Metro South MetroLink Extension

Alternatives Analysis and DEIS

Existing Conditions

Prepared by

HNTB Corporation

In association with

Jacobs Civil, Inc. and Vector Communications

for

East-West Gateway Coordinating Council

July 31, 2003

metroSOUTH

Planning MetroLink In South St. Louis County

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1.0 Introduction and Overview

1.1 Background of Current Study

In November 2002 the East West Gateway Coordinating Council (EWGCC or "the Council"), the metropolitan planning agency for the St. Louis region, authorized the consultant team of HNTB Inc, Jacobs Civil Inc. and Vector Communications to begin its study of the land use, mobility, engineering and economic development issues associated with extending the MetroLink light rail transit (LRT) system into South St. Louis County.

This document summarizes prior work and studies within the corridor, existing land uses, population trends, expected growth, economic development trends and opportunities, traffic conditions, current development regulations and other factors that planning for extension of MetroLink service into the South St. Louis County area must consider. The results of these initial investigations provide the foundation for an extensive two year analysis of transit-land use alternatives for Metro South.

Many communities across the United States are planning, building or expanding transit systems and are competing for federal assistance for such efforts. To obtain federal funding to support transit implementation, all communities must adhere to planning processes and guidelines that enable the Federal Transit Administration (FTA) to review all requests thoroughly and objectively. These requirements are part of the FTA's New Starts program that assesses and rates requests for funding of new or extended fixed guideway systems. The mandated process requires the Council to develop a range of credible transit alignment alternatives that can be fairly assessed and evaluated.

1.2 Prior Cross Corridor and MTIA Planning

The MetroLink light rail system, which opened in 1993, consists of a 38-mile route from Lambert St. Louis International Airport to Belleville, IL in St. Clair County, Illinois. An additional Illinois segment will open in 2003. The first system extension in Missouri (Cross County) is now under construction and due to open for service in 2006. To date, MetroLink has been notably successful, easily surpassing ridership forecasts made during the planning of the system. MetroLink's initial success led to a 1994 voter approval of local sales tax increases in both Illinois and Missouri to support expansion of the system.

In 1991, the St. Louis Systems Analysis for Major Transit Capital Investments was completed by the Council and the study placed the Cross-County corridor, along with the St. Clair County and St. Charles County corridors, in a first priority group for MetroLink expansion. The St. Clair County extension is in service; however, the St. Charles County extension has been indefinitely postponed pending voter approval of a local funding mechanism. In the summer of 2000, multimodal Major Transportation Investment Analyses (MTIAs) of the Northside, Southside and West County (Daniel Boone) study areas were completed. The selected alternatives resulting from each of these studies include proposed MetroLink extensions. These three corridors made up the second priority group in the 1991 transit systems analysis.

In addition to being identified as a priority corridor in the 1991 systems analysis, in years past the Cross-County Corridor had also been the subject of several unrealized plans for highway expansion, including the southward extension of an existing north-south freeway (I-70) and various plans to relieve congestion on the area's major east-west freeway (I-64/U.S. 40). As a consequence of these prior planning activities, in 1994 a partnership between the Council, the Missouri Department of Transportation and Metro was created to conduct a coordinated multimodal MTIA in the Cross-County corridor. This MTIA study, which began in 1995 and was completed in early 1997, resulted in a range of proposed highway, transit, and transportation system management improvements in the corridor.

Based on the results of the Cross-County MTIA, and subsequent analyses focusing on the costs, impacts, financing, and scheduling of alternative MetroLink alignments within the Cross-County corridor, in September 1997, the Council's Board of Directors selected an alignment for MetroLink expansion in the Cross-County Corridor and made a commitment to move ahead with the design and construction of the first operating segment (Cross County via Clayton to Shrewsbury line) in the central portion of the corridor using local funds. (See Figures 1-1 and 1-2 for Cross County alignments.) Local funding for the Cross County via Clayton to Shrewsbury line is being derived from the one-quarter cent transit sales tax approved in 1994 by voters in the City of St. Louis and St. Louis County. (Because the St. Clair County extension is receiving federal funds, no additional federal new start funds were anticipated to be available to the region until after 2003.)

The final planning stage for the Cross County via Clayton to Shrewsbury line was a one-year conceptual design and environmental analysis study that took place in 1998/99. This study resulted in a decision on the conceptual design of the MetroLink line, the plan and profile, station locations and typical designs. In June 1999, the Council's Board of Directors selected the Cross County via Clayton to Shrewsbury line alignment. The conceptual design study included an analysis of all significant social, economic and environmental impacts of the design. Although a Draft Environmental Impact Statement (DEIS) was not required for the Cross County via Clayton to Shrewsbury line because the project is being financed entirely with local funds, the level of environmental analysis conducted for issues relevant to decisions on the design options was consistent with NEPA standards. Responsibility for implementation of the Cross County via Clayton to Shrewsbury line was transferred to the Metro in June 1999.

Having succeeded in advancing the Cross County via Clayton to Shrewsbury line through engineering design and into construction, the Council and its partner agencies now wish to move ahead with reexamining and redefining the locally preferred alternative for the southern portion (Metro South) of the Cross-County corridor. This alternatives analysis, detailed conceptual engineering, and environmental analysis study for Metro South is to be carried out in accordance with the NEPA process and other relevant federal and state regulations and guidelines including the proposed FTA/FHWA Planning and Environmental Regulations. The work products must be developed so as to satisfy the requirements of FTA's TEA-21 New Starts Program, including development of the information needed to satisfy FTA's Revised Technical Guidance for Section 5309 New Start Criteria and the revised 49 CFR Part 611 for Major Capital Investment Projects.

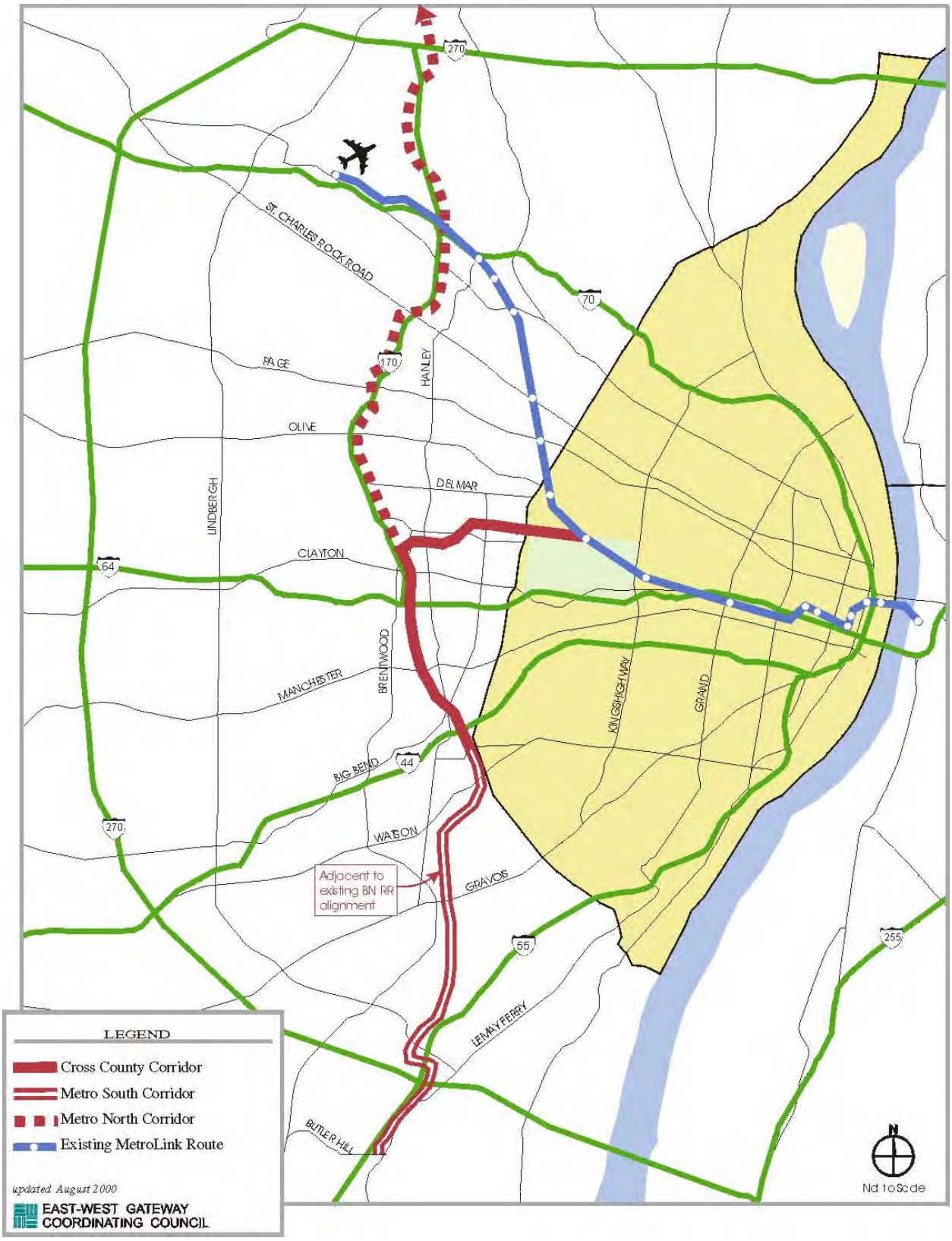
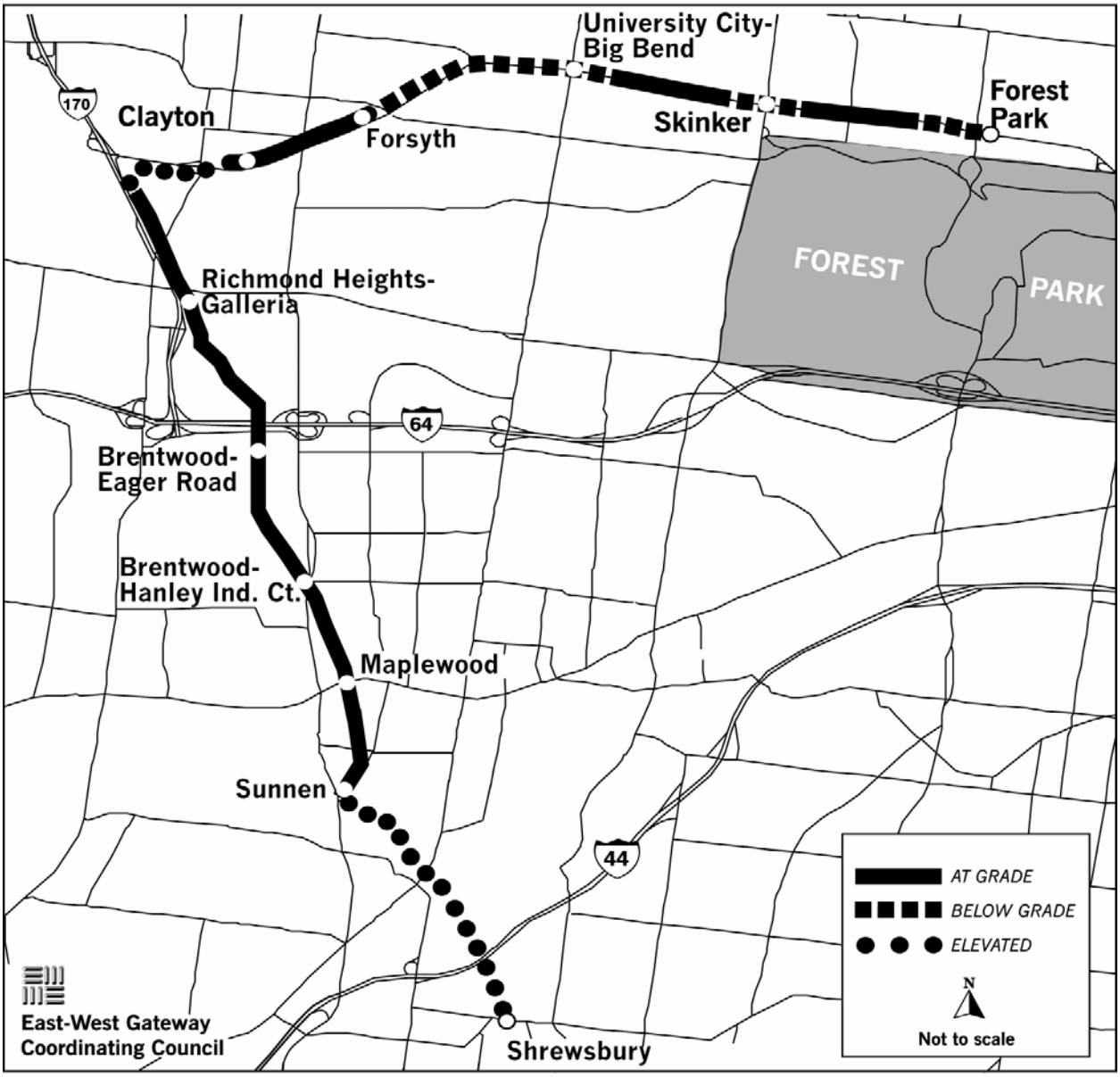


Figure 1-1: Cross-County Alignment from MTIA Study, 1997



East-West Gateway Coordinating Council map of June 1999 updated to reflect station names of July 2000.

Figure 1-2: Cross-County Alignment via Clayton to Shrewsbury, 1998.

While there is broad consensus on the decision to pursue the implementation of MetroLink expansion in the Cross-County Corridor, events during the Cross County MTIA and the subsequent decision-making processes for the Cross County via Clayton to Shrewsbury line did result in conflict within some of the directly affected communities. The decision-making process for the September 1997 alignment selection and the June 1999 conceptual design for the Cross County via Clayton to Shrewsbury line were especially contentious. Some opposition groups actively opposed a 1997 referendum for an additional one-quarter cent sales tax for MetroLink expansion. This tax referendum passed in the City of St. Louis but failed in St. Louis County.

The Council is aware of its obligation to select a cost-effective design for the Metro South extension which is compatible with surrounding communities and which will support the development goals of St. Louis County and the other jurisdictions along the route. The Council believes that the best way to achieve this result is by working closely with the County and other affected communities to develop the best and most cost-effective design possible. Given possible divisions within the affected communities, a comprehensive community engagement process must be developed at the outset of the study and carefully implemented throughout. In general, the community engagement work must drive the overall planning process. The technical planning and design activities must be integrated into this process.

For this existing conditions report, the above mentioned Cross-County MTIA and the Southside MTIA as well as the Sixth County Council District Community Area Study provide a foundation for baseline data and recommendations that will play a role in the process of choosing a corridor for the Metro South Light Rail alignment. In addition to these studies there are additional sub-area studies that would provide localized input as the process develops such as:

- St. Louis County Strategy Plan
- Oakville Community Area Study and Update
- Affton-Gravois Business Corridor Study
- Project Lemay and other Lemay Community Improvements
- River Des Peres Greenway Plan
- Transit Center Hub Restructuring Study.

The following, however, is a brief description of the areas studied in these prior planning efforts that have evaluated all or some portions of the MetroSouth Study Area along with those recommendations relevant to the determination of the MetroSouth light rail corridor:

St. Louis Cross County MTIA (1995-1997)

The study area of the Cross-County Corridor consists of two linear corridors that intersect to form a general cross-shaped study area. The north-south corridor extends southward from the vicinity of the I-270/I-170 interchange on the north to the general vicinity of the I-270/I-55 interchange on the south. The east-west corridor extends from east of the I-64/I-270 interchange in St. Louis County eastward to the general vicinity of the I-64/Grand Boulevard interchange in the city of St. Louis.

In 1997 at the completion of the MTIA, only one transportation strategy was adopted for the southern sub-corridor. Light rail was recommended to extend from the existing line into Clayton and south to around Interstate 55 and Interstate 270. It was proposed that this leg of light rail would run south, along the Burlington Northern Santa Fe (BNSF)railroad rights-of-way and then to South County Center (now called Westfield Shoppingtown South County) where it would enter the Interstate 55 right-of-way and continue south as far as Butler Hill Road.

Southside MTIA

The Southside MTIA study area lies in the south and southeast portion of the City of St. Louis and St. Louis County and is roughly bounded by the Mississippi River on the east, Interstate 64 on the north, Gravois and Hampton on the west and the Meramec River on the south.

In 2000, the Southside Study Area MTIA process yielded locally preferred alternatives that include a light rail or bus rapid transit. The light rail would be a new extension from downtown St. Louis to a connection with Metro South at Green Park and with operations to Butler Hill Road, using rights-of-way within 14th Street, Chouteau Avenue, the Union Pacific railroad, Interstate 55 and Grant's Trail. The bus rapid transit option would be a new roadway for bus-only use from near Grand Avenue to Loughborough Avenue using rights-of-way along the Union Pacific railroad. Access to south St. Louis County would be via Interstate 55 in mixed traffic.

Sixth County Council District Community Area Study (1999-2000)

The boundaries of the Sixth County Council District of St. Louis County are roughly the Mississippi River to the east, the Meramec River to the south, Gravois Road (Route 30) to the west and just south of River Des Peres to the north.

This study notes the results of the above MTIAs. The study does, however, discourage any use of the Grant's Trail right-of-way for a transit route. In addition, this report provides baseline data for the environmental characteristics of the County.

1.3 Study Organization

The Cross County MTIA proposed the use of the existing Burlington Northern Santa Fe (BNSF) freight rail line as a conceptual alignment for light rail into South County. In contrast, and in compliance with the federally mandated requirements that major transportation initiatives explore a range of alternatives, this study **does not** make this assumption and **does not** preclude selection of a different alternative. This expanded scope of work calls for developing, evaluating and selecting the alternative that best meets the Purpose and Need findings to be determined later in this study.

Furthermore, the MTIA did not focus on one of the issues that the Council wishes to feature as part of the current study work scope. In the preceding study of extending light rail into South St. Louis County, there was little land use or socio-economic analysis and no additional alignment alternatives were examined for their physical feasibility or environmental impacts. Consequently, much of the initial work of the current study must explore these topics and

provide new insights regarding how to coordinate such a range of issues as part of a more comprehensive development and evaluation of alternatives in accord with federal requirements.

To do this, the Council and its partner agencies have assembled a large consultant team to assist them in conducting such a study. This team includes the variety of experience needed to investigate all the topics needed to conduct an alternatives analysis that conforms to federal guidelines and to justify the selection of the Locally Preferred Alternative (LPA) from among the possibilities studied. The LPA will then be submitted to the FTA for inclusion in its New Starts program to advance the Metro South MetroLink Extension project to the next stage of implementation and allow FTA to provide supporting funding.

Over the past decade, land use benefits have increasingly entered into the overall evaluation of proposed transit investments. In accord with the increased role of land use issues in FTA's recommendation of New Starts transit projects, the current study gives land use issues a prominent role in the development of alternative alignments and in the final decision about where to implement transit in South St. Louis County.

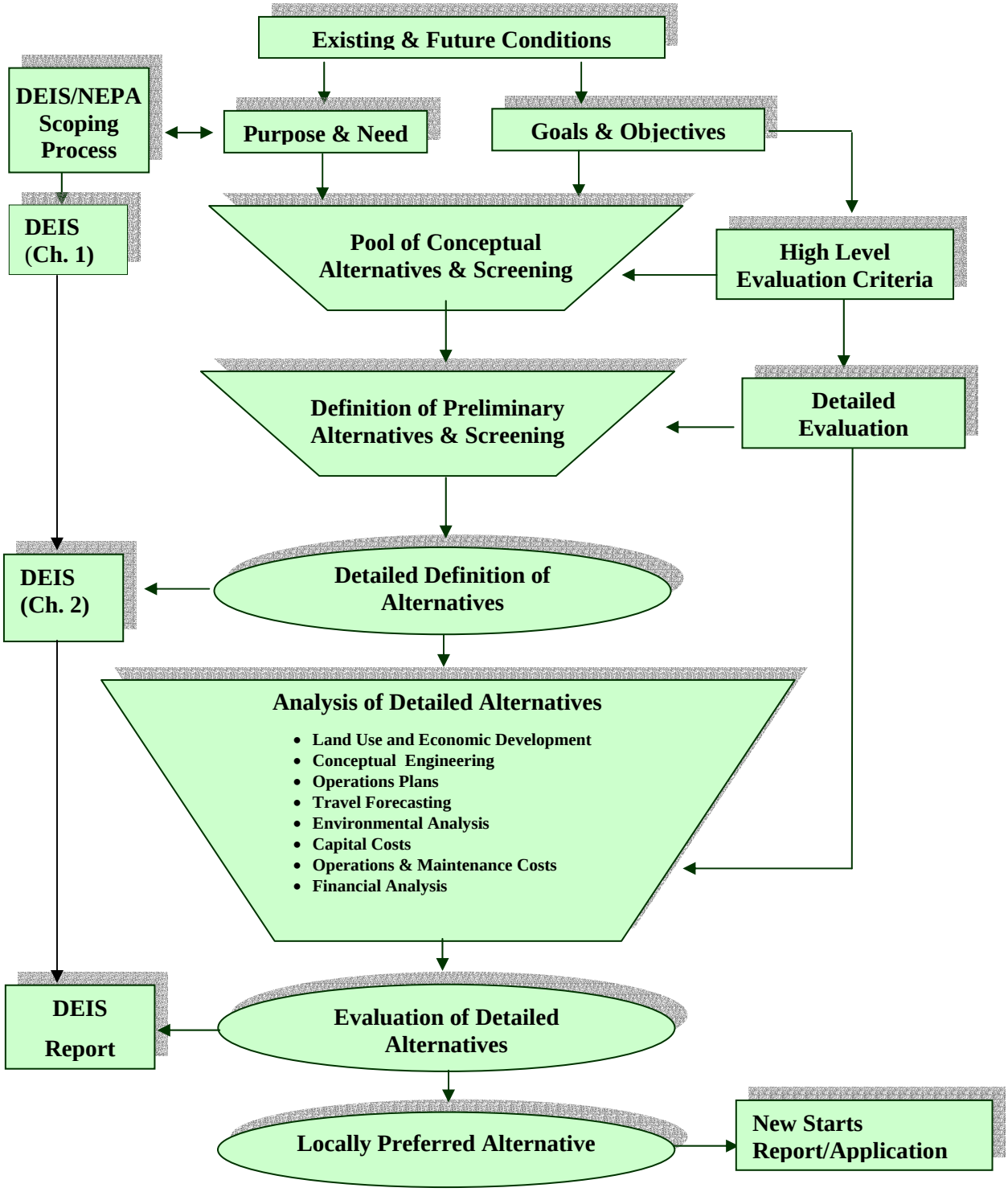
The land use work done to date is one of several starting points for developing a series of candidate land use-transit alignment alternatives for extending MetroLink into South St. Louis County. A primary goal of the study is to compare and evaluate the land use, mobility, accessibility, economic development and community quality of life benefits of each alternative prior to selection of the LPA. If coordinated well with community planning and economic development initiatives, the future extension of MetroLink and other transit improvements into South St. Louis County can have significant impacts on future land use decisions. This initial land use analysis will be complemented by a range of other examinations including engineering needs, travel behavior, environmental and economic development issues as part of developing these alternatives.

The general flow of activities that constitute this current study is shown in Figure 1-3. Figure 1-4 shows the position of the current study within the overall transportation project development process.

Administration

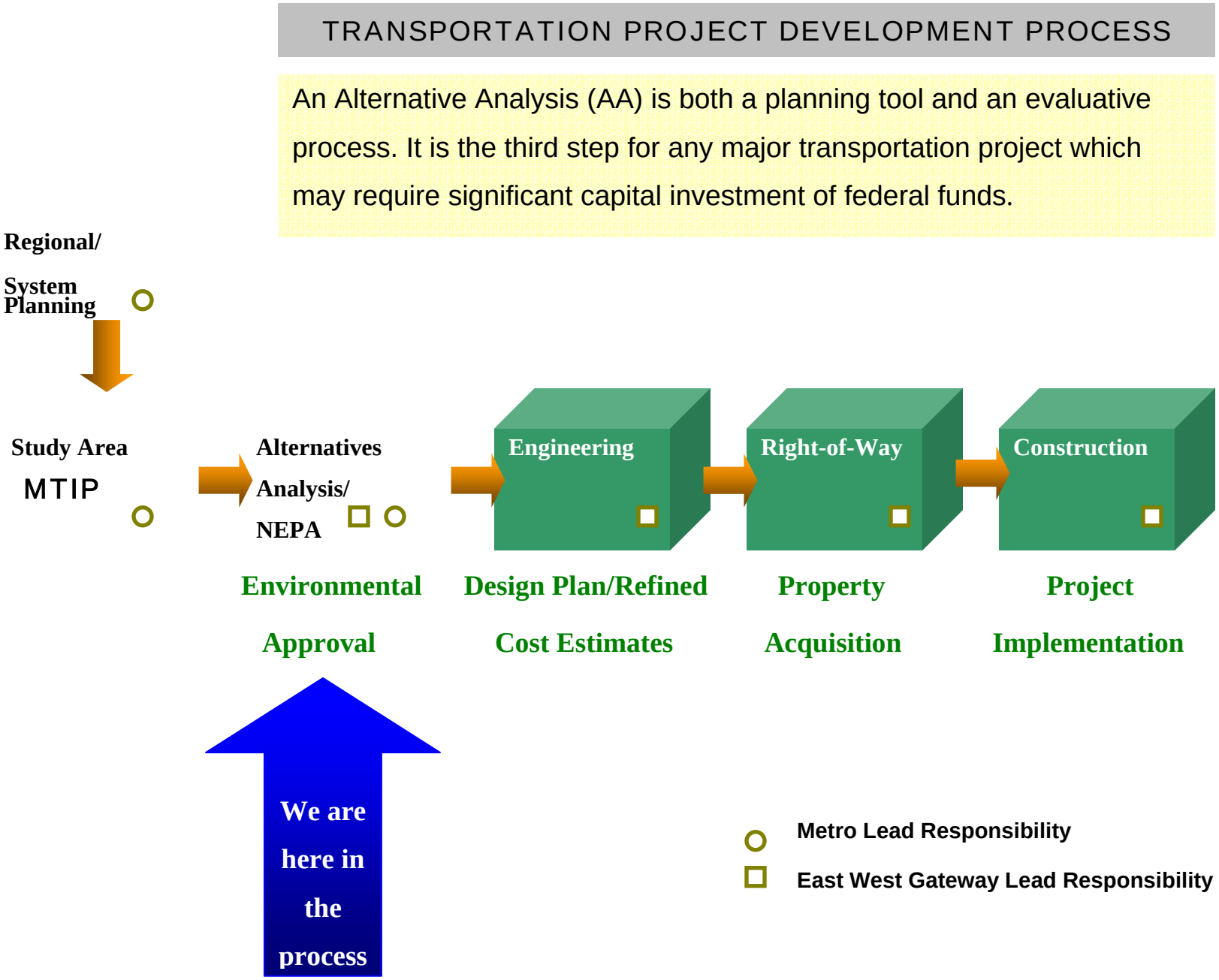
The Council, MDOT and Metro have agreed to cooperate in carrying out transportation planning activities within the Missouri portion of the region. The three agencies have created a planning group -- the Transportation Corridor Improvement Group (TCIG) -- staffed by employees of each agency and housed in the Council's offices. The TCIG will be responsible for the day-to-day management of this alternatives analysis and DEIS. The Council is the contracting party with the consultants.

Figure 1-3: Metro South MetroLink Alternatives Analysis/DEIS Process*



Community Engagement activities to occur at all stages of this process.

Figure 1-4: The Project Development Process



2.0 Land Use Characteristics

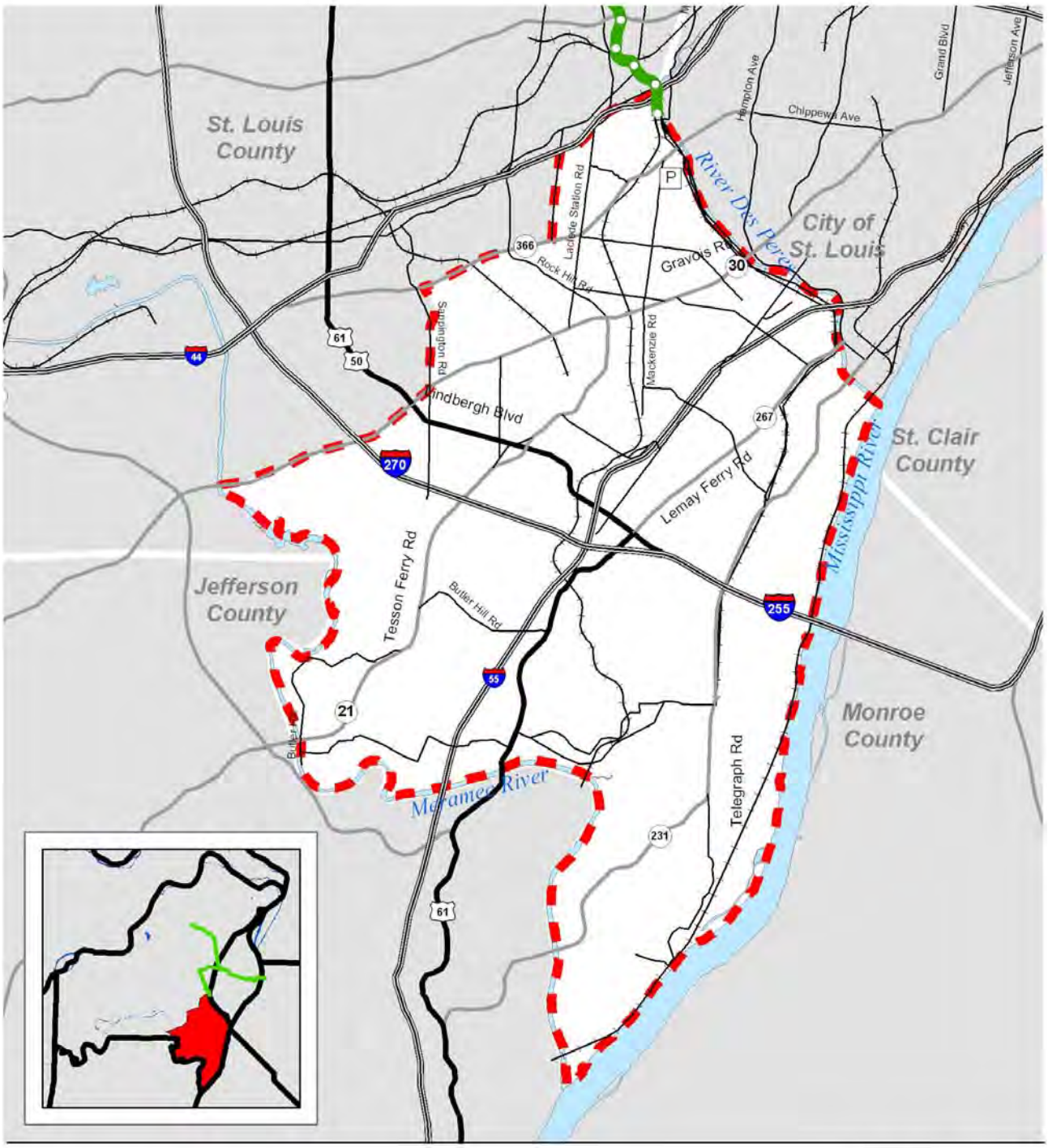
2.1 Study Area Boundaries and Size

The study area (Map 2-1) is approximately 64 square miles (40,950 acres), extending approximately 14 miles south from the planned Shrewsbury station of the Cross County via Clayton to Shrewsbury line now under construction. It contains just over 178,000 residents, or 17 % of St. Louis County's population. The study area is about six miles wide on average. Approximate boundaries for the study area are the River Des Peres on the north, the Mississippi River on the east, the Meramec River on the south, and on the west a zigzag line formed by Edgar, Watson, Sappington and Gravois Roads to the point where it crosses the Meramec.

The study area boundaries (and some of the zigzag eccentricities of these boundaries) derive from the use of Traffic Analysis Zones (TAZs) to define much of the study area. (See Map 2-2.) Much of the study area is unincorporated. In the absence of municipal boundaries that could be used to define boundaries, TAZs provide a means to outline the study area and to divide it into subareas. TAZs are established areas for which socio-economic data are collected and projected as inputs into computer models that simulate future travel demand.

