

CIRCLE DRIVE TRAFFIC AND ACCESS MANAGEMENT POLICY GUIDE

Management Principles and Implementation Concepts

A. PREFACE

The intent of this policy guide is to provide interim guidance on the implementation of traffic management and access improvements along the Circle Drive Corridor illustrated in Figure 1 until such time as specific improvement plans for sections of the corridor are developed and adopted.

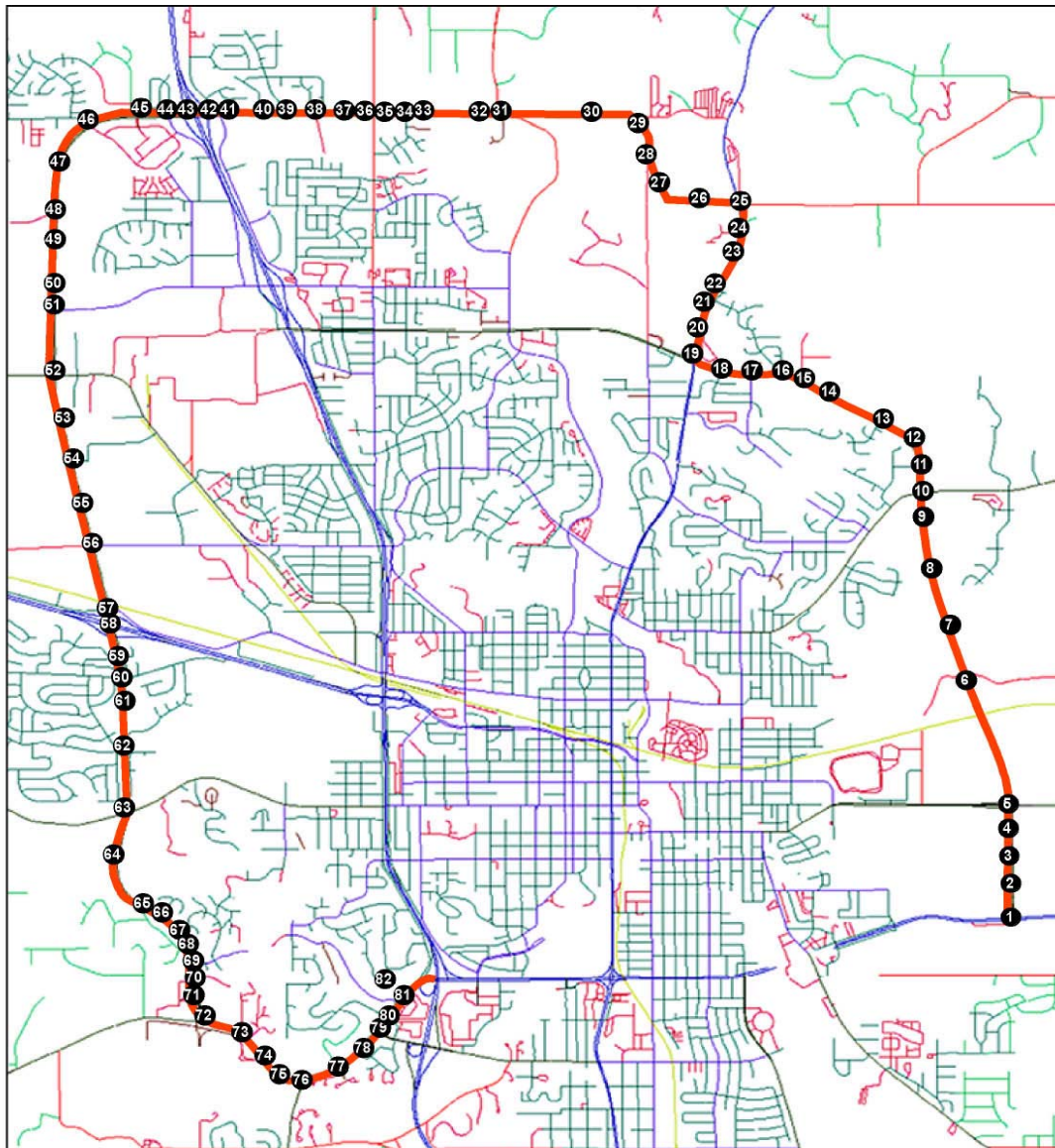


Figure 1

Intersection ID Numbers

The purpose of these principles and concepts is to provide a guide to decisions regarding traffic and access improvements that will preserve the function of Circle Drive as a major regional traffic corridor with a high level of safety, capacity and mobility. The principles and concepts should also contribute to structuring the layout of lands lying adjacent to the corridor in a manner that supports the function of Circle Drive. Implementation of these principles and concepts should aid in the preservation of the substantial public investment that has been made in the Circle Drive corridor and reduce the need for expensive remedial measures in the future.

