Intersection Proven
Safety Countermeasure

# Executive Summary:

# Corridor Access Management

Studies conducted by State and local agencies, national organizations, and transportation trade associations consistently show that corridor access management can improve safety, mobility, accessibility, and even business along an entire stretch of roadway because it favorably impacts ALL properties along that corridor.

## Managing access at the corridor level improves safety and business

Corridor Access Management (CAM) is a strategy that seeks an appropriate balance between the safety and mobility of a roadway facility with the access needs of adjacent land uses. CAM uses a combination of policies and strategies, such as closing, consolidating, or improving driveways, median openings, and intersections; adding or redesigning medians; and planned spacing of intersections, median openings, and driveways.



Exhibit 1: Washington State Department of Transportation (WSDOT) conducted an analysis of the crashes in the corridor before and after the measures were in place. The results of the analysis showed that implementing access management practices significantly reduced accident severity and societal costs. (Source: WSDOT)

## Addressing the concerns about Corridor Access Management improvements with data

Business owners along a corridor may fear that access management improvements will disrupt or otherwise negatively impact their businesses, but several studies over many years have dispelled this myth. Studies and surveys of property owners and businesses from North Carolina, Texas, Florida, Minnesota, Kansas, and Iowa, among others, reveal that access management projects do not result in adverse effects, and, in fact, can be beneficial. Importantly, a common factor in achieving this long-term success is early and frequent consultation between the road agency and corridor stakeholders, with special emphasis on the construction phase.

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## Offering a range of safety options

Corridor access management techniques allow agencies to deploy flexible solutions for their unique environments. Common CAM techniques and their safety benefits include:

- **Relocation of Direct Left Turns.** Restricting left-hand turns reduces conflicts and improves safety along corridors.

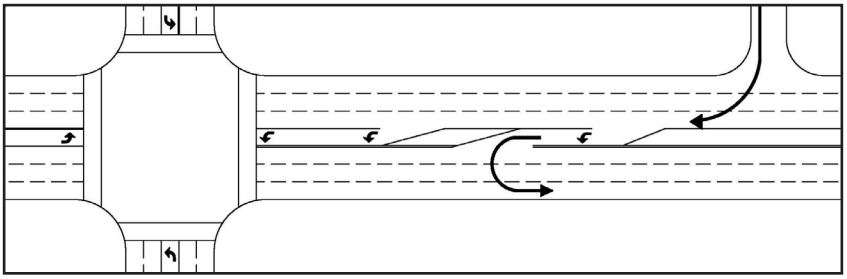

Exhibit 2: Example of a method to relocate direct left turns. (Source: FHWA)

Restricting left-hand turns reduces conflicts and improves safety along corridors. The Highway Safety Manual summarizes results as follows:

**Total:** 14 to 51 percent reduction
**PDO:** 5 to 11 percent reduction
**Fatal/Injury:** 31 to 36 percent reduction
**Rear-end:** 9 to 16 percent reduction
**Right Angle:** 33 to 36 percent reduction
**Sideswipe:** None reported

- **Provision of Turn Lanes.** An undivided highway provides no separation between opposing traffic, does not restrict turning movements into and out of access points, and offers no refuge for pedestrians.

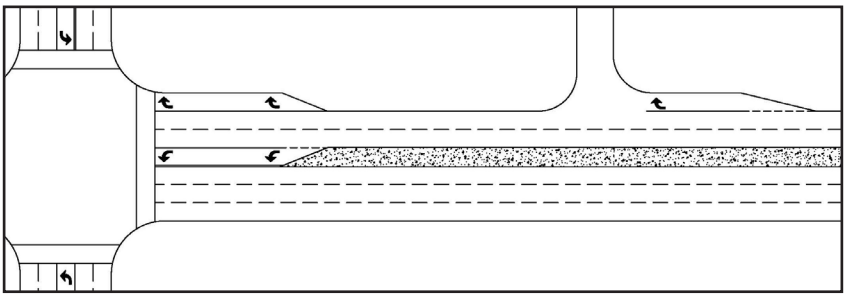

Exhibit 3: Example of exclusive turn lanes used to separate slower turning vehicles from through traffic. (Source: VHB)

Adding exclusive left-turn and right-turn lanes results in a reduction in total crashes (4 to 44 percent) and fatal and injury crashes (6 to 55 percent) at rural and urban stop- and signal-controlled intersections.

- **Median Type.** The type of median determines the type of turning movements that can be performed along a corridor and separates turning movements and opposing traffic.

Exhibit 4: These photos illustrate (left) undivided roadway; (center) two-way left-turn lane; (right) raised median. (Source: VHB)

Medians offer separation between opposing traffic, improve movements in and out of access points, and provide refuge for pedestrians.

- Converting a two-way left-turn lane (TWLTL) to a non-traversable median reduces total crashes by 15 to 57 percent and reduces injury crashes by 33 to 48 percent.
- Installing a TWLTL on an undivided roadway reduces crashes by 13 to 70 percent (Hallmark et al. 2008).
- Installing a non-traversable median on an undivided roadway reduces crashes by 21 to 53 percent.
- Raised medians are associated with a 45 percent reduction in pedestrian crashes and 78 percent reduction in pedestrian fatalities.
- A study of corridor access management by Gross et al. (in press) reports that the installation of a non-traversable median reduces right-angle crashes along a corridor by 38 percent.

