

2. PURPOSE AND NEED

2.1. Purpose

The following study purpose was developed and adopted by the Uptown Transportation Study Implementation Partners:

“The purpose of the I-71 Uptown Study is to develop a set of feasible alternatives to improve access between I-71 and the Uptown area of Cincinnati that reduce travel times, reduce complexity of wayfinding, and promote economic vitality.”

2.2. Primary Needs

2.2.1. Reduce Travel Time

The ability to reduce travel time is dependent on improvements in the connectivity, speed, and reliability of both the arterial roadway network and interstate access in the Uptown Study area.

Traffic between the heart of the Uptown area and I-71 primarily follows two corridors, which in part, both use the same portions of ML King Drive, McMillan Street, WH Taft Road, Jefferson Avenue, Burnet Avenue, and Reading Road. The majority of employment and institutions are located north of the Taft/McMillan corridor. The geographic distribution of major trip generators requires drivers to utilize interstate access points located south of their primary destination.

Two to three miles of travel is required on the arterial and local street network to reach major Uptown destinations and to return to the interstate usually by a different route due to the partial interchange configurations. Drivers experience congestion on the arterial and local street network during the peak periods and must proceed through numerous intersection decision points potentially leading to disorientation. The circuitous nature of the travel paths from the nearest I-71 access points to the heart of Uptown are illustrated in Figures 2 and 3. It is readily apparent that drivers are not provided direct, intuitive access at a single location or corridor. The perception of project stakeholders is that the Uptown area is lacking in accessibility when compared to suburban locations and, more importantly, urbanized locations within the region that have simplified full service access.

Traffic Pattern to Uptown from the South:

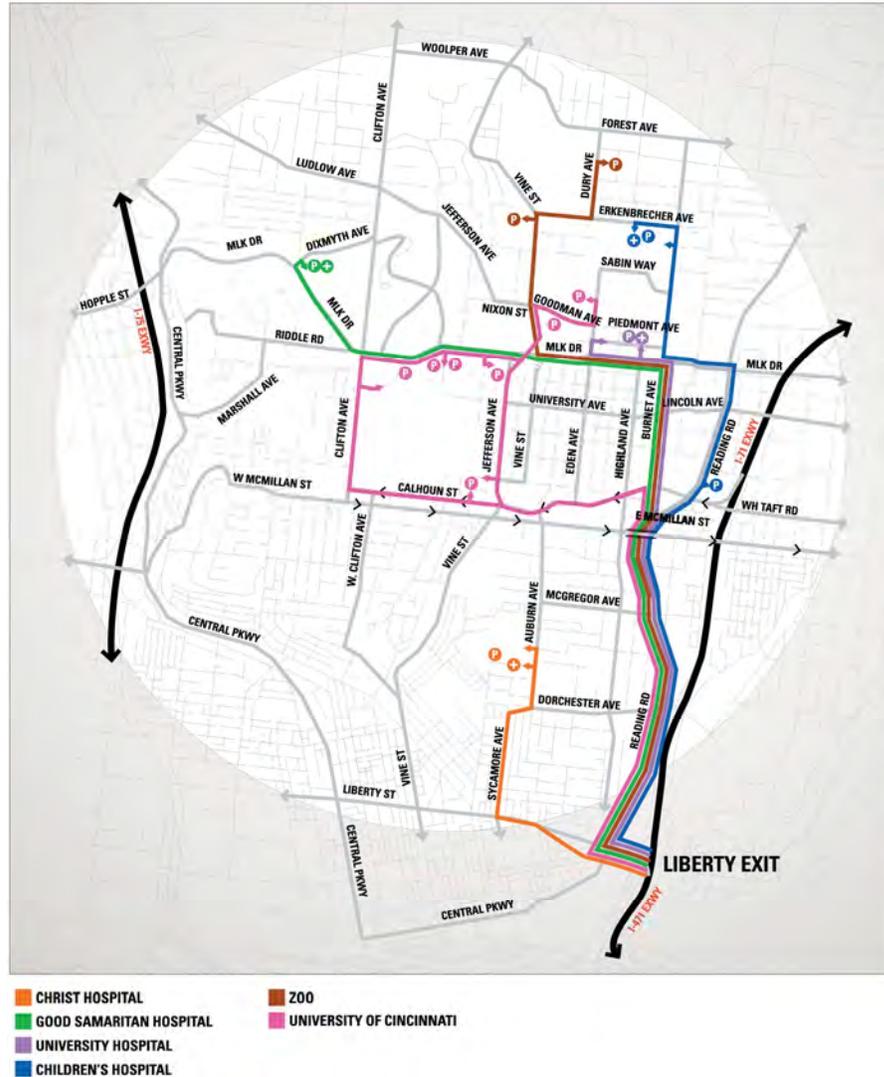


Figure 2: I-71 Access from the South

Please refer to Figure 2 for an illustration of the route described below.