The land use data, field visits, local planning reports and interviews reinforce the finding that the study area contains a good deal of variety in its social makeup. To see where the trends may vary within the study area, the consultants divided the Metro South area into six subareas, shown on Map 2-3. These subareas are based on aggregations of TAZs so any data analysis can use the same data sources available at TAZ level. Some of the socio-economic data analyzed in Chapter 3 of this report is grouped by these subareas. The consultant team will also conduct further analysis at the subarea level later in the study when the alignment alternatives are developed and evaluated for how well they further certain goals.[1]

[1] A variety of sources, including numerous local studies (See Ch. 5) were used to develop an understanding of study area characteristics. This report (especially in Chapter 3) also incorporates data from the recently released 2000 US Census information and relies extensively on data from the county's tax assessor's data base for information regarding such issues as housing value, proportions of various land uses and amount of vacant land still available in the study area.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
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Cross County via Clayton to Shrewsbury

Rail Lines

Road Type

Interstates

U.S. Routes

State Arterials

Local Routes

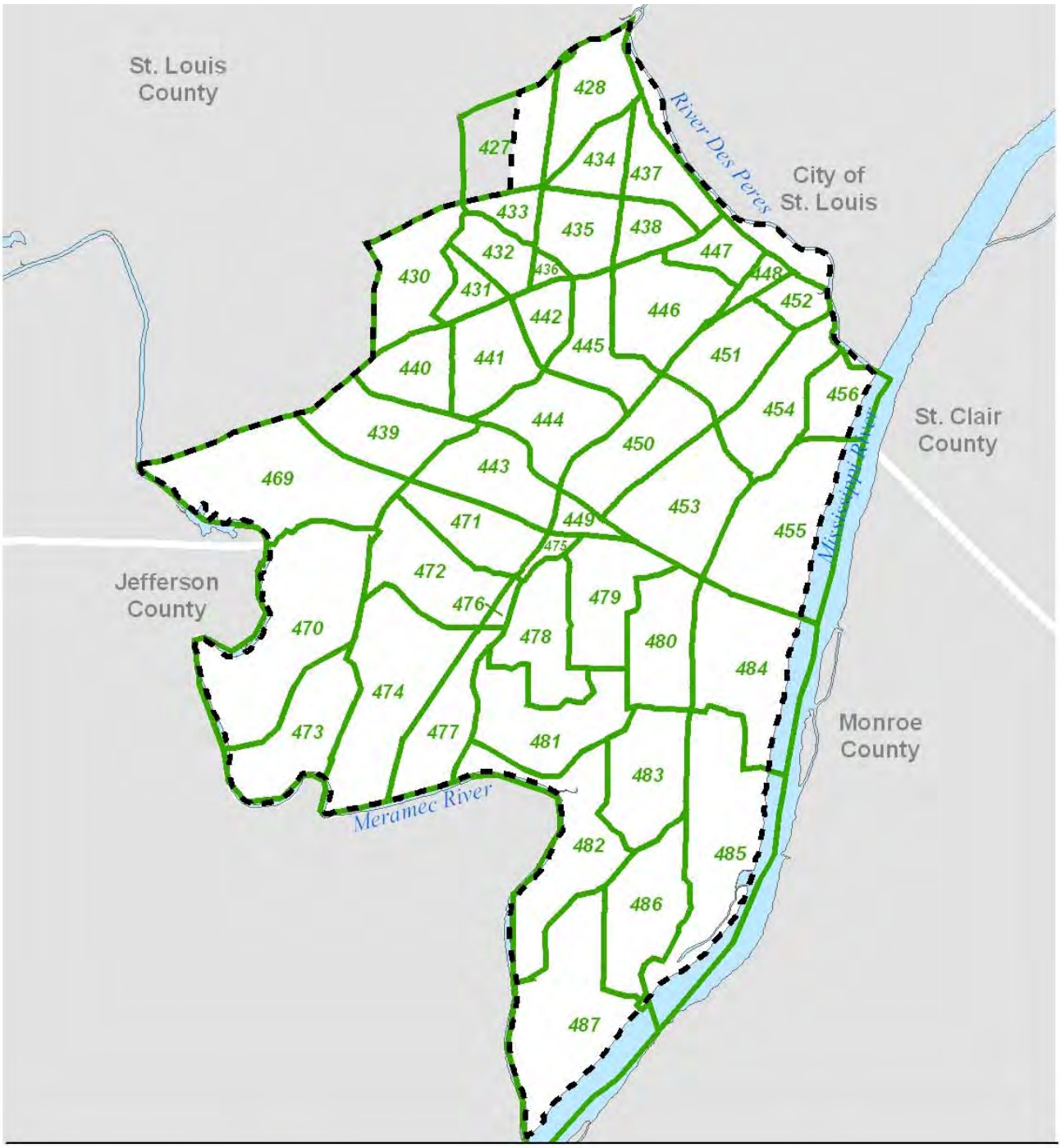
0.5 0 0.5 1 1.5 Miles

Map 2-1
Study Area

Data Source:
St. Louis County Department of Planning

Prepared By:
HNTB Corporation

July 7, 2003



Miles

Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

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Metro
Missouri Department of Transportation

442 TAZ Boundaries (with TAZ ID)

0 0.5 1 1.5 2 Miles

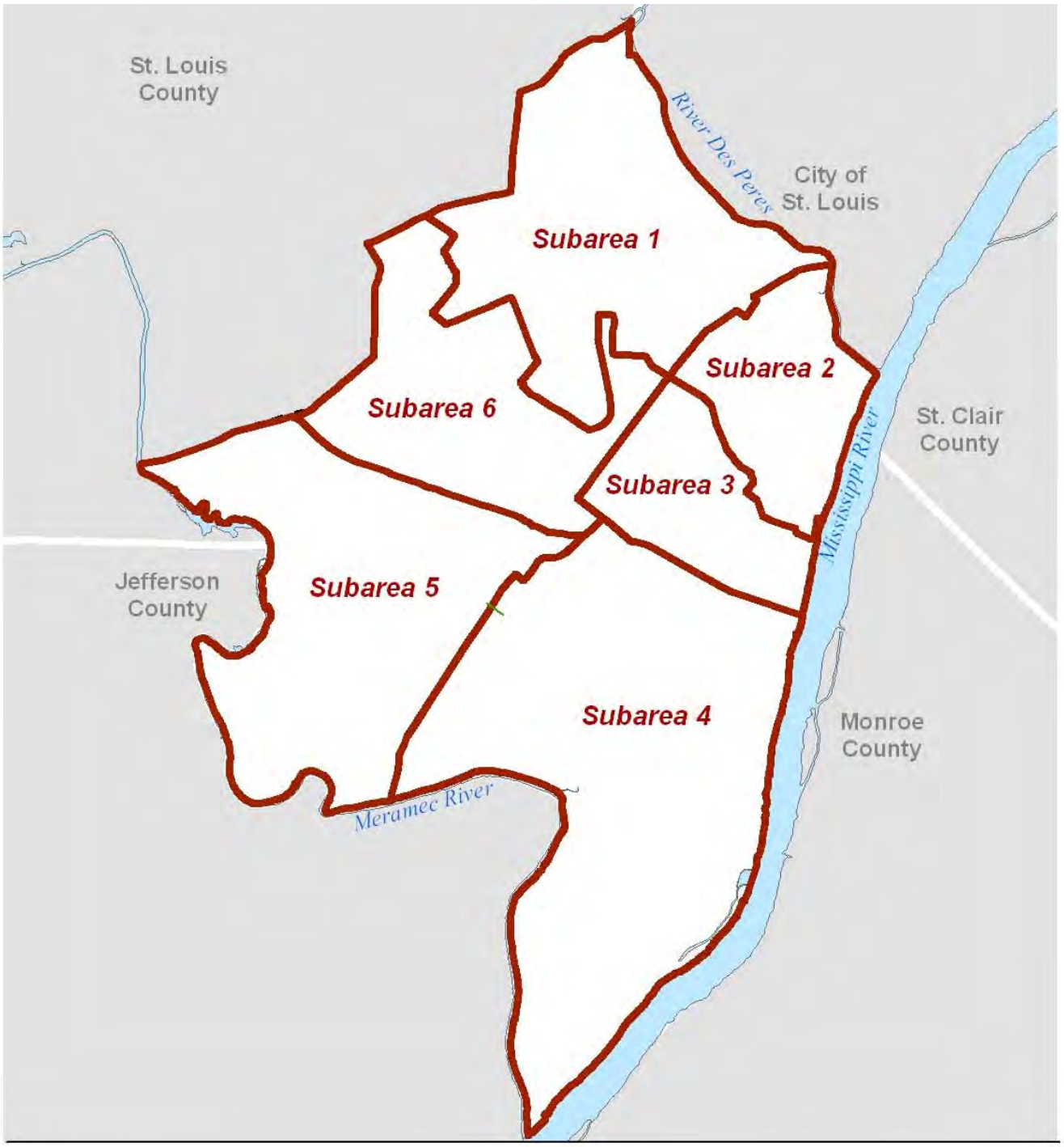
Map 2-2

TAZ Boundaries

Data Source:
St. Louis County Department of Planning

Prepared by:
HNTB Corporation

May 7, 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

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Sub Area Boundary

0 0.5 1 1.5 2 Miles

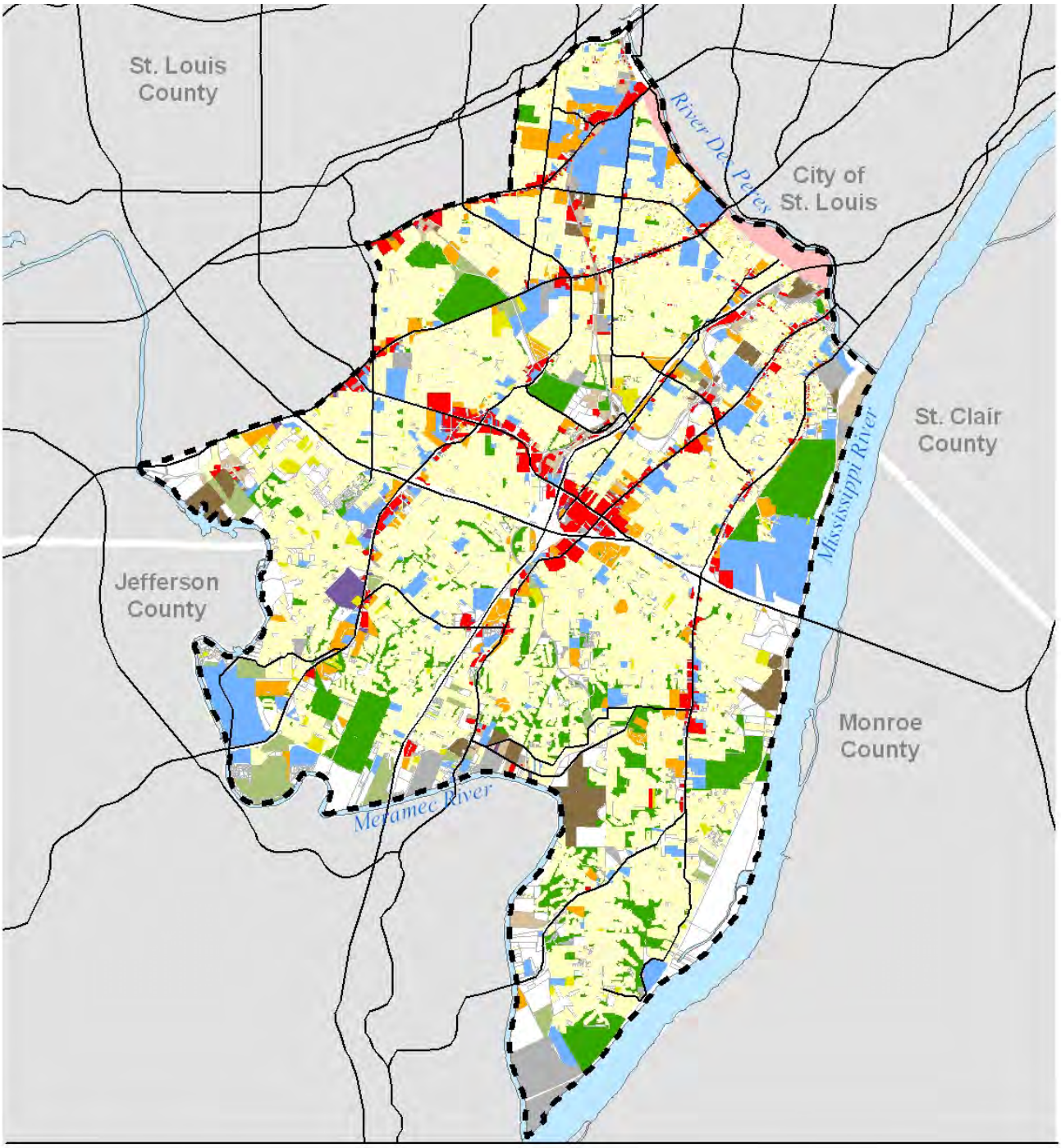
Map 2-3

Sub Areas

Data Source:
St. Louis County Department of Planning

Prepared by:
HNTB Corporation

May 7, 2003



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Sponsoring Agencies:

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Study Area
Single Family
Institution/Recreaction
Duplex/Townhome
Multi-Family
Park/Open Space
Agriculture
Commercial
Office
Utility/Transp.
Warehouse
Industrial/Mfg
Vacant
City of St. Louis

0 0.5 1 1.5 2 Miles

Map 2-4

Study Area Land Use

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

May 7, 2003

2.2 Existing Land Use

Map 2-4 shows the pattern of existing land uses. The study area covers 41,000 acres, of which 78% have been developed. Of the total developed acreage, approximately 60% is residential, 21% is non-residential, and 19% is in road and utility rights-of-way. An additional 22% is either vacant, open space, or dedicated to special use categories such as agriculture or cemeteries.

Table 2-1 lists the different land uses on Map 2-4 and their acreages and percentages of the total study area.

Table 2-1: Land Uses By Type

Use Type	Acreage	Share of Developed Acreage	Share of Total Acreage
Residential	**19,115**	**60.1%**	**46.7%**
Single Family	17,203	54.1%	42.0%
Duplex/Townhome	455	1.4%	1.1%
Multi-Family	1,457	4.6%	3.6%
Institutional	**2,336**	**7.3%**	**5.7%**
School	450	1.4%	1.1%
Recreation	711	2.2%	1.7%
Other Institution	1,175	3.7%	2.9%
Industrial	**2,267**	**7.1%**	**5.5%**
Manufacturing	778	2.4%	1.9%
Warehousing	476	1.5%	1.2%
Utilities	855	2.7%	2.1%
Transportation	158	0.5%	0.4%
Commercial	**1,659**	**5.2%**	**4.1%**
Office	190	0.6%	0.5%
Other Commercial	1,469	4.6%	3.6%
Other Developed	**6425**	**20.2%**	**15.7%**
Road/Utility ROW	5933	18.7%	14.5%
Parking	83	0.3%	0.2%
Unknown	409	1.3%	1.0%
Subtotal: Developed Land	**31,802**	**100%**	**77.6%**
Special Categories	**9,155**		**22.4%**
Cemeteries	1,110		2.7%
Park	1,811		4.4%
Common Ground	1,335		3.3%
Agriculture	683		1.7%
Vacant	4,216		10.3%
Grand Total	**40,957**		**100%**

Residential Neighborhoods

Map 2-4 and Table 2-1 convey how residential development –in particular, single family detached housing (17,200 acres or 54% of all developed land) – is the dominant land use in the study area. The multi-family category covers some 1,900 acres (6%). The scarcity of other housing types such as duplexes and townhouses is readily apparent (only 455 acres or 1.4%). This scarcity of single family attached housing was cited in the Affton Community Plan as a potential barrier to homeownership for young moderate-income households. Such a shortage is apparently typical of the entire study area.

Map 2-5 shows the residential density. While the north and northeast areas are in general denser than the rest of the study area, high density areas are widely dispersed.

Nonresidential Land Uses

As Map 2-6 – (Employment Related Uses) – shows, commercial land tends to congregate along several key roads. Such commercial development is especially predominant along Lindbergh Boulevard and the roads converging on the Westfield Shoppingtown South County center near I-55. Gravois Road, Watson Road, Laclede Station Road and much of Tesson Ferry Road near Lindbergh Boulevard are also important commercial corridors.

What is notable within the study area is the relatively low proportion of non-commercial, employment uses. About 4,800 acres (15% of developed land) are in non commercial employment uses but, of this total, only 190 acres (0.5% of developed land) are in office employment. Countywide, the office category accounts for 1.2% of developed land.[2]

Other noteworthy overall land use characteristics of the study area include the number of acres in cemeteries (1,100 or 3%) and open space (3,150 acres or 10%).

A very important characteristic is the near lack of significant expanses of vacant, developable land throughout the study area. Only 4,200 acres (13%) of the area are classified as vacant in the county land use database and much of this may not be developable due to slopes, wetlands and floodplains. Only 1,671 of these 4,200 acres are in large (more than 20 acres) parcels. Map 2-9 shows that their distribution is mostly on the periphery of the study area at locations not likely to be served by any of the alternatives.

2.3 Development Character

As the project moves forward, a deeper understanding of study area land use patterns and characteristics is sure to affect the definition of alignment alternatives, the location of candidate stations along the different alternatives and the uses that specific sites near stations might support. The consultants therefore developed a series of maps and tables that convey different

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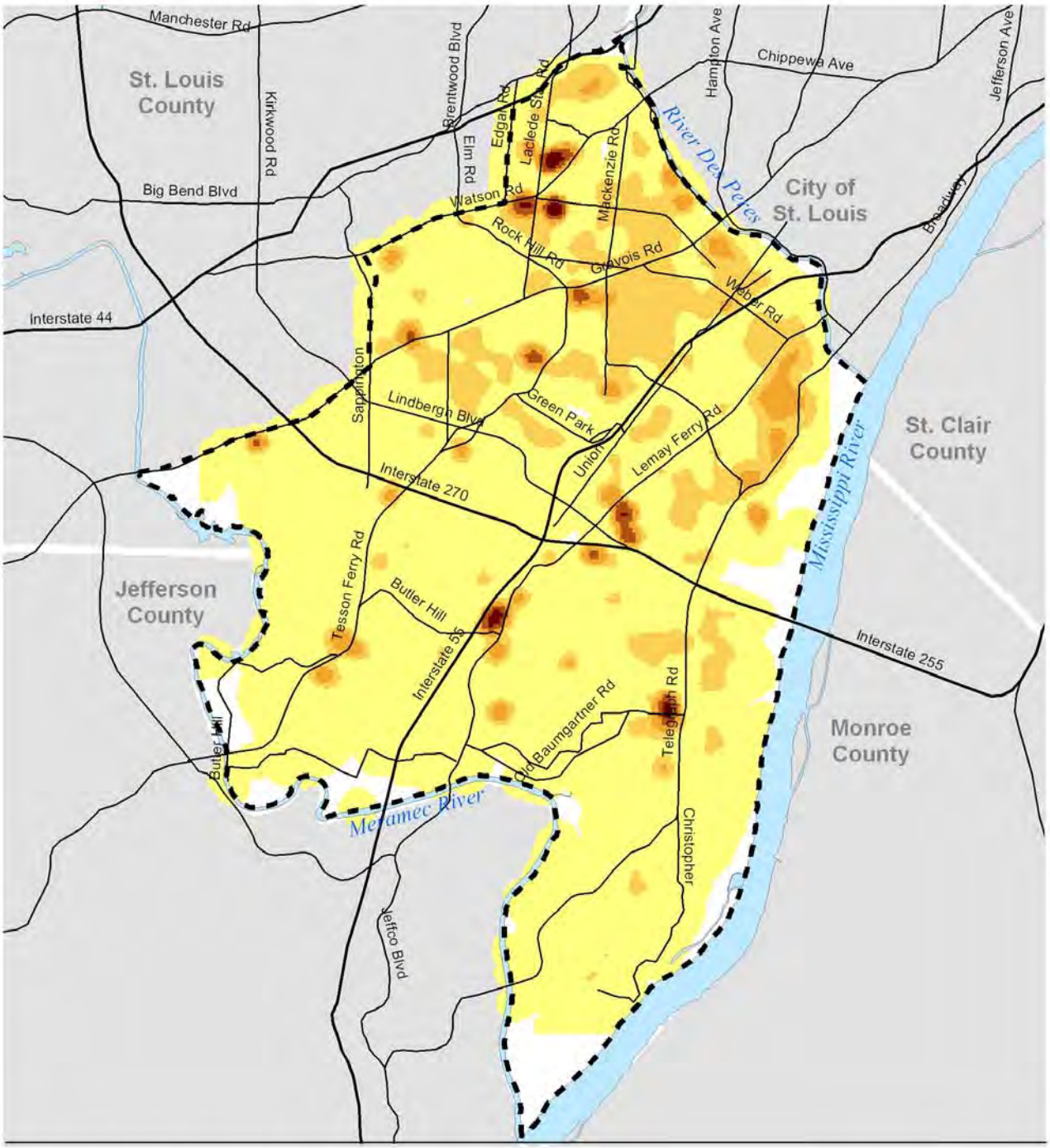
[2] Land use categories were defined based on land use codes in the St. Louis County Assessor's database. The database provides relatively few codes for office-type commercial uses.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

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Missouri Department of Transportation

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Density (Units/Acre)

- < 3
- 3 - 5
- 5 - 8
- 8 - 12
- > 12

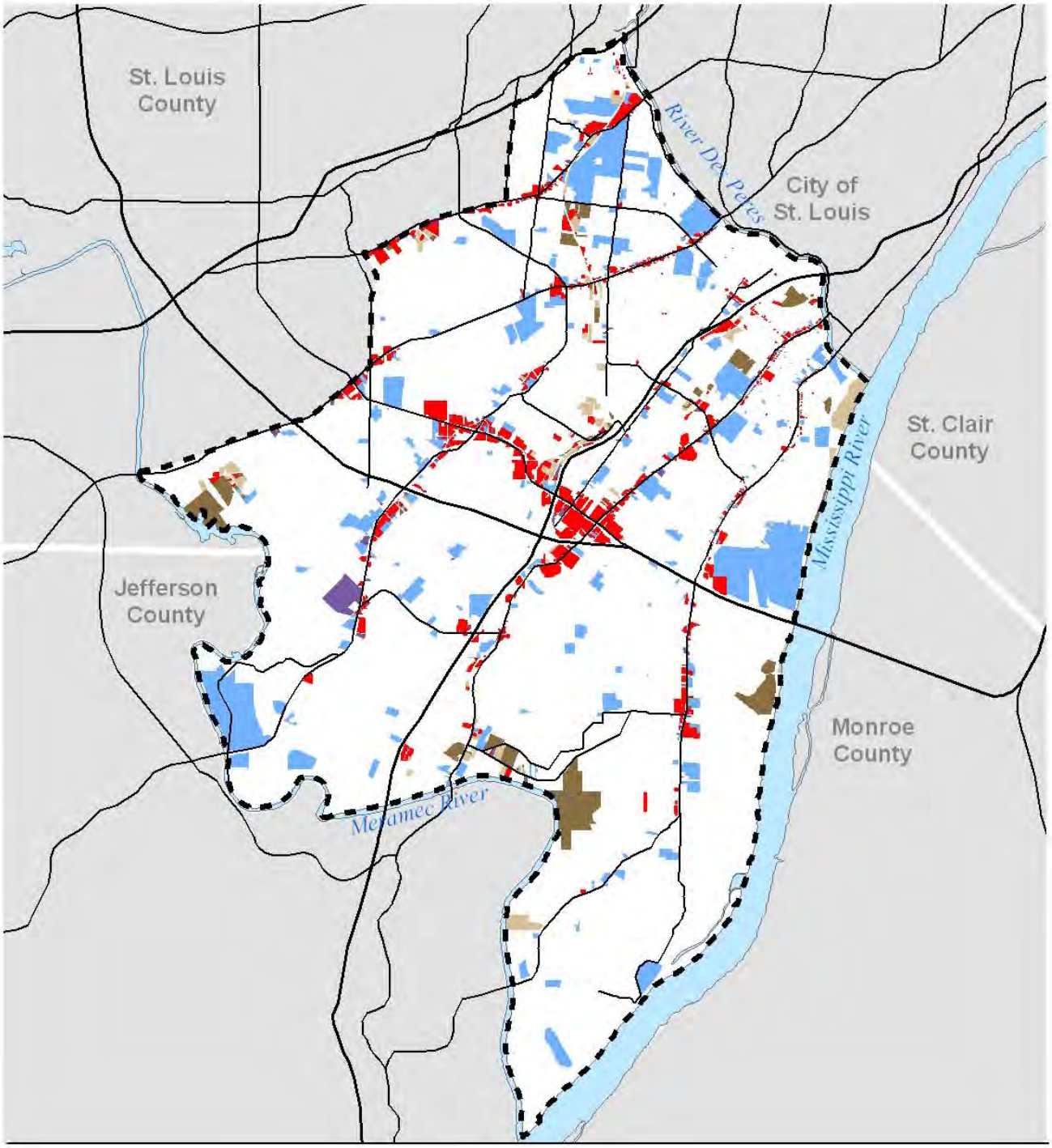
0.5 0 0.5 1 1.5 Miles

Map 2-5

Residential Density

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

July 2, 2003



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Employment-Related Uses

- Commercial
- Office
- Institution/Recreaction
- Warehouse
- Industrial/Mfg

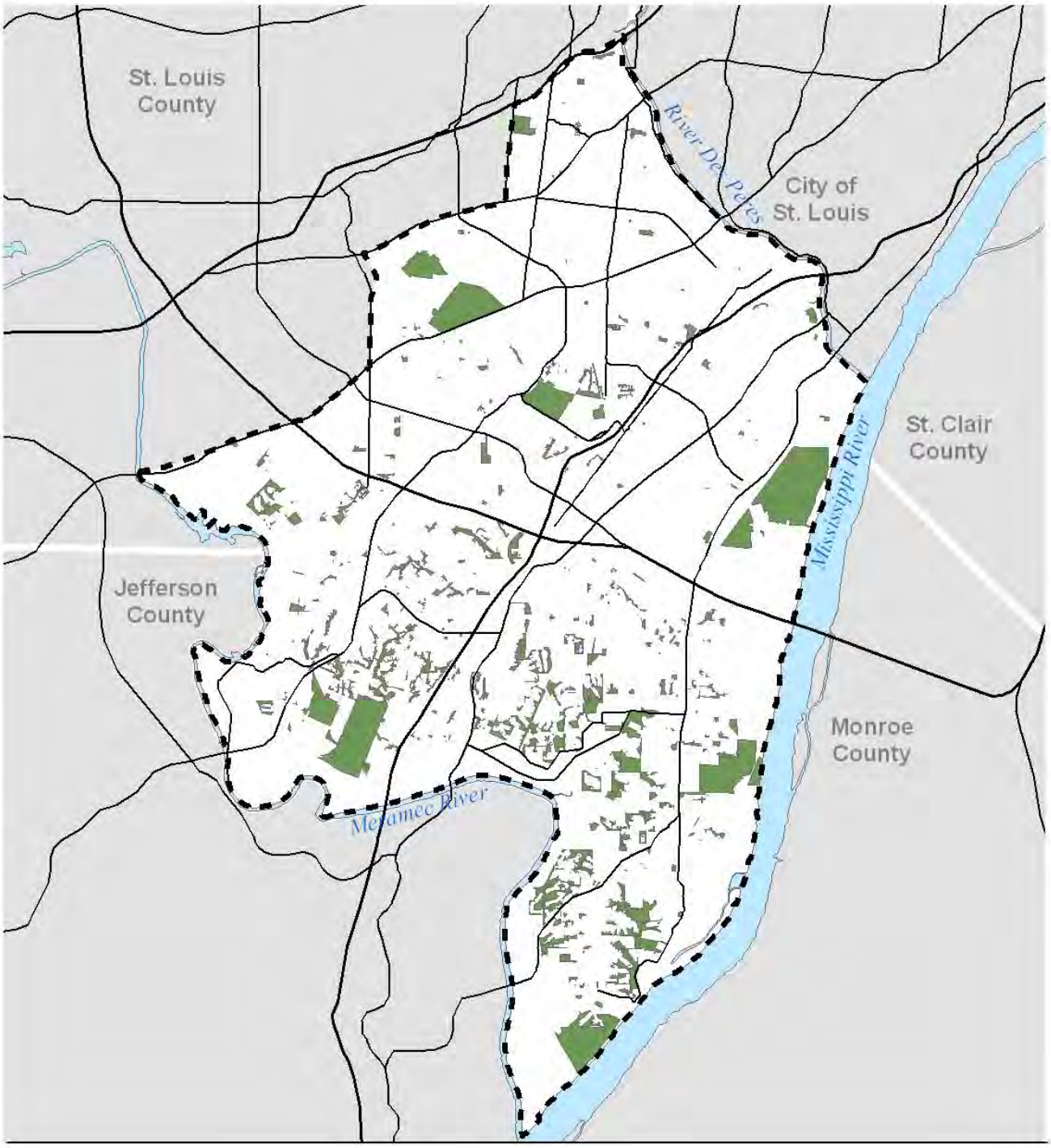
0 0.5 1 1.5 2 Miles

Map 2-6

Employment-Related Uses

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

May 7, 2003



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Missouri Department of Transportation

Parks and Open Space

0 0.5 1 1.5 2 Miles

Map 2-7

Parks and Open Space

Data Source:
St. Louis County Department of Planning
Prepared by:
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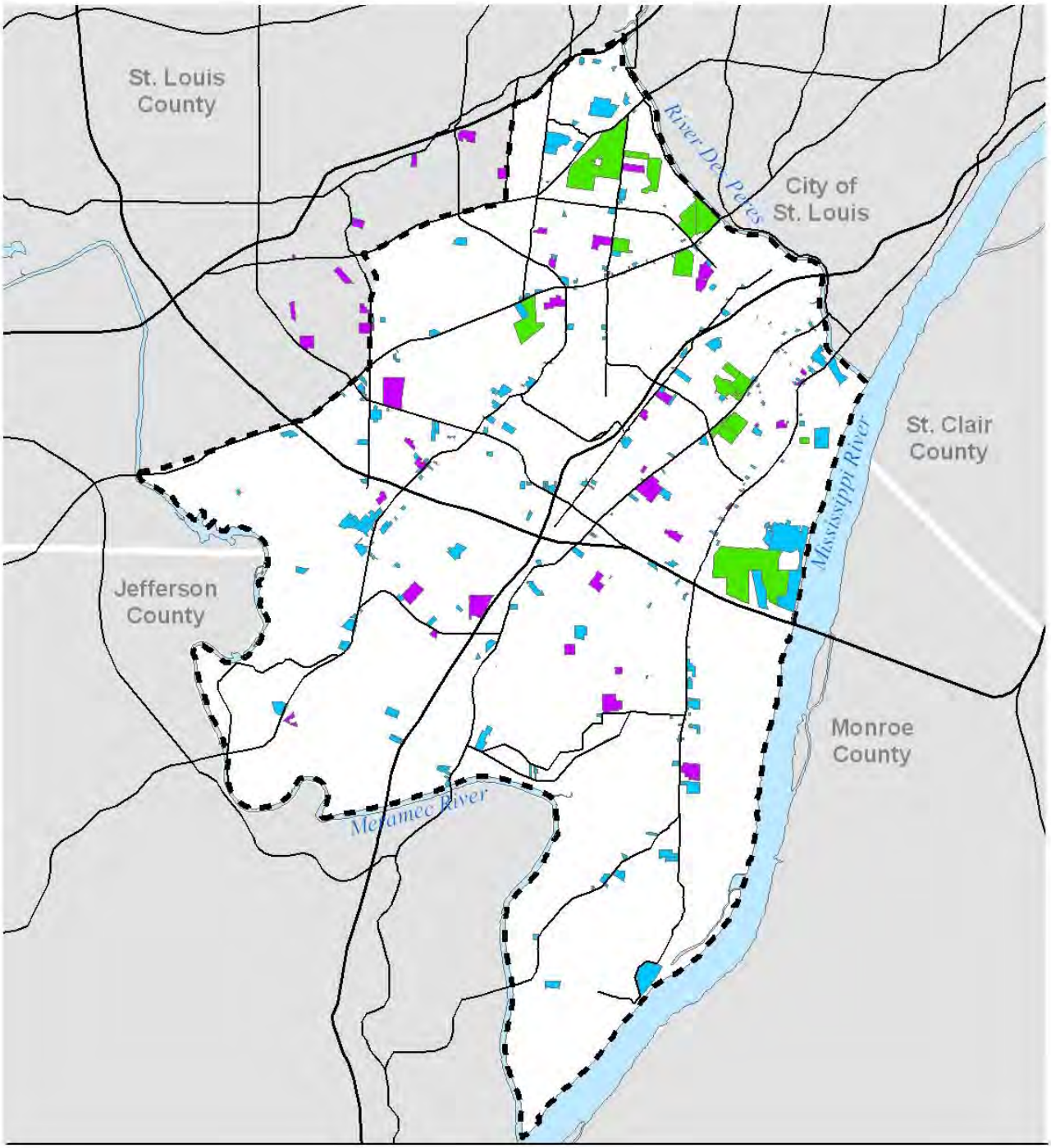
May 7, 2003



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Institutional Uses

- Cemeteries
- Schools
- Other Institutional Uses

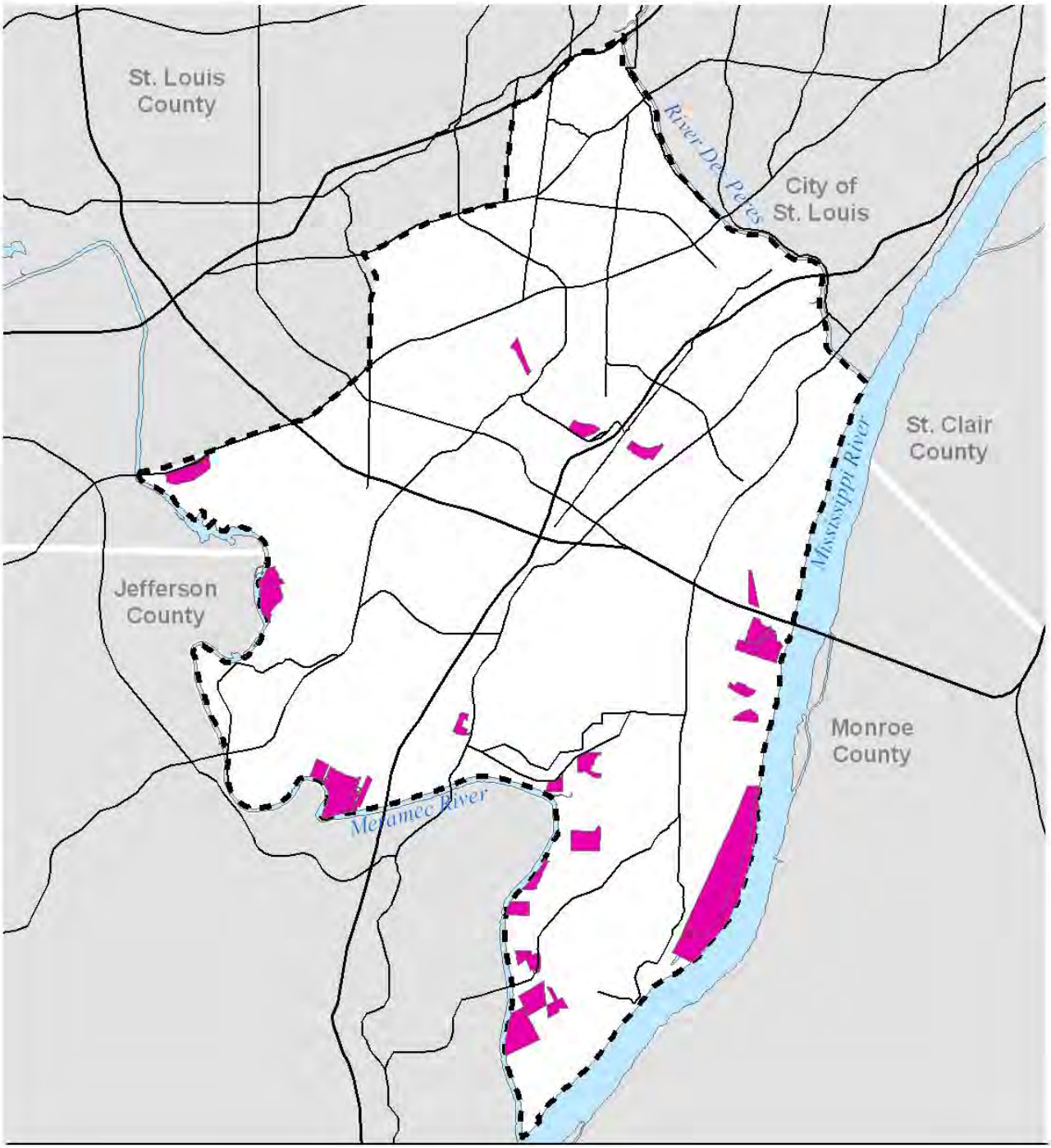
0 0.5 1 1.5 2 Miles

Map 2-8

Institutional Land Uses

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

May 7, 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

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metroSOUTH
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Major Vacant Parcels

> 20 Acres

0 0.5 1 1.5 2 Miles

Map 2-9

Major Vacant Parcels

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

May 7, 2003

aspects of the "development character" of different sections of the study area.

Residential Areas: Development Character

Because it is such a dominant land use, a more detailed analysis of the density, age and value of study area housing stock is crucial for understanding how to coordinate transit implementation with current and future residential development or redevelopment opportunities.

Except for some basic indications of density based on residential land use categories, Map 2-4 (study area Land Use Map) gives little insight regarding how these residential areas might differ from each other. For example, it does not indicate what neighborhoods may be ripe for redevelopment (physically at least, if not from a market standpoint) and which may be more likely to have more of a transit dependent population. To show where such issues may be important, the consultants have developed a series of tables and thematic maps using the most recently available County's Tax Assessor's GIS database and 2000 U.S. Census data. These maps show the age of the housing stock, the age of householders, the current value of the housing stock and how these features are distributed.

