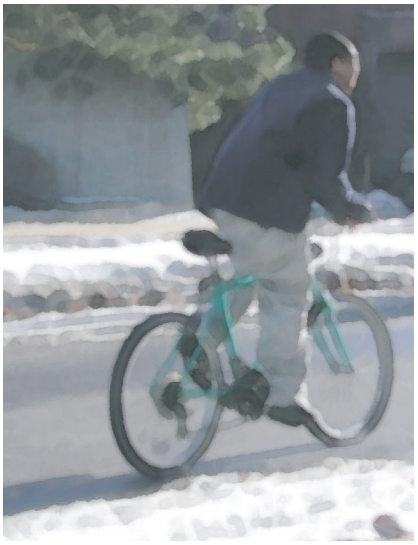

Illinois Highway 92 Corridor Study

City of Moline

October 2003

LSA

LSA ASSOCIATES, INC

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1. CONTEXT ISSUES

Introduction

The City of Moline is a vibrant community which combines big city convenience with small town character. As one of the "Quad Cities," it is nestled in the middle of a metropolitan area of about 350,000 people. The region was very important to the westward industrial expansion, and agriculture. As a result, the urban planning efforts take the industrial heritage of the City into account. Understanding the industrial heritage explains and adds understanding to the existing transportation system in Moline and the surround area.

Moline has been an industrial area and a large percent of the vehicle trips in Moline are work/commute based trips. Historically, a large portion of the residential and industrial land uses were located along the Illinois Highway 92 Corridor (IL-92). IL-92 previously was located along 5th Avenue. Because 5th Avenue was the primary east-west downtown street for Moline and there was a desire to minimize the through traffic impacts within the downtown area, improvements were made to 4th and 6th Avenues as an east-west one-way couplet. With these improvements, IL-92 was relocated to the 4th and 6th Avenues couplet. While the westbound traffic on IL-92 is served by 4th Avenue, eastbound traffic is served by 5th Avenue from the Rock Island city limit to 11th Street. From 11th Street east to 27th Street, IL-92 follows 6th Avenue and from 27th Street to 34th Street, eastbound IL-92 again becomes 5th Avenue. To avoid confusion with the stretch of 5th Avenue between 11th Street and 27th Street, which is not part of IL-92, the rest of this document will refer to the entire eastbound portion of IL-92 between Rock Island city limits and 34th Street as "6th Avenue."

Over the years, much of the industrial uses along the IL-92 corridor have been relocated. Furthermore, the couplet has not effectively served the retail and business center of Moline's downtown. The couplet has performed more as a through corridor and creates circuitry problems in reaching the corridor's destinations. To accommodate future growth and to pursue community and neighborhood visions, the Illinois Highway 92 Corridor Study has been conducted by the City of Moline.

The study addresses two primary objectives: the first is to explore opportunities for conversion of the one-way couplet along 4th and 6th Avenues to two-way operations. This effort is to address the transportation impacts associated with a change as well as any positive or negative impacts on adjacent residential and business development. The second objective is to review the interchange proposals for the ongoing I-74 corridor study to determine how either of the four interchanges proposals would benefit or impact circulation and mobility within the City of Moline and the downtown area.

Study Area

The Study Area includes the portion of the IL-92 (4th and 6th Avenues) from the westerly Moline city limits to 34th Street. The IL-92 runs adjacent to the Mississippi River through the Illinois Quad Cities communities of Rock Island, Moline, and East Moline before running east and merging with Illinois 5/ Interstate 86. Because of the need to connect to the one-way pair of IL-92 in Rock Island, the study area also includes a conceptual assessment of connections and improvements within the City of Rock Island.

Visions and Goals

Visions and Goals from past planning studies have provided a framework in assessing the various alternatives. It was pertinent to understand the neighborhood, business, and infrastructure plans that all affect the corridor study area. Figure 1.1 lists brief descriptions of the downtown and neighborhood visions within the study area. Key observations of these community goals were desires to or see if it would be possible to eliminate the IL-92 one-way couplet in order to improve access to local businesses and residents and reduce negative impacts created by the one-way pair.

Related Plans and Studies

- QC 2025 Long Range Transportation Plan
- Quad Cities Balanced Growth Project Summary Report (2002)
- I-74 Corridor Study
- Downtown and Neighborhood Plans:
    - The Moline Centre Master Plan Update (1994)
    - Floreciente Neighborhood Plan Update (2001)
    - Edgewater Neighborhood Plan (1994)
    - KeyStone Neighborhood Plan (1996)
    - Rock Island Parkway Concept Design Plan (2001)
    - City of Moline Comprehensive Plan (2001)

Related plans and reports that were incorporated into this study process are listed below:

QC 2025 Long-Range Transportation Plan provided background and future information for Moline and the Quad City region. The transportation plan is very encompassing including characteristics of the land use, zoning, socioeconomics, economics, visions, needs, goals, as well as all aspects of transportation. This study area identified future trip attractions and destinations within the region and how these trips might affect the traffic patterns within the City of Moline and along the IL-92 corridor.

One future goal was the desire for a "walkable community." A walkable community is one where homes, businesses and public transit are all within walking distance of one another, and connected by a network of safe, attractive walkways. Consideration of creating this network of walkable paths was incorporated when considering the alternatives for the 4th and 6th Avenues. Redesigning the corridor would be an ideal time to enhance the pedestrian facilities.

Quad Cities Balanced Growth Project Summary Report identified the importance of MetroLINK as an important transportation element for serving existing and future development within the Quad Cities Metropolitan area. Redevelopment within downtown Moline has been seeded by building Centre Station, a mixed-use development that incorporates MetroLINK's major transfer center, and additional mixed-use transit-oriented development plans to integrate residential, commercial and recreational activities in areas such as the LeClaire/Web-Support District, the Riverside Park Redevelopment District, and the West Gateway District. Much of Moline's progress is attributable to successful public-private partnerships between the City, MetroLINK, Renew Moline, and John Deere.

The **I-74 Corridor Study**, currently under study by the Iowa and Illinois Departments of Transportation, is an environmental assessment and preliminary engineering of a portion of the I-74 Highway that runs through the heart of the Quad Cities. The study identifies improvement options for a 7-mile section of I-74 from 23rd Avenue in Illinois to 53rd Street in Iowa. The study also examines a range of solutions to improve travel and the safety of traffic traveling across the Mississippi River. The study is striving to improve the "gateway" to the region, and to enhance economic development while respecting the environment. The various interchange options between I-74 and IL-92 does affect travel along the corridor and alternative options.

FIGURE 1.1
STUDY AREA AND COMMUNITY VISION

Floreciente Neighborhood

- Streetscape improvements
- Controlled intersections with designated crosswalks
- Perform a study to eliminate the Illinois Highway 92 one-way pair
- Neighborhood gateways
- Metro Link bus shelters

Moline Centre

- Promote outdoor dining, sales, and activities
- Develop a parking management plan to better utilize existing parking
- Moline Centre should become a visitor and entertainment district

Edgewater Neighborhood

- Streetscape improvements to define neighborhood identity
- Provide controlled intersections and designated crosswalks
- Multi-modal linkages should be established.

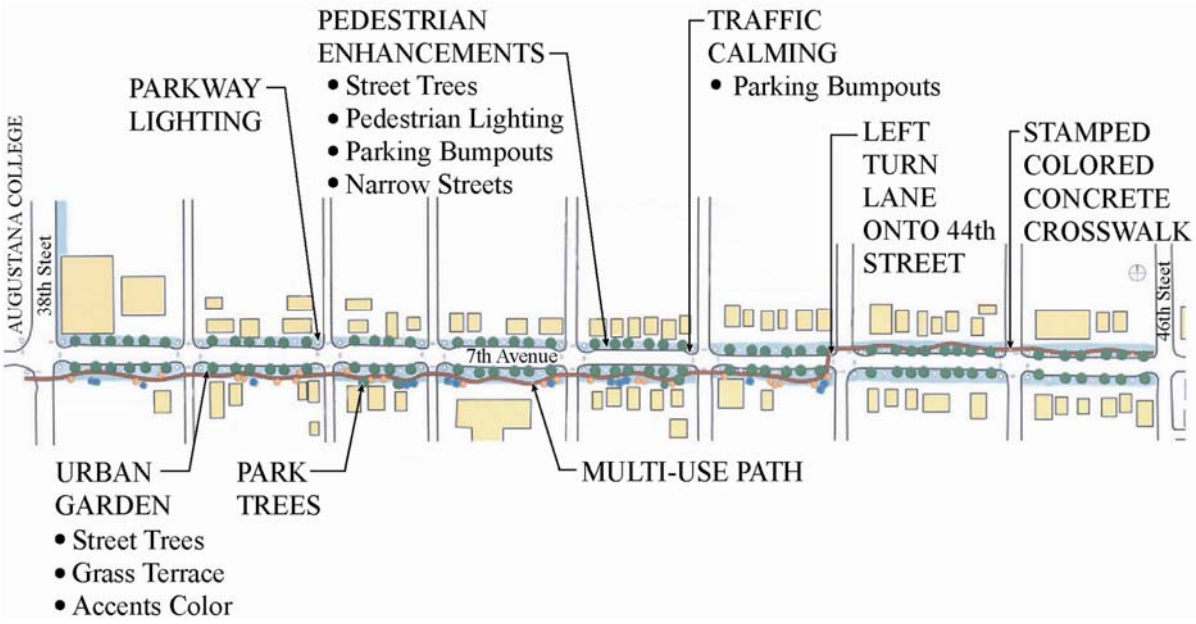
Edgewater Neighborhood is located at the eastern end of the study area between 23rd Street and 34th Street. Access to the neighborhood is excellent. The neighborhood is linear and is easily accessible from 4th Avenue. Fourth Avenue is a major noise generator, with high traffic volume and especially due to commercial traffic. Although portions of the drive along 4th Avenue are visually blighted, it has realistic redevelopment possibilities. The Edgewater Neighborhood Plan outlines a few transportation system implementation strategies that have provided insight to the corridor study, such as: streetscape improvements to define neighborhood identity, provide controlled intersections and designated crosswalks, and establish multi-modal linkages.

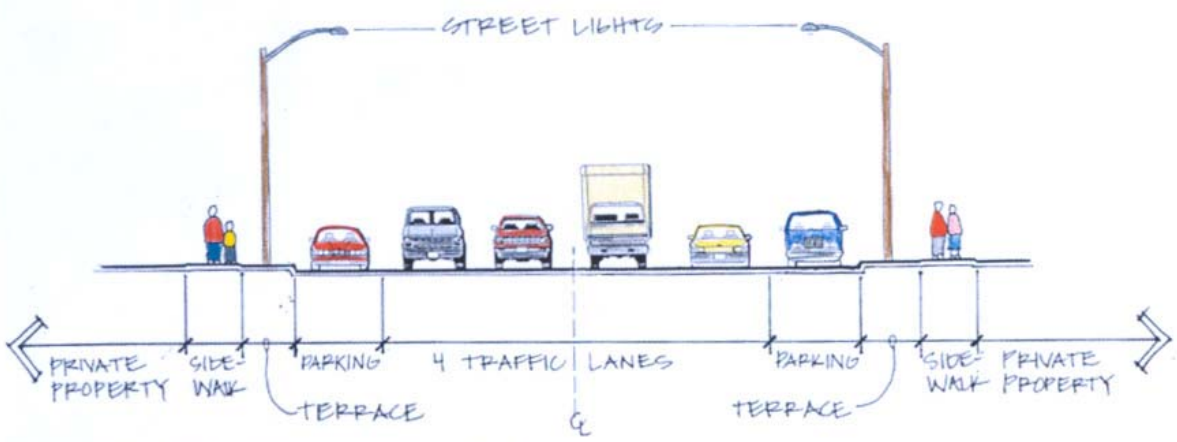
Floreciente Neighborhood is located at the western end of the study area between 1st Street and 12th Street. Fourth Avenue is one of the primary east/west linkages for the neighborhood. The neighborhood has two objectives for 4th Avenue including inter-neighborhood linkages as well as intra-neighborhood linkages. Transportation strategies outlined in the neighborhood visions include, but are not limited to: streetscape improvements, alley/pedestrian paths, controlled intersections with designated crosswalks, a study to eliminate the IL-92 one-way pair, improve neighborhood gateways, and adding MetroLINK bus shelters.

Moline Centre is located in the center of the study area and represents the core of the downtown. Major goals identified for the Moline Centre are to promote outdoor dining, sales, and activities, develop a parking management plan to better utilize existing parking, and to attract and entertain visitors to Moline.

Keystone Neighborhood is located adjacent to the study area in Rock Island. The neighborhood has a very active planning committee and has established goals for the neighborhood including: repair streets, curbs, and boulevards; improve lighting; maintain sidewalks cleared of snow, bushes, weeds, leaves; and control parking on narrow streets and congested areas.

