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River Rail Airport Study

Phase Two Final Report

Pulaski County, Arkansas

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Prepared For:



Prepared by URS Corporation:



in association with

Garver Engineers, LLC WCG Strategic Resources, LLC

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CHAPTER 1.0

1.0 INTRODUCTION

In March 2009, Metroplan, the designated Metropolitan Planning Organization (MPO) for the Little Rock-North Little Rock-Conway Metropolitan Statistical Area (MSA) authorized the URS Corporation Project Team to study the feasibility of extending fixed guideway transit service from Downtown Little Rock to the Little Rock National Airport ('Airport').

The *River Rail Airport Study* was divided into two study phases. The *River Rail Airport Study Phase One Final Report* (Phase One Study) was completed in October 2009 and primarily involved the evaluation of the extension of streetcar service between downtown Little Rock and the Little Rock National Airport. Phase Two of the *River Rail Airport Study* (Phase Two Study), which was initiated in November 2010, was expanded to evaluate other viable options for connecting streetcar service to the Airport from other areas of Little Rock as well as to and from North Little Rock. **Figure 1-1** is a Project Vicinity Map that represents the initial project vicinity for the Phase One Study and the expanded project vicinity for the Phase Two Study.

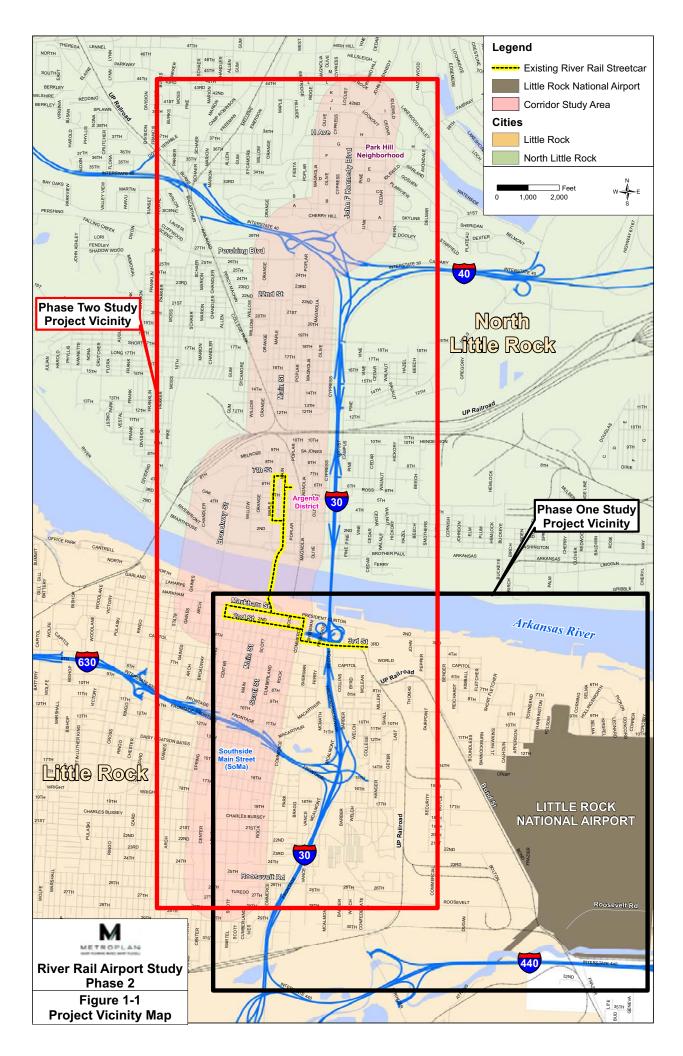
Both phases of the *River Rail Airport Study* were carried out under the direction of a Study Steering Committee (SSC) comprised of representatives from Metroplan, the Arkansas Highway and Transportation Department (AHTD), Pulaski County, the City of Little Rock, the City of North Little Rock, the Central Arkansas Transit Authority (CATA), and the Little Rock National Airport.

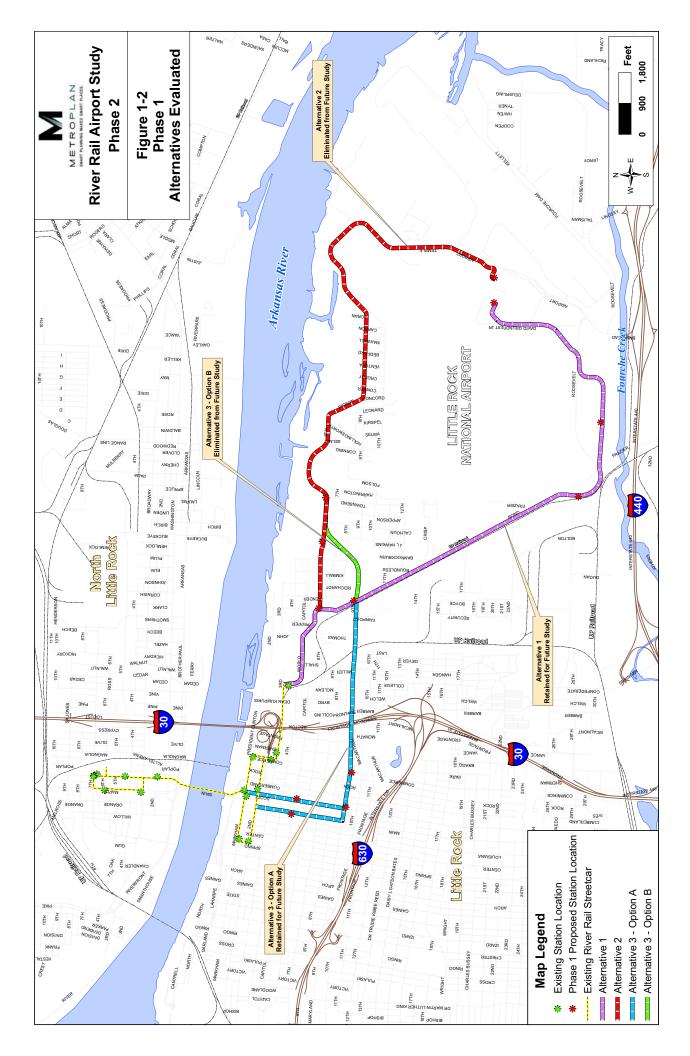
As part of the Phase One Study, three primary streetcar alternatives were evaluated that are depicted in **Figure 1-2**. The results of the Phase One Study found that for each of the alternatives evaluated, streetcar service to the Airport was generally not feasible due to the overall cost of the alternatives in comparison to projected market share ridership estimates and due to a lack of existing land use development and future redevelopment potential in the primarily industrialized areas located nearby and adjacent to the Airport.

Following completion of the Phase One Study, the SSC recommended that Phase Two of the *River Rail Airport Study* evaluate other viable options, primarily aligned along the Main Street corridor in Little Rock and North Little Rock, for connecting streetcar service to the Airport in stages that would: 1) have independent usefulness, 2) exhibit greater redevelopment and ridership potential, and 3) benefit business and residential areas in both Cities. The Phase Two Corridor Study Area is shown in **Figure 1-1**.

The Phase Two Study process is summarized below and described in greater detail throughout the subsequent sections of this Phase Two report.

- 1. Develop a "Universe of Alternatives" consisting of a number of potentially feasible, preliminary streetcar alignments in both the Cities of Little Rock and North Little Rock;
- 2. Obtain SSC input and public comment on the Universe of Alternatives;
- 3. Conduct a high-level, Tier I evaluation and screening of the Universe of Alternatives;
- 4. Identify two Corridor Alternatives from the Universe of Alternatives and conduct additional analyses and a secondary level, Tier II evaluation; and
- 5. Present the Tier II evaluation to the SSC and public for final comment and concurrence with study findings.





1.1 Purpose and Need

Both the Cities of Little Rock and North Little Rock have experienced a resurgence of growth and redevelopment in recent years. Construction of the first and second phases of the River Rail Streetcar have resulted in new development and redevelopment of upscale retail, office, entertainment, sports, and condominium development in the study area. Major attractions such as the River Market, William J. Clinton Presidential Library (Clinton Presidential Library), and Heifer International headquarters in Little Rock; the Dickey Stephens Ballpark, Northshore Riverwalk, and Verizon Arena in North Little Rock; and other various redevelopments along the River Rail Streetcar line in both Cities have resulted in sustainable development synonymous with transit oriented development.

Such a trend towards transit oriented, sustainable development continues today. That is, both the Cities of Little Rock and North Little Rock seek revitalization of their downtown businesses and neighborhoods. It is the general goal of various neighborhoods within the study area, such as the Argenta District and Park Hill Neighborhood in North Little Rock, and Southside Main Street historic urban neighborhood (SoMa) in Little Rock, to preserve, extend, and enhance neighborhood character while supporting sustainable economic development. In fact, the City of North Little Rock was selected as a 2011 Finalist in the Siemens Sustainable Community Awards (mid-size community) for their sustainability programs and efforts (http://sustainablecommunity.uschamber.com, accessed August 2011).

Expansion of the River Rail Streetcar into neighboring communities along Main Street / John F. Kennedy Boulevard supports each City's respective land use plans and sustainable development goals. Such objectives include revitalization of the Little Rock Central Business District (CBD) and the continued redevelopment of SoMa, the Argenta District, and Park Hill Neighborhood, all of which are adjacent to the proposed River Rail Streetcar expansion project.

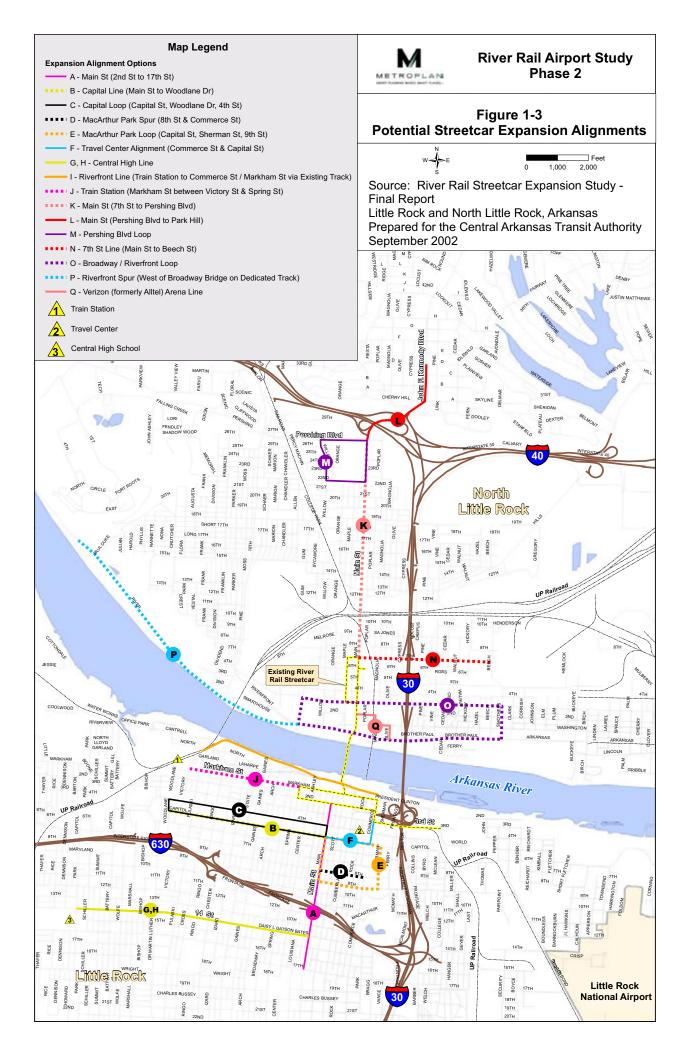
Further, and as outlined in the 2007 *Little Rock National Airport Master Plan Update*, the Airport is anticipating long term growth as existing airlines expand service and other air carriers initiate new passenger air service from the Airport. It was concluded as part of the Phase One Study that the potential ridership and economic benefits of extending the River Rail Streetcar directly to the Airport could not offset the capital costs of the individual alternatives evaluated. However, the economic viability of an Airport streetcar extension could improve when coupled with the ridership and redevelopment opportunities gained if the streetcar were to expand deeper into the communities of Little Rock and North Little Rock.

Sustainable growth initiatives, in conjunction with future urbanized growth and demand, has resulted in a need to examine additional public transit opportunities among the vibrant business districts and neighborhoods along the Main Street / John F. Kennedy Boulevard corridor in the Cities of Little Rock and North Little Rock. The purpose of this Phase Two Study is to identify and evaluate the feasibility of the extension of a fixed guide way transit service in the Cities of Little Rock and North Little Rock, while setting the stage for a more robust streetcar network that could eventually connect to the Airport; and to develop a consensus for the study findings and recommendations through the SSC and the general public.

1.2 Project Goals

The SSC was established at the beginning of the *River Rail Airport Study* to provide guidance and policy decision-making advice regarding various aspects of the study, including the project goals. Members of the SSC contributed not only to the development, refinement, and evaluation of the Phase One streetcar expansion alternatives to the Airport, but also to the streetcar expansion alternatives into the Cities of Little Rock and North Little Rock presented in this Phase Two Study. Project goals and objectives were identified in Phase One for the streetcar extension alternatives to the Airport. A supplemental set of goals and objectives for Phase Two are as follows:

- Provide an efficient alternative transportation mode through the Little Rock CBD and south of Interstate 630 (I-630) in Little Rock.
- Provide an efficient alternative transportation mode for the communities of North Little Rock, extending north of Interstate 40 (I-40) along John F Kennedy Boulevard into the Park Hill Neighborhood.
- Promote sustainable, transit oriented development (TOD) and redevelopment opportunities along the project corridors.
- Explore additional travel demand for extending the River Rail Streetcar to the Airport in the future.
- Expand on prior streetcar expansion studies through the Cities of Little Rock and North Little Rock. Potential streetcar expansion alignments, as detailed in the September 2002 River Rail Streetcar Expansion Study – Final Report prepared for CATA, are shown in Figure 1-3.



2.0 ALTERNATIVES CONSIDERED

2.1 Alternatives Development Methodology

A tiered approach was utilized in the development of streetcar alternatives to meet the purpose and need. This methodology reduced the range of alternatives through consecutively more detailed analyses of key evaluation criteria that included mobility, system performance, cost and affordability, environmental impacts, economic development and implementability / design considerations, and public preference.

The Phase Two Study alternatives development process that was undertaken for the project is summarized below:

- 1. Develop a "Universe of Alternatives" consisting of a number of potentially feasible, preliminary streetcar alignments in both the Cities of Little Rock and North Little Rock;
- 2. Obtain Study Steering Committee (SSC) input and public comment on the Universe of Alternatives:
- 3. Conduct a high-level, Tier I evaluation and screening of the Universe of Alternatives;
- 4. Identify two Corridor Alternatives from the Universe of Alternatives; and
- 5. Conduct additional analyses and perform a secondary level, Tier II evaluation of the Corridor Alternatives.

Naming of Alternatives

For purposes of the overall *River Rail Airport Study*, the nomenclature used to identify each of the alternatives followed a consecutive numbering system. The Phase One Study alternatives were identified as Alternatives 1, 2 and 3 and the Phase Two Study alternatives identified herein are referred to as Alternatives 4, 5, 6 and 7. Several of the alternatives included design options and are appropriately named as the primary alternative number combined with Option A, Option B and so forth.

Trackway

One of the key issues considered in the development of the streetcar alternatives was in regard to the design characteristics for the proposed track system. Streetcar service would operate on standard gauge railroad track. Depending on a number of factors such as location, roadway features (traffic and parking conditions), and cost, just to name a few, the streetcar rail system could be either single-track or double-track. As part of a loop alignment or couplet alignment, a single-track system would be provided with the streetcar vehicle operating in one-direction only. A single-track can also be used for bi-directional or two-way service. Under this scenario if the streetcar alignment is located within an existing roadway, a travel lane or parking lane would need to be eliminated (reducing the capacity of the roadway) to accommodate the single-track, two-way operation. For safety reasons, the single-track must be a dedicated lane/exclusive running way and cannot share its alignment with vehicular traffic. A separate pull-out would be required for streetcar vehicles to pass each other under a single-track operating system.

A double-track operation consists of two sets of tracks with streetcar vehicles operating in each direction of travel. When operating in mixed traffic, the streetcar track shares the travel lane with vehicular traffic in each direction. From a capacity standpoint, a double-track, shared alignment has less of an impact on roadway capacity than a single-track dedicated alignment. The capital cost of a double-track alignment is higher than a single-track system.

2.2 Phase One Study Alternatives

As part of the Phase One Study, three primary streetcar alternatives were evaluated for expansion between the CBD of Little Rock and the Airport. The Phase One Study alternatives, as previously shown in **Figure 1-2**, included: Alternative 1 located along Bond Street on the west side of the Airport; Alternative 2 located along the north and east side of the Airport; and Alternative 3, Option A or Option B that provided a connection between the existing River Rail Streetcar track to Alternative 1 or Alternative 2, respectively. As stand-alone, minimal operating segments, these alternatives were determined not to be economically feasible. However, Alternative 1 and Alternative 3 – Option A were retained for future study (outside the scope of this Phase Two Study) as potential streetcar expansion routes to the Airport.

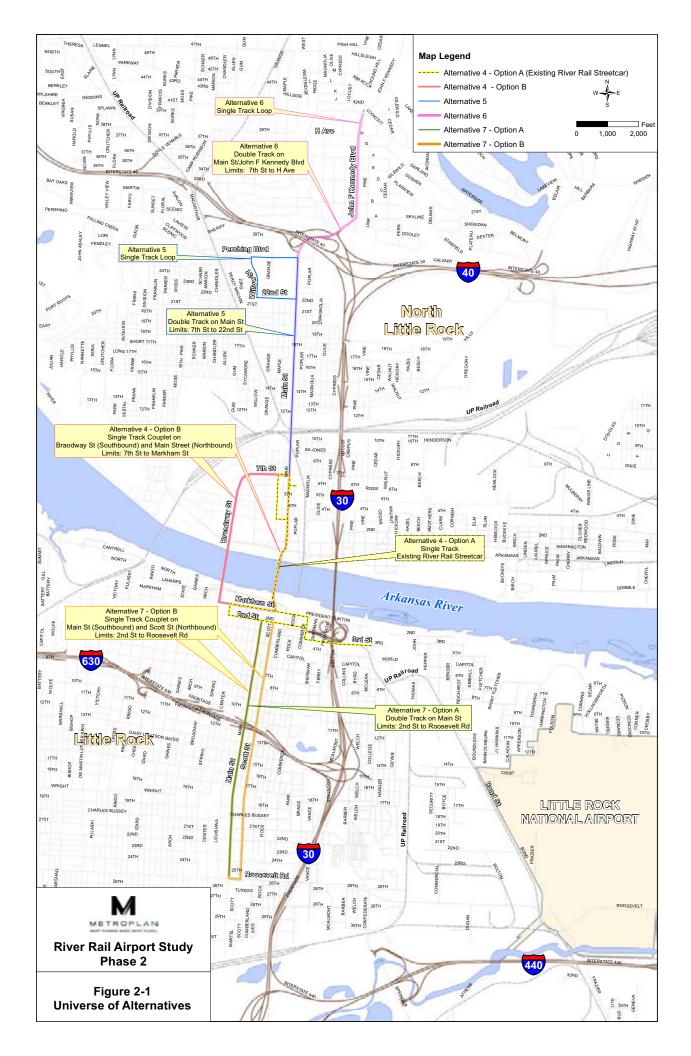
2.3 Phase Two Study Universe of Alternatives

Four initial streetcar alternatives were developed in conjunction with the SSC as part of the Phase Two Study; these alternatives were identified as the Universe of Alternatives. Public information meetings were conducted in April 2011 to obtain input and opinion from the public and community representatives on the Universe of Alternatives. Public comments were included as part of the Tier I screening evaluation, which was used to rank the Universe of Alternatives. This information was then utilized to provide recommendations to the SSC as to which of the Universe of Alternative alignments should be selected as the Corridor Alternatives and carried forward for additional evaluation. A brief description of the Universe of Alternatives, the Public Involvement Process, and the Tier I Screening Evaluation are described below.

Description of the Universe of Alternatives

The Phase Two Study Universe of Alternatives are illustrated in **Figure 2-1** and a brief description of each is presented below. Alternatives 4, 5 and 6 are located in North Little Rock and Alternative 7 is located in Little Rock.

• Alternative 4 - Option A or Option B: Alternative 4 consists of two options traversing the Arkansas River connecting the existing River Rail Streetcar to two potential North Little Rock streetcar alternatives (Alternative 5 and Alternative 6 described below). Alternative 4 - Option A would utilize the existing River Rail Streetcar track to cross the Arkansas River via the Main Street bridge. Along this segment of the Main Street bridge, the existing streetcar system consists of a single-track rail that operates bidirectionally. Alternative 4 - Option B consists of a single-track couplet that would be aligned on Broadway Street / 7th Street for northbound streetcar service, in combination



with the existing River Rail Streetcar track on Main Street for southbound streetcar service. Both Alternative 4 – Option A or Option B would connect to either Alternative 5 or Alternative 6 in North Little Rock.

- Alternative 5 consists of a double-track streetcar alignment on Main Street extending from the existing River Rail Streetcar loop at 7th Street, north to 22nd Street in North Little Rock. At 22nd Street, the streetcar track changes to a one-way, single-track loop along Pershing Boulevard, Willow Street, 22nd Street, and back onto Main Street. Alternative 5 would not continue northward past Pershing Boulevard.
- Similar to Alternative 5, Alternative 6 is also a double-track streetcar line on Main Street beginning at the existing River Rail Streetcar loop at 7th Street. However, Alternative 6 continues north of Interstate 40 (I-40) along John F. Kennedy Boulevard to H Avenue, where the line changes to a single-track loop along H Avenue and Lookout Road encircling the Lakehill Shopping Center.
- Alternative 7 consists of two options that begin in the Little Rock CBD, cross I-630 and extend to Roosevelt Road. Alternative 7 Option A is proposed as double-track along Main Street extending from the existing River Rail Streetcar line to Roosevelt Road. Alternative 7 Option B consists of a single-track couplet along Main Street for southbound service and along Scott Street for northbound service.

Public Outreach on the Universe of Alternatives

Two open forum public meetings were held on April 6, 2011 and April 7, 2011 in the cities of North Little Rock and Little Rock, respectively, in order to provide citizens the opportunity to discuss the four proposed Phase Two Study Universe of Alternatives. Graphic displays of the Universe of Alternatives and a looping video presentation describing the proposed project were available for viewing. Citizens were encouraged to ask questions and offer comments about the Universe of Alternatives. Citizens could access and complete a comment form and survey via the Metroplan website, and were able to view all public meeting graphics. Additionally, Metroplan met with several community organizations to garner greater outreach and solicit additional public input via the internet-posted survey and comment form. These organizations included the Little Rock Downtown Neighborhood Association, the Argenta Development Council, and the North Little Rock Chamber of Commerce.

In summary, survey and comment form respondent preferences for the proposed Phase Two Universe of Alternatives were as follows:

- Respondents preferred Alternative 4 Option B (82 percent) to Alternative 4 Option A (18 percent) as the preferred alignment crossing the Arkansas River to be implemented in conjunction with the North Little Rock alternative.
- Respondents preferred Alternative 6 (82 percent) to Alternative 5 (18 percent) as the preferred North Little Rock alternative.

• Respondents preferred Alternative 7 – Option A (55 percent) to Alternative 7 – Option B (45 percent) as the preferred Little Rock Alternative.

A detailed summary of the Phase Two Study Universe of Alternatives public involvement process and survey and comment form results is included in *River Rail Airport Study Phase Two April 2011 Public Meeting Record* (URS Corporation, May 2011).

Tier I Screening of the Universe of Alternatives

Following the above described public outreach efforts, a Tier I screening evaluation was completed in order to identify which of the Universe of Alternatives would be selected as Corridor Alternatives for a more stringent Tier II evaluation. **Table 2-1** below presents the screening criterion that was used to evaluate the Universe of Alternatives. Seven categories were evaluated for each alternative, including mobility, system performance, cost and affordability, environmental impacts, economic development and implementability / design considerations, and public preference.

Table 2-1
Tier I Screening Criterion

	Tier i Bereening Criterion					
	Category	Criterion				
A Mobility		 Travel time: approximate average operating speed per mile Magnitude of major employment served Magnitude of major traffic generators / destinations served Magnitude of population centers served 				
В	System Performance	1. Service reliability / predictability (single-track, one-way flow versus single-track, two-way flow)				
С	Cost and Affordability	 Capital cost Operations and maintenance cost 				
D	Environmental Impacts	 Impacts to the human environment Impacts to the physical environment 				
Е	Economic Development	1. Transit Oriented Development (TOD) / redevelopment opportunities				
F	Implementability / Design Considerations	Reasonable implementability of the preliminary streetcar alternatives				
G	Public Preference	1. Public preference for an Alternative 4 option, a North Little Rock Alternative, and a Little Rock Alternative (based on public response following the April 2011 River Rail Airport Phase Two Public Meetings)				

The complete Tier I Screening of the Universe of Alternatives is included within **Appendix A**. In summary, the following Universe of Alternative alignments were recommended as the Corridor Alternatives for continued screening evaluation:

• **Alternative 4 – Option B:** Recommended for implementation in combination with the North Little Rock Alternative.

- Alternative 5: Alternative 5 was recommend as the North Little Rock Alternative based on its lower cost, with the option for future phasing of the streetcar through the Park Hill Neighborhood, as depicted in Alternative 6.
- Alternative 7 Option A: Alternative 7 Option A was recommended based on the implementability issues associated with Alternative 7 Option B along Scott Street (e.g., 12% grade on Main Street approaching Roosevelt Road) and other constraining factors (e.g., potential impacts to overhead power lines along Scott Street).

2.4 Selection and Description of the Corridor Alternatives

Following the review of the Tier I screening of the Universe of Alternatives, the SSC selected a combined Alternative 4 – Option B and Alternative 6 as the North Little Rock Corridor Alternative; and Alternative 7 – Option A as the Little Rock Corridor Alternative. Modifications to the Corridor Alternative alignments recommended by the SSC are described below and are shown in **Figure 2-2**. The following is a general description of each Corridor Alternative; and a more detailed description is provided in **Section 4.2**.

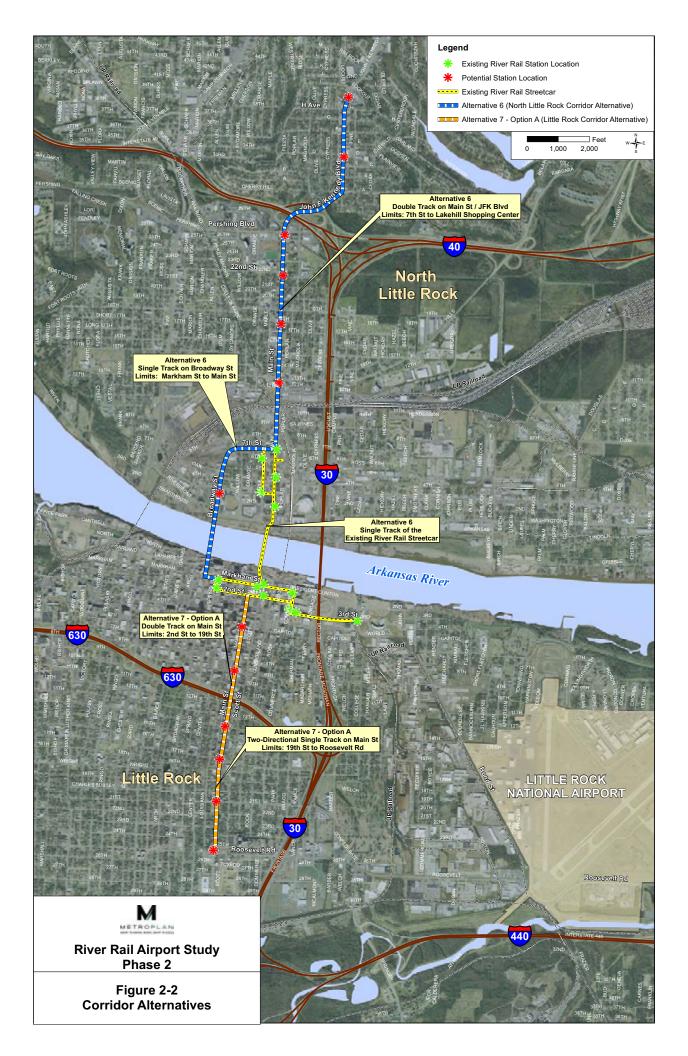
North Little Rock Corridor Alternative

Alternative 4 – Option B and Alternative 6, herein referred to as Alternative 6: Because Alternative 4 – Option B would be implemented in conjunction with Alternative 6, Alternative 4 – Option B was combined with Alternative 6 and the entire alignment was renamed Alternative 6. Therefore, Alternative 6 now includes both single-track and double-track alignment. As shown in **Figure 2-2**, Alternative 6 includes a single-track alignment on Broadway Street / 7th Street for northbound streetcar travel from the existing River Rail Streetcar across the Arkansas River; and double-track alignment on Main Street / John F. Kennedy Boulevard extending into the Park Hill Neighborhood in North Little Rock.

The existing River Rail Streetcar alignment would be utilized for southbound streetcar travel on Main Street across the Arkansas River. The SSC recommended that the segment of double-track traveling east on 22^{nd} St, north on Willow Street, and west on Pershing Boulevard (as presented in the Alternative 6 alignment of the Universe of Alternatives, see **Figure 2-1**) be eliminated and instead, continue north on Main Street across I-40 into the Park Hill Neighborhood. Additionally, the SSC recommended the single-track loop at Lookout Drive (as presented in the Alternative 6 alignment of the Universe of Alternatives) also be eliminated and the Alternative 6 alignment terminus be reconfigured at the Lakehill Shopping Center located north of Avenue H.

Little Rock Corridor Alternative

Alternative 7 – Option A: Per SSC recommendation following the Tier I Screening Analysis, the Alternative 7 – Option A alignment along Main Street was modified from an entirely double-track alignment to a double-track alignment from 2nd Street to 19th Street and a two-way, single-track alignment from 19th Street to Roosevelt Road. Additional single-track, in lieu of double-track, may be considered in a later design study as this alternative reaches the project delivery stage.



2.5 Public Outreach on the Corridor Alternatives

An open forum public meeting was held to review, discuss, and comment on the proposed Corridor Alternatives. The meeting was held on Tuesday, August 30, 2011 at the Pulaski County Regional Center in Little Rock, Arkansas from 4:00 PM to 6:00 PM. Graphic displays of the recommended Corridor Alternatives and a looping video presentation describing the proposed project were available for viewing. Citizens were also provided with an informational handout of the proposed Corridor Alternatives that corresponded with the looping video presentation, a map atlas handout showing each Corridor Alternative alignment on aerial photography at a scale of 1" = 200' as well as potential areas of transit oriented development, and a comment form. Citizens were encouraged to ask questions and offer comments about the recommended Corridor Alternatives for this project.

A description of the public meeting and the comments received is presented within the *River Rail Airport Study Phase Two August 2011 Public Meeting Record* (URS, 2011), on file with Metroplan. In summary, 38 citizens attended the public meeting and 40 comments were received from the public either via comment forms at the public meeting, email, U.S. Mail, or through the Metroplan website. The bulleted list below presents a summary of the major issues expressed by commenters, to be discussed further in the referenced sections.

- Concern relating to the interaction of bicycles and streetcars (see Section 4.2, *Public Comments on Bike Facilities* subsection);
- Suggestions for streetcar extension alignment modifications (see Section 4.2, *Public Comments on Alignment Modifications* subsection);
- Suggestions for additional streetcar station locations and amenities
 (see Section 4.3, Public Comments on Streetcar Station Locations and Amenities subsection);
- Economic redevelopment and transit oriented development (TOD) potential (see Section 5.3, *Public Comment on Redevelopment and TOD* subsection); and
- Issues related to streetcar extension cost and funding (see Section 7.4, *Public Input on Cost and Funding subsection*).

3.0 STUDY AREA CONDITIONS

3.1 Study Area Description

The expanded study area for Phase Two of the *River Rail Airport Study* (Phase Two Study) is generally located west of Interstate 30 (I-30) and extends north of Interstate 40 (I-40) in North Little Rock to south of Interstate 630 (I-630) in Little Rock. As previously shown in **Figure 1-1** within the Project Vicinity Map, the Corridor Study Area is aligned in the north-south direction primarily centered along the Main Street corridor in Little Rock and North Little Rock and includes the CBD of Little Rock and the North Little Rock CBD.

The Corridor Study Area is comprised of a mixture of commercial, residential, industrial, tourist, and recreational uses. Numerous downtown businesses, major destinations, locally significant destinations including community facilities and parks, and neighborhoods exist within the Corridor Study Area. Major communities / districts within the Corridor Study Area include the Argenta District and Park Hill Neighborhood in North Little Rock, and the historic South Main Street (SoMa) urban neighborhood in Little Rock. Additionally, major tourist attractions located within and nearby the Corridor Study Area include the River Market, Clinton Presidential Library, Heifer International, Dickey Stephens Ballpark, Riverfront Park, and Verizon Arena, the Old State House, the Historic Arkansas Museum as well as various other local destinations. Additionally, several tourist attractions are currently being redeveloped, including renovations to the Arkansas Museum of Discovery and the conversion of the Clinton Presidential Park Bridge to a pedestrian walkway in Little Rock.

The Arkansas State Highway Commission proposes to replace the Broadway Bridge and its connection ramps on U.S. Highway 70 over the Arkansas River connecting Little Rock and North Little Rock. Currently in the early stages of design, the project will replace the existing bridge with a structure that will accommodate at least four travel lanes for vehicles and a shared use path for bicycles and pedestrians. The structure will be designed to accommodate a future streetcar line, though the exact configuration is undetermined at this time. The cities of Little Rock and North Little Rock, the State of Arkansas, as well as central Arkansas' Metropolitan Planning Organization, Metroplan have all expressed interest in making this facility an iconic structure. Design for the facility is expected to be complete in 2013, with construction commencing in the summer or fall of 2013. At this time, it is unknown as to when construction will be complete.