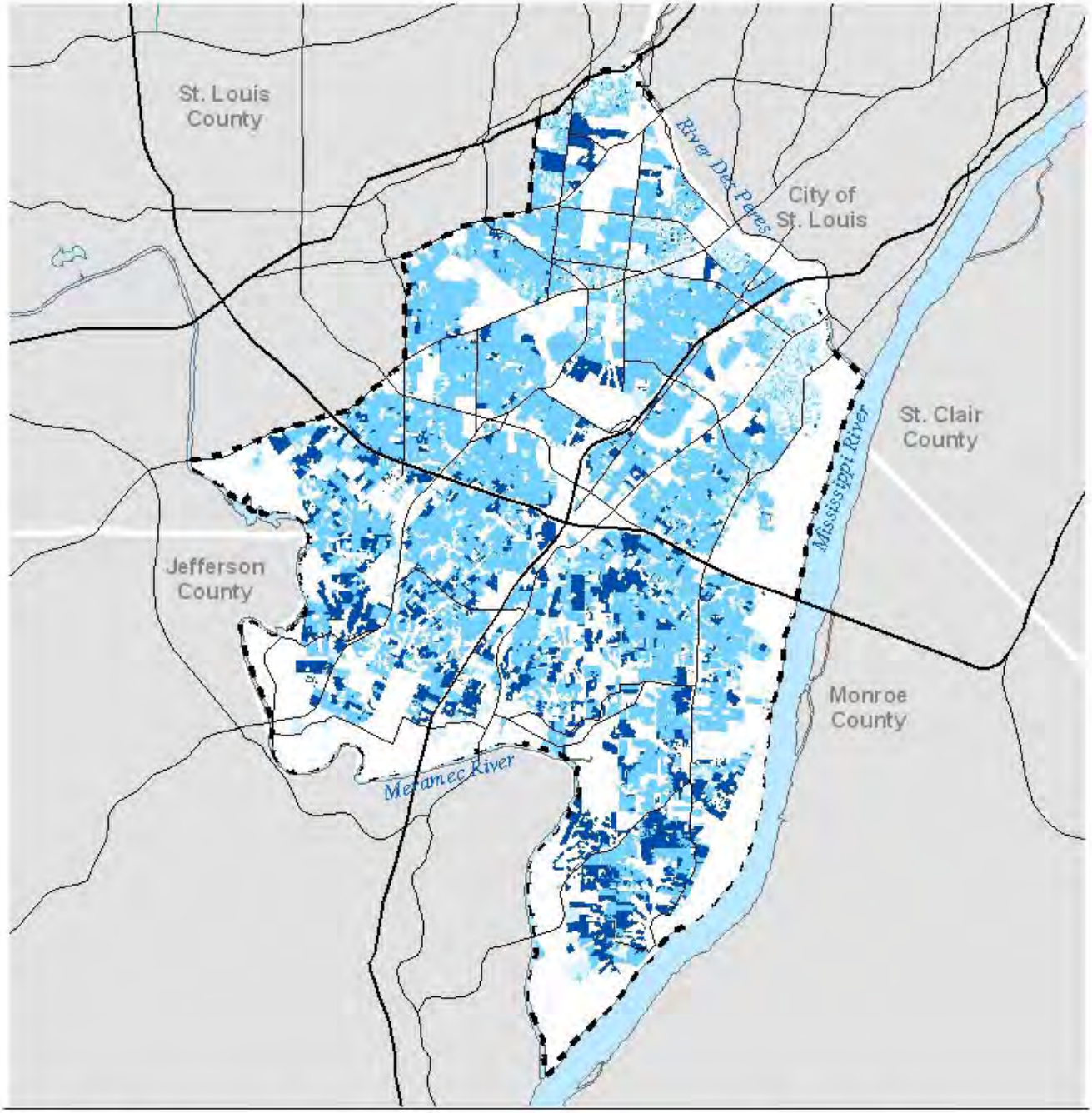
Not surprisingly, housing in the north and northeast sections of the study area tend to be older, assessed at lower values and headed by older owners than do housing units to the south and west. This indicates strongly that housing turnover (due to age of owners) and redevelopment (due to age of structures) is more likely to occur over the next few decades in the north and northeast sections. The following sections explain these characteristics in more detail.

Age and Value of Housing

The age of the housing in the study area runs the gamut from pre-1900 structures to those built in the past few years. Similarly, housing values range from under $25,000 to in excess of $200,000. Map 2-10 shows the distribution of ages among existing dwelling units, while Map 2-11 shows the distribution of housing values. Although there are some significant local variations, as a general rule, units closer to the St. Louis City/County border were older and appraised at a lower value, while units closer to the western and southern boundaries of the study area were newer and appraised at a higher value.

Commercial Corridors

As Map 2-6 showed, most of the study area's commercial and mixed-use areas are strung out along several key road corridors or clustered around the Westfield Shoppingtown South County center. Since the BNSF railroad was identified in the earlier MTIA study as a candidate Metro South transit alignment, it is worth noting the relationship of the BNSF corridor to these activity centers and attractions. The railroad roughly parallels Watson Road for a significant distance, a situation that creates several potential candidate station sites. In contrast, other major commercial corridors along Gravois Road and Lindbergh Boulevard cross the railroad only at one point and this is not necessarily close to the key activity centers along these roads. Furthermore, the existing railroad right of way is separated from the bulk of the Westfield Shoppingtown South County center developments by I-55.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH

Year Built

- Prior to 1945
- 1946 - 1980
- 1981 - 2002

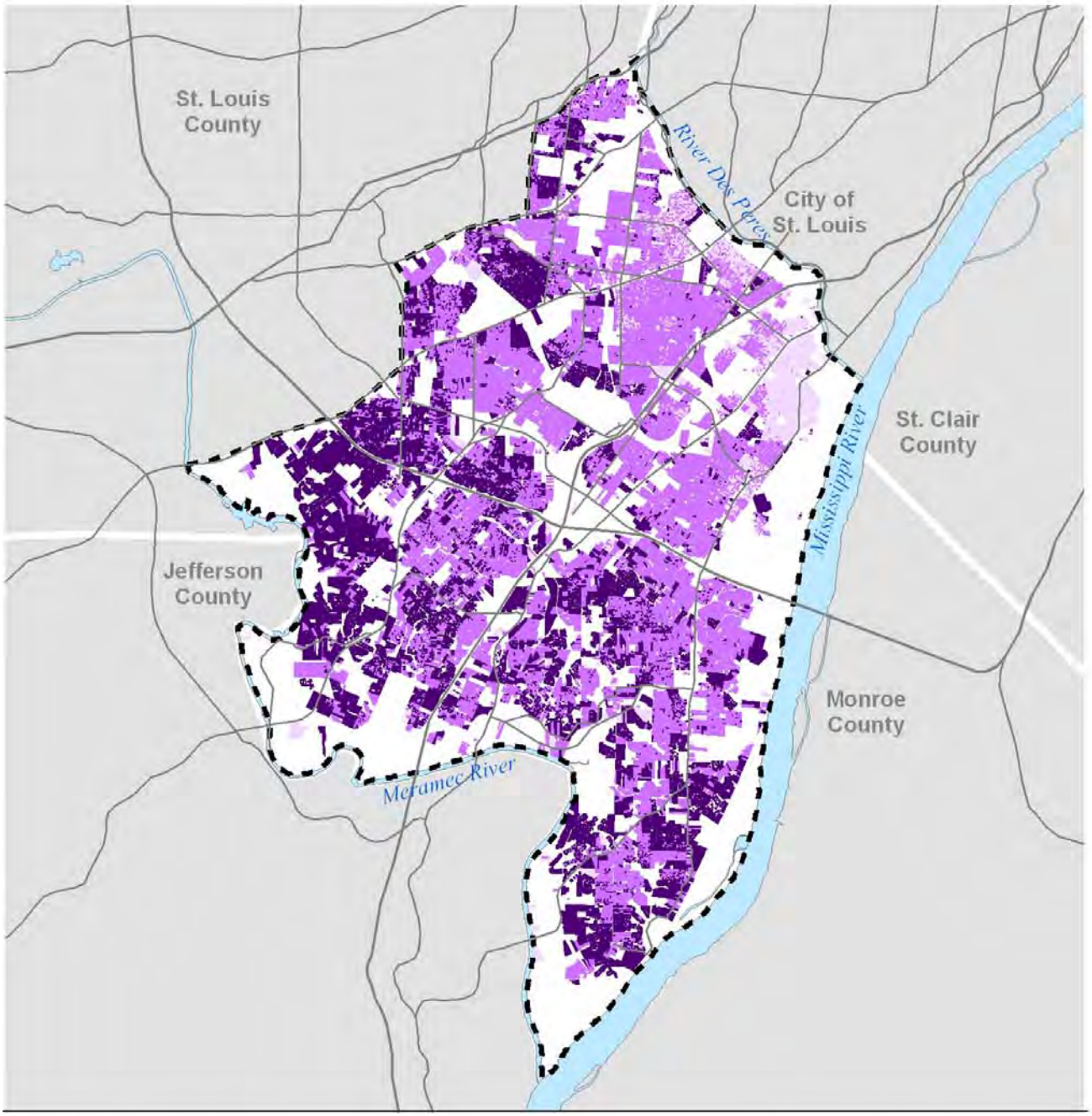
0 0.5 1 1.5 2 Miles

Map 2-10

Age of Structure (Residential)

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

June 30, 2003



Metro South MetroLink Extension
Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink to South St. Louis County

Housing Value

- < $75,000
- $75,000 - $150,000
- > $150,000

0 0.5 1 1.5 2 Miles

Feet

Map 2-11

Housing Unit Value

Data Source:
St. Louis County
Department of Planning

Prepared by:
HNTB Corporation

June 30, 2003

Several other corridors in the study area--Lemay Ferry Road, Union Road, Tesson Ferry Road and Telegraph Road--also host commercial stretches. Because these roads tend to run in a more north-south direction, these corridors or, more probably, segments of them may be suitable for inclusion as parts of the transit alignment alternatives to the BNSF alignment that will be developed later in this study.

Field reconnaissance also confirmed significant activity centers along Lindbergh Boulevard between the Westfield Shoppingtown South County center and Tesson Ferry Road, along Tesson Ferry Road itself from north of Lindbergh Boulevard to the area near St. Anthony's Hospital. Tesson Ferry Road also links these areas to the large General American offices near Butler Hill Road.

Near the eastern edge of the study area, Lemay Ferry Road is a local-serving commercial corridor of less intensity than uses along Watson Road or Gravois Road. The small width and depth typical of properties along Lemay Ferry Road may limit its redevelopment potential unless other adjacent residential properties can be obtained and assembled into large development parcels.

Lindbergh Boulevard is heavily commercialized from an area west of Baptist Church Road and Tesson Ferry Road to east of the Westfield Shoppingtown South County center. A feature that sets Lindbergh Boulevard off from the other commercial corridors in the study area is the extensive series of large auto dealerships that occupy much of this corridor between I-55 and Tesson Ferry Road. Most of these dealerships seem fairly new and are not likely to be easily superseded by other uses for some time.

Tesson Ferry Road from north of Lindbergh Boulevard south to Butler Hill Road is highly developed with a more eclectic mix of commercial, office and institutional development, most notably the large St. Anthony's Hospital complex and the General American office campus, the only one of its kind in the study area.

Telegraph Road, which serves the far southeast section of the study area has some concentrations of retail and services—e.g. at Old Baumgartner Road—but the non-residential uses along Telegraph Road are less continuous than most of the other commercial corridors and there are no major destinations such as St. Anthony's or General American.

Non-Commercial Employment

Much of the study area's light manufacturing or other non-commercial employment is located along the existing BNSF railroad. There are a few large individual enterprises such as the Nestle plant south of Heege Road or the trucking and warehousing and new light industrial developments near Green Park Road.

Finding locations where office development fits into the overall land use context (and where office development is marketable) will be important in the land use planning work on defining transit corridor alternatives for the study area. Perhaps some of these industrial sites near the existing railroad could in time shift to more office type employment if transit were available. This possibility will be investigated as part of the market tests that will be done for all alternatives. At this time, however, the land use team believes that the currently limited capacity

of the east-west roads that cross the railroad and serve these sites may make these areas less competitive than other sites with better road connections for whatever office market may emerge within the study area over time.

Westfield Shoppingtown South County

In contrast to the older, traditional commercial corridors, more contemporary suburban land use patterns converge on the area around Westfield Shoppingtown South County. These uses are attracted by proximity to the I-55 and I-270 interchange. Such regional accessibility may enable this now largely commercial area to evolve in time into more of a mixed-use center.

As mentioned above, while the BNSF runs close to the Westfield Shoppingtown South County center, I-55 separates the rail line from the main cluster of stores and businesses. How transit might reach the core of Westfield Shoppingtown South County center is an open question. Nevertheless, given its size and potential, the Westfield Shoppingtown South County center area might support two stations. At least one station would need to be capable of efficient access to a significant park-and-ride facility taking advantage of proximity to I-55 and Lindbergh Boulevard. Another station might more directly serve the center itself.

The center has four anchor stores – Dillards, Famous-Barr, JC Penney, and Sears – and more than 130 other stores. Retail development does not generally attract significant ridership from customers. Nevertheless, when retail is as centralized and intensive as in the Westfield Shoppingtown South County center (its parking lots hold 4,800 cars) and as the area around it is also intensely commercialized, retail does create a significant number of employees (often low paid), some of whom may have limited access to auto use and are thus more transit dependent. The stability, mix and size of the current employment base at Westfield Shoppingtown South County center and surrounding developments needs to be documented to see how much potential transit demand may exist.

Redevelopment Opportunities

With the possible exceptions of the General American (c. 2,000 employees) and St. Anthony's Hospital (c. 2,800 employees) complexes on Tesson Ferry Road, there are no large single user employment centers whose concentration of workers primes them as central anchors for a potential transit station. Likewise, there are few concentrations of high density housing (or mixed use with such housing) that could act as land use nodes that transit service should logically link together.

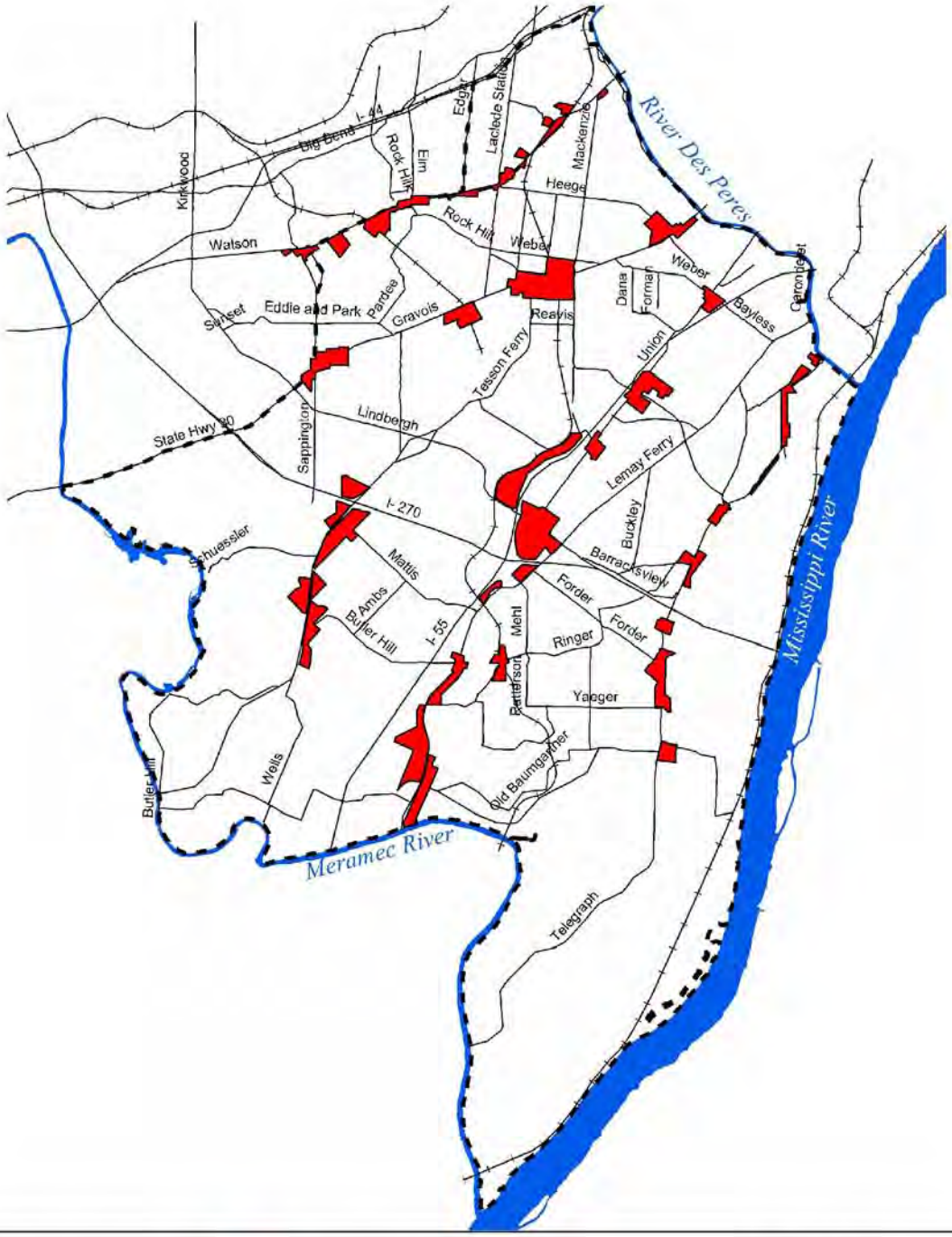
Consequently, the land use team looked for potential redevelopment opportunities to create new activity centers that could relate to potential transit stations. This initial work was largely through field reconnaissance, but was supplemented by an analysis of the tax assessor's data base for characteristics that would indicate a specific property is underused or ripe for redevelopment.

Map 2-12 is a summary of the field survey. It depicts the consultants' initial impressions of areas along main roadways that might be redevelopment candidates. The areas depicted are largely commercial or industrial and are characterized by vacant or underused properties, properties with apparent maintenance issues, etc.

Not every property within these boundaries is necessarily distressed or in need of replacement, and nearby residential areas may not show the same level of stress. Nevertheless, this map is a good overview of areas in general need of improvement. These areas will be examined more carefully (i.e., on a property by property basis) should they be near the candidate alignments developed later in the planning process.

Map 2-13 is based on the search of the tax assessor's data base for developed residential and non-residential properties whose land value is near, equal to, or worth more than the value of its improvements. Such a situation is often a quick indicator of uses that have reached or are near the end of their economic productivity. In these cases, the value of retaining existing uses or maintaining existing buildings may make much less sense if these sites can be marketable for new buildings and facilities (and, by implication, new uses). The properties shown on Map 2-13 correlate to some degree with the results of the visual survey. Here too, a property-by-property investigation will be needed whenever these sites are along the transit alignment alternatives to be examined later in the study.

Where displays such as Map 2-4 provide specific land use details, Map 2-14 is a more generalized summary of the overall development character of the study area. Map 2-14 reflects the consultants' field visits and initial assessment of the study area's key activity centers and concentrations of employment and housing as well as important community attractions. Map 2-14 highlights these centers (mostly non-residential) that could be linked to each other in various ways to form a land use framework for developing transit alignment alternatives or related enhanced feeder bus systems.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

Areas of Medium to High Redevelopment Potential Based on Consultant Field Work

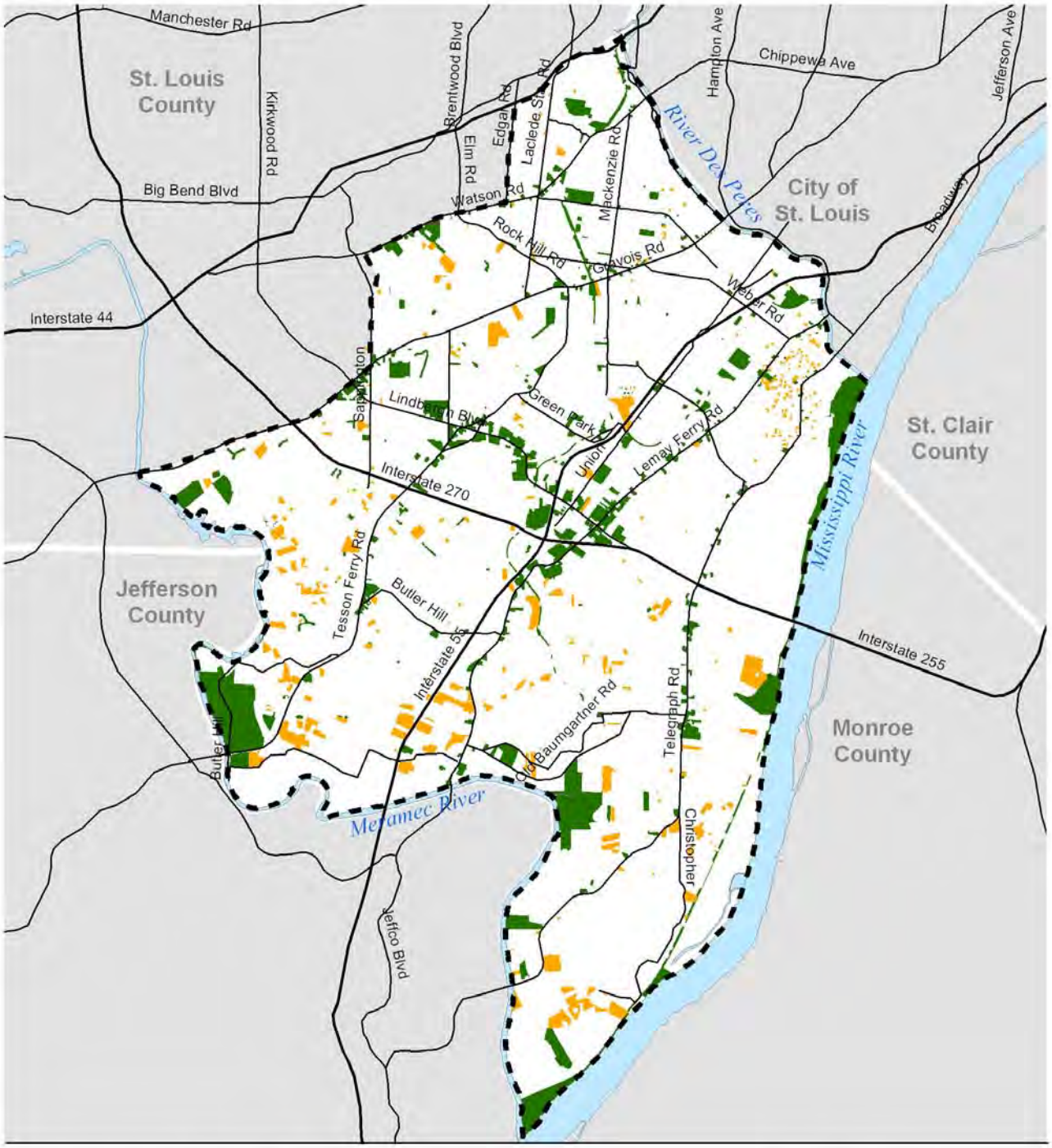
0.5 0 0.5 1 1.5 Miles

Map 2-12

Redevelopment Potential

Data Source:
HNTB Corporation

May 17, 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

Residential Properties

Land > Improvements

Non-Residential Properties

Land > Improvements

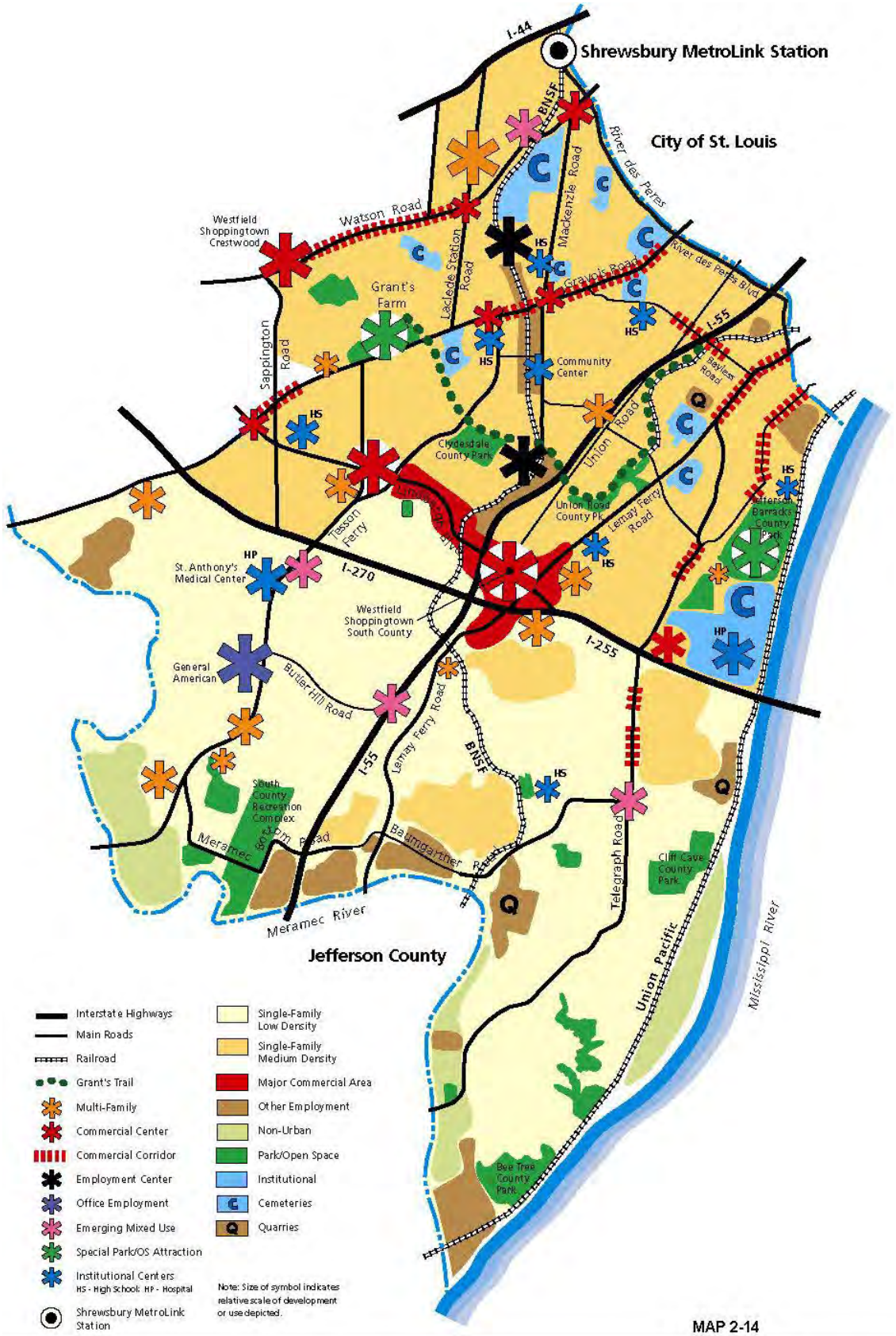
0.5 0 0.5 1 1.5 Miles

Map 2-13

Redevelopment Potential

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

May 7, 2003



MAP 2-14

Exhibit prepared by:
HNTB Corporation

Sponsoring Agencies:
East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

Study Area Activity Centers

Metro South Metrolink Extension Alternatives Analysis/DEIS

June 2003

3.0 Socio-Economic Characteristics and Trends

The development character and land use data described above are vital background. But the overall result is still only a static snapshot of some of today's study area realities. Chapter 2 supplies only a part of the information needed to develop credible transit-land use alternatives. To get a better handle on what is going on within this land use framework, the consultants also gathered information from the US Census. Data is readily available on such topics as size of households, age of the population, car ownership, incomes and other socio-economic factors germane to the needs of the study. Most importantly, the Census data tells us much about trends that may help alter this current land use pattern and that may affect the future demand for transit and where transit might best serve the Metro South area.

For many US metropolitan areas, the period from 1990 to 2000 brought significant change. Economic expansion often led to the expansion and diversification of urban populations and fast-paced growth in residential construction. In contrast, the St. Louis Metropolitan Statistical Area (MSA) did not share in this type of change.[3] Along with many other industrially-based Midwestern urban centers, the St. Louis MSA missed out on the technology-based boom of the 1990s. Consequently, the St. Louis region saw relatively slow population growth during the 1990s,[4] and the MSA saw its job growth rate dip progressively lower. The East-West Gateway Coordinating Council's 2002 publication, *Where We Stand*, ranks St. Louis next to last among 29 other peer metro areas in the rate of job creation in 2000. Other important indicators for the metro area included slow growth in the non-white and Hispanic populations, significant growth in non-family households, increase in owner-occupied housing units and increase in the use of single-occupant vehicles for the commute to work.[5]

Other data sources point to the spatial distribution of these trends. Population increased rapidly in outlying jurisdictions, including St. Charles and Jefferson Counties. By 2000, 87 % of the region's population, and 82 % of its jobs were located outside of the City of St. Louis. Just 18 % of the region's jobs were located within the city limits.[6] The outward movement of population has been demographically unbalanced: poor residents, minority residents, and female-headed households, are now concentrated in the City of St. Louis and inner-ring suburbs.

To see how South St. Louis County shares in or contrasts with this general snapshot of the St.

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[3]For this report, US Census data were available for three distinct geographies: the Metro South study area, St. Louis County, and the St. Louis MSA. MSA's are the smallest regional unit for which the US Census aggregates data and uses that data to compile regional indicators such as average household size, mean family incomes, etc. The MSA is defined by the United States Census Bureau as a 12-county region, including Franklin, Jefferson, St. Charles, St. Louis, St. Louis City, Madison, Monroe, St. Clair, Clinton, Jersey, Lincoln, and Warren Counties. It is important to point out that the latter four counties (Clinton and Jersey in Illinois and Lincoln and Warren in Missouri) are *not* part of the Council's official 8-county jurisdiction. (See Map 3-1 Regional Context.) Any references to MSA data refer specifically to the entire 12-county region and should not be confused with the smaller area that constitutes the Council.

[4] The population of the St. Louis metro area grew by 4.5% between 1990 and 2000, slower than 219 of 280 American MSAs during the same period.

[5] Source: 1990 and 2000 U.S. Decennial Census, St. Louis MSA.

[6] Source: Brookings Institution. 2002. Growth in the Heartland, 37-9.

Louis region, and St. Louis County as a whole, the land use consultant team examined census data for a number of demographic factors related to population, housing, and transportation. (Map 3-1 shows the relationship of the study area and St. Louis County to the region as a whole.) These data were collected for the years 1990 and 2000, and use the census block groups that are fully or partially contained by the study area boundaries. Showing 1990 data as well as the more current 2000 data reveals specific trends that might indicate future changes in the study area and how and where the study area—or parts of the study area—might be in or out of sync with regional trends.

Aside from the basic information on study area population and employment, the socio-economic data highlighted below include indicators of the potential demand for transit (age, income, and current travel patterns), housing needs (age of household heads and size of household), and economic development potential (the nature of the South St. Louis County workforce).

3.1 Population, Households, and Families

Many demographic indicators in St. Louis County and in the Metro South study area followed the same patterns displayed at the metropolitan scale, but less markedly so. For example, the number of residents and housing units increased more slowly in the study area than in the MSA, and the share of white residents in the study area fell more slowly in the study area than the MSA.

Table 3-1 shows that while the St. Louis MSA and St. Louis County grew at slightly faster rates, the overall population of the Metro South study area remained virtually unchanged during the 1990s. The balance between male and female residents remained essentially unchanged, with female residents outnumbering male residents by a few percentage points.

Table 3-1: Total Population and Male and Female Components

Population	**1990**	**2000**	**Change**	**%Change**
Metro South	172,852	178,355	5,503	3.2%
St. Louis County	993,529	1,016,315	22,786	2.3%
St. Louis MSA	2,491,490	2,603,607	112,117	6.5%
Male Population	**1990**	**2000**	**1990 Share**	**2000 Share**
Metro South	82,595	84,617	47.8%	47.4%
St. Louis County	473,824	481,014	47.7%	47.3%
St. Louis MSA	1,190,932	1,250,837	47.8%	48.0%
Female Population	**1990**	**2000**	**1990 Share**	**2000 Share**
Metro South	90,257	93,738	52.2%	52.6%
St. Louis County	519,705	535,301	52.3%	52.7%
St. Louis MSA	1,300,557	1,352,770	52.2%	52.0%

Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

EWGCC Region
MSA (Not in EWGCC Region)
Metro South Study Area
Existing Metrolink
Cross-County

0 5 10 15 20 N

Map 3-1

Regional Context

Data Source:
St. Louis County Department of Planning
Prepared by:
HNTB Corporation

May 8, 2003

3.2 Race

In 2000, all but 7,500 of the 178,355 residents of the Metro South study area were white (95.8%). Asians, numbering 2,700 residents (1.5%) make up the largest group within the non-white category. African-Americans were only 0.7% of the study area. This South St. Louis County pattern sharply contrasts with the higher proportions of African-American population in St. Louis County (18.9%) and in the overall MSA (18.2%). During the 1990s, the Metro South study area became marginally more racially diverse. However, as Table 3-2 shows, this increased diversity remains very modest—2.5% of the overall study area population.

Table 3-2: Race

	1990		*2000*		*Change*	
Metro South	**Population**	**%**	**Population**	**%**	**Population**	**%**
White	169,927	98.3%	170,827	95.8%	900	0.5%
Black	888	0.5%	1,330	0.7%	442	49.8%
American Indian	333	0.2%	297	0.2%	(36)	-10.8%
Asian	1,431	0.8%	2,726	1.5%	1,295	90.5%
Pacific Islander	N/A	N/A	35	0.0%	N/A	N/A
Other	273	0.2%	604	0.3%	331	121.2%
Multiple Races	N/A	N/A	1,427	0.8%	N/A	N/A
Total	**172,852**		**178,355**		**5,503**	
Hispanic	1,645	1.0%	2,137	1.2%	492	29.9%
	1990		*2000*		*Change*	
County	**Population**	**%**	**Population**	**%**	**Population**	**%**
White	836,603	84.2%	781,316	76.9%	(55,287)	-6.6%
Black	139,044	14.0%	192,348	18.9%	53,304	38.3%
American Indian	1,732	0.2%	1,983	0.2%	251	14.5%
Asian	13,899	1.4%	21,534	2.1%	7,635	54.9%
Pacific Islander	N/A	N/A	437	0.0%	N/A	N/A
Other	2,251	0.2%	4,517	0.4%	2,266	100.7%
Multiple Races	N/A	N/A	14,180	1.4%	N/A	N/A
Total	**993,529**		**1,016,315**		**22,786**	
Hispanic	9,491	1.0%	14,517	1.4%	5,026	53.0%
	1990		*2000*		*Change*	
MSA	**Population**	**%**	**Population**	**%**	**Population**	**%**
White	1,986,599	81.3%	2,037,397	78.3%	50,798	2.6%
Black	422,234	17.3%	473,691	18.2%	51,457	12.2%
American Indian	5,726	0.2%	6,697	0.3%	971	17.0%
Asian	22,808	0.9%	35,940	1.4%	13,132	57.6%
Pacific Islander	N/A	N/A	878	0.0%	N/A	N/A
Other	6,732	0.3%	12,873	0.5%	6,141	91.2%
Multiple Races	N/A	N/A	36,131	1.4%	N/A	N/A
Total	**2,444,099**		**2,603,607**		**159,508**	
Hispanic	25,036	1.0%	39,525	1.5%	14,489	57.9%

Hispanics are an important subgroup in many metropolitan areas and are responsible for the recovery of population in many cities after years of loss. Although not treated by the Census as a separate racial group, we have added them to Table 3-2 because of this important trend in other urban areas. The number of Hispanic residents did increase sharply (57.9%) in the St. Louis region. Their presence—(only 2,100) and their 1990 to 2000 increase (only 29.9%)—were less apparent in the study area, however.[7]

Economic and social disparities between white and non-white populations are often sharp in many US metropolitan areas. *Where We Stand* reports that, among 30 peer regions, St. Louis had the 11th highest "rate of disparity between African-Americans and whites on an index of 15 health, housing, and economic variables."[8] Given the dominant presence of white residents in the Metro South study area, such disparities are not as apparent as in other parts of the region. Economic development, labor force, income, and affordable housing issues in the study area will likely remain more closely related to class than to race.

3.3 Households

In keeping with national trends, while the population of the St. Louis region grew, the average size of local households shrank. This trend is evident in the MSA, St. Louis County, and the Metro South study area. Table 3-3 shows the downward trend in household size across the region and separates family and non-family households. In almost every case, household size shrank during the 1990s. This was especially true of the study area, which saw its average household size drop 5.5 %, compared to only 3.1 % for the MSA.

Table 3-3: Household and Family Size

Household Size	**1990**	**2000**	**%Change**
Metro South	2.49	2.34	-6.0%
St. Louis County	2.57	2.46	-4.0%
St. Louis MSA	2.60	2.52	-3.1%
Family Size	**1990**	**2000**	**%Change**
Metro South	3.05	3.00	-0.5%
St. Louis County	3.11	3.09	-0.8%
St. Louis MSA	3.20	3.15	-1.5%
Non-Family Household Size	**1990**	**2000**	**%Change**
Metro South	1.14	1.12	-1.8%
St. Louis County	1.20	1.17	-2.0%
St. Louis MSA	1.17	1.19	1.6%

[7] In a similar vein, the study area is seeing a considerable influx of immigrants from Bosnia. While estimations of the scale of this trend remain anecdotal, it may prove worthwhile documenting where such newcomers are locating within the study area to see whether any of the alternatives developed later in the study may tap into what may be another potential pool of transit demand.
[8] Where We Stand, 82.

