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# Florida Access Management Benchmarking Study

**May 2018**

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**PREPARED FOR**
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CUTR

Center for Urban Transportation Research
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# Florida Access Management Benchmarking Study

**BDV25-977-41**

**Final Report**

Prepared for:


**Florida Department of Transportation**

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**May 2018**

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# Metric Conversion

| SYMBOL | WHEN YOU KNOW | MULTIPLY BY | TO FIND | SYMBOL |
|---|---|---|---|---|
| **LENGTH** | | | | |
| **in** | inches | 25.4 | millimeters | mm |
| **ft** | feet | 0.305 | meters | m |
| **yd** | yards | 0.914 | meters | m |
| **mi** | miles | 1.61 | kilometers | km |
| **VOLUME** | | | | |
| **fl oz** | fluid ounces | 29.57 | milliliters | mL |
| **gal** | gallons | 3.785 | liters | L |
| **$ft^3$** | cubic feet | 0.028 | cubic meters | $m^3$ |
| **$yd^3$** | cubic yards | 0.765 | cubic meters | $m^3$ |
| NOTE: volumes greater than 1000 L shall be shown in $m^3$ | | | | |
| **MASS** | | | | |
| **oz** | ounces | 28.35 | grams | g |
| **lb** | pounds | 0.454 | kilograms | kg |
| **T** | short tons (2000 lb) | 0.907 | megagrams (or "metric ton") | Mg (or "t") |
| **TEMPERATURE (exact degrees)** | | | | |
| **°F** | Fahrenheit | 5 (F-32)/9 or (F-32)/1.8 | Celsius | °C |

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16. Abstract

Florida's access management program has changed little since it was first adopted in 1988. Since that time, transportation planning and engineering practices have undergone extensive changes, and many states have enacted access management programs. This national benchmarking study examines Florida's access management program in relation to those of its peers and contemporary best practice to identify practices that may benefit Florida's access management program. The Florida Department of Transportation (FDOT) is particularly interested in exploring:

- A roadway classification system that is sensitive to land use context;
- Multimodal considerations in access management, including pedestrians, bicycles, transit, and freight movement;
- Network and corridor planning including improvements off of the main highway (off-system projects) that provide better circulation and support efficient traffic movement on the state highway;
- Access-permitting enhancements, such as continued online permit processing to include local governments;
- Strategies for improved coordination with local governments;
- Effective, systematic approaches to staff education and training; and
- Lessons learned in implementing access management programs.

Study recommendations called for simplifying the seven FDOT access classifications into three basic categories of standards with descriptions that convey planned roadway function, land use context, modal priority, and street typology. Access criteria for non-auto modes were suggested, along with block spacing as an alternative to driveway spacing for dense urban contexts. A new FDOT policy promoting local network planning was proposed to emphasize the importance of local network development and interparcel connectivity to the state highway system and statewide multimodal planning and complete streets objectives. Other suggestions included the more active use of corridor access management planning, partnering with MPOs to promote funding incentives for off-system improvements, and a process to evaluate and negotiate driveway closures during the appropriate design phase. Intergovernmental coordination strategies included active dissemination of the 2017 model regulations for local governments through various methods, and production of a new multimodal planning brochure. Possible enhancements to the new FDOT one-stop permitting site for access permits included moving toward full automation, smart phone and tablet aps, and e-notifications to local governments. A new training module on access management and complete streets (along with key talking points) was proposed, along course offerings on corridor access management planning, land development and access management (targeted to developers and local governments), and training on the newly updated model access management regulations for local governments.


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# Executive Summary

Florida's access management program has changed little since it was first adopted in 1988. Since that time, transportation planning and engineering practices have undergone extensive changes, and many states have enacted access management programs. This national benchmarking study examined Florida's access management program in relation to those of its peers and contemporary best practice to identify practices that may benefit Florida's access management program. FDOT was particularly interested in exploring the following considerations:

- A roadway classification system that is sensitive to land use context;
- Multimodal considerations in access management, including pedestrians, bicycles, transit and freight movement;
- Network and corridor planning, including improvements off of the main highway (off-system improvements) that provide better circulation and support efficient traffic movement on the state highway;
- Access-permitting enhancements, such as continued on-line permit processing to include local governments;
- Strategies for improved coordination with local governments;
- Effective, systematic approaches to staff education and training; and
- Lessons learned in implementing access management programs.

Study recommendations called for simplifying the seven FDOT access classifications into three basic categories of standards with descriptions that convey planned roadway function, land use context, modal priority, and street typology considerations. Access criteria for non-auto modes were suggested, along with block spacing as an alternative to driveway spacing for dense urban contexts.

A new FDOT policy promoting local network planning was proposed to emphasize the importance of local network development and interparcel connectivity to the state highway system and statewide multimodal planning and complete streets objectives. Other suggestions included the more active use of corridor access management planning, partnering with MPOs to promote funding incentives for off-system network improvements, and a requirement to evaluate and negotiate driveway closures during the appropriate project design phase.

Intergovernmental coordination strategies included active dissemination of the 2017 model regulations for local governments through various methods, and production of a new multimodal planning brochure advancing complete streets and access management. Possible enhancements to the new FDOT one-stop permitting site for access permits included moving toward full automation, smart phone and tablet apps, and e-notifications to local governments. A new training module on access management and complete streets (along with key talking points) was proposed, along with course offerings on corridor access management planning, land development and access management (targeted to developers and local governments), and training on the newly updated model access management regulations for local governments.

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# Chapter 1: Introduction

Florida has had much the same access management program since it was first established in 1988. Since that time, extensive changes have occurred in transportation planning and engineering practice, and many states have enacted access management plans and programs. These changes include adoption by the Florida Department of Transportation (FDOT) of a Complete Streets Implementation Plan in December of 2015 (FDOT, 2015a) that initiated a Department-wide reexamination of policies, manuals, and practices to align FDOT practice with a context-sensitive "complete streets" approach. These factors were an impetus for this study.

The goal of the study was to identify contemporary best practices and lessons learned that may benefit Florida's access management program. The study examined Florida's access management program in relation to those of its peers and several decades of state and national research as documented in the literature. The focus was on state transportation agencies that had updated or adopted access management plans in recent years, with an eye toward practices of most potential benefit to the FDOT (2015b) mission to "…provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities."

To advance this mission and the Complete Streets Policy (FDOT, 2014), FDOT is particularly interested in exploring the following considerations:

- A roadway access classification system that is sensitive to land use context;
- Multimodal considerations in access management, including pedestrians, bicycles, transit and the movement of freight;
- Network and corridor planning, including improvements off of the main highway (off-system improvements) that provide better circulation and support efficient traffic movement on the state highway;
- Access-permitting enhancements, such as continuing on-line permit processing to include local governments;
- Strategies for improved coordination with local governments;
- Effective, systematic approaches to staff education and training; and
- Lessons learned in implementing access management programs.

## Research Objectives

The goal of a benchmarking study is to evaluate agency practices in relation to best practice and identify areas for and means of performance improvement. This entails determining what improvements are called for to advance the agency's mission, analyzing how other organizations achieve performance in these areas, and using this information to help the agency improve its performance. Toward that end, the study had the following research objectives:

1) Determine what improvements in FDOT access management policy or practice may be called for in relation to FDOT's mission and national best practice;
2) Identify contemporary access management policies and practices in other states that may benefit FDOT in these improvement areas and how they were applied in practice, as well as any lessons learned; and

3) Use this information to identify potential changes to current FDOT policy or practice that may help FDOT improve its performance.

## Methodology

The research team used the following methods to identify potential improvement areas and state access management practices for consideration by FDOT:

1) A review of current FDOT policy and practice in relation to access management, including Rules 14-96 and 14-97, F.A.C., the FDOT Complete Streets Policy and Context Classifications, proceedings of FDOT statewide access management meetings with District personnel, and the One-Stop Permitting website for additional insights on potential improvements;
2) An online survey to gather information from state transportation agencies that have recently updated their policies or programs and those identified as active in access management and complete streets (see Appendix A);
3) A targeted review of relevant literature and government documents from the states identified as active in access management through the research, such as recent state access management studies, conference proceedings, webinars, state laws and regulations, and other resources pertinent to the project focus areas, including contemporary access management practices as reflected in the Transportation Research Board (TRB) Access Management Manual (Williams et al., 2014) and Access Management Application Guidelines (Dixon et al., 2016), and
4) A series of peer-to-peer exchanges organized between FDOT and key access management personnel from selected states identified through the survey and research to discuss the information obtained and glean additional insights of importance to FDOT.

A project advisory team of FDOT, local government and private sector practitioners with access management expertise and experience was also assembled to guide the study and vet research findings and recommendations. The team was convened twice during the study — first, for an interim presentation of study objectives and initial findings, to allow for timely feedback on which practices may be of most benefit to FDOT and its partners; and second, to discuss and further refine study findings and recommendations.

## Report Overview

The report organizes study findings under the following focus areas identified by FDOT as being of most interest: 1) access classification, context and complete streets; 2) network and corridor planning for access management; 3) intergovernmental coordination; 4) access-permitting enhancements; and 5) staff education and training. Current FDOT access management practices are examined first (Chapter 2), followed by practices of other state transportation agencies selected through the literature review and survey for further review (Chapter 3). The summary is limited to those access management practices that offer insight into potential improvements in these focus areas. The report concludes with specific recommendations to FDOT for future consideration in the update of its access management program based upon analysis of the findings (Chapter 4).

# Chapter 2: Review of FDOT Access Management Practices

## Access Classification, Context, and Complete Streets

FDOT's access classification system is comprised of seven categories. Categories for the non-freeway system are shown in Table 1. Access categories 3 and 4, as well as 5 and 6, differ only in terms of the presence or absence of a nontraversable median. Therefore, FDOT essentially has four basic categories of non-freeway roadways.

**Table 1: Florida DOT Access Category System and Standards**

| Access Category | Medians | Connection Spacing (feet) | | Median Opening Spacing | | Signal Spacing |
|---|---|---|---|---|---|---|
| | | >45 mph | ≤45 mph | Direct-ional | Full | |
| 2 | Restrictive w/ Service Roads | 1320 | 660 | 1320 | 2640 | 2640 |
| 3 | Restrictive | 660 | 440 | 1320 | 2640 | 2640 |
| 4 | Non-Restrictive | 660 | 440 | | | 2640 |
| 5 | Restrictive | 440 | 245 | 660 | 2640/ 1320* | 2640/ 1320* |
| 6 | Non-Restrictive | 440 | 245 | | | 1320 |
| 7 | Both Median Types | 125 | | 330 | 660 | 1320 |

*≤45 mph

- Standards in access category 2-6 vary based on speed (> 45 mph and ≤ 45 mph). To some extent, speed indirectly reflects level of urbanization with slower speeds in more urbanized contexts. However, many developed suburban roadways in Florida have speeds of 45 mph or higher.
- Directional median openings are treated as a design, rather than spacing, issue in practice. Staff indicate that they are used "where they fit" to reduce U-turns in advance of signalized intersections and in other locations to accommodate left-turn and U-turn movements.
- Signal spacing criteria are ½ mile and ¼ mile depending upon access category. Central office staff have considered eliminating signal spacing criteria in recent years for various reasons, including the desire to place greater authority over signal location with operations staff and the advent of new intersection types and intersection control evaluation (ICE) tools and procedures.

- In 1993, the FDOT Design Division adopted a highly-effective policy on medians that has helped District staff resist pressure for continuous two-way left-turn lanes, which numerous studies have associated with higher crash rates than other median treatments. The median policy calls for all new or reconstructed multilane highways to be designed with a raised or restrictive median except four-lane sections with design speeds of 40 mph or less. Facilities with design speeds of 40 mph or less are to include sections of raised or restrictive median for enhancing vehicular and pedestrian safety, improving traffic efficiency, and attainment of access management standards.
- Table 2 shows the highway access category descriptions. Notably missing from the descriptions is mention of roadway functional classification for planning purposes, non-auto modes, or land use context other than as it relates to access density and potential for land use change.

**Table 2: FDOT Access Category Descriptions**

**Access Class 2** - Roadways that are highly controlled access facilities distinguished by the ability to serve high speed and high volume traffic over long distances in a safe and efficient manner. This access class is further distinguished by a highly controlled limited number of connections, median openings, and infrequent traffic signals. Segments of the SHS having this classification usually have access restrictions supported by local ordinances and agreements with the Department, and are generally supported by existing or planned service roads.

**Access Class 3** – These roadways are controlled access facilities where direct access to abutting land is controlled to maximize the operation of the through traffic movement. The land adjacent to these roadways is generally not extensively developed and/or the probability of significant land use change exists. These roadways are distinguished by existing or planned restrictive medians.

**Access Class 4 –** These roadways are controlled access facilities where direct access to abutting land is controlled to maximize the operation of the through traffic movement. The land adjacent to these roadways is generally not extensively developed and/or the probability of significant land use change exists. These roadways are distinguished by existing or planned non-restrictive median treatments.

**Access Class 5** – These roadways are controlled access facilities where adjacent land has been extensively developed and where the probability of major land use change is not high. These roadways are distinguished by existing or planned restrictive medians.

**Access Class 6** – These roadways are controlled access facilities where adjacent land has been extensively developed, and the probability of major land use change is not high. These roadways are distinguished by existing or planned non-restrictive medians or centerlines.

**Access Class 7** – These roadways are controlled access facilities where adjacent land is generally developed to the maximum feasible intensity and roadway widening potential is limited. This classification shall be assigned only to roadway segments where there is little intent or opportunity to provide high-speed travel. This class recognizes the difficulty of providing high-speed travel, but shall not be used to compromise the public health, welfare or safety. Exceptions to access management standards in this access class may be allowed if the landowner substantially reduces the number of connections compared to existing conditions. These roadways can have either restrictive or non-restrictive medians.

- FDOT is presently exploring how best to align the access management classification system and standards with the FDOT Context Classifications shown in Figure 1, as part of the Complete Streets Implementation Plan. The current access classifications are not explicitly aligned with planned roadway function (functional classification) or land use context (other than as it relates to access density and potential for land use change) and lack any mention of non-auto modes.
- Context tables are being produced by the Systems Implementation Office as part of a new Access Management Guide. The tables relate the current FDOT access classifications and requirements for driveways and medians to land use context classification for the roadway (see Appendix B for drafts in progress).

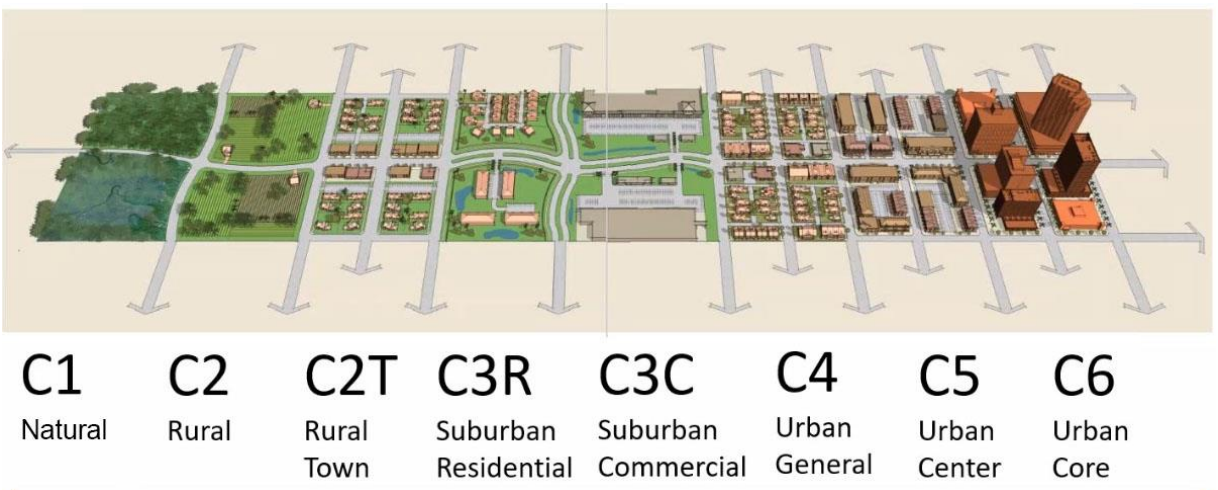


**Figure 1: FDOT context classification system for state highways.**

Source: FDOT Complete Streets Implementation website, www.fdot.gov/roadwway/csi/default.shtm

## Network and Corridor Planning for Access Management

Current FDOT policy (Rule 14-97(3)g) provides for adoption of corridor access management plans (CAMPs)as a "strategy defining site specific access management and traffic control features for a particular roadway segment, developed in coordination with the affected local government and adopted by the Department in cooperation with the affected local government(s)."

- Although the Department does not actively promote the development of corridor access management plans (CAMPs), FDOT staff work with local partners on access management upgrades during the project development and environment (PD&E) process and roadway reconstruction and rehabilitation (RRR) projects.
- FDOT encourages local network planning through training to local governments on access management and multimodal planning and the development of various guidance reports, including a model element for multimodal transportation planning that addresses access management considerations (Williams and Seggerman, 2014).
- Some local governments have initiated CAMPs or special corridor regulations for important state highways in cooperation with their FDOT District, such as along US 19 (Citrus, Hernando, Levy County) and US 98 (Okaloosa County).

## Off-System Improvements

- FDOT does not presently invest in off-system projects that support access management on the state highway system, but does routinely invest in median reconstruction projects on state highways. There are some restrictions for spending state and federal funds off-system, but funding opportunities do exist where they advance the objectives of a given funding source. The majority of new state discretionary and capacity funding (approximately 75%) is dedicated to improving the Strategic Intermodal System — Florida's designated high priority network of transportation facilities important to the economy and mobility.
- Off-system improvements are being undertaken in coordination with local governments and MPOs, such as constructing a service road along a state highway, connecting roads to relieve congestion on the state highway by creating a parallel reliever, or realigning a roadway that is not part of the state highway system so that it intersects at a signalized intersection. For example, Figure 2 shows a service road realignment along SR 50 undertaken by the Hernando County MPO as a capacity and rehabilitation project.


**Figure 2: Proposed service road realignment along SR 50 in Hernando County.**

Source: Hernando County, Office of Public Information Media Release, April 13, 2017

## Intergovernmental Coordination

- In the early 1990s, FDOT commissioned the development of model regulations for local governments to address widespread access management problems associated with subdivision and lot split activity along state highways (CUTR, 1994). Subsequent training resulted in adoption and implementation of access management policies and regulations throughout Florida cities and counties. Examples of local application of the strategies included the development of a system of service roads along US highway 98 (Figure 3) and improved corner clearance of shopping center access with internal outparcel access on Pine Island Road (Figure 4).

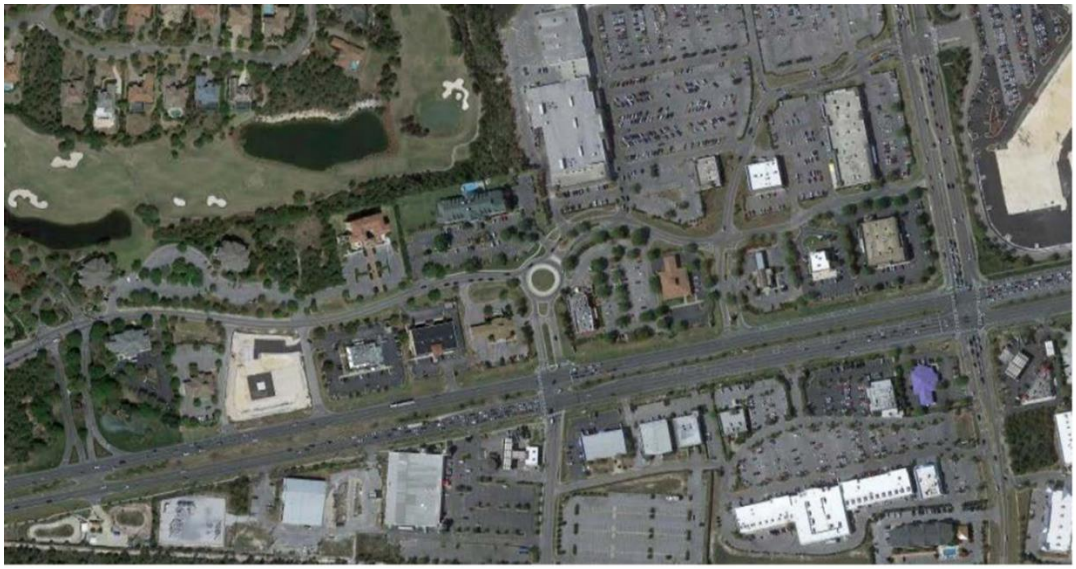

**Figure 3: Service roads in Okaloosa County along US Highway 98.**

Source: Google maps, 2017


**Figure 4: Corner clearance of shopping center access.**

Source: Google maps, 2017 (Pine Island Road, Cape Coral, FL)

- The report was expanded and updated in 2017, with significant addition of criteria relative to medians, network development and non-auto modes and a new category system that addressed roadway function, context and multimodal characteristics. Appendix C includes example local access management strategies for different land use contexts as included in the Model and also published in the TRB Access

Management Manual, 2nd ed (Williams et al., 2014). Table 3 and the descriptions that follow illustrate the changes to the access categories. The proposed access category system for Florida cities and counties is intended to mirror and reflect FDOT's category system, while simplifying the number of categories and standards for local use.

**Table 3: Example Access Category System for Florida Cities and Counties**

| Access Category | Connection Spacing (feet) | | Median Opening Spacing(1) (feet) |
|---|---|---|---|
| | >45 mph | ≤45mph | Full Movement |
| **A** | 1320 | 660 | 1320(2)/2640 |
| **B** | 660 | 440(3) | 1320(2)/2640 |
| **C** | NA | 245(3) | 660(3) |

Source: (Williams and Barber, 2017).

(1) Applies to full movement median openings where a "restrictive" (nontraversable) median is present that physically prevents vehicle crossing. Full openings could potentially be signalized in the future and spacing should be maintained for progression and signal coordination. Greater distances may be required to provide for sufficient turn lane storage. Directional median openings may be allowed at any location on the roadway where the (*city/county*) engineer determines that U-turns or left-turn movements can be safely accommodated.

(2) For roads with posted speed limits ≤45mph.

(3) Or per existing block spacing or block spacing as identified in the local comprehensive plan or an approved development plan. Densely developed areas with a block pattern that accommodates community activities, bicyclists, and pedestrians should not have posted speeds higher than 35 mph.

**Category A:** These are highly access-controlled roadways that function as principal arterials and have the greatest continuity in the thoroughfare system. Direct access to abutting land is controlled to preserve safe and efficient through traffic movement. Posted speeds are typically 45 mph or greater. They shall include existing or planned restrictive medians, but some sections may have alternating painted left-turn lanes or be undivided. This Access Category provides the greatest separation between connections and traffic signals. It applies to controlled access SIS roadways, and designated arterials in rural, less developed or suburban areas (e.g., FDOT context classification C1, C2, C3R, C3C). The street network along these roadways shall be planned to support access to development and signal locations will be carefully managed to maintain efficient traffic progression.

**Category B:** These roadways support mobility within and across urban areas and typically have somewhat less continuity and/or operate at lower speeds than Access Category A roadways. They should include existing or planned restrictive medians, but some sections may have alternating painted left-turn lanes or be undivided. Separation between connections is less than that required for Category A, but is still sufficiently controlled to create a safe environment for vehicular and non-vehicular travel modes. This Category generally applies to both arterial and collector roadways that lie outside the urban core (e.g., FDOT context classification C5, C4, C3R, C3C, C2T) or similarly developed neighborhoods.

**Category C:** These roadways support mobility in dense urban contexts and operate at lower speeds. Driveway connections may be discouraged in favor of block patterns. Control of access is the least restrictive due to lower speeds and to accommodate compact development. Access Category C generally applies to segments of the thoroughfare system within denser urban areas that often have higher levels of non-auto traffic and community activity (e.g., FDOT context classification C2T, C4, C5, C6), including segments designated as pedestrian or transit priority streets.

## Access-Permitting Enhancements

- The Department adopted a procedure on Median Openings and Access Management, Topic No.: 625-010-021-h, to promote consistent application of access management engineering and permitting practice throughout the state (FDOT, 2013). The procedure guides District staff in making median opening and access management decisions, and established District Access Management Review Committees (AMRC). Each District has an Access Management Review Committee (AMRC) comprised of upper level division managers or their designees who are responsible for reviewing access requests on state highways that deviate from adopted standards. This was identified as a best practice in the TRB Access Management Manual (Williams et al., 2014) and is a strength of the FDOT access management implementation process.
- FDOT is implementing a One-Stop Permitting website for access and other permits that includes information concerning permit applications, forms, how to submit them, and permit staff contact information. The One-Stop Permitting site can be accessed online at https://osp.fdot.gov/#/ContentPage/b58eb058-a5f8-412a-a06e-a77700da8ba7. The site allows individuals to apply for permits online through their e-Permitting system. Ultimately, the e-Permitting system will be used for all FDOT permit applications and processes, with the intention of replacing the manual process requiring applicants to complete paper Permit application forms and deliver multiple copies of documentation to a FDOT district or county office.
- An issue that sometimes arises in access permitting relates to the FDOT practice of issuing a Notice of Intent to Permit or Deny the requested access prior to issuance of the final permit. This is intended to improve state/local coordination and communication in access permitting and development review.
    - Rule 14-96 does not specify what constitutes proof of local approval of the development served by the connection. Research conducted in the 1990s (Marshall and Williams, 1998) uncovered confusion over the proper procedure for coordinating state connection permitting with local development review in relation to the Notice of Intent to Permit or Deny. At times, property owners and local governments perceived the Notice of Intent to Permit as an indication that an access was fully approved. This caused the local government to question whether they should suggest changes in development review and the applicant would also sometimes use this as leverage to obtain local development approval.
    - The notice of intent to permit includes this language (recommended additions to the statement are underlined): "This notice of intent to issue a permit does not constitute permit issuance. The permit will be issued after the permittee shows proof that a valid local government development approval or development order has been given to the sites served by the connection and demonstrates that special provisions of the approval consistent with the permit applications and conditions previously noted have been met."

