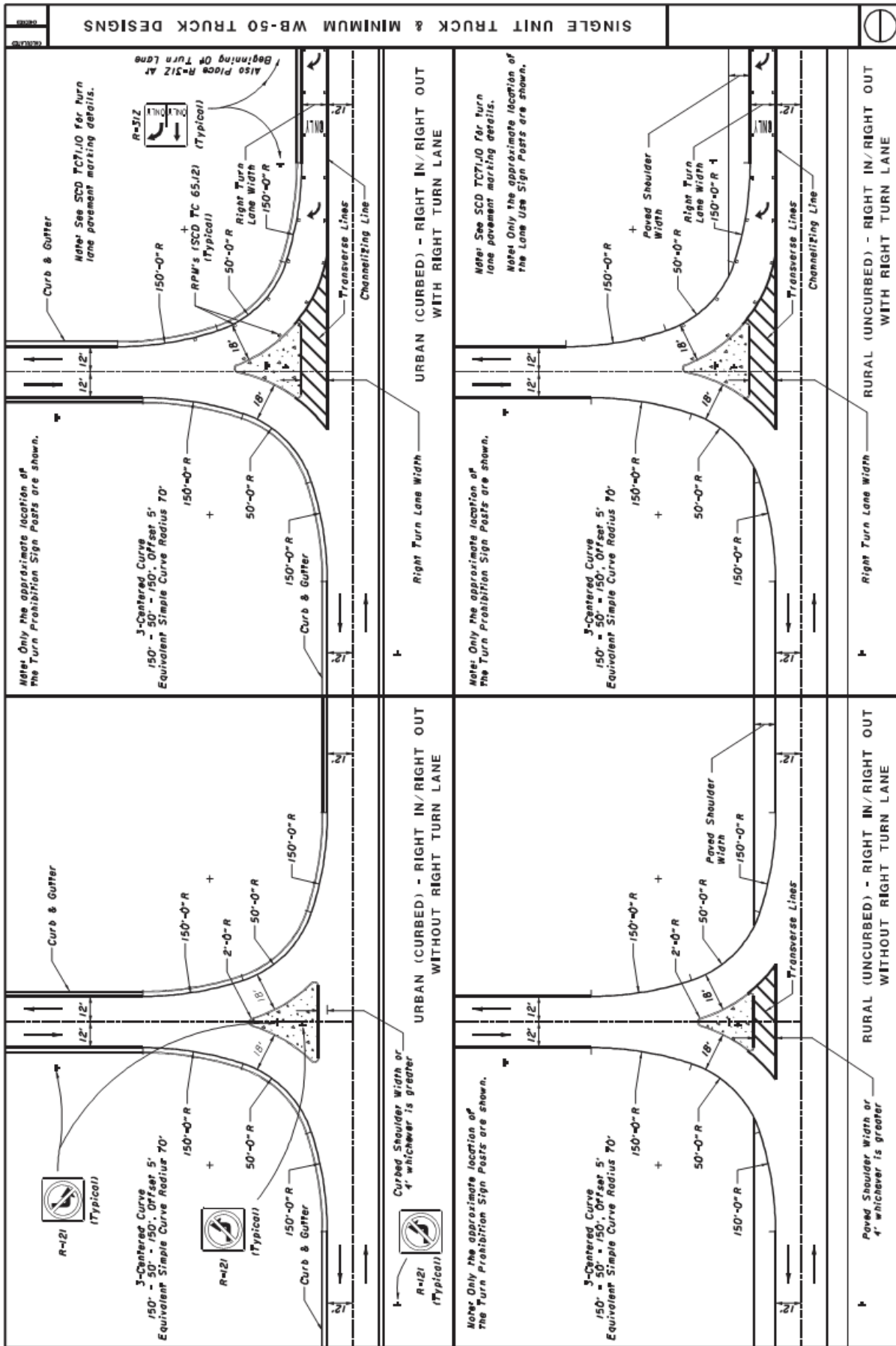


Figure 1b. Designs for Channelizing Islands - Single Unit and Minimum WB-50 Truck Designs