Table 3-4 provides a more detailed picture of the shift in household character. The study area, County, and MSA all saw a sharp increase in the number of 1- and 2-person households and a sharp decrease in the number of very large households (6 and 7+ people). The study area and county also saw a decrease in larger households—with the exception of 6-person households in the county. On the other hand, the MSA as a whole saw small but steady growth in the number of households with 3 to 6 people. This divergence between study area/County and MSA household size is evidence of a more significant shift in the region's settlement patterns: while household sizes are declining, larger households—including families—are migrating from inner-ring jurisdictions (such as St. Louis County and the City of St. Louis) into outer counties.

This increase in the number of small households and the continued decline in the average household size in general create something of a paradox for Metro South. If the area remains

Table 3-4: Number of Residents in Households

	Number of Households with specified number of residents							
Study Area	**1**	**2**	**3**	**4**	**5**	**6**	**7 +**	**Total**
1990	17,538	23,493	11,423	10,040	4,265	1,410	375	68,544
2000	22,386	25,498	11,062	9,520	4,024	1,210	335	74,620
Change	27.6%	8.5%	-3.2%	-5.2%	-5.7%	-14.2%	-10.7%	8.9%
County	**1**	**2**	**3**	**4**	**5**	**6**	**7 +**	**Total**
1990	93,532	125,650	66,554	58,093	24,640	7,931	3,710	380,110
2000	113,027	133,288	65,641	56,533	24,523	8,499	3,096	404,607
Change	20.80%	6.10%	-1.40%	-2.70%	-0.50%	7.20%	-16.50%	6.40%
MSA	**1**	**2**	**3**	**4**	**5**	**6**	**7 +**	**Total**
1990	239,021	286,761	161,702	140,836	62,262	21,397	12,754	924,733
2000	277,005	322,261	168,146	146,689	65,808	23,251	10,181	1,013,341
Change	15.90%	12.40%	4.00%	4.20%	5.70%	8.70%	-20.20%	9.60%

attractive to single or small households, rather than to larger families, it is quite possible that the overall number of households will increase over the next 25 years while the population itself will remain the same or even decline. Such a trend will affect land use in several ways, most notably a greater potential demand for smaller housing unit types--such as townhomes--that currently comprise a small part of the available housing stock, and the need to find locations to create additional housing of all types, as the number of households rises (assuming the area remains attractive in the marketplace).

3.4 Age

Age plays a role in assessing the need for transit. Young people without cars and the elderly who have less ability or desire to drive are two age categories that may use transit more than other ages, through necessity or choice. Even in a metropolitan region with a high median age, the Metro South area is notable for the number of residents aged 65 years and upwards. Consequently, study area transit demand may be influenced by the high proportion of elderly residents.

In 2000, the St. Louis MSA had one of the oldest populations in America. The median age of 36 was higher than all but seven major metropolitan areas.[9] This trend was even more apparent in the Metro South study area, as Figure 3-1 shows.

Between 1990 and 2000, the study area saw a significant increase in the number of residents more than 65 years of age. This change is even more apparent when comparing the study area to the St. Louis MSA. The population over 65 increased by 18.2 % in the study area compared to only 7.0 % in the MSA. In both cases, this trend was more pronounced for female residents. Older residents also comprise a far larger share of the study area population (18.7 %) than they do of the MSA population (12.9 %).

Also evident in the data is a significant increase in the age of householders.[10] Table 3-5 demonstrates this change, showing a sharp increase in the number of householders over the age of 75, as well as a sharp decrease in younger householders (ages 25 to 34).

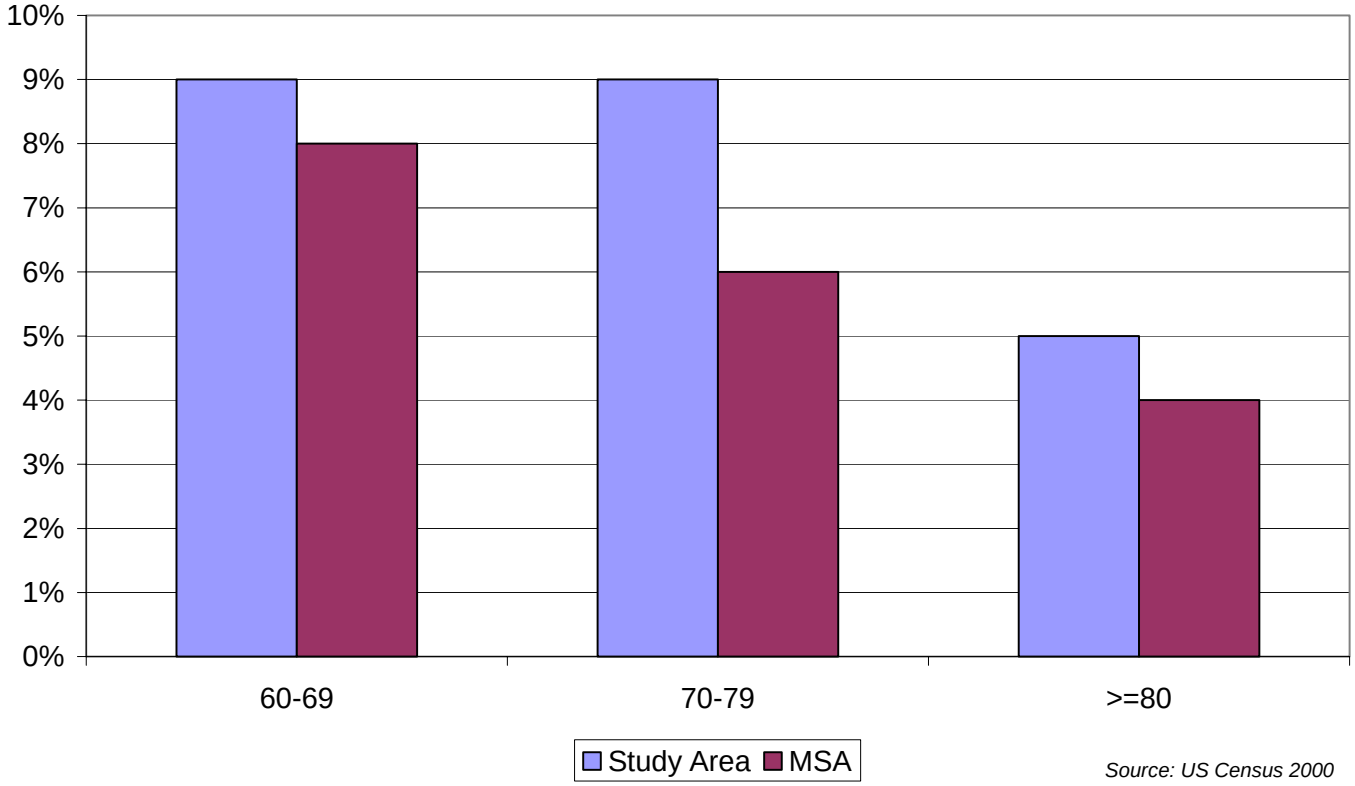
Table 3-5: Age of Householder

Study Area	**15 to 24**	**25 to 34**	**35 to 44**	**45 to 54**	**55 to 64**	**65 to 74**	**75+**
1990	2,652	13,115	14,449	10,186	10,890	9,957	7,295
2000	2,946	9,916	14,994	14,589	10,729	10,487	10,959
Change	11.1%	-24.4%	3.8%	43.2%	-1.5%	5.3%	50.2%
St. Louis County	**15 to 24**	**25 to 34**	**35 to 44**	**45 to 54**	**55 to 64**	**65 to 74**	**75+**
1990	13,641	80,617	85,852	62,955	55,299	47,355	34,391
2000	16,423	63,302	92,447	84,103	56,009	47,354	44,969
Change	20.40%	-21.50%	7.70%	33.60%	1.30%	0.00%	30.80%
MSA	**15 to 24**	**25 to 34**	**35 to 44**	**45 to 54**	**55 to 64**	**65 to 74**	**75+**
1990	41,699	206,160	202,093	143,039	128,455	114,494	88,793
2000	45,908	170,710	240,150	202,360	134,909	114,119	105,185
Change	10.10%	-17.20%	18.80%	41.50%	5.00%	-0.30%	18.50%

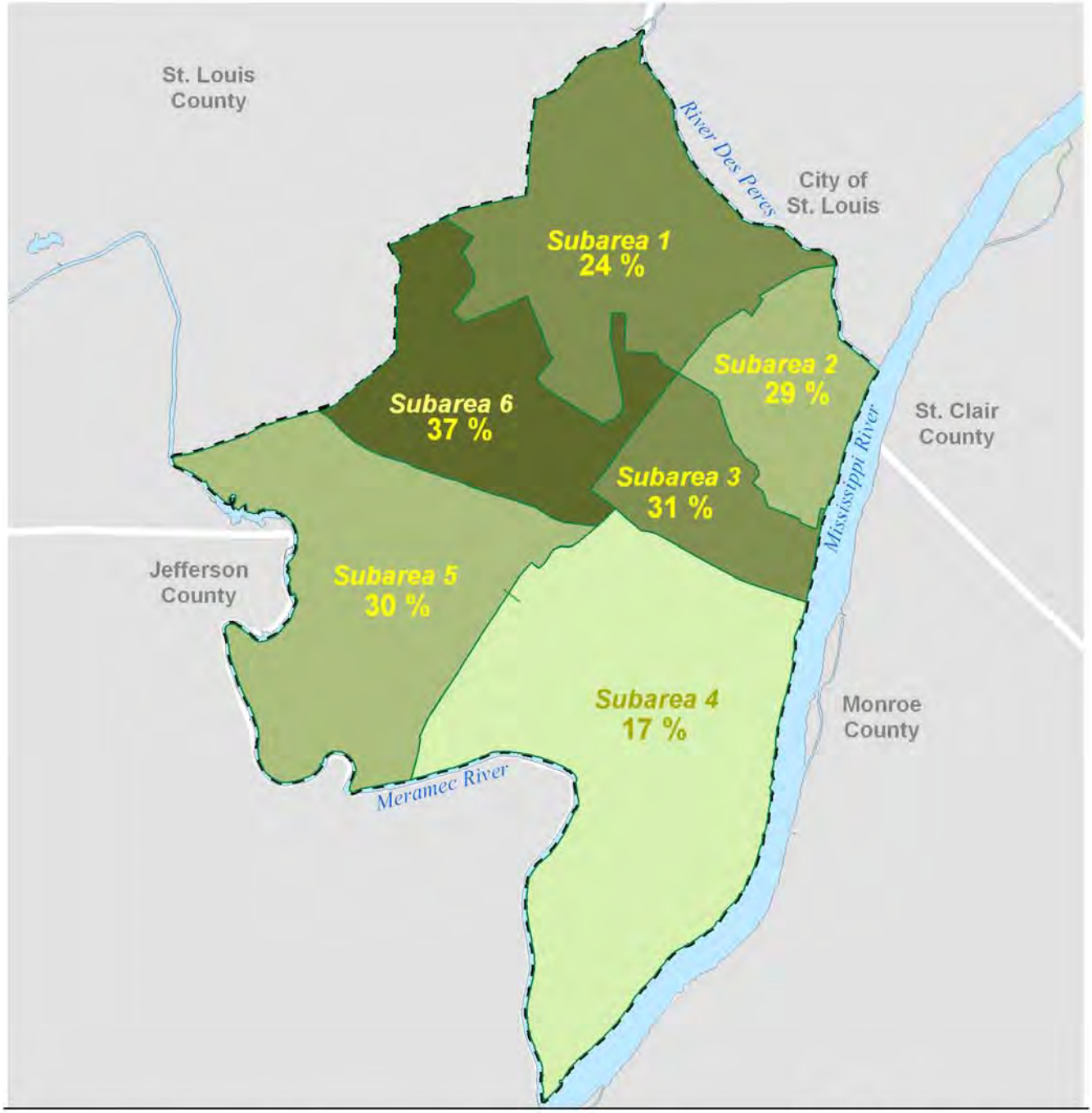
[9] Where We Stand, 23.

[10] The US Census defines a "householder" as a member of a household who lives at a housing unit and owns, is buying, or rents the housing unit. If there is no such person present when the Census Bureau contacts the household, any household member who is at least 15 years old can serve as the householder for the purposes of a census or survey.

Figure 3-1
Persons Aged 60 and Above (as percentage of total population)
Study Area and MSA (2000)



Source: US Census 2000



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

Householders over 65 years old (%) *

- 0-25
- 26 - 30
- 31 - 35
- >35

*As a percentage of total number of householders

0.5 0 0.5 1 1.5 Miles

Map 3-2

Householders over 65 years old

Data Source:
St. Louis County Department of Planning

Prepared by:
HNTB Corporation

July 7, 2003

Table 3-6 shows the number of householders over the age of 65 in each of the six subareas (also shown on Map 3-2). These older householders generally comprise one third of all householders. The exception is Subarea 4 in the southeast corner of the study area.

Table 3-6: Year 2000 Householders Over 65 by Subarea

	Total Households	Householder Over 65	Share of Households
Subarea 1	21,856	7,363	33.7%
Subarea 2	7,183	2,095	29.2%
Subarea 3	6,120	1,903	31.1%
Subarea 4	18,932	3,181	16.8%
Subarea 5	9,616	2,902	30.2%
Subarea 6	10,913	4,002	36.7%

This householder age trait has land use implications for housing turnover within the study area will likely accelerate in upcoming years. One priority of coordinating transit implementation with land use policy is to plan for TOD that can attract a new influx of young families to Metro South. Planning can foster the stabilization and enhancement of these areas necessary to keep such areas attractive and avert increasing vacancies of existing units. Also needed are new units that can attract younger householders and households.

The significant increase in very young householders (ages 15 to 24) throughout the region, shown in Table 3-5, is also noteworthy. It may simply be an artifact of the "Echo Boom," as children of Baby Boomers begin to establish their own families. The influx of young householders may also be an indication of a more widespread demographic shift in the St. Louis region as young residents begin to choose the region as their homes. Though the causes are not readily apparent, this trend may in time affect the future Metro South population characteristics as well as the composition of potential MetroLink riders.

3.5 Income

Income affects travel choice. Table 3-7 shows the 1989 and 1999 average household incomes for the MSA, County, and study area. Real incomes increased in all three areas, but that increase was less rapid in the study area. Households in the Metro South study area earned more than the MSA average but significantly less than the average for St. Louis County.

Incomes within in the study area varied widely. Table 3-8 shows the Year 1999 average income in each of the six subareas shown on Map 2-3. Figure 3-3 shows the 1989 and 1999 median household income for each Census tract within the study area, as well as the relationship of that median to the MSA average. In both years, western and southern portions of the study area (Subareas 4 and 5) tended to be wealthier, while northern and eastern tracts were less well off.

Table 3-7: Average Household Income					
	1989		*1999*		
	Actual	**Equivalent**	**Actual**	**Change**	**% Change (vs. 1989 Equiv)**
Metro South	$ 42,092	$ 56,403	$ 59,932	$ 3,529	6.3%
St. Louis County	$ 48,321	$ 64,750	$ 68,486	$ 3,735	5.8%
MSA	$ 39,068	$ 52,351	$ 57,595	$ 5,244	10.0%

Notes: "Equivalent" indicates the Year 1999 equivalent value of 1989 incomes adjusting for inflation. Source: Consumer Price Index.

The Census measures income from the last full year before the Census year. Thus, income information for the 2000 Census is based on 1999 earnings, etc.

Table 3-8: Average Household Income by Subarea	
Area	**Average Income**
Subarea 1	$ 52,655
Subarea 2	$ 42,801
Subarea 3	$ 49,182
Subarea 4	$ 69,394
Subarea 5	$ 78,048
Subarea 6	$ 59,165

Much of the study area saw increased incomes in real dollars during the 1990s. However, some areas, north of I-270/I-255, as well as the area between Tesson Ferry Road and I-55 (south of I-270/I-255) saw significant decreases. (See Figure 3-3.) This indicates that the level of transit dependency may be increasing in these sections of the study area if incomes –which were already lower than the study area median—continue to decline. Declining incomes may also mean it is harder for homeowners in these subareas to keep their houses in good repair, an issue that may in time feed into need for planned redevelopment and incentives for such activities.

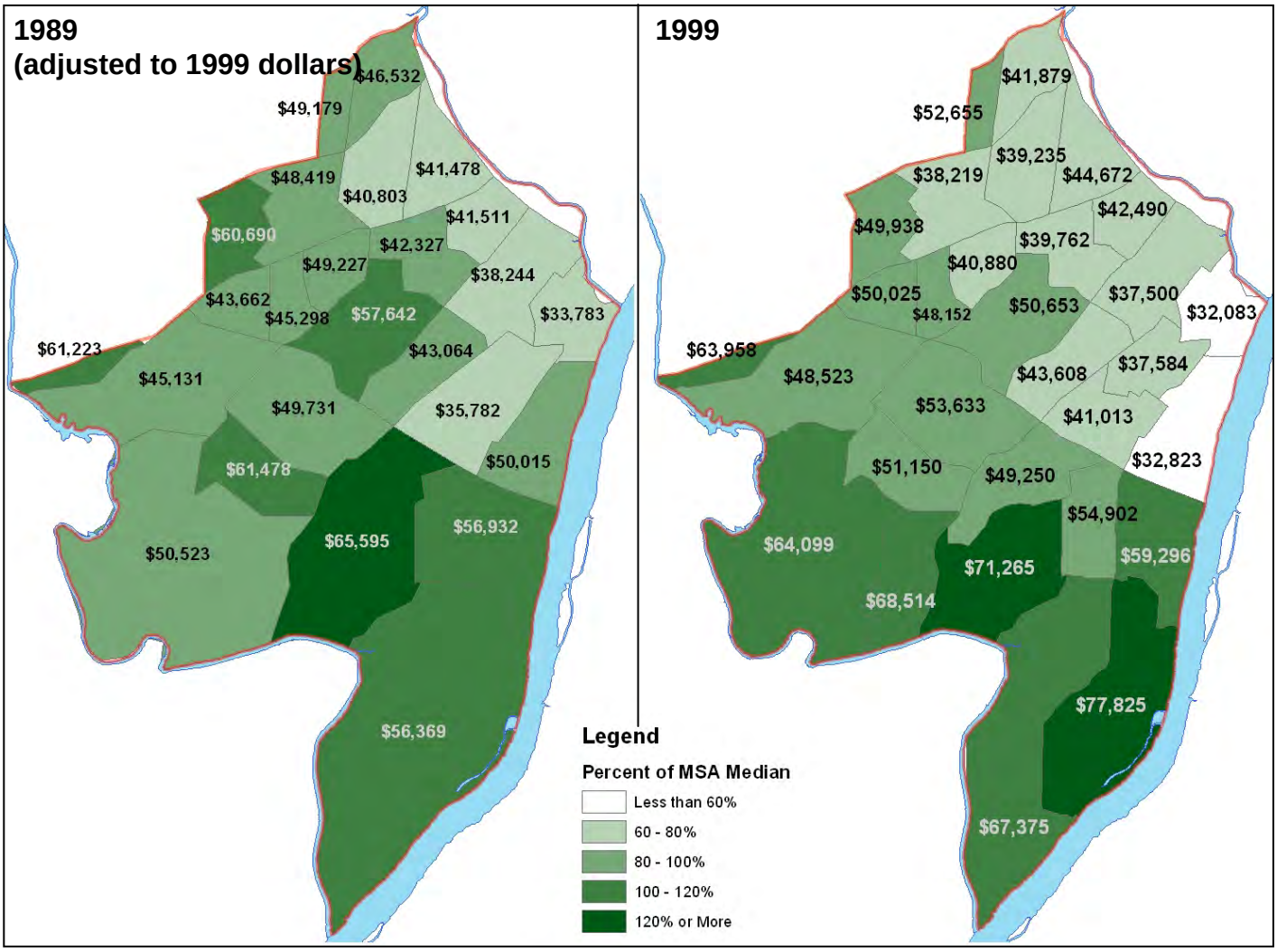


Figure 3-2: Median Household Incomes in 1989 and 1999

3.6 Labor and Employment

An unprecedented economic expansion and a significant reduction in the nation's unemployment rate characterized the 1990s. As Table 3-9 shows, this change was evident in the St. Louis region, specifically the Metro South study area. The MSA's relatively high unemployment rate declined toward the baseline figure of 5% during the decade. Meanwhile, St. Louis County essentially maintained its relatively low rate, and the study area saw its already low unemployment rate shrink even more.

Table 3-9: Labor Force					
	In Labor Force			**Not in Labor**	**Non-Participation**
Study Area	*Employed*	*Unemployed*	*Unemp. Rate*	**Force**	**Rate**
1990	89,141	3,407	3.8%	45,244	32.8%
2000	90,258	2,892	3.1%	49,960	34.9%
% Change	1.9%	-32.0%		11.0%	
St. Louis	**In Labor Force**			**Not in Labor**	**Non-Participation**
County	*Employed*	*Unemployed*	*Unemp. Rate*	**Force**	**Rate**
1990	509,177	13,253	4.5%	241,930	31.7%
2000	505,972	12,324	4.6%	259,554	33.4%
% Change	-0.6%	-7.0%		7.3%	
	In Labor Force			**Not in Labor**	**Non-Participation**
MSA	*Employed*	*Unemployed*	*Unemp. Rate*	**Force**	**Rate**
1990	1,164,557	44,509	6.3%	625,830	34.1%
2000	1,259,177	37,731	5.5%	664,825	33.9%
% Change	8.1%	-15.2%		6.2%	

The number of workers leaving the workforce compared to those entering it between 1990 and 2000 may explain some of this reduction in the unemployment rate.

Meanwhile, the rate of new workers entering the workforce was much slower in the study area than in the MSA. The growth in the number of study area residents not participating in the labor force is also worth noting. Non-participation rates—a measure of the number of residents over the age of 18 who are neither working nor looking for a job—were slightly higher in the study area than in the County or MSA. More important, the non-participation rate grew faster in the study area than in the region. The aging population of the study area may explain this trend, since retirees are included in non-participation figures.

Table 3-10 shows the breakdown of "jobs by industry" held by Metro South study area residents (regardless of where they work), by St. Louis County residents, and by residents of the entire MSA in 2000. As shown, Retail, Manufacturing, and Health Services were the largest categories for study area residents as well as residents of the MSA as a whole.

Significant is the large number of retail jobs—the largest single employment category in Metro South. Retail jobs are about 12% of all regional jobs, and the Metro South region matches this. These jobs tend to be low wage jobs and, consequently, more prone to be filled by groups that tend to be more transit-dependent. Manufacturing jobs are the second highest category in the Metro South area (12% compared to 14% of the regional total).

Table 3-10: Study Area Employment by Industry, Year 2000						
	Study Area		*St. Louis County,*		*MSA*	
Industry	**Workers**	**Share of Total**	**Workers**	**Share of Total**	**Workers**	**Share of Total**
Agriculture	166	0.2%	1,146	0.2%	8,406	0.7%
Construction	5,646	6.3%	24,817	4.9%	78,396	6.3%
Manufacturing	10,921	12.1%	64,212	12.7%	178,594	14.4%
Wholesale	3,899	4.3%	21,290	4.2%	46,613	3.7%
Retail	11,093	12.3%	57,061	11.3%	144,623	11.6%
Transportation (TCU)	4,664	5.2%	27,141	5.4%	72,298	5.8%
Information	3,505	3.9%	19,021	3.8%	40,182	3.2%
Finance (FIRE)	8,460	9.4%	45,603	9.0%	95,848	7.7%
Professional	8,895	9.9%	56,101	11.1%	118,256	9.5%
Education	7,584	8.4%	48,073	9.5%	106,774	8.6%
Health Services	10,210	11.3%	61,367	12.2%	150,746	12.1%
Arts and Entertainment	6,935	7.7%	38,345	7.6%	100,647	8.1%
Other Services	4,840	5.4%	24,398	4.8%	63,535	5.1%
Public Administration	3,364	3.7%	16,675	3.3%	47,652	3.8%
Total Employment	**90,182**		**505,250**		**1,252,570**	

Table 3-11 shows by broad categories the types of jobs held by study area residents, whether they work within the study area or outside it, and compares these breakdowns to the St. Louis County and the region. South St. Louis County is commonly regarded as more a pool of blue or pink collar workers than much of St. Louis County. Nevertheless, this characterization may be less true than generally assumed. Many study area residents are employed in occupations that require significant skill or training. Compared to the MSA, the Metro South study area has more than its share of residents employed in managerial and professional roles and less a share of lower-skilled occupations such as construction and transportation. The implication of this proportion of white collar categories among study area residents is that transit also needs to appeal more to potential middle class riders living in the study area whose work may be elsewhere along the Metrolink system.

Table 3-11: Study Area Residents' Employment by Occupation, Year 2000						
	Study Area		*St. Louis County*		*St. Louis MSA*	
Occupation	**Workers**	**Share of Total**	**Workers**	**Share of Total**	**Workers**	**Share of Total**
Management, professional, and related occupations	34,294	38.0%	210,366	41.6%	430,637	34.4%
Service occupations	11,006	12.2%	63,158	12.5%	185,432	14.8%
Sales and office occupations	27,992	31.0%	148,738	29.4%	352,074	28.1%
Agriculture occupations	47	0.1%	513	0.1%	2,380	0.2%
Construction occupations	7,299	8.1%	32,105	6.4%	110,045	8.8%
Production and transportation, occupations	9,444	10.5%	50,370	10.0%	172,002	13.7%
Total	**90,182**		**505,250**		**1,252,570**	

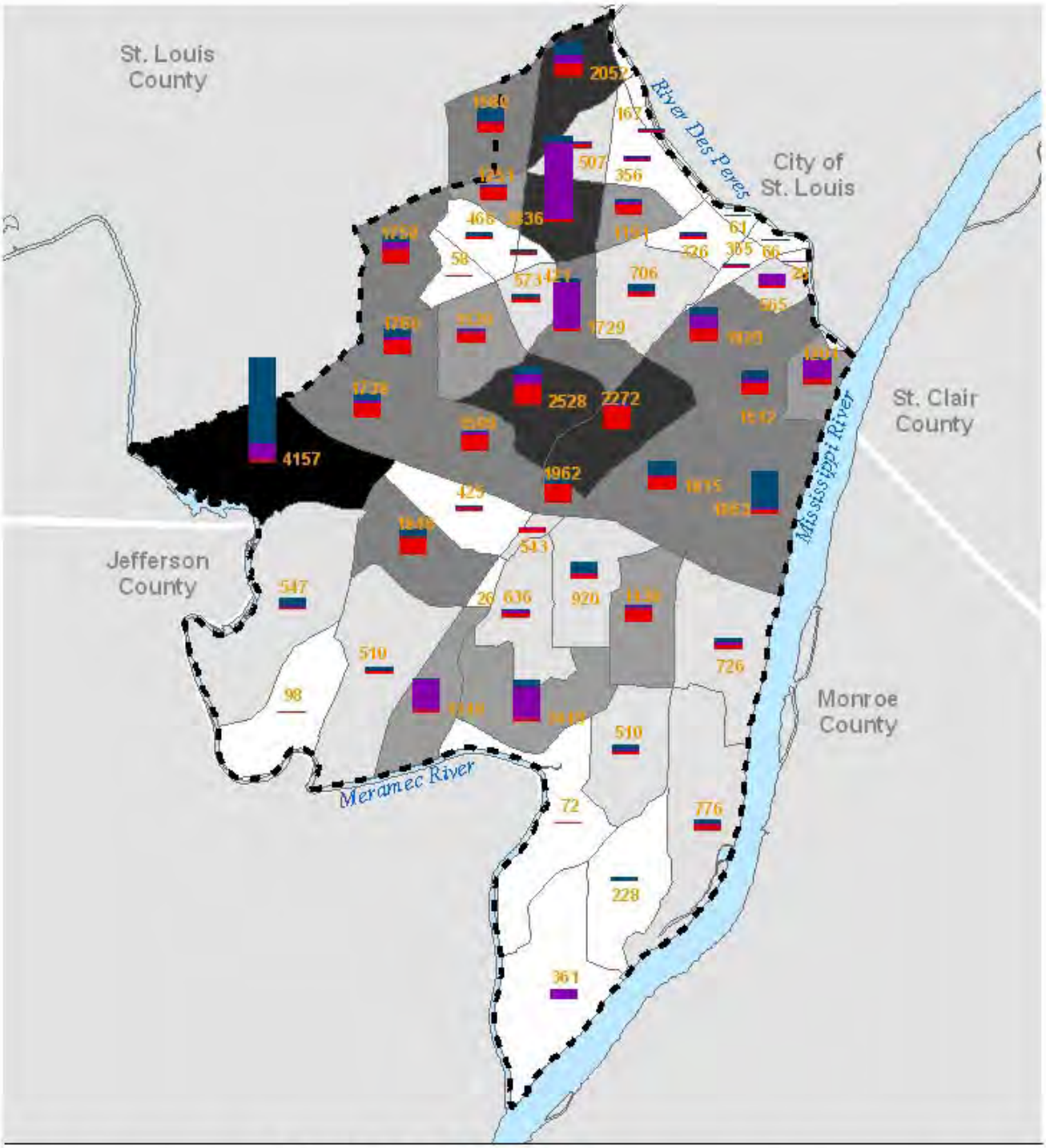
The preceding discussion describes *jobs held by study area residents*. Map 3-3 shows the distribution by TAZ of the more than 54,000 jobs that are actually *located* within the study area. The proportion of "commercial", "industrial" and "public" jobs within each TAZ is indicated by the bar graphs. Overall, "commercial" accounts for 31,750 jobs, "industrial" accounts for 9,880 jobs and "public" totals 12,890 jobs. (Data on the breakdown of jobs by even more finely defined categories was not available at the time of this report. However, the proportion of the various land uses for different types of employment (Table 2-1) indicates that such important categories as office related employment are a relatively low proportion of this total.)

The great majority of jobs (70 %) is north of 1-270/I-255 and these are concentrated in an approximately 2-mile band down the center of this northern half of the study area. Not surprisingly, more than 12,000 jobs (22% of all study area jobs) are located within 2 miles of Westfield Shoppingtown South County.

The job data give the study area a jobs-housing ratio of 0.74, which is decidedly jobs-poor.[11] St. Louis County as a whole has a ratio of 1.51. That is, the study area exports a large number of workers to other parts of the region.

Map 3-4 shows the density of jobs/acre within the study area. Map 3-5 adds population to this density calculation. These two maps show that, although there are some high concentrations of development within the study area, Metro South is overall built out at relatively low intensities.

[11] A more balanced jobs-housing ratio for a suburban context such as the South County would be in the range from 1.00 to 1.25.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH

Total Number of Jobs by TAZ

- 0-500
- 501 - 1000
- 1001 - 1500
- 1501 - 2000
- 2001 - 3000
- >3000

Public
Industrial
Commercial

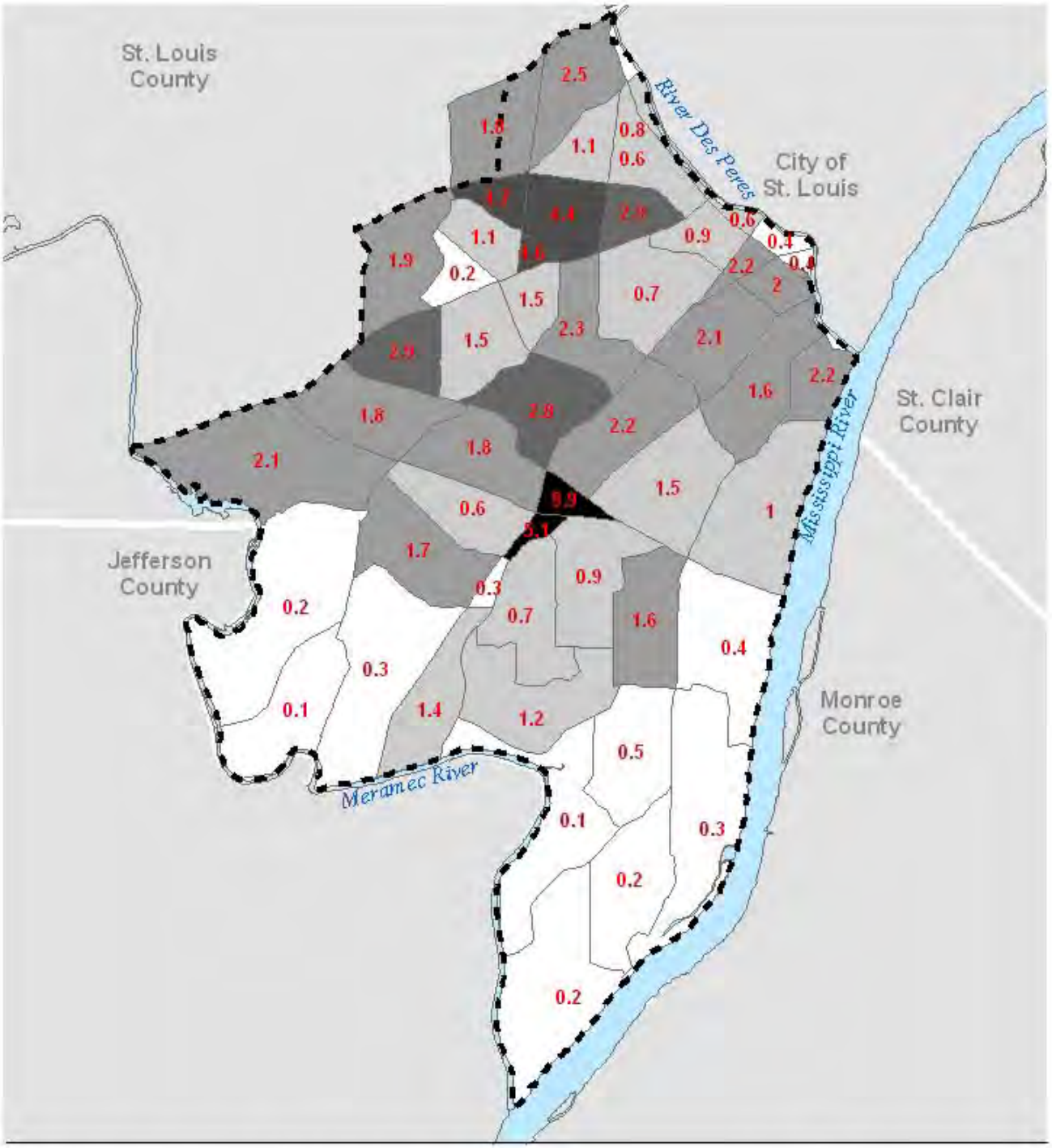
0 0.5 1 1.5 2 Miles

Map 3-3

Study Area Jobs

Data Source:
EWGCC
Prepared by:
HNTB Corporation

July 21, 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH

Jobs/ Acre by TAZ

- < 0.5
- 0.6 - 1.5
- 1.6 - 2.5
- 2.6 - 3.5
- 3.6 - 5.0
- > 5

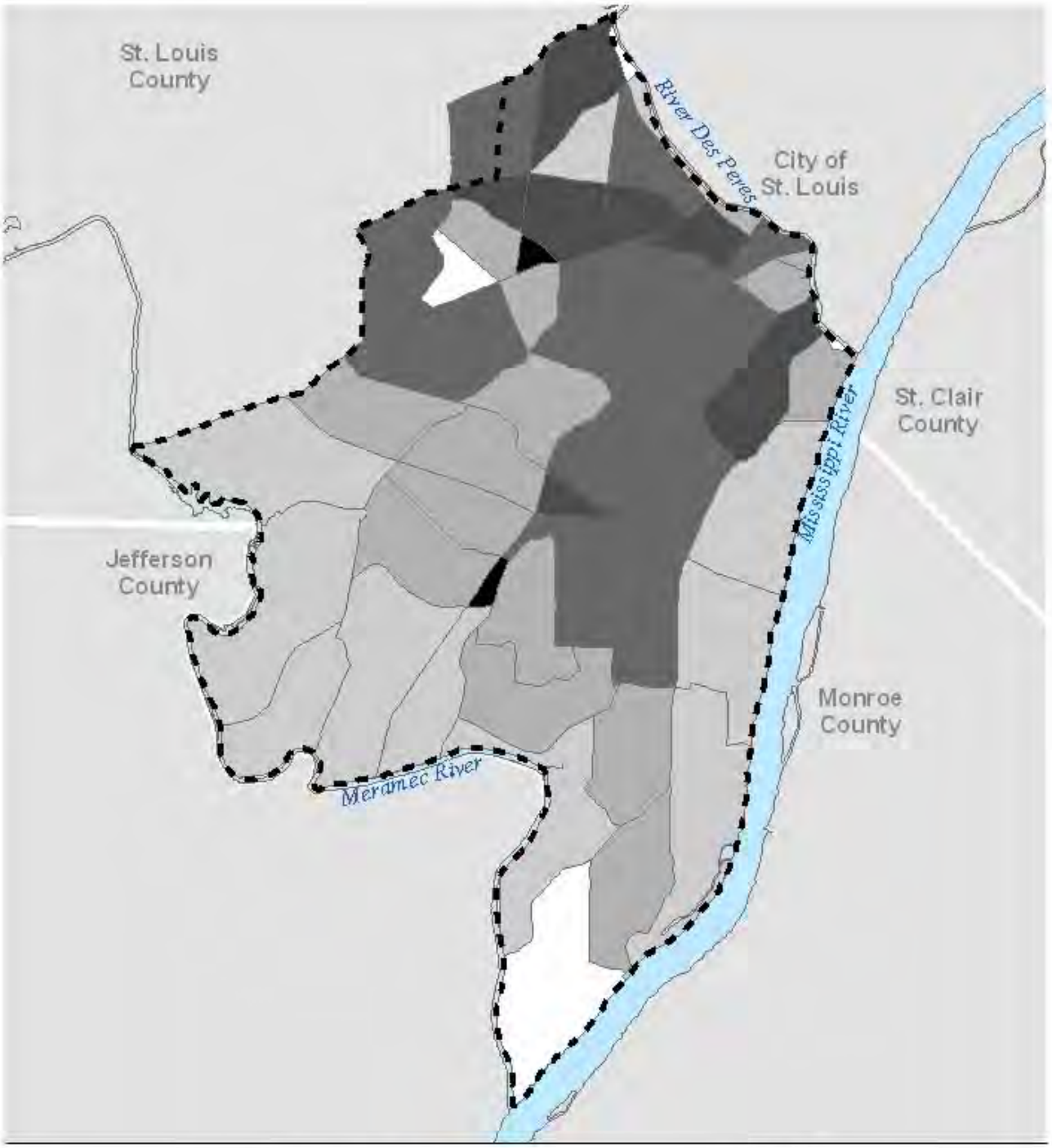
0 0.5 1 1.5 2 Miles

Map 3-4

Study Area Jobs/ Acre

Data Source:
EWGCC
Prepared by:
HNTB Corporation

July 21, 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council

Metro

metroSOUTH

Planning MetroLink in South St. Louis County

(Jobs+Population)/Acre

- < 1.5
- 1.6 - 4.0
- 4.1 - 7.0
- 7.1 - 10.0
- 10.1 - 13.0
- > 13

0 0.5 1 1.5 2 Miles

Map 3-5

Study Area Jobs & Population Density

Data Source:
EWGCC

Prepared by:
HNTB Corporation

July 21, 2003

3.7 Transit Dependence

A major factor in the choice of travel mode, especially for transit, is the availability of private vehicles. As a general rule, the fewer vehicles available to a household, the more likely members of that household are to use transit or non-motorized (walking, bicycling) modes of transportation. Households with *no* available vehicles are, obviously, the most likely to use alternate modes. Table 3-12 shows the number of vehicles available to households. The study area and St. Louis County both saw a slight increase in zero-car and one-car households and a decrease in households with more automobiles. In contrast, the MSA as a whole saw a significant decrease in zero-car households and slight increases in households with vehicles available.

