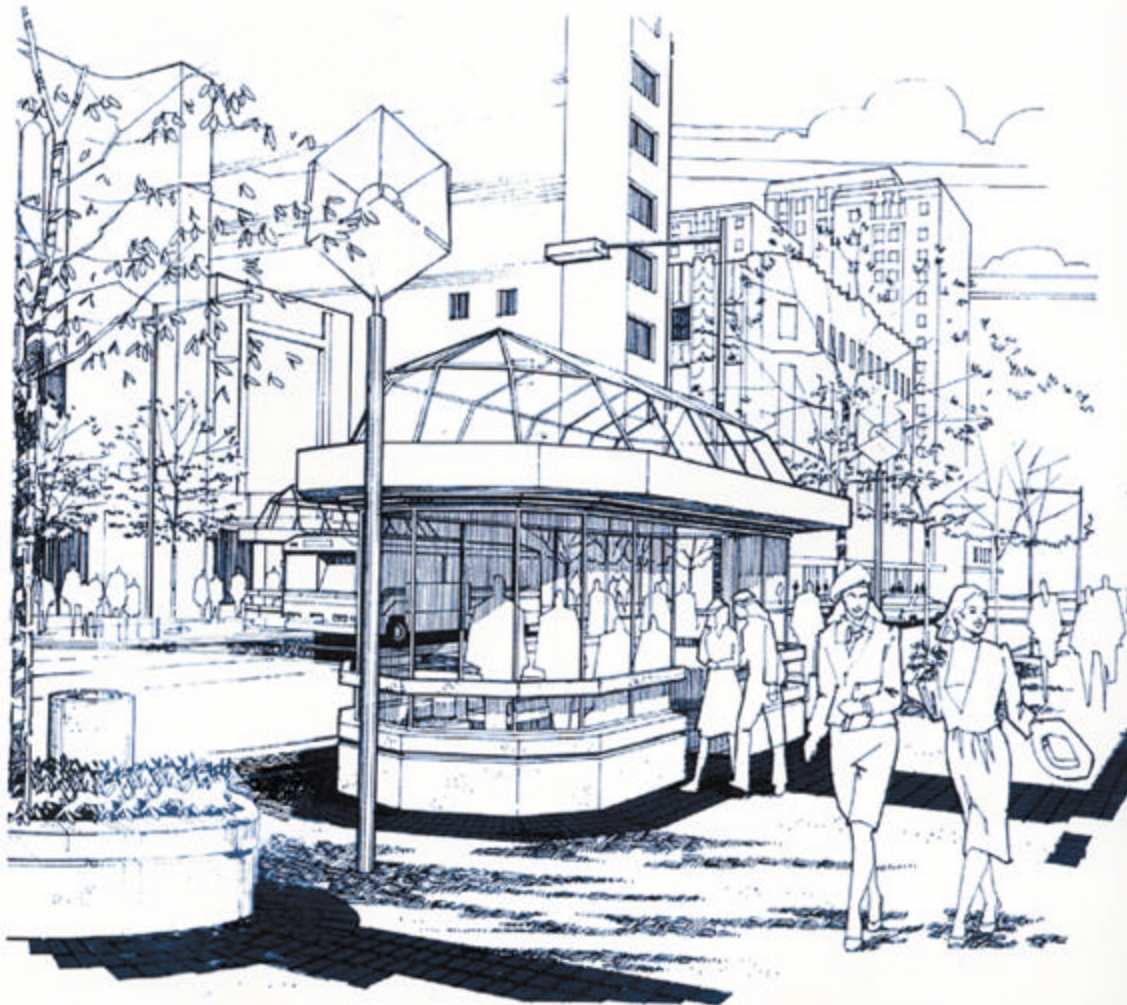


Transportation Access to Development:

A GUIDE FOR LOCAL OFFICIALS AND DEVELOPERS



AKRON METROPOLITAN AREA TRANSPORTATION STUDY

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Technical Memorandum

TRANSPORTATION ACCESS TO DEVELOPMENT
A Guide for Local Officials and Developers

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This report was prepared by the Akron Metropolitan Area Transportation Study (AMATS) in cooperation with the U.S. Department of Transportation, the Ohio Department of Transportation, and the Village, City and County governments of Portage and Summit counties and Chippewa Township in Wayne County. The contents of this report reflect the views of AMATS, which is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view and policies of the Ohio and/or U.S. Department of Transportation. This report does not constitute a standard, specification or regulation.

