TRANSPORTATION PLAN UPDATE FOR DEVELOPMENT NORTHWEST OF THE CITY

O'Fallon ILLINOIS

Final Report

November 2004

HDR

CBB Traffic and Transportation

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Prepared for

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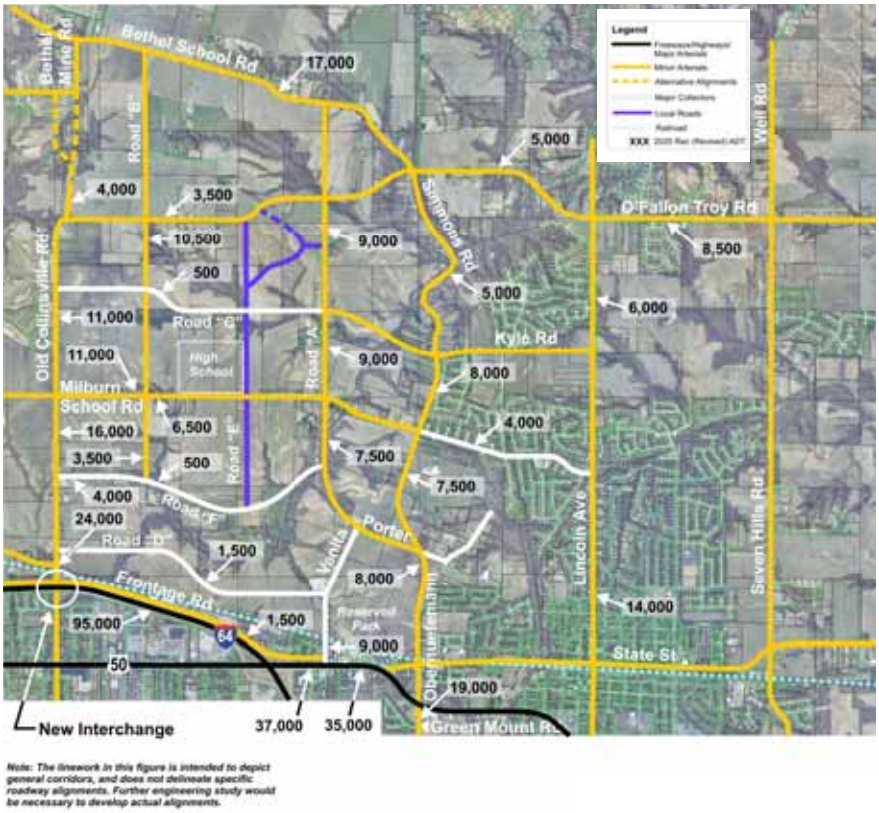
CHAPTER 1: EXECUTIVE SUMMARY

The focus of this transportation study was limited to the northwest portion of the City of O'Fallon, Illinois. The main purpose of this study was to develop roadway alternatives based on the potential future development within the immediate study area. As part of this study, the following tasks were completed:

- Data Collection
- Stakeholder Meetings
- Develop Refined Transportation Model
- Develop Future Roadway Alternatives
- Selection of Preferred Roadway Alternative

After information was gathered from the Stakeholder meetings, the project team refined the East-West Council of Governments Travel Demand Model to reflect the future development within the study area as well as parts of the surrounding area. The project team then developed three roadway alternatives that provided connectivity to the existing roadway network within the City. Two of the roadway alternatives focused on using the existing interchanges along I-64, while the third alternative included a new interchange at I-64/Old Collinsville Road. The forecasted traffic volumes along I-64 within the study area are close to 100,000 vehicles per day. The proposed interchange at Old Collinsville Road helps to alleviate future traffic volumes at the existing interchanges by almost 25,000 vpd. The recommended alternative provides several key connections to/from city schools, homes, businesses, and shopping centers that are located within the City of O'Fallon, as well as those in Fairview Heights. The figure below includes the recommended roadway improvements within the study area.



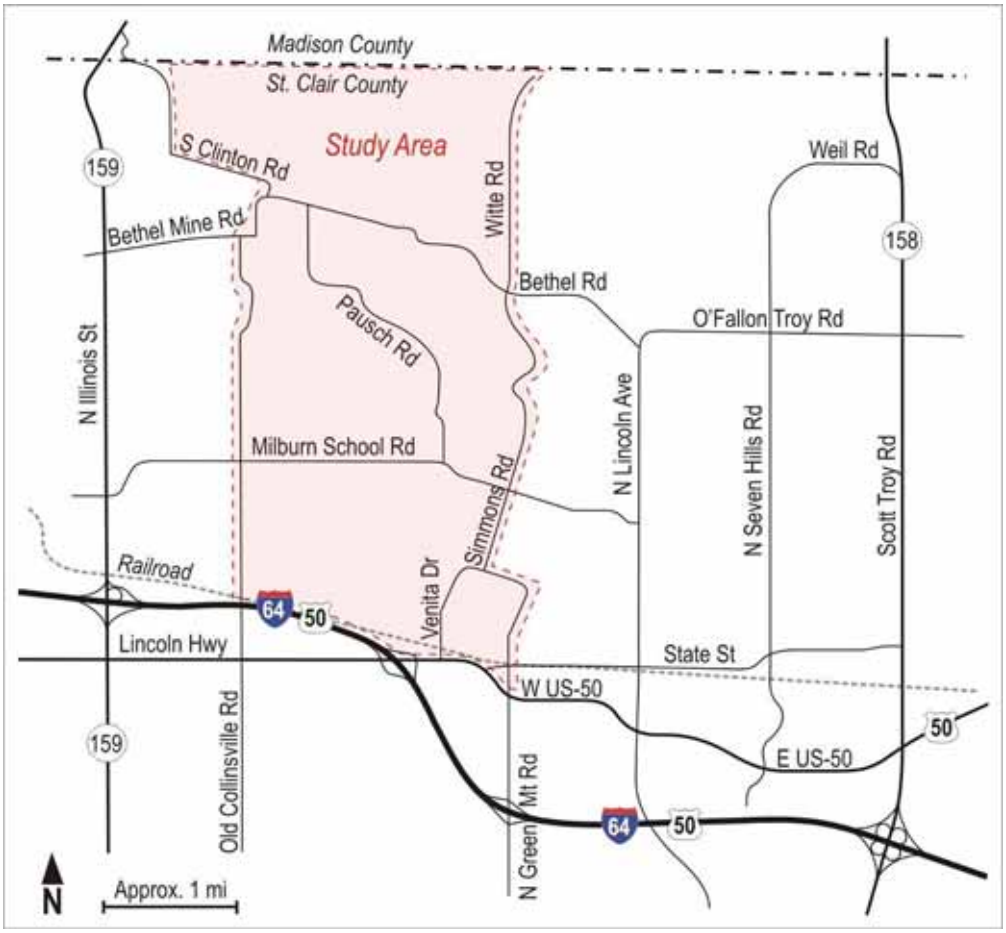
Note: The linework in this figure is intended to depict general corridors, and does not delineate specific roadway alignments. Further engineering study would be necessary to develop actual alignments.

CHAPTER 2: INTRODUCTION

2.1 DESCRIPTION OF STUDY AREA

This transportation study focused on an area northwest of the City of O'Fallon, Illinois. The general limits of the study include the Madison County Line on the north, I-64 on the south, Old Collinsville Road on the west, and Simmons Road on the east. Most of the study area is currently farmland with a few existing residential subdivisions scattered among the existing fields. Until recently, the land was considered undevelopable due to the lack of existing utilities. The Caseyville Sewer district, however, has recently begun an effort to construct the necessary utilities to make the land prime for development. Since 2003, over 1,500 new residential housing units have been platted within the study area. Figure 1 depicts the study area included within this analysis.

FIGURE 1. Study Area Location Map



2.2 PROJECT PURPOSE

The purpose of this study is to provide the City of O'Fallon with a recommended roadway network within the immediate study area that could be used to guide new developments within the study area. A properly planned transportation network is vital to the citizens O'Fallon, as well as increased developmental potential. Access to/from Interstate 64, Illinois Route 159, and US 50 will be vital to residents within the study area. The goal of the study was to develop roadway network alternatives that would accommodate the expected traffic generated from the proposed development within the study area.

2.3 METHODOLOGY

The following tasks were included in this study:

- Data Collection – This task included reviewing various reports, subdivision plats, etc. to assist in determining the available information within the study area.
- Meetings – Several meetings were held with City of O'Fallon officials as well as several stakeholders to gain an understanding of the study area and obtain assistance in the development of the roadway alternatives.
- Develop Refined Transportation Model – The East-West Gateway Council of Governments' Travel Demand Model was refined to more accurately depict the existing land use and roadway network within the City.
- Develop Future Roadway Alternatives – The expected development within the area was included within the travel demand model to determine the expected traffic generated within the study area. Three roadway alternatives were then developed to provide access to/from the study area.
- Selection of Preferred Roadway Alternative – A comparison was made of each roadway alternative and a preferred alternative was then selected. Refinements were made to this alternative to account for existing and planned development within the area.

2.4 STAKEHOLDER MEETINGS

One of the key elements of this study was the involvement of stakeholders. The following bullets include the agencies that were solicited for input.

- City of O'Fallon
- City of Fairview Heights
- Caseyville Township
- St. Clair County
- Madison County
- Illinois Department of Transportation
- Developers

CHAPTER 3: EXISTING ROADWAY NETWORK

3.1 DATA COLLECTION

Several existing reports were used to assist the study team in assessing the existing roadway network. Each of the following documents was reviewed to gain an understanding of the existing roadway network and the proposed future roadway network within the City.

- *City of O'Fallon's Comprehensive Plan (2001)*
- *Traffic Study – City of O'Fallon (February 2000)*
- *Traffic Study – State Street/Oberneufemann Road/Porter Road/Venita Road/Simmons Road (May 2002)*

The recent developments within the study area are considerably different from those contemplated by the Comprehensive Plan. The following two sections highlight some of the issues that were identified in the above-mentioned reports that were considered in the development of the future roadway network.

3.2 EXISTING ROADWAY CLASSIFICATION

One of the crucial items that played a key role in establishing the proposed alternatives was the roadway classification system identified within the 2001 Comprehensive Plan. Due to the changes in land uses within the immediate study area, many of the existing roadway classifications will need to be revised due to the higher traffic volumes that are anticipated along the existing and proposed roadways. The existing roadways were classified in the 2001 Comprehensive Plan as follows:

Highways
- Interstate 64 – Two lanes in each direction
- Highway 50 – Five-lane cross section

Arterial Streets
- Troy-O'Fallon Road – Two-lane rural roadway
- Old Collinsville Road – Two-lane rural roadway
- Green Mount Road – Three-lane roadway

Collector Streets
- Oberneufemann/Porter/Simmons/Venita Roads – Two-lane rural roadway
- Milburn School Road – Two-lane rural roadway
- Kyle Road – Three-lane roadway

3.3 KNOWN ROADWAY CONDITIONS AND CONSTRAINTS

Within the study area, there are a few existing, as well as potential, roadway constraints that limit the viability of potential roadway alternatives. A few of them are highlighted below:

- Several of the roads within the study area consist of rural cross-sections with no shoulders.
- CSX Railroad parallels and crosses several existing roadways
- Close intersection spacing – For example, Venita Road and the I-64 WB On/Off Ramps
- Topography – Some of the land consists of rolling terrain that is heavily wooded (for example, near Pausch Road).
- Far Oaks Golf Club – This golf course limited the extension of potential roadways to IL Route 159.

CHAPTER 4: ALTERNATIVES DEVELOPMENT

4.1 OVERVIEW

As stated earlier, the focus of this study concentrated on the northwest corner of the City. One of the key elements of the study team's approach, however, was to link any future corridors to the existing roadway network in order to maintain connectivity throughout the City. Several brainstorming sessions were held to develop and refine the proposed alternatives. The next sections briefly describe the travel demand modeling process that was used for this project.

4.2 TRAVEL DEMAND MODELING

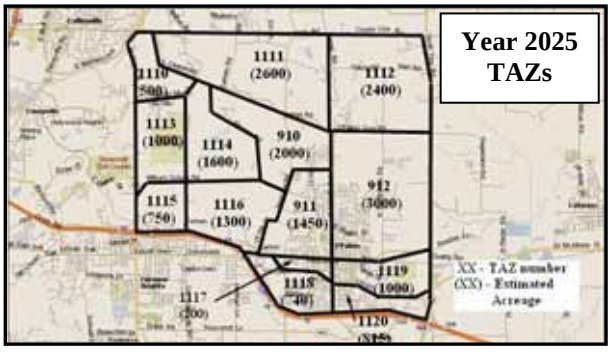
One of the key tools that the study team used in developing roadway alternatives was the region's travel demand model. The St. Louis region's metropolitan planning organization (MPO), East-West Gateway Council of Governments, maintains a travel demand model of the metropolitan area that includes all of the major roadways within the region to assist in forecasting future travel demand on both existing and future roadways. Since the study area included an extensive amount of rezoning, the travel demand model was used as a tool in developing the future roadway classifications. It should be noted that this section includes only an overview of the process that was used. A separate memo providing more detail on the travel demand modeling can be found in Appendix A.