The City of North Little Rock proposes to replace the Main Street Viaduct over the UP Railroad tracks in downtown North Little Rock. Currently in the early stages of design, the project will include replacement of the existing structure between 8th and 13th Streets with either an overpass or underpass. The cross section of the road is anticipated to consist of curb and gutter, four travel lanes, and sidewalks. Some alternatives of the proposed roadway consist of a shared use path along one side for both bicycles and pedestrians. The structure will be designed to accommodate a future streetcar line, though the exact configuration is undetermined at this time. Early estimates have the design completed in early 2013 with construction commencing shortly thereafter. At this time, it is unknown as to when construction will be complete.

Figure 3-1 presents various features within and nearby the Corridor Study Area and the following sections provide an overview of existing conditions and study area features within the Corridor Study Area. For some study area features, existing conditions are described relative to their relationship to Alternative 6 and Alternative 7 – Option A; the designated Corridor Alternatives.

3.2 Existing Roadway Features

The following describes the existing roadway, utility, bike, and pedestrian networks within the Corridor Study Area. The existing roadway and rail network is shown on **Figure 3-1** and the existing bike facility network is shown in **Figure 3-2**.

Main Street, Little Rock

Main Street, designated as a minor arterial, is a north-south roadway. Main Street starts several blocks south of the E. Roosevelt Road intersection and continues north until its terminus at W. Markham Street in downtown Little Rock. Main Street's curbed 4-lane roadway section begins at its intersection with E. Roosevelt Road and continues north to E. 7th Street. The speed limit along Main Street is 30 miles per hour (mph) except in school zones, and is reduced to 25 mph when students are present.

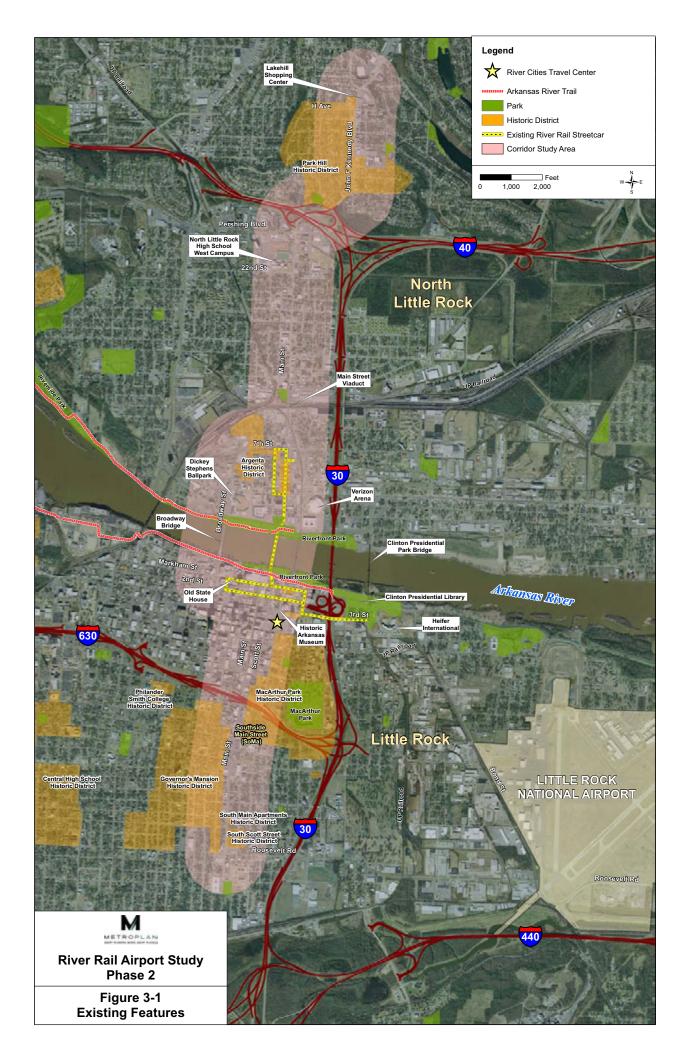
Pedestrian sidewalks, located along both sides of the roadway, are provided at the 24th Street intersection and continue north for the extent of the road. On-street parking can be found in several locations along Main Street. Portions of this on-street parking between 24th and 19th Streets are not marked, nor are they very well signed.

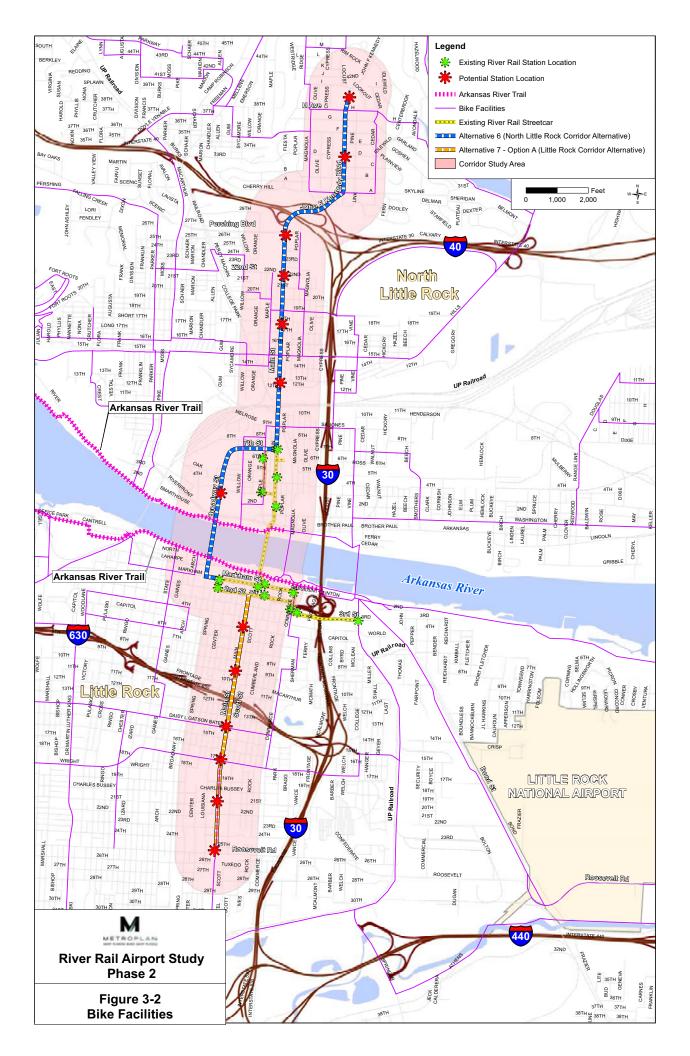
Main Street is a fairly flat facility with exception of a length exceeding a 9% slope between 24th Street and E. Roosevelt Road. Traffic along Main Street is controlled utilizing signals at all major street crossings, with the exception of the W. Markham Street intersection, which is controlled using a three way stop.

Overhead utilities can be found crossing above Main Street intermittently between E. Roosevelt Road and 9th Street, as well as street lights on utility poles lining the roadway. North of 9th Street (in Downtown Little Rock), most utilities are located underground.

Decorative landscaping and lighting can be found lining Main Street between 8th Street and W. Markham Street. One overpass structure exists to span Main Street over I-630. There are two elevated walkways that cross over Main Street downtown.

Currently, there is a designated bike route running along both sides of Main Street between 17th Street and E. Roosevelt Road. According to the City of Little Rock *Master Street Plan* (2009), this route is a Class III Bicycle Route that is designated with signs for bicycle use, but shared with motorized vehicles.





Main Street/John F. Kennedy (JFK) Boulevard, North Little Rock

Main Street, designated as a minor arterial, is a north-south roadway. Main Street starts at the Main Street river bridge linking Little Rock with North Little Rock and continues to Pershing Boulevard, where it turns into John F Kennedy (JFK) Boulevard (also known as Highway 107). John F Kennedy Boulevard, designated as a principal arterial, continues north from Main Street, over I-40, and beyond the Lookout Road intersection. Main Street is primarily a curbed 4-lane section, while John F Kennedy Boulevard primarily has 4-travel lanes (curbed) with a raised median. The speed limit along Main Street is 30 mph except in school zones where the speed is reduced to 25 mph when students are present. The speed limit along John F Kennedy Boulevard is primarily 35 mph.

Pedestrian sidewalks, located along both sides of the roadway, are provided for all of Main Street. Sidewalks are also provided along John F Kennedy Boulevard until H Avenue, where one walk is provided along the west side of the road. On-street parking can be found along the west side of Main Street between 7th and 8th Streets and along the east side just north of 13th Street. No on-street parking is allowed along John F Kennedy Boulevard.

Main Street is a fairly flat facility with exception of a few locations: the approach and departure grades of the Main Street Viaduct over the UP Railroad tracks are approximately 5.5%, and between 22nd Street and Pershing Boulevard are approximately 5.3%. John F Kennedy Boulevard has a long steep grade just north of the I-40 interchange (approximately 7%), as well as a fairly steep grade between H Avenue and Lookout Road (approximately 5%).

Traffic along Main Street and JFK Boulevard is controlled utilizing signals at the majority of major street crossings. Overhead utilities can be found crossing above both Main Street and John F Kennedy Boulevard intermittently along their lengths, as well as street lights on utility poles lining the roadways.

Decorative landscaping and lighting can be found lining Main Street between 7th Street and 8th Street and can be found lining John F Kennedy Boulevard between Cherry Hill Drive and G Avenue. The aforementioned median contains decorative landscaping and lighting. There are a few overpass structures located along Main Street and JFK Boulevard: the Main Street Viaduct spanning the UP railroad tracks between 8th and 13th Streets; and an overpass on John F Kennedy Boulevard spanning I-40.

Currently, there are no designated bicycle facilities along Main Street or John F Kennedy Boulevard. However, there are several bike facilities that cross perpendicular to Main Street and John F Kennedy Boulevard at intersecting streets.

W. 7th Street/N. Broadway Street, North Little Rock

W. 7th Street, designated as a collector, is an east-west roadway. W. 7th Street starts at its intersection with Main Street and continues west to its intersection with Willow Street. Beyond this intersection, W. 7th Street becomes N. Broadway Street. N. Broadway Street is a north-south roadway extending south from the W. 7th Street / N. Willow Street intersection to, and over the

"Broadway Bridge" spanning the Arkansas River and linking North Little Rock with Little Rock. Broadway Street is designated as a collector from W. 7th Street to its intersection with W. Broadway Street, where N. Broadway Street continues south as Highway 70 and is designated as a principal arterial. W. 7th Street is a curbed 2-lane roadway along its length. N. Broadway Street begins as a two-lane roadway and then quickly widens to three lanes (two southbound lanes, and one northbound lane) a few hundred feet west of the N. Willow Street intersection. This three lane section continues south to the W. Broadway Street intersection, where the lane count changes to four. The speed limit along W. 7th Street is 25 mph along its length. The speed limit along N. Broadway Street starts as 25 mph and then changes to 30 mph where the lanes increase from two to three.

Pedestrian sidewalks, located along both sides of the roadway, are provided for the entire length of W. 7th Street. N. Broadway Street has one pedestrian sidewalk running along the east side of the roadway until the W. Broadway Street intersection, where an additional sidewalk is added along the west side. These two sidewalks continue south for the extent of the road. On-street parking can be found along the north side of W. 7th Street and is not marked, but is fairly well signed. No on-street parking is allowed along N. Broadway Street.

Both W. 7th Street and N. Broadway Street are relatively flat, with no steep grades. Traffic along both streets is controlled utilizing signals at the Main Street, N. Maple Street, and W. Broadway Street intersections. No stop sign controls are currently in use.

Overhead utilities can be found crossing above both W. 7th Street and N. Broadway Street intermittently along their lengths, as well as street lights on utility poles lining the roadways. Decorative landscaping and lighting can be found lining W. 7th Street between Main Street and N. Maple Street. There is neither decorative landscaping, nor decorative lighting immediately adjacent to N. Broadway Street. As mentioned previously, there is one large structure spanning the Arkansas River along N. Broadway St. south of the W. Broadway Street intersection.

Currently, there are no designated bicycle facilities along W. 7th Street or N. Broadway Street. However, there are several bike facilities that cross perpendicular to W. 7th Street and N. Broadway Street at intersecting streets. One popular bicycle and pedestrian trail known as the Arkansas River Trail (River Trail) runs parallel to the Arkansas River along the north bank of the river and passes below the Broadway Bridge. The Arkansas River Trail is a 14 mile multi-use loop on both side of the Arkansas River, connecting various recreational facilities and points of interest in the metropolitan area.

Broadway Street, Little Rock

Broadway Street (also known as Highway 70), designated as a principal arterial, is a north-south roadway extending south from the "Broadway Bridge" spanning the Arkansas River and linking North Little Rock with Little Rock. Broadway Street continues south from the bridge beyond the W. Markham Street intersection and downtown Little Rock. Broadway Street is a curbed 4-lane roadway with a speed limit of 30 mph.

Pedestrian sidewalks, located along both sides of the roadway, are provided for the entire length of the road. No on-street parking is allowed along Broadway Street. Broadway Street is relatively flat, with no steep grades. Traffic along the roadway is controlled utilizing a signal at its intersection with W. Markham Street. No stop sign controls are currently in use. Overhead utilities can be found crossing above Broadway Street intermittently along its length, as well as street lights on utility poles lining the roadway. There is neither decorative landscaping, nor decorative lighting immediately adjacent to Broadway Street. As mentioned previously, there is one large bridge spanning the Arkansas River along Broadway Street.

Currently, there are no designated bicycle facilities along Broadway Street. However, the River Trail runs parallel to the Arkansas River along the south bank of the river. On the south shore, the existing trail extends from the Clinton Presidential Library Center and Park just east of I-30 to just south of Two Rivers Park. From the Little Rock CBD, the trail connects to downtown North Little Rock via a renovated railroad bridge.

W. Markham Street, Little Rock

W. Markham St, designated as a local street, is an east-west roadway extending west from beyond its intersection with Broadway Street to beyond its intersection with Spring Street. W. Markham Street is primarily a curbed 2-lane road with multiple turn lanes provided along the roadway. The posted speed limit along W. Markham Street is 30 mph.

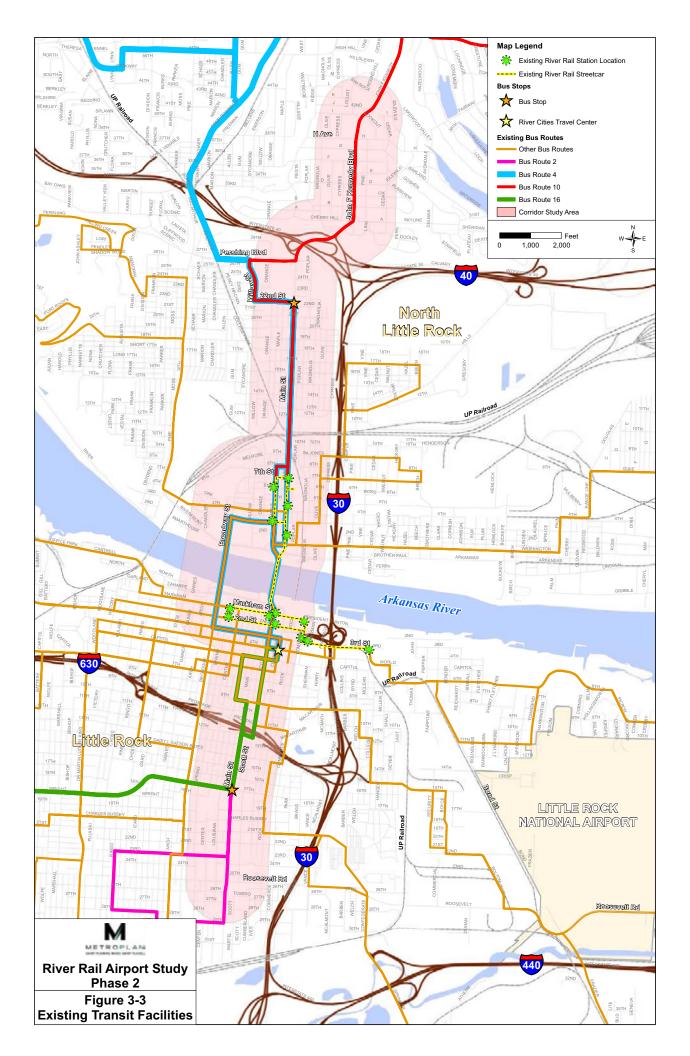
A pedestrian sidewalk is provided along the south edge of the roadway within this section. No on-street parking is allowed along W. Markham Street for this section. W. Markham Street is relatively flat, with no steep grades. Traffic along the roadway is controlled utilizing signals at the Broadway Street and Spring Street intersections. No stop sign controls are currently in use in this section. Utilities are primarily underground with street lights on poles lining the roadway. There is neither decorative landscaping, nor decorative lighting immediately adjacent to W. Markham Street. Currently, there are no designated bicycle facilities along W. Markham Street within this section.

3.3 Existing Transit Service

Fixed-Route Bus Service

The Central Arkansas Transit Authority (CATA) provides fixed-route bus service in the study area. Adult fares are \$1.35 and transfers are \$0.05. Students under 18 years of age can obtain a pre-paid, 31-day student pass for \$19.50; and persons 65 years of age or more, that have a Medicare card, or a verifiable disability are eligible for a discount fare. **Figure 3-3** provides an overview of existing bus transit routes and transit facilities within a quarter-mile radius of the Corridor Alternatives.

Route 4 and Route 10 travel through North Little Rock along a similar route as Alternative 6. Route 4 diverges near Main and 22nd Street, continuing on a northwest route outside of the Corridor Study Area along Camp Robinson Road; and Route 10 continues northward outside the Corridor Study Area along John F. Kennedy Boulevard to McCain Mall.



Within the Corridor Study Area, both Routes 4 and 10 have bus stops at Main Street and 22nd Street, which is also a proposed streetcar station location along the Alternative 6 alignment. Additional information regarding proposed streetcar stations is provided ahead in **Chapter 4** of this report.

Route 2 and 16 travel through Little Rock along portions of Main Street and Scott Street. Route 2 travels west outside of the Corridor Study Area at 23rd Street and eventually continues south to 33rd Street in Little Rock; and Route 16 travels west outside the Corridor Study Area along 17th Street and continues to the University of Arkansas Little Rock. Within the Corridor Study Area, both Routes 2 and 16 have bus stops at Main Street and 17th Street in Little Rock, which is also a proposed streetcar station location along the Alternative 7 – Option A alignment.

All four of the bus routes within the Corridor Study Area begin at the River Cities Travel Center, which is located at the corner of Capitol Avenue and Cumberland Street, two blocks west of an Alternative 7 – Option A proposed streetcar station location at Main Street and 9th Street in Little Rock. The proposed streetcar stations at Main Street and 9th Street in Little Rock, Main Street and 17th Street in Little Rock, and Main Street and 22nd Street in North Little Rock could serve as mode transfer stations given their overlap with fixed-bus route stops.

Table 3-1 presents average annual and daily ridership for Routes 4 and 10 in North Little Rock and Bus Route 16 in Little Rock. Ridership for Route 2 in Little Rock is not presented in **Table 3-1** because CATA does not distinguish between ridership estimates on Route 2 and Route 1 (outside of the Corridor Study Area), which are interlined routes.

Table 3-1
2010 Bus Ridership within the Corridor Study Area

Bus Route	Adjacent Corridor Alternative	2010 Annual Ridership	2010 Average Daily Ridership ¹	Percent of Route in Study Area
Route 4	Alternative 6	94,136	262	20%
Route 10	Alternative 7 – Option A	251,225	700	35%
Route 16	Alternative 7 – Option A	158,207	441	25%

Source: CATA, 2010

(1) Based on 359 operating days (no operation on major holidays).

Existing Streetcar Service

The existing River Rail Streetcar (River Rail) line loops between the downtowns of Little Rock and North Little Rock and is connected by a segment of single-track over the Main Street Bridge spanning the Arkansas River. The streetcar operates bi-directionally within this segment. The first phase of the River Rail Streetcar system opened to the public in November 2004. In February 2007, the second phase of the River Rail Streetcar system began operation as an extension to the Clinton Presidential Library and Heifer International Headquarters. The total length of the River Rail line is approximately 3.4 miles, with 14 stations or platforms as shown in **Figure 3-3**. CATA estimates that 85% of the ridership on the River Rail Streetcar is tourist-based. Annual ridership on the River Rail Streetcar for the past few years is summarized in **Table 3-2**.

Table 3-2
River Rail Streetcar Existing Ridership

Year	Annual Ridership
2005	159,000
2006	121,000
2007	133,000
2008	112,578 1
2009	120,057
2010	107,079 ²

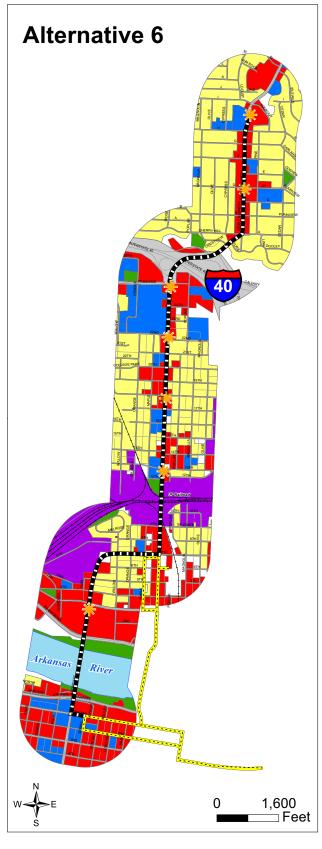
Source: CATA

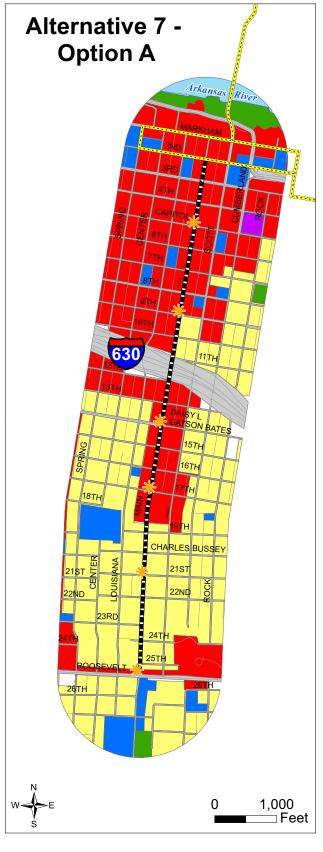
Notes (1) Decrease in ridership due to the economy and a decrease in events at the Robinson Center, the Verizon Arena, and River Market. (2) Decrease in ridership due to inclement weather, necessitating the shut-down of streetcar service.

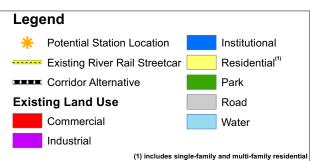
3.4 Existing Land Use

Existing land use was surveyed within a quarter-mile radius of each Corridor Alternative using data obtained from Metroplan. Field reviews were also conducted to generally confirm land use.

Alternative 6: As shown in Figure 3-4, existing land use immediately surrounding the length of the Alternative 6 alignment is predominantly commercial and residential. There are large areas of commercial land use in the Little Rock CBD, immediately north of the Arkansas River, and immediately south of I-40. The remaining predominant land use type surrounding the Alternative 6 alignment consists of residential use, which for the purposes of this analysis includes both single- and multi-family residences. Field reviews that were conducted confirmed a high concentration of single-family residences throughout the Park Hill Neighborhood north of I-40. There is also a large area of industrial land use located between approximately 9th Street to 12th Street and extends west, that is predominantly associated with the UP Railroad and maintenance yard. A summary of existing land use types surrounding Alternative 6 is presented in **Table 3-3**.









Alternative 7 – Option A: As shown in Figure 3-4, land use surrounding northern portion of the Alternative 7 – Option A alignment is predominantly commercial, accounting for the Little Rock CBD; and land use surrounding the southern portion of the alignment is predominantly residential, with some commercial immediately adjacent to the alignment. Field review noted several multi-family residential complexes adjacent to the Alternative 7 – Option A alignment scattered from 19th Street to Roosevelt Road. Additionally, numerous multi-level buildings throughout the Little Rock CBD are vacant and available for redevelopment (see Section 5 for additional discussion). A summary of existing land use types surrounding Alternative 7 – Option A is presented in Table 3-3.

Table 3-3
Existing Land Use Surrounding the Corridor Alternatives

Zinging Zuita Ost Sull outland the Collision interior						
Land Use	Alternative 6		Alternative 7 – Option A			
Type	Acres	Percent of Total	Acres	Percent of Total		
Commercial	262	22.4%	210	33.4%		
Industrial	119	10.2%	3	0.5%		
Institutional	102	8.7%	38	6.0%		
Park	30	2.6%	15	2.4%		
Residential	422	36.1%	249	39.6%		
Road	172	14.7%	105	16.7%		
Water	62	5.3%	9	1.4%		
Total	1,169	100%	629	100%		

Note: Acres shown include land use types within a 1/4 mile radius of each Corridor Alternative

3.5 Major Destinations / Traffic Generators

Phase One of the River Rail Airport Study highlighted major traffic generators primarily located east of I-30, such as the Little Rock National Airport, the William J. Clinton Presidential Center park, Heifer International, the Aerospace Education Center / Imax Theatre (which has since closed), and other major airport-related industries. For Phase Two, major destinations / traffic generators were surveyed near the Corridor Alternatives (generally within a quarter-mile radius). Because the Corridor Alternative alignments extend into more community oriented areas of Little Rock and North Little Rock, major destinations / traffic generators identified were extended beyond major industries to include neighborhood destinations such as grocery stores, community centers, restaurants, etc. **Table 3-4** lists major destinations / traffic generators near each Corridor Alternative as identified from the following sources: 1) Metroplan, 2) public input obtained from the April 2011 public meeting survey and comment form, and 3) field reviews. The list of major destinations, neighborhood destinations and traffic generators in **Table 3-4** is not meant to be comprehensive, but is instead designed to give a general understanding of primarily community-oriented destinations located within close proximity of the Corridor Alternatives.

Table 3-4
Major Destinations, Neighborhood Destinations and Traffic Generators

Name of Destination	Alternative 6	Alternative 7 –	
		Option A	
Lakehill Shopping Center	<u> </u>		
Park Hill Elementary School	<u> </u>		
Park Hill Baptist Church	√ 		
Park Hill Historic District	√ 		
Holiday Inn North	√		
William F. Laman Public Library	V		
North Little Rock Community Center	√		
Patrick Henry Hays Senior Center	√		
Budgetel Inn & Suites	$\sqrt{}$		
North Little Rock Police Department	$\sqrt{}$		
(Administration)			
Best Western JFK Inn & Suites	√ 		
North Little Rock High School West Campus	V		
Full Counsel Ministries Metro Church and	$\sqrt{}$		
Preparatory Academy	1		
Argenta Academy	<u> </u>		
Argenta Market	<u> </u>		
Argenta Library	<u> </u>		
Baker House Bread and Breakfast	<u> </u>		
North Little Rock Police Sub Station	<u> </u>		
North Little Rock City Hall	√ 		
Ump's Pub and Grill	√		
Dickey Stephens Ballpark	√		
Verizon Arena	√		
Arkansas Sports Hall of Fame	√		
North Little Rock City Services			
Wyndam Riverfront Hotel	$\sqrt{}$		
Faucette Brothers Park	$\sqrt{}$		
Riverfront Park – North Shore Riverwalk	$\sqrt{}$		
Arkansas River Trail Head and Bike Rental			
Arkansas Inland Maritime Museum	V		
Arkansas Queen Riverboat	V		
USS Razorback Submarine	V		
Little Rock City Hall	V	V	
Robinson Auditorium			
Old State House			
Peabody Hotel / Statehouse Convention Center	V	V	
Pulaski County Courthouse	1	1	
River Market		N N	
	V	N N	
Central Arkansas Library		V	

Table 3-4
Major Destinations, Neighborhood Destinations and Traffic Generators

Name of Destination	Alternative 6	Alternative 7 – Option A
Porter's Jazz Café ¹		√ √
Historic Arkansas Museum		V
EStem Charter School		V
River Cities Travel Center		V
Downtown Music Hall and Record		V
Lulav Restaurant		V
The Public Theatre		V
Arkansas Repertory Theatre		V
Arkansas Department of Human Services		V
Ciao Italian Restaurant		V
Masonic Lodge		V
Fuller and Sons Hardware		V
Besser Do It Best Hardware and Rental		V
Community Bakery		V
EZ Mart		V
Villa Marre		V
South Main Residential Historic District		V
Nayles Medical Center		V
The Bernice Garden		V
15 th Street Community Garden		
The Green Corner Store		V
The Root Café		
Arkansas Department of Workforce Services		
USA Drug		
Post Office at 17 th Street		
Edwards Food Giant		
Governor's Mansion		V
Martin Mahlon Apartments		V
The Empress of Little Rock		
Cumberland Manor / Metropolitan Village Apartment Homes		

Sources: Metroplan research, field review, and public input from the public meeting survey and comment for that is included in the *River Rail Airport Study Phase Two Public Meeting Record* (URS Corporation, May 2011).

Note: (1) Currently under construction along Main Street in the Little Rock CBD.

3.6 Demographics

Population, Minority, and Low Income

Both Little Rock and North Little Rock have experienced changes in population since year 1990. Regional and city-wide population data for years 1990, 2000 and 2010 were collected from the U.S Census Bureau and are summarized in **Table 3-5.**

Table 3-5
Regional and City Population Trends: 1990 to 2010

	Population			Percent	Percent
Location	1990	2000	2010	Change 1990- 2000	Change 2000- 2010
Arkansas	2,350,725	2,673,400	2,915,918	13.73%	9.07%
Pulaski County	349,660	361,474	382,748	3.38%	5.89%
Little Rock	175,795	183,133	193,524	4.17%	5.67%
North Little	61,741	60,433	62,304	-2.12%	3.10%

Source: U.S. Census Bureau, Summary File 1, 1990, 2000 and 2010.

The population of Arkansas, Pulaski County, and the City of Little Rock increased between 1990 and 2010. The City of North Little Rock, however, experienced a slight decrease in population from 1990 to 2000, but increased in population from 2000 to 2010.

Within the Corridor Study Area, 2010 population, race, and ethnicity data were collected for the Census blocks located within a quarter-mile radius of each Corridor Alternative. These project-level data, along with regional and city-wide race and ethnicity data, are presented in **Table 3-6** on the following page.

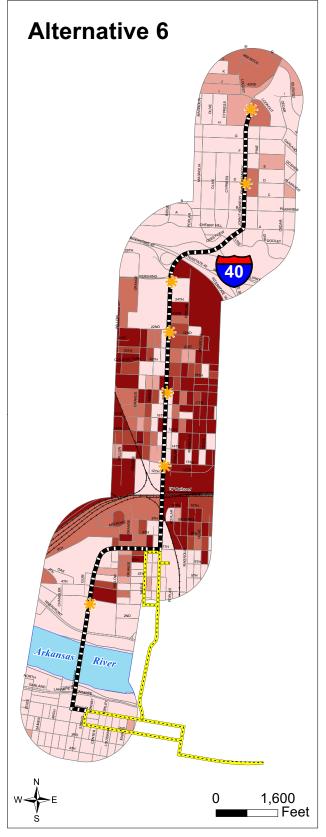
As shown in **Table 3-6**, 2010 racial minority percentages of 53.3% and 48.4% were reported for the Cities of Little Rock and North Little Rock, respectively. At the project-level, a 2010 racial minority percentage of 40.3% was reported within a quarter-mile radius of Alternative 6; and a racial minority percentage of 56.8% was reported within a quarter-mile radius of Alternative 7 – Option A. **Figure 3-5** depicts the composition of minority population within a quarter-mile radius of each Corridor Alternative, with the highest percentage of minority population concentrated from 7th Street to I-40 in North Little Rock and from 19th Street to south of Roosevelt Road in Little Rock.

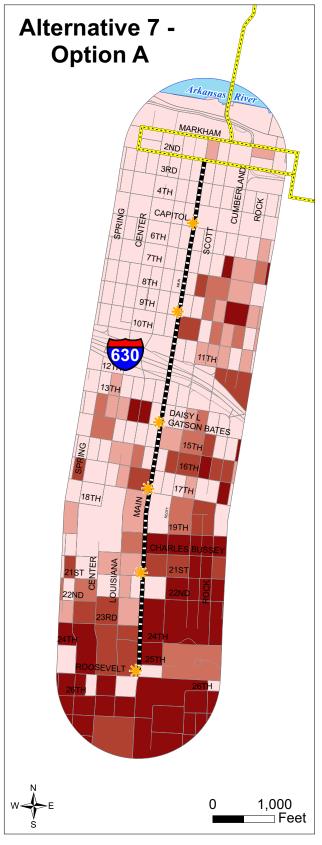
Table 3-6 2010 Population, Race, and Ethnicity

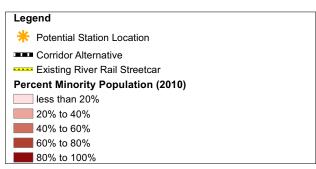
Category	Arkansas		Pulaski County		Little Rock		North Little Rock		Census Blocks within a ¼ Mile Radius of the Corridor Alternatives ¹			
									Alternative 6		Alternative 7 - Option A	
Total Population	2,915,918		382,748		193,524		62,304		6,143		4,105	
Race and Ethnic Origin	No.	0/0	No.	%	No.	%	No.	%	No.	%	No.	%
White Alone	2,173,469	74.5%	211,697	55.3%	90,297	46.7%	32,126	51.6%	3,670	59.7%	1,775	44.4
Black or African American Alone	447,102	15.3%	133,242	34.8%	81,572	42.2%	24,648	39.6%	1,971	32.1%	2,101	51.2%
American Indian and Alaskan Native Alone	20,183	0.7%	1,267	0.3%	519	0.3%	209	0.3%	21	0.3%	13	0.3%
Asian Alone	35,647	1.2%	7,425	1.9%	5,098	2.6%	571	0.9%	55	0.9%	39	1.0%
Native Hawaiian and Other Pacific Islander Alone	5,509	0.2%	155	0.04%	54	0.03%	37	0.1%	1	0.02%	3	0.1%
Some Other Race Alone	2,121	0.1%	515	0.1%	277	0.1%	70	0.1%	15	0.2%	4	0.1%
Two or More Races	45,837	1.6%	6,279	1.6%	2,631	1.4%	1,086	1.7%	107	1.7%	57	1.4%
Hispanic or Latino	186,050	6.4%	22,168	5.8%	13,076	6.8%	3,557	5.7%	303	4.9%	113	2.8%
Total Racial Minority ²	742,449	25.5%	171,051	44.7%	103,227	53.3%	30,178	48.4%	2,473	40.3%	2,330	56.8%

Source: U.S. Census, 2010

Notes: (1) See Figure 3-5 for Census blocks within a quarter-mile of the Corridor Alternatives. (2) Racial Minority = Black or African American alone, American Indian and Alaskan Native alone, Asian alone, Native Hawaiian and Other Pacific Islander alone, Some Other Race alone, Two or More Races, and Hispanic or Latino.