- **Signal Density.** Signal density is defined as the number of signalized intersections per mile along a given corridor. More signals create more access points, which add conflict points and increase the potential for crashes and incidents involving pedestrians and bicyclists.

Exhibit 5: Example of closely spaced signals. (Source: VHB)

Increased signal density contributes to substantially higher crash rates. One study of corridor access management reports that total corridor crashes increase by 10 to 13 percent for each additional signal per mile depending on the adjacent land use.

- **Unsignalized Access Density.** Unsignalized access density is defined as the number of unsignalized access points per mile along a given corridor, including driveways, unsignalized crossroads, and median openings.

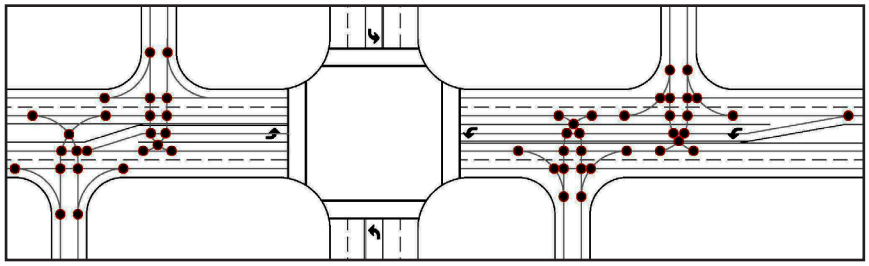
Exhibit 6: Diagram illustrating conflict points associated with unsignalized accesses. (Source: FHWA)

Crash rates and crash severity increase as unsignalized access density increases. Studies show that each additional access point per mile increases the crash rate along a corridor by 3 to 5 percent.

## Improving operations for all stakeholders

Reducing the frequency of access points, properly spacing access points, and managing turning movements increases capacity, reduces delay, allows more consistent travel speeds, and delivers better quality of service for all road users.

**Effects on Pedestrians and Cyclists**

Studies show that a motorist failing to yield mid-block at a driveway or alley to a bicyclist accounted for between 8.6 percent and 11.7 percent of all crashes involving a bicyclist and a motor vehicle.

## Overcoming potential challenges

Planning and implementing CAM improvements calls for careful policy making and pre-determined strategies, including:

- Setting enabling policy
- Identifying funding
- Managing access during construction
- Building stakeholder support
- Demonstrating economic benefits

## Using Visualization Tools

Visualization tools are used to enhance communication with multiple stakeholders by rendering a design, data, or other information in a visual format that can be easily understood. One such tool is the Corridor Visualization Explorer (CVE), which illustrates the effects of various access management strategies, can facilitate improvements planning and decision making, and aid in communicating with stakeholders.

### Highway 101 Corridor Access Management Case Study, Shakopee, Minnesota

Scott County and the City of Shakopee, Minnesota, completed a successful CAM project on a nine-block urban business corridor on Highway 101 with intersections at each block and 41 private property accesses. City and county staff were charged with making safety and mobility improvements for a nearly 25,000 vpd in an 80' right-of-way. Officials decided on a five-lane undivided roadway with an "aggressive access management" process to remove redundant private access and encourage voluntary removal of private driveways. Nearly 50 percent of the private accesses were eliminated. The project exceeded the expectations of the business community.

### LADOTD and the CVE Tool

The Louisiana Department of Transportation and Development (LADOTD) sponsored a project to create a visualization prototype that can be used to improve how access management principles are conveyed to the public.

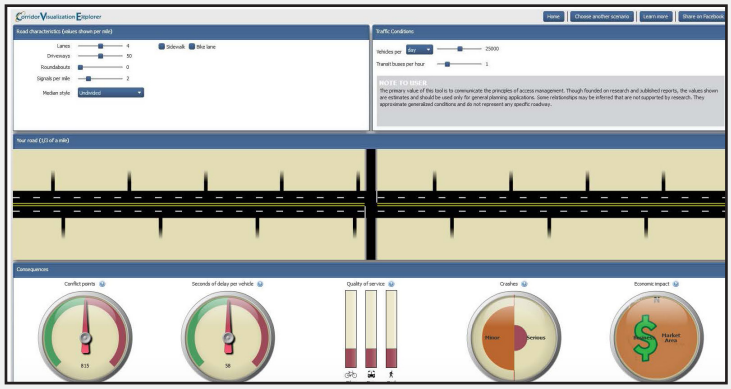

Exhibit 7: The user selects road and traffic conditions in the top pane. These are visualized in the middle pane. The effects of these decisions can be seen on the dials in the bottom pane, which also includes a note to user. Dragging the cursor over the dials reveals explanations of the results. (Source: Teach America)

For complete information, including references, please refer to the Corridor Access Management Technical Summary.

FOR MORE INFORMATION

Office of Safety: Jeffrey Shaw
jeffrey.shaw@dot.gov

Office of Operations: Neil Spiller
neil.spiller@dot.gov

FHWA Resource Center: Mark Doctor
mark.doctor@dot.gov

FHWA Intersection Safety Web site: http://safety.fhwa.dot.gov/intersection/

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