



# MEETING AGENDA

## Western Riverside County Programs and Projects Committee

**Time:** 1:30 p.m.  
**Date:** September 23, 2019  
**Location:** BOARD ROOM  
County of Riverside Administration Center  
4080 Lemon St, First Floor, Riverside CA 92501

### COMMITTEE MEMBERS

Brian Berkson, **Chair**/Chris Barajas, City of Jurupa Valley  
Michael Vargas, **Vice Chair**/Rita Rogers, City of Perris  
Wes Speake/Jim Steiner, City of Corona  
Clint Lorimore/Todd Rigby, City of Eastvale  
Bill Zimmerman/Dean Deines, City of Menifee  
Victoria Baca/Carla Thornton, City of Moreno Valley

Scott Vinton/To Be Appointed, City of Murrieta  
Berwin Hanna/Ted Hoffman, City of Norco  
Andrew Kotyuk/Russ Utz, City of San Jacinto  
Ben J. Benoit/Joseph Morabito, City of Wildomar  
Kevin Jeffries, County of Riverside, District I  
Jeff Hewitt, County of Riverside, District V

### STAFF

Anne Mayer, Executive Director  
John Standiford, Deputy Executive Director

### AREAS OF RESPONSIBILITY

Air Quality, Capital Projects, Communications and Outreach Programs, Intermodal Programs, Motorist Services, New Corridors, Regional Agencies/Regional Planning, Regional Transportation Improvement Program (RTIP), Specific Transit Projects, State Transportation Improvement Program (STIP)

Transportation Uniform Mitigation Fee (TUMF) Program, and Provide Policy Direction on Transportation Programs and Projects related to Western Riverside County and other areas as may be prescribed by the Commission.

**RIVERSIDE COUNTY TRANSPORTATION COMMISSION  
WESTERN RIVERSIDE COUNTY PROGRAMS AND PROJECTS COMMITTEE**

[www.rctc.org](http://www.rctc.org)

**AGENDA\***

*\*Actions may be taken on any item listed on the agenda*

**1:30 p.m.**

**Monday, September 23, 2019**

**BOARD ROOM**

**County Administrative Center**

**4080 Lemon Street, First Floor**

**Riverside, California**

*In compliance with the Brown Act and Government Code Section 54957.5, agenda materials distributed 72 hours prior to the meeting, which are public records relating to open session agenda items, will be available for inspection by members of the public prior to the meeting at the Commission office, 4080 Lemon Street, Third Floor, Riverside, CA, and on the Commission's website, [www.rctc.org](http://www.rctc.org).*

*In compliance with the Americans with Disabilities Act, Government Code Section 54954.2, and the Federal Transit Administration Title VI, please contact the Clerk of the Board at (951) 787-7141 if special assistance is needed to participate in a Commission meeting, including accessibility and translation services. Assistance is provided free of charge. Notification of at least 48 hours prior to the meeting time will assist staff in assuring reasonable arrangements can be made to provide assistance at the meeting.*

**1. CALL TO ORDER**

**2. ROLL CALL**

**3. PLEDGE OF ALLEGIANCE**

- 4. PUBLIC COMMENTS** – *Each individual speaker is limited to speak three (3) continuous minutes or less. The Committee may, either at the direction of the Chair or by majority vote of the Committee, waive this three minute time limitation. Depending on the number of items on the Agenda and the number of speakers, the Chair may, at his/her discretion, reduce the time of each speaker to two (2) continuous minutes. Also, the Committee may terminate public comments if such comments become repetitious. In addition, the maximum time for public comment for any individual item or topic is thirty (30) minutes. Speakers may not yield their time to others without the consent of the Chair. Any written documents to be distributed or presented to the Committee shall be submitted to the Clerk of the Board. This policy applies to Public Comments and comments on Agenda Items.*

*Under the Brown Act, the Board should not take action on or discuss matters raised during public comment portion of the agenda which are not listed on the agenda. Board members may refer such matters to staff for factual information or to be placed on the subsequent agenda for consideration.*

5. **ADDITIONS/REVISIONS** *(The Committee may add an item to the Agenda after making a finding that there is a need to take immediate action on the item and that the item came to the attention of the Committee subsequent to the posting of the agenda. An action adding an item to the agenda requires 2/3 vote of the Committee. If there are less than 2/3 of the Committee members present, adding an item to the agenda requires a unanimous vote. Added items will be placed for discussion at the end of the agenda.)*

6. **APPROVAL OF MINUTES – AUGUST 26, 2019**

7. **APPROVAL OF UTILITY AGREEMENT AMENDMENT WITH SOUTHERN CALIFORNIA GAS FOR STATE ROUTE 71/STATE ROUTE 91 INTERCHANGE PROJECT**

*Page 1*

**Overview**

This item is for the Committee to:

- 1) Approve Agreement No. 18-31-103-01, Amendment No. 1 to Agreement No. 18-31-103-00, with Southern California Gas (SCG) for construction of utility relocations for the State Route (SR) 71/SR-91 Interchange (71/91 IC) project in the amount of \$338,255, plus a contingency amount of \$33,825, for an additional amount of \$372,080, and a total amount not to exceed \$3,552,115;
- 2) Authorize the Executive Director, pursuant to legal counsel review, to execute the agreement on behalf of the Commission;
- 3) Authorize the Executive Director or designee to approve the use of the contingency amount as may be required for this utility relocation agreement; and
- 4) Forward to the Commission for final action.

8. **CITY OF WILDOMAR FUNDING REQUEST FOR CONSTRUCTION OF BUNDY CANYON ROAD WIDENING PROJECT**

*Page 7*

**Overview**

This item is for the Committee to:

- 1) Approve programming \$3,516,000 of Measure A Regional Arterial (MARA) funds for the city of Wildomar's Bundy Canyon Road Widening – Segment 1 project;
- 2) Approve Agreement No. 20-72-011-00 between the Commission and the city of Wildomar for the programming of \$3,516,000 of MARA for the construction phase of the Bundy Canyon Road Widening - Segment 1 project;
- 3) Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreement; and
- 4) Forward to the Commission for final action.

**9. NEXT GENERATION RAIL CORRIDORS ANALYSIS REPORT**

*Page 19*

***Overview***

This item is for the Committee to:

- 1) Accept the Next Generation Rail Corridors Analysis Report; and
- 2) Forward to the Commission for final action.

**10. COMMISSIONERS / STAFF REPORT**

***Overview***

This item provides the opportunity for the Commissioners and staff to report on attended and upcoming meeting/conferences and issues related to Commission activities.

**11. ADJOURNMENT**

# **AGENDA ITEM 6**

## **MINUTES**

# **RIVERSIDE COUNTY TRANSPORTATION COMMISSION**

## **WESTERN RIVERSIDE COUNTY PROGRAMS AND PROJECTS COMMITTEE**

Monday, August 26, 2019

### **MINUTES**

#### **1. CALL TO ORDER/ ROLL CALL**

The meeting of the Western Riverside County Programs and Projects Committee was called to order by Chair Brian Berkson at 1:32 p.m., in the Board Room at the County of Riverside Administrative Center, 4080 Lemon Street, First Floor, Riverside, California, 92501.

#### **2. ROLL CALL**

##### **Members/Alternates Present**

Victoria Baca\*  
Ben Benoit  
Brian Berkson  
Berwin Hanna  
Jeff Hewitt  
Kevin Jeffries\*  
Clint Lorimore  
Wes Speake  
Michael Vargas  
Russ Utz  
Bill Zimmerman

\*arrived after meeting was called to order

##### **Members Absent**

Scott Vinton

#### **3. PLEDGE OF ALLEGIANCE**

At this time, Vice Chair Michael Vargas led the Western Riverside County Programs and Projects Committee in a flag salute.

#### **4. PUBLIC COMMENTS**

Arnold San Miguel, SCAG, announced a public hearing on the methodology on the regional housing needs assessment will be held on August 27 at 6 p.m. at SBCTA. He also announced that SCAG can now produce a limited supply of signs, banners, bus shelters, for community events.

At this time, Commissioners Kevin Jeffries and Victoria Baca arrived.

**5. ADDITIONS/REVISIONS**

There were no additions or revisions at this time.

**6. APPROVAL OF MINUTES – JUNE 24, 2019**

**M/S/C (Benoit/Vargas) to approve the minutes as submitted.**

**7. CHANGE ORDER TO AMEND THE INTERSTATE 15 EXPRESS LANES PROJECT DESIGN-BUILD CONTRACT WITH SKANSKA-AMES, A JOINT VENTURE, FOR THE INTERSTATE 15/STATE ROUTE 91 EXPRESS LANES CONNECTOR PROJECT**

David Thomas, Toll Project Manager, presented the details of the change order to amend the I-15 ELP design-build contract with Skanska-Ames, A Joint Venture, for the 15/91 Express Lanes Connector project.

David Thomas clarified for Chair Berkson the price portion of the sign is the only part that will be digital.

**M/S/C (Benoit/Hanna) to:**

- 1) Approve Change Order No. 50 to Agreement No. 16-31-057-00 for the Interstate 15 Express Lanes Project (I-15 ELP) with Skanska-Ames, a Joint Venture (Skanska-Ames), to perform limited construction for the Interstate 15/State Route 91 Express Lanes Connector (15/91 ELC) associated improvements in the amount of \$1.7 million, plus a contingency amount of \$170,000, for a total amount not to exceed \$1,870,000;**
- 2) Authorize the Executive Director to negotiate and execute the change order amendment, pursuant to legal counsel review, for an amount not to exceed \$1,870,000;**
- 3) Authorize the Executive Director or designee to approve contingency work up to the total amount not to exceed as required for the project; and**
- 4) Forward to the Commission for final action.**

**8. AMENDMENT TO AGREEMENT WITH NOSSAMAN LLP FOR ON-CALL STRATEGIC PARTNERSHIP ADVISOR SERVICES FOR THE INTERSTATE 15/STATE ROUTE 91 EXPRESS LANES CONNECTOR PROJECT**

David Thomas, Toll Project Manager, presented the details of the amendment with Nossaman LLP for on-call strategic partnership advisor services for the 15/91 ELC project.

