SAN JACINTO BRANCHLINE/I-215 CORRIDOR STUDY

ALTERNATIVES ANALYSIS
FINAL REPORT – MAY, 2004

STV Incorporated

rctc Riverside County Transportation Commission

EXECUTIVE SUMMARY

INTRODUCTION

The San Jacinto Branchline (SJBL) / I-215 Corridor Study is being sponsored by the Riverside County Transportation Commission (RCTC). RCTC is Riverside County's primary transportation agency charged by state law with the responsibility of planning and funding transportation improvements. The SJBL / I-215 Corridor Study was undertaken to examine possible solutions to the reduced mobility of residents in western Riverside County resulting from increasing levels of highway congestion. This study represents the Alternatives Analysis (AA) component of an overall project development process. AA is the process for reaching a broad consensus on exactly what type of improvement(s) best meet locally defined goals and objectives for a specified study area. Contained in another document, but also an important component of this study, is an Environmental Assessment (EA) of the transportation alternatives reviewed. An EA examines and documents the expected environmental impacts (e.g. natural resources, wetlands, land use) of the proposed transportation alternatives for the defined study area and details any necessary mitigations. The procedures followed by the SJBL / I-215 Corridor Study ensures that this report ultimately advocates a transportation solution that is accepted by the general public, will be adopted into plans and budgets by the RCTC and the regional Metropolitan Planning Organization (MPO), and is compliant with local, state, and federal guidelines and procedures.

The study area for this project is a transportation corridor located in western Riverside County, part of the Inland Empire region of Southern California. The corridor extends approximately 19 miles southeast from the city of Riverside toward the cities of Perris and Romoland. The central transportation facilities in this corridor include a lightly used rail freight line, the SJBL, and I-215, a limited access freeway. Both the SJBL and I-215 run approximately parallel to one another for the length of the corridor. This study corridor is depicted in Exhibit 1.

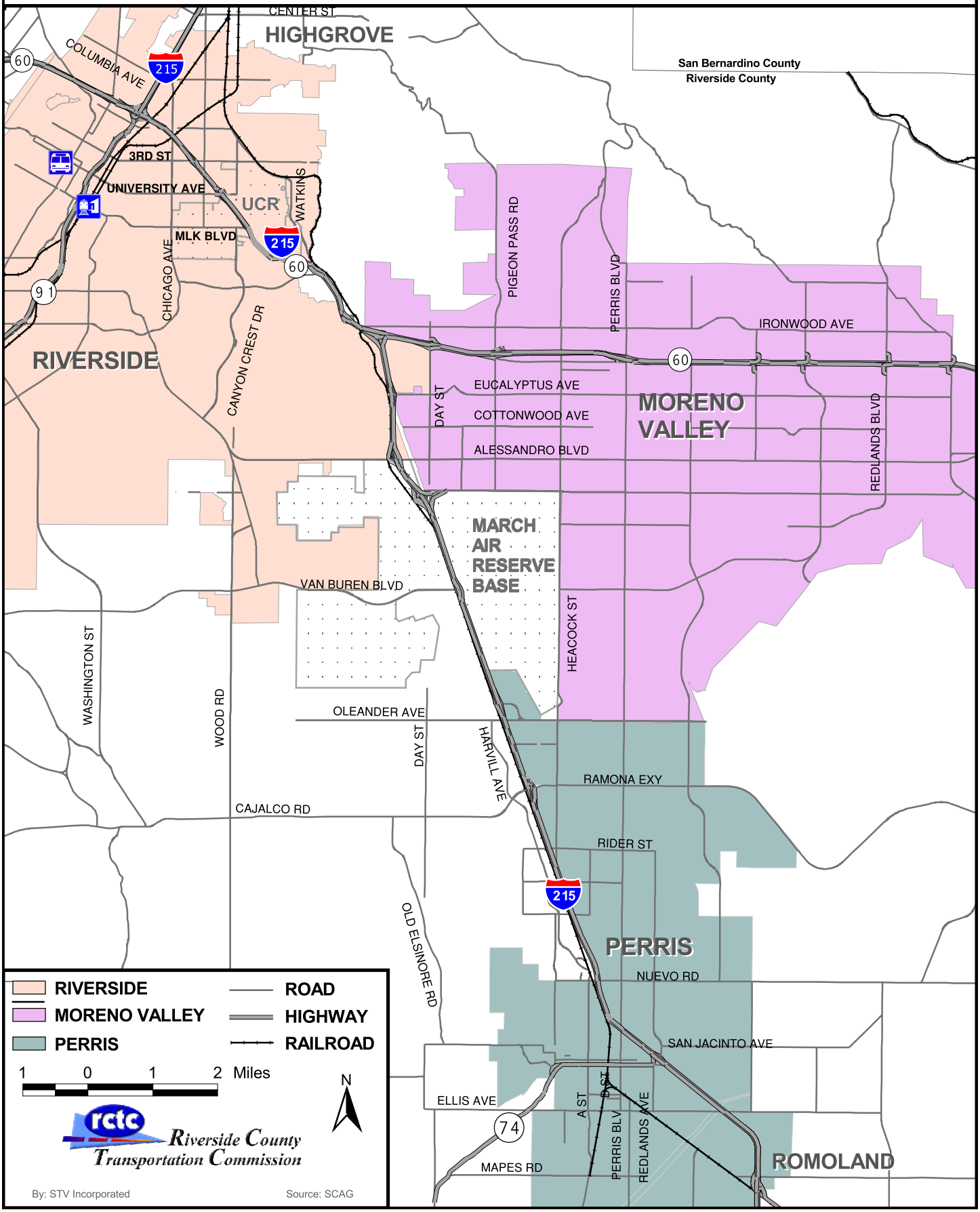
BACKGROUND

Riverside County has a current population of over 1.7 million residents, with the vast majority living in the western portion of the county. Following decades of explosive population growth, by 2025 the population of Riverside County is projected to grow to 3 million. The region's existing freeway facilities have not been able to accommodate the growing trip volumes without experiencing extensive congestion, thus new transportation alternatives will be needed to accommodate the future growth. Currently, the major transportation facilities in the corridor, I-215 and SR60, are experiencing unsatisfactory levels of service, a measure based on factors such as travel times and speed, and evidenced by increasingly poor volume/capacity (V/C) ratios. These facilities are forecasted to continue with unsatisfactory levels of service even with programmed roadway improvements over the coming years, including additional lanes and the implementation of HOV lanes. With most major highways in the corridor having limited expansion potential, this study proposes public transit investments to accommodate current and future mobility needs.

Exhibit 1: Study Area Map

San Jacinto Branch Line/I-215 Corridor Study

Study Area



Transit operators in the corridor include the Riverside Transit Agency (RTA) and the Southern California Regional Rail Authority (SCRRA). RTA provides bus service to western Riverside County, while SCRRA operates Metrolink commuter rail services throughout the Southern California Region. Three Metrolink routes serve the city of Riverside, operating on track owned by the region's two predominate railroad companies, the Burlington Northern Santa Fe (BNSF) and the Union Pacific. The entire length of the SJBL, however, was purchased by RCTC from the predecessors of the BNSF in 1993. This presents a valuable opportunity to utilize the SJBL for an extension of the existing commuter rail service into the study corridor, and the build alternatives documented in this report investigate variations of this concept.

PURPOSE AND NEED

The SJBL / I-215 corridor is in need of an improved transportation system independent of the ever growing and increasingly congested roadway system. The needs of the SJBL / I-215 corridor were developed through outreach to the public, affected communities, stakeholders and concerned individuals. The needs identified are listed below:

- The Need to Reduce Roadway Congestion
- The Need to Provide Transit Travel Options to Growing Population and Employment
- The Need to Coordinate Transportation Planning and Community Development
- The Need to Explore Under-Utilized Transportation Resources

A set of goals and objectives has also been developed based upon these needs. Defining the project's goals and objectives is a key step in determining what is specifically desired from the project investment. The goals and objectives succinctly define the purpose for the project and how the transportation needs will be satisfied. The goals of the SJBL / I-215 Corridor Study are to:

- Improve the Transportation System with Alternative Travel Choices
- Promote Community/Transit Oriented Development
- Minimize Adverse Environmental Impacts
- Invest and Deploy Resources Effectively and Efficiently

TRANSIT ALTERNATIVES

Five alternatives were proposed, including a 'No Build', Transportation System Management (TSM), and three build scenarios. The No Build Alternative is used to illustrate conditions throughout the length of this study (present-2025) if no transportation improvements relating to this study are made. Programmed improvements for the corridor include the addition of HOV lanes along I-215 and SR 60.

The TSM Alternative consists of low-capital improvements to existing transit facilities and services. The TSM alternative prepared for this study consists of an express bus service, primarily on I-215, between Perris and Downtown Riverside. This alternative, **Alternative B**, is proposed to have seven new passenger stations within the SJBL / I-215 corridor and would provide access to two existing stations including the Downtown Riverside Metrolink Station and the RTA Downtown Bus Terminal. Express bus service would reach the Downtown Metrolink station during peak periods such that connections

to departing (AM), and arriving (PM) trains can be provided. Vehicles for express bus service would be regular fixed route 40-foot buses or over-the-road coaches. As FTA guidelines require a TSM to provide the basis of comparison to the higher cost, high capital investment build alternatives, the express bus service represents the minimum investment that could be made to address the study needs.

The study proposes three build alternatives, all of which consist of implementing commuter rail service between south of Perris and downtown Riverside via the San Jacinto Branchline right-of-way:

- Alternative C – Commuter Rail with Highgrove Turnback
- Alternative D – Commuter Rail with New Connection to BNSF at Citrus Street
- Alternative E – Commuter Rail with New Connection to UP RIL at Rustin Avenue

Each alternative represents an extension of the Metrolink 91 Line, currently providing service from Riverside to Downtown Los Angeles via Fullerton. All alternatives propose five intermediate stations between Riverside and Perris - South. The differences among the three commuter rail alternatives include the various options to connect the SJBL to the BNSF mainline for service to the Riverside Downtown Metrolink Station. The initial service, to be implemented in 2008, would operate three trains from Perris to Riverside with continuing service to Los Angeles during the morning peak. In addition, two mid-day, off-peak trains would operate daily, one in each direction. In the afternoon peak, three trains would operate from Los Angeles to the city of Perris. The headways on the new service would be approximately 50 to 60 minutes during the peak periods. For all the alternatives, the new service will utilize additional bi-level commuter coaches and acquired for the Metrolink fleet.

Alternative C proposes an alignment that follows existing track and uses the connection to the BNSF at Highgrove. The existing connection would require trains to reverse direction at Highgrove and would also require additional train movements on the BNSF mainline into Riverside. The time needed to reverse the train, including a required Federal Railroad Administration (FRA) brake check, results in a significant delay. Also, it is important to note that the agreement for train movements between RCTC and BNSF does not allow for expansion, creating a constraint to adding more trains in future years as demand for the service grows.

Alternative D proposes a new, curved connection track at Citrus Street between the SJBL and the BNSF mainline, thus negating the need for a turnback operation at Highgrove as required in Alternative C. This alternative would also utilize the BNSF mainline to access the Downtown Riverside Station, but the option of building a new track in the BNSF right-of-way could help to address the operating flexibility issues of running trains on track not owned by RCTC.

Alternative E proposes a new connection track to the Union Pacific (UP) Riverside Industrial Lead (RIL) for an approach to Riverside along Massachusetts Avenue. The SJBL crosses this track approximately one mile south of Highgrove and the purchase of the UP RIL alignment would provide direct access into the Downtown Riverside Station. Detailed maps of Alternative E can be reviewed in Exhibit 2 - Exhibit 3.

Exhibit 2: Locally Preferred Alternative

San Jacinto Branch Line/I-215 Corridor Study

Alternative E: Commuter Rail with New Connection to UP Rail at Rustin Avenue

Overview Map

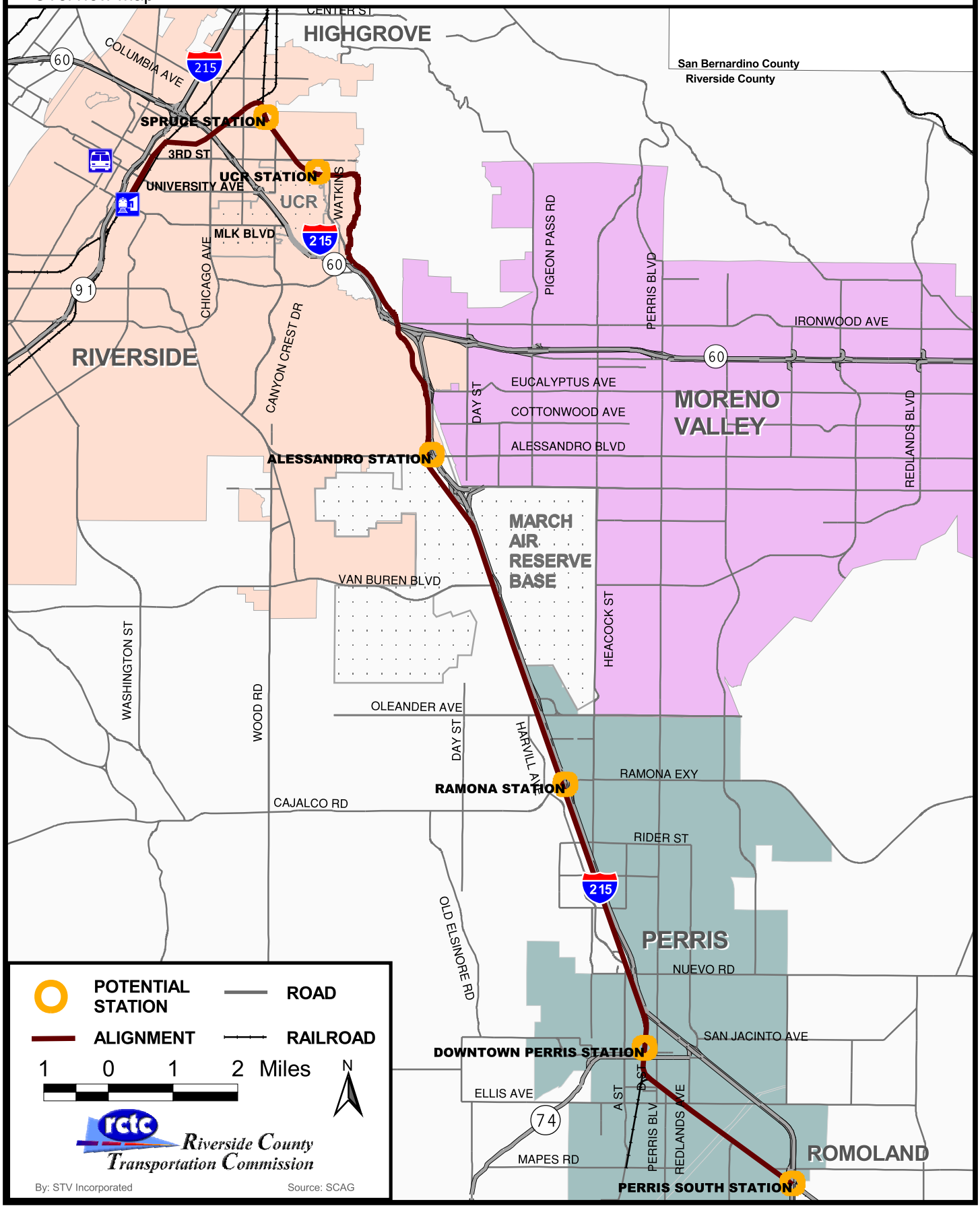
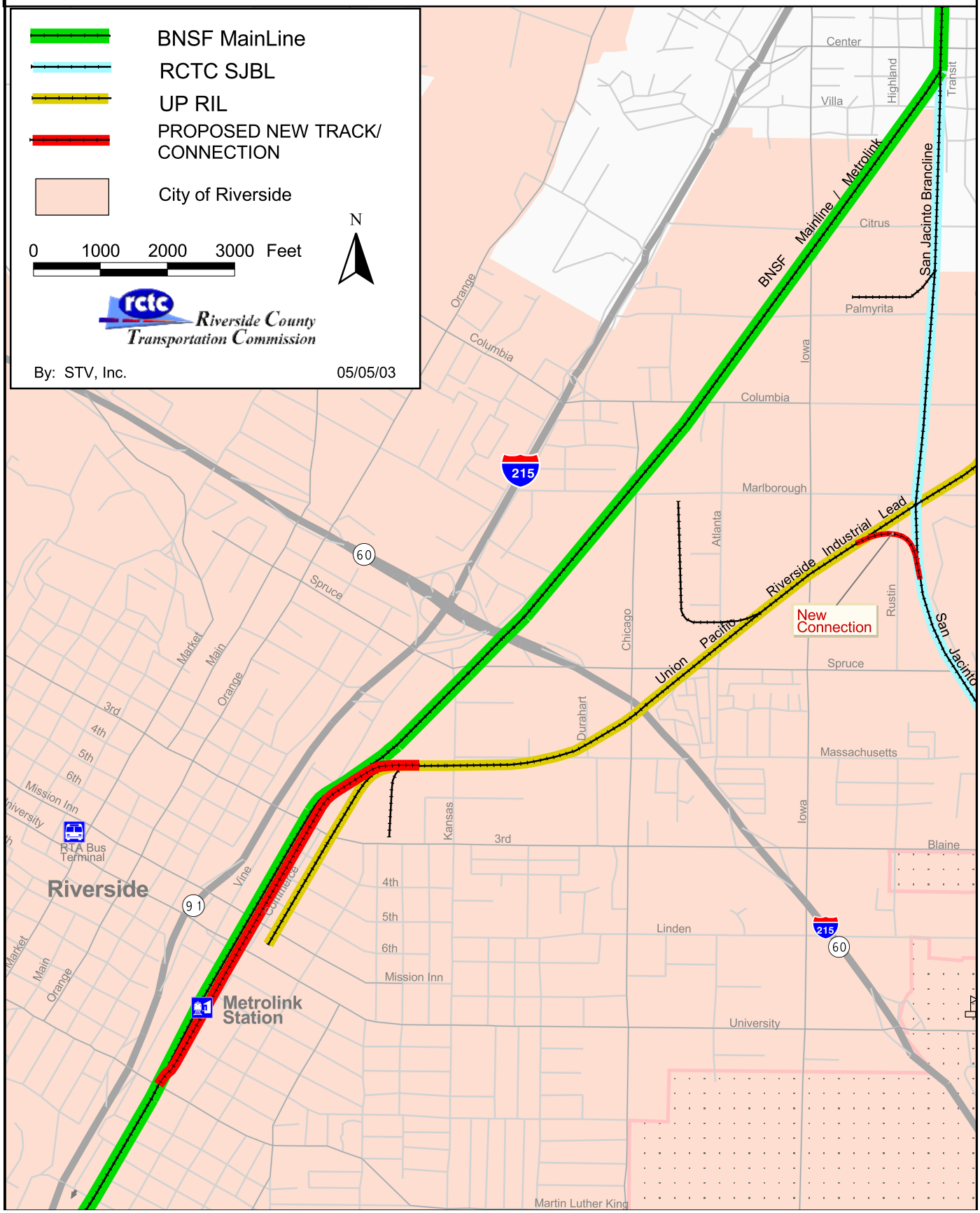


Exhibit 3: Locally Preferred Alternative Approach to Riverside

San Jacinto Branchline / I-215 Corridor Study

Alternative E: Approach to Riverside - Detail Map



RIDERSHIP AND COST FOR ALTERNATIVES

The patronage forecasting for this study was performed by the Southern California Association of Governments (SCAG) utilizing the existing and approved SCAG regional travel demand model. The forecast year coincides with the latest SCAG long-range plan, which has a forecast year of 2025. The amount of riders each alternative is able to attract is determined by a comparison between the travel time for the alternative and the highway travel time between the same locations. The TSM / Express Bus alternative operates on I-215 and is therefore subjected to increasing highway congestion throughout the forecast years. Travel time for the commuter rail alternatives is independent of increasing highway congestion and remains constant from implementation until 2025. See Exhibit 4 for a comparison of travel time and ridership for each alternative.

Exhibit 4: Alternative Travel Time and Ridership

	Alternative B		Alternative C		Alternative D		Alternative E	
	2010	2025	2010	2025	2010	2025	2010	2025
Travel Time (Perris South-Riverside)	58 min.	98 min.	49 min.	49 min.	42 min.	42 min.	40 min.	40 min.
Daily Passenger Boardings	3,316	3,705	3,817	6,542	4,151	7,472	4,151	7,472

The operating and maintenance (O&M) costs for the proposed alternatives and TSM improvements were determined, along with the capital costs for construction and upgrade of necessary facilities. The O&M costs for the TSM alternative (Alt. B), are substantially less than the cost of the rail services in both 2010 and 2025. A large reason for the lower costs is that there is no right of way to maintain since the express bus operates on highways. It also carries significantly fewer riders as shown above, which lowers its cost. Also, ridership growth for the TSM in 2025 in minimal, largely due to longer travel times on the increasingly congested highways. The costs for the three build alternatives are nearly identical because the alternatives differ only slightly in terms of operation. These costs, as well as the capital costs are presented in Exhibit 5.

The total capital expenditure associated with Alternative B is estimated to be $19.3 million. Alternative C is the least costly rail option at $128.0 million due to its turn-back operation at Highgrove and the assumption that no additional trackage would be constructed along the BNSF right-of-way between Highgrove and Riverside. Alternative D proposes a new connection to the BNSF and an additional track in the BNSF right-of-way. The total capital cost for this alternative, including these improvements is $143.6 million. Alternative E has a capital cost of $145.3 million and includes the purchase of the UP RIL and some property acquisitions needed for the connecting tracks. Since RCTC owns the SJBL, no right-of-way costs for the alignment portions on the SJBL are included in the capital cost estimate. Instead, the majority of capital costs for the commuter rail improvements involve the upgrade and rehabilitation of the existing SJBL track for higher speeds, smoother rides, and safer passenger operation.

Exhibit 5: Alternative Costs

	Alternative B		Alternative C		Alternative D		Alternative E	
Costs in Thousands of Dollars	2010	2025	2010	2025	2010	2025	2010	2025
O&M Cost	$4,252	$4,826	$6,548	$9,128	$6,381	$8,940	$6,059	$8,378
Capital Cost	$19,320		$128,010		$143,560		$145,280	

Notes: O&M Costs increase from 2010 to 2025 with service increases to meet increased ridership.

EVALUATION OF ALTERNATIVES

The alternatives were evaluated based upon criteria that measured the ability of each transit solution to satisfy the goals of the study. A matrix was developed to score each alternative and compare alternatives with one another, based upon the following evaluation criteria:

- Operational Issues
- Railroad Access
- Travel Time
- Property Needs
- Capital Costs
- Operating Costs
- Ridership
- Environmental
- Maximize Under-utilized Resources
- Improve Travel Choices in the Corridor

For Alternative B, while the capital cost was considerably lower, the performance of the alternative was deemed insufficient to meet the needs of commuters in the corridor. This is especially true in light of an estimated increase of travel time from 58 minutes in 2010 to 98 minutes in 2025 due to increasing congestion levels on the major highways and arterials used by the express bus service.

The evaluation of Alternative C revealed operational issues resulting from a significant delay caused by the turnback movement in Highgrove. Also, the reliance on the BNSF mainline tracks to approach Riverside is governed by an agreement that currently does not permit sufficient commuter train movements to meet the passenger demand in the outer years.

Operational issues for Alternative D were improved compared to Alternative C with the elimination of the turnback movement. However, the potential for impacts with BNSF freight operations still exist.

The evaluation of Alternative E revealed that despite being the most costly alternative, the use of the RIL to provide direct access to the Downtown Riverside Station was an important asset. Travel time for Alternative E was also the shortest, at 40 minutes between Perris South and Riverside. The evaluation results indicate that Alternative E provides the best opportunity to implement a quality transit alternative within the corridor that serves the needs and goals of the study, and one that is not impeded by either highway/roadway congestion or railroad access and operational issues.

THE LOCALLY PREFERRED ALTERNATIVE

Alternative E is recommended as the Locally Preferred Alternative (LPA) and will be carried forward in the project development process, including the adoption of Alternative E into the most current SCAG Regional Transportation Plan (MPO Long Range Plan). In preparation to further refine Alternative E, a financial plan has been prepared to detail the projected costs of implementation into the Rail Department budget at RCTC. The estimates indicate that Alternative E can be supported by new and existing mix of federal, state and local funding sources available to the Rail Department. New funds are primarily anticipated to be available from the FTA, made specifically through grants for eligible fixed guideway projects such as proposed by Alternative E. The stability of the Measure A sales tax revenue for RCTC, with taxing authority for transportation projects authorized through 2039, provides a consistent source of funds for capital projects. Current debt associated with the initial Measure A authorization will be paid off in 2009, and RCTC enjoys a very favorable bond rating. The financial analysis indicates that RCTC has demonstrated the financial ability to construct and support the operational costs of Alternative E without adverse impact on other agency programs or commitments.

Public comment affirmed Alternative E as the LPA, and most comments were generally positive, with residents eager for rail service to be introduced in the corridor. One concern raised was that Alternative E did not provide direct service to Highgrove. It is recommended that rail service to Highgrove be provided as a new station on the existing Metrolink Inland Empire-Orange County Line, which currently travels through Highgrove. Comments also indicated some concern over the use of the UP RIL, where a portion of the alignment runs within a city street in Riverside. At this conceptual stage, however, the discussions with the city indicate that they do not perceive this as infeasible. Safety and access issues will be further analyzed in the next stage of Preliminary Engineering (PE).

CONCLUSION

The Alternatives Analysis process documented in this report resulted in the selection of Alternative E as the Locally Preferred Alternative (LPA). This represents completion of the first step towards the full implementation of the project. The next step is adoption of Alternative E by the RCTC board and entering the project into the Regional Long Range Transportation Plan. RCTC will also prepare and submit a request to the Federal Transit Administration for Alternative E to enter into PE. By following the FTA process, implementation of Alternative E will be eligible for federal dollars to construct the project – with 50% of the capital investment cost of $145 million being requested. Upon completion of PE, an updated New Starts Application will be resubmitted to the FTA with a request to enter into Final Design and a Full Funding Grant Agreement (FFGA). It is at this stage that the FTA will decide to support the project with their financial commitment, while also giving approval for the final construction drawings to be prepared. Implementation of Alternative E with Federal funds is dependent on the rating received at this second submission of the application. With a FFGA, the final design and construction phase is expected to take approximately four years and commuter rail service on the SJBL would begin in early 2008

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1 INTRODUCTION

The San Jacinto Branchline (SJBL) / I-215 Corridor Study is being sponsored by the Riverside County Transportation Commission (RCTC). RCTC is Riverside County's primary transportation agency charged by state law with the responsibility of planning and funding transportation improvements. RCTC holds the leadership role for improving mobility in Riverside County and has a mission to maximize the cost effectiveness of transportation services. The governing body consists of all five members of the County Board of Supervisors, one elected Mayor or member of the City Council in each of the County's 24 cities, and one non-voting member appointed by the Governor. RCTC is responsible for setting policies, establishing priorities, and coordinating activities among the County's various transportation operators and agencies. RCTC also programs and/or reviews the allocation of federal, state and local funds for highway, transit, rail, non-motorized travel (bicycle and pedestrian) and other transportation activities.

RCTC relies primarily upon revenues from a voter approved "Measure A" sales tax to fund a variety of transportation programs. This revenue helps to fund large capital projects in the county, such as freeway interchange reconstruction, addition of carpool lanes, and highway widening. The agency also has programs that demonstrate a commitment to other transportation modes. RCTC is a partner agency in the Southern California Regional Rail Authority (SCRRA), which operates Metrolink commuter rail in Southern California, including three lines that provide weekday service to Riverside County. Through the Commuter Rail Program, RCTC has constructed a new station in Downtown Corona and is expanding parking lots at the two stations within the city of Riverside in response to increasing ridership on the commuter rail trains. RCTC provides paratransit and specialized transit services for senior citizens and persons with disabilities. RCTC serves as the Congestion Management Agency (CMA) for Riverside County. As the CMA, RCTC has developed a Congestion Management Program that more effectively utilizes transportation funds by linking land use, transportation and air quality efforts. RCTC administers the Service Authority for Freeway Emergencies (SAFE) and Freeway Service Patrol (FSP) programs for Riverside County. These programs provide call boxes along major transportation routes and provide commuter assistance and towing in case of emergencies.

This study represents the concerted efforts of RCTC to fulfill its responsibilities, with a focus on the SJBL / I-215 Corridor in western Riverside County, California. This report documents the first steps of the study, with the outcome of identifying a new transportation investment for the corridor. The report begins by demonstrating an understanding of the concerns of the public regarding current transportation issues, while also documenting the condition of existing transportation infrastructure, general demographics and regional trends. The report then outlines the development and evaluation of possible transportation alternatives, proposed solutions to the needs expressed by the local communities. This report formalizes the collaborative process that will advance the most favorable alternative into engineering, final design, and implementation. This effort represents completion of the initial phase of the SJBL/I-215 Corridor Study.

The SJBL / I-215 corridor has been the focus of several studies over the past decade that has examined transportation needs and solutions for the growing population and that address the

associated traffic congestion problems. The SJBL / I-215 Corridor Study was undertaken to examine these issues through a comprehensive Alternatives Analysis (AA) process, as required under state and federal planning rules and regulations. The goal of the AA is to identify transportation and community related needs within the study area and develop transit solutions to meet those needs. What differentiates this AA from previous studies in the corridor is that it documents and follows a prescribed federal process. As a result, the proposed transportation solution may then become eligible for a share of federal funding. At this stage of the study, the candidate transportation solution will be defined as a Locally Preferred Alternative that can be moved forward into the next phases of the project development process.

Another component of the SJBL / I-215 Corridor Study is the Environmental Assessment (EA). This separate documentation effort occurs in tandem with the AA and describes the potential impacts of implementing this project on the social, economic, physical, and natural environments. The EA fulfills the environmental documentation requirements of the National Environmental Protection Act, and in accordance with the U.S. Department of Transportation guidelines, Environmental Impact and Related Procedures the, Federal Transit Administration capital project development process, and state and local procedures.

All of the procedures followed by the SJBL / I-215 Corridor Study ensure that the outcome of this project development process will be a transportation solution that is accepted by the general public; adopted into plans and budgets by the RCTC and the regional Metropolitan Planning Organization; and is compliant with local, state, and federal guidelines and procedures.

2 PURPOSE AND NEED

The development of a purpose and need statement at the outset of the SJBL / I-215 Corridor Study establishes the fundamental framework for project development. It identifies transportation-related issues and problems in the corridor and thereby establishes the basic mission to guide all subsequent analyses and investigations of potential improvements.

2.1 DESCRIPTION OF STUDY AREA

The focus of this study is on a transportation corridor located in the Inland Empire region of Southern California. Situated approximately 70 miles east of Los Angeles, in western Riverside County, the study corridor extends approximately 19 miles from the city of Riverside, north to Highgrove and then southeasterly toward the cities of Perris and Romoland (See Exhibit 1). The major transportation facility serving this corridor is I-215 , which runs from Perris to Riverside in a north to northwesterly direction. The study corridor also includes the City of Moreno Valley, with a population principally served by SR 60, which interchanges with I-215 in this corridor. Two large institutions located in this corridor are the University of California, Riverside (UCR), and the March Air Reserve Base, located halfway between Riverside and Perris. Central to this corridor is a lightly used rail freight line, the San Jacinto Branchline, which runs approximately parallel to I-215 for the length of this corridor.

Riverside County has a current population of over 1.7 million residents[1], the vast majority living in the western portion of the county. These three incorporated cities in the SJBL / I-215 Corridor include Riverside, Moreno Valley, and Perris. The three cities have a combined population of just fewer than 500,000. The city of Riverside represents over half of this population and is the 11th largest city in the state. Following decades of explosive population growth (See Exhibit A-1 and Exhibit A-2 in the Appendix Section of this report), by 2025 the population of Riverside County is expected to grow to 3 million.

2.2 STUDY BACKGROUND

The region's existing transportation facilities have not been able to accommodate the growing trip volumes without experiencing extensive congestion. Several previous and ongoing studies have addressed the need for improving transportation capacity and services in the study corridor and overall region. These regional planning efforts were reviewed prior to the outset of this study. As most major highways used by commuters to reach an abundance of jobs to the west of this corridor, in Orange and Los Angeles Counties, have limited expansion potential, many previous plans have investigated the potential for commuter rail transportation operating along the SJBL track. The study team reviewed the following previous studies:

- San Jacinto Branchline Commuter Rail Study, 1995
- Perris Commuter Rail Extension Patronage Estimate, 2000
- Southwest Riverside Short-Haul Rail-Transit Ridership Estimate, Preliminary Report, 2000
- Union Pacific Riverside Branchline Improvement Study, 2000

[1] California Department of Finance, 2003 E5 City/County Population and Housing Estimates

- Final Environmental Impact Statement (FEIS): I-215 Improvements, California Department of Transportation (Caltrans), 2001
- Riverside County Integrated Project (RCIP), 2001 to present
- SCAG* 2001 Regional Transportation Plan (RTP)
- SCAG* 2001 Regional Transportation Improvement Program (RTIP)

*SCAG - Southern California Association of Governments

2.3 STUDY PROCESS

This study represents the Alternatives Analysis (AA) component of an overall project development process. Adherence to this overall process is essential for major transportation projects that are reviewed by the Federal government and rated for eligibility of Federal funding. Oversight of the process is provided by the Federal Transit Administration (FTA), Statewide & Metropolitan Planning guidelines and National Environmental Policy Act (NEPA).

