MTIA

Southside Study Area

Alternatives Development and Screening

Introduction:

A preliminary set of transportation alternatives was developed for the Southside Study Area by the consultant team and East-West Gateway Coordinating Council (EWGCC), Bi-State Development Agency (BSDA), and Missouri Department of Transportation (MoDOT) staff based on the purpose and need for improvements in the Southside Study Area as well as public input from community engagement activities. The preliminary alternatives represented a range of transportation modes including: light rail transit (MetroLink), bus transit, transportation systems management, and roadway improvements. Each modal alternative was developed to maximize the transportation benefits inherent in each mode and to utilize existing public rights-of-way and transportation corridors to the maximum extent possible, while serving existing and projected travel needs within the Study Area. The use of existing rights-of-way and transportation corridors for major transportation investment alternatives was judged to be essential in order to minimize potential community impacts as well as minimize costs associated with development and construction.

The preliminary alternatives were discussed with representatives from local jurisdictions, community leaders, and members of the public over a period of several weeks through a series of workshops, open houses, and briefings. During this phase of the Major Transportation Investment Analysis (MTIA) study process, the planning effort was geared towards adding new solutions and on broadening the range of alternatives. Study participants were asked to consider the purpose and need for transportation improvements within the Southside Study Area and make suggestions on what alternatives they would add to the list. Changes to the preliminary alternatives were also discussed and examined. These activities resulted in the Initial Set of Alternatives, which numbered fifteen alternatives for the Southside Study Area.

The initial set of fifteen alternatives were then subjected to a screening process to narrow them down to a smaller set of alternatives that best met the goals and objectives of the Southside Study Area. The Southside Alternatives Development and Screening Report documents the process by which a broad range of transportation alternatives was identified and describes the screening process used to narrow the range of alternatives down to the most competitive options.

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S.0 EXECUTIVE SUMMARY

The Southside Alternatives Development and Screening Report documents the process by which a broad range of transportation alternatives was identified and describes the screening process used to narrow the range of alternatives down to the most competitive options.

A preliminary set of transportation alternatives was developed by the consultant team and East-West Gateway Coordinating Council (EWGCC), Bi-State Development Agency (BSDA), and Missouri Department of Transportation (MoDOT) staff based on the purpose and need for improvements in the Southside Study Area as well as public input from community engagement activities. The preliminary alternatives represented a range of transportation modes including: light rail transit (MetroLink), bus transit, transportation systems management, and roadway improvements. Each modal alternative was developed to maximize the transportation benefits inherent in each mode and to utilize existing public rights-of-way and transportation corridors to the maximum extent possible, while serving existing and projected travel needs within the Study Area. The use of existing rights-of-way and transportation corridors for major transportation investment alternatives was judged to be essential in order to minimize potential community impacts as well as minimize costs associated with development and construction.

The preliminary alternatives were discussed with representatives from local jurisdictions, community leaders, and members of the public over a period of several weeks through a series of workshops, open houses, and briefings. During this phase of the MTIA study process, the planning effort was geared towards adding new solutions and on broadening the range of alternatives. Study participants were asked to consider the purpose and need for transportation improvements within the Southside Study Area and make suggestions on what alternatives they would add to the list. Changes to the preliminary alternatives were also discussed and examined. These activities resulted in the Initial Set of Alternatives, which numbered twelve alternatives for the Southside Study Area.

The initial set of twelve alternatives were then subjected to a screening process to narrow them down to a smaller set of alternatives that best met the goals and objectives of the Southside Study Area. The following is a list of the technical screening criteria used to reduce the initial set of alternatives to a reasonable set that encompassed only the most competitive transportation options:

- Ability to serve major travel movements within the Southside Study Area
- Accessibility to concentrations of population and employment
- Accessibility to people without cars
- Ease of transportation system connectivity
- Potential to encourage and serve redevelopment sites or new development opportunities
- Relative impacts to residents, businesses, or sensitive properties
- Amount of improvement in traffic conditions
- Physical feasibility
- Relative cost to build

The technical screening evaluation led to a preliminary round of recommendations on what alternatives should be carried forward for detailed study. The screening process also eliminated those alternatives that were found to be unsuitable or less competitive based on the Southside Purpose and Need.

The recommended alternatives were presented to state and federal agencies, representatives of local jurisdictions, and the general public throughout the months of June and early July 1999. At this stage, study participants were asked which of the initial alternatives they would like to see eliminated and which ones should be recommended for further study. Public and agency input on the recommended alternatives was then factored back into the screening process, which resulted in additional refinements to the recommended alternatives. In some cases, certain elements of some transportation alternatives

were combined with others to form a new transportation alternative that did a better job of addressing the purpose and need of the Southside Study Area. In other cases, specific transportation improvements associated with some alternatives were eliminated due to technical factors or because of public concerns.

The recommended alternatives for the Southside Study Area were reviewed and approved by the East-West Gateway Board of Directors on July 28, 1999. These six alternatives form the Set of Reasonable Alternatives, which are summarized as follows:

Alternative 1 – No Build
Alternative 2 – Transportation System Management (TSM)
Alternative 3 – Light Rail Transit (LRT), Union Pacific RR
Alternative 4 – Light Rail Transit (LRT), Interstate 55 / Interstate 255
Alternative 5 – Bus Rapid Transit (BRT), Union Pacific RR
Alternative 6 – Roadway

The next step is the more detailed technical analysis. Over a period of several months, the technical study team will be performing more detailed analysis on the Set of Reasonable Alternatives. These technical activities include: conceptual engineering; development of operating plans for bus and rail; travel demand forecasting; environmental and community impact assessment; and the preparation of capital, operating, and maintenance cost estimates. Once capital and operating and maintenance costs are developed, a financial analysis is then performed to assess the financial implications of each of the alternatives within the Southside Study Area alongside other major transportation projects proposed for the St. Louis metropolitan region.

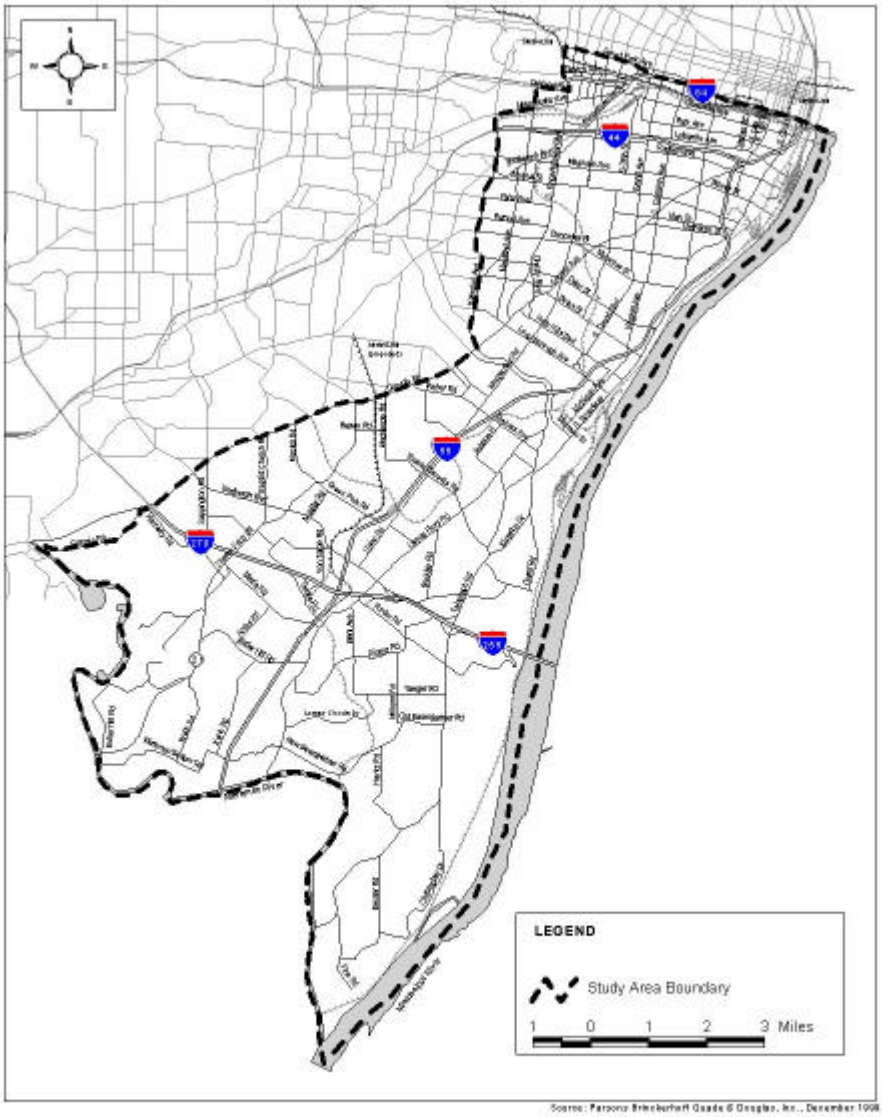
Using these technical findings, a comprehensive evaluation of the alternatives will be undertaken. This will provide the public and local decision-makers with evaluative information on the relative benefits, costs, and impacts of each of the alternatives so that they can reach conclusions on what transportation improvements should be recommended for the Southside Study Area. The recommended alternative could be a multimodal combination of the individual alternatives or some of their components. For example, the recommended alternative could include features of the TSM Alternative, the Roadway Alternative, and one of the LRT Alternatives. The last step in the MTIA occurs when the EWGCC Board of Directions selects a locally preferred alternative for the Southside Study Area, which will then be adopted into the long-range transportation plan for the St. Louis region.

1.0 INTRODUCTION

This report identifies and describes the transportation improvement alternatives proposed for the Southside Study Area of the St. Louis metropolitan region. These alternatives were developed as part of a Major Transportation Investment Analysis (MTIA) that is being conducted on behalf of the East-West Gateway Coordinating Council (EWGCC), the Missouri Department of Transportation (MoDOT), and the Bi-State Development Agency (BSDA). An MTIA is a tool for making better decisions about improving transportation in metropolitan areas. This type of planning study is necessary for major projects seeking federal funding. As such, the MTIA is part of the federal planning process, yet decision-making takes place at the local level.

The development and screening of transportation alternatives was a two-step process. In the first step, a broad range of twelve alternatives was defined to meet the purpose and need for improvements in the Southside Study Area. In the second step, a preliminary evaluation was performed to screen the alternatives. The screening process narrowed down the initial set of twelve alternatives to a reduced set of six reasonable alternatives. The locally preferred alternative (i.e., the “best” transportation solution for the Study Area) is included somewhere within this reduced set of alternatives. The set of reasonable transportation alternatives is then carried forward for detailed technical analysis and evaluation in subsequent phases of the Southside MTIA.

The Southside Study Area lies in the south and southeast portion of the City of St. Louis and St. Louis County and covers approximately 85 square miles. In general, it is bounded by the Mississippi River on the east, Interstate 64 on the north, Gravois Road and Hampton Avenue on the west, and the Meramec River on the south. (Figure 1.0-1 displays the location and boundaries of the Study Area.) Along with the City and County of St. Louis, the Southside Study Area contains six municipalities either partially or wholly within the Study Area limits: Bella Villa, Green Park, Lakeshire, St. George, Sunset Hills, and Wilbur Park.



Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998

Southside Study Area
Major Transportation Investment Analysis

Figure 1.0-1
Southside Study Area Boundary

Preliminary Working Document

2.0 OVERVIEW OF ALTERNATIVES DEVELOPMENT AND SCREENING

2.1 PURPOSE OF ALTERNATIVES DEVELOPMENT AND SCREENING

The development and screening of alternatives are important steps within the Southside MTIA study process. The Southside MTIA is both a planning tool and an evaluative process, consisting of a series of analytical phases. The analytical phases are interrelated. Figure 2.1-1 illustrates these steps and their interaction, including major decision points. Through a pro-active community engagement program, public comments and input is sought prior to each major decision point. The final decision point in the study is the selection and adoption of a locally preferred alternative (i.e., a transportation improvement solution) for the Study Area.

The following paragraphs provide a brief description of the analytical phases that comprise the decision-making framework for the Southside MTIA.

Existing and Future Conditions: The first step is to compile information about the Study Area and the metropolitan region to assess the existing and future socio-demographic, economic, and transportation system conditions. This assessment is intended to determine the underlying root causes of issues related to the surface transportation system in the Study Area. Findings from this study phase are summarized in the Southside Existing and Future Conditions Report (May 1999).

Purpose and Need: In this phase, the purpose and need for transportation improvements is carefully defined for the 85-square mile Study Area. Travel patterns, transportation system performance, and past studies are reviewed and analyzed. The Purpose and Need Statement summarizes this technical information along with public input and identifies key trends and issues. These issues lead to the determination of specific goals and objectives to be achieved by transportation improvements in the Southside Study Area. The purpose and need for transportation improvements is documented in the Southside Purpose and Need Statement (August 1999).

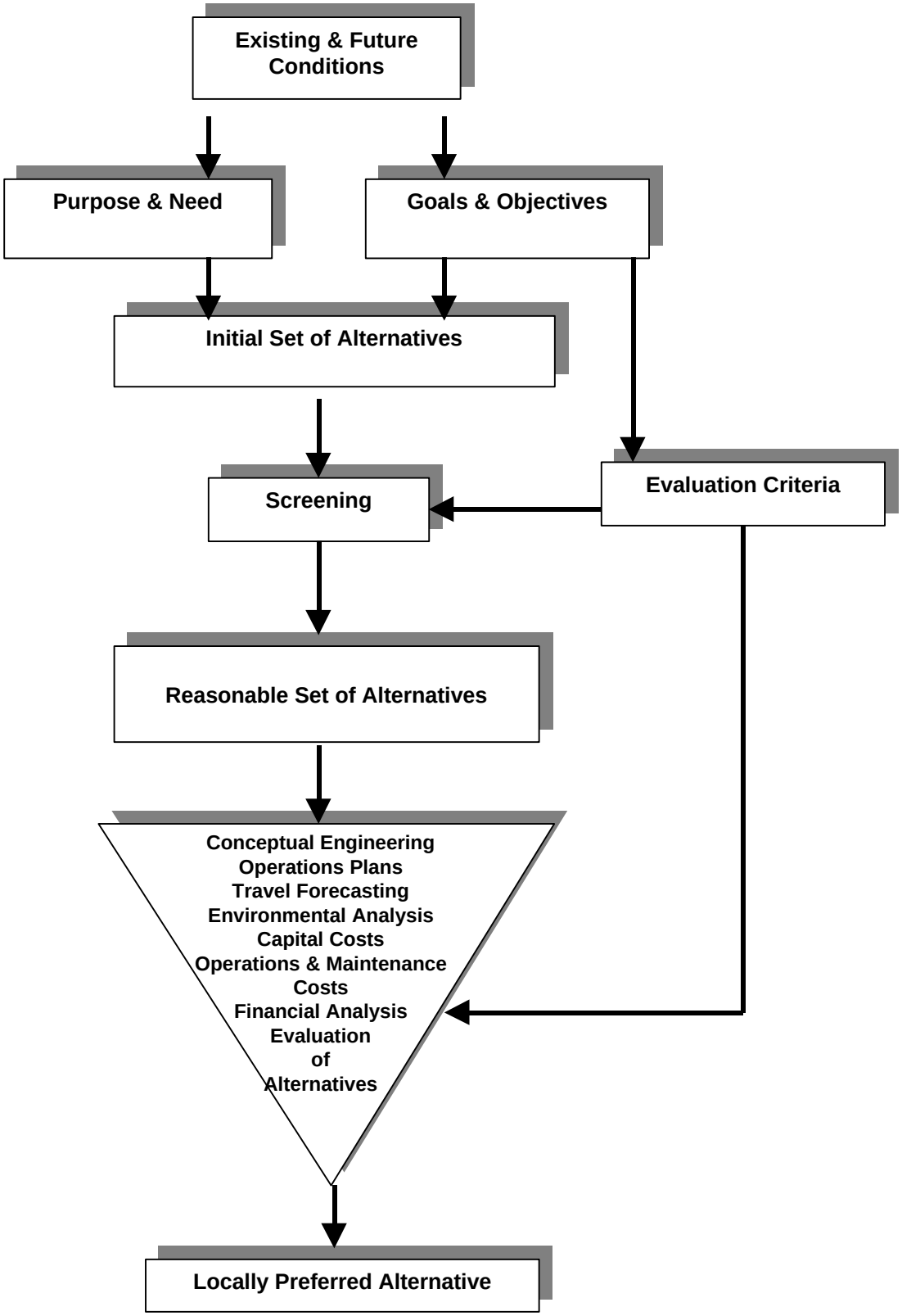
Goals and Objectives: Southside MTIA goals and objectives are derived from the purpose and need for transportation improvements in the Southside Study Area as well as regional transportation goals for the St. Louis metropolitan area described in Transportation Redefined (1995). Along with purpose and need, these goals and objectives shape the development of transportation alternatives as well as establish the evaluative framework for how transportation alternatives should be assessed and compared in subsequent study phases.

