Major Thoroughfare Plan Update
For
Northeast Quadrant
Of
The City of O'Fallon, Illinois

March 19, 2010

Prepared for:

City of O'Fallon
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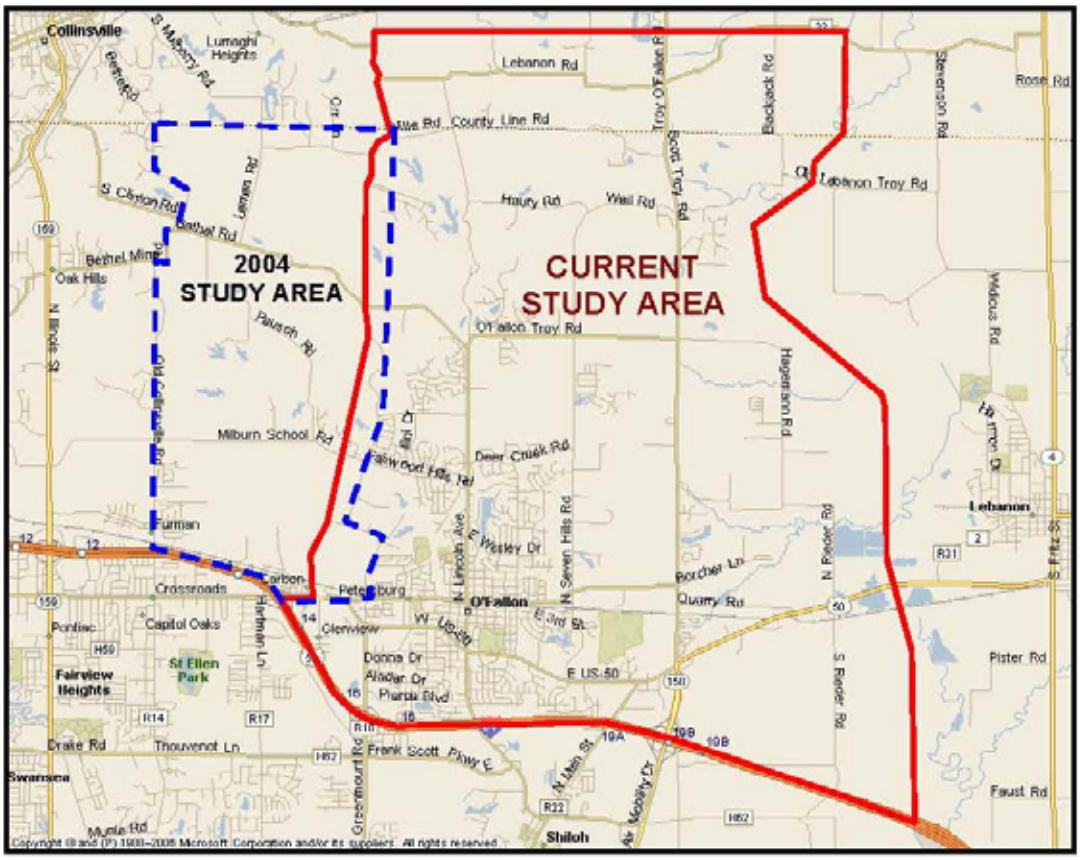
2 – Study Objectives & Methodology

2.1 – Introduction

Crawford, Bunte, Brammeier (CBB) is pleased to submit this report summarizing the Major Thoroughfare Plan Update for the Northeast Quadrant of the City of O'Fallon. The study limits include one mile north of the Madison County Line to the north, Interstate 64 to the south, Simmons/Witte Road to the west and Silver Creek to the east. The primary study area is shown in **Figure 1**. CBB previously worked to update the Transportation Plan for the Northwest Quadrant of the City as shown in Figure 1, denoted as "2004 Study Area". The objective of this study was to analyze future development potential within the study area considering the transportation infrastructure needs of the undeveloped portions of the primary study area and to create a future roadway network plan that provides connectivity and access based on anticipated travel patterns. Moreover, this study also revisited the assumptions and recommendations of the 2004 study to verify the continuing applicability of the previous recommendations.

Figure 1: Study Area



2.2 Study Purpose and Objectives

The City of O'Fallon, Illinois has experienced several changes that have led the City officials to consider various updates to the transportation section of the City's Comprehensive Plan. These include new sewer connections that have become available in locations that were unforeseen when the previous comprehensive plans were completed. This is enabling developers to plan large housing developments that will require ultimately new roadway connections and/or upgrades to existing roadway facilities. New housing developments, for example, are being constructed along O'Fallon Troy Road and other local roadways that could exceed estimates used in developing the current Comprehensive Plan. Recent changes also include the proposed interchange at mile marker 21 on Interstate 64 (Rieder Road Interchange) that will open up large tracks of land on both sides of I-64 to new development.

The transition of existing agricultural uses to residential, commercial and industrial uses could overload the existing transportation system. Moreover, new roadway connections being considered in the region will most likely lead to more commercial developments. For example, the opening of the North Green Mount Road/I-64 interchange spurred significant commercial development. New routes to/from large commercial developments could be required if large housing developments are being planned in other parts of the City or St. Clair County and/or adjacent areas in southern Madison County. This plan will assist the City's decision makers in the implementation of a future transportation system that will safely and efficiently handle the City's future traffic.

By understanding the present and future needs of the area, the most appropriate Major Thoroughfare Plan can be designed which provides and encourages a safe, convenient, efficient, and economical transportation system for the City.