A. General Development Assumptions

The travel demand model, as stated above, was used to assist the study team in determining the potential traffic volumes that could be generated by the additional development within the study area. Based on discussions with City staff, 70 percent of the study area was considered developable and 2 homes/acre were assumed for purposes of generating the potential travel demand.

B. Revisions to East-West Gateway Travel Demand Model

As stated earlier, the travel demand model includes the main roadway network within the eight-county region. For purposes of this study, the model was refined to include existing roadways within the City of O'Fallon, including Milburn School Road, Simmons Road, Venita Drive, etc. Once these roadways were added, additional Traffic Analysis Zones (TAZs) were also added to the model to allow traffic to access the various existing and potential future roadways within the network. The base Year 2000 model consisted of three TAZs, as depicted in the screen shot to the left. The future Year 2025 models were refined to include 14 TAZs, as depicted in the screen shot to the right. These refinements permitted future traffic to be distributed throughout the study area based on the proposed roadway network.



In addition to new roadways, refinements were also made to employment numbers within each TAZ to more accurately predict future traffic volumes along each of the proposed roadway corridors. Each of the above refinements were made in the base, no-build, and proposed corridor alternative models. Table 1 depicts the *productions* and *attractions* by TAZ within the study area. A production refers to a trip origin or destination at the household end. An attraction refers to a trip origin or destination at the non-household end (e.g. work, shopping, etc.). For example, a driver who lives in TAZ 911 and travels to TAZ 1110 to do grocery shopping would result in a production in TAZ 911 and an attraction in TAZ 1110 (the return trip would result in an additional attraction in TAZ 1110 and another production in TAZ 911). Section 4.3 briefly discusses the results of the travel demand modeling of each of the corridor alternatives.

TABLE 1. Year 2025 Productions and Attractions by TAZ

TAZ	Productions	Attractions
910	22,201	13,199
911	14,620	9,907
912	27,851	15,202
1110	5,700	5,718
1111	21,864	8,512
1112	20,627	10,335
1113	8,969	3,448
1114	12,503	4,227
1115	7,042	3,169
1116	13,112	4,554
1117	3,992	2,781
1118	8,062	6,724
1119	9,710	5,227
1120	9,296	7,933
TOTAL	**185,549**	**100,936**

C. Key Transportation Elements

While working on this project, the study team has identified two key elements within the City's future transportation network that deserve special attention. The first is the Gateway Connector that IDOT has been studying over the past several years. One of the potential alignment corridors is along existing IL Route 158 located in eastern O'Fallon. One of the objectives of this study was to determine what impact the Gateway Connector could have on the study roadways within the study area. Each of the alternatives developed as part of this study were analyzed with and without the Gateway Connector. It was determined that the Gateway Connector would not significantly affect traffic volumes within the study area. It should be noted, however, that traffic shifts would occur within the eastern portion of the City. It was also decided that connectivity, for example O'Fallon-Troy Road, between the future roadway network and the eastern portion of the City should be maintained. The second key element to achieve desirable traffic operations within northwest O'Fallon is the addition of a new interchange along I-64 (between IL Route 159 and US-50) that would serve the needs of the study area, while providing relief to the adjacent roadway network. Based on the number of additional trips identified in Section 4.2B, improved access to/from I-64 will be crucial to obtaining maintaining acceptable traffic operations along the major arterials within the study area. Table 2 provides some insight to the importance of a new interchange within the study area. As the data portrays, the new interchange will provide relief to the Route 159 and US 50 interchanges along I-64.

TABLE 2. Traffic Volume Shifts Due to Proposed I-64/Old Collinsville Road Interchange

	Route 159		Old Collinsville Road		US-50	
	EB Off-ramp/ WB On-Ramp	WB Off-Ramp/ EB On-Ramp	EB Off-ramp/ WB On-Ramp	WB Off-Ramp/ EB On-Ramp	EB Off-ramp/ WB On-Ramp	WB Off-Ramp/ EB On-Ramp
2025 Volume w/o Interchange	38,000	21,000	--	--	30,000	8,000
2025 Volume with Interchange	26,000	22,000	22,000	8,500	25,000	4,500

4.3 REFINED CORRIDOR ALTERNATIVES

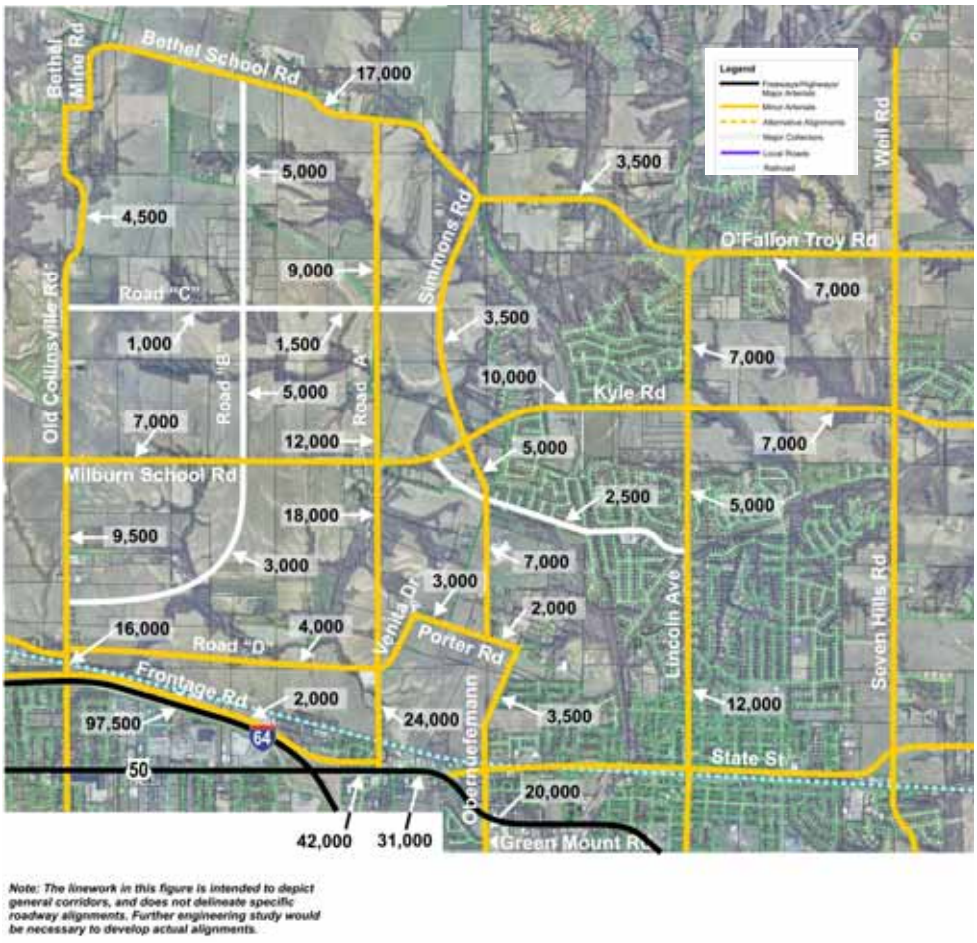
In developing the corridor alternatives, it became very clear that connectivity with the existing roadway network would be vital to distributing the future traffic volumes within the study area, as well as throughout the City of O'Fallon. During the development of each corridor alternative, the study team attempted to extend existing roadways throughout the study area, thus creating a grid roadway network that would allow citizens to traverse the City. The following sections provide a brief summary of each roadway alternative that was developed. The summary is intended to provide an overview of the proposed roadway network as well as an overview of the travel demand forecasting results. Section 4.4 includes an overview of the Preferred Alternative, which incorporates various aspects of Alternatives One, Two, and Three. Appendix B contains figures illustrating each roadway alternative, including the associated forecasted traffic volumes along each roadway within the study area.

A. Alternative One

This alternative would provide two main east-west connections between Old Collinsville Road and IL Route 159. Two main north-south connections were also included between Bethel School Road and US 50. An additional interchange along I-64 was not included as part of this alternative. This alternative therefore highly depends on Road "A" as well as IL Route 159 for access to/from I-64. The forecasted 2025 traffic volumes along the southern portion of Venita Drive are expected to be about 24,000 vpd, with the majority of that total continuing west along US 50. Bethel School Road is expected to carry 17,000 vpd from the developments located to the north of Road "C". Old Collinsville Road (towards south of the study area) is expected to carry about 16,000 vpd. The following bullets summarize the roadway improvements for Alternative One, which is illustrated in Figure 2.

- Bethel School Road, Simmons Road, Porter Road, Venita Drive, Kyle Road, Obernuefemann Road and Milburn School Road upgraded from major collector to minor arterial.
- Kyle Road extended to Scott-Troy Road
- Minor arterial Road 'A' provides a North-South connection from Bethel School Road to Highway 50 through Venita Drive
- Major collector Road 'B' provides a North-South connection from Bethel School Road to Old Collinsville Road
- Major collector Road 'C' provides an East-West connection from Old Collinsville Road to Simmons Road
- Minor arterial Road 'D' provides an East-West connection from Old Collinsville Road to Venita Drive

FIGURE 2. Alternative One Corridor Improvements



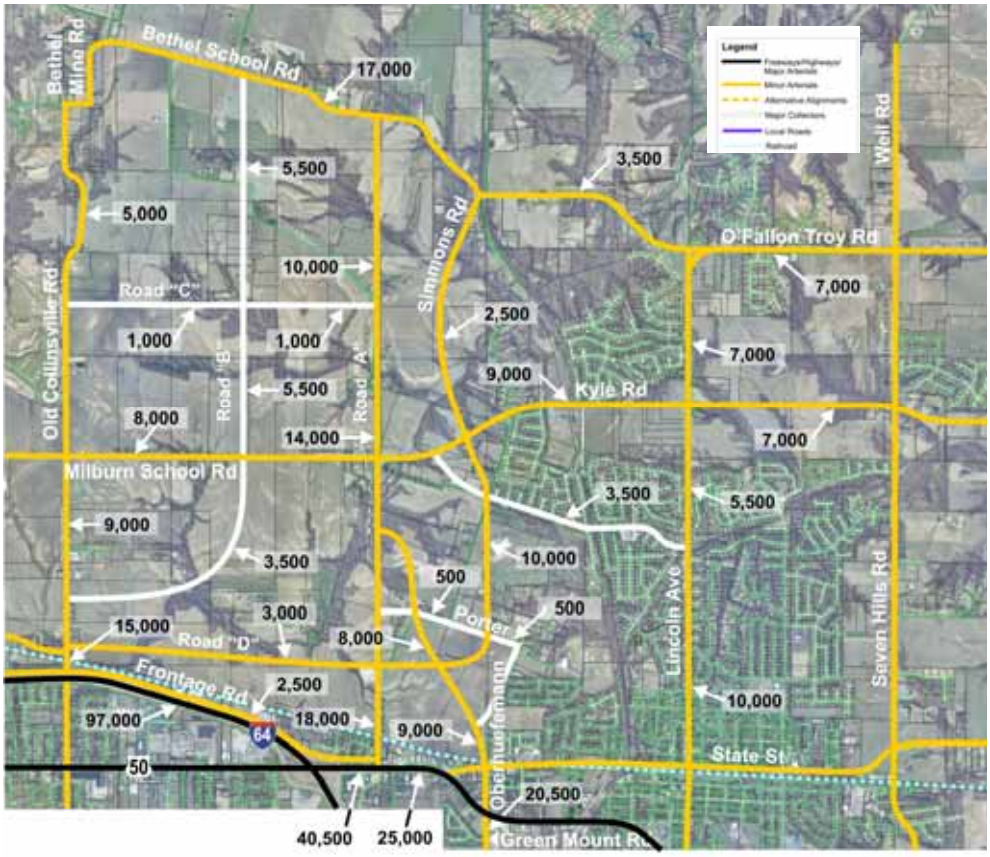
B. Alternative Two

The roadway network of Alternative Two is similar to that of Alternative One. The main intention of Alternative Two was to provide a more direct connection to Green Mount Road and the existing interchange at I-64. As the forecasted traffic volumes indicate, most drivers are expected to access I-64 at the existing US 50 interchange. The forecasted 2025 traffic volumes along Venita Drive are expected to be about 18,000 vpd. Traffic volumes along Obernuefemann Road south of Road "D" are expected to increase to about 9,000 vpd versus 3,500 vpd in Alternative One. Bethel School Road is expected to carry 17,000 vpd from the developments located to the north of Road "C", while traffic volumes along Old Collinsville Road (south of the study area) are expected to be 15,000 vpd. The following bullets summarize the roadway improvements for Alternative Two and are included in Figure 3.