Originating from I-471 northbound to Liberty Street and I-71 northbound to Reading Road and continue north on Reading Road to Burnet Avenue, either turn left on WH Taft Road and proceed west to Jefferson or Clifton Avenues or continue north on Burnet Avenue to ML King Drive or points north. To return to the interstate southbound, the direction of traffic is reversed following the same route except that McMillan Street is used instead of WH Taft Road and traffic reaches Reading Road southbound via Burnet or Highland Avenue since McMillan Street is grade separated from Reading Road. The distance from the Liberty Street exit ramp to the intersection of ML King Drive and Jefferson Avenue is approximately 3 miles.

Traffic Pattern to Uptown from the North:

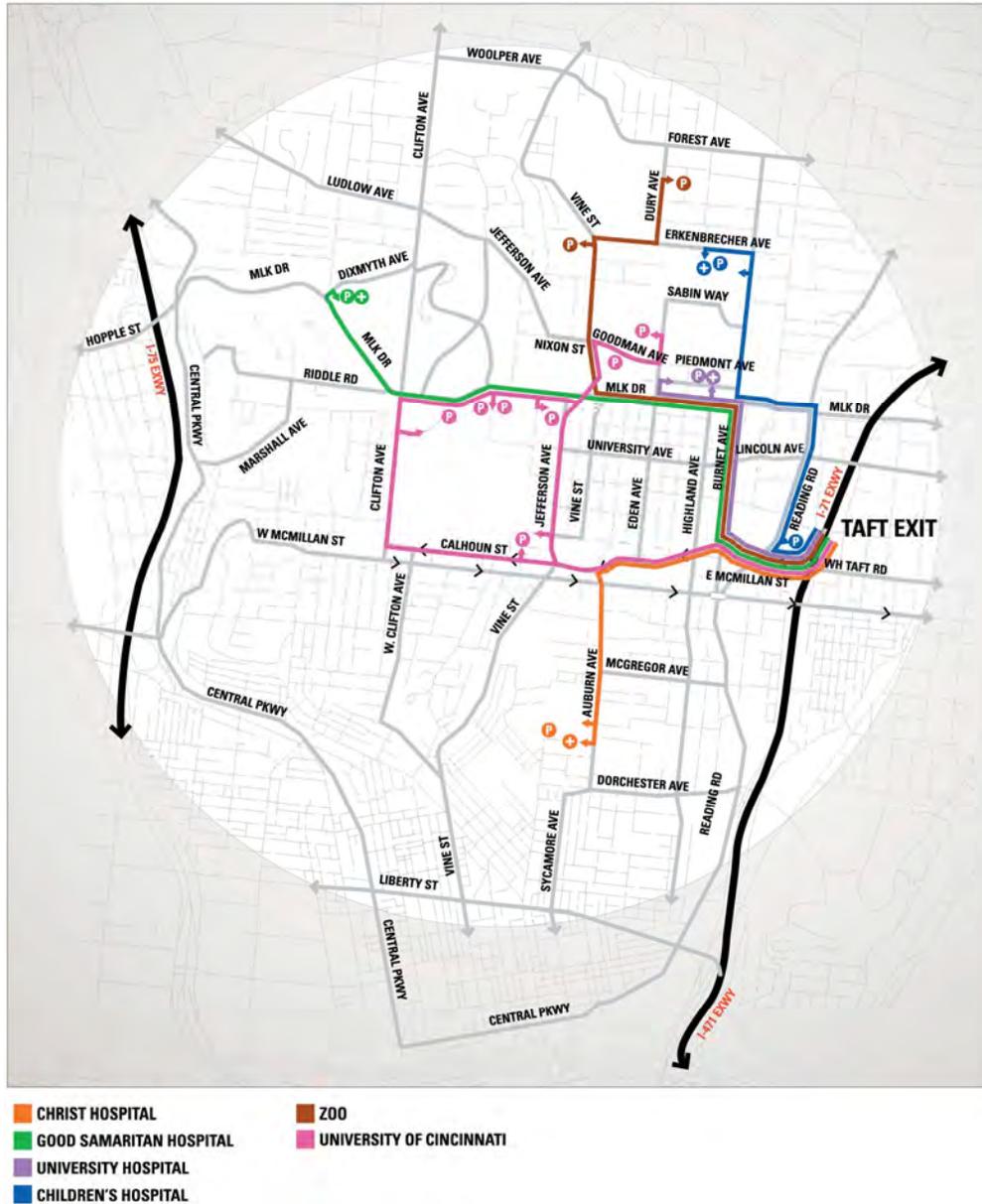


Figure 3: I-71 Access from the North

Please refer to Figure 3 for an illustration of the route described below.

Originating on I-71 southbound to WH Taft Road and continue west on WH Taft Road to Burnet Avenue, either turn left on WH Taft Road and proceed west to Jefferson or Clifton Avenues or continue north on Burnet Avenue to ML King Drive or points north. To return to the interstate northbound the direction of traffic is reversed following the same route except that McMillan Street is used instead of WH Taft Road. The distance from the WH Taft Road

exit ramp to the intersection of ML King Drive and Jefferson Avenue is approximately 2 miles.

Much of the arterial street network illustrated in Figures 2 and 3 experiences congestion during the morning and afternoon peak periods as do the interchange ramps to and from I-71 serving the study area. This congestion is forecast to worsen during the 25-year planning horizon of this project. The travel time studies conducted as part of OKI's Congestion Management System have determined that ML King Drive, WH Taft Road, and McMillan Street are among the most congested arterials in the region in terms of minutes of delay per mile. Improved access would distribute the traffic volumes to the arterial network more efficiently than the current traffic patterns resulting in an overall reduction in the levels of congestion on the arterial street network.

Please see Section 9 for the 2005 arterial average weekday daily traffic (AWDT) and for the 2005 Uptown intersection level of service (LOS).