The overall purpose of this study is to provide the City of O'Fallon with a recommended roadway network within the study area that will accommodate future development. The goal of the study was to develop a planning framework to guide future decisions regarding roadway configurations and locations in this part of the City with significant growth potential.

Building on the successes of the 2004 Transportation Plan Update for Development Northwest of the City, this update utilizes the best planning practices and smart growth principals to guide the future planning and growth management of the City of O'Fallon. Focus is placed on improving a connected network that will provide access to major transportation corridors and significant development areas.

This study also accounted for the planned Gateway Connector Corridor which bisects the study area generally along the current alignment of Illinois Route 158 and Scott Troy Road. The study also considered a new interchange at mile marker 21 on Interstate 64 (Rieder Road) and associated development of 1,500 acres currently being pursued by St. Clair County.

2.3 – Study Methodology

The following tasks were included in the study:

- Data Collection
  - Review existing reports that include traffic data within the study area, future land use and zoning requirements within the City, available development plats for approved/submitted subdivisions and exiting Geographic Information System (GIS) files (all provided by the City of O'Fallon).
  - Review Illinois Department of Transportation (IDOT), St. Clair County and Madison County average daily traffic (ADT) maps and other relevant data.
  - CBB met individually with representatives of IDOT, East-West Gateway Council of Governments (EWGCOG), St. Clair County, Madison County and O'Fallon Township to discuss this study and to coordinate with each entity's long range plan and/or comprehensive plan.
  - Review the City of O'Fallon's most current Comprehensive Plan as adopted in 2006 and Non-Motorized Trails/Sidewalks Plan, available from the City's website.

- Meetings with City of O'Fallon Staff
  - CBB met with the City of O'Fallon representatives to discuss future land use projections for use in the transportation models and the City's thoughts on potential new roadways, roadway widening/enhancements, and roadway extensions. Multiple meetings were held throughout the process.

- Develop Refined Transportation Model
  - CBB refined the transportation model generated for the 2004 Transportation Plan Update. The new model takes into account IDOT's Gateway Connector Corridor Protection Project and includes the previous model's refinements made in 2004 for the Northwest Planning Study Area. The current model was also refined to more closely replicate the City of O'Fallon's major transportation network and travel patterns in the northeast study area. Traffic analysis zones (TAZ) for the northeast quadrant of the area were subdivided to more accurately reflect future land use potential.

- Develop Future Roadway Network
  - The future land uses and proposed roadway locations were input into a future year regional model used to evaluate the impact of various development scenarios and roadway segments on the overall transportation system. The scenarios were then used to determine the most appropriate roadway improvement alternatives.
  - Based on the roadway improvement alternatives developed, lane needs for each proposed roadway (basic through lanes) were determined. The number of lanes for each roadway, need for auxiliary lanes and proposed traffic control at the major intersections will be based on the forecasted ADT, anticipated character and functional classification of the candidate roadways at the time that they are initially constructed. Information was drawn from the functional class/roadway design element findings generated for the Northwest Planning Study.

- Selection of Preferred Major Thoroughfare Plan
  - Based on input from the City staff, a preferred set of roadway segments was ultimately recommended for the future implementation.

2.4 – Stakeholder Meetings

Several stakeholder groups were engaged throughout the study to obtain their input related to data that they may have to further the study's progress, their experience and opinions about the problems, needs, and their ideas for opportunities related to transportation, access, and circulation.

The agencies that were engaged in this process were:

- City of O'Fallon
- O'Fallon Township
- St. Clair County
- Madison County
- Illinois Department of Transportation
- East-west Gateway Council of Governments

Summaries of the issues raised by each agency are provided in the Meeting Minutes attached in the **Appendix.**

3 – Existing Roadway Network

3.1 – Data Collection & Reconnaissance

As part of the existing roadway network analysis and data collection, a thorough field reconnaissance of the study area was conducted to obtain roadway network characteristics and travel patterns. Additionally, various data sets and previous studies were reviewed to assist with assessing the existing roadway network. Each of the following data sources was incorporated to obtain an understanding of the existing roadway network and the proposed future roadway network segments within or adjacent to the City.

- City of O'Fallon 2006 Comprehensive Plan
- 2004 Transportation Plan Update for Development Northwest of the City (prepared by CBB and HDR)
- Abstract from I-64 / Rieder Road Interchange Access Justification Report Working Document (Kaskaskia Engineering Group)
- Scott Air Force Base / Mid America Airport Joint Land Use Study Narrative (St. Clair County)
- Gateway Connector Corridor Protection Report (Illinois Department of Transportation)
- City of O'Fallon Land Use and Zoning Maps
- City of O'Fallon GIS datasets
- City of O'Fallon Aerial Photography

3.2 – Existing Major Roadways within the Study Area

As part of the process of developing a planned framework of roadway configurations, an understanding of the existing roadways is needed first. Below is a summary of major roadways within the City of O'Fallon that were focused on as part of creating an efficient future roadway network. **Exhibit 1** shows the existing roadway network as well as current Average Daily Traffic (ADT) volumes as gathered from the agencies.

Interstate 64 is an east-west interstate freeway that provides access to the City of O'Fallon located along the southern portion of the City. Access interchanges within the study area are provided at Highway 50 (mile marker 14), Green Mount Road (mile marker 16) and IL Route 158/Scott-Troy Road (mile marker 19). Future access is also proposed at Rieder Road (mile marker 21).