Roadway improvements are similar to those for Alternative One with the exception of:

- Obernuefemann Road/Green Mount Road connect directly to Road 'A'
- Porter Road and part of Obernuefemann Road are major collectors
- Road "D" extended all the way to Simmons Road

FIGURE 3. Alternative Two Corridor Improvements



Note: The linework in this figure is intended to depict general corridors, and does not delineate specific roadway alignments. Further engineering study would be necessary to develop actual alignments.

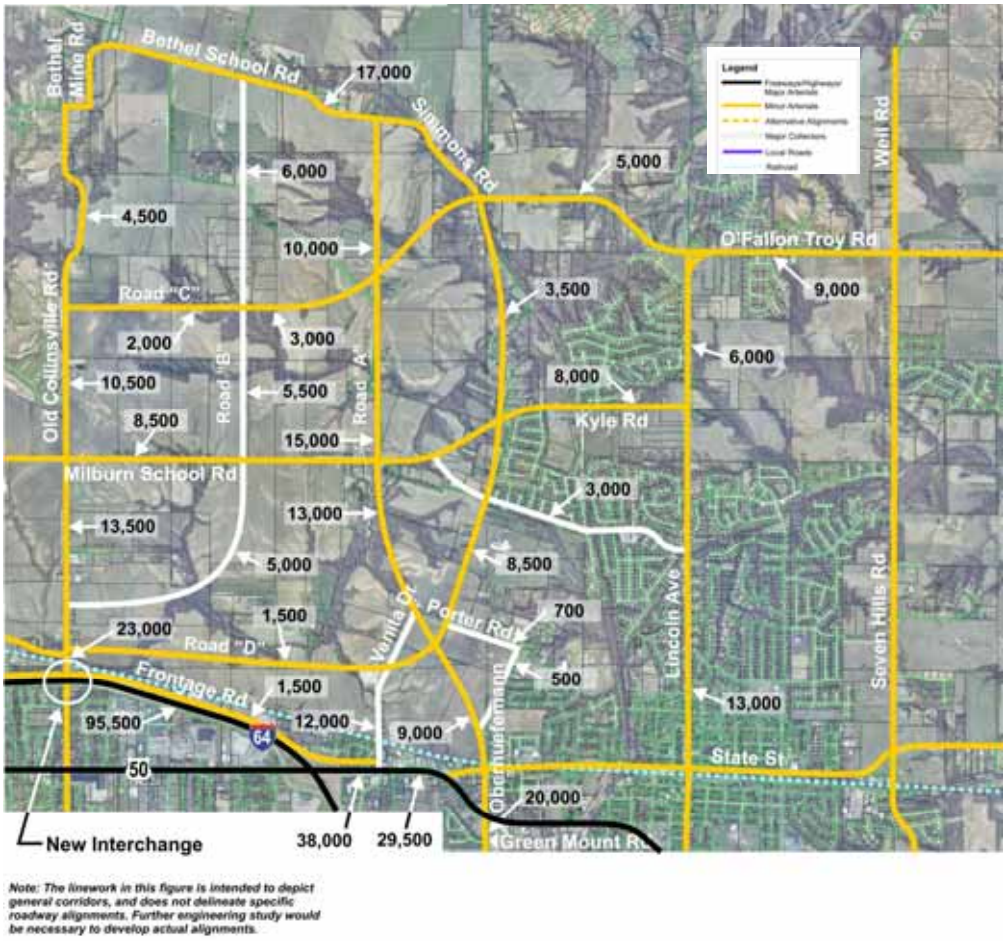
C. Alternative Three

The roadway network in Alternative Three is similar to that of Alternative Two, with a few minor exceptions as well as a new interchange at I-64 and Old Collinsville Road. The main intention of Alternative Three was to provide relief to IL Route 159 and US 50 by providing direct I-64 access to/from the study area. Traffic volumes along Old Collinsville Road (south of the study area) are expected to increase to 23,000 vpd due to the addition of the interchange. As the forecasted traffic volumes indicate, most drivers would most likely access I-64 at the existing US 50 interchange. Due to the traffic diversion to/from Old Collinsville Road, the forecasted traffic volumes along Venita Drive would decrease to about 12,000 vpd (compared to Alternatives One and Two). Traffic volumes along Bethel School Road are expected to remain at approximately 17,000 vpd due to the developments located to the north of Road "C". The following bullets summarize the roadway improvements for Alternative Three and are included in Figure 4.

Roadway improvements are similar to those for Alternative Two with the exception of:

- Road 'A' does not connect to Highway 50 via Venita Drive but connects to Obernuefemann Road
- Road 'C' is a Minor Arterial and extends to Bethel School Road
- Road 'D' is a Minor Arterial that extends to Road "A"
- Venita Drive is a major collector

FIGURE 4. Alternative Three Corridor Improvements



4.4 RECOMMENDED ALTERNATIVE

The previous section highlighted each of the roadway alternatives that were initially developed for this project. During the development of each corridor alternative, the study team attempted to extend existing roadways throughout the study area, thus creating a grid roadway network that would allows citizens to traverse the City. There were, however, a few existing and future constraints that limited the feasibility of extending particular roadways. The following list includes the main constraints that were known at the time of this study.

- The potential for a new high school located along Milburn School Road
- The land set aside in a trust east of Lincoln Avenue approximately at Kyle Road
- The proposed City Park located west of Oberneufemann Road
- Existing platted subdivisions (*Savannah Hills, Chesapeake Junction, The Bluffs at Ogles Creek, Windermere Ridge, Windsor Creek, Stonebriar, and Milburn Estates)*

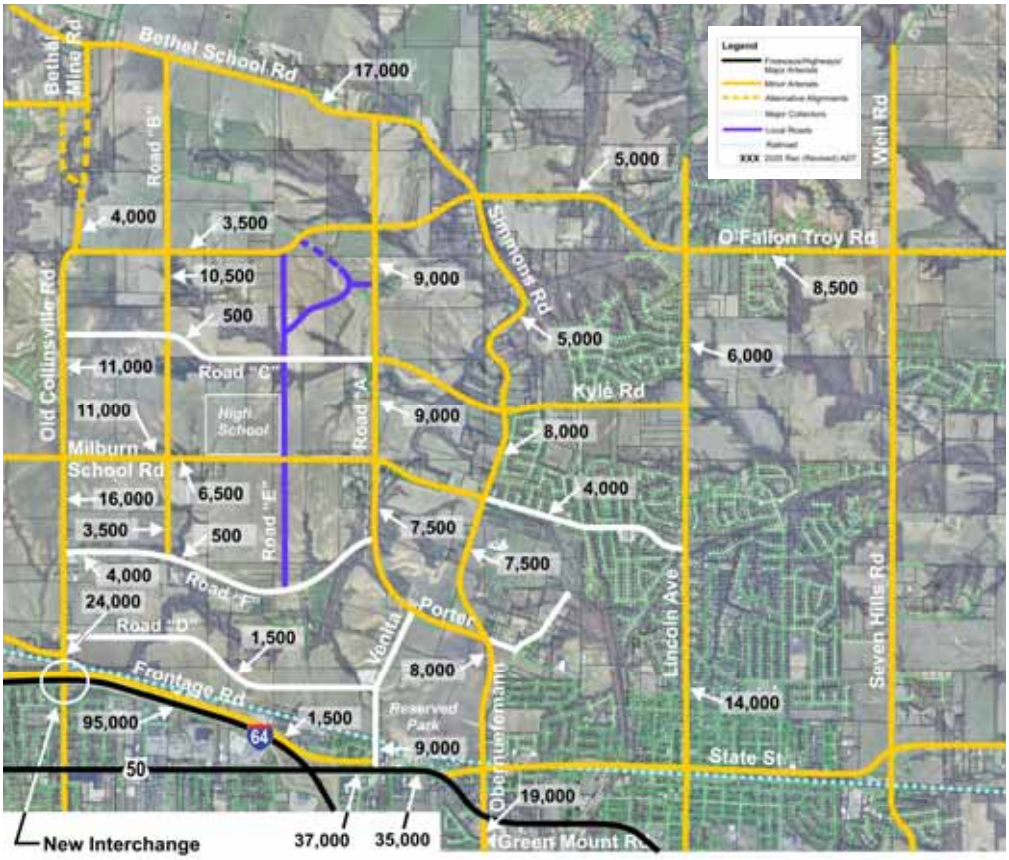
Based on the above items, as well as other factors, the study team along with City Staff developed a Recommended Roadway Alternative that would meet the City's needs, as well as the existing and future citizens within the study area. The extension of Kyle Road eastward to IL Route 158 was eliminated due to the land being held in trust, thus slightly decreasing the expected traffic volume along the roadway. A large majority of the traffic along Kyle Road continues to Simmons Road and then Milburn School Road, thus increasing traffic volumes to 11,000 vpd. Finally, these drivers, as well as those along Road "B", would use Old Collinsville Road to access I-64. The future traffic volume along Old Collinsville Road is expected to be about 24,000 vpd. This increase in volume thus provides relief along US 50 and IL Route 159. The following bullets summarize some of the other roadway improvements of the Recommended Alternative and are included in Figure 5.

Roadway improvements are same as those for Alternative 3 with the exception of:

- Road 'B' is a North-South minor arterial Road
- Road 'C' is a major collector connecting Old Collinsville Road and Road 'A'
- Road 'E' is a local road connecting O'Fallon Troy Road and Road 'F'
- Road 'F' is a major collector road serving Old Collinsville Road and Road 'A'

It should be noted that the new interchange at Old Collinsville Road is crucial to the success of the future transportation networks within the Cities of O'Fallon and Fairview Heights. The interchange is projected to alleviate IL Route 159/I-64, U.S. 50/I-64, and Green Mount Road/I-64. Without the new interchange, as discussed in section 4.2C, significant improvements will need to be made at these interchanges due to the increase in traffic from the study area and areas of Fairview Heights as it grows north. The new interchange decreases traffic from these roadways by 15,000 to 20,000 vehicles per day. If the new interchange is not constructed, for example, a new railroad overpass at Venita Drive would not be recommended due to the high traffic volumes that are forecasted along Venita Drive. The close proximity of Venita Drive/U.S. 50 and the U.S. 50/I-64 Ramps would create significant congestion without the Old Collinsville Road interchange. An overpass to the east, potentially located near the U.S. 50 curve, near its intersection with State Street, would be a more viable option and would most likely improve traffic flow along U.S. 50 and State Street.

FIGURE 5. Recommended Alternative Corridor Improvements



Note: The linework in this figure is intended to depict general corridors, and does not delineate specific roadway alignments. Further engineering study would be necessary to develop actual alignments.

CHAPTER 5: RECOMMENDATIONS

5.1 GENERAL OVERVIEW

The purpose of this Chapter is to provide the City with information related to the Recommended Roadway Network presented in Chapter 4. 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.

5.2 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 the amount of access that the City would like to see along the roadways. Table 3 provides some very general guidelines on the number of lanes required along signalized roadways.

TABLE 3. 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 for the recommended study-area network.

- Upgrading Bethel School Road to a minor arterial and widening it to five lanes from IL Route 159 to Road “A”
- Upgrading Milburn School Road to a minor arterial widening it to five lanes
- Widening Old Collinsville Road to five lanes from Milburn School Road to Highway 50 and constructing an interchange with I-64
- Widening Green Mount Road to five lanes from I-64 to Highway 50
- Construction of minor arterial Road “A” consisting of five lanes
- Construction of minor arterial Road “B” consisting of both three- and five-lane cross sections

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.

5.3 TRAFFIC CRITERIA

This section describes traffic-related criteria beyond the number of lanes required on individual roadways. Table 4 illustrates some of these criteria, and should be considered as a starting point in the development of a comprehensive transportation plan for the northwest portion of O'Fallon. 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 4 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 volumes and characteristics, and traffic can be moved efficiently throughout the transportation network.

B. Roadway and Right-of-Way Widths

Table 4 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 5.3C).

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.

C. Pedestrian/Bicycle Provisions

A well-planned and well-designed urban roadway network accounts for the presence of non-automobile transportation modes. At the scale of the northwest portion of O'Fallon, the relevant non-automobile modes are walking (pedestrians) and bicycling. Because the roadway and right-of-way widths listed in Table 4 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 4 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.

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 northwest O'Fallon area.

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 4 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 4 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 4 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.

TABLE 4. 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

Appendix A – Summary of Travel Demand Modeling Effort

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Traffic and Transportation Engineers

O'Fallon Planning Study

Summary of travel demand modeling effort

Study Area

- For the purpose of performing a transportation plan update for the Northwest area in the city of O'Fallon, the limits of the study area was defined as the Madison County line on the north, I-64 on the south, Old Collinsville Road on the west and Pohlman Road on the east.
- For modeling purposes, a larger area was analyzed to account for the interaction with traffic in the vicinity of the study area. The limits of the modeling area include the Madison County line on the North, I-64/Drake Road on the South, Route 159 on the west and Scott-Troy Road on the east.