A comprehensive list of recommended multimodal strategies for reducing vehicular trip demand, improving operations, and maximizing capacity of the arterial network has been developed in Part A of the Uptown Transportation Study. These recommendations include but are not limited to the following:

- Implementation of a Transportation Management Association
- New perimeter structured parking and local circulator shuttle service
- Selected intersection capacity improvements
- Reduction and/or elimination of on street parking at selected locations.
- Selected roadway extensions to restore network redundancy
- Coordination and optimization of the existing traffic signal network
- Implementation of a new comprehensive wayfinding system

While these strategies will likely result in overall reduction in travel time for the study area and improve operation of targeted intersections or roadway segments, the opportunity to expand the capacity of the arterial network is limited due to the significant costs and impacts associated with any widening projects.

Additionally, these strategies will not alleviate the congestion experienced at the I-71 access ramps to the study area. Please refer to Section 4.9.4 for the forecasted 2030 level of service for the I-71 access ramps. Access to and from the north at the Taft/McMillan partial interchange is forecast to operate at a failing level of service in the design hour, as is the exit ramp from I-71 northbound to Reading Road.

Additional capacity or a reduction in expected volumes at the failing access ramp locations will be necessary to improve operations to an acceptable level of service. Similar to the arterial network, there is limited opportunity to add capacity to the existing ramps because they are confined by adjacent structures and are largely grade separated.



By providing alternative interstate access, some of the forecast hourly volumes will be diverted from the existing ramps to the alternative access, thereby reducing volumes at any one single location. Any new or modified access ramps will be designed with sufficient capacity to operate at a LOS C or better in the 2030 plan year. The goal of the additional access is to more effectively distribute the traffic volumes to a location nearest to the driver's destination, while improving operations on both the interstate and arterial network overall. Travel times will improve and congested time will be reduced by providing direct full service access from I-71 with sufficient capacity provided by the interchange as well as the adjoining arterials.