Table 3-12: Vehicle Availability

	Vehicles Available			
	0	**1**	**2**	**3+**
Study Area				
Households, 1990	3,860	23,145	29,752	11,764
Share of 1990 Households	5.6%	33.8%	43.4%	17.2%
Households, 2000	4,372	26,784	31,140	12,275
Share of 2000 Households	5.9%	35.9%	41.8%	16.5%
Household Change	512	3,639	1,388	511
% Change	13.3%	15.7%	4.7%	4.3%
St. Louis County				
Households, 1990	22,617	125,521	164,941	67,031
Share of 1990 Households	6.0%	33.0%	43.4%	17.6%
Households, 2000	25,831	143,608	169,635	65,238
Share of 2000 Households	6.4%	35.5%	42.0%	16.1%
Change	3,214	18,087	4,694	(1,793)
% Change	14.2%	14.4%	2.8%	-2.7%
St. Louis MSA				
Households, 1990	100,461	310,880	361,693	151,699
Share of 1990 Households	10.9%	33.6%	39.1%	16.4%
Households, 2000	91,446	348,086	402,654	170,233
Share of 2000 Households	9.0%	34.4%	39.8%	16.8%
Change	(9,015)	37,206	40,961	18,534
% Change	-9.0%	12.0%	11.3%	12.2%

The implications of these data are that, in the study area, there is a specific set of households that might be dependent on transit for commuting and other trip purposes. A comprehensive understanding of demographic and land use data can be used to help identify the spatial distribution of those households. Map 3-6 is an initial attempt at such an analysis, showing Census blockgroups that display characteristics often associated with transit dependency.

Map 3-6 documents the distribution of some of the individual characteristics that contribute to transit dependency. These characteristics include a high number of households in poverty (as defined by the 2000 U.S. Census[12]) and a high number of households with no or only one available automobile. The population most likely to be transit dependent is more evident north of I-255/I-270, but many locations to the south also include noteworthy pockets of potentially more transit dependent populations.

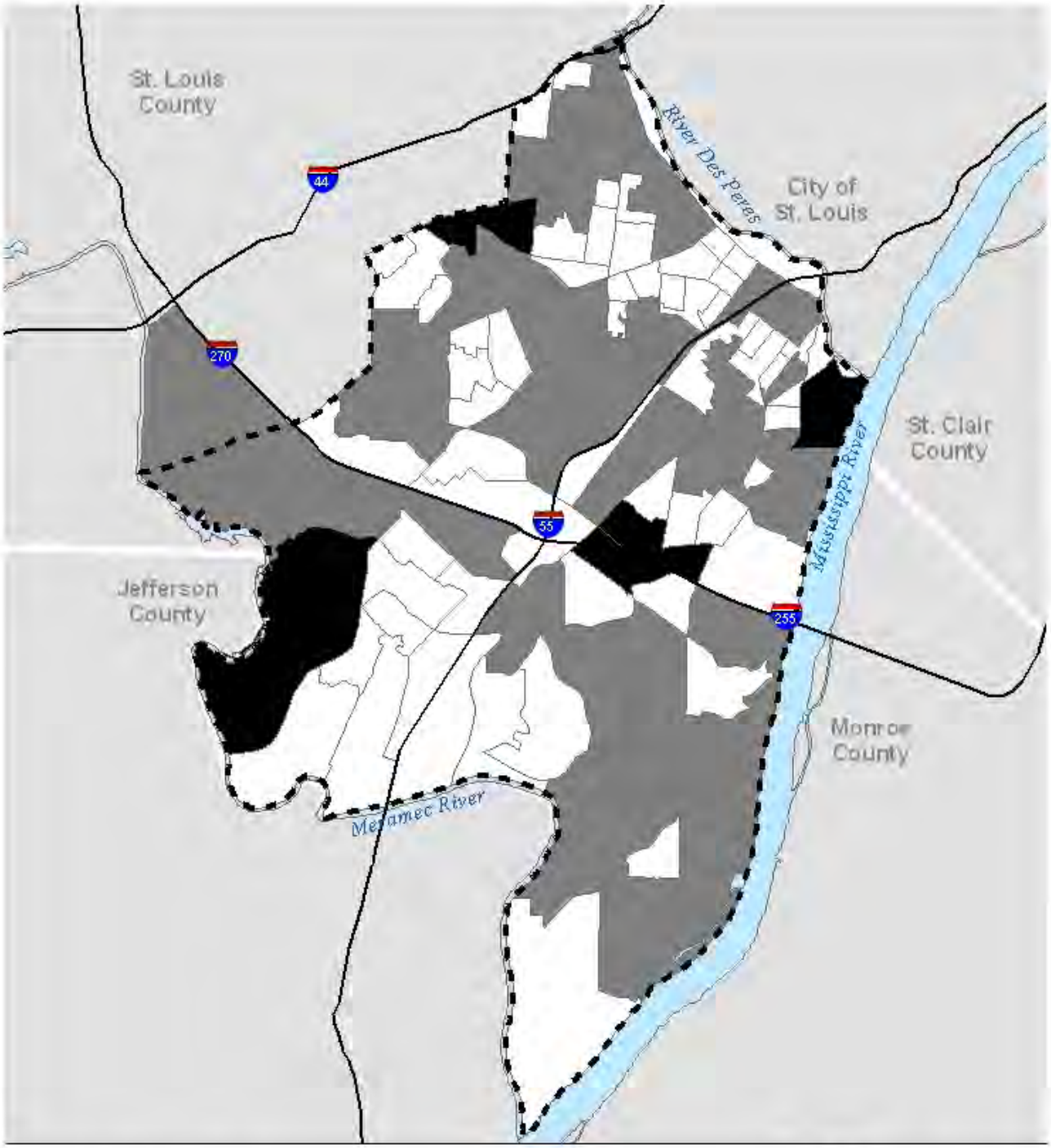
Table 3-13—keyed to the subareas shown on Map 2-3—adds further insights into potential transit dependency by indicating the share of households in each subarea that have access to no or only one vehicle. As has been the trend with many of the demographic factors examined in this report, households in southern and western portions of the study area tend to have access to a larger number of vehicles. As with the previous figures, these data suggest that residents in the northern and eastern portions of the study area might have a greater need for transportation alternatives to private automobiles.

Table 3-13: Low Vehicle Ownership

(Households with 0 or 1 Vehicle)

	Total Households	Low Vehicle Ownership	Share of Subarea
Subarea 1	21,856	11,107	50.8%
Subarea 2	7,183	3,726	51.9%
Subarea 3	6,120	2,913	47.6%
Subarea 4	18,932	5,941	31.4%
Subarea 5	9,616	3,188	33.2%
Subarea 6	10,913	4,281	39.2%

[12] The Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is poor. If a family's total income is less than that family's threshold, then that family, and every individual in it, is considered poor. These levels do not vary by geography but there is a sliding scale for various household sizes and the number of related children. For example, the poverty level for a family of four with two children, a very typical unit, was slightly below $17,000 at the time of the 2000 US Census.



Metro South MetroLink Extension
Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

Factors Analyzed
a) Households in Poverty
b) Households with 0 or 1 Vehicle
Composite Index (Potential Transit Users)
(a+b)* Average Household Size

Legend

- Low
- Moderate
- High

0 0.5 1 1.5 2 Miles

Map 3-6

Potential Transit-Dependent Demand

Data Source:
Census 2000
Prepared by:
HNTB Corporation
July 15, 2003

4.0 Economic Development Background and Trends

4.1 Introduction

Another Task II priority was to assess current conditions and future market-justified opportunities for growth and development within the MetroLink South study area. Base data included those related to population and employment as well as current inventory and market trends for office, retail and residential development within the region, St. Louis County and the study area. The study team used and interpreted readily available information from such sources as state, regional and local government agencies, the US Census and other federal agencies and local real estate data bases. The following are the key conclusions about the potential impacts of transit implementation on future study area residential and non-residential development and redevelopment.[13]

4.2 Residential Demand

Based on market demand, the study area could receive a net increase of 3,000 units in its housing inventory. In addition, as many as 5,000 to 7,000 replacement units will be required by 2025 if the overall inventory is to remain physically sound and competitive. For convenience, this replacement figure was estimated at 6,000 units.

The study team estimates that with appropriate policies and incentives in place, new transit service could attract about 2,700 of these 9,000 total new or replacement units to the area around MetroLink stations, about 30% of the anticipated total increase.

To realize these projections, St. Louis County and local municipalities will need to make aggressive use of their redevelopment tools and a variety of existing and new incentives may be needed to attract developer interest. Promoting such development will also require the constant interaction with residents regarding the need to systematically replace older, obsolete housing and to do so at higher densities in some instances. Development around MetroLink stations offers a perfect opportunity to accommodate this process of adaptation and change. Assuming an average density of 12 dwelling units (du) per acre, locating these 2.700 units will require a total of 225 acres of developable land.

4.3. Employment

Employment growth is the single most important factor that will influence the shape and scale of population and household growth and change. This relationship of employment to population growth applies to the region, the county and the study area. Employment is likewise the primary measure of regional economic progress. These relationships are relevant to the determination of

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[13]A full presentation of the data used, assumptions about future demand and the ability of MetroLink station areas to capture a share of this future development is found in a work paper by consultant team member Development Strategies Inc., Demand Projections. Potential for Private Investment in Response to a South County MetroLink Extension. April 2003.

broad market demand for office and industrial facilities built to accommodate businesses and institutions responding to that economic progress.

Maintaining the current level of employment in the study area will depend first on a successful process of replacement of older office, industrial and retail space as it ages and becomes less competitive. However, any substantial growth beyond current levels without some new and effective catalyst or stimulus for economic growth and change is not foreseen.

The greatest opportunity to realize net new employment growth will be to aggressively capitalize on the opportunity to develop new office facilities near MetroLink stations. The rationale for this conclusion is the unique association that can be established between the highly desirable but expensive office center in Clayton and less expensive office facilities that can be positioned at MetroLink stations. These would be within close proximity of a good labor force while having easy transit access to and strong operational linkages with the Clayton area business community as well.

The study team assumes that St. Louis County and other local governments will take an active role in fostering a continuous process of redevelopment, especially associated with the development of MetroLink stations in the study area. Accordingly, employment could grow from about 55,000 jobs to some 60,000, a net gain of 5,000 jobs or 9% by 2025. Again, most of this gain will be in office positions with retail growth providing a smaller component.

4.4 Office Space Demand

Based on projected employment growth, the region could realize a net gain of some 17.0 million square feet of office space, an almost 17% increase in the present office inventory. The study team expects St. Louis County, with approximately half of all jobs in the region now, to capture about 40 percent of projected future net job growth—about 84,000 jobs. Of these, about 39,500 jobs will be in the office sector.

The Clayton area should experience market demand sufficient to generate more than two million net square feet of office inventory by 2025. This assumes that the Clayton area could capture 30 percent of the County's office employment growth in that period.

Nevertheless, the Clayton area has limited site capacity to accommodate major new developments, especially as the City of Clayton seems highly unlikely to permit expansion of the boundaries of the downtown business district. This circumstance will require development to follow a very expensive process of using a finite area more intensely through rebuilding, redevelopment and replacement of the older and obsolete portions of the office inventory.

With the proposed MetroLink transit service, the study area will gain the potential to capture some of the overflow demand for Clayton office space. This presents an opportunity for attracting office developments to sites around Metro South MetroLink stations. Stations within the study area will be especially attractive for spillover office users with labor and operational ties to the office core in the Clayton business community. In addition, sites associated with MetroLink stations can be expected to capture the great majority of new office space created to replace a portion of the existing inventory in the Study area as it ages and becomes increasingly less competitive.

Together these two sources of demand suggest that some 925,000 square feet of offices could be accommodated at or near future MetroLink stations in the study area. At a modest average suburban density of a 0.5 FAR (floor area ratio), this projection would require about 42.5 acres of developable land.

4.5 Retail Space Demand

The study team project that the study area will attract approximately 120,000 square feet of net new retail space. At the same time at least a quarter or 1.5 million square feet of its existing retail inventory will be replaced as it ages and becomes obsolete.

Study area retail facilities draw patronage from a broad swath of the South County/Jefferson County area and from Illinois. With two[14] of the region's eleven regional malls and numerous convenience, specialty and 'big box' centers, it will continue to attract a significant share of this overall retail patronage.

MetroLink stations can be prime magnets for certain types and scales of future retail facilities. As indicated above, estimated demand will come from several sources. About half of the anticipated net growth in the study area's inventory of retail space can be concentrated at MetroLink stations. Also, about 10% of the area's inventory that is replaced due to obsolescence can be attracted to the station areas. Finally, a small component of demand will be generated by the office employment projected earlier for MetroLink station areas. In all, some 220,000 square feet of retail space at MetroLink Stations is deemed market-justified, which in turn will require about 16.8 acres of site area at 0.3 FAR.[15]

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14 Technically, Crestwood Plaza, located on the north side of Watson Road east of Sappington Road is adjacent to but not within the study area. However, it draws a significant portion of its shoppers from the study area and is considered a factor in future retail projections.

[15] The total station area developable land related to these estimated residential, office and retail uses would therefore be about 285 acres.

5.0 Planning and Regulatory Background

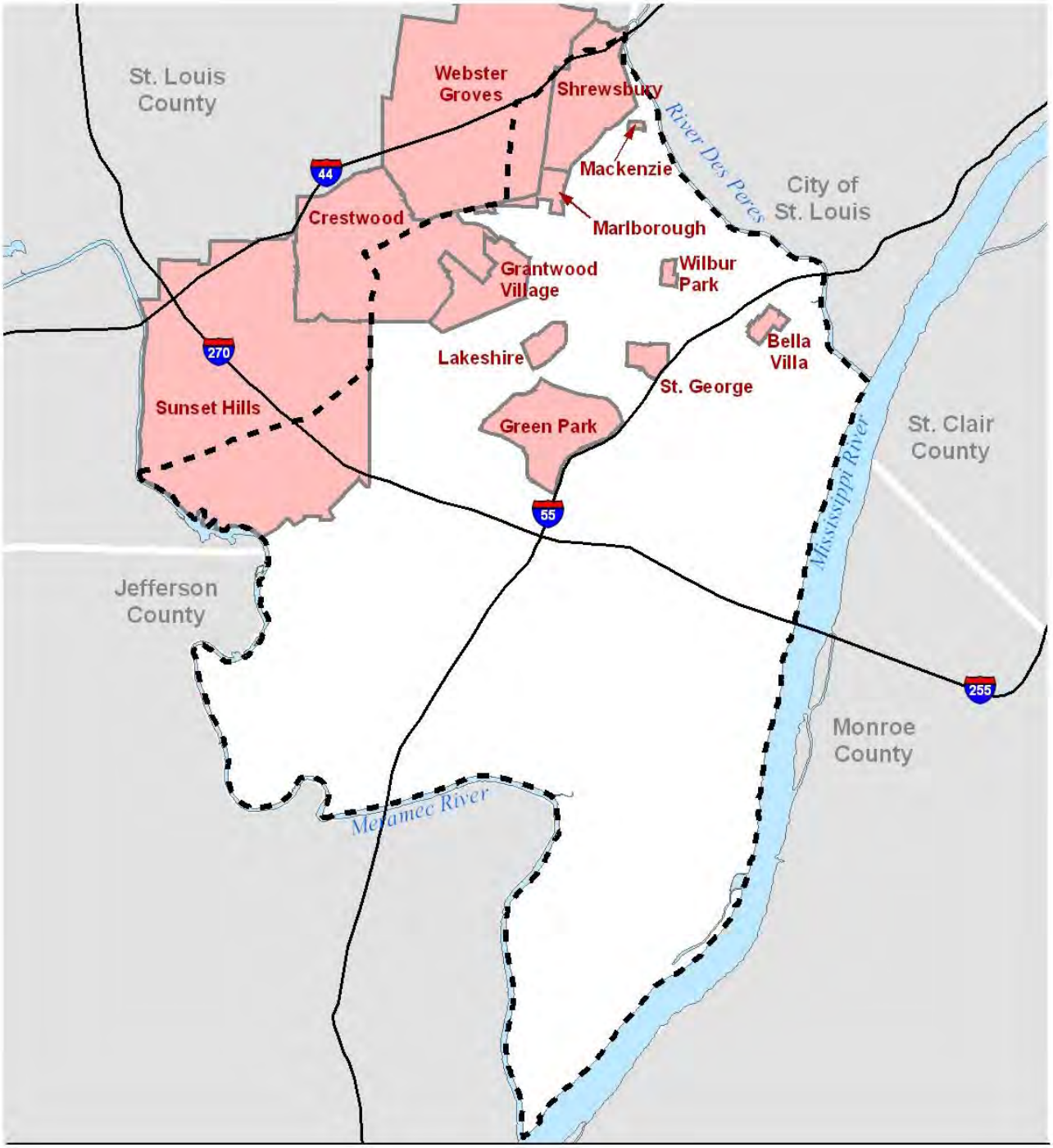
5.1 Civic Structure

Municipalities:

The study area is unique within St. Louis County because only a small proportion of its total area is within independent municipalities. South St. Louis County is largely unincorporated; with only nine small municipalities that fall almost entirely within the study area (See Map 5-1). These municipalities and their populations, according to St. Louis County Municipal Profiles, are Bella Villa, 687; Grantwood Village, 883; Green Park, 2,666; Lakeshire, 1,375; Mackenzie, 137; Marlborough, 2,235; St. George, 1,288; Shrewsbury, 6,644; and Wilbur Park, 475. These nine municipalities account for approximately 16,400 people or about 8 % of the total South St. Louis County population. Shrewsbury, Grantwood Village, and Green Park are the only municipalities of significant size completely or largely within the core of the study area, however large parts of Crestwood, Sunset Hills and Webster Groves straddle the western edge of the study area (See Table 5-1).

Table 5-1: Municipalities Within the Study Area

Municipality	Total Area (Acres)	Acreage in Study Area	Percent
Bella Villa	81	81	100%
Crestwood	2287	932	41%
Grantwood Village	518	518	100%
Green Park	837	837	100%
Lakeshire	134	134	100%
Mackenzie	13	13	100%
Marlborough	151	151	100%
Shrewsbury	918	805	88%
St. George	118	118	100%
Sunset Hills	5,792	2,005	35%
Webster Groves	3,772	387	10%
Wilbur Park	38	38	100%



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

Municipalities
Unincorporated

Map 5-1

Study Area Municipalities

Data Source:
St. Louis County Department of Planning

Prepared by:
HNTB Corporation
May 8, 2003

0 0.5 1 1.5 2 Miles

St. Louis County

Because some three-quarters or so of the study area is unincorporated, most of the study area is subject to the zoning and subdivision regulations of St. Louis County. This makes the study area subject to a potentially highly-unified planning oversight from the County for issues such as stabilization of older residential areas and renewal of older commercial corridors (e.g., along Gravois in the Affton area). Other stated major goals for the study area include fostering an increased and more varied economic development base. This less fragmented political situation should make coordinating land use planning with potential transit implementation both easier to align with County priorities and less complex to implement.[16]

School and Fire Protection Districts

School districts and fire protection districts provide some definition to the unincorporated communities of Affton, Lemay, Mehlville, and Oakville that exist within South St. Louis County. School and fire districts are financed at the local level primarily through taxes on real estate and personal property. Consequently, the desire for a larger and more balanced economic development base expressed in many local plans is in part fed by the desire to generate more funding for these services without increasing taxes on residential properties.

There are five school districts serving residents in the study area. These include the Affton, Bayless, Hancock, Lindbergh, and Mehlville School Districts. All, but the Lindbergh School District are located entirely within the study area. The Affton, Bayless, and Hancock school districts primarily serve the northern portion of the study area, while Mehlville and Lindbergh serve the southern areas. Mehlville has the greatest number of students in the area, with an enrollment of approximately 12,000. Affton serves about 2,700 students and Bayless has an enrollment of approximately 1,500.

The majority of the study area is served by three fire protection districts (Mehlville, Affton, and Lemay), with four smaller districts covering relatively minor portions of the area. The Lemay Fire Protection District covers the northeast section of the study area. The Affton Fire Protection District serves an area extending along both sides of Gravois Road between Union Road and Watson Road from Grant Road east of the City of St. Louis limits. The Mehlville Fire Protection District encompasses the remainder of the study area and extends from Grantwood Village south to the Sunset Hills area. None of these three large districts are operated by any of the study area municipalities.

5.2 Planning Priorities of Local Plans

Although largely unincorporated, much of the study area has acquired a more organized local identity through being the focus of recent community plans. The most extensive is the *St. Louis County Sixth District Community Area Study* (2000) that covers almost all the area south of Gravois Road, about 80% of the study area (see Map 5-4). Other local plans that treat significant

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[16] Of course, if candidate stations are located in or next to the smaller municipalities, their specific local plans and development requirements will need to be analyzed.

portions of the study area include Affton which covers a large portion of the north half of the study area and Oakville which includes most of the southeast quadrant of the study area. In addition, the town of Shrewsbury that covers much of the study area north of Watson Road has its own comprehensive plan. The following is an overview of the planning concerns or priorities of these local plans that the MetroLink extension study needs to take into account.[17]

St. Louis County Sixth Council District Community Area Plan

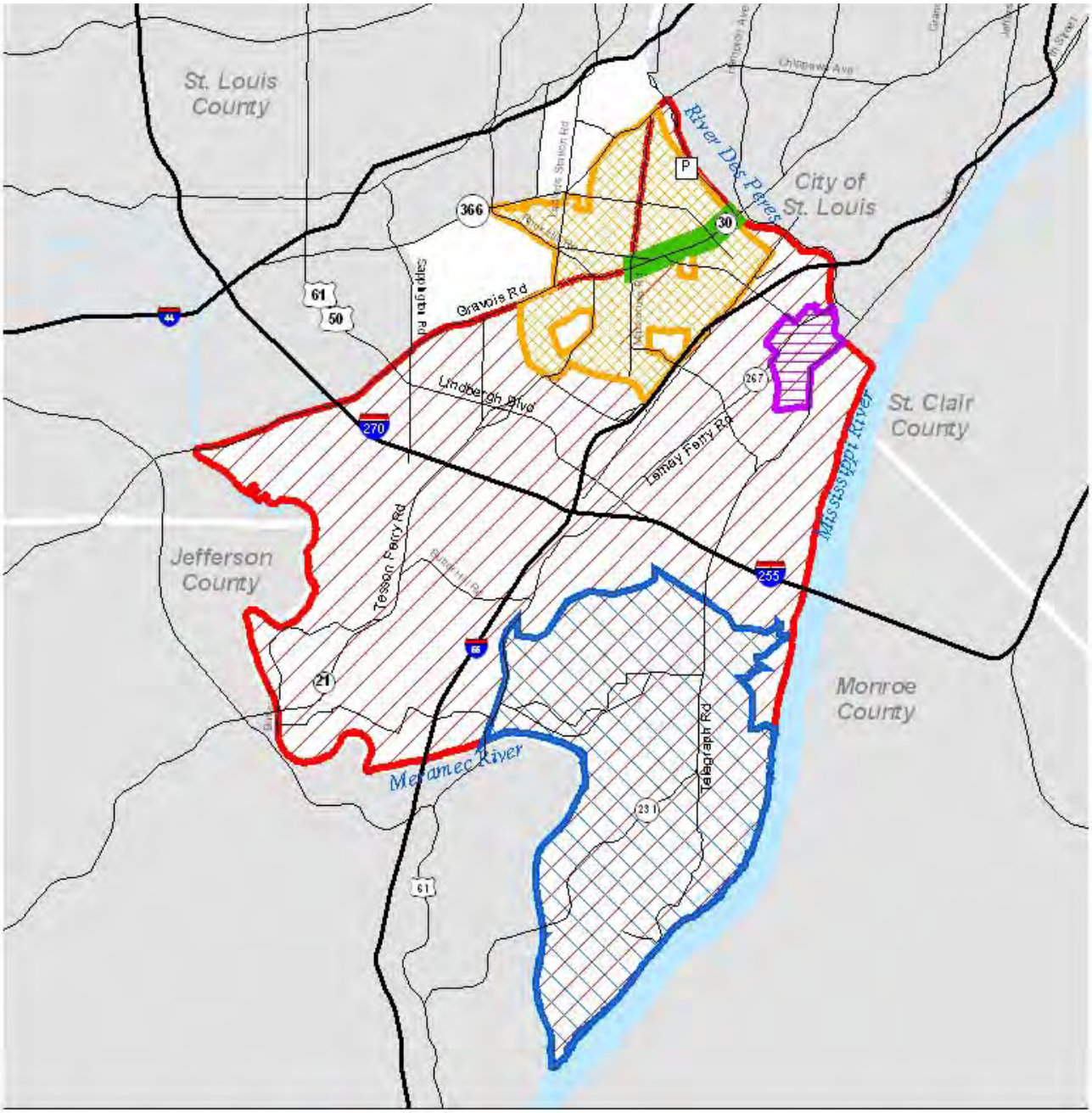
The Sixth District plan covers a 57-square mile area and was completed in 2000. At the time the plan was being developed the northern section of the district was largely built out and population was seen as stable or declining. In contrast the southern part of the district was still growing. This divergence led the final plan to focus on redevelopment issues (e.g., code enforcement to prevent deterioration of housing stock) as much as guiding new development. In this respect the plan complements the redevelopment efforts already underway in Affton including changes along Gravois Road and the use of the Oakville Community Area Study to guide new growth in that area. (See text below for overviews of the Affton and Oakville studies).

A key goal of the plan is a desire to increase employment – especially office uses – to increase the tax base to the benefit of local school and fire districts. This goal, the plan recognizes, is impeded by accessibility problems, most notably a lack of "direct, uninhibited roadway" access to such regional centers as Clayton. Not surprisingly, the study calls for construction of the MetroLink extension "on the best alignment" and with minimal impacts or mitigation of negative effects on adjoining residential properties.

Concerns about Lindbergh Boulevard as a commercial corridor and about the long term prospects for the Westfield Shoppingtown South County center are also highlighted in the study. These areas are seen as South County's "main street" and "downtown." Traffic congestion, the aging of many existing commercial properties and the overall visual character of the area are seen as potential problems that could erode the economic health of these areas and undercut the key goal of improving the Sixth District's tax base.

Similar concerns apply to the various neighborhood commercial corridors within the Sixth District. Conversion of currently abandoned or underused commercial properties to other uses is a featured strategy, made more important by the lack of vacant land for new development in much of the area.

[17] The plans and zoning of the local municipalities, e.g. Shrewsbury, Marlborough or Green Park will be examined should they be directly affected by candidate stations associated with the alternatives developed later in the study.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH

Plan

- Affton
- Affton-Gravois
- Lemay
- Oakville
- Sixth District

0 0.5 1 1.5 2 Miles

Map 5-2

Local Plans

Data Source:
St. Louis County Department of Planning

Prepared By:
HNTB Corporation

June 30, 2003

Affton Community Plan

Recent community planning in Affton both preceded and followed the Sixth District effort. In 1998, the *Affton-Gravois Business Corridor Plan* focused on the need to upgrade and redevelop the business properties along Gravois Road. This initial effort was expanded to the entire area shown on Map 5-4 and the St. Louis County Department of Planning issued a more far reaching Affton Community Plan in June 2002.

An important concern of the broad *Affton Community Plan* is the continued stability and attractiveness of its residential neighborhoods. The plan cites as primary concerns the high number of households with persons 65 and older, the limited range of housing choices available to attract and retain "young, professional families," a perceived decline of owner occupied units and concern about the physical upkeep of the area's housing stock. The Gardenville and Lakewood areas were targeted for a special housing survey. While few units were classified in "poor" condition (10% in Gardenville and less than 1 % in Lakewood), both areas had about 1/3 of their housing stock in need of "minor rehabilitation." Although many code violations are minor, the plan suggests their cumulative effect can diminish the overall character and appeal of neighborhoods. Consequently, it calls for a "focus" code enforcement inspector to be assigned to the area.

The *Affton Community Plan* is concerned about the condition of local commercial corridors and calls for development incentives or public sector participation to spur redevelopment in what has generally been a "stagnant" development market. The *Affton Community Plan* retained the concerns of the earlier 1998 study and cites such problems along Gravois Road as closing of a major grocery chain; deterioration of the physical infrastructure including streets and sidewalks; excessive and growing vacancies in commercial property; decline in the appearance of business facades, and increasing number of property maintenance violations. The use of Tax Increment Financing (TIF) and Community Improvement District (CID) were singled out for consideration. Particular attention is paid to the 11-acre Affton Square development at the northeast corner of McKenzie Road and Gravois Road.

Oakville

The *Oakville Community Area Study Update*, completed in April 1998, is actually an update of an earlier 1989 effort.

Oakville is in the far southeast section of the study area. Oakville as such refers to the part of the study area east of Lemay Road and south of I-255. But the focus of the 1998 study was primarily on the areas south of Old Baumgartner Road and east of Telegraph Road because it is the part of Oakville where most vacant land still remained. Although its location makes it unlikely any MetroLink extension would directly serve much of Oakville, it is a growing area that may be a source of park and ride and bus transfer ridership. Consequently it was included within the overall study area.

In contrast to much of the study area and the County as a whole, Oakville has experienced much development pressure in the past decade or so. Consequently, rather than the redevelopment and stabilization concerns of the Affton plan, the Oakville study's principal focus is on how best to plan for the remaining developable areas. This emphasis was in part a response to numerous

rezoning requests for commercial uses, many along Telegraph Road that sought to capitalize on the proliferation of single family residential development (R-2 and R-3 zones) of the past few decades.

The overall goal of the study is to coordinate location, scale and mix of uses with provision of improved roads, storm water management, public utility extensions, park and recreation facilities and environmental constraints. The study singles out 12 small subareas, many along or near Telegraph Road, and recommends appropriate uses, cites traffic or circulation problems, suggests where park or recreation or community center uses (schools, churches) could be located and where "site considerations" (floodplain, slopes, shape or depth of lots, etc.) might affect development of these local areas. The recommendations often cite attached or clustered housing—uses that would temper the dominant single-family detached character of the area.

Lemay as a "Sustainable Neighborhood"

Lemay is one of the oldest neighborhoods in the study area and has been the focus of several planning initiatives aimed at stabilizing and revitalizing it. In 1996, Project Lemay, a grassroots driven planning process, resulted in a series of actions aimed at quality of life problems such as housing deterioration, crime, condition of sidewalks and streets and other infrastructure.

Lemay is one of several neighborhoods in the St. Louis region (and the only one in the study area) designated as a "sustainable neighborhood." Sustainable Neighborhoods is a partnership of public agencies, 18 banks and the Regional Housing and Community Development Alliance (RHCDA) and Area Resources for Community and Human Resources (ARCHS). In 1998, this partnership made Lemay one of nine areas eligible for investment and loans for new or existing businesses development, job creation and new or rehabilitated housing.

6.0 Environmental Conditions and Potential Development Constraints

6.1 Overview

This chapter provides baseline data regarding the existing environmental conditions within the Metro South study area. This data is intended to facilitate an initial review to detect fatal flaws in the process of identifying potential light rail alignment corridors within the study area. Once these potential corridors have been identified, a more detailed examination of the environmental impacts will be performed as part of the alternatives analysis and then within the development of the Draft Environmental Impact Statement.

6.2 Water/Wetlands

The study area lies within the watershed of both the Mississippi and Meramec Rivers. The highest concentration of wetland areas lies along the Meramec River. There is another concentration of wetland area just west of the Mississippi River, east of the Union Pacific railroad tracks, near Christopher Road. Along Gravois Creek, which parallels the old Missouri Pacific Railroad right-of-way, the wetlands are predominantly near Green Park, as well as in the area between Union Road and Lemay Ferry Road. These, as well as other less notable wetland areas, are illustrated on Map 6-1.