**M/S/C (Baca/Hanna) to:**

- 1) **Approve Agreement No. 06-66-028-14, Amendment No. 11 to Agreement No. 06-66-028-00, with Nossaman LLP (Nossaman) for the on-call strategic partnership advisor services to support the Interstate 15/State Route 91 Express Lanes Connector (15/91 ELC), extend the contract term to December 31, 2023, and augment the agreement in the amount of \$1.5 million, plus a contingency amount of \$150,000, for an additional amount of \$1.65 million, and a total amount not to exceed \$16,002,935;**
- 2) **Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreement on behalf of the Commission;**
- 3) **Authorize the Executive Director or designee to approve the use of the contingency amount as may be required for the project; and**
- 4) **Forward to the Commission for final action.**

**9. COOPERATIVE AGREEMENT WITH THE CALIFORNIA DEPARTMENT OF TRANSPORTATION, DISTRICT 8 FOR PROJECT INITIATION DOCUMENT PHASE FOR THE RIVERSIDE COUNTY NEXT GENERATION EXPRESS LANES PROJECT**

Stephanie Blanco, Capital Projects Manager, presented the scope of the agreement with Caltrans for project initiation document phase for the Riverside County Next Generation Express Lanes project.

Commissioner Kevin Jeffries reminded the Committee that he does not support converting HOV lanes into toll lanes.

**M/S/C (Baca/Hanna) to:**

- 1) **Approve Agreement No. 20-31-006-00, a cooperative agreement between the Commission and the California Department of Transportation, District 8 (Caltrans) for the Riverside County Next Generation Express Lanes Project (NGELP), in an amount not to exceed \$300,000;**
- 2) **Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreement on behalf of the Commission; and**
- 3) **Forward to the Commission for final action.**

**No: Jeffries, Speake, Utz**

**10. AMENDMENT TO AGREEMENT WITH T.Y. LIN INTERNATIONAL FOR FINAL DESIGN SERVICES RELATED TO THE MID COUNTY PARKWAY INTERSTATE 215/PLACENTIA AVENUE INTERCHANGE IMPROVEMENT PROJECT**

Mark Lancaster, Capital Projects Manager, presented the details of the amendment with T.Y. Lin International for final design services related to the MCP 215/Placentia Avenue interchange improvement project.



Anne Mayer, Executive Director, clarified for Commissioner Berkson the funding is coming from the 2009 Measure A Western County New Corridors funds.

Commissioner Hewitt requested clarification on the flood control requirements.

Mr. Lancaster explained the Commission is building two detention basins on the east side of the project because there is currently no flood control facility built. He also stated there has to be an agreement with each entity and there are usually multiple agreements.

Commissioner Michael Vargas expressed his appreciation for this project and all the work going into it.

**M/S/C (Baca/Hewitt) to:**

- 1) Approve Agreement No. 16-31-066-03, Amendment No. 3 to Agreement No. 16-31-066-00, with T.Y. Lin International (T.Y. Lin) to finish final design services and prepare the Interstate 215/Placentia Avenue interchange improvement (I-215/Placentia Avenue) project for advertising and award, for an additional amount of \$629,416, plus a contingency amount of \$62,942, for an additional amount of \$692,358, and a total amount not to exceed \$4,761,021;**
- 2) Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreements on behalf of the Commission;**
- 3) Authorize the Executive Director or designee to approve the use of the contingency amount as may be required for the project; and**
- 4) Forward to the Commission for final action.**

## **11. COMMISSIONERS / STAFF REPORT**

14A. Anne Mayer reminded Commissioners that one Westbound lane is closed on SR-60 through the Badlands and update them on project progress. An official update will be presented at the September meeting.

14B. Commissioner Lorimore commented on the information presented by Arnold San Miguel during the public comments portion of the meeting.

**12. ADJOURNMENT**

There being no further business for consideration by the Western Riverside County Programs and Projects Committee, the meeting was adjourned at 2:00 p.m.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Lisa Mobley", with a long horizontal flourish extending to the right.

Lisa Mobley  
Clerk of the Board

# **AGENDA ITEM 7**



**RIVERSIDE COUNTY TRANSPORTATION COMMISSION**

<b>DATE:</b>	September 23, 2019
<b>TO:</b>	Western Riverside County Programs and Projects Committee
<b>FROM:</b>	Mark Lancaster, Capital Projects Manager
<b>THROUGH:</b>	Marlin Feenstra, Project Delivery Director
<b>SUBJECT:</b>	Approval of Utility Agreement Amendment with Southern California Gas for State Route 71/State Route 91 Interchange Project

**STAFF RECOMMENDATION:**

This item is for the Committee to:

- 1) Approve Agreement No. 18-31-103-01, Amendment No. 1 to Agreement No. 18-31-103-00, with Southern California Gas (SCG) for construction of utility relocations for the State Route (SR) 71/SR-91 Interchange (71/91 IC) project in the amount of \$338,255, plus a contingency amount of \$33,825, for an additional amount of \$372,080, and a total amount not to exceed \$3,552,115;
- 2) Authorize the Executive Director, pursuant to legal counsel review, to execute the agreement on behalf of the Commission;
- 3) Authorize the Executive Director or designee to approve the use of the contingency amount as may be required for this utility relocation agreement; and
- 4) Forward to the Commission for final action.

**BACKGROUND INFORMATION:**

The Commission, in cooperation with Caltrans, continues to develop improvements to the existing 71/91 IC in the city of Corona. The improvements include constructing a new direct connector from eastbound SR-91 to northbound SR-71 and realigning the eastbound SR-91 entrance ramp between Green River Road and the 71/91 IC. The project is anticipated to improve mobility on SR-91 and SR-71 by enhancing operations and capacity at the 71/91 IC.

The project will require a new utility agreement with SCG to relocate an underground gas transmission pipeline crossing under SR-71. The Commission authorized design of this relocation in April 2016, and approved the initial estimated construction cost of the relocation in April 2018. The total estimated cost to relocate the SCG pipeline facility was \$2,890,941 plus a contingency of \$289,094 for a total amount not to exceed \$3,180,035.

In August 2019, staff received a revised cost estimate of \$3,518,290 from SCG to relocate the pipeline. Staff recommends amending the original agreement by \$338,255 plus a contingency amount of \$33,825 to completely fund the pipeline relocation. By approving the amendment

now, relocation of the pipeline will be completed prior to the commencement of 71/91 IC construction activities and will not be in conflict with the construction project.

Additionally, staff recommends that the Committee authorize the Executive Director to execute the utility agreement on behalf of the Commission and authorize the Executive Director or her designee to approve the use of the contingency amount as may be required.

<b>Financial Information</b>					
In Fiscal Year Budget:	Yes	Year:	FY 2019/20	Amount:	\$372,080
Source of Funds:	Federal earmarks and other federal and state funds, to the extent available; 2009 Measure A Western Riverside County Highway funds		Budget Adjustment:	No	
GL/Project Accounting No.:	003021 81402 00000 0000 262 31 81402				
Fiscal Procedures Approved:	<i>Theresa Trevino</i>			Date:	09/16/2019

Attachment: Utility Agreement Amendment No. 18-31-103-01

08-RIV-91 PM R0.9/R2.6  
08-RIV-71 PM 1.9/R3.0  
Expenditure Authorization: 0F541  
Federal Aid No.: HPLU21LN 6054 (066)  
Owner's File No.: WO#B91404.000

UTILITY AGREEMENT NO. 24939

**WHEREAS**, the Riverside County Transportation Commission, herein after called "RCTC", acting by and through the Department of Transportation, hereinafter called "STATE", has issued Notice to Owner No. 24939 dated August 8, 2019, attached hereto, to Southern California Gas Company, hereinafter called "OWNER", which Notice to Owner sets forth the terms and conditions pursuant to which OWNER has been ordered to relocate certain OWNER'S facilities to clear the RCTC'S proposed freeway project at the SR-71/91 Interchange, and;

**WHEREAS**, the reconstruction of the RCTC's freeway project necessitates the relocation of OWNER'S utility facilities, and;

**WHEREAS**, RCTC, in order to clear the right of way for the freeway construction, has ordered OWNER to relocate the portions of its facilities within said Notice to Owner, hereafter called OWNER'S facilities, and;

**WHEREAS**, OWNER is disputing the adequacy of the language prescribed in Chapter 13 of the STATE's Right of Way Manual and refuses to relocate OWNER'S facilities as ordered; and;

**WHEREAS**, in accordance with Section 706 of the Streets and Highways Code, RCTC may, without prejudice to its rights, or that of OWNER, advance the costs of removal or relocation, and upon advancement by RCTC of said costs, OWNER shall remove or relocate OWNER'S facilities as stated in the attached Notice to Owner so as not to delay the freeway construction, and;

**WHEREAS**, RCTC and OWNER disagree on the language prescribed in Chapter 13 of the STATE'S Right of Way Manual, RCTC and OWNER agree that, in order to expedite the freeway project, RCTC shall deposit with OWNER, in accordance with Section 706 of the Streets and Highways Code, 82.79% of the estimated relocation cost of \$3,518,290, and OWNER agrees to do the relocation work as set forth in Notice to Owner No. 24939, dated August 8, 2019.