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Figure 3-5
Percent Minority within a Quarter-Mile
Radius of the Corridor Alternatives

At the time of this Phase Two Study, 2010 low-income data has not yet been released by the U.S. Census Bureau; therefore, low-income data presented in this Phase Two Study is based on Census 2000 percent below poverty level statistics at the block group level (block groups used were those delineated in the 2010 Census redistricting). In 2000, 19% of the population within a quarter-mile radius of Alternative 6 was low-income; and 32% of the population within a quarter-mile radius of Alternative 7 - Option A was low-income. **Figure 3-6** depicts the composition of low-income population within a quarter-mile radius of each Corridor Alternative, with the highest percentages of low-income population concentrated between 7th Street to I-40 in North Little Rock; and through the CBD, south of Roosevelt Road, and south of 17th Street to the west of the Alternative 7 - Option A alignment in Little Rock. It should be noted that, because **Figure 3-6** was developed using 2000 Census data, it does not reflect the current low-income demographic within the Corridor Study Area.

Employment

Table 3-7 presents an estimate of employees within a quarter-mile radius of each Corridor Alternative. Employee estimates are broken down into three employment types: basic, retail, and service. Basic employment is defined as agriculture, forestry, fishing, hunting, mining, construction, manufacturing, utilities, transportation, warehousing, and wholesale trade. Retail employment is defined as retail (establishments that sell merchandise), accommodations, and food service. Service employment is defined as finance, insurance, real estate, information services, professional services, scientific services, technical services, administrative support, health care, arts and entertainment, public administration, and management.

Table 3-7
Estimated Employees within a Quarter-Mile of the
Corridor Alternatives

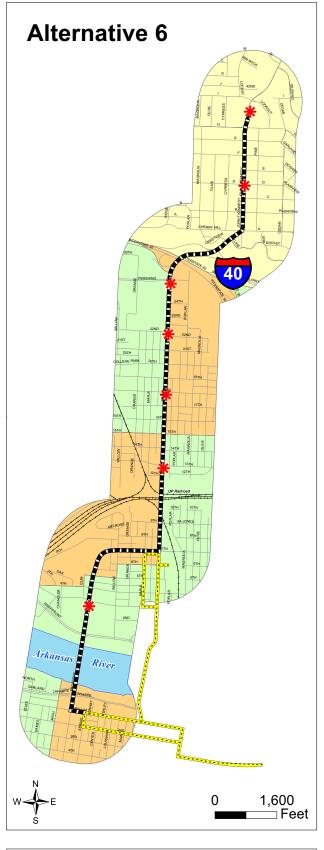
Employment Type	Alternative 6	Alternative 7 – Option A
Basic Employment	802	566
Retail Employment	1,810	594
Service Employment	9,756	10,719
Total Employment	12,368	11,879

Source: Metroplan, 2010

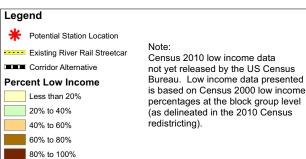
3.7 Environmental Resources

Cultural and Architectural Resources

According to the *Little Rock River Rail Streetcar Project – Phase II Historic Properties Review*, 2002, 'there are 248 historic properties listed on the National Register of Historic Places (NRHP) for Pulaski County. Most of Pulaski County's National Register properties are located in Little Rock and North Little Rock. Several historic districts located within the Corridor Study Area include the following:









River Rail Airport Study Phase Two

Figure 3-6
Percent Low Income within a Quarter-Mile
Radius of the Corridor Alternatives

- Park Hill Historic District;
- Park Hill Fire Station and Water Company Complex;
- Argenta Historic District;
- East Markham Street Historic District;
- Tuf Nut Historic Commercial District;
- MacArthur Park Historic District;
- Governor's Mansion Historic District;
- South Main Street Apartments Historic District; and
- South Scott Street Historic District.

Figure 3-1 shows many of the above historic districts located within the Corridor Study Area.

Hazardous Sites

A preliminary investigation was conducted to determine the potential hazardous materials sites within proximity to the Corridor Study Area. A review of available records maintained by the Environmental Protection Agency (EPA) and the Arkansas Department of Environmental Quality (ADEQ) was conducted by searching on-line databases maintained by these two regulatory agencies. Databases were reviewed in June 2011. Several regulated facilities were identified on properties within the Corridor Study Area, as well as the study area for the Phase One Study. The findings are summarized in **Appendix B.**

4.0 CONCEPTUAL STREETCAR ALTERNATIVES

4.1 Planning Considerations

Several planning and conceptual design features were considered in the development of the Phase Two Study streetcar alternatives. These features included such items as:

Ridership – Consider the needs of minority and transit-dependent populations, and their locations with regard to the proposed alignments.

Travel Time – On-street parking may adversely impact streetcar travel time. Evaluate ways to optimize travel time while maintaining existing parking.

Interface with Existing Transportation Facilities – Consider interface with existing fixed-bus routes, bus stops, and connection to the River Cities Travel Center. Connections to existing bike routes have also been considered. For the purposes of the report, the terms stops, stations, and platforms are used interchangeably.

Existing Roadway Features – Identify existing roadway features particularly with regard to vertical geometry (such as steep grades) that may negatively impact streetcar operating conditions. Roadway typical sections including the width of existing travel lanes and parking lanes were considered.

Proposed Roadway and Bridge Improvement Projects – Evaluate the streetcar alignments relative to planned projects such as the Broadway Bridge replacement and Main Street Viaduct replacement.

System Compatibility – Must account for the cost of required improvements to the existing River Rail tracks and switching platforms.

Future Land Use – Account for on-going and future redevelopment and future transit oriented development (TOD) potential within walking distance of the streetcar extension alignments.

4.2 Description of Corridor Alternatives

As previously described in **Section 2.4**, Alternative 6 was selected as the North Little Rock Corridor Alternative and Alternative 7 – Option A was selected as the Little Rock Corridor Alternative following a Tier I screening of the Universe of Alternatives. For evaluation purposes, the Corridor Alternative alignments were divided into segments based on existing roadway features along the proposed streetcar routes. The Corridor Alternative alignments are presented in a 1"=200' scale Map Atlas which is included within **Appendix C**. The Map Atlas depicts each Corridor Alternative alignment by segment, and also displays existing features and redevelopment potential along each alignment (see **Section 5.2**), as well as transit oriented development potential near each proposed streetcar station (see **Section 5.3**).

The following is a description of each Corridor Alternative and Operating Scenario. This section describes alternatives for additional track, overhead power supply, and passenger stops. The alternatives will allow for different operating scenarios, i.e., different ways of routing vehicles on the track network. Operating scenarios are described in **Chapter 7**.

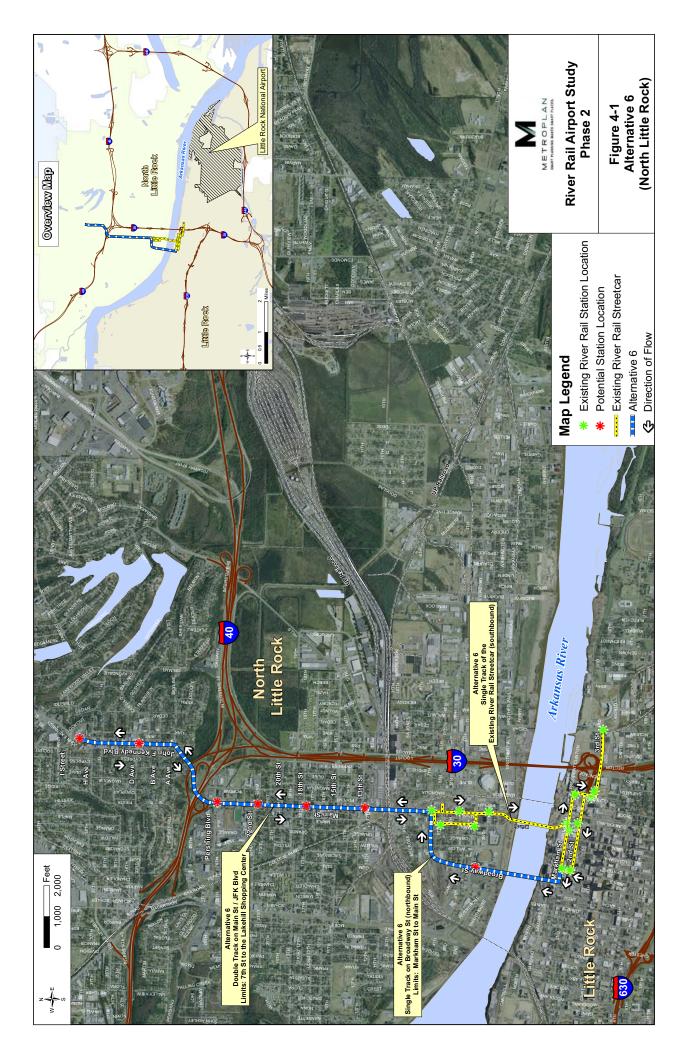
North Little Rock Corridor Alternative

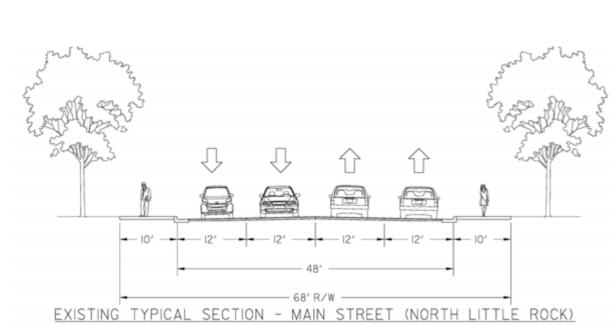
Alternative 6: As shown in Figure 4-1, the Alternative 6 alignment extends west along Markham Street from the existing River Rail Streetcar at the corner of Markham Street and 2nd Street in Little Rock. It then travels north, crossing the Arkansas River via the Broadway Bridge and continues north along Main Street / John F. Kennedy Boulevard through North Little Rock into the Park Hill Neighborhood. Alternative 6 includes both single and double-track alignment; one-way directional, single-track on Broadway Street / 7th Street and double-track on Main Street / John F. Kennedy Boulevard. It is assumed that Alternative 6 would initially utilize new one-way directional, single-track alignment along the Broadway Bridge for northbound streetcar travel across the Arkansas River on the Main Street Bridge. As noted later in this study, the AHTD will be replacing the Broadway Bridge with a new structure. AHTD will be considering whether to design and build the bridge with single track or double track provisions. The bridge will have an expected life of fifty years or more, and the design criteria for the bridge will take into account its uses over the lifespan. This study is focused on the near term priorities for streetcar expansion. Double track may be very beneficial if there is significant new urban development west of Broadway along Riverfront Drive and Pike Avenue. However, the existing and short-term development trends are generally along a north-south axis and not to the west. Therefore, the short-term recommendation is to consider only one-way track on the Broadway Bridge, as that is what is needed to provide more service along the north-south axis.

Southbound streetcar travel across the Arkansas River would utilize the exclusive two-way directional, single-track of the existing River Rail Streetcar. **Figure 4-2** and **Figure 4-3** depict existing roadway typical sections and proposed roadway typical sections that incorporate streetcar track for portions of the Alternative 6 alignment. **Figure 4-2** illustrates how the existing four-lane roadway with adjacent sidewalks on Main Street (between 13th Street and 22nd Street) in North Little Rock would incorporate in-street running, double-track streetcar within the outside travel lanes that would result in a shared lane with vehicular traffic. **Figure 4-3** illustrates how the existing four-lane roadway with raised median and adjacent sidewalks along John F. Kennedy Boulevard (from A Avenue to D Avenue) in the Park Hill Neighborhood of North Little Rock would incorporate in-street running, double- track streetcar within the outside travel lanes that would result in a shared lane with vehicular traffic.

Segment details of Alternative 6 are described below. See the *Map Atlas in Appendix C*, *Figures A-1 through A-9* that contain 1"=200" scale maps of the proposed Alternative 6 alignment.

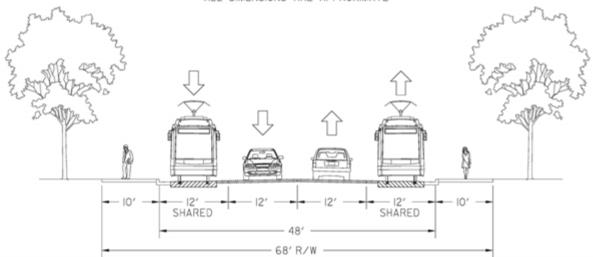
• **Segment 1** extends from Spring Street to Broadway Street on Markham Street. Markham Street at this location is a 2-lane roadway with designated turn lanes. Alternative 6 along Segment 1 would be single-track and in-street running. A track switch at the corner of Spring Street and Markham Street would transition streetcar travel from northbound on





BETWEEN 13th ST. AND 22nd ST.

ALL DIMENSIONS ARE APPROXIMATE



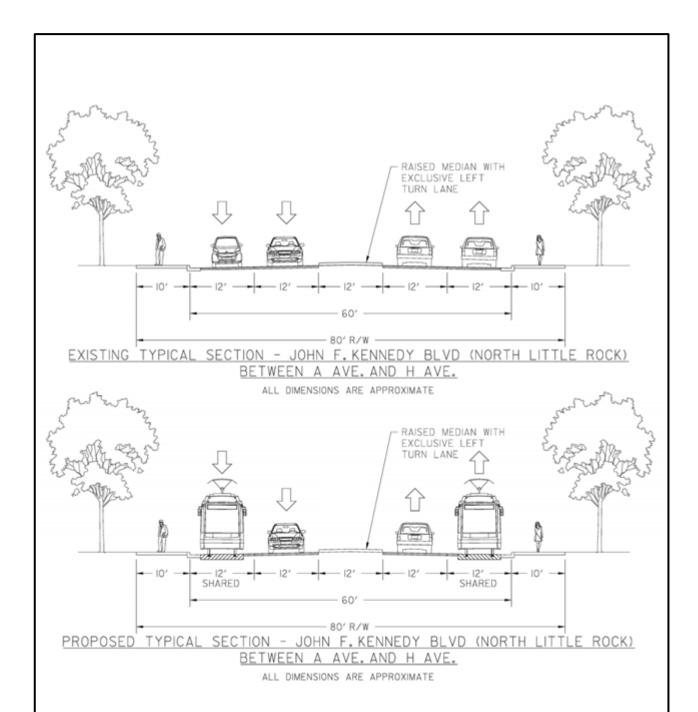
PROPOSED TYPICAL SECTION - MAIN STREET (NORTH LITTLE ROCK) BETWEEN 13th ST. AND 22nd ST.

ALL DIMENSIONS ARE APPROXIMATE



River Rail Airport Study Phase 2

Figure 4-2 **Main Street Typical Section** (North Little Rock)





River Rail Airport Study Phase 2

Figure 4-3 John F Kennedy Typical Section (North Little Rock) Spring Street as part of the existing River Rail streetcar loop in Little Rock to westbound on Markham Street. Segment 1 includes an existing signalized intersection at Spring Street and Markham Street.

- Segment 2 extends from Markham Street to 3rd Street on Broadway Street. Broadway Street at this location is a 4-lane, grade separated roadway. This segment includes Alternative 6 traversing the Arkansas River across the Broadway Bridge. The existing Broadway Bridge is planned to be replaced in the near future due to age and deterioration. For purposes of this study, it is assumed that the Broadway Bridge design would incorporate features in the bridge deck to allow for a single-track rail line. The Broadway Bridge replacement project is in the early stages of development and details of the track location and direction will be refined as a part of the engineering study being administered by the Arkansas Highway and Transportation Department project. The bridge study will take into account the potential for including two directions of track on the bridge, as the 50-year life span of the bridge extends beyond the forecast period for this streetcar study. Expansion of streetcar service to the west toward Pike Avenue and potential mixed-use development might warrant a double-track section on the new bridge at some point in the future. Segment 2 includes an existing signalized intersection at Markham Street and Broadway Street.
- **Segment 3** extends from 3rd Street to 5th Street on Broadway Street. Broadway Street at this location is a 3-lane roadway (two southbound lanes and one northbound lane). Alternative 6 along Segment 3 would be single-track and in-street running. Segment 3 includes an existing signalized intersection at Broadway and 3rd Street.
- **Segment 4** extends from 5th Street to Willow Street on Broadway Street / 7th Street. Traveling north from 5th Street, Broadway Street curves to the east and transitions into 7th Street. Broadway Street from 5th Street to the curve is a 3-lane roadway (two southbound lanes, one northbound lane); and from the curve to Willow Street is a 2-lane roadway. Alternative 6 along Segment 4 would be single-track and in-street running.
- **Segment 5** extends from Willow Street to Maple Street on 7th Street. Seventh Street at this location is a 2-lane roadway. Alternative 6 along Segment 5 would be single-track and in-street running.
- **Segment 6** extends from Maple Street to Main Street on 7th Street. Seventh Street at this location is a 2-lane roadway with designated turn lanes. The eastbound travel lane currently includes the existing River Rail Streetcar alignment, which is single-track for eastbound streetcar travel from Main Street to Maple Street. Segment 6 includes an existing signalized intersection at 7th Street and Maple Street.
- **Segment 7** extends from 7th Street to 8th Street on Main Street. At the corner of Main Street and 7th Street, streetcar travel would shift from westbound travel on 7th Street to northbound travel on Main Street. Main Street at this location is a 4-lane roadway. Alternative 6 along Segment 7 would be double-track and in-street running. Segment 7 includes an existing signalized intersection at Main Street and 7th Street.

- **Segment 8** extends from 8th Street to 13th Street on Main Street. Main Street at this location is a 4-lane, grade separated roadway that traverses the UP Railroad. The current structure is in need of replacement. Although it once carried streetcar tracks, it is not likely that the current bridge could be modified to have tracks in a mixed-traffic configuration. The City of North Little Rock is conducting a feasibility study to replace the Main Street Viaduct. This study will develop preliminary engineering recommendations on how to accommodate streetcar track on a new overpass. Alternative 6 along Segment 8 would be double-track and in-street running. Segment 8 includes an existing signalized intersection at Main Street and 8th Street.
- **Segment 9** extends from 13th Street to Pershing Boulevard on Main Street. Main Street at this location is a 4-lane roadway. Alternative 6 along Segment 9 would be double-track and in-street running. Segment 9 includes existing signalized intersections on Main Street at 13th Street, 18th Street, and 22nd Street.
- **Segment 10** extends from Pershing Boulevard to the I-40 westbound entrance ramp on John F. Kennedy Boulevard. John F. Kennedy Boulevard at this location is a 4-lane, grade separated roadway. This segment includes Alternative 6 traversing I-40. Alternative 6 along Segment 10 would be double-track and in-street running. Segment 10 includes an existing signalized interchange at John F. Kennedy Boulevard and Pershing Boulevard.
- **Segment 11** extends from the I-40 westbound entrance ramp to H Avenue on John F. Kennedy Boulevard. John F. Kennedy Boulevard at this location is a 4-lane, median divided roadway with a raised median. Alternative 6 along Segment 11 would be double-track and in-street running. Segment 11 includes signalized intersections at John F. Kennedy Boulevard and the I-30 and I-40 exit ramps onto John F. Kennedy Boulevard (just north of the I-40 westbound entrance ramp); John F. Kennedy Boulevard and A Avenue; and John F. Kennedy Boulevard and D Avenue.
- **Segment 12** extends from H Avenue to the Lakehill Shopping Center (located between H Avenue and I Avenue) on John F. Kennedy Boulevard. John F. Kennedy Boulevard at this location is a 4-lane roadway. Alternative 6 along Segment 12 would be double-track and in-street running. The Lakehill Shopping Center would serve as the northern terminus for Alternative 6. A proposed neighborhood station is proposed in the parking lot of the Lakehill Shopping Center, which is described in greater detail in **Section 4.4**. Segment 12 includes an existing signalized interchange at John F. Kennedy Boulevard and H Avenue.

Little Rock Corridor Alternative

Alternative 7 – Option A: As shown in Figure 4-4, the Alternative 7 – Option A alignment extends from the existing River Rail Streetcar at the corner of Main Street and 2^{nd} Street, traveling south on Main Street through the Little Rock CBD and south of I-630 towards Roosevelt Road. Alternative 7 – Option A includes both single-track and double-track

alignment; double-track is proposed on Main Street from 2nd Street to 19th Street and two-way directional, single-track is proposed on Main Street from 19th Street to Roosevelt Road.

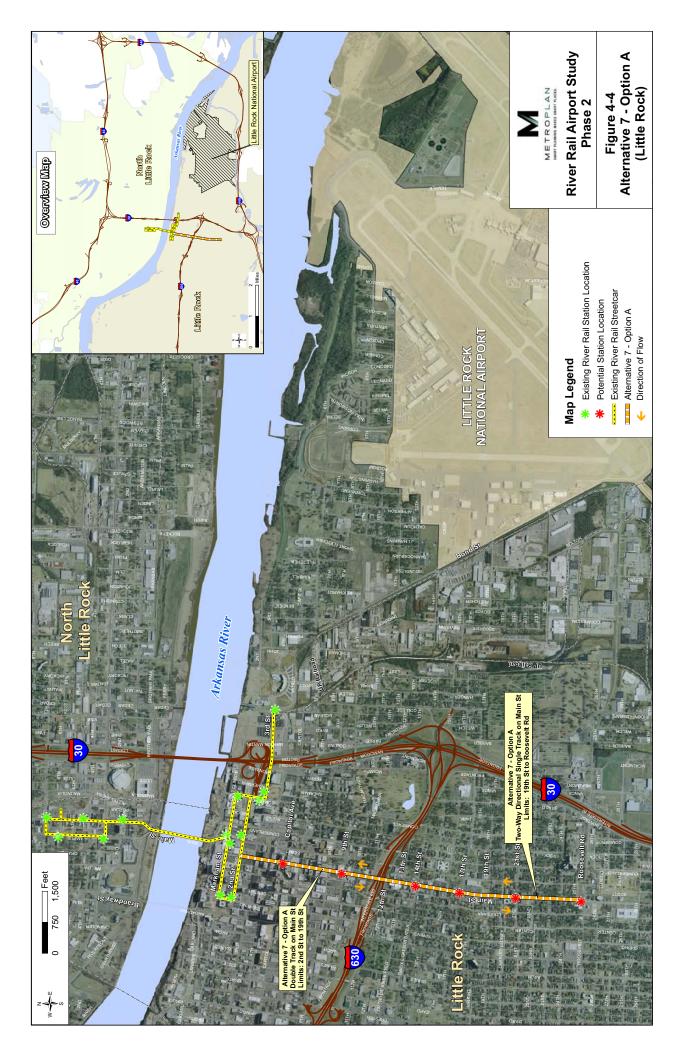
Figure 4-5 and **Figure 4-6** depict existing roadway typical sections and proposed roadway typical sections that incorporate streetcar track for portions of the Alternative 7 – Option A alignment. **Figure 4-5** illustrates how the existing two-lane roadway with parking and adjacent sidewalks on Main Street (between 3rd Street and 7th Street) would incorporate an in-street running, double-track streetcar within the travel lanes that would result in shared lanes with vehicular traffic. **Figure 4-3** illustrates how the existing four-lane roadway with parking and adjacent sidewalks along Main Street (from 19th Street to Roosevelt Road) would incorporate a one-way directional, single-track streetcar into the outside southbound travel lane dedicated for use by the streetcar.

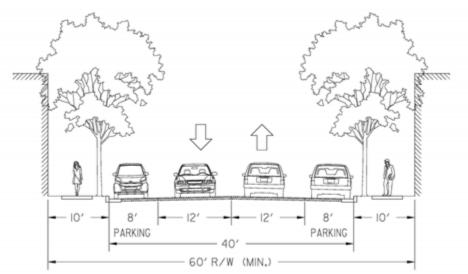
The City of Little Rock has indicated a desire for this alternative to consist of single-track in the center of the street, with passing sections or sidings, between 2nd Street and 19th Street. While this may be possible in some sections, the detailed design and operational considerations are beyond the scope of this study. The use of such sections would be the focus of a Value Engineering study, which is a normal part of the Preliminary Engineering portion of a project.

For the purposes of this study, a conventional double-track in mixed traffic is assumed for the northern portions which are comprised of two-lane segments, bump-outs to restrict pavement width at intersections, and heavily-used on-street parking lanes.

Segment details of Alternative 7 – Option A are described below. Also see the *Map Atlas in Appendix C*, *Figures B-1 through B-6* that contain 1"=200" scale maps of the proposed Alternative 7 – Option A alignment.

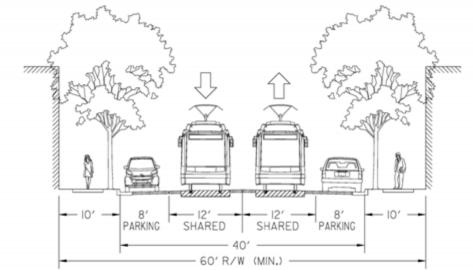
- **Segment 1** extends from 2nd Street to 3rd Street on Main Street. Main Street at this location is a 2-lane roadway with designated turn lanes. On-street parking exists within this segment of Main Street. Alternative 7 Option A along Segment 1 would be double-track and in-street running. A track switch at the corner of Main Street and 2nd Street would transition streetcar travel from westbound on 2nd Street to southbound on Main Street. Segment 1 includes an existing signalized intersection at Main Street and 2nd Street.
- **Segment 2** extends from 3rd Street to 7th Street on Main Street. Main Street at this location is a 2-lane roadway. On-street parking exists within this segment of Main Street. Segment 2 includes an elevated walkway approximately 70 feet north of 7th Street. Alternative 7 Option A along Segment 2 would be double-track and in-street running. Segment 2 includes signalized intersections at the following locations: Main Street at 3rd Street, Main Street at 4th Street, Main Street at Capitol Avenue, and Main Street at 6th Street.





EXISTING TYPICAL SECTION - MAIN STREET (LITTLE ROCK) BETWEEN 3rd ST. AND 7th ST.

ALL DIMENSIONS ARE APPROXIMATE



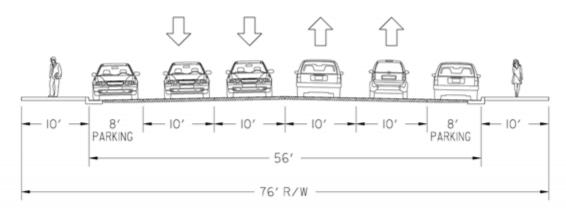
PROPOSED TYPICAL SECTION - MAIN STREET (LITTLE ROCK)
BETWEEN 3rd ST. AND 7th ST.

ALL DIMENSIONS ARE APPROXIMATE



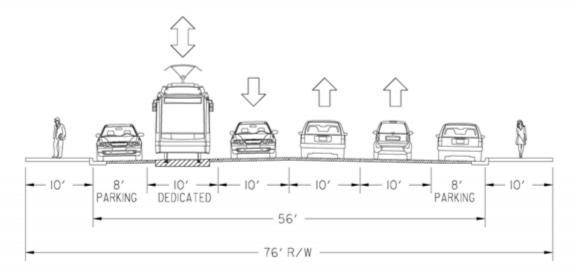
River Rail Airport Study Phase 2

Figure 4-5
Main Street Typical Section 1
(Little Rock)



EXISTING TYPICAL SECTION - MAIN STREET (LITTLE ROCK) BETWEEN 19th ST. AND ROOSEVELT RD.

ALL DIMENSIONS ARE APPROXIMATE



PROPOSED TYPICAL SECTION - MAIN STREET (LITTLE ROCK) BETWEEN 19+h ST. AND ROOSEVELT RD.

ALL DIMENSIONS ARE APPROXIMATE



River Rail Airport Study Phase 2

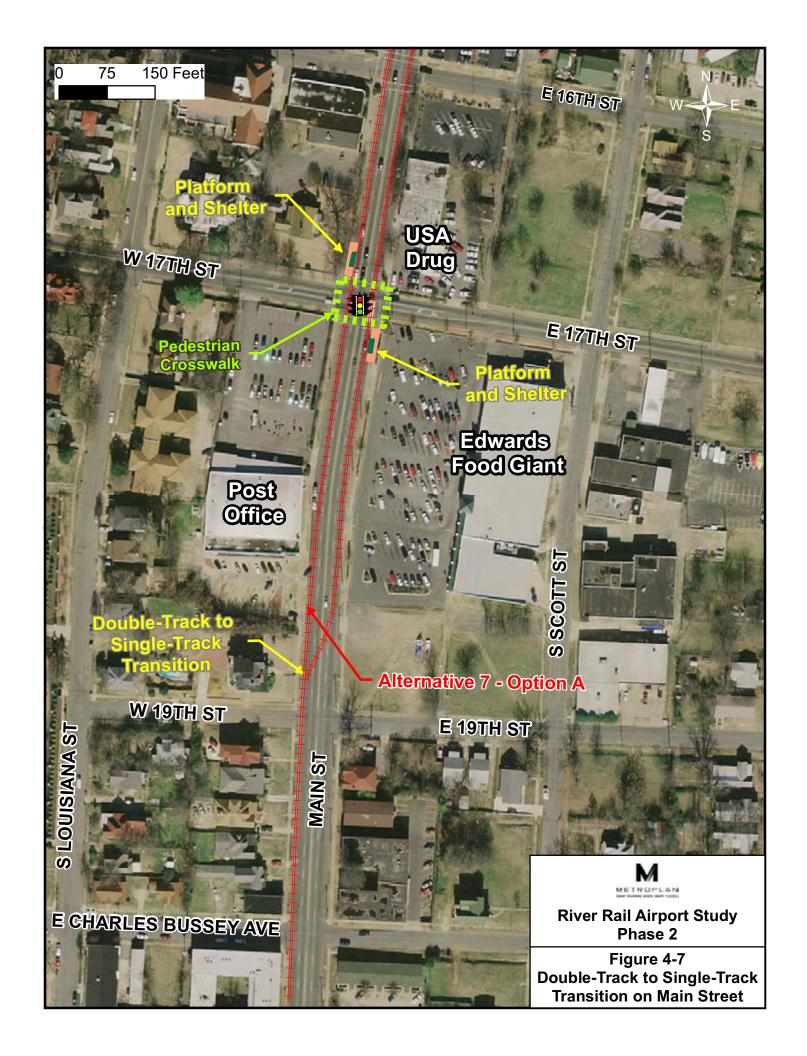
Figure 4-6
Main Street Typical Section 2
(Little Rock)

- **Segment 3** extends from 7th Street to 11th Street on Main Street. Main Street at this location is a 4-lane roadway. On-street parking exists within this segment of Main Street. Segment 3 includes an elevated walkway approximately 180 feet south of 7th Street. Alternative 7 Option A along Segment 3 would be double-track and in-street running. Segment 3 includes signalized intersections at the following locations: Main Street at 7th Street, Main Street at 8th Street, and Main Street at 9th Street.
- **Segment 4** extends from 11th Street to 12th Street on Main Street. Main Street at this location is a 4-lane, grade separated roadway with designated turn lanes. This segment includes Alternative 7 Option A traversing I-630. Alternative 7 Option A along Segment 4 would be double-track and in-street running. Segment 4 includes an existing signalized intersection at Main Street and 11th Street.
- **Segment 5** extends from 12th Street to 19th Street on Main Street. Main Street at this location is a 4-lane roadway with on-street parking. Alternative 7 Option A along Segment 5 would be double-track and in-street running. Segment 5 includes signalized intersections at the following locations: Main Street at 12th Street, Main Street at Daisy L. Gatson Bates Drive, and Main Street at 17th Street.
- **Segment 6** extends from 19th Street to south of 25th Street (near Roosevelt Road) on Main Street. Main Street at this location is a 4-lane roadway that transitions to a 2-lane roadway with widening near Roosevelt Road. On-street parking is available along the majority of Segment 6. Alternative 7 Option A would be a two-way directional, single-track alignment exclusively located within the outside southbound travel lane of Main Street. An existing signalized intersection is located at Main Street and Roosevelt Road. A conceptual layout of the proposed double-track to single-track transition south of 19th Street is graphically shown in **Figure 4-7**.

A summary of the lengths of each of the Corridor Alternatives is presented in **Table 4-1**.