Alternatives Development: As part of this phase, a candidate pool of initial alternatives is developed to address mobility problems and other concerns in the Southside Study Area. The initial set of alternatives is structured to provide a range of multi-modal transportation infrastructure and service improvements. The transportation alternatives emphasize different transportation modes, candidate alignments, and levels of investment and thus address different aspects of the study goals and objectives. Included in the initial set of alternatives are the No Build and Transportation Systems (TSM) Alternatives as well as a number of build alternatives.

Alternatives Screening: The initial set of alternatives may number upwards of twelve in the Study Area and is subjected to a “screening process,” which narrows down these alternatives to a reduced set. The reduced set of alternatives should be manageable in number and should include only those alternatives that have a “reasonable” chance of becoming the locally preferred alternative. During screening, the initial alternatives are assessed based on evaluation criteria derived from the goals and objectives identified for the Study Area combined with community input. The screening criteria apply both numerical and qualitative measures to assess the relative performance of each alternative. This process

leads to the identification of those alternatives that best meet the various study goals and objectives for the Southside.

FIGURE 2.1-1
MTIA PROCESS



This set of reasonable alternatives is then approved by the EWGCC Board of Directors and represents a major study milestone.

Detailed Analysis of Alternatives: During this analytical phase, several technical studies are performed on the set of reasonable alternatives. The purpose of these studies is to elicit evaluative information on the alternatives as well as provide a higher level of definition of their respective operational and physical characteristics. These technical studies include: conceptual engineering; development of operating plans; travel demand forecasting; environmental analysis; estimation of capital, operating, and maintenance costs; and financial analysis. Once the technical studies are completed, this information is used to assess the travel benefits, costs, and impacts of the proposed alternatives. Key trade-offs among the alternatives are also evaluated and discussed.

Selection of a Locally Preferred Alternative: Based on the array of technical information, evaluation findings, and public input, the last step in the Southside MTIA is the selection of a preferred investment strategy for the Study Area. The Locally Preferred Alternative is a broad brush definition of the transportation modes and capacity improvements that make up the selected transportation solution – in other words, a preferred "design concept and scope" for the Study Area. Once approved by the EWGCC Board of Directors, the Locally Preferred Alternative is adopted into the long-range transportation plan for the St. Louis region for further development by the sponsoring agencies.

2.2 ROLE OF STUDY GOALS AND OBJECTIVES

The MTIA goals and objectives for the Southside Study Area play a critical role in the development of transportation alternatives. The study goals and objectives provide focus for proposed transportation improvements and help set the standards for how the alternatives should be screened and evaluated.

Based on an analysis of the existing travel conditions, forecasts of future travel demand, projected population and employment growth trends, extensive dialogue with concerned residents and community leaders in the Study Area, and discussions with federal, state, local, and regional agencies, a set of specific goals and objectives was established for the Southside MTIA. Table 2.2-1 describes these study goals and objectives.

Table 2.2-1
Study Goals and Objectives

Issue Area	MTIA Goals and Objectives
Access to Opportunity	• Improve travel for the home to work commute for Southside residents and employees. – Provide more direct transit connections linking Southside residents with employment sites in the Study Area and throughout the region as a whole. – Reduce travel times (both auto and transit). – Improve intermodal connections.
Sustainable Development	• Maintain and/or enhance Southside neighborhoods and communities. – Invest in new transportation services and/or infrastructure that contribute to maintaining and/or enhancing quality of life in Southside neighborhoods. – Integrate transportation infrastructure investments and land development or redevelopment in ways that are economically sustainable and consistent with community values and historic

	preservation.
Congestion Management	• Relieve congestion in areas projected to experience traffic growth. – Improve traffic conditions on congested major arterials within the Southside Study Area. – Minimize traffic impacts. – Increase use of alternative transportation modes. – Enhance roadway connectivity or provide improvements to facilitate major travel movements in the Study Area.
Funding Constraints	• Pursue cost-effective, safe transportation solutions. – Make best use of the existing transportation infrastructure. – Increase the effectiveness of the existing and planned regional transportation system in relation to funding constraints. – Provide for safer roadways, including pedestrian and bicycle opportunities.

Source: Parsons Brinckerhoff, Southside Study Area Purpose and Need Statement, July 1999.

3.0 INITIAL SET OF ALTERNATIVES

3.1 APPROACH TO ALTERNATIVES DEVELOPMENT

In developing transportation alternatives for the Southside Study Area, input from several sources was considered. Previous studies, such as the St. Louis Systems Analysis for Major Transit Capital Investments (1991), I-55 Corridor Major Transportation Investment Analysis (1996), Cross-County Corridor Major Transportation Investment Analysis (1997), and Transit Center Hub Restructuring Study (1998), which analyzed and proposed transportation improvements in the Southside Study Area, were reviewed. Technical information on travel patterns, future growth, and transportation system performance provided in the Southside MTIA Existing and Future Conditions Report as well as conclusions from the Purpose and Need Statement were also used. In addition, public comments and suggestions, as documented in the Community Engagement Baseline Paper (February 1999), "Focus Group Notes" (February 1999), "Community Forum Notes" (April 1999), were examined and incorporated into the baseline analysis for alternatives development.

From the information collected and analyzed through this process, a range of preliminary alternatives was developed for the Southside Study Area. These alternatives represented potential transportation solutions to the problems and related issues noted in the Study Area. The planning horizon year for the Southside MTIA is the Year 2020. For consistency with federal planning practices and requirements, the following guidelines were applied during alternatives development:

- The alternatives should be conceptual in scope.
- Alternatives should respond to the specific needs and opportunities of the Study Area.
- Alternatives should be multi-modal, including all alignments and options that have a reasonable chance of becoming the LPA.
- Each alternative should be significantly different from the other alternatives. The preliminary alternatives are structured to address different aspects of the MTIA Study Goals and Objectives.
- Alternatives should encompass an appropriate range of options, without major gaps in the likely costs of alternatives. The number of alternatives must be manageable.
- The preliminary alternatives must include both the No Build (Year 2020 Future Baseline Condition) and the Transportation Systems Management (TSM) options.

The preliminary alternatives were then discussed with representatives from local jurisdictions, community leaders, and members of the public over a period of several weeks through a series of workshops, open houses, and briefings. During this phase of the MTIA study process, the planning effort was geared towards adding new solutions and on broadening the range of alternatives. Study participants were asked to consider the purpose and need for transportation improvements within the Southside Study Area and make suggestions on what alternatives they would add to the list. Changes to the preliminary alternatives were also discussed and examined. These activities resulted in the Initial Set of Alternatives, which numbered twelve alternatives for the Southside Study Area.

The Initial Set of Alternatives is described in Section 3.3 of this report. The transportation alternatives include both capital improvements and operational strategies and emphasize different transportation modes and potential alignments. The Initial Set of Alternatives were established to provide the full range of options so that their respective trade-offs in terms of costs, transportation benefits, and impacts could be understood during the Screening Phase of the MTIA and in subsequent evaluations.

Specific parameters or considerations that shaped the development of the Initial Set of Alternatives for the Southside Study Area are discussed in the following section.

3.2 DEVELOPMENT OF ALTERNATIVES

Several factors led to the consideration of specific transportation improvements in the Southside Study Area. Most of these factors relate directly to the purpose and need for improvements in the Study Area. Others emanate from the need to take into account the full regional transportation system as well as regional goals and objectives. And yet other considerations arose from discussions with members of the public and representatives of different interests within the Study Area.

The following discussion summarizes these factors and traces the analytical process used to identify transportation alternatives for the Southside Study Area. The full range of transportation alternatives are covered and are grouped in general order of lowest to highest investment: No Build, Transportation System Management, and build alternatives. All of the alternatives are multimodal in that they include physical or operational elements of more than one transportation mode. For example, the light rail transit alternatives include a significant bus element in the form of a feeder bus system. However, the build alternatives emphasize different modal investments and are categorized accordingly.

3.2.1 No Build

The primary purpose of the No Build Alternative is to portray what the future transportation system will be like in the St. Louis region in the Year 2020. Generally the No Build Alternative consists of planned and committed transportation improvements that can be reasonably expected to be in place by 2020. In the Southside Study Area, several major transportation projects are identified and listed within the region's long range transportation plan. As part of the alternatives development process for the No Build Alternative, special attention was given to those future improvements that will noticeably affect travel in the Southside Study Area. These major transportation improvements include: future changes in the organization and deployment of bus services to focus on a regional system of transfer centers; extension of MetroLink rail service, principally Cross-County; new roadways such as Grattan Street Parkway, roadway widenings (e.g., Telegraph Road), and the expanded use of intelligent transportation systems within the region.

3.2.2 Transportation System Management

For the Southside Study Area, transportation improvements proposed as part of the Transportation Systems Management (TSM) Alternative largely expanded the level of operations and service provided by the No Build Alternative. Important considerations included the need to: provide better transit service for the commute trip; provide a higher level of transit service in terms of frequency, route coverage, and span of hours; improve safety and travel conditions for bicyclists and pedestrians; and better manage traffic flow in the most congested areas of the Study Area. In addition, cost-effectiveness was a key factor in the types of improvements considered for the TSM Alternative. In this regard, opportunities to develop operational improvements that derive added benefits from the existing and future transportation infrastructure were closely examined.

3.2.3 Build Alternatives

Essentially, the Build Alternatives add a major capital investment to the transportation improvements included in the No Build Alternative and the TSM Alternative. As part of the alternatives development process, a range of transportation modes was considered: rail, bus, and roadway. Each type of build alternative addresses a different aspect of the Purpose and Need for improvements in the Southside Study Area.

Light Rail Transit

One objective of the Light Rail Transit (LRT) alternatives was to provide a viable transportation option to the automobile as well as provide a higher level of service to the transit rider by bypassing congestion or by providing more direct routing to places where people want to go. Yet another objective of these alternatives was to support, and in some cases, serve as the catalyst for redevelopment and revitalization efforts within the Study Area.

LRT was identified as the most appropriate rail technology for the Southside Study Area as it builds upon previous investments that the region has made in rail transit (e.g., MetroLink), thereby taking advantage of increased returns to scale, and because LRT has the operational flexibility needed meet the varying physical conditions of the Southside Study Area. LRT alternatives developed for the Southside Area were greatly shaped by the following three factors, among others: (1) connectivity to the existing and proposed MetroLink system; (2) physical feasibility; and (3) connectivity to activity centers, potential redevelopment areas, and concentrations of residences and employment.

System Connectivity: The efficiency of the overall transportation system is improved by providing smooth connections among or between transportation modes. The existing MetroLink line parallels the northern border of the Southside Study Area and connects downtown St. Louis with points northwest, terminating at Lambert Airport. Bi-State Development Agency, in cooperation with East-West Gateway and MoDOT, are in the process of planning and designing an extension of MetroLink from the existing line, west to Clayton, and then south to Shrewsbury (Cross-County Segment 1). Proposed plans for future phases of the Cross-County line show an extension into South County. All of the LRT alternatives developed for the Southside MTIA sought to make a connection to the existing MetroLink line or to the proposed Cross-County rail line - preferably both. In addition, the Southside Study Area overlaps the Northside Study Area in downtown St. Louis. Within the MTIA study process, various Southside LRT alternatives considered a possible connection with Northside LRT alternatives and vice versa.

Physical Feasibility: During alternatives development, the entire Study Area was reviewed to identify major transportation or utility rights-of-way, including major city streets, that could potentially accommodate rail. City streets needed to be relatively wide, straight and continuous, and have manageable grades (ideally 6 percent or less). Through this exercise, two rail freight corridors (both Union Pacific) were identified as well as two Interstate corridors (I-55 and I-270/I-255). On the other hand, relatively few principal streets and roadways in the Southside were able to meet the basic physical requirements described above. Examples of potential street alignments included: Gravois Avenue, Morganford/Union Road, Jefferson Avenue, Tucker Boulevard, Broadway Avenue, and 7th Street. Most of the remaining major arterials in the Southside were judged to be unsuitable as a potential route for LRT and were thus disqualified from further consideration. In addition, no major utility easements were found in the Southside Study Area that met the physical criterion for LRT.

Access to Key Service Areas: In viewing possible light rail alignments, attention was given to the major travel patterns in the Southside Study Area. The most clearly defined travel movement in the Southside is from residential areas into downtown St. Louis, essentially south to north. The downtown Central Business District represents the highest concentration of employment in the St. Louis region and is the location for several special event sites (i.e., Busch Stadium, Kiel Center, and the Convention Center). In addition, major employers and visitor attractions in the Southside are clustered around the downtown area south of I-64 / Highway 40. These include: AmerenUE, Ralston Purina, Anheuser Busch, and the Missouri Botanical Garden. Moreover, redevelopment efforts in locations such as downtown St. Louis, Soulard, the Darst-Webbe/City Hospital complex, Lafayette Square, and South County Shopping Center were identified as important areas in the Southside that would benefit from, and should thus be served by, light rail transit.

These key criteria (system connectivity, physical feasibility, and access to key service areas) led to the development of six LRT alternatives for the Southside Study Area. Each LRT alternative utilizes a

different alignment to connect residential areas in South County and South St. Louis to the downtown area. Each alignment alternative is structured to serve a different set of activity centers and travel markets to provide the full array of options within the Study Area. All six LRT alternatives connect directly to the existing MetroLink line, to the proposed Cross-County line, and to potential future Northside service.

Bus Transit

Two build alternatives, using principally bus transit, were developed for the Southside Study Area. The objective of the bus alternatives was similar to that of the light rail alternatives, which was to provide a transit alternative to the automobile and to provide a higher level of service to the transit user. Transit ridership characteristics (Existing and Future Conditions Report, May 1999) show that express bus service has met with some success in the Southside Study Area relative to the rest of the St. Louis region due to a combination of factors (e.g., history of transit use, congested city streets, and parking constraints downtown.) This finding indicates that there is potential demand in the Southside for high-end bus service for the home to work commute and for bus options beyond traditional local, fixed route service.

In developing the bus alternatives, reliability and travel time were considered to be critical elements. Therefore, opportunities to separate buses from general purpose traffic and congestion were closely examined. In addition, bus options also needed to address the principal travel patterns in the Southside Study Area, such as the home to work commute. Cost and the need to minimize transfers were additional considerations. Through this process, two potential alignments were identified where new bus lanes could be constructed for use by buses only: Gravois Avenue and the Union Pacific right-of-way. Gravois Ave. is a major radial route leading into downtown St. Louis within the Southside Study Area and has historically been used as a major trunk line for buses into the downtown area. Until the recent past, reversible lanes were provided on Gravois Avenue. The Union Pacific right-of-way was selected because it had sufficient width for a new busway and also because it traversed residential areas with a high propensity for transit use.

Roadway

The roadway alternatives developed for the Southside focused on yet another aspect of the purpose and need for improvements - the need to relieve rising congestion on the major arterials within the Study Area. Roadway conditions and potential deficiencies were also discussed with the public, MoDOT, and traffic engineers for the City and County of St. Louis. Travel demand projections produced by EWGCC (Existing and Future Conditions Report, May 1999) show patterns of congestion occurring throughout the Study Area, but particularly along major north-south arterials in South County as well as the Hill neighborhood and I-55/I-64/I-44 south of the Downtown St. Louis CBD. This is due in part to the high level of population and employment growth projected for South County and for Jefferson County to the south. In addition, traffic congestion in South County is exacerbated by the lack of east-west roadways south of I-270 and I-255, which places a great deal of pressure on the few north-south roadways leading to I-270 and I-255, particularly during the peak commute hours.