## Staff Education and Training

- FDOT has an extensive and highly trained professional staff of access management planners, engineers, permit specialists, and attorneys. This includes a statewide access management unit and program manager in the Central Office, access management engineers and permit specialists in each of the seven FDOT District offices, and staff with access management expertise in the Turnpike Enterprise. The depth of understanding crosses functional divisions, as well, through the District Access Management Review Committees.
- The FDOT Systems Management Section of the Systems Implementation Office produces numerous guidance documents and has hosted statewide access management meetings periodically to provide District personnel with updates and a forum for exchange of ideas and practices. The office also provides training to educate Districts, local governments, and consultants on new techniques and research findings. Offerings include live training events around the state, regular live webinar training, recorded webinars, presentations, and self-guided training (see Systems Implementation Office Trainings & Webinars). Topics include, but are not limited to an introduction to access management concepts, safety, implementation, dumb tricks to avoid, and introductions to the median and driveway handbooks. Related topics also address, including interchange access, impact studies, and quality/level of service analysis.

# Chapter 3: Review of State Access Management Practices

This chapter synthesizes findings from the review of state transportation agency access management practices. It is based on findings from a review of state transportation agency documents, survey responses, and minutes from a series of peer-to-peer exchanges held with a subset of state transportation agencies (Colorado, Minnesota, New Jersey, Virginia) in November/December 2017 for additional details on selected topics.

## Colorado Department of Transportation

*The Colorado Department of Transportation (CDOT) adopted its access management code in 1981 and last updated it in 2002. CDOT was the first state transportation agency in the U.S. to adopt a systemwide access management code and apply it through regulation to every segment of the state highway system. The category system was revised in 1998 from five to eight levels for greater flexibility. The lower levels are applied to lower speed roadways that provide for shorter trips. Minimum spacing is based on stopping sight distance at the posted speed.*

### Access Classification, Context, and Complete Streets

- Colorado's State Highway Access Code establishes an access classification system comprised of six non-freeway categories and one frontage road category for regulating state highway access based on highway function, as shown in Table 4.
- Two broad land use contexts are applied – Rural (R) and Non-Rural (NR). The NR-C category is appropriate for areas with extensive established roadside development and street systems, such as a downtown area.
- The system does not specifically consider non-auto modes.
- The Colorado Transportation Commission adopted the Access Code for the Department, including the Access Category Assignment Schedule. Any revisions, as well as highway demolitions and relinquishments, must be approved by the Commission.

**Table 4: Colorado State Highway Access Categories**

<table>
<tr><td colspan="2">Table of access categories, with approximate descriptions</td></tr>
<tr><td colspan="2">F-W Interstate System, Freeway Facilities</td></tr>
<tr><td colspan="2">E-X Expressway, Major Bypass</td></tr>
<tr><td>Rural</td><td>Non-Rural</td></tr>
<tr><td>R-A Regional Highway</td><td>NR-A Regional Highway</td></tr>
<tr><td rowspan="2">R-B Rural Highway</td><td>NR-B Arterial</td></tr>
<tr><td>NR-C Arterial</td></tr>
<tr><td colspan="2">F-R Frontage Roads (both urban and rural)</td></tr>
</table>

Source: (State of Colorado, 2013)

- CDOT will transfer "main street" segments of state highway to local governments in exchange for a bypass alignment. This is particularly seen as appropriate where local communities grow and the majority of trips on the roadway become local traffic. As cities move toward a complete streets approach, many cities with state highways that function as a downtown main street have approached CDOT with bicycle- and pedestrian-friendly goals for that segment of roadway.
    - In Breckenridge, CDOT swapped the main street segment of road for a new bypass alignment of the state road around the town. Breckenridge used their own funds and negotiated with land owners to acquire properties for a new alignment. Breckenridge received funding for maintenance of their old state road. The project was initially developed at the staff level, moving up to the regional directors, and eventually to the Department and Commission for full adoption and transfer.
- In Colorado, decisions on signalized intersections are handled by Central Office Engineers, who work under Traffic Engineers in CDOT's hierarchy. After determining that spacing criteria requirements are met, signalized access requests are sent to Central Office Engineers to review the data provided and the overall progression analysis. Traffic Systems Management and the Operations Division currently oversee the review process. Interchange evaluation is handled by traffic engineers, under TSMOD. CDOT has five regional permit offices, who work directly with regional traffic engineers for reviewing operations.

**Network and Corridor Planning for Access Management**

- CDOT coordinates with local authorities in the development of two types of plans: Access Control Plans and Access Management Plans.
    - "Access control plan" means a roadway design plan that designates preferred access locations and their designs for the purpose of bringing those portions of roadway into conformance with their functional classification to the extent feasible. [§ 43-2-147(8)(a), C.R.S.]. An example is provided in Figure 6 and Figure 7.
    - "Access management plan" is not defined in the State Highway Access Code. These documents focus on multi-modal corridor planning and are more conceptual. This example for US50 complemented the access control plan: https://www.codot.gov/library/studies/us-50-access-control-plan/appendix-k.pdf
- State law requires Access Control Plans to achieve the optimum balance between state and local transportation planning objectives, and to preserve and support the current and future functional integrity of the highway.
- Specifically, Colorado Code states, "The access control plan shall indicate existing and future access locations and all access-related roadway access design elements, including traffic signals, that are to be modified and reconstructed, relocated, removed, added, or remain. **The plan shall not preclude the current or future accommodation of other transportation modes of bicycles, pedestrian, and transit."** (*emphasis added*)
- The Access Control Plan requires approval of both the Department and the appropriate local authority.

| Access | Milepost | Side | Access Description | Existing Configuration | Proposed Configuration and Conditions for Change* |
|---|---|---|---|---|---|
| 1 | 32.684 | South | Driveway | Un-signalized Right-in, right-out | **Close driveway** since this property has alternative access via an alley to High Street. |
| 2 | 32.692 | South | Business Access | Un-signalized Right-in, right-out | **Close access** since this property has alternative access to High Street. |
| 3 | 32.700 | North | Grand Mesa Avenue | Un-signalized Full Movement | **Add channelizing treatment to median** to eliminate left turn movement onto and off of US 50 creating a right-in, right-out access. |
| 168 | 32.701 | South | High Street | Un-signalized Full Movement | **Add channelizing treatment to median** to eliminate left turn movement onto US 50 creating a 3/4 movement intersection. |
| 4 | 32.715 | North | Business Access | Un-signalized Right-in, right-out | **Close access** since this property has alternative access to Canon Street. |
| 5 | 32.717 | South | Business Access | Un-signalized Right-in, right-out | **Close access** since this property has alternative access to High Street. |
| 6 | 32.726 | South | Business Access | Un-signalized Right-in, right-out | **Close access** since this property has alternative access to High Street. |

**Figure 5: Access control plan description by milepost.**

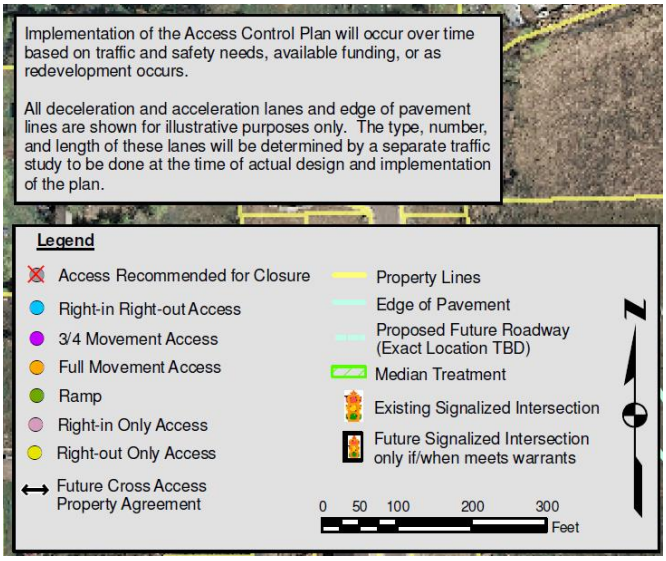


**Figure 6: Access control plan legend and supplementary language.**

Source: Colorado DOT, accessed online: [www.codot.gov/library/studies/us-50-access-control-plan](www.codot.gov/library/studies/us-50-access-control-plan)

### Off-System Improvements

- CDOT will fund certain projects off of the main highway system that support an adopted Access Control Plan (see Figure 7 for example).
- There has been a recent push by CDOT for Access Control Plans as the "best bang for your buck". The Department asked the Colorado Transportation Commission to include dedicated funding to support access control plan projects statewide several years ago, but the request was not approved. The Department may continue to ask for dedicated budget for access management and access control plans in the future, given how successful the plans have been and the major benefits compared to costs.
- CDOT staff indicated that there is a need for local governments to have "skin in the game" in developing access control plans, through hard or soft funding. The

Department cannot push local governments for an access control plan if they do not want it, and successful access control plans have only occurred when local governments have identified their access problems and reached out to the Department.

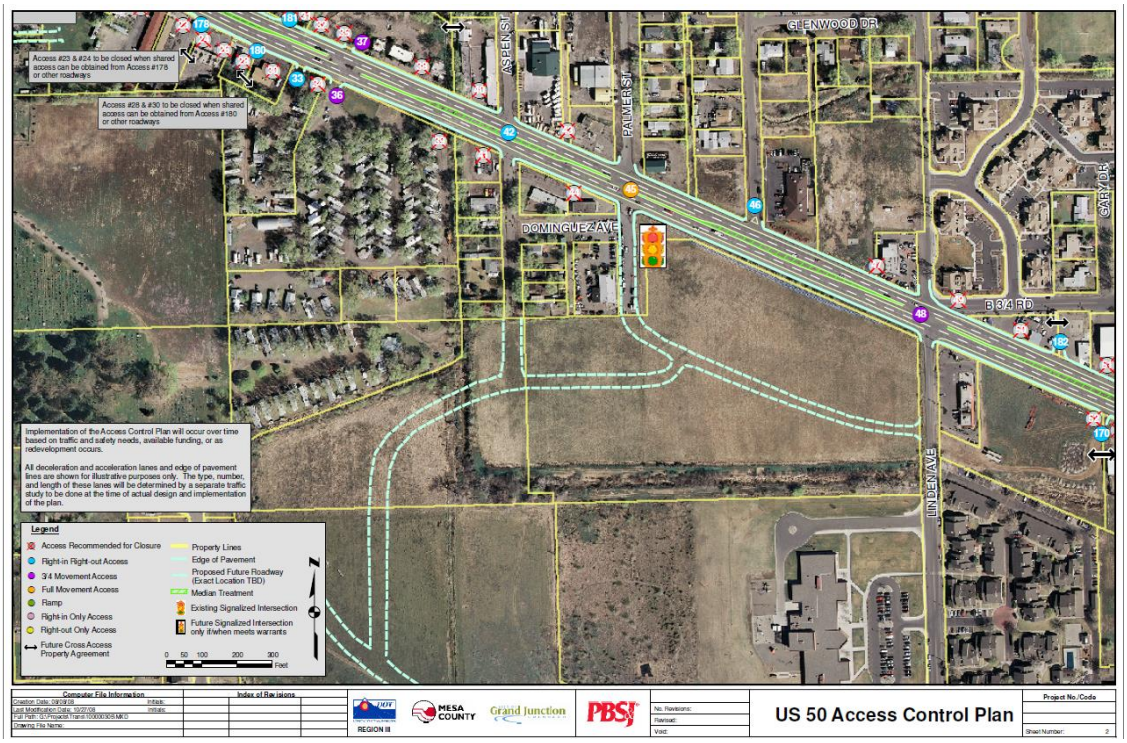


**Figure 7: Example access control plan with supporting street plan.**

- For off-system improvement funding, hazard prevention and safety improvement projects are typically funded. Regional traffic engineers prepare a schedule of safety improvement projects for local governments, and the list is used by DOT managers to work with local governments to identify what the Department can do to help. Flexibility of federal money helps provide incentives for local governments.
- Off-system improvements based on adopted corridor plans are subject to the Efficiency and Accountability Committee of CDOT, where Access Control Plans are specifically targeted.
- The Transportation Commission decided to change the name of Access Control Plans to Access Management Plans (AMPs) in response to concerns by local governments over the extent of the Department's efforts to control access. AMPs are more of a planning document, and are a high-level corridor study not nearly as detailed as an ACP. The Department avoids influencing local government corridor land use decisions.
    - The Department is working to revise the amendment process for ACPs, specifically for plans with multiple agencies involved, to make the process more clear, and resolve the challenges of coming to mutual agreement on amendments.

- Changes and revisions primarily relate to signalized intersection frequency, as frequent concerns are brought forward by developers and cities on CDOT's role in controlling development.

**Intergovernmental Coordination in State Highway Access Management**

- CDOT entered an intergovernmental agreement (IGA) for the US-50 Access Control Plan (see Appendix C). Among other things, the IGA regulated access on the named segment to comply with Colorado Highway Access Law, the Access Code, and the Agreement itself, adopted the Access Control Plan contained within the Agreement by reference, and noted that the Agreement did not create financial obligations on the part of the agencies.
- The agreement included this provision for control of lot split access:

  "5. Lots or parcels of real property created after the effective date of this Agreement that adjoin the Segment shall not be provided with direct access to the Segment unless the location, use and design thereof conform to the provisions of this Agreement."

- At the inception of the access management program, local governments frequently appealed the access classification of corridors, particularly in the 80s and early 90s. Since 2004 there have been on average around five (5) appeals per year, and half were mitigated without a formal appeal setting. Post-recession development has resulted in an uptick of appeals.

**Access-Permitting Enhancements**

- CDOT is currently perfecting a "Salesforce-based" database software that is used for all permits including access. An external web-tracking enhancement to the CDOT website allows permit applicants to track the exact status of their permit application. Streamlining the process for issuing Access Permits has reduced the number of permit application reviews and approval steps. For further information, see https://www.codot.gov/business/process-improvement/lean-case-studies/access-permitting.html
    - The long-term price of the package, as well as control and ownership of the software and data, were concerns given that users require a license to access the software. Nonetheless, many positive aspects of the new access-permitting software were identified. Access permits and requests can be reviewed in all regions by all persons involved. Permits are time-stamped upon receipt. To meet the 20-day application review requirement, managers can have the system send an email to notify managers of a pending application review deadline. This creates efficiencies for the staff. Local governments can comment on permits without a site license, and managers can generate a link to a particular record for review by a local government. The program has been used since Q1 2016 – but weekly meetings are still needed to tie up loose ends and produce a user manual for department staff.
- In 2010, CDOT pioneered a Lean Improvement Process for their access permit program in response to Governor Hickenlooper's Efficient, Effective and Elegant government commitment. CDOT formed a project team and an advisory committee, developing a vision statement, purpose statement, project objectives and scope.
    - Through a four-day workshop, the team defined the current access-permitting process and evaluated the process step-by-step, with an eye towards

processes that added value for the customer. Non-value added processes were reduced, eliminated, or combined without sacrificing compliance with program rules and regulations.

- The project team developed a new website able to track the status of every access permit application. Open workshops and office hours allowed local governments and customers to better understand the new permit processes. Sample applications, checklists, customer surveys, and reporting mechanisms were presented to ensure an easy, transparent process. The Access Permits Process Improvement Team was a 2015 Finalist for the International Team Excellence Award.

**Staff Education and Training on Access Management**

- CDOT conducts quarterly statewide staff meetings with 5 regional offices to promote uniformity and provide a forum for sharing experiences, discussing common issues, and advancing processes.
- When the opportunity arises CDOT also provides external training. The Department is looking forward to the NHI Pilot Training Project on Access Management, Location, and Design with the emphasis on the 2nd Edition of the TRB Access Management Manual (Williams et al., 2014) and companion Access Management Application Guidelines (Dixon et al., 2016).

**References**

Colorado Department of Transportation & Transportation Commission of Colorado. (March 2002). *State Highway Access Code, Volume 2, Code of Colorado Regulations 601-1.* Retrieved from https://www.codot.gov/business/permits/accesspermits/references

Colorado Department of Transportation. (November 2008). "Final United States Highway 50 Access Control Plan (West of Grand Mesa Avenue to State Highway 141A in Whitewater)."

Colorado Department of Transportation & Transportation Commission of Colorado. *(*September 13, 2013). *State Highway Access Category Assignment Schedule, Code of Colorado Regulations, 2 CCR 601-1A.* Retrieved from https://www.codot.gov/business/permits/accesspermits/references

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## Kansas Department of Transportation

*The Kansas Department of Transportation (KDOT) adopted a new access management policy in 2013, which replaced its corridor management policy that was adopted in 1997 and updated in 2001. The policy has four key focus areas: planning, engineering, permitting and coordination and awareness. It brings KDOT access management policy and criteria into closer conformance with the state of the practice.*

### Access Classification, Context, and Complete Streets

- KDOT has not adapted its access management program to address complete streets or context sensitive roadway classification systems.
- Access management considerations for non-auto modes were addressed in Section 4.6.2: Pedestrian and bicycle awareness, Section 4.6.3: On-Street Parking (incl. 4.6.3.b Bulbouts in urban areas), of the KDOT Access Management Policy, and 4.6.4 Bus turnouts. For example, Table 5 provides on-street parking criteria that appear in the KDOT Access Management Policy.

**Table 5: KDOT On-street Parking Criteria**

Table 4-35. Criteria for allowing on-street parking

| Parking Type | Criteria | |
|---|---|---|
| | Volume (ADT)[1] | Speed (mph) |
| No parking allowed | ≥20,000 | ≥35 |
| Parallel | ≤15,000 | ≤30 |
| Angle (including back-in) | ≤10,000—multi-lane<br>≤5,000—one-lane | <20 |

Note: ADTs are total, two-way, except for the one-lane reference.
[1] This does not imply absolute conditions, but guides the successful application

- Section 4.6.3.b states the following: Bulbouts, or curb extensions, are an extension of the sidewalk into the street at intersections. Bulbouts can:
    - Reduce the crossing distance (exposure time) for pedestrians in crosswalks.
    - Improve the sight distance and sight lines for both pedestrians and motorists.
    - Prevent parked cars from encroaching into the crosswalk area.
    - Create adequate space for curb ramps and landings where the existing sidewalk space is too narrow.

### Network and Corridor Planning for Access Management

- KDOT encourages local corridor plans for highways, but does not actively promote local network planning. The Department also provides modest matching grants to local governments to help develop alternative access on major roadways (see also Off-System Improvements below).
- KDOT supports planning for areas or corridors through working with cities, counties, MPOs, and other local stakeholders to identify potential developments, formalize

plans, and coordinate land use changes, transportation improvements, and future access.

- All six KDOT Districts have a District Access Management Plan, identifying growth corridors that need access planning to preserve capacity and functional integrity. The Secretary of Transportation is authorized to enter into written agreements with cities and counties to establish planned corridors and administer District Access Management Plans.
- KDOT uses four types of access planning documents or instruments (below). The last three planning instruments require commitments from local partners and KDOT, and include interlocal cooperation agreements signed by local officials. The details of each planning instrument are provided in KDOT's Access Management Policy.
    - Memorandum of Understanding – Basic complexity
    - Access Management Plan – Intermediate complexity
    - Area Transportation Plan – Complex
    - Corridor Management Plan – Complex

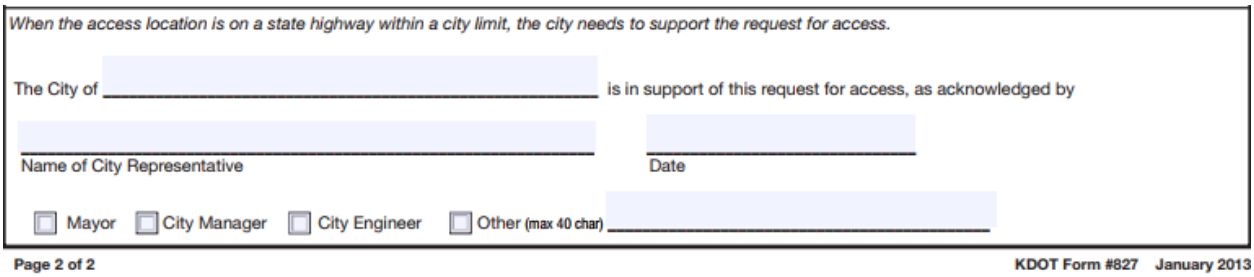
**Off-System Improvements**

- KDOT supports off-system improvement projects to an extent; these primarily include projects such as service roads and turn lanes onto highways.
- KDOT's Access Management Construction Project Program assists local governments in implementing the contents of an adopted Corridor Management Plan, Access Management Plan, Area Transportation Plan, or MOU. Details are contained in the project application instructions: http://www.ksdot.org/TWorks/EcoDevo/downloads/AccessManagementApplicationInstructions-2016-06.pdf.
    - The program functions as a reimbursement program, where local agencies enter into a contract with KDOT; local agencies pay the contractor as work is performed, and KDOT reimburses the local agency for eligible expenses.
    - KDOT will participate in funding the Construction Phase of selected projects at 100%, up to a maximum of $2,000,000. Other associated project costs such as Preliminary Engineering (PE), Right of Way Acquisitions, Utility Relocations, Permits and Construction Engineering (CE) are not eligible for reimbursement.
    - The local agency is responsible for obtaining a KDOT Highway Access Permit or Highway Use of Right of Way Permit, if needed.
    - Cities and counties awarded funds with this project must follow the Access Management Construction Project Guidelines.
    - KDOT's Access Management Policy provides project case studies funded by this program including left- and right-turn lanes, joint and cross access, consolidated access permits, raised medians, and service roads. Figure 8 shows a service road in the City of Basehor, Kansas (Wolfcreek Parkway) that provided alternative access to development along the US24/US 40 State Avenue corridor.

**Figure 8: Service road funded by access management set-aside funds.**

**Intergovernmental Coordination in State Highway Access Management**

- KDOT's formal coordination instruments are the Access Management Plans, Area Transportation Plans, Corridor Management Plans, and MOU's discussed above.
- KDOT requires coordination (by signature) for access permits onto highways in cities, as shown in Figure 9. The application instructions indicate the following: "If the access to a state highway is within city limits, the Permittee needs the support of the city in which the access is proposed. An authorized city representative's name, position, and date of coordination are filled in by the Permittee confirming that the Permittee has city support for the access." This link provides the full permit form: https://www.ksdot.org/Assets/wwwksdotorg/bureaus/burTransPlan/AccessMgt/App_Form_827.pdf


*When the access location is on a state highway within a city limit, the city needs to support the request for access.*

The City of _____ is in support of this request for access, as acknowledged by

_____ _____

Name of City Representative Date

☐ Mayor ☐ City Manager ☐ City Engineer ☐ Other (max 40 char) _____

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**Figure 9: Kansas DOT access permit signature block for local governments**

- KDOT encourages developers and local governments to submit plats, development proposals, and site plans that affect state highways for review early in the development process. These documents are reviewed by various KDOT agencies, including the Access Management Unit. The KDOT review facilitates the sharing of expertise among the participants and allows state highway system concerns to be a part of the decision process.

## Access-Permitting Enhancements

- In addition to the signature block noted above (see Figure 9), KDOT has an internally automated permit process that checks for the need for variances and other special review considerations; the process is not automated for the permittee.
- KDOT has a GIS Access Permit Map based through the ArcGIS website (Figure 10). The interactive map shows pending, approved, accepted, and inventoried access permits and their locations. Users can select an access permit and view relevant information such as the access type, whether it is shared use, or requires a variance.

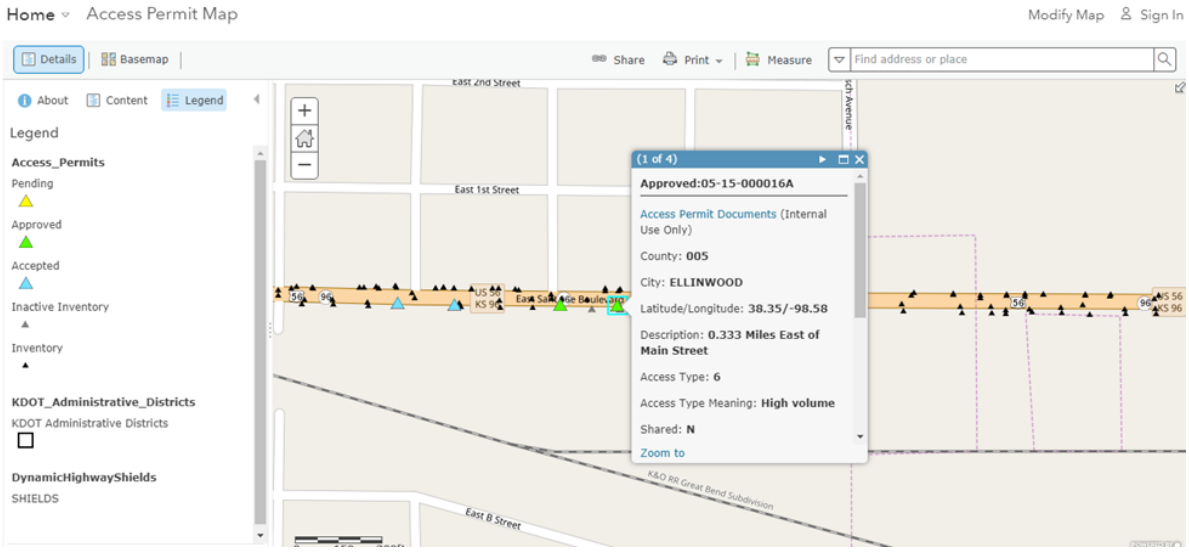


**Figure 10: KDOT access permit map.**

Source: Kansas DOT Access Permit Map, ksdot.maps.arcgis.com

## Staff Education and Training on Access Management

- KDOT has no systematic approach to staff education or training on access management at present.

