MTIA

Daniel Boone Study Area

Alternatives Development and Screening

Introduction:

A preliminary set of transportation alternatives was developed for the Daniel Boone 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 Daniel Boone 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 Daniel Boone 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 Daniel Boone 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 Daniel Boone Study Area. The Daniel Boone 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.

S.0 EXECUTIVE SUMMARY

The Daniel Boone 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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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 Daniel Boone 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 Daniel Boone 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 Daniel Boone 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 and provide congestion management within the Daniel Boone 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 Daniel Boone 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 Daniel Boone 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 Daniel Boone 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), Rock Island RR
Alternative 4 – Light Rail Transit (LRT), Interstate 64
Alternative 5 – Roadway, Arterials and HOV Lanes
Alternative 6 – Roadway, I-64 and I-270

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 Daniel Boone Study Area alongside other major transportation projects proposed for the St. Louis metropolitan region.

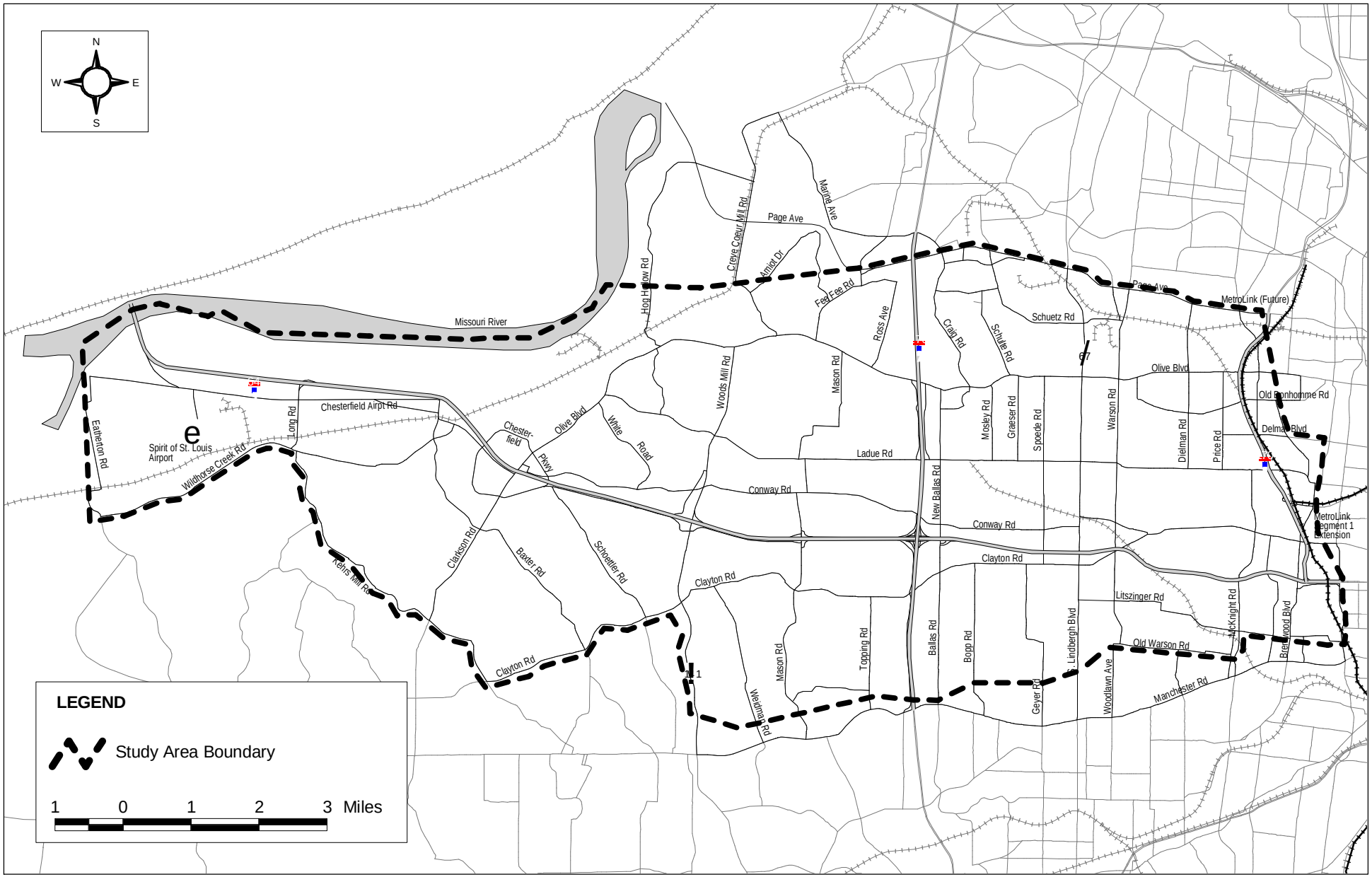
Using these technical findings, a comprehensive evaluation of the alternatives will be undertaken. This will provide the public and local decision-makers with evaluative information on the relative benefits, costs, and impacts of each of the alternatives so that they can reach conclusions on what transportation improvements should be recommended for the Daniel Boone 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 Daniel Boone 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 Daniel Boone 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 fifteen alternatives was defined to meet the purpose and need for improvements in the Daniel Boone Study Area. In the second step, a preliminary evaluation was performed to screen the alternatives. The screening process narrowed down the initial set of fifteen 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 Daniel Boone MTIA.

The Daniel Boone Study Area lies in west central St. Louis County (see Figure 1.0-1) and is roughly bounded by the Missouri River on the West, Page Avenue and Olive Boulevard on the North, slightly east of I-170 on the East, and just north of Manchester Road and Clayton Road on the South, comprising an area of approximately 85 square miles. Twenty-two municipalities lie wholly, or in part, within the Study Area as well as a portion of the unincorporated area of St. Louis County.



Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 1.0-1

Study Area Map

Daniel Boone Study Area
Major Transportation Investment Analysis

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 Daniel Boone MTIA study process. The Daniel Boone 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 are sought prior to each major decision point. The final decision point in the study is the selection and adoption of a locally preferred alternative (LPA) or 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 Daniel Boone 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 Daniel Boone Existing and Future Conditions Report (May 1999).

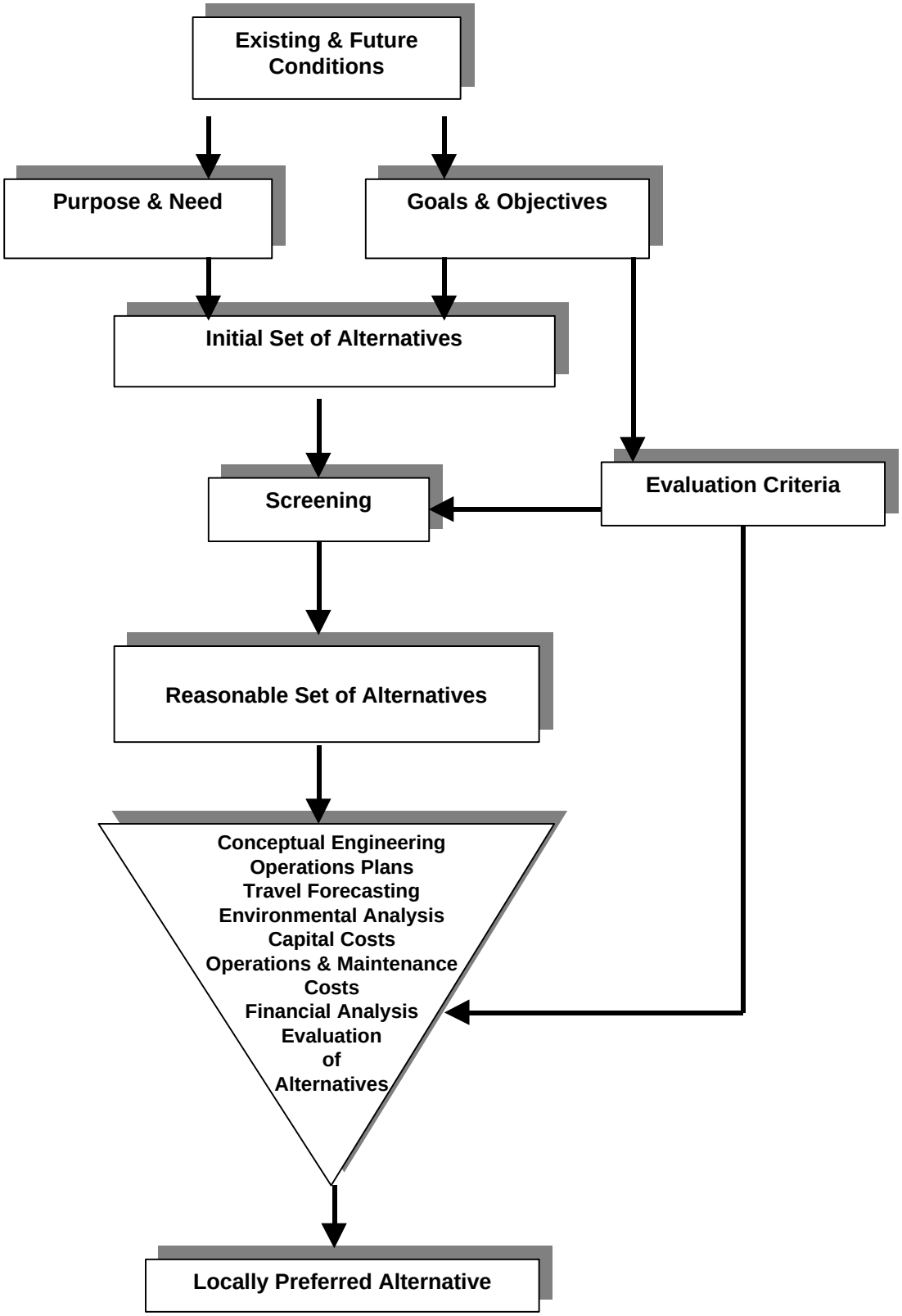
Purpose and Need: In this phase, the purpose and need for transportation improvements is carefully defined for the 85-square mile Study Area. Travel patterns, transportation system performance, and past studies are reviewed and analyzed. The Purpose and Need Statement summarizes this technical information 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 Daniel Boone Study Area. The purpose and need for transportation improvements is documented in the Daniel Boone Purpose and Need Statement (July 1999).

Goals and Objectives: Daniel Boone MTIA goals and objectives are derived from the purpose and need for transportation improvements in the Daniel Boone Study Area as well as regional transportation goals for the St. Louis metropolitan area described in Transportation Redefined (1995) and Transportation Redefined II (1999). 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 Daniel Boone 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 fifteen in the Study Area and are 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

FIGURE 2.1-1
MTIA PROCESS



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 Daniel Boone Study Area. 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 Daniel Boone MTIA is the selection of a preferred investment strategy for the Study Area. The Locally Preferred Alternative is a broad 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 and, ultimately, implementation by the sponsoring agencies.

2.2 ROLE OF STUDY GOALS AND OBJECTIVES

The MTIA goals and objectives for the Daniel Boone 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 Daniel Boone 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
Congestion Mitigation	• Relieve traffic congestion and improve mobility within the Study Area. – Improve the connectivity of the transportation system within the Daniel Boone Study Area. – Increase the capacity of the transportation system between the Daniel Boone Study Area and major attractors of Study Area travel outside of the Study Area including the rest of St. Louis County and Downtown St. Louis. – Increase the usage of alternative modes to the auto by improving the competitiveness of alternative modes relative to the auto. – Concentrate future commercial and office activity growth within the Study Area at existing concentrations of commercial (office) and retail land use, providing coordinated transportation and land use.

Safety and Security in Travel	• Improve the safety of the transportation system within the Daniel Boone Study Area. – Reduce the existing accident rate on Daniel Boone Study Area roadways, particularly those whose rates are above the statewide average for that type of roadway. – Provide safer roadways, including pedestrian and bicycle opportunities.
Access to Opportunity	• Reinforce existing employment concentrations through improved transit (reverse commute) for entry level workers. – Improve transit services to employment centers located along I-64 from Ballas Road to Chesterfield Valley. – Decrease transit travel times. – Increase frequency of transit service.
Funding Constraints	• Provide transportation system improvements that maximize attainment of the above goals within the financial constraints of the transportation-providing agencies within the region. – Maximize the cost-effectiveness of transportation system improvements within the Daniel Boone Study Area.

Source: Parsons Brinckerhoff Quade & Douglas, Inc., Daniel Boone 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 Daniel Boone Study Area, input from several sources was considered. Previous studies, such as the St. Louis Systems Analysis for Major Transit Capital Investments (1991), Cross-County Corridor Major Transportation Investment Analysis (1997), and Transit Center Hub Restructuring Study (1998), which analyzed and proposed transportation improvements in the Daniel Boone Study Area, were reviewed. Technical information on travel patterns, future growth, and transportation system performance provided in the Daniel Boone MTIA Existing and Future Conditions Report (May 1999) as well as conclusions from the Purpose and Need Statement (July 1999) were also used. In addition, public comments and suggestions, as documented in the Community Engagement Baseline Paper (February 1999), "Focus Group Notes" (February 1999), and "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 Daniel Boone 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 Daniel Boone MTIA is the Year 2020. For consistency with federal planning practices and requirements, the following guidelines were applied during alternatives development:

- Alternatives are 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 had 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 Daniel Boone 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 Daniel Boone 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 was 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 Daniel Boone 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 Daniel Boone 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 Daniel Boone 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 do 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 Daniel Boone 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 Daniel Boone 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 Page Avenue extension, roadway widenings (e.g. I-64,), and the expanded use of intelligent transportation systems within the region.