The steps of this AA are pictured in Exhibit 2. An important component of this study includes the preparation of an Environmental Assessment (EA). The EA is documented in a separate report, to be reviewed in conjunction with the AA. More detailed descriptions of the AA and EA components of the study process are provided below:

Alternatives Analysis – This component of the process is prescribed by federal and state planning guidelines for identifying major transportation investments within a defined study area. Consideration is given to the needs, costs, benefits, public input and available local and federal financial resources for the project. Alternatives analysis can be viewed as a bridge between systems planning at a metropolitan scale and Preliminary Engineering (PE). AA is the process for reaching a broad consensus on exactly what type of improvement(s) best meet locally defined goals and objectives for a specified corridor. A consensus is reached when a Locally Preferred Alternative (LPA) is selected through the public involvement process and adopted into the financially constrained Long Range Transportation Plan (LRTP) by the Metropolitan Planning Organization (MPO) for the region. The MPO for this corridor is the Southern California Association of Governments (SCAG).

Environmental Assessment – A component of the analysis process prescribed for transportation projects by National Environmental Policy Act (NEPA) to assess the potential effects of the proposed project on the environment. An EA examines and documents the expected environmental impacts (e.g. natural resources, wetlands, land use) of the proposed transportation alternatives for the defined study area and details any necessary mitigation. An EA must be made available to the general public and following the public availability period and receipt of comments on the EA, the next step is a determination of significance for any of the identified impacts:

- If, after completing the process, it is evident that there are no significant impacts associated with the project, a finding of no significant impact (FONSI) may be prepared.

- If, at any point in the process of preparing or processing an EA, it is discovered that the project would result in any significant impacts to the environment, then an environmental impact statement (EIS) must be prepared.

Exhibit 1: Study Area Map

San Jacinto Branch Line/I-215 Corridor Study

Study Area

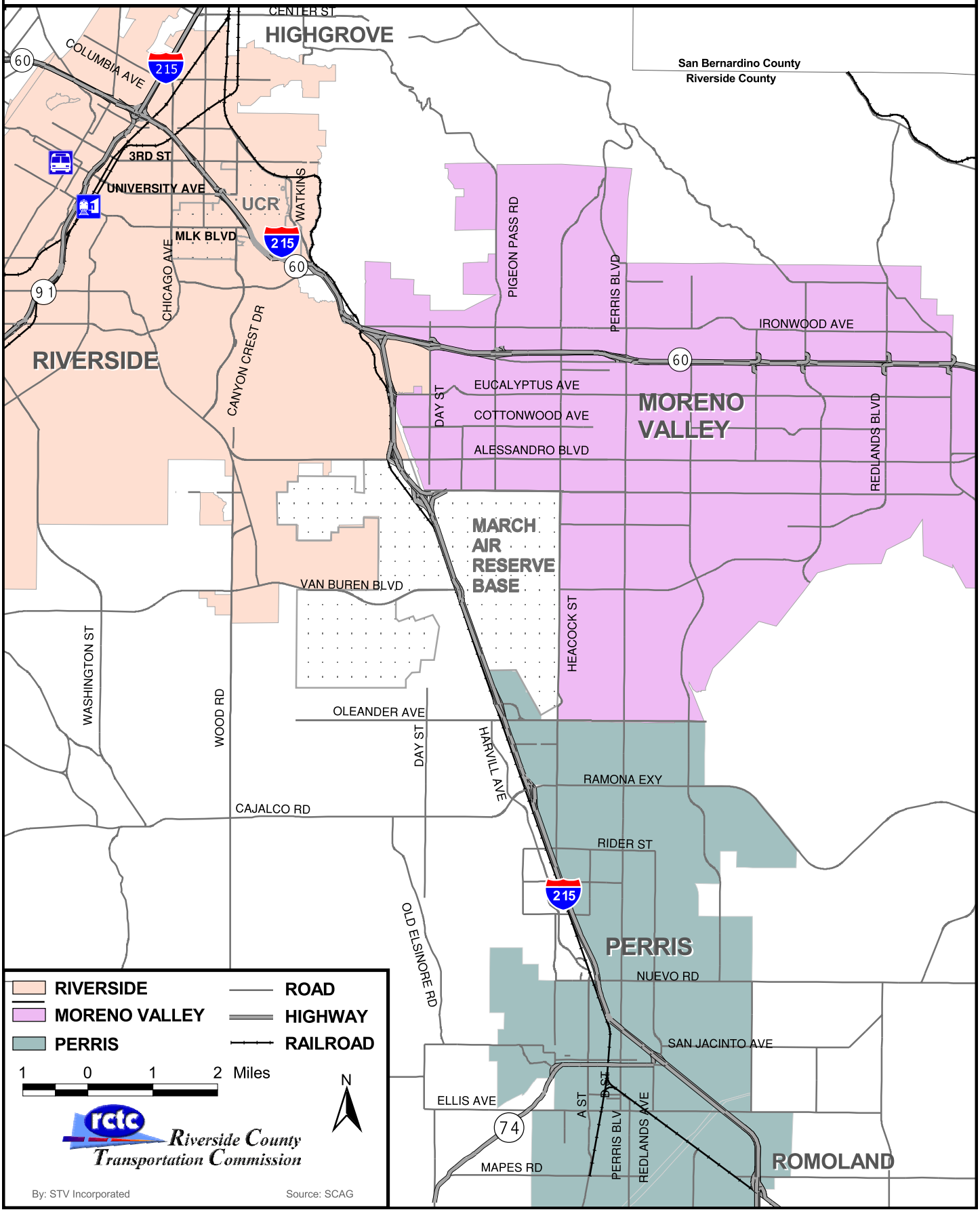
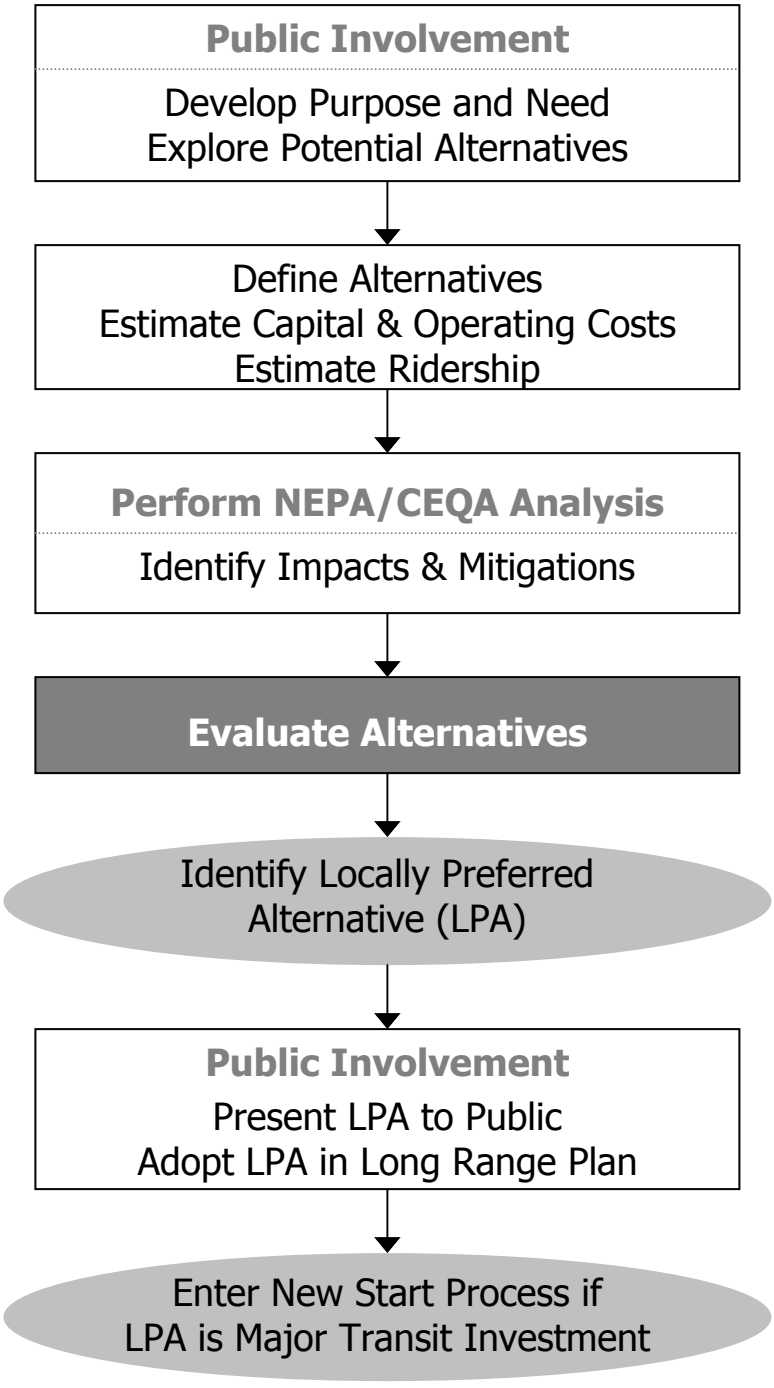


Exhibit 2: Study Process



In the state of California an additional statute titled the California Environmental Quality Act (CEQA) must be followed by local agencies proposing projects which have the potential to affect existing environmental resources. CEQA was created in response to and in support of the 1969 NEPA statute and compliance with its guidelines is mandatory for all state and locally sponsored projects. All relevant guidelines associated with this process: FTA New Starts regarding the AA and NEPA/CEQA regarding environmental impacts, have been adhered to for the SJBL / I-215 Corridor Study in an integrated effort to ensure that all requirements are met for a successful project outcome.

2.4 EXISTING INFRASTRUCTURE

Following the review of background studies and procedural requirements, an inventory of existing transportation assets was made within the SJBL / I-215 corridor.

2.4.1 HIGHWAY

I-215 and SR 60 are two major limited access highways located within the study corridor, as illustrated in Exhibit 3. These highways make important connections with other roads leading out of the study corridor, namely SR 91 in the north and SR 74 in the south. Brief descriptions of these highway facilities follow:

I-215 Expressway – The principal north-south roadway facility extending through the SJBL / I-215 corridor. I-215 begins as a branch of I-15 (outside of the study area) in southern Riverside County in the City of Murrieta. As I-215 proceeds north, through the cities of Romoland, Perris, Moreno Valley, and Riverside, it eventually rejoins I-15 beyond San Bernardino to the north of the study area. I-215 consists of three mixed-flow lanes in each direction and a high occupancy vehicle (HOV) lane from Main Street to University Avenue in Riverside. Between the East (interchange of SR 60 and I-215) and West Junctions (interchange of SR 60/I-215 and SR 91), I-215 and SR 60 are a combined highway facility providing access to travelers from the eastern and southern parts of Riverside County. This combined facility also interchanges with SR 91 just north of Downtown Riverside.

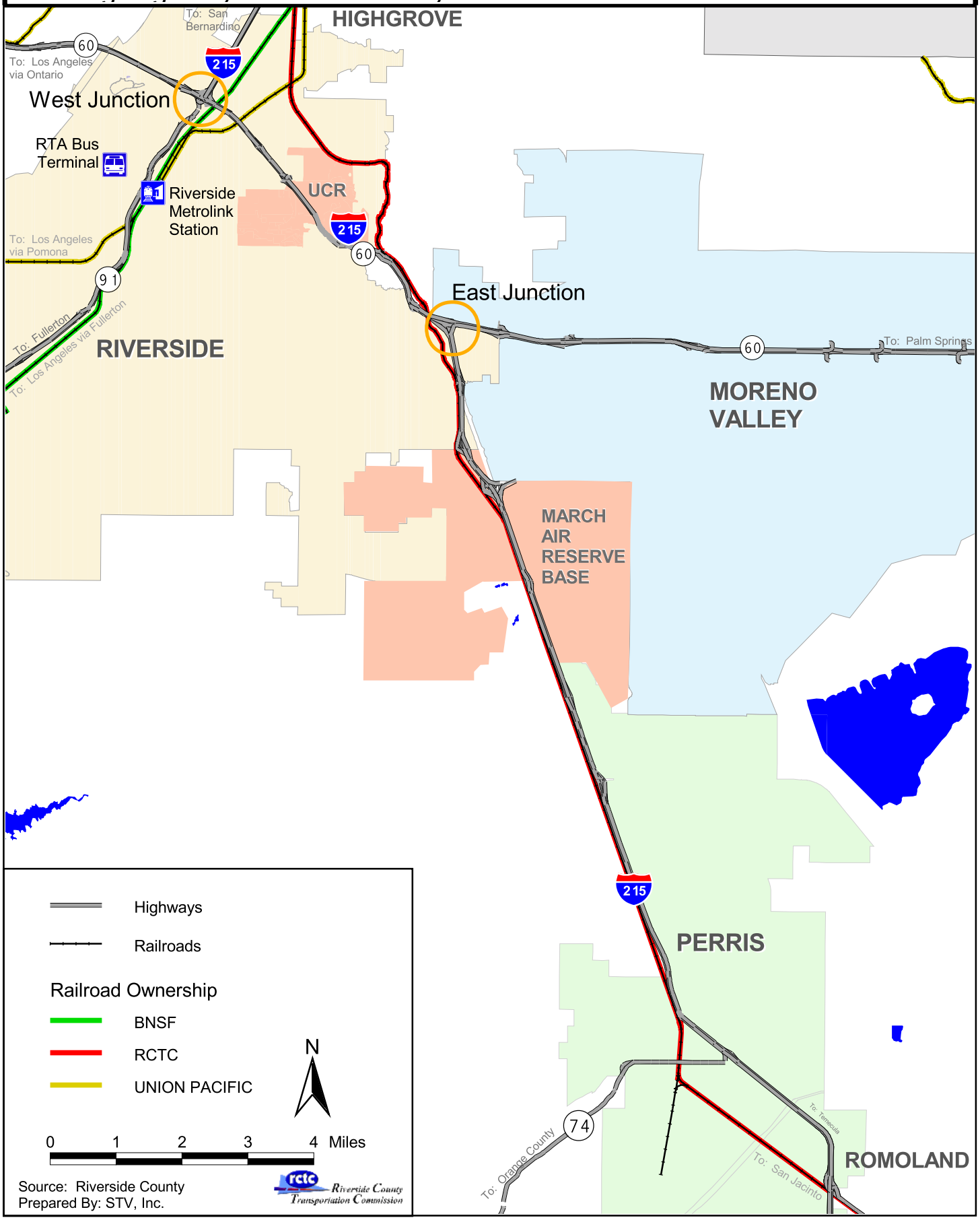
State Route 60 – One of the two east-west highways connecting the city of Riverside to the Los Angeles metropolitan area. This roadway facility begins near downtown Los Angeles, crosses through central Los Angeles County and southwestern San Bernardino County, and enters Riverside County just west of the I-15/SR-60 interchange in Mira Loma. From here, it then travels through Rubidoux and into Riverside to the I-215/SR-60/SR-91 interchange (West Junction) and proceeds to the I-215/SR-60 interchange (East Junction) where the route diverges and continues east through Moreno Valley and to an interchange with I-10 east of the city.

State Route 91 – This east-west roadway facility takes a more southern route than SR 60 and connects Riverside to Orange County. In the west, SR 91 begins south of LA near Torrance, passes through a major interchange with I-5 in Fullerton and then enters Riverside County at Corona and continues until its terminus at the West Junction, north of downtown Riverside. SR 91 features HOV lanes and variable price toll lanes outside of the study limits in addition to general travel lanes.

Exhibit 3: Existing Highway and Railroad System

San Jacinto Branchline/I-215 Corridor Study

Existing Highway and Railroad System



State Route 74 – Connects the city of Perris to Orange County to the west and connects Perris to Hemet and San Jacinto to the east. Other than SR 91 in the north, SR 74 provides the only other route west through the Santa Ana Mountains and connects to an interchange with I-5 at San Juan Capistrano. SR 74 is not a limited access, high-speed facility.

2.4.2 TRANSIT

The study corridor includes two major transit providers, the Riverside Transit Authority and the Southern California Regional Rail Authority. Brief descriptions of these services follow:

Riverside Transit Agency (RTA) – RTA provides bus service to approximately 2,500 square miles of Western Riverside County with a fleet of 96 buses and trolleys operating on 38 fixed bus routes. Along with the city of Riverside, RTA provides service to Temecula, Murrieta, Lake Elsinore, Sun City, Perris, San Jacinto, Mead Valley, Corona, Norco, Woodcrest, Moreno Valley, Beaumont, Banning, Yucaipa, Pedley, Rubidoux, Loma Linda and Grand Terrace. RTA was formed through a joint-powers agreement between the County of Riverside and the cities within RTA's service area, and is governed by an 18-member Board of Directors. The Board consists of one representative from each city served by RTA, as well as one county supervisor from each district RTA serves. RTA transports about 25,000 passengers each day, totaling more than 7.1 million passengers each year.

The following routes have been identified as providing service along the SJBL/I-215 corridor and would provide connections to the transportation alternatives considered in this study:

Exhibit 4: RTA Routes with service within the SJBL/I-215 Corridor

RTA Route	Service area:
Route 1	Downtown Riverside to Corona—Magnolia Ave/University/UCR
Route 10	Downtown Riverside to Galleria at Tyler (includes La Sierra)
Route 13	UCR to Galleria at Tyler
Route 16	Downtown Terminal to Moreno Valley City Hall—Riverside/Moreno Valley
Route 17	Moreno Valley City Hall to RCC-Campus-Moreno Valley—Moreno Valley
Route 19	Moreno Valley Mall to Perris to Sun City—Moreno Valley/Perris/Sun City
Route 20	Magnolia Center, RCR Med. Center, Moreno Valley Community Hospital
Route 22	Downtown Terminal to Graham & Langstaff-Lake Elsinore—Lake Elsinore/Perris/Downtown Riverside
Route 25	Downtown Terminal to VA Hospital, Loma Linda—High Grove/Loma Linda

RTA Route	Service area:
Route 27	Galleria at Tyler to Florida & Lincoln, Hemet —Riverside/Perris/Sun City/Hemet
Route 30	Perris
Route 41	Mead Valley Community Center, Perris – Ramona Expressway (alt. route)
Route 49	Riverside to Country Village
Route 74	San Jacinto, Hemet, Sun City, Perris
Route 149	Riverside to Mall of Orange (Orange County)
Route 204	Riverside to Montclair Transcenter
Route 208	Temecula, Menifee, Sun City, Perris, Moreno Valley, Riverside
Source RTA: Effective Schedules January 18, 2004	

Southern California Regional Rail Authority (SCRRA) / Metrolink – SCRRA is a joint powers authority established in 1991 to plan, design, build and operate commuter rail service in the Southern California Region. Metrolink is one of the fastest growing commuter rail systems in the nation. The system has grown from three routes, 112 miles of track and daily ridership of 3,000 passengers to seven routes, 507 miles of track, and 34,000 weekday riders. Three routes serve Riverside County and account for over 25 percent of the system patronage (See Exhibit 5 for a map of all Metrolink routes). While primarily used for peak period weekday travel, Metrolink does provide some mid-day trains and limited weekend service. At all times, parking is free at Metrolink stations in Riverside County. The Metrolink routes that provide service to Riverside County include:

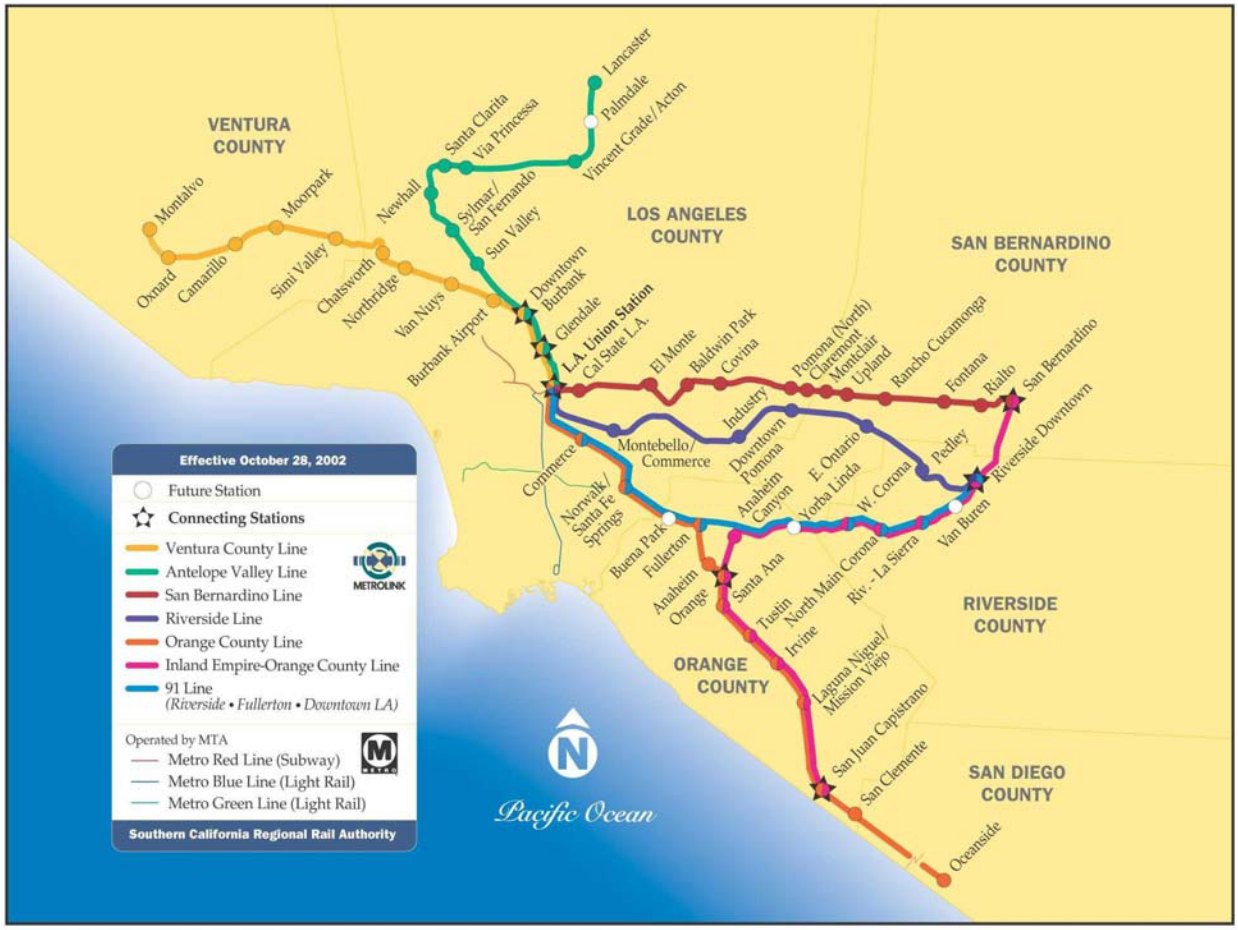
- **91 Line** – This line officially began on May 6, 2002 with 9 trains per day and extends 61.6 miles connecting Riverside and Los Angeles Union Station. The alignment roughly follows the Riverside Freeway (SR 91) through Riverside County on the Burlington Northern Santa Fe (BNSF) San Bernardino Subdivision to Fullerton in Orange County, where it then continues northwest to Los Angeles. Station stops include Riverside, La Sierra, North Main Corona, West Corona, Fullerton, Norwalk, Commerce and LA Union Station.

- **Riverside Line** – This line provides service between Riverside in Riverside County and Los Angeles Union Station on the Union Pacific (UPRR) Riverside alignment with 12 trains per day serving 7 stations over 58.7 route miles. This route roughly follows the Pomona Freeway corridor (SR 60) and station stops include Riverside, Pedley, East Ontario, Downtown Pomona, Industry, Montebello/Commerce and Los Angeles Union Station.

- **Inland Empire / Orange County Line** – This line provides service between San Bernardino in San Bernardino County and San Juan Capistrano in Orange County with 12 trains per day serving 14 stations over 70.9 route miles on the BNSF San Bernardino Subdivision. Station stops include San Bernardino, Riverside, La Sierra, North Main Corona, West Corona, Anaheim Canyon, Orange, Santa Ana, Tustin, Irvine, Mission Viejo, San Juan Capistrano, San Clemente and Oceanside.

- **San Bernardino Line –** This line extends service to Riverside on weekends only. Nine Saturday and six Sunday trains connect Riverside to Los Angeles via San Bernardino and Upland on track owned by the Metropolitan Transportation Authority (MTA) and the San Bernardino Association of Governments (SANBAG). The 56.2 mile line from San Bernardino includes these 13 station stops: San Bernardino, Rialto, Fontana, Rancho Cucamonga, Upland, Montclair, Claremont, Pomona (North), Covina, Baldwin Park, El Monte, Cal. State LA, and Los Angeles Union Station.

Exhibit 5: Metrolink System Map



Source: Metrolink

2.4.3 RAILROADS

The SJBL / I-215 Corridor Study area contains several active railroad facilities that currently provide freight movements and services to local and regional customers. These facilities include:

San Jacinto Branchline (SJBL) – The SJBL is a single-track railroad that extends approximately 38 miles from Highgrove south to the city of Perris and then east to the San Jacinto / Hemet area. This facility was formerly owned by the Atchison, Topeka, & Santa Fe

Railway Company (AT & SF) (now the Burlington Northern Santa Fe Railroad-BNSF) until it was purchased by RCTC in 1993. The SJBL connects with the BNSF San Bernardino Subdivision in Highgrove and is approximately parallel to the I-215 Expressway as it travels down to the city of Perris. Two freight trains are scheduled and operated by BNSF on this alignment each day to provide service to various industries along the route.

Union Pacific (UP), Riverside Industrial Lead (RIL) – The UP currently owns and operates a railroad alignment that extends approximately 7 miles from Colton in San Bernardino County to the city of Riverside. This facility is known as the Riverside Industrial Lead (RIL) and runs parallel to the SJBL from Highgrove until it turns to the southwest and crosses the SJBL at-grade near Rustin Avenue, 2 miles northeast of downtown Riverside. From the crossing, the RIL continues southwest and into downtown Riverside where it terminates at University Avenue just north of the Downtown Riverside Metrolink station. UP serves several customers along the RIL with a switcher train and crew that operate Monday through Friday for approximately three hours per day.

Burlington Northern Santa Fe (BNSF)/ San Bernardino Subdivision (SB Sub) – The BNSF currently owns and operates the San Bernardino Subdivision which extends from San Bernardino to Los Angeles. The alignment relevant to this corridor, between Highgrove and Riverside, is a three-track mainline that provides the existing connection from the SJBL to the Metrolink system at the Downtown Riverside station. Metrolink operates 8 commuter trains per day over the alignment from Riverside to San Bernardino as part of the Inland Empire – Orange County service described previously. Also, Amtrak operates two long distance passenger trains per day over the BNSF San Bernardino Subdivision. The majority of traffic on this segment of track consists of both BNSF and UP freight trains, which combine to account for approximately 60 to 80 movements per day over this mainline.

2.5 STUDY AREA NEEDS

With the existing transportation facilities in the corridor inventoried, the next phase of the study outlines the mobility needs of western Riverside County. As described in this report, previous and on-going study efforts have documented a significant increase in population and development in the corridor. The accompanying land-use patterns that have shaped this growth have additional transportation impacts. The suburban low-density residential developments that are in abundance in this area require an automobile for almost all trips. Even more pronounced is the reduced availability of employment in Riverside County relative to its population, and as a result many residents must commute long distances to jobs outside the county. These factors have resulted in significant burdens on transportation system users, the roadway network, and residents in general.

Currently, the major transportation facilities in the corridor, I-215 and SR60, are experiencing unsatisfactory levels of service, a measure based on factors such as travel times and speed, and as evidenced by increasingly poor volume/capacity (V/C) ratios. These facilities are forecasted to continue with unsatisfactory levels of service even with programmed roadway improvements over the coming years, which include additional lanes and the implementation of HOV lanes.

The study completed a technical review of these and various transportation and demographic trends in the study area, including public outreach that listened to the concerns of affected

communities and residents. The results have made clear that the SJBL/I-215 corridor is in need of an improved transportation system independent of the ever growing and increasingly congested roadway system. With this guiding principle in place, the needs of the SJBL / I-215 Corridor Study were identified as follows:

The Need to Reduce Roadway Congestion – Congestion on the roadways, especially the main highways in the study area are forecasted to increase over the next 25 years with little relief expected from planned investments. Between 1997 and 2025 traffic volumes are forecasted to increase:

- Up to a 68.8% increase on the combined segments of I-215;
- A 91.4% increase on SR60 (East Junction to Gillman Springs Road); and
- An 85.1% increase on I-215 (East Junction to Perris/Romoland).

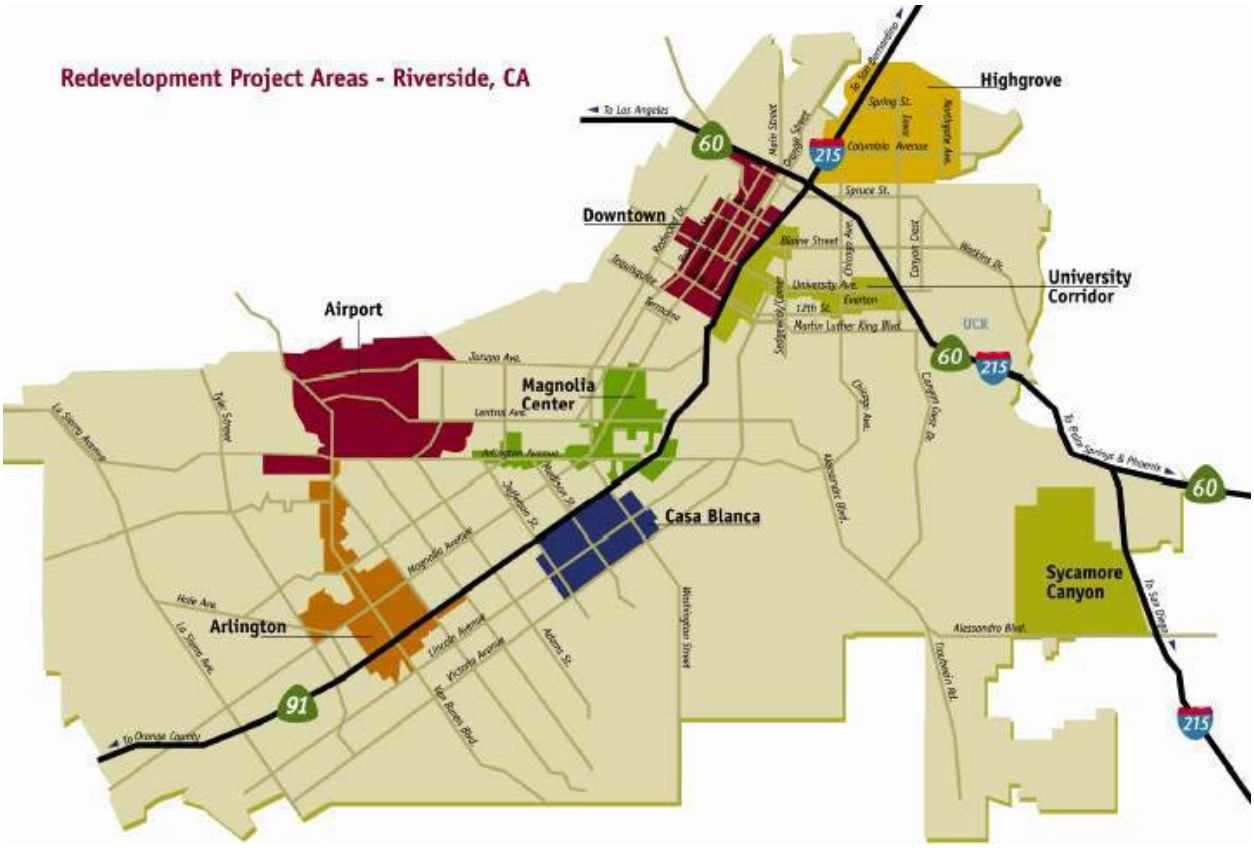
Similarly, the V/C ratios are expected to range from 1.02 to 1.3 on I-215/SR60, from 1.2 to 1.44 on I-215 and are predicted to increase by up to .59 on some segments of SR60. Volume-to-capacity ratio is a measure of traffic demand on a facility (expressed as volume) compared to its traffic-carrying capacity. A V/C ratio of 0.7, for example, indicates that a traffic facility is operating at 70 percent of its capacity (see Appendix B for more details).