Table 4-1
Estimated Length of Corridor Alternatives

Category	Alterna	ative 6	Alternative 7 – Option A					
Estimated Length of New Segment	Length (miles)	% of Total	Length (miles)	% of Total				
Single-track	1.14	32%	0.42	27%				
Double-track	2.37	68%	1.15	73%				
New Segment	3.51	100%	1.57	100%				



Public Comments on Bike Facilities

As part of the August 2011 public meeting, meeting attendees and comments received indicated that: 1) bike facilities should be included in the streetcar extension planning process and 2) bike safety needs to be addressed. In response to the first comment, currently neither Main Street nor John F. Kennedy Boulevard is a designated bike lane or bike route within the North Little Rock Bicycle Plan (September 2010); however, "the goal of the plan is to transform the community to allow cycling to become a viable alternative to the automobile for many trip purposes." As contained within the City of Little Rock Master Street Plan (2009), Main Street between 17th Street to south of Roosevelt Road is designated as a Class III Bicycle Route. A Class III Bicycle Route is defined as a route designated with signs for bicycle use, but shared with motorized vehicles. No other portion of Main Street is a designated bike route relative to the Little Rock Corridor Alternative. Frequent updates to reclassify bike routes and to add new bike routes to the street network is intended as part of the Bike Plan component of the Master Street Plan. In order to integrate bikes along the proposed streetcar Corridor Alternative routes, each of the cities would have to update their bike plans. However, prior to formally incorporating Main Street and John F. Kennedy Boulevard as bike routes, roadway design standards would need to be evaluated. Engineering factors that would need to be considered include existing right-of-way width, width of travel lanes, turn lanes, parking provisions, sidewalks, and utility locations, among other factors. For both cities, design guidelines would need to be established towards integrating bikes and streetcars within the same corridor.

Safety concerns between streetcars and bikes were also brought up by the public. The main safety reasons cited included bicycle tires getting caught in the gap of the streetcar track flange and crossing the streetcar track at an angle less than 90 degrees. Safety issues related to the interaction of bicycles and streetcar track should be studied in the future if additional phases of the River Rail Airport Study are implemented.

Public Comments on Alignment Modifications

The following alignment modifications were suggested by commenters as part of the August 2011 public meeting, discussed in **Section 2.5**:

- For Alternative 6, eliminate the proposed alignment on the Broadway Bridge and instead double track the Main Street Bridge, thus keeping the Broadway Bridge for vehicular traffic only. Then, convert the Main Street Bridge to a three lane bridge for vehicular traffic with the center lane being "reversible" for directional peak-hour vehicular travel.
- For Alternative 6, utilize 3rd Street / West Broadway Street instead of 7th Street for streetcar travel from Broadway Street west to the existing River Rail.
- For Alternative 7 Option A, incorporate additional streetcar track on Capitol Avenue from Main Street to Broadway Street, then traveling north to Markham Street and turning east to Spring Street.

• For Alternative 7 – Option A, have the alignment travel south on Louisiana Street from the existing River Rail to 9th Street, east on 9th Street to Main Street, and continue south on Main Street to Roosevelt Road.

Consideration was given to numerous streetcar alignments as part of the Universe of Alternatives development and evaluation process. While some of the above suggested alignment modifications may be viable options, the Universe of Alternatives, and subsequent Corridor Alternatives selection process, was based on a multi-tiered and stringent evaluation methodology that included SSC input, guidance, and approval; public input as part of the April 2011 public meetings on the Universe of Alternatives; and a Tier I screening evaluation that considered numerous aspects of streetcar alignment functionality and practicality. The suggested streetcar alignment modifications could be studied in the future if additional phases of the River Rail Airport Study are implemented.

4.3 Potential Station Areas

Station Location Selection

The proposed streetcar stations locations were selected to serve populations at trip origins and destinations. A combination of factors was considered when determining potential streetcar station locations along the Corridor Alternative alignments. Such factors included preference for stations to be located at major employment and population centers, at major intersections that provide direct vehicle, bike, and/or pedestrian access to major activity and population centers, and/or at major public and private institutions and special event centers.

Connections between the proposed streetcar transit system and major existing bus routes were also considered. Convenient transit connections would enable bus and streetcar riders to commute between jobs and destinations throughout Little Rock and North Little Rock.

Streetcar station locations were selected as part of the Universe of Alternatives analysis process. Potential station sites were presented to the public as part of the April 2011 public meetings. Comments on the proposed station locations, as well as suggestions for alternative preferred station locations were made. The SSC also provided input on the location of the proposed streetcar stops or stations.

Based on public and SSC input, seven streetcar locations are proposed along the Alternative 6 alignment, as shown in **Figure 4-1**, and six streetcar locations are proposed along the Alternative 7 – Option A alignment, as shown in **Figure 4-4**. These potential station locations are all anticipated to be neighborhood, walk-up stations. Where the streetcar alignment is single-track, a single walk-up station would be located adjacent to the alignment; and where the streetcar alignment is double-track, a walk-up station would be located on each side of the northbound and southbound alignments. Each proposed streetcar station location is described below.

North Little Rock Corridor Alternative: Alternative 6 Stations

Proposed Broadway Street and 3rd Street Station

Located at the southeast corner of Broadway Street and 3rd Street (i.e., West Broadway Street), this station would be adjacent to the Dickey Stephens Ballpark, which serves as the home playing field for the minor league baseball club, the Arkansas Travelers. The 2011 Arkansas Travelers season includes 76 home games played at the ballpark, which has a seating capacity of 5,288 and standing room to accommodate 2,500 persons. Average attendance was 2,662 persons per game in 2010 and 3,087 in 2009, which is close to double what was originally projected for ballpark attendance (www.arkansasonline.com, accessed August 2011). The proposed streetcar expansion station would serve patrons of the ballpark on game days seeking an alternate form of transportation.

Proposed Main Street and 13th Street Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of Main Street and 13th Street. The proposed station location would service the Argenta Academy high school, which reported an estimated 2010 enrollment of 150 students; the North Little Rock Boys and Girls Club; and a nearby state-owned baseball field. The majority of Census blocks within a quarter-mile of the proposed station include percent minority populations of 60% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Proposed Main Street and 18th Street Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of Main Street and 18th Street. The proposed station location would service various small commercial businesses including automotive services, accounting services, a service station, and several beauty salons, as well as Roundz, a party rental and small live music venue. The majority of Census blocks within a quarter-mile radius of the proposed station include percent minority populations of 60% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Proposed Main Street and 22nd Street Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of Main Street and 22nd Street. The proposed station location would service Poplar Street Middle School and North Little Rock High School West Campus, which reported a 2010 estimated enrollment of 1,483 students. A streetcar location at Main Street and 22nd Street would also provide access to Shipley Do-Nuts, Arkansas Family Counseling, Special Olympics of Arkansas, and several small commercial businesses (e.g., a car wash and quick lube facility, an insurance company, etc.). The majority of Census blocks within

a quarter-mile radius of the proposed station include percent minority populations of 60% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Proposed Main Street / John F. Kennedy Boulevard and Pershing Boulevard Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of Main Street / John F. Kennedy Boulevard and Pershing Boulevard. The proposed station location would service various hotels (e.g., Best Western Plus Inn, Simply Home Inn and Suites, and Budgetel Inn and Suites), community facilities and city services (Patrick Hays Senior Center, North Little Rock Community Center, William F. Laman Public Library, North Little Rock Police Department Administration Building, etc.), and numerous businesses (e.g., health clinics, restaurants, service stations, dry cleaners, beauty salons, etc.). Several Census blocks within a quarter-mile radius of the proposed station include percent minority populations of 60% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Proposed John F. Kennedy Boulevard and D Avenue Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of John F. Kennedy Boulevard and D Avenue in the Park Hill Neighborhood of North Little Rock. The proposed station location would service numerous small commercial businesses lining John F. Kennedy Boulevard including beauty salons; insurance, real estate, and investment services; service stations; fast food restaurants; and other various retail oriented businesses. This station would also service Park Hill Baptist Church and the Park Hill Presbyterian Church. The well-manicured and cohesively designed streetscape of the Park Hill Neighborhood are well suited for expansion of the River Rail Streetcar; and the streetcar expansion has the potential to service the large number of residences located within the Park Hill Neighborhood.

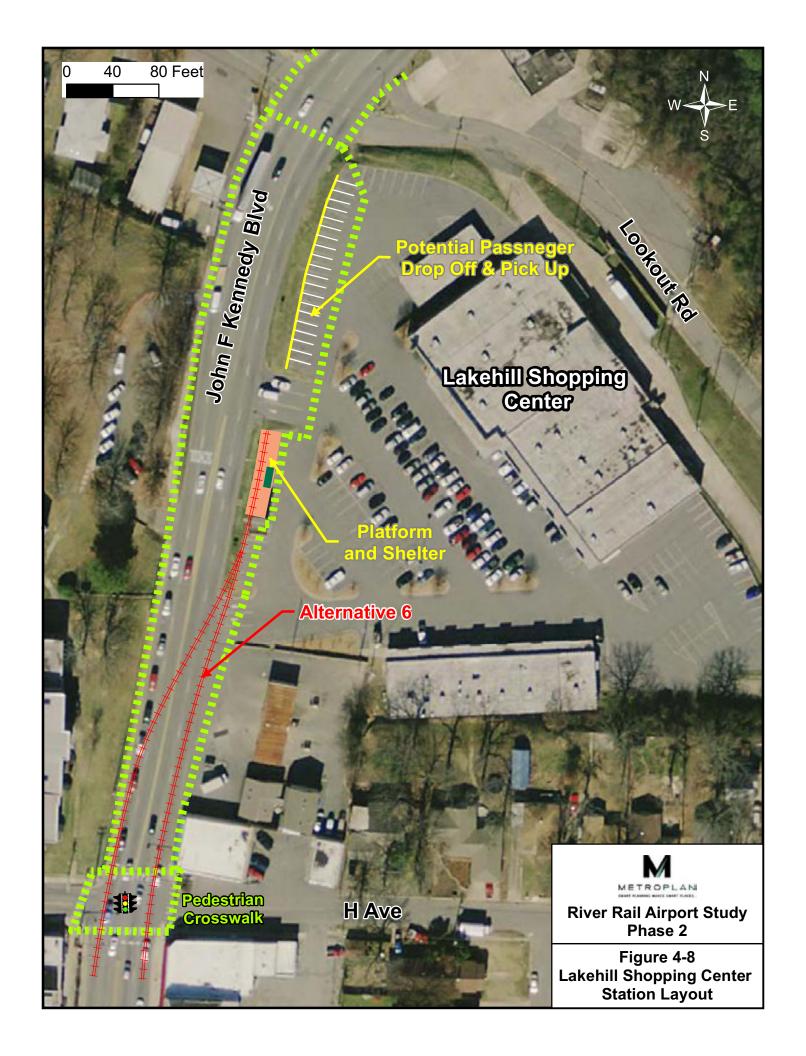
Proposed John F. Kennedy Boulevard and Lakehill Shopping Center Station

Located at the Lakehill Shopping Center, this proposed walk-up streetcar station would serve as the terminus of Alternative 6; and would therefore include a switch from streetcar travel on the northbound alignment to the southbound alignment. A layout view of the proposed streetcar switching station is shown in **Figure 4-8**. The proposed station location would service Park Hill Elementary School and the various businesses of the Lakehill Shopping Center (clothing store, general store, restaurants, etc.), as well as other nearby small businesses.

<u>Little Rock Corridor Alternative: Alternative 7 – Option A Stations</u>

Main Street and Capitol Avenue Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest



corner (southbound streetcar alignment) of Main Street and Capitol Avenue. The proposed station location would service various government offices / agencies (e.g., Arkansas Department of Human Services), the Arkansas Repertory Theatre, the eStem Charter School, which reported a 2010 estimated enrollment of 100 students, and other various businesses.

Main Street and 9th Street Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of Main Street and 9th Street. The proposed station location would service various small businesses along and nearby Main Street, such as two-family owned hardware stores.

Main Street and Daisy L. Gatson Bates Drive Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of Main Street and Daisy L. Gatson Bates Drive. The proposed station would service nearby SoMa neighborhood businesses and attractions such as Community Bakery, The Root Café, The Boulevard Bread Company, The Green Corner Store, and The Bernice Garden. Some Census blocks within a quarter-mile of the proposed station include percent minority populations of 60% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Main Street and 17th Street Station

Adjacent to a double-track alignment, this proposed streetcar station location would include two walk-up stations, likely at the southeast corner (northbound streetcar alignment) and northwest corner (southbound streetcar alignment) of Main Street and 17th Street. The proposed station location would service a United States Post Office, The Arkansas Department of Workforce Services, and other nearby large, highly utilized retail shops such as Edwards Food Giant, USA Drug, and Family Dollar. Some Census blocks within a quarter-mile of the proposed station include percent minority populations of 60% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Main Street and 21st Street Station

At Main Street and 19th Street, the Alternative 7 – Option A alignment would transition from double-track to a two-way directional, single-track alignment. Because the alignment running-way would be incorporated into the southbound Main Street roadway, this proposed streetcar station location would include only one walk-up station, likely at the northwest corner of Main Street and 21st Street. Numerous Census blocks within a quarter-mile of the proposed station include percent minority populations of 60% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Main Street and Roosevelt Road Station

Located near the intersection of Main Street and Roosevelt Road, this proposed streetcar station would serve as the terminus of the Alternative 7 – Option A alignment and would include a single walk-up station. Streetcar travel would switch from southbound to northbound at the proposed station location. The proposed station location would service the St. John Baptist Church and Cumberland Manor / Metropolitan Village, a complex of 120 garden and townhouse apartments that include Section 8 housing with up to a two-year wait. The majority of Census blocks within a quarter-mile of the proposed station include percent minority populations of 80% to 100% that could be served by the streetcar expansion (see **Figure 3-5**).

Public Comments on Streetcar Station Locations and Amenities

The following additional streetcar station locations were suggested by commenters as part of the August 2011 public meeting, discussed in **Section 2.5:**

- An additional stop recommended at John F. Kennedy Boulevard and A Avenue in North Little Rock;
- An additional stop recommended at John F. Kennedy Boulevard and G Avenue in North Little Rock; and
- An additional stop recommended at 7th Street and Main Street in North Little Rock.

The proposed streetcar station locations for the Corridor Alternatives were selected based on public input supplied as part of the April 2011 public meetings on the Universe of Alternatives, as well as SSC member input and approval. The above public-suggested additional station locations could be studied in the future if additional phases of the River Rail Airport Study are implemented.

Additionally, some comments were received that suggested various amenities at the proposed streetcar station locations. These suggestions included ample lighting, benches, bike racks, and vehicle parking where space is available. Specific station design amenities were not included as a part of this Phase Two analysis; however, detailed station plans and designs, including amenities, should be studied as part of future project phases, if implemented.

5.0 LAND USE AND TRANSIT ORIENTED DEVELOPMENT / REDEVELOPMENT OPPORTUNITIES

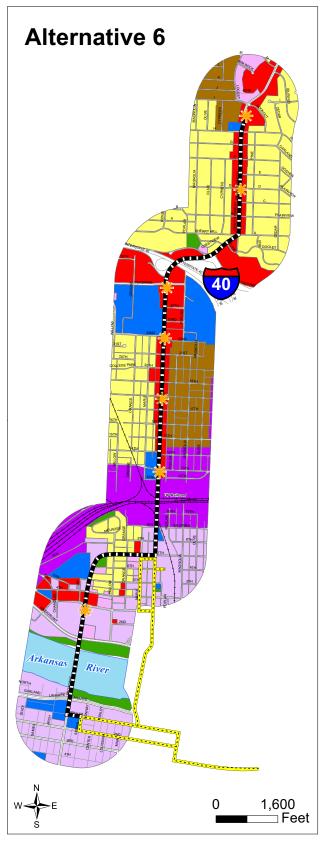
5.1 Future Land Use

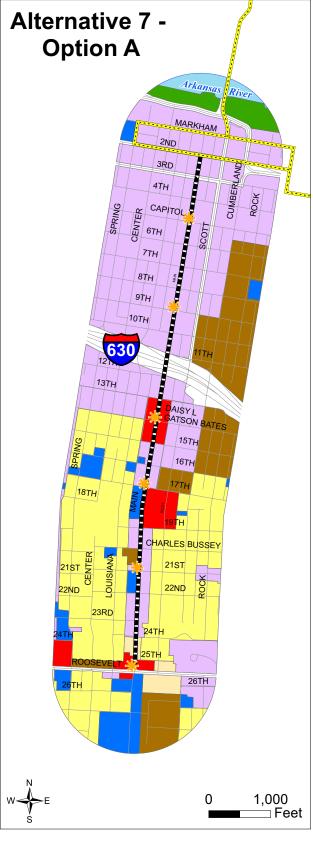
Future land use within the Corridor Study Area includes primarily mixed-use and commercial land use types on Main Street, located immediately adjacent to both Corridor Alternative alignments, as shown in **Figure 5-1**. As indicated in city land use plans, large areas within both the Cities of Little Rock and North Little Rock previously designated as commercial development were recommended in future land use plans to transition to mixed-use areas, thus providing future opportunities for the development of sustainable urban communities. In particular, future land use south of I-630 adjacent to Main Street is recommended to transition from primarily commercial and residential land use types to mixed-use. Except for the Little Rock CBD where future land use is entirely designated as mixed-use, future land use within several blocks of the Corridor Alternative alignments is designated primarily as single and multifamily residential. Extending the River Rail Streetcar alignment along the Main Street / John F. Kennedy corridor in both cities will serve the many planned mixed-use communities and commercial developments adjacent to the corridor, and also the large expanse of residential development located near the corridor.

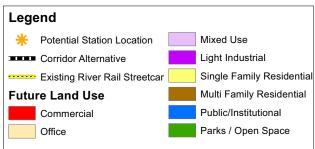
5.2 Redevelopment Potential within the Corridor Study Area

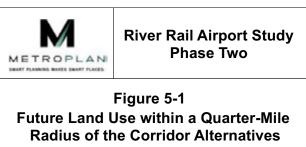
An evaluation of redevelopment opportunities adjacent to each Corridor Alternative was performed using a combination of existing land use data, aerial photography, and field reviews. Types of parcels and properties surveyed for redevelopment potential included vacant buildings, vacant street-level retail space, vacant lots, surface parking lots, and vacant areas currently under construction or development. Then, in order to better understand the types and degree of redevelopment potential, these surveyed parcels and properties were grouped into one of the following four categories:

- 1. Highest potential for redevelopment, which includes: a) street level retail space currently for lease as part of a larger building or project, b) vacant lots, c) vacant buildings and storefronts, and d) surface parking lots not currently used for commercial / public parking;
- 2. Surface parking lots currently used as commercial / public parking;
- 3. Planned projects; and
- 4. Projects currently under construction.









The location of each parcel or property identified within one of the above four categories is shown in the **Map Atlas** contained in **Appendix C**. **Table 5-1** below summarizes the total acres of parcels and properties adjacent to the Corridor Alternative alignments within these four categories.

Table 5-1
Redevelopment Potential Adjacent to the Corridor Alternative Alignments

J	Redevelopment Potential (Acres) 1					
Category	Alternative 6	Alternative 7 - Option A				
Highest Potential for Redevelopment	9.7	9.0				
Surface Parking Lots Currently In-Use as Commercial / Public Parking	43.2	12.1				
Planned Projects	0.0	1.4				
Projects Currently Under Construction	0.0	2.0				
Total Acres	52.8	24.5				

Note: (1) Based on parcel / property data from Metroplan and field review.

There are approximately 9.7 acres of street-level parcels or properties along the Alternative 6 alignment with the highest potential for redevelopment. This does not include an additional 27,100 square feet (0.6 acre) of non-street level (i.e., upper-floor) building space along the Alternative 6 alignment also available for sale or lease.

There are approximately 9.0 total acres of street-level parcels or properties along the Alternative 7 – Option A alignment with the highest potential for redevelopment. The Alternative 7 – Option A alignment travels through the Little Rock CDB where there are several vacant high-rise buildings adjacent to the proposed alignment available for sale or lease, accounting for an additional 557,500 square feet (12.8 acres) of non-street level (i.e., upper-floor), high-rise building space available for redevelopment. Planned projects adjacent to the Alternative 7 – Option A alignment include the construction of two surface parking areas in place of two recently demolished buildings, located at the southwest and southeast corners of Main Street and 4th Street. Projects currently under construction adjacent to the Alternative 7 – Option A alignment include the renovation of a multi-level building near the northwest corner of Main Street and 4th Street into Porter's Jazz Café at street-level and high-rise apartments on subsequent levels. On the southern end of Alternative 7 – Option A, the renovation of a vacant commercial building at the northwest corner of Main Street and Roosevelt Road is also underway.

In addition to the planned and currently under construction projects located adjacent to the Corridor Alternative alignments (as included in **Table 5-1**), the following is a list of planned or under construction projects nearby the Corridor Study Area obtained via research through ArkansasBusiness.com and conversations with city planning staff and real-estate developers. These projects could contribute to an increase in both local and tourist-generated traffic as the living, working, shopping, and entertainment opportunities increase throughout the Cities of Little Rock and North Little Rock.

Note that many of these projects are in the early and on-going stages of development, with limited details available at this time; and project costs, if listed, are highly speculative and subject to change.

- Conversion of the Clinton Presidential Park Bridge to a pedestrian walkway spanning the Arkansas River from the Clinton Presidential Library to North Little Rock (estimated cost - \$10 million);
- Current renovations to the Arkansas Museum of Discovery, located near the corner of President Clinton Avenue and River Market Avenue in Little Rock (estimated cost - \$10 million);
- Construction of a large hotel at the corner of River Market Avenue and 3rd Street (estimated cost \$20 million);
- Construction of the River City Yacht Club, with Phase 1 of the project (estimated cost \$7 million) including the construction of boat slips, a fishing pier, walking promenade, dock store, fuel islands, and a small park (located four blocks east of the Clinton Presidential Library);
- Redevelopment of the Arkansas First Building, located at 1417 W. 6th Street near the State Capitol (estimated cost \$6 million);
- Construction of Heifer International campus buildings (estimated cost \$200,000);
- Construction of a theatre, retail, and office mixed-used development in the River Market area (estimated cost \$15 million);
- Construction of an office, retail, and loft-apartments mixed-use development in the River Market area (estimated cost approximately \$16 million);
- Construction of hotel, apartments, and retail mixed-use development in the River Market area (estimated cost \$40 million); and
- Redevelopment of property near Poplar Street and 23rd Street in North Little Rock by the North Little Rock School District.

5.3 Streetcar Station Transit Oriented Development Potential

A land use pattern that creates opportunities for transit trip generation and an urban form that provides a quality pedestrian environment focused on the transit station is referred to as transit oriented development (TOD). Transit stations concentrate pedestrian activity and increase pedestrian accessibility to land and markets for certain types of development, specifically favoring higher density residential, office, and retail development, often categorized as mixeduse. Neighborhood, walk-up streetcar stations are proposed at seven locations along the Alternative 6 alignment (see **Figure 4-1**) and six locations along the Alternative 7 – Option A alignment (see **Figure 4-4**).

The following streetcar station area TOD analysis focuses on parcels and properties within the immediate area of each proposed streetcar station. Areas with the highest potential for TOD surrounding the potential stations are presented in **Table 5-2**. These areas include street level retail space currently for lease as part of a larger building or project, vacant lots, vacant buildings and storefronts, and surface parking lots not used for commercial / public parking. Also

presented in **Table 5-2** is a brief description of future land use surrounding each proposed station location.

Table 5-2
TOD Potential Surrounding the Corridor Alternative Proposed Stations

10D Potential Surrounding the Corridor Alternative Proposed Stations									
Corridor Alternative	Proposed Station Location	Parcels / Properties (in Acres) with the Highest Potential for TOD ¹	Future Land Use Surrounding the Proposed Station Location and Other Features						
	Broadway Street and 3rd Street	0	Mixed-use, multi-family residential, commercial						
	Main Street and 13th Street	0.6	Primarily institutional (Argenta Academy) and industrial (UP Railroad), with commercial and single-family residential nearby						
	Main Street and 18th Street	1.6	Primarily commercial, with single-family and multi-family residential nearby						
	Main Street and 22nd Street	1.6	Primarily commercial and institutional (North Little Rock High School West Campus), with single-family and multi-family residential nearby						
Alternative 6	Main Street / John F. Kennedy Boulevard and Pershing Boulevard	0.7	Primarily commercial and institutional						
	John F. Kennedy Boulevard and D Avenue	0.3	Primarily commercial, with single-family residential nearby						
	John F. Kennedy Boulevard and the Lakehill Shopping Center	1	Primarily commercial and multi-family residential, with single-family residential nearby						
	Total	5.8							
	Main Street and Capitol Avenue	3.8	Entirely mixed-use						
	Main Street and 9th Street	2.1	Primarily mixed-use, with multi-family residential nearby						
	Main Street and Daisy L. Gatson Bates Drive	0.6	Primarily commercial and mixed-use, with single-family residential nearby						
Alternative 7 - Option A	Main Street and 17th Street	1.1	Mixed-use, commercial, and public; with single-family and multi-family residential nearby						
	Main Street and 21st Street	1.6	Mixed-use, public, and multi-family residential; with single-family residential nearby						
	Main Street near Roosevelt Road	1.4	Primarily commercial and office, with single- family and multi-family residential nearby						
	Total	10.6							

Note: (1) Based on parcel / property data from Metroplan and field review.

TOD potential would be enhanced by the following proposed streetcar stations that would offer convenient connections to various transportation facilities including bus, streetcar, and bikeways, as noted below.

- The proposed streetcar station at Main Street and 22nd Street would interface with bus stops for CATA Routes 4 and 10, which travel northward through North Little Rock.
- The proposed streetcar station at Main Street and Capitol Avenue is located only two blocks west of the River Cities Travel Center, which serves as the major transfer hub for 20 CATA bus routes.
- The proposed streetcar station at Main Street and 17th Street would interface with bus stops for CATA Routes 2 and 16, which travel south through Little Rock.
- See Section 3.2 for a description of bike facility connections.

Public Comments on Redevelopment and TOD

As part of the August 2011 public meeting discussed in **Section 2.5**, some comments were received citing support for the proposed Corridor Alternatives and their anticipated ability to spur economic growth through redevelopment and TOD opportunities. As previously described in **Section 1.1**, both Little Rock and North Little Rock seek the revitalization of their respective downtown areas and neighborhoods, while also promoting sustainable development. Both cities account for such sustainable development in their future land use plans (see **Figure 5-1**), with the majority of lands immediately adjacent to the proposed Corridor Alternative alignments planned for mixed-use or commercial development to serve the nearby single-family and multi-family residential areas. As evaluated as part of this Phase Two Study, there are many areas along the proposed Corridor Alternative alignments and surrounding the proposed station locations available for redevelopment and TOD (see **Sections 5.2 and 5.3**). It is anticipated that implementation of the proposed Corridor Alternatives would spur such redevelopment and TOD opportunities to the economic benefit of the surrounding communities.

6.0 RIDERSHIP MARKET

For Phase One of the River Rail Airport Study, preliminary ridership estimates were generated by 1) evaluating other streetcar and light rail transit startups and extensions in the Cities of Portland, St. Louis, and Dallas; and 2) evaluating airport passenger enplanements combined with employment and existing transit ridership. For Phase Two of the *River Rail Airport Study*, a more detailed ridership analysis for the Corridor Alternatives was conducted using data generated from the Central Arkansas Regional Transportation Study (CARTS) Travel Demand Model (TDM). The TDM uses demographic and socioeconomic data within the region to develop daily ridership forecasts. This methodology is detailed in **Section 6.1.**

Section 6.2 then explores additional streetcar-based travel demand to the Airport generated by extending the River Rail Streetcar further into the communities of Little Rock and North Little Rock along the Corridor Alternative alignments.

The existing River Rail Streetcar service (Phase 1 and Phase 2) was implemented with the primary ridership goal of serving mostly non-home based trips related to tourism, conventions, arena events, and entertainment-related travel. The primary generators and destinations along the existing streetcar route are comprised of hotels, museums, entertainment venues, restaurants, and a small but growing downtown resident population on both sides of the Arkansas River. Although there is no survey data of the existing riders, it is safe to assume most are tourists and local residents engaging in leisure and shopping activities. The expansions contemplated by this study would provide a more local service to existing neighborhoods and employment destinations. This additional functionality was an important factor in the development of ridership projections as described in the following sections.

6.1 Phase Two Study Corridor Alternative Ridership

The following methodology was used to estimate the daily number of two-way trips on both the North Little Rock (Alternative 6) and Little Rock (Alternative 7 – Option A) Corridor Alternatives. Trip types evaluated included: 1) home-based work (HBW) trips and 2) home-based other (HBO) trips (including home-based shopping trips). The study area utilized for the daily ridership forecast analysis was a quarter-mile radius surrounding the Corridor Alternatives (i.e., the Corridor Study Area).

- 1. Using data generated from the TDM, HBW and HBO trip production rates were calculated for the Traffic Analysis Zones (TAZs) immediately adjacent to the Corridor Alternative alignments in the Cities of Little Rock and North Little Rock by dividing the total number of trips produced by the total number of households within the identified TAZs.
- Then, the HBW and HBO trip production rates were applied to the total number of households within the daily ridership forecast study area. The resulting calculation generated the estimated number of HBW and HBO trips within a quarter-mile radius of each Corridor Alternative.

- 3. A capture rate was then applied to the total number of HBW and HBO trips within a quarter-mile radius of each Corridor Alternative. The capture rate represents a certain percentage of trips assumed to change from one mode of transportation to the proposed streetcar extension for HBW or HBO trips. For the purpose of this Phase Two ridership analysis, a 2% capture rate was assumed.
- 4. The resulting calculation generated the estimated number of unlinked trips on each Corridor Alternative. Then, the total estimated number of trips on each Corridor Alternative was calculated based on the assumption that each rider would generate 2 trips.
- 5. Finally, the estimated number of trips associated with each Corridor Alternative in 2010 (base year) was grown at a rate of 1.5% annually to estimate future year ridership.

The daily ridership forecast results for the Corridor Alternatives is presented in **Table 6-1** below.

Table 6-1
Estimate of Daily Trips on the Corridor Alternatives

G 11		Estimated No. of Unlinked Trips in Study Area ¹	Capture %	Estimated No. of	Estimated No. of Daily Trips on Corridor Alternatives ^{2,3,4}				
Corridor Alternative	Trip Type			Unlinked Trips on Corridor Alternative	Base Year: 2010	2013	2018	2023	2028
Alternative 6	HBW	5,615	2%	112.3	225	235	253	273	294
	HBO ⁵	11,175	2%	223.5	447	467	504	542	584
Total	HBW+HBO ⁵	16,790	2%	335.8	672	702	757	815	878
Alternative 7 - Option A	HBW	3,548	2%	71.0	142	148	160	172	186
	HBO ⁵	7,062	2%	141.2	282	295	318	342	369
Total	HBW+HBO ⁵	10,610	2%	212.2	424	443	478	514	555

Notes:

- (1) Study area = quarter-mile radius surrounding each Corridor Alternative.
- (2) Assumption of 2 trips for each rider.
- (3) Future year trip estimates determined by applying a linear growth rate of 1.5% to the estimated number of daily trips per rider in 2010 (base year).
- (4) Future years 2013, 2018, 2023, and 2028 selected to correspond with the Phase One Study future year ridership estimates.
- (5) Includes home based shopping trips.

6.2 Phase One Study and Phase Two Study Cumulative Ridership

The Corridor Alternatives were designed such that expansion of the River Rail streetcar into the communities of North Little Rock and Little Rock would not only service existing markets, but also set the stage for a more robust streetcar network that could eventually connect to other communities and, potentially, to the Airport via one of the previously studied alignments in Phase One; or a new alignment yet to be developed. This section explores additional travel

demand generated from the Corridor Alternatives in combination with the Phase One Airportrelated ridership estimates to determine the future feasibility of a streetcar Airport connection.

Phase One Study Ridership Estimates

As previously described, Phase One preliminary ridership estimates were developed by evaluating Airport passenger enplanements, employment, and existing transit ridership. A brief summary of these three components is provided below, with a detailed analysis presented in the *River Rail Airport Phase One Final Report*.

Enplanements: The Airport Master Plan Update projected future enplanements to year 2023, which were then grown to 2028 consistent with the recommended, and Federal Aviation Administration (FAA) approved linear growth rates. An estimated capture rate was used to estimate the percentage of enplanements that could reasonably utilize the streetcar system upon construction. Ridership estimates were forecast to 2028 to more closely align with a 20-year planning horizon.

Employment: Ridership estimates were also based on the estimated number of employees at employment locations east of I-30 and immediately surrounding the Airport. Using a capture rate, a certain percentage of employees were assumed to change modes of transportation and potentially ride the streetcar to work. The existing employment was then forecast for future years using a specified growth rate.

Existing Transit Ridership: An additional component of the Phase One Study daily ridership estimate was based on existing bus ridership for Route 12 in 2006 and existing River Rail ridership in 2008.

Route 12 travels from the terminus of the existing River Rail Streetcar extension at 3rd Street and World Avenue (near Hiefer International) to the Airport via 6th Street on the north side of the Airport. Route 12 is outside of the Phase Two Corridor Study Area. Therefore, ridership on Route 12 is not included as part of the Phase Two Study ridership estimates presented in **Section 5.1**.

In contrast, the existing River Rail Streetcar is located within the Phase Two Corridor Study Area. Therefore, River Rail Streetcar ridership is accounted for within the Phase Two Study ridership estimates presented in **Section 5.1**.

For these reasons, only Route 12 ridership estimates were included for the purpose of the cumulative ridership analysis as to not "double count" Phase One and Phase Two ridership estimates. Using a capture rate, a certain percentage of existing Route 12 riders were estimated to change modes and use the streetcar system; and existing ridership was then forecast for future years using a specified growth rate.

Cumulative Daily Ridership Estimates

Table 6-2 presents Phase One Study ridership estimates generated from the methodology described above for the Phase One Alternatives retained for future study, as well as ridership estimates for the Phase Two Study Corridor Alternatives.

Table 6-2
Phase One Study and Phase Two Study Estimated Daily Trips

	Phase One A	Alternatives ¹	Corridor Alternatives ²		
Year	Alternative 1	Alternative 3 - Option A	Alternative 6	Alternative 7 - Option A	
2013	388	282	702	443	
2018	522	408	757	478	
2023	682	760	815	514	
2028	742	610	878	555	

Notes:

Table 6-3 presents the cumulative ridership forecast for both Phase One and Phase Two of the *River Rail Airport Study*. These cumulative ridership estimates assume that the North Little Rock Corridor Alternative (Alternative 6) and the Little Rock Corridor Alternative (Alternative 7 – Option A) would be implemented in conjunction with either Alternative 1 or Alternative 3 – Option A from the Phase One Study in order to connect the streetcar system to the Airport.