Base 2000 EWGCC Model

- Model has 3 TAZs in the study area.
- Sufficiently calibrated on I-64, Route 159 and part of US-50 (IAW NCHRP 365 standards).
- Poor calibration on Bethel Road, Troy O'Fallon Road, Scott-Troy Road and Lincoln Avenue (NOT IAW NCHRP 365 standards).
- Model lacks roadway detail in the study area. The roadways that were missing in the study area are Milburn School Road, Simmons Road, Venita Drive, Obernuefermann Road, Porter Road and South Clinton Road.

Base 2000 Model (CBB Refinements)

- Model network was refined by incorporating all roadways classified by EWGCC as collectors and above. Interchanges with I-64 at Route 159, Highway 50 and Green Mount Road were also incorporated; these were coded as intersections in the base 2000 EWGCC Model.
- 2000 Household data in the EWGCC model matched closely with CTPP (Census Transportation Planning Package) 2000 data; employment (commercial, industrial, public and extractive jobs) numbers in the model were low; these were refined to reflect the CTPP data.

Table 1: Comparison of Base Year EWGCC Model Land Use with CTPP data

TAZ	EWGCC 2000 HH	CTPP 2000 HH	% Difference	EWGCC 2000 Emp	CTPP 2000 Emp	% Difference
910	1415	1345	5 %	1250	2265	-45 %
911	3430	3350	2 %	1445	1995	-28 %
912	3690	3490	6 %	1600	2390	-33 %

- Study area was split into 14 TAZs; multiple centroid connectors were provided for each new TAZ.
- Land use was also split appropriately based on existing land density from maps/aerials.
- Scott-Troy Road was upgraded from a minor arterial to a major arterial (speed and capacity values were increased).
- Sub-area model refinement also involved minor adjustments in link distance, speed and capacity values.
- Sub-area model calibration still weak in some areas: Milburn School Road, Old Collinsville Road, Green Mount Road and parts of US-50 show significantly lower volumes than ground counts.
- Possible reasons for sub-area calibration variances are that model is based on 2000 land use whereas counts are for 2002/2003; another reason could be model's inadequacy to correctly represent through trips.

2025 No Build (CBB Refinements)

- I-64: 6 lanes up to Route 4, Route 159: 5 lanes (Committed)[1]. These were incorporated in the Base 2025 EWGCC model.
- Network and TAZ refinements made to year 2000 model was applied to year 2025 model.
- Study area household growth: assumed 2 homes/acre for the most part, except for areas specified to have different growth[2]. Assumed 70% developable land. The city of O'Fallon is evaluating the need for an improved transportation system for the full build-out condition in the study area. Therefore, this growth is considerably higher than EWGCC's growth projections for the study area.

[1] East West Gateway Coordinating Council Travel Demand Model
[2] Based on discussions with City of O'Fallon staff

Table 2: Comparison of 2025 EWGCC Model Land Use with CBB assumptions

TAZ	EWGCC 2025 HH	CBB 2025 HH*	% Difference	EWGCC 2025 Emp	CBB 2025 Emp*	% Difference
910	1680	16150	861 %	1505	2720	80 %
911	3850	3860	0.2 %	1510	2085	38 %
912	4550	6800	49 %	1665	2485	49 %

* Note: Aggregated to EWGCC Base TAZ from refined TAZ for comparison purposes

- Employment growth based on EWGCC 2025 data. However, employment numbers were adjusted for the differences in the base year data from CTPP 2000.
- The 2025 No Build model traffic forecasts were adjusted for calibration variances by applying the calibration/field absolute differences during the post-processing of the data. The post processed forecasts are shown in the attached figures **(to be prepared by HDR).**
- Towards the south of the study area, Old Collinsville Road is expected to carry about 10,500 vpd, Venita Drive about 12,500 vpd and Obernuefermann Road about 9,000 vpd.

2025 Alternatives

- New roadways (minor arterials and major collectors) were added in the study area to the 2025 refined No-Build network; several existing roadways were upgraded.
- Alternatives 1-3 were evaluated with and without the Gateway Connector.
- The 2025 alternatives' model traffic forecasts were adjusted for calibration variances by applying the calibration/field absolute differences during the post-processing of the data. The post processed forecasts are shown in the attached figures **(to be prepared by HDR).**
- The Gateway Connector is not expected to change the volumes in the planning study area significantly, except for the east side of the city where considerable traffic shifts occur. For example, traffic volumes on Lincoln Avenue are expected to drop by about 2,000-3,000 vpd with the addition of the Gateway Connector.

2025 Alternative 1

<u>Roadway Improvements</u>

- Bethel School Road, Simmons Road, Porter Road, Venita Drive, Kyle Road, Obernuefermann Road and Milburn School Road upgraded from major collector to minor arterial
- Kyle Road extended to Scott-Troy Road
- Minor arterial Road 'A' provides a North-South connection from Bethel School Road to Highway 50 through Venita Drive.
- Minor arterial Road 'B' provides an East-West connection from Old Collinsville Road to Venita Drive.

- Major collector Road 'C' provides a North-South connection from Bethel School Road to Old Collinsville Road.
- Major collector Road 'D' provides an East-West connection from Old Collinsville Road to Simmons Road.
- 4-lane roadway assumed for Old Collinsville Road from Milburn School Road to US-50, Bethel School Road from Route 159 to Road 'A', Lincoln Avenue from Highway 50 to Kyle Road, all of Road 'A' (including its connection to Venita Drive) and Greenmount Road from I-64 to Highway 50.
- Assumed 2 lanes for all other new roadways.

Traffic Forecasts

- Traffic volume on Old Collinsville Road (towards south of the study area) is expected to increase to about 16,000 vpd since more North-South traffic tends to get attracted to it owing to better access through Road 'C'.
- Traffic volume on Venita Drive is expected to increase to about 24,000 vpd since more North-South traffic tends to get attracted to it owing to better access through Road 'A'.
- Traffic volume on Obernuefermann Road is expected to decrease to about 3,500 vpd since Venita Drive provides a better North-South connection through Road 'A'.

2025 Alternative 2

Roadway Improvements

- Roadway improvements are same as those for Alternative 1 for the most part except that
  - Road 'B' extends to Simmons Road
  - Obernuefermann Road connects directly to Road 'A'
  - Porter Road and part of Obernuefermann Road are major collectors.
- 4-lane roadway assumed for Old Collinsville Road from Milburn School Road to Highway 50, Bethel School Road from Route 159 to Road 'A', Lincoln Avenue from Highway 50 to Kyle Road, all of Road 'A' (including its connections to Venita Drive and Obernuefermann Road) and Greenmount Road from I-64 to Highway 50.
- Assumed 2 lanes for all other new roadways.

Traffic Forecasts

- Old Collinsville Road (towards south of the study area) is expected to carry about 15,000 vpd, comparable to that for Alternative 1.
- Venita Drive is expected to carry about 18,000 vpd, which is lower than that for Alternative 1 since Obernuefermann has a direct connection to Road 'A' and is expected to take a greater share of the North-South traffic (it carries about 9,000 vpd) than in Alternative 1.

2025 Alternative 3

Roadway Improvements

- Roadway improvements are same as those for Alternative 2 for the most part except that
  - Road 'A' does not connect to Highway 50 through Venita Drive but connects to Obernuefermann Road
  - Road 'D' is a Minor Arterial and extends to Bethel School Road
  - Venita Drive is a major collector
  - Old Collinsville Road has an interchange with I-64.
- 4-lane roadway assumed for Old Collinsville Road from Milburn School Road to Highway 50, Bethel School Road from Route 159 to Road 'A', Lincoln Avenue from Highway 50 to Kyle Road, all of Road 'A' (including its connection to Obernuefermann Road) and Greenmount Road from I-64 to Highway 50.
- Assumed 2 lanes for all other new roadways.

Traffic Forecasts

- Traffic volume on Old Collinsville Road (towards south of the study area) is expected to increase to about 23,000 vpd since it draws more traffic through its interchange with I-64. This additional traffic would otherwise have utilized Venita Drive to go North-South.
- Traffic volume on Venita Drive is expected to decrease (compared to both Alternatives 1 and 2) to about 12,000 vpd since it is a major collector and also because part of its traffic would be diverted to Old Collinsville Road.
- Traffic volume on Obernuefermann Road is expected to decrease (compared to Alternative 2) to about 9,000 vpd since part of its traffic would be diverted to Old Collinsville Road.

2025 Recommended Alternative

Roadway Improvements

- Roadway improvements are same as those for Alternative 3, except that
  - Road 'B' is a local North-South Road
  - Road 'C' is a minor arterial
  - Road 'E' is a major collector connecting Old Collinsville Road and Venita Drive, instead of Road 'B' in Alternative 3
  - A major collector connects Old Collinsville Road and Road 'A'
- 4-lane roadway assumed for Old Collinsville Road from Milburn School Road to Highway 50, Bethel School Road from Route 159 to Road 'A', Lincoln Avenue from Highway 50 to Kyle Road and Greenmount Road from I-64 to Highway 50.
- Assumed 2 lanes for all other new roadways.

Traffic Forecasts

- Old Collinsville Road (towards south of the study area) is expected to carry about 24,000 vpd, which is comparable to that for Alternative 3.
- Venita Drive is expected to carry about 9,000 vpd, which is lower than that for Alternative 3 since some of the North-South traffic to/from I-64 west is expected to be diverted to Road 'C'.
- Obernuefermann Road is expected to carry about 8,000 vpd, which is comparable to that for Alternative 3.

Conclusions and Recommendations

- In the recommended alternative, the most important roadways that carry significant amounts of North-South traffic in the study area are Old Collinsville Road, Road 'C', Road 'A' and Lincoln Avenue.
- In the recommended alternative, the most important roadways that carry significant amounts of East-West traffic in the study area are Milburn School Road and Bethel School Road.
- Most critical roadway improvements based on the traffic volumes they are anticipated to carry are
  - Upgrading Bethel School road to minor arterial and widening it to 4 or 5 lanes from Route 159 to Road 'A'.
  - Upgrading Milburn School Road to minor arterial.
  - Widening Old Collinsville Road to 4 or 5 lanes from Milburn School Road to Highway 50 and constructing its interchange with I-64.
  - Construction of minor arterial Roads 'A' and 'C.
  - Widening Greenmount Road to 4 or 5 lanes from I-64 to Highway 50.
- Most critical interchanges based on the traffic volumes they are anticipated to carry are those of I-64 with Route 159, Old Collinsville Road and Highway 50.
- The committed improvements for major roadways in the study area (I-64 - to be widened from 4 to 6 lanes and Route 159 - to be widened from 2 to 5 lanes) are sufficient to handle the expected traffic in the future.
- In general, the Gateway Connector will have not have any significant impact on traffic volumes in the planning study area. The Connector is expected to cause major shifts in traffic only in the eastern part of the city of O'Fallon.

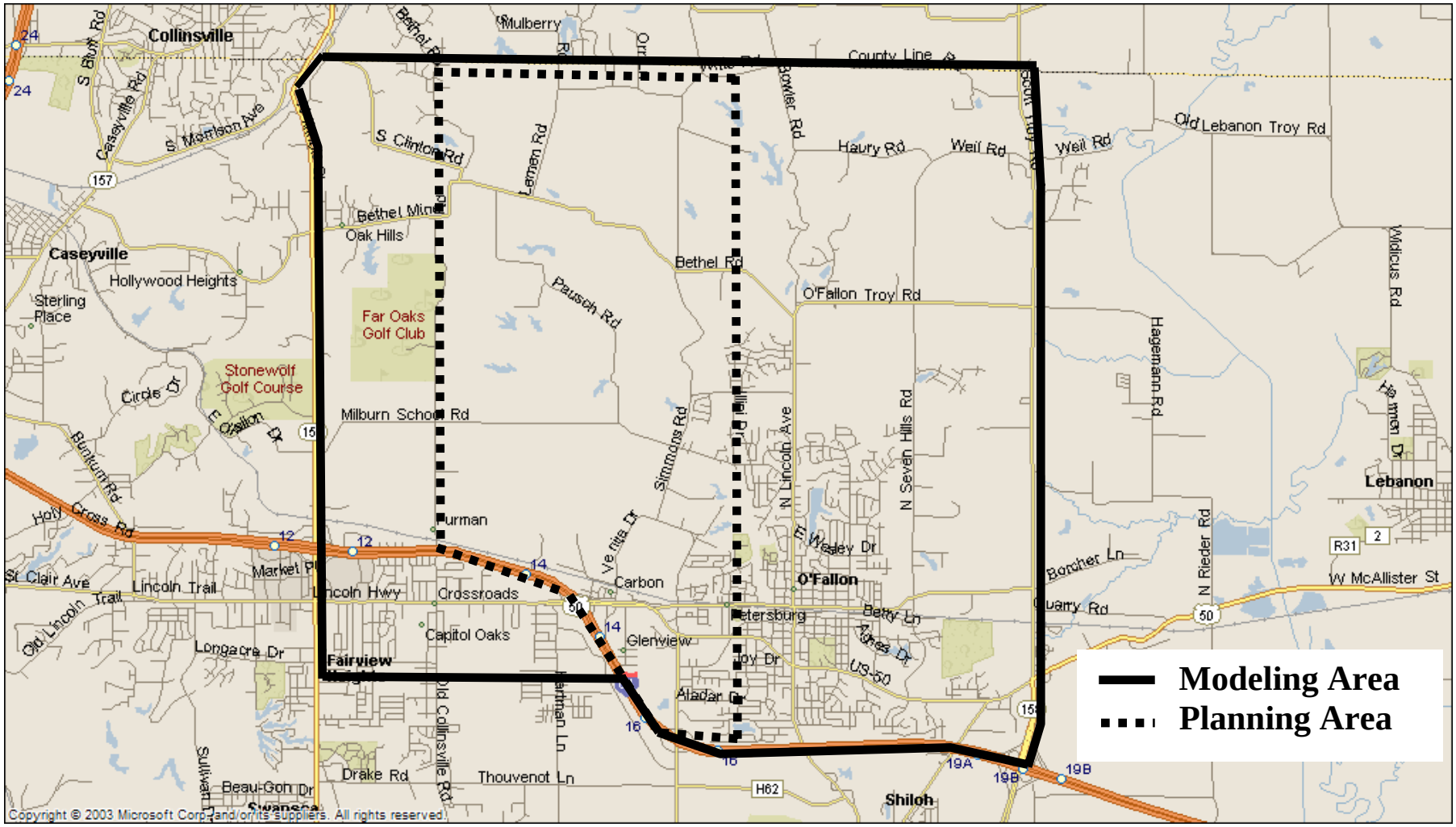

Figure 1: Study Area (Planning and Modeling Areas)