Rock Island Parkway Concept Design Plan lists opportunities and design recommendations for the Rock Island area. Opportunities listed includes the reduction of travel lanes from four lanes to two lanes, creating park-like driving experiences in a landscape setting, gateways at entries to the parkway and city, and creating multi-modal transportation system along the corridor.





EXISTING 7TH AVENUE - View looking west

PROPOSED 7TH AVENUE - View looking west

One-Way Versus Two-Way Operations: Current Trends and Practice

In order to fully assess whether the Highway 92 one-way couplet should be converted to two-way operations, research on what other current trends and transportation planning/engineering practice was undertaken. This research effort included two areas of focus. The first area of investigation was to research what other communities doing: are they converting from one-way to two-way, keeping their one-way streets or are they converting from two-way to one-way operations. The second effort was researching how the transportation planning and engineering professionals are addressing this issue regarding the evaluation of the pros and cons of conversion from one-way to two-way streets.

The History of One-Way Streets

Most one-way streets in this nation were first created from two-way streets in the 1930s through the early 1970s. These conversions took place in areas built before the automobile became the prevalent form of transportation. Such areas tend to have narrower streets and smaller blocks than post-auto cities. One-way streets were thus an attempt to accommodate auto traffic in areas not built for the auto. The wider streets and longer blocks typical of post-auto areas often allow improved traffic flows without one-way streets.

It should also be noted that before the 1990s, transportation policy was firmly in the hands of traffic engineers, whose primary goal was traffic capacity and flow, and secondarily the movement of people and goods.

One-way streets permitted higher average speeds because signals on a one-way grid could be synchronized to allow drivers in to proceed at a fixed rate of speed. Faster speeds on signal-synchronized one-way streets increased road capacities without laying more pavement.

As a product of these conversions, it was found that many of these communities that implemented one-way street conversions, the neighborhood and business vitality of the areas declined as businesses which benefited from pass-by traffic found that these potential customers were redirected to other corridors. With the advent of the planning community examining the decline of our central cities, increased criticism of the one-way streets was blamed as being a contributor of the decline.

With the passage of the Intermodal Surface Transportation Efficiency Act in the early 1990's, the Federal government mandated that state and local jurisdictions take a broader perspective of planning our transportation system, including the affect of alternative modes and the planning goals and objectives of the community. This broader examination of the transportation system has led many communities to re-examine their one-way street systems, with many communities converting back to two-way operations.

Cities Which Have Converted from One-Way to Two-Way Operations

Research was conducted on Cities and Towns throughout the United States as to whether they were converting their streets from one-way to two-way operations, keeping them as one-way operations, or converting more two-way streets to one-way operations. The communities surveyed represent a broad range of geographical and demographic cross section. A summary of each of these communities is included in the following table.

Based on the research, it was found that 22 cities have recently completed the conversion from one-way to two-way operations. The research did not find any communities that converted from two-way to one-way operations.

The vast majority, if not all, of the communities surveyed reported that changing from one-way to two-way traffic operation was very positive. The following summarizes the research findings.

Communities that Converted from One-Way to Two-Way Traffic Flow

City	Population	Average Daily Traffic	Results
Anniston, Alabama	26,400	10 - 15,000	Increased business traffic and accessibility vacancy rate dropped from 6% to 1%. "Everyone is happy, including the bank that was initially opposed to the change."
Buffalo, New York	328,000	6,800	Changed street has become entertainment center. Pedestrian traffic has increased significantly. Plans are to change more one-ways back to two-way.
Charleston, South Carolina	95,000	--	Changed was in a minority business corridor. Dramatic increase in new retail and business activity. Some continued complaints on eliminated street parking.

City	Population	Average Daily Traffic	Results
Dubuque, Iowa	60,000	6,000	Very positive, better access, pedestrian friendly, and reduced confusion.
Gardner, Massachusetts	22,000	40,000	Conversion immediately increased development and reduced vacancy. Slow down in traffic speed and more user-friendly. Concerns with increased congestion did not occur. By all accounts, converting back to two-way traffic has been very successful.
Green Bay, Wisconsin	97,000	5,000	Conversion to two-way has worked well, creating better vehicle access, dispersing traffic, and exposure for business.
Hickory, North Carolina	36,000	5,000	Changed the City's image to "user-friendly." Can get around easier, people are happy. New stores have opened.
Lafayette, Indiana	50,000	12,000	Good results, better access. "No one would want to go back to one-way traffic."
Lubbock, Texas	200,000	7,100	Improved access and clarity. New business development after 20 years of decline.
Mansfield, Ohio	51,000	--	Easier for visitors, increased development.
Moshpee, Maryland	9,000	--	After change, the study area has become considered as the most successful retail on the cape.
Milwaukee, Wisconsin	650,000	--	Very successful, more user-friendly, calmed traffic, and improved flow.
New Haven, Connecticut	126,000	--	Positive results, visitors more comfortable, public wants more two-ways.
North Little Rock, Arkansas	61,000	13,000	Vacancy dropped from 75% to 60% within first 18 months. Has attracted property investment and new development.
Sheridan, Wyoming	14,000	--	Vacancy rate on the street has dropped from 25% to less than 1%. Vacant buildings purchased and redeveloped. Pedestrian traffic has increased significantly. Before and after surveys indicate visitors find it easer to get around.
Toledo, Ohio	323,000	--	"The new two-way streets and pedestrian enhancements have totally turned our city around." Restaurants report 5-7% increase.

City	Population	Average Daily Traffic	Results
Wailuku, Hawaii	14,000	--	Positive response. Tourists find traffic patterns less confusing and easier to get around.
Walla Walla, Washington	28,663	--	City installed one-way streets which caused 15% reduction in Main Street traffic, revenue dropped, customers revolted, and increased number of accidents and close calls. Since returned to two-way, City has experienced more local investment.
Washington, Missouri	12,000	--	Vacancy has dropped from 25-30% to 1-2%. Through traffic has slowed down.
West Palm Beach, Florida	85,000	--	Dramatic increase in residential, retail shops and restaurants, "This is now the hottest shopping district in the area.." Several new shops have moved into the area that would not have moved into the area had the one-way street pattern remained. Reduced travel speeds and increased exposure.
Woonsocket, Rhode Island	44,000	--	Very supportive of change. Vacancy rate has dropped from 50% to less than 20%. May new businesses.
York, Pennsylvania	43,000	--	"Wildly successful" with slower travel speeds, reduced volumes, and fewer accidents.

Reasons of Converting from One-Way to Two-Way Operations

In most instances the conversion from one-way to two-way stemmed from the desire to improve access, reduce through travel speed and make the circulation system more functional for businesses and residents. The research further indicated that after the conversion to two-way operations, businesses and residents resulted in better distribution of traffic (more choices to get around) more pedestrian friendly, and a general feeling of improved "livability," quaintness and an improved "sense of community" as a result.

- **Economic Vitality**
  In most communities, there was a marked improvement in economic vitality. Communities surveyed found that after conversion vacancies dropped significantly, new and redevelopment occurred and local businesses experienced increased sales. Reasons for this increased economic vitality were from improved access, improved distribution of traffic and city capital investments in the local community.

- **Way Finding**
  Communities found that the conversion from one-way pairs to two-way traffic resulted in less confusing for visitors not familiar with the area.

- **Traffic Flow and Speed**
  Communities researched indicated that the flow and speed of traffic was reduces, although marginal after conversion to two-way because the two-way routes were more direct. These communities also believed that this was a positive improvement as this change better balanced the purposed of the roadway system to serve both local and through traffic, and improve mobility for pedestrians, bicyclists, and transit users.

- **Congestion**
  Communities researched indicated that prior to converting from one-way to two-way operations, opponents to the conversion were fearful that the change would result in congestion through a less efficient roadway system. Another finding is that although many communities had a fear of increased congestion, congestion was not found, as increased opportunities for diversion occurred.

- **Proposed Additional Changes**
  In research of many of the jurisdictions that had converted from one-way to two-way operations, it was found that because of the success of the conversions, additional plans have been made to convert additional one-way streets within these communities to two-way operations.

- **Future Planned Conversions**
  Based on the research, it was found that there are a number of additional communities throughout the United States that are planning conversions from one-way to two-way operations. These include the cities of Austin, Berkeley, Cambridge, Chattanooga, Cincinnati, Louisville, Palo Alto, Sacramento, San Jose, Seattle, St. Petersburg, and Tampa.

One-Way Versus Two-Way Operations – Measures of Effectiveness

Based on a recent research effort prepared for the Transportation Research Board, the City of Minneapolis, Minnesota examined thirteen measures of effectiveness on both one-way and two-way streets within their City. Each of these measures was evaluated on various streets within their community to determine if the measure identified better operations with a one-way street system, a two-way street system or was neutral. They examined a series of streets within the City to base their conclusions, which are summarized as follows:

Measures of Effectiveness	One-Way	Two-Way	Neutral
1. Traffic Volumes – There is very little difference in daily and peak hour traffic between one-way and two-way operations			X
2. Street Width – No change to the existing curb-to-curb street width is anticipated for either the one-way operation or the two-way operation			X
3. Neighborhood Connectivity – Two-way operations result in slightly lower speeds than one-way operations and neighborhood connectivity is slightly better under two-way operations.		X	

Measures of Effectiveness	One-Way	Two-Way	Neutral
4. On-Street Parking – One-way operations tend to provide for slightly more on street parking than two-way operations where left turn lanes are required at critical intersections	X		
5. Pedestrian Safety – The crossing distance remains the same. Traffic speeds are slightly lowered for two-way operations and the look to left than right is more logical for two-way operations. One-way operations are expected to provide slightly longer and more frequent gaps in traffic. The greater availability in gaps in traffic makes the one-way condition slightly more desirable for pedestrian safety	X		
6. Cut-Through Traffic – As long as congestion does not occur in either condition, either type of operation is not expected to encourage cut-through traffic on nearby residential streets.			X
7. Free Flow Speed – Free-flow speeds above the speed limit occur on one-way streets and are at or below the speed limit on two-way streets. The lower free flow speed conditions associated with two-way operations are more desirable to residence and business along the corridor.		X	
8. Average Speed – Average speed which includes signal delay and congestion delay are lower for two-way operations as compared to one-way operations. The lower average speed conditions associated with two-way operations are more desirable to residence and business along the corridor.		X	
9. Delay – The differences in delay between one-way and two-way operations are expected to be small, but one-way operations tend to have a slight advantage over two-way operation due to fewer conflicts at intersections. (Note: This slight advantage can be mitigated with strategic placement of left turn pockets at key intersections, making this measure of effectiveness neutral.)	X		
10. Accident Rates – Historical vehicle accident rates were higher on one-way streets in Minneapolis than on the two-way sampled streets, suggesting that two-way operations may provide safer operations than one-way.		X	
11. Local Traffic Circulation – Two-way operation provides improved local circulation for residential areas and businesses than one-way. Under one-way conditions, traffic may have to go around the block to get to its desired destination.		X	
12. Intersection Capacity – Intersection levels of service are expected to operate the same for either one-way or two-way operations.			X

Measures of Effectiveness	One-Way	Two-Way	Neutral
13. Lane Continuity – Street width and parking conditions are not expected to change significantly between one-way or two-way operations.			X
14. Traffic Noise – Because traffic volumes and congestion tend to be the same for one and two-way operations, and traffic volumes and congestion are indicators of traffic noise, no significant differences in traffic noise is expected between one-way and two-way operation.			X

Summary of Measures of Effectiveness

Based on a summary of the 13 measures of effectiveness, it was found that seven measures were neutral between one-way and two-way operations. Three of the measures of effectiveness favored one-way operations: On-Street Parking, Pedestrian Safety and Delay (Note: Delay can be neutralized with strategic placement of left turn pockets at key intersections.) Five measures of effectiveness favored the two-way operations: Neighborhood Connectivity, Free-Flow Speed, Average Speed, Accident Rates and Local Traffic Circulation.

2. EXISTING CONDITIONS

In order to properly develop a recommendation for the corridor study it is first necessary to understand the existing economic, land use, social, and transportation conditions of the City of Moline. Understanding the history and changes that made the region what it is today is also useful before embarking on proposed changes to the corridor. To gain insight into the existing conditions a two-day field survey was performed to collect existing data. The following section describes the current conditions in the IL-92 study corridor.

Transportation System

The transportation system is comprised of a network of streets and highways that allow for automobile and truck travel within, to, and through the region. In reality, roads make up only one component of the transportation system, albeit an important one. Transit service, bicycle facilities, and pedestrian infrastructure are significant mobility resources as well. Railroad corridors, airports, and inter-modal truck terminals are also critical elements. Even traffic signals and stop signs are part of the transportation system. This study focuses mainly on the operation of the roadway network within the corridor; however the community and surrounding area add valuable context and background to the study and understanding of impacts of change.