The Need to Provide Transit Travel Options to Growing Population and Employment – Population and employment levels are forecasted to increase significantly over the next 20 to 25 years, further degrading the existing roadway transportation system level of service and supporting the need for alternate travel choices. The population of the three incorporated cities in this corridor is expected to grow almost 55% from the year 2000 to 2025. During the same time, jobs in these cities are expected to increase by 97%. See Appendix A for complete details on growth trends in western Riverside County.

The Need to Coordinate Transportation Planning and Community Development – Several communities within the study area could benefit from an investment in public transportation as a catalyst for redevelopment or as a means to control sprawling development through transit-oriented planning and design. Older urbanized areas, underutilized commercial/institutional sites and growing suburban subdivision present significant opportunities to coordinate public transportation planning and community development initiatives that enhance the overall quality of life. Review of background material and plans reveal that the city of Perris presents an opportunity for revitalization of an older urban area, while the March Air Reserve Base provides an opportunity to redevelop an underutilized airfield into mixed-use development. The city of Riverside is an established urban area with numerous redevelopment zones that can be enhanced through improvements in transportation. (See Exhibit 6)

The Need to Explore Under-Utilized Transportation Resources - The SJBL / I-215 study corridor contains existing non-highway transportation rights-of-way that are significantly under-utilized from a public passenger transportation perspective. In particular these include the railroad facilities previously identified, the San Jacinto Branchline, UP Riverside Industrial Lead and the BNSF/San Bernardino Subdivision. Each of these rail facilities provide an opportunity to develop transit solutions that conveniently link residents to key activity centers and existing transit services within this corridor and throughout the region.

Exhibit 6: Redevelopment Zones in Riverside, CA



2.6 STUDY GOALS

Before alternatives can be developed, it is important to establish the outcomes of conducting this SJBL / I-215 Corridor Study. A set of goals and objectives has been developed from the needs observed, documented, and expressed through public outreach to affected communities, stakeholders, and concerned individuals. Defining the project's goals and objectives is a key step in determining what is specifically desired from the project investment. The goals and objectives succinctly define how the purpose and need for the project will be fulfilled (goals), and where possible, incorporate quantifiable measures (objectives) that will help in the development of evaluation criteria.

Four goals and objectives for the SJBL / I-215 Corridor Study are:

Goal 1 – Improve the Transportation System with Alternate Travel Choices:
Objectives

- To establish and expand the regional transit network within and beyond the study corridor.
- To improve the attractiveness of public transit as a commutation alternative to the automobile, by making it available, reliable and convenient to use.
- To reduce highway congestion in the corridor.
- To promote a seamless regional transit system.

Goal 2 – Promote Community/Transit Oriented Development:

Objectives

- To strengthen the older urban communities as centers of economic opportunity.
- To broaden the range and availability of public transportation alternatives between the various urban areas along the corridor for a variety of trip purposes.
- To encourage transit-friendly communities, at higher densities.
- To foster transit-oriented development (TOD) around transit stations.
- To provide improved mobility opportunities to the transit dependent.

Goal 3 – Minimize Adverse Environmental Impacts:

Objectives

- To help reduce residential, commercial and industrial "sprawl" development.
- To conform to the State Implementation Plan (SIP) as required by the Clean Air Act Amendments of 1990 (CAAA).
- To minimize impacts to the natural and human-made environment.
- To reduce the need for new right-of-way resources thereby reducing land use impacts to the study corridor.

Goal 4 – Invest and Deploy Resources Effectively and Efficiently:

Objectives

- To invest resources efficiently.
- To improve the productivity and cost effectiveness of transit services in the corridor.
- To enhance and build upon the existing public transportation system within the corridor.
- To select investments that build upon underused and abandoned transportation resources.

3 DEVELOPMENT OF ALTERNATIVES

3.1 ALTERNATIVE A - NO BUILD

The No Build Alternative is used to illustrate conditions in the project's design year if no transportation improvements relating to this study are made. This study will consider from present-2025 as the timeframe for transportation improvements. In this alternative, the existing transportation system is maintained with the only new transportation investments being those already programmed in the 25-year long range transportation plan developed and adopted by the Southern California Association of Governments (SCAG). This plan is the Regional Transportation Plan (RTP) and the financially constrained version is utilized, which includes only those transportation projects that the region can afford to build and operate during the 25-year period. The current RTP was adopted in 2001 and an update is performed every three years.

In this particular case, the current RTP already includes the implementation of commuter rail service from Perris to downtown Riverside. For the purpose of providing a comparative analysis, it is assumed that the SJBL project would not be included in the existing RTP. Thus, a commuter rail project will not be pre-assumed and will be incorporated as the build alternatives to investigate.

The RTP does include several major highway improvements within the SJBL / I-215 Corridor which are listed below:

I-215/SR-60 HOV and Truck Climbing Lane – Planned implementation of an HOV lane in each direction on the combined I-215/SR-60 facility, for a distance of 5.5 miles. The plan also includes the addition of a truck climbing lane in each direction along this segment of highway. At present, the truck climbing lanes have already been built and are in operation along this highway facility.

SR-60 HOV Lane - Planned implementation of an HOV lane in each direction beginning at the East Junction (I-215/SR-60 Interchange) east to Redlands Boulevard, for a distance of 7.7 miles.

I-215 (East Junction to Ramona Expressway) – Planned implementation of an HOV lane in each direction of I-215 between the East Junction near Box Springs to the Ramona Expressway, a distance of 7.3 miles.

3.2 ALTERNATIVE B – TSM / EXPRESS BUS

General Concept of the Alternative: The Transportation System Management (TSM) / Express Bus Alternative consists of low-capital improvements to existing transit facilities and services. This alternative emphasizes low cost, operational improvements that are structured to bring the greatest benefit from existing transportation infrastructure. Alternative B was developed applying recommendations of Statewide and Metropolitan Planning Guidelines and the Federal Transit Administration Major Investment guidelines. These guidelines require a TSM to provide the basis of comparison to the higher cost, high capital investment build alternatives. With these guidelines in mind, an express bus service was proposed to operate between the city of Perris and Downtown Riverside with service levels and accessibility similar to those of the proposed build alternatives, see Exhibit 20. Transit improvements in Alternative B consist of faster, safer, more direct and higher profile bus service. Alternative B directs resources to establish an express bus service primarily on I-215 between Perris and Downtown Riverside.

Physical Characteristics: As illustrated in Exhibit 8, express bus service originates in the city of Perris with the first station proposed for the Perris – South park and ride at I-215 and SR 74. From here, the route would directly serve Perris with a stop at the Cottonwood Plaza Shopping Center. Departing Perris, the route would proceed north on I-215 with stops at Nuevo Road (at the Perris Plaza Shopping Center), Ramona Expressway, and Alessandro Boulevard. All stops along I-215 are proposed to include park and ride facilities. Leaving the Alessandro Boulevard stop, service will travel via Box Springs Blvd. and Sycamore Canyon Blvd. to the Box Springs Interchange with I-215/SR60, with a stop provided at this location. Continuing north on I-215/SR60 the route will stop at University Avenue and provide access to the University of California, Riverside campus. The route continues along University Avenue to downtown Riverside, with stops at the Metrolink Station and the Downtown Bus Terminal.

To support this service, local feeder bus connections to the express bus route are proposed. Metrolink commuter rail service in Riverside would also benefit from any additional transfers from the feeder buses.

Operations and Service Levels: Express bus service would reach the Downtown Metrolink station during peak periods such that connections to departing (AM), and arriving (PM) trains can be provided. Lower frequency midday service would be provided accordingly. While the actual service was designed to provide convenient connections, the ridership model used simplified input such as regular headways. As a result, an average constant headway of approximately 30 minutes is estimated for peak period service and 60 minutes for off-peak service. The service would operate from 5:00 am to 8:00 pm in the evening.

In addition to the Express Service, linkages to local bus route service will compliment the proposed service. Several local routes will incorporate an additional "Express Bus Stop" in order to provide greater connectivity and faster transportation service between the municipalities in the corridor. Exhibit 7 shows the proposed stops for the express service, including any existing and proposed local transit connections.

Stations: Alternative B is proposed to have seven new passenger stations along the SJBL / I-215 Corridor as illustrated in Exhibit 7 and would provide access to two existing stations including the Downtown Riverside Metrolink station and the RTA Downtown Bus Terminal.

Exhibit 7: Alternative B – TSM/Express Bus Station Characteristics

Station Name	Type	Park and Ride	Potential Station Location	Parking (spaces)	Feeder Bus
Perris – South (Matthews Rd.)	Bus Shelter	Yes	I-215 and Matthews Rd. (SR 74)	50	RTA 27, 208
Perris (Cottonwood Plaza)	Bus Shelter	Yes	4th and Wilkerson	50	RTA 19, 22, 27, 30, 74, 208
Nuevo Road	Bus Shelter	Yes	Perris Plaza Shopping Center	150	RTA 30
Ramona Expressway	Bus Shelter	Yes	Northwest quadrant of Intersection w/ I-215	275	RTA 27, 41, 208
Alessandro Boulevard	Bus Shelter	Yes	Northwest quadrant of SJBL and Alessandro Boulevard Intersection	100	RTA 16, 17, 20
Box Springs	Bus Shelter	Yes	Box Springs Rd / I-215	75	RTA 16
University of California Riverside	Bus Shelter	No	University Ave / I-215	N/A	RTA 13, 208
Riverside Metrolink Station	Existing Rail Station	Yes	Vine Street and University Avenue	870 - Existing	RTA 1, 13, 16, 25, 208
RTA Downtown Bus Terminal	Existing Bus Station	No	Mission Inn Avenue and Market Street	N/A	RTA 1, 10, 12, 13, 14, 15, 16, 22, 25, 29, 49, 149, 204, 208
Note: It is assumed that shopping centers will allow parking on existing facilities through future agreements					

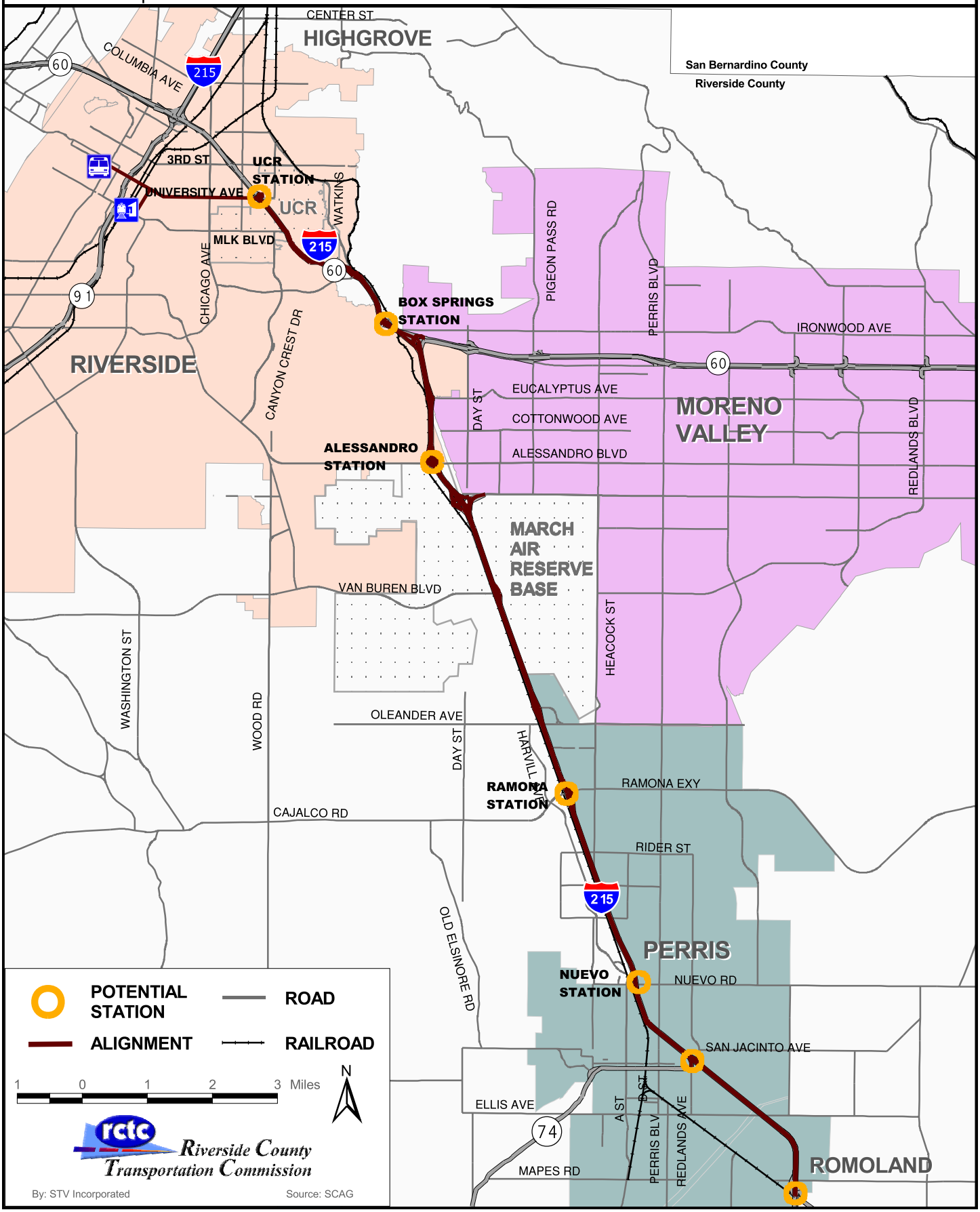
Vehicles and Maintenance Facilities: Vehicles for express bus service would be regular fixed route 40-foot standard buses or over-the-road coaches. It is likely that the vehicles would be procured and provided by RTA, the local transit agency, as part of their general fixed-route bus fleet. Additional vehicles are likely to be needed, and RTA would maintain the express bus fleet at its existing maintenance facility. The cost of new vehicles has been incorporated into the capital costs for this alternative as outlined in Section 5.2 of this report.

Exhibit 8: Alternative B - TSM / Express Bus - Overview Map

San Jacinto Branch Line/I-215 Corridor Study

Alternative B: TSM/Express Bus

Overview Map



3.3 BUILD ALTERNATIVES

The study proposes three build alternatives, all of which consist of implementing commuter rail service between Perris and downtown Riverside via the San Jacinto Branchline right-of-way:

- Alternative C – Commuter Rail with Highgrove Turnback
- Alternative D – Commuter Rail with New Connection to BNSF at Citrus Street
- Alternative E – Commuter Rail with New Connection to UP RIL at Rustin Avenue

Each alternative extends the Metrolink 91 Line, currently providing service from Riverside to Downtown Los Angeles via Fullerton to the city of Perris (see Exhibit 20).

Physical Characteristics: The differences among the three commuter rail alternatives include the various options to connect the SJBL to the BNSF mainline for service to the Riverside Downtown Metrolink Station. The options all share the common SJBL alignment from the city of Perris to a proposed station at the University of California, Riverside (UCR).

Between Perris and UCR, commuter service would originate south of Downtown Perris, at I-215 and SR 74 (Matthews Road). From this Perris-South origin, the next station would be located in Downtown Perris, in the vicinity of the old Santa Fe Railway Depot near C and 4th Streets. Continuing northwest along the SJBL, the next station is proposed for the Ramona Expressway. The SJBL continues paralleling I-215 on its western side, and traverses the March Air Reserve Base. Where the SJBL intersects Alessandro Boulevard, a third passenger station is proposed. From this point the alignment continues northwest and crosses under the I-215/SR60 East Junction and then passes through the Box Springs area where it would turn west just east of UCR. A station is proposed for the university campus along its eastern border with Watkins Drive.

Service and Operations: The commuter rail service would operate primarily during the peak period and in the peak direction. The operating schedule will be such that arrival and departure at Union Station in Los Angeles will coincide with typical work schedules, in an effort to make the new service as attractive as possible to commuters. Approximate hours of operation are proposed from 5:00 am to 8:00 pm on weekdays only. Different route lengths and operational considerations for each alternative, detailed in the next sections, result in different approximations of the travel time from Perris to Riverside. See Exhibit 22 for a detailed comparison of the alternative running times.

The initial service, to be implemented in 2008, would operate three trains from Perris to Riverside with continuing service to Los Angeles during the morning peak. In addition, two mid-day, off-peak trains would operate daily, one in each direction. In the afternoon peak, three trains would operate from Los Angeles to the city of Perris. The headways on the new service would be approximately 50 to 60 minutes during the peak periods.

New trains are expected to be added as ridership grows. By 2025, the service is envisioned to consist of six trains in both the morning and evening peak periods with four trains providing mid-day service. With this increased service, headways would be reduced to 25-30 minutes in the peak.

Vehicles and Facilities: For all the alternatives, the new service will utilize diesel locomotives and bi-level commuter coaches and cab cars from the existing Metrolink fleet. Currently, Metrolink operates 9 trains on the 91 Line between Riverside and LA Union Station and it is expected that these consists of locomotives and cars will be extended to the city of Perris with the implementation of SJBL service. Three additional locomotives and two cab cars are currently programmed in the Regional Transportation Improvement Program, for availability in 2006. Funding will be provided from the state of California and the vehicles for any proposed service increases to the 91 Line could include extensions to the city of Perris as part of the SJBL service proposed in the three alternatives.

The existing Metrolink maintenance facility located in Los Angeles would be used to maintain any new locomotives and cab/coach cars for the operation of service proposed by the three alternatives. Currently, Metrolink utilizes this one centralized facility to maintain the entire fleet and has additional capacity at this facility for fleet expansion. However, new service along the SJBL would require the construction of storage tracks in the Romoland area, beyond Perris. These tracks would provide an overnight layover location for the earliest departure trains the next morning. This location would require two storage tracks approximately 1000 feet in length, a compressor facility for performing FRA required brake tests and an electrical ground power source for hotel power to allow shut-down of the locomotives and the ability to light the cars so they can be cleaned. An external power supply also allows air conditioners and heaters to be turned on prior to revenue service without idling the diesel locomotives. The facility would also have water and sewer connections for a crew restroom facility and train restroom cleaning services.

3.3.1 ALTERNATIVE C – COMMUTER RAIL WITH HIGHGROVE TURNBACK

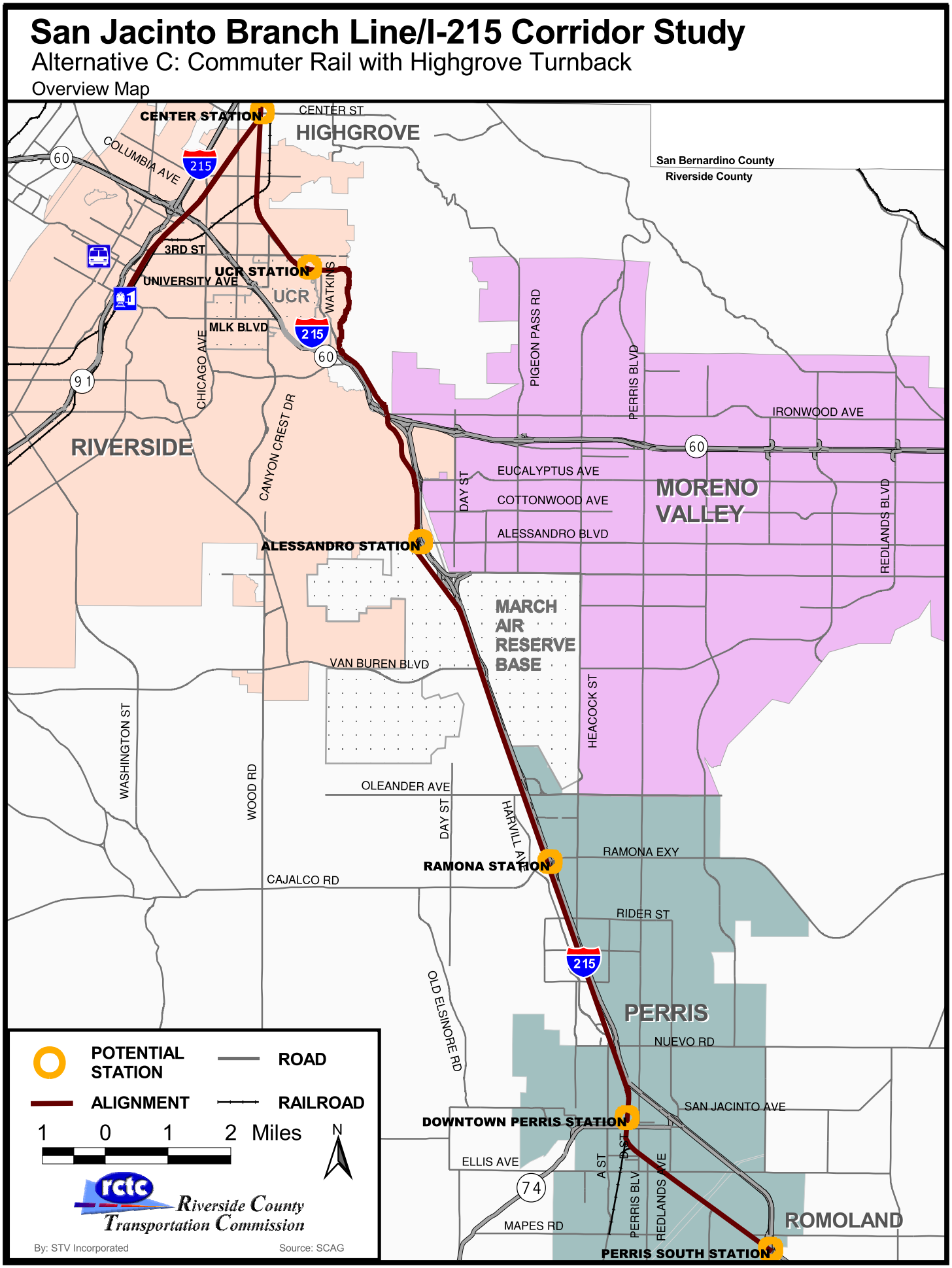
Physical Characteristics: From the proposed UCR Station, heading toward the Riverside Downtown Metrolink station, each of the three alternatives consider the possibility for different route and track connections to the BNSF mainline. In Alternative C, as illustrated in Exhibit 10, from the UCR station the alignment would curve north toward Riverside crossing the Union Pacific Riverside Industrial Lead (RIL) near Marlborough Street and then continue into Highgrove where a passenger station is proposed between Center and Main Streets. At this location, the alignment is parallel to the BNSF mainline. After stopping at Highgrove, the train operations would reverse direction to join the BNSF track 3 to continue into the Riverside Downtown Metrolink Station for passenger boardings and alightings. This would be the physical terminus of operations associated with Alternative C, however, the proposed service would continue to Los Angeles, via Fullerton, as part of the Metrolink 91 Line. As with all of the commuter rail alternatives, for passengers continuing from Riverside to Orange County, or intermediate stops along the Metrolink Riverside Line, a transfer can be made at the Riverside station.

Stations: Alternative C proposes six new passenger stations along the SJBL alignment as illustrated in Exhibit 9 and would use the existing Riverside Downtown Metrolink station as its final stop as part of the extension to the city of Perris.

Exhibit 9: Alternative C Station Characteristics

Station Name	Type	Platform	Length	Potential Station Location	Parking (spaces)	Feeder Bus Lines
Perris - South	At-Grade	Side	1000 feet	I-215 and SR 74	842	RTA 27, 208
Perris	At-Grade	Side	1000 feet	C, 4th Streets	310	RTA 19, 22, 27, 30, 74, 208
Ramona Expressway	At-Grade	Side	1000 feet	Northwest quadrant of Intersection w/ I-215	723	RTA 27, 41, 208
Alessandro Boulevard	At-Grade	Side	1000 feet	Northwest quadrant of SJBL and Alessandro Boulevard Intersection	720	RTA 16, 17, 20
UC Riverside	At-Grade	Side	1000 feet	Watkins Drive and Valencia Hill Drive	75	RTA 13, 208
Center Street (Highgrove)	At-Grade	Side	1000 feet	East of BNSF between Center and Main Streets	300	RTA 25, 208
Riverside Metrolink Station	At-Grade	Side	1000 feet	Existing Riverside Metrolink Station (East Side Platform)	870 - Existing	RTA 1, 13, 16, 25, 208
Note: Trains leaving Riverside Station would then operate identical to the current 91 Lines, serving existing Metrolink passenger stations at Riverside-La Sierra, North Main Corona, West Corona, Fullerton, Norwalk/Santa Fe Springs, Commerce and LA Union Station.						

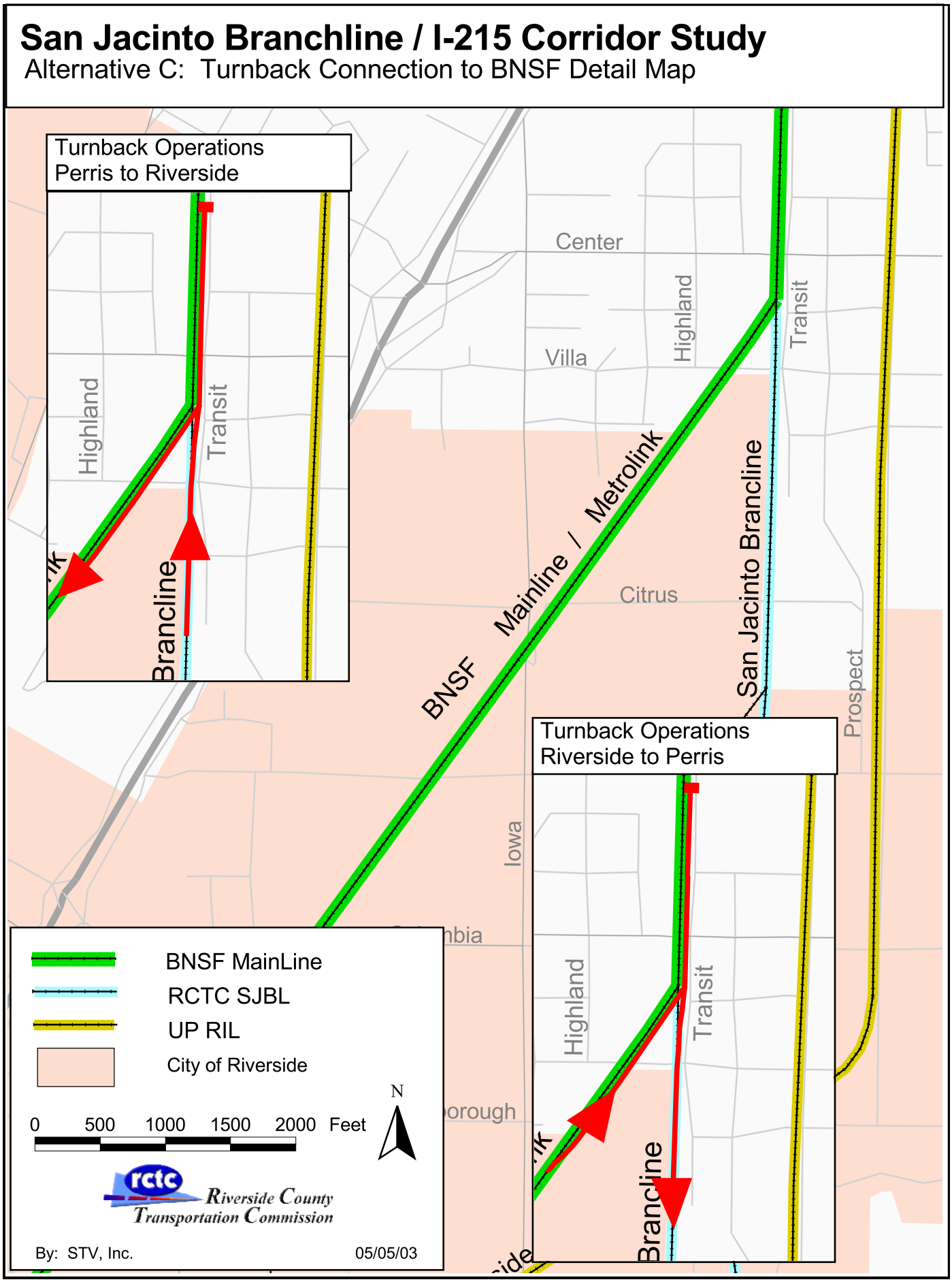
Exhibit 10: Alternative C - Overview Map



Access to Riverside Station: Specific details about the approach to Riverside highlight the differences between the three build alternatives. For Alternative C, access to Riverside Station from the SJBL in Highgrove will be accomplished by way of an existing turnout that connects the SJBL track with the BNSF mainline track 3 (see Exhibit 11). Passenger trains traveling in either direction to Perris or Riverside would be required to make a reverse movement at Highgrove to continue to the next station. As a result, the train engineer would have to walk to the opposite end of the train to resume the trip after stopping in Highgrove. The need to reverse the train, including a required FRA brake check, results in a significantly longer run time. The connection to the BNSF mainline track with this existing turnout allows Alternative C to reach the Riverside station on existing track, with no new construction needed. Trains operated under Alternative C would stop at the south-side platform of the existing Riverside Metrolink Station.

It is important to note that Metrolink operation of commuter trains on the BNSF mainline is governed by an agreement dated February 14, 1996. This agreement allows up to 4 revenue roundtrip trains in both the morning and evening (16 one-way) and 4 non-revenue roundtrip trains in both the morning and evening (16 one-way) between Highgrove and Riverside dependent upon the completion of a detailed and agreed upon capital program. The Metrolink Inland Empire service currently operates 8 one-way revenue trains between San Bernardino and Riverside downtown station under this agreement, leaving additional capacity for 8 one-way revenue trains for the proposed SJBL commuter service. The proposed SJBL commuter rail service would have sufficient capacity for its initial start-up service of 8 one-way revenue trips between Perris and Riverside. However, this agreement allows for no expansion to the existing movements, creating a constraint for additional service in future years which is not sufficient for the anticipated service levels in later years.

Exhibit 11: Alternative C - Turnback Connection



3.3.2 ALTERNATIVE D – COMMUTER RAIL WITH NEW CONNECTION TO BNSF AT CITRUS STREET

Physical Characteristics: From the proposed Spruce Street station, heading toward the Downtown Riverside Metrolink station, the Alternative D alignment would continue north to Citrus Street where it would curve west on new track for a connection with the BNSF mainline (see Exhibit 13), negating the need for a turnback operation at Highgrove as required in Alternative C. Where the SJBL connects with the BNSF right-of-way, two options are proposed for continuing to the Downtown Riverside station. BNSF Option 1 proposes shared use of existing BNSF track all the way into the station. BNSF Option 2 proposes construction of a new track along BNSF right-of-way leading into the station. Both of these options are discussed in more detail in the Access to Riverside section to follow. The Riverside station would be the physical terminus of operations associated with Alternative D, however, the proposed service would continue to Los Angeles, via Fullerton, as part of the Metrolink 91 Line.

Stations: Alternative D proposes five new passenger stations along the SJBL alignment as illustrated in Exhibit 12 and would use the existing Downtown Riverside Metrolink station as its final stop as part of the extension to the city of Perris.