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Chapter 1

Introduction

The relationship between land use and the transportation system is important in the metropolitan transportation planning process. The transportation system shapes land use and development patterns, which, in turn, impact the transportation system. For example, constructing a new highway or improving an existing highway may impact land use patterns and encourage new development. Similarly, new development and changing land use patterns often impact existing travel patterns, and may increase traffic congestion to unacceptable levels, thereby necessitating improvements to the existing transportation system.

A great deal of new commercial, residential, and industrial development has occurred in the AMATS area in recent years. From a transportation planning standpoint, there are two common problems associated with new developments:

- 1) Many are planned in a manner that does not take other modes of transportation into account. As a result, nearly all trips destined for the development are forced to use the automobile.
- 2) Many are designed in such a way that traffic flow on the adjoining arterial roadway is severely impeded.

The purpose of this Guide is to address these problems by reporting on strategies that encourage development patterns that are more pedestrian, bicycle, and transit-friendly, and that maintain traffic flow on adjoining roadways through access management techniques.

Transportation Access to Development is divided into four chapters. Chapter 2 discusses several strategies geared toward making new developments more pedestrian, bicycle, and transit-friendly. Chapter 3 discusses the ways in which access management can improve safety and operating conditions along a highway, while preserving adequate access to adjacent development. Chapter 4 contains a summary.

Chapter 2

Pedestrian, Bicycle, and Transit-Friendly Design Options

AMATS has updated the regional transportation goals and objectives for the Akron Metropolitan Area as part of the process to develop a 2025 Regional Transportation Plan. Several of these goals and objectives contain elements which are related to improving pedestrian, bicycle, and transit access to development. These include:

- Goal #2: The transportation system should encourage desirable settlement patterns.
- Goal #4: The transportation system should minimize adverse environmental impacts.
- Goal #5: The transportation system should provide adequate mobility for all persons.
- Goal #8: The transportation system should function in a fully-integrated manner.

Achieving these goals, however, can be difficult, because many modern developments are designed primarily to accommodate the automobile. Little attention is normally given to encouraging pedestrian, bicycle, or transit access, and in many cases, existing regulatory and financing systems do not fully consider alternative transportation modes in the design process. As a result, builders typically decide to develop land according to what the existing system encourages. Although many local officials and developers may be interested in improving access for non-automobile modes of transportation, they often lack the regulatory and financial incentives to do so.

The key principle of pedestrian, bicycle, and transit-friendly design is to provide compact, mixed-use developments that are connected by a safe, convenient, and attractive network of streets, sidewalks, and paths. This type of design promotes:

- Walking, cycling, and public transit as viable, attractive alternatives to driving.
- Less traffic congestion and air pollution.
- The convenience, density, and variety of uses necessary to support public transit.
- A variety of alternative routes.
- Lower traffic speeds, making neighborhoods safer for pedestrians and cyclists.

Several strategies can be used to make the transportation system more responsive to the needs of pedestrians, cyclists, and transit riders. The following strategies will be discussed in this chapter: 1) multi-modal streets; 2) pedestrian-friendly streetscapes; 3) transit, bicycle, and pedestrian connectivity; and 4) transit-supportive development.

1) Multi-Modal Streets

In order to make developments more attractive to non-automobile modes of transportation, a range of transportation options should be available for people to get to where they need to go, and a basic infrastructure must be in place for people to take

advantage of these options. Because public streets touch nearly every parcel of private land, they are the ideal location for improving pedestrian, bicycle, and transit accessibility. Streets designed with a variety of users in mind will encourage non-automobile travel. Without a safe and comfortable street environment for all users, people will continue to rely on the automobile for nearly every trip.

In recent years, street planners have traditionally followed standards that focus on drivers at the expense of pedestrians and cyclists. This has made many streets unappealing for those who might potentially choose non-motorized modes of transportation. Specific design code items which interfere with the goal of a multi-modal street system include: 1) a lack of sidewalk requirements; 2) excessive speed limits; 3) a lack of coordinated bicycle routes; 4) poor pedestrian crossings; and 5) poor street connectivity.