Roadway Network

Roadways make up the backbone of the transportation system. Cars and trucks use the roadway system for mobility. Transit busses utilize roads for their routes. Currently, both 4th and 6th Avenues are two-lane roadways operating as one-way pairs. Fourth Avenue serves traffic traveling to the west and 6th Avenue serves traffic traveling east. The roadway network changes outside of the study area. West of the study area, both 4th and 6th Avenues continue into Rock Island. The Avenues are four-lane roadways in Rock Island, east of 34th Street with the couplet converging to a four-lane two-way operation.

Roadway Geometries and Cross-Sections

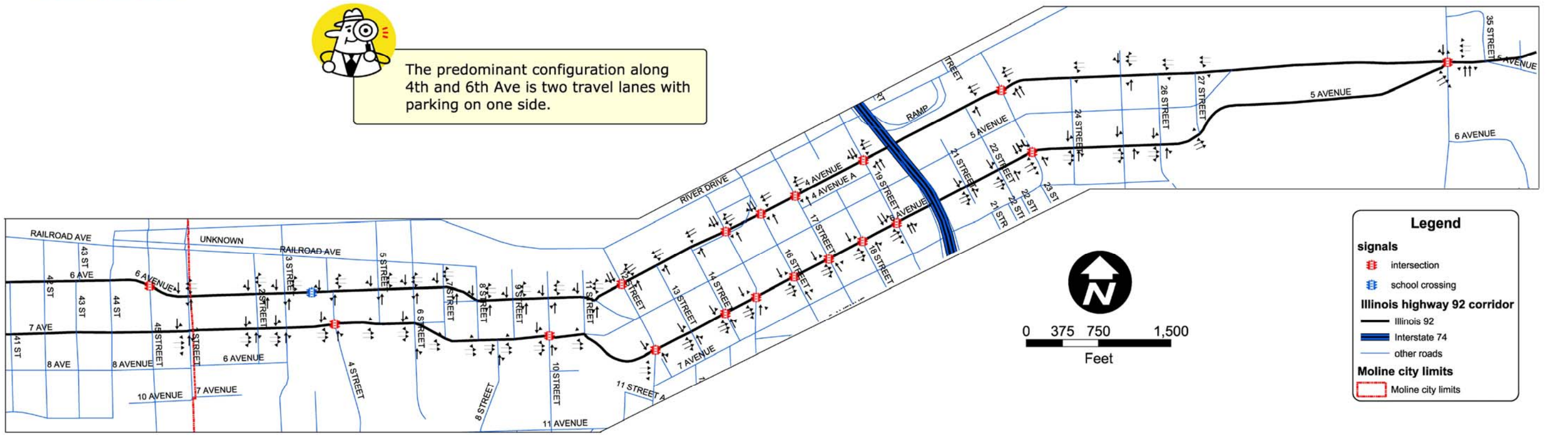
Three roadway cross-sections are typical in the corridor study area. The predominant configuration along 4th and 6th Avenues is two travel lanes with on-street parking located on one side of the street. Variations to that compose the other two cross-sections. At some locations the roadway widths accommodate and allow on-street parking on both sides of the two-travel lanes. No on-street parking is available at certain locations throughout the corridor where the roadway width is narrow. Illustrations of three cross-sections are presented in Figure 2.1 Existing Lane Configurations.

Intersection Traffic Control

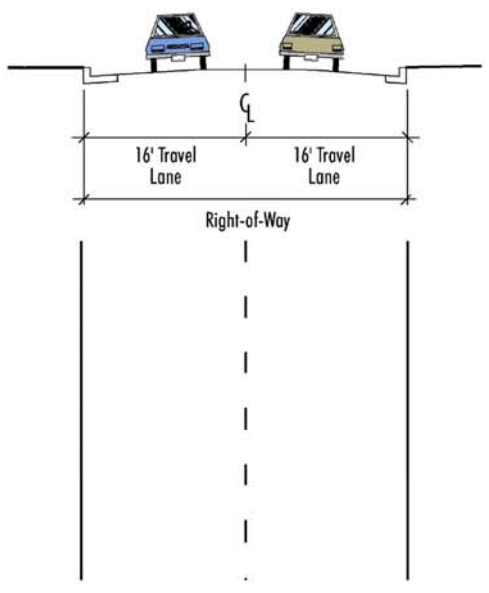
Currently there are seventeen traffic signals along the 4th and 6th Avenues corridor. The majority of the seventeen traffic controls are located in the downtown area between 19th and 12th Streets. All other intersections are controlled by stop signs enforced to the side street traffic that intersect 4th and 6th Avenues. Figure 1.2, illustrates the location and the character of the signal at each intersection along 4th and 6th Avenues.

FIGURE 2.1
EXISTING LANE CONFIGURATION

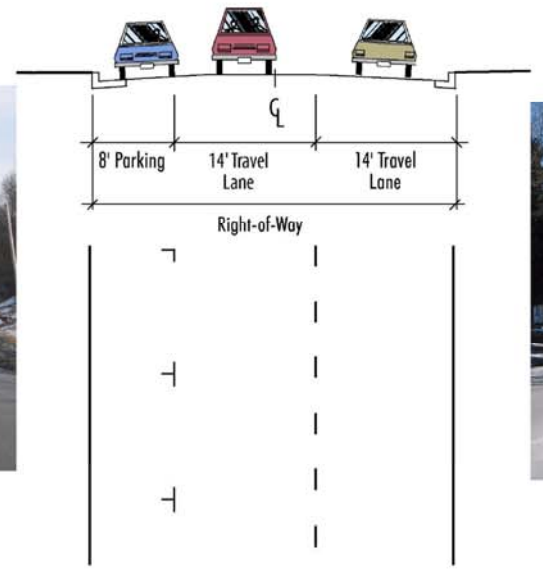
The predominant configuration along 4th and 6th Ave is two travel lanes with parking on one side.



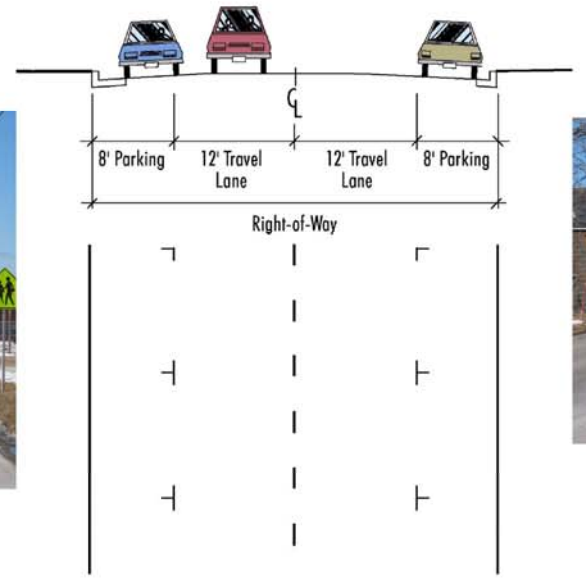
Existing Typical 32' Roadway



Existing Typical 36' Roadway



Existing Typical 40' Roadway



Crosswalk Locations

Crosswalks have been referred to as the Achilles heel of the pedestrian system. Crosswalks are critical at intersections, as they are the location where pedestrians must interface with automobiles, which can result in safety concerns. As streets get wider and carry higher volumes of traffic, potential use by pedestrians is avoided as safety becomes a concern. There are many factors that affect the pedestrians' real and perceived comfort and safety for crossing the street, ranging from traffic control, crosswalks, number and width of travel lanes, travel speeds, and traffic volumes.

Currently, most of the downtown signalized intersections have well striped crosswalks for the safety of pedestrians. Two mid-block crossings are located within the study area. One mid-block crossing is along 4th Avenue between 3rd and 4th Streets, which is signalized to serve school hours. The other mid-block crossing is located between 10th and 11th Streets, at a school location. Crosswalk locations are illustrated in Figure 2.2 Streets and Parking.

Street Widths

Community, neighborhood, and downtown characters are greatly influenced by street widths. Street width should compliment the adjacent building heights to improve the overall streetscape and character of the roadway. Outdoor spaces are most clearly perceived and appreciated when the streets have a ratio of two or three horizontal to one vertical. In other words for a building the height of 20 feet the street width would be no more than 40 to 60 feet. When the horizontal distance is much greater, individuals perceive parts rather than the streets and buildings as a whole. A well designed street network can add a sense of quality and help to give scale to a corridor.

Street pavement widths throughout the study corridor vary greatly along with on-street parking and right-of-way. Existing right-of-way widths are important to understanding the constraints for making additional improvements along the corridor that is paved. The existing pavement widths provide a guideline. Widths were measured along the corridor and are displayed in Figure 2.1.

Parking

Parking facilities must balance high utilization, which reflects activity and vitality, with enough turnover to provide availability for shoppers and visitors. In retail areas utilization should typically not exceed 85 percent except during the peak holiday season. The objective of this 85% utilization factor is that potential customers make discretionary trips to the retail shops and restaurants in downtown. If fewer than 15 percent of the spaces are available, the driver might have to circle the block or park too far from the front door of their destination. Under these conditions, a discretionary trip might be diverted to competitive shopping centers within the area. In contrast to crowded parking conditions, very low utilization also could be deemed detrimental, as potential customers might perceive that downtown activities are not vibrant or popular and they should shop elsewhere.

Available parking spaces and general utilization in the study area were recorded and are presented according the percent usage scale of low (0-49% occupied), medium (50-74% occupied), and high (75-100% occupied). On-street parking utilization is approximately 30% of capacity in the corridor. The percent usage is an average value that was observed during the field survey. Parking inventories were performed between the hours of 7 a.m. and 8 p.m. to observe both working and non-working hours in relation to the usage of on-street parking. In general, there exists ample on-street parking throughout the Study Area. Even in the higher utilized downtown area, on-street parking tends to be available within a block or two of all destinations. As would be expected, on-street parking increased slightly during the evening hours in residential areas compared to the day time usage. Parking locations and utilizations are shown in Figure 2.2.

FIGURE 2.2
STREETS AND PARKING

Vehicles in the corridor travel at approximately 5 to 10 mph over the posed speed limit.

Roadway pavement width is severely limited in several locations.

street inventory

On-street parking utilization is approximately 30% of capacity in the corridor.

parking inventory

Transit Routes and Stops

An efficient, safe and environmentally sound public transit system is essential to moving people in both rural and urban areas, and is a fundamental part of providing mobility alternatives for citizens in urban areas that are essential to the health of the economy. Public transit also provides mobility for youth, elderly, and disabled who do not have access to other modes of transportation, to travel to education, medical, social service and other necessary services. Convenient routes and transit stops are keys to a successful transit system.

MetroLINK provides the Illinois Quad Cities with metropolitan bus service seven days a week. There are five routes that serve the study area; they are the 10, 20, 30, 57, and the 70, as presented in Figure 2.3. The transit service along 4th and 6th Avenues lacks continuity as a transit rider must walk two blocks (from 4th to 6th or visa versa) to find the transit return stop. Bus stops and shelters are located along the corridor on 4th, 5th, and 6th Avenues they are identified in Figure 2.3 along with the transit routes. The majority of the transit stops were identified only by a transit sign, however, there are three bus shelters located in the study area.

Moline Centre is home to the Centre Station, currently a MetroLINK bus transfer point and parking garage located close to the rail corridor. The design of Centre Station allows for its conversion to a train station and integration into a future rapid transit system. This station is a step towards increasing transit use and efficiency.

Existing Daily Traffic Volumes

Average annual daily traffic volumes along the Highway 92 corridor were provided by Illinois Department of Transportation (IDOT). West bound 4th Avenue traffic volumes and east bound 6th Avenues volumes are impacted significantly near the I-74 Interstate, due to on and off ramps being located near that intersection. Daily traffic volumes are marginally higher along 6th Avenue in comparison to 4th Avenue. Average daily traffic volumes are presented in Figure 2.4 Existing Conditions.

Roadway Level of Service

A common measurement of operational performance of an intersection or corridor is level of service (LOS). In its simplest form, roadway LOS can be compared to a grading scale from "A" to "F," where "A" represents excellent LOS and "F" indicates failure. LOS takes into account vehicular delay, maneuverability, driver comfort, congestion, and travel speed. It is typically reported for the worst peak hour of a typical weekday, also known as rush hour.

The City of Moline currently does not have a LOS standard; however, most communities around the country try to maintain LOS D for their roadway systems. As congestion reaches very high levels in some major metropolitan areas, these LOS standards are often relaxed.