Exhibit 12: Alternative D Station Characteristics

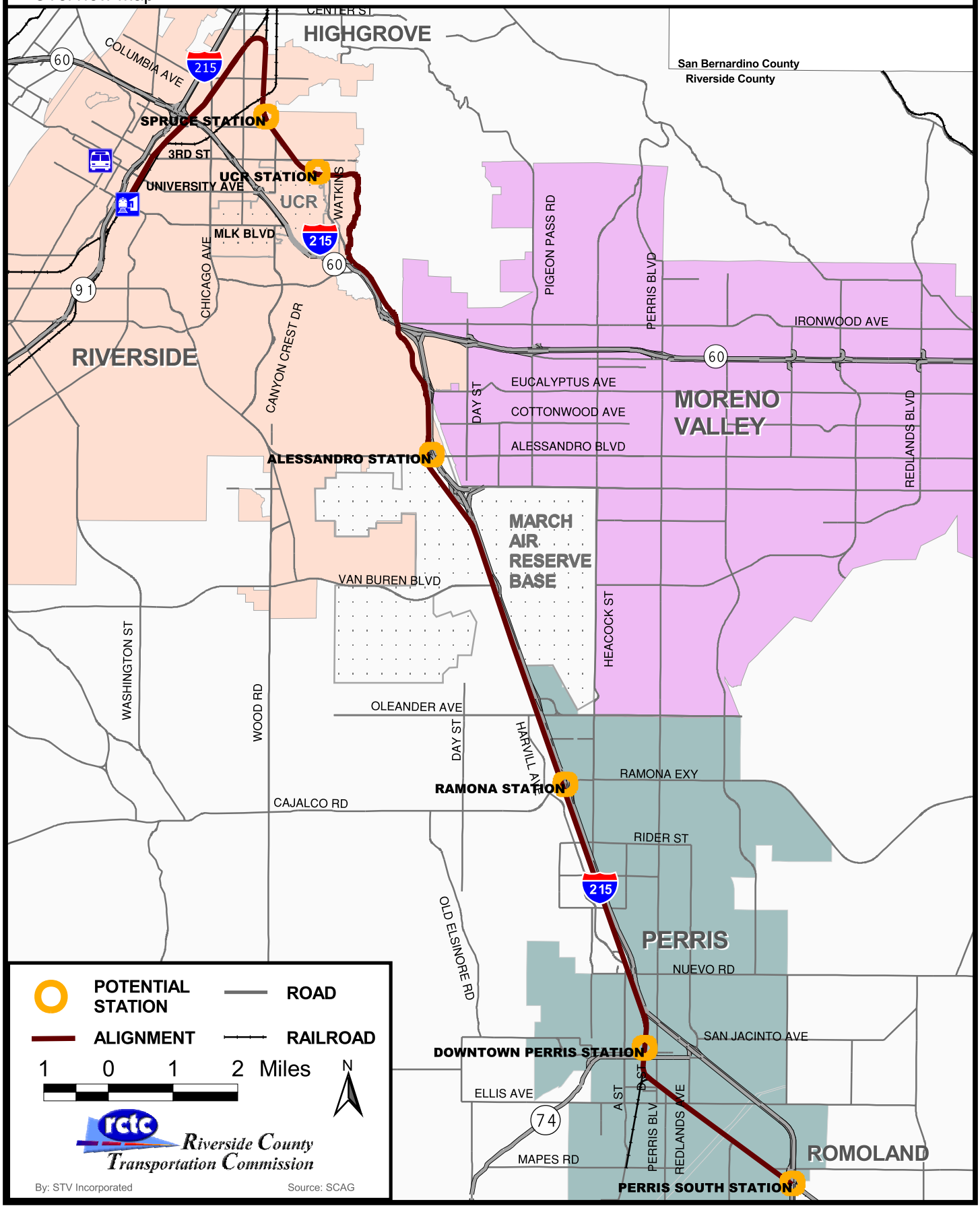
Station Name	Type	Platform	Length	Potential Station Location	Parking (spaces)	Feeder Bus Lines
Perris - South	At-Grade	Side	1000 feet	I-215 and SR 74	842	RTA 27, 208
Perris	At-Grade	Side	1000 feet	C, 4th Streets	310	RTA 19, 22, 27, 30, 74, 208
Ramona Expressway	At-Grade	Side	1000 feet	Northwest quadrant of Intersection w/ I-215	723	RTA 27, 41, 208
Alessandro Boulevard	At-Grade	Side	1000 feet	Northwest quadrant of SJBL and Alessandro Boulevard Intersection	720	RTA 16, 17, 20
UC Riverside	At-Grade	Side	1000 feet	Watkins Drive and Valencia Hill Drive	75	RTA 13, 208
Spruce Street	At-Grade	Side	1000 feet	Northwest of Spruce & SJBL	300	RTA 25, 208
Riverside Metrolink Station	At-Grade	Side	1000 feet	Existing Riverside Metrolink Station (East Side Platform)	870 - Existing	RTA 1, 13, 16, 25, 208
Note: Trains leaving Riverside Station would then operate identical to the current 91 Lines, serving existing Metrolink passenger stations at Riverside-La Sierra, North Main Corona, West Corona, Fullerton, Norwalk/Santa Fe Springs, Commerce and LA Union Station.						

Exhibit 13: Alternative D - Overview Map

San Jacinto Branch Line/I-215 Corridor Study

Alternative D: Commuter Rail with New Connection to BNSF at Citrus Street

Overview Map



Access to Riverside Station: For Alternative D, access to Riverside station from the SJBL will be accomplished by way of a new connection track between the SJBL and the BNSF mainline (see Exhibit 14). The new connection track will allow for continuous movement between the SJBL and Riverside Station with continuing service to Los Angeles. The new connection avoids the need for the train to reverse direction as in Alternative C. However, Alternative D has two options once the new connection reaches the BNSF right-of-way. The options are illustrated in Exhibit 15 and described as follows:

- *BNSF Option 1:* Commuter trains would share the BNSF mainline track (Track No. 3) with freight and Metrolink (IEOC) services south to the Downtown Riverside Metrolink station. No improvements, except for a new connection switch, would be necessary on the BNSF mainline and no property displacements would be required to implement this option. One property purchase (open land) has been identified as required for construction of the connection track between the SJBL and the BNSF.

- *BNSF Option 2:* Similar to Option 1, however, upon reaching the BNSF right-of-way, the track would continue on a new track paralleling the BNSF mainline just east of track 3, where it would continue south into the Riverside station. This option requires partial removal of a loading dock on an existing property north of Third Street and the use of an existing railroad access road for placement of the new track, limiting BNSF's future maintenance abilities. This option would also make better use of existing RCTC property to access a Metrolink storage track, providing access to the existing south-side platform at Riverside Station.

BNSF Option 2 has been selected as the preferred option for Alternative D. This option is the higher cost scenario and offers more operational flexibility than Option 1. Option 2 avoids some conflicts with BNSF freight movements but the track would still be under BNSF control and require their permission for construction.

Exhibit 14: Alternative D - Citrus Street Connection

San Jacinto Branchline / I-215 Corridor Study

Alternative D: Citrus Street Connection Detail Map

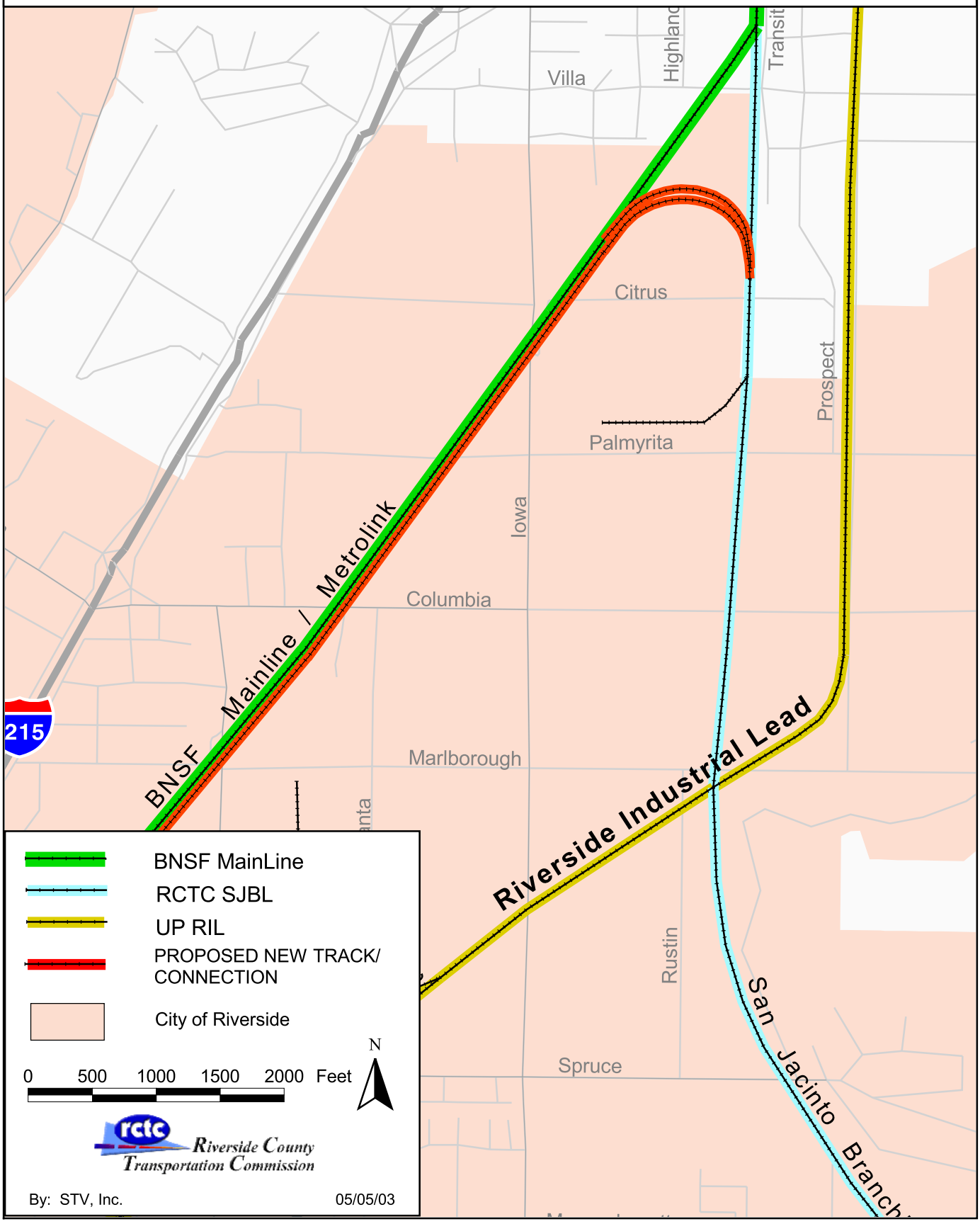
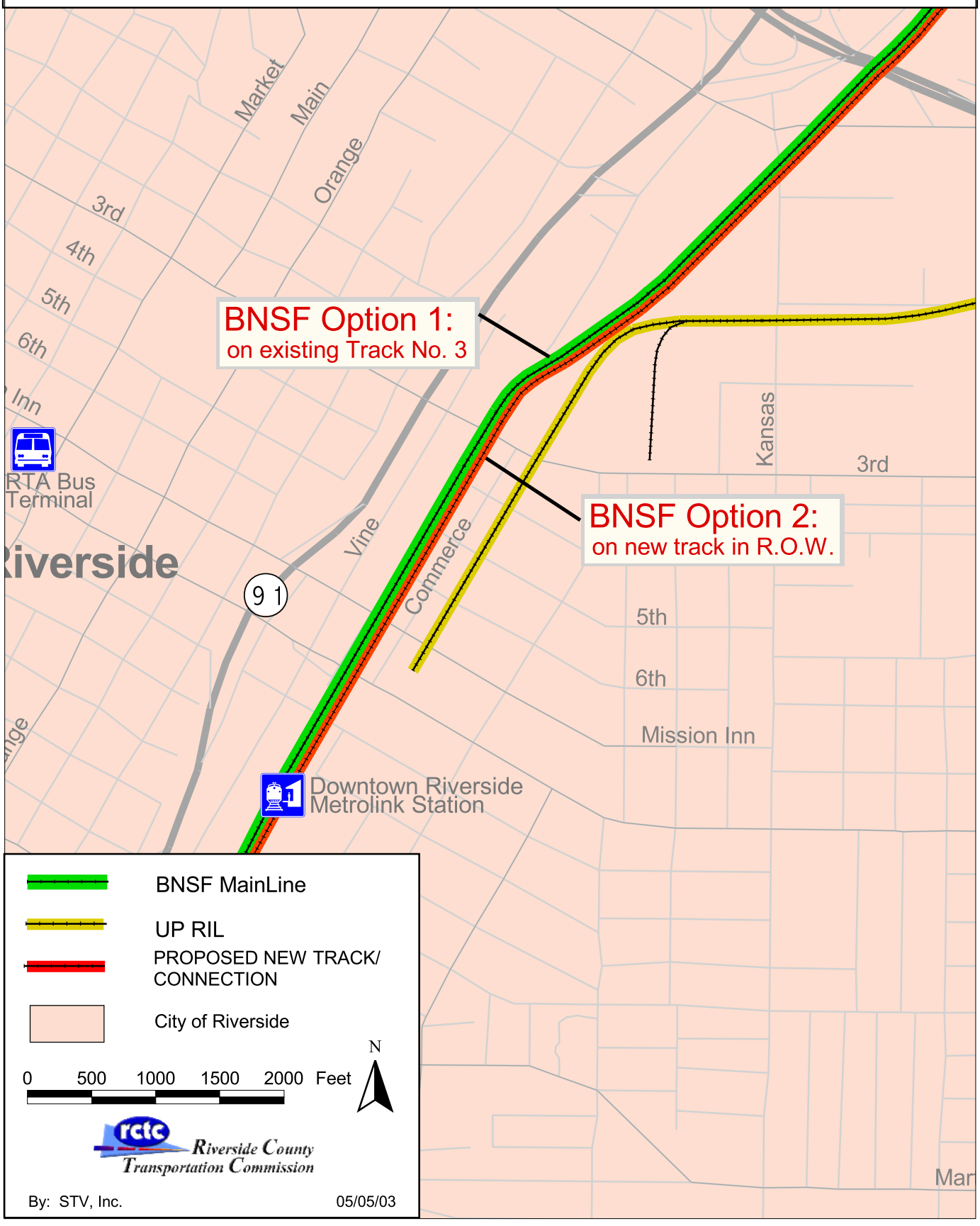


Exhibit 15: Alternative D - Approach to Riverside Station

San Jacinto Branchline / I-215 Corridor Study

Alternative D: Approach to Riverside Station Detail Map



3.3.3 ALTERNATIVE E – COMMUTER RAIL WITH NEW CONNECTION TO UP RIL AT RUSTIN AVENUE

Physical Characteristics: From the proposed Spruce Street station, heading toward the Riverside downtown Metrolink station, the Alternative E alignment would curve west onto a new connection track that would then join the Union Pacific (UP) Riverside Industrial Lead (RIL) for an approach to Riverside Station along Massachusetts Avenue (see Exhibit 17). As the alignment continues east toward the BNSF right-of-way, three options, RIL Option 1, 2 and 3 are proposed for the turn to the south and into the Riverside station. The Riverside station would be the physical terminus of operations associated with Alternative E, however, the proposed service would continue to Los Angeles, via Fullerton, as part of the Metrolink 91 Line.

Stations: Alternative E proposes five new passenger stations along the SJBL alignment as illustrated in Exhibit 16 and would use the existing Downtown Riverside Metrolink station as its final stop as part of the extension to the city of Perris.

Exhibit 16: Alternative E Station Characteristics

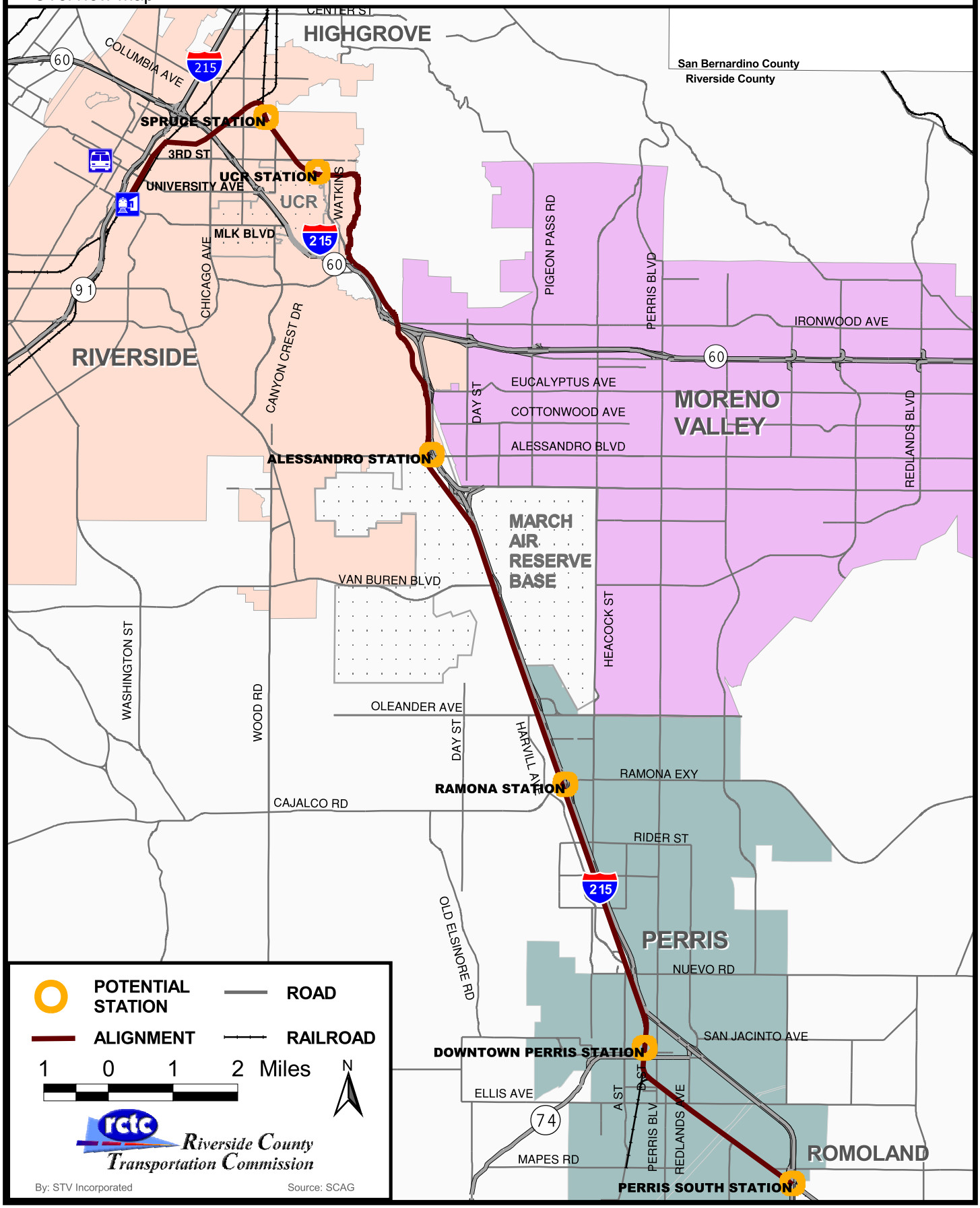
Station Name	Type	Platform	Length	Potential Station Location	Parking (spaces)	Feeder Bus Lines
Perris - South	At-Grade	Side	1000 feet	I-215 and SR 74	842	RTA 27, 208
Perris	At-Grade	Side	1000 feet	C, 4th Streets	310	RTA 19, 22, 27, 30, 74, 208
Ramona Expressway	At-Grade	Side	1000 feet	Northwest quadrant of Intersection w/ I-215	723	RTA 27, 41, 208
Alessandro Boulevard	At-Grade	Side	1000 feet	Northwest quadrant of SJBL and Alessandro Boulevard Intersection	720	RTA 16, 17, 20
UC Riverside	At-Grade	Side	1000 feet	Watkins Drive and Valencia Hill Drive	75	RTA 13, 208
Spruce Street	At-Grade	Side	1000 feet	Northwest of Spruce & SJBL.	300	RTA 25, 208
Riverside Metrolink Station	At-Grade	Side	1000 feet	Existing Riverside Metrolink Station (East Side Platform)	870 - Existing	RTA 1, 13, 16, 25, 208
Note: Trains leaving Riverside Station would then operate identical to the current 91 Lines, serving existing Metrolink passenger stations at Riverside-La Sierra, North Main Corona, West Corona, Fullerton, Norwalk/Santa Fe Springs, Commerce and LA Union Station.						

Exhibit 17: Alternative E - Overview Map

San Jacinto Branch Line/I-215 Corridor Study

Alternative E: Commuter Rail with New Connection to UP Rail at Rustin Avenue

Overview Map



Access to Riverside Station: Access to Riverside Station for Alternative E from the SJBL will be accomplished by way of a new connection track between the SJBL and the UP RIL (see Exhibit 18). These two lines cross at-grade approximately one mile south of the existing connection between the SJBL and BNSF in Highgrove. The new connection track will allow for continuous movement between the SJBL and the Riverside Station with continuing service to Los Angeles. Alternative E has three options (See Exhibit 19) for accessing the Riverside station after it turns onto the BNSF right-of-way from the new connection track as follows:

- *RIL Option 1:* This proposed option would continue toward Downtown Riverside on the existing RIL until the area just past Kansas Avenue. New track would then extend onto the BNSF Mainline right-of-way and run parallel with the BNSF mainline tracks towards the Downtown Riverside Metrolink station. The new track would require the partial removal of an existing loading dock adjacent to the right-of-way. The new track would travel on RCTC property from Third Street to Mission Inn Avenue where it would connect to an existing Metrolink storage track and continue to the south-side platform at the Riverside station.

- *RIL Option 2:* This proposed option is identical to RIL Option 1 until after passing Kansas Avenue. At this point new track would connect with the existing "freight house" track that is located approximately 400 feet east of the BNSF mainline. Operations would continue on this track until it reached Third Street where new track would be required to access existing RCTC property to the west. An existing commercial building would require displacement to allow construction of the new track south of Third Street. Access to Riverside station would be similar to RIL Option 1, from the existing RCTC property to the existing south-side platform at the station.

- *RIL Option 3:* This proposed option is identical to RIL Option 1 except for its use of new tracks in a new right-of-way east of the BNSF mainline. RIL Option 3 would continue on new tracks until Third Street, where it would then access the Riverside station similar to RIL Option 1. A property displacement would be required for placement of a new track east of the BNSF right-of-way.

After additional review, RIL Option 3 has been selected as the preferred option for Alternative E. This option represents the higher cost scenario but offers greater operational flexibility than either Option 1 or 2. Further coordination with the BNSF and the UP will be necessary.

Exhibit 18: Alternative E - Rustin Avenue Connection

San Jacinto Branchline / I-215 Corridor Study

Alternative E: Rustin Avenue Connection Detail Map

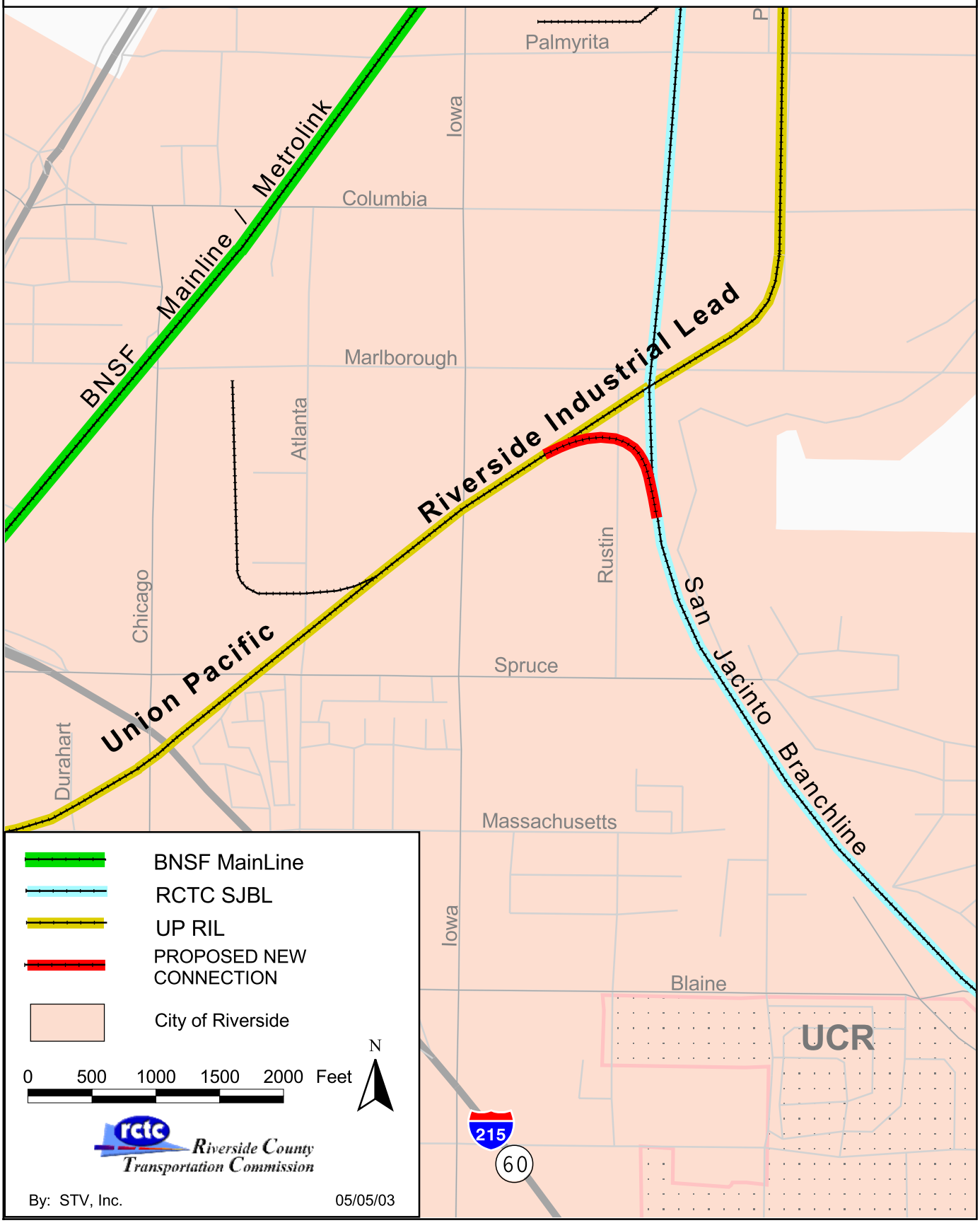


Exhibit 19: Alternative E - Approach to Riverside Station

San Jacinto Branchline / I-215 Corridor Study

Alternative E: Approach to Riverside Station Detail Map

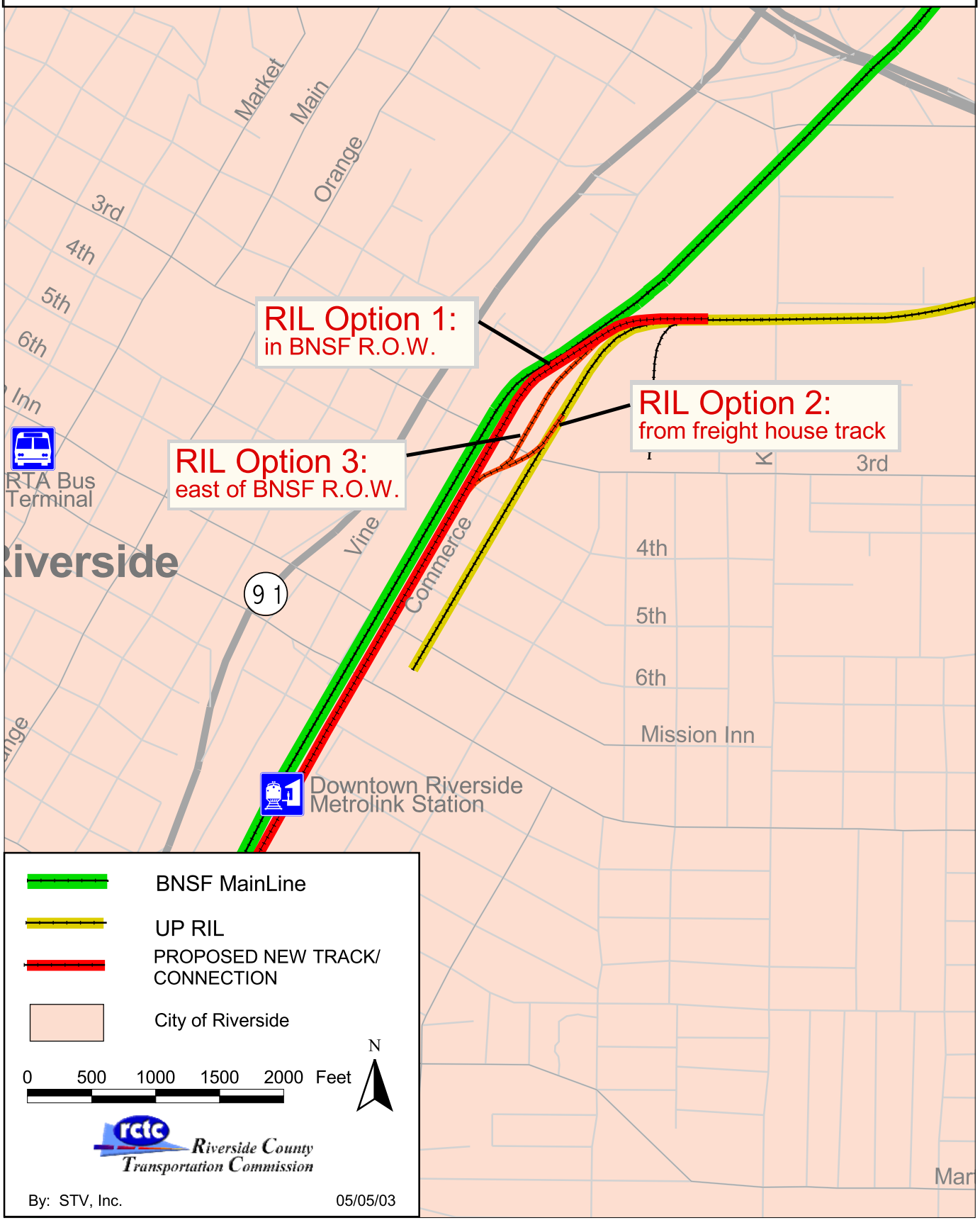
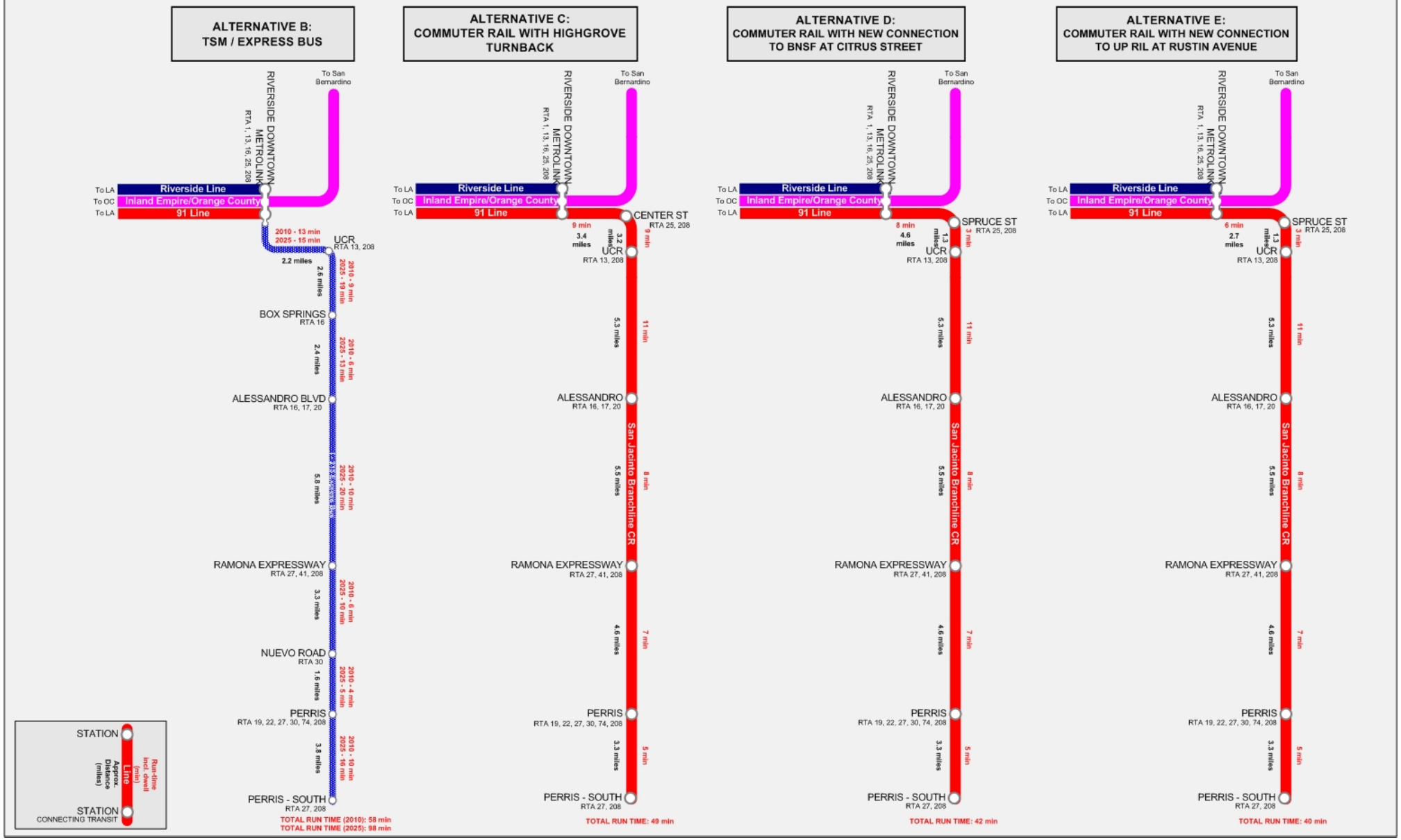


Exhibit 20: Service Diagrams



4 RIDERSHIP

4.1 FORECASTING METHODOLOGY

The patronage forecasting for this study was performed by the Southern California Association of Governments (SCAG) utilizing the existing and approved SCAG regional travel demand model. The model was run for different scenarios at different time intervals: base year, start-up year, and forecast year. The base year relies on Year 2000 population and employment data combined with the existing transportation network. While the start-up year is proposed to be 2008, the nearest SCAG forecast data was for 2010 and was used for the start-up year model runs. The forecast year for this study coincides with the latest SCAG long-range plan, which has a forecast year of 2025. Also, due to the similarities in alignment, station locations, and run times of Alternatives D and E, only one model run was conducted for both alternatives.