Utility Agreement No. 24939

**NOW THEREFORE**, it is agreed between RCTC and OWNER as follows:

1. Within 30 days of RCTC'S execution of this Agreement, RCTC shall advance Owner 82.79% of the estimated cost of relocation, which advance shall be \$3,518,290, which includes the estimated ITCCA tax.
2. OWNER shall relocate OWNER'S facilities in accordance with Notice to Owner No. 24939, dated August 8, 2019.
3. In signing this Agreement, neither RCTC nor OWNER diminishes its position, waives any of its rights or accepts liability.
4. RCTC and OWNER reserve the right to have such liability resolved by future negotiations or by an action in a court of competent jurisdiction pursuant to the provisions of Section 706 of the Streets and Highways Code.
5. OWNER agrees to perform the herein-described work with its own forces or by the OWNER'S contractor and to provide and furnish all necessary labor, materials, tools and equipment required therefore, and to prosecute said work diligently to completion.
6. It is understood and agreed that the RCTC will not pay for any betterment or increase in capacity of OWNER'S facilities in the new location and that OWNER shall give credit to the RCTC for all accrued depreciation on the replaced facilities and for the salvage value of any material or parts salvaged and retained or sold by OWNER.
7. OWNER shall submit a Notice of Completion to the RCTC within 30 days of the completion of the work described herein.
8. It is understood that said highway is a Federal Aid Highway and, accordingly, 23 CFR 645 is hereby incorporated into this Agreement by reference; provided, however, that the provisions of any agreements entered into between the RCTC and OWNER pursuant to State law for apportioning the obligations and costs to be borne by each, or the use of accounting procedures prescribed by the applicable Federal or State regulatory body and approved by the Federal Highway Administration, shall govern in lieu of the requirements of said 23 CFR 645.



Utility Agreement No. 24939

THE ESTIMATED COST TO RCTC FOR THE ABOVE DESCRIBED WORK IS \$3,518,290.

**IN WITNESS WHEREOF**, the parties hereto have executed this Utilities Agreement this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

RIVERSIDE COUNTY TRANSPORTATION  
COMMISSION

By \_\_\_\_\_  
Anne Mayer Date  
Executive Director

SOUTHERN CALIFORNIA GAS COMPANY:

By \_\_\_\_\_  
Title Date

APPROVAL AS TO FORM:  
**BEST, BEST & KRIEGER LLP**

APPROVAL RECOMMENDED:

By \_\_\_\_\_  
Steven C. DeBaun Date  
General Counsel

By \_\_\_\_\_  
Nicole DePuy Date  
Utility Coordinator

**EXHIBIT "C"**  
**COMPENSATION SUMMARY<sup>1</sup>**

FIRM	PROJECT TASKS/ROLE	COST
<i>Prime Consultant:</i>		
Southern California Gas	Utility Relocation	\$ 3,518,290.00
<b>SUBTOTAL</b>		<b>3,518,290.00</b>
<b>OTHER DIRECT COSTS</b>		-
<b>TOTAL COSTS</b>		<b>\$ 3,518,290.00</b>

<sup>1</sup> Commission authorization pertains to total contract award amount. Compensation adjustments between consultants may occur; however, the maximum total compensation authorized may not be exceeded.

# **AGENDA ITEM 8**



<b>RIVERSIDE COUNTY TRANSPORTATION COMMISSION</b>	
<b>DATE:</b>	September 23, 2019
<b>TO:</b>	Western Riverside County Programs and Projects Committee
<b>FROM:</b>	Shirley Medina, Planning and Programming Director
<b>THROUGH:</b>	John Standiford, Deputy Executive Director
<b>SUBJECT:</b>	City of Wildomar Funding Request for Construction of Bundy Canyon Road Widening Project

**STAFF AND TECHNICAL ADVISORY COMMITTEE RECOMMENDATION:**

This item is for the Committee to:

- 1) Approve programming \$3,516,000 of Measure A Regional Arterial (MARA) funds for the city of Wildomar’s Bundy Canyon Road Widening – Segment 1 project;
- 2) Approve Agreement No. 20-72-011-00 between the Commission and the city of Wildomar for the programming of \$3,516,000 of MARA for the construction phase of the Bundy Canyon Road Widening - Segment 1 project;
- 3) Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreement; and
- 4) Forward to the Commission for final action.

**BACKGROUND INFORMATION:**

The city of Wildomar (Wildomar) is requesting \$3,516,000 to construct the widening of Bundy Canyon Road – Segment 1 in FYs 2019/20 and 2020/21. Bundy Canyon Road is an east-west regional arterial in southwestern Riverside County. The city of Menifee and the County of Riverside are currently constructing the I-215/Scott Road Interchange, which is the eastern limit of Bundy Canyon Road.

Wildomar has been working on project development activities to widen Bundy Canyon Road from two to four lanes between I-215 and I-15. Wildomar has split the project into three segments. Segment 1 is from Cherry Street to the Riverside County Flood Control and Water Conservation District’s flood control channel just east of Oak Canyon Drive. The environmental document for all three segments is complete. Design work is 98 percent complete and right of way is 90 percent complete. Construction for Segment 1 is scheduled to start in FY 2019/20.

Transportation Uniform Mitigation Fee (TUMF) Zone program funds have been programmed for project development work for all three segments in addition to city funds. The total cost for Segments 1 through 3 is estimated at \$40 million. Segment 1 construction costs are estimated at \$7.9 million, and the amount of funding needed to complete Segment 1 is \$3,516,000.

Widening Bundy Canyon Road will improve regional east-west travel, reduce traffic congestion and complement the I-215/Scott Road Interchange project. Wildomar’s strategy to segment the project is an effective strategy to deliver and fund larger projects. In addition, Wildomar has committed local funds and maximized TUMF Zone funds to get the project ready for construction. Since the project is not federalized, staff recommends programming MARA funds to complete the construction funding gap on Segment 1 as Bundy Canyon Road is a regional arterial that qualifies for MARA funding.

The project is planned to be advertised and awarded in spring 2020. If approved, MARA funds for the Bundy Canyon Road Widening – Segment 1 project would be budgeted in the Commission’s FY 2020/21 budget.

Financial Information					
In Fiscal Year Budget:	N/A	Year:	FY 2020/21	Amount:	\$3,516,000
Source of Funds:	Measure A Western County Regional Arterial funds			Budget Adjustment:	N/A
GL/Project Accounting No.:	005209 81301 266 72 81301			\$3,516,000	
Fiscal Procedures Approved:	<i>Theresa Trevino</i>			Date:	09/16/2019

Attachment: August 20, 2019 Letter from City of Wildomar

Marsha Swanson, Mayor, Dist. 5  
Dustin Nigg, Mayor Pro Tem, Dist. 2  
Ben J. Benoit, Council Member, Dist. 1  
Bridgette Moore, Council Member, Dist. 4  
Joseph Morabito, Council Member, Dist. 3



23873 Clinton Keith Rd, Ste 201  
Wildomar, CA 92595  
951/677-7751 Phone  
951/698-1463 Fax  
www.CityofWildomar.org

August 20, 2019

Anne Mayer  
Executive Director  
Riverside County Transportation Commission  
4080 Lemon St. 3rd Fl.  
Riverside, CA 92502

Subject: Request Construction Funds for Bundy Canyon Road Widening – Segment 1

Dear Ms. Mayer,

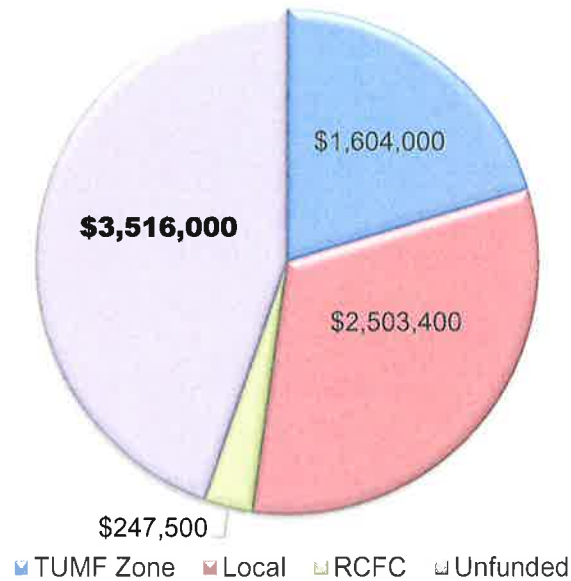
This letter serves as the City of Wildomar requesting the Riverside County Transportation Commission (RCTC) to provide \$3.5 million construction funding for Segment 1 of the Bundy Canyon Road Widening Project.

Bundy Canyon/Scott Road serves Southwest Riverside County as a Regional Arterial connecting I-215 in the City of Menifee (Scott Road) and I-15 in the City of Wildomar (Bundy Canyon). Bundy Canyon/Scott Road is currently a 2-lane road. The road segment was identified as a 6-lane facility in the Riverside County Integrated Plan (RCIP); subsequently adopted as a 6-lane facility in both cities' General Plan; and, was included in the Western Riverside Council of Government's (WRCOG's) Transportation Uniform Mitigation Fee (TUMF) program. In 2018, WRCOG further identified Bundy Canyon/Scott as local route with Regional Significance in the region's Active Transportation Plan. The City of Menifee is currently constructing the Scott/I-215 interchange and commencing design for the road widening. The City of Wildomar will commence the Project Study Report to improve the Bundy/I-15 interchange in FY21/22.

Improving Bundy Canyon has been a top community priority because of increased traffic volumes and fatality collisions. Therefore, the City of Wildomar has completed all phases to widen Bundy Canyon to 4-lanes in preparation to advertise for construction bids. The Environmental Impact Report has been certified. The Ultimate Right of Way has been designed to accommodate 6-lanes. The plans, specifications and estimate to widen Bundy Canyon to 4-lanes for Segments 1-3 is complete. The Right of Way, Slope Easements, Temporary Construction Easements and Rights of Entry for Segment 1 has been acquired. Right of Way acquisition for Segment 2 is nearing completion. A memorandum of understanding and resolution to form a financing district, secure right of way, and construct improvements for Segment 3 has been executed with a land developer. Construction of Segment 3 is scheduled to commence in FY 20/21.