3.2.2 Transportation System Management

For the Daniel Boone 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 Daniel Boone 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 avoiding congestion or by providing more direct routing to places where people want to go.

LRT was identified as one of two appropriate rail technologies for the Daniel Boone Study Area as it builds upon previous investments that the region has made in rail transit, thereby taking advantage of increased returns to scale, and because LRT has the operational flexibility needed meet the varying physical conditions of the Study Area. LRT alternatives developed for the Daniel Boone Study Area were greatly shaped by the following factors, among others: (1) connectivity to the existing and proposed MetroLink system; (2) physical feasibility; and (3) connectivity to activity centers 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. 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). Proposed plans for future phases of the Cross-County line show extensions into North and South County. All of the LRT alternatives developed for the Daniel Boone MTIA sought to make a connection to the proposed Cross-County rail line and hence to the rest of the MetroLink system.

Physical Feasibility: During alternatives development, the entire Study Area was reviewed to identify major transportation or utility rights-of-way that could potentially accommodate rail. Through this exercise, one rail freight corridor (Rock Island RR) was identified as well as one interstate corridor (I-64). In addition, one major utility easement was found in the Daniel Boone Study Area that met the physical criterion for LRT (AmerenUE). Two arterial roadway rights-of-way were also identified as candidate alignments for light rail, Page Avenue and Olive Boulevard, which offered rights-of-way to connect with either the railroad or interstate alignments.

Access to Key Service Areas: In viewing possible light rail alignments, attention was given to the major travel patterns in the Daniel Boone Study Area. The most clearly defined travel movement in the Study Area is from residential areas into Clayton and Downtown St. Louis, essentially west to east. 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 in the Daniel Boone Study Area are clustered along Page Avenue and along I-64 (Highway 40).

These key criteria (system connectivity, physical feasibility, and access to key service areas) led to the development of four LRT alternatives for the Daniel Boone Study Area. Each LRT alternative utilizes a different alignment to connect residential areas in West County to Clayton and 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 four LRT alternatives connect directly to the proposed Cross-County line. They also offer connectivity between locations of residences of entry level workers and job opportunities in the Study Area.

Bus Rapid Transit

Two build alternatives, using principally bus transit, were developed for the Daniel Boone Study Area. The objective of the bus alternatives was similar to that of the rail alternatives, which was to provide a transit alternative to the automobile and to provide a higher level of service to the transit user.

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 Daniel Boone 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: Page Avenue and the Rock Island right-of-way. Page Avenue is a major west-east route leading into Downtown St. Louis along the northern edge of the Daniel Boone Study Area and has historically been used as a major trunk line for buses. The Rock Island right-of-way was selected because it had sufficient width for a new busway and also because it connects the western portion of the Study Area with the proposed Cross County MetroLink extensions at the eastern edge of the Study Area.

High Occupancy Vehicle (HOV) Lanes

Two build alternatives utilizing high occupancy vehicle facilities were developed for the Daniel Boone Study Area. The objective of the HOV facilities is to decrease travel time for buses and/or carpools. This is provided by exclusive lanes for buses and/or carpools along congested sections of roadway resulting in travel time savings, especially during peak periods. This time savings would be an incentive to users of multiple occupancy vehicles.

Diesel Multiple Units (DMU)

Diesel Multiple Units (DMU) is the other available rail technology for the Daniel Boone Study Area. DMU's are diesel/electric powered rail passenger cars that are self-powered and can reach speeds equivalent to LRT vehicles. DMU operation requires an existing railroad line that runs where the passenger travel market is located. The Rock Island line generally connects the western part of the Study Area with the Cross County MetroLink extension and hence somewhat meets this criterion. There is some indirectness to this route, however, as it heads north to Riverport before heading back east. DMU passenger stations can be very simple platforms, with inexpensive sheltered waiting areas. Trains can be scheduled to operate as frequently as LRT, if the appropriate train signal system is implemented. DMU can be constructed somewhat less expensively than LRT if the following conditions are met: 1) available railroad tracks are in good and usable condition, 2) freight rail service has been terminated or can be scheduled outside of DMU service times, 3) passenger access to potential station locations can be easily developed, and 4) vehicle maintenance facilities are readily available.

Roadway

The roadway alternatives developed for the Daniel Boone Study Area focused on yet another aspect of the purpose and need for improvements - the need to relieve existing and rising congestion on the major interstates and arterials within the Study Area. Roadway conditions and potential deficiencies were also discussed with the public, MoDOT, and St. Louis County Department of Planning and Highways/Traffic. Travel demand projections produced by EWGCC (Existing and Future Conditions Report, May 1999) show patterns of congestion occurring throughout the Study Area, both along major east-west and north-south roadways. This is due in part to the high level of population and employment growth projected for West County and for St. Charles County to the west of the Study Area.

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

The high roadway alternative would add lane capacity to both major interstates traversing the Study Area, I-64 and I-270. This alternative would also add lane capacity to arterials in the Study Area currently experiencing high levels of traffic congestion. Candidates for widening roadways include: Kehrs Mill Road, Mason Road, Route 141, and Clayton Road. In addition, a new arterial is proposed connecting Olive Boulevard to the Earth City Expressway.

The moderate roadway alternative would seek to address safety concerns and traffic congestion on Study Area 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. Roadways proposed to be included in the moderate roadway alternative include: Craig Road, Schulte Road, Page Avenue, Olive Boulevard, Ladue Road, Conway Road, Clayton Road, Ballas Road, and Lindbergh Boulevard.

3.3 DESCRIPTION OF INITIAL SET OF ALTERNATIVES

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

3.3.1 No Build (Baseline) Option

The No Build Alternative is a cumulation of planned and committed transportation improvements that the study assumes 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 baseline with which to compare the effectiveness of the build 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 Daniel Boone 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.

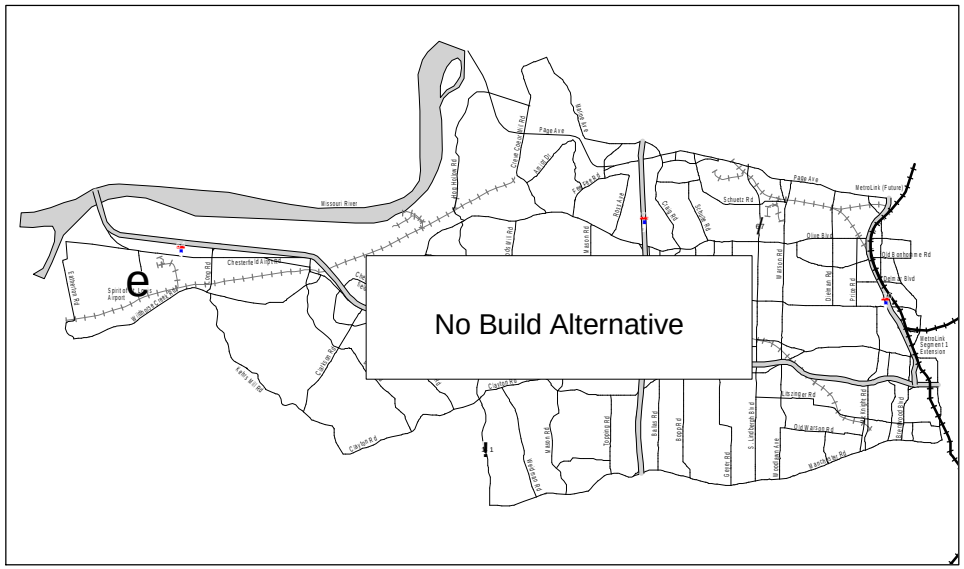
3.3.3 Light Rail Option 1

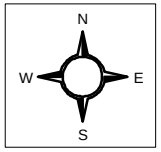
Construct a Light Rail Transit Facility (MetroLink) along the alignment described below. This facility would be primarily at-grade with elevated sections where dictated by design considerations. The LRT lines would include stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates. Bus feeder and circulator services would provide connections between stations and major destination points not within walking distance (generally greater than one-half mile). Trains would operate approximately every 7 to 10 minutes during peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3.3-1.

This facility would connect the Cross-County MetroLink Extension at the interchange of I-170 with either Page Avenue or Olive Boulevard to Chesterfield Valley along the following alignment:

- From Cross-County MetroLink Extension along the Rock Island RR line west to Page Avenue,
- West along Page Avenue or existing utility easements to Creve Coeur Mill Road,
- From Creve Coeur Mill Road along Rock Island RR to near the intersection of Olive Boulevard and Hog Hollow Road,
- From Hog Hollow Road west along either Rock Island RR or Olive Boulevard to Highway 40/61 (I-64),

- From I-64 west either adjacent to I-64 (in existing right-of-way) or along the Rock Island RR to Spirit of St. Louis Airport.
- Approximately length - 17 miles