4.2 SERVICE PLANNING ASSUMPTIONS

The TSM / Express Bus and Commuter Rail Alternatives all propose service from 5:00 am to 8:00 pm. The morning peak commuting period is from 5:00 am – 8:00 am and the evening peak period is from 4:00 pm – 7:00 pm. All other times are considered as off-peak service. The express bus has a headway of 30 minutes during the peak and 60 minutes in the off-peak. The speed of the bus service, influenced by increasing congestion and delays experienced on roadways in the corridor, is calculated from the SCAG model. Exhibit 21 shows the station to station travel times for the Express Bus service in 2010 and 2025. It is evident that the increasing congestion on I-215 has a significant negative impact on this operation.

Exhibit 21: TSM / Express Bus Travel Times (min)

Station to Station Links	2010	2025
Perris South to Perris	10	16
Perris to Nuevo Rd.	4	5
Nuevo Rd. to Ramona Expw.	6	10
Ramona Expw. to Alessandro Blvd.	10	20
Alessandro Blvd. to Box Springs	6	13
Box Springs to UCR	9	19
UCR to Riverside Station (ML)	13	15
Total Travel Time	**58**	**98**

The commuter rail alternatives propose the same hours of operation as the TSM. At opening in 2008, 3 trains are scheduled to depart South Perris in the AM Peak. One train in each direction would operate during the mid-day, and three trains would return to South Perris in the PM Peak. For 2025, extensively more service is planned with six departures in each peak period, and two trains per direction in the off-peak. See Exhibit 22 for the forecast travel times for the three commuter rail alternatives. Travel time for commuter rail is independent of increasing highway congestion and remains constant from implementation until 2025. Exhibit 22 also

includes travel times for passengers who wish to continue aboard the same train, to Los Angeles and intermediate stops along the 91 Line. Passengers to other destinations (Orange County, Riverside Line intermediate stops), as with the express bus alternative, are anticipated to make transfers at the Downtown Riverside Metrolink station. The time needed to transfer to other destinations is accounted for in the ridership model based on the planned operation of the connecting service.

Exhibit 22: Commuter Rail Alternatives Travel Time (minutes)

Station to Station Links	Alt. C	Alt. D	Alt. E
Perris South to Perris	5	5	5
Perris to Ramona Expw.	7	7	7
Ramona Expw. to Alessandro Blvd.	8	8	8
Alessandro Blvd. to UCR	11	11	11
UCR to Center Street (Alt. C only)	9	-	-
UCR to Spruce Street (Alt. D & E only)	-	3	3
Center St./Spruce Street to Riverside	9	8	6
Total Travel Time South Perris to Riverside	**49**	**42**	**40**
Riverside to La Sierra	10	10	10
La Sierra to West Corona	11	11	11
West Corona To Fullerton	21	21	21
Fullerton to Norwalk	10	10	10
Norwalk to Union Station	38	38	38
Total Travel Time Perris South to Union Station	**139**	**132**	**130**

4.3 PATRONAGE FORECASTING RESULTS

4.3.1 LINKED TRIPS/NEW TRANSIT TRIPS

Average weekday systemwide transit trips in 2025 are shown in Exhibit 23. The difference in transit trips between the build alternatives and the no-build and TSM alternatives represent new transit trips. The transit trips presented here are linked trips. A linked transit trip represents a transit trip from the origin zone to the destination zone, regardless of the number of modes used.

4.3.2 BOARDINGS BY ALTERNATIVE AND STATIONS

A boarding summary has been generated for each alternative for 2010 and 2025. These are unlinked boardings occurring at new stations on the extended portion of the line for the commuter rail alternatives, and at all stations served by the TSM/Express Bus service. These boardings are shown in Exhibit 24. The boardings listed here include those being attracted to the extension from stations on the existing line (essentially reverse commuters), though this makes up only a small fraction of the boardings.

Exhibit 23: 2025 Regional Transit System Linked Trips and New Transit Trips

	Alternative			
	No-Build	**TSM**	**Alt C**	**Alts D & E**
Linked Trips (Weekday)				
Riverside	50,766	53,033	55,267	56,382
SCAG Region	1,444,004	1,445,922	1,448,362	1,449,400
New Transit Trips				
Change from NB		945	1,559	1,815
Change from TSM			614	870

Exhibit 24: Weekday Boardings on New Investment

	Alternative		
	TSM	**Alt C**	**Alts D & E**
Year 2010	3,316	3,817	4,151
Year 2025	3,705	6,542	7,472

The boardings for each project have been developed for each station as shown in Exhibit 25. These include boardings for reverse commuters destined for stations on the extension. Additional detail for station to station boardings is provided in Appendix E. The station to station boardings are in Production-Attraction format, indicating that both the outbound and return trip are attributed to the origin station.

Exhibit 25: Boardings by Stations on New Investment

Station / Stop	**Year 2010**			**Year 2025**		
	TSM	**Alt C**	**Alts D & E**	**TSM**	**Alt C**	**Alts D & E**
Perris South	46	507	599	45	1,745	2,106
Perris	147	442	537	131	579	709
Nuevo Road	365	-	-	521	-	-
Ramona Expressway	673	687	797	594	1,616	1,929
Alessandro	238	1,168	1,468	168	1,181	1,725
Box Springs	192	-	-	241	-	-
UCR	1,464	63	144	1,795	111	167
Center Street (Highgrove)	-	950	-	-	1,310	-
Spruce Street	-	-	606	-	-	836
Riverside Station	112	-	-	97	-	-
Downtown Bus Terminal	79	-	-	113	-	-
Total	**3,316**	**3,817**	**4,151**	**3,705**	**6,542**	**7,472**

5 COSTS

5.1 OPERATION AND MAINTENANCE (O&M) COSTS

5.1.1 O & M COST ESTIMATION METHODOLOGY

The operating and maintenance costs for the proposed alternatives were estimated using two methods, both of which scaled current costs to levels appropriate for the size of the systems envisioned. All bus costs, whether for an express bus service or alterations to the feeder bus network were calculated using a three-variable model. Unit costs were determined for vehicle miles, vehicle hours and peak vehicles, based on existing RTA data, and multiplied by the net change in those quantities. Rail costs used a similar method based on Metrolink data, but with four variables: train miles, annual boardings, track miles and stations. Total system wide costs were not determined; only incremental costs for new, additional service are included in the cost estimate. Costs are presented in 2004 dollars.

Alternative B – TSM/Express Bus
The O&M costs for additional service proposed in Alternative B were estimated by multiplying estimated vehicle hours, miles and peak vehicles required for the additional service by unit costs developed from RTA's data in the National Transit Database. Service levels were estimated as follows:

Annual Vehicle Hours
= {[(Hours of Service) × (Frequency) × (Cycle Time)]+(Daily Deadhead Time)}×(Days/Year)

Annual Vehicle Miles
= {[(Hours of Service) × (Frequency) × (Cycle Length)]+(Daily Deadhead Miles)}×(Days/Year)

Peak Vehicles = Cycle Time / Headway

Alternatives C, D and E – Commuter Rail
Rail O&M costs were estimated based on the extension of 91 Line trains from Riverside to Perris – South. The O&M costs for Alternatives C, D and E were based on Metrolink's FY 03/04 O&M budget, which breaks down costs into the categories shown in Exhibit C-1. Each of those costs is driven by one of four variables related to the system's size and/or service level: Train Miles, Annual Boardings, Track Miles and Stations. By dividing each category's cost for FY 03/04 by the level of its appropriate driving variable from the same year, unit costs were produced for application to Alternatives C, D and E.

Train miles were calculated based on the service levels described above and ridership numbers were provided by SCAG's travel demand model. Track miles included the length of the route from Perris-South to Riverside plus two 3000' passing sidings as well as new track in the BNSF right-of-way for Alternative D and the upgraded UP track for Alternative E. Six new stations were assumed for each alternative.

Feeder Bus
The estimation of incremental change in feeder bus O&M costs was performed by scaling the existing costs to reflect the change in operating hours and miles that would result from RTA

service alterations proposed for each alternative. A scaling factor was determined for each bus route based on the proposed increase in vehicle miles in order to scale the vehicle hours appropriately. The calculation used is presented below:

$$\text{Scaling Factor} = \frac{\text{proposed vehicle miles}}{\text{existing vehicle miles}}$$

Each route's vehicle hours were multiplied by its scaling factor to determine the new hours required. The new vehicle hours and miles for the additional service proposed were each multiplied by their unit costs, calculated from existing service data, to determine the incremental O&M costs for new vehicle miles and hours. These costs were then added to the incremental cost per additional peak vehicle.

To determine the number of new vehicles required, the total number needed for each route serving the alternative was calculated using the formula:

Peak Vehicles Required = (Round Trip Travel Time)/ (Average Peak Headway)

Then, the number of vehicles currently used on those routes was subtracted from this calculated amount, resulting in only the new vehicles necessary for each alternative's feeder bus service.

5.1.2 OPERATION AND MAINTENANCE COST ESTIMATION RESULTS

The estimated incremental O&M costs for the alternatives in 2010 are shown below in Exhibit 26 and for 2025 in Exhibit 27. Both can be seen in greater detail in Appendix C. The costs for the three build alternatives (Alt. C, D and E) are similar, ranging in 2010 from $6.5 million for Alternative C to $6.0 million for Alternative E. The O&M costs for the TSM alternative (Alt. B), are substantially less than the cost of the rail services in both 2010 and 2025, given the absence of right of way to maintenance since the express bus operates on highways. It also carries significantly fewer riders compared to the rail alternatives. This is particularly evident as ridership increases in the outer years for the rail services. Rail O&M costs range between $8.4 million and $9.1 million in 2025. In constrast, the TSM costs increase modestly to $4.8 million, which is due primarily to congestion slowing the buses during peak periods. While rail O&M costs are estimated to increase approximately 38% between 2010 and 2025, ridership increases disproportionately by between 71% and 80% over the same period. In contrast, the TSM O&M costs increase by 13% from 2010 to 2025, while ridership stays relatively stagnant with an increase of only 11 percent.

Exhibit 26: O&M Costs for 2010 Service

All costs in thousands of 2004 $s	Alternative			
	Alt B	Alt C	Alt D	Alt E
Net Change in Rail Costs	-	$6,015.3	$5,857.4	$5,535.7
Net Change in Express Bus Costs	$3,830.3	-	-	-
Net Change in Bus Costs	$421.8	$532.6	$523.6	$523.6
Net Change in Operating Costs	$4,252.1	$6,547.9	$6381.1	$6,059.3

Exhibit 27: O&M Costs for 2025 Service

All costs in thousands of 2004 $s	Alternative			
	Alt B	Alt C	Alt D	Alt E
Net Change in Rail Costs	-	$8,594.9	$8,415.9	$7854.4
Net Change in Express Bus Costs	$4,404.1	-	-	-
Net Change in Bus Costs	$421.8	$532.6	$523.6	$523.6
Net Change in Operating Costs	$4,825.9	$9,127.5	$8,939.6	$8,378.1

The O&M costs for the three rail alternatives are similar because the alternatives themselves are similar in their operation. They vary only in their connections between the San Jacinto Branch Line and downtown Riverside. Alternatives C, D and E operate the same number of trains per day, and serve the same number of stations. The primary difference in cost is due to the run times of each alternative, in particular, the reversing movement of Alternative C increases its operating cost substantially. Of the three commuter rail alternatives, Alternative E is the least expensive with Alternative C the most expensive.

The O&M cost results show that as travel demand increases, the rail alternatives are increasingly more efficient per passenger than the TSM operation. Furthermore, among the rail options, Alternative E is the most efficient with its direct connection to Riverside, having the lowest rail O&M costs while carrying the highest ridership.

5.2 CAPITAL COSTS

5.2.1 CAPITAL COST ESTIMATION METHODOLOGY

Unit costs
The capital cost estimation relied on the application of typical unit costs for track construction, grade crossings, stations, vehicles, etc. Unit costs were based on recent Metrolink construction and procurement experience. The unit quantities were then estimated from the conceptual engineering plans and applied to the unit costs. Estimates for acquiring property for stations and right-of-way were prepared using market values for each area along the alignment.

Soft Cost and Annualization Assumptions
In addition to construction costs and vehicles, soft costs for design and construction management as well as contingency were included in the estimate. These are based on reasonable industry percentages of project cost as they increase with the size of the project. Design and construction management was estimated as 25% of the physical construction cost of each alternative. To account for any unforeseeable complications, unknown conditions, and significant price fluctuations, 25% was added onto the calculated total cost for each alternative as a contingency.

The total cost, including soft costs, was converted into annualized costs to demonstrate the actual cost required annually to keep the system in a state of good repair indefinitely. Annualization took into consideration the useful life of item categories and developed

annualization factors, which when multiplied by total costs resulted in the cost per year. The factors were developed in accordance with FTA practice, utilizing a 7% discount rate. Exhibit 28 below presents the annualization categories and factors used in the estimation along with each category's useful life.

Exhibit 28: Annualization Categories and Factors

Category	Lifetime (years)	Annualization Factor $\frac{i(1+i)^n}{(1+I)^n - 1}$
Roadway	20	0.0944
Guideway	30	0.0806
Trackwork	30	0.0806
Stations	30	0.0806
Traction Power	30	0.0806
Train Control	30	0.0806
Communications	25	0.0858
Fare Collection	25	0.0858
ROW Acquisition	100	0.0701
Utility Modification	100	0.0701
Special Conditions	50	0.0725
Rail Vehicles	25	0.0858
Bus Vehicles	12	0.1259

5.2.2 CAPITAL COST ESTIMATION RESULTS

Alternative B (TSM) capital costs consist of express bus vehicles (coach buses) to provide the primary service, additional transit buses needed to extend existing routes to the express bus stations, and parking and shelter facilities at express bus stations. The total capital expenditure associated with Alternative B is estimated to be $19.3 million. Express bus stations were assumed to be off-line, which means that the express bus must leave I-215 to reach the stations. Station and parking costs are for new stations only, and are based on the projected ridership demand. Station property estimates are based on the relative size of each station. Additional improvements were not estimated for the existing Downtown Riverside Metrolink station or the Downtown Bus terminal. The capital cost results are shown in Exhibit 29.

The equivalent annualized capital cost for Alternative B is $2.04 million. This is what would be required annually on average to maintain the infrastructure and vehicles of this alternative.

Exhibit 29: Capital Cost Estimation Results (2004 millions)

Category	TSM	Alt. C	Alt. D	Alt. E
Trackwork	$ -	$ 23.25	$ 27.72	$ 25.67
Structures	$ -	$ 7.45	$ 8.02	$ 7.98
Signals/Communication	$ -	$ 6.98	$ 7.97	$ 7.15
Grade Crossings/Protection	$ -	$ 6.73	$ 10.07	$ 8.27
Stations / Parking	$ 4.20	$ 18.36	$ 18.36	$ 18.36
Station Property	$ 2.13	$ 10.48	$ 10.95	$ 10.95
Alignment Right-of-Way*	$ -	$ -	$ 0.25	$ 7.53
Vehicles	$ 8.07	$ 13.47	$ 13.47	$ 13.47
Planning/Design/Const. Mgt.	$ 1.05	$ 15.69	$ 18.04	$ 16.86
Contingency	$ 3.86	$ 25.60	$ 28.71	$ 29.06
Total	**$ 19.32**	**$ 128.01**	**$ 143.56**	**$ 145.28**
Annualized	**$ 2.04**	**$ 10.39**	**$ 11.62**	**$ 11.68**

** Excludes 1993 purchase of SJBL ROW by RCTC*

Capital costs for the commuter rail alternatives include costs for track and track structure improvements, signal and communication systems, grade crossings and their protection, stations and parking, station property, alignment right-of-way, rail vehicles and feeder bus vehicles. The cost estimate results are shown in Exhibit 29. Differences in cost among these alternatives result primarily from their respective means of access to Riverside, as well as from differences in noise mitigation.

It should be noted that RCTC is the sole owner of the San Jacinto Branchline (SJBL), having purchased it in 1993 from what was then the Atchison, Topeka and Santa Fe Railroad (now BNSF). The cost of this purchase is not included in the capital cost estimates shown above. The majority of capital costs for the commuter rail improvements involve the upgrade and rehabilitation of existing SJBL track for higher speeds, smoother rides and safer passenger operation.

Alternative C is the least costly rail option at $128.0 million due to its turn-back operation at Highgrove and the assumption that no additional trackage would be constructed along the BNSF right-of-way between Highgrove and Riverside. As a result, there are no property acquisition costs associated with the alignment nor any track costs beyond Highgrove. The equivalent average annual cost to build and maintain the infrastructure of this alternative indefinitely is estimated to be $10.4 million per year.

Alternative D is significantly more costly than Alternative C at $143.6 million. Similarly, the average annual cost to build and maintain the infrastructure of this alternative indefinitely is also higher at $11.6 million per year. The difference in cost is due to a new track connection from the SJBL to the BNSF right-of-way, and the construction of an additional track along the BNSF to the Downtown Riverside Metrolink station. It should be noted that no property acquisition cost has been included for the construction of the additional track along BNSF, as

the track would fall within the BNSF right-of-way and ownership would be conveyed to the BNSF upon completion. However, an agreement with BNSF would have to be reached regarding use of this track, which may involve additional costs for improvements elsewhere, or in a negotiated access fee. At this time it is not possible to reasonably estimate these costs. The uncertainty associated with this alternative is further discussed in Section 6, the Alternative Evaluation Section of this report.

Alternative E is very similar in cost to Alternative D at $145.3 million and has an equivalent average annual capital cost of $11.7 million. However, the make-up of the cost differs from Alternative D. Alternative E also includes a new connection to provide direct access from the SJBL to the Union Pacific Riverside Industrial Lead (RIL). Once on the UP RIL, however, the costs are comprised of track upgrades, not the construction of a completely new track as in Alternative D. Further, this alignment is slightly shorter, so that the costs associated with track rehabilitation is lower than for Alternative D. This lower cost is offset by the inclusion of property acquisition costs. Property acquisition costs for the alignment are required to purchase the UP RIL and to relocate businesses that would be displaced by the SJBL-RIL connection and by the RIL connection to the Downtown Riverside Metrolink station. Alternative E also has slightly higher costs associated with noise impact mitigation compared to Alternative D. These result from greater impacts at grade crossings on the RIL.

6 EVALUATION OF ALTERNATIVES

6.1 EVALUATION METHODOLOGY

The evaluation of the four alternatives was based on consideration of the following evaluation criteria:

Operational Issues – The consideration of operational impacts related to bus and train movements when providing revenue service as part of the defined alternative. The alternative should provide service through the most reasonable and efficient service plan.

Railroad Access – The consideration of railroad access issues related to any constraints on access to the existing Downtown Riverside Metrolink station. The alternative should seek to provide the most reasonable and time-effective approach to access the station.

Travel Time – The time needed to travel from Perris to Riverside within a transit vehicle. The alternative should provide an optimum travel time between Perris and Riverside when compared against other alternatives.

Property Needs – The existing and new property needed to implement the alternative including existing railroad right-of-way. The alternative should minimize to the greatest extent possible the impacts to property along the alignment and station areas.

Capital Costs – The cost to engineer, design and construct the alternative to the point where it can enter into revenue operations. The alternative should have a reasonable capital cost that provides a level of quality and service that is comparable with the existing bus (RTA) and rail systems (Metrolink) in the region.

Operating Costs – The cost to operate and maintain the alternative on an annual basis to assure an efficient and reliable service. The alternative should have a reasonable operating and maintenance cost that provides a level of quality and service that is comparable with the existing bus (RTA) and rail systems (Metrolink) in the region.

Ridership – The patronage on each of the alternatives expressed in daily boardings. The alternative should maximize the ability to attract riders to the new service.

Environmental – The environmental issues associated with each alternative that impact the surrounding communities and environment. The alternative should minimize to the greatest extent possible the environmental impacts associated with the implementation of its operations and facilities.

Maximize Under-utilized Resources – The ability to utilize existing transportation and community resources to improve the connections between Perris and Riverside and also into areas of Los Angeles and Orange Counties. The alternative should seek to maximize the use of existing railroad rights-of-way, roadways, transit facilities and community resources within the corridor.

Improve Travel Choices in the Corridor – The ability to increase the options for travel within the corridor by modes other than the automobile. The alternative should seek to provide options for travelers other than the automobile, such as bus and rail transit services.

Each alternative was evaluated based on the criteria discussed above to establish its relative performance in comparison to the other alternatives. The evaluation criteria were developed to assist the study team, stakeholders and general public in identifying the best performing alternative given the needs and goals of the study as developed in the purpose and need statement:

Study Needs

Need 1 - Reduce Roadway Congestion

Need 2 - Provide Transit Travel Options to Constantly Growing Population and Employment

Need 3 - Coordinate Transportation Planning and Community Development

Need 4 - Maximize Under-Utilized Transportation Resources

Study Goals

Goal 1 – Improve the Transportation System with Alternate Travel Choices – Expand and improve upon the regional transit network within and beyond the study corridor to provide an option to the automobile to reduce congestion and promote a seamless transit system within the region.

Goal 2 – Promote Community/Transit Oriented Development - Strengthen older urban areas as centers of economic opportunity through transit-oriented development (TOD) to provide improved mobility opportunities for commuters and the transit dependent.

Goal 3 – Minimize Adverse Environmental Impacts - Control residential, commercial and industrial "sprawl" development through the use of existing community and transportation resources.

Goal 4 – Invest and Deploy Resources Effectively and Efficiently - Invest resources efficiently to improve the productivity and cost effectiveness of transit services in the corridor enhancing upon the existing public transportation system underused and inactive transportation resources.

The evaluation process was established to be objective and not bias any particular transportation mode or alternative. The best performing alternative, in comparison to the others, will be recommended as the Locally Preferred Alternative, following a round of public outreach that presents the evaluation results.

6.2 ALTERNATIVE EVALUATIONS

Exhibit 30 provides a summary of the alternative evaluations based upon the evaluation criteria described in the evaluation methodology. The alternatives were rated as good, fair or poor for each evaluation criterion in relation to the other three alternatives. The alternative that performed the highest in relation to the others received a good rating (full circle), the lowest a poor rating (empty circle) and those that were average received a fair rating (half circle).

Alternative B: TSM/Express Bus – Alternative B received a good rating in several criteria including railroad access issues, property needs, capital and operating costs and environmental impacts. This is primarily a result of physical and operational characteristics of the express bus system, which requires minimal infrastructure to accommodate its implementation. However, Alternative B performed poorly in several criteria including operational issues related to highway congestion, travel time, ridership, travel choices and maximizing under-utilized resources due to its use of at or near capacity highway, roadway and HOV systems. Key criteria highlights are as follows:

- Railroad access issues do not apply to this alternative due to its non-dependency of railroad rights-of-way, however, its operations are negatively affected by highway and roadway congestion levels.
- Travel time is estimated to increase from 58 minutes in 2010 to 98 minutes in 2025 between Perris and Riverside due to increasing congestion levels on the major highways and arterials used by the express bus service.
- Environmental impacts are low with no property displacements or noise impacts.
- Capital and operating costs are lowest among all alternatives at $19.3M and $4.3M (opening year) respectively.
- Ridership growth for this alternative is minimal as a result of poor travel times. As highway congestion in the corridor worsens over the years, and causes delays with the express bus service, ridership increased from 3,316 boardings in 2010 to 3,705 boardings in 2025.
- Travel choices are not markedly enhanced due to the impacts of roadway congestion on express bus operations, especially in the outer and horizon years.
- Under-utilized transportation resources are not maximized as the alternative operates on the I-215 and University Avenue, both of which are heavily traveled roadways with forecasted declines in levels of service over the next two decades.

Exhibit 30: Evaluation Matrix for Alternatives

Alternative	Operational Issues	Railroad Access Issues	Travel Time	Property Needs	Capital Costs (2004 $)	Operating Costs (2004 $)	Ridership	Environmental (Preliminary)	Improve Travel Choices	Maximize Under-Utilized Resources
Alternative B TSM / Express Bus	• Operation on existing highways and roadways such as I-215 and University Avenue. • Subject to existing and future automobile congestion which will negatively affect travel times.	• Does not travel on railroad rights-of-way resulting in no railroad access issues.	• **58 minutes** in 2010 from Perris South to Riverside • **98 minutes** in 2025 from Perris South to Riverside	• Uses existing highway and roadways • Property would be needed for park and ride lots with no displacements.	**$19.3 M**	**$4.3 M** Annually in opening year **$4.8 M** Annually in 2025	**3,316** 2010-Boardings **3,705** 2025-Boardings	• No land acquisitions for bus alignments; acquisition of vacant lands for park & ride lots • Low air quality benefits due to small mode shift • No noise impacts • Minimal mitigation needed	• Improves travel choices • Congestion has significant effect on future quality of service	• Does not use abundant railroad rights-of-way such as San Jacinto Branchline and UP RIL.
Rating	○	●	○	●	●	●	○	●	○	○
Alternative C Commuter Rail with Turnback at Highgrove	• Requires turnback movement at Highgrove causing approx. 10-minute delay in overall travel time between Perris and Riverside. • FRA required brake tests and other safety procedures required when reversing train direction. • Potential for delays to access Mainline due to BNSF dispatching control.	• Current BNSF / RCTC operating agreement allows 16 one-way train movements with capacity for initial SJBL service only. • Service increases in outer and horizon years cannot be accommodated without new agreement.	• **49 minutes** in 2010 from Perris South to Riverside. • **49 minutes** in 2025 from Perris South to Riverside. • Unimpeded by current and future automobile congestion due to use of exclusive right-of-way	• **0** full displacements • **0** partial displacement / reconfiguration • Property would be needed for park and ride lots with no displacements	**$128.0 M**	**$6.5 M** Annually in opening year **$9.1 M** Annually in 2025	**3,817** 2010-Boardings **6,542** 2025-Boardings	• No land acquisitions for rail alignment; acquisition of vacant lands for stations • Moderate air quality benefits due to mode shift • Noise impacts in Perris and Highgrove • Moderate mitigation needed	• Improves travel choices • Congestion does not affect future quality of service • Turnback movement reduces quality of service	• Use of abundant railroad rights-of-way such as San Jacinto Branchline. • Uses heavily traveled BNSF Mainline from Highgrove to Riverside Station.
Rating	○	○	◒	●	◒	◒	◒	◒	◒	◒
Alternative D Commuter Rail with New Connection to BNSF at Citrus Street	• Reduces impacts with BNSF Mainline operations • Reduces impacts with Metrolink Inland Empire operations • Eliminates turnback movement and brake safety test at Highgrove.	• Current BNSF / RCTC operating agreement allows 16 one-way train movements with capacity for initial SJBL service only. • No guarantee on exclusive use of 4th track with potential delays due to BNSF dispatching control.	• **42 minutes** in 2010 from Perris South to Riverside. • **42 minutes** in 2025 from Perris South to Riverside. • Unimpeded by current and future automobile congestion due to use of exclusive right-of-way	• **0** full displacements • **1** partial displacement / reconfiguration • Property would be needed for park and ride lots with no displacements	**$143.6 M**	**$6.4 M** Annually in opening year **$8.9 M** Annually in 2025	**4,151** 2010-Boardings **7,472** 2025-Boardings	• Acquisition of vacant land for rail connection; acquisitions of vacant lands for stations • Moderate air quality benefits due to mode shift • Noise impacts in Perris • Moderate mitigation needed	• Improves travel choices • Congestion does not affect future quality of service • Quality of service remains stable	• Use of abundant railroad rights-of-way such as San Jacinto Branchline. • Uses heavily traveled BNSF Mainline from Highgrove to Riverside Station.
Rating	◒	◒	●	◒	○	◒	●	◒	●	◒
Alternative E Commuter Rail with New Connection to UP at Rustin Avenue	• Eliminates impacts with BNSF Mainline operations • Reduces impacts with Metrolink Inland Empire operations • Eliminates turnback movement and brake safety test at Highgrove.	• Eliminates capacity constraints related to service increases in outer years. • Requires operating agreement with UP. • Freight operations on UP RIL are minimal with one daily switcher. • UP has significant interest in selling RIL to RCTC.	• **40 minutes** in 2010 from Perris South to Riverside. • **40 minutes** in 2025 from Perris South to Riverside. • Unimpeded by current and future automobile congestion due to use of exclusive right-of-way	• **2** full displacements • **1** partial displacement / reconfiguration of open parcels • Property would be needed for park and ride lots with no displacements	**$145.3 M**	**$6.1 M** Annually in opening year **$8.4 M** Annually in 2025	**4,151** 2010-Boardings **7,472** 2025-Boardings	• Acquisition of occupied business for rail connection; acquisitions of vacant lands for stations • Moderate air quality benefits due to mode shift • Noise impacts in Perris and Riverside • Moderate mitigation needed	• Improves travel choices • Congestion does not affect future quality of service • Quality of service remains stable	• Use of abundant railroad rights-of-way such as San Jacinto Branchline and UP RIL. • Does not use heavily traveled BNSF Mainline. • Unimpeded access to Riverside Station
Rating	●	●	●	○	○	◒	●	◒	●	●

GOOD = ● FAIR = ◒ POOR = ○

Alternative C: Commuter Rail with Highgrove Turnback – Alternative C performed good in one criterion – property needs, poorly under operational and railroad access issues and fair for several criteria including travel time, capital and operating costs, ridership, environmental, travel choices and maximizing under-utilized resources. Key criteria highlights are as follows:

- Operational and railroad access issues received low ratings due to a significant delay caused by the turnback movement in Highgrove and reliance on the BNSF mainline tracks for the approach to Downtown Riverside Metrolink station. Other contributing factors to the lower rating include the loss of dispatching control over trains on this section of track, and the unavailability of extra train movement capacity in later years.
- Travel time of 49 minutes in both 2010 and 2025, is lower than the Alternative B because it operates on an exclusive guideway but higher than Alternatives D and E due to the delay caused by the turnback movement.
- New property would not be required for implementation of this alternative except for available land at park and ride stations.
- Capital costs of $128.0M are significantly higher than Alternative B since this is a full build commuter rail alternative, but are not much less than Alternatives D or E, at $143.6M and $145.3M respectively. This is due to the fact that a majority of the cost for all three commuter rail alternatives includes the rehabilitation of the SJBL track for higher speed commuter rail operations.
- Annual operating costs at $6.5M (opening year) are also significantly higher than Alternative B ($4.3M) and slightly higher than Alternatives D ($6.4M) and E ($6.1M).
- Ridership for Alternative C is significantly higher that Alternative B with 6,542 boardings in 2025, since commuter rail travel time is not affected by highway congestion.
- Environmental impacts would be higher than Alternative B, but similar to Alternatives D and E. It will be necessary at certain locations to mitigate noise impacts resulting from train horns.
- Travel choices and utilization of existing transportation resources would be improved compared to Alternative B, due to the use of existing and available railroad rights-of-way, but not to the extent of Alternatives D and E which provide better accessibility and travel times to the Downtown Riverside Metrolink station.

Alternative D: Commuter Rail with New Connection to BNSF at Citrus Street – Alternative D received a good rating for travel time, ridership and improved travel choices, a fair rating for operational issues, railroad access issues, property needs, operating costs, environmental impacts and maximization of underutilized resources, and a poor rating for capital costs. Key criteria highlights are as follows:

- Operational issues are improved over Alternative C with the elimination of the turnback movement in Highgrove, however, the potential for impacts with BNSF freight operations still exists.
- Railroad access issues include the need for a new agreement allowing for future year train movements, there is no guarantee for exclusive use of the 4th track to be built as part of this alternative and control of dispatching is retained by BNSF.

- Travel time of 42 minutes in both 2010 and 2025, is lower than for Alternatives B or C and only slightly higher than Alternative E because it travels a longer distance to reach the Downtown Riverside Metrolink station.
- A property acquisition, with no displacements, would be required for the new connection track near Citrus Street. Park and ride stations would utilize existing available land at station areas.
- Capital costs of $143.6 are significantly higher than Alternative B ($19.3M), somewhat higher than Alternative C ($128.0M) and slightly lower than Alternative E ($145.3M).
- Annual operating costs at $6.4M (opening year) are also higher than Alternative B ($4.3M) but similar to Alternatives C ($6.4M) and E ($6.1M).
- Ridership is more than double that of Alternative B with 7,472 boardings in 2025 and higher than Alternative C due to improved travel time.
- Environmental impacts would be higher than Alternative B but similar to Alternatives C and E. It will be necessary at certain locations to mitigate noise impacts resulting from train horns.
- Travel choices and utilization of existing transportation resources would be improved as compared to Alternative B, due to the use of existing and available railroad rights-of-way.