The principal factors that are considered in the management of traffic and access to preserve the quality of traffic flow, capacity and safety are:

1. The spacing and design of street and private access intersections
2. The spacing and design of medians and median crossovers
3. The spacing of traffic signals and the design of signalized intersections

To achieve the safest and most efficient traffic flow, uniform or near uniform spacing of traffic signals is desirable. In planning for corridor level traffic management, it is desirable to select the preferred locations of traffic signals first, with existing or future unsignalized intersections managed through design to restrict the need for future signal installation. The spacing of signals should be related to desired operating speeds for the corridor. The local street system on lands abutting the corridor should be planned to facilitate the interconnection of adjacent lands such that local area traffic has alternatives to using Circle Drive and access to signalized intersections is available to all local motorists.

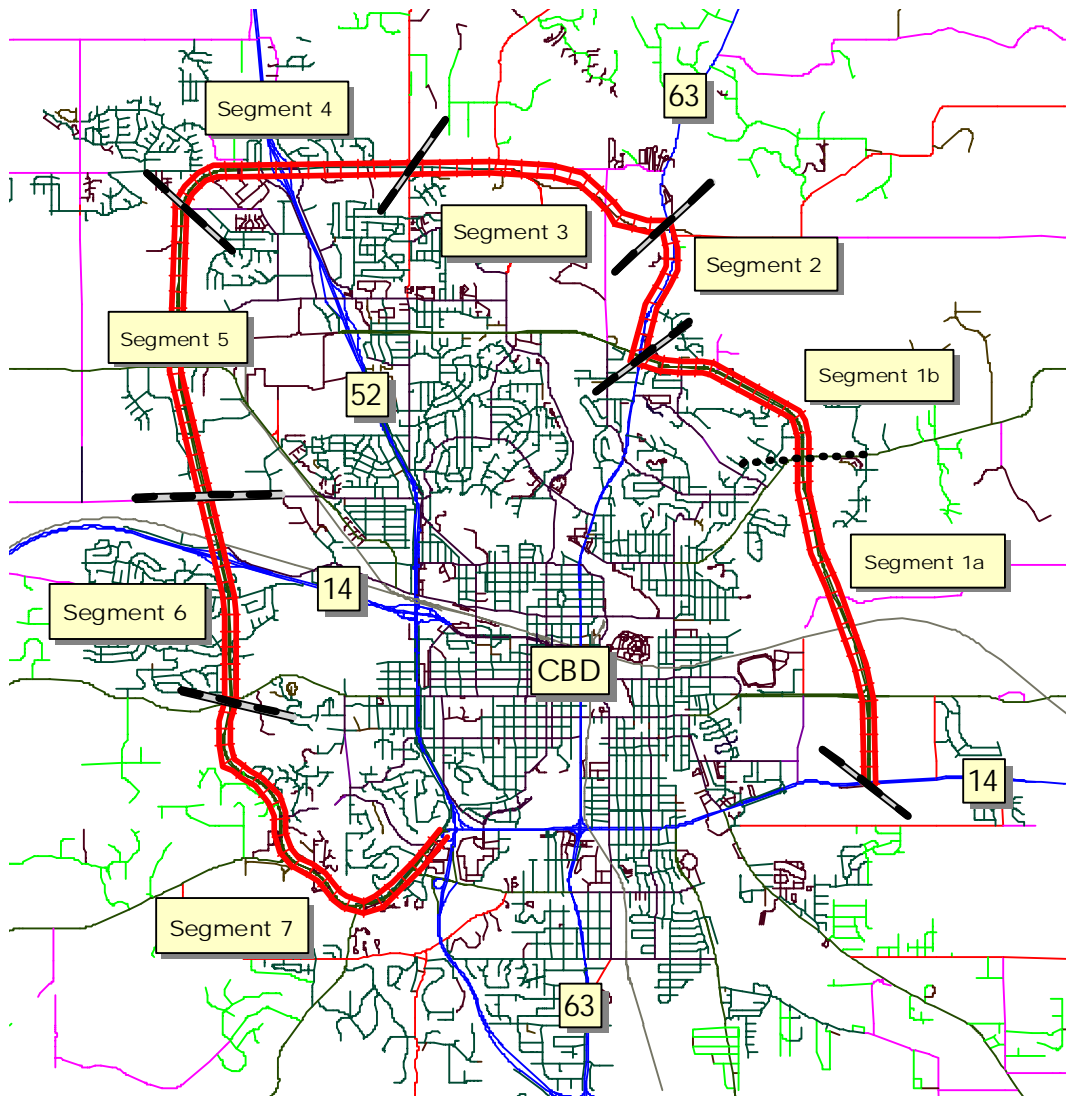
When the right of way for Circle Drive was acquired and during the construction of the corridor, predetermined access locations (a location of access reserved for the adjacent property at the time access rights were required) were established. These access locations are entitled to right-in, right-out access to the mainline of Circle Drive. The opening or closure of median crossovers associated with these access locations will be managed by the road authority to achieve desired levels of mobility and traffic progression. Decisions regarding the signalization, restriction or closure of median crossovers should be made consistent with the principles and concepts identified in this Policy Guide to achieve the highest reasonable level of traffic progression, safety and efficiency.