Highway 50 is an east-west arterial through the City of O'Fallon parallel and slightly north of Interstate 64.

O'Fallon-Troy Road is an east-west arterial that provides connectivity near the middle of the at the study area.

Greenmount Road is a north-south arterial at the western limits of the study area which provides access for significant commercial and institutional land uses. Its connections to the north (Obernueferman Road, Porter Road, Simmons Road and Witte Road) form an important corridor along the western boundary of the study area that cross all the existing significant east-west roads in the City.

Scott-Troy Road - IL 158 is a north-south arterial road located on the eastern side of the City of O'Fallon. It provides connectivity between I-64 and all of the major eat-west roads in the study area.

Lincoln Avenue is an arterial road providing north-south connectivity through the mid-west portion of the study area from south of I-64 to O'Fallon-Troy Road.

Seven Hills Road is a major collector road providing north-south connectivity through the mid-east portion of the study area from Highway 50 to Weil Road at Scott-Troy Road.

Rieder Road is a minor roadway providing access to residential and agricultural land uses at the eastern end of the study area. Even though Rieder Road is not a major roadway, it is being shown here because of the proposed improvements described in later sections. It is one of the very few north-south access roads within the north-east portion of this study area.

3.3 – Known Roadway Constraints

Known roadway conditions and constraints were identified within the northeast study area. Identifying these constraints assisted in evaluating the viability of potential roadway alternatives. The constraints that were identified based on field reconnaissance, stakeholder meetings and discussions with the City staff are shown below.

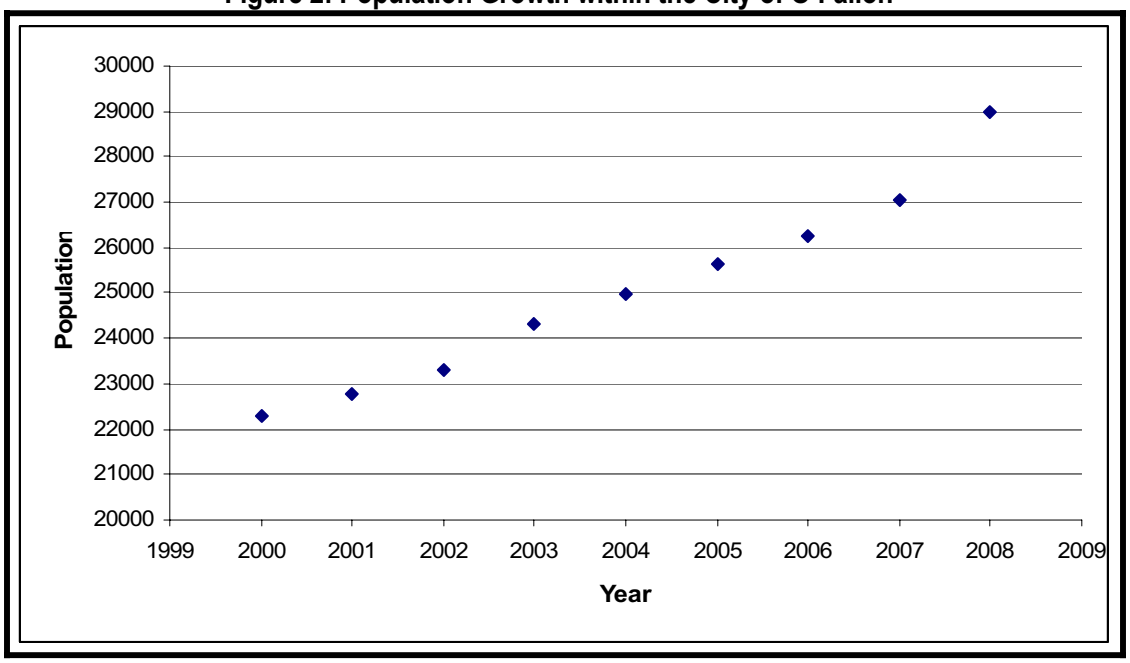
- The Rieder Road railroad underpass south of US 50 is a significant roadway bottleneck and reduces the potential for roadway expansion and consequently, development. The Rieder Road railroad underpass does not currently provided enough width to accommodate more than one lane of traffic underneath the bridge.
- Within the study area, Silver Creek creates a significant barrier for east-west crossings because of environmental constraints.
- The Highway 50 bridge over Silver Creek has flooding issues. IDOT does not have any planned improvements to upgrade this bridge in the near future because of environmental constraints.
- Mill Creek and Silver Creek crossings in the northeast quadrant of the study area have severe flooding issues. The Old Lebanon Road bridge over Silver Creek needs to be elevated to solve current flooding problems.
- Several of the roads within the study area consist of unimproved rural cross-sections without shoulders.
- Similar to the 2004 northwest study area, the northeast quadrant includes some challenging terrain that limits potential roadways. In fact, the terrain limitations are severe compared to those of the northwest quadrant.
- There is a conservation area consisting of several hundred acres between Lincoln Avenue and Seven Hills Road that will not allow roadway connection between Deer Creek Road and O'Fallon-Troy Road.
- There are numerous blocks of ground already developed residentially that limit routing of system roadway segments.