The total cost to widen Bundy Canyon Segments 1-3 from I-15 to the eastern city limits (at City of Menifee) is \$40 million. The City has spent or obligated \$10 million to date to ready the project for construction. The City adopted 5-year Capital Improvement Program

## Segment 1 Construction Costs



has segmented the project into three phases and has programmed elements within each phase to build forward the start of construction in FY 19/20. Eight detailed CIP Project Detail Sheets (attached) show the three segments and represent the build forward concept. Segment 1 construction related costs are \$7.9 million. The chart above depicts that amount of construction funds secured to date for Segment 1.

The City has worked closely with our regional partners (eg. RCTC, WRCOG, County, RCFC, SW Zone city agencies, local land developers) in the development of the Bundy Canyon project. The city has pursued various grants and will continue to pursue grant funding to complete Segment 2.

On behalf of the City of Wildomar, I respectfully request RCTC fund \$3,516,000 to construct the widening of Bundy Canyon Road – Segment 1 in Fiscal Year 19-20/20-21.

Sincerely,  
City of Wildomar

Gary Nordquist  
City Manager

Attached:  
CIP Project Detail Sheets



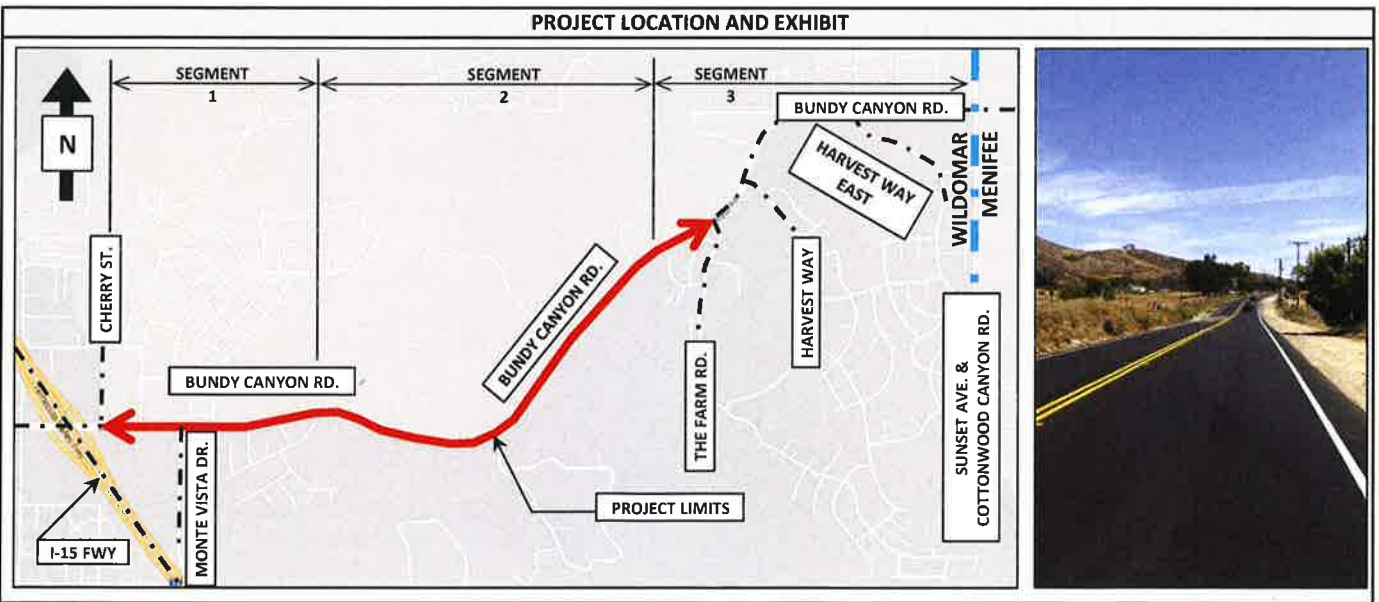
**CITY OF WILDOMAR**  
**CAPITAL IMPROVEMENT PROGRAM**  
 Fiscal Years 2019/2020 through 2023/2024  
 Project Detail Sheet

<b>PROJECT TITLE:</b>	Bundy Canyon Rd. Widening	<b>CIP NO.:</b>	026-1	<b>DEPARTMENT:</b>	Public Works	
<b>LOCATION:</b>	Cherry St. to 600' E/O The Farm Rd.	<b>CATEGORY:</b>	Trans. (Roads)	<b>MANAGER:</b>	Dan York	
<b>DESCRIPTION OF PROJECT</b>			<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>			
This project will widen and improve Bundy Canyon Rd. to four lanes for Segment 1 and Segment 2.			<b>Project Status and Type:</b>			Current Active Project
			<b>Project Dev.</b>	100%	Complete	
			<b>Design/PS&amp;E:</b>	98%	2016 - 2019	
			<b>Environmental:</b>	100%	Complete	
			<b>Right-of-Way:</b>	90%	2017/2018 - 2019	
			<b>Construction:</b>	0%	Winter 2020 - Summer 2022	

**JUSTIFICATION/SIGNIFICANCE OF PROJECT**  
 Bundy Canyon Rd. is a two lane regional arterial connecting I-215 in Menifee to I-15 in Wildomar. The regional circulation plan and the City circulation element classify Bundy Canyon Rd. as a four lane Arteial Highway to provide the additional travel lanes required to accomadate traffic volumes.

PROJECT BUDGET							
PROJECT PHASE/TASK	ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total	
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24		
Project Admin/Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Prelim Eng/Project Development	-	-	-	-	-	-	
Design/PS&E	-	-	-	-	-	-	
Environmental	-	-	-	-	-	-	
Right-of-Way	-	-	-	-	-	-	
Construction	2,256,650	2,256,650	9,578,700	-	-	14,092,000	
Construction Admin/Inspection	225,650	225,650	957,900	-	-	1,409,200	
<b>Total Project Specific Cost:</b>	<b>\$ 2,482,300</b>	<b>\$ 2,482,300</b>	<b>\$ 10,536,600</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 15,501,200</b>	
<b>FUNDING SOURCE(S)</b>							
503 - TUMF	\$ 802,000	\$ 802,000	\$ 3,895,500	\$ -	\$ -	\$ 5,499,500	
120 - Measure AA	150,000	150,000	-	-	-	\$ 300,000	
440 - DIF Roads	-	-	-	-	-	-	
Unfunded	1,530,300	1,530,300	6,641,100	-	-	9,701,700	

**COMMENTS**  
 Segment 3 to be improved by TR 36388. Developer eligible for TUMF and DIF credit/reimbursement.



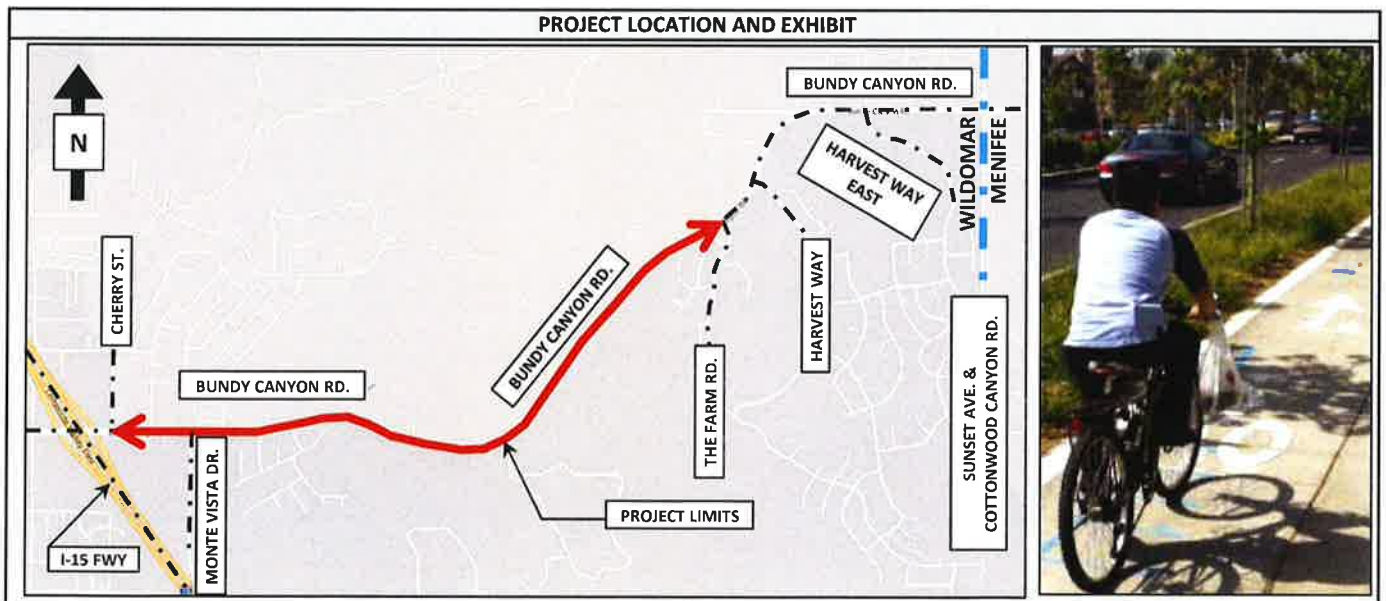
**CITY OF WILDOMAR**  
**CAPITAL IMPROVEMENT PROGRAM**  
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 Project Detail Sheet

<b>PROJECT TITLE:</b>	Bundy Canyon Rd. Active Transportation Corridor	<b>CIP NO.:</b>	026-2	<b>DEPARTMENT:</b>	Public Works
<b>LOCATION:</b>	Cherry St. to 600' E/O The Farm Rd.	<b>CATEGORY:</b>	Trails	<b>MANAGER:</b>	Dan York
<b>DESCRIPTION OF PROJECT</b>			<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>		
This project includes a 2.2 mile long, 15-foot wide Class I shared Bike and Pedestrian Path (separated from the roadway), Lighting, Wood and Rope Barrier, and CA MUTCD Signage.			<b>Project Status and Type:</b>		Current Active Project
			<b>Project Dev.</b>	100%	Complete
			<b>Design/PS&amp;E:</b>	100%	Complete
			<b>Environmental:</b>	100%	Complete
			<b>Right-of-Way:</b>	100%	Complete
			<b>Construction:</b>	0%	Summer 2021 - Winter 2021

**JUSTIFICATION/SIGNIFICANCE OF PROJECT**  
 This project provides an "active transportation corridor" that will increase safety, increase walking and biking, reduce vehicle miles traveled and Greenhouse Gas emissions, and connect to local and regional trail/non-motorized infrastructure systems.