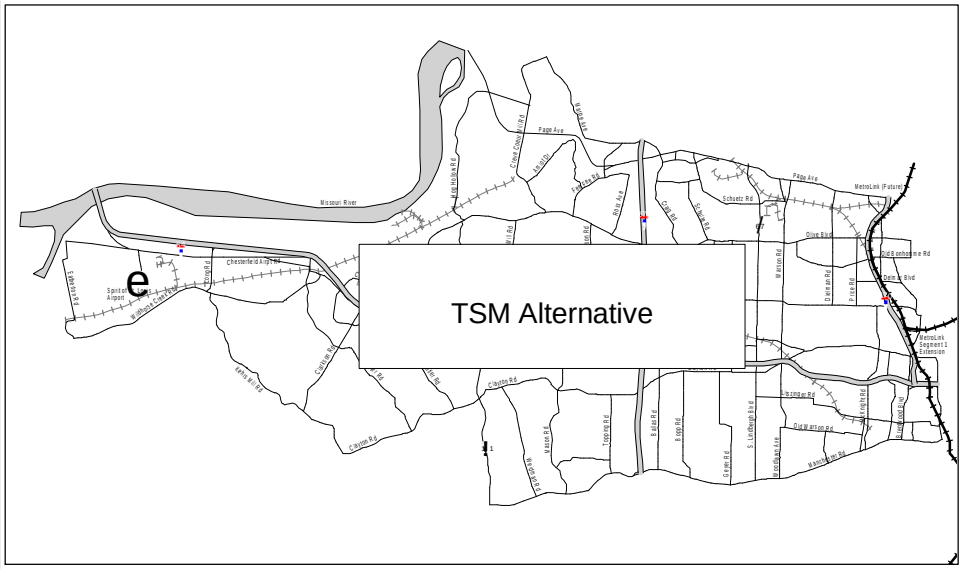


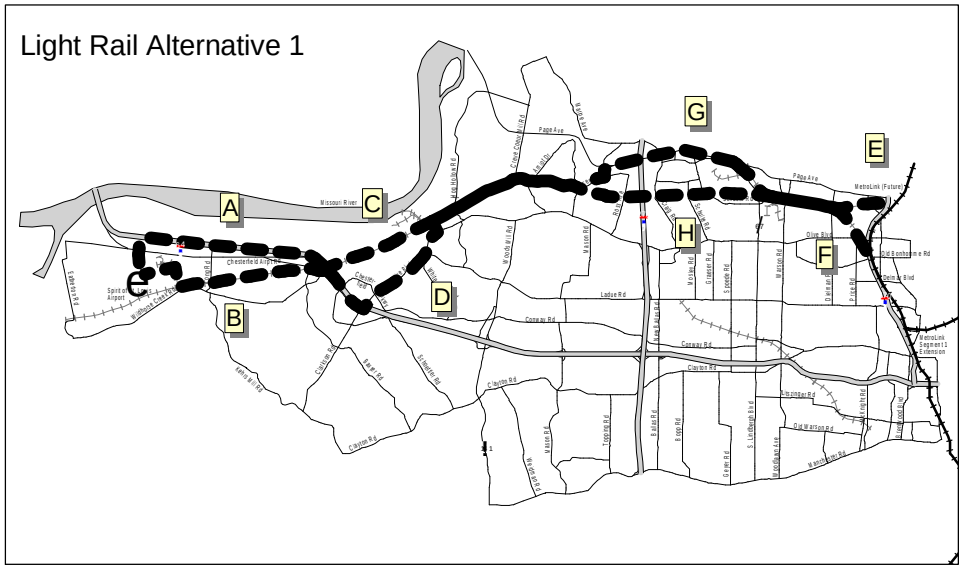
LEGEND

Main Alignment Segment

Optional Alignment Segment

2 0 2 4 Miles



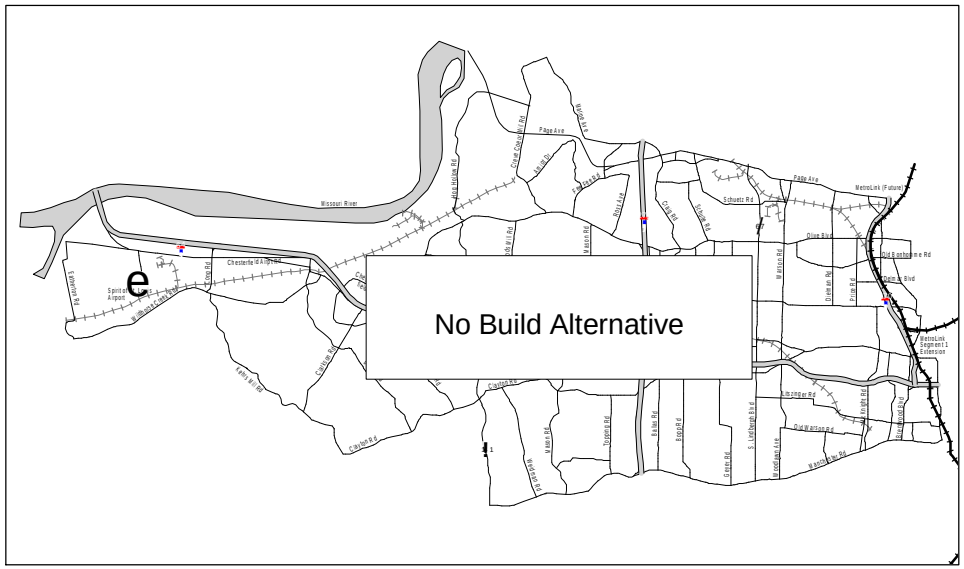


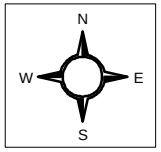
Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 3.3-1

Initial Set of Alternatives

Daniel Boone Study Area
Major Transportation Investment Analysis



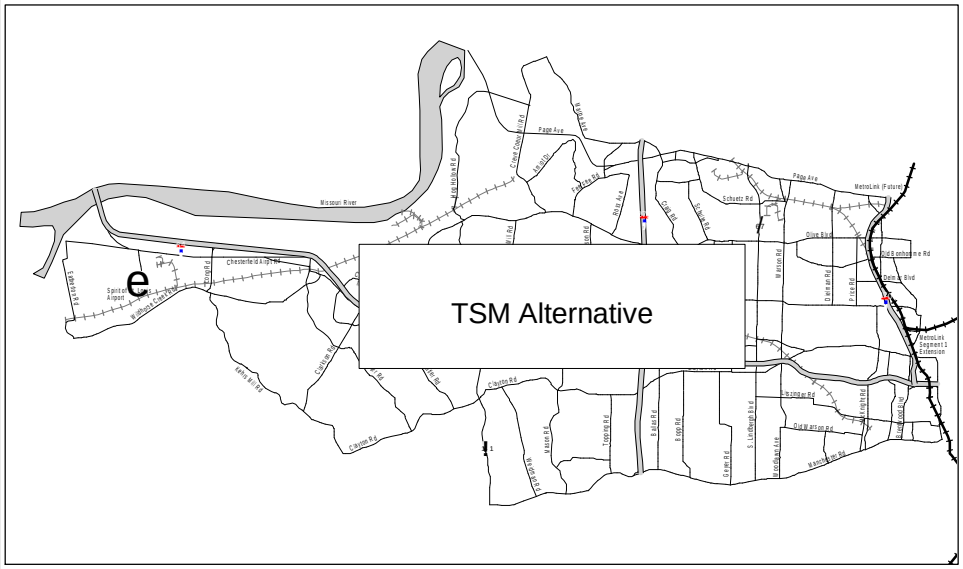


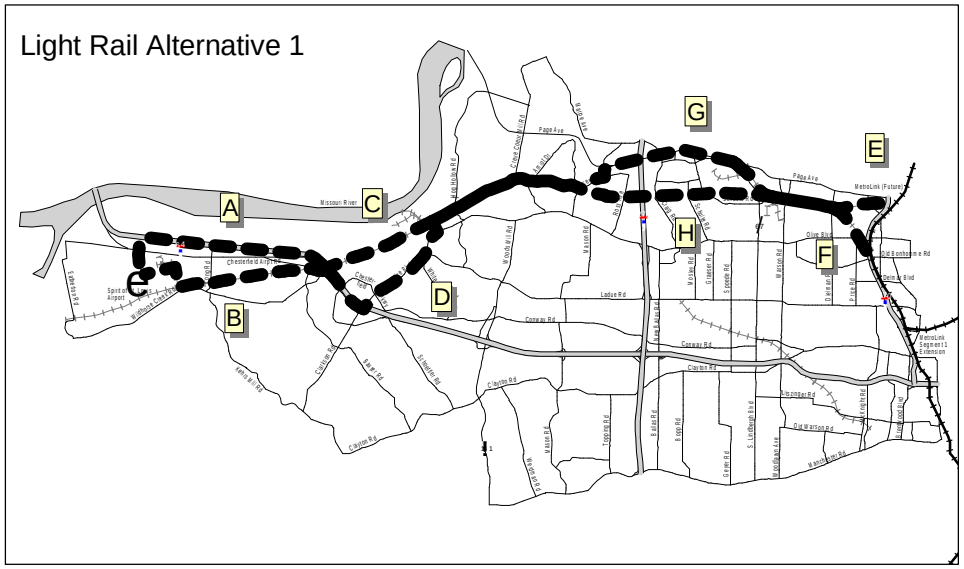
LEGEND

Main Alignment Segment

Optional Alignment Segment

2 0 2 4 Miles





Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 3.3-1

Initial Set of Alternatives

Daniel Boone Study Area
Major Transportation Investment Analysis

3.3.4 Light Rail Option 2

Construct a Light Rail Transit Facility (MetroLink) along the alignment described below. This facility would be primarily at-grade with elevated sections where dictated by design considerations. The LRT lines would include stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates. Bus feeder and circulator services would provide connections between stations and major destination points not within walking distance (generally greater than one-half mile). Trains would operate approximately every 7 to 10 minutes during peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3.3-2.

This facility would connect the Cross-County MetroLink Extension at the interchange of I-170 and Page Avenue or Olive Boulevard to Chesterfield Valley along the following alignment:

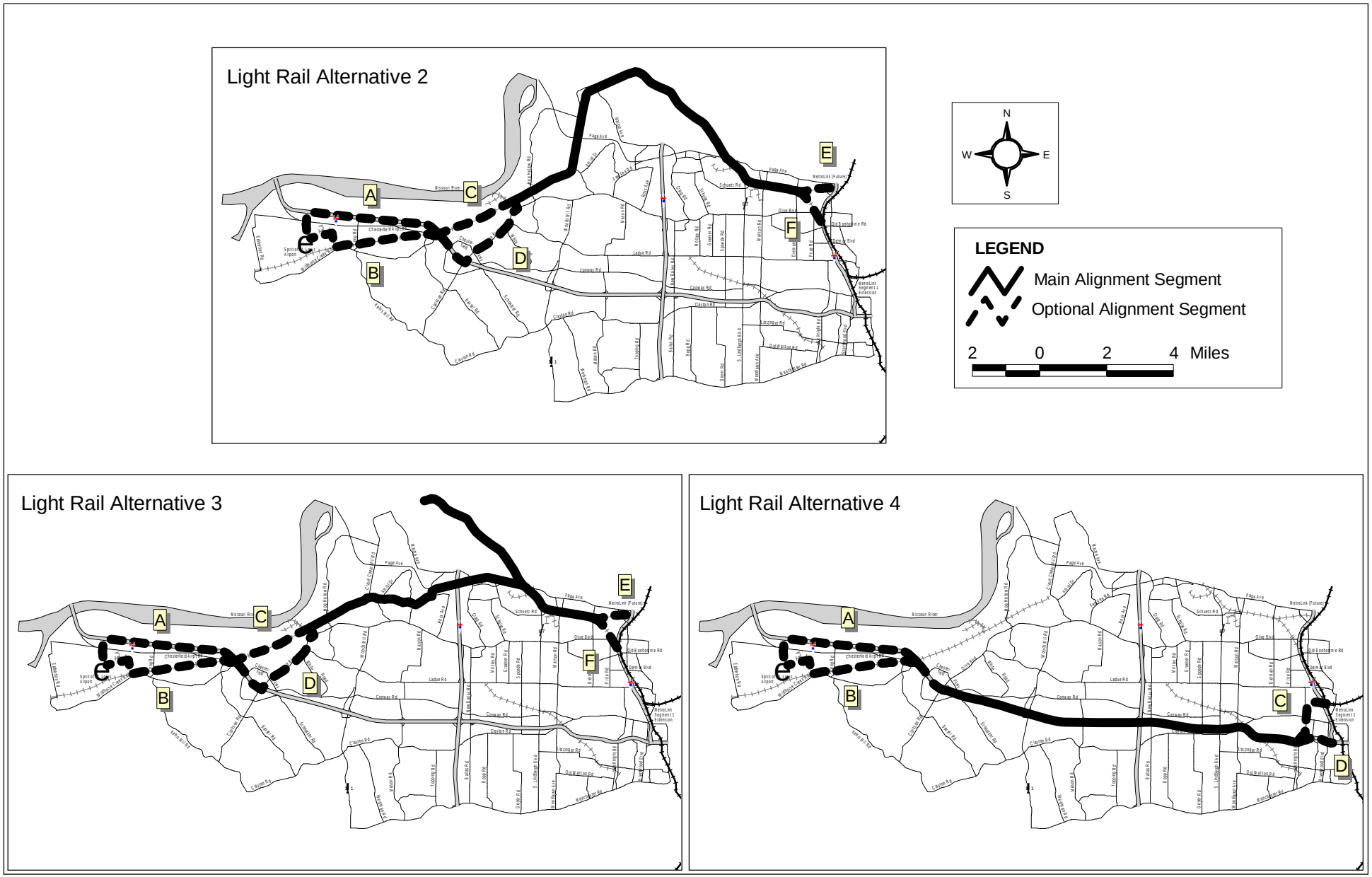
- From Cross-County MetroLink Extension along the Rock Island RR line west and north up to Riverport and then south to a spot near the intersection of Olive Boulevard and Hog Hollow Road,
- From Hog Hollow Road west along either Rock Island RR or Olive Boulevard to Highway 40/61 (I-64),
- From I-64 west either adjacent to I-64 (in existing right-of-way) or along Rock Island RR to Spirit of St. Louis Airport.
- Approximately length - 20 miles

3.3.5 Light Rail Option 3

Construct a Light Rail Transit Facility (MetroLink) along the alignment described below. This facility would be primarily at-grade with elevated sections where dictated by design considerations. The LRT lines would include stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates. Bus feeder and circulator services would provide connections between stations and major destination points not within walking distance (generally greater than one-half mile). Trains would operate approximately every 7 to 10 minutes during peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3.3-2.

This facility would connect the Cross-County MetroLink Extension at the interchange of I-170 and Page Avenue or Olive Boulevard to Chesterfield Valley along the following alignment:

- From Cross-County MetroLink Extension along the Rock Island RR line west to Page Avenue,
- From Page Avenue west along Page Avenue or utility easements to a spot west of the intersection of Olive Boulevard and Hog Hollow Road,
- From Hog Hollow Road west along either Rock Island RR or Olive Boulevard to Highway 40/61 (I-64),
- From I-64 west either adjacent to I-64 (in existing right-of-way) or along Rock Island RR to Spirit of St. Louis Airport.
- Provide a connection from the intersection of Rock Island RR and Page Avenue to the northwest following the Rock Island RR to the Riverport area.
- Approximate length - 21 miles



Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 3.3-2

Initial Set of Alternatives

Daniel Boone Study Area
Major Transportation Investment Analysis

3.3.6 Light Rail Option 4

Construct a Light Rail Transit Facility (MetroLink) along the alignment described below. This facility would be primarily at-grade with elevated sections where dictated by design considerations. The LRT lines would include stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates. Bus feeder and circulator services would provide connections between stations and major destination points not within walking distance (generally greater than one-half mile). Trains would operate approximately every 7 to 10 minutes during peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3.3-2.