Communities should review their street design standards to ensure that they include multi-modal street concepts. In many cases, existing streets and neighborhoods, especially in older, developed areas, are already well-designed for alternate modes. A multi-modal street system in newly developing areas ensures the safety and quality of the street environment for all users.

A variety of tools can be used to encourage street usage by pedestrians and cyclists. Local development codes should be reevaluated and consideration should be given to incorporating the following: 1) street connectivity; 2) lower speed limits; and 3) designated pedestrian and bicycle networks.

2) Pedestrian-Friendly Streetscapes

In the days before widespread automobile usage, commercial buildings were typically oriented toward the sidewalk. This gave merchants maximum visibility to pedestrians passing by. Recent development trends toward auto-oriented strip shopping centers and "big box" retailers, however, have shifted the focus to attracting the attention of drivers traveling along busy arterial streets. As a result, the current configuration of many commercial areas makes them unattractive to pedestrians, both in terms of safety and convenience.

Buildings in most commercial areas today are set far back from the street, separated by large parking lots directly in front of the buildings. This concept of commercial design is not confined to suburban locations alone. Many neighborhood shopping districts have begun to copy these design features by eliminating on-street parking, building large parking lots, increasing setbacks, and reorienting buildings away from the street.

While it is difficult to retrofit auto-oriented shopping centers in order to make them more attractive to pedestrians, streetscape improvements can be made relatively easily in most older, neighborhood-oriented shopping districts. Bringing the scale of commercial street design back to a pedestrian scale encourages people in the neighborhood to walk and attracts them to these areas. This in turn, can help to improve business for the merchants

in the commercial area.

Communities should consider establishing building and design codes that allow for pedestrian-friendly neighborhood shopping districts. Some of the more effective tools for helping to make commercial streetscapes more pedestrian-friendly include providing for: 1) little or no setback from the street; 2) parking lots located in the rear; 3) continuous, connecting sidewalks with street trees, adequate lighting, and other pedestrian amenities; and 4) shared access to parking areas.

3) Transit, Bicycle, and Pedestrian Connectivity

A well-designed network of interconnected streets, sidewalks, and bicycle paths allow people to make a wide variety of trips without necessarily having to use an automobile. While most people will tend to use an automobile for longer trips, better connections make the idea of choosing an alternative mode of travel for a shorter trip more appealing.

Poor connectivity between trip origins and destinations severely restricts the likelihood that a person will walk, bike, ride the bus, or ride a passenger train. In residential areas, cul-de-sacs and other disconnected streets increase the average distance for all trips, making travel especially difficult for pedestrians. Adjacent residential neighborhoods may only be separated by a short straight-line distance, but the absence of sidewalks, footpaths, or bicycle paths, may make travel between the neighborhoods all but impossible for those traveling on foot. In commercial areas, connections between adjacent shopping centers or stores can be so poor that customers are forced to return to their cars, drive back onto the arterial street, travel for a few hundred feet to the adjacent parking lot, and park again to reach the adjacent building.

Disconnected streets impede connectivity and should be avoided when possible. Even in cases where they are permitted, planners should consider making efforts to provide non-vehicular continuity between adjacent streets by revising regulations to encourage pedestrian and bicycle paths linking adjoining neighborhoods. Requiring sidewalks on potential pedestrian routes will encourage walking by making it safer and more convenient. Shorter blocks also encourage pedestrian activity by shortening the perceived distances between destinations and by enabling people to use intersecting streets to cut through to get to where they are going.

4) Transit-Supportive Development

Transit-supportive development reinforces pedestrian and bicycle-friendly design concepts and provides people with a greater variety of transportation options. Improved transit access requires attention to the proximity and mix of land uses, continuity of sidewalks and bicycle paths, and coordination of land use and transit decisions. Developments in pedestrian-friendly areas with adequate public transit service will be more likely to attract non-automobile trips than areas which are poorly served by public transit or have few pedestrian amenities. Living or working close to transit facilities gives greater flexibility to those who drive, and is convenient for those who do not.