4 – Current and Future Land Use Information

4.1 Growth Trends

The City of O'Fallon has experienced tremendous growth within the last decade mostly resulting from trends in suburban expansion associated with the St. Louis Metropolitan region and Scott Air Force Base. This growth not only resulted in heavy residential demand but also growth in commercial and institutional support uses across the City as well. Based on data from the U.S. Census Bureau, the City of O' Fallon experienced an increase in population that averaged more than 79 percent overall from 1980 to 2000. This growth has been accelerating as evidenced by growth of an average of 383 people per year from 1980 to 1990, 493 people per year from 1990 to 1998, and an estimated 700 people per year between 1998 and 2000. Between 1980 and 2000, the population within the City of O'Fallon rose 79 percent overall. More importantly, population estimates from the U.S. Census Bureau show continuing population growth in the City of O'Fallon. **Figure 2** shows these historical growth trends and estimates for the City of O'Fallon.

Figure 2: Population Growth within the City of O'Fallon



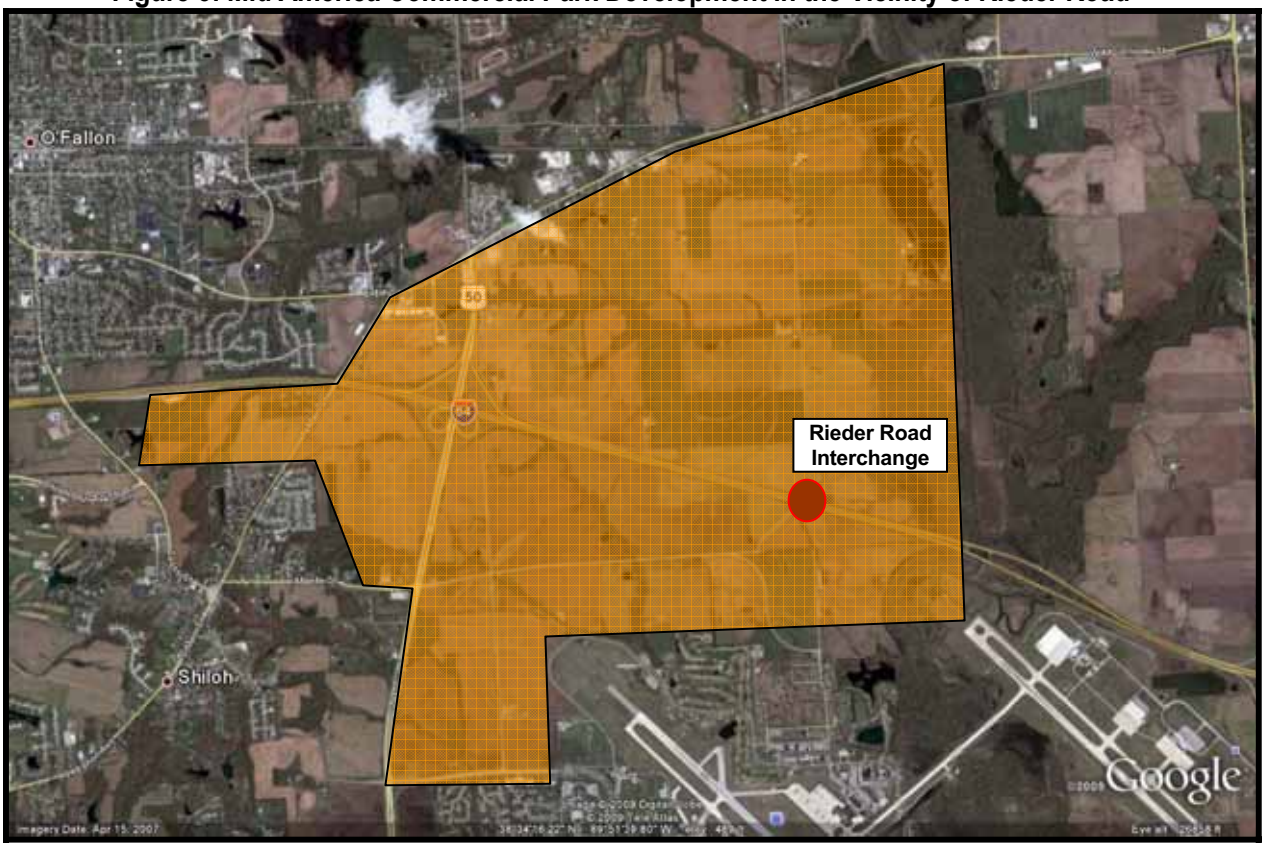
4.2 Land Use

Within the northeast study area, the current land use is predominately low-density residential or agricultural. Similar to the 2004 Transportation Plan update for Development Northwest of the City it is anticipated that the future land use can support largely residential developments in the northeast part of the City of O'Fallon as well. Some neighborhood commercial and associated institutional uses will surely follow.

The base land use data for this study has been derived from land use projections from the City's 2006 Comprehensive Plan. This data has been compared to other available resources including projections from the metropolitan planning organization, EWGCOG, discussions with the stakeholders and other planning documents to develop reasonable anticipated land use for year 2030. It is important to note that the land use forecasts assumed are on the aggressive growth side in order to develop an appropriate future roadway network that can accommodate "worst case" scenarios for travel demands. **Exhibit 2** shows future land use map for the study area.

It is important to emphasize the significance of the proposed interchange at I-64 / Rieder Road and its impact on land use growth assumptions within the study area. It is a well known fact that, historically, new interchanges not only provide additional access to the interstate system, but also provide significant boost to commercial, industrial and institutional development surrounding the new interchange. In fact, the construction of the I-64/Greenmount Road interchange in the City of O'Fallon has precipitated some of the most aggressive development in the City. Similarly, it is highly anticipated that the Rieder Road interchange will be a catalyst to development opportunities in the study area. More importantly, commercial, industrial and institutional developments near the interchange will likely proceed and coexist with increases in residential developments in the northeast planning area. Moreover, growth in Scott AFB and Mid America Airport will augment this increase in demand for residential land use within the City. **Figure 3** shows potential development impact areas associated with the Reider Road interchange.