<b>PROJECT BUDGET</b>							
PROJECT PHASE/TASK	ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total	
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24		
Project Admin/Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Prelim Eng/Project Development	-	-	-	-	-	-	
Design/PS&E	-	-	-	-	-	-	
Environmental	-	-	-	-	-	-	
Right-of-Way	-	-	-	-	-	-	
Construction	-	-	5,072,000	-	-	5,072,000	
Construction Admin/Inspection	-	-	507,200	-	-	507,200	
<b>Total Project Specific Cost:</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 5,579,200</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 5,579,200</b>	
<b>FUNDING SOURCE(S)</b>							
Unfunded, Grants, TBD	\$ -	\$ -	\$ 4,514,200	\$ -	\$ -	\$ 4,514,200	
503 - TUMF	-	-	771,000	-	-	771,000	
480 - DIF Trails	-	-	294,000	-	-	294,000	

**COMMENTS**  
 Planned to be constructed with the Bundy Canyon Rd. widening project (CIP 026-1).



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<b>PROJECT TITLE:</b>	Bundy Canyon Rd. Widening - Line F Extension	<b>CIP NO.:</b>	039	<b>DEPARTMENT:</b>	Public Works
<b>LOCATION:</b>	Sellers Rd. to I-15 Freeway	<b>CATEGORY:</b>	Drainage	<b>MANAGER:</b>	Dan York
<b>DESCRIPTION OF PROJECT</b>		<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>			
This project will install underground storm drainage pipes and appurtenances.		<b>Project Status and Type:</b>		Current Active Project	
		<b>Project Dev.</b>	100%	Complete	
		<b>Design/PS&amp;E:</b>	100%	Complete	
		<b>Environmental:</b>	100%	Complete	
		<b>Right-of-Way:</b>	100%	Complete	
		<b>Construction:</b>	0%	Winter 2019 - Summer 2021	

**JUSTIFICATION/SIGNIFICANCE OF PROJECT**  
 Riverside County Flood Control District's (RCFC) Line F outfalls to Bundy Canyon Rd. right-of-way at Sellers Rd. causing localized flooding on Bundy Canyon Rd. The improvements contain the storm water runoff in an underground piped system.

<b>PROJECT BUDGET</b>							
PROJECT PHASE/TASK	ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total	
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24		
Project Admin/Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Prelim Eng/Project Development	-	-	-	-	-	-	
Design/PS&E	-	-	-	-	-	-	
Environmental	-	-	-	-	-	-	
Right-of-Way	-	-	-	-	-	-	
Construction	222,550	222,550	-	-	-	445,100	
Construction Admin/Inspection	22,250	22,250	-	-	-	44,500	
<b>Total Project Specific Cost:</b>	<b>\$ 244,800</b>	<b>\$ 244,800</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 489,600</b>	
<b>FUNDING SOURCE(S)</b>							
502 - RCFC	\$ 123,750	\$ 123,750		\$ -	\$ -	\$ 247,500	
Dev. Cash-in-Lieu/Unfunded	121,050	121,050		-	-	242,100	

**COMMENTS**  
 RCFC Funding Agreement: 50% of original bid, 10% design contribution to offset City administrative costs, 5% to offset construction change orders, 5% to offset construction administration for an NTE (Not to Exceed) amount as listed in funding source. Line F is planned to be constructed with Segment 1 of the Bundy Canyon Rd. widening project (CIP 26-1).

**PROJECT LOCATION AND EXHIBIT**





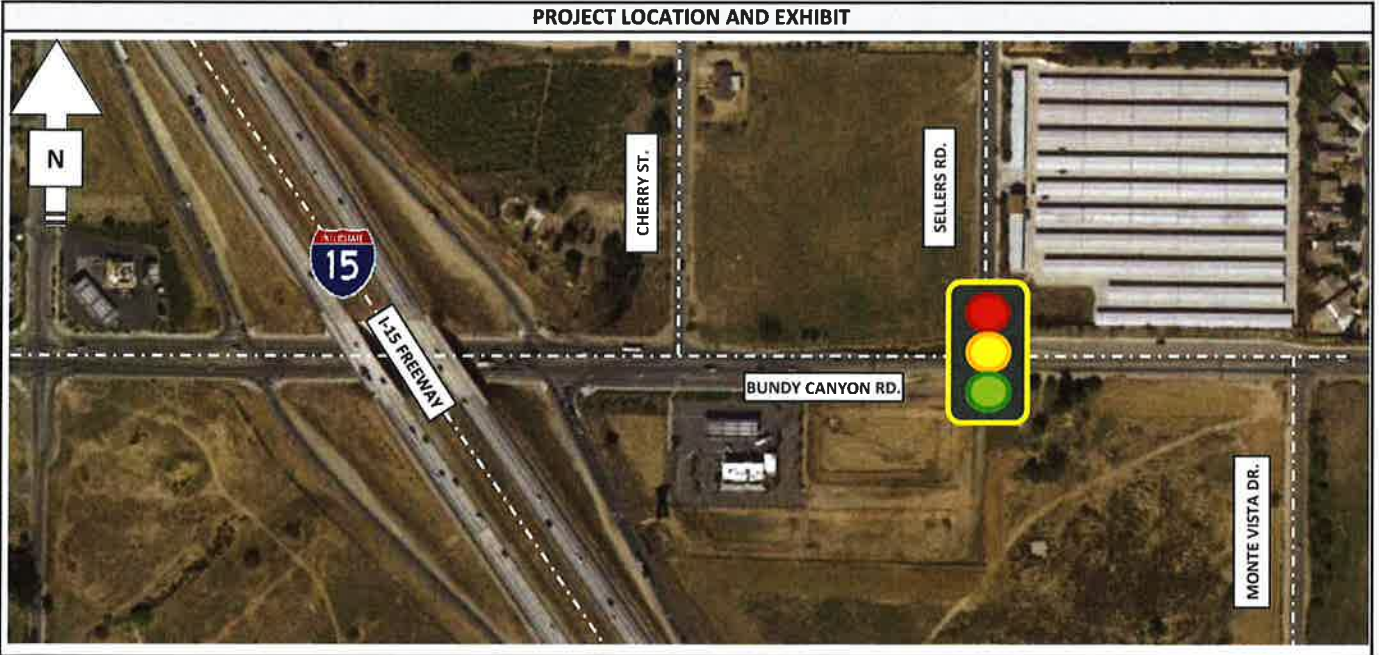
**CITY OF WILDOMAR**  
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<b>PROJECT TITLE:</b> Bundy Canyon Rd./I-15 Interchange (Project Study Report)		<b>CIP NO.:</b> F11	<b>DEPARTMENT:</b> Public Works				
<b>LOCATION:</b> Bundy Canyon Rd. and I-15 Freeway		<b>CATEGORY:</b> Trans. (Roads)	<b>MANAGER:</b> Unassigned				
<b>DESCRIPTION OF PROJECT</b>		<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>					
This project will prepare a Project Study Report for improvement of the Bundy Canyon Rd. and I-15 interchange.		<b>Project Status and Type:</b>		Future Project			
		<b>Project Dev.</b>	0%	Summer 2021 - Summer 2022			
		<b>Design/PS&amp;E:</b>	N/A	N/A			
		<b>Environmental:</b>	N/A	N/A			
		<b>Right-of-Way:</b>	N/A	N/A			
		<b>Construction:</b>	N/A	N/A			
<b>JUSTIFICATION/SIGNIFICANCE OF PROJECT</b>							
Increased traffic volumes will cause increased traffic congestion at the interchange and decrease the level of service. The study and report will determine at what level of traffic volumes this will occur and predict when it may occur. The study will look at alternative improvement scenarios to best handle the volumes and recommend an improvement concept. This will allow for project planning to implement the improvements on a timely basis.							
<b>PROJECT BUDGET</b>							
PROJECT PHASE/TASK		ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total
		FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Project Admin/Management		\$ -	\$ -	\$ 60,000	\$ -	\$ -	\$ 60,000
Prelim Eng/Project Development		-	-	1,170,000	-	-	1,170,000
Design/PS&E		-	-	-	-	-	-
Environmental		-	-	-	-	-	-
Right-of-Way		-	-	-	-	-	-
Construction		-	-	-	-	-	-
Construction Admin/Inspection		-	-	-	-	-	-
<b>Total Project Specific Cost:</b>		\$ -	\$ -	\$ 1,230,000	\$ -	\$ -	\$ 1,230,000
<b>FUNDING SOURCE(S)</b>							
503 - TUMF		\$ -	-	\$ 1,230,000	\$ -	\$ -	\$ 1,230,000
		-	-	-	-	-	-
<b>COMMENTS</b>							