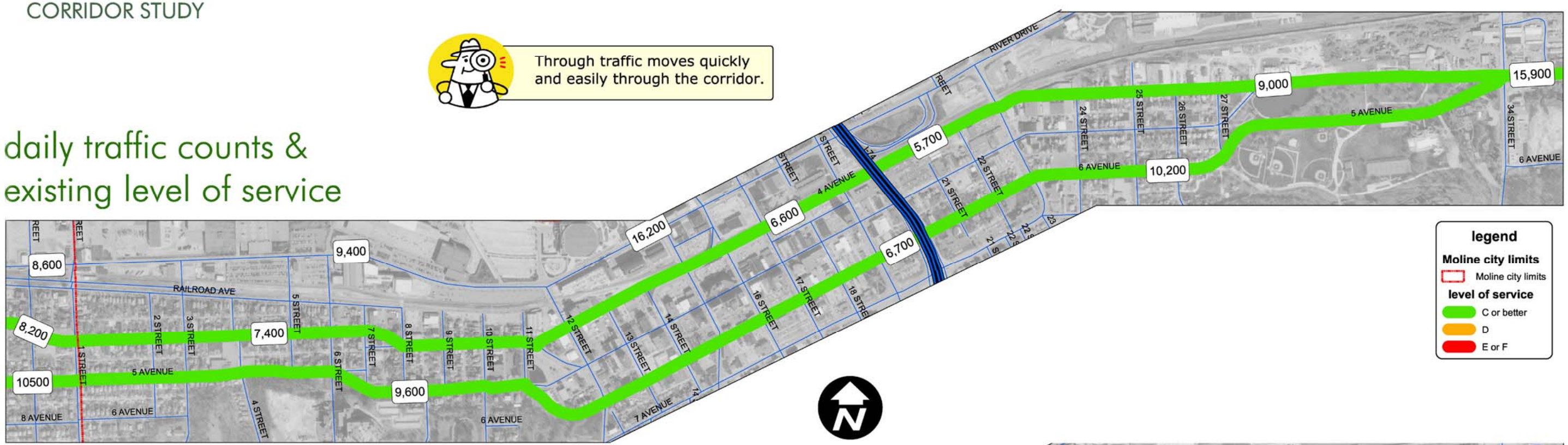
FIGURE 2.3
TRANSIT SERVICE

Transit along 4th and 6th Ave lacks continuity.

FIGURE 2.4
EXISTING CONDITIONS

Through traffic moves quickly and easily through the corridor.

daily traffic counts & existing level of service



current traffic flow

Most of the vehicles leaving the corridor are turning onto 19th and 23rd Streets. These are the two primary routes to access I-74 from the corridor.

Level of Service Characteristics

	A	B	C	D	E	F
Intersection Delay (control delay per vehicle, sec)	< 10	> 10 and < 20	> 20 and < 35	> 35 and < 55	> 55 and < 80	> 80
Maneuverability	Almost Completely Unimpeded	Only Slightly Restricted	Noticeably Restricted	Severely Limited	Extremely Unstable	Almost None
Driver Comfort	High	High	Some Tension	Poor	Extremely Poor	The Lowest
Average Traveling Speed	Speed Limit	Close to Speed Limit	Close to Speed Limit	Some Slowing	Significantly Slower than Speed Limit	Significantly Slower than Speed Limit

Level of service for roadways is based on a concept referred to as a volume to capacity (v/c) ratio, which simply is the daily volume divided by the facility's theoretical capacity. Roadway capacity is less on a two-way street than a one-way street due to more conflicting traffic movements. When the estimated or forecast daily traffic volume exceeds the theoretical capacity, then the v/c ratio is greater than 1 and would experience an "F" or failing LOS. *Existing LOS in the study area is at or above LOS "B" throughout the corridor. Existing levels of service are presented in Figure 2.4. As can be seen, all segments of both 4th and 6th Avenue have acceptable LOS of C or better.*

Issues are often raised regarding the impact that roadway improvements might have on other modes of travel. For example, adding additional through or turn lanes decreases the safety for the pedestrians and bicyclists. In these cases, pedestrians must face increased exposure to traffic, for longer periods of time, at higher volumes and higher speed traffic. As a result, many communities are introducing LOS standards for alternative modes. This provides a check and balance process where roadway improvements cannot be made without exploring solutions to improve the safety for pedestrians to cross a higher volume of traffic. Establishing standards and procedures for evaluating the performance or LOS for all modes is recommended for achieving the goal of a multimodal community.

Existing Traffic Flow

A traffic flow analysis surveyed over 100 vehicles traveling to corridor. The purpose of this study was to determine the make-up of traffic along IL-92, as to whether this traffic is regional in nature and travels through the Study Area, or whether the traffic has local destinations. The difference between through versus local traffic affects how alternative solutions are designed and recommended.

The study was performed on two week-days during the hours of 2 p.m. and 4 p.m. This study also provided data for vehicles turning off of the corridor to a destination. Vehicles were observed along 4th and 6th Avenues between 34th Street and 1st Street. The survey simply selected 100 cars at random from vehicles entering the Study Area, and then followed these vehicles until they turned or traveled through the corridor.

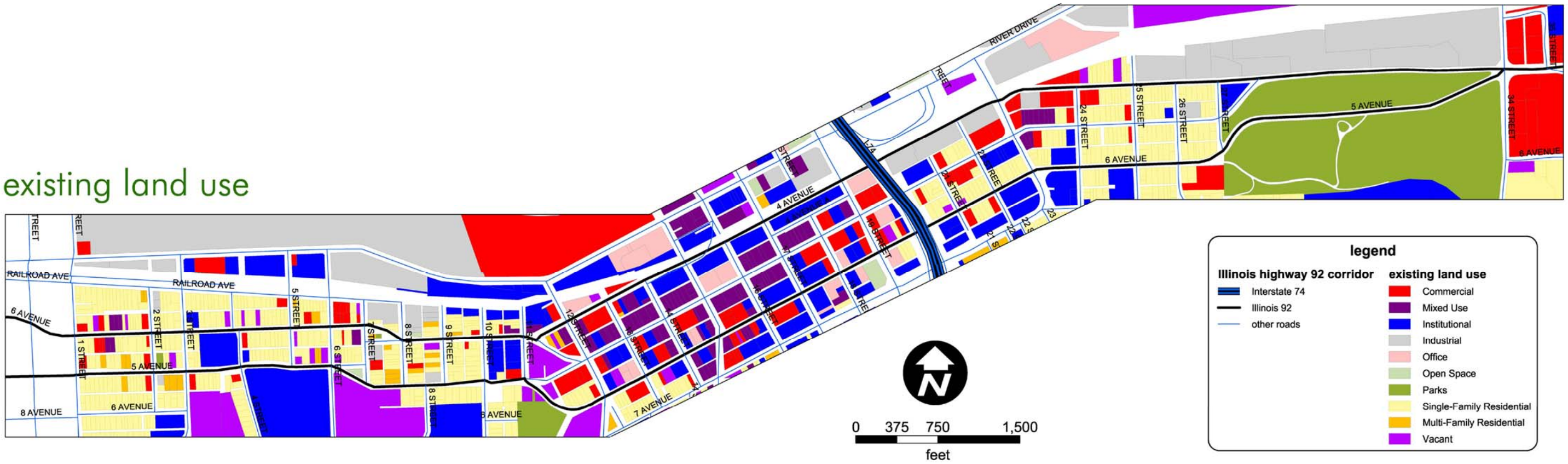
As presented in Figure 2.4, only about one-fourth of the entering vehicles actually traveled through the Study Area. The remaining three-fourths of all entering vehicles have either a destination within the Study Area or are turning to access I-74.

Existing Land Use

The existing land uses that make up the Study Area provide insight into the community's economic health, environmental awareness, and transportation requirements. These existing land uses are presented in Figure 2.5. Activities that occur in each of the various land uses within the Study Area form the basis for trip making, or travel demand.

These land uses incorporate the Moline Centre, the City's urban business, and commercial core. The Study Area also includes the residential neighborhoods, Floreciente (west) and Edgewater (east).

FIGURE 2.5
EXISTING LAND USE



3. FUTURE CONDITIONS

The future conditions for the study area consist of both potential development within the Study Area and region, and proposed or anticipated transportation improvements. Long range forecasts combining land use and transportation are based on the Bi-State Regional Councils Long Range Transportation Model. These assumptions and forecasts provide the framework for developing and evaluating alternatives.

Future traffic forecasts have been generated using the Bi-State Regional traffic model. The trip growth rate was calculated by comparing modeled 1998 estimates with modeled 2025 forecasts. In addition the forecasts considered the percent growth in traffic for selected traffic analysis zones. Traffic in the corridor is projected to increase between 20 and 35 percent over the next 20 years. This estimate is helpful for planners to foresee possible issues, concerns, and problems that may occur and to appropriately plan for the future demand. This study applies this additional growth onto the one-way street system as well as the two-way street system to compare future level of service. In addition to the regional influences, anticipated changes within the Study Area must also be considered. These local anticipated changes include the following.

Transportation

Proposed I-74 Interchange Alternatives

The I-74 corridor that runs through the heart of the Quad Cities is being studied by the Iowa and Illinois Departments of Transportation. The study will identify improvement options for a 7-mile section of I-74 from 23rd Avenue in Illinois to 53rd Street in Iowa. The study will examine a range of solutions to improve travel and improve the safety of traffic traveling across the Mississippi River. This study is striving to improve the "gateway" to the region, and to enhance the economic development while respecting the environment.

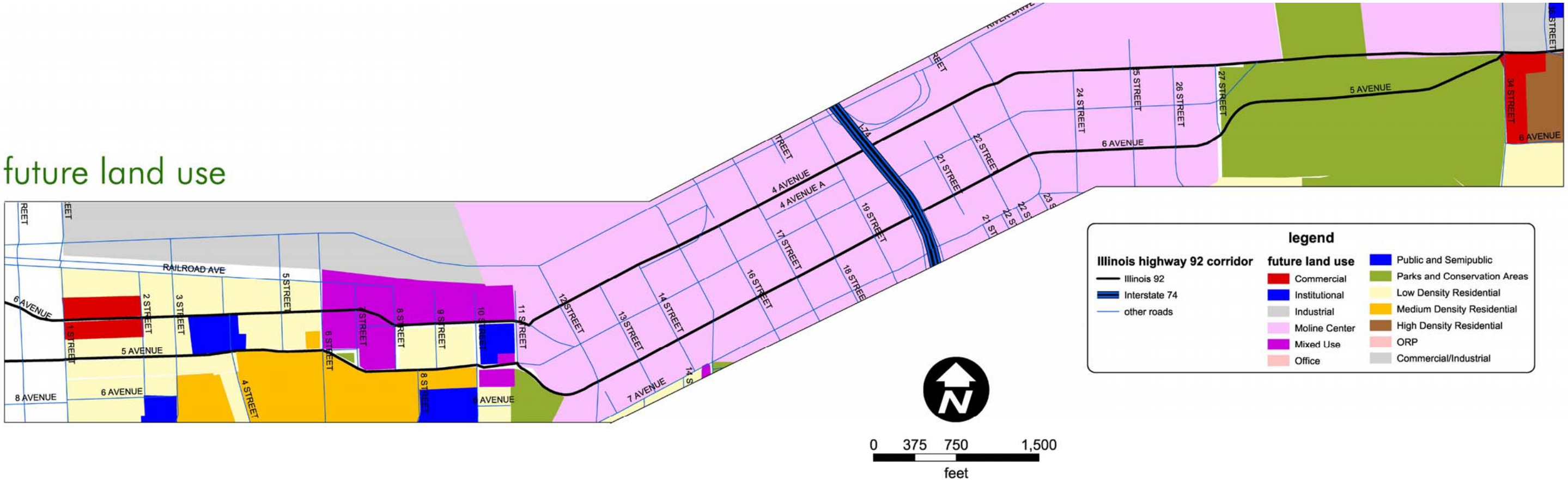
Sections of I-74 are in the study area and possible relocation of the highway and the ramps will be affected by the character of 4th and 6th Avenues. Currently four alternative ramp configuration options for I-74 have been reviewed that are within the study area. Two of the options would be compatible if the couplet was converted to two-way traffic, however two of the alternatives would not be conducive. Due to both of these studies occurring simultaneously it is very important to be aware and to see the larger picture that may be affected due to the change to the 4th and 6th Avenues.

Future Land Use

Estimates of future travel demand are based on established travel behavior relationships, travel and demographic trends, and future levels of activity. Activities are related to the land uses in which they occur. The City of Moline provided a vision for the amount of growth, location of new development, and types of new development and redevelopment expected to occur in the future. Figure 3.1 illustrates the future land use that is planned for the study corridor.

The long-range land use plan for the IL-92 corridor depicts increased and intensified mixed use in Moline Centre. The Floreciente Neighborhood is also anticipated to intensify, particularly with increased commercial activity along 4th Avenue at the west end of the Study Area. The Edgewater Neighborhood at the east end of the study is proposed to remain as a mixed-use area.

FIGURE 3.1
FUTURE LAND USE



4. PRELIMINARY ALTERNATIVES

Once the background data was collected and vision and goals of the community were established, a series of IL-92 Corridor alternatives were developed for the residents, businesses, and City staff to evaluate. Three conceptual alternatives were developed. The preliminary alternatives provided a starting point for analysis and discussion to understand the direction that the community would like to pursue. Each alternative represents a distinct concept idea of how the future transportation network within the corridor might work in the future.