## References

Kansas Department of Transportation. (January 2013). *KDOT Access Management Policy.* Retrieved from http://www.ksdot.org/Assets/wwwksdotorg/bureaus/burTransPlan/AccessMgt/Access_Management_Policy_Jan2013.pdf

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## Minnesota Department of Transportation

*In 1997, the Minnesota legislature directed the Minnesota Department of Transportation (MnDOT) to evaluate how land use, engineering, and legal practices were affecting state highways. An Office of Access Management was then established at MnDOT, who in 2002, adopted a system of access categories with associated access spacing and design guidelines. A model ordinance for local governments was developed in 2004.*

### Access Classification, Context, and Complete Streets

- The current MnDOT access classification system was produced in 2006 and was the first attempt by the Department to relate roadways with land use context (see Table 6). Rural, urbanizing, urban core, and specialty context classifications were created. While the category system was intended primarily for use in access management, it has been used for a variety of other planning purposes due to its context-sensitive approach. The category system was created with the understanding that many state highways are also the main street of many communities.
    - MnDOT's access category system includes primary categories, based on the roadway's functional and strategic importance to the statewide network, and subcategories, based on existing and planned land use context (Figure 11).
    - Subcategories distinguish between urban core, urban/urbanizing (e.g., suburban), and rural contexts. Speed ranges simply describe the range of speeds that may be encountered within a category, and are not standards or guidelines.
    - Category 4, 5, and 6 were "artifacts" of an older planning approach that were carried over for consistency and simplicity. For example, only a handful of miles of collector roadways still exist, and Category 4 applies only to the Minneapolis-St. Paul metro area, due to its unique characteristics as the largest urban area in the state.
- MNDOTs Access Management Manual describes when these designations should apply. For example, the urban core subcategory is intended for highways extending through fully developed town centers and central business districts.
    - "These areas are characterized by short blocks and a grid system of intersecting streets with small individual lots of 1/4 acre or less, little or no on-site parking, buildings situated close to the street, sidewalks, and pedestrian traffic…this designation generally applies within the central cities of Minneapolis and St. Paul, those first-ring suburbs developed with a fine-grain grid of connecting streets, and older town centers in suburbs or smaller rural communities." (MnDOT, 2016, chap. 2, p. 12)
- A category for Specific Area Access Management Plans provides for plans that serve as a guide for improving access conditions along a specific segment of highway where unique environmental, topographic, or existing development conditions preclude achieving access spacing consistent with the established access categories.
- MnDOT is in the process of revising its access classification system and simplifying it into three main categories – freeway/interstate, principal arterials, and minor arterials. The many objectives have been to keep the land use categories, and use functional classification to reflect how the roadway fits into the existing network and its intended purpose (e.g., longer trips, moderate distance trips, shorter trips).

MnDOT staff are creating a state-wide GIS access management layer plan to update the MnDOT Access Management Manual.

- The access category requirements do not presently include explicit accommodations for transit, bicyclists, or pedestrians. The MNDOT driveway permit form is being revised to address the movement of pedestrians and cyclists from the state highway ROW into the development site.
- A concept called "equity shoulders" is being implemented on low-volume roadways in tribal lands where the standard for shoulder width is 2 feet, but the high number of pedestrians warrants a wider shoulder for safety. A budget has been set aside for this purpose. Wider shoulders are also under consideration to accommodate Amish buggies in some areas. Mid-block crossings may be needed in some low income areas due to wide spacing of signalized intersections.

**Table 6: Minnesota Highway Access Categories**

| Category | Land-Use or Facility Type | Typical Functional Classification | Typical Posted Speed |
|---|---|---|---|
| **1 - High-Priority Interregional Corridors (IRCs)** | | | |
| 1F | Interstate Freeway | Interstate Highways | 55 – 75 mph |
| 1AF | Non-Interstate Freeway | Principal Arterials | 55 – 65 mph |
| 1A | Rural | Principal Arterials | 55 – 65 mph |
| 1B | Urban / Urbanizing | Principal Arterials | 40 – 55 mph |
| 1C | Urban Core | Principal Arterials | 30 – 40 mph |
| **2 - Medium-Priority Interregional Corridors** | | | |
| 2AF | Non-Interstate Freeway | Principal Arterials | 55 – 65 mph |
| 2A | Rural | Principal Arterials | 55 – 65 mph |
| 2B | Urban / Urbanizing | Principal Arterials | 40 – 55 mph |
| 2C | Urban Core | Principal Arterials | 30 – 40 mph |
| **3 - Regional Corridors** | | | |
| 3AF | Non-Interstate Freeway | Principal Arterials | 55 – 65 mph |
| 3A | Rural | Principal/Minor Arterials | 45 – 65 mph |
| 3B | Urban / Urbanizing | Principal /Minor Arterials | 40 – 45 mph |
| 3C | Urban Core | Principal/Minor Arterials | 30 – 40 mph |
| **4 - Principal Arterials in the Twin Cities Metropolitan Area and Primary Regional Trade Centers (Non-IRCs)** | | | |
| 4AF | Non-Interstate Freeway | Principal Arterials | 55 – 65 mph |
| 4A | Rural | Principal Arterials | 45 – 55 mph |
| 4B | Urban / Urbanizing | Principal Arterials | 40 – 45 mph |
| 4C | Urban Core | Principal Arterials | 30 – 40 mph |
| **5 - Minor Arterials** | | | |
| 5A | Rural | Minor Arterials | 45 – 55 mph |
| 5B | Urban / Urbanizing | Minor Arterials | 40 – 45 mph |
| 5C | Urban Core | Minor Arterials | 30 – 40 mph |
| **6 - Collectors** | | | |
| 6A | Rural | Collectors | 45 – 55 mph |
| 6B | Urban / Urbanizing | Collectors | 40 – 45 mph |
| 6C | Urban Core | Collectors | 30 – 40 mph |
| **7 - Specific Area Access Management Plans** | | | |
| 7 | All | All | All |

Source: MnDOT Access Management Manual.

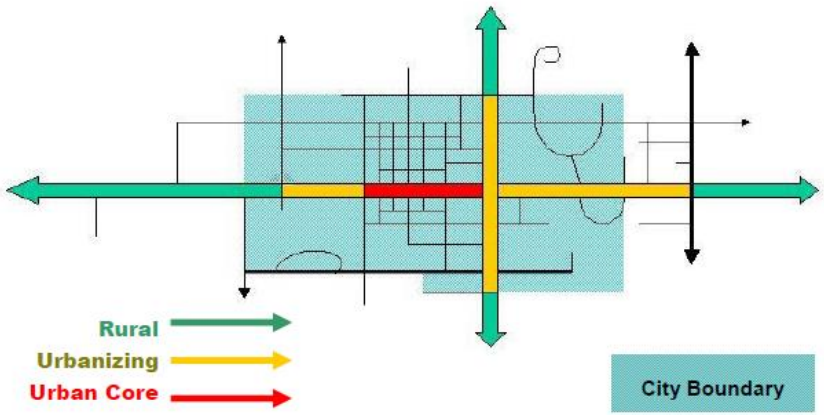


**Figure 11: MnDOT access category assignments in a city.**

Source: MnDOT Access Management Manual, Figure 2.3.

**Network and Corridor Planning for Access Management**

- Corridor Access Management Plans are not a common tool within the Department. The plans that have been done (such as an AMP on HWY 56, Central Ave. N) are largely radial highways in the twin cities area.

**Off-System Improvements**

- MnDOT does not currently invest in off-system projects for improved highway safety and operation. MnDOT staff indicated that Minnesota is a "preservation first" state, as no major expansion projects are expected to be built. The Department views access management as an important tool for managing corridors to preserve their function. However, staff indicated that the state is constitutionally prohibited from expending state funds off system and this is not expected to change.
- Transportation and Economic Development (TED) funds will support some investments in off-system projects that support access management, such as driveway relocation onto a frontage road.

**Intergovernmental Coordination in State Highway Access Management**

- Access management is decentralized to MnDOT's eight districts. Each district works with local authorities on projects that include access management, including access management plans along a few select corridors. MnDOT applies the access management guidelines when reviewing plats, environmental documents and development plans and during review of access permit requests. MNDOT does provides comment on platting proposals along state highways, but has no direct authority over approval. Staff indicate that local governments support MnDOT comments about 80% of the time.
- MnDOT provides a Draft Model Access Management Overlay Ordinance for use by local governments, which has not been applied. It includes overlay requirements for three access management districts: urban core, urbanizing and rural. Staff are updating it for consistency with a new category system more compatible with county roadway classification schemes. The Local Roads Research Board provides a venue for coordinating with City and County engineers, and some engineers from rural counties have expressed interest in adopting the overlay.

**Access-Permitting Enhancements**

- MnDOT has not deployed automated processes or enhancements for access permitting.
- MnDOT's Access Management Manual highlights the importance of the following key principles in the development review and permitting process:
    - Address Access Early—every effort should be made to address access as early as possible, while the greatest number of options remains available. As development decisions are made, they may preclude the local government or developer from later implementing the best access option for the site.
    - LGUs Are Partners in Access Management—Because they have the authority to develop the local street network, approve development plans, and require access-related improvements, the LGU plays a key role in determining where development occurs, how access is provided, and what highway improvements will be made.
    - Access Review Is an Iterative Process—MnDOT guidance is written as though the review process was linear, but access reviews are an iterative process. It will often be necessary to contact the LGU or property owner more than once and to consider more than one option for providing access to a particular property.
    - Prioritize Efforts—the level of effort given to a particular review should be commensurate with the safety and mobility impacts of the access. Access related to higher-volume development, and access to high-volume arterials and interregional corridors, should be given the greatest degree of analysis in search of the best alternative. The greatest scrutiny should be given to access that has the greatest potential to affect highway safety and mobility. For this reason, low-volume access and access to lower-order roads generally receives a more routine evaluation.
    - Permit Conditions Must Be Legally Defensible and Enforceable—while the best access option will vary with each specific situation, all decisions must be based in MnDOT's legal authority to regulate access, constitutional protections of property rights, and the consistent application of guidelines. All conditions imposed by regulatory permit must be enforceable. The LGU or applicant must have the reasonable ability to comply with all conditions of a permit.

**Staff Education and Training on Access Management**

- MnDOT does not offer systematic training on access management.

**References**

Minnesota Department of Transportation. *(*March 2016). *MnDOT Access Management Manual.* Retrieved from https://www.dot.state.mn.us/accessmanagement/resources.html

**Contact**

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## New Jersey Department of Transportation

*NJDOT adopted its access management code in the late 1980s and its complete streets policy was adopted in 2009. Access classification was assigned to the state highway system based on functional class, access type (desirable typical sections), and speed. NJDOT and PennDOT partnered to produce the Smart Transportation Guidebook in 2008 to further effective transportation planning and corridor management.*

### Access Classification, Context, and Complete Streets

- New Jersey DOT's access classification system uses functional class, roadway types (divided, multi-lane undivided, 2-lane), urban/rural location, and speed to determine the appropriate access level. Appendix A of the New Jersey State Highway Access Management Code (Access Code) attempts to designate roadway access classification in a systematic context-sensitive way using a matrix. The roadway characteristics noted above are used to arrive at an overall access level (access levels range from 1 to 6). The matrix contains 54 cells exclusive of freeways (access level 0). The access level assigned to each cell shows the permitted access movements. The federal functional classifications were adjusted to create and define New Jersey's access categories, as follows:

  "Accessible principal arterial". The classification category for a roadway that is part of an interconnected network of continuous routes serving transportation corridors with high traffic volumes and long trips, the primary function of which is to provide safe and efficient service for major traffic movements that access is subordinate.

  "Minor arterial". The access classification for roadways that serve trips of moderate length. Access to abutting properties in minimized, controlled, or regulated. These highways interconnect with, and augment, the principal highway system. Mobility is less than on accessible principal arterials.

  "Collector road". The classification category for roads that primarily serve intra-county trips characterized by moderate volume and speed, and that provide for land access, traffic circulation, and access to arterial routes.

  "Major collector." A type of collector road in rural areas that serves important intra-county traffic corridors and provides services to major traffic generators.

  "Minor collector". A type of collector road in rural areas that serves smaller places and towns and connect local traffic.

  "Local road". The access classification for roads whose purpose is to provide direct access to abutting land and roads of higher classification. Mobility is lower than for other classifications and through movements are discouraged, especially in urban areas.

- NJDOT is aware of thoroughfare context zone classification systems and stated that they will need to amend the New Jersey State Highway Access Management Act to accommodate that type of classification system.
- The access classification system does not explicitly address non-auto modes or complete streets. NJDOT adopted a complete street policies in December 2009 to ensure non-auto modes are considered in state highway projects. http://www.state.nj.us/transportation/eng/completestreets/

- New Jersey's Complete Street Policy states, "The NJDOT shall implement a Complete Streets policy through the planning, design, construction, maintenance and operation of new and retrofit transportation facilities, enabling **safe access and mobility of pedestrians, bicyclists, transit users** of all ages and abilities." (emphasis added)
- NJDOT policy encourages local governments to also adopt a Complete Streets Policy.

- NJDOT and PennDOT partnered to produce the *Smart Transportation Guidebook*, which provides guidance on planning and designing context sensitive roadways, including access management guidance in Chapter 9: Road System Issues. Table 5.1 of the guide suggests a roadway category system for use as a planning and design "overlay" for projects (see Table 7). It provides intersection spacing guidelines.
  - The *Smart Transportation Guidebook* guidelines are consistent with Appendix A of the NJ Access Code, with operating speed and intersection spacing paralleling the Code, but using different terminology.

**Table 7: Roadway Categories for Context Sensitive Planning**

| Roadway Class | Roadway Type | Desired Operating Speed (mph) | Average Trip Length (mi) | Volume | Intersection Spacing (ft) | Comments |
|---|---|---|---|---|---|---|
| Arterial | Regional | 30-55 | 15-35 | 10,000-40,000 | 660-1,320 | Roadways in this category would be considered "Principal Arterial" in traditional functional classification. |
| Arterial | Community | 25-55 | 7-25 | 5,000-25,000 | 300-1,320 | Often classified as "Minor Arterial" in traditional classification but may include road segments classified as "Principal Arterial." |
| Collector | Community | 25-55 | 5-10 | 5,000-15,000 | 300-660 | Often similar in appearance to a community arterial. Typically classified as "Major Collector." |
| Collector | Neighborhood | 25-35 | <7 | <6,000 | 300-660 | Similar in appearance to local roadways. Typically classified as "Minor Collector." |
| Local | Local | 20-30 | <5 | <3,000 | 200-660 | |

Source: NJ DOT and PennDOT (2008), Table 5.1

**Network and Corridor Planning for Access Management**

- NJDOT is currently pursuing research to gain a better understanding of how to apply access standards to roadways not under state jurisdiction. The effort seeks to develop policies that advance access management on roadways supporting the state roadway network.
- The NJDOT/PennDOT *Smart Transportation Guidebook* provides extensive guidance to local governments on context sensitive roadway network planning and design for livable, sustainable communities.
- On network and supporting roadway planning, experience and projects along Route 1 in West Windsor Township have been a major impetus for improving and updating New Jersey's access code. NJDOT released the Route 1 Regional Growth Strategy to clarify for local governments and citizens that the Department would no longer

continue expanding that roadway to meet future transportation needs, and to gain impetus for addressing roadway challenges more comprehensively. The Regional Growth Strategy did a full build-out analysis based on the type of development occurring and projected growth. The strategy made several recommendations that centered on smart growth techniques, as well as the need for a supporting local roadway network off of the state system. The Central Jersey Transportation Forum adopted the plan and every voting member has adopted an ordinance supporting the regional growth strategy. State funds have been used to support the surrounding roadway network, but some feeder routes have not been as successful as hoped.

  - Route 1 Regional Growth Strategy: http://www.state.nj.us/transportation/works/njfit/route1rsg.shtm

**Off-System Improvements**

- NJDOT emphasized that providing network connections is essential to the safety operational performance of all roadways in the network.
- For example, NJDOT invested in the enhancement and development of supporting roadways in West Windsor Township during development and redevelopment activities along Route 1 (see Network and Corridor Planning section for details).

**Intergovernmental Coordination in State Highway Access Management**

- In New Jersey, any local government can request a change to the access classification of a roadway. The requests are typically a request to increase access along the roadway, and therefore decrease mobility. A committee within NJDOT composed of experts in the areas of access management, planning, local and major permitting, and traffic operations is responsible for reviewing and approving or denying requests to changes in access classification. In the majority of instances, requests for a change of access classification are unsuccessful.
- Subchapter 6: Access Management Plans of the New Jersey Access Code allows for the development of access management plans for state highways in coordination with local governments in accordance with the following conditions.
  - The local government incorporates the access management plan conditions into its land development ordinances and master plan;
  - The access management plan complies with or exceeds state standards;
  - An appropriate means of access has been identified for every lot along the state highway segment.
  - Once adopted, the access management plan governs access-permitting decisions and may not be abandoned without joint agreement of all parties.
- The intent of Subchapter 6 of the NJ Access Code is to allow municipalities to go a step above the requirements of the access code, giving them more control over the roadways in terms of how access is managed.
- The access management plan may be initiated through written request to the Department by a local government or initiated by notice from NJDOT to various mayors, chief governing officials, heads of transportation departments, toll road authorities, MPO's, and other local government authorities.
- Two access management plans have been adopted as part of the access code and incorporated into law – Route 34 AMP and Route 72 AMP.

- Overall, the Department has received feedback that the process for creating an AMP has been too cumbersome, particularly requirements stating that each access point along the corridor be identified and examined, and that may be why many municipalities have not pursued them.
- In addition, AMPs are formally adopted into the NJ Access Code; if a developer or municipality wishes to create an access not included in the code, cumbersome rulemaking and agreement must be reached to amend the AMP.
- It has been recommended that Appendix B of the NJ Access Code be removed, and made into an addendum to the Code so as to serve as guidance and not require amendments to go through the rulemaking process. The downside is that NJDOT's ability to enforce access management techniques and designations on these corridors would be diminished. In general, however, AMPs as currently conceived in code tie the hands of municipalities and developers, and can be too formal and specific.

- The New Jersey Access Code states the following related to consistency of state and local regulations: "When requirements of State, county, and municipal access codes apply to the same roadway, lot, or access point, the requirements of the State code shall take precedence over the requirements of county and municipal codes."

**Access-Permitting Enhancements**

- NJDOT does not currently have automated processes for access permitting.

**Staff Education and Training on Access Management**

- NJDOT does not have a formal training program for access management, but has held informal events to give staff the opportunity to gain deeper understanding of access management. Recent activities include the Division of Statewide Planning presentation on critical functions of that unit, a presentation on evaluating desirable typical sections in the Access Code, and a best practices brochure prepared in collaboration with a regional transportation forum and distributed to cities.

**References**

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## North Carolina Department of Transportation

*North Carolina Department of Transportation (NCDOT) is currently in the process of updating its access management requirements. NCDOTs Access Standards were first adopted in 1959, with subsequent updates in 1966 and 1987. In 2001, it replaced its thoroughfare planning guidance to local governments with the multimodal Comprehensive Transportation Plan process.*

### Access Classification, Context, and Complete Streets

- NCDOT has not adapted its access management program to address context, complete streets, or non-auto modes.
- For Strategic Transportation Corridors, NCDOT Policy requires the highest practicable access management provisions to be applied in managing highway elements of individual Strategic Transportation Corridors.

### Network and Corridor Planning for Access Management

- NCDOT supports local roadway network planning and corridor planning through their multi-modal Comprehensive Transportation Plans (CTPs) process. CTPs are developed through MPOs and municipalities and are approved in cooperation with NCDOT; counties may also develop CTPs. Projects submitted through the Department's project prioritization process are expected to come from a mutually adopted CTP.
- CTPs replace the thoroughfare plans that have been developed since the 1950s, with multimodal, context sensitive plans that provide a variety of cross section types for various types of roadways in different contexts. Access considerations include block length and design for local streets.

### Off-System Improvements

- NCDOT invests in off-system improvement projects that advance the goals of access management through their Statewide Transportation Improvement Program, as well as through the Strategic Transportation Prioritization (SPOT) Safety and Mobility Funding sources, which are coordinated with their field engineers. NCDOT's Statewide Transportation Improvement Program prioritizes projects through a variety of performance measures, including improved access or mobility.

### Intergovernmental Coordination in State Highway Access Management

- For traffic impact assessments (TIAs) for proposed developments, the NCDOT Policy on Street and Driveway Access to North Carolina Highways requires coordination with local officials in determining driveway permit conditions and infrastructure improvements.
- NCDOT's Policy on Street and Driveway Access to NC Highways states, "The applicant shall coordinate with appropriate local government agencies to identify possible conflicts with local, state or federal regulations and plans, including but not limited to local zoning regulations, land-use plans, transportation plans, overlay districts, and planned urban developments.
- "In areas where city or county government agencies have site plan or driveway access approval processes for developments, the permit should be processed and

approved concurrently with the local government agency's approval process to avoid conflicting requirements of the applicant."

- "If local government agency regulations are more restrictive than NCDOT requirements, the local regulations will govern. However, this does not imply the NCDOT is obligated to approve entrance designs that are too constrictive to allow smooth and safe traffic flow. The ultimate authority to approve the permit rests with NCDOT."

**Access-Permitting Enhancements**

- NCDOT does not have automated processes for access permitting.
- NCDOT recognizes various types of access permit classifications including Commercial, Residential/Subdivision, Educational Facility, Emergency Services, and Traditional Neighborhood Development.
- NCDOT's Traditional Neighborhood Development and Street Design Guidelines provide specific application requirements, as well as design criteria and policies for NCDOT District Engineers to use in review and approval process for TNDs. https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Traditional%20Neighborhood%20Development%20Manual.pdf

**Staff Education and Training on Access Management**

- NCDOT has a statewide Site Development and Highway Access Training and Workshops that are offered through NC State University for a fee. (The contact noted below is one of the instructors.) https://itre.ncsu.edu/training/highways/
- Access Management classes include "An Introduction to Site Development and Highway Access Concepts", and a follow-up video on the same topic entitled "What you Need to Know". Other courses include traffic signal fundamentals, roundabout design, the Highway Capacity Manual, and VISSIM.

**References**


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North Carolina Department of Transportation. (August 2015). *Facility Type & Control of Access Definitions.*


**Contact**


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## Oregon Department of Transportation

*The Oregon Department of Transportation (ODOT) adopted its first access management program in 1949, a Highway Plan in 1999 that included access management provisions, and made its last access management revisions to the plan in 2012. ODOT is currently developing a new access-permitting database and customer portal.*

### Access Classification, Context, and Complete Streets

- ODOT divides its access categories for state highways into statewide, regional, or district.
- Speed (5 levels), area type (urban and rural), and roadway type (2 rural and 4 urban contexts) are used to identify categories, as shown in Table 8.
- Urban contexts are addressed in notes 1-3 for urban business areas and special transportation areas, where access spacing is based upon existing or planned city block patterns.

**Table 8: Oregon DOT Access Categories**

| Access Spacing (ft) for Highways Other Than Freeways | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Level of Importance** | **Posted Speed** | **Rural** | | **Urban** | | | |
| | | **Expressway** | **Other** | **Expressway** | **Other** | **UBA(1)** | **STA(2)** |
| Statewide Highway | ≥55 | 5280 | 1320 | 2640 | 1320 | | |
| | 50 | 5280 | 1100 | 2640 | 1100 | | |
| | 40 & 45 | 5280 | 990 | 2640 | 990 | | |
| | 30 & 35 | | 770 | | 770 | 720 | (3) |
| | ≤25 | | 550 | | 550 | 520 | (3) |
| Regional Highway | ≥55 | 5280 | 990 | 2640 | 990 | | |
| | 50 | 5280 | 830 | 2640 | 830 | | |
| | 40 & 45 | 5280 | 750 | 2640 | 750 | | |
| | 30 & 35 | | 600 | | 600 | 425 | (3) |
| | ≤25 | | 450 | | 450 | 350 | (3) |
| District Highway | ≥55 | 5280 | 700 | 2640 | 700 | | |
| | 50 | 5280 | 550 | 2640 | 550 | | |
| | 40 & 45 | 5280 | 500 | 2640 | 500 | | |
| | 30 & 35 | | 400 | | 400 | 350 | (3) |
| | ≤25 | | 400 | | 400 | 350 | (3) |

(1) UBA – The Urban Business Area recognizes existing and future areas of commercial activity with highway facilities that emphasize maintaining existing speeds and through movement of traffic while balancing the needs for access to abutting properties.