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<b>PROJECT TITLE:</b> Bundy Canyon Rd./Sellers Rd. Traffic Signal		<b>CIP NO.:</b> F12	<b>DEPARTMENT:</b> Public Works			
<b>LOCATION:</b> Bundy Canyon Rd. and Sellers Rd.		<b>CATEGORY:</b> Trans. (Signals)	<b>MANAGER:</b> Dan York			
<b>DESCRIPTION OF PROJECT</b>		<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>				
This project will install a new traffic signal and appurtenant intersection improvements to match the profile of the Bundy Canyon Rd. Widening (CIP 026-1).		<b>Project Status and Type:</b> Current Active Project				
		<b>Project Dev.</b>	100%	Complete		
		<b>Design/PS&amp;E:</b>	100%	Complete		
		<b>Environmental:</b>	100%	Complete		
		<b>Right-of-Way:</b>	100%	Complete		
		<b>Construction:</b>	0%	Winter 2019 - Summer 2021		
<b>JUSTIFICATION/SIGNIFICANCE OF PROJECT</b>						
- Traffic Signal Warrants - Consistent with Circulation Element ultimate Improvements - Planned to be constructed with Bundy Canyon Rd. widening project, Segment 1 (CIP 026-1).						
<b>PROJECT BUDGET</b>						
PROJECT PHASE/TASK	ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total
	FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Project Admin/Management	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Prelim Eng/Project Development	-	-	-	-	-	-
Design/PS&E	-	-	-	-	-	-
Environmental	-	-	-	-	-	-
Right-of-Way	-	-	-	-	-	-
Construction	721,950	721,950	-	-	-	1,443,900
Construction Admin/Inspection	72,200	72,200	-	-	-	144,400
<b>Total Project Specific Cost:</b>	<b>\$ 794,150</b>	<b>\$ 794,150</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 1,588,300</b>
<b>FUNDING SOURCE(S)</b>						
440 - DIF Roads	\$ 563,000	\$ 563,000	-	\$ -	\$ -	\$ 1,126,000
450 - DIF Signals	124,500	124,500	-	-	-	249,000
Dev. Cash-in-Lieu/Unfunded	106,650	106,650	-	-	-	213,300
<b>COMMENTS</b>						
Developer In-Lieu funding are mitigation measures in addition to DIF impacts and will supplement/offset listed funding sources.						





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<b>PROJECT TITLE:</b> Bundy Canyon Rd./Monte Vista Dr. Traffic Signal		<b>CIP NO.:</b> F13	<b>DEPARTMENT:</b> Public Works				
<b>LOCATION:</b> Bundy Canyon Rd. and Monte Vista Dr.		<b>CATEGORY:</b> Trans. (Signals)	<b>MANAGER:</b> Dan York				
<b>DESCRIPTION OF PROJECT</b>		<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>					
This project will install a new traffic signal and appurtenant intersection improvements to match the profile of the Bundy Canyon Rd. Widening (CIP 026-1).		<b>Project Status and Type:</b>		Current Active Project			
		<b>Project Dev.</b>	100%	Complete			
		<b>Design/PS&amp;E:</b>	100%	Complete			
		<b>Environmental:</b>	100%	Complete			
		<b>Right-of-Way:</b>	100%	Complete			
		<b>Construction:</b>	0%	Winter 2019 - Summer2021			
<b>JUSTIFICATION/SIGNIFICANCE OF PROJECT</b>							
<ul style="list-style-type: none"> <li>- Traffic Signal Warrants</li> <li>- Consistent with Circulation Element ultimate Improvements</li> <li>- Planned to be constructed with Bundy Canyon Rd. widening project, Segment 1 (CIP 026-1).</li> </ul>							
<b>PROJECT BUDGET</b>							
PROJECT PHASE/TASK		ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total
		FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Project Admin/Management		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Prelim Eng/Project Development		-	-	-	-	-	-
Design/PS&E		-	-	-	-	-	-
Environmental		-	-	-	-	-	-
Right-of-Way		-	-	-	-	-	-
Construction		376,550	376,550	-	-	-	753,100
Construction Admin/Inspection		37,650	37,650	-	-	-	75,300
<b>Total Project Specific Cost:</b>		<b>\$ 414,200</b>	<b>\$ 414,200</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 828,400</b>
<b>FUNDING SOURCE(S)</b>							
440 - DIF Roads		303,200	303,200	-	-	-	606,400
450 - DIF Signals		111,000	111,000	-	-	-	222,000
Developer Cash-in-Lieu		TBD	TBD	-	-	-	-
<b>COMMENTS</b>							
Developer In-Lieu funding are mitigation measures in addition to DIF impacts and will supplement/offset listed funding sources.							



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 Project Detail Sheet

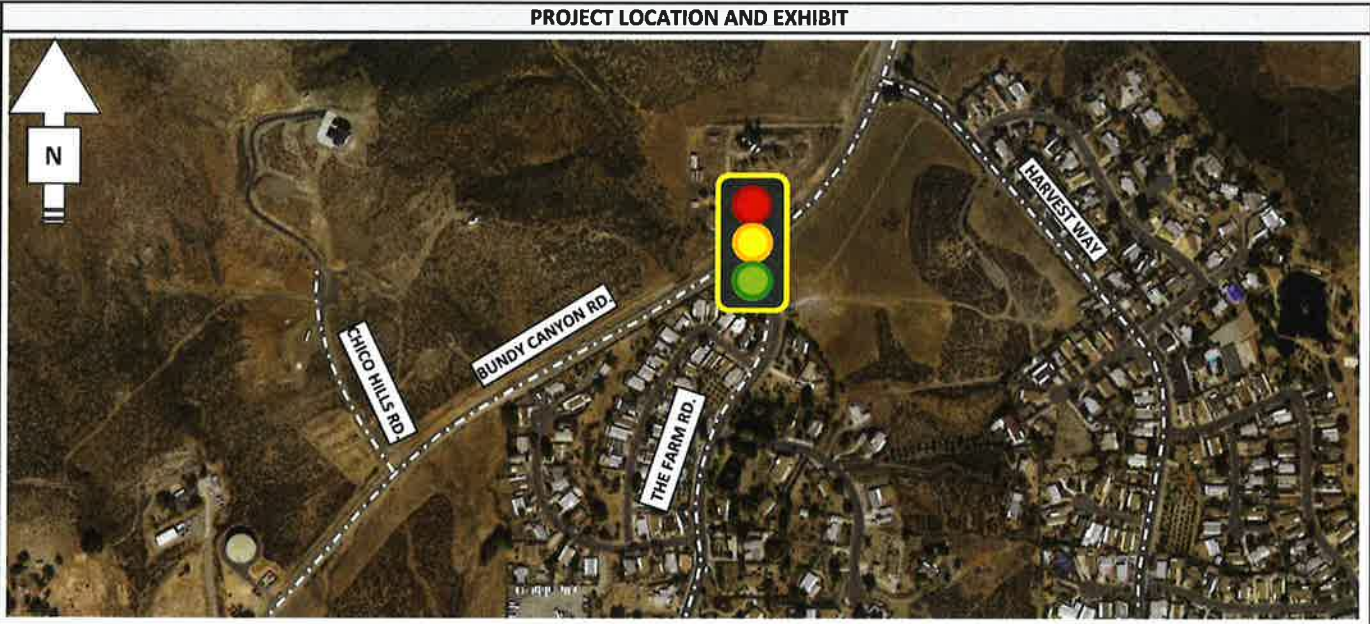
<b>PROJECT TITLE:</b> Bundy Canyon Rd./Oak Circle Dr. Traffic Signal		<b>CIP NO.:</b> F14	<b>DEPARTMENT:</b> Public Works				
<b>LOCATION:</b> Bundy Canyon Rd. and Oak Circle Dr.		<b>CATEGORY:</b> Trans. (Signals)	<b>MANAGER:</b> Dan York				
<b>DESCRIPTION OF PROJECT</b>		<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>					
This project will install a new traffic signal and appurtenant intersection improvements to match the profile of the Bundy Canyon Rd. Widening (CIP 026-1).		<b>Project Status and Type:</b>		Current Active Project			
		<b>Project Dev.</b>	100%	Complete			
		<b>Design/PS&amp;E:</b>	100%	Complete			
		<b>Environmental:</b>	100%	Complete			
		<b>Right-of-Way:</b>	100%	Complete			
		<b>Construction:</b>	0%	Winter 2020 - Summer 2022			
<b>JUSTIFICATION/SIGNIFICANCE OF PROJECT</b>							
- Traffic Signal Warrants - Consistent with Circulation Element ultimate Improvements - Planned to be constructed with Bundy Canyon Rd. widening project, Segment 2 (CIP 026-1).							
<b>PROJECT BUDGET</b>							
PROJECT PHASE/TASK		ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total
		FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Project Admin/Management		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Prelim Eng/Project Development		-	-	-	-	-	-
Design/PS&E		-	-	-	-	-	-
Environmental		-	-	-	-	-	-
Right-of-Way		-	-	-	-	-	-
Construction		-	-	250,000	-	-	250,000
Construction Admin/Inspection		-	-	25,000	-	-	25,000
<b>Total Project Specific Cost:</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ 275,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 275,000</b>
<b>FUNDING SOURCE(S)</b>							
201 - Measure A		\$ -	\$ -	\$ 25,000	\$ -	\$ -	\$ 25,000
Unfunded (Developer, Other)		-	-	250,000	-	-	250,000
<b>COMMENTS</b>							
The signal location is not part of the City DIF program. The improvements are associated with Bundy Canyon Rd. Widening (CIP 026-1). The signal is not eligible for TUMF reimbursement.							