To address this congestion and corresponding safety concerns, two roadway alternatives were developed: (1) high roadway and (2) low roadway.

The high roadway alternative would add lane capacity to major north-south arterials in the Study Area currently experiencing high levels of traffic congestion. Candidate for widening roadways include: Tesson Ferry Road, Gravois Road, Telegraph Road, and Lemay Ferry Road. As part of the high roadway alternative, east-west roadways on new location as well as selected roadway widenings were also proposed south of I-270 / I-255. In the City of St. Louis, key deficiencies in the operation of the principal roadway system would be addressed. A better north-south roadway connection between I-64

and I-44 south of Forest Park and north of the Hill would be provided as well as direct connectors between I-55 and I-64 at the I-55 / I-64 / I-44 interchange.

The moderate roadway alternative would seek to address safety concerns and traffic congestion on these roadways through the extensive use of access management and by spot improvements at bottlenecks and intersections. The purpose of these improvements would be to better manage traffic flow by minimizing conflicts among the various traffic movements along these roadways.

3.3 DESCRIPTION OF INITIAL SET OF ALTERNATIVES

The following section provides a summary description of the Initial Set of Alternatives developed for the Southside Study Area. This reflects the broadest range of alternatives considered in the Southside MTIA as a result of both technical study and public input.

3.3.1 No Build (Baseline) Option

The No Build Alternative consists of planned and committed transportation projects that are anticipated to be in place by the Year 2020, the planning horizon year for the study. This alternative represents the future year transportation condition if no further action is taken in the Study Area beyond what is already planned. The No Build Alternative is required by federal planning guidelines to provide a basis of comparison for the other transportation alternatives. See Figure 3.3-1.

3.3.2 Transportation System Management (TSM) Option

The TSM Alternative consists of an integrated package of relatively low cost and operational transportation projects for the Southside Study Area, such as added bus service and traffic signal coordination. These improvements are structured to derive additional benefit from the existing transportation infrastructure in lieu of a major capital investment. As with the No Build Alternative, the TSM Alternative is a requirement of the federal planning guidelines as it provides a basis of comparison for the major investment alternatives. See Figure 3.3-1.

3.3.3 Light Rail Option 1

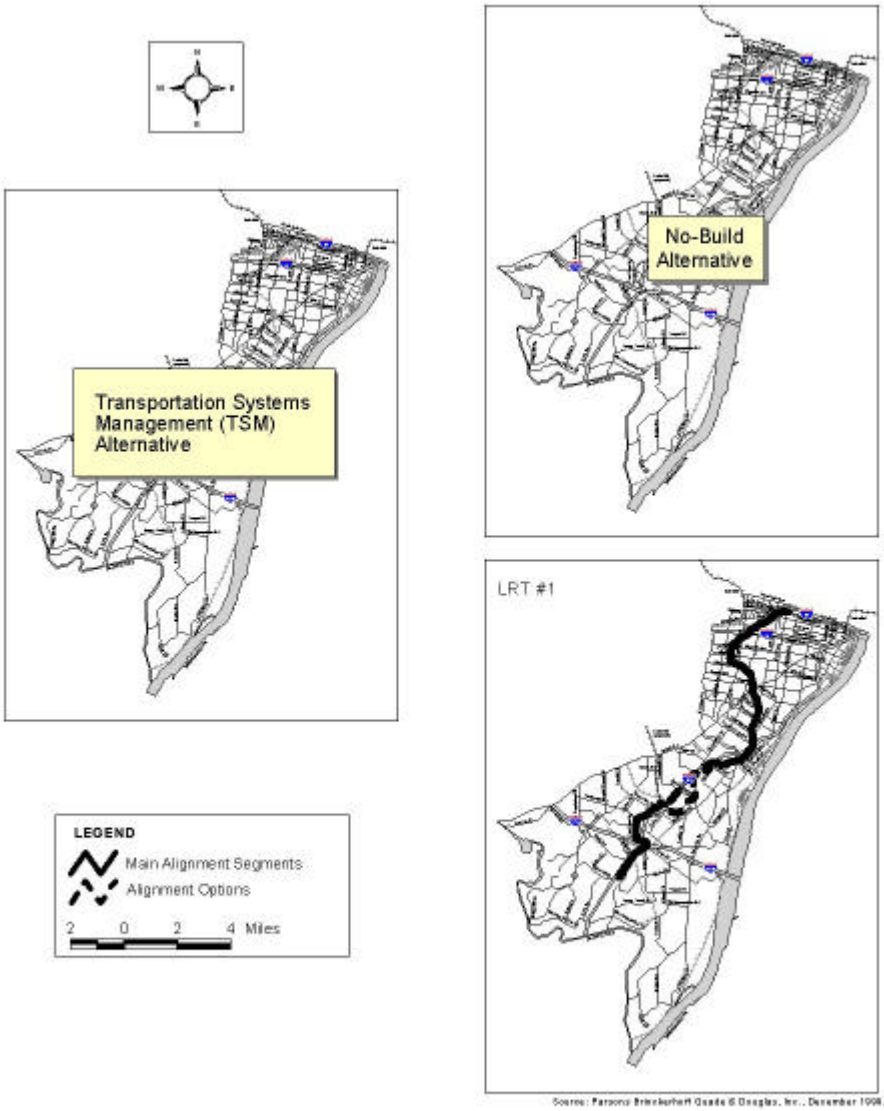
Light Rail Option 1 would involve the construction of a light rail transit facility (MetroLink) alongside the Oak Hill Branch line within Union Pacific Railroad right-of-way. See Figure 3.3-1. This light rail facility would be primarily at-grade, in rail right-of-way, with short elevated portions where dictated by design considerations. This option would connect the existing MetroLink line with proposed Cross-County MetroLink Extension-Segment II along the following alignment:

- Beginning at Grand Avenue Station, the new light rail facility would travel south along the Oak Hill Branch of the Union Pacific Railroad to a point near the intersection of Bayless Avenue and I-55;
- From the Oak Hill Branch, the alignment would continue south along I-55 within MoDOT right-of-way or would follow Grant's Bikeway Trail;
- The alignment would join proposed Cross-County MetroLink Extension-Segment II near Green Park Road and would terminate at Butler Hill Road.

3.3.4 Light Rail Option 2

Light Rail Option 2 would involve the construction of a light rail transit facility (MetroLink) along Tucker Boulevard / Gravois Avenue as far as the Oak Hill branch of the Union Pacific Railroad. It would then follow a similar alignment as Light Rail Option 1. See Figure 3.3-2 for a graphic description of Light Rail Option 2. This light rail facility would be primarily at-grade and would have portions of in-street running as well as shared use of rail and bike rights-of-way. This option would connect the existing MetroLink line with proposed Cross-County MetroLink Extension-Segment II along the following alignment:

- Beginning at the existing MetroLink line, the new light rail facility would travel south along Tucker Boulevard to Gravois Avenue;
- From Tucker Boulevard, the alignment would follow Gravois Avenue to where the Oak Hill Branch of the Union Pacific Railroad crosses Gravois Avenue south of Meramec Street;



Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 3.3-1

Initial Alternatives

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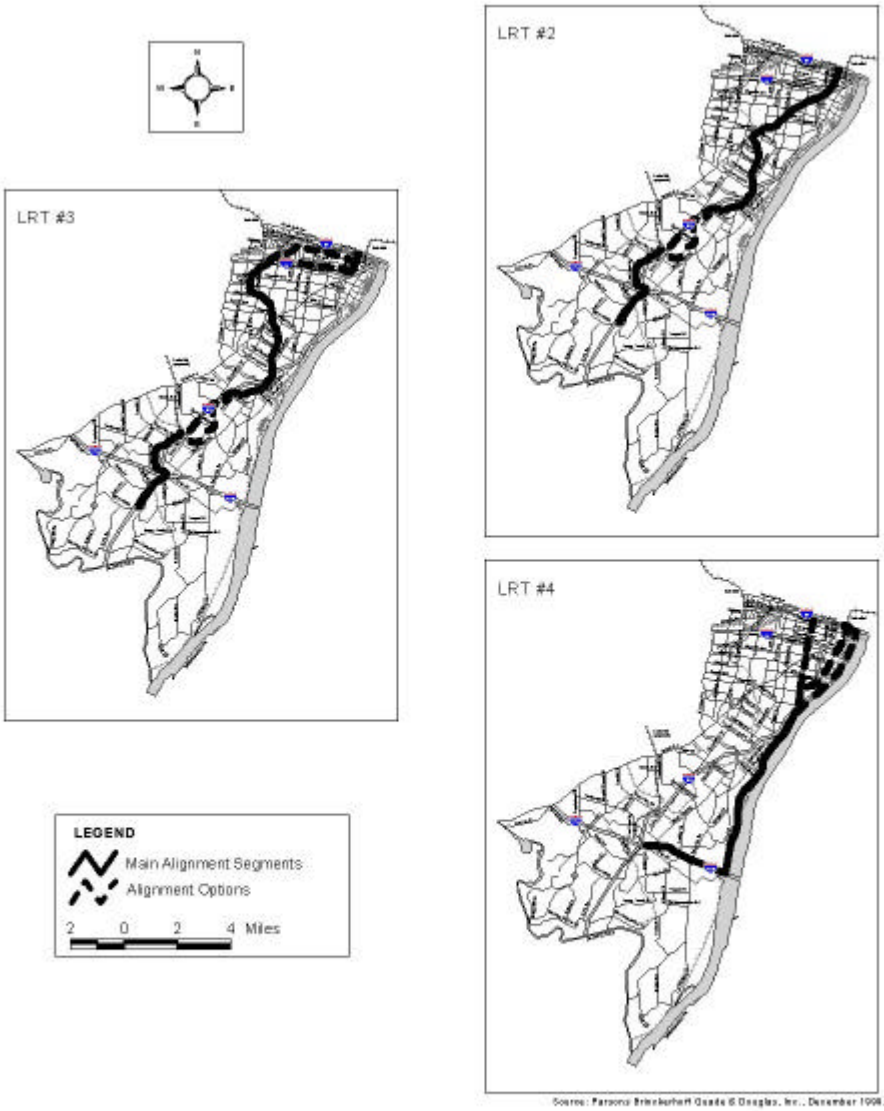


Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 3.3-2

Initial Alternatives

Preliminary Working Document

- The alignment would then follow the Oak Hill Branch south to a point near the intersection of Bayless Avenue and I-55;
- From the Oak Hill Branch, the alignment would continue south along I-55 within MoDOT right-of-way or would follow Grant's Bikeway Trail;
- The alignment would join proposed Cross-County MetroLink Extension-Segment II near Green Park Road and would terminate at Butler Hill Road.

3.3.5 Light Rail Option 3

Light Rail Option 3 would involve the construction of a light rail transit facility (MetroLink) along either Chouteau Avenue or Lafayette Avenue as far as the Oak Hill branch of the Union Pacific Railroad. It would then follow a similar alignment as Light Rail Option 1. See Figure 3.3-2 for a graphic description of Light Rail Option 3. This light rail facility would be primarily at-grade and would have portions of in-street running as well as shared use of rail and bike rights-of-way. This option would connect the existing MetroLink line with proposed Cross-County MetroLink Extension-Segment II along the following alignment:

- Beginning at the existing MetroLink line, the new light rail facility would travel south along Tucker Boulevard to either Chouteau Avenue or Lafayette Avenue;
- The alignment would travel west either along Chouteau Avenue or along Lafayette Avenue where it connects with the Oak Hill Branch of the Union Pacific Railroad;
- The alignment would then follow the Oak Hill Branch south to a point near the intersection of Bayless Avenue and I-55;
- From the Oak Hill Branch, the alignment would continue south along I-55 within MoDOT right-of-way or would follow Grant's Bikeway Trail;
- The alignment would join proposed Cross-County MetroLink Extension-Segment II near Green Park Road and would terminate at Butler Hill Road.

3.3.6 Light Rail Option 4

Light Rail Option 4 would involve the construction of a light rail transit facility (MetroLink) alongside the DeSoto Branch of the Union Pacific Railroad, parallel to the Mississippi River, and within the I-255 right-of-way. Within this alternative, there would be three possible ways to connect into the downtown St. Louis area: (A) Union Pacific Railroad right-of-way, along the Mississippi River; (B) Broadway / 7th Street; and (C) Jefferson Avenue. See Figure 3.3-2. This light rail facility would be primarily at-grade and would have portions of in-street running as well as shared use of rail and Interstate rights-of-way. As with the other light rail options, certain sections of the alignment would likely need to be elevated due to design constraints. Light Rail Option 4 would connect the existing MetroLink line with proposed Cross-County MetroLink Extension-Segment II along the following alignment:

- Beginning at the existing MetroLink line, the new light rail facility would travel south along either the Union Pacific DeSoto line or along Broadway / 7th Street or along Jefferson Avenue to a point on the Union Pacific DeSoto line, south of Meramec Street;
- The alignment would then follow the Union Pacific line south along the Mississippi River to I-255;
- From the Mississippi River, the alignment would travel west along the I-255 right-of-way to where Cross-County MetroLink Extension-Segment II crosses I-255, just east of I-55, and would terminate at the proposed South County Transit Center.

3.3.7 Light Rail Option 5

Light Rail Option 5 would involve the construction of a light rail transit facility (MetroLink) along Tucker Boulevard/Gravois Avenue/Morganford Road/Union Road. See Figure 3.3-3. This light rail facility would

be primarily in-street and at-grade. Light Rail Option 5 would connect the existing MetroLink line with proposed Cross-County MetroLink Extension-Segment II along the following alignment:

- Beginning at the existing MetroLink line, the new light rail facility would travel south along Tucker Boulevard to Gravois Avenue;
- From Tucker Boulevard, the alignment would follow Gravois Avenue south to Morganford Road;
- From Gravois Avenue, the alignment would travel south along Morganford Road, where it becomes Union Road;
- The alignment would continue south along Union Road until it joins proposed Cross-County MetroLink Extension-Segment II near South County Transit Center and then terminates at Butler Hill Road.

3.3.8 Light Rail Option 6

Light Rail Option 6 would involve the construction of a light rail transit facility (MetroLink) within MoDOT right-of-way alongside I-55 and I-255. See Figure 3.3-3. This light rail facility would be primarily at-grade with short elevated portions where dictated by design considerations. This alternative would connect with the downtown St. Louis area via an in-street running segment along Tucker Boulevard. Light Rail Option 6 would connect the existing MetroLink line with proposed Cross-County MetroLink Extension-Segment II along the following alignment:

- Beginning at the existing MetroLink line, the new light rail facility would travel south along Tucker Boulevard to a point near Gravois Avenue, where it joins the I-55 right-of-way;
- The alignment would travel south along the I-55 right-of-way as far as South County Transit Center, where it would share a station with proposed Cross-County MetroLink Extension-Segment II;
- From South County Transit Center, the alignment would follow the I-255 right-of-way east, where it would terminate near Koch Road.