Issued December 2001  
 Version 2-27-03

Ohio Department of Transportation  
 State Highway Access Management Manual





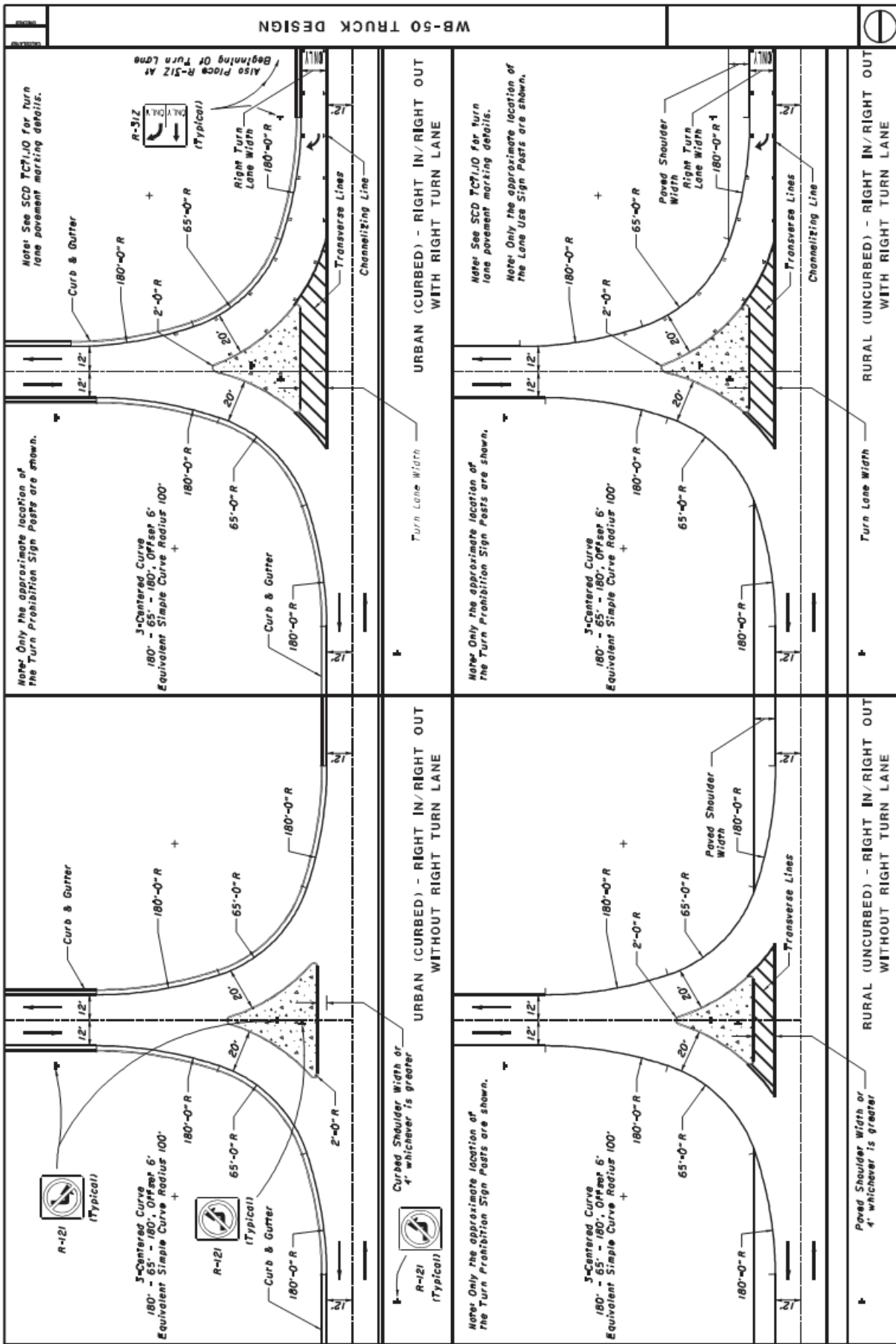


Figure 1c. Designs for Channelizing Islands - WB-50 Truck Designs