Each transportation alternative contains elements that have pros and cons that will affect the neighborhoods, businesses, and the overall character of the community. The three alternatives that were developed, presented to the public, and analyzed as preliminary concepts for the corridor included the following:

- Null-Base Case Analysis
- Two-Way Traffic with On-Street Parking
- Two-Way Traffic with a Shared Left Turn Lane

Null: Base Case

This alternative would preserve the current one-way couplet street network with no changes to the roadways, except for the possible new interchange alignments of I-74 on and off ramps. On-street parking will remain at the existing locations and traffic flow will travel as it does currently.

Two-Way Traffic with On-Street Parking

This alternative assumes 4th and 6th Avenues being converted to two-way operations and that parking would remain along the corridor, with left turns occurring from the through lane, except at major streets and locations where additional rights-of-way are available.

Two-Way Traffic with a Continuous Left Turn Lane

This alternative also assumes conversion of 4th and 6th Avenues to two-way operation with the addition of a shared left turn lane. The shared left turn lane would be continuous through the entire corridor and would require the elimination of on-street parking.

Alternatives Evaluation

The alternatives evaluation identifies how a particular transportation concept impacts the community regarding the availability of parking, travel speed, travel routes, and the characteristic of the community. Each alternative results in different benefits and impacts as shown in Figure 4.1 Forecast Level of Service - One-Way Operation and Figure 4.2 Forecast Level of Service - Two-Way Operation.

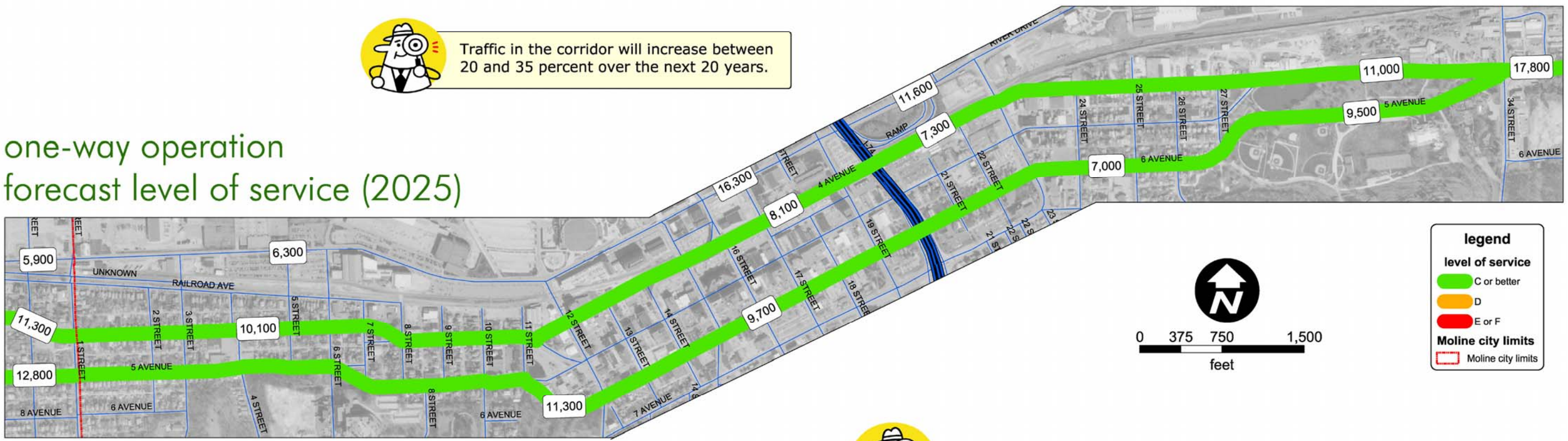
Each alternative was analyzed using the following criteria:

- Roadway Level of Service
- Travel Speed
- Mobility/Circuity
- Transit Service
- Pedestrian
- Parking
- Support of Neighborhood Plans

FIGURE 4.1
FORECAST LEVEL OF SERVICE
I WAY OPERATION

Traffic in the corridor will increase between 20 and 35 percent over the next 20 years.

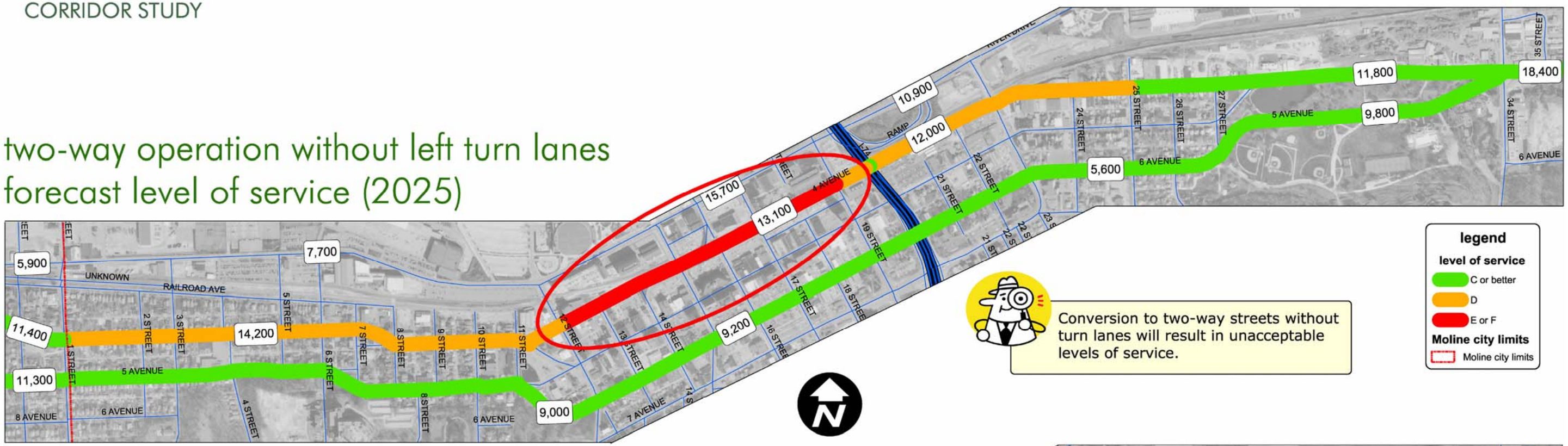
one-way operation
forecast level of service (2025)



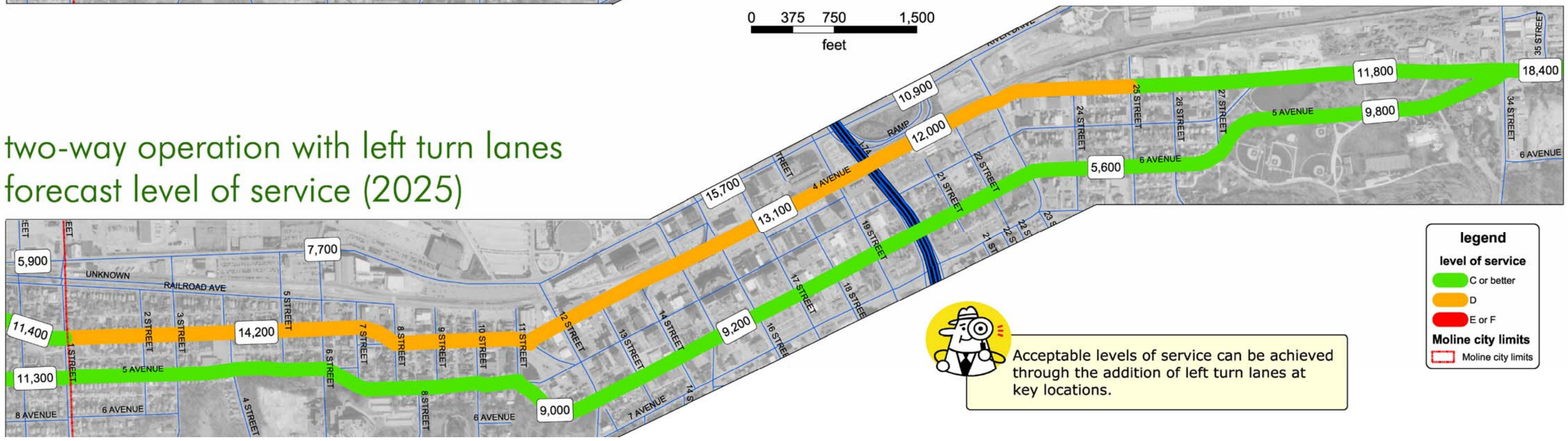
A one-way street system will continue to move through traffic efficiently in the future.

FIGURE 4.2
FORECAST LEVEL OF SERVICE
2 WAY OPERATION

two-way operation without left turn lanes
forecast level of service (2025)



two-way operation with left turn lanes
forecast level of service (2025)



The following summarizes the analysis results. The following tables highlights these findings in a simple "+" (positive), "0" (neutral), and "-" (negative) system. Preliminary Highway 92 Alternatives Evaluation Summary Matrix is located below and visually illustrates the evaluation described.

Evaluation Summary of the Preliminary Highway 92 Alternatives

	Null	Two-Way Parking	Two-Way Continuous Left Turn
Performance/Operations			
Capacity/Level of Service	+	o	+/o
Travel Speed	o	+	+
Mobility/Circuity	-	+	+
Transit	-	+	+
Pedestrian	o	o	o
Parking	o	o	-
Supportive of Neighborhood Plans	o	+	+
Total Performance Score	**-1**	**+4**	**+3½**

Level of Service

Vehicle capacity represents the maximum number of vehicles that can pass a given point during a specified period based on the roadway characteristics. Capacity is defined on the basis of "reasonable expectancy." Two-way roadways have less capacity than one-way roadways, due to additional conflicting movements and opposing traffic flow. Level of service for the future alternatives were estimated based upon the modeled 2025 future volumes on both a two-way network and the existing one-way network.

In general, a two-lane one-way street can accommodate up to 16,000 vehicles per day at LOS D. A two-lane roadway can similarly accommodate up to 16,000 vehicles per day with left turn lanes. A two-lane roadway without left turn lanes can accommodate up to 15,000 vehicles per day in areas where left turns are moderate (i.e., the Floreciente Neighborhood and Edgewater Neighborhood) and 12,500 vehicles per day in areas of higher left turn activity (i.e., Moline Centre).

The Null-Base case alternative performed well when evaluated with future modeled volumes on the existing network with level of service "C" or better on all links. The two-way with left turn lanes also performed well with level of service "D" or better on all links. The two-way without left turn lanes performed with level of service "D" or better except for 4th Avenue with Moline Centre, which is forecasted to operate at level of service "E," which is less than the desired target threshold of "D" or better.

Other roads in the area, such as River Drive, will experience similar traffic volumes as exists today as there exist no significant growth projected for the area. Furthermore, changes in traffic along 4th and 6th Avenues will result in insignificant changes to River Drive and other facilities. With both 4th and 6th Avenues capable of accommodating east-west traffic, distribution of event traffic shall be as good as or better than the current one-way operation.

Travel Speeds

Vehicular travel speeds influence corridor characteristics. Lower travel speeds within urban activities permit and promote street life and pedestrian activity. Higher travel speeds which are beneficial to

through movement can create an un-safe pedestrian environment and can discourage bicycle and pedestrian activity.

A two-way street network would promote lower travel speeds than the existing one-way street network and was deemed a positive benefit. The existing one-way street network, Null-Base Case Alternative facilitates higher travel speeds due to less conflicting turn movements; currently traffic travels 5 to 10 mph over the posted speed limit. Travel speeds will slow with a two-way street system due to additional turn movements at intersections and signal progression.

The two-way traffic with on-street parking will lower the speeds due to its lack of additional lanes needed to facilitate turning traffic along the corridor. The two-way traffic with a shared left turn lane will result in lower travel speeds as compared to the existing one-way couplet, but higher than without left turn lanes. The continuous shared left turn lane will facilitate turning traffic and allow the main flow of traffic to be uninterrupted.

Signal timing for both individual intersections and as a system of interconnected signals can be further used as a means to regulate travel speeds through the corridor.

Mobility/Circuity

"Mobility" and "circuity" should be defined as the freedom to safely, conveniently, and pleasantly get from one place to another with any form of transportation; be it car, bus, bicycle, wheelchair, or on foot. One-way streets limit the direction of mobility along a corridor, where two-way streets permit mobility to travel in all directions to access destinations.

The Null-Base Case Alternative restricts mobility and increases circuity due to the limited directional movement. Both the Two-Way with On-Street Parking as well as the Two-Way Traffic with Center Left Turn Lane allow full movement intersections and travel directions for vehicles and pedestrians to directly access destinations.

Transit

The transit evaluation measures the pedestrian accessibility of the transit services. Transit stop location is critical to a logical user-friendly transit system. A one-way street system does not provide transit users with a logical return transit stop. The transit user must walk to the opposing one-way street stop location to board the return leg of their trip. Two-way streets would permit the bus routes and stops to be located on both sides of the street serving both directions of travel. Due to convenience being a key component to transit use the two-way street system would be given a positive rating, as compared to a negative rating for the split stop operation with the couplet.