This facility would connect the Cross-County MetroLink Extension to Chesterfield Valley. This alternative would follow the following alignment:

- From Cross-County MetroLink Extension along I-64 to west of Chesterfield Parkway,
- From near the intersection of Wildhorse Creek Road and Chesterfield Airport Road along either Rock Island RR or adjacent to I-64 (existing right-of-way) to Spirit of St. Louis Airport.
- Approximate length - 17 miles

3.3.7 Light Rail Transit (LRT) Alternative Option 5

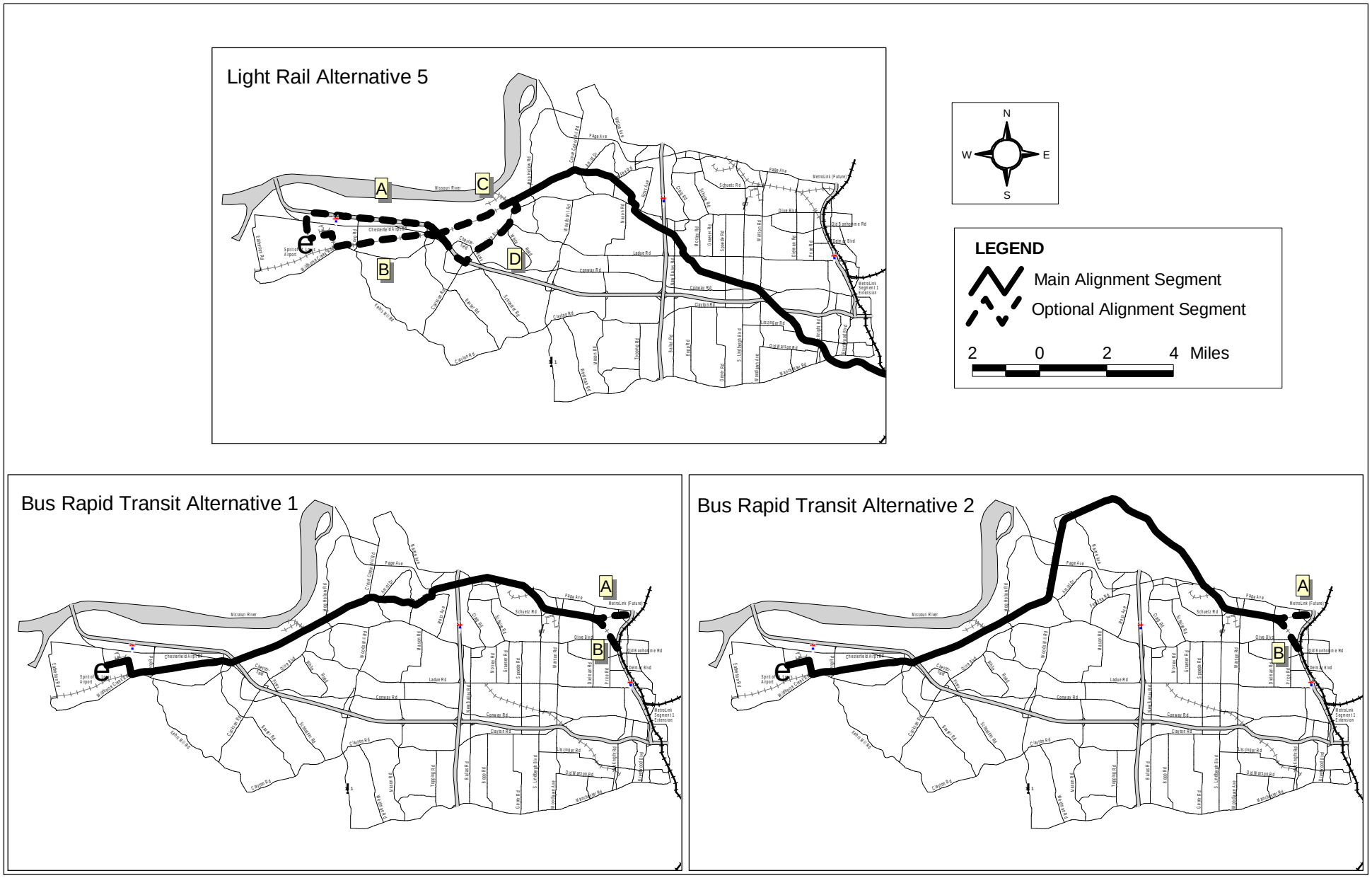
Construct a Light Rail Transit facility (MetroLink) along the alignment described below. This facility would be primarily at-grade with elevated sections where dictated by design considerations. The LRT lines would include stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates. Bus feeder and circulation services would provide connections between stations and major destination points not within walking distance (generally greater than one-half mile). Trains would operate approximately every 7 to 10 minutes during peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3.3-3.

This facility would connect the Cross-County MetroLink Extension at the interchange of I-170 and Page Avenue or Olive Boulevard to the Spirit of St. Louis Airport along the following alignment:

- From Cross-County MetroLink Extension along the old Missouri Pacific RR to near the intersection of Olive Boulevard and Hog Hollow Road
- From Hog Hollow Road west along either Rock Island RR or Olive Boulevard to Highway 40/61 (I-64)
- From I-64 west either adjacent to I-64 (in existing right-of-way) or along Rock Island RR to Spirit of St. Louis Airport
- Approximate length - 21 miles

3.3.8 Bus Rapid Transit Option 1

Construct an at-grade Bus Rapid Transit Facility that would provide service on a dedicated (bus-only) thoroughfare. The facility would include stations spaced approximately one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates. Bus routes would be rerouted as appropriate to enter the bus only roadway at major cross streets. Buses would operate at frequent intervals, every 7 to 10 minutes during


Light Rail Alternative 5
A
B
C
D
Missouri River
Page Ave
Olive Blvd
Conway Rd
Clayton Rd
Ladue Rd
Chesterfield Airport
Spirit of St. Louis Airport
Wildhorse Creek Rd
Schoettle Rd
Old Ballwin Rd
Old Warson Rd
Manchester Rd
Dougherty Ferry Rd
Lindbergh Blvd
Baxter Rd
Ballas Rd
Woodson Rd
Warson Rd
Weber Rd
Toppings Rd
Fee Fee Rd
Ferguson Rd
Dorsett Rd
Lewis Rd
Ladue Rd
Clayton Rd
Conway Rd
Olive Blvd
Page Ave

peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3-3.3.

This facility would connect the Cross-County MetroLink Extension at I-170 and Page Avenue or Olive Boulevard to Chesterfield Valley along the following alignment:

- From Cross-County MetroLink Extension along the Rock Island RR line right-of-way west to Page Avenue,
- West along Page Avenue to Fee Fee Road
- Along existing utility easements to Creve Coeur Mill Road
- From Creve Coeur Mill Road west along Rock Island RR right-of-way to Spirit of St. Louis Airport
- Approximate length - 17 miles

3.3.9 Bus Rapid Transit Option 2

Construct an at-grade Bus Rapid Transit Facility that would provide service on a dedicated (bus-only) thoroughfare. The facility would include stations spaced approximately one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates Bus routes would be rerouted as appropriate to enter the bus only roadway at major cross streets. Buses would operate at frequent intervals, every 7 to 10 minutes during peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3.3-3.

This facility would connect the Cross-County MetroLink Extension at I-170 and Page Avenue or Olive Boulevard to Chesterfield Valley along the following alignment:

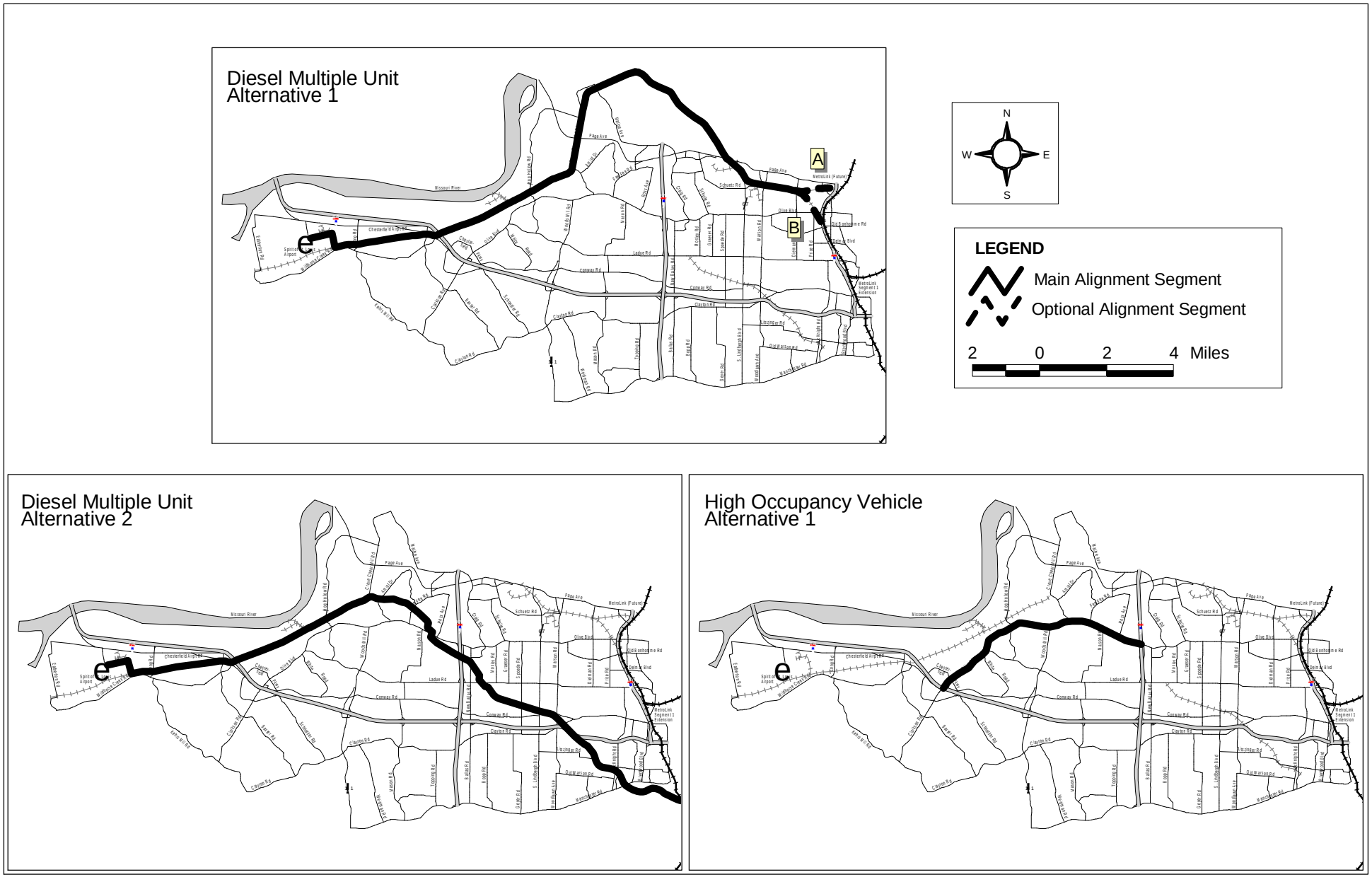
- From Cross-County MetroLink Extension along the Rock Island RR line right-of-way west and north to the Riverport area and then south and west to Spirit of St. Louis Airport.
- Approximate length - 20 miles

3.3.10 Diesel Multiple Unit Option 1

Implement an at-grade Diesel Multiple Unit service along the alignment described below. This alternative would provide transit service utilizing diesel powered, self-propelled rail passenger vehicles on existing railroad tracks. The facility would include stations spaced approximately one-half to one mile apart at locations near employment and activity centers along the alignment, with the exact locations to be determined in later phases of the planning process. Park and ride lots would be included at several stations, convenient to major roadways and/or interstates. Bus feeder and circulator services would provide connections between stations and major destination points not within walking distance (generally greater than one-half mile). Trains would operate approximately every 7 to 10 minutes during peak periods and every 15 to 20 minutes during off-peak periods, depending on future demand and ridership. See Figure 3.3-4.

This facility would connect the Cross-County MetroLink Extension at I-170 and Page Avenue or Olive Boulevard to Chesterfield Valley along the following alignment:

- From Cross-County MetroLink Extension along the Rock Island RR tracks west and north to Riverport and then south and west to Spirit of St. Louis Airport
- Approximate length - 20 miles



Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

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Figure 3.3-4

Initial Set of Alternatives

3.3.11 Diesel Multiple Unit (DMU) Option 2

DMU is the other available rail technology for the Daniel Boone Study Area. DMU's are diesel/electric powered rail passenger cars that are self-powered and can reach speeds equivalent to LRT vehicles. DMU operation requires an existing railroad line that runs where the passenger travel market is located. The Rock Island line generally connects the western part of the Study Area with the Cross County MetroLink extension and hence somewhat meets this criterion. There is some indirectness to this route, however, as it heads north to Riverport before heading back east. DMU passenger stations can be very simple platforms, with inexpensive sheltered waiting areas. Trains can be scheduled to operate as frequently as LRT, if the appropriate train signal system is implemented. DMU can be constructed somewhat less expensively than LRT if the following conditions are met: 1) available railroad tracks are in good and usable condition, 2) freight rail service has been terminated or can be scheduled outside of DMU service times, 3) passenger access to potential station locations can be easily developed, and 4) vehicle maintenance facilities are readily available. See Figure 3.3-4.