(2) STA – A Special Transportation Area is to have highway facilities that emphasize access to community activities, businesses, and residences and accommodate pedestrians along and across the highway in a downtown, business district, and/or community center, including those in unincorporated communities.

(3) Existing city-block spacing or block spacing identified in the local comprehensive plan.

### Network and Corridor Planning for Access Management

- ODOT encourages local roadway network and corridor planning for access management during Highway Facility Plan development, when they partner with local governments.

- Corridor plans are jointly approved and adopted as part of the local Transportation System Plan in the local comprehensive plan and the ODOT plan.
- Lessons learned — Corridor plans can stretch agency resources. The length of the corridor should be limited to a manageable size, and time and resources should be sufficient to develop a complete, in-depth plan with adequate public involvement (Williams et al., 2014).
- Interchange Area Management Plans are prepared jointly with ODOT and local governments, and both need to accept and agree to the decisions, recommendations, and defined responsibilities in the IAMP.
- ODOT provides Transportation and Growth Management Grants to local governments for transportation system planning, and for integrated transportation and land use planning including Interchange Area Management Plans.

**Off-System Improvements**

- ODOT partners with local agencies where the local agency work complements state construction.
- Oregon's state gas tax is distributed by rule according to the following formula: 50% to the State, 30% to counties, and 20% to municipalities.

**Intergovernmental Coordination in State Highway Access Management**

- ODOT partners with local agencies during development of Transportation System Plans (TSPs) and in relation to development requests along highways within urban growth boundaries (UGBs).
- The development of TSPs allows ODOT and local agencies to partner in planning for future transportation growth.
- The Department and a local government may enter into an intergovernmental agreement setting provisions for and allowing the local government to issue approach permits for private approaches to regional and district highways, when it is determined by the department and a local jurisdiction that it is in the best interest of highway users.

**Access-Permitting Enhancements**

- ODOT released an RFP in fall 2017 for a new Access Management Enterprise System (AMES) to upgrade their existing permit database system so customers can make permit applications online. ODOT completed access permit business process mapping for both the "as is" and "to be" processes. This work is informing development of the RFP.
- It is envisioned that the system will allow customers to make access permit applications remotely and be able to track the progress of their application. Also envisioned is development of Android and Apple applications that allow realtors, local agencies and private citizens to view permitted approaches in a given area and make applications remotely with a phone or pad device. This system will also interface with ODOTs FileNet electronic filing system and store required documents.

**Staff Education and Training on Access Management**

- Oregon DOT is in the process of updating their access management manual for staff education. The development of the new access-permitting database and customer portal will result in an update of the manual as well, ODOT indicated.

**References**


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## Pennsylvania Department of Transportation

*PennDOT adopted Chapter 441 "Access to and Occupancy of Highways by Driveway and Local Roads" in 1980. This addresses general driveway requirements, driveway design requirements and traffic and engineering studies. In 2003, PennDOT commissioned several studies to examine its authority to engage in access management. The study recommended that PennDOT produce model access management regulations for local governments, which were published in 2005 and updated in 2006. PennDOT also produced a "Smart Transportation Guidebook" with New Jersey DOT in 2008 to further effective transportation planning and corridor management.*

### Access Classification, Context, and Complete Streets

- PennDOT stated that they incorporate non-auto modes and complete streets into their access management program through the transportation impact assessment (TIA) and permitting process.
- Driveway permit applicants must evaluate the need for pedestrian facilities as part of each development project.
- If LOS requirements and mitigation for developments that require a TIA cannot be met, an alternative transportation plan that encompasses a wide range of strategies to enable the future improvement of conditions for motorists, pedestrians, bicyclists, and transit users may be accepted (PennDOT, 2017).

### Network and Corridor Planning for Access Management

- PennDOT developed a handbook to help local governments understand access management and guide them in developing and implementing access management in their community. The handbook is entitled, *Access Management Model Ordinances for Pennsylvania Municipalities Handbook* (Publication 574).
- PennDOT partnered with NJDOT to produce the *Smart Transportation Guidebook*, which provides guidance on planning and designing context sensitive roadways, including guidance on Access Management in Chapter 9: Road System Issues. Table 5.1 of the guide suggests a roadway category system for use as a planning and design "overlay" for individual projects (see Table 8 above). It provides intersection spacing guidelines.

### Off-System Improvements

- PennDOT does not invest in off-system projects that benefit safety and operation on the main highway.

### Intergovernmental Coordination in State Highway Access Management

- Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits (HOP) discusses the roles of various governmental organizations in access permitting on the State Highway:
- Municipalities are invited and highly encouraged to participate in meetings and provide comments, input on mitigation strategies, and concurrence on Alternative Transportation Plans through the permitting process.
- Municipalities are asked to coordinate subdivision and land development approvals with the District Permit Office.

- Local transit authorities are involved where the applicant's project impacts the transit system operation, could be designed to accommodate public transit, or site impact mitigation involves improvements to the transit system.

**Access-Permitting Enhancements**

- In 2011, Highway Occupancy Permit applicants were given the ability to apply for a driveway permit on-line via PennDOT's Electronic Permitting System (EPS).
- Municipalities have been given access to EPS and can sign-up to receive automatic notifications via e-mail when an application is submitted to DOT in their jurisdiction so they can look it over. A basic training PowerPoint guiding users through the system is available on the website. http://www.dot.state.pa.us/public/Bureaus/HighwaySafety/Web%20Development/HOP%20Strike%20Off/EPS%20Basic%20-%20Participant%20Workbook.pdf

**Staff Education and Training on Access Management**

- PennDOT has no systematic staff education and training on access management.

**References**

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**Contact**

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## Utah Department of Transportation

*The Utah Department of Transportation established state highway access management guidelines as part of the Administrative Rule R930-6 in 2003, with an update occurring most recently in August 2013.*

### Access Classification, Context, and Complete Streets

- Utah's access category system consists of ten categories with roadways classified based on function and rural/urban context. The designated category of a segment of State highway will impact the design or placement of medians, signals, spacing standards, and other access, network, and circulation concerns. The categories are provided in Table 9.
- Under UDOT's Access Management Code, "**Access designs must provide for the safe and convenient movement of all highway right-of-way users** and modes of transportation including but not limited to pedestrians, bicyclists, transit, and the physically challenged. Further, sidewalks and bike lanes or paths may be required when deemed appropriate by the department or when required by the local authority." (emphasis added)

**Table 9: Utah Access Category System**

| Access Category | Function |
|---|---|
| Category 1 | Freeway/Interstate System Facilities (I) |
| Category 2 | System Priority – Rural Importance (S-R) |
| Category 3 | System Priority – Urban Importance (S-I) |
| Category 4 | Regional – Rural Importance (R-R) |
| Category 5 | Regional Priority – Urban Importance (R-PU) |
| Category 6 | Regional – Urban Importance (R-U) |
| Category 7 | Community – Rural Importance (C-R) |
| Category 8 | Community – Urban Importance (C-U) |
| Category 9 | Other Importance (O) |
| Category 10 | Freeway one-way Frontage Road (F-FR) |

Source: (UDOT, 2013)

### Network and Corridor Planning for Access Management

- UDOT stated that local government coordination on local roadway network and corridor planning for access management is done "as needed" through an application process, but no formal program currently exists.
- UDOT has an active corridor preservation program, which devotes funding for the acquisition of right-of-way.
- Funding for ROW acquisition requires adoption of an access management plan which must include or recognize Land Development Regulations supporting the ten access management principles, a TIS, driveway and spacing standards, AASHTO guidelines, and other requirements.
- UDOT, in cooperation with local authorities, may draft agreements for the planned and future spacing or installation of access connections based on the assigned access category for the facility. A corridor agreement comes in the form of a Signal Control Plan or Access Corridor Control Plan, and may supersede an access category assignment. Corridor agreements must receive the approval of the Department and the local authorities to become effective, in the form of a written agreement.

Corridor agreements must be reflected and noted in the local jurisdiction transportation master plan.

**Off-System Improvements**

- UDOT stated the type of coordination involving off-system projects for improved highway safety and operation does occur in some projects.

**Intergovernmental Coordination in State Highway Access Management**

- Upon request by local authorities, under UDOT's Access Management Code, UDOT shall coordinate with local authorities in the review of zoning, subdivision, and other land use regulations affecting the safety and operation of state highways to ensure that future access requirements related to local land use decisions are consistent with the purposes and standards of UDOT's Access Management Code.
- UDOT, in cooperation with local authorities, may draft agreements for the planned and future spacing or installation of access connections based on the assigned access category for the facility. A corridor agreement comes in the form of a Signal Control Plan or Access Corridor Control Plan, and may supersede an access category assignment. Corridor agreements must receive the approval of the Department and the local authorities to become effective, in the form of a written agreement. Corridor agreements must be reflected and noted in the local jurisdiction transportation master plan.

**Access-Permitting Enhancements**

- Utah's Online Permit System has been deployed since 2003. It was developed in-house and is based on Oracle with Forms (internal to UDOT) and APEX (external to UDOT) interfaces. Utah DOT indicated that the system is robust. https://www.udot.utah.gov/public/olp/f?p=201:101:14274321121002

**Staff Education and Training on Access Management**

- UDOT holds coordination meeting every six weeks with supervisors and quarterly with the larger statewide team.

**References**

Utah Department of Transportation, Corridor Preservation, Municipal Access Management. *Draft Municipal Access Management Plan Policy.* (December 2005).

Utah Department of Transportation. *Rule 930. Transportation, Preconstruction. Rule 930-6, Access Management.* (August 2013).

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## Vermont Agency of Transportation

*The Vermont Agency of Transportation (VTrans) has practiced access management principles in varying degrees since the early 1980s, and developed formal Access Management Program Guidelines in 1999, with updates in 2000 and 2005.*

### Access Classification, Context, and Complete Streets

- Vermont's State Design Standards recognize that bicycle and pedestrian traffic should be expected along the sides of roadways that are not limited-access facilities. The Design Standards state that where bicycles and pedestrians are allowed by law, the roadway should be designed and constructed under the assumption that it will be used by bicyclists and pedestrians. The Standards provide guidance on paved shoulder widths given the context, speed, and classification of the roadway.
- Vermont's Access Management Program Guidelines Section 2.20(4) state that "**Access design shall provide for the safe and convenient movement of all highway right-of-way users including, but not limited to, pedestrians, bicyclists, and the physically handicapped including those in wheelchairs**. Sidewalks may be required where appropriate and when requested by local authority." Section 2.20 (8) states that "An access that crosses or otherwise affects pedestrian, bicycle, or handicapped accessible facilities, shall have the necessary modifications to ensure the safe crossing of the access and the safe use of the facility by pedestrians, bicyclists, and the handicapped." (emphasis added)
- VTrans has a six level access category control hierarchy of classifications (see Table 10). These standards are applied to sections of highway places in categories based on Functional Class and Average Annual Daily Traffic, but in the long term will be assigned based on the previous considerations as well as potential land development characteristics including zoning and land use plans, regional growth patterns, and existing density of accesses.

### Network and Corridor Planning for Access Management

- VTrans has a Corridor Management Handbook which lays out best practices for corridor planning that include a collaborative approach between transportation agencies and local governments. The handbook recognizes that many transportation needs can be most effectively met at the corridor level, rather than on a piecemeal basis.

### Off-System Improvements

- VTrans does not invest in off-system projects for improved highway safety and operations.

### Intergovernmental Coordination in State Highway Access Management

- VTrans indicated they do not have methods for intergovernmental coordination in state highway access management.
- Upon review of VTran's flow-chart for access permitting, if the proposed access is located within the Vermont State Highway System ROW the permittee must contact the local town or city for local permits and access specifications and apply for local permits and, if required, Act 250 Permits, as well as apply for a Highway Access Permit from VTrans. Local government and VTrans coordinate during the review

process to assess impacts, and the Highway Access Permit is either approved or denied with incorporated conditions from field investigation, Act 250 considerations, and local approval.

**Table 10: Vermont State Highway Access Categories**

| Access Category | Highway Functional Class (AADT) | Degree of Access Control | Direct Property Access | Driveway Controls | Traffic Operations Allowed | Design Features |
|---|---|---|---|---|---|---|
| 1 | Principal Arterials (Interstate) | Full | No | NA | Access at Interchanges Only with Public Hwys | Grade-Separated Interchanges |
| 2 | [1] Principal Arterials (Non-Interstate – LA) [2] Other Principal Arterials (LA) [3] Limited Access (LA) Major collectors | Full to Partial | No-Except by Access Rights | NA or Location | Access at Intersections with Public Highways | At-Grade or Grade-Separated at 1/2 to 1 Mile Intervals |
| 3 | [1] Principal Arterials (Non LA) [2] Other Principal Arterials (Non LA) [3] Minor Arterials (>5000 AADT) [4] Non-Limited Access Major Collectors on State Hwy & Class I TH's (>5000 AADT) | [1] Mandatory Restrictions to operations [2] Design Features [3] Land Use Issues | Deny, Restrict or Allow | NA or Number, Spacing and Location | NA or May Limit Turning Movements | [1] Physical Barriers [2] Signal Spacing Requirements [3] Left and/or Right Turn Lanes Required [4] Spacing of Public Hwy Intersection (1/4 to ½ Mile) |
| 4 | [1] Minor Collectors [2] Minor Arterials on State Hwy or Class I TH's (<5000 AADT) [3] Non-Limited Access Major Collectors on State Hwy & Class I TH's (<5000 AADT) | [1] Design Features [2] Land Use Issues | Yes | Number, Spacing and Locations | [1] All Turns In & Out [2] May Limit Turning Movements | Spacing of Public Highway Intersection (1/4 to ½ Mile) |
| 5 | Frontage or Service Roads | [1] Design Features [2] Land Use Issues | Yes | Number & Location | All Turns In & Out | Signal Spacing (No Less Than 300 Feet) |
| 6 | "Urban" Sections of Highways | [1] Design Features [2] Land Use Issues | Deny, Restrict or Allow | Number, Spacing & Location | [1] All Turns In & Out [2] May Limit Turning Movements | Signal Spacing (No Less Than 500 Feet) |

Source: (VTrans 2000)

### Access-Permitting Enhancements

- VTrans has not deployed automated processes for access permitting.

### Staff Education and Training on Access Management

- VTrans does not have systematic staff education or training on access management.

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## Virginia Department of Transportation & Department of Rail and Public Transportation

*The 2007 Virginia General Assembly unanimously approved Chapter 863, directing the Virginia Department of Transportation (VDOT) to develop access management regulations and standards with the goals of reducing traffic congestion, ensuring public safety, reducing the need for roadway widening, supporting economic development, preserving public investment, and ensuring private property is entitled to reasonable access. In 2013, the Virginia Department of Rail and Public Transportation (DRPT) commissioned Multimodal System Design Guidelines to advance complete streets and context sensitive design.*

### Access Classification, Context, and Complete Streets

- Beginning in 2007, VDOT determined their original urban and rural context zones were not reflective of the type of economic activity and needs occurring along roadways. VDOT realized the need for a different approach.
- VDOT adopted multimodal design standards based upon the Multimodal System Design Guidelines published by the Virginia DRPT, but has not fully incorporated them into their Access Management Regulations. The Guidelines represent a "complete streets" approach and:
    - Include a chapter on access management and spacing recommendations by modal emphasis.
    - Cover the multimodal system planning process and multimodal design standards at regional, community, and corridor scales.
    - Distinguish between Multimodal "Through" Corridors and "Placemaking" Corridors for corridor management.
    - Use transect zones to define design context for six multimodal corridor types shown in Figure 12, which compares the multimodal street typologies with the VDOT traditional functional classifications. Typical cross-sections can be developed for each corridor and context in advance or as needed over time.

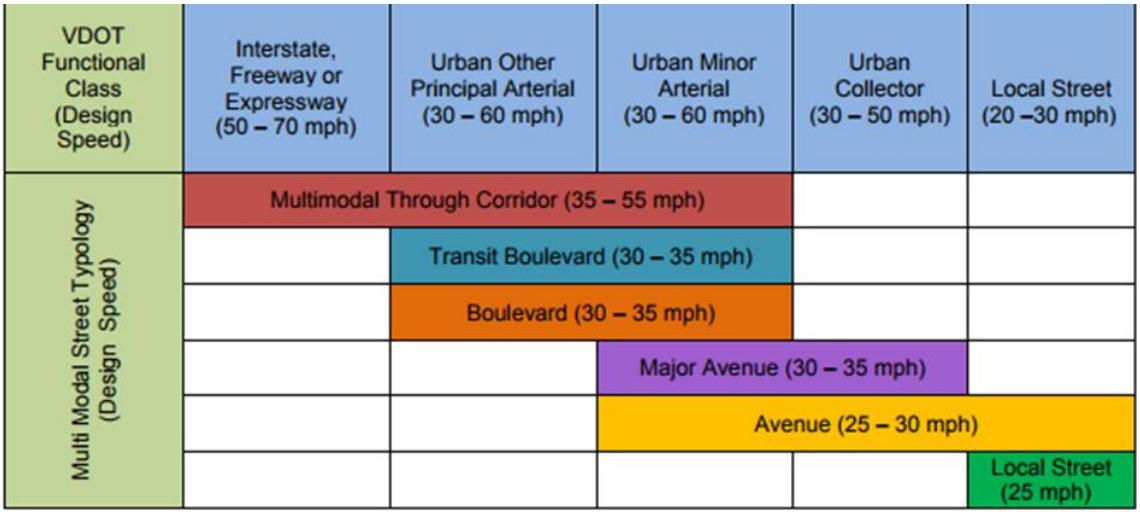


**Figure 12: Comparison of VDOT functional classes to multimodal corridor types.**

Source: DRPT Multimodal System Design Guidelines.

- Localities that wish to implement the methodology must prepare a Multimodal System Plan for review by DRPT and VDOT. A guide was developed to assist them with this effort.
- The DRPT multimodal system design guidelines recognize different needs and standards for roadways with different modal emphasis (e.g., transit boulevard, bicycle or pedestrian priority street). Figure 13 was prepared by DPRT to illustrate the general relationship of state access management criteria and modal emphasis. The guidelines recommend spacing based on modal emphasis of the roadway, but fall short of connecting the VDOT access spacing to multimodal corridor types directly. Instead, they offer the following general guidance:

  **A indicates that intersections of this type should be spaced as closely together as possible on corridors with this Modal Emphasis**. The VDOT minimum spacing standards provide a baseline for minimum spacing. Operational analyses may indicate that more frequent (i.e., shorter) spacing may be appropriate. The shortest spacing for these types of intersections should be used whenever possible.

  **B indicates that the VDOT minimum spacing standards are likely the best option. Intersections of these types with these Modal Emphases may have mixed impacts.** The VDOT minimum spacing standards will provide an adequate number of connections and crossings for each mode. Less frequent (i.e., longer) spacing will make accessing destinations for difficult, especially for pedestrians and bicyclists.

  **C indicates that these types of entrances should be minimized (i.e., less frequent or longer spacing between entrances).** These types of entrances create conflict points and safety problems.

**ACCESS MANAGEMENT CONSIDERATIONS FOR MODAL EMPHASIS**

| | Pedestrian | Bicycle | Transit | Green | Parking |
|---|---|---|---|---|---|
| Signalized Intersections | A | A | A | B | B |
| Unsignalized Intersections & Crossovers | B | A | B | B | B |
| Full Access Entrances | C | C | C | C | C |
| Partial Access Entrances | C | C | C | C | C |

A = Use VDOT minimum. If possible, provide more frequently than VDOT minimum.
B = Use VDOT minimum. Neutral factor to Modal Emphasis, or contains both benefits and drawbacks.
C = Provide maximum possible distance between intersections or entrances.
*See VDOT Road Design Manual Appendix F for types of access points.*

**Figure 13: VDOT access management considerations for modal emphasis.**

Source: DRPT Multimodal System Design Guidelines.

**Table 11: VDOT Access Spacing Standards**

| Highway Functional Classification | Legal Speed Limit (mph)① | Minimum Centerline to Centerline Spacing (Distance) in Feet | | | |
|---|---|---|---|---|---|
| | | Spacing from Signalized Intersections to Other Signalized Intersections | Spacing from Unsignalized Intersections & Full Median Crossovers to Signalized or Unsignalized Intersections& Full Median Crossovers | Spacing from Full Access Entrances & Directional Median to Other Full Access Entrances and Any Intersection or Median Crossover | Spacing from Partial Access One or Two Way Entrances to Any Type of Entrance, Intersection or Median Crossover |
| Principal Arterial | ≤ 30 mph<br>35 to 45 mph<br>≥ 50 mph | 1,050<br>1,320<br>2,640 | 880<br>1,050<br>1,320 | 440<br>565<br>750 | 250<br>305<br>495 |
| Minor Arterial | ≤ 30 mph<br>35 to 45 mph<br>≥ 50 mph | 880<br>1,050<br>1,320 | 660<br>660<br>1,050 | 355<br>470<br>555 | 200<br>250<br>425 |
| Collector | ≤ 30 mph<br>35 to 45 mph<br>≥ 50 mph | 660<br>660<br>1,050 | 440<br>440<br>660 | 225<br>335<br>445 | 200<br>250<br>360 |
| Local Street | Commercial entrance spacing: See Figure 4-11. | | | | |

Source: Appendix f, Table 2-2 VDOT Road Design Manual.

- VDOT has been working on a system of access management standards compatible with the DPRT multimodal guidelines (see Table 12). These standards were integrated into Appendix B2 of the VDOT Design Manual and derived based on analysis of intersection spacing conditions of existing urban activity areas.

**Table 12: VDOT Access Spacing Standards for High Density Activity Centers with an Urban Connected Network**

| Minimum Access Point Spacing within P5 and P6 Multimodal Activity Centers | | | | |
|---|---|---|---|---|
| Street Typology | Speed (MPH) | Signalized Intersections | Roundabouts or Unsignalized Intersections or Crossovers | Right-in / Right-out Intersections |
| Through Corridor | ≥ 35 | 1000 | 500 | 300 |
| Transit Boulevard | 30 - 35 | 600 | 400 | 300 |
| Boulevard & Major Avenue | 30 - 35 | 600 | 300 | 200 |
| Avenue | 25-30 | 500 | 250 | 150 |
| Local Street | 25 ≥ | See RDM, Appendix B(1) and Appendix F | | |

Source: Virginia DOT, Road Design Manual, Appendix B2.

- Standards in Appendix B2 are being applied in some localities in Virginia through a two-part implementation process:
    - Localities identify multimodal activity centers and their desired area types, particularly the modal emphasis of roadways, and assemble them into a document for VDOT to review.
    - After VDOT approval, localities implement standards as development occurs. (The standards have not yet been officially incorporated into law.)
- The Multimodal System Design Guidelines provide multimodal design standards for mixed-use urban centers including intersection and geometric design, bicycle and pedestrian facilities, traffic calming, and other considerations.
- VDOTs Bicycle and Pedestrian Accommodations Policy states that VDOT will initiate all highway construction projects with the presumption that the projects shall accommodate bicycles and pedestrians, and will promote bicycle and pedestrian accommodations in local, regional, and statewide transportation activities.
- DRPT is identifying where fixed guideway transit projects are being implemented, and helping to implement standards on those corridors. The City of Hampton is studying placing BRT on a corridor, but has not selected any preferred routes as of yet. DRPT is examining various parallel roads and relievers and considering how to apply modal emphasis standards on them. When the final corridor is selected, DRPT standards will be ready for adoption on these corridors at the local level to begin in evaluation and implementation.
    - The goal of implementation is to start small, and test the process so it can be updated and refined. DRPT is attempting to identify projects and timelines so they have an opportunity to apply the standards as early as possible. DRPT is coordinating with VDOT to take a comprehensive approach not only to access management, but land use and streetscapes, so local governments will see more immediate benefits from their investments.

**Network and Corridor Planning for Access Management**

- VDOT promotes connected local street networks through their Secondary Street Acceptance Requirements, which require streets that are to become part of the state network to meet specific connectivity criteria as a condition of their acceptance. Secondary Street Acceptance is a process, established in 1932, whereby counties in Virginia may relinquish local roads to the state. The requirements were updated in 2011. Initial requirements provided differing connectivity standards for urban, semi-urban, and rural roadways, and this received significant pushback from the development community. The 2011 update simplified requirements, requiring a minimum of two (2) connections, and more connections if roadways were generating over 2000 trips/day.
    - Staff indicate that the program has been somewhat successful in achieving local network connectivity. The most significant aspect of the updates was to include VDOT in examining the entire network of roadways in their decision making, not just individual road segments.
- An Arterial Preservation Initiative was started 6 months ago at VDOT, as well as the implementation of Signal Justification Requirements. The Commonwealth Transportation Board initiated these efforts because high-speed multilane major arterials were becoming operationally inefficient due to frequency of traffic signals and signalized access to development. VDOT examined major arterials and their

function across the state, identified critical roads, and developed a policy by which new signals on these roads must be approved Central Office rather than at the District level. The emphasis is that just because a signal is warranted does not mean that it is justified – thus Signal Justification Requirements.