Table 6-3
River Rail Airport Study Estimated Cumulative Daily Trips

	Ridership Summary				
Year	Alternative 1 and Alternative 6	Alternative 3- Option A and Alternative 6	Alternative 1 and Alternative 7 – Option A	Alternative 3 - Option A and Alternative 7 – Option A	
2013	1,090	984	831	725	
2018	1,279	1,165	1,000	886	
2023	1,497	1,575	1,196	1,274	
2028	1,620	1,488	1,297	1,165	

⁽¹⁾ Estimated number of riders generated based on number of enplanements, and employees and transit (Route 12 only) near the Airport. Estimated number of riders were then converted to an estimated number of trips based on the assumption that each rider would generate 2 trips.

⁽²⁾ Estimated number of daily *home-based work* and *home-based other* trips (based on the assumption that each rider would generate 2 trips) within a quarter-mile radius of each Corridor Alternative.

6.3 Supplemental Data: Market Share Ridership

As presented in **Section 6.2**, Phase Two Study ridership estimates for the Corridor Alternatives were quantitatively derived using TDM-generated, work-related and non-work related trip data. A more generalized ridership analysis was also performed using market shares likely to generate ridership on the Corridor Alternatives. Market shares evaluated included:

- Existing River Rail Streetcar ridership;
- Major traffic generators;
- Employment;
- Enrollment data for educational facilities; and
- Persons dependent upon public transit as a means to work.

Table 6-4 on the following page presents a summary of estimated potential ridership generated from the above market shares. Major traffic generators near the Corridor Alternatives likely to generate ridership were presented in **Section 3.7** of this report. For each market share, a certain capture percentage was used to estimate the number of daily riders likely to utilize the Corridor Alternatives. The estimated number of daily trips was calculated based on the assumption that each rider would generate 2 trips. Then, a 1.5% annual linear growth rate was applied in order to estimate future year ridership. It should be noted that **Table 6-4** does not present a comprehensive analysis of market share ridership; nor does it present a cumulative estimate of potential ridership, but is instead designed to provide a general understanding of ridership potentially generated from each of the listed market shares.

Table 6-4
Market Share Ridership Estimates

Category	Corridor Alternative	Estimated Capture Rate		Estimated Daily Riders on Corridor	Estimated Daily Trips on Corridor	Projected No. of Daily Trips per Rider on the Corridor Alternatives ²			
	Anternative	Persons	(%)	Alternatives (2010)	Alternatives ¹ (2010)	2013	2018	2023	2028
	Alternative 6	12,368	1%	123.7	247	258	278	300	323
Employment ³	Alternative 7 - Option A	11,879	1%	118.8	238	249	268	289	311
Daily	Alternative 6	265	5%	13.3	27	28	30	33	35
River Rail Ridership ⁴	Alternative 7 - Option A	34	5%	1.7	3	3	3	4	4
High School	Alternative 6 ⁶	1,633	2%	32.7	65	38	73	79	85
and College Enrollment ⁵	Alternative 7 - Option A ⁷	1,258	2% to 3% 8	36.0	72	75	81	87	94
Population (16+ years old) using Public Transit as a Means to Work ⁹	Alternative 6	190	5%	10.0	20	21	23	24	26
	Alternative 7 - Option A	246	5%	12.3	25	26	28	30	33

Notes:

- (1) Assumption that each rider would generate 2 trips.
- (2) Projections determined by applying a linear growth rate of 1.5%.
- (3) Source: Metroplan, 2010; Employment includes basic employment (agriculture, forestry, fishing, hunting, mining, construction, manufacturing, utilities, transportation, warehousing, and wholesale trade); retail employment (establishments that sell merchandise, accommodations, and food service); and service employment (finance, insurance, real estate, information services, professional services, scientific services, technical services, administrative support, health care, arts and entertainment, public administration, and management).
- (4) Source: CATA; Existing River Rail ridership data aggregated into North Little Rock and Little Rock ridership. North Little Rock ridership estimates were applied to Alternative 6 and Little Rock ridership estimates were applied to Alternative 7 Option A.
- (5) Enrollment data obtained from the educational facilities.
- (6) Includes enrollment for North Little Rock High School West Campus and Argenta Academy (grades 9-12).
- (7) Includes enrollment for eStem High Public Charter School, Philander Smith College, and the University of Arkansas School of Law.
- (8) Capture rate of 2% used for high school enrollment; 3% capture rate used for college enrollment.
- (9) Based on Census 2000 data because 2010 data has yet to be released.

7.0 FINANCIAL PERFORMANCE OF THE CORRIDOR ALTERNATIVES

7.1 Operating Scenarios

This section describes the general operating scenario for the River Rail Streetcar (River Rail) assuming Alternative 6 and Alternative 7 – Option A are implemented. Scenario descriptions are for the system assuming the alternatives are added independently.

Existing Fleet

The current 3.4 mile River Rail Streetcar operation uses a fleet of five replica streetcars. New car bodies, which are replicas of double truck Birney cars from the 1930s and 40s, have been built on refurbished trucks (wheels and suspension) and motors of streetcars used in Milan, Italy for almost 75 years. Three of the streetcars have refurbished controller systems of electromechanical design from the original cars. Two of the streetcars have a modern light-rail solid-state controller. Cars are double-ended and power is transmitted through a trolley pole. All cars in the fleet have Americans with Disabilities Act (ADA) compliant wheelchair lifts at each end. Cars are equipped with an air conditioning and heating system. Each car has an optical signal pre-emption device at each end for the five intersections where pre-emption is used to provide a streetcar-only phase for safety. Each car is equipped with two way radios which are linked to Central Arkansas Transit's bus, paratransit, and supervisory radio communication channels.

Each car is also equipped with an electromagnetic emergency track brake capable of being deployed automatically if safe speeds are exceeded on the Main Street Bridge. The track brake can also be deployed manually in a panic brake situation.

Operations and Maintenance Facility

A single Operations and Maintenance (O&M) Facility is located on the east side of Main Street in North Little Rock, at 105 Bishop Lindsey Avenue (formerly 7th Street). The original O&M facility opened in 2004 with two shop tracks, one over a pit. Four cars could be stored indoors at one time. The O&M facility was expanded in 2010 to accommodate indoor storage for four additional cars for a total of eight. Additional cars can be stored outdoors although there is no security fencing at the present time. All preventive maintenance and minor repairs are performed in the O&M facility. Motor rebuild, wheel truing and other heavy maintenance repair is outsourced.

Current Operations and Schedules

River Rail operates 7 days a week. The span of service varies by day of the week. For Monday through Wednesday, the span of service is from 8:22 AM until 10:01 PM. For Thursday through Fridays, the span of service continues until 12:01 AM. The Sunday service is from 10:43 AM until 5:41 PM.

Including station dwell times, the longest round trip takes 52 minutes (from 6th Street and Main Street in North Little Rock to the Clinton Library and back to 6th and Main). This route generally operates with two cars, providing a Loop headway of 26 minutes. The shorter Little Rock route has a round trip operating time of 15 minutes and operates most periods with one vehicle for a 15 minute headway. The Little Rock Loop has an apparent headway less than 15 minutes when the schedules of the two North Little Rock Loop cars are overlaid. When special events and large amounts of ridership are anticipated, an additional car can be placed either on the entire (North Little Rock) Loop or the Little Rock Loop. Riverfest and large events at Verizon Arena are sometimes served with a two car shuttle operating on the Main Street Bridge.

Because the Clinton Library is not open to the public at night, the streetcar terminates its service from 2nd Street and Commerce Street to the Clinton Library platform at 5:42 PM Monday through Saturday. The Little Rock Loop terminates shortly after that time, as two cars on the entire loop can provide a headway of approximately 20 minutes for the remainder of the evening.

There are 15 passenger stations or platforms on the existing 3.4 mile route. Eleven are on one-way (single) track, two are on the bi-directional segment, and one is a terminal platform (Clinton Library), all shown on the River Rail System Map in **Figure 7-1** (CATA, 2011). The newest platform (not shown in **Figure 7-1**) is on 2nd Street just west of Rock Street, adjacent to the main branch of the Central Arkansas Library System. Streetcars do not stop if there is not a passenger request or a passenger waiting to board. Exceptions are the Clinton Library station where the car must be re-poled, and occasional stops at the Historic Arkansas Museum stop which has a driver restroom and provides a layover point for schedule adjustment.



There is no signal system on River Rail. Drivers and the dispatcher (who also dispatches for the bus service) coordinate with each other to determine the order of cars entering the one-lane section to cross the Arkansas River on the Main Street Bridge. (In seven years of operation, there has been only one incident where two cars entered the bi-directional segment in opposing directions. The drivers realized the situation before there was any danger of collision, and one car was able to reverse its direction to clear the route).

River Rail provides approximately 12,050 annual vehicle revenue hours of service, including regular service, special events, and charters.

Figure 7-1 River Rail System Map

Operating Scenarios for Alternative 6

Alternative 6 will allow two basic changes to the River Rail operation. It provides relief to the demand on the bi-directional track by providing a northern route across the proposed new Broadway Bridge. This change alone will increase the through-put of the system, allowing more cars to cross the river and minimizing the need for excessive dwell times to coordinate crossings.

Alternative 6 also provides a major northward extension of River Rail service into mature and redeveloping residential neighborhoods, commercial centers and public facilities in North Little Rock.

Care must be taken in the routing to ensure service is maintained along the sections of Main Street and Maple Street currently served by River Rail. Service on the Broadway Bridge, North Broadway Street, 7th Street, and Main Street north of 7th Street to John F. Kennedy Boulevard should be structured as new service and not a bypassing of existing service.

The suggested operating scenarios are as follows:

Option 1: Beginning at 6th Street and Main Street, one car travels north to the terminal station at the Lakehill Shopping Center; a distance of approximately 2 miles. The route would include travel over the proposed new Main Street Viaduct of the Union Pacific Railroad tracks, and a long uphill (7% grade) section beginning at Pershing Boulevard and extending to A Avenue in the Park Hill Neighborhood. These segments will decrease the average operating speed. A normal schedule will allow 16 to 20 minutes for this outbound trip. The inbound trip from the Lakehill Shopping Center to the existing route at 7th Street and Main Street will also require a 16 to 20 minute travel schedule. From that point there will be several options for CATA. The streetcar system could provide one-seat service on the new route to all destinations by routing the car south on Maple Street, east on Broadway Street, and south on Main Street, east on Markham/President Clinton Boulevard, south on Commerce Street, east on 3rd Street (World) Avenue to the Clinton Library platform. The car would then travel west on 3rd Street (World), north on Commerce Street, west on 2nd Street, north on Spring Street, and west on Markham Street on new track, north on Broadway Street on new track, continuing on N. Broadway Street, east on 7th Street to Main Street, and return north on Main Street to the Lakehill Shopping Center.

This time for this round trip is approximately 78 minutes.

Option 2: A more balanced option would be for the service from Lakehill Shopping Center to turn west on 2nd Street from Commerce Street instead of traveling to the Clinton Library platform. This round trip would be slightly over 60 minutes. Two cars on this Loop would provide approximately 30 minute headways.

With this second option, two River Rail streetcars would provide service on the current North Little Rock Loop, which provides service on Main Street and Maple Street in North Little Rock, and service to the Clinton Library during its operating hours. These two cars would turn east on

Markham Street at Spring Street, as they do currently, and would travel northbound on the Main Street Bridge in the same contra-flow manner as operates now. Two cars would provide a headway of about 25 minutes on the route.

This operating scenario would provide an additional 9,880 annual vehicle revenue hours.

Four cars would be required for peak service if Alternative 6 is implemented. As mentioned, there is a current fleet of five cars, so no additional cars will be needed with the addition of one alternative.

Operating Scenarios for Alternative 7 - Option A

This alternative is a linear extension from 2nd Street and Main Street south on Main Street to Roosevelt Road; a distance of approximately 1.57 miles. As discussed in **Section 4.2**, the typical section will be double-track in mixed traffic from 2nd Street to 19th Street, and single-track in an exclusive lane from 19th Street to just north of Roosevelt Road on Main Street. Future detailed design studies may provide for increased use of single-track and passing lanes between 2nd Street to 19th Street, but for purposes of this study, the conventional double-track section is assumed.

The recommended operating scenario depends on whether or when Alternative 6 is implemented. If the phasing results in Alternative 7 - Option A being implemented first, the recommended operating scenario would use one car operating on the Little Rock Loop. Beginning on 2^{nd} Street, the Little Rock Loop car would turn south on Main Street and travel to the southern terminus, reverse directions, and return north on Main Street, west on 2^{nd} Street, north on Spring Street, east on Markham Street to President Clinton Boulevard, south on Commerce Street, and west on 2^{nd} Street to the point of beginning.

The current Little Rock Loop has a round trip time of 15 minutes. This addition of Alternative 7 – Option A when combined with the Little Rock Loop has an estimated round trip time of slightly more than 30 minutes.

It is assumed that two cars would operate on the North Little Rock Loop as it currently operates.

Four streetcars would be required for peak service if Alternative 7 – Option A is implemented. As there are five streetcars in the current fleet, no additional cars would be required.

This operating scenario would provide an additional 4,940 annual vehicle revenue hours.

Fleet Requirements for Combined Scenario

If Alternative 6 and Alternative 7 – Option A are both implemented, the operating scenario would consist of the following:

- Two cars operating Alternative 6, (which overlaps the Little Rock Loop);
- Two cars operating the North Little Rock Loop (which overlaps the Little Rock Loop);
- One car operating the Alternative 7 Option A / Little Rock Loop; and

• The original Little Rock Loop would not operate as all of its platforms would be served by all five cars operating the other routes.

The service would have one spare streetcar, which is a minimal spare ratio. To have sufficient capacity for special services, charters, and preventive maintenance / heavy maintenance rotation, an additional streetcar should be acquired.

7.2 Capital Cost

Table 7-1 provides a summary of the order-of-magnitude capital costs for each of the Corridor Alternatives. Capital costs include trackway and overhead catenary system (OCS) in addition to design, construction management and utility relocations. All costs are presented in 2011 dollars.

The cost of an additional streetcar is approximately \$950,000. The range in capital costs, excluding improvements to the existing rail service, is \$69.2 Million for Alternative 6 and \$33.2 Million for Alternative 7 – Option A. There are no O&M Facility capital costs as the expanded facility can now accommodate up to eight streetcars.

Table 7-1
Capital Costs

Capital Cost Category	Alternative 6 (\$ 2011)	Alternative 7- Option A (\$ 2011)
Track, OCS ¹	\$68,700,000	\$32,700,000
Vehicles ²	\$475,000	\$475,000
O & M Facility Modification	\$0	\$0
ROW	\$0	\$0
Total	\$69,175,000	\$33,175,000

Notes:

7.3 Operating and Maintenance Costs

Operating Assumptions

The following assumptions were used to develop O&M costs for the Corridor Alternatives:

- Span of Operation: same as existing River Rail service, approximately 98 hours per week.
- \$75 per vehicle hour operating cost (includes direct labor and energy costs, maintenance, overhead, other indirect costs).
- Headway for Alternative 6: 30 minutes on new section.
- Headway for Alternative 7 Option A: 30 minutes on new section.

⁽¹⁾ Includes costs for design, construction management, and utility relocations.

^{(2) 50%} of cost of one vehicle allocated to each alternative. One additional vehicle recommended if both alternatives are implemented.

Current Year Operating & Maintenance Cost Estimate

The estimated annual operating cost (in 2011 dollars) of an expanded streetcar system for the Corridor Alternatives would be as follows:

• Alternative 6: \$764,000

• Alternative 7- Option A: \$382,000

7.4 Conceptual Funding Strategies

The implementation of Alternative 6 and Alternative 7- Option A, taken either separately or together, would require a significant amount of capital funding. Streetcar projects across the United States have been built with a combination of local, state, Federal and private funding. Those same opportunities exist in varying levels for the two Corridor Alternatives.

Federal Funding

The current transportation authorization bill, the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), provides funding for rail projects in accordance with Section 5309 of the Federal Transit Administration's grant programs. Rail projects can be classified as New Starts or Small Starts. The two Corridor Alternatives should fit the criteria of Small Starts, which has a maximum Federal funding limit of \$75 million and a total project maximum of \$250 million. The required documentation and eligibility criteria for Small Starts funding is significantly less complicated and costly than for the New Starts category.

The Small Starts category also gives more weight to a project's ability to generate economic development. The criteria for Small Starts are as follows:

- Cost Effectiveness 1/3 weight
- Economic Development Effects 1/3 weight
- Transit Supportive Land Use Policies 1/3 weight

A New Starts project receives only 20% of its justification from economic development potential, and it must also receive 80% of its justification from ridership / modal preference attributes.

The Federal Transit Administration (FTA) and the U.S. Department of Transportation also have financing programs which could be considered for streetcar funding, such as the Transportation Infrastructure Finance and Innovation Act (TIFIA). The Federal Transit Administration also allows provides financing eligibility via grant anticipation notes, debt service reserve financing, capital leasing, and letters of no prejudice.

A successor to SAFETEA-LU will be addressed by Congress in the near future. All transportation programs, including the streetcar program, will be subject to change in the new bill and the River Rail sponsors are advised to monitor the progress of the next legislation.

Local and State Funding

The Central Arkansas Transit Authority has no dedicated funding source and relies on appropriations from its local government members. River Rail costs are underwritten by three of the local government members: Pulaski County, Little Rock and North Little Rock. The cities have a limited variety of funding sources to pay for transit costs. The *Metroplan 2030 Long Range Plan* identifies categories of local funding which can be used for transit, with certain restrictions. These include:

- State Gas Tax Turnback;
- Local Taxes:
- Miscellaneous Income;
- General Fund: and
- Interest Income.

Other streetcar projects in the U.S. have used similar sources of funding, but have also received funding from special purpose improvement districts, tax increment financing districts, and special public-private partnerships for targeted improvements.

Public Input on Cost and Funding

As part of the August 2011 Public Meeting discussed in **Section 2.5**, some commenters cited concern related to project cost and funding. A few commenters expressed the similar opinion that the predominantly tourist utilized River Rail Streetcar would never become a major form of transportation, and therefore, was too costly to expand and not the most functional use of funds. A few commenters also stated a desire to see funding spent on alternative modes of transportation and other community needs instead of the proposed streetcar expansion. Examples cited consisted of expanding and improving CATA bus service into underserved communities (suggestions included the communities of Maumelle, Jacksonville, Cabot, Bryant, and Benton); expanding and improving bike and pedestrian facilities; or spending the funds on schools, public services (e.g., police, fire, etc.), and/or on other capital improvement projects.

As described in **Section 1.2**, it is a goal of the proposed Corridor Alternatives to provide an alternative mode of transportation through the Little Rock CBD and south of I-630, while also reaching additional communities in North Little Rock, such as the Park Hill Neighborhood. Both Alternative 6 in North Little Rock and Alternative 7 - Option A in Little Rock would function to service local residents as well as tourists. That is, the proposed Corridor Alternatives would service local residents and their daily trips to work and other non-work based trips, while also promoting economic sustainability and redevelopment opportunities as more tourists would be able to easily travel to the businesses and attractions along the Main Street / John F. Kennedy Boulevard corridor. As previously described, there are various Federal, state, and local funding options that could potentially be used to help fund the proposed Corridor Alternatives. With input and guidance from the local governing bodies, the viability and availability of such funding opportunities should be further studied if additional phases of the proposed River Rail Airport Study are implemented.

7.5 Phasing and Implementation

Depending on available funding, the implementation of Alternative 6 and Alternative 7-Option A could be undertaken either separately or together. Additionally, if advanced to project construction independently, each of the Corridor Alternatives could be implemented in phases. Recommended phasing limits and estimated capital cost by phase is presented in **Table 7-2**. All costs are presented in 2011 dollars.

Table 7-2 Phased Implementation Capital Costs¹

1 masea implementation capital costs					
Corridor Phase 1		Phase 2	Total		
Alternative (\$ 2011)		(\$ 2011)	(\$ 2011)		
	Limits: Existing River Rail to	Limits: Pershing Boulevard to			
Alternative 6	Pershing Boulevard	Lakehill Shopping Center			
	\$43.5 Million	\$25.2 Million	\$68.7 Million		
Alternative 7-	Limits: 2 nd Street to 19 th	Limits: 19 th Street to			
	Street	Roosevelt Road			
Option A	\$27.7 Million	\$5.0 Million	\$32.7 Million		

Note:

⁽¹⁾ Does not include vehicle costs.

8.0 STUDY FINDINGS & RECOMMENDATIONS

8.1 Tier II Evaluation of Corridor Alternatives

Similar to the Universe of Alternatives, an evaluation of the Corridor Alternatives was conducted. **Table 8-1** presents the screening criterion that was used to evaluate the Corridor Alternatives including: mobility, system performance, cost and affordability, environmental impacts, economic development, and implementability / design considerations. The study team took into account the level of detail at this conceptual planning stage and concluded that some of the listed criteria could only be evaluated from a qualitative perspective, while other criteria utilized in the evaluation could be quantified.

Appendix D contains a spreadsheet describing the Corridor Alternative alignment characteristics by segment as presented in the Map Atlas of **Appendix C**. Key items in the alignment characteristics spreadsheet include length of segment, running way disposition, and travel time, just to name a few, that were utilized to evaluate and quantify similarities and differences among the alternatives.

Table 8-1
Streetcar Alternative Screening Criterion

	Streetcar Atternative Screening Criterion				
	Category	Criterion			
A	Mobility	 Travel time – Airport to North Little Rock (one-way) Magnitude of major activity centers that are directly served Estimated daily ridership 			
В	System Performance	 Does the alternative improve transit system efficiency? Service reliability / predictability (single-track vs. double-track) Service reliability / predictability (parking & traffic) Level of transit connectivity Percent exclusive running way 			
С	Cost and Affordability	 Capital cost Operating and Maintenance Costs (O&M) 			
D	Environmental Impacts	 Any adverse environmental impacts? Does the alternative provide mobility improvements / opportunities for transit dependent persons? 			
E	Economic Development	 TOD / redevelopment opportunities? Supportive of economic development plans? 			
F	Implementability / Design Considerations	 Is the alternative reasonably implementable? Does the alternative (or a segment) significantly depend on the actions / approvals of other agencies? List of agencies: AHTD UP Railroad CATA – approval is assumed to be similar for all alternatives FTA – approval is assumed to be similar for all alternatives 			

Mobility – A summary of the evaluation criteria included within the Mobility category follows:

- Travel Time Travel time was estimated for one-way service as well as round trip service (see **Section 7.1**). Estimates were calculated based on an assumed running speed over the total length of the alignment. Travel time estimates also considered existing roadway grades above 5% that would reduce normal operating conditions. Dwell time at stations was also included in the travel time estimate. Travel time estimates are as follows:
 - ➤ Alternative 6: One-way outbound/northbound from 6th Street and Main Street to the Lakehill Shopping Center 16 to 20 minutes.
 - ➤ Alternative 6: Option 1, Round trip including travel to Clinton Library platform 78 minutes.
 - ➤ Alternative 6: Option 2, Round trip without travel to Clinton Library platform 60 minutes.
 - ➤ Alternative 7 Option A: One-way outbound/southbound from 2nd Street and Main Street to Roosevelt Road 7 to 10 minutes.
 - ➤ Alternative 7 Option A: Round trip including travel on Little Rock Loop 30 minutes.
- Major Activity Centers Directly Served This criterion is based on the overall magnitude of cultural, recreational, retail and work-related destinations. As presented in Section 3.5, a large number of major destinations would be served by both Corridor Alternatives. Furthermore, street car extensions into North Little Rock and Little Rock would serve an extensive number of neighborhood destinations and numerous businesses that would provide economic benefits and enhance neighborhood character.
- Estimated Daily Ridership As described in **Chapter 6**, preliminary ridership estimates were developed by incorporating information from the regional travel demand model and applying potential capture rates to estimate daily trips on each Corridor Alternative. A secondary examination of the individual alignments and potential markets served was also analyzed to identify other sources of potential ridership. Daily ridership estimates (rounded to the nearest tenth) for years 2013 and 2028 are as follows:
 - Alternative 6: 700 increasing to 880 total daily trips (see **Table 6-2**).
 - ➤ Alternative 7 Option A: 450 increasing to 560 total daily trips.

Cumulative ridership forecast for both Phase One and Phase Two of the *River Rail Airport Study* assume that Alternative 6 and Alternative 7 – Option A would be implemented in conjunction with either Alternative 1 or Alternative 3 – Option A from the Phase One Study in order to connect the streetcar system to the Airport. Daily ridership estimates (rounded to the nearest tenth) for years 2013 and 2028 are as follows:

Alternative 6 in combination with Phase One Study Alternatives: 980 increasing to 1,620 total daily trips (see **Table 6-3**).

Alternative 7 - Option A in combination with Phase One Study Alternatives: 720 increasing to 1,300 total daily trips.

System Performance – A summary of the evaluation criteria included within the System Performance category follows:

- Transit System Efficiency Factors considered as part of this criterion include increasing travel time / higher operating speeds in exclusive running ways, overall transit system benefits, the potential to incorporate traffic signal priority systems and other system operating benefits. These conditions would be similar for both Corridor Alternatives.
- Service Reliability / Predictability (single-track vs. double-track) This criteria was based on the composition of single-track and double-track as previously shown in **Table 4-1**. Double-track operations tend to have less potential conflicts with opposing vehicles and less delay at switching operations. While Alternative 7 Option A has a slightly higher percentage of double-track than single-track running way compared to Alternative 6, the percent difference is considered minor, therefore service reliability, based on track configuration, would be similar for both Corridor Alternatives.
- Service Reliability / Predictability (parking & traffic) This criterion is based on a whether the existing parking, traffic patterns and volumes within the Cities of Little Rock and North Little Rock would have a negative impact on the ability of the streetcar to operate safely and to adhere to a schedule. This is not a measure of the streetcars' impact on vehicular traffic. Based on proposed headways combined with relatively low daily traffic volumes on Main Street, service reliability based on parking and traffic conditions would be similar for both Corridor Alternatives.
- Level of Transit Connectivity Transit connectivity was evaluated based on the proximity to the River Cities Travel Center, existing streetcar stops and fixed-route bus routes and stops. As presented in **Figure 3-3**, transit connectivity would be similar for both Corridor Alternatives.
- Percent Exclusive Running Way Streetcar alternatives operating within exclusive running way offer greater travel time savings than mixed-traffic operations. Neither of the Corridor Alternatives operates in an exclusive running way, therefore this criteria does not apply.

Cost and Affordability – A summary of the evaluation criteria included within the Cost and Affordability category follows:

- Capital Cost Capital cost is certainly an important consideration, however at this point in the process the estimates for costs are primarily based on the length of the alternative, with unit costs applied to in-street embedded track. Vehicle cost is also included. Capital cost estimates in 2011 dollars are as follows:
 - ➤ Alternative 6: \$69.2 Million (see **Table 7-1**).

- ➤ Alternative 7 Option A: \$33.2 Million.
- Operating and Maintenance Costs (O&M) As summarized in **Section 7.3**, the operating cost for the Corridor Alternatives is essentially the same, however maintenance costs would be different due to track length. The evaluation measure was based on the anticipated level of maintenance only. O&M cost estimates in 2011 dollars are as follows:
 - Alternative 6: \$764,000.
 - ➤ Alternative 7 Option A: \$382,000.

Environmental Impacts – A summary of the evaluation criteria included within the Environmental Impacts category as it relates to the human and physical environments follows:

- Environmental Impacts Based on limited data, it was determined that impacts to environmental resources would be similar among the Corridor Alternatives. In the past twenty years, streetcar system planners in the US have found very few negative environmental impacts of building and operating streetcars. The Corridor Alternative alignments are primarily located within the public roadway right-of-way; streets and parking lanes are expected to be directly impacted. The construction methods for the streetcar line are expected to involve no excavation deeper than 18" to 24" in the street, which minimizes the likelihood of any subsurface environmental issues. Footings for overhead wire support poles will be 10'-20' deep, but this is typical for the hundreds, if not thousands, of footings that already exist in Corridor Study Area. There may be concerns about impacts regarding community cohesion, cultural resources, vibration, noise, or aesthetics at specific locations along each route. These resources would be evaluated to the appropriate level of detail in subsequent phases of project implementation, and it is likely that any environmental issues could be mitigated by project design.
- Mobility Improvements / Opportunities for Transit Dependent Persons As respectively shown in **Figure 3-5 and Figure 3-6**, minority populations and low income populations would be equally served by the Corridor Alternatives. Census 2000 data indicates that some of the Corridor Study Area population has incomes below the poverty level for their household size. It is typically this segment of the population that is considered transit dependent. The young, the elderly and persons with mobility limitations are populations that have traditionally been considered transit dependent as well. Streetcar alternatives that are located adjacent to low income neighborhoods are considered an improvement to mobility for the transit dependent population.

Economic Development – A summary of the evaluation criteria included within the Economic Development category follows:

• TOD / Redevelopment Opportunities – In order to quantify the transit oriented development potential and redevelopment opportunities for each streetcar alternative, a conceptual-level land use and station area planning evaluation was conducted as

described in **Chapter 5**. Existing land use data, aerial photography, and field reviews were evaluated to understand the types and degree of redevelopment potential for parcels and properties along each alignment. The parcels and properties were grouped into one of the following categories: 1) Highest potential for redevelopment; 2) Surface parking lots currently used as commercial / public parking; 3) Planned projects; and 4) Projects currently under construction. Redevelopment and TOD potential along each of the Corridor Alternatives is as follows:

- Alternative 6: 52.8 acres (see **Table 5-1**).
- ➤ Alternative 7 Option A: 24.5 acres.

Redevelopment and TOD potential near proposed station areas is as follows:

- Alternative 6: 5.8 acres (see **Table 5-2**).
- ➤ Alternative 7 Option A: 10.6 acres.
- Supportive of Economic Development Plans The conceptual analysis that was completed in Chapter 5 indicates that both Corridor Alternatives have the potential to equally support or promote economic development. The Cities of Little Rock and North Little Rock, and many active neighborhood groups are in support of streetcar extensions that enhance economic development and foster managed growth.

Implementability / Design Considerations – A summary of the evaluation criteria regarding Implementability and Design Considerations follows:

- Reasonably Implementable This criterion primarily deals with design and construction issues which takes into account known or highly probable design difficulties that might be encountered during construction or that might affect operations adversely. These could include steep grades, sight distance, switches with the existing River Rail track, safety issues regarding adjacent parking lanes surfaces, and other safety issues associated with track geometry or other obstructions, major utility conflicts, and crossings of the Arkansas River and the UP Railroad. As these details have not been thoroughly investigated at the conceptual planning stage, design issues and overall implementability were considered similar among the Corridor Alternatives.
- Dependency on the Actions / Approvals of Other Agencies This criterion is based on institutional agreements and approvals by other agencies having jurisdiction within the study area. A list of agencies is presented regarding their facilities and would be similar for both Corridor Alternatives:
 - ➤ AHTD Use of state roadways.
 - ➤ AHTD, City of Little Rock and North Little Rock Alterations to the Main Street Bridge, Broadway Bridge and Main Street Viaduct replacement.
 - UP Railroad approval of crossings and any modifications to UP tracks and/or property.
 - ➤ CATA approval of overall project.

> FTA – approval of federal funding / NEPA document.

The primary characteristics associated with the Corridor Alternatives are shown in **Table 8-2.**

Table 8-2 Summary of Corridor Alternatives

	Corridor Alternative				
Factor	Altern		Alternative 7 - Option A		
Overall Alternative Ch	aracteristic	es			
Estimated Length of	Length	% of	Length	% of	
New Segment	(miles)	Total	(miles)	Total	
Double Track	2.37	68%	1.15	73%	
Single Track	1.14	32%	0.42	27%	
New Segment	3.51	100%	1.57	100%	
Total Estimated Daily	Total Estimated Daily Trips				
2013	70)2	443		
2018	75	57	478		
2023	81	15	514		
2028	87	78	555		
Conceptual Alternative	Conceptual Alternative Costs – 2011 dollars (Millions)				
Capital Cost	68	3.7	32.7		
Maintenance Facility	0		0		
Vehicles	0.5		0.5		
ROW	()	0		
Total Cost	69	.2	33.2		

8.2 River Rail Airport Study Recommendations

Both Corridor Alternatives would contribute greatly to the ongoing efforts to strengthen the two downtowns and to promote interaction across the Arkansas River. The ridership that can be projected now from regional modeling data is based on known development plans and may be lower than project sponsors would like to have in comparison to the capital costs. However, the transformation and intense developments in Little Rock and North Little Rock over the past 12 years were not predicted at the time, and are the result of vision-based planning by the public and private sectors. It is reasonable to assume there will be transformational developments in the Corridor Study Area that will provide more ridership generation on the streetcar extensions. At some point in the near future, it would be beneficial to conduct demographic and travel surveys of the existing River Rail Streetcar ridership. This could provide a better case for future streetcar ridership forecasting.

In the meantime, it is recommended that the cities and CATA develop implementation strategies for these streetcar extensions and take steps to build them in logical phases or minimal operable segments (MOS). Currently, this report recommends two phases of implementation for each Corridor Alternative. However smaller MOS's could be considered. Alternative 6 could be implemented in stages by first installing new tracks on the Broadway Bridge when it is replaced

and connecting the Markham Street track with 7th Street in North Little Rock. Track should be placed on the Main Street Viaduct when it is replaced. Logical interim termini could include 15th Street, 22nd Street, Pershing Boulevard, and D Avenue. Alternative 7 – Option A could be implemented in stages by extending it from 2nd Street to interim termini at 7th, 13th, and 17th Streets.

In order to be eligible for FTA Small Starts funding, each public agency must have the legal, technical and financial caparity to carry out the project. With regard to project implementation, the cities of North Little Rock and Little Rock each need to further explore opportunities to secure funding for the local share of the capital costs required for its respective streetcar extension.