Figure 3: Mid America Commercial Park Development in the Vicinity of Rieder Road



4.3 Travel Demand Model

East-West Gateway Council of Governments is the St. Louis region's Metropolitan Planning Organization (MPO). EWGCOG's regional travel demand model was utilized to study and evaluate current, proposed and future roadway networks in the study area. Traffic Analysis Zone (TAZ) structure for the study area is refined to better define land uses in the northeast quadrant of the City as reflected by the City's 2006 Comprehensive Plan. Recommendations from the 2004 Transportation Plan Update for Development Northwest of the City and other committed roadway network improvements have been incorporated into the travel demand model. The correlation between land use and transportation demand directly affects the regional travel demand model's traffic forecasts. Specifically, the type and intensity of land use governs the amount of trip productions and attractions within each TAZ. For example, a residential area would produce fewer trips per day than a heavy commercial area. Also, a low-density residential area with single-family homes will generate different person-trips than a high-density multi-family development. The movement of these person-trips between the TAZs equates to the demand placed on the transportation system. The regional model expresses this demand as estimated daily traffic on the transportation network. Outputs from the travel demand model are utilized to analyze anticipated increases in traffic volumes on roadways within the study area and develop proposed roadway network alternatives. **Appendix A** provides a detailed description of the travel demand model application implemented for this study.

5 – Proposed Roadway Network

5.1 Overview

An important planning objective is to create a future roadway network plan that provides connectivity and access based on anticipated travel patterns in the study area. By understanding the present and future needs of the area, the most appropriate Major Thoroughfare Plan can be designed which provides and encourages a safe, convenient, efficient and economical transportation system for the City. More importantly, this planning process is intended to guide development patterns with an upfront knowledge of necessary roadway improvements.

As described earlier, several resources shown below are utilized in developing a framework of roadway improvements:

- ❑ Analysis of existing roadway network – travel patterns and constraints
- ❑ Stakeholder meetings
- ❑ Input from City Staff
- ❑ Analysis of future land use
- ❑ Travel Demand Model outputs

5.2 Major Roadway Projects

The following roadway improvement projects form the future roadway network to provide access and connectivity within the study area and beyond. This list of projects includes roadway improvements that are either programmed or being planned by other agencies as well as needed roadway improvements to support future development in the study area (recommended by CBB). It should be noted that the projects are listed in no particular order of significance. **Exhibit 3** shows the proposed roadway improvements as well as local road connections to improve access and connectivity within the Major Thoroughfare Plan.

1. Frank Scott Parkway Expansion: St. Clair County intends to extend Frank Scott Parkway eastward from its current terminus to Route 158. This improvement provides connectivity to increased travel demand south of I-64 resulting from commercial development.

2. I-64/Rieder Road Interchange: St. Clair County is developing an Access Justification Report (AJR) for a proposed I-64 interchange at Rieder Road. This AJR was recently approved by IDOT and FHWA. The development of this interchange would be a catalyst for the development of the County's land between Scott Air Force Base and I-64.

3. Rieder Road Extension: As described earlier, the proposed I-64 / Rieder Road Interchange will be a catalyst for new development (Mid America Commercial Park). This in turn will precipitate large increases in demand for residential development in the northeast quadrant. Upgrading/extending Rieder Road as a north-south arterial to Scott-Troy Road via Hagemann Road will open the western limits of the study area to development with interstate access.

4. EW Arterial Road A: Analysis of existing roadway network and future residential developments in the northeast quadrant reveal the lack of an adequate number of east-west arterial roadways north of Highway 50. However, existing developments as well as a conservation land trust severely limit the construction of this arterial. But, this planning process emphasizes the importance of this roadway. Because of the uncertainty in determining a specific alignment, this improvement is shown via some possible alignments to provide a connection between Old Collinsville Road and Rieder Road in the vicinity of Milburn School Road. It could include segments incorporating or paralleling Fairwood Hills Trail, Deer Creek Road and Oak Hill School Road. As shown in **Exhibit 4**, this roadway would also be a strong candidate for interchange access on the Gateway Connector corridor. If extended to the east across Silver Creek, the alignment could provide a major access to the City of Lebanon and McKendree College via a connection to College Avenue (See Project # 11).

5. EW Collector Road B: Extending the Frank Scott Parkway corridor along Wherry Road from IL158 to Rieder Road (south of I-64) to Mid America Airport in conjunction with the new Rieder Road interchange would enhance the connection to Mid America Airport as well as Mid America Commercial Park.

6. Collector Roads C and D: Secondary collector road connections to Mid America Commercial Park from Rieder Road will be necessary due to the size of the land tract. US Highway 50 provides additional access to this large scale development.

7. Shiloh Valley Township Road Improvements: Although the alignment is already in place, this frontage road would require significant improvement to accommodate the level of additional traffic anticipated as a result of the Rieder Road interchange and associated developments.

8. Seven Hills Road / Weil Road Project: Upgrading existing Seven Hills Road / Weil Road to arterial roadway status not only provides an important connection between Scott-Troy Road and Highway 50 but also provides improved connectivity between the northeast planning area and the O'Fallon downtown business district and other commercial developments in the southwest part of the City.