This facility would connect the Cross County MetroLink Extension at I-170 and Page Avenue or Olive Boulevard to Chesterfield Valley along the following alignment:

- From Cross County MetroLink Extension along the old Missouri Pacific RR line west and north to near the intersection of Olive Boulevard and Hog Hollow Road
- From Hog Hollow Road west along the Rock Island RR to Spirit of St. Louis Airport
- Approximate length - 21 miles

3.3.12 High Occupancy Vehicle (HOV) Option 1

Construct a High Occupancy Vehicle facility that would provide exclusive express bus lanes along an existing roadway. Single occupant vehicles and car pools would not be permitted. This facility would be constructed utilizing existing shoulders as bus-only lanes. Signal preemption would be implemented for buses using the facility. In addition, access to transit stops would be provided approximately every quarter to one-half mile along the alignment, with the exact locations to be determined in later phases of the planning process. Buses would operate at frequent intervals during peak periods only. See Figure 3.3-4.

This facility would connect the interchange of I-270 and Olive Boulevard to the interchange of I-64 (Highway 40/61) and Clarkson Road along the following alignment:

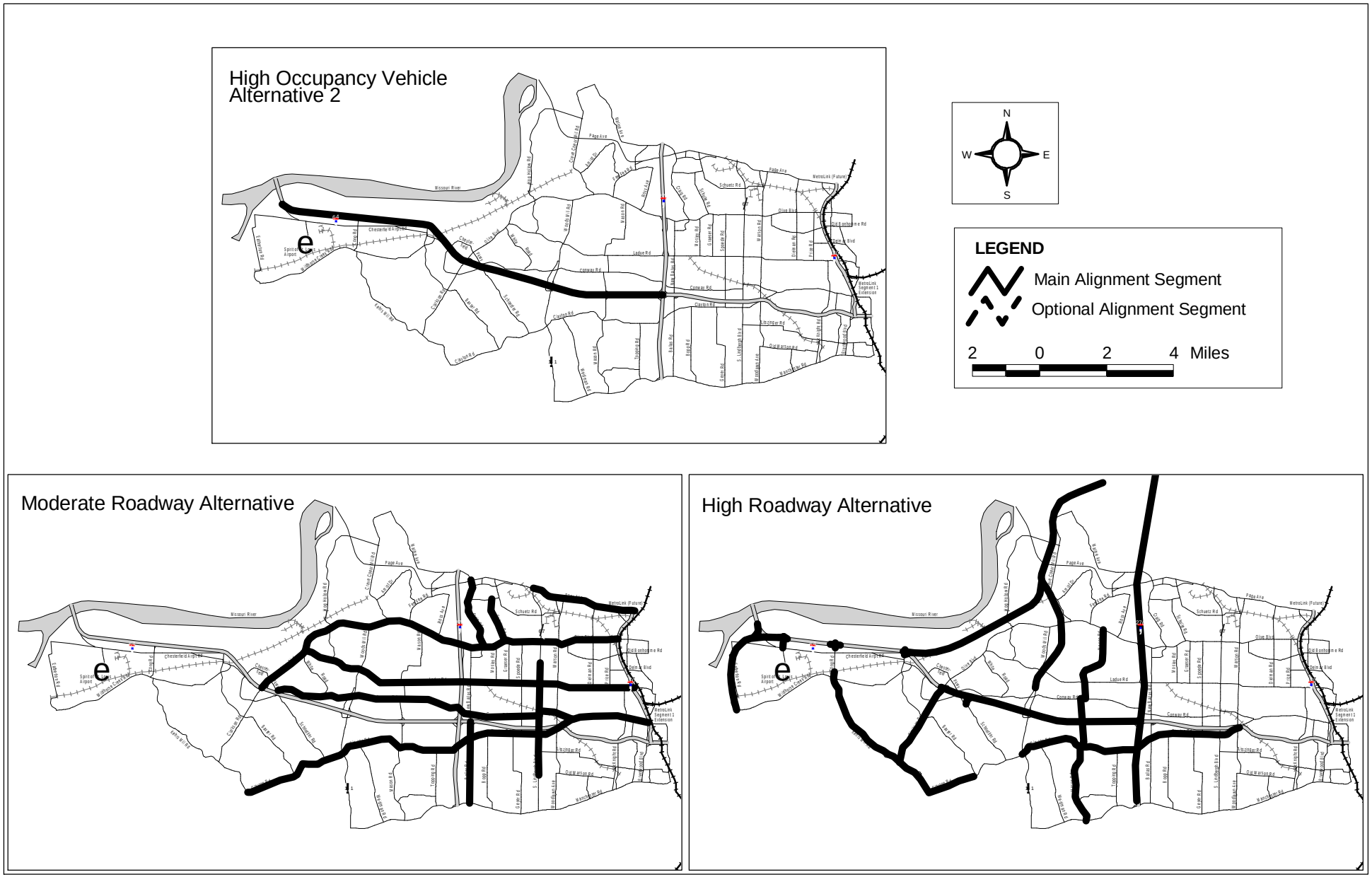
- From the interchange of Olive Boulevard and I-270, follow Olive Boulevard west to I-64 (Highway 40/61). This alignment would utilize existing shoulders on both sides of Olive Boulevard.
- Approximate length - 7 miles.

3.3.13 High Occupancy Vehicle (HOV) Option 2

- Construct a High Occupancy Vehicle facility that would provide exclusive carpool or bus lanes along an existing interstate. Single occupant vehicles would not be permitted. This facility would be provided by constructing additional lanes and ramps. See Figure 3.3-5.
- This facility would run along I-64 (Highway 40/61) from I-270 west to near the Missouri River
- Approximate length - 12 miles

3.3.14 Moderate Roadway Option

This alternative (See Figure 3.3-5) would provide limited capacity and safety improvements, access control management and/or intersection upgrades to the following segments of roadway:



Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 3.3-5

Initial Set of Alternatives

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- Craig Road from Olive Boulevard to Page Avenue
- Schulte Road from Olive Boulevard to Villadorado Drive
- Page Avenue from North Lindbergh Boulevard to I-170
- Olive Boulevard from I-170 to Highway 40/61 (I-64)
- Ladue Road from I-170 to Olive Boulevard
- Conway Road from Clayton Road to Chesterfield Parkway
- Clayton Road from I-170 to Kehrs Mill Road
- Ballas Road from Manchester Road to I-64
- Lindbergh Boulevard from Tealwood Drive to south of Litzsinger Road

3.3.15 High Roadway Option

This alternative (See Figure 3.3-5) would provide improvements that would include significant widening to add roadway lanes, provide alignment improvements and/or, in some cases, construct new roadways on new locations along the following segments:

- I-64 from I-270 to Missouri River
- I-270 from Manchester Road to I-70
- Kehrs Mill Road from Clayton Road to Wildhorse Creek Road
- Mason Road from Manchester Road to Olive Boulevard
- Route 141 from Ladue Farm Road to Olive Boulevard
- Clayton Road from Lindbergh Boulevard to Kehrs Mill Road
- Clarkson Road from I-64 to Kehrs Mill Road
- Earth City Extension from Olive Boulevard to Earth City Expressway
- New connector roadway from Earth City Extension to I-64 in Chesterfield Valley
- Eatherton Road from Wildhorse Creek to I-64

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 little or no 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 Daniel Boone MTIA to narrow the range of alternatives are listed as follows:

- Amount of improvement in traffic conditions
  - estimated change in volume/capacity ratios for key roadway links
- Ability to serve major travel movements within the Daniel Boone 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 foster economic development opportunities
  - larger infill and redevelopment opportunity sites (5+ acres)
  - revitalization opportunity sites (concentrations of smaller parcels)
- Relative impacts to natural resources
  - acres of floodplain within one-half mile
- Relative neighborhood disruptions
  - relative community disruption due to property takes and other indirect effects
  - estimated direct property impacts
- Relative neighborhood disruptions
- 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 Daniel Boone 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 Daniel Boone 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 was 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 Daniel Boone MTIA Congestion Management: 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, moderate or low) for some of the screening measures. A summary of the supporting technical data for each assessment is also provided. 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.

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 Daniel Boone MTIA focused very closely on estimated right-of-way impacts, 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

Table 4.2-1
Technical Screening Report

OPTIONS/ SUBOPTIONS	CONGESTION MNGT. / MOBILITY		ACCESS TO OPPORTUNITY						
	(+) Change in 2020 v/c ratio	(+) Relative ability to serve major travel markets	(+) Population within 1/2 mile of centerline of alignment of transit alternative		(+) Employment within 1/2 mile of centerline of alignment of transit alternative		(+) Zero car households within 1/2 mile of centerline of transit alternative		(+) Relative ease of system connectivity
LRT Option 1									
Main Segment	NA	Moderate	2033 per c.l. mi.	6%	3554 per c.l. mi.	9%	66 per c.l. mile	12%	Moderate
I-64 Option A	NA		393	1%	1353	3%	3	1%	
Rock Island RR Option B	NA		685	2%	1198	3%	5	1%	
Rock Island RR Option C	NA		511	2%	365	1%	25	5%	
Olive Blvd Option D	NA		1293	4%	2094	5%	44	8%	
Terminal RR Option E	NA		642	2%	2224	6%	41	7%	
Rock Island RR Option F	NA		1005	3%	2281	6%	66	12%	
Page Avenue Option G	NA		1680	5%	5873	15%	69	13%	
AmerenUE ROW Option H	NA		2787	8%	3510	9%	73	13%	
RECOMMENDATION: Carry forward. RATIONALE: High potential for congestion relief. In addition, estimated cost is competitive compared to other build alternatives. (Option A) as part of other remaining LRT alternative.									
LRT Option 2									
Main Segment	NA	High	3695	11%	6077	15%	119	22%	High
I-64 Option A	NA		393	1%	1353	3%	3	1%	
Rock Island RR Option B	NA		685	2%	1198	3%	5	1%	
Rock Island RR Option C	NA		511	2%	365	1%	25	5%	
Olive Blvd Option D	NA		1293	4%	2094	5%	44	8%	
Terminal RR Option E	NA		642	2%	2224	6%	41	7%	
Rock Island RR Option F	NA		1005	3%	2281	6%	66	12%	
RECOMMENDATION: Drop from further consideration. RATIONALE: Increased travel time over LRT 1 with lower potential ridership.									
LRT Option 3									
Main Segment	NA	Moderate	4855	14%	9185	23%	150	27%	Low
I-64 Option A	NA		393	1%	1353	3%	3	1%	
Rock Island RR Option B	NA		685	2%	1198	3%	5	1%	
Rock Island RR Option C	NA		511	2%	365	1%	25	5%	
Olive Blvd Option D	NA		1293	4%	2094	5%	44	8%	
Terminal RR Option E	NA		642	2%	2224	6%	41	7%	
Rock Island RR Option F	NA		1005	3%	2281	6%	66	12%	
RECOMMENDATION: Drop from further consideration. RATIONALE: Increased cost over LRT 1 without significant increase in potential ridership. Since the Earth City cost.									
LRT Option 4									
Main Segment	NA	Moderate	3465	10%	7201	18%	47	9%	Moderate
I-64 Option A	NA		393	1%	1353	3%	3	1%	
Rock Island RR Option B	NA		685	2%	1198	3%	5	1%	
McKnight Rd Option C	NA		1044	3%	3220	8%	25	5%	
I-64 Option D	NA		1107	3%	2039	5%	20	4%	
RECOMMENDATION: Carry forward. RATIONALE: High potential for congestion relief. Provides service through center of Study Area. Eliminate McKnight Road (Opti Island RR (Option B) as part of LRT 1.									
LRT Option 5									
Main Segment	NA	Low	4183	12%	4542	12%	32	6%	Low
I-64 Option A	NA		393	1%	1353	3%	3	1%	
Rock Island RR Option B	NA		685	2%	1198	3%	5	1%	
Rock Island RR Option C	NA		511	2%	365	1%	25	5%	
Olive Blvd Option D	NA		1293	4%	2094	5%	44	8%	
RECOMMENDATION: Drop from further consideration. RATIONALE: Low ridership potential and no direct service to Clayton or Downtown.									
BRT Option 1									