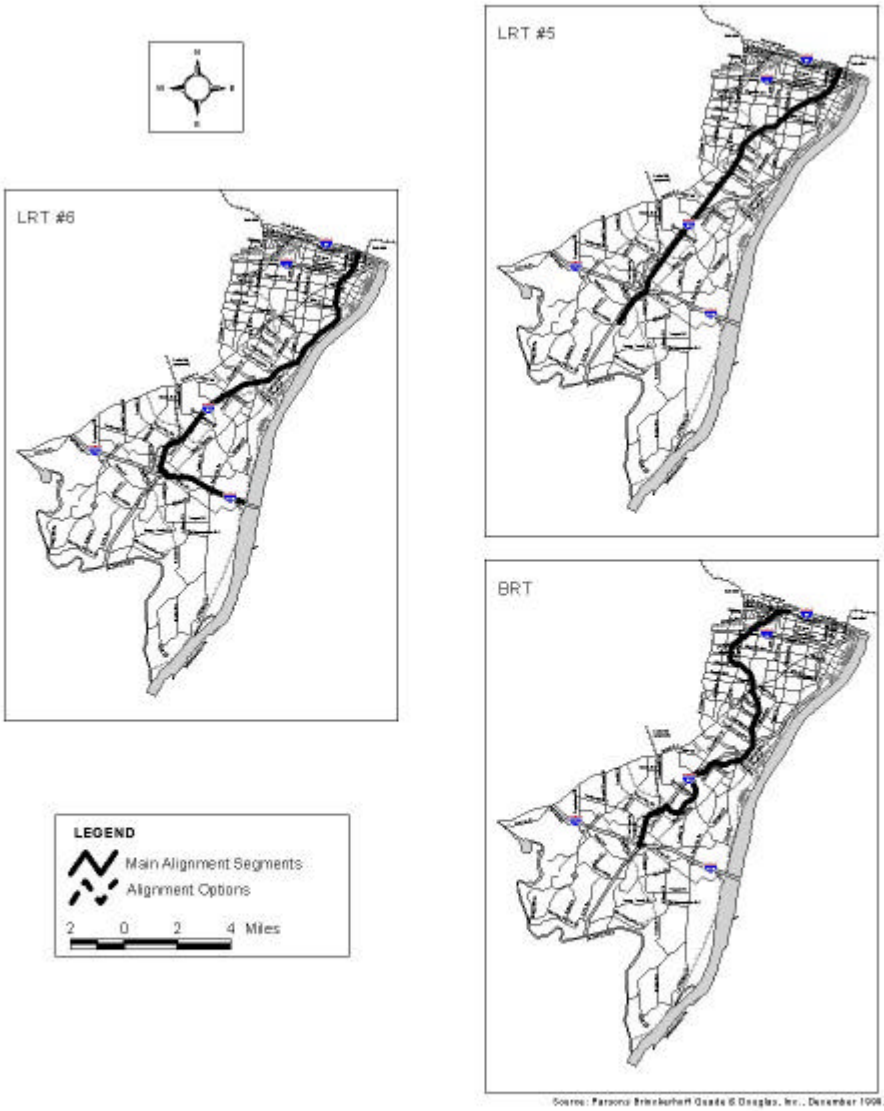
3.3.9 Bus Rapid Transit Option

The Bus Rapid Transit Option would utilize an alignment very similar to Light Rail Option 1. The Bus Rapid Transit Option would involve the construction of a separate roadway for buses only, alongside the Oak Hill Branch line, within Union Pacific Railroad right-of-way. See Figure 3.3-3. The busway facility would be primarily at-grade, in rail right-of-way, with direct busway connectors to major cross-streets heavily utilized by bus routes. This option would connect the downtown St. Louis area with South County along the following alignment:

- Beginning at Grand Avenue MetroLink Station, the busway would travel south along the Oak Hill Branch of the Union Pacific Railroad to a point near the intersection of Bayless Avenue and I-55;
- From the Oak Hill Branch, the alignment would continue south along Grant's Bikeway Trail, where it would connect directly to I-55 near Green Park Road;
- Buses would use I-55 to continue their journey south as far as Lindbergh Boulevard. Buses would then access the proposed South County Transit Center from Lindbergh Boulevard.

3.3.10 Bus Lane Option

The Bus Lane Option would involve widening Gravois Avenue to add lanes (one lane in each direction) for the exclusive use of buses during the peak hours. See Figure 3.3-4. During the peak hours, single occupant vehicles and car pools would not be permitted. Off-peak, the bus lanes could be utilized by general purpose traffic. This option would connect the downtown St. Louis area with South County along the following alignment:



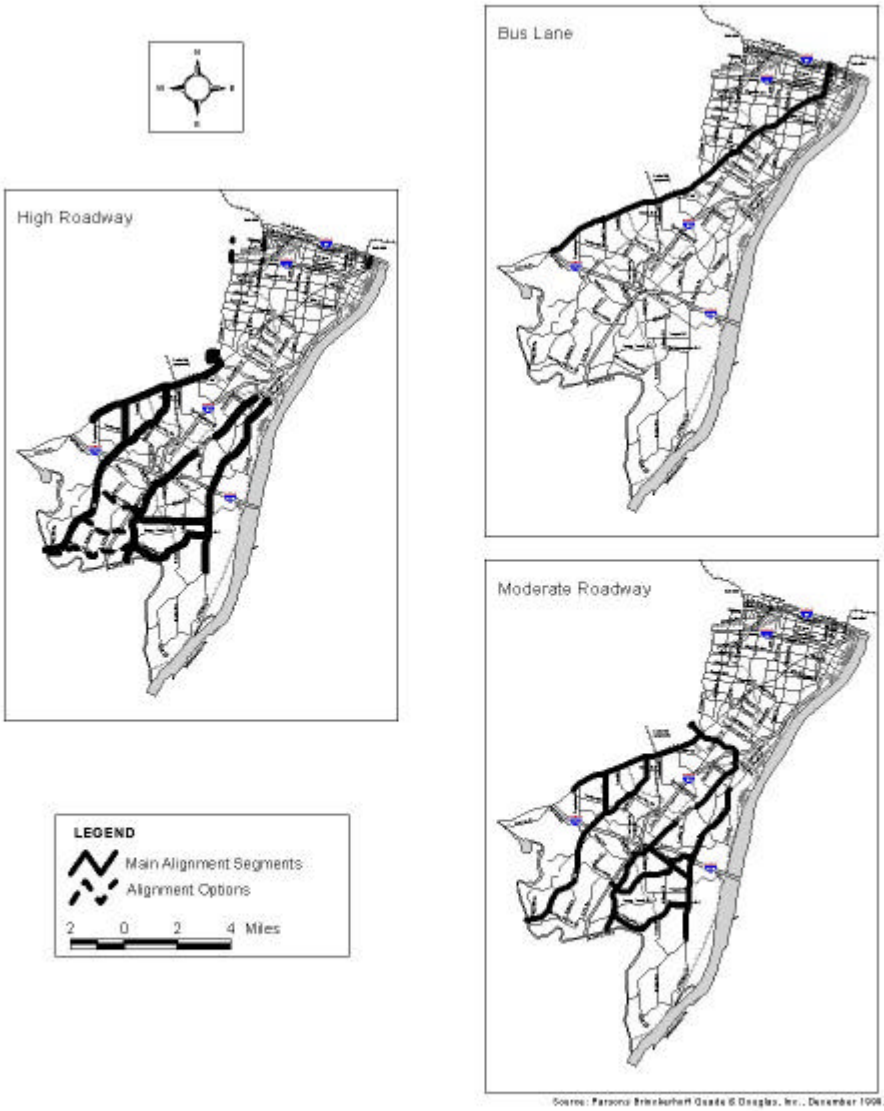
Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 3.3-3

Initial Alternatives

Preliminary Working Document



Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 3.3-4

Initial Alternatives

Preliminary Working Document

- Beginning at the proposed Downtown Multimodal Center at 14th and Spruce Street, buses would travel south along 14th Street and then over on Lafayette where they would enter the bus lanes on Gravois near the I-55 interchange;
- The alignment would then run south along Gravois Avenue into South County, terminating at I-270;
- A park-and-ride lot would be provided at the terminus near Gravois and I-270.

3.3.11 High Roadway Option

This alternative would provide roadway capacity improvements for selected roadways throughout the Southside Study Area. See Figure 3.3-4. Roadway capacity improvements would generally entail widening existing roadways as well as the construction of new roadways on new location. The High Roadway Option would encompass the following roadway segments:

- Flyover connector ramps from eastbound I-64 to southbound I-55 and from northbound I-55 to westbound I-64.
- Hampton Avenue from I-64 to I-44.
- Kingshighway Boulevard from I-64 to I-44.
- Lemay Ferry Road from River Des Peres Blvd. to Will Avenue
- Lemay Ferry Road from I-255 to the Meramec River
- Telegraph Road/Kingston Drive/South Broadway from Marceau Street to the Meramec River
- Old/New Baumgartner Road from Telegraph Road to Lemay Ferry Road
- Yaeger Road connection from Telegraph Road to I-55
- Butler Hill Road from I-55 to Tesson Ferry Road
- New east-west connector roadway from I-55 to Tesson Ferry Road.
- Meramec Bottom Road from I-55 to Tesson Ferry Road
- Gravois Road from Lindbergh Boulevard to River Des Peres Boulevard
- Baptist Church Road from Gravois Road to Tesson Ferry Road
- Tesson Ferry Road from Gravois Road to the Meramec River

3.3.12 Moderate Roadway Option

This alternative would provide spot capacity and design improvements; construct access control improvements (such as adding median barriers and/or providing U-turn interchanges); and provide interchange upgrades to the following segments of roadway (see Figure 3.3-4):

- River Des Peres Boulevard from Lemay Ferry Road to I-44
- Gravois Road from Lindbergh Boulevard to River Des Peres Boulevard
- Lemay Ferry Road from Will Avenue to River Des Peres Boulevard
- Lemay Ferry Road from Mehl Avenue to Meramec River
- Tesson Ferry Road from Gravois Road to Meramec River
- Baptist Church Road from Gravois Road to Tesson Ferry Road
- Telegraph Road/Kingston Drive from Christopher Drive to S. Broadway
- Forder Road from Telegraph Road to Lemay Ferry Road
- Ringer Road from Telegraph Road to Lemay Ferry Road
- Old/New Baumgartner from Telegraph Road to Lemay Ferry Road

4.0 SCREENING OF ALTERNATIVES

4.1 APPROACH / SCREENING CRITERIA

During alternatives screening, the Initial Set of Alternatives underwent a preliminary evaluation. The purpose of the preliminary evaluation was to identify those alternatives that were most competitive and that should, therefore, be carried forward for further study and evaluation in the MTIA. Alternatives that were determined to have a lesser chance of becoming the locally preferred alternative were screened out during this process.

An array of screening criteria was developed to gauge the performance of the alternatives in light of the Study Goals and Objectives described in Section 2.2. Both qualitative and quantitative measures were used to elicit comparative information on the different transportation modes and improvements that comprised the Initial Set of Alternatives. The screening criteria and related measures used in the Southside MTIA to narrow the range of alternatives are listed as follows:

- Ability to serve major travel movements within the Southside Study Area
- Accessibility to concentrations of population and employment
  - population within one-half mile
  - employment within one-half mile
- Accessibility to people without cars
  - zero-car households within one-half mile
- Ease of transportation system connectivity
  - connections to existing and planned transportation system
  - connections to key activity centers
- Potential to encourage and serve redevelopment sites or new development opportunities
  - larger infill and redevelopment opportunity sites (5+ acres)
  - revitalization opportunity sites (concentrations of smaller parcels)
- Relative impacts to residents, businesses, or sensitive properties
  - acres of floodplain within one-half mile
  - acres of wetlands within one-half mile
  - relative community disruption due to property takes and other indirect effects
  - estimated direct property impacts
- Amount of improvement in traffic conditions
  - estimated change in volume/capacity ratios for key roadway links
- Physical feasibility
  - probability of grades in excess of 6% for in-street light rail
- Relative cost to build
  - estimated capital cost

The screening evaluation focused on the build alternatives, as both the No Build and TSM Alternatives are required to be included in the detailed MTIA evaluation as part of the federal planning process. The technical screening evaluation led to a preliminary round of recommendations on what alternatives should be carried forward for detailed study. The technical screening process and related findings are discussed in Section 4.2 of this report.

The recommended alternatives were presented to state and federal agencies, representatives of local jurisdictions, and the general public throughout the months of June and early July 1999. At this stage, study participants were asked which of the initial alternatives they would like to see eliminated and which ones should be recommended for further study. Public and agency input on the recommended alternatives was then factored back into the screening process, which resulted in additional refinements

to the recommended alternatives. In some cases, certain elements of some transportation alternatives were combined with others to form a new transportation alternative that did a better job of addressing the purpose and need of the Southside Study Area. In other cases, specific transportation improvements associated with some alternatives were eliminated due to technical factors or because of public concerns. The final screening results and modified recommendations are summarized in Section 4.3.

The recommended alternatives for the Southside Study Area were reviewed and approved by the East-West Gateway Board of Directors on July 28, 1999. These six alternatives form the Set of Reasonable Alternatives, which are described in Section 5.1 of this report.

4.2 SCREENING EVALUATION

In the technical screening process, the screening criteria were applied to the build alternatives included in the Initial Set of Alternatives. The objective of this task was to assess the relative performance of the alternatives based on a uniform set of measures in order to provide an “apples to apples” comparison. The technical screening analysis was structured to produce evaluative information necessary to choose among alternatives or among certain transportation elements of the alternatives rather than to predict the future benefits, costs, or impacts of any given alternative. Where possible, screening measures were selected that allowed for the comparison of different transportation modes. In some cases, the screening factors were mode specific in that they were used to distinguish among different alignments of a particular transportation mode. For example, level of improvement in roadway congestion was most applicable to the roadway alternatives, whereas significant variances in grades (i.e., grades greater than 6 percent) directly affects the operational feasibility of in-street light rail transit and was therefore pertinent to the evaluation of the light rail alternatives.

Table 4.2-1 summarizes the findings of the technical screening process. The technical screening was somewhat complicated by the number of alignment suboptions inherent to some of the alternatives. Screening information was developed for each potential combination. Consequently, the alternatives, including each suboption combination, are listed down the rows of Table 4.2-1. Screening measures are listed across the columns. The screening measures are generally clustered in categories that apply to the overall goals of the Southside MTIA: Access to Opportunity, Sustainable Development, and Funding Constraints. However some of the screening criteria (i.e., estimated wetlands, floodplains, or right-of-way impacts) relate directly to specific MTIA objectives such as quality of life issues and community preservation.

The screening information provided in Table 4.2-1 includes an assessment of each alternative or suboption (high, medium, or low) for each screening measure. A summary of the supporting technical data for each assessment is also provided. For some of the screening measures, as many as three data points are shown to present the overall picture. For instance, the criteria for zero-car households lists: (1) total number of zero-car households within walking distance of the alignment; (2) number of zero-car households per mile of alignment (i.e., measure needed to normalize the data against varying alignment lengths across alternatives); and (3) percentage of the Southside’s zero-car households that are within walking distance of the alignment. The assessment rating is comparative in that the alternatives are evaluated against one another rather than against a predetermined or absolute threshold. In addition, each assessment relates directly to each screening measure. For example, a “high” amount of population within walking distance of a light rail alternative would be considered a favorable rating, whereas a “high” right-of-way impact would be considered an unfavorable rating. To assist with this definition, those screening criteria on Table 4.2-1 with a “(+)” indicate where the “high” assessment is favorable and those criteria with a “(-)” indicate where the “high” assessment is unfavorable.