Alternative E: Commuter Rail with New Connection to UP RIL at Rustin Avenue – Alternative E received a good rating in six criteria including operational issues, railroad access issues, travel time, ridership, travel choices and maximization of under-utilized resources, a poor rating for property needs and capital costs and a fair rating for operating costs and environmental impacts. Key criteria highlights are as follows:

- Operational issues are improved over the other alternatives with the elimination of the turnback movement in Highgrove and elimination of dependency on the BNSF mainline. The use of the RIL provides direct and unimpeded access to the Downtown Riverside Metrolink station.
- Railroad access issues are also improved through the use of the RIL eliminating the train movement capacity constraint in future years and RCTC would retain dispatching control. In addition the Union Pacific Railroad has expressed significant interest in selling the RIL to RCTC.
- Travel time is 40 minutes in both 2010 and 2025, lower than Alternatives B, C or D due to the direct and unimpeded access to the Downtown Riverside Metrolink station.
- New property acquisitions, requiring two displacements, are needed for the new connection track near Rustin Avenue and the area above Third Street. Park and ride stations would utilize existing vacant land at station areas.
- Capital costs at $145.3M are significantly higher than Alternative B ($19.3M), somewhat higher than Alternative C ($128.0M) and only slightly higher than Alternative D at $143.6M. The cost of this alternative reflects the purchase of the RIL from the Union Pacific.
- Annual operating costs at $6.1M (opening year) are also higher than Alternative B ($4.3M) but somewhat lower than Alternatives C ($6.5M) and D ($6.4M).

- Ridership is more than double that of Alternative B with 7,472 boardings in 2025 and higher than Alternative C due to improved travel time.
- Environmental impacts would be higher than Alternative B but similar to Alternatives C and D. It will be necessary at certain locations to mitigate noise impacts resulting from train horns.
- Travel choices and utilization of existing transportation resources would be improved as compared to Alternative B, due to the use of existing and available railroad rights-of-way.

6.3 PREFERRED ALTERNATIVE SUMMARY

The alternatives evaluated in the SJBL/I-215 Corridor Study have advantages and disadvantages associated with each improvement to the existing conditions within the corridor. Based on the evaluation of alternatives, which indicates the Alternative E performs the best in comparison to the others, it is recommended that this alternative move forward in the project development process as the Locally Preferred Alternative (LPA). The LPA can be viewed in Exhibit 31 and Exhibit 32, illustrating the selected route and option for access to the Downtown Riverside Metrolink station.

In summary, Alternative E provides the best opportunity to implement a quality transit alternative within the corridor that serves the needs and goals of the study, and one that is not impeded by either highway/roadway congestion or railroad access and operational issues. Alternative E, as the LPA will move forward in the project development process including the adoption into the most current SCAG Regional Transportation Plan (MPO Long Range Plan). It is important to note that although Alternative E has been selected as the LPA, during the next phases of project development and as refinements are made, minor changes can be anticipated in alignment and proposed station locations. In the event that any aspect of the connecting track configuration for Alternative E cannot be implemented as planned, the study recommends that a direct connection to BNSF, such as proposed in Alternative D, be retained as an option for contingency purposes.

Exhibit 31: Locally Preferred Alternative Overview Map

San Jacinto Branch Line/I-215 Corridor Study

Alternative E: Commuter Rail with New Connection to UP Rail at Rustin Avenue

Overview Map

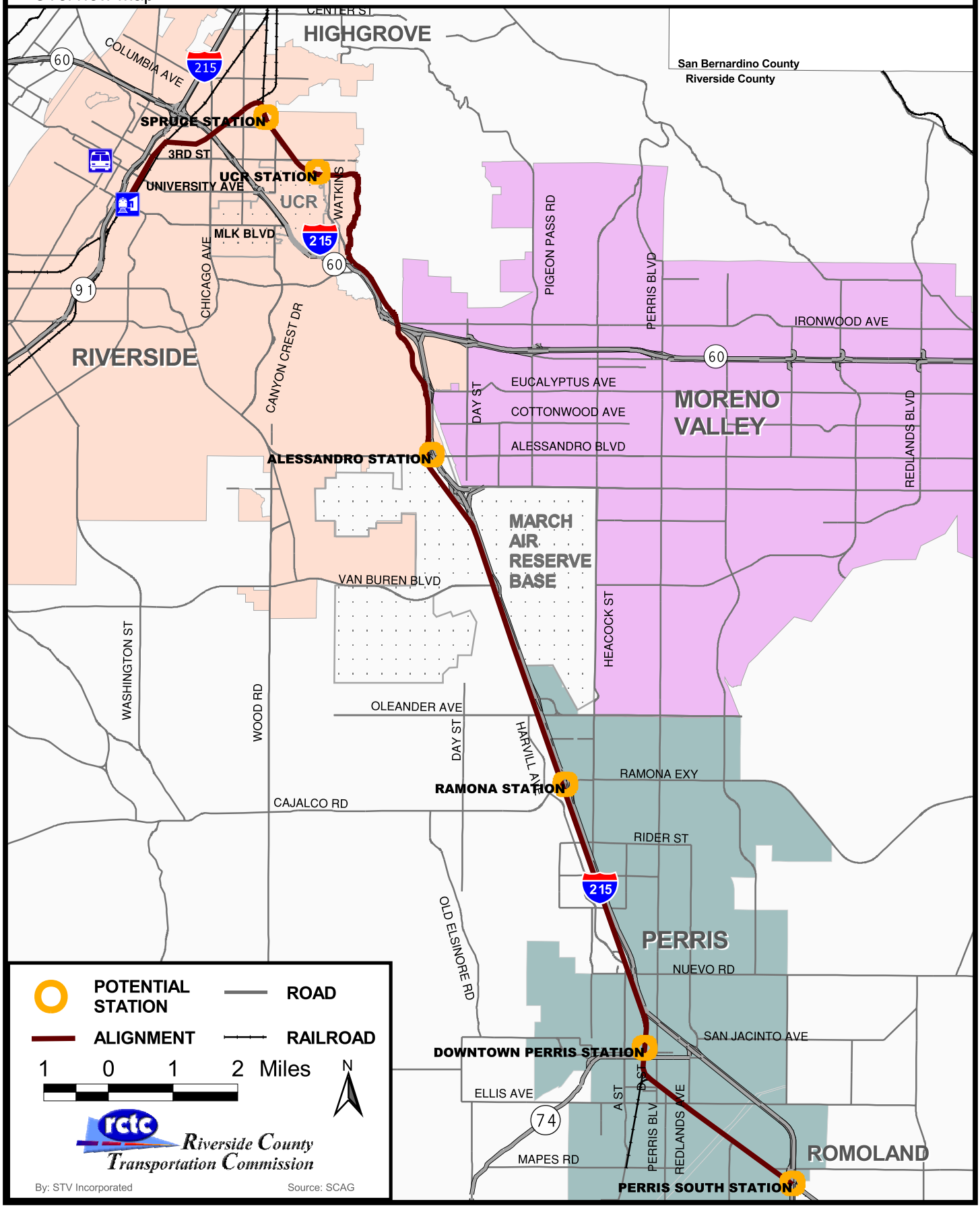
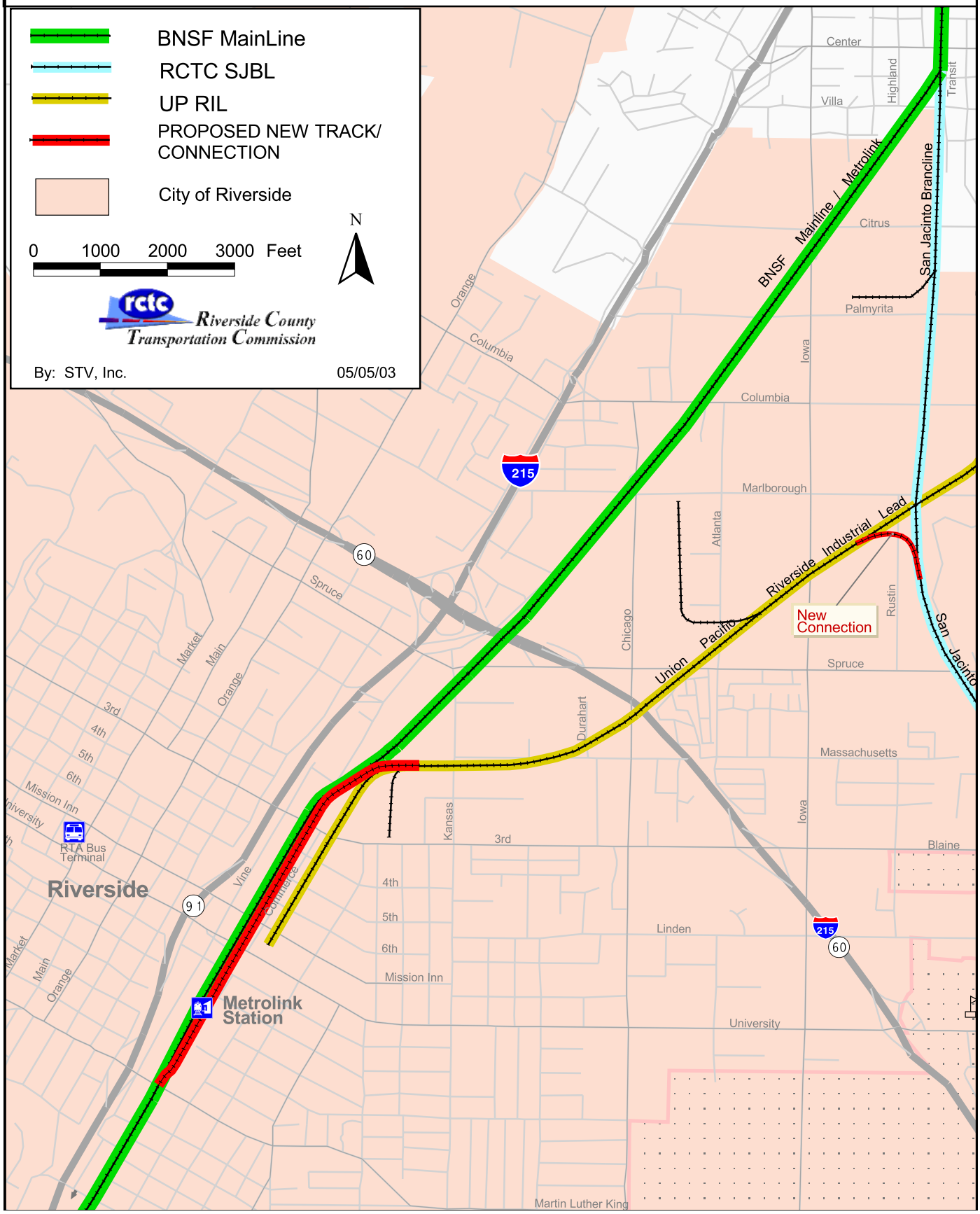


Exhibit 32: Locally Preferred Alternative Approach to Riverside

San Jacinto Branchline / I-215 Corridor Study

Alternative E: Approach to Riverside - Detail Map



6.4 FINANCIAL PLAN

Upon completion of the alternative evaluation phase of the study, a financial plan was prepared for RCTC that incorporated the costs to implement Alternative E as the LPA. The financial plan also documents the recent financial history of the agency, describes its current financial health, documents projected costs and revenues, and demonstrates the reasonableness of key assumptions underlying these projections. The Financial Plan is contained in a separate document produced for this study, and it demonstrates that RCTC can support the costs associated with Alternative E without adverse impact on the funding of other agency programs or commitments.

Many programs share the funding raised through the Measure A sales tax , a ½ cent sales tax in Riverside County. A 30-year extension of the Measure A sales tax was approved by voters in November 2002, thus extending this funding source, which had an initial expiration set for 2009, to 2039. RCTC also receives and programs funding from state and federal sources. This includes the state's Transportation Development Act (TDA) and Local Transportation Fund (LTF) programs that are allocated to the county's major public transit providers.

In addition to implementation of Alternative E, the Rail Department also is engaged in upgrades and parking expansion among five agency owned and operated rail stations. The Rail Department also provides the capital and operating subsidy to SCRRA for commuter rail services in Riverside County and for certain system-wide costs.

RCTC has a goal to obtain a Full Funding Grant Agreement from the FTA under the Section 5309 New Starts Program. This would provide for up to 50% of the overall project capital cost. The other new and currently available funding anticipated to contribute to the remaining capital cost as well as the O&M costs of Alternative E are summarized below:

Rail Department Sources of Revenue - Federal

Section 5307 (Riverside/San Bernardino UZA) – The urbanized area formula program from the FTA provides transit capital and operating assistance to urbanized areas. These funds apply towards the Riverside/San Bernardino area and represent the annual apportion to commuter rail agencies based upon various performance criteria, the most significant of which is the amount of route miles within a county.

Section 5307 (Hemet UZA) – This represent the additional funds that would become available from the FTA 5307 funds when Alternative E is implemented. RCTC is eligible to receive these funds one year after operations begin on the SJBL.

Section 5309 (Fixed Guideway) – These FTA funds represent rail modernization funding to rehabilitate and upgrade existing rail systems and to ensure that these capital-intensive systems remain in state of good repair. Additional funding for Alternative E will be made available after service on the SJBL has been running for seven years.

Discretionary Funding – Additional discretionary funds are made available to RCTC through a variety of federal programs. These funds include Congestion Mitigation and Air Quality (CMAQ) and Surface Transportation Program (STP) sources.

Rail Department Sources of Revenue – State

Local Transportation Funds – The largest source of funding for the RCTC Rail Program are revenues received through the Local Transportation Funds (LTF), a ¼ cent gas tax, administered by the state and provided to each county in California. The enabling legislation for collection of these funds is the Transportation Development Act

State Transit Assistance Funds – These funds are also allocated under the Transportation Development Act. The funds represent additional state funding in support of transit in urban counties.

Discretionary Funding – State level discretionary funds available to RCTC include the State Transportation Improvement Program (STIP) and Interregional Transportation Improvement Program (ITIP) funds.

Rail Department Sources of Revenue – Local

Measure A – These funds represent the allocation to the Rail Program of the ½ cent countywide sales tax that funds many of the RCTC activities. Prior to reauthorization, the allocation for the Rail Department represents 11.6 percent of all Measure A revenues.

Farebox Revenues – This amount represents the anticipated farebox revenues from Alternative E ridership.

BNSF Dispatch/Access Fees – This new source includes the funds collected from BNSF for the dispatching services and the maintenance attributed to their freight operations on the SJBL.

The results of financial analysis indicate that while extensive delivery of other capital programs is anticipated prior to 2009, RCTC has sufficient cash reserves to fund construction of Alternative E and still complete its other capital commitments. It is also important to note that the projections indicate that RCTC can accommodate its current commitments, including Alternative E, without issuing new debt. Full details, including a 20-year Rail Department and RCTC cash flow by line item can be found in the separate Financial Plan document prepared for this study.

7 PUBLIC INVOLVEMENT

Public participation throughout this phase of the SJBL / I-215 Corridor Study has been a valuable resource. Members of the public have helped to define the purpose and need, develop the alternatives and comment on all aspects of the process. This section describes the various forms of public input that went into this study effort.

7.1 TECHNICAL ADVISORY COMMITTEE

A Project Technical Advisory Committee (PTAC) was convened early in the study to review and comment on the technical work performed by STV, the project consultant. The PTAC met with the consultant and representatives from RCTC on two occasions during the course of the study. The PTAC consisted of representatives from the following agencies:

- Burlington Northern Santa Fe Railroad (BNSF)
- California Department of Transportation (Caltrans, District 8)
- City of Moreno Valley
- City of Perris
- City of Riverside
- March Joint Powers Authority
- Riverside Transit Agency
- Southern California Association of Governments (SCAG)
- Southern California Regional Rail Authority (Metrolink)
- University of California, Riverside

The purpose of the PTAC was to determine the guide the development of alternatives, and to assure that the various stakeholders were informed of the project development process. Participants represented areas that would be served by proposed commuter rail stations and individuals familiar with railroad operations. Discussions with the PTAC helped to keep the conceptual alignments feasible, with participants lending expertise regarding technical details such as equipment requirements and operating agreements. Also, some PTAC participants were able to share future development plans for their lands, enabling the study team to determine the best location for future commuter rail stations. The contributions of the PTAC members and the relationships established in this phase of the study will be built upon as the LPA is refined further.

7.2 PUBLIC MEETINGS

A total of six public meetings were held for the SJBL / I-215 Study at various locations in the corridor. The first series of three meetings, held once in Moreno Valley, Perris and Riverside, took place in February 2002, and presented the project in general and detailed the planning process. An identical format was used at each of these public meetings. The agenda called for presentations and displays of information regarding the corridor and conceptual alternatives for the study. An informal question an answer session and group discussions followed the presentation. Participants were also encouraged to provide written comments on surveys that were distributed at the meetings. RCTC representatives were available at these various meetings, including other members of the study team such as consultants and PTAC member

agencies. These meetings represented an outreach to the public for input on refining the purpose and need, while also offering a chance to receive initial feedback on alternative transportation concepts.

Comments from the first series of meetings indicated that commuter rail was a more favorable alternative than bus, although some participants were interested in seeing transit improvements made for all modes. One recurring environmental concern was the need to improve air quality. Some participants also cited noise impacts of potential improvements as a concern. These comments were incorporated and addressed in the preparation of the Environmental Assessment (EA).

The second series of three meetings, again held once in each corridor city, occurred in May 2003. The goal of the meetings was to present the recommended Locally Preferred Alternative (LPA) for comment and public input. The Alternatives Analysis process was detailed along with the description of the other alternatives that were considered as part of the study. Details about the service associated with the LPA were given to the public, including the evaluation results documented in this report. The meetings were conducted with an informal presentation that was open to questions and answers. Comment forms were distributed and residents were encouraged to record their opinion on the conduct of the meeting and on the material presented. RCTC and consultant staff were available after the presentations to answer any additional questions and provide clarification.

Most participants gave comments that indicated a strong desire for commuter rail service to begin in the corridor. General comments throughout all meetings related to issues such as noise generated by the trains and the need to provide rail service to Highgrove. Presentation of the draft EA results were also made at the second round of public meetings and a description of specific measures was given to illustrate how noise impacts could be reduced. Residents noted that Alternative E does not provide direct access to Highgrove, a growing area that is in favor of additional transit options. The evaluation results indicated the reasons a Highgrove alignment was not selected, and residents were informed that a recommendation will be made for a station in Highgrove on the Metrolink Inland Empire-Orange County (IEOC) Line, which currently passes through the area without a stop. A Highgrove station on the IEOC Line would provide service to both Riverside and San Bernardino for residents of Highgrove and Grand Terrace. An additional comment made by some residents concerned the affect of commuter rail service on current freight shippers along the SJBL. It was explained that improvements and upgrades to the line for implementation of Alternative E would also improve the line for freight service as well. It was further explained that freight operations would occur during the off-peak times so that joint-use of the line would be feasible, and that the line would be more attractive to other rail shippers once refurbished and could encourage further economic development. A summary of the public meetings is shown in Exhibit 33.

It is important to note that the study team intends to conduct continuous public involvement efforts as the PVL project moves forward. As an example, the LPA will again be presented along with a project update during public meetings that will be held for the final results of the EA, which is expected in April of 2004.

Exhibit 33: Summary of Public Meetings

Presentation	Location	Date	Number of Attendees
Project Introduction	Moreno Valley	2/13/02	14
Project Introduction	Riverside	2/19/02	14
Project Introduction	Perris	2/20/02	25
LPA	Perris	5/07/03	13
LPA	Riverside	5/12/03	7
LPA	Moreno Valley	5/19/03	9

7.3 COORDINATION WITH INDIVIDUAL GROUPS

In addition to input received from PTAC members, additional comments were solicited and received from stakeholders separate from formal committee meetings. Discussions with the following groups were held individually and in many cases on multiple occasions throughout the development of alternatives and their evaluation.

BNSF – Meetings with the BNSF were held to discuss the capital cost estimates made for Alternative C and Alternative D, as both of these alignments propose using the BNSF mainline to access the Downtown Riverside Station. Additionally, discussions were held concerning the agreement that governs the number of commuter train movements permitted on the BNSF mainline.

City of Grand Terrace - A meeting with the mayor of Grand Terrace was held to discuss opportunities for including Metrolink service to Highgrove as part of the SJBL project. Discussion with the mayor included a recommendation for a Highgrove station on the Metrolink Inland Empire-Orange County Line, as a station on that alignment would provide better service options than service from the SJBL.

City of Perris – Meetings were held with the city of Perris to discuss possible station locations.

City of Riverside – A meeting was held with Riverside officials specifically pertaining to Alternative E and the safety concerns of operating commuter rail service on the approximately ½ mile portion of the UP RIL that runs along Massachusetts Avenue. As the development of Alternative E is further refined, specific reconfigurations of road crossings and construction of separation barriers may be necessary, but the city did not deem commuter rail operations on the UP RIL as infeasible.

March Joint Powers Authority – The March JPA meetings included making arrangements for the donation of their land for a commuter rail station that would serve proposed development. Also, coordination with March JPA has resulted in a commuter rail station being included into the approved specific area plan for that segment of the corridor.

Metrolink – Meeting were held with Metrolink regarding the role of their organization as the likely operator of new commuter rail service. Specific feedback was received regarding the operating plan, operating agreements with BNSF, cost/revenue estimates, train running times, grade separation potential, and safety issues of the various alternatives. Metrolink has offered to continue to work with the study team to refine the financial estimates of the project, including such specifics as insurance costs and labor scales.

Union Pacific – Meetings were held with the Union Pacific Railroad concerning the possible acquisition of the portion of the Riverside Industrial Lead needed for the Alternative E alignment. The discussions resulted in a preliminary memorandum of understanding for the purchase of the right-of-way.

The Valley Group – A project presentation was made to the Valley Group on February 19, 2004 where a project status was given by members of RCTC. The Valley group is a self subscribed organization of community and business leaders that advocate for development and infrastructure projects in Perris Valley and Western Riverside County to enhance economic development and quality of life in the region.

Regional Stakeholders and Elected Officials – A project presentation was made by RCTC and the study team to key regional stakeholders on February 19, 2004 in the city of Riverside. Attendees included state and local elected officials, Valley Group members, community leaders, RCTC board members and BNSF Railroad. The presentation included a description of the LPA, status of the project development process and next steps, including an upcoming submittal to FTA to request entry into PE.

8 NEXT STEPS

The Alternatives Analysis (AA) process resulted in the selection of a Locally Preferred Alternative (LPA) as documented in this report. This is the first step towards the full implementation of the project. In parallel with the AA, an Environmental Assessment (EA) has been prepared documenting environmental impacts associated with the alternatives, as well as proposed mitigations of impacts. Finally, a financial plan details how the LPA costs will be funded by RCTC.

Subsequent to public review of the LPA, the selected alternative will be adopted by the RCTC Board and entered into the Regional Long Range Transportation Plan. RCTC will then prepare and submit a request to the Federal Transit Administration for the San Jacinto Commuter Rail line to enter into Preliminary Engineering (PE). This request is made through an application to the Federal New Starts Funding program (Section 5309 Funds). By following the FTA process, the project may be eligible for federal dollars to offset the project capital cost, typically as much as 50% of the capital investment. The FTA will review and rate the project in terms of its justification – based on corridor conditions and the benefits resulting from the project, as well as on the financial and administrative capability of RCTC to implement and operate the project.

In parallel with the Section 5309 review process, the EA review process will also be completed. This includes internal and FTA reviews of a draft, followed by the publishing and distribution of the EA document. A public hearing or information meeting will be held on the EA. Subsequently, in accordance with the California Environmental Quality Act (CEQA) a Mitigated Negative Declaration (MND) document will be prepared to include information from the EA, and both the MND and EA will be approved by the RCTC Board. It is anticipated that the FTA will then issue a "Finding of No Significant Impact" or FONSI.

The Section 5309 New Starts rating and the FONSI are both expected to be received in early Fall of 2003, after which the project can move into PE – a more refined level of design of the LPA – which is expected to be completed in 2004. The PE phase is expected to extend for 1 ½ years. Prior to completion of PE, an updated New Starts Application will be resubmitted to the FTA with a request to enter into Final Design and a Full Funding Grant Agreement (FFGA). It is at this stage that the FTA will decide to support the project with their financial commitment, while also giving approval for the final construction drawings to be prepared. This is dependent on the project rating received at this second submission of the application. A project rating of "Highly Recommended" or "Recommended" will be needed from the FTA to secure the FFGA. The final design and construction phase is then expected to take approximately four years with the line opening in early 2008.

APPENDICES

APPENDIX A: GROWTH TRENDS

Exhibit A-1: Population Growth in Riverside County 1960-2000

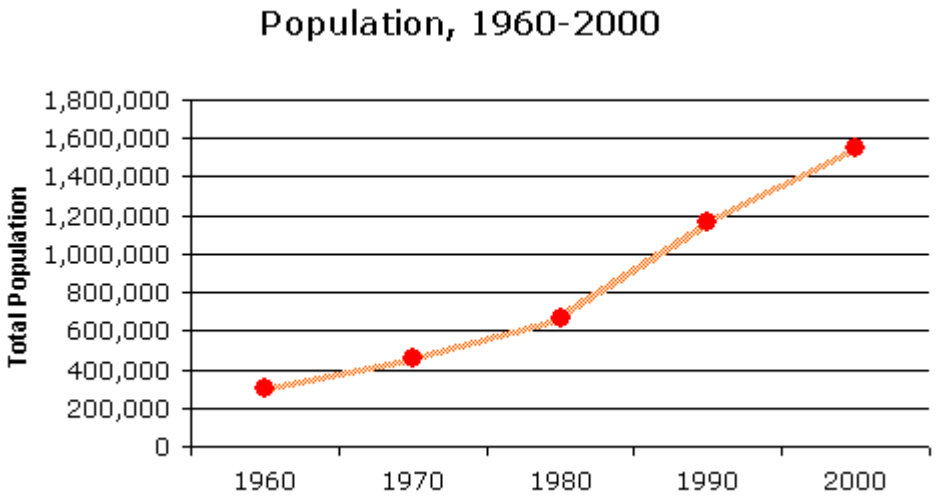


Exhibit A-2: Population Growth within the Cities of Western Riverside County

City	2000	2010	2025	% Change 2000-2025
Riverside	*255,166*	*302,507*	*340,328*	*33%*
Perris	*36,189*	*52,985*	*109,377*	*202%*
Moreno Valley	*142,381*	*169,459*	*221,343*	*55%*
Banning	23,562	34,811	47,328	101%
Beaumont	11,384	26,279	56,450	396%
Calimesa	7,139	13,112	29,554	314%
Canyon Lake	9,952	10,675	10,702	8%
Corona	124,966	138,896	156,522	25%
Hemet	58,812	80,904	127,899	117%
Lake Elsinore	28,928	49,338	81,820	183%
Murrieta	44,282	67,601	96,382	118%
Norco	24,157	29,579	30,568	27%
San Jacinto	23,779	46,983	67,115	182%
Temecula	57,716	76,704	86,000	49%
Total	**848,413**	**1,099,833**	**1,461,388**	**72%**

Source: 2000 Census, SCAG

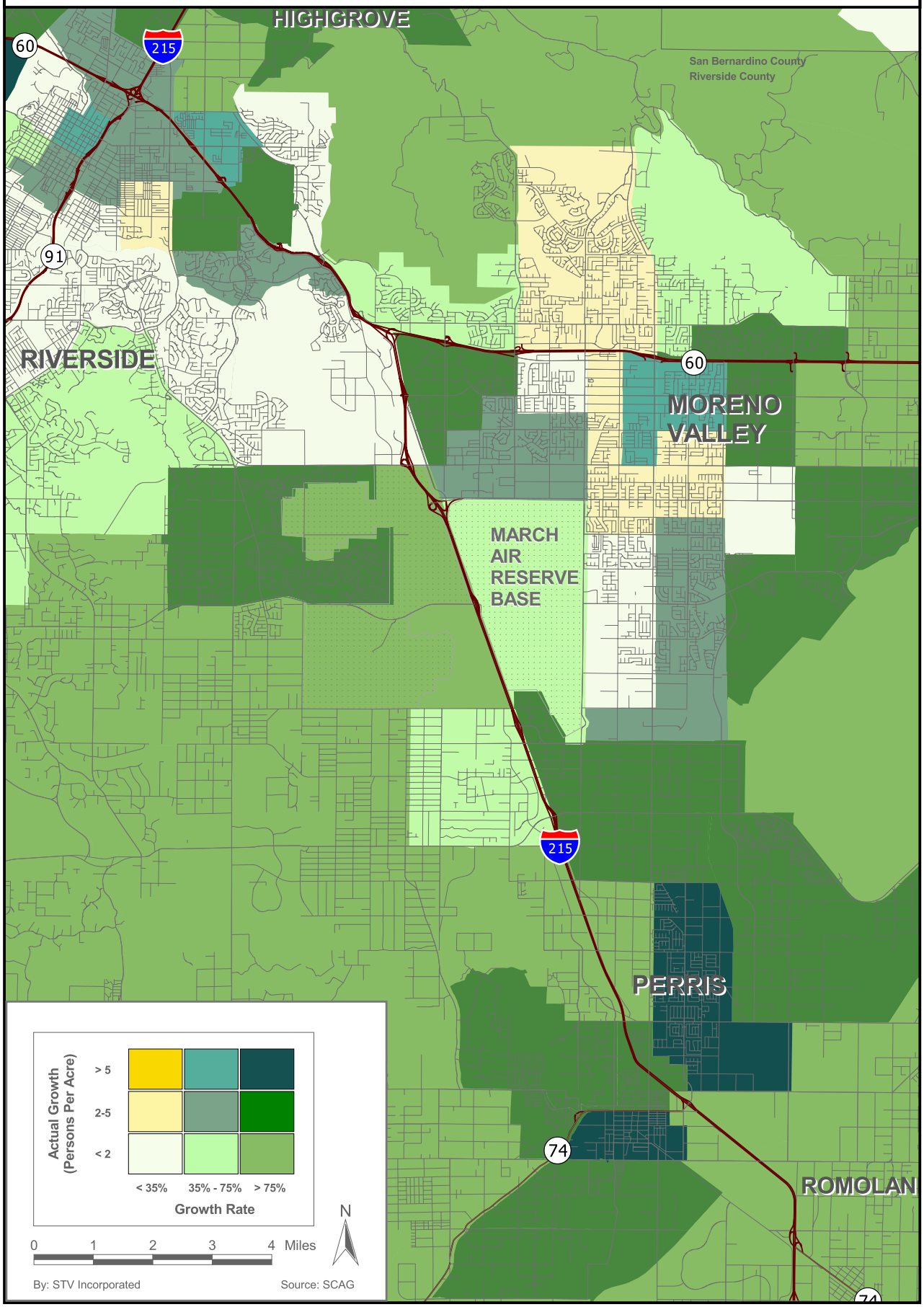
Exhibit A-3: Employment Growth within the Cities of Western Riverside County

City	2000	2010	2025	% Change 2000-2025
Riverside	*125,938*	*182,943*	*232,326*	*84%*
Perris	*11,701*	*22,747*	*32,300*	*176%*
Moreno Valley	*33,163*	*53,887*	*71,859*	*117%*
Banning	8,453	12,145	15,342	81%
Beaumont	6,185	14,811	22,291	260%
Calimesa	1,867	3,692	5,273	182%
Canyon Lake	1,958	2,451	2,875	47%
Corona	41,583	56,751	69,905	68%
Hemet	17,818	23,859	29,095	63%
Lake Elsinore	8,289	17,539	25,562	208%
Murrieta	8,447	19,028	28,205	234%
Norco	8,891	10,631	12,140	37%
San Jacinto	6,328	11,215	15,455	144%
Temecula	20,880	34,471	46,260	122%
Total	**301,501**	**466,170**	**608,888**	**102%**