Ohio Department of Transportation  
State Highway Access Management Manual

Issued December 2001  
Version 2-27-03



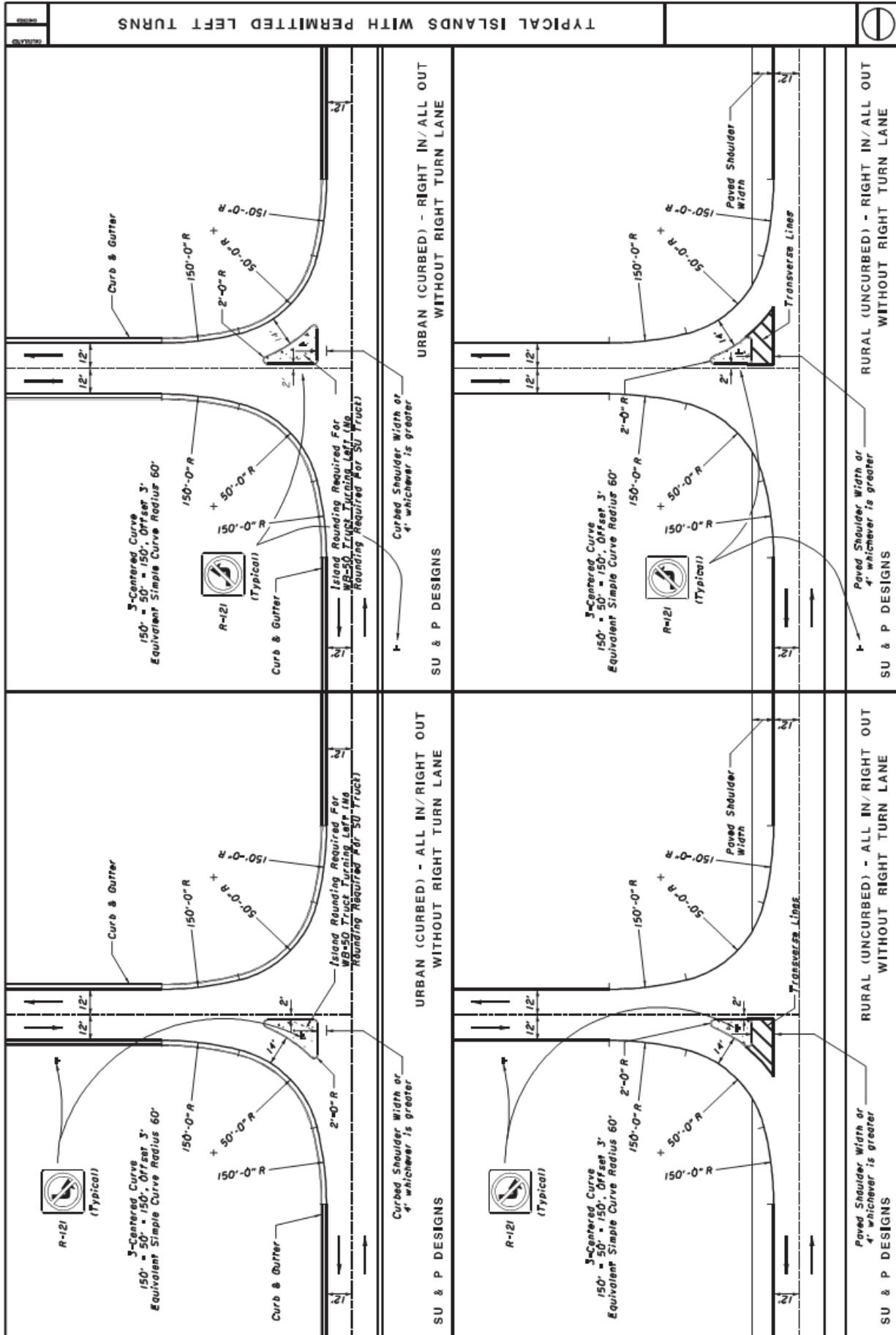


Figure 1d. Designs for Channelizing Islands - Typical Islands with Permitted Left Turns