Table 4.2-1
Technical Screening Results

INITIAL SET OF ALTERNATIVES ----- -- OPTIONS/SUB-OPTIONS	ACCESS TO OPPORTUNITY					SUSTAINABLE DEVELOPMENT	
	(+) Relative ability to serve major travel markets	(+) Population within ½ mile of centerline of alignment of transit alternative	(+) Employment within ½ mile of centerline of alignment of transit alternative	(+) Zero car households within ½ mile of centerline of alignment of transit alternative	(+) Relative ease of system connectivity	(+) Relative potential to encourage and serve larger infill and redevelopment opportunity sites (5+acres)	(+) Relative potential to encourage and serve revitalization opportunity sites - smaller vacant and underutilized parcels.
LRT Option 1 - Union Pacific RR (Oak Hill Branch)							
I-55 ROW SubOption	Medium Serves commute travel market to west of downtown St. Louis and Clayton indirectly.	Medium 5,308 per c.l. mile 59,923 total 20.0% of study area	Medium 2,882 per c.l. mile 32,535 total 22.8% of study area	Medium 479 per c.l. mile 5,412 total 25.4% of study area	Medium Connects to Existing Metrolink, 1 NS Alt., Interline with Cross County. Major activity centers: Botanical Garden, South County, major employers on Grand.	Medium Serves South County Center	Medium Abuts Forest Park, Kingshighway, and Gravois opportunities.
UP ROW SubOption	Medium Serves commute travel market to west of downtown St. Louis and Clayton indirectly.	Medium 5,102 per c.l. mile 61,121 total 20.4% of study area	Medium 2,823 per c.l. mile 33,819 total 23.7% of study area	Medium 457 per c.l. mile 5,476 total 25.7% of study area	Medium Connects to Existing Metrolink, 1 NS Alt., Interline with Cross County. Major activity centers: Botanical Garden, South County, major employers on Grand.	Medium Serves South County Center	Medium Abuts Forest Park, Kingshighway, and Gravois opportunities.
Recommendation: Carry forward and combine with LRT Option 3 (these options follow generally similar alignments.) Rationale: LRT Option 1 primarily utilizes existing and former railroad right-of-way and consequently an and ridership potential are competitive with other options.							
LRT Option 2 - Tucker/Gravois/UP RR (Oak Hill Branch)							
I-55 ROW SubOption	High Directly serves commuters traveling from So. County to downtown St. Louis. Serves Clayton, indirectly.	High 6,847 per c.l. mile 74,904 total 25.0% of study area	Medium 2,700 per c.l. mile 29,538 total 20.7% of study area	High 742 per c.l. mile 8,118 total 38.1% of study area	High Connects to Existing Metrolink, most NS Alts., Interline with Cross County. Major activity centers: downtown St. Louis, Kiel, Ralston Purina, South County.	Medium Serves South County Center	Medium Abuts Lafayette Square, Gate District, and Gravois opportunities.
UP ROW SubOption	High Directly serves commuters traveling from So. County to downtown St. Louis. Serves Clayton, indirectly.	High 6,544 per c.l. mile 76,102 total 25.4% of study area	Medium 2,650 per c.l. mile 30,823 total 21.6% of study area	High 704 per c.l. mile 8,182 total 38.4% of study area	High Connects to Existing Metrolink, most NS Alts., Interline with Cross County. Major activity centers: downtown St. Louis, Kiel, Ralston Purina, South County.	Medium Serves South County Center	Medium Abuts Lafayette Square, Gate District, and Gravois opportunities.
Recommendation: Drop from further consideration. Rationale: Anticipated to result in ROW impacts along Gravois, particularly west of Jefferson Ave., which makes LRT Option 2 less competitive compared to other similar							
LRT Option 3 - Tucker/Chouteau/UP RR ROW (Oak Hill Branch)							
Chouteau + I-55 ROW	Medium Directly serves commuters traveling from So. County to downtown St. Louis. Serves Clayton, indirectly. Some overlap with existing MetroLink.	Medium 5,456 per c.l. mile 73,106 total 24.4% of study area	High 3,354 per c.l. mile 44,950 total 31.5% of study area	Medium 580 per c.l. mile 7,777 total 36.5% of study area	High Connects to Existing Metrolink, most NS Alts., Interline with Cross County. Major activity centers: downtown St. Louis, Kiel, Botanical Garden, Hospital Complex on Grand, South County.	Medium Serves South County Center	High Abuts center of Lafayette Square and Gate District. Also Forest Park, Kingshighway, and Gravois opportunities.
Lafayette + I-55 ROW	High Directly serves commuters traveling from So. County to downtown St. Louis. Serves Clayton, indirectly.	Medium 6,054 per c.l. mile 81,795 total 27.3% of study area	High 3,264 per c.l. mile 44,094 total 30.9% of study area	Medium 647 per c.l. mile 8,736 total 41.0% of study area	High Connects to Existing Metrolink, most NS Alts., Interline with Cross County. Major activity centers: downtown St. Louis, Kiel, Botanical Garden, Hospital Complex on Grand, South County.	Medium Serves South County Center	Medium Abuts edge of Lafayette Square and Gate District. Also Kingshighway and Gravois opporunities.
Chouteau + UP ROW	Medium	Medium	High	Medium	High	Medium	High

Table 4.2-1
Technical Screening Results

INITIAL SET OF ALTERNATIVES ----- -- OPTIONS/SUB-OPTIONS	ACCESS TO OPPORTUNITY					SUSTAINABLE DEVELOPMENT	
	(+) Relative ability to serve major travel markets	(+) Population within ½ mile of centerline of alignment of transit alternative	(+) Employment within ½ mile of centerline of alignment of transit alternative	(+) Zero car households within ½ mile of centerline of alignment of transit alternative	(+) Relative ease of system connectivity	(+) Relative potential to encourage and serve larger infill and redevelopment opportunity sites (5+acres)	(+) Relative potential to encourage and serve revitalization opportunity sites - smaller vacant and underutilized parcels.
	Directly serves commuters traveling from So. County to downtown St. Louis. Serves Clayton, indirectly. Some overlap with existing MetroLink.	5,274 per c.l. mile 74,305 total 24.8% of study area	3,281 per c.l. mile 46,234 total 32.4% of study area	556 per c.l. mile 7,841 total 36.8% of study area	Connects to Existing Metrolink, most NS Alts., Interline with Cross County. Major activity centers: downtown St. Louis, Kiel, Botanical Garden, Hospital Complex on Grand, South County.	Serves South County Center	Abuts center of Lafayette Square and Gate District. Also Forest Park, Kingshighway, and Gravois opportunities.
Lafayette + UP ROW	High Directly serves commuters traveling from So. County to downtown St. Louis. Serves Clayton, indirectly.	Medium 5,845 per c.l. mile 82,993 total 27.7% of study area	High 3,196 per c.l. mile 45,378 total 31.8% of study area	Medium 620 per c.l. mile 8,800 total 41.3% of study area	High Connects to Existing Metrolink, most NS Alts., Interline with Cross County. Major activity centers: downtown St. Louis, Kiel, Botanical Garden, Hospital Complex on Grand, South County.	Medium Serves South County Center	Medium Abuts edge of Lafayette Square and Gate District. Also Kingshighway and Gravois opporunities.
Recommendation: Carry forward and combine with LRT Option 1 (these options follow generally similar alignments.) Rationale: This option offers the greatest potential for neighborhood revitalization and sustainable deve anticipated ridership and costs are competitive.							

Table 4.2-1
Technical Screening Results

INITIAL SET OF ALTERNATIVES ----- -- OPTIONS/SUB-OPTIONS	ACCESS TO OPPORTUNITY					SUSTAINABLE DEVELOPMENT	
	(+) Relative ability to serve major travel markets	(+) Population within ½ mile of centerline of alignment of transit alternative	(+) Employment within ½ mile of centerline of alignment of transit alternative	(+) Zero car households within ½ mile of centerline of alignment of transit alternative	(+) Relative ease of system connectivity	(+) Relative potential to encourage and serve larger infill and redevelopment opportunity sites (5+acres)	(+) Relative potential to encourage and serve revitalization opportunity sites - smaller vacant and underutilized parcels.
LRT Option 4 - UP RR ROW (Mississippi River)							
UP RR ROW (Miss. Riv.)	Low Directly serves commuters traveling to downtown St. Louis and travelers from Il to Southside. Major portions of alignment inaccessible.	Low 2,415 per c.l. mile 34,755 total 11.6% of study area	Low 2,301 per c.l. mile 33,106 total 23.2% of study area	Low 247 per c.l. mile 3,558 total 16.7% of study area	Low Connects to Existing Metrolink, 0 NS Alt., transfer with Cross County. Major activity centers: downtown St. Louis, Arch, South County.	Medium Serves South County Center and Old National Lead areas	Low Insignificant opportunity areas.
Broadway SubObtion	Medium Directly serves commuters traveling to downtown St. Louis and travelers from Il to Southside. Indirect service to Clayton. Portions of align. difficult to access.	Low 3,193 per c.l. mile 44,643 total 14.9% of study area	Medium 2,736 per c.l. mile 38,243 total 26.8% of study area	Low 363 per c.l. mile 5,071 total 23.8% of study area	Medium Connects to Existing Metrolink, 0 NS Alt., transfer with Cross County. Major activity centers: downtown St. Louis, Busch Stadium, Anheuser Busch, Ralston Purina, South County.	Medium Serves South County Center and Old National Lead areas	Low Insignificant opportunity areas.
Jefferson SubOption	Medium Directly serves commuters traveling to downtown St. Louis and travelers from Il to Southside. Indirect service to Clayton. Portions of align. difficult to access.	Low 3,987 per c.l. mile 53,631 total 17.9% of study area	Low 2,154 per c.l. mile 28,968 total 20.3% of study area	Medium 493 per c.l. mile 6,626 total 31.1% of study area	Low Connects to Existing Metrolink, 1 NS Alt., transfer with Cross County. Major activity centers: Union Station, Anheuser Busch.	Medium Serves South County Center and Old National Lead areas	Medium Abuts Lafayette Square and Gate District.
Recommendation: Drop from further consideration. Rationale: Low ridership potential, anticipated wetland and floodplain impacts along Mississippi River. In addition, suboption alignments along Jefferson or Broadway v							
LRT Option 5 - Gravois/Morganford/Union							
Baseline Alignment	High Directly serves commuters traveling from So. County to downtown St. Louis. Serves Clayton, indirectly.	Medium 5,393 per c.l. mile 70,110 total 23.4% of study area	Low 2,250 per c.l. mile 29,253 total 20.5% of study area	Medium 587 per c.l. mile 7,628 total 35.8% of study area	Medium Connects to Existing Metrolink, most NS Alts., transfer with Cross County. Major activity centers: downtown St. Louis, Kiel, Ralston Purina, South County.	Medium Serves South County Center	Medium Abuts Lafayette Square and Gravois opportunities.
Recommendation: Drop from further consideration. Rationale: moderate ridership potential, yet right of way is limited throughout much of the length of the alignment. Right-of-way impacts are judged to be high leading to							
LRT Option 6 - I-55/I-255 ROW							
Baseline Alignment	Medium Directly serves commuters traveling to downtown St. Louis and travelers from Il to Southside. Indirect service to Clayton. Portions of align. difficult to access.	Medium 4,088 per c.l. mile 62,919 total 21.0% of study area	Medium 2,466 per c.l. mile 37,958 total 26.6% of study area	Medium 385 per c.l. mile 5,923 total 27.8% of study area	Connects to Existing Metrolink, most NS Alts., transfer with Cross County. Major activity centers: downtown St. Louis, Kiel, Anheuser Busch, Ralston Purina, South County.	Medium Serves South County Center	Low Insignificant opportunity areas, except for Hope VI site.
Recommendation: Carry forward. Rationale: Public input / desire to stay within public rights-of-way wherever feasible. Serves key, yet significantly different travel markets than LRT Options 1 / 3. Located almost entirely v							
BRT Option - UP RR ROW (Oak Hill Branch)							
UP ROW Alignment	Low Directly serves downtown, but does not directly serve South County hub. Does not serve Clayton/West County.	Medium 5,102 per c.l. mile 61,121 total 20.4% of study area	Medium 2,823 per c.l. mile 33,819 total 23.7% of study area	Medium 457 per c.l. mile 5,476 total 25.7% of study area	Medium Connects to Existing Metrolink, 1 NS Alt., transfer at Cross County. Major activity centers: Botanical Garden, South County, major employers on Grand.	Medium Serves South County Center	Medium Abuts Forest Park, Kingshighway, and Gravois opportunities.

Table 4.2-1
Technical Screening Results

INITIAL SET OF ALTERNATIVES ----- -- OPTIONS/SUB-OPTIONS	ACCESS TO OPPORTUNITY					SUSTAINABLE DEVELOPMENT	
	(+) Relative ability to serve major travel markets	(+) Population within ½ mile of centerline of alignment of transit alternative	(+) Employment within ½ mile of centerline of alignment of transit alternative	(+) Zero car households within ½ mile of centerline of alignment of transit alternative	(+) Relative ease of system connectivity	(+) Relative potential to encourage and serve larger infill and redevelopment opportunity sites (5+acres)	(+) Relative potential to encourage and serve revitalization opportunity sites - smaller vacant and underutilized parcels.
Recommendation: Carry forward. Rationale: Cost-effectiveness and minimal right-of-way impacts. Ridership potential relative to cost is very favorable for this option compared to the other build alternatives.							
Bus Lane Option - Gravois							
Baseline Alignment	Low Directly serves downtown, but does not directly serve South County hub. Serves Clayton/West County travel market for commuters east of I-55.	Medium 4,976 per c.l. mile 65,185 total 21.8% of study area	Low 1,959 per c.l. mile 25,657 total 18.0% of study area	Medium 591 per c.l. mile 7,740 total 36.3% of study area	Low Connects to multimodal center (14th & Spruce), 0 NS Alts., transfer at Cross County. Major activity centers: downtown St. Louis, Kiel.	NA No fixed guideway.	NA No fixed guideway.
Recommendation: Drop from further consideration. Rationale: Low to moderate ridership potential. At the same time, this option is expected to result direct right of way impacts due to properties and sensitive resources c							
High Roadway Option							
Baseline Alignment	High Serves multiple travel markets: north-south movement, east-west movement to West County, commuters from South, Jefferson County.	NA Transit measure.	NA Transit measure.	NA Transit measure.	Medium Connectivity to planned roadway projects along Lemay Ferry, Telegraph Road.	NA	
Recommendation: Carry forward. Rationale: high potential for congestion relief, which is an important goal for the Southside Study Area. In addition, estimated cost is competitive compared to the other build options.							

Table 4.2-1
Technical Screening Results

INITIAL SET OF ALTERNATIVES ----- -- OPTIONS/SUB-OPTIONS	ACCESS TO OPPORTUNITY					SUSTAINABLE DEVELOPMENT	
	(+) Relative ability to serve major travel markets	(+) Population within ½ mile of centerline of alignment of transit alternative	(+) Employment within ½ mile of centerline of alignment of transit alternative	(+) Zero car households within ½ mile of centerline of alignment of transit alternative	(+) Relative ease of system connectivity	(+) Relative potential to encourage and serve larger infill and redevelopment opportunity sites (5+acres)	(+) Relative potential to encourage and serve revitalization opportunity sites - smaller vacant and underutilized parcels.
Moderate Roadway Option							
Baseline Alignment	Medium Proves partial benefits for multiple travel markets.	NA Transit measure.	NA Transit measure.	NA Transit measure.	Low Spot improvements to better manage traffic flow. No strong connectivy to existing and planned transportion system.	NA	
Recommendation: Carry forward and combine with the TSM Alternative. Rationale: Cost-effectiveness and potential for safety benefits due to improved design and traffic flow.							

Table 4.2-1
Technical Screening Results

RESOURCE CONSERVATION		RIGHT-OF-WAY IMPACTS		PHYSICAL FEASIBILITY	CAPITAL COSTS
(-) Acres of floodplain within 500 feet of centerline of alternative	(-) Acres of wetlands within 500 feet of centerline of alternative	(-) Relative community disruption due to property takes and/or indirect impacts such as traffic, noise, safety considerations.	(-) Direct property impacts to residents, businesses, or sensitive properties.	(-) Probability of grades in excess of 6% along proposed in-street LRT rights-of-way	(-) Order of magnitude capital cost estimates (millions $'s)
Medium 254 total acres 22.54 per c.l. mile	Medium 14 total acres 1.23 per c.l. mile	Low Sufficient ROW and uses active transportation corridor.	Low Over 85% of alignment with no ROW impacts.	Low Appears to meet 6% criteria.	Medium $447 total $29.4 per centerline mile
High 448 total acres 37.54 per c.l. mile	High 67 total acres 5.62 per c.l. mile	Low Sufficient ROW and uses active transportation corridor.	Low Over 85% of alignment with no ROW impacts.	Low Appears to meet 6% criteria.	Medium $398 total $25.0 per centerline mile
ticipated ROW impacts are minimal compared to the other options. Serves key travel markets within the Southside Study Area. Relative cost					
Medium 254 total acres 23.26 per c.l. mile	Medium 14 total acres 1.27 per c.l. mile	Medium Insufficient ROW for major portion of corridor; cross cuts some neighborhoods, yet relatively non-intrusive mode.	Medium 12% and 16% of alignment with high and moderate ROW impacts, respectively.	Low Appears to meet 6% criteria.	Medium $508 total $35.0 per centerline mile
High 448 total acres 38.54 per c.l. mile	High 67 total acres 5.79 per c.l. mile	Medium Insufficient ROW for major portion of corridor; cross cuts some neighborhoods, yet relatively non-intrusive mode.	Medium 12% and 16% of alignment with high and moderate ROW impacts, respectively.	Low Appears to meet 6% criteria.	Medium $458 total $30.0 per centerline mile
r LRT Options.					
Medium 254 total acres 18.99 per c.l. mile	Medium 14 total acres 1.04 per c.l. mile	Low Sufficient ROW and uses active transportation corridor.	Low Over 85% of alignment with no ROW impacts.	High Some sections appear to exceed 6% threshold along Chouteau.	Medium $594 total $33.5 per centerline mile
Medium 254 total acres 18.83 per c.l. mile	Medium 15 total acres 1.08 per c.l. mile	Low Sufficient ROW and uses active transportation corridor.	Low Over 90% of alignment with no ROW impacts.	High Some sections appear to exceed 6% threshold along Lafayette.	Medium $563 total $33.1 per centerline mile
High	High	Low	Low	High	Medium