Table 4.2-1
Technical Screening Report

OPTIONS/ SUBOPTIONS	CONGESTION MNGT. / MOBILITY		ACCESS TO OPPORTUNITY						
	(+) Change in 2020 v/c ratio	(+) Relative ability to serve major travel markets	(+) Population within 1/2 mile of centerline of alignment of transit alternative		(+) Employment within 1/2 mile of centerline of alignment of transit alternative		(+) Zero car households within 1/2 mile of centerline of transit alternative		(+) Relative ease of system connectivity
Main Segment	NA	Moderate	4909	14%	10990	28%	165	30%	Moderate
Terminal RR Option A	NA		642	2%	2224	6%	41	7%	
Rock Island RR Option B	NA		1005	3%	2281	6%	66	12%	
RECOMMENDATION: Drop from further consideration. RATIONALE: Public input has not supported a bus alternative in this Study Area.									
BRT Option 2									
Main Segment	NA	High	4891	14%	7640	19%	149	27%	High
Terminal RR Option A	NA		642	2%	2224	6%	41	7%	
Rock Island RR Option B	NA		1005	3%	2281	6%	66	12%	
RECOMMENDATION: Drop from further consideration. RATIONALE: Increased travel time over BRT 1 and no public support for a bus alternative within this Study Area									
DMU Option 1									
Main Segment	NA	High	4891	14%	7640	19%	149	27%	High
Terminal RR Option A	NA		642	2%	2224	6%	41	7%	
Rock Island RR Option B	NA		1005	3%	2281	6%	66	12%	
RECOMMENDATION: Drop from further consideration: RATIONALE: Increased travel time over DMU 2. DMU would introduce a new technology to the region not comp									
DMU Option 2									
Main Segment	NA	Low	5379	16%	6105	15%	62	11%	Low
RECOMMENDATION: Drop from further consideration. RATIONALE: DMU would introduce a new technology to the region not compatible with MetroLink, escalating sta									
HOV Option 1									
Main Segment	NA	Low	NA	NA	NA	NA	NA	NA	NA
RECOMMENDATION: Include, along with signal coordination and access management, in TSM alternative. RATIONALE: Low potential for Study Area congestion relief									
HOV Option 2									
Main Segment	NA	Moderate	NA	NA	NA	NA	NA	NA	NA
RECOMMENDATION: Include in Roadway Alternative (High Option). RATIONALE: Can be included with repackaged roadway improvements.									
Moderate Roadway Option									
General TSM Type Improvements	NA	Low	NA	NA	NA	NA	NA	NA	NA
RECOMMENDATION: Drop from further consideration. RATIONALE: Signal coordination and access management can be included in TSM Alternative where appropria									
High Roadway Option									
Route 109 - New 2-lane road - A	NA	Moderate	NA	NA	NA	NA	NA	NA	NA
Kehrs Mill Rd realignment - B	.69 to .68	Low	NA	NA	NA	NA	NA	NA	NA
Clarkson Rd - expand to 6-lane - C	.95 to .89	Moderate	NA	NA	NA	NA	NA	NA	NA
Clayton Rd - convert to 4/5 lane - D	.80 to .75, .76 to .72	Low	NA	NA	NA	NA	NA	NA	NA
Earth City Expressway - new 2-lane road - E	NA	Moderate	NA	NA	NA	NA	NA	NA	NA
Route 141 - realignment to Olive - F	.89 to .84, .95 to .91	Moderate	NA	NA	NA	NA	NA	NA	NA
Mason Rd - straightening - G	NA	Low	NA	NA	NA	NA	NA	NA	NA
I-64 - convert to 6 lane section - H	.80 to .71, .76 to .68	Moderate	NA	NA	NA	NA	NA	NA	NA
I-270 - add 1 lane per direction - I	.89 to .82, .95 to .90	Moderate	NA	NA	NA	NA	NA	NA	NA
Combination of A, C, E, F, H and I	.79 to .67, .89 to .74	High	NA	NA	NA	NA	NA	NA	NA
RECOMMENDATION: Carry forward as two Roadway Alternatives. RATIONALE: One roadway alternative would include major capacity improvements along arterials in would include major capacity enhancements to I-64 and I-270 in Study Area.									

Table 4.2-1
Technical Screening Report

SUSTAINABLE DEVELOPMENT	RESOURCE CONSERVATION		ROW IMPACTS	PHYSICAL FEASIBILITY	CAPITAL COST	
(+) Relative potential to foster economic development in Study Area	(-) Acres of floodplain within 500 feet of centerline of alternative	(-) Acres of wetlands within 500 feet of centerline of alternative	(-) Relative neighborhood disruption due to property takes and access issues	(-) Probability of grades in excess of 6% along proposed in-street LRT rights-of-way	(-) Order of magnitude capital cost estimates (millions)	
Moderate	270	30	Moderate	Low	$306	$65.7/mile
Low	577	15	Low	Low	$236	$50.3
Low	346	23	Low	Low	$104	$24.8
Low	217	14	Low	Low	$61	$24.8
Low	21	4	High	Moderate	$112	$29.9
High	4	0	Low	Low	$30	$22.7
High	4	0	Moderate	Low	$32	$22.9
High	23	1	Moderate	Moderate	included in Main	
High	30	2	Low	Low	undetermined	
Eliminate Olive Blvd (Option D) due to high ROW impacts. Include Rock Island RR (Option B) in this alternative. Analyze I-64						
Moderate	786	12	Low	Low	$305	$25.2
Low	577	15	Low	Low	$236	$50.3
Low	346	23	Low	Low	$104	$24.8
Low	217	14	Low	Low	$61	$24.8
Low	21	4	High	Moderate	$112	$29.9
High	4	0	Low	Low	$30	$22.7
High	4	0	Moderate	Low	$32	$22.9
Moderate	463	31	High	Moderate	$423	$31.6
Low	577	15	Low	Low	$236	$50.3
Low	346	23	Low	Low	$104	$24.8
Low	217	14	Low	Low	$61	$24.8
Low	21	4	High	Moderate	$112	$29.9
High	4	0	Low	Low	$30	$22.7
High	4	0	Moderate	Low	$32	$22.9
area would need to be serviced by a feeder bus system, the same bus system could provide connection to LRT 1 at a lower						
Low	126	13	Moderate	Low	$547	$45.4
Low	577	15	Low	Low	$236	$50.3
Low	346	23	Low	Low	$104	$24.8
Low	0	0	High	Moderate	$72	$40.7
Low	0	0	Low	Low	$50	$37.3
on C) due to high neighborhood displacements and ROW impacts. Include I-64 (Option A) in this alternative. Analyze Rock						
Low	695	58	Moderate	Low	$405	$28.9
Low	577	15	Low	Low	$236	$50.3
Low	346	23	Low	Low	$104	$24.8
Low	217	14	Low	Low	$61	$24.8
Low	21	4	High	Moderate	$112	$29.9

Table 4.2-1
Technical Screening Report

SUSTAINABLE DEVELOPMENT	RESOURCE CONSERVATION		ROW IMPACTS	PHYSICAL FEASIBILITY	CAPITAL COST	
(+) Relative potential to foster economic development in Study Area	(-) Acres of floodplain within 500 feet of centerline of alternative	(-) Acres of wetlands within 500 feet of centerline of alternative	(-) Relative neighborhood disruption due to property takes and access issues	(-) Probability of grades in excess of 6% along proposed in-street LRT rights-of-way	(-) Order of magnitude capital cost estimates (millions)	
NA	856	68	Low	NA	$16 (Tot.)	$1.0
NA	4	0	Low	NA	-	
NA	4	0	Moderate	NA	-	
NA	1349	49	Low	NA	$19 (Tot.)	$1.0
NA	4	0	Low	NA	-	
NA	4	0	Moderate	NA	-	
a.						
NA	1349	49	Low	NA	$415 (Tot.)	$22.1
NA	4	0	Low	NA	-	
NA	4	0	Moderate	NA	-	
patible with MetroLink, escalating start-up costs comparable to LRT, the publicly preferred transit type.						
NA	1258	95	Moderate	NA	$523	$25.3
art-up costs comparable to LRT, the publicly preferred transit type.						
NA	NA	NA	Moderate	NA	$15	$2.2
f as individual alternative.						
NA	NA	NA	Low	NA	$120	$10.0
NA	NA	NA	Low	NA	-	
ate. Congestion relief provided by significant capacity enhancements do not justify the high ROW impacts.						
NA	NA	NA	Moderate	NA	$18	$5.5
NA	NA	NA	Moderate	NA	$10	$2.1
NA	NA	NA	High	NA	$6	$2.3
NA	NA	NA	High	NA	$20	$2.4
NA	NA	NA	Moderate	NA	$25	$5.0
NA	NA	NA	Moderate	NA	$38	$15.8
NA	NA	NA	Moderate	NA	$13	$2.0
NA	NA	NA	High	NA	$71	$11.6
NA	NA	NA	Low	NA	$87	$8.7
NA	NA	NA	High	NA	$245	-
the Study Area, some new arterial connections and an HOV lane along I-64 west of I-270. The second roadway alternative						

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. Indirect right-of-way impacts to neighborhoods and communities were also evaluated. 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. 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.

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: major concentrations of industrial and commercial land uses, areas of planned commercial development (particularly in the Chesterfield Valley area), and concentrations of medium and high density residential areas. Vacant or underutilized parcels were examined to determine areas where new development could possibly occur at densities and intensities that would complement transit use.

Geographic information systems 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 either in development or have recently been constructed in the St. Louis region.

For the bus rapid transit, HOV 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 by MoDOT for bid.

4.3 SCREENING RESULTS

As a result of the screening analysis and community input, six alternatives were identified for further study in the Daniel Boone Study Area and nine 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 major roadway improvements along stretches of certain streets such as Conway Road, Ladue Road and Clayton Road. Alternatives that provided direct transit connections to major activity centers and concentrations of employment such as Chesterfield Valley, Westport, Ballas Road Medical Facilities, and Clayton/Galleria area were selected over those alternatives that did not.

Transit alternatives, both bus and rail, were also evaluated 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 directly served the residential and commercial core of the Daniel Boone Study Area were selected over light rail that ran north of the Study Area along the Missouri River and Riverport area. In addition, transit alternatives that introduced new technologies to the region were screened out based on cost considerations and implementation into the existing infrastructure.

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 two roadway alternatives 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 Daniel Boone Study Area. These alternatives address different aspects of the purpose and need for improvements in the Daniel Boone 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 (Rock Island Railroad): This alternative would extend MetroLink light rail service from the proposed Cross-County MetroLink Extension-Segment 3 near either Olive Boulevard or Page Avenue and I-170 to Chesterfield Valley. This light rail alternative was recommended since it uses an existing railroad, street or utility corridor, which would result in modest land costs and minimal potential for displacements of residences and businesses. It provides direct access to key activity centers in the Daniel Boone Study Area such as Westport, both Monsanto campuses, Chesterfield Valley, and, via the Cross-County MetroLink extension, to Clayton and Downtown St. Louis. 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 and Southside Study Areas.

Light Rail Transit (I-64): This alternative would extend MetroLink light rail service from the proposed Cross-County MetroLink Extension-Segment 1 near the intersection of I-64 and I-170 to Chesterfield Valley along the I-64 right-of-way. This alternative was recommended for many of the same reasons as the previous alternative. It predominately 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 light rail line, land costs would be minimal. This light rail alternative would provide direct access into the Clayton/Galleria area and subsequently Downtown St. Louis area as well as key activity centers and major employers such as Chesterfield Valley, Chesterfield Mall and the Ballas Road hospital complexes as well as the proposed West County Transit Center. It would also provide a transit option via park and ride access for residents commuting to the Clayton and Downtown St. Louis Central Business District from St. Charles County. Lastly, this light rail alternative provides a high level of connectivity with the existing and planned MetroLink system as well as the proposed Northside and Southside light rail alternatives.

Roadway Alternative: This alternative proposes roadway widenings along major arterials that are projected to experience high levels of congestion in the Daniel Boone 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 West St. Louis County along interstates and major arterials such as: I-64, Route 141, and Clarkson Road. New roadway segments are proposed between Wildhorse Creek Road and I-64 and between Earth City Expressway and I-64. This alternative was recommended as it most directly addresses rapid growth of travel demand in West County. It also provides the greatest potential for congestion relief and travel time savings for motorists. Included in this alternative are new, high-occupancy-vehicle (HOV) lanes along I-64 from I-270 west to the Missouri River. This 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

Roadway Alternative: This alternative proposes capacity improvements along the two major interstates that lie within the Daniel Boone Study Area: I-64 and I-270. This alternative would provide additional travel lanes and/or auxiliary lanes along both interstates within the following limits: from I-270 to the Missouri River along I-64 and from Page Avenue to Manchester Road along I-270. These improvements would serve both north/south and east/west movements within the Study Area and provide congestion relief to the major commute routes within the Study Area which are forecasted to be highly congested in the year 2020.

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 Daniel Boone 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), Rock Island RR
Alternative 4 – Light Rail Transit (LRT), Interstate 64
Alternative 5 – Roadway (Arterials, HOV Lanes)
Alternative 6 – Roadway (I-64, I-270)

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 is a cumulation of planned and committed transportation improvements that the study assumes to be in place by the year 2020. This alternative provides a baseline with which to compare the effectiveness of build alternatives.

The No Build Alternative consists of the following planned and committed projects expected to be in place by the year 2020.