2.2.2. Simplify Wayfinding

Due to the institutional makeup of the study area, there is a significant portion of the driver population that is not comprised of regular commuters or residents. These drivers consist of visitors, customers, tourists, patients, and other transient populations that patronize the University of Cincinnati, the various hospitals, Cincinnati Zoo & Botanical Gardens, and neighborhood business districts. The hospitals within the study area experienced over 13,000 emergency room arrivals during 2004. For these individuals and the institutions they patronize, wayfinding is a major concern.

Wayfinding to and from I-71 to the Uptown area is complex. Interstate 71 in the study area exhibits a lack of uniformity in interchange patterns. Drivers from I-71 must utilize two different interchanges depending on direction. Upon exiting the freeway, the driver cannot re-enter at that point but must traverse the local street system to find an entrance ramp, which can be difficult and sometimes counterintuitive. The unfamiliar driver can easily become confused and find it difficult to reach the desired destination and logically return to the interstate for a return trip. The majority of employers and institutions are located to the north of WH Taft Road requiring drivers from I-71/471 to make successive left and right turns on the arterial network to reach their destinations. East-west access is currently provided by the one-way couplet of WH Taft Road and McMillan Street. McMillan Street is grade separated from Reading Road and Burnet Avenue the predominate north-south corridor in the vicinity. The one-way operation and grade separation pose challenges accessing the interstate from locations east of I-71 and north of WH Taft Road.

In recognition of this issue, a comprehensive wayfinding audit was conducted as part of this project and the existing wayfinding and directional signage on the arterial network was found to be inadequate. By providing full access at all interchange locations in combination with alternative or simplified access to the existing Taft/McMillan interchange, driver decision-making will be substantially simplified and trip paths consolidated to a large degree. The costs associated with implementation and maintenance of a wayfinding signage system where trip paths are more consolidated and turning movements minimized would be reduced as well.

2.2.3. Promote Economic Vitality

The Uptown study area, when taken as a whole, is economically depressed when compared with the City of Cincinnati or the metropolitan region. Most of the parcels adjacent to I-71 are former industrial enterprises that have declined during the latter half of the 20th century. These enterprises were largely dependent on the Pennsylvania Railroad for transportation



at the time of their original development. The railroad was abandoned during the 1970s and much of the former industrial property is currently underutilized or vacant. Dislocation of residents and disruption of the neighborhoods due to the construction of I-71 has had a long term detrimental effect on the vitality of the adjacent area as well.

Most of the Uptown area was federally designated as an enterprise zone for targeted community redevelopment efforts in 1997. The City of Cincinnati has established several district-wide tax increment financing (TIF) districts within the study area with the intent that the incremental increases in tax revenues could serve as a funding source for future infrastructure improvements to serve potential redevelopment, (see Section 9).

During the past 5 years, several community urban redevelopment corporations have been formed with support of major Uptown institutions to spur a variety of mixed-use redevelopment. This study has identified over 25 major economic development projects in the study area with new housing and employment opportunities. Cincinnati Children's Hospital Medical Center and the University of Cincinnati have been designated as recipients of the Governor's Third Frontier funding to promote research and technology transfer. These activities would be directly served by improvements to access with I-71. Additionally vacant or under-utilized parcels located between Reading Road and Gilbert Avenue would become significantly more attractive to prospective developers for commercial and residential redevelopment.

The University of Cincinnati and the major healthcare institutions have established the Uptown Consortium to coordinate and foster a wide variety of economic development initiatives in the study area. The Consortium has recently begun a feasibility study for a major research campus to be located in the study area. The Uptown Consortium in conjunction with the Cincinnati Development Fund has been awarded \$52 million in New Markets Tax Credits creating the Uptown Cincinnati Development Fund. This fund will provide financial backing for residential and commercial redevelopment and is expected to serve as a catalyst for a reinvigorating the Uptown area by leveraging over \$1 billion in commercial real estate and public revenue bond financing activity

The I-71 corridor has experienced significant redevelopment at its interchanges throughout its entire length in Hamilton County except those within the Uptown study area. The lack of direct full service interstate access to serve the desired high-density redevelopment of the study area is viewed as a limiting factor on the scale and desirability of potential development.