Table 4.2-1
Technical Screening Results

RESOURCE CONSERVATION		RIGHT-OF-WAY IMPACTS		PHYSICAL FEASIBILITY	CAPITAL COSTS
(-) Acres of floodplain within 500 feet of centerline of alternative	(-) Acres of wetlands within 500 feet of centerline of alternative	(-) Relative community disruption due to property takes and/or indirect impacts such as traffic, noise, safety considerations.	(-) Direct property impacts to residents, businesses, or sensitive properties.	(-) Probability of grades in excess of 6% along proposed in-street LRT rights-of-way	(-) Order of magnitude capital cost estimates (millions $'s)
448 total acres 31.81 per c.l. mile	67 total acres 4.78 per c.l. mile	Sufficient ROW and uses active transportation corridor.	Over 85% of alignment with no ROW impacts.	Some sections appear to exceed 6% threshold along Chouteau.	$545 total $29.6 per centerline mile
High	High	Low	Low	High	Medium
448 total acres 31.57 per c.l. mile	68 total acres 4.79 per c.l. mile	Sufficient ROW and uses active transportation corridor.	Over 90% of alignment with no ROW impacts.	Some sections appear to exceed 6% threshold along Lafayette.	$513 total $29.0 per centerline mile

elopment opportunities, an important goal for the Southside Study Area. As with LRT Option 1, right-of-way impacts are minimal and

Table 4.2-1
Technical Screening Results

RESOURCE CONSERVATION		RIGHT-OF-WAY IMPACTS		PHYSICAL FEASIBILITY	CAPITAL COSTS
(-) Acres of floodplain within 500 feet of centerline of alternative	(-) Acres of wetlands within 500 feet of centerline of alternative	(-) Relative community disruption due to property takes and/or indirect impacts such as traffic, noise, safety considerations.	(-) Direct property impacts to residents, businesses, or sensitive properties.	(-) Probability of grades in excess of 6% along proposed in-street LRT rights-of-way	(-) Order of magnitude capital cost estimates (millions $'s)
High 569 total acres 39.55 per c.l. mile	Medium 21 total acres 1.49 per c.l. mile	Low Largely borders industrial properties. Some potential for freight track relocation.	Medium 12% of alignment with high or moderate ROW impacts and 30% of alignment with low ROW impacts.	Low Appears to meet 6% criteria.	Medium $441 total $30.6 per centerline mile
High 423 total acres 30.29 per c.l. mile	Medium 20 total acres 1.42 per c.l. mile	Medium Mostly sufficient ROW; cross cuts some neighborhoods, but largely non-intrusive mode.	Medium 16% of alignment with moderate and 21% of alignment with low ROW impacts, respectively.	Low Appears to meet 6% criteria.	Medium $513 total $36.6 per centerline mile
High 423 total acres 31.49 per c.l. mile	Medium 20 total acres 1.5 per c.l. mile	Medium Encroaches on existing properties on Jefferson; cross cuts some neighborhoods, yet relatively non-intrusive mode.	Medium 11% of alignment with moderate and 21% of alignment with low ROW impacts, respectively.	High Some sections appear to exceed 6% threshold along Jefferson.	Medium $487 total $36.3 per centerline mile
vould result in impacts where right-of-way is insufficient.					
Low 59 total acres 4.51 per c.l. mile	Low 6 total acres 0.47 per c.l. mile	High Insufficient ROW for major portions of the corridor. Close proximity to residents, small businesses.	High Over 70% of alignment with high and moderate ROW impacts	Low Appears to meet 6% criteria.	High $551 total $42.4 per centerline mile
greater risk for community disruption.					
Medium 209 total acres 13.62 per c.l.mile	Low 6 total acres 0.42 per c.l. mile	Low Insufficent ROW in some portions of alignments, but uses active transportation corridor.	Medium 11% of alignment with moderate and 7% of alignment with low ROW impacts, respectively.	Low Appears to meet 6% criteria.	High $808 total $52.5 per centerline mile
within active transportation corridor (I-55) and thus neighborhood disruption is judged to be lower compared to the other options.					
High 448 total acres 37.42 per c.l. mile	High 67 total acres 5.62 per c.l. mile	Low Sufficient ROW, uses active transportation corridor, non-intrusive mode.	Low Over 80% of alignment with no ROW impacts.	NA	Low $82 total $5.1 per centerline mile

Table 4.2-1
Technical Screening Results

RESOURCE CONSERVATION		RIGHT-OF-WAY IMPACTS		PHYSICAL FEASIBILITY	CAPITAL COSTS
(-) Acres of floodplain within 500 feet of centerline of alternative	(-) Acres of wetlands within 500 feet of centerline of alternative	(-) Relative community disruption due to property takes and/or indirect impacts such as traffic, noise, safety considerations.	(-) Direct property impacts to residents, businesses, or sensitive properties.	(-) Probability of grades in excess of 6% along proposed in-street LRT rights-of-way	(-) Order of magnitude capital cost estimates (millions $'s)
Low 33 total acres 2.53 per c.l. mile	Low 5 total acres 0.35 per c.l. mile	Medium Insufficent ROW throughout most of alignment, yet active transportation corridor for this mode.	High Over 70% of alignment with high and moderate ROW impacts. Potential fatal flaw (cemetery, historic property).	NA	Low $31 total $2.4 per centerline mile
:lose to edge of existing roadway.					
High 563 total acres 11.93 per c.l. mile	High 82 total acres 1.73 per c.l. mile	High Bisects some neighborhoods; greater potential for noise, traffic impacts.	Medium 25% of alignment with moderate and 15% of alignment with low ROW impacts, respectively.	NA	Low $160 total $3.4 per centerline mile

Table 4.2-1
Technical Screening Results

RESOURCE CONSERVATION		RIGHT-OF-WAY IMPACTS		PHYSICAL FEASIBILITY	CAPITAL COSTS
(-) Acres of floodplain within 500 feet of centerline of alternative	(-) Acres of wetlands within 500 feet of centerline of alternative	(-) Relative community disruption due to property takes and/or indirect impacts such as traffic, noise, safety considerations.	(-) Direct property impacts to residents, businesses, or sensitive properties.	(-) Probability of grades in excess of 6% along proposed in-street LRT rights-of-way	(-) Order of magnitude capital cost estimates (millions $'s)
NA	NA	Medium Greater potential for noise, traffic impacts in communities bordering alignments.	Low Minimal to no ROW impacts due to spot capacity improvements only.	NA	Low $80 total $1.7 per centerline mile

Screening findings for each alternative are also summarized in Table 4.2-1 under “Recommendations.” These findings describe the overall performance of each alternative based on the screening criteria that were judged to be most significant to the decision at hand. Whereas all the screening criteria were important, screening analysis in the Southside MTIA focused very closely on estimated right-of-way impacts, potential for neighborhood revitalization, and anticipated travel benefits relative to cost. For the transit alternatives (bus and rail), transit system connectivity, population and employment densities, and proximity to zero-car households, were used as indicators of potential transit ridership. For the roadway alternatives, ability to serve major travel markets and amount of improvement in traffic volume/capacity ratios were used to portray anticipated travel benefits. Environmental considerations such as the presence of wetlands and floodplains as well as physical feasibility were viewed based upon their potential to pose a fatal flaw to the overall alternative. These environmental issues, operational factors, and physical constraints will be further explored in subsequent analysis conducted for the MTIA.

In order to estimate right of way impacts, a footprint based on a typical cross section was developed for each build alternative, depending upon the mode (rail, bus lane, bus guideway, or roadway) and its application (in-street, elevated, in freeway right-of-way, or in shared railroad right-of-way). For the bus and rail alternatives that made use of city streets, an assumption was made as to whether the roadway should be widened to accommodate the alternative or whether the alternative would replace an existing traffic lane. As a rule, where traffic volumes were projected to be high relative to roadway capacity (v/c ratios greater than .75) and where existing right-of-way was limited, it was assumed that the roadway would need to be widened and that additional right of way would be needed. Through the use of high resolution aerial photography, parcel map data showing property lines, and geographic information systems (GIS) techniques, right-of-way impacts were estimated and assessed along each proposed alignment.

The right-of-way assessment took into account the existing land use, amount of additional right-of-way needed, if any; and the physical requirements of the proposed alternative. In general, direct impacts to structures (residential and commercial), elimination of property access, or impacts to highly sensitive uses such as cemeteries, historical properties, or parks were characterized as “high impact” segments. Partial property impacts to parking, residential or commercial properties, or landscaped areas were depicted as “moderate,” while partial property impacts to industrial or abandoned properties were considered “low.” In some cases, where the existing right-of-way was either sufficient, in public hands, or had a pre-existing transportation use, an assignment of “none” was used. These assessments were then aggregated on a linear foot basis by category for the full alignment in order to come up with an overall rating for direct property impacts for each alternative. In addition, a second overall rating was developed for indirect right-of-way impacts to neighborhoods and communities. Indirect impacts were based on: extent of estimated direct impacts, the operational characteristics of the proposed alternative, and nature and character of adjacent land uses.

Opportunity to support sustainable development was another factor in the technical screening process. Particular focus was given to those areas along the alignment deemed most likely to benefit from a major transportation investment and/or support transit-oriented development efforts. These areas included: neighborhoods in transition (i.e., those pursuing historic preservation or housing rehabilitation projects); known redevelopment districts such as the downtown CBD and Darst-Webbe; and other major redevelopment projects such as the South County Center Mall. Vacant or underutilized parcels were examined to determine areas where new development could possibly occur at densities and intensities that would complement transit use.

GIS analysis techniques were used to provide estimates of population, employment, and zero-car households for each alternative. This information was derived from the 1990 U.S. Census as well as from Year 2020 population and employment projections developed by EWGCC. GIS systems were also used to calculate acres of wetlands resources and floodplains for the alternatives. Wetlands mapping was provided through the National Wetlands Inventory, while floodplain boundary mapping was obtained from the Federal Emergency Management Agency (FEMA).

Rough cost estimates were prepared for each build alternative in order to gauge “order of magnitude” differences among the alternatives for the screening analysis. The costs are shown in present year dollars and reflect both right-of-way and construction costs (i.e., capital costs). More detailed cost estimates will be developed for the alternatives in subsequent phases of the MTIA.

For the light rail alternatives, costs were developed on a linear mile basis according to facility type and right-of-way treatment: in-street running, in rail right-of-way, in utility easement, in highway right-of-way, and new location. The cost of system support facilities such as stations, rail vehicles, signaling, and power systems are reflected in the per-mile, unit costs. For costing purposes, some assumptions were made as to which portions of the alignments would be at-grade and which portions would be elevated. For example, light rail alternatives in highway right-of-way were presumed to have several sections of elevated track, primarily at the interchanges in order to avoid the interstate ramp structures. Unit costs were derived from other similar light rail facilities nationwide and were cross-checked with light rail facilities that are either in development or that have recently been constructed in the St. Louis region.

For the bus rapid transit, bus lane, and roadway alternatives, costs were developed on a linear mile basis according to facility type (highway widening, roadway widening, new location) and estimated right-of-way requirements (high, medium, or low). These cost estimates also made provisions for where significant amounts of structure would be needed (i.e., bridges, ramps, flyover connectors between interstates) based on the conceptual definition of the proposed alternative. Per-mile, unit costs were primarily drawn from similar roadway projects recently put out for bid by MoDOT.

4.3 SCREENING RESULTS

As a result of the screening analysis and community input, six alternatives were identified for further study in the Southside Study Area and six were eliminated. In some cases, the best transportation elements of some of the alternatives were recombined to form the recommended set of six alternatives.

In general, alternatives that were judged to physically impact residences, businesses, churches, parks and/or cemeteries were dropped in favor of alternatives that could fit within existing freeway or railroad rights of way. This eliminated light rail and bus lanes along major stretches of certain city streets such as Gravois Avenue, Jefferson Avenue, Broadway, Morganford Road, and Union Road. Alternatives that provided direct transit connections to major activity centers and concentrations of employment such as downtown St. Louis, South County Shopping Center, Anheuser Busch, Ralston Purina, and the Missouri Botanical Garden were selected over those alternatives that did not.

Transit alternatives, both bus and rail, were also evaluated on their ability to support community-oriented redevelopment efforts and on their ability to attract transit ridership based on factors such as residential density, walk access, proximity of zero-car households, and existing transit ridership levels. As a result, transit alternatives that served the residential and commercial core of the Southside were selected over light rail through the industrial areas bordering the Mississippi River.

Roadway alternatives were examined based upon their ability to address existing and projected traffic congestion and how well they served major travel movements within the Study Area. Estimated travel benefits associated with the different roadway links were viewed in light of their potential for neighborhood disruption and physical impacts to sensitive properties. As a result of the screening, some roadway segments were dropped. Yet other roadway improvements (primarily access management and spot capacity improvements) were added to the TSM Alternative. The remaining roadway segments were combined into a single roadway alternative and were recommended to be carried forward for further analysis.

Finally, where the anticipated benefits among alternatives were generally similar, less costly alternatives were favored over more costly options.

Through this process, six alternatives were identified for further study in the Southside Study Area. These alternatives address different aspects of the purpose and need for improvements in the Southside and encompass a range of transportation modes and investments. The following narrative provides a brief overview of the six alternatives and outlines the rationale for why these alternatives were recommended. A more detailed description of their physical and operational characteristics can be found in Section 5.1 of this report.

For consistency with federal planning practices and environmental requirements, both the **No Build Alternative** and the **TSM Alternative** were recommended. Moreover, these two alternatives provide low cost options to the other, more capital-intensive build alternatives. In addition to the No Build and TSM Alternatives, four build alternatives were selected.

Light Rail Transit (Union Pacific Railroad): This alternative would extend MetroLink light rail service from the downtown St. Louis area, south, along the Union Pacific Railroad right-of-way into South St. Louis County. In South County, this alternative merges with Segment 2 of the proposed Cross-County MetroLink Extension near Green Park Road and continues south along the Cross-County alignment as far as Butler Hill Rd. This light rail alternative was recommended since it uses an existing railroad corridor, which would result in modest right-of-way costs and minimal potential for displacements of residences and businesses. It provides direct access to key activity centers in the Southside such as South County Shopping Center, the Missouri Botanical Garden, the SLU/Glennon Hospital Complex, Ralston-Purina, and to downtown St. Louis. It also offers the greatest potential for transit oriented development and neighborhood revitalization. This alternative provides a high level of connectivity with the existing and planned MetroLink system as well as with light rail alternatives proposed for the Northside Study Area.

Light Rail Transit (I-55 / I-255): This alternative would extend MetroLink light rail service from the downtown St. Louis area, south, along the I-55 right-of-way as far as the South County Shopping Center in South St. Louis County. From the shopping center, the light rail line travels east along the I-255 right-of-way terminating at a park-and-ride lot near the Jefferson Barracks Medical Center. In the City of St. Louis, this alternative would connect with the downtown area via Tucker Boulevard. This alternative was recommended for many of the same reasons as the previous alternative. It uses available right-of-way within an active transportation corridor. As such, this alternative was judged to have a low potential for disruption of residences, business, or sensitive resources compared to other build alternatives. Since public right-of-way would be used for the rail line, the cost to acquire new right-of-way would be relatively minimal. This light rail alternative would provide direct access into the downtown St. Louis area as well as key activity centers and major employers such as South County Shopping Center, Anheuser Busch, Soulard, and Ralston-Purina. It would also provide a transit option via park and ride access for residents commuting in to the St. Louis Central Business District from the Oakville area of South County and from Illinois over the Jefferson Barracks Bridge. Lastly, this light rail alternative provides a high level of connectivity with the existing and planned MetroLink system as well as the proposed Northside light rail alternatives.