Issued December 2001  
 Version 2-27-03

Ohio Department of Transportation  
 State Highway Access Management Manual



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# APPENDIX E: TIS MEMORANDUM OF UNDERSTANDING

LOCATION: \_\_\_\_\_

Date: \_\_\_\_\_

**NOTE: Items in [ ] are updated to project specific issues.**

The following assumptions are based on the proposed site as indicated on the [Concept Design Master Plan] dated: \_\_\_\_\_ for approximately \_\_\_\_\_ square feet of [mixed] [commercial] [residential] and [office] uses. Changes in the proposed uses from this [Master Plan] shall be documented in the Traffic Impact Study (TIS) to indicate the proper trip generation analysis was performed.

Activities of the Consultant for the developer:

- Utilize the ITE Trip Generation Manual, latest edition, Summit County Engineer Access Management Manual and HCS Software, latest edition, for the traffic impact evaluation
- Utilize the Synchro/SimTraffic Software (latest version) for the signal progression analysis for the \_\_\_\_\_ and \_\_\_\_\_ Corridor
- TIS boundaries –

- 
- 
- A Traffic Signal Justification Study will be performed at the intersection(s) of

- 
- 
- Analyze all existing and proposed traffic signals within the TIS boundaries during the a.m. and p.m. peak hours (to be determined from the traffic counts)
  - Perform traffic counts [(weekday only at this time; weekend traffic counts are not required at his time)];
    - 24-hour machine counts
      - 1.
      - 2.

- 3.
  - 4.
- Intersection turning movement counts (7-9 am, 4-6 pm, or as otherwise determined from the 24-hour counts)
    - 1.
    - 2.
    - 3.
    - 4.
- Determine trip generation (opening day for signal justification study and full build); Opening day \_\_\_\_\_ at 75% capacity
  - Determine trip distribution for newly generated traffic
  - Determine pass-by rates
  - Determine actual peak hours
  - Determine peak hour factor based on latest traffic counts
  - Intersection should meet Level of Service (LOS) ['C' or 'D'] overall, with no approach movement exceeding LOS ['D' or 'E']
  - Recommend access control/traffic control for the driveway(s) to \_\_\_\_\_
- Other issues: \_\_\_\_\_

The Summit County Engineer or the third party consultant shall approve all determinations referenced above.

Activities of the Summit County Engineer:

- Provide signal timing for existing traffic signals within the TIS
- Provide the growth factor; use \_\_\_\_\_% per year
- Provide point of contact with the City/Village/Township of \_\_\_\_\_ and ODOT if necessary
- Provide copies of the following information:
  - 
  - 
  -

Reviews of Consultant submissions, by third party review agency, may take up to two weeks after receiving submissions.

This Memorandum of Understanding is tentative, in effect for the duration of the TIS, based on the submittal and acceptance of an application for a Planned Unit Development, which substantially resembles the draft submission.

\_\_\_\_\_  
Consultant for the Developer                      Date

\_\_\_\_\_  
Summit County Engineer                              Date

\_\_\_\_\_  
(Third party reviewer)                              Date

Pc:

---

# APPENDIX F: REFERENCES AND RESOURCES

The standards and specifications applied in the Summit County Access Management Manual are based on engineering judgment and the following standards and engineering references. The citation of standard engineering reference works always refers to the latest publication or edition of the work as amended.