Light Rail Transit (LRT)/Bus Transit

- Cross-County MetroLink-Segment 1 to Clayton/Galleria area, Segment 2 south to Butler Hill Road in South County and Segment 3 north to Florissant in North County
- Proposed West County Transit Center
- Transition to Transit Center Design for Bus Service
- Flexible Routing and Demand Response Bus Service

Highway/Roadway

- Page Avenue Extension - Bennington Place to St. Charles County
- I-64 - Clarkson Road to Daniel Boone Bridge - Widen from 4 to 6 lanes (interstate standards)
- I-64 - Westbound - New Daniel Boone Bridge over Missouri River
- I-64 - New interchanges in Chesterfield Valley
- I-64 - Spoede Road to I-170 - Widen from 6 to 8 lanes, interchange improvements, ramp modifications, alignment modifications
- Highway 40/61 - St. Charles county - Upgrade to interstate standards
- I-170 interchange improvements/auxiliary lanes at Galleria Parkway, Forest Park Parkway, Ladue Road, Delmar Boulevard, Olive Boulevard and Page Avenue
- Route 141, Vance Road to Clayton Road, reconstruct as 6-lane expressway
- I-270 at Olive Boulevard - interchange improvements (single point diamond)

- Olive Boulevard, Ladue Road to River Valley Drive - Widen from 2 to 5 lanes
- I-64 - I-170 to McCausland Avenue - auxiliary lanes, interchange improvements, ramp modifications, alignment modifications
- Clayton Road, Clarkson Road to Baxter Road - Widen from 2 to 3 lanes
- Ballas Road, Olive Boulevard to Magna Carta - Widen from 4 to 5 lanes
- Schuetz Road, Lackland Road to Fee Fee Road - Widen from 2 to 3/4/5 lanes
- Weidman Road, Manchester Road to Clayton Road - Widen from 2 to 3 lanes

Intelligent Transportation System (ITS)

- Transit ITS strategies such as ramp signals/queue bypass at on-ramps that are near or that serve transit centers
- ITS improvements, districtwide, such as ramp metering, changeable message boards, vehicle detection on the main lines

5.1.2 Alternative 2 – Transportation Systems Management (TSM)

The Transportation System Management (TSM) alternative provides for low cost alternatives relative to the higher cost build alternatives. Improvements under the TSM alternative include enhanced bus service, coordinated traffic signals, access control and/or minor geometric improvements.

Possible TSM improvements for the Daniel Boone Study Area include:

Transit

- Increase express bus service along I-64 during peak period.
- Bus lanes, during peak hour, along Olive Boulevard from I-64 to I-270.
- Transit service between centers of entry level employment and potential employees.
- Completion of transit system redesign around transfer centers: more routes, improved frequency, span of operation.
- Increased local, fixed route service along key transit arterials.
- Higher investment in ITS transit improvements.
- Altogether would represent about a 10% increase in transit compared to existing conditions.

Highway/Roadway

- Access management and/or signal coordination along key arterials: Page Avenue, Ballas Road, Olive Boulevard, and Lindbergh Boulevard.
- Provide transit-supportive amenities along key corridors: add park and pool 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 20% increase). Possibilities include accident investigation, glare screens, truck channelization strategies, etc.

5.1.3 Alternative 3 – Light Rail Transit (LRT), Rock Island Railroad

Alternative 3 is an LRT alternative that principally consists of construction of a light rail transit facility (MetroLink) generally next to the Rock Island Railroad freight line within the railroad right-of-way. The Rock Island line traverses a significant portion of the Daniel Boone Study Area in generally an east-west direction. See Figure 5.1-1.

Following the alignment from east to west, Alternative 3 would connect to the Cross County MetroLink Extension-Segment 3 along either the Terminal Railroad right-of-way (Suboption A) or along the Rock Island right-of-way (Suboption B).

The alignment would then follow the Rock Island right-of-way until just east of Lindbergh Boulevard where it would either follow the Page Avenue right-of-way (Suboption C) or the AmerenUE utility corridor (Suboption D). These optional alignment segments merge near the vicinity of Page Avenue and Fee Fee Road, where the alignment then follows the AmerenUE corridor to Creve Coeur Mill Road, where the alignment rejoins the Rock Island right-of-way.

The alignment would then continue along the Rock Island right-of-way until the vicinity of Spirit of St. Louis Airport .

Alternative 3 would be primarily double track and at-grade. In addition, some sections of the alignment would need to be elevated where dictated by design considerations.

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 Daniel Boone 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.

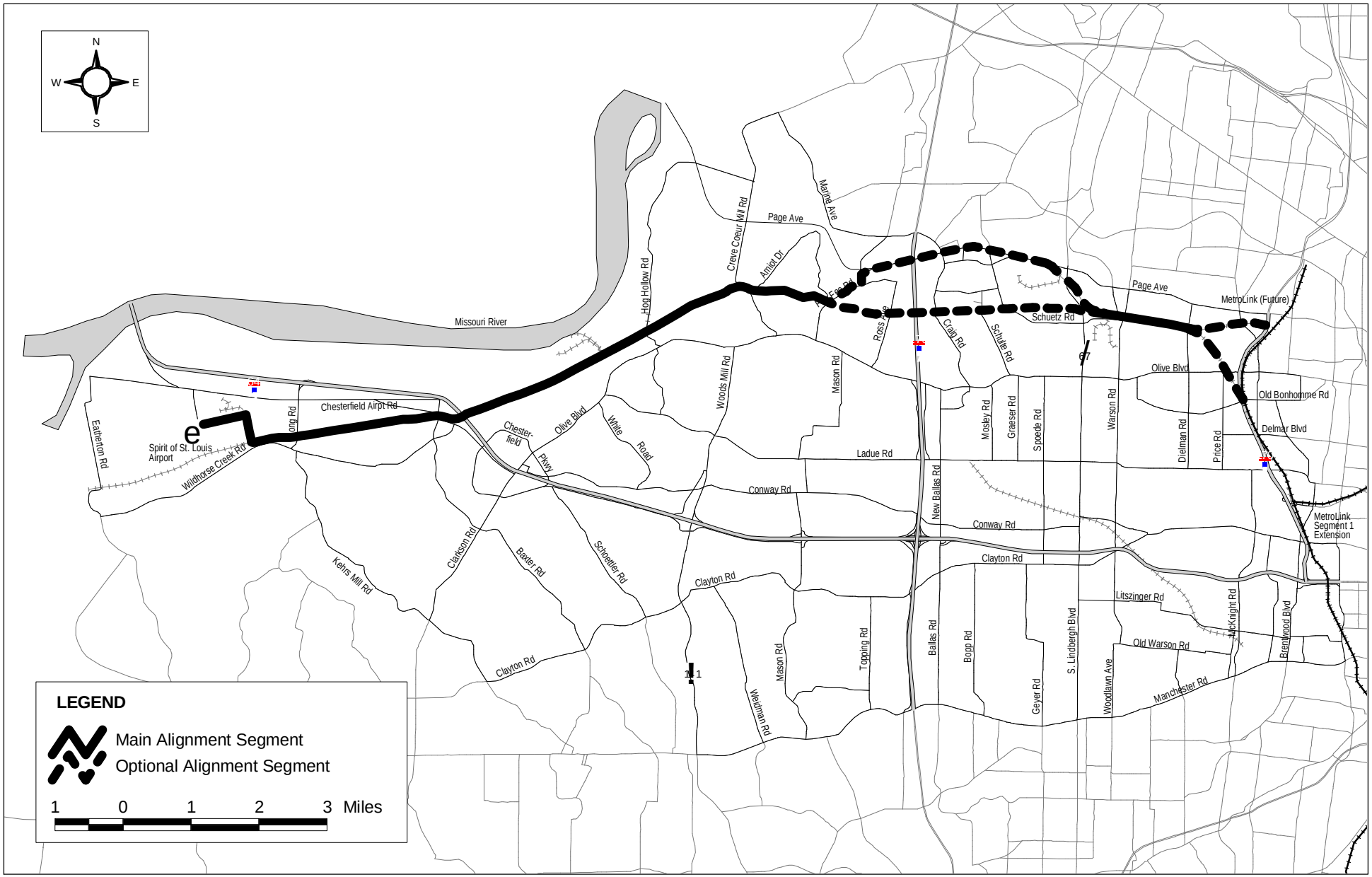
5.1.4 Alternative 4 – Light Rail Transit (LRT), Interstate 64

Alternative 4 is an LRT alternative that consists of the construction of a light rail transit facility (MetroLink) alongside I-64 right-of-way. See Figure 5.1-2.

From east to west, beginning at the proposed Cross County Extension of MetroLink-Segment 1, the alignment would travel west along the I-64 right-of-way as far as the vicinity of Chesterfield Parkway. From that location the alignment would either continue along the I-64 right-of-way to the vicinity of Spirit of St. Louis Airport.

Alternative 4 would be primarily double track and at-grade and would have shared use of Interstate rights-of-way. Under Alternative 4, it is anticipated that the light rail line would be placed both adjacent to the interstate facility as well as in the median, depending upon location, 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 Interstate.

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 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.