9. Old Vincennes Trail / Borchers Lane Extension: Extending Old Vincennes Trail to Rieder Road provides additional east-west connectivity to future developments in the northeast quadrant and ties directly to the downtown business district.

10. Lebanon Road Project: Madison County's proposed improvements along Lebanon Road between IL 159 and Troy-O'Fallon Road will improve east-west connectivity at the northern limits of the study area. The planned improvements upgrade Lebanon Road to a three lane major collector west of Clay School Road and a two-lane collector east of Clay School Road. As shown in Exhibit 4, we recommend that the future north interchange for St. Clair County be shifted slightly to the north into South Madison County to capitalize on the proposed Lebanon Road corridor improvements.

11. Old Lebanon Troy / Blackjack Road Expansion: Upgrading the Old Lebanon Troy/Blackjack Road connection in the northern limits of the study area will enable improved crossing of Silver Creek and enhances the connection to Lebanon Road and areas to the north.

12. Silver Creek Crossing: With the proposed developments in place along Rieder Road and the continued increase in travel demand between the City of O'Fallon and Lebanon, the potential extension of Project # 4, East-west Collector A, over Silver Creek to Lebanon should be explored.

13. Gateway Connector: The Illinois Department of Transportation has proposed and studied the Gateway Connector as an outer belt transportation corridor around the southwestern Illinois metropolitan area of the St. Louis Metropolitan region. The Gateway Connector Corridor Preservation Report has identified a preferred 400-foot wide corridor for the Gateway Connector. Based on our stakeholder meeting with IDOT representatives, no further studies have been conducted, and their construction timeline is uncertain. However, this study has evaluated construction of Gateway Connector and its impact to the proposed Major Thoroughfare Plan Update. The focus of this study is to analyze the validity of the proposed roadway improvements with the construction of Gateway Connector and to evaluate any possible changes to Gateway Connector access points in the City of O'Fallon. Within the study area, the identified corridor largely follows Scott-Troy Road/IL 158. Our analysis shows that all of the identified proposed roadway improvement projects are compatible with Gateway Connector plans. In fact, some of the projects enhance the utility of Gateway Connector by providing improved connections.

    The corridor preservation report's preferred alternative identified County Line Road, O'Fallon-Troy Road, and Highway 50/I-64 as interchanges along Gateway Connector. However, our analysis shows that with the proposed developments in place in the northeast quadrant and the construction of Project #4, East-west Collector A, an interchange with this new east-west arterial will provide significant relief to the Highway 50 corridor capacity constraints. Our analysis concurs with the corridor preservation study's assessment that the proposed interchange along Gateway Connector with I-64 and Highway 50 poses significant engineering as well as traffic challenges. These challenges are exacerbated by the impending large developments following the I-64/Rieder Road interchange. It is recommended that this interchange design take into account access and travel demand requirements of Mid America Commercial Park development. As noted in project #9 above, we recommend that the interchange identified at County Line Road be shifted to the north slightly to take advantage of planned improvements proposed by Madison County at Lebanon Road.

5.2 Additional Observations

The 2004 Northwest Quadrant planning study identified that an additional interchange along I-64 between IL 159 and Highway 50, possibly at Old Collinsville Road, is a key transportation element to achieve desirable traffic operations. Our analysis validated that finding and showed that without the addition of the I-64/Collinsville Road interchange, significant capacity constraints will exist at the I-64/Highway 50 interchange and adjacent intersections along Highway 50. Moreover, without this new interchange, development opportunities in the northwest planning area will eventually be limited due to roadway capacity constraints.

6 – Recommendations

6.1 General Overview

The purpose of this Chapter is to provide the City with design guidelines to be applied to the Recommended Roadway Network presented in Chapter 5. The first section covers the potential roadway classification of the future roadway network, while the second section covers miscellaneous issues that will promote acceptable traffic operations on the future roadway network. It should be noted that this classification and traffic criteria section is similar to those sections in the 2004 Study - Transportation Plan Update for Development Northwest of the City.

6.2 Future Roadway Classification Based on Recommended Alternative

One of the main objectives of this project was to identify a future roadway network that not only included the approximate location of roadway corridors, but also indicated the potential roadway type and right-of-way that may be required. Roadways are classified based on a number of different parameters, including number of access points, traffic volume, desired level of service, continuity, etc. For purposes of this project, the study team has classified each of the main roadways within the recommended alternative based on the traffic volume and amount of access that the City would like to see along these roadways. **Table 1** provides some very general guidelines on the number of lanes required along signalized roadways. Typically, highway and traffic engineers attempt to design roadways that will function at LOS C.

Table 1. Level of Service Thresholds by Roadway Type

LOS Thresholds (Measured in Average Daily Traffic)						
		Level of Service (LOS)				
Lanes	Divided	A	B	C	D	E
Signalized Arterials[1]						
2	Undivided	--	3,550	7,300	12,700	14,350
4	Divided	4,700	16,250	17,250	27,500	29,600
6	Divided	7,100	25,000	31,800	46,450	48,200

Sources:
[1]*FDOT QLOS 2002 – Average of State and Non-State Signalized Arterials*

Based on the information in the above table, as well as information related to access, connectivity, pedestrian needs, etc. the following bullets highlight the recommended number of lanes along the main roadways in the recommended study-area network.