- a. **Highway Capacity Manual**, Transportation Research Board, Washington, D.C.
- b. **Access Management Manual**, Transportation Research Board, Washington, D.C.
- c. **State Highway Access Management Manual**, Ohio Department of Transportation.
- d. **Ohio Manual of Uniform Traffic Control Devices**, Ohio Department of Transportation.
- e. **Location & Design Manual Volume 1**, Ohio Department of Transportation
- f. **A Policy on Geometric Design of Highways and Streets**, American Association of State Highway and Transportation Officials.
- g. **Transportation Impact Analyses for Site Development**, Institute of Transportation Engineers, Washington, D.C.
- h. **Smart Transportation Guidebook**, New Jersey Department of Transportation and Pennsylvania Department of Transportation.
- i. **Connecting Communities: A Guide to Integrating Land Use and Transportation**, Akron Metropolitan Area Transportation Study, September 2010.
- j. **Policies and Procedures for Transportation Impact Studies**, Pennsylvania Department of Transportation.
- k. **Transportation Impact Analyses for Site Development**, Institute of Transportation Engineers, September 2010.

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# APPENDIX G: SAMPLE CROSS-ACCESS AGREEMENTS

THIS AGREEMENT is made and entered into on this *(date)* by *(owner's name)*, a corporation authorized to transact business in the State of Ohio ("OWNER") and the County of Summit, a Charter County organized under the laws of the State of Ohio "COUNTY".

## RECITALS

1. OWNER owns certain real property ("Parcel A") located *(legal description of property)*.
2. As a part of its land use approvals from the COUNTY, the OWNER has been requested by COUNTY to provide cross access to adjacent properties ("Parcel B" and "Parcel C") located *(location of abutting properties)*, subject to the terms and conditions set forth below.
3. The COUNTY has a health, safety and welfare interest in providing for the cross access easement.
4. The OWNER acknowledges the COUNTY's health, safety and welfare interest and agrees to provide said cross access subject to the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the obligations contained herein, and in good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the OWNER and the COUNTY hereby agree as follows:

Section 1. Grant of Easement in Escrow. Subject to the terms set forth in this agreement, the OWNER hereby grants a cross access easement to the COUNTY to be held in escrow for the benefit of the owner of Parcel B. The cross access easement is described in *(Exhibit #)* attached to and incorporated in this Agreement. Said cross access easement shall be freely assignable to Parcel B's owner; provided, however, that the COUNTY shall not assign said easement until the Owner of Parcel B applies for or is issued any of the following land development approvals as defined in the County Code.

- (1) Site plan approval;
- (2) Special land use permit;
- (3) Rezoning;
- (4) Subdivision plat approval;
- (5) Land division approval;
- (6) Variance;
- (7) Building permit;
- (9) Driveway permit; or
- (10) Paving and/or drainage permit.

Likewise, the OWNER hereby grants a cross access easement to the COUNTY to be held in escrow for the benefit of the owner of Parcel C. This cross access easement area shall be of a size similar to that of the one granted for use by the Owner of Parcel B and said location shall be later determined by the COUNTY and OWNER. Said cross access easement shall be freely assignable to Parcel C's owner; provided, however, that the COUNTY shall not assign said easement until the Owner of Parcel C applies for or is issued any of the following land development approvals as defined in the County Code.

- (1) Site plan approval;

- (2) Special land use permit;
- (3) Rezoning;
- (4) Subdivision plat approval;
- (5) Land division approval;
- (6) Variance;
- (7) Building permit;
- (9) Driveway permit; or
- (10) Paving and/or drainage permit.

Notwithstanding anything to the contrary contained herein, however, the COUNTY shall not assign a cross access easement to either Owner unless the land use proposed for that Owner's parcel is consistent and compatible with the land use on the OWNER's property.