Many communities in urban areas are served by public transit in some manner. However, the existence of a bus route or a passenger rail line does not necessarily mean that transit-supportive development will occur. The attractiveness of using public transit is reduced if local zoning and building codes do not allow for higher-density development along transit lines. Low density development means that the average person will tend to have a more difficult time conveniently accessing public transit.

One way of encouraging transit ridership is to rezone areas along major transit corridors so that densities are required to be higher than those in surrounding areas located away from the corridor, and to permit a mix of land uses. This allows more intense development to occur, and also helps to ensure that the money invested in providing public transit service in the corridor is being used to benefit a greater number of potential riders.

Transit considerations should be discussed as part of the site plan review process, and should be integrated into local site plan review requirements. Building and design codes along transit corridors should be evaluated to ensure that they provide an environment that encourages pedestrian activity and the possibility of park-and-ride transit access. To this end, the following transit-supportive concepts should be considered:

- Sidewalk and street connectivity should be maintained.
- Where possible, parking facilities should be located along the side, or in the rear of buildings.
- Bus stops should be located within walking distance of major destinations and should be accessible via sidewalks or other safe pedestrian paths.
- Bus shelters, bus pull-offs, and other transit amenities should be considered in developing commercial and industrial areas that are located along an existing bus route.

Chapter 3

Access Management

Access management involves the planning, design and implementation of land use and transportation strategies that balance the need to provide efficient, safe and timely travel along an arterial corridor, with the ability to allow access to individual parcels of land.

As mentioned in Chapter 2, AMATS has updated the regional transportation goals and objectives for the Akron Metropolitan Area, in preparation for the 2025 Regional Transportation Plan. Goal #2 specifically addresses the concept of access management, stating: "The transportation system should encourage desirable settlement patterns by minimizing the adverse transportation impacts of land use changes to prevent the growth or creation of congestion. Local communities are encouraged to include access management concepts in their zoning and subdivision regulations."

Access management is an efficient way of dealing with the problems associated with traffic congestion and safety caused by motorists turning at driveways and intersections. Congestion and the threat of accidents become even greater as the number of driveways and intersections increase and the distance between them decreases.

Proper access management provides necessary land access, while preserving the safety, capacity, and speed of traffic on the roadway. This is accomplished by managing the number and spacing of driveways, traffic signals, medians, and intersections. Areas which have adequate access management guidelines are also likely to be safer, more convenient, and more attractive to pedestrians and transit riders.

A variety of regulatory tools may be used to promote access management. The majority of these tools are available at the local level through conventional applications of zoning, subdivision and traffic regulations. Access management techniques can be divided into two basic categories: 1) regulatory options; and 2) transportation design options.

1) Regulatory Options

Zoning

It is difficult to control access without the support of specific zoning regulations. The establishment of corridor overlay zones, which add special requirements onto an existing zoning district, typically along arterials in developing commercial areas, is a common way to manage access. Overlay zones help reduce the pressures of congestion, and accommodate desired access on specific routes, by minimizing curb cuts and encouraging shared and internal access (see Figure 1). Without limits on the number of curb cuts along the arterial roadway, each new subdivided property is entitled to one access point. This greatly hampers the smooth flow of traffic along the roadway, compromising traffic safety and efficiency.

Overlay requirements can also address other access-related issues, such as joint access, parking lot cross access, reverse frontage, minimum lot frontage, driveway spacing, and

limitations on new driveways or subdivisions. Several of these issues will be covered in greater detail in Section 2, which discusses transportation design options.

Access management in arterial corridors located in unincorporated areas can be difficult, due to the fact that townships have limited legal authority to control access to highways through zoning. In townships, it may be useful to develop corridor-level access management plans through coordination between the township, the county, and ODOT (if a state highway is involved.) The establishment of Planned Development Districts (PDD) through cooperation between township and county officials can also be used to improve access management along arterial corridors.