- Project 3 Rieder Road Extension: To compliment the proposed new interchange on I-64. Reider Road should be improved to the north and realigned to flow into Hagemann Road to Scott-Troy Road. This arterial roadway is expected to carry 9,000 to 11,000 vpd, so provisions should be made

for a multi-lane facility at sometime in the future. The one –lane railroad underpass is the largest current constraint and should be rebuilt to meet ultimate site requirements.

- Project 4 EW Arterial Road A: The primary missing section of this critical east-west corridor is between Seven Hills Road and Scott-Troy Road. With volumes expected to exceed 8,500 vpd in the future and a potential interchange location at the Gateway Connector, provisions should be considered for a future multi-lane corridor. There will be significant challenges to crossing Silver Creek, but the segment connecting between Scott Troy Road and Rieder Road should be more manageable.
- Project 12 Silver Creek Crossing: If the EW Arterial Road corridor can be extended across Silver Creek, it would allow access for Lebanon on the Gateway Connector. A two-lane crossing would suffice initially, and any need for expansion would be based on future growth in the Lebanon area.
- Project 4/13B EW Arterial Road A Interchange (Added): We recommend initiating discussions with IDOT as soon as possible regarding the potential for an additional interchange on the Gateway Connector corridor. No specifics beyond the concept of a connection have been explored further herein.
- Project 6 Collector Roads C and D: These major collector roads would serve commercial and industrial uses resulting from the planned business park at the Rieder Road interchange. This road should be sized based on a more detailed traffic impact study for the business park, but would be anticipated as at least a three-lane road initially.
- Project 7 Shiloh Valley Township Road Upgrade: Upgrade to a commercial/industrial major collector road to serve additional frontage road development and accommodate large trucks.
- Project 8 Seven Hills Road/Weil Road Project: Seven Hills Road is currently a major collector at the eastern boundary of the existing residential development core. The south end will likely carry 13,000 vpd, when fully developed, so the road should be reclassified as an arterial with considerations for future expansion. The north end of the corridor including Weil Road to Scott-Troy Road should suffice with two or three lanes due to lower volumes.
- Project 9 Old Vincennes Trail/Borchers lane Extension: The State Street/Old Vincennes Trail alignment ties directly to the downtown business district and I-64 at Highway 50. This corridor should be extended to Rieder Road. A two to three lane corridor should suffice based on the existing constraints in place on the corridor to the west.
- Project 10/13A Lebanon Road Interchange (shifted): We recommend that the proposed interchange near the County Line be shifted to Lebanon Road to take advantage of improvements currently planned by Madison County.
- Project 11 Old Lebanon Troy/Blackjack Road Expansion: A residential collector street will be needed to provide access to this area.

It should be noted that the layout of the local roads within the study could impact the number of lanes along a roadway. The purpose of this study was to determine the general location of future roadway corridors. For example, if more local roads access the O'Fallon Troy Road Extension than Bethel School Road, O'Fallon Troy Road Extension may require more right-of-way to achieve acceptable traffic operations.

6.3 Traffic Criteria

This section describes traffic-related criteria beyond the number of lanes required on individual roadways. Table 2 illustrates some of these criteria, and should be considered as a starting point in the development of a comprehensive transportation plan for the northeast portion of the City. The remainder of this section highlights some key considerations in the development of the City's future transportation network.

A. Roadway Classification

The City's Comprehensive Plan divides roadways into four functional classifications: Interstate/Freeway, Arterial, Collector, and Local. This study adds qualifiers to two of these classifications – subdividing arterials into "Major" and "Minor", and using "Major Collector" as a category. Table 2 further segregates roadway types according to the areas they serve: residential, commercial or industrial. These hierarchies are established so that roads can be planned for the appropriate traffic volume and characteristics, and traffic can be moved efficiently throughout the transportation network.

B. Roadway and Right-of-Way Widths

Table 2 includes both right-of-way widths and curb-to-curb (or traveled way) dimensions for the various roadway classifications. Roadway widths vary from 26 feet (for a residential controlled access collector) to 64 feet (for an arterial). One significant contributor to these widths is the presence or absence of on-street parking.

For local streets and collectors, the minimum right-of-way width is 23 to 29 feet wider than the roadway widths shown. For arterials, the minimum right-of-way width exceeds the curb-to-curb dimension by 36 feet. The additional band of right-of-way, typically half on each edge of the road, can serve many purposes: it can act as a location for utilities, help reinforce development setback requirements, provide landscaping opportunities, and include pedestrian facilities (see Section 6.3C).

Street trees are often included within the public right-of-way. Trees can serve to beautify the streetscape and bring more visual definition. In locating street trees, care must be taken to ensure that they do not become roadside hazards by blocking visibility or increasing off-road collisions.

For lower-volume/low-speed streets and streets with parking allowed, locations near the edge of traveled way (for example, within a six-foot landscape buffer between the street and sidewalk, assuming the presence of a curb) may be acceptable. For higher-speed facilities, setting trees back on the order of 10 feet or more may be advisable. On arterials with medians, placing trees near the center of the median maximizes the separation from either travel direction.