    - VDOT created a spreadsheet tool called "VJuST" or the VDOT Junction Screening Tool, which narrows down design options of intersections based upon congestion, safety, and pedestrian accommodation. The qualitative nature of the pedestrian accommodation consideration was considered a shortcoming.
    - Tool: www.virginiadot.org/business/resources/LocDes/01_VJuST_Ver1.0.xlsm

- The majority of signals in urban areas have pedestrian signals, but these are mostly lacking in the remainder of the state. The Signal Program at VDOT has been focusing on the consideration of pedestrians at signals and crossings, whereas previously the emphasis has been on vehicular needs. The Signals Program is intended to be rolled out next year.
- Currently, no signal progression analysis occurs at Central office; flexibility is left to local districts on decisions on signal analysis.

**Off-System Improvements**

- VDOT has a program for funding Smart Scale Projects, which are intended to finish the final stages of construction on projects that are found in both the State and regional LRTP. Funds are allocated on a competitive basis using a transparent scoring method, which changed the paradigm by giving localities clarity on why their projects were or were not selected. Smart Scale requires detailed analysis of the requested projects, which encourages VDOT coordination with localities as well. Information on this program is available at http://vasmartscale.org/
    - Access management construction projects tend to score well in this program and have been funded.
- VDOT allows highway construction funds to be used to build bicycle and pedestrian facilities either concurrently with highway construction projects or as independent transportation projects.

**Intergovernmental Coordination in State Highway Access Management**

- VDOT maintains most of the highways in the state and has direct control of access on them, but VDOT does not maintain roads in cities and towns over 3,500 population, nor the local roads in Arlington and Henrico Counties, and therefore does not control access rights or standards.
- Statute 15.2-2223 of the Code of Virginia requires state and local plans to be consistent, which encourages cooperation and coordination. The Multimodal System Plans are a key example.
- VDOT is currently pushing localities to go through the Arterial Management Program process, with support of the Transportation Board. The VDOT Arterial Management Plan Methodology Report includes coordination and briefing with local government officials as part of the methodology for creating an Arterial Management Plan. The ultimate goal of coordination is to get local government boards or councils to adopt the AMP into the Comprehensive Plan or Master Plan and any local ordinances required to fully implement the AMP. Four different highway segments currently have

arterial management plans, all done with four different localities. VDOT is in the process of working with at least five (5) other localities in developing arterial management plans.

  - Route 250/W Broad Street AMP in Guchland County was identified as the most successful to date, with broad cooperation and the incorporation of the plan into their local code. Link: http://www.virginiadot.org/projects/resources/Rt250_Rt623_Arterial_Management_Plan.pdf

**Access-Permitting Enhancements**

- Virginia utilizes a Land Use Permit System with on-line submission capability; information is available at http://www.virginiadot.org/business/bu-landUsePermits.asp Virginia also has a land use plan tracking system, LandTrack, with limited public access available at http://landtrx.vdot.virginia.gov/.
- VDOT does not have an online or automated system for access permitting.
- VDOT will soon complete a study entitled, "Extent and Impacts of VDOTs Exception Process for Access Management Design Standards", which looked at different state processes for waivers and exceptions and how many driveways needed them

**Staff Education and Training on Access Management**

- VDOT does not have a systematic approach to staff education or training on access management.

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## Washington Department of Transportation

*Washington Department of Transportation (WSDOT) has been purchasing and implementing limited access control since 1951. Legislators and the governor approved the Highway Access Management Act in 1991, directing WSDOT to develop two new sets of rules for state highways not considered Limited Access Highways, resulting in a new class of access control called Managed Access Highway. WSDOT established a permit fee schedule and application process for state highways in 1992. In January 1993, new rules were adopted, titled Access Classification System and Standards, creating a classification system and design standards for all state highways. Further updates occurred in 1999.*

### Access Classification, Context, and Complete Streets

- WSDOT has a 5-category system for access control, provided in Table 13. Written access category descriptions in the WSDOT Design Manual provide guidance on spacing standards of a given access class based on functional characteristics of the roadway and general urban versus rural context.

**Table 13: Washington State Highway Access Classes**

| Class | Non-Conforming[1] | Variance[2] | Conforming[3] | Access Point Spacing** | Limitations[4] |
|---|---|---|---|---|---|
| **Class 1** Mobility is the primary function | Yes* | No | No | 1,320 ft | • One access only to contiguous parcels under same ownership<br>• Private access connection is not allowed unless no other reasonable access exists (must use local road/ street system if possible) |
| **Class 2** Mobility is favored over access | Yes* | Yes* | No | 660 ft | • One access connection only to contiguous parcels under same ownership unless frontage > 1,320 ft<br>• Private access connection not allowed unless no other reasonable access exists; must use local road/street system if possible |
| **Class 3** Balance between mobility and access in areas with less than maximum buildout | Yes | Yes | Yes | 330 ft | • One access connection only to contiguous parcels under same ownership<br>• Joint access connection for subdivisions preferred; private connection allowed, with justification |
| **Class 4** Balance between mobility and access in areas with less than maximum buildout | Yes | Yes | Yes | 250 ft | One access connection only to contiguous parcels under same ownership, except with justification |
| **Class 5** Access needs may have priority over mobility | Yes | Yes | Yes | 125 ft | More than one access connection per ownership, with justification |

*The access connection continues only until such time other reasonable access to a highway with a less restrictive class or acceptable access to the local road/street system becomes available and is allowed.

**Minimum, on the same side of the highway.

Source: Chapter 540, WSDOT Design Manual, Exhibit 540-1.

- All Washington state highways are either Limited Access or Managed Access highways (until limited access rights are acquired from abutting property owners. Managed access permits are issued either by a local authority or by WSDOT.
- WSDOT has not incorporated complete streets, context sensitive roadway classification, or considerations for non-auto modes into their access management program. WSDOT indicated that the laws and rules for access management are largely auto-centric, and need to be updated to provide multimodal solutions.
- The Highway Access Management Guidebook states, "On all access classes, property access shall be located and designed to minimize interference with transit facilities."

**Network and Corridor Planning for Access Management**

- Washington State law, RCW 47.50.030, states that "The department shall consult with the association of Washington cities and obtain concurrence of the city design standards committee...in the development and adoption of rules for access standards for city streets designated as state highways...".

**Off-System Improvements**

- WSDOT does not invest in off-system improvement projects.

**Intergovernmental Coordination in State Highway Access Management**

- Jurisdiction to issue Access Connection Permits in incorporated towns or cities on Managed Access State highways lies with local agency and not the Department.

**Access-Permitting Enhancements**

- WSDOT Access Permits are computer-generated. The Roadway Access Management Permits System (RAMPS) went into effect in early 2000. RAMPS is a database created for statewide consistency in issuing and tracking Access Connection Permits.
- RAMPS also implemented a new uniform numbering system for Access Connection Permits, replacing the old system where each Region had its own unique numbering system. However, the existing permitting system is over 25 years old and is currently being upgraded to include features like on-line payments.

**Staff Education and Training on Access Management**

- WSDOT has an online class for access management at the following link: http://www.wsdot.wa.gov/Design/accessandhearings/training.htm

**References**

Washington State Department of Transportation. (April 2002). *Highway Access Management Guidebook – Olympic Region Development Services.*

Washington State Department of Transportation. (July 2016). *WSDOT Design Manual.*

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# Chapter 4: Conclusions and Recommendations

Based upon the analysis, a series of policy and practice changes are suggested for consideration by the Department in relation to the access management program. These changes build upon findings of an assessment of national best practices, current FDOT access management practices, a survey and document analysis of selected state transportation agency practices in other states, and peer-to-peer exchanges between FDOT and key access management personnel from other states that together offered insights into potential improvement areas.

This section focuses on those practices identified through the research as worthy of further consideration by the Department. Findings are organized under the following key topics:

- Access Classification, Context, and Complete Streets: How state access management programs are adapting to complete streets policies, including context sensitive roadway classification systems and access management considerations for non-auto modes;
- Network and Corridor Planning for Access Management: How state transportation agencies are advancing corridor planning that includes potential improvements off of the main highway to provide better circulation and support for the state highway;
- Intergovernmental Coordination: Effective intergovernmental coordination practices in state highway access management;
- Access-Permitting Enhancements: Automation applications, such as computerized permit processing and other enhancements; and
- Staff Education and Training: Systematic approaches to staff education.

## Access Classification, Context, and Complete Streets

FDOT is presently exploring how best to align the access management classification system and standards with the context classifications and objectives of the FDOT Complete Streets Implementation Plan. The current access classifications (AC) are not explicitly aligned with planned roadway function (functional classification) or land use context (other than as it relates to access density and potential for land use change) and lack any mention of non-auto modes. The following updates are suggested for consideration by FDOT as means of further integrating land use context and a complete streets planning approach into the current FDOT access management program.

1) **Simplify and refocus the access category system**. Consider removing the distinction based on median treatment - median opening spacing can be assumed as applying only to divided arterials and recommended median treatments can be addressed in the description of the access category. Directional median openings are currently treated as a design (and not spacing) issue. District staff integrate directional openings where they "fit" or can be provided to relieve U-Turn volumes at traffic signals. Signal spacing is an operations issue, although discussions with practitioners indicate that it has value and should be retained (see below for further discussion). AC7 (125 ft. driveway spacing) should be eliminated as it offers little or no access management or complete streets benefit. AC7 was conceived as a way to address the widespread commercial strip development of Florida highways. However, an arterial roadway with AC7 more closely resembles a collector or local access road than an arterial in terms of function. Frequent driveway access also poses greater

risks to pedestrians and bicyclists in more urbanized contexts. These proposed changes are illustrated in Figure 14.

- An example based on FDOT current criteria is the three category system in *Model Access Management Policies and Regulations for Florida Cities and Counties, 2nd edition* (Williams and Barber, 2017) (see Table 3: Example Access Category System for Florida Cities and Counties). See also recent updates to the City of Orlando Thoroughfare Plan, Chapter 60 (Appendix C).
- Minnesota DOT is now in the process of revising and simplifying the current access category system into three main categories – freeway/interstate, principal arterials, and minor arterials. The main objectives have been to keep the land use categories, use functional classification, and reflect how the roadway fits into the existing network and its intended purpose (e.g., longer trips, moderate distance trips, shorter trips).
- Other alternatives for arterials where existing conditions preclude compliance with reasonable spacing criteria are to apply a special category (e.g., Minnesota DOT Category 7 "Specific Area Access Management Plans"), that provides for the development of access management plans to serve as a guide for improving access conditions or a special designation (e.g., Oregon DOT "Special Transportation Areas" designation) to reinforce existing city block spacing.

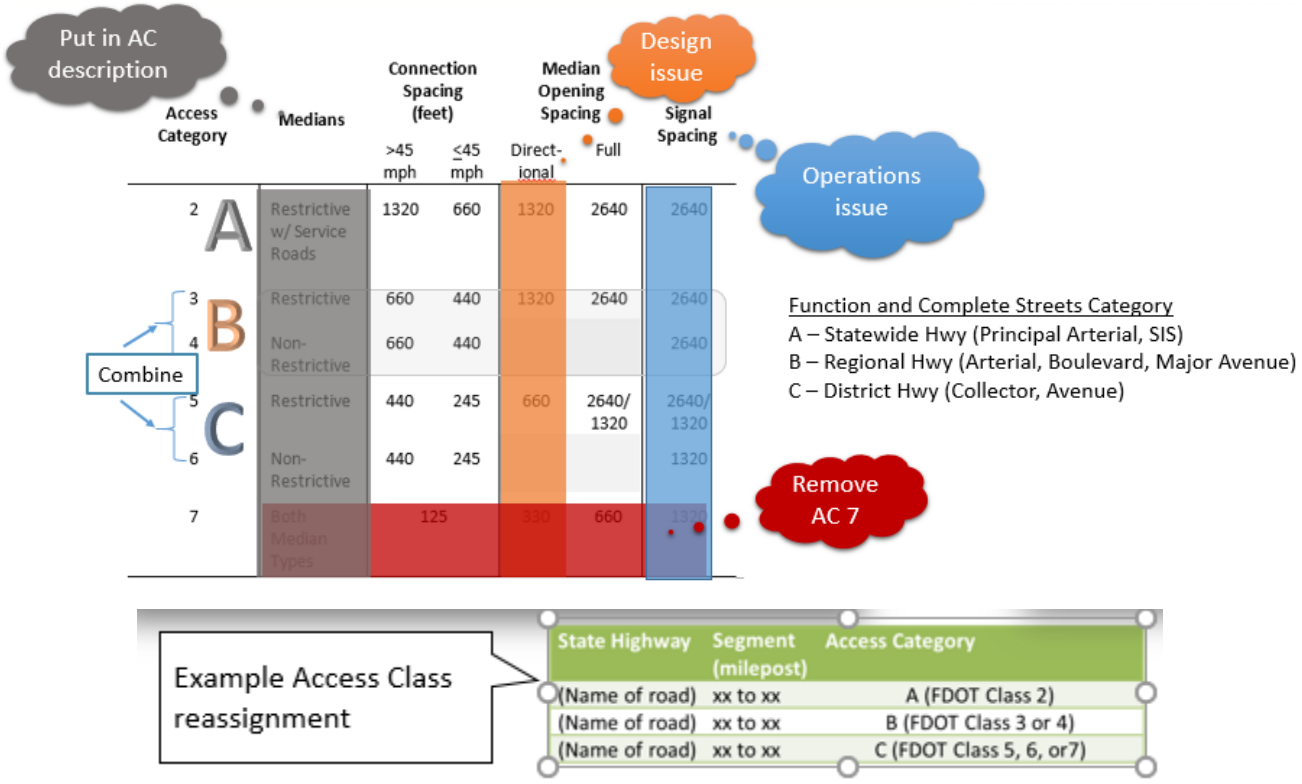



**Figure 14: Summary of proposed updates to FDOT access category system.**

2) **Expand the access category descriptions to address roadway function, land use context, and modal priority.** For purposes of access design guidance, FDOT should expand and refine access category descriptions to more clearly convey the:

   - functional purpose and strategic importance of the roadway in the statewide network (e.g., SIS designation, functional classification),
   - existing and planned land use context (context classification, design speed), and
   - modal priority (e.g., freight, transit, pedestrian or bicycle priority).

   Street typology, as found in complete streets plans (e.g. boulevard, avenue, etc.) could also be included in the category descriptions. See for example the written descriptions contained in Table 3 of this report from the Model Access Management Policies and Regulations for Florida Cities and Counties, 2nd edition (Williams and Barber, 2017). The three model access category descriptions integrate concepts of functional importance, context classification, modal priority and street typology. Another example is the functional classification and access management system of the Virginia Department of Transportation and Department of Rail and Public Transportation, as discussed in Chapter 3 of this report.

3) **Include access criteria for non-auto modes (e.g., trucks, transit, pedestrians and bicyclists).** Such criteria could be integrated into FDOT access management policies, standards and/or procedures in category descriptions (e.g., modal priority) and through simple updates to permitting and design criteria or procedures. Below are some examples.

   - VTrans (Vermont) Access Management Program Guidelines include statements requiring access design to provide for the safe and convenient movement of all users, including pedestrians, bicyclists, and the physically handicapped and accesses that cross or affect these modes "shall have the necessary modifications to ensure the safe crossing of the access and safe use of the facility…"
   - Colorado DOT policy states that access control plans "shall not preclude the current or future accommodation of other transportation modes of bicycles, pedestrian and transit."
   - The Washington DOT Highway Access Management Guidebook states, "On all access classes, property access shall be located and designed to minimize interference with transit facilities."
   - Pennsylvania DOT requires driveway permit applicants to evaluate the need for pedestrian facilities as part of each development project. Also, if LOS requirements and mitigation for developments that require a TIA cannot be met, an alternative transportation plan that encompasses a wide range of strategies to enable the future improvement of conditions for motorists, pedestrians, bicyclists, and transit users may be accepted.
   - The New Jersey DOT and Pennsylvania DOT *Smart Transportation Guidebook: Planning and Designing Highways and Streets to Support Sustainable and Livable Communities* (NJDOT and PennDOT, 2008) includes the following criteria regarding the decision to install a bus stop turn-out or stop in the traffic lane:

    - Turn-outs are desirable for roadways where the posted speed is greater than 40mph, a large number of passengers are boarding or disembarking, and where dwell time is long.

- Under UDOT's Access Management Code, "Access designs must provide for the safe and convenient movement of all highway right-of-way users and modes of transportation including but not limited to pedestrians, bicyclists, transit, and the physically challenged. Further, sidewalks and bike lanes or paths may be required when deemed appropriate by the department or when required by the local authority."

4) **Establish network connectivity and/or block spacing criteria for urban context classifications**. Connection spacing standards are viewed as contributors to sprawling, suburban land use patterns and as being applicable primarily to driveway access. Yet connection spacings can also serve as a framework for block spacing and street network development in urban areas. To address this issue, FDOT could add statements and guidelines for off-system connectivity to Rule 14-96 to further emphasize the importance of effective network and circulation planning during access permit review.

   Network connectivity could also be further emphasized through policy (see next section) and during review and access permitting of major developments. For example, the DRI preapplication checklist in the current FDOT Transportation Impact Handbook touches on connectivity to adjacent properties, surrounding communities, and the surrounding street network, including multimodal connectivity analysis. Conceptual Site Access Review criteria address: "On-site circulation as it impacts the public roadway system or access to public transportation and bicycle/pedestrian network?"

   - Oregon DOT access management criteria indicate that spacing should reinforce existing or planned urban (city) blocks in urban main street environments (see Table 8: Oregon DOT Access Categories). This approach was also used in the *Model Access Management Policies and Regulations for Florida Cities and Counties* (Williams and Barber, 2017) (see Table 3: Example Access Category System for Florida Cities and Counties).

   - Connectivity criteria could be adapted for use by FDOT in site impact review and access permitting for major developments. Virginia DOT advances connectivity of local street networks along arterials through its Secondary Street Acceptance Requirements. Local streets must have a minimum of two (2) connections, and more if the roadways generate more than 2000 trips/day, before VDOT will adopt those streets into the state system for maintenance.

   - The New Jersey DOT and Pennsylvania DOT *Smart Transportation Guidebook* (NJDOT and PennDOT, 2008) includes intersection spacing guidelines.

5) **Consider removing signal spacing standards from after official implementation of the Intersection Control Evaluation (ICE) process in 2020; however, retain the standards in guidance manuals to guide access decisions in the concept planning and preapplication process, as well as during review of significant deviations by District Access Management Review Committees**. Signal spacing standards guide decisions on the location and spacing of requests for signalized access connections. However, they may be superseded by advancements in operations and safety analysis for alternative

intersection designs (Intersection Control Evaluation or ICE). Signal spacing standards can also be challenging to implement in developed urban contexts and have been criticized for contributing to a less walkable environment due to more widely spaced pedestrian crossings. Therefore, a topic of discussion in the Department is whether signal spacing is best handled in Florida by District operations staff through analysis of the application and ultimately through ICE, as opposed to implementing signal spacing under access management rules.

Analysis and discussion of this topic suggests that some signal spacing guidance will continue to be important for administrative purposes. Florida DOT and the other state DOTs participating in the study indicated that they experience considerable pressure from developers and local officials to add new signals to the arterial system. Having standards in place provides leverage to staff and guidance to applicants in the early stages of development review, especially during preapplication meetings, which will take place prior to any ICE analysis.

In addition, applicants that propose signals that deviate significantly from the spacing standards must undergo further review and approval by the District Access Management Review Committees (AMRCs) — a process that helps discourage signal proliferation on arterials that must handle high volumes of through traffic movement. Significant deviations from FDOT signal spacing criteria should continue to be reviewed by the District AMRCs, who could consider the results of any ICE analysis as part of their deliberations.

Additional considerations include:

- ICE will be required for larger developments and this will examine many different intersection alternatives from both an operations and safety perspective, along with benefit/cost analyses. While signal spacing criteria can continue to serve as a "rule of thumb", ICE will likely supercede the signal spacing criteria as it provides a more in-depth understand of appropriate intersections controls at a given location. However, ICE does not become official until 2020, with a two-year transition period. Signal spacing criteria will be needed as guidance as the transition occurs.
- Operations staff should continue to require progression analysis and not just traditional signal warrants, as part of review and approval of access requests that involve a traffic signal. (New Jersey and Colorado include detailed operational criteria that address desired bandwidth and other important considerations, such as pedestrian crossing times, in their access management codes. Such criteria are provided in Appendix F and could be examined for application by FDOT operations staff as appropriate.

## Network and Corridor Planning for Access Management

FDOT encourages local network planning through periodic training and outreach to local governments on access management and multimodal planning. In most cases, FDOT does not actively promote the development of corridor access management plans (CAMPs). District staff do work with local partners on access management improvements during the project development and environment (PD&E) process. Some local governments have initiated CAMPs or special corridor regulations for important state highways on their own accord, which are being implemented in cooperation with the District, such as along US 19 (Citrus, Hernando, Levy County) and US 98 (Okaloosa County).

FDOT has no specific program for advancing local network planning or corridor access management planning; nor does the Department presently fund "off-system" projects (e.g., completing gaps in parallel roadways) that support state highway access management. The majority of state highway funding is dedicated to the Strategic Intermodal System. Poor access conditions and discontinuity of local street networks on urban arterial corridors increase the need to widen roadways and possibly create hazardous conditions for bicyclists and pedestrians. Additional Department leadership and financial support related to off-system network planning would advance statewide multimodal planning and complete streets goals, the Florida Transportation Plan, and the overall FDOT mission.

1) **Consider adopting an access management policy promoting local network planning.** The policy could emphasize the importance of working with local governments on local network development and interparcel connectivity in preserving the safety and operation of arterial roadways and in advancing multimodal and complete streets objectives. Table 14 is an example.

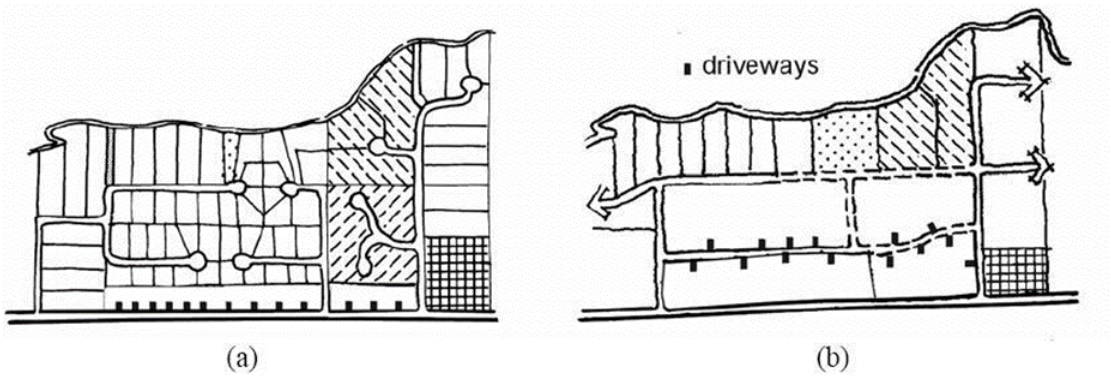
**Table 14: Example Network Planning Policy**

The Department will work with local and regional partners to promote street network development and interparcel connections along the state highway system. The goal of this policy is to preserve the safety and operation of arterial roadways, increase accessibility of land development, and advance complete streets objectives.

The Department specifically recommends the following actions:

- Provide a unified and connected network of local and collector streets for urban development abutting an arterial (see Figure 15);
- Provide side-street and/or rear access to commercial development along highway corridors; and
- Provide cross-access connections between the on-site circulation systems of adjacent commercial developments.

The Department recognizes that network connectivity must be handled carefully in residential environments. Residential areas can be designed on a grid or modified grid with through movement limited by use of narrow cartways, on-street parking, T-intersections, nontraversable medians, traffic diverters, and occasional jogs in the network. Continuity of pedestrian and bicycle networks should also be maintained for safe and convenient bicycle and pedestrian circulation to and from the state highway system.




(a) Poor connectivity impedes walking, bicycling, and transit use. It also increases local trips on major roads and results in more properties requiring direct access to major roadways.

(b) Improved connectivity shortens local trips and improves multimodal mobility. It also enhances local mobility and provides opportunities for internalizing site access off of major roadways.

**Figure 15: Disconnected versus unified and connected street network for access.**

Source: (Williams and Seggerman, 2004)

2) **More actively engage in corridor access management planning (CAMP).** Consider more actively advancing updates to local government access management policies and subdivision practices through corridor access management planning, particularly during corridor studies and project development. Several of the peer states indicated that doing an effective CAMP is an opportunity to leverage the project study for a more effective project over the long term. Many state transportation agencies do engage in corridor access management planning (CAMP) on high priority corridors. New Jersey DOT, Minnesota DOT, Vermont (VTrans), Kansas DOT, and Colorado DOT are among the peer states that recognize the value of corridor access management plans as being "the best bang for your buck". As noted above, some local governments in Florida have also recognized the importance of access management and instituted special regulatory overlay requirements for high priority highways (e.g., U.S. 19, U.S. 98).

   Some lessons learned from the review of state practices and literature relative to CAMPs include:

   - It is best if the CAMP remains conceptual and is not overly prescriptive or adopted into state access management rules (see NJDOT, Colorado DOT). If the plans are conceptual, more communities may be willing to advance the access management strategies and flexibility is retained to accommodate reasonable changes to the plan without a cumbersome regulatory process.
     - The trade-off is reduced state DOT ability to enforce the plans, but other states have found that if the plans are too cumbersome to change, few or no communities will be interested in pursuing them.
     - Strategies in the CAMP should, however, be adopted by local governments into their plans and regulations (Williams, 2004). This can offset any reduction in the state's ability to enforce the plans and will improve results in the long term. Practitioners could apply guidance developed by Central Office for analysis and development of corridor plans and policies, (Williams and Hopes, 2007), as well as that contained in the TRB Access

Management Manual, 2nd edition (Williams et al., 2014). See also the corridor access management strategies by land use context in Appendix E.