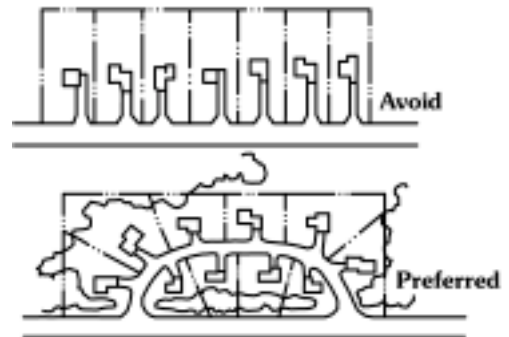


Figure 1: Minimizing curb cuts along an arterial roadway

Subdivision Regulations and Site Plan Review

The subdivision of land into individual parcels and lots can result in a wide variety of lot types (see Figure 2). Subdivision regulations ensure the orderly division of land into individual blocks, parcels, and lots, and play a major role in determining the level of access management along a roadway, by providing an opportunity to assure proper access and street layout in relation to the size and number of parcels of developed land. The site plan review process allows planning and engineering staff members to advise developers on access standards and plat preparation before potential problems occur. Subdivision regulations and site plan reviews should ensure that:

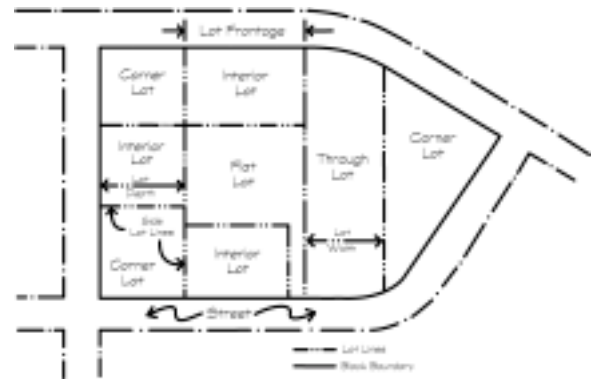


Figure 2: A wide variety of lot types can result from subdivision

- The roadway system as a whole can meet the projected traffic demand.
- The distances between driveways and intersections will be adequate to maintain the desired level of access and safety.
- Housing units front on residential access streets rather than major roadways.
- Adequate space for on-site vehicular circulation is allowed, so as not to degrade the level of service for both pedestrians and automobiles traveling along the primary roadway.

2) Transportation Design Options

Various transportation design options can be employed to better manage access along developing arterial corridors. The following design options will be discussed in this section: 1) frontage roads; 2) reverse frontage; 3) medians; 4) driveway spacing, location, and design requirements; 5) joint and cross access; and 6) retrofitting nonconforming access.

Frontage Roads

If not carefully planned, frontage roads can create operational problems at high volume intersections. Close connection to major intersections can result in severe congestion, long delays, and high accident rates. However, when designed properly, frontage roads can improve the level of service along high-speed arterials by eliminating driveway connections. The following guidelines are useful in designing frontage roads:

- One-way frontage roads generate fewer vehicular conflicts than two-way frontage roads.
- Left turns into and out of a frontage road should be restricted to help reduce conflicts.
- Adequate separation between the frontage road and the arterial should be maintained for pedestrian accommodation.

Reverse Frontage

Reverse frontage road requirements assure subdivision lots along arterials have access to a local road. These requirements ensure a safe transition between a residential lot and the arterial. Arterial frontage becomes the rear of the property and the driveway connection is made on an internal local road (see Figure 3). These requirements manage access by minimizing the number of access points along the arterial roadway. Landscaping, berms, or other barriers are often provided at the rear of the properties to shield them from the noise, debris, and traffic on the highway.

Medians

Raised or grassy medians in the center of the road separate opposing lanes of traffic and restrict turning and crossing movements, resulting in a significant reduction in vehicular accidents. The design and location of medians can help achieve desired levels of access control and safety. Medians help to define important intersections, and also provide a safe refuge for crossing pedestrians. While medians can be an effective access management tool, median design plans should be developed with careful attention to maintaining adequate sight distance and visibility for turning and crossing vehicles.