As previously noted, there is a significant portion of driver population consisting of visitors, customers, tourists, patients, and other transient populations that patronize the University of Cincinnati, the various Hospitals, Cincinnati Zoo & Botanical Garden, and neighborhood business districts. For the institutions and neighborhood business districts to remain competitive on a regional level, interstate access must be perceived to be at least adequate when compared to suburban locations with higher visibility and more direct egress.

Implementation of improved access in this area would enhance the economic vitality of the most economically distressed portion of the I-71 corridor within the region.

2.3. Secondary Needs



2.3.1. Reduce Accidents

Based on 2001-2004 data, the composite accident rate on the I-71 mainline within the study area is typical for an urban interstate, with a crash rate of 0.86 per million vehicle miles traveled compared to the average Ohio rate for an urban, 8-lane interstate of 1.37 per million vehicle miles traveled. The arterial streets linking the current I-71 access points to the heart of the Uptown area as shown on Figures 2 and 3 have experienced high numbers of accidents at mid block locations and intersections. The mid-block accident rate along Reading Road exceeds the City of Cincinnati average at several locations. See Section 4.10 for more information.

Because the crash rates are much higher on the arterials than on I-71, reduction of volumes on the arterial network vs. I-71 would empirically lead to the conclusion that the overall numbers of accidents in the study area would decline if drivers were able to utilize I-71 in lieu of travel on the arterial network. This would be especially true for the Reading Road/Burnet Avenue Corridor between Liberty Street and Rockdale Avenue.

2.3.2. Reduction in Design Deficiencies

Where feasible, in combination with improvements that may be undertaken to improve interstate access, the number and severity of existing geometric design exceptions may be reduced. Most of the current design exceptions that exist in the project area are those that do not meet the current standards for curve widths, shoulder widths, and stopping sight distances as well as bridge vertical clearance. There is one left hand exit (Ramp RC, I-71 northbound to Reading Road/Dorchester Avenue) within the study area. Elimination of this exit in lieu of a right hand exit is not a primary need of this project, but may be incorporated into any modifications necessary to the Reading/Gilbert Interchange necessary to accommodate improved access to the Uptown area.

2.3.3. Substantially Reduce Weave at Reading Road (US-42) Interchange

The I-71 Interchange at Reading Road (US-42) is signed to prohibit a weaving action from the I-471 northbound entrance ramp on the right to the Reading Road exit on the left. Despite the current signage, this movement does occur since it is the most direct connection between I-471 and the Uptown area. By utilizing the prohibited weaving movement, drivers can bypass two signalized intersections on Reading Road (Liberty Street and Elsinore Avenue) shortening the overall distance traveled by approximately ¼ mile. This translates into a time savings of slightly over a minute in uncongested conditions and longer during congested periods. By using the Liberty Street exit, travel time between the Daniel Carter Beard Bridge and Reading Road north of Dorchester Avenue is approximately 75% longer than would be the case using the I-71 exit and the prohibited weave. It should be noted that similar travel time savings can also be realized by using the ramp from Dorchester to I-71 southbound and then to I-471 southbound in lieu of the signed route to the I-471 entrance ramp at Liberty Street.

To physically eliminate the possibility of the weave, relocation of the I-471 entrance ramp gore would be necessary. Extensive modifications to the existing bridge structures at this location would be required, which may result in this option being cost prohibitive. By providing alternative access to and from the south at a location closer to the heart of the



study area, the demand for this weaving movement will be substantially reduced and improved travel time and safety would result.

2.3.4. Increase Travel Time Reliability

Recent studies have indicated that a traveler's perception of congestion and accessibility is often directly related to the expected travel time reliability from day to day for a particular route. This travel time reliability includes an allowance of time that a traveler must add to his or her schedule depending on delays due to unexpected circumstances such as work zones, accidents, disabled vehicles, lack of parking, loading zones, etc. Uptown, as with any highly developed urban area, exhibits a high degree of travel time variability attributable to the factors noted above.

A significant portion of the traffic in the study area utilizes lower functionally classified streets that are susceptible to disruption due to accidents, work zones, parking, and special events the local arterials and collectors have little access management and for the most part allow on street parking during a portion of the day. By consolidating volumes to routes with a higher functional classification and greater access management and capacity, travelers are less susceptible to delays noted above, travel time reliability can be improved.

2.4. Measures of Effectiveness

Please see Appendix A for a summary of the specific project needs and measures of effectiveness for evaluation.