Bus Rapid Transit (Union Pacific Railroad): This alternative proposes the construction of a 2-lane roadway for exclusive use by buses within the Union Pacific railroad right-of-way between Grand Station and I-55 near Green Park Road. Buses would run at relatively high frequencies, 10 to 15 minutes in the peak hour, along the dedicated busway. The objective of this alternative is to provide a travel time preference for transit riders by separating transit vehicles from local traffic and congestion on city streets. The Bus Rapid Transit Alternative was recommended because it would provide a high level of service and travel time preference for transit riders at a relatively low construction cost. It also offers the transit rider the opportunity for a “one seat ride” as buses can circulate on city streets and then enter the bus guideway without requiring a passenger transfer between transit vehicles. The busway would be situated primarily within an existing rail corridor, which greatly decreases the potential for displacements and community disruption typically associated with a major transportation project. The use of existing transportation corridors also reduces land acquisition costs and potential relocation costs.

Roadway Alternative: This alternative proposes roadway widenings along major arterials that are projected to experience high levels of congestion in the Southside Study Area. This alternative would also provide new roadway connections to better serve travel movements in the Study Area. These roadway improvements would take place primarily within South St. Louis County along major north-south arterials such as: Gravois Road, Tesson Ferry Road, Lemay Ferry Road, and Telegraph Road. South of I-270 / I-255, new east-west roadway segments would be considered between Telegraph Road and I-55 as well as between Tesson Ferry Road and I-55. This alternative was recommended as it most directly addresses rapid growth of travel demand in South County. It also provides the greatest potential for congestion relief and travel time savings for trucks and motorists. The roadway alternative serves multiple travel markets and trip purposes within the Study Area. This alternative also offers the opportunity to improve the existing geometric design and to resolve turning movement conflicts on certain segments of the arterial roadway system, thereby improving roadway safety.

5.0 SET OF REASONABLE ALTERNATIVES FOR FURTHER ANALYSIS

5.1 DESCRIPTION OF REASONABLE ALTERNATIVES

As a result of the screening analysis, six alternatives were selected and approved by the EWGCC Board of Directors for detailed evaluation in the Southside MTIA. The Set of Reasonable Alternatives incorporated the refinements that resulted during the screening process. For clarity, the six remaining alternatives were renumbered "1" through "6" as follows:

Alternative 1 – No Build
Alternative 2 – Transportation System Management (TSM)
Alternative 3 – Light Rail Transit (LRT), Union Pacific RR
Alternative 4 – Light Rail Transit (LRT), Interstate 55 / Interstate 255
Alternative 5 – Bus Rapid Transit (BRT), Union Pacific RR
Alternative 6 – Roadway

These six alternatives are conceptual in scope and will go through further refinements in the MTIA analysis. The physical and operational characteristics of each alternative are described in the following pages. It is important to note that these alternatives will continue to evolve through the remainder of the MTIA Study as more detailed assessments of these alternatives are performed.

5.1.1 Alternative 1 - No Build

The No Build Alternative represents future travel conditions in the Southside Study Area if no additional improvements are recommended by the MTIA beyond what is already planned to take place. The No Build Alternative consists of those transportation projects that are already planned or committed for the Year 2020, the planning horizon year for the Study.

The following is a summarized list of some of the major transportation improvements that are planned and committed in the Southside Study Area. Taken together with the existing transportation infrastructure, these projects form the background for the future transportation network for the Southside.

Light Rail Transit (LRT)/Bus Transit

- Cross-County MetroLink Extension (all three segments).
- New light rail transit stations at South County Shopping Center and Butler Hill Road (Cross-County MetroLink Extension, Segment 2).
- Feeder bus service to LRT; neighborhood circulators.
- Flexible routing and demand response bus service.
- Maintain express bus service to regional central business districts (CBDs).
- Four proposed bus transfer centers (Grand MetroLink Station, Grand/Chippewa, Hampton Loop, and South County Shopping Center).
- Transition to transit center design for bus service.
- Some growth in fixed route/express bus service (20% approx. increase in vehicle service hours).
- Downtown Multimodal Center at 14th Street and Spruce Street.

Highway/Roadway

- I-55, Poplar Street Bridge to Mississippi River, reconfigure ramps.
- Close I-70 ramps, at Poplar Street Bridge and Memorial Drive.

- I-70 ramps, Spruce St. at I-64, new I-70 Northbound and Southbound ramps.
- I-55, capacity and interchange improvements, south of Southside Study Area in Jefferson County. From Richardson Road to MO. M becomes 8 lanes. From MO. M to McNutt Road becomes 6 lanes. from McNutt to MO. A, remains 4 lanes. From MO. A. to U.S. 64, add auxiliary lanes.
- I-64, Kingshighway Boulevard to Tower Grove Avenue, add auxiliary lanes (one in each direction), interchange improvements.
- I-44/I-55 interchange improvement (reconfigure I-44 ramps, design improvement on EB I-44 bridge at I-55).
- McRee Road, Vandeventer Avenue to Kingshighway Boulevard, widen from 2 to 4 lanes.
- I-255 and MO. 231 interchange improvement.
- MO. 231 (Telegraph Road), Christopher to Meramec River, widen from 2 to 5 lanes.
- MO. 21 (Tesson Ferry Road), M to H, south of the Southside Study Area, widen from 2 lanes to 4-lane freeway.
- New 8-lane Mississippi River Bridge and I-70 relocation (in Northside Study Area).
- Signal Coordination and TSM improvements along Broadway, Grand Avenue, Kingshighway Boulevard and Gravois Road within the city limits.
- Grattan Street Parkway, 18th and Gratiot Street to Lafayette and I-55, construct new 4-lane arterial.
- Kennerly Road, Tesson Ferry Road to Sappington Road to I-270, widen from 2 to 5 lanes.
- Meramec Bottom Road, I-55 to Lemay Ferry Road, widen from 2 to 3 lanes.
- Sappington Road, Kennerly Road to Lindbergh Boulevard, widen from 2 to 3 lanes.
- Forder Road, Telegraph Road to Ringer Road, widen from 2 to 3 lanes.
- Spruce Street extension at Multimodal center.

Intelligent Transportation Systems (ITS)

- Transit ITS strategies, such as advanced vehicle detection and dispatching.
- ITS improvements, districtwide, such as ramp metering, changeable message boards, vehicle detection on the Interstate mainlines.

5.1.2 Alternative 2 - Transportation Systems Management (TSM)

The TSM Alternative consists of an integrated package of relatively low cost and operational transportation projects for the Southside Study Area. These TSM improvements are structured to derive additional benefit from the Southside's existing and planned transportation infrastructure. By definition, the TSM Alternative incorporates all those projects that are already anticipated to occur by the Year 2020 (i.e., the No Build Alternative).

The following is a description of the transportation improvements that are proposed for the Southside Study Area as part of the TSM Alternative. In general, the TSM operational improvements represent a higher level of service above and beyond the No Build Alternative. Consequently, the TSM improvements are portrayed below based on the level of improvement compared to the No Build Alternative, unless otherwise noted.

Light Rail Transit (LRT)/Bus Transit

- Increased frequency of express bus along I-55 during the peak periods.
- Enhanced feeder bus service to new MetroLink stations.
- Enhancements to circumferential bus routes to U.S. 40 via I-270.
- Completion of transit system redesign around transfer centers: more routes, improved frequency, increased span of operation.
- Increased local, fixed route service along key transit arterials.
- Higher investment in Intelligent Transportation Systems (ITS) transit improvements.

- Altogether would represent about a 40% increase in transit service compared to existing conditions and about a 20% increase in transit service compared to the No Build Alternative.
- Spot capacity design improvements, access control improvements, and interchange upgrades for selected major arterials in the Southside Study Area. Candidate roadways include: River Des Peres Blvd., Gravois Road, Lemay Ferry Road, Tesson Ferry Road, Baptist Church Road, S. Broadway/Kingston/Telegraph Road, Forder Road, Ringer Road, and Old/New Baumgartner Road.
- Signal coordination along selected major arterials such as: Telegraph Rd, Lindbergh Blvd, Gravois Road, Lemay Ferry Road, River Des Peres Boulevard, Forest Park Avenue, Chouteau/Manchester Avenues, and Chippewa Street, within city limits.
- Transit-supportive amenities along key transit corridors: add park and ride facilities, integrated signal systems, signal prioritization for buses, pedestrian improvements and curb cuts at selected intersections.

Bikeway/Pedestrian

- Identify opportunities to tie bike/pedestrian improvements with MTIA-proposed capital improvements.

Intelligent Transportation Systems (ITS)

- "Regional" diversionary routing (i.e. use of variable message signs before major decision points, information systems).
- Ramp metering/queue bypass at on-ramps that are near or that serve transit centers.
- Extended implementation of ITS improvements (approximately 60% increase). Possibilities include accident investigation, glare screens, truck channelization strategies, etc.

5.1.3 Alternative 3 – Light Rail Transit (LRT), Union Pacific Railroad

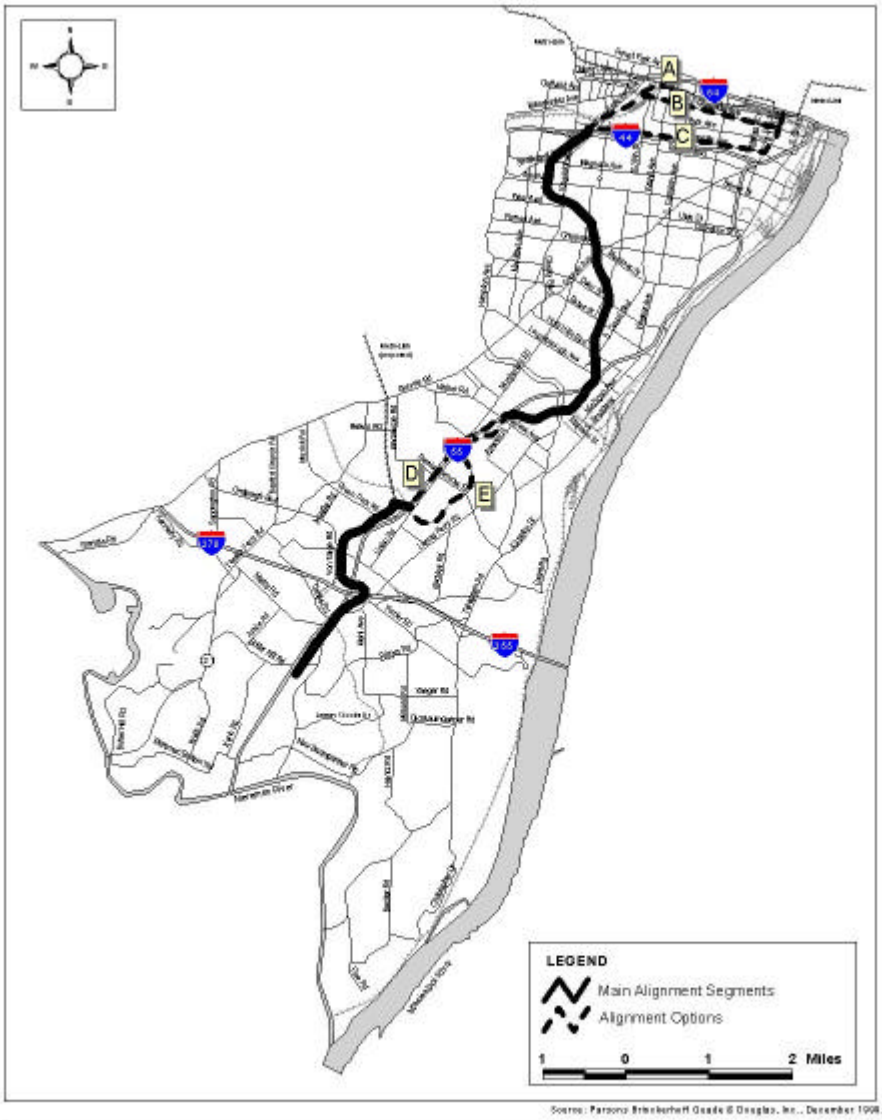
Alternative 3 is an LRT alternative that consists of the construction of a light rail transit facility (MetroLink) next to the Oak Hill Branch freight line within Union Pacific Railroad right-of-way. The Oak Hill Branch line traverses the Southside Study Area in generally a north-south direction. See Figure 5.1-1.

Following the alignment from north to south, Alternative 3 would connect into the downtown St. Louis area along one of three possible routes: Union Pacific right-of-way to Grand MetroLink Station (Suboption A); along Chouteau Avenue (Suboption B); or along Lafayette Avenue (Suboption C).

South of River Des Peres Drainage Channel, near Bayless Avenue, the light rail facility would transition from the Union Pacific Railroad right-of-way into one of two possible alignments: along Interstate 55 (Suboption D) or along Grant's Bike Trail (Suboption E).

The light rail facility would then merge with the proposed Cross-County MetroLink extension near Green Park Road, thereby providing a connection with South County Shopping Center. Alternative 3 would terminate at Butler Hill Road, consistent with the proposed alignment for Cross-County MetroLink Extension-Segment II.

Alternative 3 would be primarily double track and at-grade. It would have portions of in-street running as well as shared use of rail and bike rights-of-way, depending upon the alignment suboption(s) ultimately selected in the latter stages of the MTIA. In addition, some sections of the alignment would need to be elevated where dictated by design considerations.



Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 5.1-1

Alternative 3

Preliminary Working Document

The light rail line would include rail stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment. Park and ride lots would be included at several stations with convenient access to major Southside roadways and/or interstates. Bus feeder and circulator services are also proposed to provide connections between rail stations and major destination points not within walking distance of the rail line. Trains would operate approximately every 7.5 minutes during peak periods and every 10 minutes in the off-peak, depending upon future demand and ridership.

5.1.4 Alternative 4 – Light Rail Transit (LRT), Interstate 55 / Interstate 255

Alternative 4 is an LRT alternative that consists of the construction of a light rail transit facility (MetroLink) within MoDOT right-of-way alongside I-55 and I-255. See Figure 5.1-2.

From north to south, beginning in downtown St. Louis near the existing MetroLink line, the proposed alignment would follow Tucker Boulevard south to a point near Gravois Avenue, where it would join the I-55 right-of-way.

The light rail line would travel south along the I-55 right-of-way as far as South County Transit Center, where it would share a station with Segment 2 of the proposed Cross-County MetroLink extension.

From South County Transit Center, the alignment would follow the I-255 right-of-way east, where it would terminate near Koch Road.

Alternative 4 would be primarily double track and at-grade. It would have short portions of in-street running in the downtown area as well as shared use of Interstate rights-of-way. Under Alternative 4, it is anticipated that the light rail line would be placed adjacent to the Interstate facility rather than in the median and that several sections of the light rail alignment would need to be elevated in order to negotiate existing ramp structures and major cross-streets along the two Interstates.

The light rail line would include rail stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment. Park and ride lots would be located at several stations in outlying areas with convenient access to major cross-streets. Bus feeder and circulator services are also proposed to provide connections between rail stations and key destination points outside of walking distance of the rail line. Trains would operate approximately every 7.5 minutes during peak periods and every 10 minutes in the off-peak, depending upon future demand and ridership.