Source: SCAG, 2001 RTP Growth Forecast

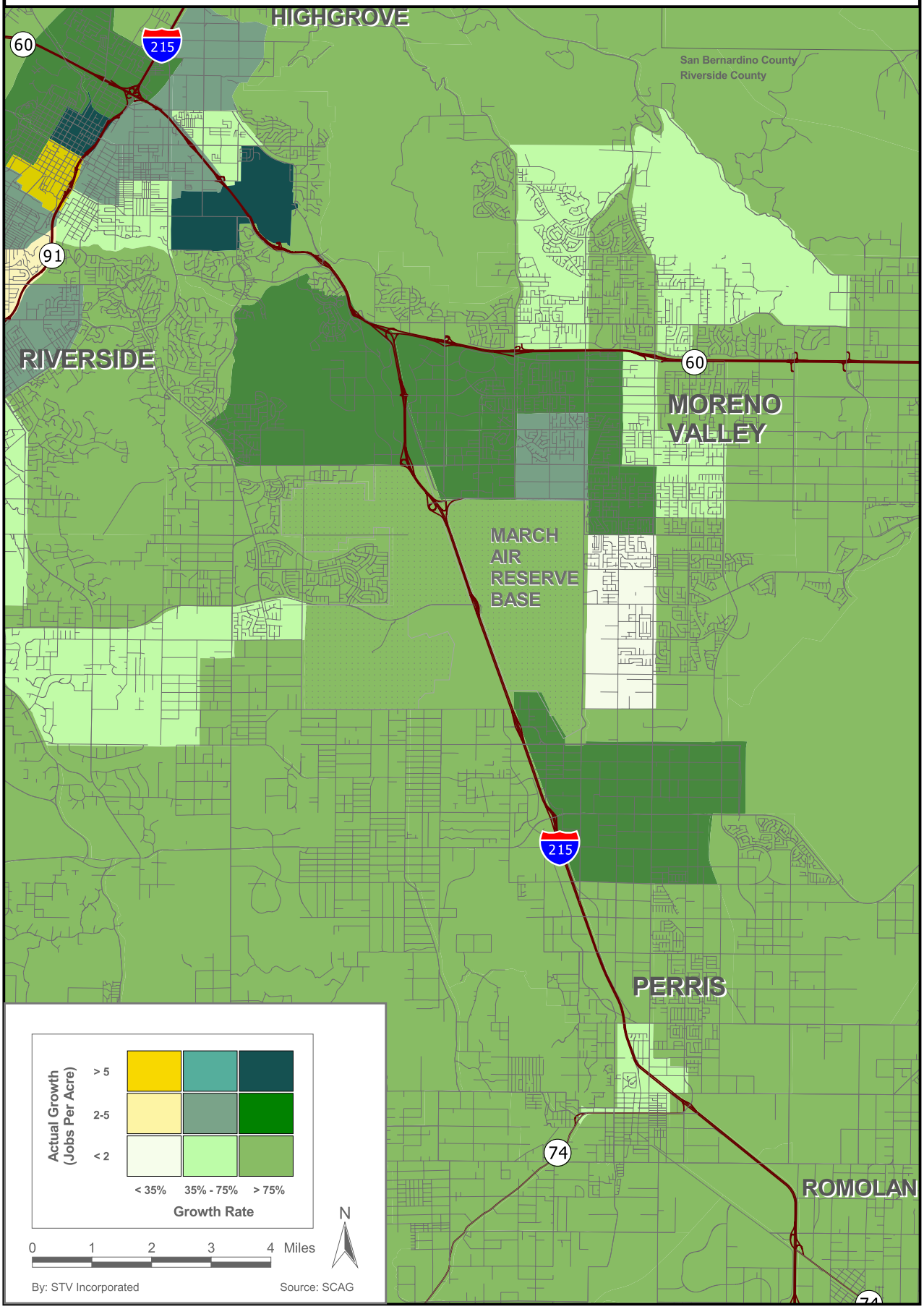
SAN JACINTO BRANCH LINE/I-215 CORRIDOR STUDY

Population Growth Index (2000 - 2025)



SAN JACINTO BRANCH LINE/I-215 CORRIDOR STUDY

Employment Growth Index (2000 - 2025)

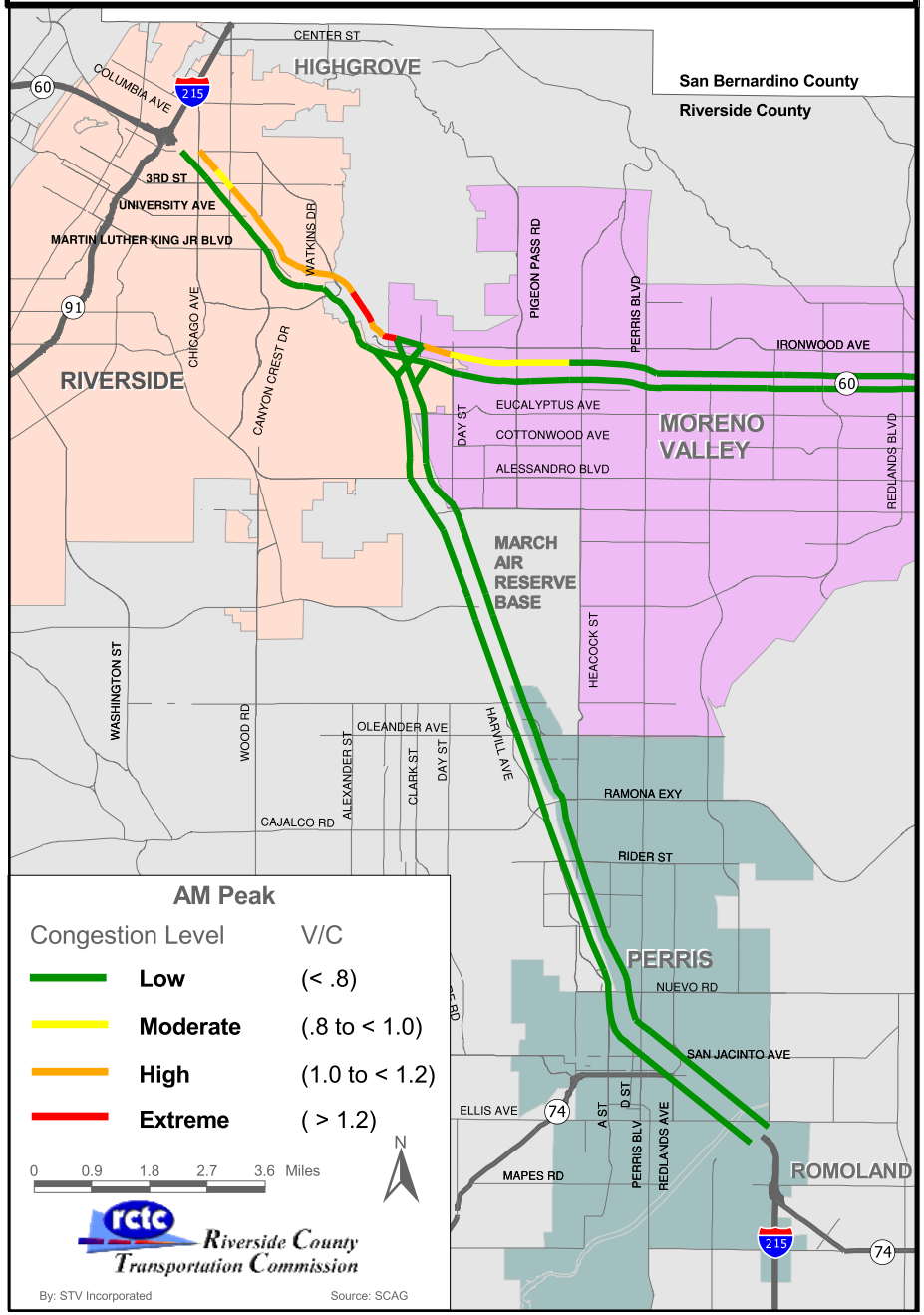


APPENDIX B: EXISTING CONDITIONS

Exhibit B-1: AM Freeway Congestion

San Jacinto Branchline/I-215 Corridor Study

1997 Base Year Freeway Congestion (AM)



San Jacinto Branchline/I-215 Corridor Study

2025 Forecast Year Freeway Congestion (AM)

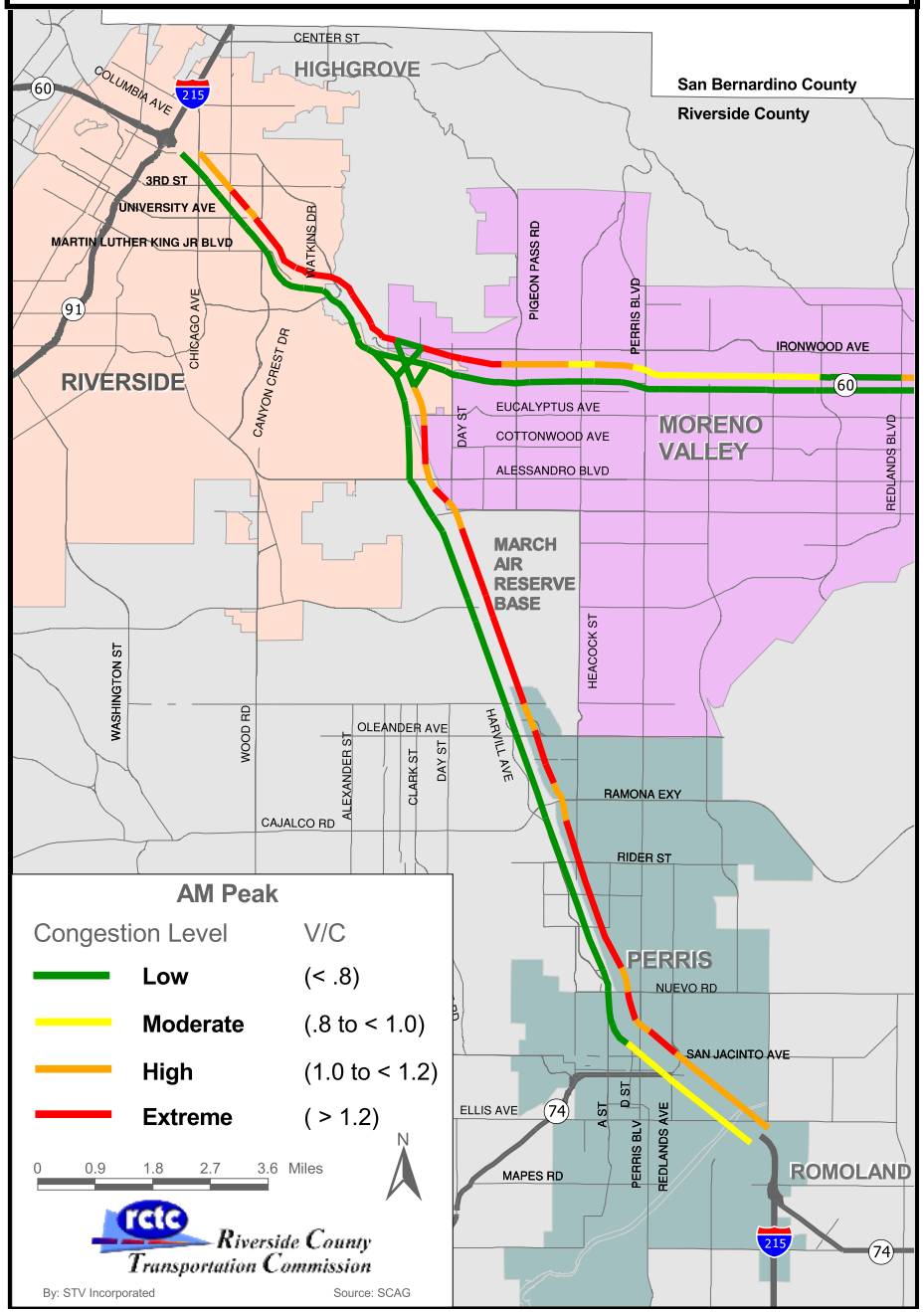
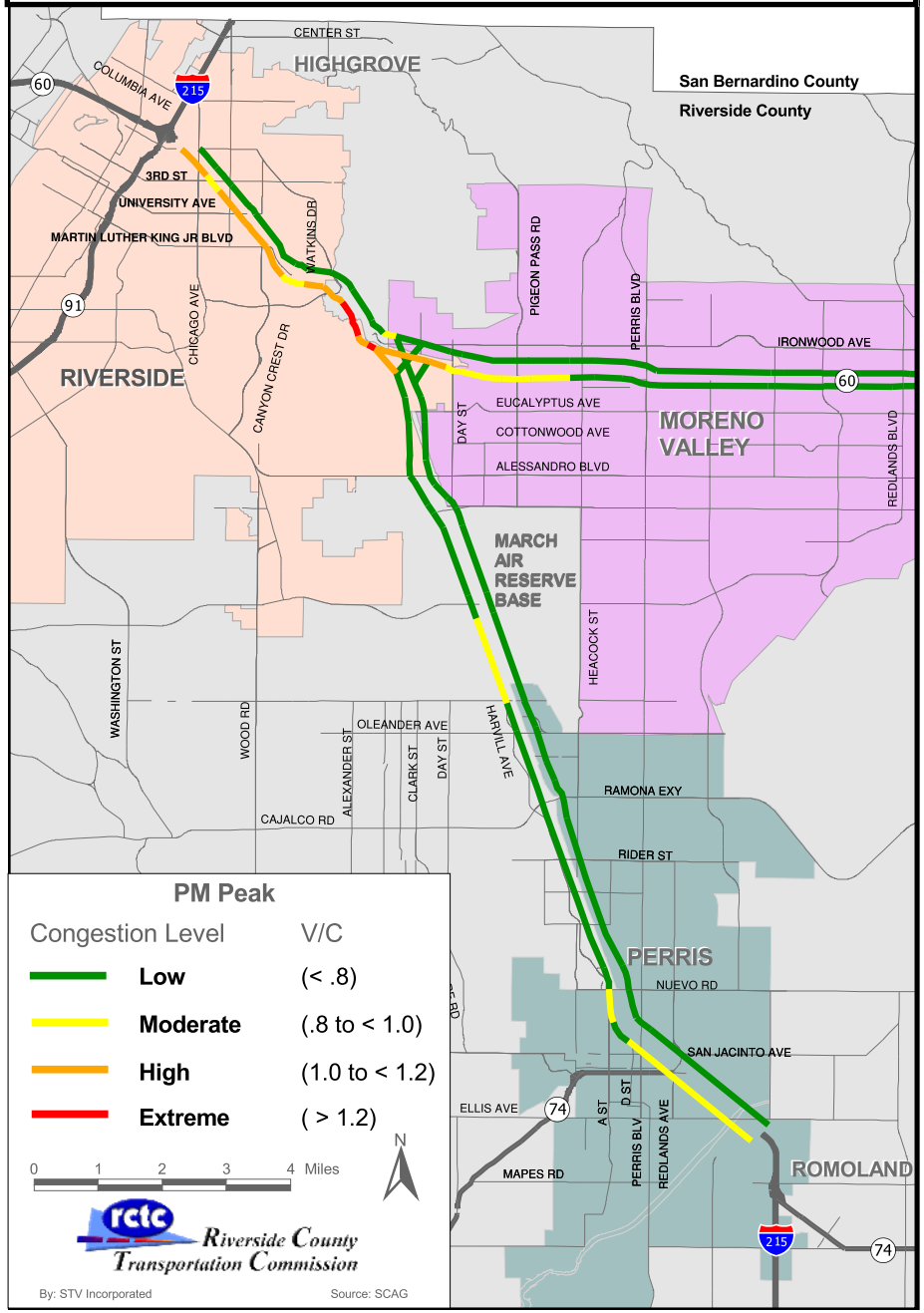


Exhibit B-2: PM Freeway Congestion

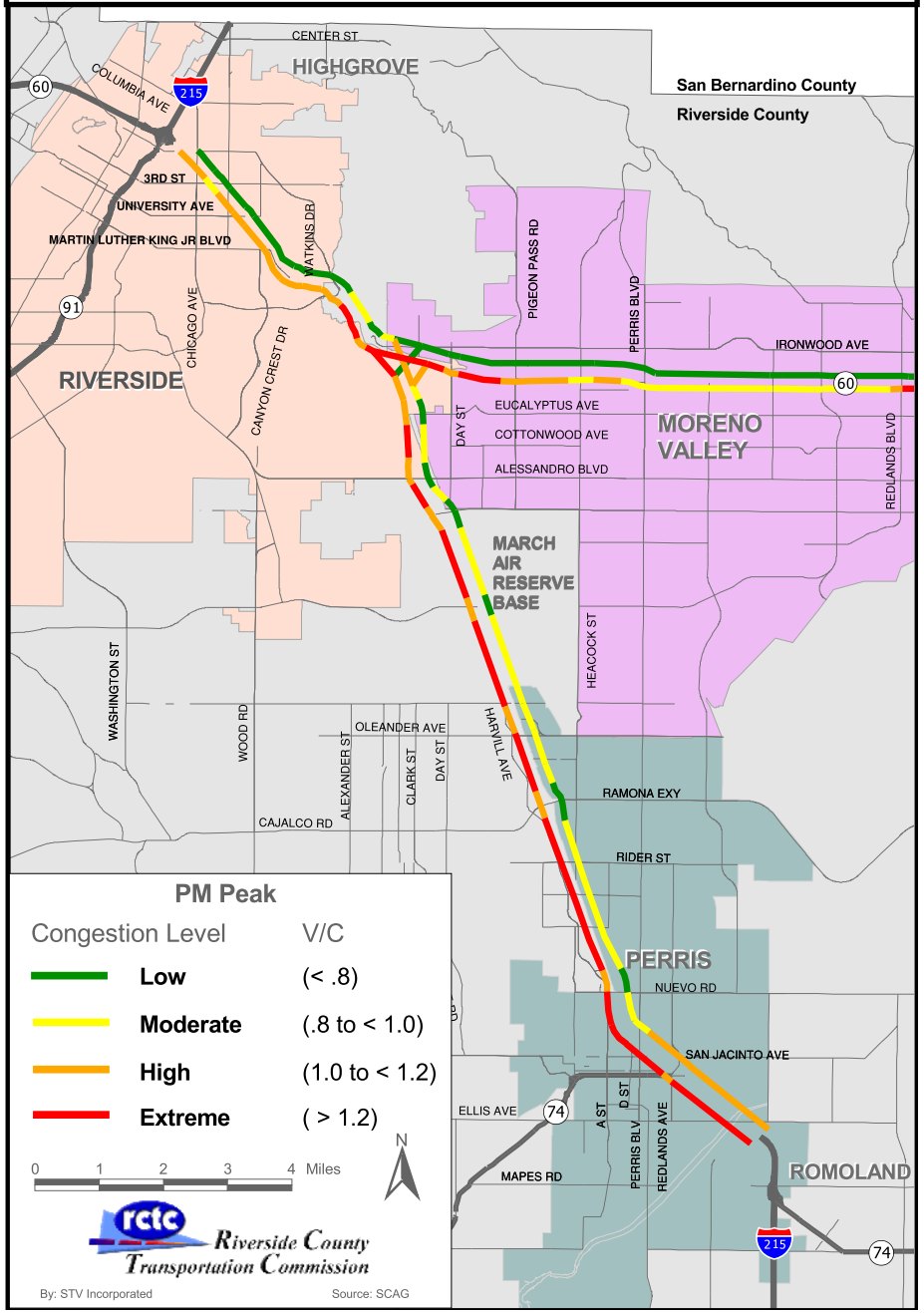
San Jacinto Branchline/I-215 Corridor Study

1997 Base Year Freeway Congestion (PM)



San Jacinto Branchline/I-215 Corridor Study

2025 Forecast Year Freeway Congestion (PM)



APPENDIX C: OPERATION AND MAINTENANCE COST BACK-UP

Exhibit C-1: O&M Cost Categories

	Driving Factor for Cost Category			
Cost Category	Train Miles	Annual Boardings	Track Miles	Stations
Train Operations	X			
Equipment Maintenance	X			
Contingency (Train Opps)	X			
Fuel	X			
Non-Scheduled Rolling Stock Repairs	X			
Operating Facilities Maintenance	X			
Other Operating Train Services	X			
Security – Sheriff	X			
Security – Guards				X
Supplemental Additional Security	X			
Public Safety			X	
Passenger Relations		X		
Holiday Trains	X			
TVM Maintenance/Revenue Collection				X
Marketing			X	
Media and External Communications			X	
Utilities/Leases			X	
Transfers to other Operators		X		
Amtrak Transfers		X		
Station Maintenance				X
Rail Agreements	X			
Maintenance of Way – Line Segments			X	
Maintenance of Way – Extra-Ordinary			X	
Salaries and Fringe Benefits			X	
Ambassadors			X	
Non Labor Costs			X	
Allocated Overhead			X	
Professional Services			X	
Liability	X			
Claims	X			
Claims Administration	X			
Insurance	X			
Local Station Obligations				X

Exhibit C-2: Operation and Maintenance Costs for 2008

Operating and Maintenance Costs for SJBL Commuter Rail Alternatives for 2008 Operation
(2003 Dollars - based on 03/04 Metrolink O&M budget)

	Metrolink Existing System					SJBL Alternatives		
	Budget	Cost Drivers (Unit Costs)				O&M Costs (Perris to Riverside)		
Operating and Cost Categories	**FY 03-04**	**Train Mile (TM)**	**Boarding (BDG)**	**Track Mile (TRM)**	**Station (ST)**	**Alternative C Base Case (Turnback)**	**Alternative D Citrus Ave. Connection**	**Alternative E Rustin Ave. Connection**
Operating Statistics:		Systemwide Quantities				Incremental Alternative Quantities		
Train Miles (thousands)	2,145.7	2,145.7				64.9	62.6	58.2
Annual boardings (thousands)	9,282.7		9,282.7			981.0	1,066.8	1,066.8
Track Miles	389.0			389.0		26.4	25.5	23.8
Stations	53.0				53.0	6.0	6.0	6.0
Expenses:								
Operations and Services								
Train Operations	$ 20,536.2	$ 9.6				$ 652.1	$ 599.1	$ 556.7
Equipment Maintenance	15,683.6	7.3				474.3	457.5	425.2
Contingency (Train Ops)	150.0	0.1				4.5	4.4	4.1
Fuel	5,557.0	2.6				168.1	162.1	150.6
Non-scheduled rolling stock repairs	350.0	0.2				10.6	10.2	9.5
Operating facilities maintenance	999.6	0.5				30.2	29.2	27.1
Other Operating Train Services	145.0	0.1				4.4	4.2	3.9
Security - Sheriff	3,093.6	1.4				93.6	90.2	83.9
Security - Guards	829.7				15.7	93.9	93.9	93.9
Supplemental Additional Security	340.0	0.2				10.3	9.9	9.2
Public Safety	489.0			1.3		33.2	32.0	29.9
Passenger Relations	1,342.3		0.1			141.9	154.3	154.3
Holiday Trains	147.5	0.1				4.5	4.3	4.0
TVM Maintenance / Revenue Collection	2,502.5				47.2	283.3	283.3	283.3
Marketing	958.4			2.5		65.0	62.8	58.6
Media and External Communications	597.4			1.5		40.5	39.1	36.5
Utilities/Leases	1,707.0			4.4		115.8	111.9	104.3
Transfers to Other Operators	3,580.0		0.4			378.3	411.4	411.4
Amtrak Transfers	490.0		0.1			51.8	56.3	56.3
Station Maintenance	637.1				12.0	72.1	72.1	72.1
Rail Agreements	2,826.5	1.3				85.5	82.5	-
Total Operations	**$ 62,962.4**	**$ 23.2**	**$ 0.6**	**$ 9.6**	**$ 74.9**	**$ 2,813.8**	**$ 2,770.9**	**$ 2,574.7**
Maintenance of Way								
MOW - Line Segments	$ 18,879.5			$ 48.5		$ 1,280.6	$ 1,237.2	$ 1,153.6
MOW - Extra-Ordinary	500.0			1.3		33.9	32.8	30.6
Total MOW	**$ 19,379.5**	**$ -**	**$ -**	**$ 49.8**	**$ -**	**$ 1,314.5**	**$ 1,270.0**	**$ 1,184.1**
G & A								
Salaries & Fringe Benefits	$ 6,008.6			$ 15.4		$ 101.9	$ 98.4	$ 91.8
Amabassadors	490.7			1.3		8.3	8.0	7.5
Non Labor Costs	602.0			1.5		10.2	9.9	9.2
Allocated Overhead	5,259.7			13.5		89.2	86.2	80.3
Professional Services	1,485.4			3.8		25.2	24.3	22.7
Total G & A	**$ 13,846.4**	**$ -**	**$ -**	**$ 35.6**	**$ -**	**$ 234.8**	**$ 226.8**	**$ 211.5**
Liability	$ 4,595.0	$ 2.1				$ 139.0	$ 134.0	$ 124.6
Claims	1,350.0	0.6				40.8	39.4	36.6
Claims Administration	625.0	0.3				18.9	18.2	16.9
Insurance	**$ 6,570.0**	**$ 3.1**	**$ -**	**$ -**	**$ -**	**$ 198.7**	**$ 191.7**	**$ 178.1**
Local Station Obligations					**$ 200.0**	**$ 1,250.0**	**$ 1,200.0**	**$ 1,200.0**
Rail O&M Expenses (2003 $s)						**$ 5,811.9**	**$ 5,659.4**	**$ 5,348.5**
Rail O&M Expenses (2004 $s)						**$ 6,015.3**	**$ 5,857.4**	**$ 5,535.7**
Feeder Bus Network (RTA in 2004 $s)						**$ 532.6**	**$ 523.6**	**$ 523.6**
Total Additional O&M Expenses (2004 $s)	**$ 106,872.3**	**$ 58,373.0**	**$ 5,601.7**	**$ 38,271.9**	**$ 4,315.2**	**$ 6,547.9**	**$ 6,381.1**	**$ 6,059.3**

Notes:
All unit costs in 2003 dollars based on Metrolink's most recent FY03/04 Operating and Maintenance Budget, unless otherwise noted
Operating and Maintenance costs from Riverside to Los Angeles not included. Service currently in operation and SJBL trains would be an extension of this service.
General and Administrative Costs estimated at 25% of full allocation based on assumption that increases would not be proportionate
Track miles include double track and passing siding areas for both the existing Metrolink system and proposed SJBL
Local station obligations include an extra $50k for the larger station required for Alternative C - Turnback scenario at Highgrove
Alternative C includes a 5% penalty on train operations for the extra time required for labor costs of the turnback operation

Exhibit C-3: Operation and Maintenance Costs for 2025

Operating and Maintenance Costs for SJBL Commuter Rail Alternatives for 2025 Operation
(2003 Dollars - based on 03/04 Metrolink O&M budget)

	Metrolink Existing System					SJBL Alternatives		
	Budget	Cost Drivers (Unit Costs)				O&M Costs (Perris to Riverside)		
Operating and Cost Categories	**FY 03-04**	**Train Mile (TM)**	**Boarding (BDG)**	**Track Mile (TRM)**	**Station (ST)**	**Alternative C Base Case (Turnback)**	**Alternative D Citrus Ave. Connection**	**Alternative E Rustin Ave. Connection**
Operating Statistics:		Systemwide Quantities				Incremental Alternative Quantities		
Train Miles (thousands)	2,145.7	2,145.7				142.8	137.7	128.0
Annual boardings (thousands)	9,282.7		9,282.7			1,681.3	1,920.3	1,920.3
Track Miles	389.0			389.0		26.4	25.5	23.8
Stations	53.0				53.0	6.0	6.0	6.0
Expenses:								
Operations and Services								
Train Operations	$ 20,536.2	$ 9.6				$ 1,434.7	$ 1,318.0	$ 1,224.7
Equipment Maintenance	15,683.6	7.3				1,043.5	1,006.6	935.3
Contingency (Train Ops)	150.0	0.1				10.0	9.6	8.9
Fuel	5,557.0	2.6				369.7	356.6	331.4
Non-scheduled rolling stock repairs	350.0	0.2				23.3	22.5	20.9
Operating facilities maintenance	999.6	0.5				66.5	64.2	59.6
Other Operating Train Services	145.0	0.1				9.6	9.3	8.6
Security - Sheriff	3,093.6	1.4				205.8	198.5	184.5
Security - Guards	829.7				15.7	93.9	93.9	93.9
Supplemental Additional Security	340.0	0.2				22.6	21.8	20.3
Public Safety	489.0			1.3		33.2	32.0	29.9
Passenger Relations	1,342.3		0.1			243.1	277.7	277.7
Holiday Trains	147.5	0.1				9.8	9.5	8.8
TVM Maintenance / Revenue Collection	2,502.5				47.2	283.3	283.3	283.3
Marketing	958.4			2.5		65.0	62.8	58.6
Media and External Communications	597.4			1.5		40.5	39.1	36.5
Utilities/Leases	1,707.0			4.4		115.8	111.9	104.3
Transfers to Other Operators	3,580.0		0.4			648.4	740.6	740.6
Amtrak Transfers	490.0		0.1			88.7	101.4	101.4
Station Maintenance	637.1				12.0	72.1	72.1	72.1
Rail Agreements	2,826.5	1.3				188.1	181.4	-
Total Operations	**$ 62,962.4**	**$ 23.2**	**$ 0.6**	**$ 9.6**	**$ 74.9**	**$ 5,067.8**	**$ 5,012.8**	**$ 4,601.4**
Maintenance of Way								
MOW - Line Segments	$ 18,879.5			$ 48.5		$ 1,280.6	$ 1,237.2	$ 1,153.6
MOW - Extra-Ordinary	500.0			1.3		33.9	32.8	30.6
Total MOW	**$ 19,379.5**	**$ -**	**$ -**	**$ 49.8**	**$ -**	**$ 1,314.5**	**$ 1,270.0**	**$ 1,184.1**
G & A								
Salaries & Fringe Benefits	$ 6,008.6			$ 15.4		$ 101.9	$ 98.4	$ 91.8
Amabassadors	490.7			1.3		8.3	8.0	7.5
Non Labor Costs	602.0			1.5		10.2	9.9	9.2
Allocated Overhead	5,259.7			13.5		89.2	86.2	80.3
Professional Services	1,485.4			3.8		25.2	24.3	22.7
Total G & A	**$ 13,846.4**	**$ -**	**$ -**	**$ 35.6**	**$ -**	**$ 234.8**	**$ 226.8**	**$ 211.5**
Liability	$ 4,595.0	$ 2.1				$ 305.7	$ 294.9	$ 274.0
Claims	1,350.0	0.6				89.8	86.6	80.5
Claims Administration	625.0	0.3				41.6	40.1	37.3
Insurance	**$ 6,570.0**	**$ 3.1**	**$ -**	**$ -**	**$ -**	**$ 437.1**	**$ 421.7**	**$ 391.8**
Local Station Obligations					**$ 200.0**	**$ 1,250.0**	**$ 1,200.0**	**$ 1,200.0**
Rail O&M Expenses (2003 $s)						**$ 8,304.3**	**$ 8,131.3**	**$ 7,588.8**
Rail O&M Expenses (2004 $s)						**$ 8,594.9**	**$ 8,415.9**	**$ 7,854.4**
Feeder Bus Network (RTA in 2004 $s)						**$ 532.6**	**$ 523.6**	**$ 523.6**
Total Additional O&M Expenses (2004 $s)	**$ 103,258.3**	**$ 56,399.0**	**$ 5,412.3**	**$ 36,977.7**	**$ 4,169.3**	**$ 9,127.5**	**$ 8,939.6**	**$ 8,378.1**

Notes:

All unit costs in 2003 dollars based on Metrolink's most recent FY03/04 Operating and Maintenance Budget, unless otherwise noted

Operating and Maintenance costs from Riverside to Los Angeles not included. Service currently in operation and SJBL trains would be an extension of this service.