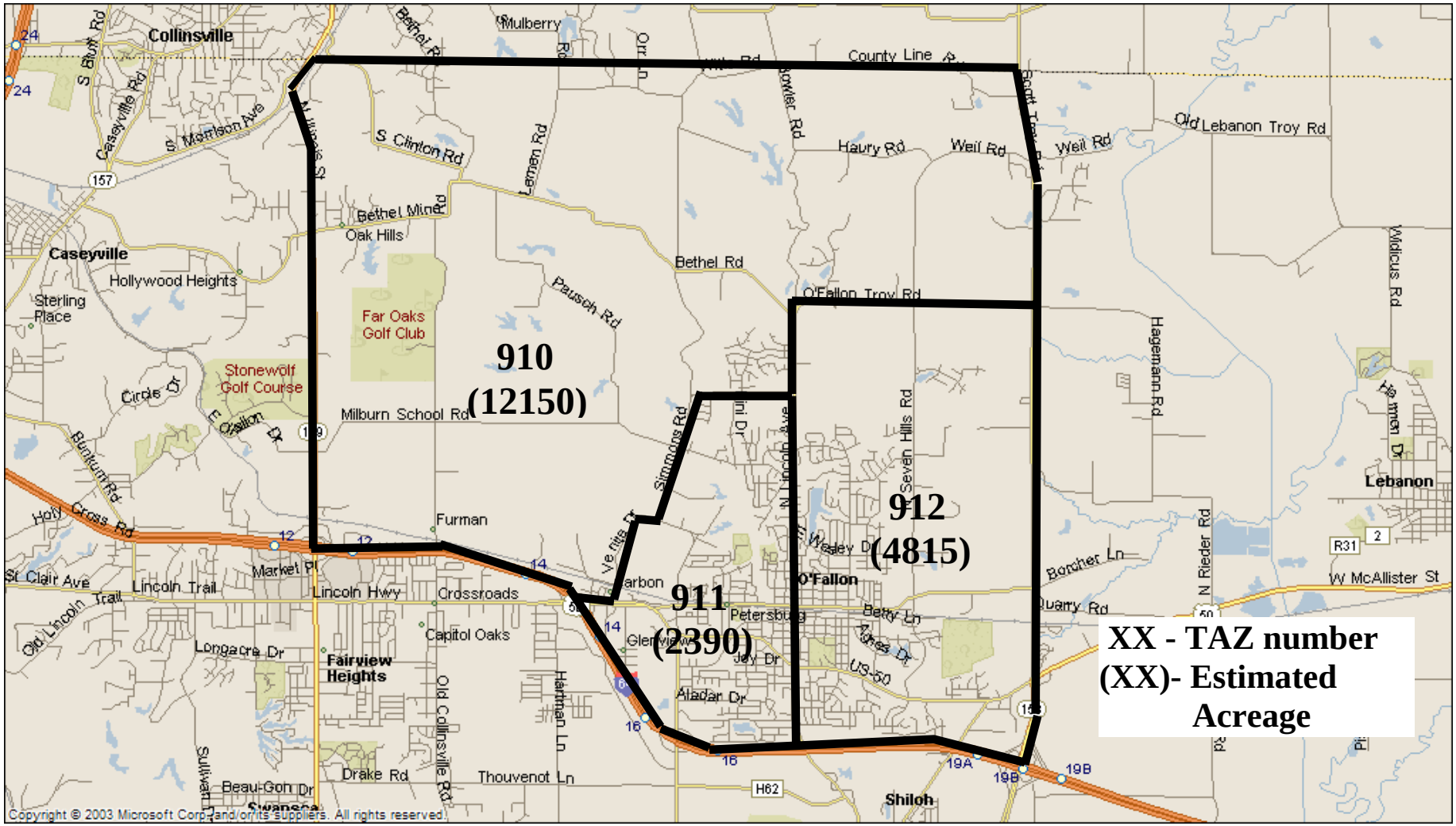

Figure 2: Base (Year 2000) EWGCC TAZ structure

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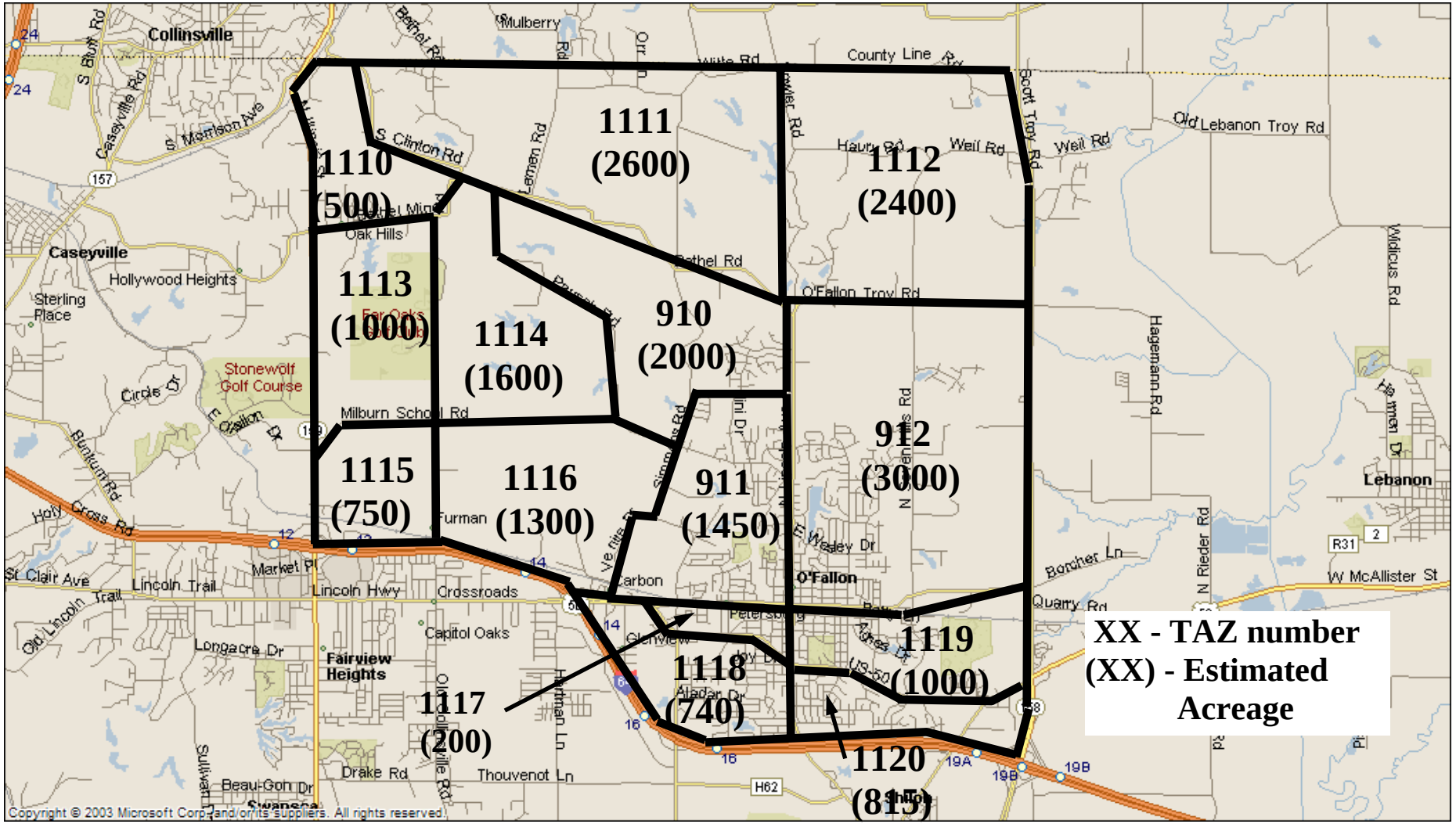

Figure 3: TAZ structure as refined by CBB

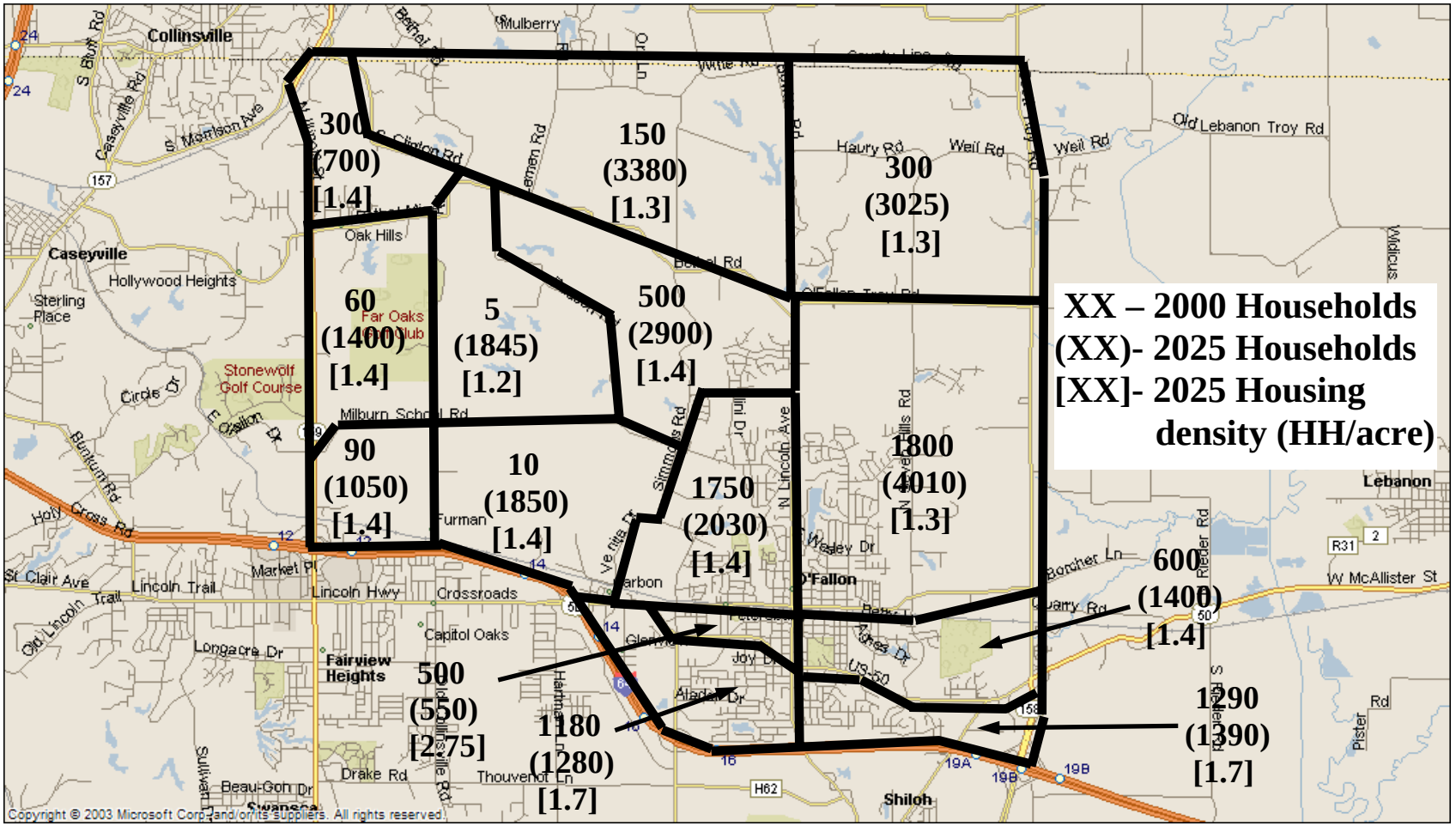

Figure 4: 2000 and 2025 Households by TAZ

* Note: 2000 Households were derived from EWGCC
2025 Households were forecasted by CBB based on anticipated growth