Section 2. Conditions of the Use of the Cross Easement Agreement. The use of two cross access easements to be granted to the COUNTY and held in escrow pursuant to Section 2 hereof is subject to the following terms and conditions:

- (1) The owner of Parcel B shall equally share with OWNER in the maintenance and repair of the cross access easement area as designated in the attached (*Exhibit #*);
- (2) The owner of Parcel C shall equally share with OWNER in the maintenance and repair of the cross access easement area to be designated by COUNTY and OWNER;
- (3) Tractor trailer vehicles shall not use the cross access easement for access to or from Parcels B or C;
- (4) The owners of Parcels B and C shall not use the cross access easement in any manner which would result in congestion within the cross access easements or the blocking of the cross access easement or driving aisles of Parcel A; and
- (5) The cross access easements shall be subject to the consent of the mortgage(s), if any, of the OWNER and the owners of Parcels B and C.

Section 3. Delegation to COUNTY Transportation Engineer. The parties agree that the COUNTY ENGINEER, upon notice to all involved parties, has the power and authority to adjust the conditions set forth in this agreement in order to preserve the integrity, character, and safety of the (*type of land use on OWNER's property*).

Section 4. Covenant Running with the Land. All rights and obligations arising or described hereunder are intended to be appurtenances and covenants running with the title of the OWNER's property and shall be binding upon and inure to the benefit of the parties and their respective successors in title.

Section 5. Dedication. Nothing contained herein shall constitute a grant of any rights to the general public.

Section 6. Governing Law and Venue. The laws of the State of Ohio shall govern this agreement. Any legal action instituted herein shall be brought in Summit County, Ohio.

Section 7. Modification or Termination. The terms and provisions of this Agreement may be modified, supplemented or terminated only by a written instrument executed by the OWNER and COUNTY, their successors or assigns.

Section 8. Recording. This Agreement shall be recorded by the OWNER at its sole expense in the public records of Summit County, Ohio.



Section 9. Obligation of the COUNTY. The COUNTY agrees that it will condition the issuance of any of the permits listed in Section 1, above, to the owner of Parcel B or Parcel C upon the condition that said owner(s) enter into the Cross Access Easement Agreement.

Section 10. No Easement Rights or Other Rights. Notwithstanding anything to the contrary herein, the owners of Parcel B and Parcel C shall have no rights to, on, in or over the Easement Area until the Cross Access Easement Agreement is agreed upon between the parties, executed by the appropriate entities and recorded in the public records of Summit County, Ohio.

Section 11. Severability. If any term, provision, clause, sentence or other portion of this Agreement shall become or be determined to be illegal, null or void for any reason, or shall be held by any court of competent jurisdiction to be so, the remaining portions thereof shall remain in full force and effect.

Section 12. Entire Agreement. This Agreement constitutes the entire agreement between the parties and supersedes any previous discussions, understandings, and agreements.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on the date first stated above.

## Mutual Access Easement Agreement

By and Between:

\_\_\_\_\_, Inc.,  
Summit County,  
&  
\_\_\_\_\_

This agreement is made and entered into this \_\_\_\_ day of \_\_\_\_\_ 20\_\_ by and between \_\_\_\_\_ Development Company, Inc., henceforth referred to as DEVELOPER ; \_\_\_\_\_, henceforth referred to as 2<sup>ND</sup> PARTY; and the County of Summit, henceforth referred to as the COUNTY.

WHEREAS, DEVELOPER is the current owner and interest holder of the property legally described as *(insert legal description)*, henceforth referred to as "Parcel A"; and

WHEREAS, the COUNTY holds in escrow a cross access easement on the property legally described as *(insert legal description)*, henceforth referred to as "Parcel B"; and

WHEREAS, said 2<sup>ND</sup> PARTY is the owner and interest holder of the property legally described as *(insert legal description)*, henceforth referred to as "Parcel C"; and

WHEREAS, Chapter 21 of the 1990 The COUNTY Zoning Ordinance, as amended, entitled "Arterial Access Management Regulations" mandates, where possible, the establishment of shared driveways, parking lot connections, and other cross access arrangements for properties along major roadways; and

WHEREAS, it has been required by the COUNTY Planning Commission, in approving the site plan for the \_\_\_\_\_ *(name of development)* that it is necessary to establish a means of cross access between Parcel A, Parcel B, and Parcel C, in order to facilitate efficient traffic operations and improve public safety along regional arterial roadways; now