Conceptual-level planning costs estimates and ridership forecasts have been included in this Phase Two Study; however, more detailed capital cost estimates and ridership forecasts would be required for grant approval. Project Development, which includes Preliminary Engineering and Final Engineering, would need to be completed to determine better capital, O&M, and ridership estimates for funding requests. Federal funding through FTA would require documentaion of the planning results of an Alternatives Analysis (AA). As part of the AA, National Environmental Policy Act (NEPA) documentation to determine the human, physical and natural environment impacts associated with each Corridor Alternative may be necessary.

The proposed Corridor Alternatives would improve mobility and access to major employment and activity centers, as well as improve service to transit dependent persons and households. In addition to these transportation benefits, each streetcar extension project should help to achieve comprehensive land use planning and economic development objectives to promote sustainable development and redevelopment along Main Street, specifically in and around station areas, resulting in stabilization and ultimately growth of population and employment. Public sector comprehensive plans, based on smart growth principles, need to include transportation and land use elments, as well as economic devopment, environmental protection, social equity, and quality of life elements that shape transportation and land use decisions. Additional planning efforts should be undertaken to increase transit supportive plans and policies for the region. Furthermore, preservation of vacant parcels, such as those identified in Chaper 5, should be considered by each city.

In addition to locally adopted plans, continuation of public-private sector initiatives should be undertaken to promote new and intensified development. Several new mixed-use projects are proposed in the River Market area (see **Section 5.2**) and in North Little Rock east of Main Street. These planned projects would contribute to the transit-oridented development potential for the Corridor Alternatives.

Additional Recommendations Based on Public Comments

The following recommendations are based on public comments received as part of the August 2011 public meeting on the Corridor Alternatives.

- Based on the public comments expressing concern over the interaction of bikes and streetcars (described in **Section 4.2**), the inclusion of separate bike lanes would first need to be coordinated and incorporated into Little Rock and North Little Rock bike plans. Prior to this, however, roadway design standards and engineering factors (e.g., existing right-of-way width, travel lane width, turn lanes, parking provisions, sidewalks, utility locations, etc.) would need to be considered by the cities, along with the establishment of design guidelines for integrating bikes and streetcars within the same corridor. If and when city bike plans have been updated accordingly, bike facilities and bike safety features should be evaluated in the future if additional phases of the River Rail Airport Study are implemented.
- Based on the public comments suggesting modifications to the proposed Corridor Alternative alignments (described in **Section 4.2**), public-suggested alignment modifications could be evaluated in the future if additional phases of the River Rail Airport Study are implemented.
- Based on the public comments suggesting additional streetcar station locations along the Corridor Alternative alignments (described in **Section 4.3**), additional stations could be studied in the future if additional phases of the River Rail Airport study are implemented.
- Based on the public comments suggesting that the streetcar stations contain various amenities (described in Section 4.3), detailed station plans and designs, including amenities, should be evaluated in the future if additional phases of the River Rail Airport Study are implemented.
- Based on the public comments expressing concern over the cost and funding of the
 proposed Corridor Alternatives (described in Section 7.4), the viability and availability of
 funding opportunities for streetcar expansion should be evaluated in the future if
 additional phases of the River Rail Airport Study are implemented.
- If additional phases of the River Rail Airport Study are implemented, it is recommended that the study be carried out under the direction of a SSC comprised of local government and elected officials, as well as representatives from local businesses, community groups, and biking organizations.

APPENDIX A



RIVER RAIL AIRPORT STUDY PHASE TWO

TIER I SCREENING OF PRELIMINARY STREETCAR ALTERNATIVES



North Little Rock, Arkansas Little Rock, Arkansas Pulaski County, Arkansas

Job Number 061231 Federal Aid Project Number STPU-9253(56)

Prepared by URS Corporation



1.0 TIER I SCREENING EVALUATION MEASURES

Four preliminary streetcar alternatives were developed as part of the Phase Two Study *Universe of Alternatives*:

- o Alternative 4 Option A or Option B;
- o Alternative 5 (North Little Rock);
- o Alternative 6 (North Little Rock); and
- o Alternative 7 Option A or Option B (Little Rock).

The Tier 1 Screening Criteria described below was utilized to select the following preliminary streetcar alternatives for a more stringent Tier II screening analysis:

- 1. Either Alternative 4 Option A *OR* Option B to be implemented in conjunction with the North Little Rock recommended alternative;
- 2. Either Alternative 5 *OR* Alternative 6 as the recommended North Little Rock Alternative; and
- 3. Either Alternative 7 Option A *OR* Option B as the recommended Little Rock Alternative.

1.1 Screening Criteria

A list of possible Tier I screening criteria was developed and then reviewed by the Study Team to establish the most meaningful, practical, and useful list of screening criteria. **Table 1** presents the screening criterion that was used to evaluate the preliminary streetcar alternatives. Seven categories were evaluated for each alternative, including: mobility, system performance, cost and affordability, environmental impacts, economic development and implementability / design considerations, and public preference. The full screening evaluation worksheet / evaluation matrix is included as **Attachment 1**.

Table 1
Tier I Screening Criterion

	Category	Criterion
A	Mobility	 Travel time: approximate average operating speed per mile Magnitude of major employment served Magnitude of major traffic generators / destinations served Magnitude of population centers served
В	System Performance	 Service reliability / predictability (single-track, one-way flow versus single-track, two-way flow)
С	Cost and Affordability	 Capital cost Operations and maintenance cost
D	Environmental Impacts	 Impacts to the human environment Impacts to the physical environment
E	Economic Development	1. Transit Oriented Development (TOD) / redevelopment opportunities
F	Implementability / Design Considerations	1. Reasonable implementability of the preliminary streetcar alternatives
G	Public Preference	1. Public preference for an Alternative 4 option, a North Little Rock Alternative, and a Little Rock Alternative (based on public response following the April 2011 River Rail Airport Phase Two Public Meetings)

A general discussion of each screening category and criterion is presented below, including discussion of the key characteristics utilized to evaluate and quantify the similarities and differences among the preliminary streetcar alternatives that are presented in the Evaluation Matrix (see Attachment 1).

Mobility

1. **Travel Time** – Travel time was estimated on segments only for each preliminary streetcar alternative. Travel time to the Little Rock International Airport will be developed as part of the Tier II screening analysis. Estimates were calculated based on variable running speeds operating over various segments of each preliminary streetcar alignment. Dwell time at station locations were also included in the travel time estimate. The preliminary streetcar alternatives with the fastest average operating speed per mile were scored higher than those with the slower average operating speed per mile.

The following assumptions were made in estimating average travel time per mile:

- In general, streetcar travel speeds were estimated at 5 miles per hour (mph) below the posted roadway speed limit; however, in cases where roadway grades exceeded 5 percent, the estimated streetcar travel speed was estimated at 10 mph below the posted roadway speed limit.
- In general, dwell time at station locations were estimated at 30 seconds per stop; however, at station locations where high traffic volumes were anticipated due to major destinations (e.g., North Little Rock High School West Campus, Patrick Henry Hays Senior Center, William F. Laman Public Library, and other community services near Orange Street and Pershing Boulevard in North Little Rock), the dwell times were increased to 1 minute.
- Travel speed on the existing River Rail Streetcar across the Main Street Bridge traversing the Arkansas River is limited (by governor device) to 10 mph to avoid streetcar derailment.
- 2. **Major Employment Served** This criterion is based on the overall magnitude of estimated employment within an approximate quarter-mile radius of each of the preliminary streetcar alternatives. Estimated employment consists of employment within the retail, service, and basic employment (agriculture, manufacturing, utilities, warehousing, etc.) sectors. Employment statistics were supplied by Metroplan. The preliminary streetcar alternatives servicing a greater employment base were scored higher than those servicing a smaller employment base. The estimated employment related to each preliminary streetcar alternative is summarized in **Table 2** below.

Table 2
Estimated Employment within an Approximate
Quarter-Mile Radius of the Preliminary Streetcar Alternatives

Preliminary Streetcar Alternative	Estimated Employment ¹
Alternative 4 – Option A	7,067
Alternative 4 – Option B	11,319
Alternative 5	4,457
Alternative 6	5,146
Alternative 7 – Option A	13,824
Alternative 7 – Option B	Slightly greater than 13,824 ²

Source: Metroplan research (2010).

Notes

- 1. Includes only broad estimates of employment within an approximate quarter-mile radius of the preliminary streetcar alternatives.
- 2. Based on the level of employment data provided, numerical distinction between estimated employment near Alternative 7 Option A and Option B was not possible because of the close proximity of these two alignments. However, because Alternative 7 Option B extends one-extra block compared to Alternative 7 Option A, employment estimates were anticipated to be slightly greater than those associated with Alternative 7 Option A.
- 3. Major Traffic Generators / Destinations Served This criterion is based on the overall magnitude of cultural, recreational, retail, educational, and community destinations located within a quarter-mile radius of the preliminary streetcar alternatives, as summarized in Table 3 below. The preliminary streetcar alternatives servicing the largest number of major traffic generators / destinations were scored higher than those servicing fewer major traffic generators / destinations. Major traffic generators / destinations were identified based on two sources: 1) data obtained from Metroplan research and 2) public input via the public meeting survey and comment form that is included in the River Rail Airport Study Phase Two Public Meeting Record (May 2011, URS Corporation). A detailed listing of each major traffic generator / destination is included as Attachment 2. Note that this list of major traffic generators / destinations is not meant to be comprehensive, but is instead designed to give a general understanding of the traffic generators / destinations located within the vicinity of the preliminary streetcar alternatives.

Table 3
Number of Major Traffic Generators / Destinations within a
Quarter-Mile Radius of the Preliminary Streetcar Alternatives

Preliminary Streetcar Alternative	Major Traffic Generators / Destinations
Alternative 4 – Option A	24
Alternative 4 – Option B	27
Alternative 5	13
Alternative 6	19
Alternative 7 – Option A	34
Alternative 7 – Option B	34

4. **Major Population Centers Served** – This criterion is based on the overall magnitude of population centers located within a quarter-mile radius of the preliminary streetcar alternatives. Several public comments were received during the April 2011 public involvement process noting a desire for the streetcar to reach more residential neighborhoods; therefore, the preliminary streetcar alternatives servicing larger populations were scored higher than those servicing smaller populations. The population statistics presented in **Table 4** below were obtained from 2010 US Census population data at the Census block level.

Table 4
Population within a Quarter-Mile Radius of the Preliminary Streetcar Alternatives

Preliminary Streetcar Alternative	Population
Alternative 4 – Option A	1,526
Alternative 4 – Option B	1,693
Alternative 5	3,127
Alternative 6	6,466
Alternative 7 – Option A	4,248
Alternative 7 – Option B	4,549
Source: US Census block data, 2010	

System Performance

1. Service Reliability / Predictability (single-track, one-way flow versus single-track, two-way flow) – This criterion only applies to Alternative 4, specifically on Main Street from Markham Street to 7th Street. Alternative 4 – Option A would utilize the existing River Rail Streetcar single-track alignment with two-way flow. Alternative 4 – Option B would also utilize the existing River Rail Streetcar single-track alignment, but would have a one-way directional flow on Main Street paired with a Broadway Street single-track alignment with a one-way directional flow in the opposite direction¹. It is anticipated that a single-track, one-way flow alignment (Alternative 4 – Option B) would be more reliable and effective from an operations standpoint compared to a single-track, two-way flow alignment (Alternative 4 – Option A). That is, a single-track with two-way flow (Alternative 4 – Option A) would not effectively support the increase in streetcar vehicles and reduction in capacity anticipated with its paired implementation with a North Little Rock Alternative; thus potentially resulting in congestion, increased travel times, increased passenger wait-times as stations, and safety issues. For these reasons, Alternative 4 – Option B was scored higher than Alternative 4 – Option B.

Cost and Affordability

1. Capital Cost – Capital cost is certainly an important consideration, however at this point in the process the estimates for costs are primarily based on the length of the alternative. A unit cost of \$12 million dollars per track mile was used for estimating capital cost, which includes

¹ A double-track alignment is also being considered on Broadway Street for Alternative 4, in which case the existing River Rail Streetcar system operations would likely not change from their current state.

in-street track and overhead contact system (OCS) costs. This unit cost does not include any additions to the streetcar fleet or additions to the operations and maintenance (O&M) facility. The most inexpensive preliminary streetcar alternatives were scored higher than the least inexpensive preliminary streetcar alternatives. The estimated capital cost of each preliminary streetcar alternative is described below. Note that all costs for the recommended alternatives will be refined as part of the Tier II screening analysis.

- Alternative 4 Option A: As this preliminary streetcar alternative involves utilizing the existing single-track along Main Street from Markham Street to 7th Street, no additional capital costs are anticipated.
- Alternative 4 Option B: The Arkansas Highway and Transportation Department (AHTD) has committed to building a replacement for the Broadway Bridge. Preliminary designs are underway and include options for installing streetcar track on the new bridge, which would substantially lower the capital costs below the cost of modifying an existing structure to accommodate tracks. Based on the above considerations, the capital cost of Alternative 4 Option B was estimated at approximately \$10 million.
- Alternative 5: There are no substantial cost issues associated with Alternative 5. The capital cost of Alternative 5 was estimated at approximately \$37 million.
- Alternative 6: There are no substantial cost issues associated with Alternative 6. As Alternative 6 extends beyond Alternative 5 into the Park Hill Neighborhood of North Little Rock, the capital cost of Alternative 6 is greater than Alternative 5, and estimated at approximately \$59 million.
- Alternative 7 Option A: Connecting Alternative 7 Option A with the existing track on Main Street might require a complicated switch / special track arrangement known as a half junction. There are no other known cost issues associated with this preliminary streetcar alternative. Based on the above considerations, the capital cost of Alternative 7 Option A was estimated at approximately \$38 million.
- Alternative 7 Option B: Similar to Alternative 7 Option A, Alternative 7 Option B could require a half junction at the Main Street connection. In contrast to Alternative 7 Option A, however, Alternative 7 Option B would require additional OCS costs associated with the single track running way on Scott Street. Based on these assumptions, the capital cost of Alternative 7 Option B was estimated at approximately \$40 million.
- 2. **Operations and Maintenance (O&M) Cost** The cost to operate and maintain additional streetcar service (beyond that of the existing River Rail Streetcar system) was estimated for the preliminary streetcar alternatives based on the system operating assumptions listed below. The preliminary streetcar alternatives that are the most inexpensive to operate and maintain were scored higher than those that are the least inexpensive to operate and maintain.

System Operation Assumptions:

- Span of Operation: 97 hours per week (4,947 hours per year);
- O&M cost per vehicle = \$33 (includes operator wage and maintenance per revenue hour; this is marginal cost for incremental new service, not the average cost per revenue vehicle hour);
- Annual cost per vehicle (at \$33) = approximately \$164,000;
- Alternative 4 Option A and Option B would utilize no additional streetcar vehicles beyond that of the existing River Rail Streetcar system;
- Alternative 5 would utilize one additional streetcar vehicle; and
- Alternatives 6, 7 Option A, and 7 Option B would utilize two additional streetcar vehicles.

Based on the above assumptions, the estimated cost to operate and maintain the preliminary streetcar alternatives beyond that of the existing River Rail Streetcar are as follows:

- Alternatives 4 Option A and Alternative 4 Option B: Because no additional streetcar vehicles would be utilized for either Alternative 4 Option beyond the existing River Rail Streetcar system, no additional O&M costs are anticipated;
- *Alternative 5:* approximately \$164,000 additional O&M cost;
- *Alternative 6:* approximately \$328,000 additional O&M cost;
- *Alternative* 7 *Option A*: approximately \$328,000 additional O&M cost; and
- Alternative 7 Option B: approximately \$328,000 additional O&M cost.

Environmental Impacts

1. **Potential Impacts to the Human Environment** – This criterion addresses potential impacts of the preliminary streetcar alternatives on the community and its quality of life. Over the past twenty years, streetcar system planners in the United States (US) have found very few negative environmental impacts of building and operating streetcars. However, it is nevertheless important to evaluate potential impacts to the community, including environmental justice in minority and low-income populations.

Similar to other modes of public transportation, it is anticipated that expansion of the streetcar system would provide a beneficial service to minority and low-income populations. Demographic statistics were obtained from 2010 US Census data at the Census block level. Percent minority statistics are summarized in **Table 5** below and presented in detail as **Attachment 3**. Unfortunately, low-income data has not yet been released as part of the 2010 US Census, and is therefore not included as part of this criterion. Therefore, the overall magnitude of this criterion is based on the percent minority population within a quarter-mile radius of the preliminary streetcar alternatives. Preliminary streetcar alternatives containing a larger percentage of minority populations that would benefit from a new streetcar system within their quarter-mile radius were scored higher than those with a smaller percentage of minority populations.

Table 5
Percent Minority within a Quarter-Mile Radius of the Preliminary Streetcar Alternatives

Preliminary Streetcar Alternative	Percent Minority
Alternative 4 – Option A	39%
Alternative 4 – Option B	38%
Alternative 5	74%
Alternative 6	46%
Alternative 7 – Option A	56%
Alternative 7 – Option B	57%
Source: US Census block data, 2010	

It is unknown at this time if relocations would be required; however, because the preliminary streetcar alignments are primarily located within the public roadway right-of-way, relocations are not anticipated. If determined necessary, relocations would be mitigated through fair compensation. Depending on the final alternative selected, there may be concerns about impacts regarding community cohesion, cultural resources, vibration, noise, or aesthetics at specific locations along each route. These resources will be evaluated to the appropriate level of detail. Benefits to the community will also be considered as part of the environmental screening of alternatives.

2. **Potential Impacts to the Physical Environment** – Based on limited data, it was determined that impacts to the physical environment would be similar among the preliminary streetcar alternatives and, in general, could not provide a meaningful discriminatory measure among the preliminary streetcar alternatives. The one exception, however, relates to Alternative 7 – Option B in Little Rock, which could impact overhead power lines that overhang Scott Street to connect residences. As such, Alternative 7 – Option A was scored lower than the other preliminary streetcar alternatives. The preliminary streetcar alternatives are primarily located within the public roadway right-of-way; streets and sidewalks are expected to be directly impacted. The construction methods for the streetcar line are expected to involve no excavation deeper than 18" to 24" in the street, which minimizes the likelihood of any subsurface environmental issues. Footings for overhead wire support poles will be 10'-20' deep, but this is typical for the hundreds, if not thousands, of footings that already exist throughout areas of Little Rock and North Little Rock. As the proposed project progresses and more design details become known, potential impacts to the physical environment will be evaluated to the appropriate level of detail, and it is likely that any environmental issues can be mitigated by project design.

Economic Development

1. Transit Oriented Development (TOD) / Redevelopment Opportunities — A subjective evaluation of TOD and redevelopment opportunities was completed as part of the Tier I screening analysis. This cursory evaluation was based on known planned development opportunities in the study area and knowledge of existing and future land use within the study area. A more detailed evaluation of TOD / redevelopment opportunities will be

developed as part of the Tier II screening analysis. TOD / redevelopment potential associated with each preliminary streetcar alternative is described below. Preliminary streetcar alternatives having the highest potential for TOD / redevelopment were scored higher than those having less potential for TOD / redevelopment.

Alternative 4 Comparison

- **Alternative 4 Option A:** In general, there is no TOD potential associated with Alternative 4 Option A.
- Alternative 4 Option B: There is little to no TOD potential on the Little Rock side due to existing public and governmental land uses along Alternative 4 Option B. In North Little Rock, there is some potential for TOD development on the northwest corner of Broadway Street and 3rd Street. There is also some potential for TOD on the east side of the preliminary streetcar alignment north of Broadway, but the proximity of freight railroad operations and light industrial land use farther north would likely limit the potential for additional TOD.

Conclusion: Based on the above comparison between Alternative 4 Options, TOD / redevelopment potential for Alternative 4 – Option B was considered greater (and was scored higher) than for Alternative 4 – Option A.

North Little Rock Alternatives Comparison

- Alternative 5: Depending on market conditions and demand, Main Street from 13th Street to Pershing Boulevard has potential for mixed use development not unlike development that has been occurring in the Argenta district over the past 5 years. There is also potential for intensified development of professional offices, restaurants, and other similar development on the west side of Willow Street in North Little Rock.
- Alternative 6: In addition to the TOD / redevelopment potential described in Alternative 5, there could be at least two additional nodes amenable to TOD / redevelopment depending on market conditions and demand. One node would be between Cherry Hill Drive / A Avenue and D Avenue on John F. Kennedy (JFK) Boulevard, where general commercial and retail zoning has replaced the original residential development along the route. Another area of TOD / redevelopment potential is the Lake Hill Shopping Center, located at the northern terminus of Alternative 6. Originally developed in the 1960s as a neighborhood shopping facility including grocery, variety, hardware, and pharmacy establishments, the center has gone through a long transition to much less intense uses. Discount clothing. miscellaneous retail, and vacant space characterize the development now. It has high visibility, a strategic location, and a good parking supply. One option is to install the terminal platform inside the private parking lot, on the western edge near JFK. This might require a special trolley signal connected to the adjacent traffic signal at H Avenue and JFK Boulevard. The City of North Little Rock and the property owner could explore a comprehensive and cooperative redevelopment plan.

Conclusion: Based on the above comparison between North Little Rock Alternatives, TOD / redevelopment potential for Alternative 6 was considered greater (and was scored higher) than for Alternative 5.

Little Rock Alternatives Comparison

- Alternative 7 Option A: Assuming appropriate market conditions and demand, there are at least three nodes of TOD / redevelopment potential along Alternative 7 Option A. (1) From 3rd Street to 6th Street, several buildings from the Little Rock downtown era of the 1940s, 1950s, and 1960s have been demolished. Some surface parking lots have replaced the buildings, but these are considered by most interests to be "holding place" uses until conditions are conducive to redevelopment. (2) Similarly, the blocks immediately north and south of Interstate 630 have TOD / redevelopment potential. This zone ranges from 9th Street and Main Street to 17th Street and Main Street. (3) Finally, there is a potential for residential or mixed use development to complement the public housing redevelopment south of Roosevelt Road. It is recommended that the double track southern terminus be located south of Roosevelt (see constructability / design considerations section below).
- Alternative 7 Option B: TOD / redevelopment potential along the Main Street track should be similar to that of Alternative 7 Option A. Some TOD / redevelopment potential could be available along Scott Street; however, due to the residential and historical character of houses and institutions along Scott Street, it is anticipated that such TOD / redevelopment potential would be greatly limited.

Conclusion: Based on the above comparison between Little Rock Alternatives, TOD potential for Alternative 7 – Option B was considered slightly greater (and was scored higher) than for Alternative 7 – Option A.

Implementability / Design Considerations

Reasonably Implementable – This criterion primarily deals with design and construction issues and takes into account known or highly probable design difficulties that might be encountered during construction or that might affect operations adversely. A more detailed operations and maintenance analysis will be incorporated as part of the Tier II screening analysis. Design and construction issues associated with each preliminary streetcar alternative are presented below. The preliminary streetcar alternatives most easily implemented were scored higher than those least easily implemented.

Alternative 4 Comparison

■ Alternative 4 – Option A: Alternative 4 – Option A utilizes the existing River Rail Streetcar on Main Street from Markham Street to 7th Street. Although no new track is proposed as part of this preliminary streetcar alternative, operational issues would exist due to the approximate 0.6 mile of single-track with 2-way streetcar operation. That is,

implementation of Alternative 4 – Option A in conjunction with either Alternative 5 or Alternative 6 would necessarily increase the number of streetcars utilizing the Main Street portion of the existing streetcar route. As previously described, in its current configuration, the single-track alignment with two-way flow on Main Street would not effectively support such an increase in streetcar vehicles and reduction in capacity; thus potentially resulting in streetcar congestion, increased travel times, increased passenger wait-times at stations, and other operational and safety issues.

■ Alternative 4 – Option B: As previously described, preliminary designs for the Broadway Bridge replacement are underway and provide options for installing streetcar track on the new bridge, thereby lowering the capital cost Alternative 4 – Option B. If a traffic circle or rotary is built on the North Little Rock end of the Broadway Bridge, it would not present an obstacle for streetcar track construction as long as compatible turning radii and curve geometry were included in the design. It is still unknown whether Broadway Street would be utilized as a single or double track running way. The capital cost of Alternative 4 – Option B presented earlier in this document represents a single-track running way along Broadway Street; and this cost would necessarily increase if a double track running way was implemented.

Conclusion: Based on the above comparison between Alternative 4 Options, it is anticipated that Alternative 4 – Option B would be more easily implemented (and was scored higher) than Alternative 4 – Option A.

North Little Rock Alternatives Comparison

- Alternative 5: There are no significant constructability issues associated with Alternative 5, assuming the Main Street overpass replacement is built and that it is designed to accommodate double track-bed and OCS.
- Alternative 6: The AHTD recently constructed a new overpass where JFK Boulevard passes over Interstate 40. The new overpass has ample width and sidewalks on both sides, and the cross section could accommodate double track. However, the method of installing a track-bed either into or on top of the existing bridge deck would have to be explored with AHTD. Any design and installation plan would be subject to the approval and permitting process of AHTD. JFK Boulevard has a 7% grade from the Interstate 40 overpass to Cherry Hill Drive / A Avenue, which is not a barrier to streetcar operation, but it is a safety and operational concern. In addition and as previously described, a terminal platform installed in the private parking lot of the Lake Hill Shopping Center at the Alternative 6 northern terminus could be a viable option to a single-track loop terminus at H Avenue, which would pass directly through a primarily residential area on narrow streets. The City of North Little Rock and the property owner could explore a comprehensive and cooperative redevelopment plan.

Conclusion: Based on the above comparison between North Little Rock Alternatives, Alternative 5 would be more easily implemented (and was scored higher) than Alternative 6.

Little Rock Alternatives Comparison

- Alternative 7 Option A: Some 2nd story pedestrian overpasses have been built across Main Street but the OCS power supply can be accommodated. The overpass over Interstate 630 was constructed in the 1970s and a method of embedding or applying track to that structure would have to be explored with the owner, the AHTD. Main Street has a 9% grade immediately north of Roosevelt road which could be an operating and safety concern, but it is within the range of experience for streetcar operation. Because of the grade, the southern terminus of Alternative 7 Option A should be located on the south side of Roosevelt Drive where the grade can be modified to approach 1% or 2% for safe switching operations. This revised southern terminus has the added benefit of providing for TOD / redevelopment opportunity to complement recent new housing provided by the Little Rock Housing Authority.
- Alternative 7 Option B: Scott Street has a 12% grade just north of Roosevelt Road; and therefore, it is not advisable to build track on this severe a slope if there are other alternatives.

Conclusion: Based on the above comparison between Little Rock Alternatives, Alternative 7 - Option A would be more easily implemented (and was scored higher) than Alternative 7 - Option B.

Public Preference

- 1. Public Preference for an Alternative 4 Option, a North Little Rock Alternative, and a Little Rock Alternative This criterion is based on public preference for the aforementioned preliminary streetcar alternatives. A total of 201 surveys and comment forms were completed by respondents over the public meeting comment period which took place in April 2011. The preliminary streetcar alternatives with a greater percent preference were scored higher than those with a lower percent preference. Respondent preferences were as follows:
 - Respondents clearly preferred Alternative 4 Option B (82%) compared to Alternative 4 Option A (18%). Alternative 4 would be implemented in conjunction with either Alternative 5 or Alternative 6 in North Little Rock.
 - Respondents clearly preferred Alternative 6 (82%) compared to Alternative 5 (18%) as the preferred North Little Rock Alternative.
 - Respondents preferred Alternative 7 Option A (55%) compared to Alternative 7 Option B (45%) as the preferred Little Rock Alternative.

1.2 Preliminary Screening Analysis

As previously described in **Section 1.0**, the purpose of the Tier I screening analysis is to identify the following for a more stringent Tier II screening analysis:

- 1. A preferred Alternative 4 Option to be implemented in conjunction with the preferred North Little Rock Alternative;
- 2. A preferred North Little Rock Alternative; and
- 3. A preferred Little Rock Alternative.

The study team took into account the level of detail at this conceptual planning stage and concluded that some of the listed criteria could not be applied in a meaningful way to distinguish between the preliminary streetcar alternatives due to unknown conditions or conceptual alignments. In these instances, each of the alternatives was assigned the same score. For some criteria, a subjective rating was applied. For other criteria where the evaluation measures could be quantified, each of the alternatives was given an evaluation score commensurate with the degree of benefit or improvement. Evaluation scores for the preliminary streetcar alternatives ranged from 1 to 2 since each alternative was only compared to one other alternative. The preliminary streetcar alternatives with higher total evaluation scores were ranked higher than those with the lower total evaluation scores.

In summary, the total evaluation scores are as follows:

Alternative 4 Options:

- Alternative 4 Option A: Total Score 16 / Ranking 2nd
- Alternative 4 Option B: Total Score 22 / Ranking 1st

North Little Rock Alternatives:

- Alternative 5: Total Score 17 / Ranking 2nd
- Alternative 6: Total Score 18 / Ranking 1st

Little Rock Alternatives:

- Alternative 7 Option A: Total Score 16 / Ranking 2nd
- Alternative 7 Option B: Total Score 17 / Ranking 1st

1.3 Recommendations

Based on the above criterion, evaluation scores, and rankings (details provided in **Attachment 1**), the following preliminary streetcar alternatives are recommended as the corridor alternatives for the Tier II screening analysis:

- **Alternative 4 Option B:** recommended for implementation with the North Little Rock Alternative
- Alternative 5: Although Alternative 6 had a slightly higher overall evaluation score, Alternative 5 is recommend as the North Little Rock Alternative based on cost, with the option for future phasing of the streetcar through the Park Hill Neighborhood, as depicted in Alternative 6.

■ Alternative 7 – Option A: Although Alternative 7 – Option B had a slightly higher overall evaluation score, Alternative 7 – Option A is recommended based on the implementability issues associated with Alternative 7 – Option B along Scott Street (e.g., 12% grade at Roosevelt Road) and other constraining factors (e.g., potential impacts to overhead power lines along Scott Street).

List of Attachments

- **Attachment 1:** Preliminary Streetcar Alternatives Tier I Screening / Evaluation Matrix
- **Attachment 2:** Major Traffic Generators / Destinations within a Quarter-Mile Radius of the Preliminary Streetcar Alternatives
- **Attachment 3:** Demographic Analysis within a Quarter-Mile Radius of the Preliminary Streetcar Alternatives

RIVER RAIL AIRPORT STUDY Preliminary Streetcar Alternatives Tier I Screening / Evaluation Matrix

			Evalue	Evaluation Scores.	1 - loce.	2 - more	
			Lvaide	ation ocoles.	, cepi - 1	0	
Category	Criterion	Alternative 4	tive 4	North Little Ro Alternatives	North Little Rock Alternatives	Little Rock	Little Rock Alternatives
		4A	4B	2	9	7.A	7B
	Travel time: Which preliminary streetcar alternative (new alignment only ¹) has the fastest approximate average operating speed per mile [r/r] (approximate average operating speed per mile [1]? (approximate average operating speed per mile)	1 (9)	2 (12)	2 (17)	2 (17)	1 (13)	2 (17)
	Magnitude of major employment ² served: Within a quarter-mile radius, which preliminary streetcar atternative has the greatest estimated employment [2] and which has the least estimated employment [1]? (estimated employment ²)	1 (7,067)	2 (11,319)	1 (4,457)	2 (5,146)	1 (13,824)	2 (>13,824)
A Mobility	Magnitude of major traffic generators / destinations ³ served: Within a quarter-mile radius, which preliminary streetcar alternative 3 has the largest number of major traffic generators / destinations [2] and which has the least number of major traffic generators / destinations) destinations [1]? (number of major traffic generators / destinations)	1 (24)	2 (27)	1 (13)	2 (19)	2 (34)	2 (34)
	Magnitude of population centers served: Within a quarter-mile radius, which preliminary streetcar alternative has the largest total population population [1]? (total population)	1 (1,526)	2 (1,693)	1 (3,127)	2 (6,466)	1 (4,248)	2 (4,549)
B System Performance	Service reliability / predictability (single-track, one-way flow versus single track, two-way flow; only applies to Alternative 4): 1 Which Alternative 4 Option would be more reliable and effective operationally (i.e., single-track, one-way flow alignment) and which would be less reliable and effective operationally (i.e., single-track, two-way flow) [1]?	-	2	not applicable	not applicable	not applicable	not applicable
	Capital cost: Which preliminary streetcar alternative is the most inexpensive [2] and which is the least inexpensive [1]? (estimated capital cost in millions) ⁵	2 (\$0)	1 (\$10) ⁶	2 (\$37)	1 (\$59)	2 (\$38)	1 (\$40)
C Cost and Affordability	Additional Operations and Maintenance Cost: Which preliminary streetcar alternative is the most inexpensive [2] to operate and 2 maintain and which is the least inexpensive to operate and maintain [1] (estimated O&M cost beyond the existing River Rail Streetcar O&M cost)	2 (\$0)	2 (\$0)	2 (\$164,000)	1 (\$328,000)	1 (\$328,000)	1 (\$328,000)
D Environmental Impacts	Impacts to the human environment: Within a quarter-mile radius, which preliminary streetcar alternative has the greatest percent minority population that would benefit from a new streetcar system [2] and which has the least percent minority population [1]? (percent minority)	2 (39%)	1 (38%)	2 (74%)	1 (46%)	1 (56%)	2 (57%)
	Impacts to the physical environment: Which preliminary streetcar alternative would be more likely to not impact the physical environment [2] and which would be least likely to not impact the physical environment [1]?	2	2	2	2	2	-
E Economic Development	Transit Oriented Development (TOD) / redevelopment opportunities: Which preliminary streetcar alternative would have the greatest potential for TOD / redevelopment [2] and which would have the least potential for TOD / redevelopment [1]?	-	2	-	2	-	2
F Implementability / Design Considerations	Reasonable implementability of the preliminary streetcar alternatives: Which preliminary streetcar alternative would be most easily implemented [2] and which would be least easily implemented [1]?	-	2	2	1	2	-
G Public Preference	Public preference: Which Alternative 4 option, North Little Rock Alternative, and Little Rock Alternative had the highest public 1 preference [2] and the lowest public preference [1]? (percent preference obtained from the April 2011 public meeting survey and comment form)	1 (18%)	2 (82%)	1 (18%)	2 (82%)	2 (55%)	1 (45%)
	Total Evaluation Score	16	22	17	18	16	17

Notes: 1. Average travel time / operating speed per mile to the Little Rock International Airport will be determined as part of the future Tier II screening analysis. 2. Source: Metroplan research and public input obtained from Question #6 on public meeting \$12 million per mile of new track and adjusted to current dollars using the estimated 2003 to 2011 rate of inflation. All costs for the recommended alternatives will be refined as part of the Tier II screening analysis. 6. New Broadway Bridge may include a double track, but only a single track was included in this cost estimate. 7. Source: US Census block data, 2010; Percent Minority = Black or African American, Indian and Alaskan Native Alone, Native Hawaiian and Other Pacific Islander Alone, Some Other Race Alone, Two or More Races, and Hispanic or Latino.