Pedestrians

Pedestrian “friendliness” can be examined through both quantitative and qualitative measures. Quantitative measures of the pedestrian network include sidewalk availability and width, and street widths, travel speeds, and crossing distance. Qualitative measures of pedestrian friendliness include separation from vehicle traffic and street improvements such as landscaping and lighting. Pedestrian circulation is an important consideration in maintaining a successful business district in the downtown area and viable residential neighborhoods at either end of the corridor. Two-way traffic can promote street life and pedestrian activity along a corridor due to the travel characteristics.

A two-way street system is natural for pedestrians as our instinct is to first look right as we cross the street and then to look left. The two-way street system has trained most pedestrians to perform in that manor, it appeals to our "logic." Looking to the right first and then beginning the approach as you look left is not safe when crossing a one-way street. Pedestrians need to take extra precaution when crossing one-way streets to ensure that they are looking in the appropriate direction for oncoming traffic prior to crossing. Two-way operations also result in lower travel speeds, which also improve pedestrian mobility. On the other hand, for a pedestrian to walk across a street, they much wait at unsignalized intersections for an acceptable gap in traffic longer for two-way operation than one-way operations. Therefore, the benefits of a one-way versus a two-way street cancel each other, resulting in a neutral rating for all three alternatives.

Parking

Convenient parking is one of the most important elements of a successful downtown business center. This is especially important for merchants with a high turnover of customers or who sell time-sensitive products. For example take-out restaurants, photo processing, and florists typically need to have convenient on-street parking locations. Other uses require convenient parking but most shoppers do not object to walk a short distance. Residential on-street parking is an amenity that provides quick, efficient, and close access to homes. Whereas the Null-Base case alternative and the two-way with parking presumes that existing parking, the two-way shared left turn lane alternative with no parking was measured as a negative impact.

Supportive of Neighborhood Plans

Visions and goals set by the community provide a guide to future projects and visions. The downtown plan and the neighborhood plans both outlined improvements to the corridor to improve transportation and the overall character of the community and specifically mentioning of the elimination of the one-way street system. In response to community objectives, the two-way alternatives were measured as a positive improvement.

Evaluation Summary

A simple value was given to the evaluation measurements where "+" was a 1, "o" a 0, and "-" a -1. Applying these values to the three alternatives yielded the two-way with parking as the slight favorite at 4, followed closely by the two-way with left turn lane at 3½. Maintaining the current one-way couplet came in a distant 3rd at -1.

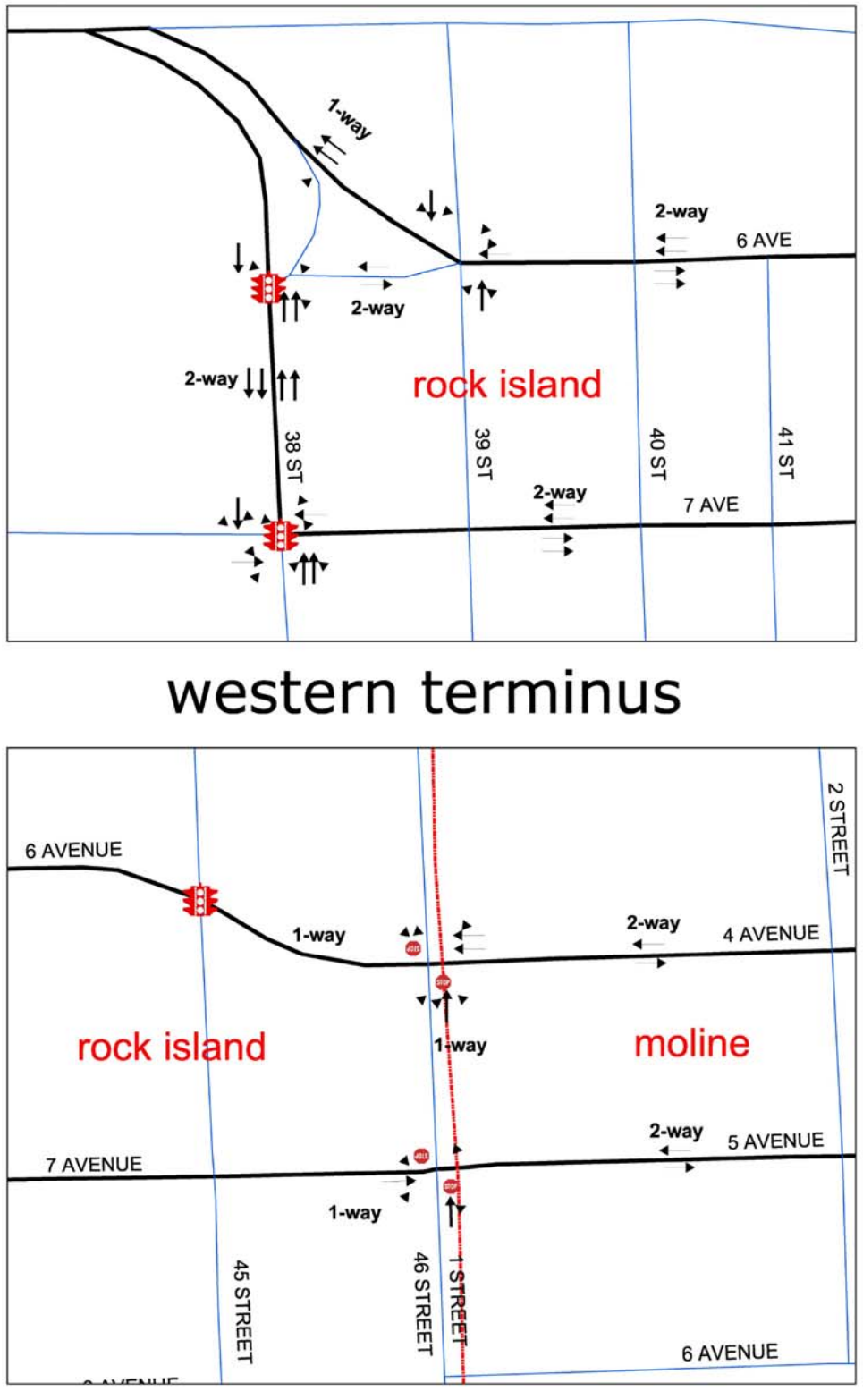
Connections/Transitions

A conversion of two-way traffic would have to occur prior to or at 34th Street on the east and prior to or at 38th Street in Rock Island on the west end. Two concepts have been analyzed for both the western and the eastern terminus of the study area. At the east end, concepts have been developed using 27th street and 34th Street. Two concepts have also been illustrated for the west end utilizing either 1st Street in Moline. The second concept is to continue the elimination of the couplet to it's terminus at 38th Street in Rock Island. Rock Island and the KeyStone Neighborhood are very critical to the analysis of the end point conversion point that is proposed to occur in Rock Island. Background information obtained from the City of Rock Island was very important to understanding the relationship between the two cities and the shared visions and goals that they could possibly achieve when working together.

West End Connection/Transition

Two west end point alternatives were identified and were analyzed. One endpoint alternative on the west side terminates the couplet at 1st Street. The second endpoint alternative would continue the two-way street system into Rock Island to a more natural transition at 38th Street, as shown in Figure 4.3 Potential Endpoint Configurations.

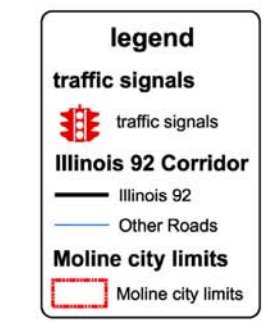
FIGURE 4.3
POTENTIAL
ENDPOINT CONFIGURATIONS

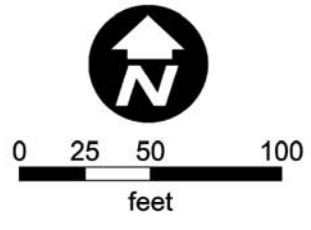


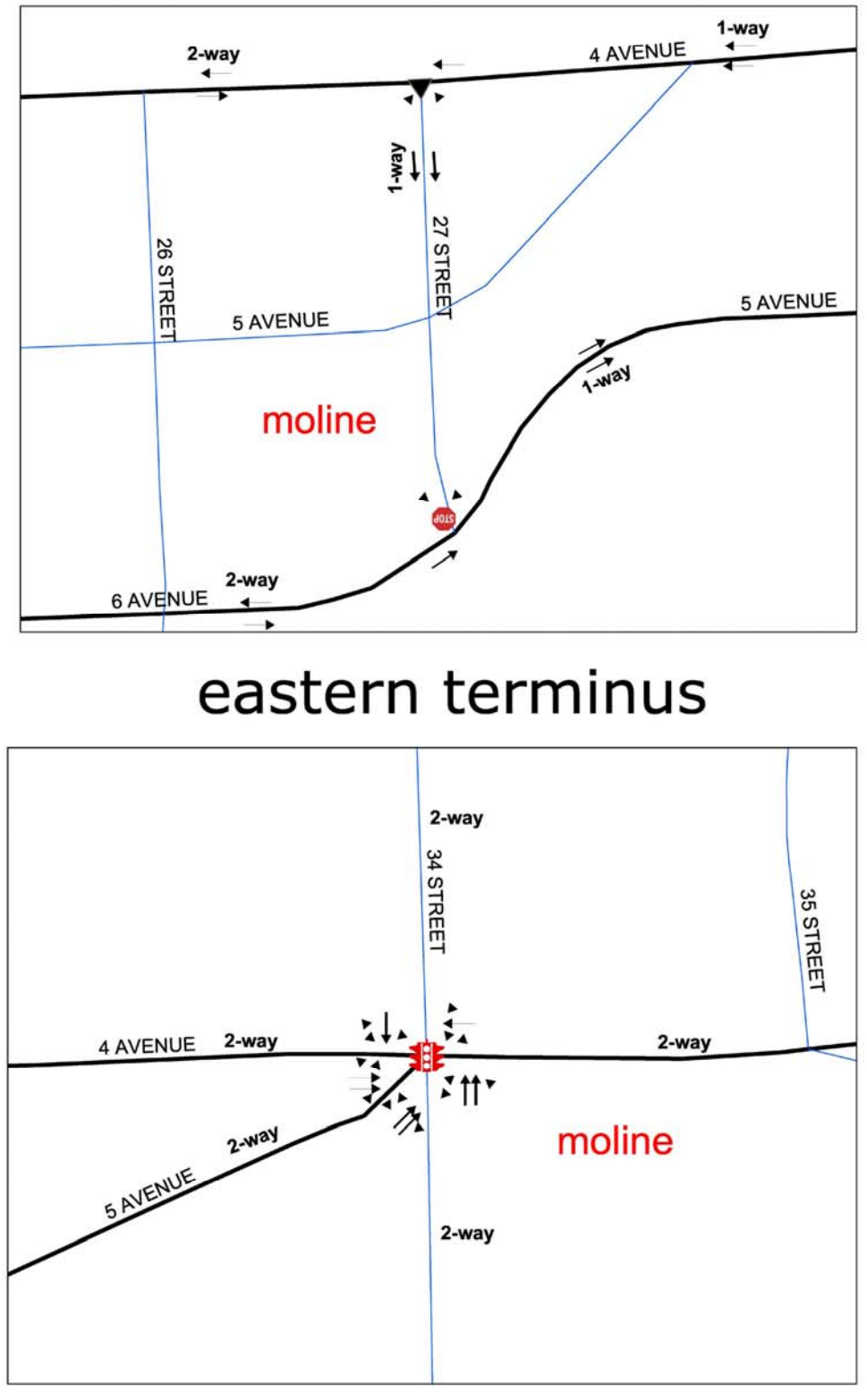
western terminus

Several viable options exist for the western end of the two-way street system.

The eastern end of the two-way street system presents a greater challenge.







