Median Design

An Online Continuing Education Course for Engineers

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Median Design

Debra Kennaugh, P.E.

I. Introduction

Properly implemented median management will result in improvement to traffic operations, minimize adverse environmental impacts, and increase highway safety. As traffic flow is improved, delay and vehicle emissions are reduced. In addition, roadway capacity and fuel economy are increased and accidents are less numerous and less severe.

The benefits to medians include:

- Safety – Fewer/less severe accidents; less auto/pedestrian conflicts
- Efficiency – Higher levels of services; less stop and go traffic
- Aesthetics – More room for landscaping and pedestrians; more attractive corridors

A. History

The 1988 State Highway System Access Management Act (Florida Statute 335-18) mandated that Florida's access management strategy be based on the following:

- Rule 14-96 was adopted to implement the State Highway System Access Management Act for the regulation and control of vehicular access and connection points of ingress to, and egress from, the State Highway System. This rule chapter describes the connection permit application process and procedures, a voluntary pre-application process, and requirements for modification or closure of connections to the State Highway System. This rule chapter was also adopted to promote close cooperation with local governments in their site planning decisions that increase the safe traffic operations of the State Highway System.

- Rule 14-97 adopted an access classification system and standards to implement the State Highway System Access Management Act of 1988 for the regulation and control of vehicular ingress to, and egress from, the State Highway System. The implementation of the classification system and standard is intended to protect public safety and general

welfare, provide for the mobility of people and goods and preserve the functional integrity of the State Highway System. All segments of the State Highway System shall be assigned an access classification and standard. The standards shall be the basis for connection permitting and the planning and development of Department construction plans.

B. Definition of Terms

Area Type means one of four specific land categories reflecting certain land use and intensity characteristics used in specifying the interchange spacing standards for limited access facilities.

Connection means a driveway, street, turn out or other means of providing for the right of access to or from controlled access facilities on the State Highway System. Two one-way connections to a property may constitute a single connection.

Controlled Access Facility means a transportation facility to which access is regulated using a permitting process by the governmental entity having jurisdiction over the facility. Owners or occupants of abutting lands and other persons have a right of access to and from such facility at such points only and in such a manner as may be determined by the permitting authority(ies).

Directional Median Opening means an opening in a restrictive median that provides to U-turn only, and/or left-turn in movements. Directional median openings to two opposing left or "U-turn" movements along one segment of road is considered one directional median opening.

Full Median Opening means an opening in a restrictive median designed to allow all turning movements to take place from both the state highway and the adjacent connection.

Intersection means an at-grade connection or crossing of a local road or another state highway with a state highway.

Limited Access Facility means a street or highway especially designed for through traffic and over, from, or to which owners or occupants or abutting land or other persons have no right or easement of access, light, air, or view because their property abuts such limited access facility or for any other reason.

Minimum Median Opening Spacing means the minimum allowable spacing between openings in a restrictive median to allow for crossing the opposing traffic lanes to access property or for crossing the median to travel in the opposite direct (U-turn). The minimum spacing or distance is measure from centerline to centerline of the openings along the traveled way.

Minimum Signal Spacing means the minimum spacing or distance in miles between adjacent traffic signals on a controlled access facility measured from centerline to centerline of the signalized intersections along the traveled way.

Non-Restrictive Median means a median or painted centerline that does not provide a physical barrier between center traffic turning lanes or traffic lanes traveling in opposite directions. This includes highways with continuous center turn lanes and undivided highways.

Restrictive Median means the portion of a divided highway or divided driveway physically separating vehicular traffic traveling in opposite directions. Restrictive median includes physical barriers that prohibit movement of traffic across the median such as a concrete barrier, a raised concrete curb and/or island, and a grassed or a swaled median.

State Highway System (SHS) means the network of limited access and controlled access highways that have been functionally classified and which are under the jurisdiction of the state.

III. Access Management Classification

The State Highway Access Management Act required the Department to assign an access classification to every segment of the State Highway System. To accomplish this task, the Department worked with local governments to classify the State Highway System into the six (6) Arterial classifications (Classes 2-7) described in Administrative Rule 14-97. Freeways are all Classification 1. They are not going to be addressed in this document because they do not have median openings.