THEREFORE, in consideration of the foregoing and the terms and conditions contained herein, the above named parties agree as follows:

1. Access Easement

- a. An easement shall be created which shall allow the above named parties and the general public vehicular and pedestrian access across Parcel A, Parcel B, and Parcel C. Said easement being illustrated on the attached Exhibit A, and legally described as follows:

*(insert legal description)*

- b. No physical barrier including, but not limited to, curbs, structures, buildings, signs, parking spaces, and product displays shall be placed across the easement in such a manner as to block access across and/or between Parcel A, Parcel B, and/or Parcel C.

- c. Details pertaining to the placement of the access drive within the easement shall be illustrated on the final site plans for any future developments on Parcel A, Parcel B, and/or Parcel C, or any portions thereof. Said plans shall be submitted to the COUNTY Engineer for review and approval.
  - d. Properties located adjacent to the easement shall be permitted to connect their parking areas, aisleways, driveways, etc. to the access drive within the easement. The easement and corresponding access drive shall be open for use by the general public.
  - e. The easement shall be permanently recorded with the Summit County Recorder.
2. The owners of Parcel A, Parcel B, and Parcel C hereby covenant and agree that this agreement shall be binding and shall inure to the benefit of the parties hereto, their successors, assigns, tenants, and subtenants, and that the covenants herein contained shall be deemed to be covenants running with the land.
  3. DEVELOPER shall be responsible for the payment of any and all costs and expenses incurred and arising out of any use of the easement for any of the purposes described and set forth in this agreement including, but not limited to, any cost and expenses incurred in the maintenance and repair of the pavement within that portion of the easement area located on Parcel A. 2<sup>ND</sup> PARTY shall be responsible for the payment of any and all costs and expenses incurred and arising out of any use of the easement for any of the purposes described and set forth in this agreement including, but not limited to, any cost and expenses incurred in the maintenance and repair of the pavement within that portion of the easement area located on Parcel C.
  4. DEVELOPER and 2<sup>ND</sup> PARTY shall be responsible for the payment of any and all costs and expenses incurred and arising out of the initial construction of the access drive within that portion of the easement area located on Parcel B. DEVELOPER and 2<sup>ND</sup> PARTY shall each pay one-half (1/2) of the costs and expenses of construction of said access drive. DEVELOPER shall construct said access drive within the easement area on Parcel B up to the western property line of said parcel concurrent with the construction of the \_\_\_\_\_ (*name of development*). 2<sup>ND</sup> PARTY shall reimburse DEVELOPER for its portion of the costs of construction upon completion of said access drive on Parcel B.
  5. Each party shall separately operate the easement area located on their respective parcels and shall maintain the same in good condition and repair at their own cost and expense so long as such easement area shall exist.

IN WITNESS WHEREOF, \_\_\_\_\_ and \_\_\_\_\_ the \_\_\_\_\_ and \_\_\_\_\_, respectively, of \_\_\_\_\_, Inc. have hereunto set their hands on the date affixed hereto.

Witnessed by: \_\_\_\_\_, Inc.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Its:

\_\_\_\_\_ Date

Date

Its:

STATE OF )ss  
  )ss

COUNTY OF )ss

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ before me personally  
appeared \_\_\_\_\_ and \_\_\_\_\_ the \_\_\_\_\_, and \_\_\_\_\_,  
respectively, of \_\_\_\_\_, Inc. to me known as the persons who executed the foregoing instrument and  
acknowledged the same to be their own free act and deed.

Notary Public, \_\_\_\_\_ County,  
Acting in \_\_\_\_\_ County,  
My Commission Expires:

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# APPENDIX H: TRANSPORTATION IMPACT QUESTIONNAIRE

The Transportation Impact Questionnaire included on the next page is a sample document and may not be the most current version. The user should verify with the Summit County Engineer that this document is acceptable for their project and that it is the most current version of the form available for use.