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<b>PROJECT TITLE:</b> Bundy Canyon Rd./The Farm Rd. Traffic Signal Modification	<b>CIP NO.:</b>	F15	<b>DEPARTMENT:</b>	Public Works			
<b>LOCATION:</b> Bundy Canyon Rd. and The Farm Rd.	<b>CATEGORY:</b>	Trans. (Signals)	<b>MANAGER:</b>	Dan York			
<b>DESCRIPTION OF PROJECT</b>		<b>PROJECT PHASES, % COMPLETE, AND SCHEDULE</b>					
This project will modify the existing signal to the ultimate configuration and will install appurtenant intersection improvements to match the profile of the Bundy Canyon Rd. Widening (CIP 026-1).		<b>Project Status and Type:</b>		Current Active Project			
		<b>Project Dev.</b>	100%	Complete			
		<b>Design/PS&amp;E:</b>	100%	Complete			
		<b>Environmental:</b>	100%	Complete			
		<b>Right-of-Way:</b>	100%	Complete			
		<b>Construction:</b>	0%	Winter 2020 - Summer 2022			
<b>JUSTIFICATION/SIGNIFICANCE OF PROJECT</b>							
<ul style="list-style-type: none"> <li>- Traffic Signal Warrants</li> <li>- Consistent with Circulation Element ultimate Improvements</li> <li>- Planned to be constructed with Bundy Canyon Rd. widening project, Segment 3 (CIP 026-1) or development of Tract 36388.</li> </ul>							
<b>PROJECT BUDGET</b>							
PROJECT PHASE/TASK		ADOPTED BUDGET		PROJECTED BUDGET			5-Year Total
		FY 19/20	FY 20/21	FY 21/22	FY 22/23	FY 23/24	
Project Admin/Management		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Prelim Eng/Project Development		-	-	-	-	-	-
Design/PS&E		-	-	-	-	-	-
Environmental		-	-	-	-	-	-
Right-of-Way		-	-	-	-	-	-
Construction		-	-	250,000	-	-	250,000
Construction Admin/Inspection		-	-	25,000	-	-	25,000
<b>Total Project Specific Cost:</b>		<b>\$ -</b>	<b>\$ -</b>	<b>\$ 275,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 275,000</b>
<b>FUNDING SOURCE(S)</b>							
201 - Measure A		\$ -	\$ -	\$ 25,000	\$ -	\$ -	\$ 25,000
440 - DIF Roads		-	-	139,000	-	-	139,000
450 - DIF Signals		-	-	111,000	-	-	111,000
Developer or Cash-in-Lieu		-	-	\$ TBD	-	-	-
<b>COMMENTS</b>							
The ultimate intersection and traffic signal modification will be constructed by either the developer or City. A developer build is eligible for DIF credit/reimbursement.							





# **AGENDA ITEM 9**



**RIVERSIDE COUNTY TRANSPORTATION COMMISSION**

<b>DATE:</b>	September 23, 2019
<b>TO:</b>	Western Riverside County Programs and Projects Committee
<b>FROM:</b>	Sheldon Peterson, Rail Manager
<b>THROUGH:</b>	Lorelle Moe-Luna, Multimodal Services Director
<b>SUBJECT:</b>	Next Generation Rail Corridors Analysis Report

**STAFF RECOMMENDATION:**

This item is for the Committee to:

- 1) Accept the Next Generation Rail Corridors Analysis Report; and
- 2) Forward to the Commission for final action.

**BACKGROUND INFORMATION:**

In January 2016, the Commission approved the final recommendations from the 2016 RCTC Strategic Assessment, including direction to staff to conduct a Next Generation Rail Study (Study). This Study serves as one of the modal “building blocks” for an overall Riverside County Long Range Transportation Study and will help the Commission develop a path forward for improving high-capacity regional rail and transit in the county.

The study was initiated in early 2017 with HDR as the consultant supporting the effort. The objective of the Study is to review previously identified high-capacity transit corridors, identify potential new corridors, prioritize potential future rail corridors for proceeding into project development, and develop additional information and data needed to initiate planning for the high priority corridors. The goal is also to identify what the best next step would be after the Perris Valley Line Metrolink Extension opened in 2016. The Study includes two tasks:

Task 1: Corridors Analysis Report – identifies corridors to be evaluated and technology options available; recommends priority corridors for potential future rail extension and further detailed analysis.

Task 2: Detailed Analysis of Priority Corridors – defines the corridors in more detail including ridership estimates and capital and operating costs, a cost-effectiveness analysis, and air quality impacts.

## Next Generation Rail Corridors Analysis Report

The purpose of this report is to document the process used to identify and evaluate potential future regional transit corridors and to present the resulting recommendation of corridors to be planned for future extensions of the regional rail system. The steps of the process are identified below.



Through the initial screening process, several regional transit and rail corridors were identified as potential future options.

- Coachella Valley Rail – Los Angeles to Indio
- Rail Extension – Perris to Temecula
- Rail Extension – Perris to Hemet/San Jacinto
- Rail Extension – Corona to Temecula
- Rail Extension – Temecula to San Diego
- Express Bus – San Jacinto to Banning/Beaumont
- Express Bus – Lake Elsinore to Perris

In addition to the corridors, there was an evaluation of the transportation technology options that might be available and could potentially provide the most public benefit. The various options included:

- Express Bus – Limited Stops/Longer Distances
- Bus Rapid Transit – High Density/High Frequency corridors
- Light Rail Transit – Electric Exclusive Right of Way/High Demand/High Frequencies
- Diesel Multiple Units (DMU) – Shared Rail Right of Way/High Demand
- Commuter Rail – Longer Train/Longer Distances
- Intercity Rail – Regional Service travels further than traditional commuter service.

The potential corridors were analyzed with an initial screening using high level evaluation criteria that reviewed the big picture opportunities, which included corridor right of way (ROW), property issues, population and employment density. Several of the corridors initially identified would be good candidates for Intercity Rail or Express Bus alternatives. However, the balance of the study focused on options that would be good for commuter rail or DMU services; therefore, the San Jacinto to Banning/Beaumont and Lake Elsinore to Perris corridors were excluded for further evaluation because it was deemed more appropriate for express bus service. Three corridors

(Indio to Los Angeles; Corona to Temecula; Temecula to San Diego) that would be appropriate for rail technology were not recommended for further evaluation for the following reasons:

- Indio to Los Angeles (via Fullerton and Riverside) corridor was removed because the planning process for developing this corridor is underway in the Coachella Valley-San Geronimo Pass Rail Corridor Development Plan and Environmental Impact Report/Environmental Impact Statement.
- Corona to Temecula corridor was recommended to be scaled back to Corona to Lake Elsinore for further analysis because of ROW challenges and lack of good alignment for the full corridor. The full corridor could still be evaluated in future studies.
- Temecula to San Diego corridor was removed for further evaluation because the majority of the corridor is outside of the county limits and the corridor remains part of the future proposed High-Speed Rail alignment between Los Angeles to San Diego via the Inland Empire.

The most viable corridors were narrowed down to the following options: Perris to Temecula, Perris to San Jacinto, and Corona to Lake Elsinore. The evaluation process for the three remaining corridors addressed the following criteria:

- Demographics (2012 & 2040)
- Travel Demand
- Highway Congestion(2012 & 2040)
- Land Use Intensities
- Corridor Length
- ROW Availability
- Capital Costs
- Operations and Maintenance (O&M) Costs
- Potential Number of Stations
- Number of Stations per mile
- Operating Speed
- Travel Time
- Integration
- Ridership
- Transit Accessibility
- Connectivity
- Greenhouse Gas (GHG) and Emissions Reduction
- Cost Effectiveness
- Environmental Fatal Flaws
- Part of an Adopted Plan
- Public or Political Perception
- Safety

In October 2018, staff and the consultant team conducted a series of stakeholder meetings in Perris and Lake Elsinore that provided high level overviews of these three potential alignments. These meetings were well attended and comments were received from city staff, Metrolink, Riverside Transit Agency, Riverside County and other regional partners. In addition, a presentation was provided to the Commission's September 17, 2018 Technical Advisory Committee to solicit comments and suggestions.

### ***Key Findings***

The comprehensive analysis identified several factors where certain alignments demonstrated advantages in comparison to others. For example, the Perris to Temecula alignment appeared

to have the most ridership potential with higher travel demands and population closer to the alignment; however, there are concerns with capital costs and ROW availability. Perris to San Jacinto stands out for the existing and available Commission-owned ROW, strong political support and high growth potential, although it does show lower ridership and population densities. Corona to Lake Elsinore has extremely high travel demand and good connectivity, yet it has significant ROW challenges and high capital costs. The table below outlines the advantages and disadvantages of these options.

	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Extension to an existing transit system</li> <li>• Employment centers along the corridor</li> <li>• High travel demand along the corridor</li> <li>• Larger population within a 5-mile catchment area</li> <li>• Highest forecasted ridership</li> <li>• Greater GHG and emissions reductions</li> <li>• Included in an adopted plan</li> <li>• Political support</li> <li>• Greater potential reductions in vehicular accidents</li> </ul>	<ul style="list-style-type: none"> <li>• Extension to an existing transit system</li> <li>• Availability of rail ROW</li> <li>• Lowest capital cost per mile</li> <li>• Included in an adopted plan</li> <li>• Political support</li> <li>• Potential high growth corridor</li> </ul>	<ul style="list-style-type: none"> <li>• Highest travel demand along the corridor</li> <li>• Connectivity to multiple Metrolink lines (91/PVL and IEOC)</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Highest overall capital cost and cost per mile</li> <li>• Less connectivity to Metrolink lines (91/PVL only)</li> <li>• ROW needs to be acquired</li> </ul>	<ul style="list-style-type: none"> <li>• Low forecasted population and employment density along the corridor</li> <li>• Lack of employment centers along the corridor</li> <li>• Less connectivity to Metrolink lines (91/PVL only)</li> </ul>	<ul style="list-style-type: none"> <li>• Low forecasted population and employment density along the corridor</li> <li>• Lack of employment centers along the corridor</li> <li>• Lowest projected ridership</li> <li>• ROW needs to be acquired</li> <li>• Highest capital cost</li> <li>• Highest annual O&amp;M cost</li> <li>• Not included in adopted plan</li> </ul>

Based on the findings of this evaluation, all three corridors provide viable future opportunities for rail expansion and are recommended as priority corridors for continued planning. The corridors will also be included in the Long Range Transportation Study and the Southern California Association of Governments’ Regional Transportation Plan/Sustainable Communities Strategies 2020 Update. This will be especially true as regional population growth continues and the ability to expand freeways becomes more constrained.