Major Traffic Generators / Destinations within a Quarter-Mile Radius of the Preliminary Streetcar Alternatives ¹

Major Traffic Generator / Destination The Empress of Little Rock Martin Mahlon Apartments Governor's Mansion Edwards Food Giant Post Office USA Drug	4A	4B	5	6	7A	7B
Martin Mahlon Apartments Governor's Mansion Edwards Food Giant Post Office					4	
Governor's Mansion Edwards Food Giant Post Office					1	1
Edwards Food Giant Post Office					1	1
Post Office					1	1
					1	1
USA Drug					1	1
55. 15. ag					1	1
The Root Cafe					1	1
The Green Corner Store					1	1
15th Street Community Garden					1	1
The Bernice Garden					1	1
Miracle Wash Coin Laundry					1	1
South of Main Residential Historic District					1	1
Villa Marre					1	1
Midtown Billiards					1	1
EZ Mart					1	1
Juanita's Cafe and Bar ²					1	1
Community Bakery					1	1
Besser Do It Best hardware and Rental					1	1
Fuller and Sons Hardware					1	1
Masonic Lodge					1	1
Ciao Italian Restaurant					1	1
Arkansas Repertory Theatre					1	1
Arkansas Community Arts Cooperative					1	1
The Public Theatre					1	1
Lulav Restaurant					1	1
Downtown Music Hall and Record					1	1
EStem Charter School	1	1			1	1
Historic Arkansas Museum	1	1			1	1
Central Arkansas Library	1	1			1	1
Porter's Jazz Cafe	1	1			1	1
River Market	1	1			1	1
Pulaski County Courthouse		1			1	1
Peabody Hotel\Statehouse Convention Center	1	1			1	1
Old State House	1	1			1	1
Robinson Auditorium		1				
Little Rock City Hall		1				
USS Razorback Submarine	1	1				
Arkansas Queen Riverboat	1	1				
Arkansas Inland Maritime Museum	1	1				
Arkansas River Trail Head and Bike Rental	1	1				
Riverfront Park - North Shore Riverwalk	1	1				
Faucette Brothers Park	1	1				
Wyndam Riverfront Hotel	1	1				
North Little Rock City Services	1	1				

Major Traffic Generators / Destinations within a Quarter-Mile Radius of the Preliminary Streetcar Alternatives ¹

Maior Troffic Compressor / Destination		Prelim	inary Stre	etcar Alteri	natives	
Major Traffic Generator / Destination	4A	4B	5	6	7A	7B
Arkansas Sports Hall of Fame	1	1				
Verizon Arena	1	1				
Dickey Stephens Ball Park	1	1				
Ump's Pub and Grill	1	1				
North Little Rock City Hall	1	1				
North Little Rock Police Sub Station	1	1				
Baker House Bed and Breakfast	1	1	1	1		
Argenta Library	1	1	1	1		
Argenta Market	1	1	1	1		
Argenta Academy			1	1		
Full Counsel Ministries			1	1		
North Little Rock High School West Campus			1	1		
Best Western JFK Inn & Suites			1	1		
North LIttle Rock Police Department			1	1		
Howard Johnson Hotel			1	1		
Patrrick Henry Hays Senior Center			1	1		
North Little Rock Community Center			1	1		
William F.Laman Public Library			1	1		
Holiday Inn North			1	1		
Park Hill Historic District				1		
Park Hill Baptist Church				1		
Park Hill Elementary School		_	_	1		
Lakehill Shopping Center				1		
St. Luke's Episcopal Church				1		
Idlewild Shopping Center				1		
Total Number of Traffic Generators / Destinations	24	27	13	19	34	34

Source: Metroplan research and public input via the public meeting survey and comment form that is included in the *River Rail Airport Study Phase Two Public Meeting Record* (May 2011, URS Corporation)

Notes:

- 1. The above list of major traffic generators / destinations is not meant to be comprehensive, but instead designed to give a general understanding of traffic generators / destinations nearby the preliminary streetcar alternatives.
- 2. Juanita's recently announced that it is relocating from Main Street to River Market.

River Rail Airport Study Phase Two

Demographic Analysis¹ within a Quarter-Mile Radius of the Preliminary Streetcar Alternatives

Alternative Po	Total	Hispanic or Latino	White	Black or African American Alone	American Indian & Alaskan Native Alone	Asian Alone	Native Hawaiian & Other Pacific Islander Alone	Some Other Race Alone	Two or More Races	Total Minority²
Alt 4A	1526	51	939	473	7	34	0	4	24	587
Alt 4B	1693	54	1048	524	2	35	0	4	26	645
Alt 5	3127	188	812	2019	15	6	0	9	78	2315
Alt 6	6466	341	3517	2392	22	53	1	16	119	2949
Alt 7A	4248	116	1888	2123	13	43	3	2	22	2360
Alt 7B	4549	123	1949	2346	14	46	9	2	61	2600

Alternative	Percent Total Population	Percent Hispanic or Latino	Percent White Alone	Percent Black or African American Alone	Percent American Indian & Alaskan Native Alone	Perecent Asian Alone	Percent Native Hawaiian & Other Pacific	Percent Some Other Race Alone	Percent Two or More Races	Percent Minority ²
Alt 4A	100	3.3	61.5	31.0	0.1	2.2	0.0	0.3	1.6	38.5
Alt 4B	100	3.2	61.9	31.0	0.1	2.1	0.0	0.2	1.5	38.1
Alt 5	100	0.9	26.0	64.6	0.5	0.3	0.0	0.2	2.5	74.0
Alt 6	100	5.3	54.4	37.0	0.4	8.0	0.0	0.2	1.8	45.6
Alt 7A	100	2.7	44.4	20.0	0.3	1.0	0.1	0.1	1.3	9:39
Alt 7B	100	2.7	42.8	51.6	0.3	1.0	0.1	0.1	1.3	57.2

Notes:

1. Source: Census 2010

2. Total and Percent Minority = Black or African American, Indian and Alaskan Native Alone, Asian Alone, Native Hawaiian and Other Pacific Islander Alone, Some Other Race Alone, Two or More Races, and Hispanic or Latino.

APPENDIX B

Appendix B Environmental Resources

Hazardous Sites

A preliminary investigation was conducted to determine the potential hazardous materials sites within and nearby the Corridor Study Area. Areas nearby the Phase One Alternatives retained for future study were also included in this preliminary investigation. Because of the potentially high cost and complicated procedures required to mitigate impacts when constructing through potential contaminated sites, avoidance of these areas is the most prudent and feasible alternative.

A review of available records maintained by the Environmental Protection Agency (EPA) and the Arkansas Department of Environmental Quality (ADEQ) was conducted in June 2011 by searching on-line databases maintained by these two regulatory agencies. Several regulated facilities were identified on properties within and nearby the Corridor Study Area. The findings are summarized in **Table B-1** (at the end of this appendix).

Federal National Priority List (NPL)

The Federal National Priority List (NPL) (also known as Superfund) is a listing of hazardous sites that represent a significant threat to public health or to the environment and are priorities for remedial action. No NPL sites were identified within 1.0 mile of the proposed corridor alternatives.

Federal Comprehensive Environmental Response Compensation and Liability Act (CERCLA)

The Federal Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) is a database of sites that the USEPA has investigated or is currently investigating for the release or threatened release of hazardous substances pursuant to CERCLA. The database is updated periodically as new sites are discovered. An additional CERCLIS database includes sites where there is No Further Remedial Action Planned (NFRAP). No CERCLA sites were identified within 0.5 mile of the proposed corridor alternatives.

Federal Resource Conservation and Recovery Act (RCRA)

Federal Resource Conservation and Recovery Act (RCRA) sites include facilities that generate, treat, store or dispose of hazardous waste. Based on the amount of hazardous waste generated per month, RCRA generator facilities are classified as conditionally exempt small quantity generators (CESQGs), small quantity generators (SQGs) or large quantity generators (LQGs). Hazardous wastes are transported by licensed haulers to RCRA treatment, storage and/or disposal (TSD) facilities. Active RCRA generator facilities identified within 0.25 mile of an

alternative and their generator type are listed in **Table B-1** (and their approximate locations are shown in **Figure B-1**).

In summary:

- One RCRA generator facility was identified within 0.25 mile of Corridor Alternative 6 (Site ID # 3);
- Five RCRA generator facilities were identified within 0.25 mile of Alternative 1 from the Phase One Study (Site ID #s: 10, 11, 12, 13, 15); and
- One RCRA generator facility was identified within 0.25 mile of Alternative 3 Option A from the Phase One Study (Site ID # 9).

Federal RCRA Facilities under Corrective Action (CORRACTS)

The Federal RCRA Facilities under Corrective Action (CORRACTS) database identifies RCRA facilities under corrective action. No CORRACTS facilities were identified within the prescribed ASTM search radii of the proposed corridor alternatives.

Federal National Response Center (NRC) Spills Database

The Federal National Response Center (NRC) Spills Database (formerly USEPA Emergency Response Notification System) is a national database of reported spills or releases of oils or hazardous substances. The list includes data collected from the US Coast Guard, the USEPA, the National Response Center, and the Department of Transportation. Three spills of hazardous material have been reported (over a ten year period) on property adjacent to Alternative 1 from the Phase One Study; and one spill of hazardous material was reported on property adjacent to Alternative 3 – Option A from the Phase One Study. All of these reported spills were secured and remediated accordingly.

State Regulated Storage Tank (RST) Database

The State Regulated Storage Tank (RST) database is a listing of all registered underground storage tanks (USTs) and above ground storage tanks (ASTs) maintained by the ADEQ RST Division. The RST facilities identified within 0.25 mile of a specified alternative are summarized below (and their approximate locations are shown in **Figure B-1**):

- One RST facility (Little Rock Skyline [Site ID #1]) identified within 0.25 mile of Alternative 6:
- Two RST facilities (Supermarine of Little Rock [Site ID #14] and Northwest Hardwoods [Site ID #13]) identified within 0.25-mile of Alternative 1 from the Phase One Study; and
- One RST facility (River City Oil Company [Site ID #8]) identified within 0.25 mile of Alternative 3 Option A from the Phase One Study.

Based on information obtained from ADEQ, three of these facilities (Little Rock Skyline and River City Oil Company) pose a low risk to the project. The remaining two facilities (Supermarine of Little Rock and Northwest Hardwoods) were also identified on the ADEQ leaking tanks database (see below).

State Leaking Tanks Database

The ADEQ RST Division maintains records of RST facilities having confirmed petroleum releases. This database is commonly known as the Leaking Underground Storage Tank (LUST) database; however, it also documents releases occurring to AST systems. Thirty-nine (39) RST facilities were identified within 0.5-mile of the following alternatives:

- 14 within 0.5-mile of Alternative 6;
- 4 within 0.5-mile of Alternative 7- Option A;
- 14 within 0.5-mile of Alternative 1 from the Phase One Study; and
- 7 within 0.5-mile of Alternative 3 Option A from the Phase One Study.

All but seven of these 39 RST facilities received a no further action letter and/or the project was closed; and therefore, pose a low risk to the project. The remaining seven facilities with confirmed releases are listed in **Table B-1** and their approximate locations are shown in **Figure B-1**.

Enforcement and Compliance History Online (ECHO)

The ECHO database is maintained by the EPA and integrates inspection, violation, and enforcement for the Clean Water Act (CWA), Clean Air Act (CAA), and hazardous waste laws. Three sites located within 0.25 mile of a Corridor Alternative or a Phase One Alternative carried forward for future analysis outside of this Phase Two Study were reported as having previous compliance violations. These three sites are as follows:

- Union Pacific Railroad Jenks Shop Company, located within 0.25 mile of Corridor Alternative 6, reported previous CWA and RCRA compliance violations. The date of the last CWA inspection was June 2008 and the last RCRA inspection was April 2008. At the time of the June 14, 2011 database search, no current violations from this facility had been reported.
- Hawker Beechcraft Corporation, located within 0.25 mile of Alternative 1 from the Phase One Study (on Little Rock International Airport property), reported previous CAA and RCRA compliance violations. The date of the last CAA inspection was January 2010 and the last RCRA inspection was February 2009. At the time of the database search, no current violations from this facility had been reported.

• Central Flying Service, Inc., located within 0.25 mile of Alternative 1 from the Phase One Study (along Bond Avenue), reported previous RCRA compliance violations. The date of the last RCRA inspection was April 2008. At the time of the database search, no current violations from this facility had been reported.

State Solid Waste Facility Permit Database

This database is maintained by the ADEQ Solid Waste Division and contains an inventory of permitted active and inactive solid waste disposal facilities and landfills in the state. In addition, the state maintains records of reported illegal dumps. One landfill (North Little Rock Public Works) accepting inert wastes and compost yard waste was identified within 0.5 mile of Corridor Alternative 6; and one waste tire collection and processing facility (Davis Rubber Company) was identified within 0.5 mile of Alternative 1 from the Phase One Study.

State Hazardous Substance Remedial Action Trust Fund Act Priority List

The SPL database is maintained by the ADEQ Hazardous Waste Division and is a list of sites in which remedial actions and/or investigations have occurred that were paid for by the State Remedial Action Trust Fund as promulgated by the State Remedial Action Trust Fund Act (RATFA). One SPL site (Fashion Park Cleaners) was identified within 1.0-mile of the Corridor Alternative 7 – Option A. As of July 2010, intended use of the facility was an adult day care facility and all dry cleaning equipment, chemicals, and above ground storage tanks have been removed from the property. The property development decision document was final on June 25, 2009. Clean-up of the property is ongoing as part of the Brownfields Program (see discussion below). A certificate of completion will be issued by ADEQ once clean-up is completed.

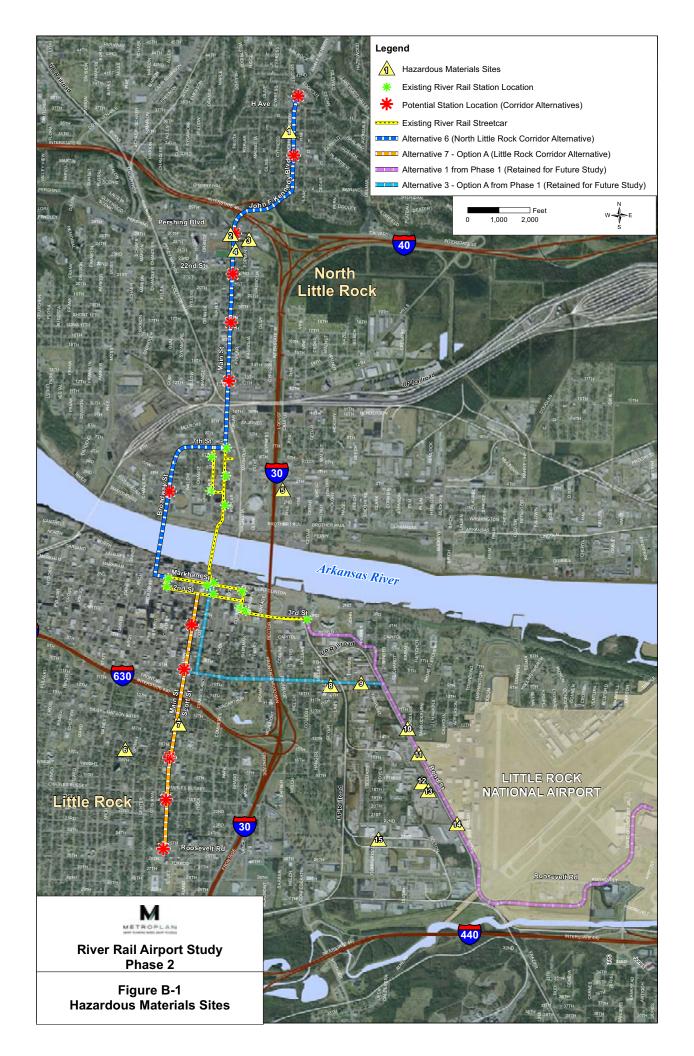
State and Federal Brownfields Program

This database is a list of sites having applied to the ADEQ or Federal Brownfield programs. One active Brownfield Site (Fashion Park Cleaners) was identified within 0.5-mile of Corridor Alternative 7 – Option A; one idle Brownfield Site (P&R Properties) was identified within 0.5 mile of Corridor Alternative 6; and one incomplete Brownfield Site (Airport Runway Extension) was identified at the Little Rock National Airport, located approximately within 0.5 mile of Alternative 1 from the Phase One Study.

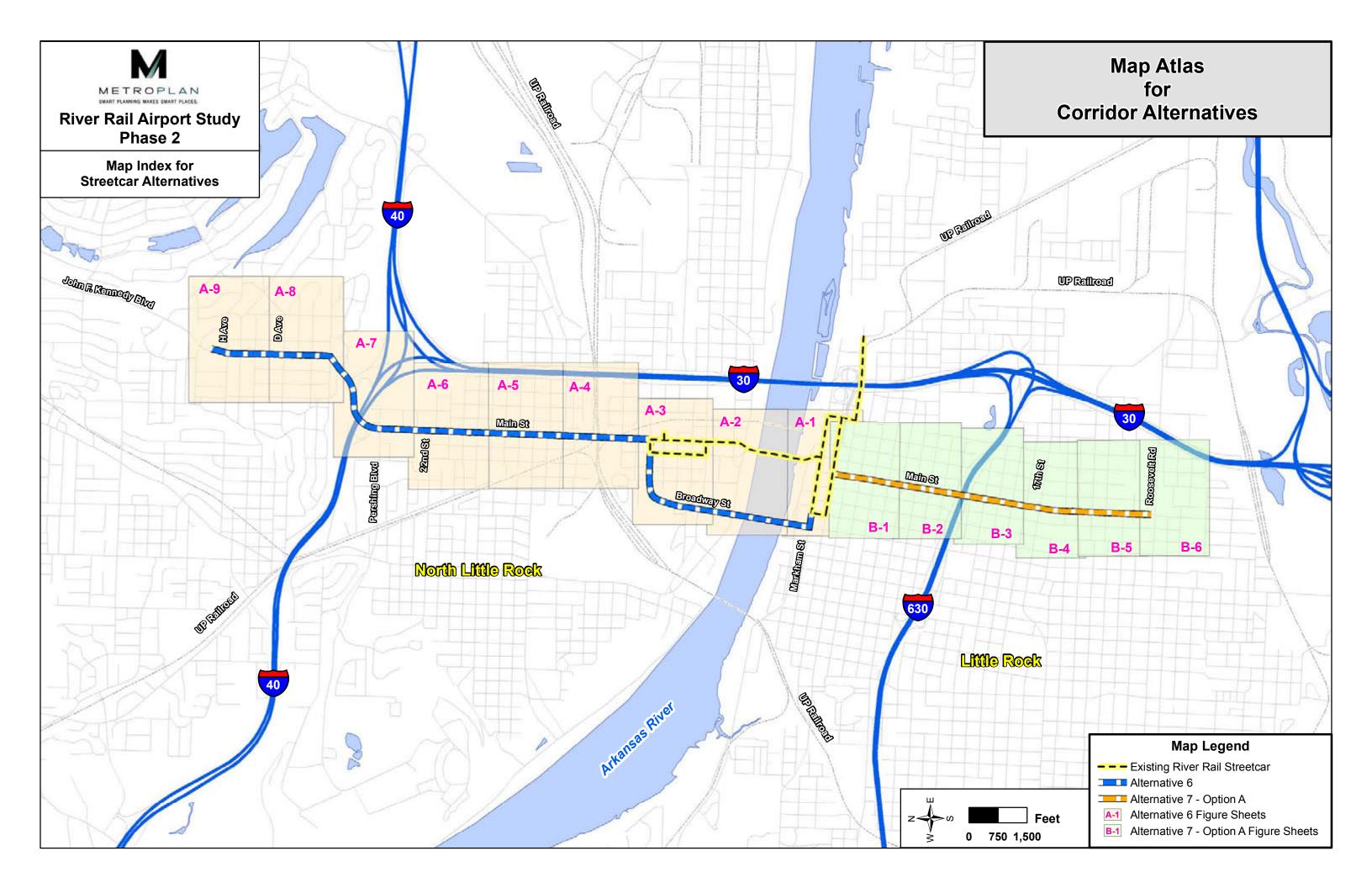
Table B-1
Summary of Active RCRA Generator and RST Facilities

	Summ	iary of Acu	VC ICITA	Generator	ana i		tieb	1
EPA/ADEQ Facility ID No. or AFIN No.	Facility Name	Facility Address	Regulatory Program	Generator Type	LUST (Y/N)	Distance Miles (km)	Nearby Alternative	Site ID # see Figure B-1
ARD982558579	North Little Rock High School	2600 Poplar St, NLR, 72114	RCRA	CESQG (Active)		0.10 mi (0.15 km)	Alternative 6	3
ARR000017558	Arkansas Painting & Specialties, Inc.	1610 E 9 th St, LR, 72202	RCRA	SQG (Active)		Adjacent	Alternative 3 - Option A (Phase One)	9
ARD982552556	Central Flying Service, Inc.	1501 Bond St, LR, 72202	RCRA	LQG (Active)		Adjacent	Alternative 1 (Phase One)	11
ARD983273640	Cheyenne Industries	2000 E 17 th St, LR, 72202	RCRA	CESQG (Active)		Adjacent	Alternative 1 (Phase One)	12
ARR000010256	FedEx Freight System, Inc.	1805 E 23 rd St, LR, 72206	RCRA	SQG (Active)		0.23 mi (0.37 km)	Alternative 1 (Phase One)	15
ARR000010520	Northwest Hardwoods	2005 E 17 th St, LR, 72202	RCRA RST	CESQG (Active)	Y	Adjacent	Alternative 1 (Phase One)	13
AR5210021205	US Army Reserve Center- Finkbeiner	1201 Bond St, LR, 72202	RCRA	CESQG (Active)		Adjacent	Alternative 1 (Phase One)	10
60000730; 60-00623	River City Oil Company	1415 E 9 th St, LR, 72202	RST		N	Adjacent	Alternative 3 – Option A (Phase One)	8
60000821; 60-03171	Little Rock Skyline	101 W. F Ave, NLR, 72216	RST		N	Adjacent	Alternative 6	1
60000860; 60-03207	E-Z Mart #617	1321 Main St, LR, 72202	RST		Y	Adjacent	Alternative 7 – Option A	7
60001017; 60-02385	Broadway Food Mart	1624 Broadway, LR, 72206	RST		Y	0.27 mi (0.44 mi)	Alternative 7 – Option A	6
60000870; 60-03216	Supermarine of Little Rock	2201 Bond Ave, LR, 72206	RST		Y	Adjacent	Alternative 1 (Phase One)	14
60000233; 60-02670	Doublebee's #112	2623 N Main St, NLR, 72114	RST		Y	Adjacent	Alternative 6	2
60000764; 60-03125	Phillips 66 Company	24 th and Main St, NLR, 72114	RST		Y	Adjacent	Alternative 6	4
60000891; 60-03236	Broadway Total #350	605 E Broadway, NLR, 7 72114	RST		Y	0.35 mi (0.56 km)	Alternative 6	5

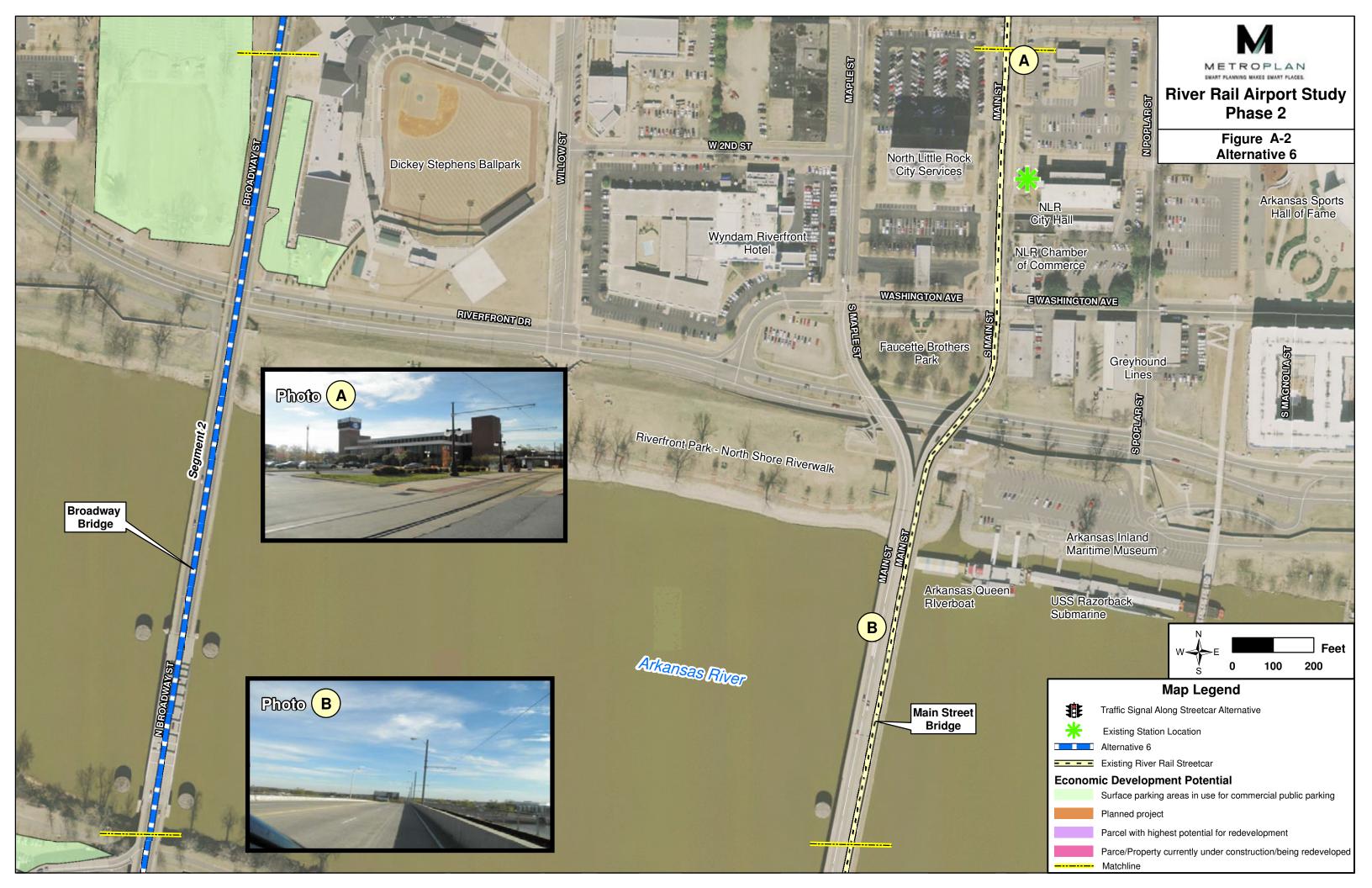
Source: EPA and ADEQ database search, June 2011.