Table 2. Roadway and General Traffic Criteria

	Right-of-Way Width	Parking	Back to Back of Curb	Number of Travel Lanes	Barrier Curb & Gutter	Sidewalks	Turn Lanes	Cul-de-sac		Level of Access	Minimum Driveway Spacing	Minimum Spacing - Driveway/ Roadway	Minimum Spacing - Similar Roadways
								Right-of-way	Travel way				
Residential Minor & Local Streets	54' Minimum	Both Sides	30'	2	No	Yes	Not Required	100' Diameter	40' Radius	Open	50'	100'-125'	500'
Residential Collector	60' Minimum	Both Sides	37'	2	No	Yes	12'	Not Allowed		Open	75'	125'-150'	750'
Residential Minor Arterial Streets	60' Minimum	Minimized	37'	2	No	Yes	12'	Not Allowed		Minimized	100'	150'-200'	1000'
Residential Optional Controlled Access Collector Streets*	50' Minimum	Not Allowed	26'	2	Yes	Yes	12'	Not Allowed		None	100'	125'-150'	500'
Commercial & Industrial Local Street	60' Minimum	Not Allowed	31'	2	Yes	Yes	12'	Not Allowed		Minimized	100'	75'-100'	500'
Major Collector Commercial & Industrial	60' Minimum	Not Allowed	40'	2	Yes	Yes	12'	Not Allowed		Minimized	200'	125'-150'	1000'
Arterial Streets**	100' Minimum	Not Allowed	64'	4 with Turn Lane	Yes	Yes	14'	Not Allowed		Minimized	200' ***	150'-200' ***	0.5 - 1 mile

*Optional Controlled Access Collector Streets to be permitted or required only on the basis of need as determined by the City Council.
** Includes a Boulevard/Parkway Option.
*** Subject to Access Management Restrictions

C. Pedestrian/Bicycle Provisions

A well-planned and well-designed urban roadway network accounts for the presence of nonautomobile transportation modes. At the scale of the northeast portion of the City, the relevant non-automobile modes are walking (pedestrians) and bicycling. Because the roadway and right-of-way widths listed in Table 2 can be considered as minimums, it is possible (and desirable) to plan and design for the needs of the users of these non-motorized travel modes.

All the roadway categories listed in Table 2 include sidewalks as a recommended aspect of their designs. The width of sidewalk needed can vary depending on the facility type: for facilities with moderate pedestrian travel, sidewalk widths as low as four feet may be adequate; for more highly traveled facilities, widths up to ten feet may be appropriate.

The setback of the sidewalk from the traveled way is another important consideration. On residential streets with low traffic volumes, a monolithic sidewalk or a sidewalk with minimal separation from the street is generally adequate, while on higher-volume/higher-speed collectors and arterials, larger separations (six feet or more) may be desirable to increase pedestrian safety and comfort. ADA compliance for sidewalks and all crossings is mandatory.

Provisions for bicyclists can range from signage promoting awareness of cyclists' presence, to widened pavement sections with extra room for bicyclists (whether delineated or not), to off-street paths within or outside the roadway right-of-way. As future roadway sections are planned, these options should be examined to develop a sensible solution for the northeast area of the City.

Future planning for pedestrian and bicycle provisions should consider these facilities as a system, with the guiding principles of maximizing connectivity and safety.

D. Access Management

The term "Access Management" refers to planning and designing access points (driveways, intersections, and interchanges) along a roadway or highway to optimize the often competing objectives of safety, mobility and land access. The Transportation Research Board's (TRB). *Access Management Manual* discusses aspects of access management ranging from roadway classification, to design, to legal considerations, and is a valuable aid to access management decisions. Arguably the single largest contributor to effectively managing access is appropriate spacing of access points, because an overabundance of access points can compromise safety and mobility.

Signalized Intersection Spacing. The last column in Table 2 is labeled "Minimum Spacing – Similar Roadways", and emphasizes the importance of adequate distances between intersections. It is also important to consider spacing of *signalized* intersections, for at least two reasons: (1) proper spacing allows effective signal coordination and progression, especially on arterials and higher-volume collectors; and (2) adequate distances between intersections allow the development of appropriate left-turn storage bay lengths. The *Access Management Manual* suggests an ideal signal spacing of one-half mile on arterials; this spacing is worth striving for but may need to be reduced where access considerations dictate. A planning-level minimum of 1,000 feet should be considered as a worst case.

Driveway Spacing. Table 2 indicates minimum desirable driveway spacings for the various roadway classifications. On lower-volume facilities, such as local streets and certain collectors, allowing full-access driveways at these separation distances typically provides acceptable operations and safety. However, on higher-volume collectors and arterials, further enhancements or restrictions may be necessary in order to adhere to access management principles:

- The installation of a two-way left-turn lane (TWLTL) in the center of a collector or minor arterial can improve access and safety for left turns entering (and exiting) driveways. However, with a proliferation of moderate- to high-volume driveways, a TWLTL's effectiveness can be greatly reduced, and medians and/or access restrictions (see below) may need to be considered.
- Restricting access at individual driveways can be an effective tool to reduce conflicting movements. The most commonly prohibited movement at driveways is an exiting left turn; often, entering left-turns are also restricted, converting the driveway to a "right in, right out" (RIRO) configuration. Eliminating these left-turn movements can reduce disruptions to flow on the main roadway, and improve safety for all motorists using the facility.

Although Table 2 lists driveway spacing guidelines, these spacings should be considered minimums, and should be evaluated on a case-by-case basis. As discussed above, partial access restrictions should also be considered as part of the design toolbox.

E. Intersection Controls

Traffic volumes and the needs of other users generally dictate traffic control needs at roadway junctions. Intersection configurations and traffic controls should be considered on a case-by-case basis. The need for all-way stop control and traffic signals should be guided by the appropriate warrants outlined in the MUTCD and site specific details. The use of modern roundabouts and other creative intersection designs should be considered as the locations dictate.