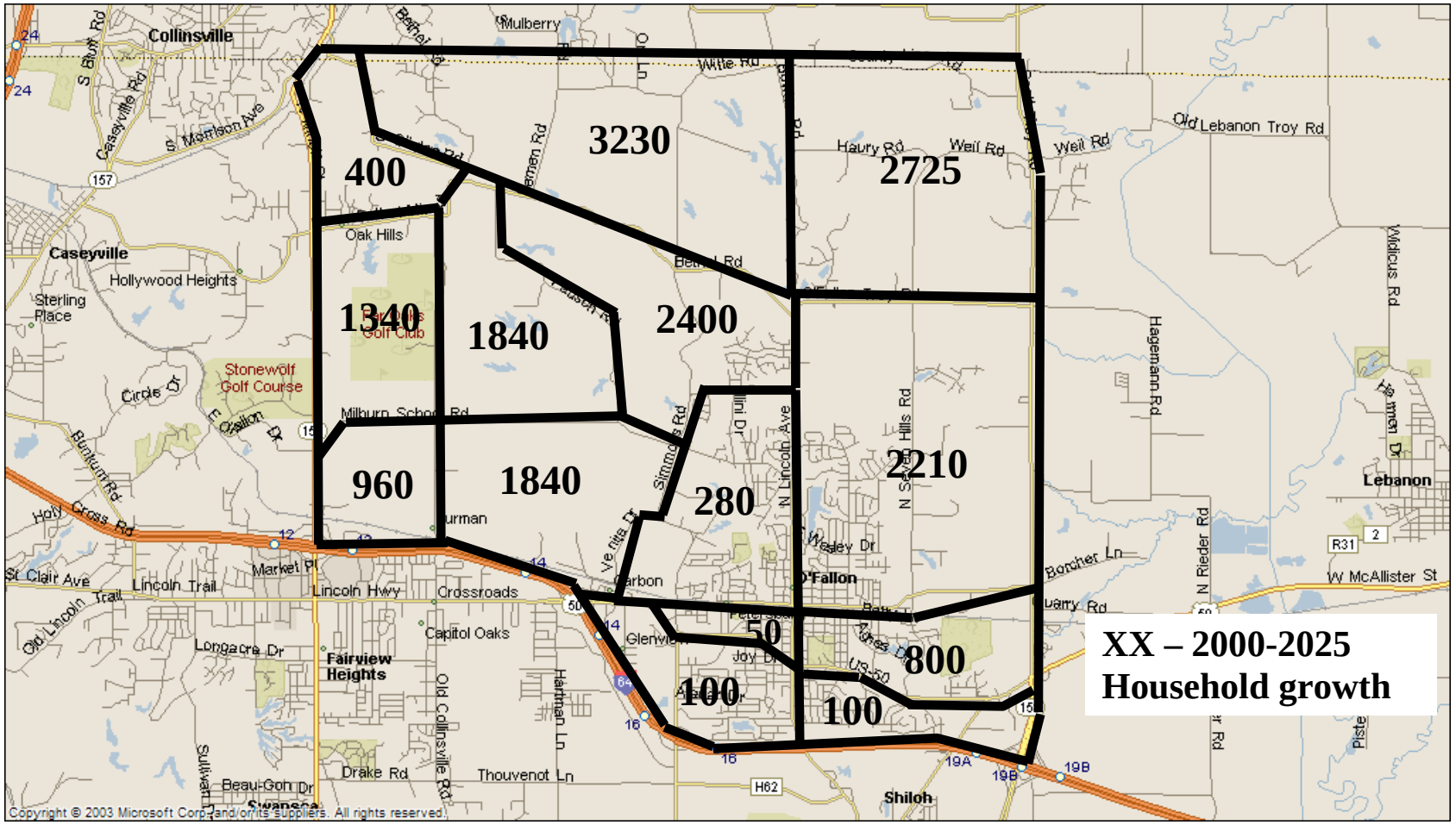

Figure 5: 2000-2025 Household growth as projected by CBB

* Note: 2000 Households were derived from EWGCC
2025 Households were forecasted by CBB based on anticipated growth

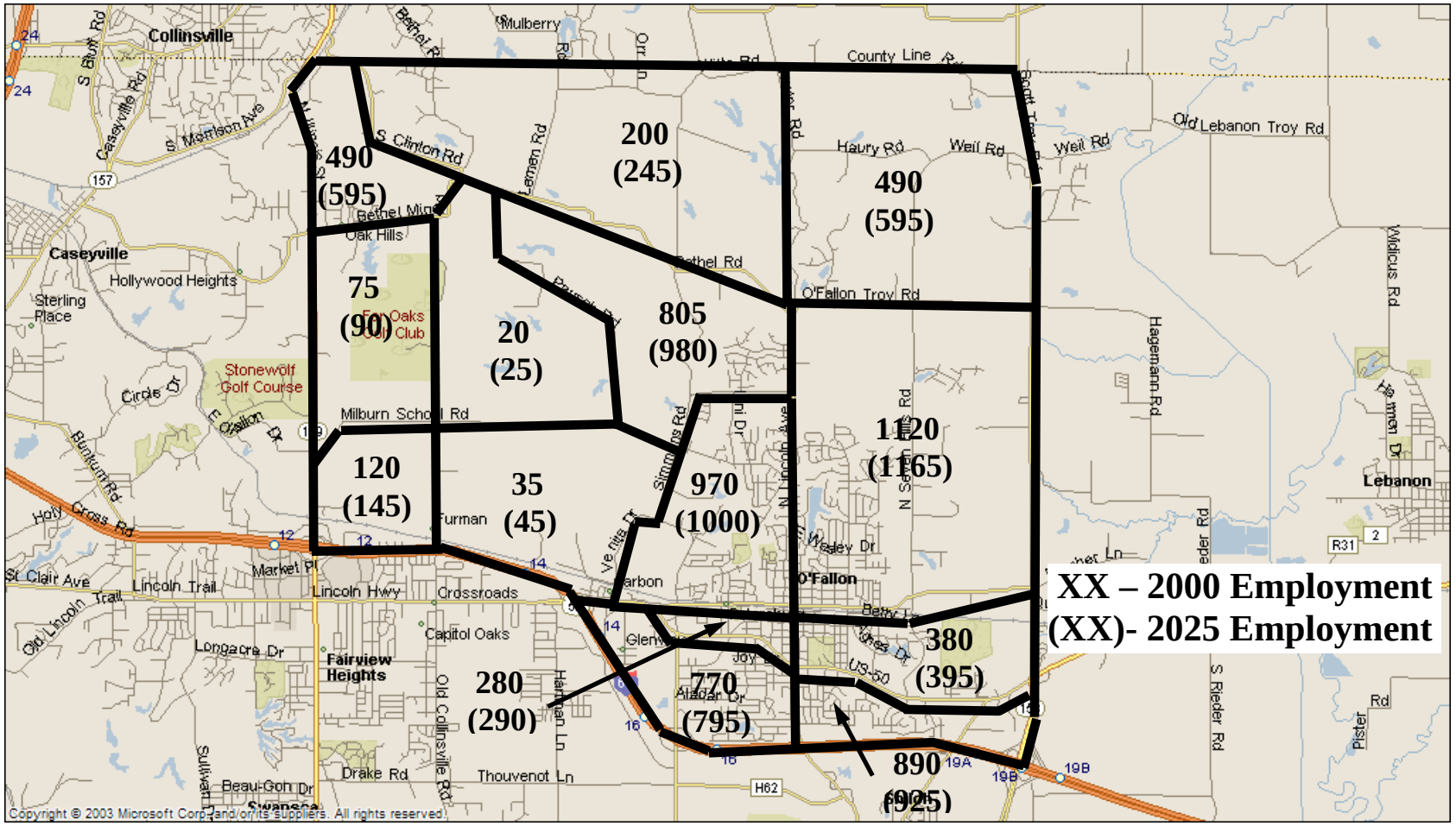

Figure 6: 2000 and 2025 Employment by TAZ

*Note: 2000 Employment derived from CTPP 2000
2025 Employment forecasted by CBB based on 2000 CTPP data and EWGCC model

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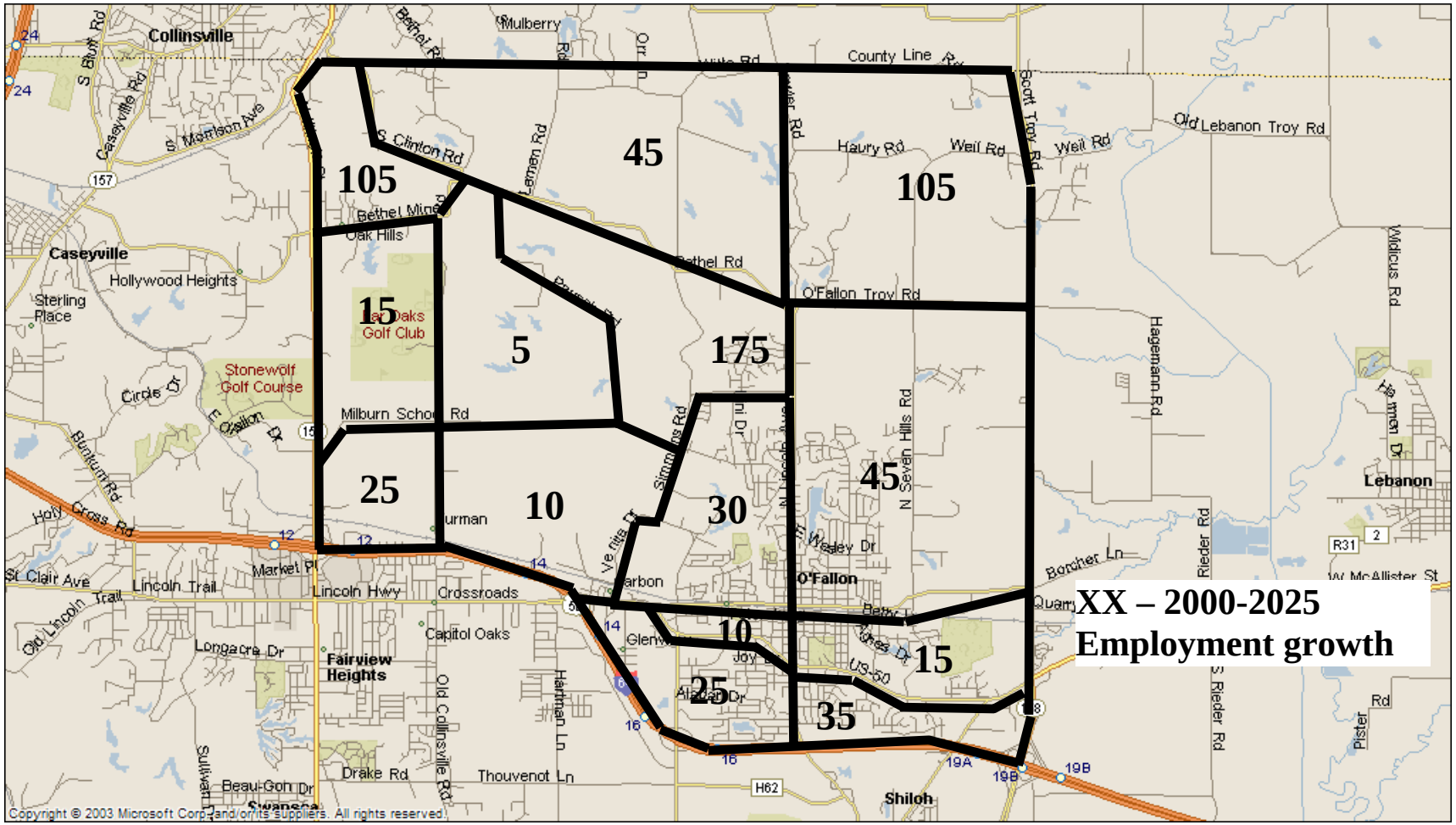
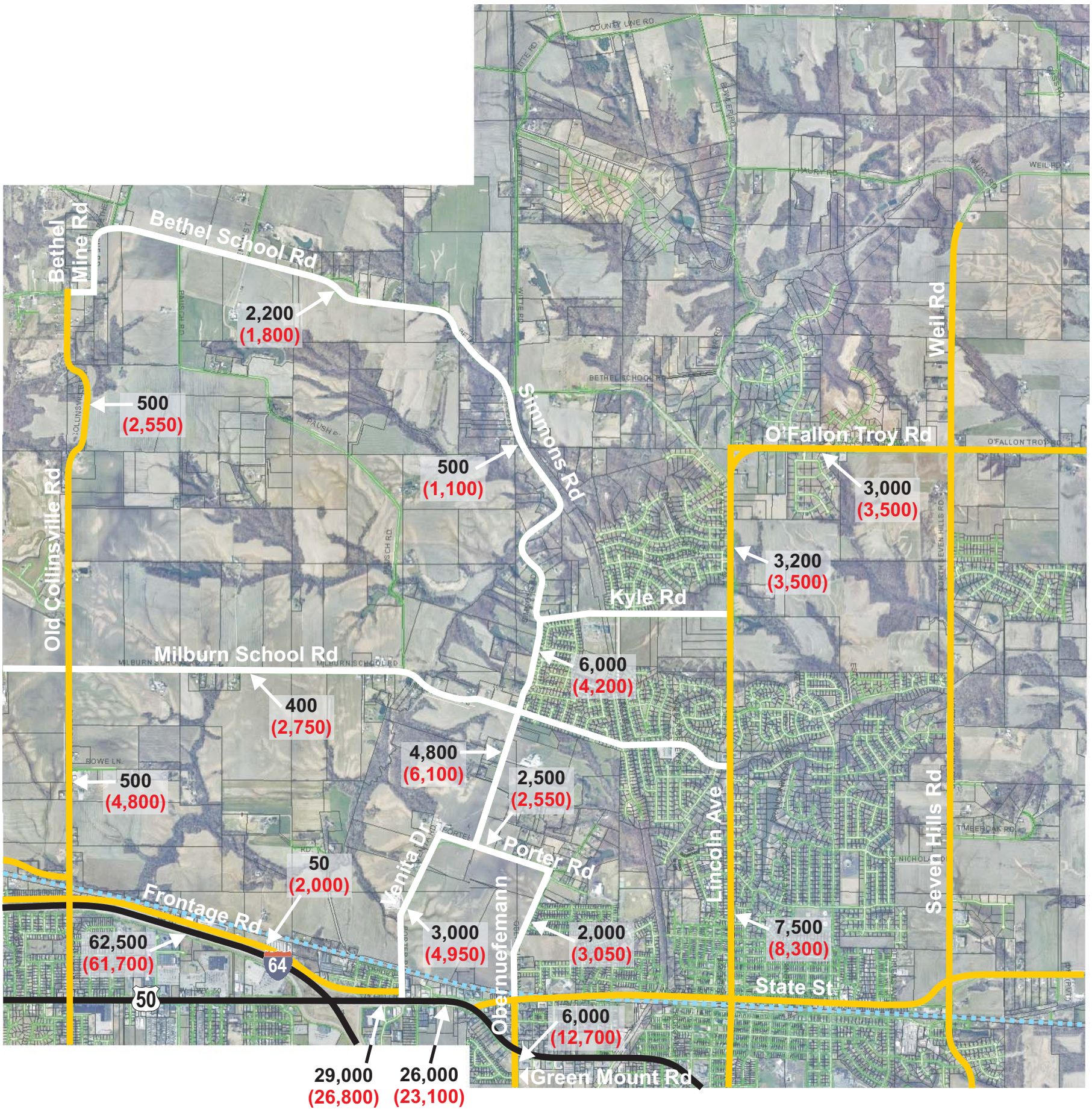