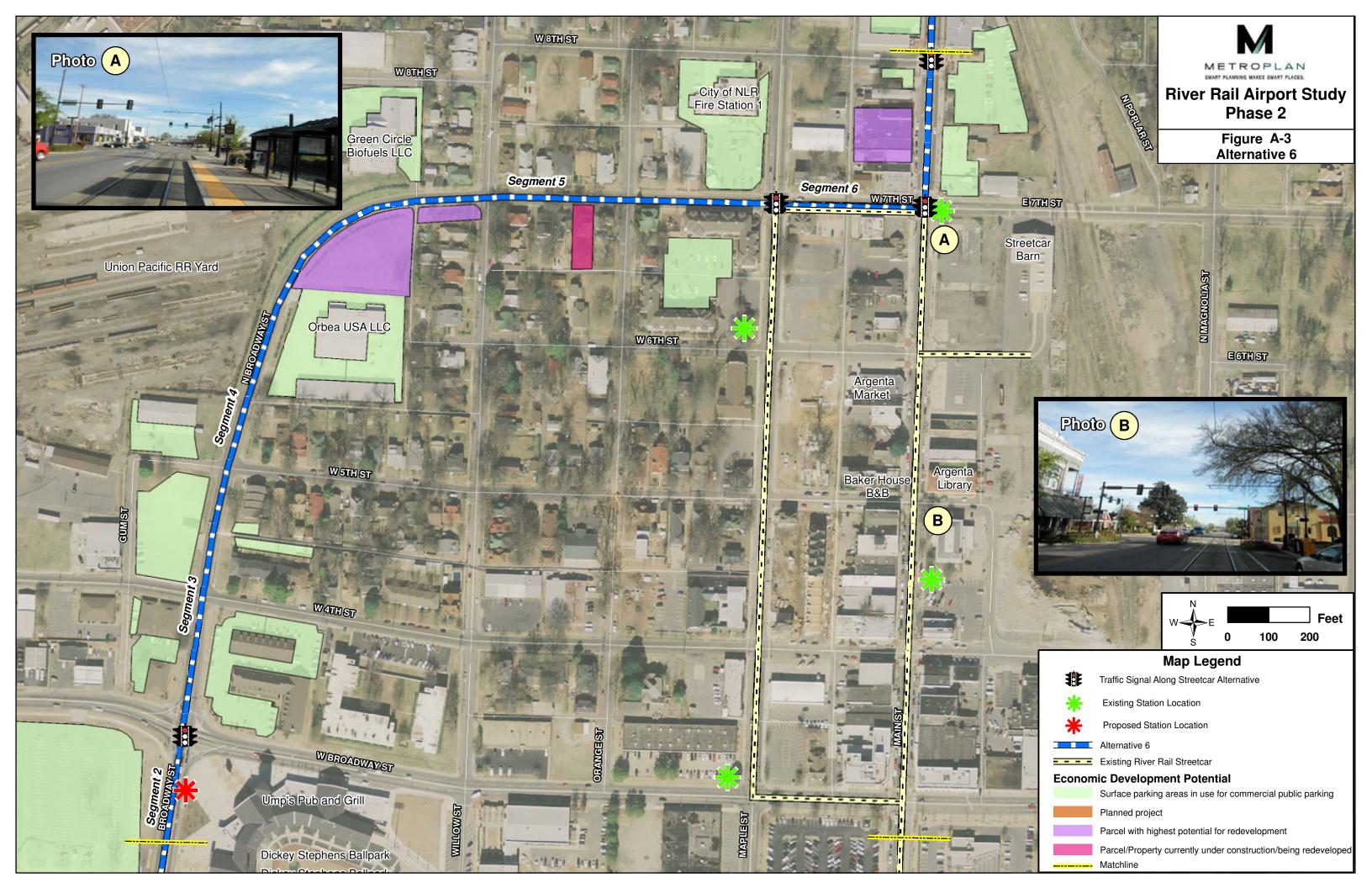


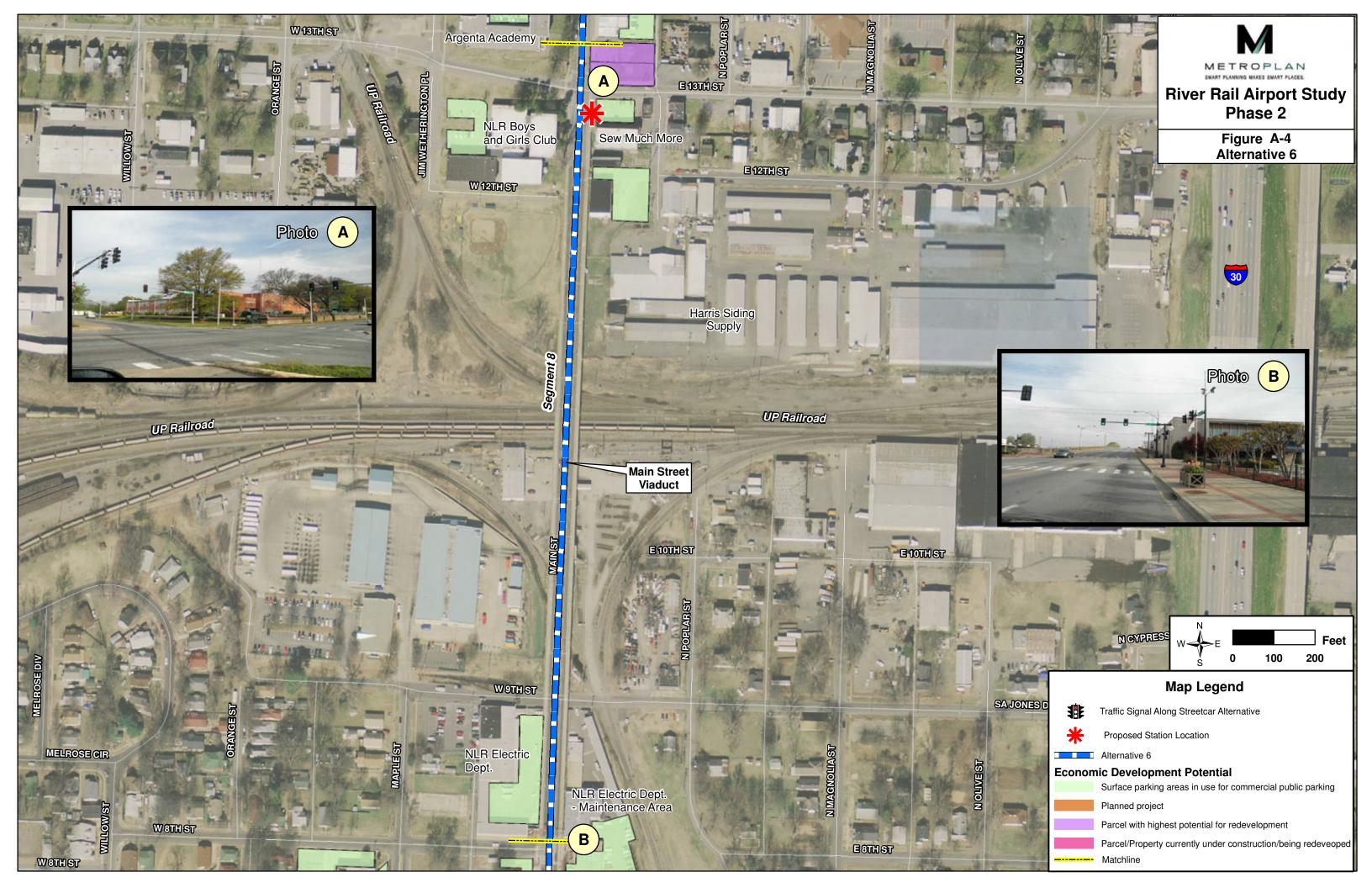
APPENDIX C

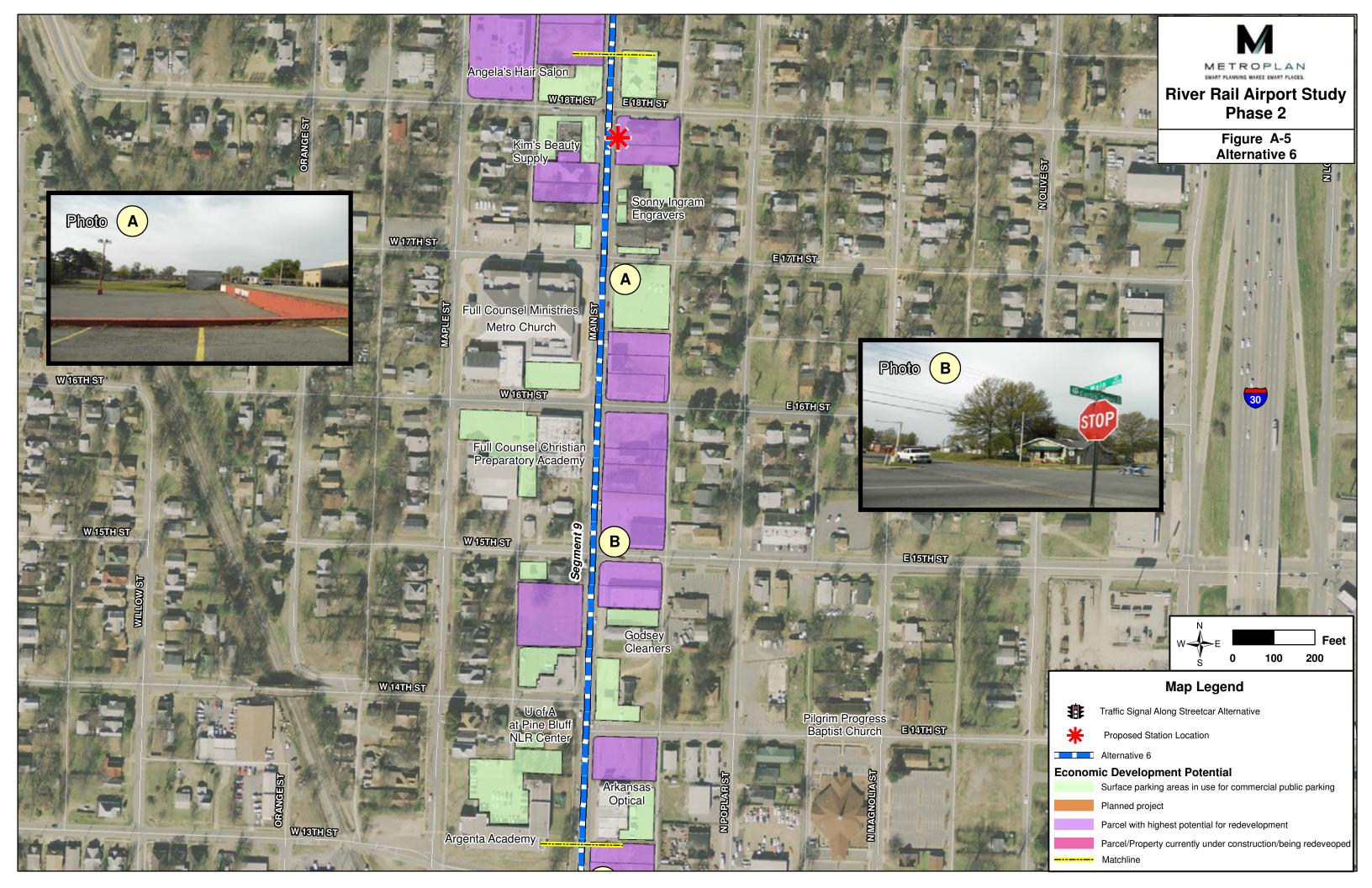


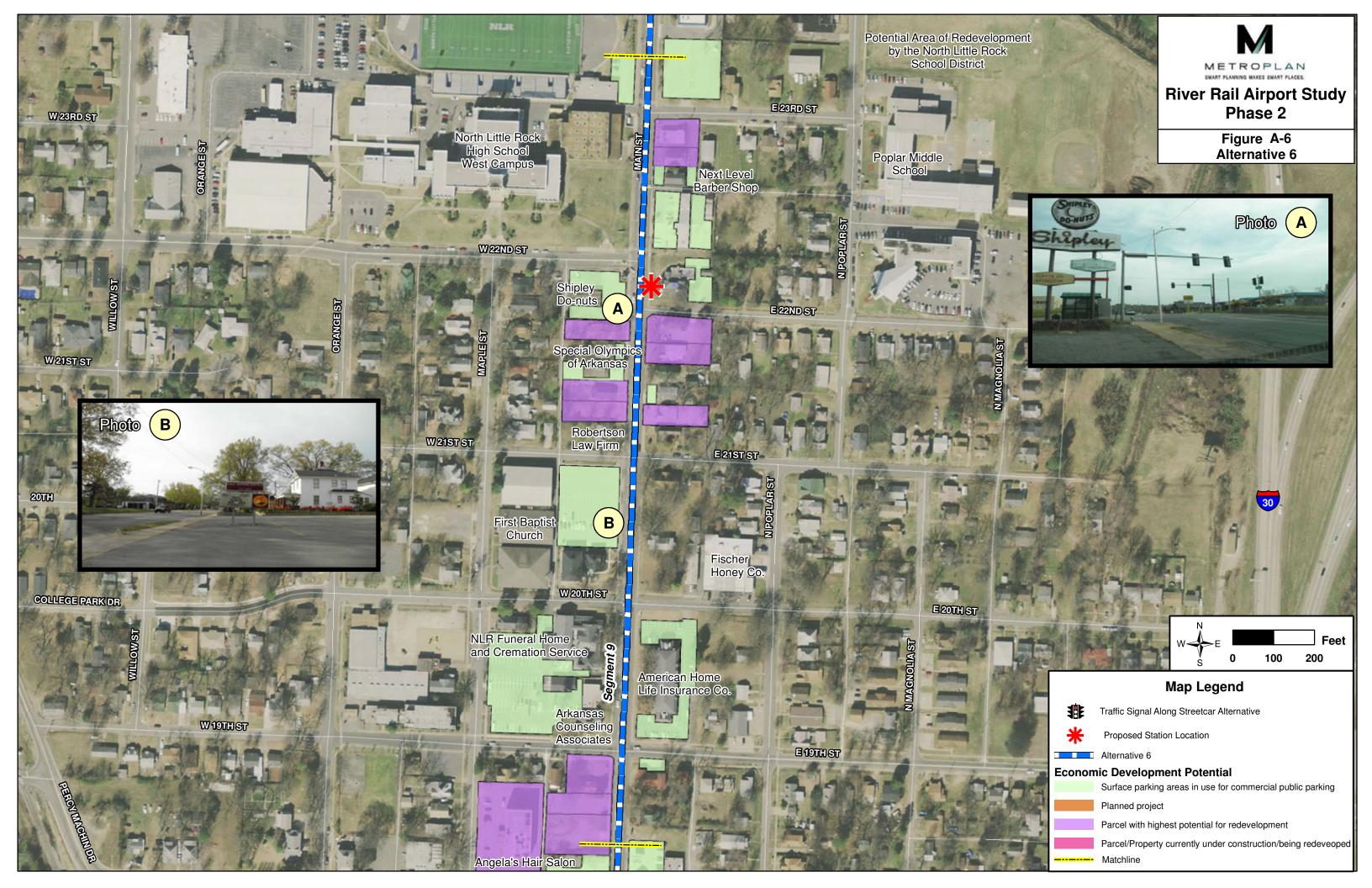


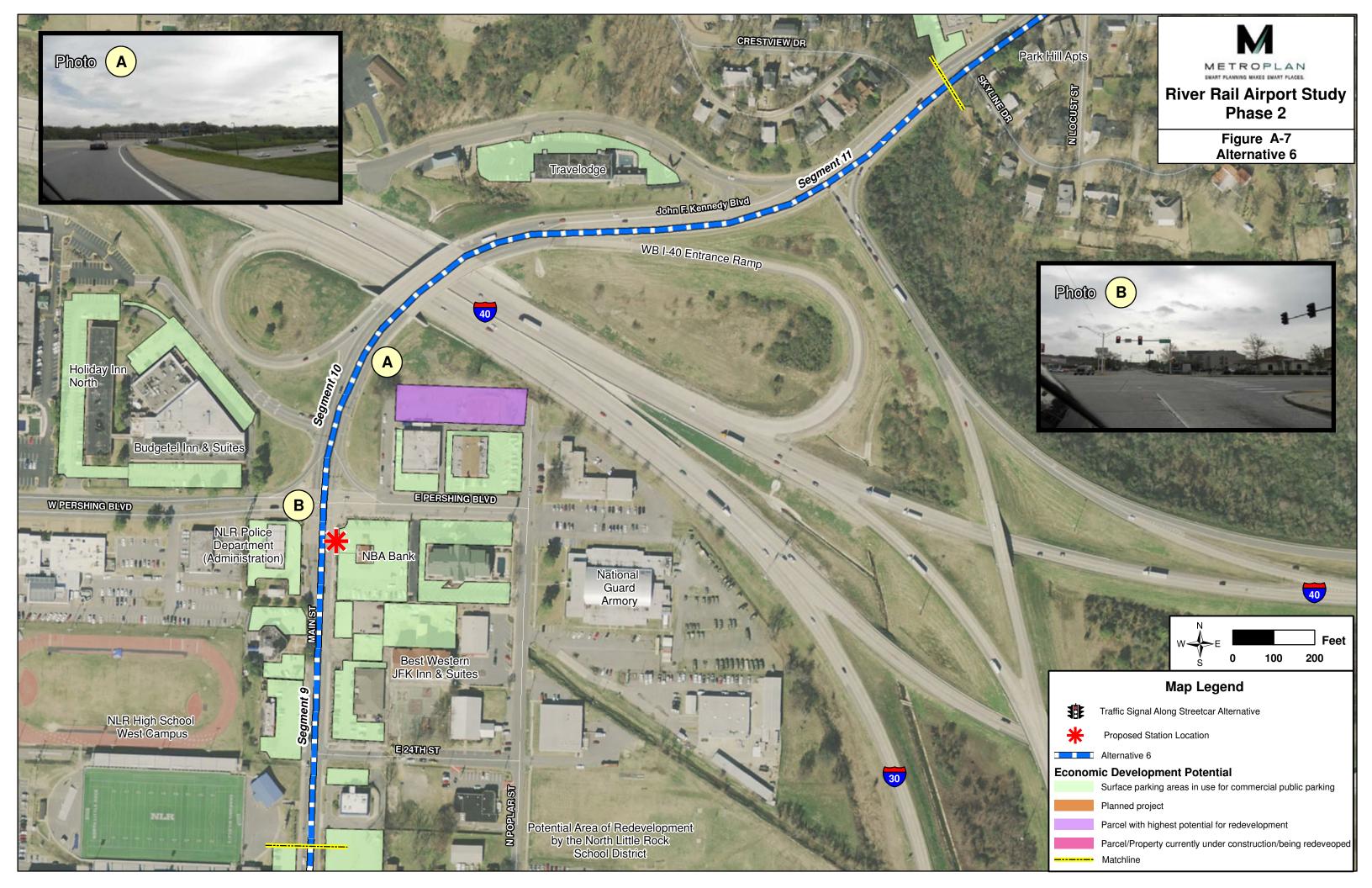




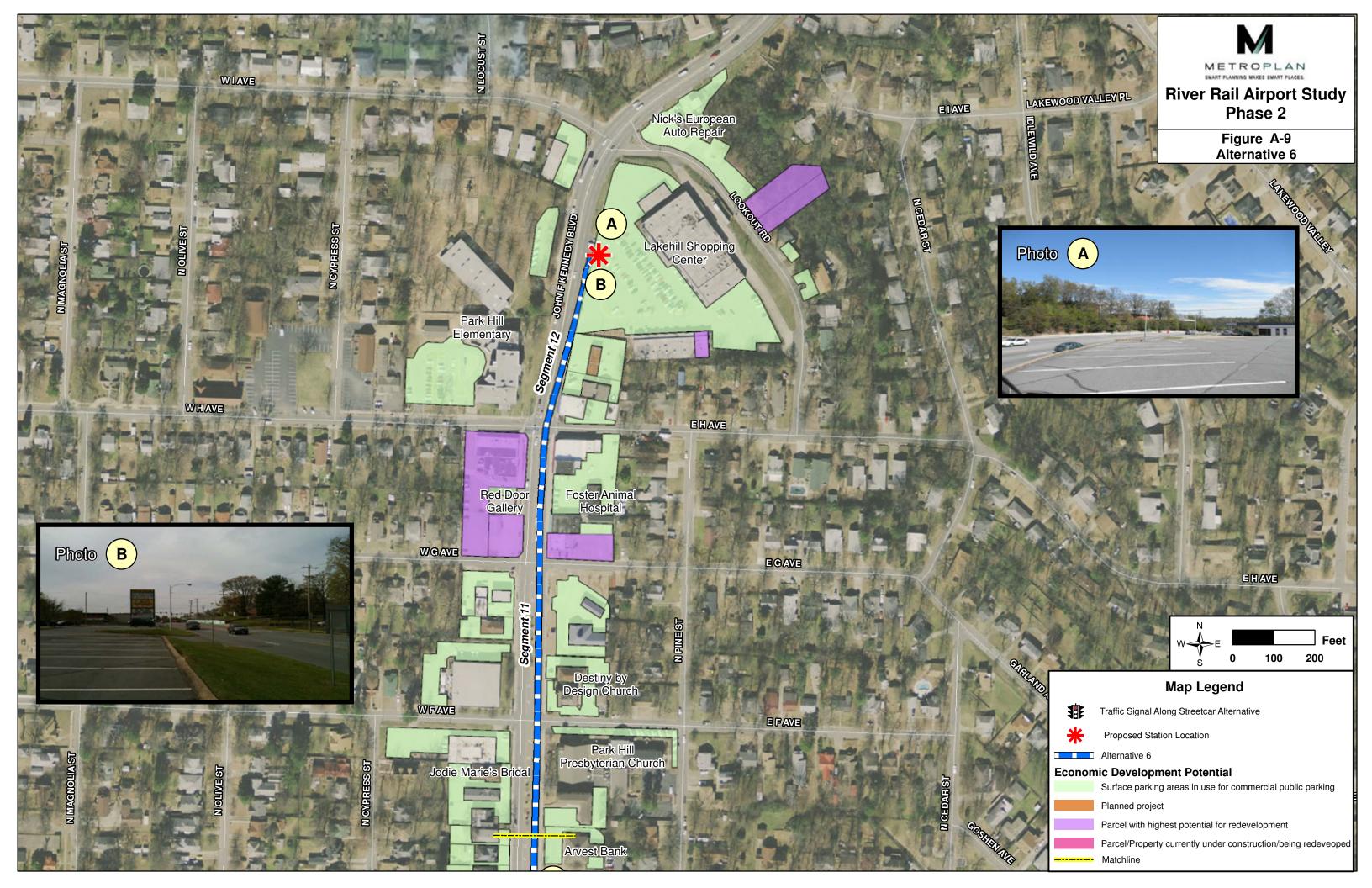










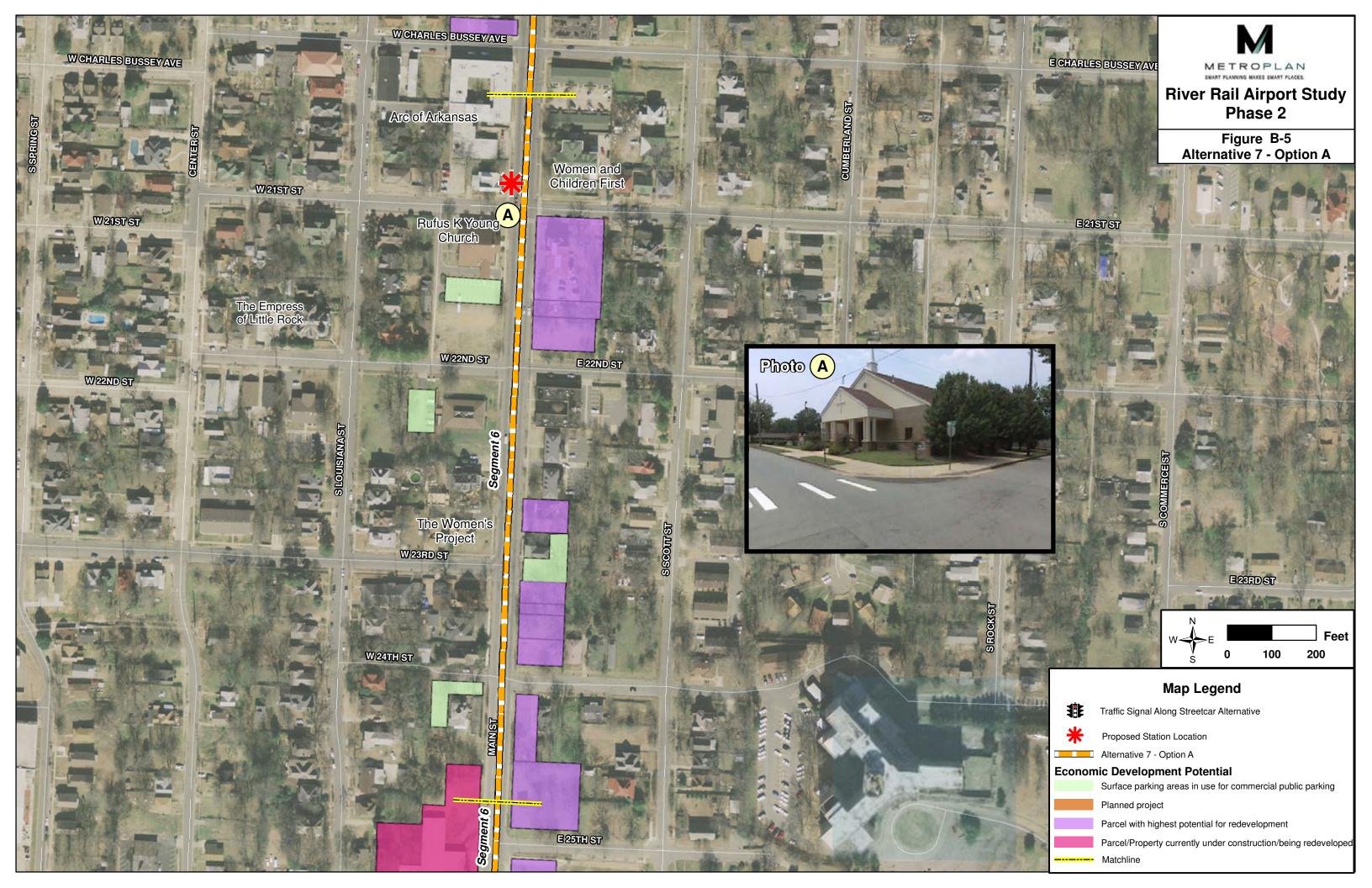


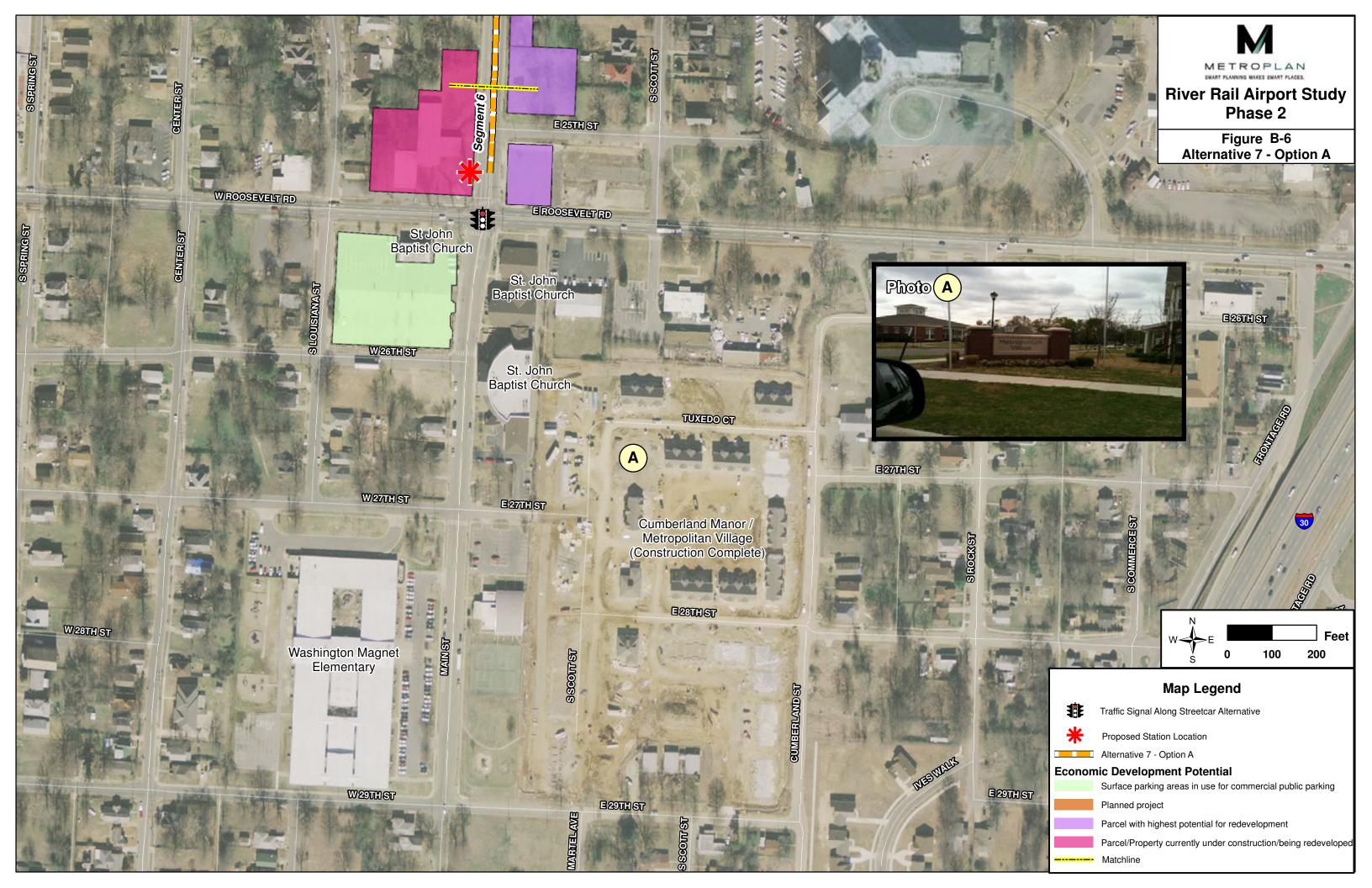












APPENDIX D

Corridor Alternative 6 Alignment Characteristics

					Alignment Description	on by Segment					Potential	Roadway Chara traffic	acteristics segments		Opportunities (locations			Estimated	Estimated	Estimated	Total Te		
ection	Corridor	Segment ID.	Map Atlas Figure	Running Way Disposition	Segment Limits	Type of Running Way	Segment Length (Feet)	Segment Length (Miles)	Required ROW (Acres)	ROW Disposition	Station Location	Existing Roadway Typical Section	Posted Speed	No. of Traffic		Constraints	Notes	Estimated Running Speed (MPH)	Segment Travel Time (Minutes)	Dwell Time at Station (Minutes)	Total Travel Time (Minutes)	Embedded Track (TF)	Segment C Millions (20
Street to Broadway Street	Markham St	1	A-1	Along Markham Street	Spring St to Broadway St	Single track in mixed traffic; northbound direction only	375	0.07	n/a	n/a	n/a	2-lane roadway with designated turn lanes	30	1	LR City Hall and County offices		Required switching station at Markham Street and Spring Street from existing River Rail streetcar track to proposed track	15	0.28	0	0.28	375	0.85
		2	A-1, A-2, A-3	Along Broadway Street / Broadway Bridge	Markham Street to 3rd Street	Single track in mixed traffic; northbound direction only	2,870	0.54	n/a	n/a	3rd Street	4-lane, at-grade and grade separated roadway with designated turn lanes	30	1	Dickey Stephens Ballpark		It is assumed that the future replacemen of the Broadway Bridge would include at least one streetcar track	15	2.17	0.5	2.67	2,870	4.52
Main Street	Broadway St	3	A-3	Along Broadway Street	3rd Street to 5th Street	Single track in mixed traffic; northbound direction only	650	0.12	n/a	n/a	n/a	3-lane roadway (2 southbound, 1 northbound)	30	1				15	0.49	0	0.49	650	1.48
Street to M		4	A-3	Along Broadway Street	5th Street to Willow Street	Single track in mixed traffic; northbound direction only	1,045	0.20	n/a	n/a	n/a	2 to 3-lane roadway	30				3-lane roadway until curve, and then transitions into 2-lane roadway	15	0.79	0	0.79	1,045	2.38
Markham	7th St	5	A-3	Along 7th Street	Willow Street to Maple Street	Single track in mixed traffic; northbound direction only	700	0.13	n/a	n/a	n/a	2-lane roadway	25					15	0.53	0	0.53	700	1.59
	7th St	6	A-3	Along 7th Street	Maple Street to Main Street	Single track in mixed traffic; northbound direction only	365	0.07	n/a	n/a	n/a	2-lane roadway with designated turn lanes	25	1	stre travel Stree	xisting River Rail eetcar single track eling east from Main at to Maple Street in EB travel lane	Required switching stations (2 Ea) at 7th Street at both Main Street and Maple Street	15	0.28	0	0.28	365	0.83
ard		7	A-3	Along Main Street	7th Street to 8th Street	Double track in mixed traffic	360	0.07	n/a	n/a	na	4-lane roadway	30	1			On-street parking adjacent to southbound travel lane	15	0.27	0.0	0.27	720	1.64
Pershing Bouleva	Main Street	8	A-4	Along Main Street	8th Street the 13th Street	Double track in mixed traffic	1,850	0.35	n/a	n/a	13th Street	4-lane, grade seperated roadway	30	1	Boys and Girls Club and state-owned baseball field. Approx 0.6 acre at 13th Street with high redevelopment potential		Future improvements to the Main St Viaduct over the UP Railroad tracks / yar	15	1.40	0.5	1.90	3,700	8.41
7th St to P		9	A-4, A-5, A-6, A-7	Along Main Street	13th Street to Pershing Boulevard	Double track in mixed traffic	4,790	0.91	n/a	n/a	18th Street, 22nd Street, Pershing Boulevard	4-lane roadway with designated turn lanes	30	3	Various commercial properties, community facilities, and the NLR High School West Campus. Approx. 1.6 acres near 18th Street, 1.6 acres near 22nd Street, and 0.6 acre near Pershing Boulevard with high redevelopment potential			15	3.63	1.5	5.13	9,580	21.77
W. I Avenue		10	A-7	Along John F. Kennedy Boulevard	Pershing Boulevard to I-40 Westbound Entrance Ramp		1,130	0.21	n/a	n/a	n/a	4-lane, grade separated roadway with non-raised median	35	1			I-40 Overpass	10	1.28	0.0	1.28	2,260	5.14
oulevard to	John F Kennedy Boulevard	11	A-7, A-8, A-9	Along John F. Kennedy Boulevard	I-40 Westbound Entrance Ramp to H Avenue	Double track in mixed traffic	3,980	0.75	n/a	n/a	D Avenue	4-lane divided roadway with raised median and designated turn	35	3	Services: Park Hill Baptist Church; Approx. 0.3 acre near D Avenue with high redevelopment potential			10	4.52	0.5	5.02	7,960	18.0
Pershing Bo		12	A-9	Along John F. Kennedy Boulevard	H Avenue to the Lakehill Shopping Center located between H Avenue and I Avenue	Double track in mixed traffic	440	0.08	n/a	n/a	Lakehill Shopping Center	lanes 4-lane roadway	25	1	Services: Lakehill Shopping Center, Approx. 1.0 acre near Lakehill Shopping Center available for redevelopment		Required switching station at Lakehill Shopping Center from northbound track to southbound track	10	0.50	1.0	1.50	880	2.00
	-11				l	Total Estimated Length New Track	18,555	3.51		l	1							Total Estimated Time	16.16	4.00	20.16		
						Total Estimated Length Single Track (New Track)	6,005	1.14										Total Trackage (TF)				31,105	
						Total Estimated Length Double Track (New Track)	12,550	2.37										Total Trackage (Miles)				5.89	
ES: 1. Es	stimated total a ject, vacant lots	acres of par s, vacant bu	cels or buildings uildings and store	near a proposed stre	etcar station with high reparking lots not used	redevelopment po for commercial /	otential. Hi public park	igh redevelo	opment pote	ential = street le	evel retail space	e currently for leas	se as part of	a larger				Cost per Track Mile					12 N
																		Estimated Cost					68.69
																		Avg Operating Speed (mph)	10.46				

Corridor Alternative 7 - Option A Alignment Characteristics

											Alignme	nt Charac	teristic	8									
					Alignment Description	on by Segment					B. c. cit	Roadway Cha	aracteristics fic segment		Opportunities (locations				Estimated	Estimated			
Section	Corridor	Segment ID.	Map Atlas Figure Number	e Running Way Disposition	Segment Limits	Type of Running Way	Segment Length (Feet)	Segment Length (Miles)	Required ROW (Acres)	ROW Disposition	Potential Station Location		Posted Speed	No. of Traffic	served or areas of high redevelopment potential) See Note 1	Constraints	Notes	Estimated Running Speed (MPH)		Dwell Time at Station (Minutes)	Total Travel Time (Minutes)	Embedded Track (TF)	Segment Cost In Millions (2010 \$)
		1	B-1	Along S. Main Street	2nd Street to 3rd Street	Double track in mixed traffic	360	0.07	n/a	n/a	n/a	2-lane roadway with designated turn lanes	30	1			Parking adjacent to NB and SB travel lanes	15	0.27	0.0	0.27	720	1.64
Road		2	B-1, B-2	Along S. Main Street	3rd Street to 7th Street	Double track in mixed traffic	1,460	0.28	n/a	n/a	Capitol Avenue	2-lane roadway	30	4	New jazz club and high-rise apartments currently under construction, the Arkansas Repertory Theatre, and the River Cities Travel Center. April 20 Acres near Capitol Avenue with high redevelopment potential.	Elevated walkway pproximately 70 feet north o 7th Street	Parking adjacent to NB and SB travel lanes	15	1.11	0.5	1.61	2920	6.64
osevelt R		3	B-2	Along S. Main Street	7th Street to 11th Street	Double track in mixed traffic	1,410	0.27	n/a	n/a	9th Street	4-lane roadway	30	3	Approx. 2.0 acres near 9th Street with high redevelopment potential	Elevated walkway approximately 180 feet south of 7th Street	Parking adjacent to NB and SB travel lanes	15	1.07	0.5	1.57	2,820	6.41
eet to Roosevelt	Main Street	4	B-3	Along S. Main Street	11th Street to 12th Street / I-630 EB Frontage Road	Double track in mixed traffic	355	0.07	n/a	n/a	n/a	4-lane roadway, grade separated, designated turn lanes	30	1			I-630 Overpass	15	0.27	0.0	0.27	710	1.61
2nd Str		5	B-3, B-4	Along S. Main Street	12th Street / I-630 EB Frontage Road to 19th Street	Double track in mixed traffic	2,495	0.47	n/a	n/a	17th Street	4-lane roadway	30	3	SoMa businesses, restaurants, and attractions. Approx. 1.0 acre near 17th Street with high redevelopment potential.		Parking adjacent to NB and SB travel lanes	15	1.89	0.5	2.39	4990	11.34
		6	B-4, B-5, B-6	Along S. Main Street	19th Street to 25th Street	Two-way directional, single track in mixed traffic	2,225	0.42	n/a	n/a	21st Street and Roosevelt Road		20	1	Arc of Arkansas and numerous multi-unit housing facilities. Approx. 1.6 acres near 21st Street with high redevelopment potential. Near Roosevelt: St. John Baptist Church and Metropolitan Village (Apartments); Approx. 1.4 acres near Roosevelt Road with high redevelopment potential.		Parking adjacent to NB and SB travel lanes	15	1.69	1.0	2.69	2,225	5.06
		1		1	-	Total Estimated Length	8,305	1.57				-	П	l.				Total Estimated Time	6.29	2.50	8.79		
						Total Estimated Length Single Track	2,225	0.42										Total Trackage (TF)				14,385	
						Total Estimated Length Double Track		1.15										Total Trackage (Miles)				2.72	
																		Cost per Track Mile					12 M
					etcar station with high red lots not used for comme			h redevelop	ment potenti	ial = street leve	el retail space c	urrently for lease	as part of a	larger buildi	ng			Estimated Cost					32.69
																		Ava					

APPENDIXE

Appendix E References

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