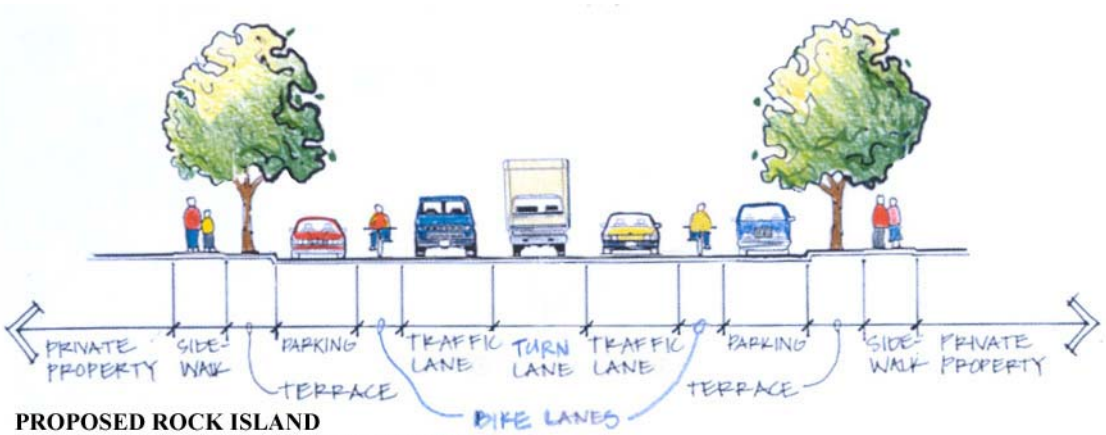
eastern terminus

One neighborhood is located in Rock Island that would be involved in the corridor if the west terminus in Rock Island was chosen, this is the KeyStone Neighborhood. The KeyStone neighborhood is located directly west of the Moline city limit. It is a historic neighborhood in Rock Island, complete with a neighborhood development plan, and an active Steering Committee. The elected Keystone Neighborhood Steering Committee has worked with residents to promote common goals and cohesive activities. KeyStone is organized on the basis of six sub-areas, all of which are represented on the board of directors. The six sub-areas are: Columbia Park, Fairview, Edgewood Park, Brook's Grove, College Heights, and Parkview.

One option for the west end conversion would be to have 1st Street converted to a one-way street serving northbound traffic. This transition is very natural due to the eastbound 6th Avenue and 1st Street transition from Rock Island into Moline from four to two-lanes. This intersection would provide two left turn lanes, a thru lane, and a right only. This would be a major movement for all traffic with the desire to travel east along 4th Avenue instead of 6th Avenue.

The second and preferred concept for the west end would be to continue the two-way street system into Rock Island to 38th Street. The modified geometries would include converting the intersection of 6th Avenue and 38th Street to accommodate two-way traffic. Because the roadways are wider in Rock Island along their 6th Avenue (4th Avenue in Moline) and 7th Avenue (6th Avenue in Moline), these facilities could be re-stripped to include one lane in each direction, a center left lane, and on street bike lanes.

This concept could be easily implemented within the curb-to-curb pavement width along 6th Avenue and 7th Avenue in Rock Island. This option also achieves many of the Rock Island Parkway Concept and Design Plan objectives to reduce travel lanes, create bicycling opportunities along 6th and 7th Avenues and provide improved pedestrian safety and amenities. A concept cross-section is presented as follows:



PROPOSED ROCK ISLAND
6TH AVENUE/7TH AVENUE IMPROVEMENTS

This second alternative was presented at a public open house in which many members with the City of Rock Island and the Keystone neighborhood were in attendance favoring this alternative as it fit best with their vision for the corridor.

East End Connection/Transition

The alternative of 27th Street to begin and end the two-way system would change the nature of 27th Street to a one-way street for southbound traffic. The existing roadway width is not very wide however city records have the right-of-way recorded as 60 feet. A historical firehouse is accessed via 27th Street. This fire house is no longer active however it is a volunteer location that also provides office spaces.

The second concept for the east end is continuing the two-way traffic to the 34th Street intersection. At this location a five-way signalized intersection would be necessary to facilitate the new travel characteristics. Although five leg intersections are not as prevalent as four leg, they do exist elsewhere in Moline and could accommodate future traffic with operational lane and signal improvements.

Proposed I-74 Interchange Alternatives Evaluation

The I-74 corridor running through the heart of the Quad Cities is being studied by the Iowa and Illinois Departments of Transportation. The study is examining a range of solutions to improve travel and improve the safety of traffic traveling across the Mississippi River.

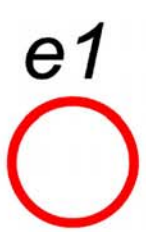
Sections of I-74 are in the study area and will require modification to the ramps to and from central Moline. Because these modifications might affect the ability to eliminate the IL-92 couplet, I-74 alternatives under consideration were obtained and analyzed as to compatibility with both a couplet and conventional two-way operation.

Currently four alternatives remain. Two of the options would be compatible if the couplet was converted to two-way traffic, however two of the alternatives would not be conducive.

The four alternatives currently being reviewed and would directly affect the study area are displayed in Figure 4.4. The four alternatives are E1, E2, F1, and F2. Of the four alternatives only E1 and F2 would be compatible with two-way traffic on 4th and 6th Avenues with little or no modifications. The different interchange alignments will definitely change the traffic flow and the volumes within the study area and it is important that the progression of this corridor study and the proposed I-74 alignments be compatible for the future traffic network.

FIGURE 4.4
PROPOSED
INTERSTATE 74 ALIGNMENTS

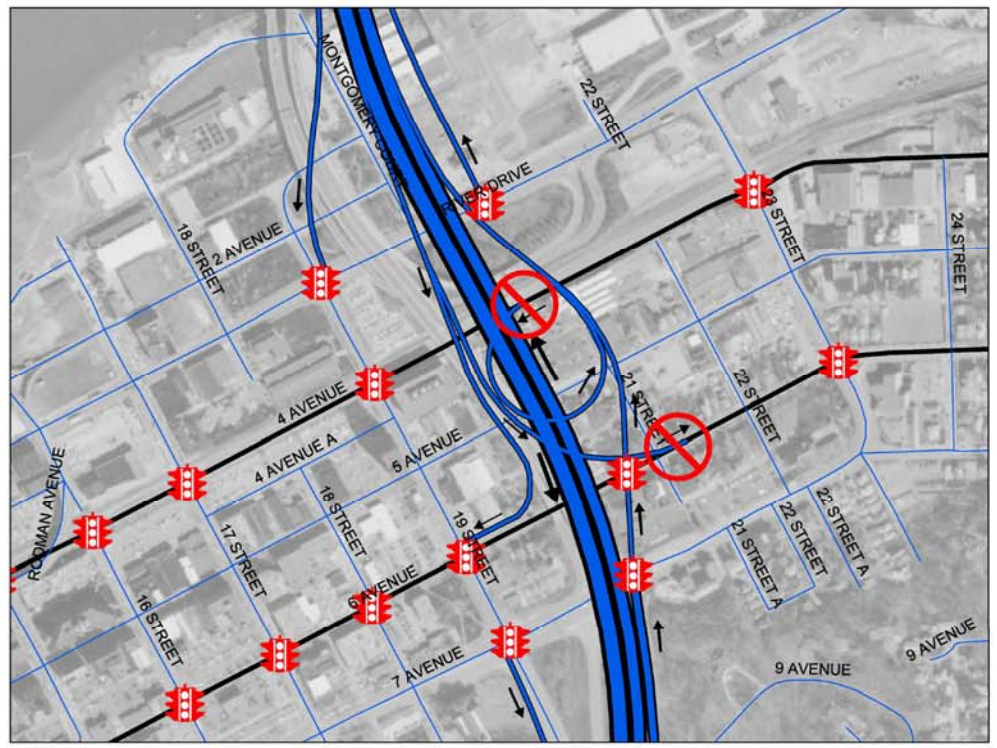
e1



f1

Alignments E1 and F2 will work with two-way streets with little or no modifications.

Alignments E2 and F1 would needextensive modifications to workwith two-way streets.



e2

legend

Illinois highway 92 corridor

- Illinois 92
- Interstate 74
- other roads

signals

- intersection

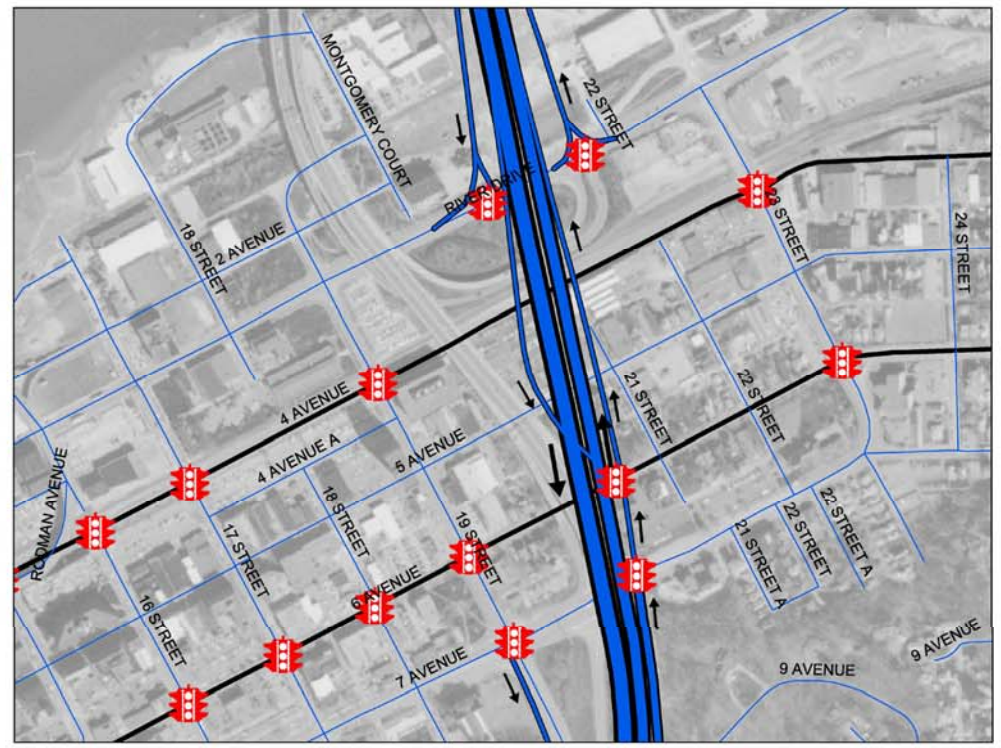
compatibility

- compatible w/ 2-way streets
- not compatible w/ 2-way streets

0 375 750 1,500

feet

f2



5. COMMUNITY INVOLVEMENT

Public involvement is the cornerstone of any community-based plan such as the Illinois Highway 92 Corridor Study. Public participation allows for planners to identify and understand aspects of the transportation system directly from the users, the general public. To involve the community in the planning process, public open houses were held to involve both the neighborhood communities as well as the business community to provide input and comments on the issues and concerns along IL-92 as well as provide input regarding whether they liked any of the alternatives or would prefer that the couplet remained.

Public Open Houses

The public open houses were held on May 1, 2003 at two different times and locations to facilitate both the business community in the Moline Centre area, as well as the neighborhoods along the corridor. The open houses were held after the completion of preliminary alternatives. The public was invited to provide input and comment regarding issues and options for consideration. Draft concepts were presented to the public to aid in the determination of support and or objections to the preliminary alternatives.

Comments were received verbally as well as in writing during the open houses. Public interest generated a number of comments on various topics. Key topics used in this study regarded the evaluation of the existing transportation system and the vision for the future. Comment forms were provided for public input and were formed as questionnaires on the following subjects:

- Travel Concerns
- Likes and Dislikes of the One-Way Couplet System
- Concerns or Support of the Preliminary Alternatives
- Ideas for Improvement

What Did the Public Say?

The number of participants who submitted comments and added value through discussion at the public open houses is relatively small in comparison to the population of the region. Furthermore, a number of the participants were from the City of Rock Island interested in how this project would affect their planning effort. However, public involvement is an important part of the process, and those participants that took the time and energy to add value to this planning effort have helped to shape the Illinois Highway 92 Corridor Study through their contribution.

Travel Concerns

Several important travel concerns emerged from the numerous public comments regarding the transportation system. The public identified safety and mobility as their top two major travel concerns. Travel speeds, access, and parking followed in importance with transit concerns last. These are the results of a questionnaire that was completed at the public open houses. This provides a framework of understanding that will enhance and structure the visions and goals of this study. When recommendations and changes are evaluated it is very important to understand the context of the community they will affect.

Alternative Modes of Transportation

The public expressed an overwhelming response of openness towards multi-modal transportation. Over seventy percent of attendants said that they would bike, walk, and use transit more often if the transportation system improves to be more "user friendly." If the corridor is converted to two-way traffic on both 4th and 6th Avenues, multi-modal facilities should be incorporated into the overall design to service the abundant response that was received regarding alternative mode choice.

Travelers on the Corridor

Participants in the public meeting noted how they travel the corridor: (50%) commute thru, (21%) work within, (14%) live within the study area corridor, and (14%) did not clarify. This roadway is very important to all travelers who use the corridor.

Concerns or Support of the Preliminary Alternatives

The preliminary alternatives were well received and they raised positive support regarding the two-way traffic on both of the Avenues. Over two-thirds of the public that attended the meetings voiced and noted support of the two-way traffic as a good idea. This is a very positive response due to the travelers noted earlier. Comments received regarding this choice:

- "It is most compatible with Moline's downtown economic growth plans! People don't need to get through downtown fast. A two-way system will not add that much to travel time."

- "Rock Island and Moline should negotiate with IDOT together to get funding to implement the conversion and for changes in street/landscaping/safety features."