Figure 7: 2000-2025 Employment growth as projected by CBB

*Note: 2000 Employment derived from CTPP 2000
2025 Employment forecasted by CBB based on 2000 CTPP data and EWGCC model

Appendix B – Figures Illustrating Each Roadway Alternative



N

1000 2000 3000 4000

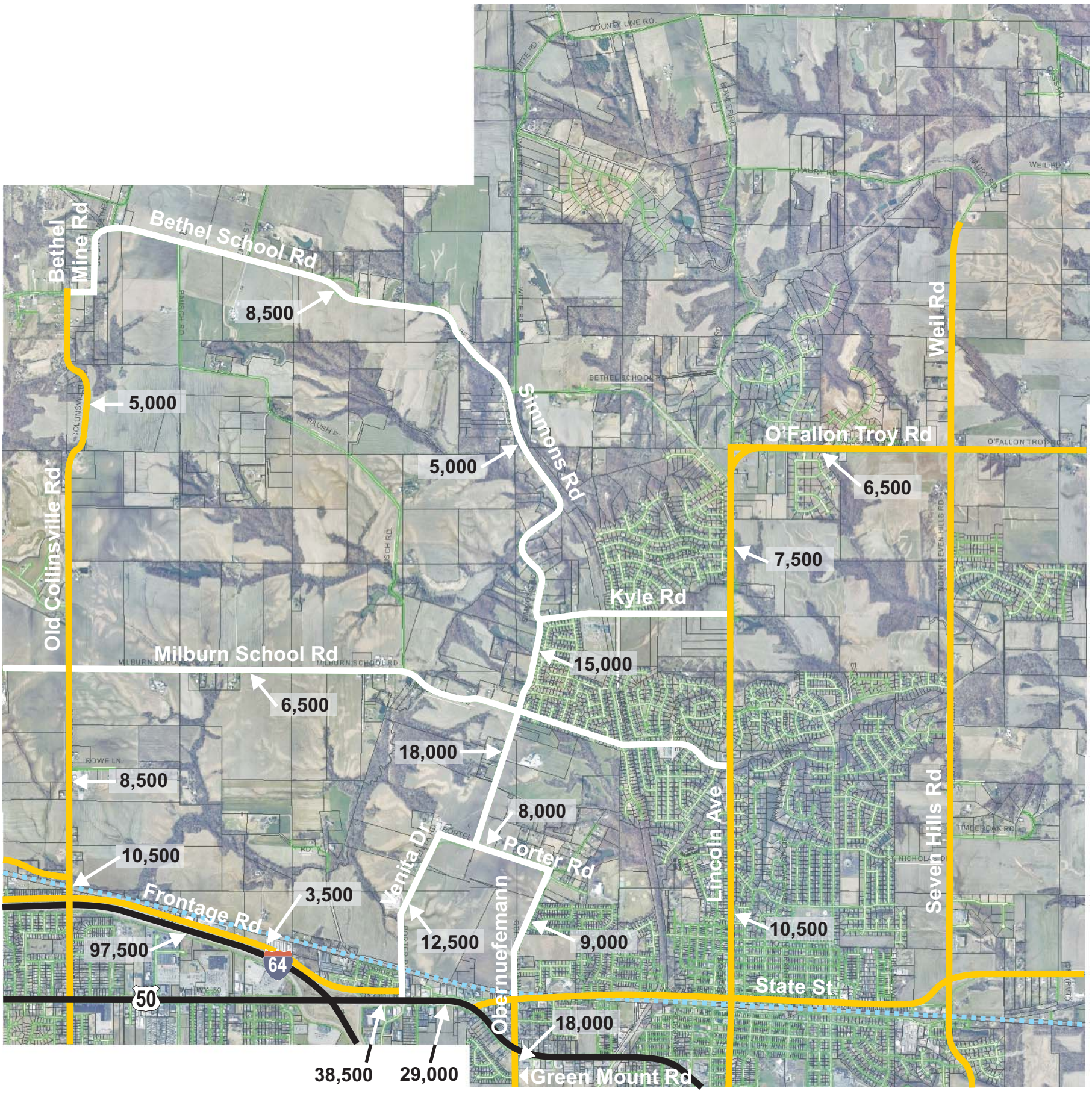
Approx. Scale (ft)

Legend

- Freeways/Highways/ Major Arterials
- Minor Arterials
- Major Collectors
- Railroad
- XXX 2000 Model ADT
- (XXX) 2002 Counts

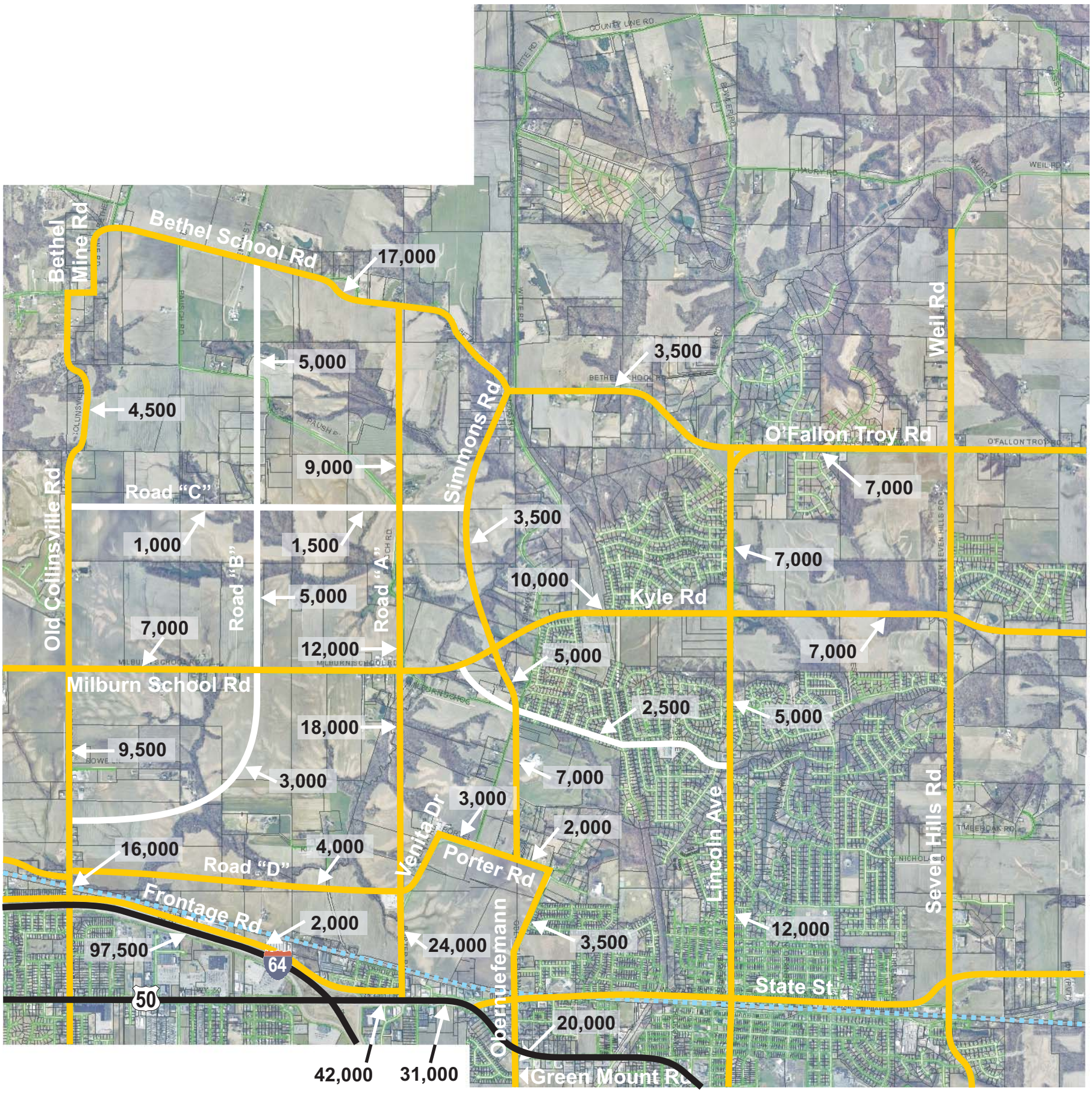
City of O'Fallon, Illinois	**Existing Roadway Network**	HDR CBB Traffic and Transportation	Figure B-1

11/16/04



City of O'Fallon, Illinois	**Year 2025 No-Build Existing Roadway Network**	HDR CBB Traffic and Transportation	Figure B-2

11/16/04



Note: The linework in this figure is intended to depict general corridors, and does not delineate specific roadway alignments. Further engineering study would be necessary to develop actual alignments.