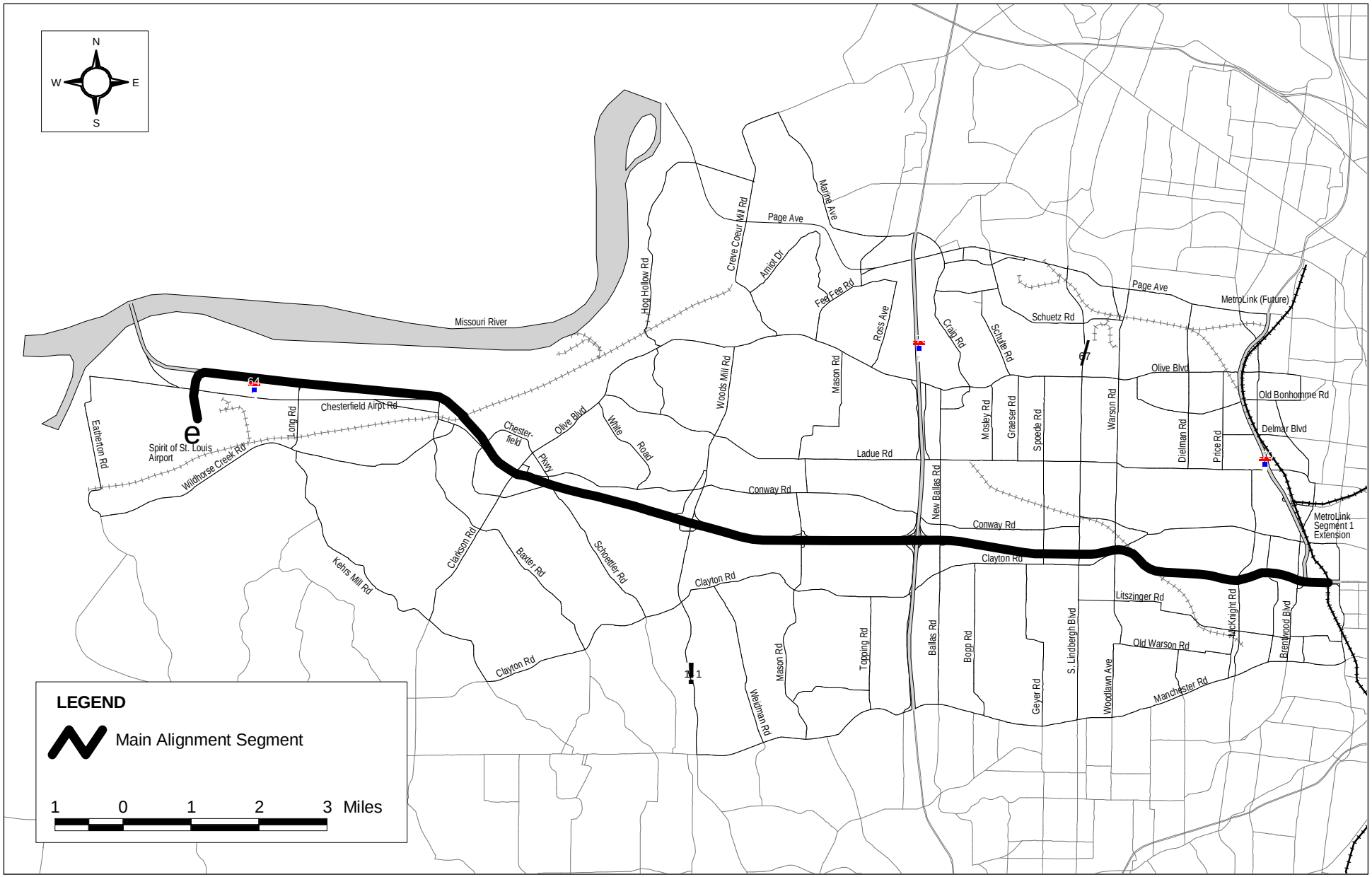


Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 5.1-1

Daniel Boone Study Area
Major Transportation Investment Analysis

Recommended Alternative 3

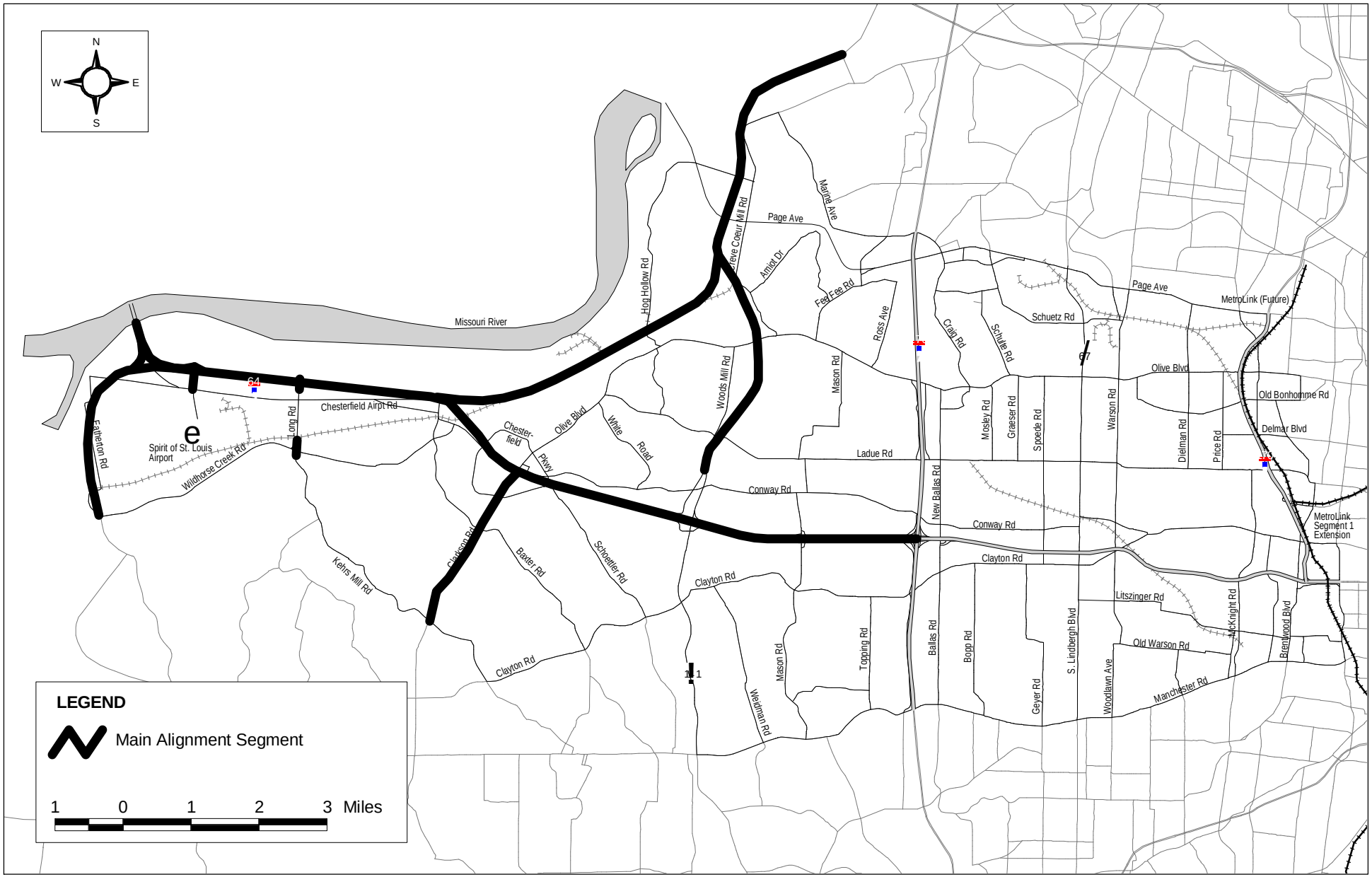


Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 5.1-2

Daniel Boone Study Area
Major Transportation Investment Analysis

Recommended Alternative 4

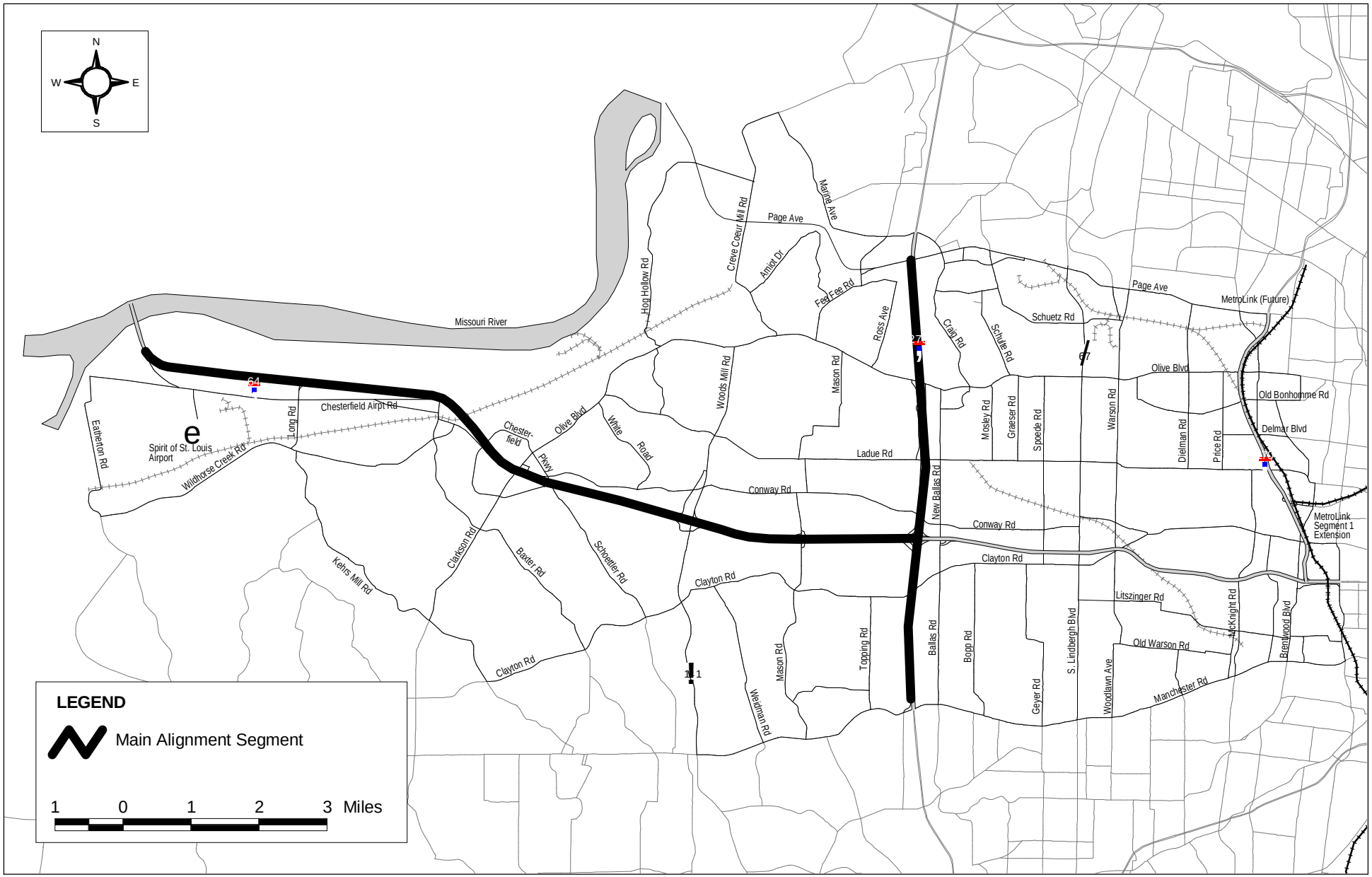


Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 5.1-3

Daniel Boone Study Area
Major Transportation Investment Analysis

Recommended Alternative 5



Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 5.1-4

Daniel Boone Study Area
Major Transportation Investment Analysis

Recommended Alternative 6

5.1.5 Alternative 5 – Roadway

This alternative would provide improvements that would include significant widening to add roadway lanes, provide alignment improvements and/or, in some cases construct new roadways on new location. See Figure 5.1-3. As currently proposed, Alternative 5 would encompass the following roadway segments:

- Widening of I-64 to provide an HOV lane between I-270 and Clarkson Road
- Earth City Extension to Olive Boulevard
- Relocate Highway 141 from Ladue Road to Olive Boulevard
- Clarkson Road from Clayton Road to I-64
- New north-south roadway from Earth City Extension to I-64, near Rock Island railroad
- Realignment of the Long Road/Kehrs Mill Road intersection with Wildhorse Creek Road
- Eatherton Road from Wildhorse Creek Road would be realigned to a new interchange with I-64
- Additional I-64 interchanges in Chesterfield Valley

5.1.6 Alternative 6 – Roadway

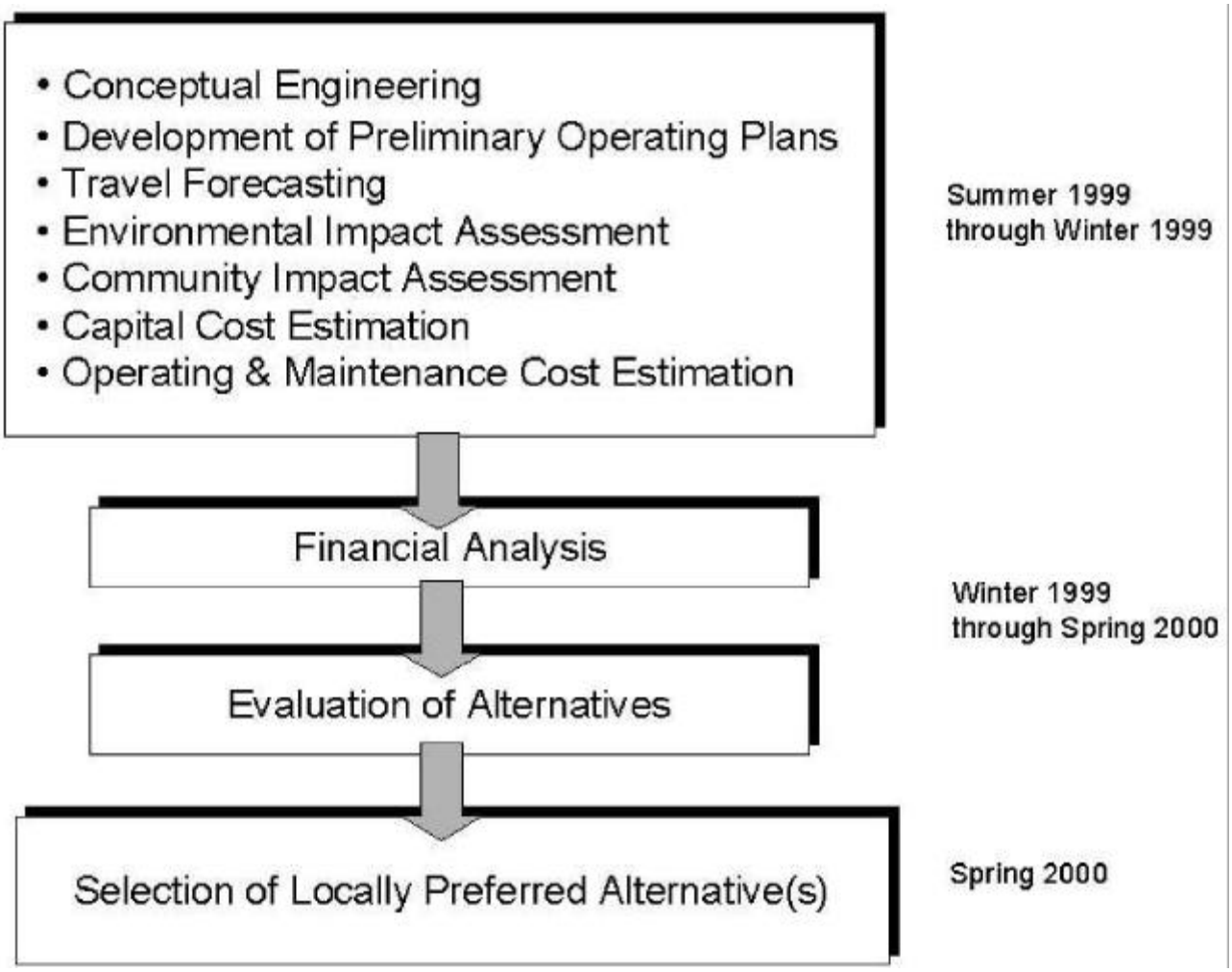
This alternative would provide major capacity improvements along both I-270 and I-64 within the Study Area. See Figure 5.1-4. As currently proposed, improvements to I-64 from I-270 west to Clarkson Road include lane widening to provide additional traffic lanes. West of Clarkson Road to the Daniel Boone Bridge includes the addition of a collector-distributor roadway system along I-64. Improvements along I-270 from Page Avenue south to Manchester Road include widening to provide additional lanes and/or a collector-distributor roadway system.

5.2 NEXT STEPS – DETAILED ANALYSIS OF ALTERNATIVES

Figure 5.2-1 illustrates the upcoming technical activities for the Daniel Boone 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 Daniel Boone 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 Daniel Boone 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 Directions selects a locally preferred alternative for the Daniel Boone Study Area.

Next Steps in the MTIA Process



Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2000.

Figure 5.2-1

Daniel Boone Study Area
Major Transportation Investment Analysis

Next Steps

6.0 REFERENCES

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