The preferred alternative received at the public meetings was a blending of the two two-way operation plans. This blending included keeping parking on 4th and 6th Avenues and provides left turn lanes strategically where the capacity is needed. This alternative was considered the best option and combination to enhance the transportation system and meet all of the travel concerns. This alternative would provide maximum flexibility in design as well as function of the roadway.

6. PREFERRED ALTERNATIVE

Based on the preliminary alternatives analysis and input from the public, the preferred and recommended alternative for the Illinois Highway 92 Corridor Study is a conversion from a couplet to two-way operations, with an optimal balance of on-street parking and strategically located enhanced roadway capacity improvements. The strategic addition of left and right turn lanes facilitate traffic needs at high volume intersections, permitting through traffic to continue through major corridor intersections without interruption in traffic flow. Adequate left and right turn pocket lengths at these strategic locations increases the roadway capacity, which directly relates to improved vehicular level of service. Parking near the intersections would need to be removed at the major strategic improvement intersections due to the additional lane width necessary to accommodate the turn lanes; however, parking will be permitted within the mid-block locations where the roadway geometry returns to two-way single lane traffic and at the minor intersections.

The preferred plan is presented graphically in Figure 6.1. This preferred plan recommends the elimination of the couplet from 38th Street in Rock Island to 34th Street in Moline. In response to community input, this plan was developed through a block-by-block field survey beginning east of 34th Street in Moline to 38th Street in Rock Island. This plan depicts the through lanes and locations proposed to have left turn lanes. This plan also identifies traffic signal locations, locations where parking exists today which will remain and locations where parking will need to be removed. The plan also identifies potential locations for bike lanes in the City of Rock Island where additional pavement width exists.

In general, the plan has been prepared to accomplish the conversion to two-way operation within the existing curb to curb width to minimize the cost of conversion from the one-way couplet to two-way operations. One location identified for flaring of the intersection is at 4th Avenue and 23rd Street.

The 4th Avenue Corridor will be able to accommodate the additional left turn lanes without impact to any parking except at the far westerly end as it enters the City of Rock Island. Left turn pockets along 6th Avenue can also be accommodated at strategic locations with minimum loss in on-street parking.

The following provides a more detailed description of the preferred project performance.

Performance/Operations

Similar to the evaluation of the preliminary alternative, the prepared alternative was added to the evaluation matrix to determine how it faired. These results are presented in the following table.

	Null	Two-Way Parking	Two-Way Continuous Left Turn	Preferred Alternative
Performance/Operations				
Capacity/Level of Service	+	o	+/o	+/o
Travel Speed	o	+	+	+
Mobility/Circuity	-	+	+	+
Transit	-	+	+	+
Pedestrian	o	o	o	o
Parking	o	o	-	o
Supportive of Neighborhood Plans	o	+	+	+
Total Performance Score	**-1**	**+4**	**+3½**	**+4½**

figure 6.1:
preferred concept plan

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Capacity/Level of Service

The preferred alternative achieves a higher capacity level than the original two-way traffic with on-street parking and the left turns at the high volume strategic intersections. Left and right turn pockets have been strategically located in this alternative throughout the corridor to facilitate all major movements turning off the corridor. The level of service is based upon both the capacity of the roadway and the volume of traffic using the roadway. This increase in capacity at key intersections will result in acceptable level of service throughout the corridor. This would include LOS "C" or better for 6th Avenue, LOS "D" between the westerly city limit and 25th Street on 4th Street, and LOS "C" between 25th Street and 34th Street on 4th Street.

Travel Speed

Travel speed will be slower than the one-way traffic system due to two-way travel and signal progression modifications. Travel speed should be more typical of the existing posted speed limit of 30 mph instead of the observed higher than speed limit observed speeds identified in the field survey.

Mobility/Circuity

The two-way street system improves mobility and circuity within the corridor provided direct access to all businesses, residents, and key attractions within the corridor. This increased mobility provides new routing options for all modes of transit along the corridor. The addition of the left turn lanes further improves the mobility of businesses and residents.

Transit

Transit service now will be capable of providing complete routes along both 4th and 6th Avenues. Given the higher trip destination activities along 4th Avenue, this facility might be the preferred route. Bus turnouts can also be accommodated throughout the corridor if desired.

Pedestrian

Pedestrian friendliness will be enhanced due to the travel characteristics of a two-way street system. Slower speeds are optimal for pedestrian safety, a narrow roadway also encourages drives to slow down their travel speed and observe more of their surrounding environment including pedestrian activity.

Parking

The hybrid alternative retains the majority of on-street parking currently within the corridor. Some parking would need to be taken along 4th and 6th at locations where left turn lanes would be required to improve capacity. Based on the desire to have a pocket length of two to three vehicles, a reduction on one to two parking spaces might need to be removed at strategic locations. Intersection Legs requiring reduction in two to three parking spaces are as follows:

- 4th Avenue/1st Street: East Leg
- 6th Avenue/14th Street: East and West Leg
- 6th Avenue/15th Street: East and West Leg
- 6th Avenue/16th Street: East and West Leg
- 6th Avenue/17th Street: East and West Leg
- 6th Avenue/19th Street: West Leg

It should be noted that all of the above locations might not require left turn lanes. One option might be to preserve existing parking and not include the left turn lanes.

Supportive of Neighborhood Plans

The Preferred Alternative supports the visions and goals of the neighborhood and the community plans. Two-way operation, increased pedestrian safety, streetscape improvements, parking management, and multi-modal linkages can all be incorporated into this design continuing with the momentum and the vision for the study area.

Summary of Performance

As can be seen in the performance summary table, the preferred alternative takes advantage of the two preliminary alternatives, specifically adding left turn lanes at strategic locations to preserve capacity, while maintaining parking along the corridor.

Floreciente Neighborhood Travel Flow and Pedestrian Treatment

One of objectives of the study was to determine what additional improvements might be considered for improving pedestrian mobility within the corridor. With proposed design improvements and existing signal spacing within the Moline Centre area, good pedestrian mobility conditions will exists in the downtown commercial and business area. Without signals along 4th Avenue and 5th Avenue within the Floreciente Neighborhood, travel speeds currently increase as vehicles travel through this area. Therefore, additional improvements to improve pedestrian mobility for crossing 4th and 5th Avenue would be desirable.

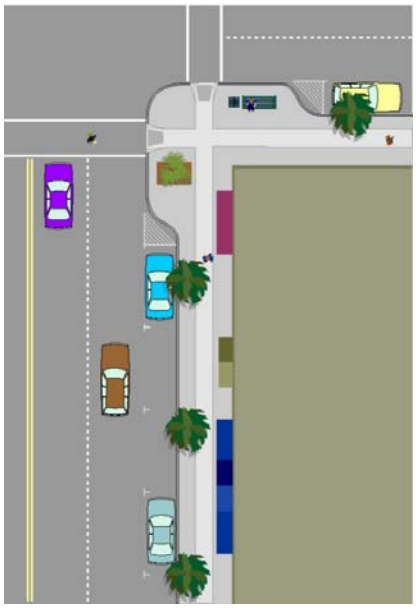
One technique proposed for consideration is the use of bulbouts or curb extensions. These types of devices are becoming very popular in many cities to improve the pedestrian environment. Bulbouts are simply intersection or mid-block curb extensions, which extend past the parking lanes, but not into the bicycle or through lanes. The advantages of bulbouts are as follows:

- Bulbouts provide an entry or gateway statement into activity areas or where high volumes of pedestrians are present. Entering an area where a bulbout is present provides a clear difference between the arterial function and a local pedestrian activity area.

- Bulbouts enhance the visibility of the pedestrian because they physically permit the pedestrian to be located closer to the travel lanes, especially where parking is permitted, and allow the pedestrian to be seen more easily by the driver.

- Bulbouts constrict traffic flow through reduced lateral clearance. This reduction effects a reduction in travel speed along the corridors and improves safety for both pedestrians and vehicles.

- The bulbout changes the turning radius at the intersection, which reduces turning speed and vehicle and pedestrian conflicts.



- The extension of the bulbout reduces the time it takes pedestrians to cross from curb to curb. This reduction in pedestrian crossing time consequently reduces the time the pedestrian is exposed to moving vehicles.

- Bulbouts change the character of the intersection from automobile-dominant to pedestrian-friendly and multimodal-shared.

- Bulbouts can be an extremely positive visual and aesthetic enhancement. Features such as pedestrian lighting, planters, and benches create a focal point for pedestrian activity and change the character of the intersection from automobile to pedestrian.

In review of the Floreciente Neighborhood, six intersection bulbouts, one mid-block crossing bulbout and three enhanced sidewalk locations were identified for consideration. These locations are presented graphically in Figure 6.2.

As can be seen, these proposed intersection bulbout locations would occur at the entry way to the Floreciente Neighborhood, between the City's of Moline and Rock Island on 4th Avenue and 5th Avenue. Additional bulbouts are also proposed on 2nd Street, 4th Street and 6th Street. Because of the distance between 1st Street and 2nd Street, a mid-block crossing is also proposed between these two streets.

Three enhanced sidewalks are also proposed. Enhanced sidewalks can be as simple as continental (European style) or ladder crosswalks, or can be more elaborate with textured and colored pavement. The objective is to notify the driver that there is something different that this is a location for pedestrian activity.

Also presented in the graphic is a concept realignment for improved travel flow treatment between 5th Avenue, 6th Avenue, 6th Street and 7th Street, as well as 4th Avenue between 7th and 8th Street. Because of the existing five legged intersection configurations, these intersections are confusing and create a difficult to maneuver and unsafe condition.

Preliminary Planning Level Cost Estimates

The following cost estimates are preliminary. To refine these costs, it will be necessary to receive from the City of Moline prevailing unit costs for stripping removal, lane stripping, bridge demolition and roadway improvement unit costs.

As mentioned previously, the preferred plan was developed with the intent to minimize costly roadway improvements. The cost of the conversion has four major components as presented below. It should be noted that these estimated costs are for the City of Moline improvements. Additional and similar improvements will be required for the City of Rock Island.

Signal Modifications

The traffic signals along the corridor provide for three movements of traffic, the primary one-way movement of the corridor and the two intersecting approaches. With the conversion to two-way operations, a new set of poles and mast arms will need to be installed for each intersection. In addition, left turn signal heads will need to be installed for the majority of signalized intersections. With an estimated cost of $75,000 per signal modification times seventeen signals will result in an estimated cost of approximately $1,275,000.

LSA
LSA ASSOCIATES, INC

Rock Island City Limits
Moline City Limits

legend

- Bulbout
- Mid-block Crossing
- Enhanced Crosswalk
- Traffic Signal

floreciente neighborhood concept plan

N

Illinois 92 CORRIDOR STUDY

Lane Stripping

The entire corridor will need to have the old lane stripping removed and new lane stripping added. It is estimated that this cost would be in the magnitude of $250,000.

Rock Island Arsenal Off-Ramp Demolition

Currently there exists an off ramp from the Rock Island Arsenal that exits on 4th Avenue westbound between 14th Street and 13th Street. Under the two-way operations, this ramp would be feeding west bound exiting traffic onto the eastbound 4th Avenue travel lane and will need to be demolished. It should also be noted that the adjacent segment of 4th Avenue is very narrow at this location and the removal of the off ramp will allow additional roadway improvements to accommodate the two-way operations. At an estimated cost of between 20 and 30 dollars a square foot for bridge demolition and a ramp 20 feet wide at 500 feet in length, the preliminary estimated cost for demolition and reconstruction would be approximately 500,000.

Floreciente Neighborhood Travel Flow and Pedestrian Improvements

Six intersection bulbouts, one mid-block crossing, and three enhanced sidewalks are proposed for the Floreciente Neighborhood. Depending on the extent of hardscape/landscape treatment these bulbouts range from $100,000 to $200,000 per location. At the mid-point range of $150,000, the six bulbouts would be about $900,000. It is further estimated that an additional $200,000 be budgeted for the mid-block crossing and enhanced sidewalk for a total of $1.1 million.

Ancillary Improvements

As identified in the improvement plan, there exist minor roadway improvements at the intersection of 4th Avenue and 23rd Street to flair out this intersection to accommodate left turn lanes. There are also intersection modifications proposed for 4th Avenue between 7th Street and 8th Street and the transition between 5th Avenue and 6th Avenue and 6th Street and 7th Street. There might also be some additional improvements necessary along the corridor as detailed improvement and stripping plans are prepared. For estimating purposes a budget of $1,000,000 to $2,000,000 should be planned for the ancillary improvements.

Based on a preliminary estimate of anticipated improvements, a cost and budget in the range of $5 to $6.5 million should be reserved for implementation of the IL-92 Corridor couplet to two-way operations.

Summary of Costs

Signal Modification	$1,275,000
Lane Stripping	250,000
Rock Island Arsenal Off-Ramp Demolition	500,000
Floreciente Neighborhood	1,100,000
Ancillary Improvements	1,000,000 - 2,000,000
Total	**$4,125,000 to 5,125,000**