- FDOT should also consider revising Rule 14-97(3)g to indicate that a CAMP is a conceptual plan, developed in cooperation with affected local governments, and intended to guide street network development and signal location, manage land division activity, and promote unified site access and circulation along state highway corridors.

- CAMPs are resource intensive, so a mandatory CAMP process for every new project is not advised. Rather, the CAMP could simply be part of corridor studies with the level of detail appropriate both in relation to the type of corridor and to the degree to which local governments wish to collaborate (see also #3 below). Peers further indicated that it is best if local governments have "skin in the game" in the form of staff time and funding toward completion of the CAMP.

3) **Incentivize the adoption of local thoroughfare and access management plans and the development and construction of off-system projects in an adopted plan that support the state highway system**. Appropriate application of access management techniques and strategies extends the operational life of the primary roadway – an important benefit in a time of shrinking transportation funding and growing demand. A number of techniques are available to implement access management objectives – including improvements both on and off the primary arterial roadway. Corridor access management techniques typically implemented off the primary roadway include, but are not limited to:

   - Parallel relievers and service roads;
   - Development of a dense and connected local and collector street network; and
   - Unified access and circulation plans for abutting land uses, including interparcel cross access and joint use driveways.

   These strategies, when combined with access management of the primary roadway (e.g., medians, turn lanes, driveway spacing), will play an increasingly important role in achieving a well-balanced, safe and efficient transportation system, while reducing the need for large-scale and expensive corridor reconstruction projects. There are a number of ways that FDOT, MPOs and local governments can fund access management improvements both on and off the primary roadway. They include:

   - Directly paying for the improvements using available and appropriate resources, including federal funds, state funds, local general funds, funds raised through bonding, and other available and appropriate capital improvement program funds;
   - Through the development process (right-of-way and/or construction services gained through exaction, funds generated through the application of transportation impact fees, etc.);
   - Public/private partnerships in which resources are combined to achieve the desired result; and
   - Private or non-profit entities using their own financial resources.

FDOT should consider taking a more active role in advancing off-system improvements that support the state highway system by:

a. Working with MPOs to encourage the prioritization of projects that complete gaps in parallel reliever roadways and the collector system along arterial routes.

b. Making such projects eligible for matching state funds if they support access management, and multimodal safety and operations of the state highway system (e.g., NCDOT, KDOT, CDOT).

c. Establishing a special program for development and funding of access management plans and complementary off-system projects that improve safety and operations on certain segments of high priority (SIS) corridors (e.g., KDOT).

4) **Adopt a new driveway removal/reconstruction practice, requiring evaluation of potential driveway closures during the appropriate roadway design phase**. Many arterial corridors suffer from safety and operational problems caused by excessive levels of driveway access. Florida DOT focuses its efforts on median treatments to address the situation, given that state transportation agencies cannot legally remove or change existing driveway access without property owner approval or the presence of a significant safety and operational issue.

FDOT can also require changes to driveway access during redevelopment when a new permit is requested or when a significant change in trip generation occurs as defined in Rule 14-96 FAC and Florida law (335.182(3)(b) F.S.). However, these changes are incremental and take time. This leaves decades of substandard access conditions along existing corridors to the detriment of the State of Florida. Rule 14-96.015(1), does provide that "corridors will be examined during the preliminary engineering and design phases to determine if existing connections, median openings, and signal spacing and design standards are in conformance, or can be brought into conformance, with adopted Department standards."

Florida would benefit from adopting the practices of other states and counties that have focused their efforts on negotiating driveway closures during resurfacing and roadway reconstruction projects. Michigan DOT (Geiger, 2006) and Scott County, Minnesota (Williams et al., 2014, Ch. 10) are documented examples of successful negotiation efforts resulting in numerous driveway closures or reconstructions. These efforts included proactive stakeholder involvement and would be best advanced by FDOT in collaboration with local agencies.

Driveway removal could be guided by a decision tree similar to that shown in Figure 16, where closure is pursued where multiple points of access exist, driveway is not essential, cost is reasonable and closure is acceptable to the property owner. The decision tree was developed for a project to reconstruct County Highway 101 in Scott County, Minnesota. Of the 41 entrances on the corridor, 26 were identified for closure using the decision tree and project staff successfully negotiated voluntary agreements to close 20 of those driveways (Chromy and Rasmussen, 2012). Contributing to their success was a willingness of the County to include on-site improvements that benefitted both the project and the site (Figure 17).

Driveway closure can include incentives other than direct compensation of property owners. For example FDOT could agree to improving the design of a driveway that remains (e.g., radius, channelization, landscaping) in exchange for voluntary closure

by the property owner of one or more other driveways. Many times this will benefit the owner by providing more parking and better internal circulation for customers.

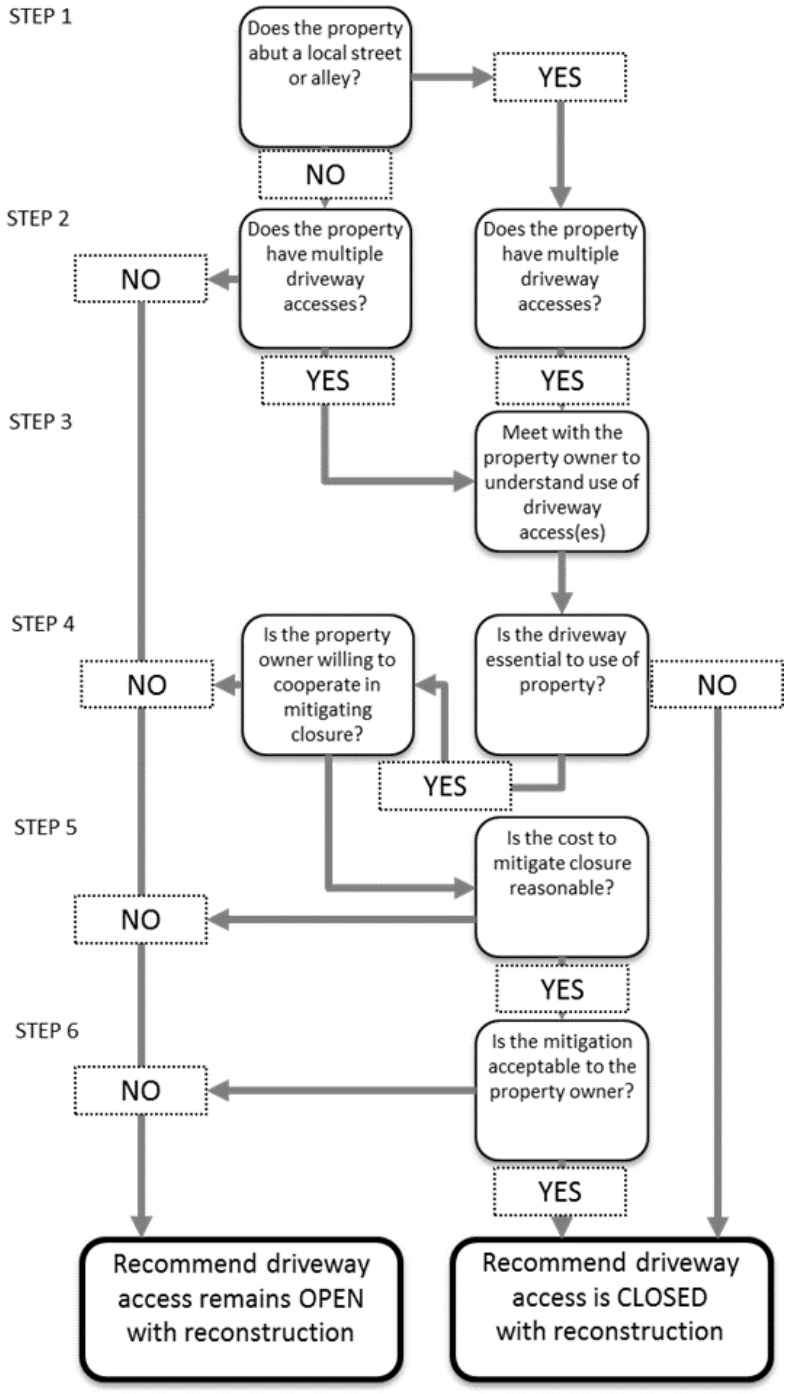



**Figure 16: Example driveway closure decision tree.**

Source: (Chromy and Rasmussen, 2012)


**Figure 17: Site access redesign on County Highway 101, Minnesota.**

Source: (Chromy and Rasmussen, 2012)

## Intergovernmental Coordination

As stated in the TRB Access Management Manual (Williams et al., 2014), "coordination is accomplished when the various parties responsible for access management decisions act in harmony." Coordination begins in planning and policy development and extends into permitting and development review. This section offers strategies to ensure effective local access management planning and enforcement to assist FDOT in accomplishing its mission through intergovernmental coordination.

1) **Raise awareness of the report *Model Access Management Policies and Regulations for Florida Cities and Counties, 2nd edition*,** (Williams and Barber 2017)**.** An important method of intergovernmental coordination would be to actively promote this resource to local governments and encourage its use. Following the first edition of the model regulations, training was done throughout Florida and regional projects were initiated aimed at assessing local practices in relation to the code on high priority SIS corridors. This resulted in adoption and implementation of access management policies and regulations in many Florida cities and counties and improved intergovernmental coordination in arterial access management. The recent update of the model regulations in 2017 offers another important opportunity for elevating local awareness and use of access management strategies.

    - Post the model regulations on the FDOT Central Office and District access management websites;
    - District staff should share information about the new resource to local governments, particularly smaller communities or rural counties, during meetings and outreach activities and encourage them to update and strengthen their land development regulations accordingly;

- Identify the model regulations as a resource in FDOT guidance documents including the driveway handbook, median handbook and the Transportation Impact Handbook (e.g., Section 3.10.4, Publication resources and the DRI Reapplication Checklist (pp 161-163).

2) **Provide training on model access management regulations for local governments.** Much has changed since the first edition was published and training would be instrumental in assisting local governments in updating their access management policies and regulations, so they could better support FDOT in the implementation of effective access management practices. Consider establishing a special session focused primarily on accomplishing coordination when implementing interparcel cross access agreements. Such training would benefit both District permit engineers and local government public works and development services personnel.

3) **Produce an outreach brochure on effective multimodal planning that includes complete streets and access management.** In the 1990s, FDOT commissioned CUTR to produce the brochure "Ten Ways to Manage Roadway Access in your Community". The short brochure was mass mailed to local government officials throughout Florida and raised awareness and interest in access management strategies both in Florida and nationally, when it was posted on the American planning Association website. Since that time, many local governments have also adopted multimodal "mobility plans" that include complete streets policies and strategies. FDOT should consider producing another simple brochure, similar to that done in New Jersey by DVRPC (Figure 18), to share these advances and case examples in a format that is easily digestible for local officials and the public.

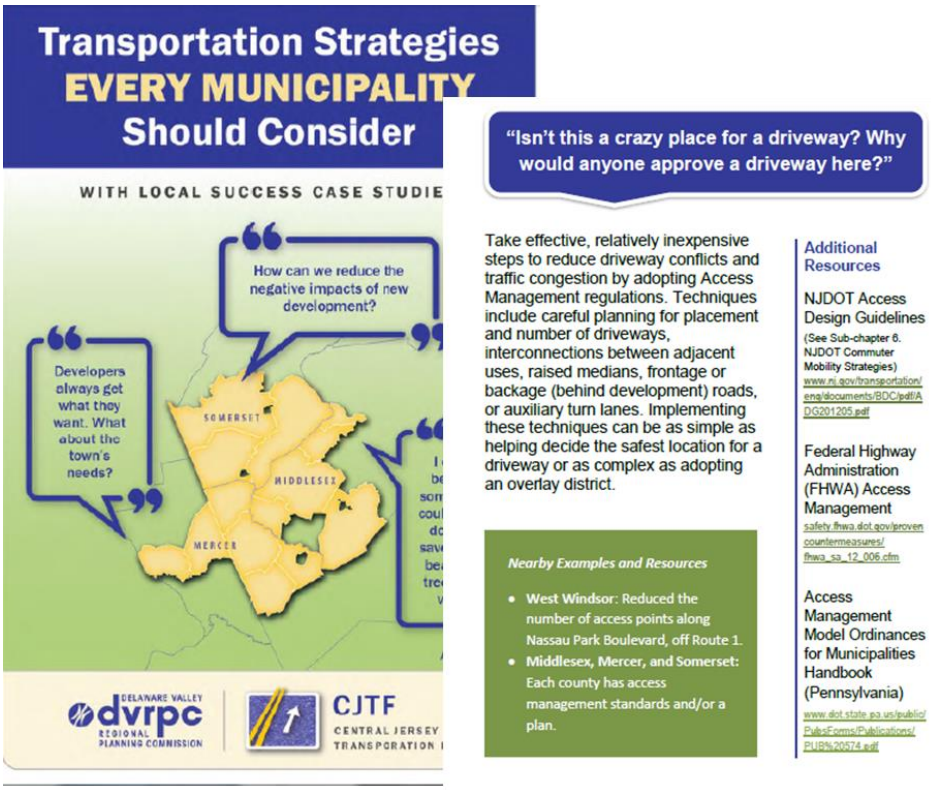



**Figure 18: Brochures convey strategies and success stories to public officials.**

Source: Delaware Valley Regional Planning Commission, www.dvrpc.org/Reports/17063.pdf

4) **Adopt an early intervention process where lot split and subdivision activity is adversely impacting state highways.** FDOT Districts should periodically examine land division and subdivision practices along state highways in newly urbanizing areas to identify emerging problems. District staff could begin by contacting local governments in those areas and request that they adopt a lot split ordinance (see Model Access Management Policies and Regulations for Florida Cities and Counties, 2nd ed, 2017 for examples). Districts could also encourage local governments to advise District staff of lot split activity and ask them to share subdivision plats, development proposals, and site plans that affect state highways for review by the District early in the application process. For example, these documents are reviewed by various KDOT agencies, including the Access Management Unit. The KDOT review facilitates sharing of expertise among participants and allows state highway system concerns to be part of the decision process.

## Access-Permitting Enhancements

The review of current practice identified a number of states that have implemented e-permitting in recent years. These states offer some insights into next steps for the Florida DOT One-Stop Permitting (OSP) site, which will eventually offer e-Permitting for access permits.

1) **Continue moving toward an efficient e-Permit process to include local governments.** FDOT has implemented various improvements to the access management and permitting process, some of which are now reflected on the Central Office website (e.g., One-Stop Permitting). The following suggestions are offered to continue to advance the e-permitting process.

    a) Consider undertaking a detailed review and mapping of the current permitting processes in the Districts to document what is currently happening and how it could be more efficiently automated (e.g., Oregon DOT, CDOT)

    b) Proceed toward smart phone and tablet applications (e.g., Oregon DOT).

    c) Provide updates or notifications to local governments when a permit has been initiated in their jurisdiction and consider an interface whereby local agencies may integrate their comments.

    d) Develop a brochure and/or online manual and training to facilitate a smooth transition to e-permitting.

2) **Encourage Districts to engage in (or continue to engage in) regular permit coordination meetings with local governments.** An intergovernmental coordination issue that occasionally arises relates to the Notice of Intent to Permit access to the state highway. At times, property owners and local governments may perceive the Notice of Intent to Permit as an indication that the access is fully approved, or the Notice of Intent to Permit is sometimes used by an applicant as leverage or incentive to obtain local development approval. Regular permit coordination meetings, reciprocal agreements, and coordination protocols have all proven useful in resolving this issue. Other suggestions are:

    a) Consider defining the term "development approval" as it relates to the Notice of Intent to Permit.

    b) Consider providing a signature block for local governments on the final state highway access permit for development connections (e.g., Kansas DOT), and

encourage local governments to place a signature block for FDOT on the final local government development order, to clarify that the necessary state and local approvals have been obtained. Similar to the Kansas DOT approach, the FDOT permit application instructions could indicate the following: "The Permittee must obtain the support of the local government in which the access to a state highway is proposed. An authorized local government representative's name, position, and date of coordination should be filled in by the Permittee confirming that the Permittee has local support for the access. Local support for the application is a necessary precondition, but does not constitute FDOT approval of the permit request."

## Staff Education and Training

FDOT has an extensive and highly-trained professional staff of access management planners, engineers, permit specialists, and attorneys. A key reason for the professionalism of FDOT staff is availability of regular training and excellent FDOT guidance documents specific to access management applications (e.g., Median Handbook, Driveway Handbook, Transportation Impact Handbook). Below are some additional staff education and training recommendations to assist FDOT in addressing its mission and goals relative to access management and complete streets (see also recommendation 2 under Intergovernmental Coordination).

1) **Continue periodic statewide meetings, as well as live and online training.** The FDOT Systems Management Section of the Systems Implementation Office produces numerous guidance documents and has hosted statewide access management meetings periodically to provide District personnel with updates and a forum for exchange of ideas and practices. The office also provides training to educate Districts, local governments, and consultants on new techniques and research findings. Offerings include live training events around the state, regular live webinar training, recorded webinars, presentations, and self-guided training (see Systems Implementation Office Trainings & Webinars). National research indicates (Gluck and Lorenz, 2010) that continuous education and information sharing are key success factors for effective access management programs. FDOT should continue providing statewide meetings and training for ongoing advancement of its program.
2) **Provide training on land development and access management that is targeted to the development community and local governments.** Private sector consultants that serve the development community and their clients, as well as individual property owners interested in developing their property, will benefit from a greater understanding of access management that is targeted to their specific needs and concerns. Such training can help the District offices by informing their customers as to the intent and process of access management and how they can benefit. Similar training was offered in District 7 and was well received.
    - Other possible new training offerings include Access Management and Complete Streets (module), Corridor Access Management Planning (course or module), and Model Access Management Policies and Regulations (course or module).
3) **During current access management training, clearly convey the role of access management in accomplishing Complete Streets.** Efforts to manage highway access are occasionally characterized as inconsistent with livable communities, complete streets and smart growth. One reason is a lack of understanding of the role of access management in advancing sustainable development and supporting walking, bicycling and transit use. Access management

complements, rather than contradicts, complete streets and sustainable development. Below are specific examples of this relationship that could be emphasized and used as talking points in ongoing staff training:

a) Expanding local street and sidewalk networks, accomplishing reasonable and regular street spacing and improved local network connectivity are key tenets of both access management and smart growth or sustainable development. Dense and connected networks are also fundamental elements of traditional neighborhood development and transit oriented development. Reducing access onto major roadways requires greater attention to density and connectivity of supporting networks.

b) Access management techniques, such as medians and driveway controls, significantly increase pedestrian and bicycle safety and enhance corridor aesthetics.

c) Access management strategies will be different depending on the land use context in which they are applied and the modes expected on a corridor. Just as with auto-focused plans, transportation plans for complete streets will need to maintain a functional hierarchy of design types based on desired operating speeds, carrying capacity and public safety. This will involve different approaches to access design on major corridors intended for longer distance, higher speed travel than those where local circulation is a priority.

d) Access management is a framework for coordinating transportation and land use planning and decision making. In urban settings, it can be complemented with form-based codes for land development and buildings fronting on roadways with sidewalks to improve walkability, as well as the overall roadside image.

e) All modes have some need for access management, whether directly or indirectly. As more modal options are integrated into the transportation system, it will be increasingly important to carefully manage access and minimize conflicts between auto traffic, the pedestrian, the bicyclist, and other modes of transportation.

## Summary

The review of state practices indicates that most states address roadway function and context to some degree in their access classification system, and generally more so than FDOT. However, most states have not addressed context classifications and complete streets in access management. Rather, these issues are being addressed through intergovernmental multimodal planning, corridor access management planning and/or transportation impact assessment activities.

Many of the states reviewed had more active corridor access management planning (CAMP) processes than that of FDOT. Some applied state resources to both planning and implementation of CAMP projects. Several of the states were also struggling to address a proliferation of signals impacting highway operations and safety.

This national benchmarking study identified certain FDOT activities as national best practices, including: 1) staff education and training; 2) median policy; and 3) the FDOT Access Management Review Committee Process. It also suggests a variety of potential improvement areas to better align FDOT's access management program with its mission and complete streets objectives, improve coordination and resource sharing with local governments, and potentially lead to more comprehensive corridor management solutions.

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# Appendices

## Appendix A: Access Management Benchmarking Survey and Responses

**Background**: The Center for Urban Transportation Research (CUTR) at the University of South Florida (USF) is embarking on an access management benchmarking study for the Florida Department of Transportation (FDOT). The objectives are to understand and evaluate FDOT's access management practices in relation to contemporary best practices, and identify areas for and means of performance improvement. Toward that end, we are contacting other states to identify practices that may benefit FDOT in accomplishing its access management objectives. For questions or comments about the study, contact the Principal Investigator at kwilliams@cutr.usf.edu.

1. Has your state adapted its access management program to address complete streets, context sensitive roadway classification systems and/or access management considerations for non-auto modes?
    a. Minnesota: Yes: We are just starting the process of revising our system to take into account non-auto modes. We have an engineering coordinating with our complete street planners.
    b. New Jersey: Yes: Under the New Jersey State Highway Access Management Act, the State Highway Access Management Code establishes a general classification system based upon highway/access function, environment, highway configuration, and speed to define the highway segment character. The NJDOT is aware of thoroughfare or context zone type classification systems that more specifically identify the corridor character. In order to accommodate this type of classification system, amendment of the New Jersey State Highway Access Management Act will need to be pursued. The NJDOT has also adopted complete streets policies to ensure non-auto modes are considered in the planning and construction of all state highway projects.
        - http://www.state.nj.us/transportation/about/rules/documents/16-47-Current.pdf
        - http://www.state.nj.us/transportation/eng/completestreets/
    c. Texas: No
    d. Utah: No, but not directly familiar with this terminology. We may be incorporating such features, but just not using the same nomenclature.
    e. Virginia: Yes: VDOT has adopted multimodal design standards, based upon the Multimodal System Design Guidelines published by the Virginia Department of Rail and Public Transportation, available at http://www.drpt.virginia.gov/planning/multimodal-guidelines/ VDOT's spacing standards for such areas and our process for incorporating the multimodal standards can be found under "Implementing Transportation Efficient Development" at http://www.vdot.virginia.gov/info/transportation_efficient_land_use_and_design_guide.asp VDOT has also had a pedestrian and bicycle accommodation policy since 2004 that can also be interpreted to be a form of complete streets policy. Information on this policy is available at http://www.virginiadot.org/programs/bkdocuments.asp , but no changes to access policy, other than a requirement to consider and accommodate pedestrians and bicyclists in the design of connections to state highways, were made initially.

f. Vermont: Yes: see the Vermont State Design Standards http://vtrans.vermont.gov/sites/aot/files/highway/documents/publications/VermontStateDesignStandards.pdf

g. Washington: No

h. North Carolina: No

i. Colorado: No

j. Kansas: No

k. Oregon: No answer

l. Pennsylvania: yes. Although mitigation efforts are based on vehicular intersection LOS requirements, as part of each development project, driveway applicants must evaluate the need for pedestrian facilities. Please refer to PennDOT's Policies and Procedures for Transportation Impact Studies found in Publication 282, Appendix A. If LOS requirements cannot be met, an alternative transportation plan that encompasses a wide range of strategies that will enable the future improvement of conditions for motorists, pedestrians, bicyclists, and transit users may be accepted.

2. Does your state actively promote local supporting roadway network planning and/or coordinated corridor planning with local governments to advance access management?

   a. Utah: Yes: Local government coordination is on an as necessary basis. These functions occur on an application level basis, so no formal program content currently exists. That said, the Department does have an active corridor preservation program. Link = https://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1404

   b. Minnesota: no

   c. New Jersey: Yes: The NJDOT is currently pursuing research to facilitate a better understanding of how to apply access standards to roadways not under state jurisdiction. The effort seeks to develop policies that advance access management on roadways supporting the state roadway network.

   d. Texas: no

   e. Virginia: Yes: We promote connected local street networks through our Secondary Street Acceptance Requirements, which have connectivity requirements for streets that are to become part of the state network. Information on the SSAR is available at http://www.vdot.virginia.gov/info/secondary_street_acceptance_requirements.asp VDOT also has an Arterial Management Plan program, which works with localities to prepare corridor plans that utilize access management principals, with the goal that such plans are adopted into the localities' comprehensive plans or zoning ordinances. Information on this program can be found at http://www.virginiadot.org/projects/arterial_management_plans.asp

   f. Vermont: yes: it's part of the corridor planning evaluation undertaken with a corridor study

   g. Washington: yes: WA State law, RCW 47.50.030, states that "The department shall consult with the association of Washington cities and obtain concurrence of the city design standards committee...in the development and adoption of rules for access standards for city streets designated as state highways..." Most of the language in WA laws and rules (for access management) are auto-centric, and need updating to provide multimodal solutions.

h. North Carolina: Yes - This is performed through CTPs (Comprehensive Transportation Plans) coordinated by the Transportation Planning Branch that further coordinates with local officials https://connect.ncdot.gov/projects/planning/pages/comprehensive-transportation-plans.aspx

i. Colorado: Yes - We participate in two products: Access Control Plans and Access Management Plans. sample of the Access Control Plan: https://www.codot.gov/library/studies/us-50-access-control-plan Access Management Plans: These are more focused on multi-modal corridor planning documents looking at the segment in much higher level, here is a sample for US50: https://www.codot.gov/library/studies/us-50-access-control-plan/appendix-k.pdf

j. Kansas: Yes - We encourage local corridor plans for highways, including state funding. We have not been involved in supporting network planning at this point.

k. Oregon: Yes, ODOT partners with local governments during Highway Facility Plan development. Erik Havig Planning Section Manager 503-986-4127.

l. Pennsylvania: yes, PennDOT has developed a handbook to help Pennsylvania's local governments better understand access management and guide them in the development and implementation of an access management program for their community. The handbook is titled "Access Management Model Ordinances for Pennsylvania Municipalities Handbook" (PennDOT Publication 574).