General and Administrative Costs estimated at 25% of full allocation based on assumption that increases would not be proportionate

Track miles include double track and passing siding areas for both the existing Metrolink system and proposed SJBL

Local station obligations include an extra $50k for the larger station required for Alternative C - Turnback scenario at Highgrove

Alternative C includes a 5% penalty on train operations for the extra time required for labor costs of the turnback operation

APPENDIX D: CAPITAL COST BACK-UP

Capital Costs for Alternative B - Transportation System Management
I-215 Express Bus

Item	Description	Unit	Unit Price	S. Perris to Ramona Est. Qty.	S. Perris to Ramona Cost	Ramona to Alessandro Est. Qty.	Ramona to Alessandro Cost	Alessandro to UCR Est. Qty.	Alessandro to UCR Cost	UCR to Riverside Dtwn Est. Qty.	UCR to Riverside Dtwn Cost	ALT. B (TSM) TOTAL Est. Qty.	ALT. B (TSM) TOTAL Cost
5	**Stations**												
5.01	Bus Stop/Station	EA	$ 250,000	3	$ 750,000	1	$ 250,000	2	$ 500,000	1	$ 250,000	**7.0**	**$ 1,750,000**
5.02	Parking (at-grade)	EA	$ 3,500	250	$ 875,000	275	$ 962,500	175	$ 612,500		$ -	**700.0**	**$ 2,450,000**
	Sub Total:				$ 1,625,000		$ 1,212,500		$ 1,112,500		$ 250,000		**$ 4,200,000**
	Design/Const. Mgmt. (25%)				406,250		303,125		278,125		62,500		**$ 1,050,000**
	Total Construction:				*2,031,250*		*1,515,625*		*1,390,625*		*312,500*		***$ 5,250,000***
	Property Acquistion												
	Station Property	LS	$ 1	740520	$ 740,520	784080	$ 784,080	609840	$ 609,840		$ -	**2,134,440**	**$ 2,134,440**
	Vehicles												
	Express (Coach) Buses	EA	$ 400,000									**18**	**$ 7,200,000**
	Transit Buses	EA	$ 290,000									**3**	**$ 870,000**
	Total Cost incl. property & vehicles:				*$ 2,771,770*		*$ 2,299,705*		*$ 2,000,465*		*$ 312,500*		***$ 15,454,440***
	Contingency (25%)				692,943		574,926		500,116		78,125		**3,863,610**
	Grand Total				**$ 3,464,713**		**$ 2,874,631**		**$ 2,500,581**		**$ 390,625**		**$ 19,318,050**

Capital Costs for Alternative C - Commuter Rail
Base Case - Turnback at Highgrove

Item	Description	Unit	Unit Price	Perris South to Perris Est. Qty.	Perris South to Perris Cost	Perris to Ramona Est. Qty.	Perris to Ramona Cost	Ramona to Alessandro Est. Qty.	Ramona to Alessandro Cost	Alessandro to UCRS Est. Qty.	Alessandro to UCRS Cost	UCRS to UP RIL Jct Est. Qty.	UCRS to UP RIL Jct Cost	UP RIL Jct to Highgrove Est. Qty.	UP RIL Jct to Highgrove Cost	ALT. C TOTAL Est. Qty.	ALT. C TOTAL Cost
1	**Trackwork**																
1.01	Mainline Track Construction (Existing Track)	TM	$ 686,400	3.05	$ 2,093,520	4.5	$ 3,088,800	3.15	$ 2,162,160	5.66	$ 3,885,024	1.23	$ 844,272	1.52	$ 1,043,328	**19.1**	**$ 13,117,104**
1.02	Mainline Track Construction (New ROW)	TM	$ 1,056,000		$ -		$ -		$ -		$ -		$ -	0.00	$ -	**0.0**	**$ -**
1.03	Mainline Curve Realignment	LS	$ 500,000	0	$ -	0	$ -	0	$ -	1	$ 500,000	0	$ -	0	$ -	**1.0**	**$ 500,000**
1.04	Unclassified Cut	CY	$ 15		$ -		$ -		$ -		$ -		$ -	0	$ -	**0.0**	**$ -**
1.05	Unclassified Fill	CY	$ 10		$ -		$ -		$ -		$ -		$ -	0	$ -	**0.0**	**$ -**
1.06	Construct 3000' Passing Siding w/turnouts	EA	$ 500,000	0	$ -	0	$ -	1	$ 500,000	1	$ 500,000	0	$ -	0	$ -	**2.0**	**$ 1,000,000**
1.07	Rehabilitate Sidings/Ext.	EA	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**0.0**	**$ -**
1.08	Install Pwr. Op. Turnouts	EA	$ 180,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 180,000	**1.0**	**$ 180,000**
1.09	Replace existing T.O.'s / Elec. Locks	EA	$ 80,000	1	$ 80,000	9	$ 720,000	8	$ 640,000	3	$ 240,000	0	$ -	3	$ 240,000	**24.0**	**$ 1,920,000**
1.10	Earthwork/Drainage/Culvert	TM	$ 264,000	3.05	$ 805,200	4.5	$ 1,188,000	3.15	$ 831,600	5.66	$ 1,494,240	1.23	$ 324,720	1.52	$ 401,280	**19.1**	**$ 5,045,040**
1.11	Other Street Improvements	LF	$ 35		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.12	K Rail	EA	$ 500,000		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.13	Traffic Control	EA	$ 5,000		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.14	Support Facility/Layover Track	LS	$ 750,000	1	$ 750,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**1.0**	**$ 750,000**
1.15	Track reclamation	TM	$ 25,000	3.05	$ 76,250	4.5	$ 112,500	5.55	$ 138,750	5.66	$ 141,500	1.23	$ 30,750	1.5	$ 38,000	**21.5**	**$ 537,750**
1.16	New Rail Crossing	EA	$ 200,000	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 200,000	0	$ -	**1.0**	**$ 200,000**
2	**Structures**																
2.01	Retaining Walls	LF	$ 1,200		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
2.02	Drainage Structures	EA	$ 10,000		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
2.03	New Bridge	LF	$ 5,000		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
2.04	Bridge Repair	EA	$ 300,000	1	$ 300,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**1.0**	**$ 300,000**
2.05	Building Insulation	EA	$ 5,000	45	$ 225,000	43	$ 215,000		$ -	32	$ 160,000	16	$ 80,000	6	$ 30,000	**142.0**	**$ 710,000**
2.06	Noise Mitigation	LF	$ 800	3000	$ 2,400,000	2000	$ 1,600,000	0	$ -	1900	$ 1,520,000	400	$ 320,000	750	$ 600,000	**8,050.0**	**$ 6,440,000**
3	**Signals/Communication**																
3.01	CTC (mainline)	TM	$ 150,000	3.05	$ 457,500	4.5	$ 675,000	5.55	$ 832,500	5.66	$ 849,000	1.23	$ 184,500	1.5	$ 228,000	**21.5**	**$ 3,226,500**
3.02	CTC Control Pts.	EA	$ 750,000	0	$ -	0	$ -	2	$ 1,500,000	2	$ 1,500,000	0	$ -	1	$ 750,000	**5.0**	**$ 3,750,000**
3.03	Modify Control Point	EA	$ 300,000		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
4	**Grade Crossings**																
4.01	At Grade Crossing	EA	$ 30,000	9	$ 270,000	2	$ 60,000	0	$ -	3	$ 90,000	2	$ 60,000	6	$ 180,000	**22.0**	**$ 660,000**
4.02	Private Crossing	EA	$ 7,500	0	$ -	0	$ -	1	$ 7,500	1	$ 7,500	0	$ -	0	$ -	**2.0**	**$ 15,000**
4.03	Crossing Warning Protection (new)	EA	$ 275,000	9	$ 2,475,000	2	$ 550,000	0	$ -	3	$ 825,000	2	$ 550,000	6	$ 1,650,000	**22.0**	**$ 6,050,000**
4.04	Modify GradeXing in Conjunction w. new CP	EA	$ 450,000		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
5	**Stations**																
5.01	Stations	EA	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	**6.0**	**$ 12,000,000**
5.02	Parking	SPC	$ 3,500	240	$ 840,000	310	$ 1,085,000	310	$ 1,085,000	583	$ 2,040,500	75	$ 262,500	300	$ 1,050,000	**1,818.0**	**$ 6,363,000**
	Sub Total:				$ 12,772,470		$ 11,294,300		$ 9,697,510		$ 15,752,764		$ 4,856,742		$ 8,390,608		**$ 62,764,394**
	Design/Const. Mgmt. (25%)				$ 3,193,118		$ 2,823,575		$ 2,424,378		$ 3,938,191		$ 1,214,186		$ 2,097,652		**$ 15,691,099**
	Total Construction:				*$ 15,965,588*		*$ 14,117,875*		*$ 12,121,888*		*$ 19,690,955*		*$ 6,070,928*		*$ 10,488,260*		***$ 78,455,493***
	Property Acquisition																
	Alignment ROW	LS	$ 1														**$ -**
	Station Property	LS	$ 1	2,546,082	$ 2,546,082		$ -	3,666,881	$ 3,666,881	2,439,360	$ 2,439,360		$ -	1,829,520	$ 1,829,520	**10,481,843**	**$ 10,481,843**
	Vehicles																
	CR Locomotive	EA	$ 4,500,000													**0.0**	**$ -**
	CR Coaches	EA	$ 1,800,000													**7.0**	**$ 12,600,000**
	Transit Buses	EA	$ 290,000													**3.0**	**$ 870,000**
	Total Cost incl. property & vehicles:				*$ 18,511,670*		*$ 14,117,875*		*$ 15,788,768*		*$ 22,130,315*		*$ 6,070,928*		*$ 12,317,780*		***$ 102,407,335***
	Contingency (25%)				$ 4,627,917		$ 3,529,469		$ 3,947,192		$ 5,532,579		$ 1,517,732		$ 3,079,445		**$ 25,601,834**
	Grand Total				**$ 23,139,587**		**$ 17,647,344**		**$ 19,735,960**		**$ 27,662,894**		**$ 7,588,659**		**$ 15,397,225**		**$ 128,009,169**

Capital Costs for Alternative D - Commuter Rail
Citrus Avenue Connection from SJBL to BNSF

				Perris South to Perris		Perris to Ramona		Ramone to Alessandro		Alessandro to UCRS		UCRS to UP RIL Jct		UP RIL Jct To BNSF		BNSF to Riverside		ALT. D TOTAL	
Item	*Description*	*Unit*	*Unit Price*	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost
1	**Trackwork**																		
1.01	Mainline Track Construction (Existing Track)	TM	$ 686,400	3.05	$ 2,093,520	4.5	$ 3,088,800	3.15	$ 2,162,160	5.66	$ 3,885,024	1.23	$ 844,272	0.81	$ 559,000	0.20	$ 137,280	**18.6**	**$ 12,770,056**
1.02	Mainline Track Construction (New ROW)	TM	$ 1,056,000		$ -		$ -		$ -		$ -		$ -	0.34	$ 364,000	2.88	$ 3,040,000	**3.2**	**$ 3,404,000**
1.03	Mainline Curve Realignment	LS	$ 500,000	0	$ -	0	$ -	0	$ -	1	$ 500,000	0	$ -	0	$ -	0	$ -	**1.0**	**$ 500,000**
1.04	Unclassified Cut	CY	$ 15		$ -		$ -		$ -		$ -		$ -	16178	$ 242,667	0	$ -	**16,177.8**	**$ 242,667**
1.05	Unclassified Fill	CY	$ 10		$ -		$ -		$ -		$ -		$ -	5000	$ 50,000	16889	$ 168,889	**21,888.9**	**$ 218,889**
1.06	Construct 3000' Passing Siding w/turnouts	EA	$ 500,000	0	$ -	0	$ -	1	$ 500,000	1	$ 500,000	0	$ -	0	$ -	0	$ -	**2.0**	**$ 1,000,000**
1.07	Rehabilitate Sidings/Ext.	EA	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**0.0**	**$ -**
1.08	Install Pwr. Op. Turnouts	EA	$ 180,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 180,000	0	$ -	**1.0**	**$ 180,000**
1.09	Replace existing T.O.'s / Elec. Locks	EA	$ 80,000	1	$ 80,000	9	$ 720,000	8	$ 640,000	3	$ 240,000	0	$ -	3	$ 240,000	2	$ 160,000	**26.0**	**$ 2,080,000**
1.10	Earthwork/Drainage/Culvert	TM	$ 264,000	3.05	$ 805,200	4.5	$ 1,188,000	3.15	$ 831,600	5.66	$ 1,494,240	1.23	$ 324,720	1.52	$ 401,280	3.08	$ 812,800	**22.2**	**$ 5,857,840**
1.11	Other Street Improvements	LF	$ 35		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.12	K Rail	EA	$ 500,000		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.13	Traffic Control	EA	$ 5,000		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.14	Support Facility/Layover Track	LS	$ 750,000	1	$ 750,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**1.0**	**$ 750,000**
1.15	Track reclamation	TM	$ 25,000	3.05	$ 76,250	4.5	$ 112,500	5.55	$ 138,750	5.66	$ 141,500	1.23	$ 30,750	0.8	$ 20,360	0.0	$ -	**20.8**	**$ 520,110**
1.16	New Rail Crossing	EA	$ 200,000	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 200,000	0	$ -	0	$ -	**1.0**	**$ 200,000**
2	**Structures**																		
2.01	Retaining Walls	LF	$ 1,200		$ -		$ -		$ -		$ -		$ -		$ -	500	$ 600,000	**500.0**	**$ 600,000**
2.02	Drainage Structures	EA	$ 10,000		$ -		$ -		$ -		$ -		$ -		$ -	8	$ 80,000	**8.0**	**$ 80,000**
2.03	New Bridge	LF	$ 5,000		$ -		$ -		$ -		$ -		$ -		$ -	44.0	$ 220,000	**44.0**	**$ 220,000**
2.04	Bridge Repair	EA	$ 300,000	1	$ 300,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 300,000	**2.0**	**$ 600,000**
2.05	Building Insulation	EA	$ 5,000	45	$ 225,000	43	$ 215,000		$ -	32	$ 160,000	16	$ 80,000		$ -		$ -	**136.0**	**$ 680,000**
2.06	Noise Mitigation	LF	$ 800	3000	$ 2,400,000	2000	$ 1,600,000	0	$ -	1900	$ 1,520,000	400	$ 320,000		$ -		$ -	**7,300.0**	**$ 5,840,000**
3	**Signals/Communication**																		
3.01	CTC (mainline)	TM	$ 150,000	3.05	$ 457,500	4.5	$ 675,000	5.55	$ 832,500	5.66	$ 849,000	1.23	$ 184,500	1.2	$ 173,864	0.0	$ -	**21.1**	**$ 3,172,364**
3.02	CTC Control Pts.	EA	$ 750,000	0	$ -	0	$ -	2	$ 1,500,000	2	$ 1,500,000	0	$ -	1	$ 750,000	1	$ 750,000	**6.0**	**$ 4,500,000**
3.03	Modify Control Point	EA	$ 300,000		$ -		$ -		$ -		$ -		$ -		$ -	1	$ 300,000	**1.0**	**$ 300,000**
4	**Grade Crossings**																		
4.01	At Grade Crossing	EA	$ 30,000	9	$ 270,000	2	$ 60,000	0	$ -	3	$ 90,000	2	$ 60,000	6	$ 180,000	8	$ 240,000	**30.0**	**$ 900,000**
4.02	Private Crossing	EA	$ 7,500	0	$ -	0	$ -	1	$ 7,500	1	$ 7,500	0	$ -	0	$ -	0	$ -	**2.0**	**$ 15,000**
4.03	Crossing Warning Protection (new)	EA	$ 275,000	9	$ 2,475,000	2	$ 550,000	0	$ -	3	$ 825,000	2	$ 550,000	6	$ 1,650,000	8	$ 2,200,000	**30.0**	**$ 8,250,000**
4.04	Modify GradeXing in Conjunction w. new CP	EA	$ 450,000		$ -		$ -		$ -		$ -		$ -		$ -	2	$ 900,000	**2.0**	**$ 900,000**
5	**Stations**																		
5.01	Stations	EA	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	0	$ -	**6.0**	**$ 12,000,000**
5.02	Parking	SPC	$ 3,500	240	$ 840,000	310	$ 1,085,000	310	$ 1,085,000	583	$ 2,040,500	75	$ 262,500	300	$ 1,050,000		$ -	**1,818.0**	**$ 6,363,000**
	Construction Sub Total:				$ 12,772,470		$ 11,294,300		$ 9,697,510		$ 15,752,764		$ 4,856,742		$ 7,861,170		$ 9,908,969		**$ 72,143,925**
	Design/Const. Mgmt. (25%)				$ 3,193,118		$ 2,823,575		$ 2,424,378		$ 3,938,191		$ 1,214,186		$ 1,965,293		$ 2,477,242		**$ 18,035,981**
	Total Construction:				*$ 15,965,588*		*$ 14,117,875*		*$ 12,121,888*		*$ 19,690,955*		*$ 6,070,928*		*$ 9,826,463*		*$ 12,386,211*		***$ 90,179,906***
	Property Acquisition																		
	Alignment ROW	LS	$ 1		$ -		$ -		$ -		$ -		$ -				250,000		**$ 250,000**
	Station Property	LS	$ 1	2,546,082	$ 2,546,082		$ -	3,666,881	$ 3,666,881	2,439,360	$ 2,439,360	2,296,048	$ 2,296,048	0	$ -	0	$ -	**10,948,370**	**$ 10,948,370**
	Vehicles																		
	CR Locomotive	EA	$ 4,500,000															**0.0**	**$ -**
	CR Coaches	EA	$ 1,800,000															**7.0**	**$ 12,600,000**
	Transit Buses	EA	$ 290,000															**3.0**	**$ 870,000**
	Total Cost incl. property & vehicles:				*$ 18,511,670*		*$ 14,117,875*		*$ 15,788,768*		*$ 22,130,315*		*$ 8,366,975*		*$ 9,826,463*		*$ 12,636,211*		***$ 114,848,277***
	Contingency (25%)				$ 4,627,917		$ 3,529,469		$ 3,947,192		$ 5,532,579		$ 2,091,744		$ 2,456,616		$ 3,159,053		**$ 28,712,069**
	Grand Total				**$ 23,139,587**		**$ 17,647,344**		**$ 19,735,960**		**$ 27,662,894**		**$ 10,458,719**		**$ 12,283,078**		**$ 15,795,264**		**$ 143,560,346**

Capital Costs for Alternative E - Commuter Rail
Rustin Avenue Connection from SJBL to RIL

				Perris South to Perris		Perris to Ramona		Ramona to Alessandro		Alessandro to UCRS		UCRS to UP RIL JCT		UP RIL JCT to Kansas Ave		Kansas Av to 14th St		ALT. E TOTAL	
Item	*Description*	*Unit*	*Unit Price*	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost	Est. Qty.	Cost
1	**Trackwork**																		
1.01	Mainline Track Construction (Existing Track)	TM	$ 686,400	3.05	$ 2,093,520	4.5	$ 3,088,800	3.15	$ 2,162,160	5.66	$ 3,885,024	1.23	$ 844,272	1.74	$ 1,194,336	0.00	$ -	**19.3**	**$ 13,268,112**
1.02	Mainline Track Construction (New ROW)	TM	$ 1,056,000		$ -		$ -		$ -		$ -		$ -	0.00	$ -	0.93	$ 982,080	**0.9**	**$ 982,080**
1.03	Mainline Curve Realignment	LS	$ 500,000	0	$ -	0	$ -	0	$ -	1	$ 500,000	0	$ -	0	$ -	0	$ -	**1.0**	**$ 500,000**
1.04	Unclassified Cut	CY	$ 15		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.05	Unclassified Fill	CY	$ 10		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
1.06	Construct 3000' Passing Siding w/turnouts	EA	$ 500,000	0	$ -	1	$ 500,000		$ -	1	$ 500,000	0	$ -	0	$ -	0	$ -	**2.0**	**$ 1,000,000**
1.07	Rehabilitate Sidings/Ext.	EA	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**0.0**	**$ -**
1.08	Install Pwr. Op. Turnouts	EA	$ 180,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 180,000	**1.0**	**$ 180,000**
1.09	Replace existing T.O.'s / Elec. Locks	EA	$ 80,000	1	$ 80,000	9	$ 720,000	8	$ 640,000	3	$ 240,000	0	$ -	6	$ 480,000	1	$ 80,000	**28.0**	**$ 2,240,000**
1.10	Earthwork/Drainage/Culvert	TM	$ 264,000	3.05	$ 805,200	4.5	$ 1,188,000	3.15	$ 831,600	5.66	$ 1,494,240	1.23	$ 324,720	1.74	$ 459,360	0.93	$ 245,520	**20.3**	**$ 5,348,640**
1.11	Other Street Improvements	LF	$ 35		$ -		$ -		$ -		$ -		$ -	2500	$ 87,500	0	$ -	**2,500.0**	**$ 87,500**
1.12	K Rail	EA	$ 500,000		$ -		$ -		$ -		$ -		$ -	1	$ 500,000	0	$ -	**1.0**	**$ 500,000**
1.13	Traffic Control	EA	$ 5,000		$ -		$ -		$ -		$ -		$ -	11	$ 55,000	2	$ 10,000	**13.0**	**$ 65,000**
1.14	Support Facility/Layover Track	LS	$ 750,000	1	$ 750,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**1.0**	**$ 750,000**
1.15	Track reclamation	TM	$ 25,000	3.05	$ 76,250	4.5	$ 112,500	5.55	$ 138,750	5.66	$ 141,500	1.23	$ 30,750	1.5	$ 38,500	0.5	$ 11,625	**22.0**	**$ 549,875**
1.16	New Rail Crossing	EA	$ 200,000	0	$ -	0	$ -	0	$ -	0	$ -	1	$ 200,000	0	$ -	0	$ -	**1.0**	**$ 200,000**
2	**Structures**																		
2.01	Retaining Walls	LF	$ 1,200		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
2.02	Drainage Structures	EA	$ 10,000		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
2.03	New Bridge	LF	$ 5,000		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
2.04	Bridge Repair	EA	$ 300,000	1	$ 300,000	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	0	$ -	**1.0**	**$ 300,000**
2.05	Building Insulation	EA	$ 5,000	45	$ 225,000	43	$ 215,000		$ -	32	$ 160,000	16	$ 80,000		$ -	39	$ 195,000	**175.0**	**$ 875,000**
2.06	Noise Mitigation	LF	$ 800	3000	$ 2,400,000	2000	$ 1,600,000	0	$ -	1900	$ 1,520,000	400	$ 320,000		$ -	1200	$ 960,000	**8,500.0**	**$ 6,800,000**
3	**Signals/Communication**																		
3.01	CTC (mainline)	TM	$ 150,000	3.05	$ 457,500	4.5	$ 675,000	5.55	$ 832,500	5.66	$ 849,000	1.23	$ 184,500	1.7	$ 261,000	0.9	$ 139,500	**22.7**	**$ 3,399,000**
3.02	CTC Control Pts.	EA	$ 750,000	0	$ -	0	$ -	2	$ 1,500,000	2	$ 1,500,000	0	$ -	1	$ 750,000	0	$ -	**5.0**	**$ 3,750,000**
3.03	Modify Control Point	EA	$ 300,000		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
4	**Grade Crossings**																		
4.01	At Grade Crossing	EA	$ 30,000	9	$ 270,000	2	$ 60,000	0	$ -	3	$ 90,000	2	$ 60,000	9	$ 270,000	2	$ 60,000	**27.0**	**$ 810,000**
4.02	Private Crossing	EA	$ 7,500	0	$ -	0	$ -	1	$ 7,500	1	$ 7,500	0	$ -	2	$ 15,000	0	$ -	**4.0**	**$ 30,000**
4.03	Crossing Warning Protection (new)	EA	$ 275,000	9	$ 2,475,000	2	$ 550,000	0	$ -	3	$ 825,000	2	$ 550,000	9	$ 2,475,000	2	$ 550,000	**27.0**	**$ 7,425,000**
4.04	Modify GradeXing in Conjunction w. new CP	EA	$ 450,000		$ -		$ -		$ -		$ -		$ -		$ -		$ -	**0.0**	**$ -**
5	**Stations**																		
5.01	Stations	EA	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	1	$ 2,000,000	0	$ -	**6.0**	**$ 12,000,000**
5.02	Parking	SPC	$ 3,500	240	$ 840,000	310	$ 1,085,000	310	$ 1,085,000	583	$ 2,040,500	75	$ 262,500	300	$ 1,050,000		$ -	**1,818.0**	**$ 6,363,000**
	Sub Total:				$ 12,772,470		$ 11,794,300		$ 9,197,510		$ 15,752,764		$ 4,856,742		$ 9,635,696		$ 3,413,725		**$ 67,423,207**
	Design/Const. Mgmt. (25%)				$ 3,193,118		$ 2,948,575		$ 2,299,378		$ 3,938,191		$ 1,214,186		$ 2,408,924		$ 853,431		**$ 16,855,802**
	Total Construction:				*$ 15,965,588*		*$ 14,742,875*		*$ 11,496,888*		*$ 19,690,955*		*$ 6,070,928*		*$ 12,044,620*		*$ 4,267,156*		***$ 84,279,009***
	Property Acquisition																		
	Alignment ROW	LS	$ 1		-		-		-		-		-		6,125,000		1,400,000		**$ 7,525,000**
	Station Property	LS	$ 1	2,546,082	$ 2,546,082		$ -	3,666,881	$ 3,666,881	2,439,360	$ 2,439,360	2,296,048	$ 2,296,048	0	$ -	0	$ -	**10,948,370**	**$ 10,948,370**
	Vehicles																		
	CR Locomotive	EA	$ 4,500,000															**0.0**	**$ -**
	CR Coaches	EA	$ 1,800,000															**7.0**	**$ 12,600,000**
	Transit Buses	EA	$ 290,000															**3.0**	**$ 870,000**
	Total Cost incl. property & vehicles:				*$ 18,511,670*		*$ 14,742,875*		*$ 15,163,768*		*$ 22,130,315*		*$ 8,366,975*		*$ 18,169,620*		*$ 5,667,156*		***$ 116,222,379***
	Contingency (25%)				$ 4,627,917		$ 3,685,719		$ 3,790,942		$ 5,532,579		$ 2,091,744		$ 4,542,405		$ 1,416,789		**$ 29,055,595**
	Grand Total				**$ 23,139,587**		**$ 18,428,594**		**$ 18,954,710**		**$ 27,662,894**		**$10,458,719**		**$ 22,712,025**		**$ 7,083,945**		**$ 145,277,974**

APPENDIX E: RIDERSHIP FORECASTS

Note: The subsequent tables in this section present station to station trips on the 91 Line, including service on the SJBL. These trips are presented in Production/Attraction (P/A) format. In P/A format, both the outgoing and the return trip are assigned to the origin station. Thus, a person traveling from Perris to L.A. and back would show up as two trips in the cell where the from station (Perris row) and to station (L.A. column) intersect.

Trips attributable to service on the SJBL, either passenger trips traveling from or attracted to the new stations, were summed. The distinction between these trips is made in the tables showing those trips that were "generated" on the extension, and those trips "attracted" to the extension. The sum of these two indicates the total station activity.

Exhibit E-1: Alternative C Station to Station Boardings in P/A Format - 2010

	Totals		Destination																	
Station	**From Total**	**To Total**	Perris South	Perris	Ramona Exp	Alessandro	UCR	Highgrove	Spruce Street	Riverside Dtwn	La Sierra	Corona	West Corona	Fullerton	Norwalk_SFS	LA_UnionStn	Rail-node	Boardings on Extension	Boardings Attracted to Extension	**Combined Total**
Perris South	506	4	0	55	1	1	5	17	0	142	3	1	30	157	10	84	30720	506	1	**507**
Perris	430	125	1	0	1	5	9	22	0	128	8	2	37	165	6	46	30714	430	12	**442**
Ramona Exp	682	21	1	41	0	1	9	31	0	191	7	3	51	221	13	113	30706	682	5	**687**
Alessandro	1160	18	1	14	9	0	9	39	0	412	18	4	66	337	24	227	30702	1,160	8	**1,168**
UCR	57	42	0	1	1	2	0	12	0	14	2	0	2	15	1	7	30684	57	6	**63**
Highgrove	908	161	0	3	4	2	5	0	0	217	36	10	48	463	27	93	30790	908	42	**950**
Spruce Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30791	0	0	**0**
Riverside Dtwn	565	1917	1	3	2	2	2	1	0	0	65	11	29	413	36	0	30443			
La Sierra	768	190	0	2	0	0	1	9	0	272	0	5	8	347	44	80	30445			
Corona	1204	45	0	3	1	1	0	11	0	367	10	0	1	475	65	270	30446			
West Corona	744	296	0	0	1	1	0	3	0	61	8	1	0	411	59	199	30447			
Fullerton	129	3249	0	2	1	2	1	9	0	77	19	4	14	0	0	0	30402			
Norwalk_SFS	319	285	0	1	0	1	1	7	0	36	14	4	10	245	0	0	30214			
LA_UnionStn	58	1119	0	1	0	1	1	2	0	29	10	3	9	0	2	0	30500			

Total Boardings associated with the Extension **3,817**

Generated on Extension Attracted to Extension

Exhibit E-2: Alternatives D and E Station to Station Boardings in P/A Format - 2010

	Totals		Destination																
Station	**From Total**	**To Total**	Perris South	Perris	Ramona Exp	Alessandro	UCR	Highgrove	Spruce Street	Riverside Dtwn	La Sierra	Corona	West Corona	Fullerton	Norwalk_SFS	LA_UnionStn	Rail-node	Boardings on Extension	Boardings Attracted to Extension	**Combined Total**
Perris South	597	4	0	55	1	1	4	0	5	181	3	2	32	182	11	120	30720	597	2	**599**
Perris	521	130	1	0	1	5	10	0	10	168	10	3	43	200	9	61	30714	521	16	**537**
Ramona Exp	785	28	0	42	0	1	7	0	10	247	10	3	57	258	15	135	30706	785	12	**797**
Alessandro	1458	23	1	14	10	0	8	0	13	574	23	7	82	421	32	273	30702	1,458	10	**1,468**
UCR	134	45	0	1	2	3	0	0	13	47	4	1	7	41	2	13	30684	134	10	**144**
Highgrove	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30790	0	0	**0**
Spruce Street	578	79	0	2	2	3	6	0	0	133	11	4	24	315	19	59	30791	578	28	**606**
Riverside Dtwn	617	2191	1	5	4	2	5	0	15	0	74	12	31	431	37	0	30443			
La Sierra	771	198	0	2	1	1	1	0	2	279	0	5	9	347	44	80	30445			
Corona	1189	49	0	3	2	1	1	0	2	358	10	0	1	476	65	270	30446			
West Corona	745	320	0	1	1	0	0	0	1	62	8	1	0	413	59	199	30447			
Fullerton	128	3329	1	3	2	2	1	0	3	76	21	4	15	0	0	0	30402			
Norwalk_SFS	318	295	0	1	1	2	1	0	3	37	14	4	10	245	0	0	30214			
LA_UnionStn	60	1210	0	1	1	2	1	0	2	29	10	3	9	0	2	0	30500			

Total Boardings associated with the Extension **4,151**

Generated on Extension Attracted to Extension

Exhibit E-3: Alternative C Station to Station Boardings in P/A Format - 2025

	Totals		Destination																
Station	**From Total**	**To Total**	Perris South	Perris	Ramona Exp	Alessandro	UCR	Highgrove	Spruce Street	Riverside Dtwn	La Sierra	Corona	West Corona	Fullerton	Norwalk_SFS	LA_UnionStn	Rail-node	Boardings on Extension	Boardings Attracted to Extension	**Combined Total**
Perris South	1745	0	0	60	0	33	11	42	0	507	9	0	177	403	43	460	30720	1,745	0	**1,745**
Perris	568	125	0	0	6	19	11	21	0	199	8	0	68	165	11	60	30714	568	11	**579**
Ramona Exp	1610	32	0	38	0	2	10	47	0	520	15	0	163	443	43	329	30706	1,610	6	**1,616**
Alessandro	1172	68	0	6	6	0	12	33	0	486	11	0	95	271	25	227	30702	1,172	9	**1,181**
UCR	107	53	0	6	8	2	0	16	0	32	3	0	7	21	2	10	30684	107	4	**111**
Highgrove	1279	190	0	4	6	3	5	0	0	347	33	0	89	572	46	174	30790	1,279	31	**1,310**
Spruce Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30791	0	0	**0**
Riverside Dtwn	525	2994	0	3	2	1	2	1	0	0	47	0	33	402	34	0	30443			
La Sierra	893	181	0	1	1	1	1	6	0	352	0	0	13	343	48	127	30445			
Corona	1536	0	0	2	0	1	0	7	0	347	6	0	0	600	98	475	30446			
West Corona	680	679	0	1	0	1	0	4	0	96	11	0	0	290	61	216	30447			
Fullerton	109	3510	0	2	2	3	1	7	0	60	18	0	16	0	0	0	30402			
Norwalk_SFS	45	411	0	1	0	1	0	3	0	22	10	0	8	0	0	0	30214			
LA_UnionStn	52	2078	0	1	1	1	0	3	0	26	10	0	10	0	0	0	30500			

Total Boardings associated with the Extension **6,542**

Generated on Extension Attracted to Extension

Exhibit E-4: Alternatives D and E Station to Station Boardings in P/A Format - 2025

	Totals		Destination																
Station	**From Total**	**To Total**	Perris South	Perris	Ramona Exp	Alessandro	UCR	Highgrove	Spruce Street	Riverside Dtwn	La Sierra	Corona	West Corona	Fullerton	Norwalk_SFS	LA_UnionStn	Rail-node	Boardings on Extension	Boardings Attracted to Extension	**Combined Total**
Perris South	2106	0	0	61	0	32	12	0	13	623	10	0	204	474	51	626	30720	2,106	0	**2,106**
Perris	692	130	0	0	6	19	10	0	11	252	10	0	85	199	16	84	30714	692	17	**709**
Ramona Exp	1914	35	0	39	0	2	10	0	14	631	16	0	190	509	54	449	30706	1,914	15	**1,929**
Alessandro	1713	71	0	3	3	0	10	0	14	744	15	0	131	389	38	366	30702	1,713	12	**1,725**
UCR	157	61	0	2	1	2	0	0	16	51	5	0	10	38	5	27	30684	157	10	**167**
Highgrove	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30790	0	0	**0**
Spruce Street	807	97	0	8	10	4	9	0	0	225	11	0	48	386	32	74	30791	807	29	**836**
Riverside Dtwn	584	3430	0	6	7	3	7	0	17	0	55	0	35	418	36	0	30443			
La Sierra	899	177	0	2	1	1	1	0	3	358	0	0	14	344	48	127	30445			
Corona	1521	0	0	3	1	1	0	0	2	335	6	0	0	600	98	475	30446			
West Corona	678	749	0	1	1	1	0	0	1	99	11	0	0	288	60	216	30447			
Fullerton	108	3645	0	3	3	3	1	0	2	63	18	0	15	0	0	0	30402			
Norwalk_SFS	46	438	0	1	1	2	0	0	2	23	10	0	7	0	0	0	30214			
LA_UnionStn	52	2444	0	1	1	1	1	0	2	26	10	0	10	0	0	0	30500			

Total Boardings associated with the Extension **7,472**

Generated on Extension Attracted to Extension