FEMA requires floodways to be designated to identify those areas where development should be avoided to prevent increasing upstream flood elevations. Development of these floodways is restricted by Federal regulations and would be prohibited if the development would impact the flood levels by any more than one foot over the existing flood levels.

The one hundred and five hundred-year floodplains that the Federal Emergency Management Agency (FEMA) has identified within the Metro South study area are illustrated on Map 6-2. The most significant floodplain areas are those along the Meramec River and the vast floodplain along the Mississippi River, located just south of the River Des Peres and north of Jefferson Barracks County Park, and south of Cliff Cave County Park in the Oakville area. Other prominent floodplain areas are located along Gravois Creek and along the River Des Peres between Gravois Creek and the Mississippi River. The most significant creek related floodplain south of Interstate 255 is the Mattese Creek floodplain, along which the Burlington Northern Railroad right-of-way runs.

Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning Metrolink in South St. Louis County

- Study Area
- Interstate
- Major Roadway
- Rivers
- Wetland

0 0.25 0.5 1 1.5 2 Miles

Map 6-1

Wetlands

Data Source:
St. Louis County Department of Planning

Prepared By:
Jacobs Civil Inc.

Date: May 2003

Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning Metrolink in South St. Louis County

Interstate
Major Roadway
Rivers
FEMA100
FEMA500
Study Area

0 0.25 0.5 1 1.5 2 Miles

Map 6-2

Floodplains: 100 & 500-Year

Data Source:
St. Louis County Department of Planning

Prepared By:
Jacobs Civil Inc.

Date: May 2003

6.3 Geology

Rolling topography, hills and the occasional deep ravines characterize the Metro South study area. The landform of the study area is illustrated by the slope analysis provided in Map 6-3. Relatively steep bluffs at the eastern edge of the study area define the line between the alluvial plain of the Mississippi River Valley and the rolling hills to the west. The southern part of the study area includes the alluvial plain of the Meramec River that is bordered by steep hills and some bluffs.

In general, sequential beds of Pennsylvania age shale, sandstones, siltstones, and limestone with seams of coal and clay typify the Metro South study area. Two layers of glacially derived loess overlie the bedrock. The upper Peoria loess is relatively thin low-clay silt and has Roxana loess below.

Some challenging geological characteristics to note include beds of shale and the alluvial materials in the Mississippi River Valley. The alluvium in the river valley is over 100 feet thick and consists of stratified sand, silt and clay with beds of gravel and lenses of organic material.

Another feature of note is the karst plain. The karst plain is primarily located between Jefferson Barracks County Park on the north, the Mississippi River on the east, and Telegraph Road and Christopher Drive on the west, as shown on Map 6-4. The karst plain contains sinkholes and has limited stormwater drainage, which, together, present challenges for transportation improvements in this region.

6.4 Threatened/Endangered Species

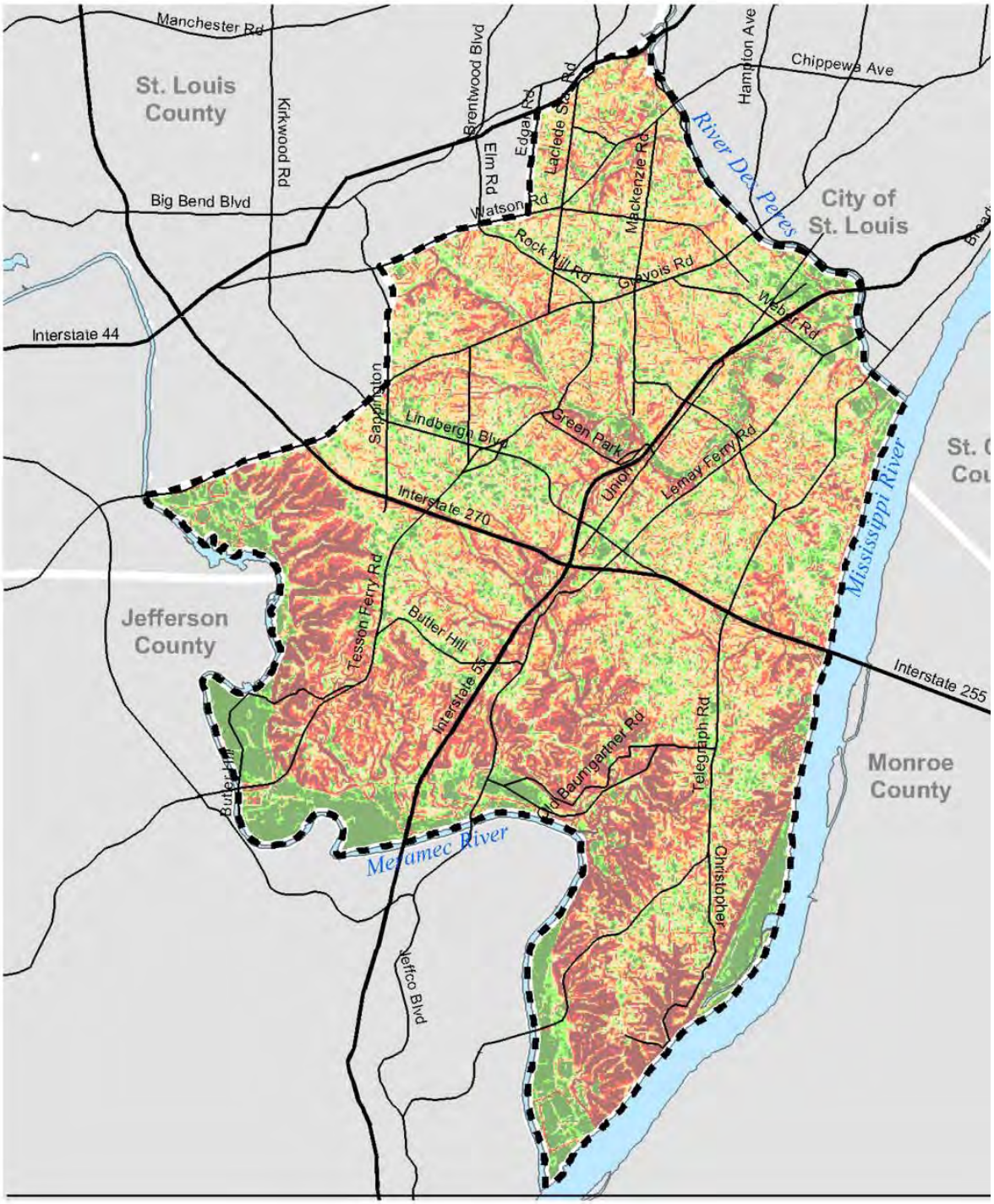
The Southside MTIA study identified a total of 12 threatened and endangered species; however, no protected natural heritage sites had been identified within the study area.

The following is a list of the previously identified threatened and endangered species:

- The gray bat,
- The Indiana bat,
- The bald eagle,
- The American peregrine falcon,
- The pallid sturgeon,
- The pink mucket pearly mussel,
- The scaleshell mussel,
- The running buffalo clover,

The Proposed and Candidate species include:

- The sturgeon chub,
- The sicklefin shub,
- The Topeka shiner, and
- The tumbling creek cave snail.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

- 0 - 1.49%
- 1.5 - 3.49%
- 3.50 - 4.0%
- 4.1 - 7.0%
- 7.1 - 9.9%
- 10 - 14.9%
- Over 15 % Slope

0 0.5 1 2 Miles

Map 6-3

Slope Analysis

Data Source:
St. Louis County Department of Plan
Prepared by:
HNTB Corporation
May, 2003

Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning Metrolink – South St. Louis County

- Study Area
- Interstate
- Major Roadway
- Rivers
- Karst Topography

0 0.25 0.5 1 1.5 2 Miles

Map 6-4
Karst Topography

Data Source:
St. Louis County Department of Planning
Prepared By:
Jacobs Civil Inc.
Date: May 2003

It is important to note that only an on-site inspection could verify the absence or existence of these species within the study area. Once alignment corridors have been identified, further analysis by the Missouri Department of Conservation will be appropriate to confirm or deny the existence of these species or their habitats.

The area of greatest concern exists near and within the Mississippi, Missouri and Meramec Rivers and associated tributaries. Further analysis of the study area is required to identify if the habitats of these species would be impacted by any chosen alignment.

6.5 Hazardous Waste Sites

The Missouri Department of Natural Resources' Hazardous Waste Program has provided a coordinated response concerning the location of hazardous waste sites and facilities at or near the Metro South study area. Table 6-1 summarizes these locations.

Table 6-1: Hazardous Waste Sites

Site	Address / Location Remarks
Voluntary Clean-Up Sites	
Stupp Brothers	3800 Weber Road
Mid-States Paint	9315 Watson Industrial Park
White Rodgers	9797 Reavis Barracks Road
Costco Wholesale	4245 Bi-State Industrial Drive (I-270 and 55)
Muelfarth Auto Salvage	238 E. Arlee Avenue
La Petit Academy	111 Cliff Cave Road
Temporary Storage and Disposal Facilities	
Ashland Chemical	7710 Polk St., St. Louis, MO 63111
Astaris LLC (Carondolet)	8201 Idaho Ave., St. Louis, MO 63111
St. Louis Shipping	611 Marceau, St. Louis, MO 63111
Superfund Sites	
Shrewsbury FMGP	4118 Shrewsbury Ave. at I-44
Federal Facilities	
Jefferson Barracks Air National Guard Base and Post Dumping Grounds	This site is located approximately 12 miles south of downtown St. Louis, in St. Louis County, Missouri. It is bounded to the north by Kingston Road, to the south by Interstate Highway 55, to the west by Telegraph Road, and to the east by the Mississippi River.

Source: Missouri Department of Natural Resources' Hazardous Waste Program

Although the data has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. Once potential alignments have been identified, additional field investigation of the study area will need to determine whether these registered Missouri hazardous waste generator facilities, temporary storage and disposal facilities and tanks, Superfund, Federal Facilities and Voluntary Clean-Up sites are located within the actual areas of concern.

6.6 Air Quality

The Federal Clean Air Act Amendments (CAAA) of 1990 directs the EPA to implement strong environmental policies and regulations that would ensure cleaner air quality. “Primary” standards have been established to protect the public health, while “Secondary” standards are intended to protect the nation’s welfare, and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare. According to Title 1, Section 101, Paragraph F of the Amendments, “No federal agency may approve, accept or fund any transportation plan, program or project unless such plan, program or project has been found to conform to the applicable State Implementation Plan (SIP) in effect under this act.”

In 2000-2002, the St. Louis Metropolitan area recorded numbers that met the current federal standards for ozone pollution. However, in 2004, the region will be subject to much tighter ozone standards that the region, currently, would not meet. Since mobile sources are the single highest source of volatile organic compounds (VOCs) contributing to the region’s air quality challenges, any enhancements to the region’s transportation system that could potentially reduce the Vehicle Miles Traveled (VMT) are of significant interest. All transportation improvement alternatives must be subject to an air quality analysis and conformity determination as required by the Federal Clean Air Act Amendments of 1990. This analysis must demonstrate that the transportation improvement alternatives do not adversely affect attainment of the National Ambient Air Quality Standards (NAAQS) for the region and the study area, or they cannot by implemented.

6.7 Noise

In accordance with Federal Transit Administration (FTA) guidelines, consideration must be given to minimizing the noise impacts of a transportation project. FTA criteria for whether the increase in noise levels is objectionable depend on the level of transit noise relative to existing community noise and the sensitivity of the land uses located near the project site to noise.

At this stage, our preliminary review has not identified a concentration of particularly significant noise-sensitive receptors that would present a fatal flaw to the project. Once alignment corridors have been identified, the consultant team will compare the severity of the noise impact by mode and alignment as part of the alternatives analysis.

6.8 Historical/Archeological Resources

A state search of the National Registry of Historic Places was performed for St. Louis County and the City of St. Louis. Table 6-2 lists those sites found within the Metro South study area. Map 6-5 identifies the locations of these sites within the study boundary.

Table 6-2: Historic Sites

Name	Address	Location
Alswel	98 Alswell Cir.	Sunset Hills Vicinity
Jefferson Barracks Historic District	Lindbergh, Telegraph, and Broadway	10 mi. S of St. Louis
Jefferson Barracks National Cemetery	2900 Sheridan Rd.	Mehlville
Joseph Sappington House	10734 Clearwater Dr.	Affton
Louis Auguste Benoist House	7802 Genesta St.	Affton
Robert Koch Hospital	4101 Koch Rd.	Oakville Vicinity
White Haven	9060 Whitehaven Dr.	Grantwood Village
William Long Log House	9385 Pardee Rd.	Crestwood

Source: EWGCC GIS Data Directory

6.9 Parks

According to the Sixth County Council District Community Area study, none of the thirteen State parks in St. Louis County are in the sixth district. The Sixth County Council District boundaries encompass the Metro South study area yet they continue beyond the Metro South west boundary to I-44.

As shown on Map 6-6 the Metro South study area does, however, include a significant number of St. Louis County Parks. Of the county's 72 park sites, 22 parks sites (30 percent) totaling 2,133 acres are in the study area. These parks range in size from tiny Gravois Creek Park, to Jefferson Barracks Park with 425 acres. In addition to Jefferson Barracks, there are six other large parks that exceed 100 acres.

Future parkland expansion within the study area includes the development of the Lower Meramec Linear Park, eastward along the Meramec River, and the expansion of Grant's Trail as ongoing parkland projects.

In determining potential alignment corridors, parklands present a particularly restrictive component. One condition is compliance with Section 4(f) of the Department of Transportation Act, which prohibits using public parkland for transportation purposes unless there are no feasible and prudent alternatives, and requires all possible planning to minimize harm. All public parklands are protected by Section 4(f). To demonstrate that these conditions are met, Federal Transit Administration requires that appropriate analysis and coordination be undertaken, such as an Environmental Impact Statement (EIS)/Assessment. The EIS provides detailed guidance on all factors which must be addressed to determine how a transit development impacts the surrounding environment and how the impacts be mitigated. Section 4(f) also requires that the approval of the Secretary of the Department of the Interior be obtained prior to instituting the conversion of public parkland. A summary of St. Louis County Parks with restrictions can be found in Table 6-3.

In addition, there are three conservation areas within the study area noted by the Missouri Department of Conservation. These small (one acre) sites are Community Assistance Program (CAP) sites and are generally fishing lakes affiliated with identified parklands: Bee Tree Lake (Bee Tree Park), Suson Park Lakes and Gravois Creek Conservation Area along the eastern most end of Grant's Trail.

Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH

- Study Area
- Interstate
- Major Roadway
- NRHP Sites
- Rivers

0 0.25 0.5 1 1.5 2 Miles

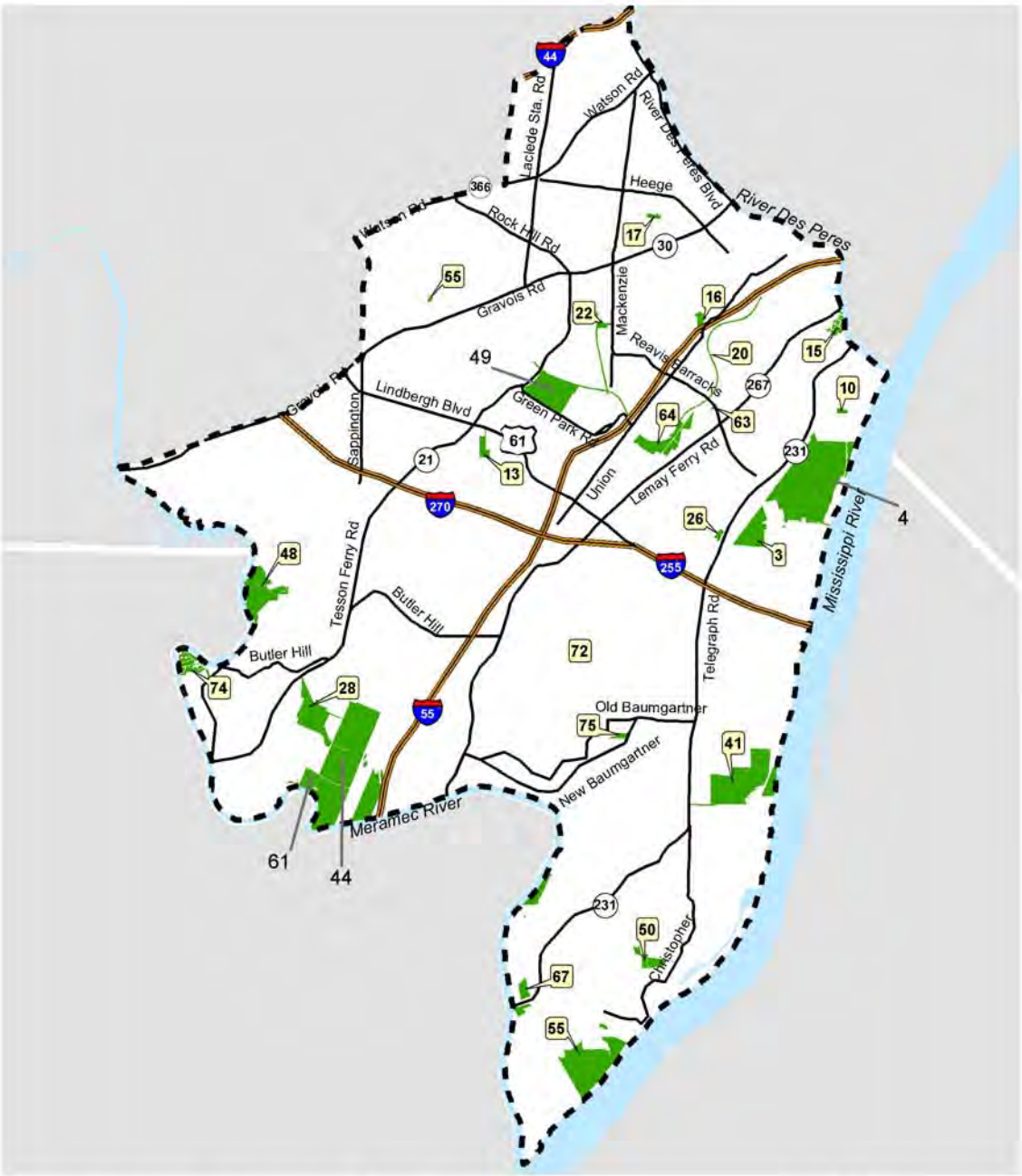
Map 6-5

National Register of Historic Places

Data Source:
East-West Gateway Coordinating Council

Prepared By:
Jacobs Civil Inc.

Date: July 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

- Study Area
- Rivers
- Park
- Interstate
- Major Roadway
- # 4f Park Number
- # 6f/4f Park Number

0 0.25 0.5 1 1.5 2 Miles

Map 6-6
Parks

Data Source:
St. Louis County Department of Planning

Prepared By:
Jacobs Civil Inc.

Date: July 2003

Additional restrictions are place on parklands that have benefited from the use of Federal Land and Water Conservation Funds. (See Table 6-4.) In general, land acquired with the aid of a Federal Land and Water Conservation Fund grant is restricted to recreational uses. Should these lands be converted to non-recreational uses, certain conditions of federal law would have to be addressed. One such law is compliance with Section 6(f) of the Land and Water Conservation Act. (Map 6-6 highlights those parks with Section 6(f) restrictions.) In essence, this Act requires that an equally valued piece of property, adjacent to the park, be acquired to replace those lands converted to non-recreational use. The federal government must approve such land replacement, or mitigation. Table 6-4 lists parkland with these Section 6(f) restrictions.

Table 6-3: Restricted Parklands

Park No.	Park Name	Acreage By Park	Acreage Leased To	Acreage By Park*	Council District	Jurisdiction	Remarks and Restrictions
3	Sylvan Springs	69.90		69.90	6	County	No restrictions. Historical significance.
4	Jefferson Barracks	425.28		425.28	6	County	6f restrictions. Historical register.
10	Black Forest	4.25		4.25	6	County	No restrictions. CD office funded development.
13	Bohrer	17.11		17.11	6	County	No restrictions.
15	Lemay	30.00		30.00	6	County	FEMA restrictions
16	Ohlendorf	10.49		10.49	6	County	No deed restrictions.
17	Mathilda	6.84		6.84	5	County	No restrictions.
20	Grant's Trail	81.36		81.36	5,6	Co., Green Pk and Grntwd	Leased from Trailnet (99 year lease). Rail to Trail restrictions.
22	Affton C. Ctr.	7.03		7.03	6	County	Use as public park. Emerson Electric retains park naming rights.
26	R-9 Community Center	5.27		5.27	6	County	No restrictions. Political considerations.
28	Suson	98.89		98.89	6	County	Gift from Salomon has no restrictions. 10 acres from O'Fallon Bros. to be used as park and kept in its natural state with no roadway developed.
35	Bee Tree	198.46		198.46	6	County	6f restrictions.
41	Cliff Cave	221.13		221.13	6	County	6f restrictions. Heritage park.
44	Kennedy, Wayne Complex	269.33	(173.70)	95.63	6	County	6f restrictions. Golf lease with Eagle Golf Enterprises, Inc. 'til 9-30-2029
48	Robert Winter	115.23		115.23	6	County	Pt. gift. 6f restrictions. Park to be known as Robert Winter Pk.
49	Clydesdale	117.24		117.24	6	Green Park	6f restrictions.
50	Albrecht	29.86		29.86	6	County	Gift. Solely for public park and rec. purposes. Remains as natural area.
55	Long Log Cabin	2.40		2.40	5	Crestwood	No restrictions other than historical register.
57	Simpson	206.42		206.42	3	Valley Park and County	Pt. gift. 6f restrictions. Park to be known as Simpson Pk. Some FEMA.
61	Lower Meramec	271.56		271.56	6	County	6f restrictions. Some FEMA.
63	Gravois Creek Linear Park	0.59		0.59	6	County	No restrictions.
64	Union Road	65.19		65.19	6	County	Leased from MSD. Expires on 05-28-2006
67	Widman, Earl	80.88		80.88	6	County	Pt. gift. Known as Earl Widman Park, used as public park (consider motorcycle park) FEMA restrictions
72	Forman	13.83		13.83	6	County	No restrictions.
74	Butler Hill	80.00		80.00	6	County	FEMA restrictions.
75	Classe	7.71		7.71	6	County	Gift. Known as Ferdinand M. Classe Pk and used as public pk free of charge.

Source: St. Louis County Parks Department

Table 6-4: Land and Water Conservation Fund Projects

Park Number	Project (Park) Name	Acreage Acquired	Acquisition Proj. Amount	Development Proj. Amount
4	Jefferson Barracks (Phase II Trail Dev.)			$52,500.00
35	Bee Tree Park (Nims Estate)	99.0	$137,500.00	
41	Cliff Cave Park	110.5	$281,376.00	
41	Cliff Cave Park			$84,430.53
48	Robert Winter Park	57.2	$90,000.00	
49	Clydesdale Park (Gravois Creek)	58.6	$101,189.35	
53	Unger Park (Meramec Bend Park)	47.5	$75,000.00	
61	Meramec River Acquisition	291.1	$420,250.00	

Source: St. Louis County Parks Department

7.0 Transportation Facilities and Travel Demand Patterns

7.1 Facilities: Roads

The existing road network that has developed in St. Louis County and within the study area generally radiates outward from the City of St. Louis to serve outlying communities. St. Louis County identifies the two interstate highways that bisect the area as the most significant transportation related assets of the Metro South study area. These highways are:

- Interstate 55, which traverses the area in a generally north-south direction, from the City of St. Louis to Jefferson County, and
- Interstate 270/255, which traverses in a generally east-west direction from Illinois toward western St. Louis County.

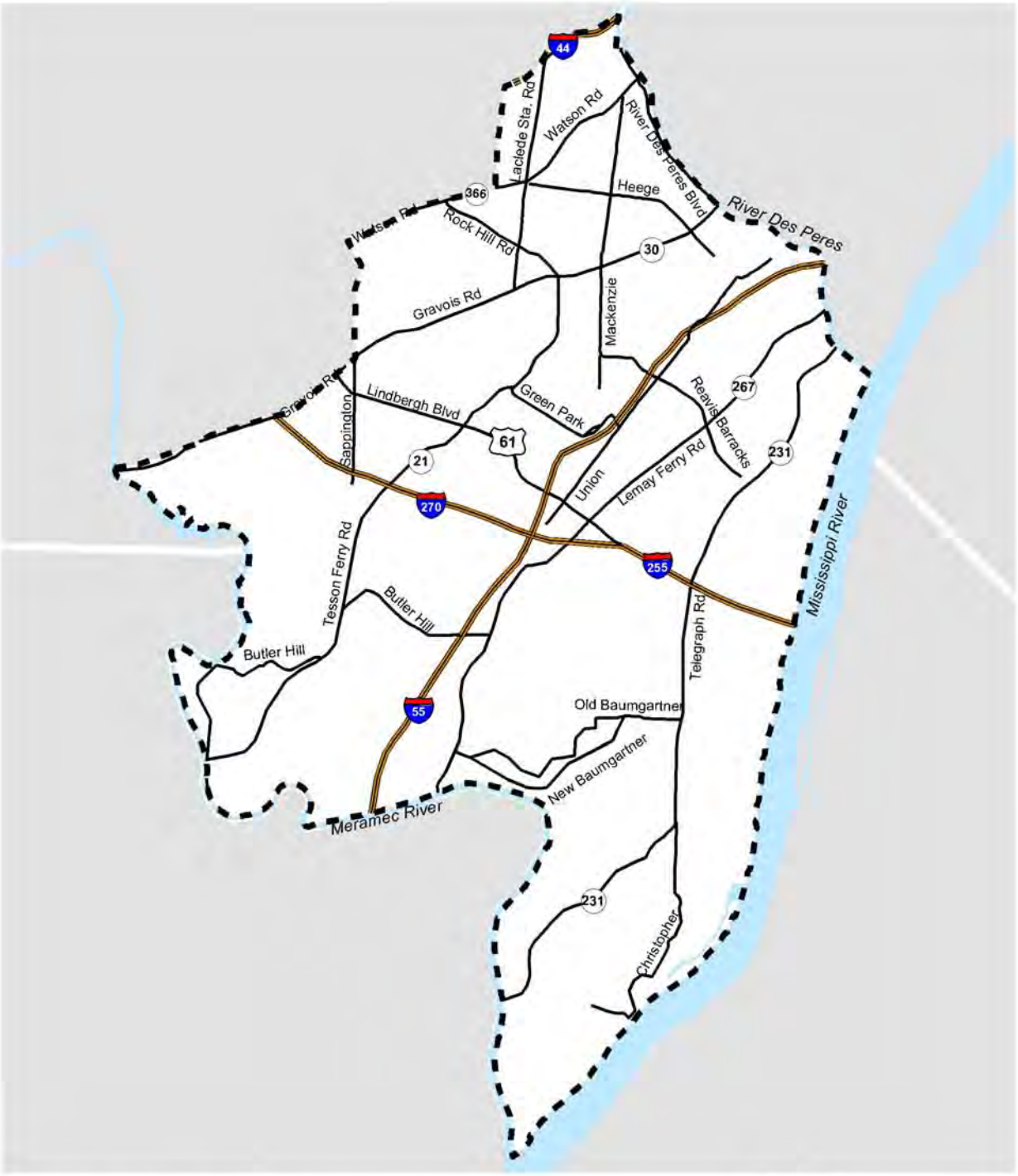
However, the Cross County Corridor MTIA, Southside MTIA and Sixth County District Community Area Study all noted the lack of direct north-south service across the study area to central St. Louis County. The state roadways that run northeast to southwest within the study area connect south St. Louis County to the City of St. Louis to the north and Jefferson County to the south. These state routes are

- Interstate 55,
- Gravois Road (Route 30),
- Broadway/Kingston Drive/Telegraph Road (Route 231),
- Lemay Ferry Road (Routes 61,67,267),
- Tesson Ferry Road (Route 21),
- MacKenzie Road (Route P) and
- Watson Road (Route 366).

The primary network of St. Louis County roadways that assist in serving the north-south travel are roads such as Butler Hill Road, Sappington Road, Baptist Church Road, Laclede Station Road, Union Road, and portions of Mackenzie and Telegraph Roads. These roads are not maintained by the state.

The only other state routes within this study area are Lindbergh Boulevard (Route 67) and Interstate 270/255, which both run east west. This network of roadways serving the Metro South study area is illustrated on Map 7-1.

Available funding for transportation projects in the St. Louis region has declined and, as a result, these resources are being channeled into preservation of the existing system, rather than expansion and capacity roadway improvements. The East-West Gateway Coordinating Council's Transportation Improvement Program (2003-2007) does not identify any proposed improvements along the major corridors within the Metro South study area that would significantly increase the capacity of the system (e.g. widening or major signalized intersection improvements). However, Legacy 2025 does include some investment priorities slated for funding within the region's fiscal constraints for 2021-2025. These investments include adding lanes and operational improvements to Route 21 (Tesson Ferry Road) and Route 231 (Telegraph Road) along the sections shown on Map 7-2.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

- Study Area
- Interstate
- Major Roadway
- Rivers

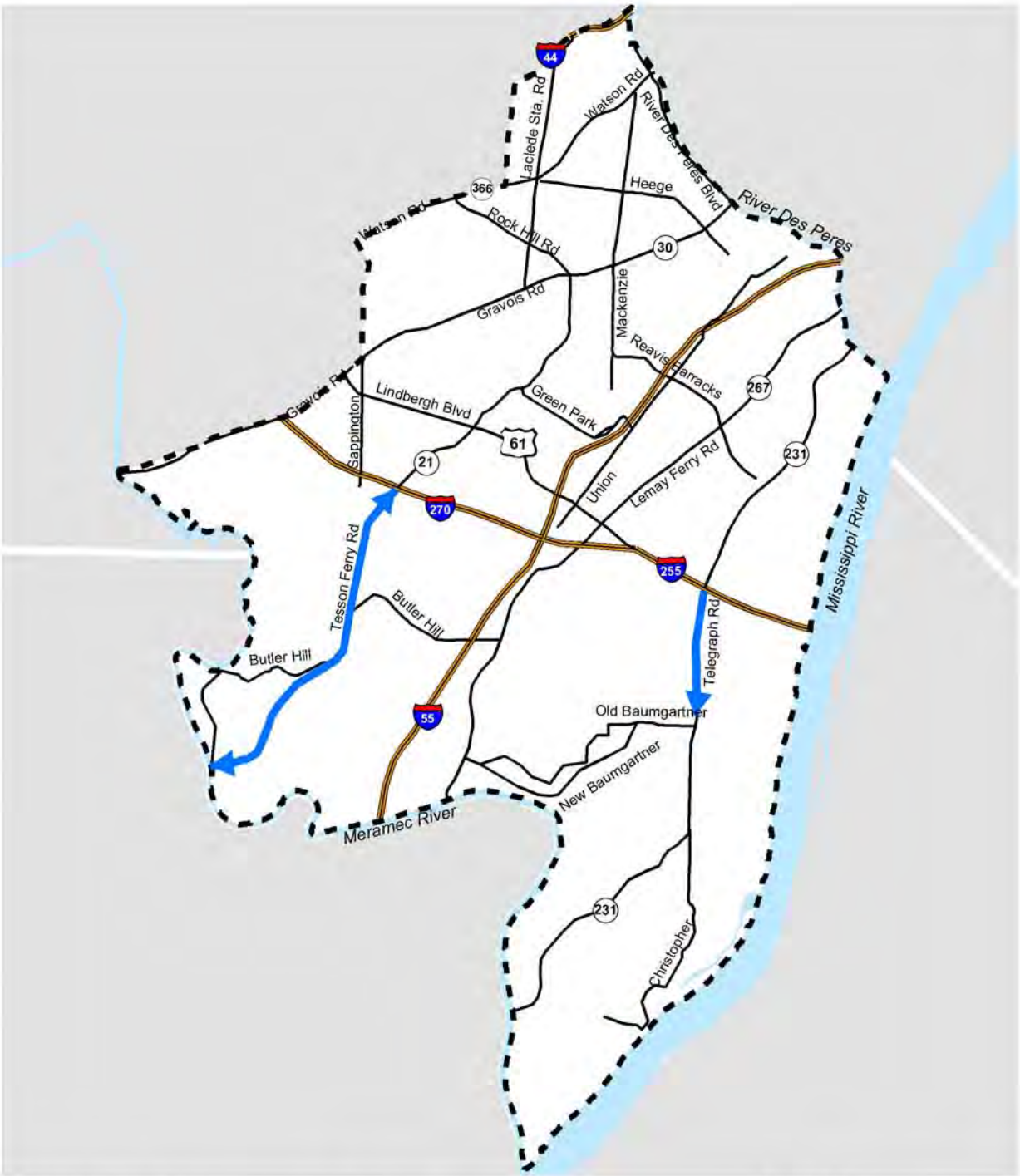
0 0.25 0.5 1 1.5 2 Miles

Map 7-1

Metro South Roadway Network

Prepared By:
Jacobs Civil Inc.

Date: May 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

- Study Area
- Interstate
- Major Roadway
- Rivers
- Proposed Improvments *(Add Lanes)*

0 0.25 0.5 1 1.5 2 Miles

Map 7-2

Proposed Improvements 2021-2025

Data Source:
East-West Gateway Coordinating Council

Prepared By:
Jacobs Civil Inc.

Date: July 2003

7.2 Current Travel Conditions

Traffic Volumes

Map 7-3 illustrates current Annual Average Daily Traffic (AADT) volumes on the routes within the Metro South study area. AADTs range from around 6500 vehicles per day (vpd) on Telegraph Road near the Meramec River to over 132,000 vpd on Interstate 270 between Gravois Road and Tesson Ferry Road. As would be expected, the Interstates carry the highest volumes, nearing or exceeding 100,000 vpd. In addition, many of the major arterials carry volumes of 30,000 to 60,000 vpd, especially near points of interstate access. Table 7-1 shows the traffic volumes for each of the routes.

Traffic Levels of Service

Using 2001 traffic data, the Missouri Department of Transportation (MoDOT) prepared Level of Service (LOS) determinations for the state routes within the study area based on MoDOTs Transportation Management Systems analysis. Some data used in the calculation of LOS was recently updated (e.g. speed limits), however, new analysis results are unavailable at this time. Intersection LOS was not included in this analysis. The LOS provided by each of these roadways is included in Table 7-1 as well as illustrated on Map 7-4. To simplify the congestion data, only LOS D, E and F are shown and have been described as "Congested/Unstable Flow", "Very Congested/Very Unstable Flow" and "Stop-and-Go/Gridlock", respectively.

Road Continuity, Road Network Density and Regional Accessibility

Highlighting the regional road network to distinguish between Radial Roads that converge on Downtown St. Louis roads versus Radial Connector roads that tend to run in a more north-south direction illustrates the relative "undersupply" of continuous Radial Connector roads (shown in black on Map 7-5) in the study area. The Radial highways (double lines on Map 7-5) are more equally distributed between the study area and the area designated North-Central County. This also indicates, not just the undersupply, but also the discontinuity of the Radial Connector roads in the study area.

This disparity translates into fewer linear miles of highway per square mile, i.e., a less dense road network in the study area versus the area designated North-Central County. Map 7-6 quantifies this difference by comparing the network density for the study area (0.062 linear miles/square mile) to the density (0.082 liner miles/square mile). of an equally sized area designated North Central County This means the overall road density of the study area is about 75% that of the North Central. Yet even though the density of Radial highways in both areas is comparable, it is important to note that the density of Radial Connector highways in the study area is only 44% of that found in the area designated North-Central County, a very significant difference.

Because of discontinuity and congestion, this disparity in road continuity and network density suggests relatively longer trip times from the study area to various destinations than trips from other areas in the region to the same destinations. This inference was tested and found to be true. Using the results from the year 2000 travel demand model, several sets of origins from the study area and other areas to the same destinations were identified. These sets were based on having ***the***

same travel mileage (i.e., along the actual road network, not "as the crow flies") to the destination.