3. Does your state invest in off-system retrofit projects (e.g., site access and circulation changes, local network connections, etc.) for improved highway safety and operation?

a. Utah: Yes: This is more of a project-oriented question. This type of coordination does occur, but it is a bit outside of the purview of statewide permitting operations.

b. Minnesota: no

c. New Jersey: Yes: Providing network connections is essential to the safety and operational performance of all roadways in the network. Unnecessarily consumption of valuable roadway capacity is avoided and discouraged wherever possible. One such example of the NJDOT investing in this avoidance is the enhancement and development of supporting roadways in West Windsor Township during development and redevelopment activities along Route 1.

d. Texas: no

e. Virginia: no

f. Vermont: no

g. Washington: No answer

h. North Carolina: yes - This is accomplished through STIP (statewide transportation improvement program) projects and through SPOT safety and SPOT mobility funding sources coordinated with our field engineers

i. Colorado: Yes - We have numerous cases where CDOT has swapped State Highway with a newly adopted alignment provided by the municipality. These are cases where the State Highway has evolved to become main street and now more feasible to provide smart street plans for the community with. We did that in Breckenridge Colorado where state swapped a portion of HWY 9 going through town with a bypass that was procured by the municipality.

j. Kansas: Yes - To an extent - frontage/backage roads and turn lanes onto highways, for example.

k. Oregon: yes, Oregon's state gas tax is distributed by rule 50% State, 30% Counties and 20% Cities by formula. ODOT also partners with local agencies where the local agency work compliments state construction.

l. Pennsylvania: No

4. Does your state have effective methods of intergovernmental coordination in state highway access management?

a. Utah: Yes: See corridor preservation link in Q2.

b. Minnesota: Yes: Access management is decentralized to our eight districts. Each district works with their partners on projects that include access management. This includes developing access management plans along some select corridors.

c. New Jersey: Yes: Subchapter 6 of the New Jersey Access Management Code allows for local government development of the access management standards on state highways within their corporate boundary. In conjunction with the State accepted access management plan, the local government incorporates conditions in its land development standards and Master Plan to facilitate the access management of the State highway segment.

d. Texas: no

e. Virginia: Yes: VDOT maintains most of the highways in the state, so has direct control of access on many highways. VDOT does not maintain roads in cities and towns over 3,500 population plus the local roads in Arlington and Henrico Counties. Additionally, 15.2-2223 of the Code of Virginia requires state and local plans to be consistent, which encourages cooperation and coordination. Information on this can be found at http://www.virginiadot.org/info/localstate_plan_and_program_consistency.asp . Finally, Smart Scale provides VDOT funding of construction projects in localities and requires fairly detailed analysis of the requested projects, which encourages VDOT coordination with localities as well. Information on this program is available at http://vasmartscale.org/ . Access management construction projects tend to score well in this program and have been funded.

f. Vermont: no

g. Washington: No Answer

h. North Carolina: yes - For TIAs (traffic impact assessments) for proposed developments, the state driveway policy requires coordination with local officials in determining driveway permit conditions and infrastructure improvements https://connect.ncdot.gov/resources/safety/Congestion%20Mngmt%20and%20Signing/Congestion%20Management/Policy%20on%20Street%20and%20Driveway%20Access%20to%20North%20Carolina%20Highways%20Current%20Edition%20July%202003.pdf

i. Colorado: Yes - Yes, please refer to the IGA provided as part of the sample Access Control Plan provided in question 2.

j. Kansas: Yes - We require coordination (by signature) for access permits onto highways in cities.

k. Oregon: ODOT partners with local agencies during development along highways within UGBs. The development of TSPs allows ODOT and local agencies to partner in planning for future transportation growth. Erik Havig 503-986-4127.

l. Pennsylvania: Yes, for development projects, municipalities are invited and highly encouraged to participate in meetings and provide comments throughout the highway occupancy permitting process. Refer to the TIS Guidelines mentioned above.

5. Has your state deployed automation (e.g., computerized permit processing, etc.) and/or other enhancements to improve the efficiency of access permitting?

   a. Utah: Yes: The Online Permit System has been deployed since 2003. It is an internal build based on Oracle with Forms (internal facing) and APEX (external facing) interfaces. The system is pretty robust (electronic payment etc.).

   b. Minnesota: no

   c. New Jersey: no

   d. Texas: no

   e. Virginia: Yes: We utilize a Land Use Permit System with on-line submission capability, information available at http://www.virginiadot.org/business/bu-landUsePermits.asp. We also have a land use plan tracking system, LandTrack, with limited public access available at http://landtrx.vdot.virginia.gov/

   f. Vermont: no

   g. Washington: Yes: WSDOT access permits are computer-generated. However, the existing system is over 25 years old. We are working with our IT department to upgrade our permitting system to include user friendly features like on-line payments.

   h. North Carolina: no

   i. Colorado: Yes - We are currently perfecting a SalesForce based database software that is used for all permits - Access, Outdoors Advertising, TODD and Logos in addition to Utility Permits. Additionally, we have developed external web-tracking to allow permit applicants become familiar with the status of their permit applications.

   j. Kansas: Yes - The process is not automated for the permittee, but we have an internal automated process which checks for the need for variances, etc.

   k. Oregon: yes ODOT will be going out with an RFP in the fall of 2017 to upgrade our existing permit database system. The new system will allow portals for customer's to make permit applications on line. Scott Burwash 503-986-3779

   l. Pennsylvania: yes, In 2011, highway occupancy permit applicants were given the ability to apply for a driveway permit on-line via PennDOT's Electronic Permitting System (EPS). Municipalities have also been given access to EPS and the ability to sign-up to receive automatic notifications via e-mail, when an application is submitted to the DOT within that municipality's jurisdiction so they have an opportunity to review the material submitted to the DOT.

6. Does your state have a systematic approach to staff education/training on access management?

a. Utah: Yes: We hold coordination meetings every six weeks with supervisors and quarterly with the larger statewide team. We are not as advanced as FDOT, but we are paying attention to their monthly outreach venue.

b. Minnesota: no

c. New Jersey: Yes: Access Management training/education is not addressed in a formal setting at the NJDOT. But that is not to say it does not occur. During the past year, there have been a number of informal events where staff were given the opportunity to gain a deeper understanding of access management. Notable opportunities include the Division of Statewide Planning presentation on critical functions performed by that unit, the presentation an evaluation of State Highway Access Management Code's desirable typical sections, and a collaborative effort with a regional transportation forum for the preparation of a best practices brochure distributed to local municipalities.

d. Texas: no

e. Virginia: no

f. Vermont: no

g. Washington: Yes: WSDOT has an on-line class for access management and limited access. See the following link: http://www.wsdot.wa.gov/Design/accessandhearings/training.htm

h. North Carolina: yes - We have statewide Site Development and Highway Access Training and workshops that are offered through NC State University (I am one of the co-instructors of this course) (https://itre.ncsu.edu/training/highways/

i. Colorado: Yes - We conduct quarterly staff meetings (5 regional offices) to promote uniformity and to provide a forum for sharing experiences, discussing common issues and advancing processes. One opportunity arises we also provide external training. Currently looking forward to the NHI Pilot Training project in Access Mgmt, Location and Design with emphasis on the 2nd edition of the Access Mgmt Manual and its practical guide that was released in 2014 and 2016

j. Kansas: no

k. Oregon: ODOT is in the process of updating our access management manual. Development of the new access-permitting database and customer portal will result in manual update. Scott Burwash 503-986-3779

l. Pennsylvania: no

7. Please briefly describe any other policies or practices you feel may be of interest to the study along with sources for further information.

a. Utah: Link = www.udot.utah.gov/go/AccessManagement www.udot.utah.gov/go/StatewidePermitsDashboard We've learned a real-time performance dashboard that can identify who has the ball is invaluable to performance. The link above is a live link that is pulling data directly from our Online Permit System. The top and bottom left are directly related to our statewide access management program.

b. Minnesota: n/a

c. New Jersey: n/a

d. Texas: Access Management Manual on TxDOT website provides an overview of TxDOTs policy on access management

e. Virginia: n/a

f. Vermont: The VTrans access management guidelines http://vtrans.vermont.gov/sites/aot/files/planning/documents/permittingservices/UandPAccManProgGuidelinesRev072205.pdf

g. Washington: WSDOT recently updated its Design Manual to include Practical Solutions. Particularly, Division 11, titled "Practical Design" guides designers to include context-appropriate, multimodal, performance-based designs, which optimizes existing system capacity and safety. A collaborative approach with our community partners is essential. Division 11 can be found at http://www.wsdot.wa.gov/Publications/Manuals/M22-01.htm#Individualchapters

h. North Carolina: Policies and practices regarding TIAs, access management, capacity analysis guidelines, etc. are referenced on the NCDOT Congestion Management Website (https://connect.ncdot.gov/resources/safety/Pages/Congestion-Management.aspx

i. Colorado: More emphasis on, complete streets, context sensitive roadway classification systems and/or access management considerations for non-auto modes

j. Kansas: The Kansas Department of Transportation's Access Management Policy may be found at this link: https://www.ksdot.org/accessmanagement/default.asp

k. Oregon: ODOT has completed access permit business process mapping for both the "As Is" and "To Be" processes. This work is now informing the RFP development for the new Access Management Enterprise System (AMES). It is envisioned that the system will allow customers to make access permit applications remotely and be able to track their applications progress. Also envisioned is the development of Android, and Apple applications that will allow realtors, local agencies and private citizens to view permitted approaches in a given area and make applications remotely with a phone or pad device. This system will also interface with ODOTs FileNet electronic filing system and store required documents.

l. Pennsylvania: PennDOT Publication 662 (Improving Land Use - Transportation Connection through Local Implementation Tools) is a handbook intended as a resource for Pennsylvania’s county and municipal leaders who seek practical guidance in better integrating land use and transportation in their comprehensive plan efforts.

8. Are you willing to participate in a peer to peer exchange with FDOT and other states relative to the practices you noted in the survey? (11 yes, 1 no)

**Table 15: State Transportation Agency Contact List**

| State | Contact: | Title | Phone: | Email: |
|---|---|---|---|---|
| Colorado | Alex Karami | Access Program Administrator | 303-757-9841 | alex.karami@state.co.us |
| Kansas | Nelda Buckley | Special Projects Engineer | 785-268-7099 | Nelda.Buckley@ks.gov |
| Minnesota | Brian Gage | State Access Management Engineer | 651-366-3748 | brian.gage@state.mn.us |
| New Jersey | Thomas Houck | Senior Transportation Planner | 609-530-8048 | Thomas.Houck@dot.nj.gov |
| North Carolina | Michael P. Reese, PE, CPM | Congestion Management Regional Engineer | 919-814-4938 | mikereese@ncdot.gov |
| Oregon | Larry McKinley | Access Management Unit Manager | 503-986-3796 | larry.mckinley@odot.state.or.us |
| Pennsylvania | Michael Dzurko | Highway Occupancy Permit Program Manager | 717-783-6080 | mdzurko@pa.gov |
| Utah | Rod McDaniels | Statewide Program Manager | 801.633.6219 | rmcdaniels@utah.gov |
| Vermont | Craig Keller | Chief of Permitting Services | 802-279-1152 | craig.keller@vermont.gov |
| Virginia | Robert W. Hofrichter | Director of Land Use | 804-786-0780 | robert.hofrichter@vdot.virginia.gov |
| Washington | Barb De Ste. Croix | PS&E and Development Services | 360-705-7251 | destecb@wsdot.wa.gov |

# Appendix B: Draft FDOT Access Management Strategies By Context

## Land Use Context Zone – C3R Suburban Residential and C3C-Suburban Commercial

This context classification is applied in both residential and primarily commercial areas. The Suburban Residential context is relevant to mostly residential land uses with large blocks and a disconnected/ sparse roadway network. Where Mostly non-residential uses exist with large building footprints and large parking lots – the Suburban Commercial context should be applied. The Suburban Commercial context is applicable where buildings are within large blocks and a disconnected/ sparse roadway network

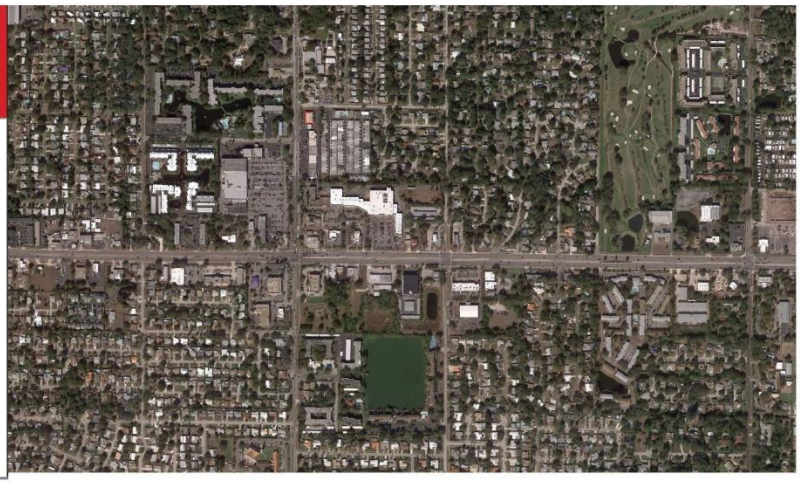
| Land Use Context Zones | Existing land use mix within each block for more than 50%of the blocks within the context zone | Modal Context for Driveway Location and Design Considerations | Relative Importance of Mode | | | | | General Median and Median Opening Features and Considerations |
|---|---|---|---|---|---|---|---|---|
| | | | Auto | Bicycle | Walking | Public Transportation | Freight Distribution | |
| C3R Suburban Residential | Single Use: Single Family, or Multi Family Residential | Bicycles and pedestrians are present. Bus transit transportation is usually present. Entrances into subdivisions will usually be of local Street design which would include radial returns | High | Medium | Medium | Medium | Medium | Install medians on all major multi highways. Provide turn lanes at all median openings Retrofit any continuous two way left turn lane sections into restrictive medians Assure safe, visible, and accessible midblock pedestrian crossings where signal spacing is greater than 2,640 feet |

| Land Use Context Zones | Existing land use mix within each block for more than 50%of the blocks within the context zone | Modal Context for Driveway Location and Design Considerations | Relative Importance of Mode | | | | | General Median and Median Opening Features and Considerations |
|---|---|---|---|---|---|---|---|---|
| | | | Auto | Bicycle | Walking | Public Transportation | Freight Distribution | |
| C3C Suburban Commercial | Single Use: Retail, Commercial, Industrial | May include special districts (outline business districts not in core). Bicycles and pedestrians are present. . Bus transit transportation is usually present | High | Medium | Medium | Medium | Medium to high- especially in industrial areas and commercial centers | Install medians on all major multi highways. Provide turn lanes at all median openings Retrofit any continuous two way left turn lane sections into restrictive medians. Assure that turning radii, especially for large vehicles is sufficient for loading Assure safe, visible, and accessible midblock pedestrian crossings where signal spacing is greater than 2,640 feet |

4

Major Driveway Features

Medium turning radii into neighborhoods with attention paid to the pedestrian environment through the use well marked crosswalks and consider the use of small sized radii, and the use of a text rise to surface to allow off tracking to the typical multiunit tractor trailer



Major Driveway Features

Wide turning radii using the design vehicle to be able to allow to design vehicles (possibly Typical multi-unit tractor trailer) at the same time exiting and entering, especially in industrial areas.

## Land Use Context Zone – C4, C5, and C6 Urban Zones

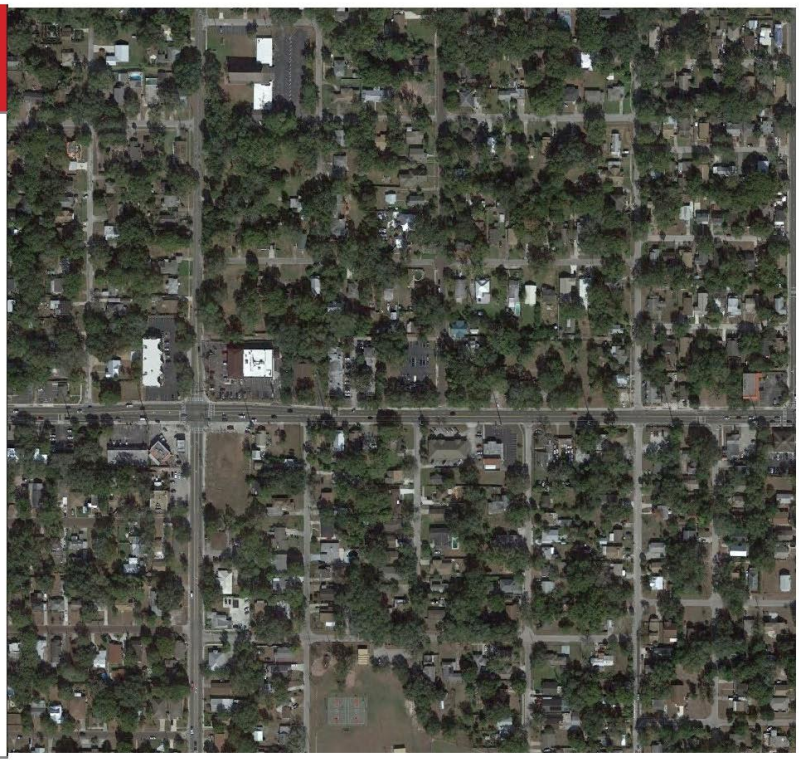
This context classification is a mix of uses set within small blocks with a well-connected roadway network, some blocks may extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway. No direct correlation can be made between access management classifications and context classifications.

Access classes 4 through 7 may be appropriately applied to the Urban context zones. The application of access classes should be correlated to the posted speed limit for the specific roadway. For a General Urban context zone, the access management should be less restrictive.

| Land Use Context Zones | Existing land use mix within each block for more than 50%of the blocks within the context zone | Modal Context for Driveway Location and Design Considerations | Relative Importance of Mode | | | | | General Median and Median Opening Features and Considerations |
|---|---|---|---|---|---|---|---|---|
| | | | Auto | Bicycle | Walking | Public Transportation | Freight Distribution | |
| **C4 General Urban** | Mixed□Use or Single Use: Single Family or Multi-Family Residential, Neighborhood Scale Retail or Commercial | | High | Medium | Medium to high | Medium to high | Medium to high- especially in industrial areas and commercial centers | Install medians on all major multi highways. Provide turn lanes at all median openings Retrofit any continuous two way left turn lane sections into restrictive medians. Assure that turning radii, especially for large vehicles is sufficient for loading Assure safe, visible, and accessible midblock pedestrian crossings where signal spacing is greater than 2,640 feet |

**Major Driveway Features**

Small to medium-sized radii on driveways. Consider the use of small sized radii, and the use of a text rise to surface to allow off tracking to the typical multiunit tractor trailer



| Land Use Context Zones | Existing land use mix within each block for more than 50%of the blocks within the context zone | Modal Context for Driveway Location and Design Considerations | Relative Importance of Mode | | | | | General Median and Median Opening Features and Considerations |
|---|---|---|---|---|---|---|---|---|
| | | | Auto | Bicycle | Walking | Public Transportation | Freight Distribution | |
| C5 Urban Center | Mixed Use or Single Use: Retail, Commercial, Single Family or Multi Family Residential, Light or Medium Industrial | Connected buildings, sidewalk paved from curb edge to face of building, shorter blocks, higher pedestrian volumes, higher volumes of transit bus vehicles and the possibility of fixed rail public transportation, motor vehicle traffic is often congested and moving slowly during peak hours | Medium to low | Medium to high | High | High | Medium - provisions for large vehicles needed for delivery to commercial areas | Block sizes in these sections should be sufficiently short to not require separate midblock pedestrian crossings. |

**Major Driveway Features**

Driveways should be minimized in this area to allow for a more consistent pedestrian environment. When driveways are built, we should consider using the "typical dustpan" design which establishes that the driver is now entering a pedestrian environment. As much as possible, large vehicle access should be through the side and back of developments

| Land Use Context Zones | Existing land use mix within each block for more than 50%of the blocks within the context zone | Modal Context for Driveway Location and Design Considerations | Relative Importance of Mode | | | | | General Median and Median Opening Features and Considerations |
|---|---|---|---|---|---|---|---|---|
| | | | Auto | Bicycle | Walking | Public Transportation | Freight Distribution | |
| **C6 Urban Core** | Mixed Use or Single Use: Retail, Commercial, or Multi Family Residential | Connected buildings, sidewalk paved from curb edge to face of building, shorter blocks, higher pedestrian volumes, higher volumes of transit bus vehicles and the possibility of fixed rail public transportation, motor vehicle traffic is often congested and moving slowly during peak hours | Medium to low | Medium to high | High | High | Medium - provisions for large vehicles needed for delivery to commercial areas | Block sizes in these sections should be sufficiently short to not require separate midblock pedestrian crossings. |

**Major Driveway Features**

Driveways should be minimized in this area to allow for a more consistent pedestrian environment. When driveways are built, we should consider using the "typical dustpan" design which establishes that the driver is now entering a pedestrian environment. As much as possible, large vehicle access should be through the side and back of developments

## Appendix C: Colorado Intergovernmental Agreement

**Draft – 10/28/08**
**INTERGOVERNMENTAL AGREEMENT**
**BY AND AMONG THE CITY OF GRAND JUNCTION,**
**MESA COUNTY,**
**AND**
**THE STATE OF COLORADO**
**BY AND THROUGH THE DEPARTMENT OF TRANSPORTATION**
**UNITED STATES HIGHWAY 50**
**ACCESS CONTROL PLAN, MP 32.684 – MP 41.146**

**THIS AGREEMENT** is entered into effective as of the _____ day of _____ 2008, by and among the City of Grand Junction and Mesa County (hereafter referred to collectively as the "City and County"), and the State of Colorado, Department of Transportation (hereafter referred to as the "Department"), all of the parties being referred to collectively herein as the "Agencies" or solely as an "Agency".

**WITNESSETH:**

**WHEREAS**, the Agencies are authorized by the provisions of Article XIV, Section 18(2)(a), Colorado Constitution, and Sections 29-1-201, et seq., C.R.S., to enter into contracts with each other for the performance of functions which they are authorized by law to perform on their own; and

**WHEREAS,** each Agency is authorized by Section 43-2-147(1)(a), C.R.S., to regulate access to public highways within its jurisdiction; and

**WHEREAS,** the coordinated regulation of vehicular access to public highways is necessary to maintain the efficient and smooth flow of traffic, to reduce the potential for traffic accidents, to protect the functional level and optimize the traffic capacity, to provide an efficient spacing of traffic signals, and to protect the public health, safety and welfare; and

**WHEREAS,** the Agencies desire to provide for the coordinated regulation of vehicular access for the section of United States Highway 50 between a residential driveway (MP 32.684) east to State Highway 141A (MP 41.146) (hereafter referred to as the "Segment"), which is within the jurisdiction of the Agencies; and

**WHEREAS,** the Agencies are authorized pursuant to Section 2.12 of the 2002 State Highway Access Code, 2 C.C.R. 601-1 (the "Access Code") to achieve such objective by written agreement among themselves adopting and implementing a comprehensive and mutually acceptable highway access control plan for the Segment for the purposes above recited; and

**WHEREAS,** the development of this Access Control Plan adheres to the requirements of the Access Code, Section 2.12; and

**NOW THEREFORE,** for and in consideration of the mutual promises and undertakings herein contained, the Agencies agree as follows:

1. This Agreement and the conclusions made in accordance with the Agreement shall constitute an approved Access Control Plan for the Segment, within the meaning of Section 2.12 of the Access Code.

2. The Agencies shall regulate access to the Segment in compliance with the Highway Access Law, Section 43-2-147, C.R.S. (the "Access Law"), the Access Code, and this Agreement including Exhibit A ("Appendix A. United States Highway 50 Access Control Plan") – which exhibit by this reference is hereby incorporated into this document as though fully set forth herein. Vehicular access to the Segment shall be permitted only when such access is in compliance with the Access Law, the Access Code and this Agreement, including Exhibit A.

3. Accesses which were in existence and fully complied with the Access Law prior to the effective date of this Agreement may continue in existence until such time as a change in the access is required by the Access Law, the Access Code or this Agreement or in the course of highway

construction. When closure, modification, or relocation of access is required, the Agency(ies) having jurisdiction shall utilize appropriate legal process to affect such action.

4. Actions taken by any Agency with regard to transportation planning and traffic operations within the areas described in Exhibit A to this Agreement shall be in conformity with this Agreement. As per Code Section 2.12 (3), design waivers may be approved if agreed upon by all of the participating Agencies. Each Agency shall conduct an independent review and all participating Agencies must concur on the design waiver in order for its approval.