N

1000 2000 3000 4000

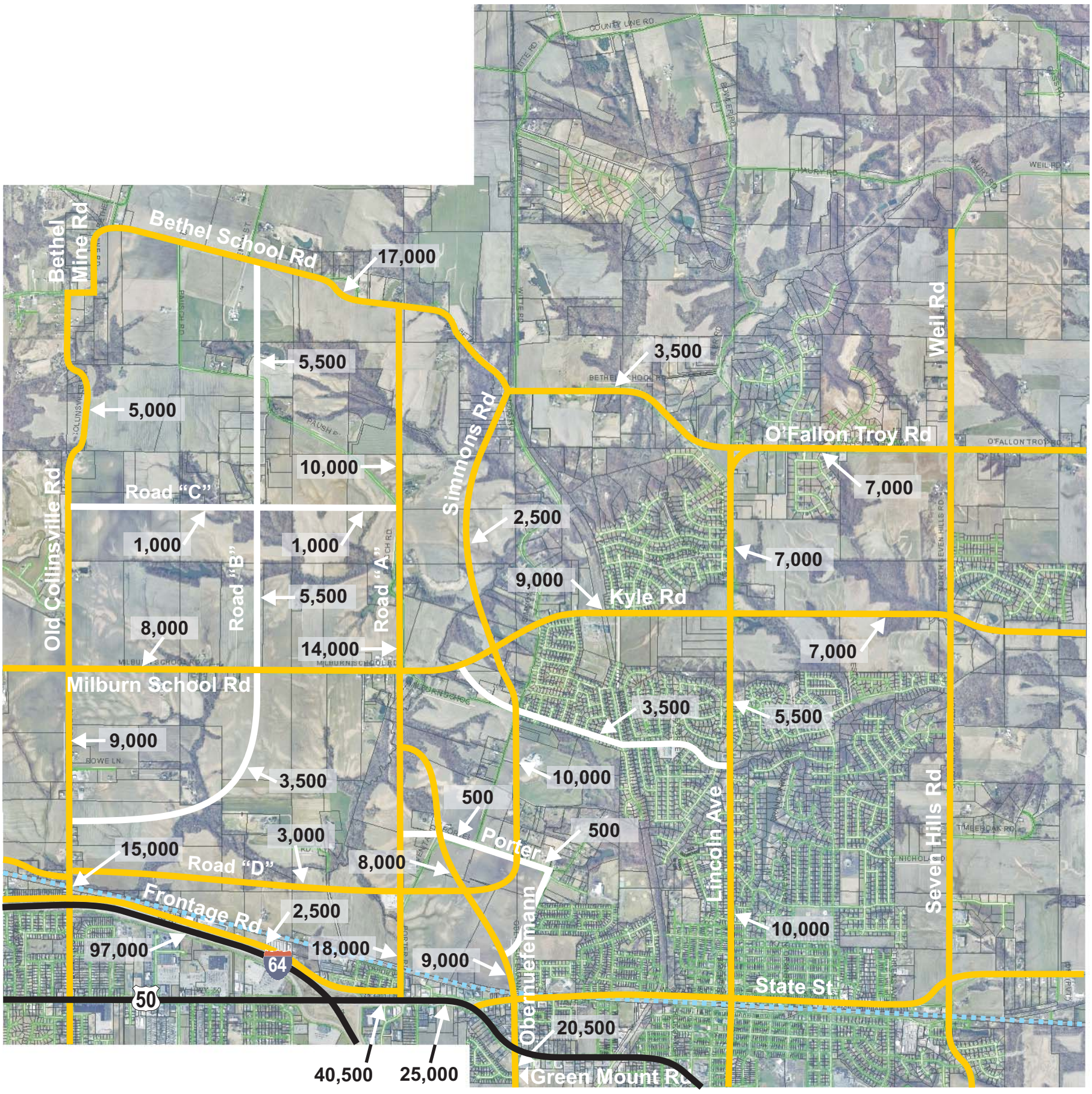
Approx. Scale (ft)

Legend

- Freeways/Highways/ Major Arterials
- Minor Arterials
- Major Collectors
- Railroad
- XXX 2025 Alt 1 ADT

City of O'Fallon, Illinois	**Alternative 1 Corridor Improvements**	HDR CBB Traffic and Transportation	Figure B-3

11/16/04



Note: The linework in this figure is intended to depict general corridors, and does not delineate specific roadway alignments. Further engineering study would be necessary to develop actual alignments.

N

1000 2000 3000 4000

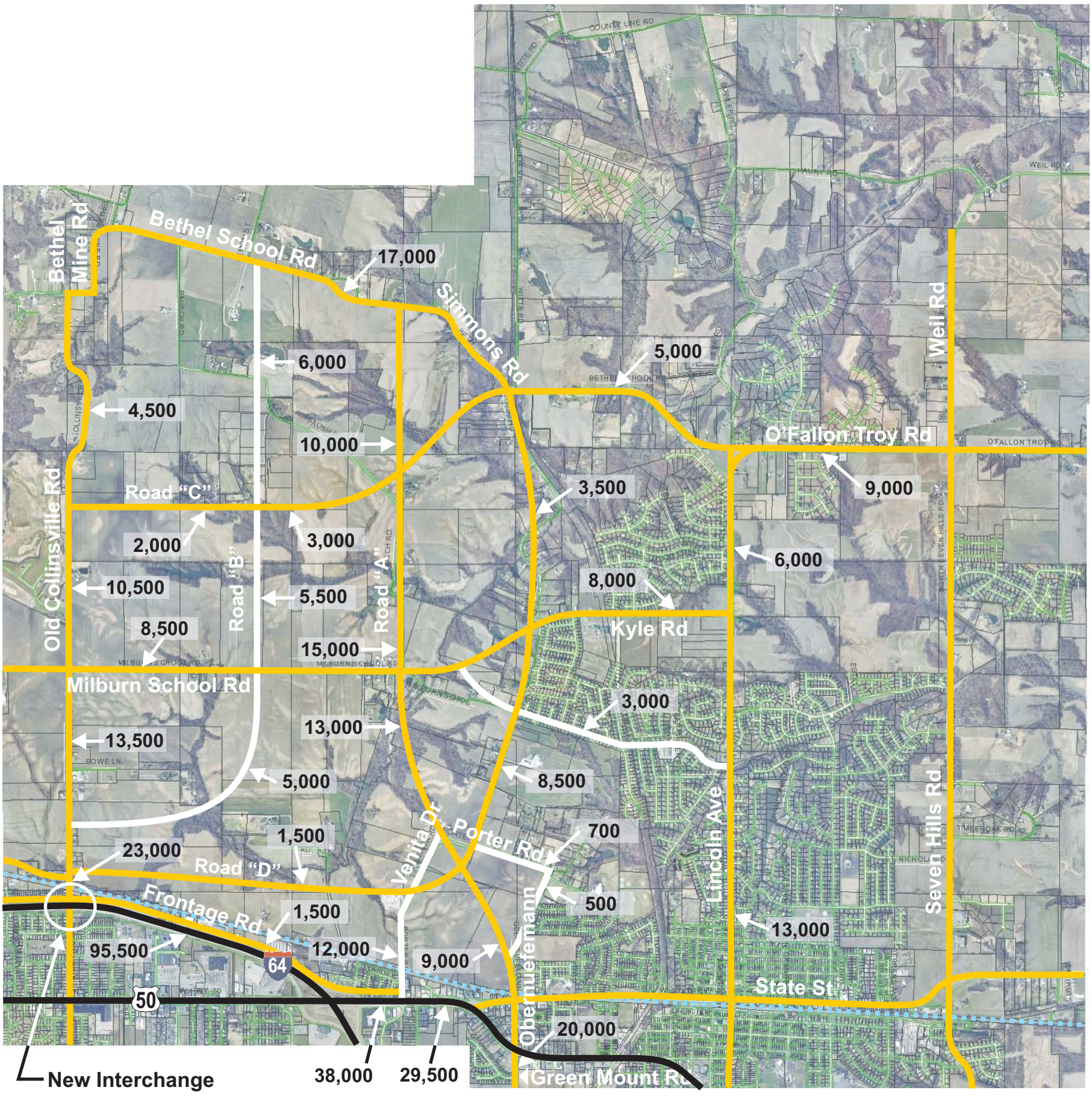
Approx. Scale (ft)

Legend

- Freeways/Highways/ Major Arterials
- Minor Arterials
- Major Collectors
- Railroad
- XXX 2025 Alt 2 ADT

City of O'Fallon, Illinois	**Alternative 2 Corridor Improvements**	HDR CBB Traffic and Transportation	Figure B-4

11/16/04



Note: The linework in this figure is intended to depict general corridors, and does not delineate specific roadway alignments. Further engineering study would be necessary to develop actual alignments.

N

1000 2000 3000 4000

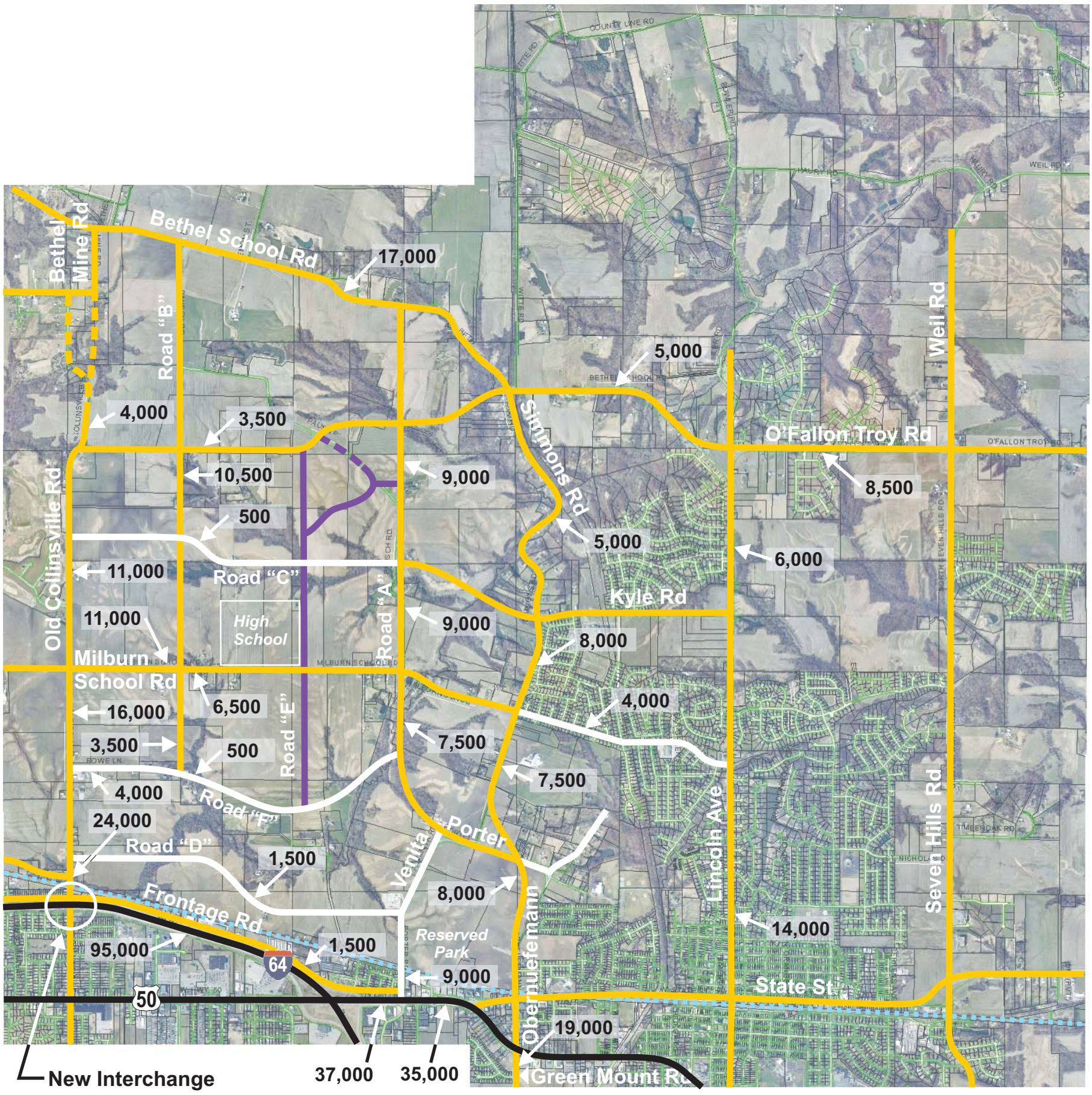
Approx. Scale (ft)

Legend

- Freeways/Highways/ Major Arterials
- Minor Arterials
- Major Collectors
- Railroad
- XXX 2025 Alt 3 ADT

City of O'Fallon, Illinois	**Alternative 3 Corridor Improvements**	HDR CBB Traffic and Transportation	Figure B-5

11/16/04



Note: The linework in this figure is intended to depict general corridors, and does not delineate specific roadway alignments. Further engineering study would be necessary to develop actual alignments.

N

1000 2000 3000 4000

Approx. Scale (ft)

Legend

- Freeways/Highways/ Major Arterials
- Minor Arterials
- Alternative Alignments
- Major Collectors
- Local Roads
- Railroad
- XXX 2025 Rec (Revised) ADT

City of O'Fallon, Illinois	**Recommended Roadway Network**	HDR CBB Traffic and Transportation	Figure B-6

11/16/04

HDR

CBB
Traffic and Transportation