Determining solutions in advance of significant changes in conditions such as traffic volumes is desirable to avoid the higher costs associated with future retrofitting. Application of the following principles and concepts are endorsed as a guide to achieve the purposes and intent of this Policy Guide.

B. MANAGEMENT PRINCIPLES AND IMPLEMENTATION CONCEPTS

i. General Principles for Corridor Management on Circle Drive

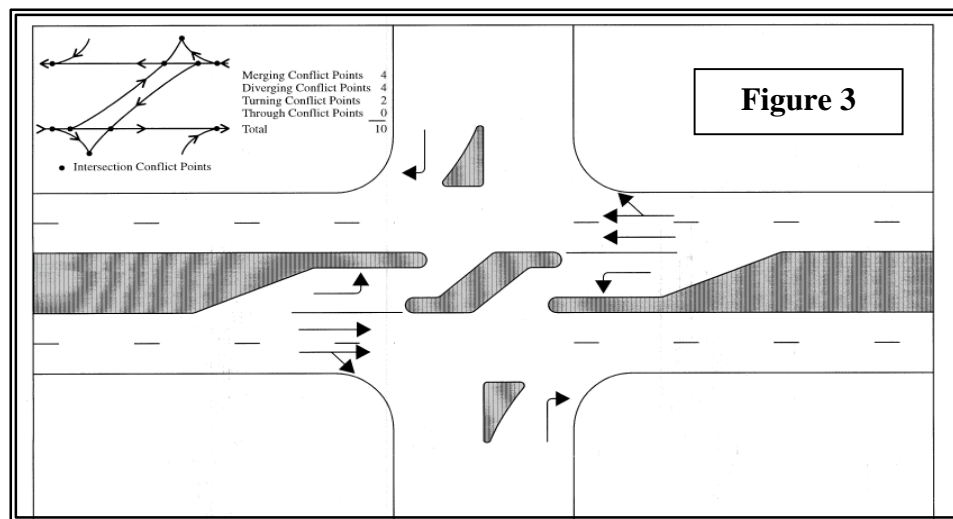
1. The desired target for average operating speeds in segments of the corridor is 40-45 MPH. For the purposes of these policies, the corridor is divided into seven segments as illustrated in Figure 2. At the high volume intersections or at interchanges that form anchor locations for the ends of segments, traffic should be managed achieve the highest feasible level of safety and efficiency given the presence of multiple signals within short distances or heavy volumes of turning traffic.



2. The desired target for signalized intersections cycle length is no longer than 120 seconds (2 minutes). Achieving this will likely require a commitment over time to capital improvements including construction of dual left turn lanes or mainline auxiliary lanes that will provide for three lanes of traffic on short sections of the corridor between adjacent high volume intersections in order to provide adequate capacity .
3. The desired target for the progression band within segments of the corridor between anchor locations is 35% or greater. Generally speaking, this means an effort will be made to manage the operation of the signal system to make available a minimum of 35% of the mainline green time at any given traffic signal to serve a platoon of traffic moving through a segment of the corridor.
4. Side street traffic delay should be managed to provide acceptable levels of delay at both signalized and unsignalized intersections and access points. For intersections or accesses that are planned to be unsignalized, this may require a combination of actions including median crossover restrictions combined with the provision of alternative traffic routes to provide local access to the nearest signalized intersections.