5. Lots or parcels of real property created after the effective date of this Agreement that adjoin the Segment shall not be provided with direct access to the Segment unless the location, use and design thereof conform to the provisions of this Agreement.

6. This Agreement is based upon and is intended to be consistent with the Access Law and the Access Code as now or hereafter constituted. An amendment to either the Access Law or the Access Code which becomes effective after the effective date of this Agreement and which conflicts irreconcilably with an express provision of this Agreement may be grounds for revision of this Agreement. Conflicts shall be submitted to the agencies for their revision and revision of this Agreement.

7. This Agreement does not create any current financial obligation for any Agency. Any future financial obligation of any Agency shall be subject to the execution of an appropriate encumbrance document, where required. Agencies involved in or affected by any particular or site-specific undertaking provided for herein will cooperate with each other to agree upon a fair and equitable allocation of the costs associated therewith, but, notwithstanding any provision of this Agreement, no Agency shall be required to expend its public funds for such undertaking without the express prior approval of its governing body or director as applicable. All financial obligations of the Agencies hereunder shall be contingent upon sufficient funds therefore being appropriated, budgeted, and otherwise made available.

8. Should any one or more sections or provisions of this Agreement be determined by a court of competent jurisdiction to be invalid or unenforceable, such judgment shall not affect, impair or invalidate the remaining provisions of this Agreement, the intention being that the various provisions hereof are severable.

9. This Agreement supersedes and controls all prior written and oral agreements and representations of the Agencies concerning regulating vehicular access to the Segment. No additional or different oral representation, promises or agreement shall be binding on any Agency. This agreement may be amended or terminated only in writing executed by the Agencies with express authorization from their respective governing bodies or legally designated officials. To the extent the Access Control Plan, attached as Exhibit A to this Agreement, is modified by a change, closure, relocation, consolidation or addition of an access, the Agencies may amend the attached Exhibit A so long as the amendment to the Access Control Plan is executed in writing and amended in accord with the Access Law and Access Code. The Access Control Plan Amendment Process has been included in Exhibit B.

10. By signing this Agreement, the Agencies acknowledge and represent to one another that all procedures necessary to validly contract and execute this Agreement have been performed, and that the persons signing for each Agency have been duly authorized by such Agency to do so.

11. No portion of this Agreement shall be deemed to constitute a waiver of any immunities the parties or their officers or employees may possess, nor shall any portion of this Agreement be deemed to have created a duty of care which did not previously exist with respect to any person not a party to this Agreement.

12. It is expressly understood and agreed that the enforcement of the terms and conditions of this Agreement, and all rights of action relating to such enforcement, shall be strictly reserved to the undersigned parties and nothing in this Agreement shall give or allow any claim or right of action whatsoever by any other person not included in this

Agreement. It is the express intention of the undersigned parties that any entity other than the undersigned parties receiving services or benefits under this Agreement shall be an incidental beneficiary only.

13. This Agreement may be executed in counterparts, each of which shall be deemed an original and all of which together shall constitute one original Agreement. Facsimile signature shall be as effective as an original signature.

IN WITNESS WHEREOF, the Agencies have executed this Agreement effective as of

the day and year first above written.

**City of Grand Junction, Colorado**

ATTEST:

City Manager, City of Grand Junction: _____

City Clerk: _____

APPROVED AS TO FORM:

City Attorney: _____

**Mesa County, Colorado**

ATTEST:

Chair, Mesa County Clerk and Recorder: _____

APPROVED AS TO FORM:

County Attorney: _____

**State of Colorado**

**Department of Transportation** ATTEST:

Chief Engineer: _____

Chief Clerk: _____

CONCUR:

Regional Transportation Director: _____

**"EXHIBIT – A"**

**ACCESS CONTROL PLAN**

**United States Highway 50 between a residential driveway (MP 32.684) east to State Highway 141A (MP 41.146)**

**_____ (date)**

**City of Grand Junction, Mesa County, and the State of Colorado Department of Transportation**

## I. PURPOSE

The purpose of this Access Control Plan (ACP) is to provide the Agencies with a comprehensive roadway access control plan for the pertinent segment of United States Highway 50 between a residential driveway (MP 32.684) east to State Highway 141A (MP 41.146).

## II. AUTHORITY

The development of this Access Control Plan was completed pursuant to the requirements of the Access Code, Section 2.12, and adopted by the foregoing Agreement.

## III. RESPONSIBILITIES

It is the responsibility of each of the Agencies to this Agreement to ensure that vehicular access to the Segment shall only be in conformance with this Agreement. The cost of access improvements, closures and modifications shall be determined pursuant to section

43-2-147(6)(b) C.R.S., the Agreement, and this Access Control Plan. All access construction shall be consistent with the design criteria and specifications of the Access Code.

## IV. EXISTING AND FUTURE ACCESS

A. The attached table provides a listing of each existing and future access point in the Segment. For each access point the following information is provided: location, description of the current access status, and the proposed configuration or condition for change (Access Plan). All access points are defined by the approximate Department mile point (in thousandths of a mile) along United States Highway 50. All access points are located at the approximate centerline of the access.

B. All highway design and construction will be based on the assumption that the Segment will have a sufficient cross section to accommodate all travel lanes and sufficient right-of-way to accommodate longitudinal installation of utilities.

## V. ACCESS MODIFICATION

Any proposed access modification including but not limited to an addition in access must be in compliance with this Agreement and the current Access Code design standards unless the Agency(ies) having jurisdiction approves a design waiver under the waiver subsection of the Code. Any access described in this section, which requires changes or closure as part of this Agreement or if significant public safety concerns develop (including when traffic operations have deteriorated, a documented accident history pattern has occurred, or when consistent complaints are received), may be closed, relocated, or consolidated, turning movements may be restricted, or the access may be brought into conformance with this Access Control Plan, when a formal written request documenting reasons for the change is presented by the Agency having jurisdiction, with Department concurrence, or in the opinion of the Department, any of the following conditions occur:

a. The access is determined to be detrimental to the public's health, safety and welfare;

b. The access has developed an accident history that in the opinion of the Agency having jurisdiction or Department is correctable by restricting the access;

c. The access restrictions are necessitated by a change in road or traffic conditions;

d. There is an approved (by the Agency having jurisdiction) change in the use of the property that would result in a change in the type of access operation; or

e. A highway reconstruction project provides the opportunity to make highway and access improvements in support of this Access Control Plan.

f. The existing development does not allow for the proposed street and road network.

Access construction shall be consistent with the design and specifications of the March 2002 State Highway Access Code.

**Initials**

**_____ City Manager, City of Grand Junction _____ City Attorney, City of Grand Junction**

**_____ Chair, Mesa County _____ County Attorney, Mesa County**

**_____ Chief Engineer, CDOT**

**"EXHIBIT – B"**

**ACCESS CONTROL PLAN AMENDMENT PROCESS**

**United States Highway 50 between a residential driveway (MP 32.684) east to State Highway 141A (MP 41.146)**

**_____ (date)**

**City of Grand Junction, Mesa County, and the State of Colorado Department of Transportation**

1. Any request for amendment of the Access Control Plan must be submitted to the Colorado Department of Transportation, the City of Grand Junction or Mesa

County staff. The amendment request shall include:

- Description of changes requested of the Access Control Plan; and
- Justification for Amendment; and
- Traffic Impact Study or analysis, as required by the State Highway Access Code. Any party to the Access Control Plan may request this supporting documentation.

2. The Department shall review the submittal for completeness and for consistency with the access objectives, principles, and strategies described in the United States Highway 50 Access Control Plan report for this corridor and the State Highway Access Code.

3. Once all participating agencies (CDOT and the County/City) approve the request for the amendment, the amendment and all accompanying documentation shall be submitted if necessary to Transportation Commission for final review and approval.

**Initials**

**_____ City Manager, City of Grand Junction _____ City Attorney, City of Grand Junction**

**_____ Chair, Mesa County _____ County Attorney, Mesa County**

**_____ Chief Engineer, CDOT**

## Appendix D: City of Orlando, Chapter 61: Major Thoroughfare Plan Draft Update

For facilities in the Major Thoroughfare System, the Access Classification shall be based on the roadways' primary role in the overall network and by the nature of the abutting land uses as described in the following:

> *Classification A:* These facilities are controlled access roads where direct access to abutting land will be controlled to maximize the operation of the through traffic movement. These facilities may include existing or planned restrictive medians, shared left turn lanes, or be undivided. The Access Classification is intended to provide maximum separation between traffic signals and driveway connections. Arterial roadways abutting large land parcels and lying outside the Traditional City overlay district or similarly developed neighborhoods shall be classified as A.
>
> *Classification B:* These facilities serve a greater role in bringing traffic into the main streams of mobility and are allowed to provide less restrictive access than that permitted for Access Class A. Connection separation is less than that required for A, but is still sufficiently controlled to create a safe environment for vehicular and other mobility modes. This Classification applies to both arterial and collector roadways that lie outside the Traditional City overlay district and similarly developed neighborhoods and that generally abut smaller land parcels.
>
> *Classification C:* As these roadways are typically abutted by the most compact land parcels and have generally lower posted speed limits the control of access is the least restrictive. Driveway and intersection connections are allowed with the least separation for any facilities in the Major Thoroughfare System. All segments of the Major Thoroughfare plan that are within Core areas, those segments within predominately residential areas, and those segments designated as Urban Collectors shall be given the Access Classification of C.

Separation requirements for each Access Management Classification are given in Figure 1 and Figure 2 below. All separation distances shall be measured at the outermost limit of the right-of-way between the nearest two paved edges of driveways or the back of curb of roadways. Connection permits on every facility segment on the Major Thoroughfare System issued after adoption of this amendment shall meet the requirements of this section.

| Access Class | Applicability | MINIMUM TRAFFIC SIGNAL SEPARATION * | MINIMUM MEDIAN OPENING SEPARATION | | Minimum Separation from Adjacent Driveways OR Intersections | |
|---|---|---|---|---|---|---|
| | | | FULL ACCESS OPENING | DIRECTIONAL ACCESS OPENING | RIGHT IN AND RIGHT OUT | RIGHT IN OR RIGHT OUT |
| A | Suburban Arterials | 2,640 ft (1/2 mi) | 2,640 ft (1/2 mi) | 1,320 ft (1/4 mi) | 330 ft | 165 ft |
| B | Urban Arterials & Suburban Collectors | 1,320 ft (1/4 mi) | 1,320 ft (1/4 mi) | 660 ft (1/8 mi) | 165 ft | 125 ft |
| C | All other Major Thoroughfares | 1,320 ft (1/4 mi) | 660 ft (1/8 mi) | 330 ft (1/16 mi) | 125 ft | 125 ft |

**Figure 1: City of Orlando spacing guidelines for raised median roadways.**

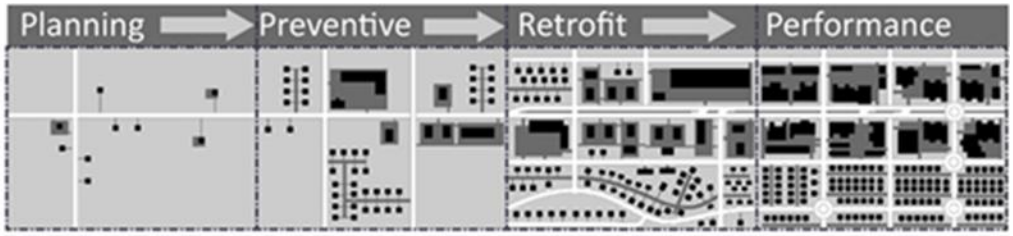
*All values in Figure 1 are for informational and planning purposes only. The actual location and spacing of all median openings and traffic signals shall be determined and approved by the City Transportation Official & City Transportation Engineer prior to permitting. Where applicable, such approvals will be coordinated with responsible FDOT. Orange County, & Central Florida Expressway Authority officials. All separation distances shall be measured from the nearest edge of pavements, extended to the ROW limit.*

| Access Class | Applicability | MINIMUM TRAFFIC SIGNAL SEPARATION * | Minimum Separation from Adjacent Driveways OR Intersections | | |
|---|---|---|---|---|---|
| | | | FULL ACCESS DRIVEWAY | RIGHT IN *AND* RIGHT OUT | RIGHT IN OR RIGHT OUT |
| A | Suburban Arterials | 2,640 ft (1/2 mi) | 660 ft | 330 ft | 165 ft |
| B | Urban Arterials & Suburban Collectors | 1,320 ft (1/4 mi) | 330 ft | 165 ft | 125 ft |
| C | All other Major Thoroughfares | 1,320 ft (1/4 mi) | 125 ft | 125 ft | 125 ft |

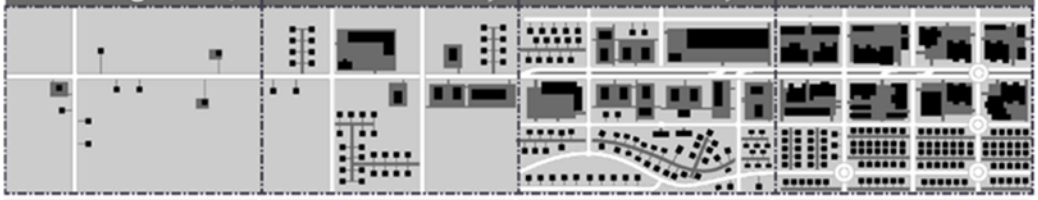
**Figure 2: City of Orlando spacing guidelines for undivided and painted median roadways.**

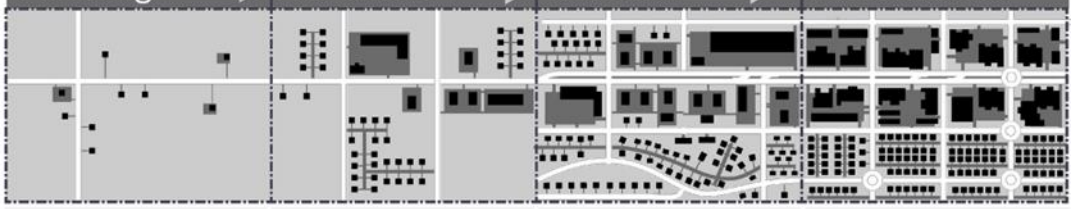
*All values in Figure 2 are for informational and planning purposes only. The actual location and spacing of all median openings and traffic signals shall be determined and approved by the City Transportation Official & City Transportation Engineer prior to permitting. Separation distances on roadways under FDOT or OC jurisdiction, shall also be required to meet minimum standards for the appropriate governing entity. All separation distances shall be measured from the nearest edge of pavements, extended to the right-of-way limit.*

## Appendix E: Local Access Management Strategies By Context




| | Rural | Suburban Fringe/Exurban | Suburban | Compact Urban |
|---|---|---|---|---|
| **Land Use** | Discourage strip development in land use planning and zoning<br>Identify and promote commercial nodes | Discourage strip development in land use planning and zoning<br>Identify and promote mixed use activity nodes<br>Manage land use transitions (e.g. form based codes) | Identify and reinforce mixed use activity nodes<br>Transit & pedestrian oriented redevelopment<br>Identify infill sites<br>Manage land use transitions (e.g. form based codes) | Buildings at the street line where appropriate<br>Enhance pedestrian environment |
| **Land Division** | Establish lot split and dimensional controls<br>Prohibit flag lots<br>Shared access when subdivided | Establish lot split and dimensional controls<br>Prohibit flag lots<br>Regulate outparcels<br>Shared access when subdivided | Maintain lot split and dimensional controls<br>Regulate outparcels<br>Shared access when subdivided | Reinforce urban blocks |
| **Street Network & Auxiliary Lanes** | Identify and preserve future ROW<br>Consider left turn and right turn lanes at intersections<br>Consider bypass lanes at T intersections<br>Promote shared residential access to rural subdivisions | Identify and preserve future ROW<br>Parallel relievers or service roads<br>Provide turn lanes at intersections | Parallel relievers or service roads<br>Maintain desired intersection spacing and offsets<br>Promote connected street networks<br>Complete gaps in the street network<br>Provide turn lanes at intersections | Provide frequent street intersections<br>Reinforce local network connectivity and complete gaps in the street network<br>Provide turn lanes at major intersections<br>Improve/expand alleys |
| **Signals & Roundabouts** | Identify locations for full movement intersections (and median openings where applicable) | Identify locations suitable for signalization and/or roundabouts<br>Establish ½ mile signal spacing for signals<br>Preserve R/W for future roundabouts | Maintain ½ mile signal spacing or per bandwidth criteria<br>Maintain efficient signal coordination<br>Convert irregularly spaced intersections to roundabouts, where feasible, to improve efficiency and circulation. | Maintain efficient signal coordination<br>Convert irregularly spaced intersections to roundabouts, where feasible, to improve efficiency and circulation. |

| | Planning → | Preventive → | Retrofit → | Performance |
|---|---|---|---|---|
| |  | | | |
| | **Rural** | **Suburban Fringe/Exurban** | **Suburban** | **Compact Urban** |
| **Medians & Median Openings** | Install medians on major, high volume roadways<br>Provide turn lanes at median openings<br>Avoid continuous two-way left-turn lanes | Install medians on multilane arterials<br>Provide turn lanes at median openings<br>Avoid continuous two-way left-turn lanes | Install medians on multilane arterials<br>Provide turn lanes at median openings<br>Convert unsignalized median openings to directional openings<br>Close excess openings | Provide turn lanes at median openings<br>Close excess openings |
| **Circulation** | Require unified on-site circulation | Promote shared access &circulation systems connecting sites to signalized intersections<br>Require unified on-site circulation<br>Obtain cross access easements | Require unified on-site circulation<br>Promote shared access/circulation systems connecting sites to signalized intersections<br>Obtain cross access easements; connect adjacent parking areas where possible | Typically city blocks<br>Obtain cross access easements and connect adjacent parking areas, where possible |
| **Site Access** | Maintain decision sight distance at access locations<br>Adequate driveway throat length<br>Limit number of driveways per site | Maintain decision sight distance at access locations<br>Provide turn lanes at major access connections<br>Adequate driveway throat length<br>Limit number of driveways per site | Maintain stopping sight distance, corner visibility<br>Provide turn lanes at major access connections<br>Correct deficiencies during redevelopment & roadway improvements, such as:<br>• Access near intersections<br>• Inadequate offsets<br>• Signals too closely spaced<br>• Multiple site driveways<br>Adequate driveway throat length<br>Limit number of driveways per site | Retrofit to reduce and remove driveways from "main street"<br>Eliminate access near intersections<br>Prohibit new access or direct to side street<br>Maintain stopping sight distance, corner visibility |

| | Planning → Preventive → Retrofit → Performance | | | |
|---|---|---|---|---|
| |  | | | |
| | **Rural** | **Suburban Fringe/Exurban** | **Suburban** | **Compact Urban** |
| **Bicycle & Pedestrian Network** | Wide, paved and maintained shoulders | Continuous non-motorized network, including interchanges<br>Wide, paved and maintained shoulders<br>Connect sites to sidewalks<br>Provide pedestrian crossings<br>Provide direct connections to transit | Continuous sidewalks and bike lanes<br>Complete gaps in the network<br>Provide bike lanes for commuter cyclists<br>Provide pathways connecting cul-de-sacs or through long blocks<br>Connect sites to sidewalks<br>Midblock crossings with median treatments<br>Provide direct connections to transit and midblock crossing locations | Continuous sidewalks and bike lanes<br>Complete gaps in the network<br>Frequent pedestrian crossings<br>Pedestrian islands at intersections with turn lanes<br>Provide direct connections to transit |
| **On-Street Parking** | No | No | No | Yes, parallel parking except certain primary arterials |

Source: TRB Access Management Manual, Second Ed., 2014, Exhibit 10-7. Reproduced with permission of the Transportation Research Board.

# Appendix F: Example Signal Spacing Criteria from Other States

This appendix includes excerpts from Colorado and New Jersey Access Management Codes as they relate to traffic signals.

## Colorado DOT Signal Criteria

**3.7 Category E-X – Expressways and Major Bypass roads:** (e.g., FDOT SIS)

- Exceptions to one-half mile standard shall not be permitted unless the proposal documents that there are no other reasonable alternatives, there is a **documented necessity for the intersection at the proposed location, and a signal study acceptable to the Department is completed** in accordance with section 2.3(5).

  **Section 2.3.5 (signal study requirements)**
  "If the access is proposed to have a traffic signal, or will necessitate modifications to a traffic signal, the following additional analysis are required:
  (21) an intersection capacity operation analysis for all signals included in the progression analysis and providing complete input and output reports, data and assumptions
  (22) the signal timings, phasing and data used in each analysis shall be consistent
  (23) highway traffic signal progression analysis including progression bandwidth, efficiency and level of service determinations, assumptions and data with complete input and output menu reports provided and including all existing and anticipated future signals within 1 mile of the proposed access
  (24) a signal cycle length of between 60 and 120 seconds and consistent with the existing corridor signal operation and function, shall be used for the analysis or as determined by the Department
  (25) analysis will use the posted speed limit(s) but may submit an additional analysis if it can be shown that a different speed is more efficient for capacity, highway delay and travel time
  (26) the highway bandwidth used shall be consistent with the requirements of the assigned access category
  (27) signal phasing will normally assume lead phasing. Lag phasing may not be included unless specifically authorized
  (28) the green time allowed for the cross street shall be no less than the time necessary to accommodate pedestrian movement
  (29) analysis of storage queue lengths for auxiliary lanes at signalized intersections within the immediate study area.

URBAN CATEGORIES

- **NR-A – Non-Rural Principal Highways**: Where it is not feasible to meet one-half mile spacing ….The applicant must establish to the Department's satisfaction that,

  a) there are no other reasonable site design, access or circulation alternatives eliminating the need for the signal, and
  b) there is a **proven public necessity** for the intersection, and
  c) a traffic signal study and traffic analysis acceptable to the Department is completed. The study must show that the proposal is able to achieve a signal progression analysis that indicates a good progression **of 35 percent**

**efficiency** or better, or must be able to show that it **does not degrade the existing signal progression**.

- **NR-B – Non-Rural Arterial**:
  "Where it is shown that the location will be able to meet appropriate design criteria, full-movement access shall be granted at one-half mile spacing, or where a signal progression analysis indicates good progression of **30 percent efficiency or better, or does not degrade the existing signal progression**."
- **NR-C – Non-Rural Arterial**: (e.g., urban general, urban core context zones)
  "Minimum spacing between traffic signals shall be that which is necessary for the safe operation, capacity, and proper design of the signal and adjacent accesses. The location shall be consistent with current signal progression efficiency and cause no degradation. **Preference** in traffic signal location, timing and operation **shall be given** to highways and cross streets of **a higher access category** or function."

RURAL CATEGORIES

- **Regonal highways (rural)** (b) Where it is not feasible to meet one-half mile spacing and where signal progression analysis indicates good progression **(35 percent efficiency or better**), **or does not degrade the existing signal progression**, a full movement may be allowed…..
- ….The final location **should serve as many properties and interests as possible** to reduce the need for additional direct access to the state highway.
- Locations that meet signal warrants but **don't meet progression criteria** "…shall be reconstructed to eliminate or reduce the traffic movements that cause the traffic signal warrant to be met, and the access brought into conformance with appropriate design criteria. **A raised median may be required. Closure may be required if alternative reasonable access is available**."

## New Jersey DOT Signal Criteria

New Jersey uses a similar bandwidth standard in their access code. On the location of interchanges, New Jersey Access Code states:

"(a) Traffic signals may be approved by the Office of Traffic Signal and Safety Engineering, during the application process. When a study is required for a potential traffic signal, the study shall be completed and sealed by a New Jersey licensed professional engineer and shall include:

8. Use of the applicable minimum highway band width as stated in N.J.A.C. 16:47-3.4. The Office of Traffic Signal and Safety Engineering may allow a 30 percent minimum highway band width when existing band width for traffic signals on either side of the proposed traffic signal are at or below 30 percent;

9. Use of the applicable minimum highway band width as stated in N.J.A.C. 16:47-3.4 or 40 percent minimum highway band width, whichever is more restrictive, if the traffic signal is proposed at the new access point;"

"(b) If the Commissioner has designated optimal traffic signal locations for future traffic signals along a State highway segment within which a traffic signal is proposed or if such segment is less than one mile (1,600 meters) in length, the following shall apply:

1. A traffic signal may be permitted within the segment at the designated optimal location or at another location if, in the case of the latter, the applicant demonstrates that:

   ii. The minimum through band width on the State highway are attained or exceeded as follows, with through band width expressed as a percentage of the signal cycle, that is, (green + yellow) / (cycle length x 100):

| Access Classification of Highway by Environment | Minimum acceptable Through Bandwidth |
|---|---|
| Urban | |
| Accessible Principle Arterial | 50% |
| Minor Arterial | 40% |
| Collector and Local | 30% |
| Rural | |
| Accessible Principle Arterial | 50% |
| Minor Arterial | 40% |
| Major Collector | 35% |
| Minor Collector and Local | 30% |

   Note: Access classification may be determined by reference to Appendix A, Access Classification Matrix, and Appendix B."

   "4. Minimum band width percentages on the State highway shall be calculated based upon posted speed limits and cycle lengths, unless otherwise specified by the Department, using computer software acceptable to the Commissioner, and shall assume the operation of the existing traffic signals and of traffic signals at the optimal locations designated by the Commissioner, in the latter case using the appropriate cycle based on applying Appendix D."