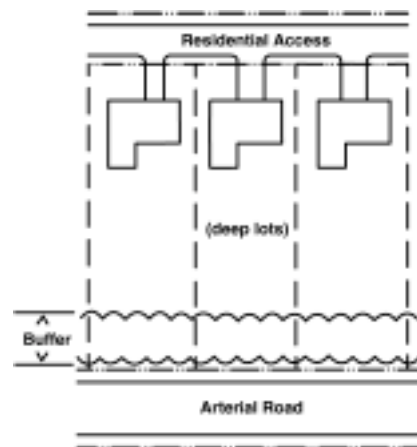


Figure 3: Reverse frontage can eliminate driveways along arterial roadways

Driveway Spacing, Location, and Design Requirements

Driveway location and design affects the ability of a motorist to enter and exit a site safely and easily. If driveways are not properly placed, existing vehicles may be unable to see oncoming motorists and may not have adequate time to react. If driveways are too narrow, vehicles will be unable to exit the roadway quickly. On the other hand, if driveway widths are excessive, rapid maneuvers onto the site pose safety hazards for pedestrians. Local officials should consider the following guidelines to ensure proper driveway access:

- A minimum distance between driveways should be required to minimize the number of curb cuts along a roadway.
- Driveway spacing requirements should be tied to the posted speed limit and the functional classification of the roadway. As the speed limit increases, so should the distance between driveways (see Table 1).
- Driveways should not be permitted within the functional area of an intersection (see Figure 4). This includes the area beyond the physical intersection that serves as a vehicle maneuvering and storage area.
- Direct driveway access to arterial roads should be discouraged unless no other access to the site can be provided.
- The appropriate width and radius of a driveway should be determined by the amount and type of traffic it serves.
- The length of a driveway should be sufficient to accommodate entering and exiting vehicles and to prevent on-site circulation difficulties and traffic backing up along the roadway.

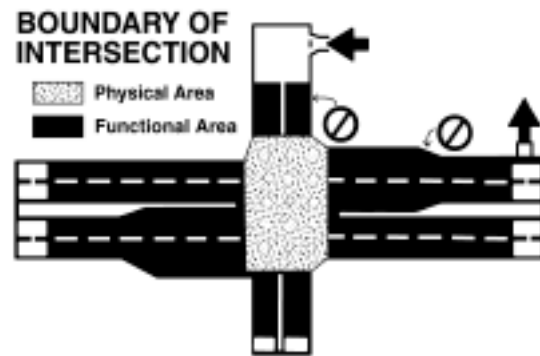


Figure 4: The functional area of an intersection

Table 1: Recommended Driveway Spacing Standards*

<u>Posted Speed</u>	<u>Minimum Distance</u>
25 m.ph.	150'/45m
30 m.p.h.	200'/60m
35 m.p.h.	250'/75m
40 m.p.h.	325'/100m
45 m.p.h.	495'/150m
50 m.p.h.	550'/170m
55 m.p.h.	605'/185m

*Source: Ohio Department of Transportation: *State Highway Access Management Manual*. Please note that these driveway spacing standards are generalized guidelines for state highways based solely on posted speed. They do not take other roadway, operational, or jurisdictional attributes into account.

Joint and Cross Access

Joint and cross access requirements connect adjacent parking areas and consolidate driveways. This allows vehicles to circulate between businesses without having to re-enter the arterial. This technique allows the same intensity of development along a corridor, while providing a greater emphasis on internal circulation, and eliminating the number of access points, thereby maintaining traffic flow along the arterial.

Retrofitting Nonconforming Access

Existing properties that do not meet new regulations often continue to exist in the same manner as they did before access management regulations were developed. However, they may have an increasingly negative impact on the roadway as additional new development occurs in the corridor, resulting in traffic congestion and safety hazards. Retrofitting can address access management problems and can help to minimize their negative impacts. Land development regulations typically include conditions or circumstances where corrections may be made to nonconforming properties. These may include the following:

- Requests for new driveway permits
- Change in property use
- Increase in land use intensity
- Substantial enlargements or improvements
- Significant changes in trip generation
- Changes in roadway design

Chapter 4

Summary

The purpose of *Transportation Access to Development* is to discuss various strategies that local officials and developers can consider to encourage development patterns which are more pedestrian, bicycle, and transit-friendly, and which improve access management along adjoining roadways. This technical memorandum is not intended to provide an exhaustive description of specific land use regulations and transportation design standards. However, it is hoped that the information presented here will serve as a useful reference to assist communities and developers in the AMATS area that wish to make development more accessible to a variety of modes of transportation, and to provide improved access management along arterial roadways.

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