The travel times yielded by the model for the morning rush hour on the congested road network were compared. For example, looking at Figure 7-1, Florissant and the southern part of the study area are both 17.4 miles from Downtown St. Louis. However, from Florissant to Downtown St. Louis the actual travel time is 31 minutes versus 43 minutes from the southern part of the study area.

This same pattern holds from Overland to Downtown St. Louis when compared to the central part of the study area – 25 minutes versus 32 minutes. \

The travel times yielded by the model for the morning rush hour on the congested road network were compared. For example, looking at Figure 7-1, Florissant and the southern part of the study area are both 17.4 miles from Downtown St. Louis. However, from Florissant to Downtown St. Louis the actual travel time is 31 minutes versus 43 minutes from the southern part of the study area.

This same pattern holds from Overland to Downtown St. Louis when compared to the central part of the study area – 25 minutes versus 32 minutes.

Transit times were also compared for a few data points. It takes almost twice as long to travel from the central part of the study area to Downtown St. Louis via transit than it does from Overland (Figure 7-1). The actual transit times for this pair are 85 minutes for the study area versus 43 minutes for Overland. The same kind of analysis is presented in Figures 7-2 and 7-3 for trips to Clayton and Barnes Jewish Center. In three cases, times from the study area are equal to those from other origins. From Chesterfield to BJC, for example, takes the same time as from the central study area, which is the same road distance (even though Chesterfield is twice as far in "as the crow flies", since it has excellent direct access, which the study area does not.)

All other Origin-Destination pairs showed the same pattern, i.e. substantially longer congested travel times from the study area to key destinations relative to other origins in the region. Poor highway and transit accessibility places the study area at a significant disadvantage regarding both mobility and accessibility.

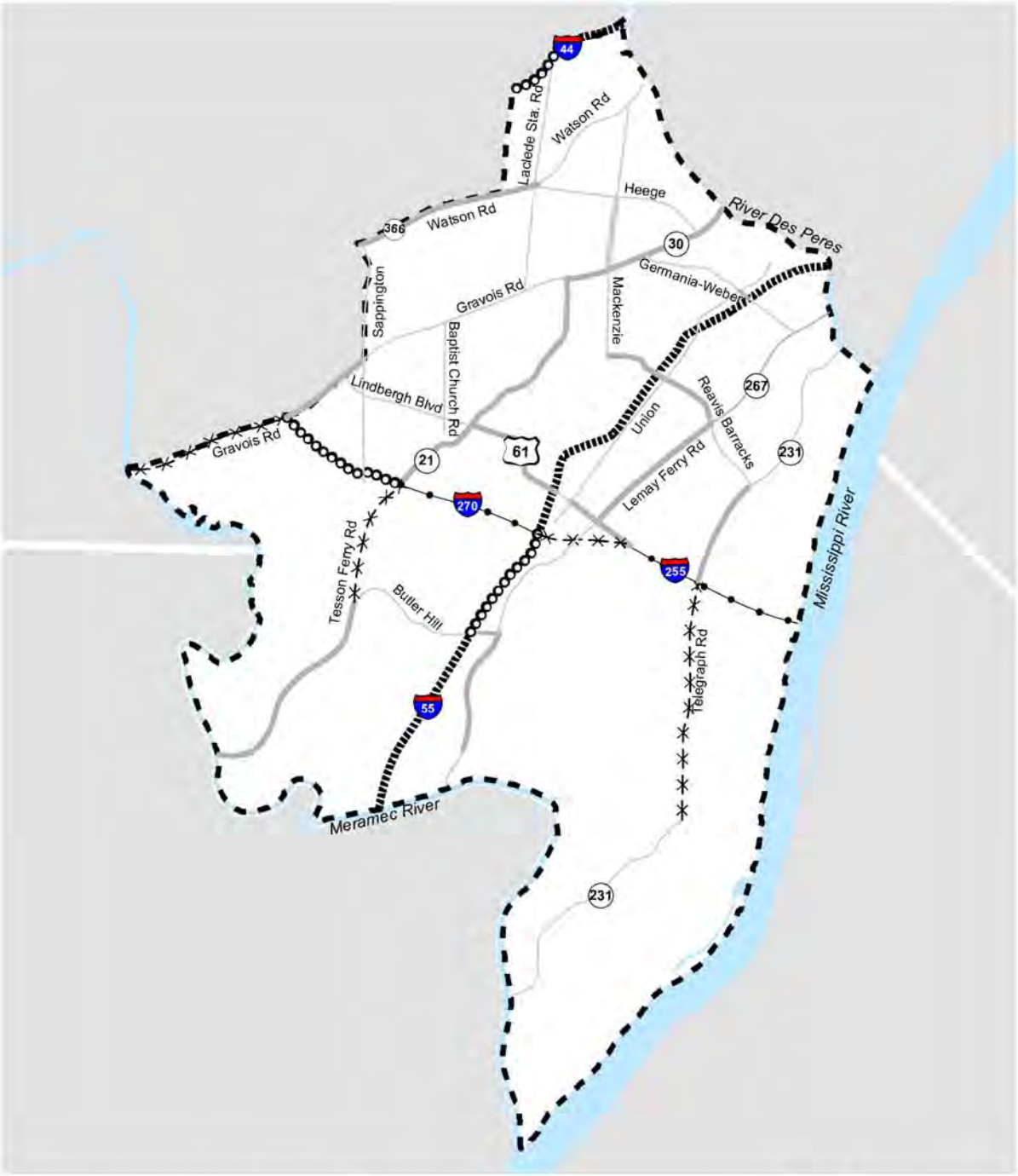
Tables 7-2 and 7-3 present the actual values that Figures 7-1, 7-2 and 7-3 illustrate. . Because the matched pairs were not perfectly equidistant, travel times were adjusted to ensure that real comparisons are reflected in the results. These adjusted travel times are shown in parentheses in Table 7-2.

This analysis clearly demonstrates the challenges facing the existing transportation system serving the Metro South study area:

- There is no high-speed interstate highway connection to the central part of the County.
- There are relatively few north-south Radial Connectors serving the Metro South area.
- The north-south arterial connectors that do exist have very poor continuity, making through movements in the north-south direction less efficient.

- There are numerous traffic signals along major routes in the study area, another impediment to efficient mobility.

Since the only existing transit vehicles serving the Metro South area are buses operating on the same fractured street network, transit travel speeds are similarly handicapped.



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

Study Area
Rivers
Average Daily Traffic
< 19,999
20,000-39,999
40,000-59,999
60,000-79,999
80,000-99,999
>100,000

0 0.25 0.5 1 1.5 2 Miles

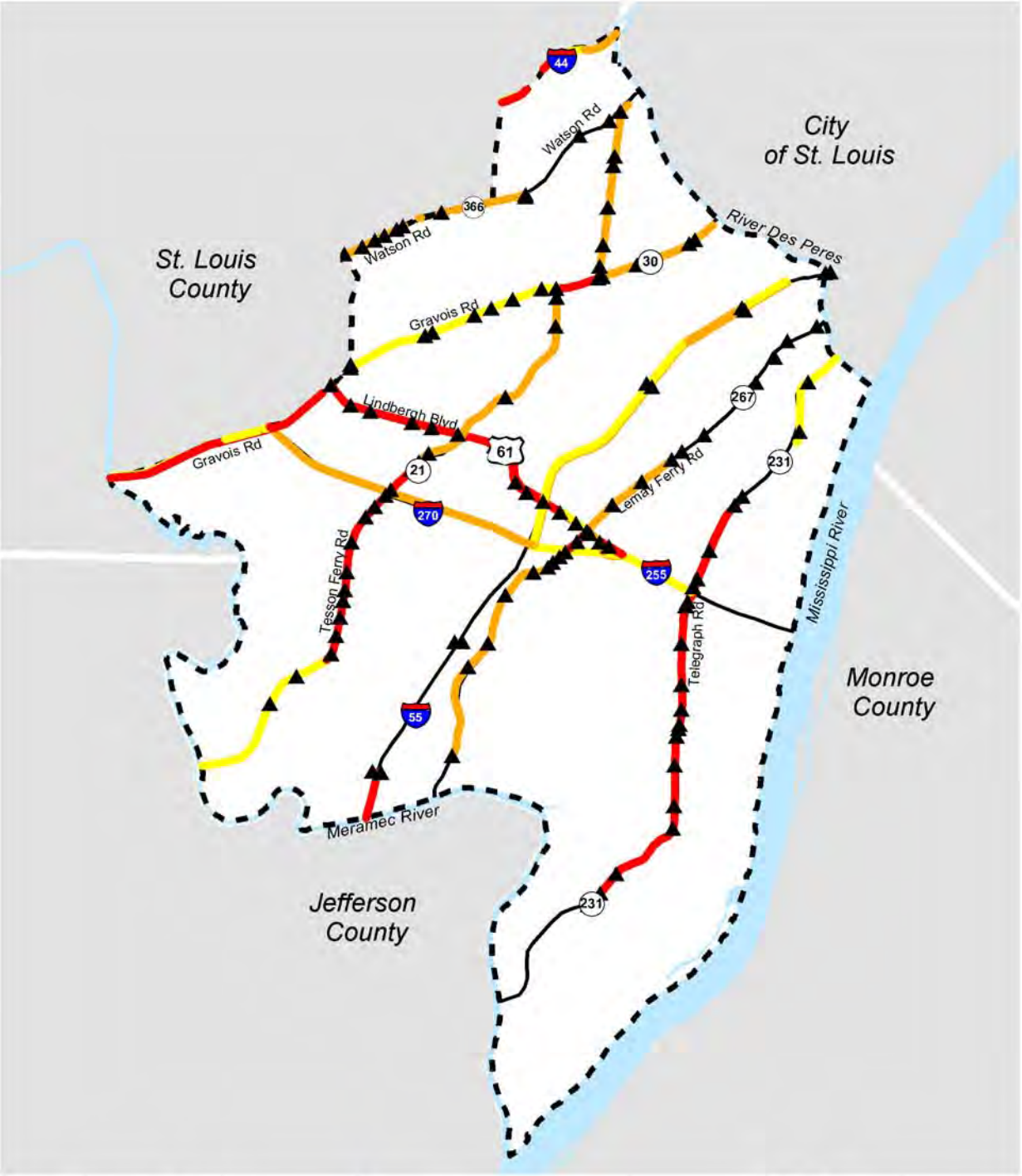
Map 7-3
Traffic Volumes

Data Source:
Missouri Dept. of Transportation/St. Louis County Dept. of Highways and Traffic
Prepared By:
Jacobs Civil Inc.
Date: July 2003

Table 7-1: Traffic Volumes and Levels of Service

Roadway	Segment		Traffic Volume	Level of Service
	From	To		
Telegraph Rd/Rte.231	Meramec River	Christopher Road	6,510	---
	Christopher Road	I-255	53,506	F
	I-255	Reavis Barracks Road	27,448	F
	Reavis Barracks Road	River Des Peres	11,764	D
Lemay Ferry Rd/ Rte.267	Meramec River	New Baumgartner Road	18,251	---
	New Baumgartner Road	Butler Hill Road	28,192	E
	Butler Hill Road	I-270	49,058	E
	I-270	Lindbergh Boulevard	28,189	F
	Lindbergh Boulevard	Reavis Barracks Road	28,189	E
	Reavis Barracks Road	Weber Road	12,386	---
	Weber Road	River Des Peres	12,386	---
Tesson Ferry Rd/ Rte.21	Meramec River	Butler Hill Road	24,196	D
	Butler Hill Road	I-270	58,375	F
	I-270	Lindbergh Boulevard	35,006	F/E
	Lindbergh Boulevard	Gravois Road	27,664	E
Gravois Rd/ Rte.30	Meramec River	I-270	47,117	F/D
	I-270	Lindbergh Boulevard	32,310	F
	Lindbergh Boulevard	Tesson Ferry Road	18,789	D
	Tesson Ferry Road	Mackenzie Road	34,776	F
	Mackenzie Road	River Des Peres	23,273	E
Watson Rd/ Route 366	Sappington Road	Laclede Station Road	25,983	E
	Laclede Station Road	River Des Peres	15,890	---
Mackenzie Rd/Route P	Watson Road	Heege Road	10,437	E
	Heege Road	Gravois Road	20,771	E
Lindbergh Blvd/61-67	Gravois Road	Tesson Ferry Road	15,079	F
	Tesson Ferry Road	I-55	26,543	F
	I-55	Union	17,204	F
	Union Road	Lemay Ferry Road	26,192	D
	Lemay Ferry Road	I-255	22,286	E/F
I-55	Meramec River	Butler Hill Road	94,624	F
	Butler Hill Road	I-270	103,750	---
	I-270	Reavis Barracks Road	81,389	D
	Reavis Barracks Road	River Des Peres	93,424	D/E/D
I-270/I-255	Gravois Road	Tesson Ferry Road	132,182	E
	Tesson Ferry Road	I-55	128,501	E
	I-55	Lemay Ferry Road	99,149	D
	Lemay Ferry Road	Mississippi River	69,796	D
I-44	Elm Avenue	Laclede Station Road	124,914	F
	Laclede Station Road	River Des Peres	104,974	D/E

Source: MoDOT



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

- Traffic Signal
- Congested/Unstable Flow **(LOS D)**
- Very Congested/Very Unstable Flow **(LOS E)**
- Stop-and-Go Conditions/Gridlock **(LOS F)**
- Study Area
- Rivers

0 0.25 0.5 1 1.5 2 Miles

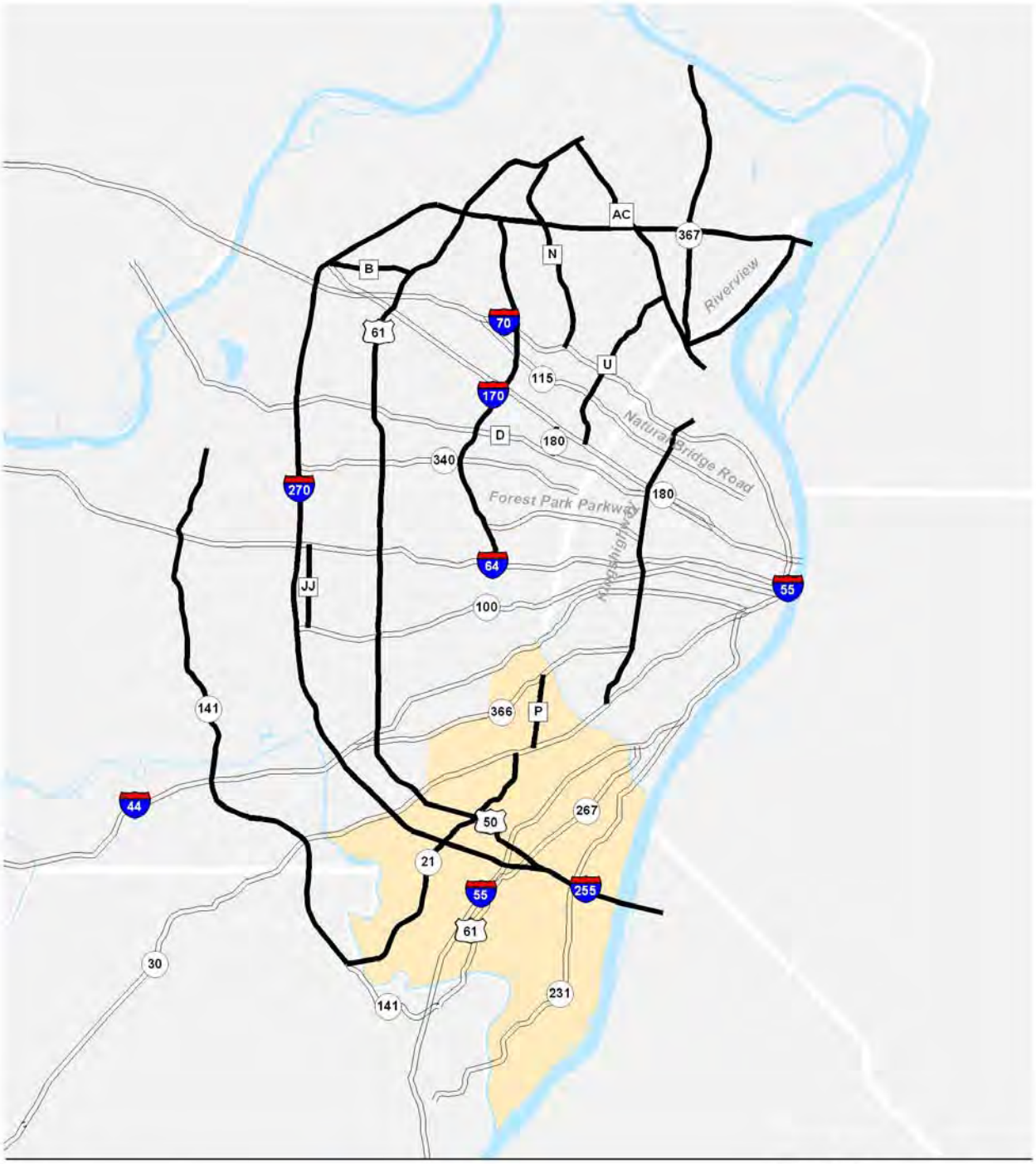
Map 7-4

Traffic Level of Service

Source:
MoDOT, 2001 Data

Prepared By:
Jacobs Civil Inc.

Date: July 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

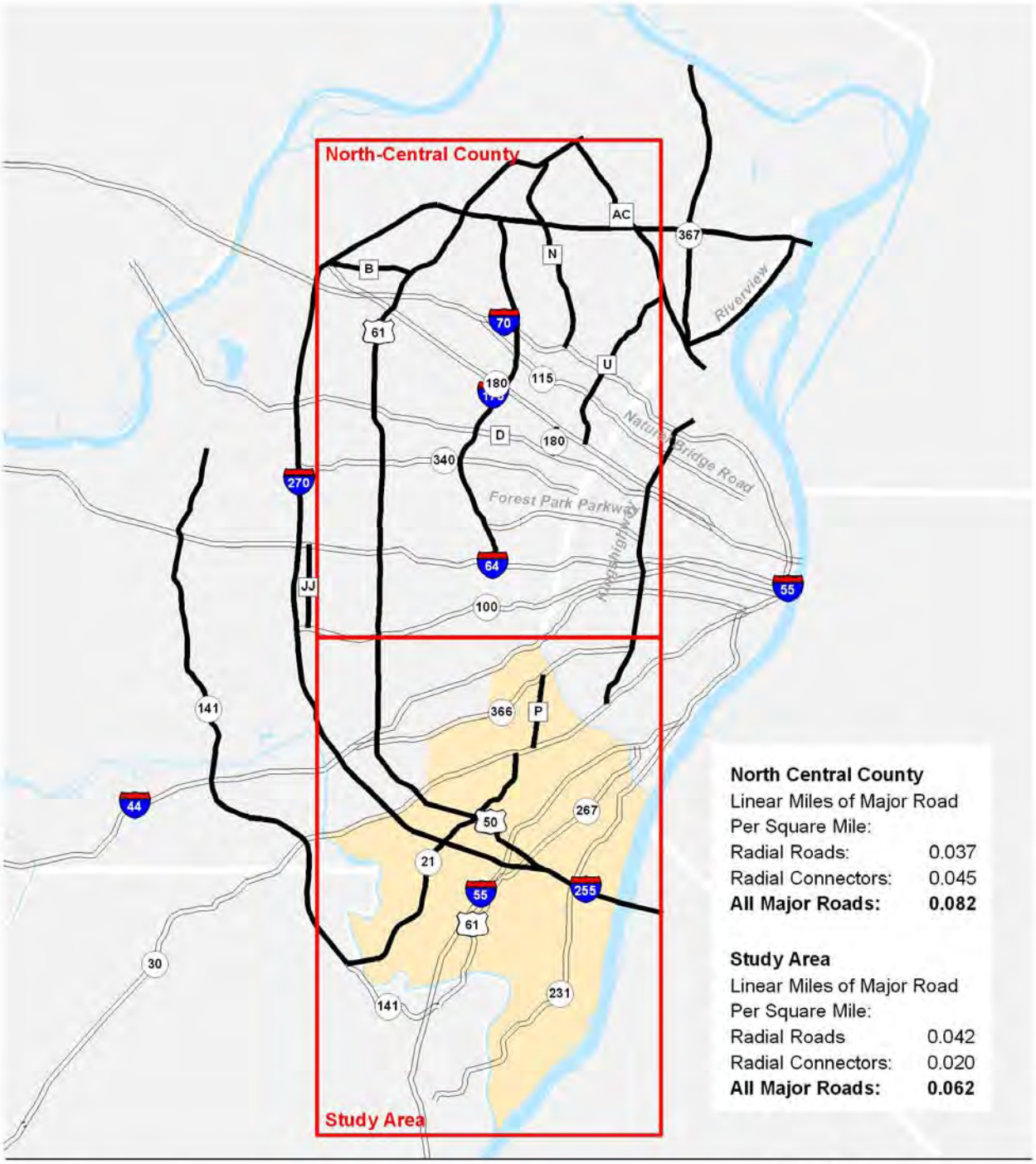
metroSOUTH
Planning MetroLink in South St. Louis County

Study Area
Radial Roads
Radial Connectors

1 0 1 2 3 Miles

Map 7-5
Radial Roads vs. Radial Connectors

Data Source:
St. Louis County Department of Planning
Prepared By:
HNTB Corporation
July 9, 2003



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies:

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

Study Area
Radial Roads
Radial Connectors

1 0 1 2 3 Miles

Map 7-6

Major Road Density Comparison

Data Source:
St. Louis County Department of Planning
Prepared By:
HNTB Corporation
July 9, 2003

Figure 7-1: Travel Times to Downtown

Figure 7-2: Travel Times to Clayton

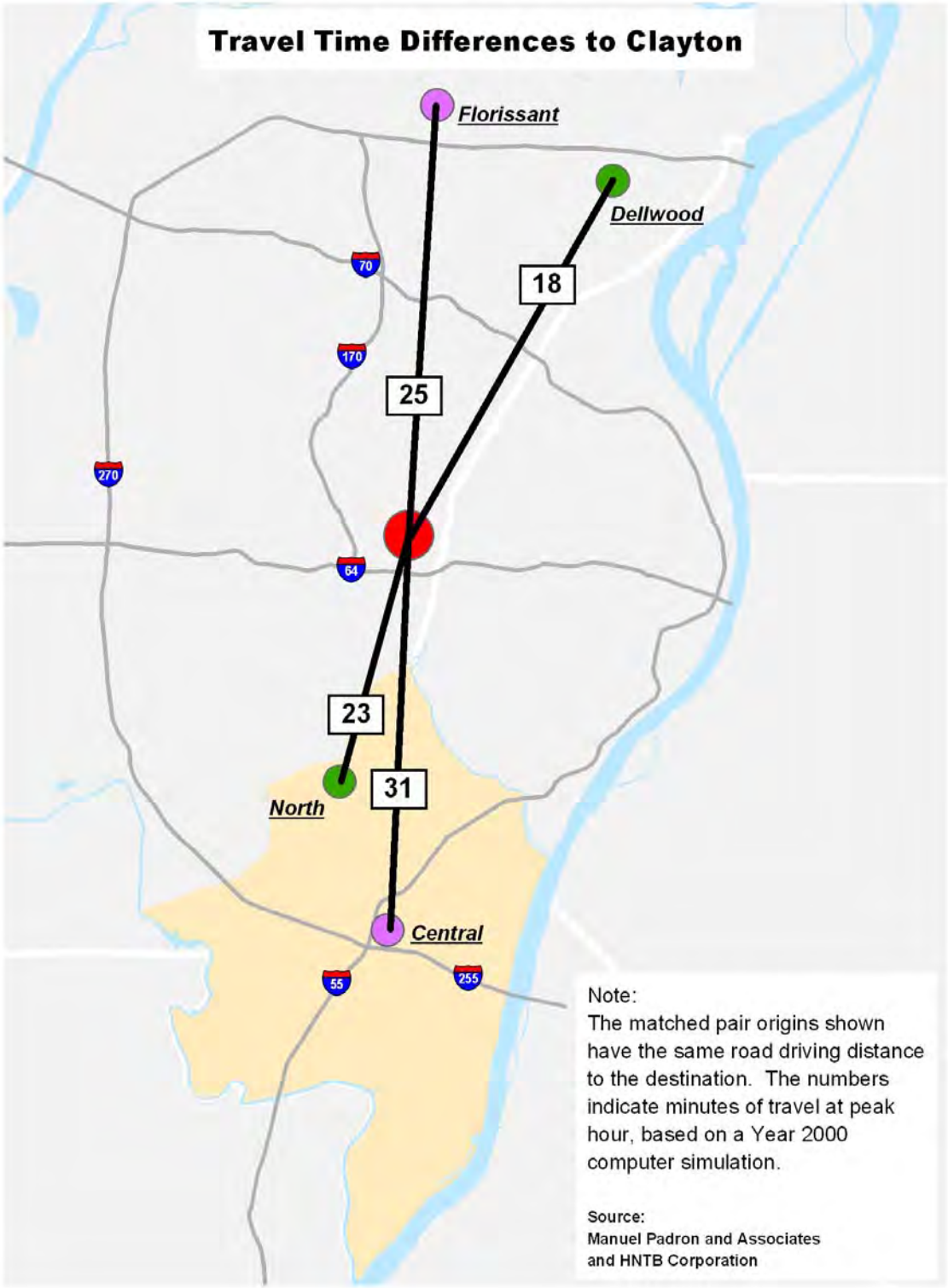


Figure 7-3: Travel Times to Barnes Jewish Center

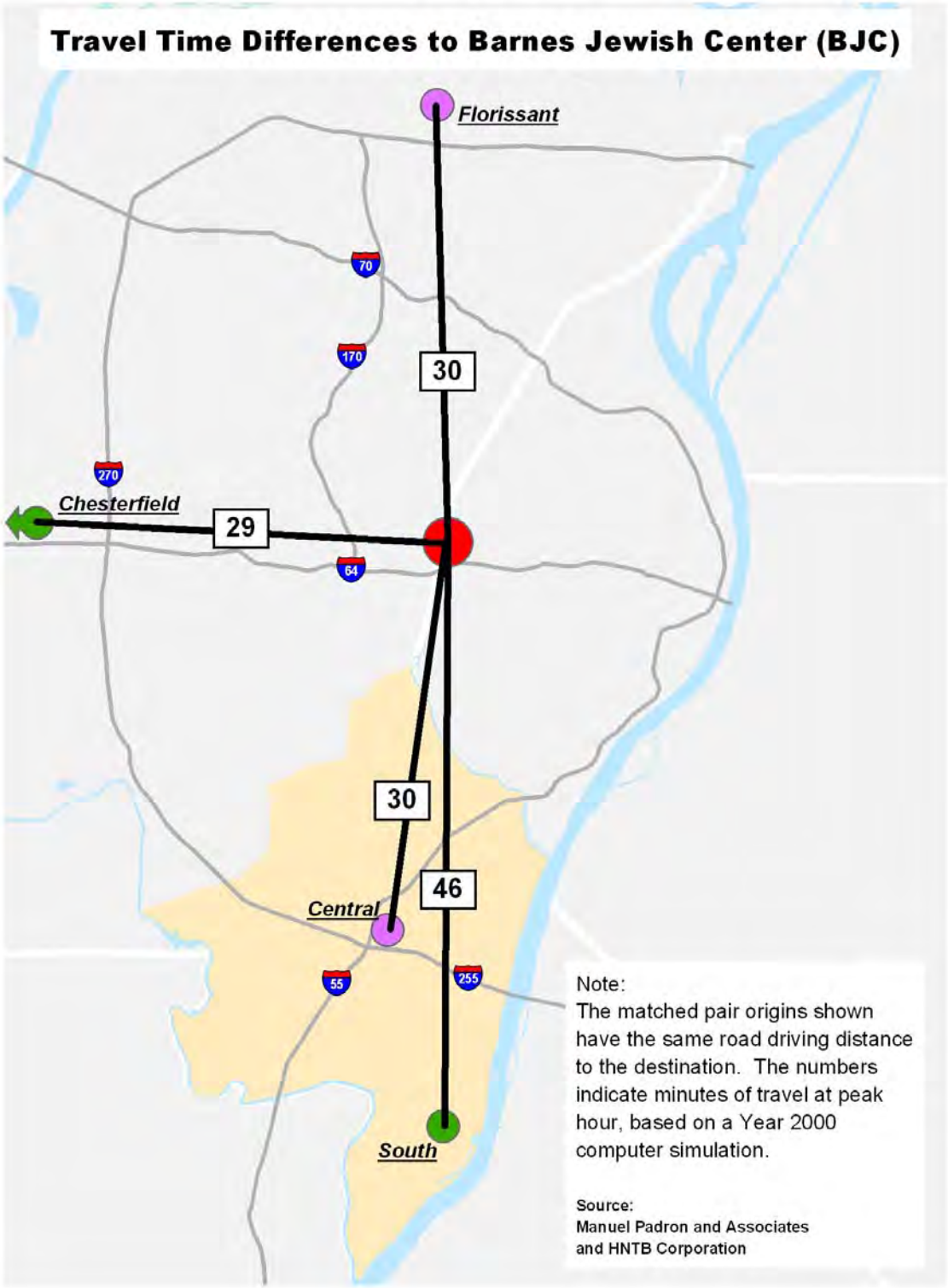


Table 7-2: Selected Origin-Destination Time Using the AM Congested Highway Network (2000)

Origins		Congested Time in Minutes		
		Destinations		
		Downtown Clayton	BJC	Downtown St. Louis
Study Area	North	21 (23)*		
	Central	30 (31)**	30*	30 (32)*
	South		46**	43**
Florissant		25**	30*	31**
Chesterfield			29**	
Overland				25*
Dellwood		18*		

* = Matched pair ** = Matched pair

Source: Manuel Padron & Associates, HNTB, 2003.

Table 7-3: Selected Origin-Destination Distance Using the AM Congested Highway Network (2000)

Origins		Distance in Miles		
		Destinations		
		Downtown Clayton	BJC	Downtown St. Louis
Study Area	North	7.4		
	Central	12.67	14.26	16.23
	South		18.12	17.45
Florissant		12.93	14.32	17.41
Chesterfield			18.13	
Overland				15.5
Dellwood		8.33		

Source: Manuel Padron & Associates, HNTB, 2003.

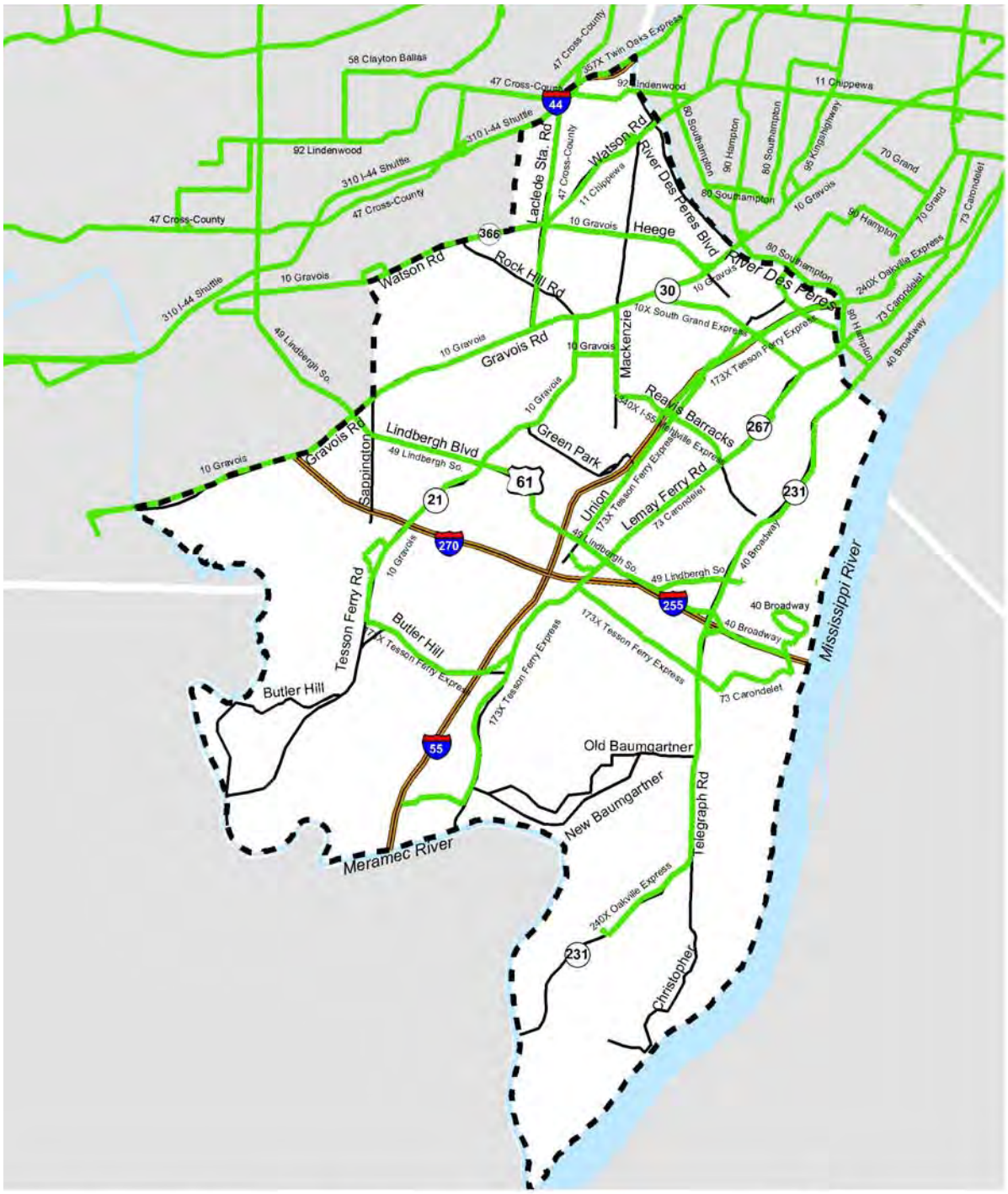
7.4 Facilities: Transit – Bus

Map 7-7 illustrates the existing transit system within the Metro South study area. The bus Routes that comprise the existing transit system are as follows:

Table 7-4: Existing Bus Routes

Rte #	Route Name	Avg. Daily Ridership	Origin/(Roads in Study Area)/Destination
110	Fenton Shuttle	60	Gravois Bluffs Shopping Center / Hampton Loop
210	Watson Shuttle	23	Crestwood/Hampton
173X	Tesson Ferry Express	97	Oakville/(I-55, Lindbergh, Union Road)/ Downtown -St. Louis along Market
240X	Oakville Express	75	Oakville/(I-55, Telegraph)/ St. Louis City Hall and Courthouse, Savvis Center
310X	I-44 Shuttle	29	Fenton/(I-44, Gravois)/ St. Louis City Hall and Courthouse, Savvis Center
340X	I-55 Mehlville Express	144	I-55 and Meramec Bottoms/ Ralston Purina, AmerenUE
357X	Twin Oaks Express	147	West County/(I-44)/ Ralston Purina, AmerenUE
410X	Eureka Express	150	Eureka/(I-44)/ Ralston Purina, AmerenUE
10	Gravois	2,727	Sunset Hills, Fenton, Affton/ Downtown - Met. Bldg. and City Center
11	Chippewa	4,321	Sunset Hills Shopping Center/(Watson, Chippewa)/ St. Louis City Hall and Courthouse, Savvis Center
40	Broadway	1,758	Oakville/(Telegraph)/Jennings, River Roads Shopping Center
47	Cross-County	1,405	Florissant/Clayton/Affton/St. Anthony's Medical Center
49	Lindbergh South	383	Ballas Metrobus Center/Oakville/Westfield Shoppingtown South County Center,VA Medical Center
73	Carondelet	2,178	Westfield Shoppingtown South County Center, VA Medical Center/(Lemay Ferry)/ Downtown - Met. Bldg. and City Center
99	Shaw-Russell	528	Mackenzie Point Plaza/ Downtown - Met. Bldg.,City Center
	Total Daily Ridership	14,025	

Source: Metro



etro South MetroLink Extension
lternatives Analysis/DEIS

onsoring Agencies

ıst-West Gateway Coordinating Council
etro
ssouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

- Study Area
- Interstate
- Major Roadway
- Rivers
- Transit Routes

0 0.25 0.5 1 1.5 2 Miles

Map 7-7
Existing Transit Routes

Data Source:
Metro

Prepared By:
Jacobs Civil Inc.