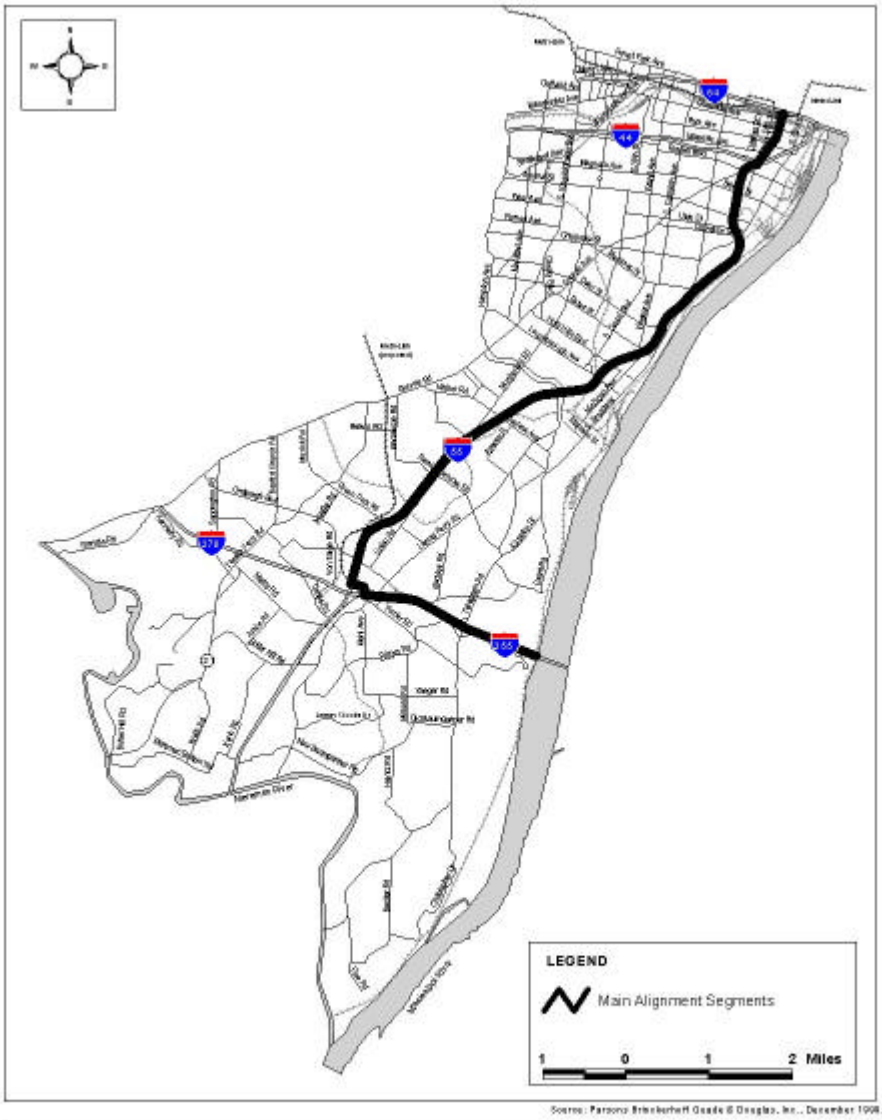
5.1.5 Alternative 5 – Bus Rapid Transit (BRT), Union Pacific Railroad

The Bus Rapid Transit Alternative would utilize an alignment very similar to Alternative 3. The Bus Rapid Transit Alternative would involve the construction of a separate roadway for buses only, alongside the Oak Hill Branch line, within the Union Pacific Railroad right-of-way. See Figure 5.1-3.

From north to south, beginning in downtown St. Louis near the existing MetroLink line, the proposed busway alignment would travel south along the Oak Hill Branch of the Union Pacific Railroad to a point near the intersection of Bayless and I-55.

From the Oak Hill Branch, the busway would continue south along Grant's Bikeway Trail, where it would connect directly to I-55 near Green Park Road. Buses would use I-55 to continue their journey south as far as Lindbergh Boulevard. Buses would then access the proposed South County Transit Center from Lindbergh Boulevard.

As currently proposed, the busway facility would consist of two travel lanes (one lane in each direction, separated by a painted stripe), with shoulders, for the exclusive use of buses. The busway would be primarily at grade, in rail right-of-way, with direct busway connectors to those major cross-streets most heavily utilized by bus routes in the Southside Study Area.



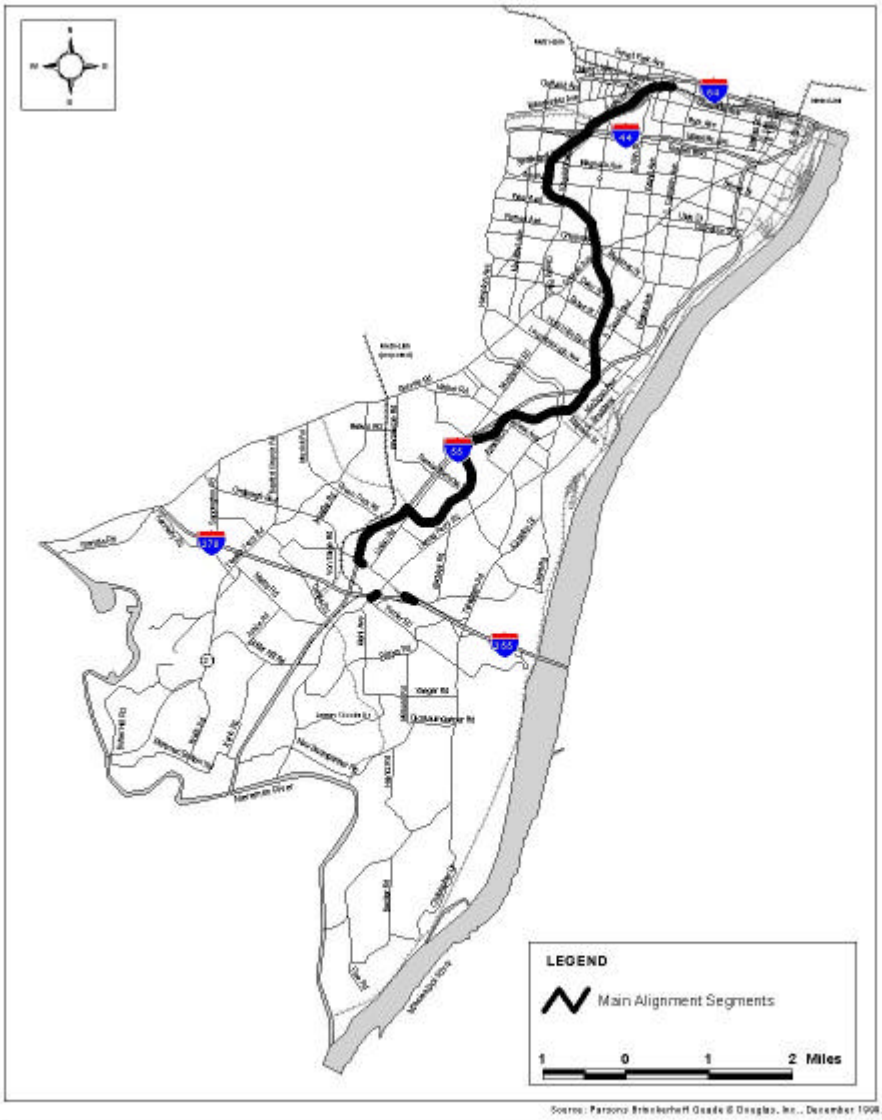
Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 5.1-2

Alternative 4

Preliminary Working Document



Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 5.1-3

Alternative 5

Preliminary Working Document

The busway facility would include on-line transit stations spaced approximately one mile apart at locations near major employment and activity centers or near major bus lines along the alignment. Express buses, local buses, and neighborhood circulators would enter the busway at various points along the alignment to and from downtown St. Louis. In some cases, bus feeder services would be provided between transit stations and activity centers outside of walking distance from the busway. Park-and-ride lots would also be placed at selected locations along the alignment to facilitate intermodal transfers, particularly in South County. Where feasible, on-ramps to I-55 and I-255 (i.e., near the proposed transit hub at South County Shopping Center) would be widened to provide a bypass lane for buses only.

Buses would operate at frequent intervals along the busway, approximately three minutes at major bus stations and six to ten minutes at minor bus stations in the peak period, depending upon future demand and ridership. Under this operating scenario, the combined headway of all buses entering the downtown St. Louis area would be as low as two minutes during the peak period.

5.1.6 Alternative 6 – Roadway

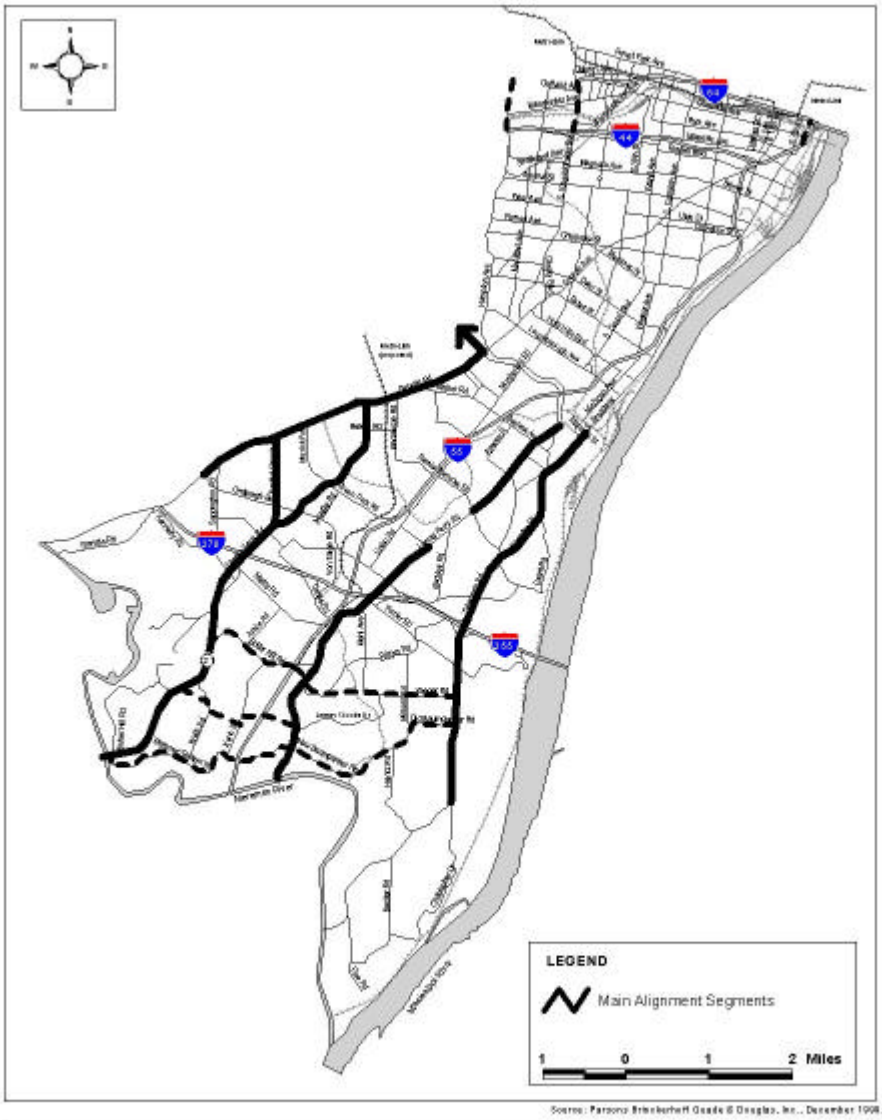
The Roadway Alternative would provide roadway capacity improvements to selected roadways throughout the Southside Study Area. See Figure 5.1-4. Roadway capacity improvements would generally entail widening existing roadways to add more travel lanes as well as the construction of new roadways on new location. As currently proposed, the Roadway Alternative would encompass the following roadway segments:

- Flyover connector ramps from eastbound I-64 to southbound I-55 and from northbound I-55 to westbound I-64
- Hampton Avenue from I-64 to I-44
- Kingshighway Boulevard from I-64 to I-44
- Lemay Ferry Road from River Des Peres Boulevard to Reavis Barracks Road
- Lemay Ferry Road from Will Avenue to the Meramec River
- Telegraph Road/Kingston Drive/South Broadway from Marceau Street to the Meramec River
- Old/New Baumgartner Road from Telegraph Road to Lemay Ferry Road
- Yaeger Road connection from Telegraph Road to I-55 (new location)
- Butler Hill Road from I-55 to Tesson Ferry Road
- New east-west connector roadway from I-55 to Tesson Ferry Road (new location)
- Meramec Bottom Road from I-55 to Tesson Ferry Road
- Gravois Road from Lindbergh Boulevard to River Des Peres Boulevard
- Baptist Church Road from Gravois Road to Tesson Ferry Road
- Tesson Ferry Road from Gravois Road to the Meramec River

The dashed lines indicate those roadway segments where the capacity improvements represent alternative alignments to each other. For example, either Hampton Avenue or Kingshighway Boulevard would be widened, but not both. In these cases, the competing alignments will be analyzed further during the detailed technical analysis in subsequent phases of the MTIA.

5.2 NEXT STEPS – DETAILED ANALYSIS OF ALTERNATIVES

Figure 5.2-1 illustrates the upcoming technical activities for the Southside MTIA. Over a period of several months, the technical study team will be performing more detailed analysis on the Set of Reasonable Alternatives. These technical activities include: conceptual engineering; development of operating plans for bus and rail; travel demand forecasting; environmental and community impact assessment; and the preparation of capital, operating, and maintenance cost estimates. Once capital and operating and maintenance costs are developed, a financial analysis is then performed to assess the financial implications of each of the alternatives within the Southside Study Area alongside other major transportation projects proposed for the St. Louis metropolitan region.



Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

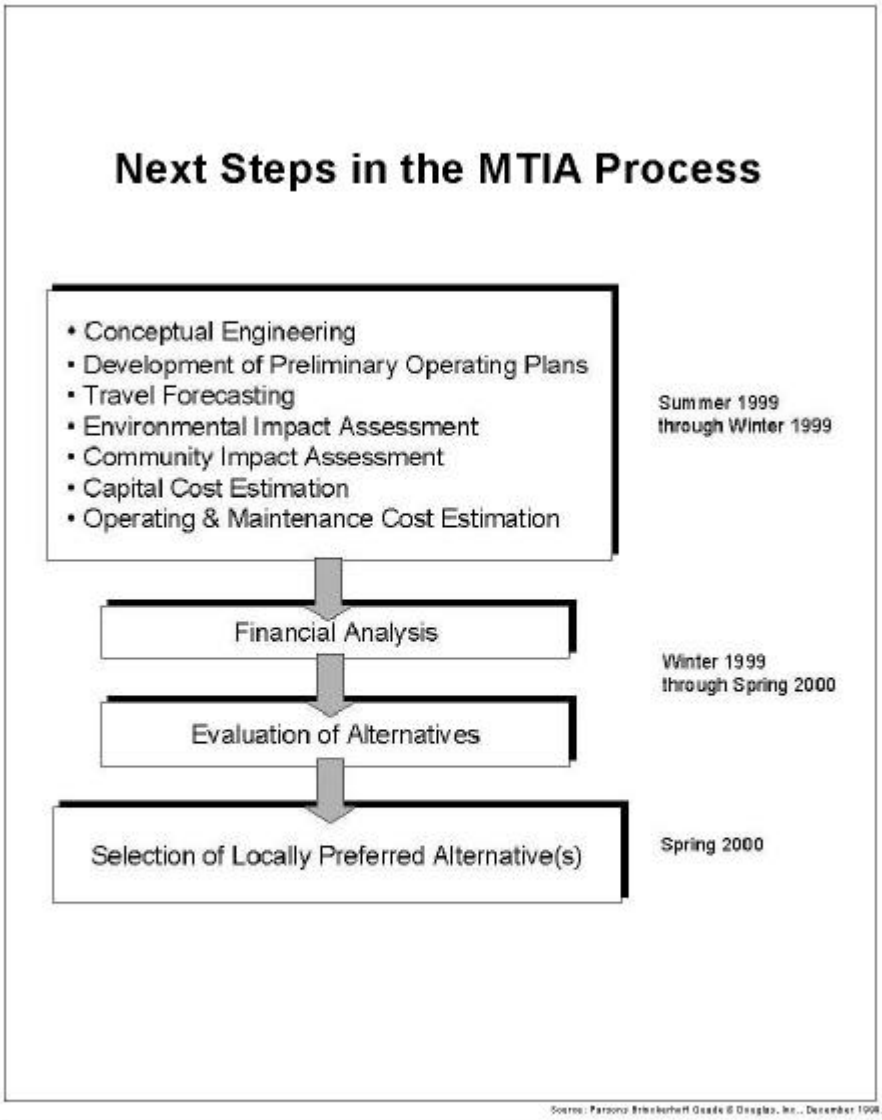
Southside Study Area
Major Transportation Investment Analysis

Figure 5.1-4

Alternative 6

Preliminary Working Document

Using these technical findings, a comprehensive evaluation of the alternatives will be undertaken. This will provide the public and local decision-makers with evaluative information on the relative benefits, costs, and impacts of each of the alternatives so that they can reach conclusions on what transportation improvements should be recommended for the Southside Study Area. The recommended alternative could be a multimodal combination of the individual alternatives or some of their components. The last step in the MTIA occurs when the EWGCC Board of Directors selects a locally preferred alternative for the Southside Study Area.



Source: Parsons Brinckerhoff Quade & Douglas, Inc., December 1998.

Southside Study Area
Major Transportation Investment Analysis

Figure 5.2-1

Next Steps

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