A. Access Classification and Standards for Controlled Access Facilities

Access Class	Facility Design Features	Minimum Connection Spacing	Minimum Median Opening Spacing		Minimum Signal Spacing
	Median Treatment	>45 mph/=45 mph or less (feet)	Directional (feet)	Full (miles)	(miles)
2	Restrictive with Service roads	1320/660	1320	0.5	0.5
3	Restrictive	660/440	1320	0.5	0.5
4	Non-Restrictive	660/440	N/A	N/A	0.5
5	Restrictive	440/245	660	0.5/0.25	0.5/0.25
6	Non-Restrictive	440/245	N/A	N/A	0.25
7	Both Median Types	125	330	0.125	0.25

Note:

- Section 14-97.003 and 14-97.004, FAC, contain supplementary and more detailed instructions for the use of these standards. These minimum spacings may not be adequate if auxiliary lanes and storage are required.
- Single properties with frontages exceeding the minimum spacing criteria may not receive permits for the maximum number of possible connections.

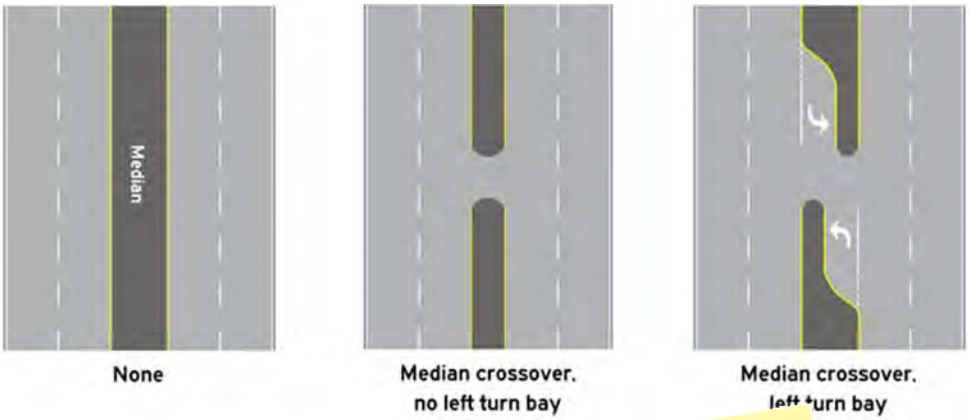
All controlled access facilities on the State Highway System shall be assigned to one of the Access Management Classes 2 through 7. The assignment of a classification to a specific segment of the State Highway System shall be the responsibility of the Department. The designation shall be made in cooperation with the appropriate governmental entities. This classification decision shall take into consideration the potential for the desired access management classification and standard to be achieved based on existing land use, probability of land use change, adopted future roadway improvements and on the ultimate cross section of the roadway identified in adopted plans. The assignment of a classification shall specifically take into to consideration the following factors:

a. The current and potential functional classification of the road;
b. Existing and projected future traffic volumes;

c. Existing and projected state, local and Metropolitan Planning Organization transportation plans and needs (including a consideration of new or improve parallel facilities);
d. Drainage requirements;
e. The character of the lands adjoining the highway (existing and projected);
f. Local land use plans, zoning and land development regulations as set forth in adopted comprehensive plans
g. The type and volume of traffic requiring access;
h. Other operational aspects of access, including corridor accident history;
i. The availability of reasonable access to a state highway by way of county roads or city streets as an alternative to a connection to the state highway;
j. The cumulative effect of existing and projected connections on the State Highway System's ability to provide for the safe and efficient movement of people and goods within the state.

B. Types of Medians Openings

Roadway median openings can consist of no median opening, median crossover without left turn bay, median crossover with left turn bay, directional median crossover and two-way left turn lanes as shown in the following illustrations.



No median opening is the r ning movements to or from the adjacent drivev

Median crossover without left turn bay is one of the least restrictive because it allows all turning movements. Left turning movements to and from adjacent driveway connections are permitted. It is important to note that this type of median opening is dangerous because it does not allow a vehicle to "store" in a designated left turn lane for the movement. The left turn movement must be made from the through lane. If opposing traffic does not allow the movement to be made, the left turning vehicle must remain stopped in the through lane.