Date: May 2003

These routes currently run along a network of roadways in the south St. Louis County region. The majority of the routes provide access to the north, beyond the study area and, with the exception of the 210 Watson Shuttle, 110 Fenton Shuttle, 47 Cross County and the 49 Lindbergh South, terminate in the City of St. Louis downtown area. For those routes whose origin and destination are outside the study area, the primary routes on which the buses travel through the study area have been noted in parentheses in the table above. The ridership numbers were calculated by taking the average across a six-month period (August 2002 through January 2003) of monthly passenger averages provided by Metro. Four transit lines (10, 11, 40 and 73) have a total ridership of 11,000 or almost 80% of all riders. These routes are all oriented toward the city.

In 2001, a Preliminary Feeder Bus Plan was developed for the Cross County via Clayton to Shrewsbury MetroLink line to describe the proposed changes to the existing bus routes and new routes recommended to complement the services of the extension from Clayton-Shrewsbury when it opens in 2006. The following describes those proposed amendments within the Metro South study area that would connect to the completed Shrewsbury station:

Table 7-5: Potential Feeder Bus Adjustments

Rte #	Route Name	Connect to Rail Stations	Recommended Changes
10	Gravois	Shrewsbury	Extend alternate trips to Shrewsbury via Jamieson
11	Chippewa	Shrewsbury	Split route at Shrewsbury Station
99	Shaw-Russell	Shrewsbury	Terminate at Shrewsbury Station
310X	I-44 Shuttle	Shrewsbury	Truncate at Shrewsbury Station: Serve Hwy 141, Routes P and R
357X	Twin Oaks Express	Shrewsbury	Connect to Shrewsbury if new ramp to I-44
17	Shrewsbury-South County	Shrewsbury	Potential New Route, *See below.

Source: Cross County MetroLink Extension (Clayton to Shrewsbury), Preliminary Bus Feeder Plan, 2001

* Former route 17 Clayton-Oakville was discontinued in October 2001 due to low ridership. However, a portion of this routing could be part of a new feeder route to Shrewsbury Station. The proposed route would link South County Center to Cross County MetroLink at Shrewsbury Station. The routing would be via Union Road (replacing service that was previously provided by discontinued route 3 Morganford), Reavis Barracks, Mackenzie, Watson, and River Des Peres Blvd. Other former segments of route 17 along Elm, Bompart, and Marshall in Webster Groves would be covered by other proposed neighborhood feeder routes. The portion of former route 17 along Brentwood would be served by route 55.

In addition to the Metro bus service, Metro operates two demand response programs in the St. Louis region: Call-A-Ride and Call-A-Ride Plus. Metro Call-A-Ride provides curb-to-curb van service in St. Louis City and County with advance reservations. Service in the North, West, and South County area is available Monday-Sunday and is open to the general public. Service in the City Call-A-Ride Plus area is available Monday-Sunday and is restricted to persons with disabilities who have registered to use the service. Service in the County Call-A-Ride Plus area is restricted Monday-Friday to persons with

disabilities who have registered to use the service but is open to the general public on Saturday and Sunday. Service in the Far West County area is available Saturday and Sunday and is open to the general public.

Metro conducted an on-board survey in April 2002 as part of a strategy for better serving its customers. The questions on this survey were constructed very similarly to those of previous years for comparison purposes. Primarily this survey focused on travel habits, fare payment, attitudes towards service and demographic characteristics. The results of this survey reinforced many of the conclusions from previous years' surveys. However, there were some variations. Though MetroBus continues to attract transit-dependent riders, MetroLink riders are using light rail as a second mode within a single journey, a journey started in their vehicle. This trend is increasing. As in years past, customer satisfaction remains more of a concern with MetroBus riders than those riding MetroLink. Respondents viewed MetroLink more favorably particularly in the areas of service, comfort/cleanliness and overall quality. The following lists some of the key findings of the comprehensive analysis:

Demographic Trends

- A majority (70%) of MetroBus passengers were African-American, compared with 43% of MetroLink riders. In contrast, a majority (52%) of MetroLink riders were Caucasian, compared with 23% MetroBus riders.
- MetroBus users were three times as likely (41%) as MetroLink users (14%) to indicate that they did not have a vehicle in the household.
- While St. Louis City residents accounted for more than half (57%) of all MetroBus respondents, they comprised only three in ten (30%) MetroLink passengers.
- MetroBus customers were twice as likely (62%) as MetroLink customers (30%) to have low incomes (less than $25,000).

Loyalty/Rider Retention

- Three quarters of MetroBus riders (75%) said they did expect to be riding Metro Buses or trains "a year from now".
- Caucasians were more likely (87%) than African-Americans (71%) to say they expected to be riding next year.
- Respondents without cars were more likely (81%) than those with one (71%) or more than one (69%) cars to indicate that they would be using Metro in a year's time.
- Young respondents (under 25 years) were least likely (55%) to indicate that they would be riding Metro in another year. After further analysis, results suggest that these riders do not plan to ride Metro because they expect to have access to other transportation in a year's time.
- Fewer than two in five (38%) respondents over the age of 65 said they had a car in the household. These riders, unlike the younger riders anticipate relying on Metro for their future transportation.
- Income was not associated with a passenger's likelihood of using the Metro system in a year's time.

Missouri vs. Illinois MetroLink Users

- More Missouri residents (33%) than Illinois residents (22%) fell into the lowest household income bracket (less than $25,000).
- Missouri residents were more likely (18%) than Illinois residents (5%) to say that they did not have a vehicle in the household.
- While two thirds (66%) of Illinois respondents said they were Caucasian and about three in ten (31%) said they were African-American, Missouri riders were more evenly split 47% and 49% respectively.
- A majority (54%) of Illinois residents indicated that they had been using Metro for three years or less, while fewer (43%) Missouri residents had begun riding that recently.
- A majority (63%) of Illinois residents said they "drove themselves", compared with 36% of Missouri residents. A plurality (46%) of Missouri residents indicated that they walked to the first bus/train in their trip, compared with 15% of their Illinois counterparts.
- A majority (55%) of Illinois residents reported that they were riding Metro more in the past year, compared with 36% of Missouri residents.

Light Rail

The current MetroLink Light Rail System is comprised of approximately 38 miles of double track, from the Lambert Airport station, in Missouri, to Shiloh-Scott MetroLink Station in Illinois. A fleet of 65 vehicles operates in trains comprised of one or two vehicles, on 7½-minute peak headways. Outside of the peak travel period, trains operate on 10-minute headways during off peak and 15-minutes headways during late night periods. Single vehicles are used during periods of light traffic, but train lengths are limited to a maximum of two vehicles due to platform restrictions in the tunnel sections. Thirteen, interlocked double crossovers, which allow trains to safely transfer from one track to another, provide for system flexibility at the following locations:

Table 7-6: Interlockings

Interlocking	Approximate Mile Post (MP) Location
Airport (AM)	
North Hanley (NH)	MP 3.0
Page (PA)	MP 7.2
Central West End (CW)	MP 10.6
Yard (YD)	MP 12.6
Laclede (LL)	MP 15.5
Fifth and Missouri (FM)	MP 16.8
Emerson Park (EP)	MP 18.5
Hall (HL)	MP 19.5
Fairview (FI)	MP 24.1
Royal (RY)	MP 27.7
Bellville (BV)	MP 30.7
College (CL)	MP 33.8

Source: Metro

Twenty-Three Traction Power Sub-Stations (TPSS) provide power to the vehicles at a nominal 860 DCV, via an overhead contact system (OCS). Train control is provided via cab-signal, with wayside signals at the interlockings. Voice communication is provided via an 800-MHz radio system.

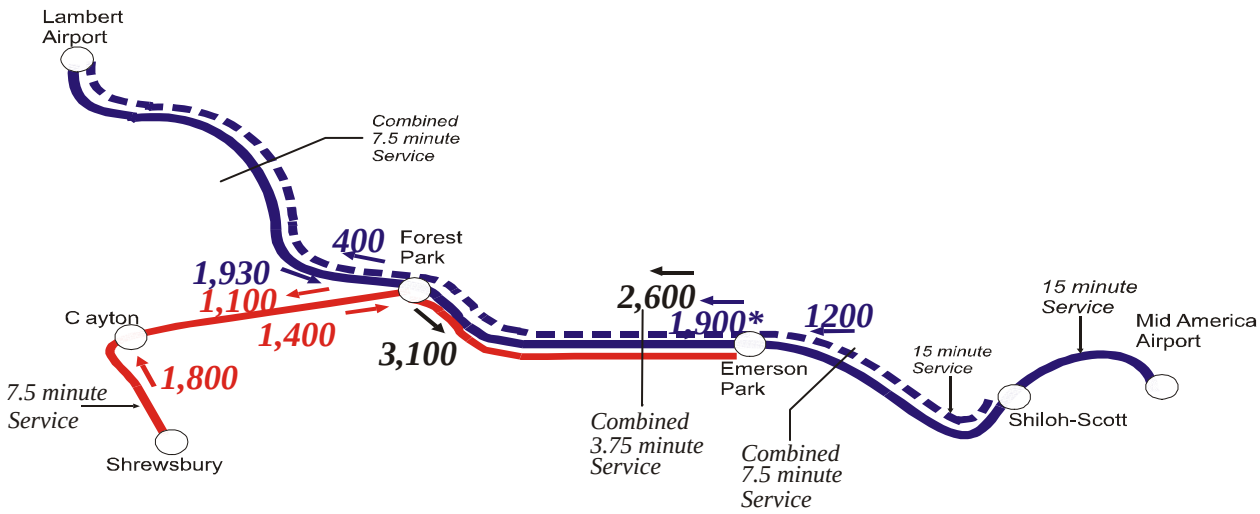
The Cross County via Clayton to Shrewsbury line is currently under construction and is scheduled to open in 2006. When complete, this extension will add approximately 7.6 miles to the current system and the section of track between Forest Park and Emerson Park will operate on 3¾-minute peak headways to accommodate trains at 7½-minute peak headways on both the Airport Line, and the Cross County via Clayton to Shrewsbury line. At this time, the vehicle fleet will increase to a minimum of 87 vehicles, each operating approximately 7,910 miles per month. To provide additional vehicle storage, one additional storage track will be installed at the Ewing Yard to provide for an additional 8 vehicles and two new tracks will be installed in the Illinois Yard to provide for an additional 14 vehicles. This will bring the total storage capacity to 100 vehicles.

With the addition of the Cross County via Clayton to Shrewsbury line, the available systems will be operating at their maximum capacity and, for all practical purposes, the Central Control Room at Ewing Yard will have no further room for expansion. The current train control system will not allow safe operations at less than 3¾-minute headways between Forest Park and Emerson Park; traction power from TPSS 6, 7 and 8 will be at their maximum capacity; and the 800-MHz Radio system will be at the limits of its effective range.

From an operational point of view, it is important to note that these decreased headways cannot be maintained during periods of maintenance or degraded conditions. For example, there are two side-platform stations and one center-platform station between the Page (PA) and Central West End (CW) Interlockings. In the event that one track is out of commission for maintenance, or because a train has broken down on the line, it would not be possible to meet the scheduled headway of 3¾-minutes in each direction.

In February 2002, ridership demand forecasting was performed for the Cross County via Clayton to Shrewsbury line (See Figure 7-4). This report (Cross County MetroLink Demand Forecasting Report – February 2002) analyses present patronage forecasts with a design year of 2020. Figure 7-4 illustrates the forecast 2020 peak hour (the peak hour line provided by the Demand Forecasting Report) line loads (passengers per hour) at key locations for the entire MetroLink system.

Figure 7-4: 2020 Peak Hour Line Load Forecast**



Notes:

* Indicates load on through trains, which are more heavily loaded than Emerson Park turnback trains.

Several observations were made concerning the ridership pattern found in the demand forecast:

- The model forecasts ridership to be split fairly evenly between the two Missouri branches. This is reflected in the even split of service in the operating plan. The eastbound line load approaching Forest Park on the Shrewsbury branch would be 1,400, and the volume on the Lambert branch would be 1,930. The Shrewsbury branch would carry a higher volume approaching the Clayton/Galleria area from the south: 1,800. The westbound ridership from Forest Park would be significantly higher to Clayton and Shrewsbury: 1,100 passengers vs. 400 toward Lambert. [The Demand Forecasting report indicates that EWGCC forecasts show that when Metro South extension opens, the peak line load on the Cross County branch could be significantly higher than the volume from Lambert.]
- After the two branches merge, the combined eastbound volumes from Forest Park to Central West End would be 3,100 passengers. This is the highest forecast volume in the system.
- On the Illinois side, the westbound trains from Mid America and Shiloh-Scott would carry about 1,200 passengers approaching Emerson Park. Those trains share the boarding traffic at subsequent Illinois stations with the Shrewsbury trains that turn back at Emerson Park. The MAA/Scott trains reach a maximum load of 1,900 passengers crossing the Mississippi River. 2,600 passengers would be the total westbound volume on all trains across the river.
- Boardings at Shrewsbury and the Brentwood-Eager stations would be significantly higher than the other Clayton to Shrewsbury stations. The predominant mode of access at Shrewsbury would be bus (55%), while at Brentwood-Eager; drive access would prevail (55%).

According to the Demand Forecasting Report, several observations concerning trip patterns can be made from the on/off and station-to-station data (See Tables 7-7 and 7-8):

- During the AM peak hour, there would be about 2,400 north/eastbound boardings on the Cross County via Clayton to Shrewsbury line. Of these, about 500 would get off in Clayton, and about 1,300 would have destinations east of Forest Park. There are about 75 passengers forecast to transfer to Lambert-bound trains at Forest Park.
- Of the 1,100 westbound passengers from Forest Park, about 400 would be transfers from Lambert trains, and about 650 would be through riders from east of Forest Park.

Table 7-7: Station On-Off Volumes and Line Loads – AM Peak Hour

	MetroLink Cross-County Line					
	Line Load Estimate for A.M. Peak Hour					
	Eastbound (Read Down ↓)			Westbound (Read Up ↑)		
Stations	On	Off	Load	On	Off	Load
Shrewsbury	1,136				83	
			1,136			83
Sunnen	47	53		-	62	
			1,130			145
Maplewood	301	33		23	105	
			1,398			227
Brentwood-Eager	441	45		5	101	
			1,794			324
Richmond Heights-Galleria	107	127		19	244	
			1,774			549
Clayton-Central	195	501		95	505	
			1,468			958
Clayton-Forsyth	15	144		6	169	
			1,339			1,121
University City-Big Bend	66	67		34	14	
			1,338			1,101
Skinker	94	25		96	87	
			1,406			1,092
Forest Park *	122	134		447	10	

*The above volumes for Forest Park Station are for the Cross County trains only. Including the trains on the Lambert branch, the total eastbound on and off volumes are 267 and 493, while the westbound on and off volumes are 563 and 35.

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Table 7-8: Station-to-Station Trip Table (2020 Weekday)

From:	*Shrewsbury*	*Sunnen*	*Maplewood*	*Brentwood-Eager*	*Richmond Heights-Galleria*	*Clayton-Central*	*Forsyth*	*University City-Big Bend*	*Skinker*	*Lambert*[1]	*North Hanley to Delmar*[1]	*Forest Park*[1]	*Central West End & Grand*	*Downtown (Union-Lacledes)*
Shrewsbury	-	203	187	160	338	770	169	103	59	-	-	510	478	1,262
Sunnen	259	-	66	-	16	31	1	8	13	-	-	50	71	13
Maplewood	179	50	-	80	182	299	77	89	54	-	-	167	180	279
Brentwood-Eager	160	-	83	-	30	412	94	43	33	-	-	401	255	952
Richmond Heights-Galleria	338	13	190	38	-	152	46	74	116	-	-	300	394	211
Clayton-Central	770	24	312	514	152	-	113	197	276	-	-	648	728	404
Clayton-Forsyth	169	1	80	118	46	113	-	58	71	-	-	238	227	75
University City-Big Bend	103	7	93	53	74	197	58	-	41	-	-	72	73	111
Skinker	59	11	56	41	116	276	71	41	-	-	-	100	437	262
Lambert[1]	-	-	-	-	-	-	-	-	-	-	2,050	898	455	272
North Hanley to Delmar[1]	-	-	-	-	-	-	-	-	-	2,050	2,643	1,406	1,794	3,438
Forest Park[1]	510	40	174	500	300	648	238	72	100	898	1,406	-	463	597
Central West End & Grand	478	56	188	318	394	728	227	73	437	455	1,794	463	1,614	2,593
Downtown (Union - Lacledes)	1,262	10	291	1,186	211	404	75	111	262	272	3,438	597	2,593	962
East Riverfront to Wash. Park	32	14	25	45	72	242	76	8	49	901	151	49	697	4,670
Other Illinois[1]	-	-	-	-	-	-	-	-	-	167	74	23	261	1,994
Total	**4,316**	**427**	**1,744**	**3,050**	**1,930**	**4,270**	**1,243**	**875**	**1,508**	**4,742**	**11,554**	**5,920**	**10,719**	**18,092**

Note 1:
Station-to-station values do not reflect line-to-line transfers due to model software limitations. For example: a trip from Clayton to Lambert is listed onc Forest Park, and again as a trip from Forest Park to Lambert.

Source: Cross County MetroLink Extension (Clayton to Shrewsbury) Demand Forecasting Report February 2002

7.4 Facilities: Rail

As illustrated on Map 7-8, the study area includes both Burlington Northern Santa Fe rail lines as well as Union Pacific, most of which are still active rail lines. There is a portion of the Union Pacific railroad that has been abandoned and is now dedicated to recreational use – Grant's Trail (highlighted in green). The Union Pacific railroad segment west of this recreational trail (Grant's Trail) has been abandoned as well (shown in red); however, this railroad is still active to the east. A recycling center south of Bayless Road is still serviced by this active portion of the rail line.

The Burlington Northern Santa Fe railroad currently runs approximately nine to eleven trains per day in this study area. At least one train per day is a coal train that serves Ameren UE to the south and the other trains consist of primarily taconite and some grain. In the Metro South study area the freight predominantly runs southward on the Burlington Northern Santa Fe lines. The peak usage is in the early morning and early evening, much like drive time peak hours on the roadways.

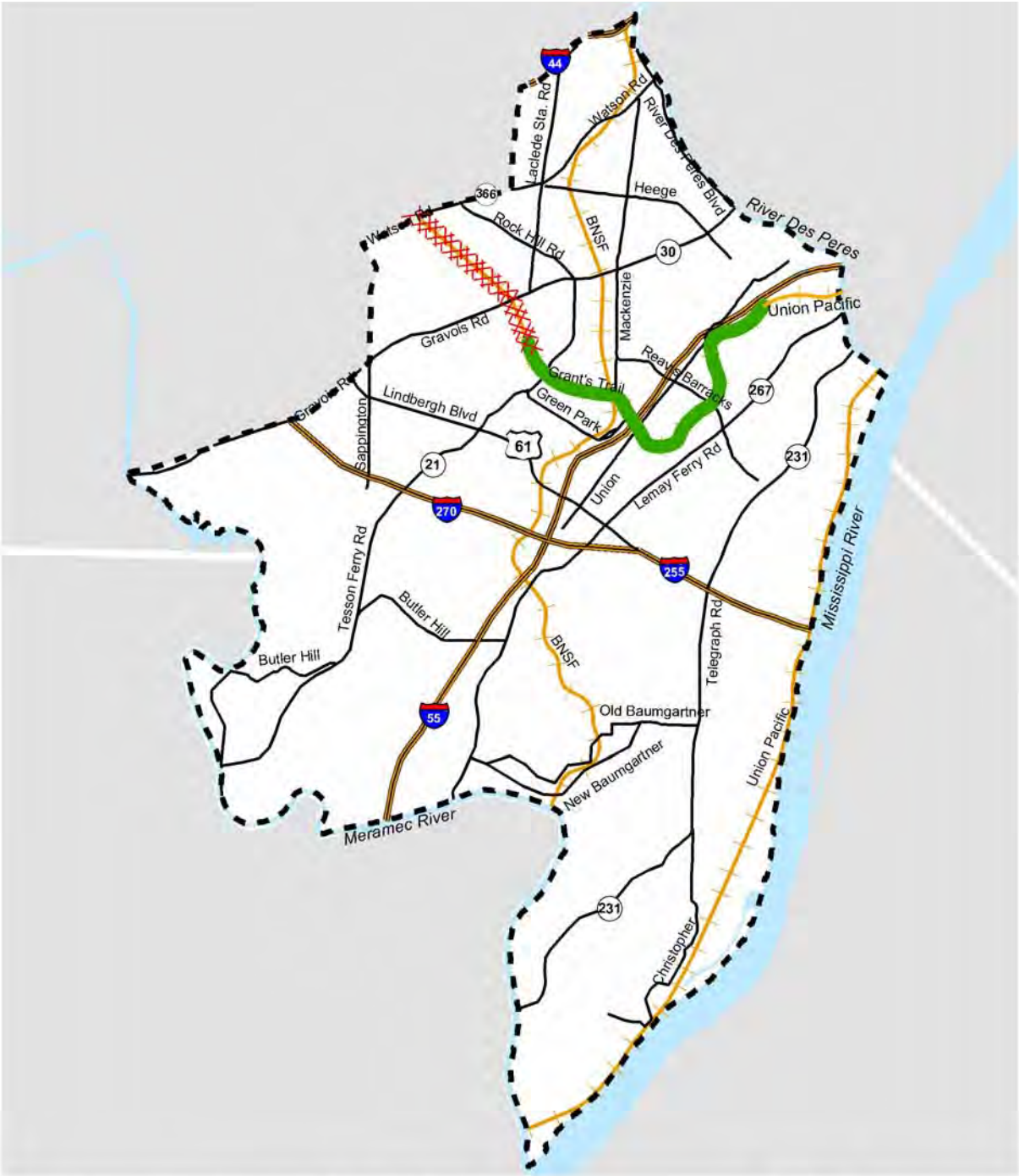
The integration of the roadway system with the Burlington Northern Santa Fe railroad was reviewed through field observation. Table 7-9 summarizes the crossings of these two transportation networks.

Table 7-9: Burlington Northern Santa Fe Railroad Crossings

Road	No. of Tracks	Bridge		Grade Crossing			Remarks
		BNSF over Road	Road over BNSF	X – Bucks*	Flashing Lights	Gates	
Lansdowne Avenue	1	X					
Weil Avenue	1			X	X	X	Two Lanes, one in each direction
Watson Road	1	X					
Heege Road	1	X					
Valcour Avenue	1			X	X	X	Two Lanes, one in each direction
New Hampshire Avenue	1			X	X	X	Two Lanes, one in each direction
Weber Road	1			X	X	X	Two Lanes, one in each direction
Gravois Road	1	X					
Reavis Barracks Road	1			X	X	X	Two Lanes, one in each direction
Green Park Industrial	1	X					
Green Park Road	1	X					
Lindbergh Boulevard	1		X				

Source: Field Observations, Jacobs Civil Inc.

* X-Bucks=Highway-Rail Grade Crossing (Crossbuck) Sign



Metro South MetroLink Extension Alternatives Analysis/DEIS

Sponsoring Agencies

East-West Gateway Coordinating Council
Metro
Missouri Department of Transportation

metroSOUTH
Planning MetroLink in South St. Louis County

- Study Area
- Interstate
- Major Roadway
- Rivers
- Existing RR
- Abandoned RR
- Recreation Trail (former RR)

0 0.25 0.5 1 1.5 2 Miles

Map 7-8
Existing Freight Rail Facilities

Data Source:
St. Louis County Department of Planning

Prepared By:
Jacobs Civil Inc.

Date: July 2003

7.5 Facilities: Bicycle/Pedestrian Provisions

The Missouri Department of Transportation (MoDOT) evaluates pedestrian and bicycle facility needs as a part of each project. Facilities are included in projects when a need is determined and the appropriate facility fits within the project scope and budget. In 2002, MoDOT replaced many drainage grates with bicycle-safe grates, erected "Share the Road" signs, and striped "bike slots" or signed right-turn lanes so that motorists would yield to bicyclists on the state highways identified in East-West Gateway Coordinating Council's 1994 St. Louis Regional Bicycle Facilities Plan

8.0 Public Attitudes to MetroLink Extension

A first step in the public engagement process is a "situational analysis"—an analysis of current attitudes about potential MetroLink extension. This chapter summarizes the current climate, according to key stakeholders, under which the Metro South planning study will be conducted. The analysis presented in this document was derived from several sources, including seven studies and 42 stakeholder interviews.[18]

8.1 Past Public Issues and Community Involvement

Stakeholders' responses for the Metro South MetroLink Extension situational analysis were consistent with public opinion documented during the Cross County and Southside MTIA processes. These responses included:

- The region needs to invest in more extensions of MetroLink
- MetroLink was mentioned most frequently with regard to transportation improvements with southern corridor participants emphasizing that they would use it if it were convenient
- Consideration should be given to using existing right-of-way for solutions
- MetroLink is the best transportation solution to air quality problems
- MetroLink was identified as a good way to mitigate congestion
- Better access is needed, particularly in the southern area of the corridor, and MetroLink extensions were generally cited as a better way of providing access
- Frequency of public transportation (bus) service was identified as a problem

Cross County MTIA

According to the 1997 Public Involvement Summary Report done as part of the Cross County MTIA effort, the major themes that emerged from these meetings revolved around the need for transportation alternatives that would:

- Improve access to activity centers and educational institutions
- Link downtown and Clayton, as well as Clayton and the airport
- Reduce congestion
- Have minimal impact on neighborhoods by virtue of right-of-way requirements
- Enhance air quality by not contributing to emission problems (this was emphasized by environmental groups that supported bike paths and MetroLink).

A key activity of the Cross County MTIA was a field survey conducted in August 1996. According to the survey, solutions considered most important in the south corridor included rail service, a new parkway, financial incentives for public transit, and a new interstate highway.

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[18] Studies reviewed include the Cross County Corridor MTIA Public Involvement Summary Report (1997), MTIA: Northside, Southside, and Daniel
Engagement Preliminary Working Baseline Paper (1999), Sixth County Council District Community Area Study (2000), Affton Community Plan (20
Corridor (1998), Lemay Charting for Change Community Planning Summary (1999, Revised 2002)

Rail service was most popular: 71.3% of respondents who live in the south corridor identified it as their top choice, especially among pedestrians, MetroLink users, renters, and commuters to the corridor.

Workshops with elected officials from seven inner-ring municipalities, including Shrewsbury, were also part of the public involvement plan. During a 1996 charrette, the representatives from these municipalities were asked to provide comments on conceptual designs of east rail, east roadway improvements, south roadway improvements, and south rail transportation solutions. The general response was very positive with regards to a south rail extension.

During the Cross County MTIA several groups of stakeholders formed coalitions supporting or opposing specific strategies. In the south subcorridor, an organized effort opposing the proposed extension of I-170 and supporting a South County MetroLink extension was led by St. Louis County Councilman Kurt Odenwald, representing the 5th District St. Louis County. Councilman Odenwald organized five public forums in his district in order to garner support for his position. The public forums held at Shrewsbury City Hall and Affton High School were attended by the most people, approximately 500 and 1,000 attendees respectively. It is also important to note that the three member agencies, the Council, Metro (then known as Bi-State Development Agency), and MoDOT tracked letters they received from citizens and citizen groups and about half of these letters voiced opposition to an I-170 extension in the south.

During the Cross County MTIA, a number of resolutions and petitions were filed in response to transportation strategies. Several pertain to south St. Louis County:

- A 1996 letter from the South County Citizens Association to Councilwoman Deborah Kersting, who represented the 6th District during the time of the study, stating support for light-rail in South County
- A 1997 resolution, introduced by Councilman Jeff Wagener, supporting expansion of I-170 and MetroLink to south St. Louis County
- A 1997 petition signed by 75 property owners of the Villas at Kenrick (Shrewsbury) supporting the proposed South Subcorridor rail transit plan, Weil Avenue to Watson Rd., but remaining within the confines of the Burlington-Northern Railroad right-of-way
- A 1996 resolution from the Grantwood Village Board of Trustees endorsing the expansion of MetroLink and the extension of River Des Peres to either Big Bend or to an additional parkway extension from I-44 to I-70
- 1997 letter to Representative Richard Gephardt from Councilman Kurt Odenwald stating that 7,000 signatures were gathered and provided to EWGCC opposing the proposed extension of I-170.

Southside Study Area MTIA

The study area covered the south and southeast portion of the City of St. Louis and St. Louis County and included most of the current Metro South MetroLink Extension study area. Stakeholder interviews were conducted in the Fall of 1998 to establish a baseline for understanding key issues in the study area.

Several themes emerged from the stakeholder interviews, including neighborhood preservation, air quality, MetroLink, and funding concerns for future transportation projects. The location of MetroLink stations was identified as a means of helping revitalize a neighborhood.

MetroLink was favored by all stakeholders interviewed. However, some were concerned about existing neighborhoods being disrupted by any new light-rail service. Additionally, there was strong opposition to any additional taxes to pay for transportation improvements. In particularly, there was a feeling among South County residents that it has been overlooked historically because it is unincorporated.

Stakeholders also pointed out that the mindset of St. Louis City and County residents would have to be changed to make public transportation an attractive alternative to automobile use and to inform them that MetroLink is one part of an overall transportation network.

In addition to the stakeholder interviews, the community engagement process also included small group meetings, open houses, focus groups, and community forums. Based on community input and review of available technical data, the following transportation problems and goals were identified for the Southside Study Area:

***Identified Problem*:** Roadway congestion levels and lack of direct and convenient transit service make it difficult for people to travel from home to work in the Southside Study Area.

***Goal*:** Improve travel for the home to work commute for Southside residents and employees.

***Identified Problem*:** Population, employment, and economic activity are declining in some portions of the Southside Study Area, mostly within the City of St. Louis.

***Goal*:** Maintain and/or enhance Southside neighborhoods and communities

***Identified Problem*:** Travel demand has outstripped roadway capacity in some portions of the Southside Study Area, leading to high levels of congestion on major arterials and roadways. In addition, few direct roadway connections exist to accommodate major travel movements within the study area, particularly in South County. Congestion is exacerbated by high numbers of single occupant vehicles and lack of viable alternative transportation choices.

***Goal*:** Relieve congestion in areas projected to experience traffic growth.

***Identified Problem*:** Transportation funding is limited in the St. Louis metropolitan region. Transportation projects, services, and programs must compete for scarce financial resources.

Goal: Pursue cost-effective, safe transportation solutions.

8.2 Key Stakeholders and Interview Protocol

The chief component of this initial analysis of public attitudes for the Metro South MetroLink Extension Study is the data collected from stakeholder interviews. Stakeholders included state and locally elected officials, county government officials, representatives from city and county government, community organization leaders, school officials, service providers, and businesses.

The consultants interviewed 42 stakeholders, about a third of whom reside in the study area. Interviewers met with stakeholders in person, with the exception of five telephone interviews.[19]

The interview protocol was divided into the following sections: transportation and light-rail, land use, and public engagement. The following were the questions posed to all those interviewed:

Transportation and Light-Rail

1. What are the transportation needs in your community?
2. What is your general feeling about light rail and MetroLink in particular? Among the general population in this corridor?
3. What have you heard about a light rail extension being planned for south St. Louis County?
4. What impact do you see this extension having on this area in general? On you in particular?
5. What issues or concerns do people have regarding MetroLink?
6. Do you think people in this area would support a tax increase to expand MetroLink through South County?

Land Use

7. How has your community changed in the last five years in terms of: neighborhoods, population trends, major business developments, etc.?
8. Are there any planning or economic studies, development projects, currently underway or recently completed that would help us with this study?
9. What is the general mood in this area about the future in terms of economic development, growth, planning, etc.?
10. Any supporting documents from your organization that would help us learn more about this corridor?

Public Engagement

11. What is the best way to inform people in this area: newspapers (Post, South County Times, neighborhood periodicals), posters, neighborhood web sites, etc?
12. What are the popular places where people go for getting community information?
13. Where are the popular meeting places for a public meeting where people feel comfortable going and is accessible?
14. Do you have any constituent mailing lists that we could add to our study mailing list to keep people informed about the Metro South study?
15. Who else should we meet with regarding this study? Individuals? Groups?
16. What other insights regarding this study or your community would you like to offer?
17. Any additional comments, suggestions or questions?

[19] All of the stakeholders interviewed are listed in Appendix B

8.3 Key Findings from Initial Stakeholders Interviews

During the interviews, many of the stakeholders shared similar insights, which resulted in the emergence of recurring themes and a high degree of redundancy. The themes of particular interest for this planning study center on the need for improvements in the transportation infrastructure in South County. The most frequently identified needs were traffic congestion relief, improved accessibility to Mid-County, and an efficient mass transit system that would serve as an attractive alternative to automobile travel.

Eighty-three percent (83%) of stakeholders interviewed were in favor of a light-rail alignment, with about half expecting that the general population would be receptive to it. These stakeholders associated a number of positive factors with the development of a MetroLink extension, such as economic development, increased access to employment, and reduced traffic congestion. However, these interviewees also indicated that the public's acceptance would be contingent on several conditions. The conditions stipulated that the MetroLink extension should:

- Be attractive, accessible, and safe
- Interfaced with an improved bus system
- Result in minimal disruption to residential communities

Stakeholders provided valuable information that will be used to help design and execute the public engagement plan. Stakeholders repeatedly emphasized that area residents must believe in the benefits of a MetroLink extension if they are to support it. This resulted in recommendations for a public engagement approach that:

- Explains clearly the social and economic impacts of the extension
- Provides multiple points of contact between the planning team and public
- Conducts extensive outreach around public events
- Maintains open lines of communication with community groups through routine interactions with civic associations and organizations
- Offers opportunities for stakeholder involvement throughout the planning process

The following chart (Figure 8-1) summarizes the responses culled during the interviews.

Figure 8-1: Summary of Stakeholder Insights and Public Engagement Approach

Strengths	Challenges	Opportunities	Public Engagement Approach
• Large percentage of homeowners active in their communities • Increasing populations of younger families and professionals • Strong social network through faith-based institutions and civic organizations • Stakeholder support and perceived support by general public	• Large population of elderly people who are not in favor of tax increases or large-scale development • Strong attachment to homes, residential communities, fear that MetroLink will displace homes • Strong attachment to vehicles, attitude that mass transit system is unnecessary • Study area is largely unincorporated and fragmented, lacks formal municipal structures • Land has almost reached full development capacity • Generally not supportive of tax increases • External groups that do not support a South County MetroLink extension	• Increase in demand for mass transit systems because of influx of younger families, professionals (employed outside of South County), immigrants who are transit-dependent • Need for transportation alternative for travel to employment centers located outside of South County • Increase in demand for mass transit system to relieve traffic congestion • Some continued population growth and housing development • Redevelopment efforts in Affton and Lemay areas • Support for economic growth that increases housing values and creates tax base that is more reliant on commercial property and sales revenue	• Public engagement that generates awareness • Host public open houses and small group presentations • Disseminate information and reach general public through social network and media • Public engagement that generates acceptance • Establish trust of public through relationships with stakeholders • Emphasize benefits associated with MetroLink to generate support • Acknowledge the needs and values of this population and create key messages within the context of the public's interests • Address concerns candidly and make communication transparent • Create opportunities for citizens to experience MetroLink

The situational analysis provides a basis on which to formulate subsequent planning activities. This document provides only a snapshot of the study area. More information will continue to be collected. The various studies, plans, and discussions with stakeholders to date have been of great value and provided helpful insights and a greater understanding of the South County community. This intelligence will prove useful in shaping a detailed work plan and effective public engagement strategy.