(ii) General Implementation Concepts

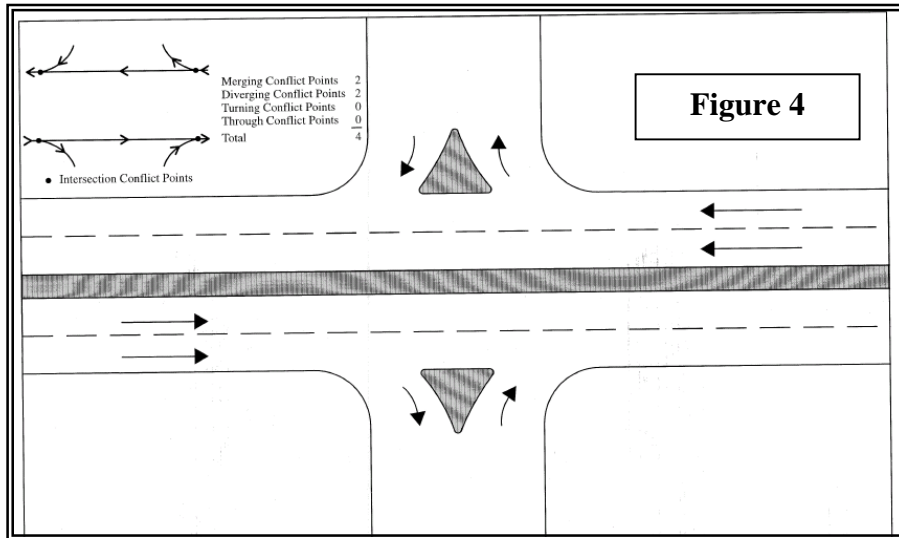
1. To achieve the General Principles for Corridor Management listed in Section B(i), the target for spacing between full access signalized intersections should be ½ mile within individual segments of the Circle Drive corridor. Limited signalization at spacing of approximately ½ mile will provide the greatest level of flexibility in implementing timing plans that can handle a range of traffic conditions. Figures 6 and 7 in the Technical Report¹ indicate intersections anticipated to be signalized under the recommended management plan.
2. The street system for the area shall be designed so that the median crossovers that will serve as the location for future traffic signals will be used as connections for public streets that are above the classification of a local or major local street, or that serve major private land development that will generate traffic volumes comparable to higher volume collector or arterial streets (> 5000 vehicles per day).
3. Median crossovers that were constructed to serve existing access openings that are planned to remain unsignalized may be controlled in the future to limit traffic movements for safety or congestion reasons according to the following principles:
 - a. If there are demonstrated safety problems at the intersection or unacceptable traffic operations develop (defined as the Level of Service (LOS) for approach traffic on intersecting streets dropping below a LOS D or total peak hour delay exceeding 4 vehicle hours of delay², left turn traffic will be controlled through use of ¾ access design as illustrated in Figure 3



- b. If the ¾ access design does not solve crash and congestion problems the next level of access control would be to convert the median crossover to Right In / Right-Out operation only, as illustrated in Figure 4 .

¹ Circle Drive Traffic and Access Management Study, Phase II Technical Report et al

² Recommended standards for unacceptable traffic operations are based on information in NCHRP Report 457, Evaluating Intersection Improvements: An Engineering Study Guide, Transportation Research Board, pp 38-39.



4. Access openings that have not been developed at locations where the associated median crossover is not planned for future signalization should be planned for improvement with the understanding partial access restrictions will be implemented consistent with the principles in #3 above. Local street system connections should be made that will facilitate the distribution of traffic from lands served by the access opening to adjacent access locations that are planned for signalization in the future.

Efforts should be made to avoid limiting access for a property to a single planned unsignalized access unless absolutely constrained by physical topography. In such cases an overall limit on trip generation may need to be considered to insure the long term integrity of operations on Circle Drive, or the utilization of outbound right turns combined with U-turns in lieu of outbound left turns onto Circle Drive considered.

5. Access locations associated with future signalized median crossovers should serve as many property interests as possible to reduce the need for additional signalization of adjacent median crossovers and to eliminate the need for additional direct access to the corridor. Local street system connectivity should be provided to allow for the dispersal of traffic and to eliminate the need to use Circle Drive for short distance local area trips, and to insure all local lands have access to planned signalized median openings.

(iii) Intersection Design Principles

1. At all access points along the corridor right and left turn deceleration lanes will be required, with construction or accommodations made for the future construction of second left turns where a need for dual left turn lanes is anticipated in the future.
2. Right turn acceleration lanes should be provided wherever projected peak hour right turning volume is greater 10 vph

- Left turn acceleration lanes may be required at unsignalized intersections if a significant volume is expected and the lane will not interfere with upstream left turn deceleration lanes
- Sufficient queue capacity should be provided for traffic turning left off the corridor, and adequate corner clearance should be provided to insure traffic turning left onto the corridor will not interfere with traffic operations on intersecting streets. The concept of corner clearance is illustrated in Figure 5. Corner clearances guidelines are:

Arterial Cross Streets:

- 480 feet where left turn lanes are not required on an arterial cross street
- 660 feet where left turn lanes are required on the arterial cross street

Collector Cross Streets:

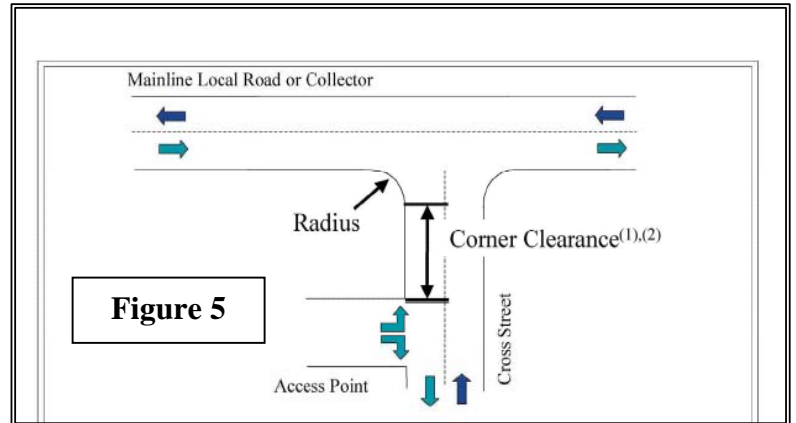
- 250 feet where left turn lanes are not required on a collector cross street
- 480 feet where turn lanes are required on a collector cross street

Local Non-Residential Streets:

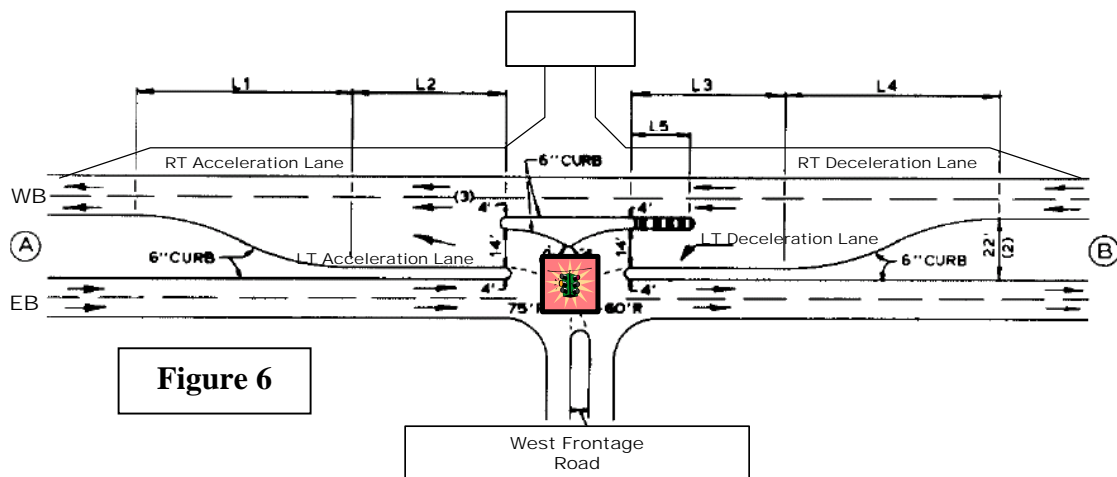
- 250 feet

Local Residential Streets:

- 125 feet



- Signalized “T” intersections treatments have the potential to provide for the management of high volumes on single approaches without major disruption to mainline flow through the use of a half-signal design. This can be considered as an option where there is a high volume commercial access on one side of the corridor with low volume on no access across the



corridor. Figure 6 illustrates an example of this type of intersection.

6. To maximize the throughput of intersections and in areas where closely spaced signals exist, efforts should be made to install signal coordination systems linking together adjacent signals to permit the application of coordinated timing patterns, and the use of alternative timing patterns such as lead-lag phasing or right turn overlap should be considered.

Exception Process

1. Proposals for full access or signalization that are inconsistent with the principles and concepts identified in this Policy Guide shall not be permitted unless a report is prepared that convincingly documents there are no other reasonable alternatives available to full access or signalization, there is a documented necessity for full signalized operation at the location, and the corridor operating speeds, signal cycle length and progression bandwidth goals will be achieved.

Deviations in signal spacing from the locations identified as preferred locations in the Technical Report³ may be considered where, due to consideration of topography, established property ownerships, unique physical limitations or unavoidable or pre-existing land use patterns, the desirable spacing should be modified

³ Circle Drive Traffic and Access Management Plan Phase II Technical Report, January 2002, prepared for the Rochester-Olmsted Council of Governments by Parsons Transportation Group