**Next Steps**

Task 2 of the study is underway and includes further analysis of the next generation corridors that extend from the existing 91/Perris Valley Line to both Temecula and Hemet/San Jacinto. The expanded analysis would include more detailed efforts to define the projects and alignments.

The follow-up effort will develop a corridor description with Geographic Information Systems plan and profile exhibits, a ridership assessment based on industry standards, refined operating and capital costs estimates, a cost effectiveness review, air quality assessment, and a corridor implementation schedule. These details will be needed to prepare these projects for future grant and funding opportunities. The continuation of this study is included in the FY 2019/20 budget and is anticipated to be completed before summer 2020. Upon completion, staff will return to the Commission for an update and direction.

There is no financial impact for accepting the corridors analysis report.

Attachment: Task 1: Next Generation Rail Corridors Analysis Report







# Next Generation Rail Corridors Analysis: Task 1 Report

Next Generation Rail Study

*Riverside County Transportation Commission*  
September 11, 2019





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## Acronyms

AADT	Annual Average Daily Traffic
APTA	American Public Transportation Association
ATSF	Atchison, Topeka and Santa Fe Railway
BRT	bus rapid transit
DMU	diesel multiple unit
EMU	electric multiple unit
GHG	greenhouse gas
GIS	geographic information system
HOV	high-occupancy vehicle
IEOC	Inland Empire-Orange County Line
LAUS	Los Angeles Union Station
LRT	light rail transit
NCTD	North County Transit District
PVL	Perris Valley Line
RCTC	Riverside County Transportation Commission
ROW	right-of-way
RTA	Riverside Transit Agency
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SANDAG	San Diego Association of Governments
SBCTA	San Bernardino County Transportation Authority
SCAG	Southern California Association of Governments
SCORE	Southern California Optimized Rail Expansion
SCRRA	Southern California Regional Rail Authority
SJBL	San Jacinto Branch Line
UP	Union Pacific
VMT	vehicle miles travelled

# 1 Introduction

The Next Generation Rail Study was identified as a follow-up action in the 2016 Riverside County Transportation Commission (RCTC) Strategic Assessment effort that identified regional transportation needs and challenges. This study will serve as one of the modal “building blocks” for an overall Riverside County Long Range Transportation Study, and will provide guidance to assist the Commission in developing a path forward for improving high-capacity regional rail and transit in the county.

The objective of the Next Generation Rail Study is to review previously identified high-capacity transit corridors, identify potential new corridors, prioritize potential future rail corridors for proceeding into project development, and develop additional information and data needed to initiate planning for the high priority corridors. Although the purpose of this report is to identify corridors with the potential to support future rail lines, a future corridor alternatives analysis or environmental study would need to consider a range of transit modes.

The process taken in the development of this report is illustrated by the flow chart shown in Figure 1.

**Figure 1. Next Generation Rail & Transit Study Task 1 Process**



## 2 Identification of Potential Regional Transit Corridors

This section identifies all of the potential new regional transit corridors considered in this evaluation. These corridors represent the general travel paths of longer-distance trips through Riverside County or connecting Riverside County with adjacent counties. Potential future regional transit corridors are areas not currently served by high-capacity transit service, either bus or rail. These potential future transit corridors were identified from previous studies and consideration of future regional travel patterns.

### 2.1 Existing Transit Corridors and Service

While the focus of this study is on future corridors and service, it is important to first understand what service is existing so that future regional transit can build on and enhance current services. Current transit operators in Riverside County are identified in the bulleted list below. Table 1 lists and Figure 2 illustrates the existing corridors and services.

- **Metrolink** – Metrolink provides commuter rail service throughout Southern California, and is governed by the Southern California Regional Rail Authority (SCRRA), which is funded through a joint powers authority between the transportation commissions of Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties.
- **Amtrak** – Amtrak is a federally chartered corporation (with the federal government as majority stockholder) that provides passenger rail service throughout the country. Amtrak also provides Thruway intercity bus service to connect Amtrak train stations to areas not served by its railroads.
- **Greyhound** – Greyhound is the largest provider of intercity bus transportation in the nation. Greyhound is privately owned.
- **Riverside Transit Agency (RTA)** – RTA provides local and regional bus service throughout the western Riverside County region. RTA is governed by a board of directors comprised of elected officials from 18 cities in western Riverside County and four members of the County Board of Supervisors.
- **Pass Transit**– Pass Transit is operated by the Cities of Banning and Beaumont, and provides local and express bus service to the communities of Beaumont, Banning, Cherry Valley, Calimesa, and Cabazon.
- **SunLine Transit Agency** – SunLine Transit Agency provides bus service in the Coachella Valley area. SunLine is governed by a board of directors comprised of one county supervisor and elected officials from the nine cities of the Coachella Valley.



**Table 1. Existing Regional Rail/Transit Corridors**

Corridor	Alignment	Service Levels	Technologies/ Service Type
<b>Perris to Riverside</b>	Metrolink 91/Perris Valley Line, parallel to I-215	6 trains operated per weekday (WB) 6 trains operated per weekday (EB) No weekend service	Commuter Rail
<b>Riverside to Los Angeles</b>	Metrolink 91/Perris Valley Line, parallel to SR 91 via Fullerton	4 trains operated per weekday (WB) 5 trains operated per weekday (EB) 2 trains operated per weekend (WB) 2 trains operated per weekend (EB)	Commuter Rail
	Metrolink Riverside Line, from Riverside to Los Angeles via Ontario	6 trains operated per weekday (WB) 6 trains operated per weekday (EB) No weekend service	Commuter Rail
<b>San Bernardino to Riverside</b>	Metrolink Inland Empire – Orange County Line (IEOC Line), from San Bernardino to Riverside	4 trains operated per weekday (WB) 4 trains operated per weekday (EB) 2 trains operated per weekend (WB) 2 trains operated per weekend (EB)	Commuter Rail
<b>Riverside to Orange County / Oceanside</b>	Metrolink IEOC Line from Riverside to Orange County / Oceanside	8 trains operated per weekday (WB) 8 trains operated per weekday (EB) 2 trains operated per weekend (WB) 2 trains operated per weekend (EB)	Commuter Rail
<b>Los Angeles to New Orleans</b>	Amtrak Sunset Limited	3 round trips per week	Intercity Rail
<b>Los Angeles to Chicago</b>	Amtrak Southwest Chief	One daily round trip per day	Intercity Rail
<b>Fullerton to Palm Springs</b>	Amtrak Thruway between Fullerton, Riverside, Cabazon, Palm Springs Downtown, and Palm Springs Airport	One round trip per day, only connects passengers to Amtrak rail services	Intercity Bus
<b>Fullerton to Indio</b>	Amtrak Thruway between Fullerton, Riverside, Cabazon, Palm Springs Downtown, Palm Springs Airport, Palm Desert, La Quinta, Indio	One round trip per day, only connects passengers to Amtrak rail services	Intercity Bus
<b>Indio to Los Angeles</b>	Greyhound Bus direct service between Los Angeles and Indio. Some trips include stops in Riverside, San Bernardino, Banning, Palm Springs, and Perris.	9 weekday trips from Los Angeles to Indio 8 weekday trips from Indio to Los Angeles	Intercity Bus
<b>San Bernardino to Anaheim</b>	RTA CommuterLink Route 200 between San Bernardino – Riverside - Anaheim	15 AM trips and 20 PM trips per weekday 6 AM trips and 12 PM trips per weekend	Express Bus (CommuterLink)
<b>Temecula to Oceanside</b>	RTA CommuterLink Route 202 between Murrieta – Temecula – Oceanside	6 AM trips and 4 PM trips per weekday No weekend service	Express Bus (CommuterLink)
<b>Riverside to Montclair</b>	RTA CommuterLink Route 204 between Riverside and the Montclair Transit Center	8 AM trips and 10 PM trips per weekday No weekend service	Express Bus (CommuterLink)
<b>Temecula to Orange</b>	RTA CommuterLink Route 205/206 between Temecula – Murrieta – Lake Elsinore – Corona - Orange	12 AM trips and 14 PM trips per weekday No weekend service	Express Bus (CommuterLink)
<b>Temecula to Riverside</b>	RTA CommuterLink Route 208 between Temecula – Murrieta – Perris – Moreno Valley – Downtown Riverside	7 AM trips and 8 PM trips per weekday No weekend service	Express Bus (CommuterLink)
<b>Riverside to Palm Desert</b>	RTA CommuterLink Route 210/SunLine Route 220 between Riverside – Beaumont – Palm Desert	6 AM trips and 4 PM trips per weekday No weekend service	Express Bus (CommuterLink)
<b>San Jacinto to Riverside</b>	RTA CommuterLink Route 212 between San Jacinto – Hemet – Perris – Riverside	7 AM trips and 4 PM trips per weekday No weekend service	Express Bus (CommuterLink)

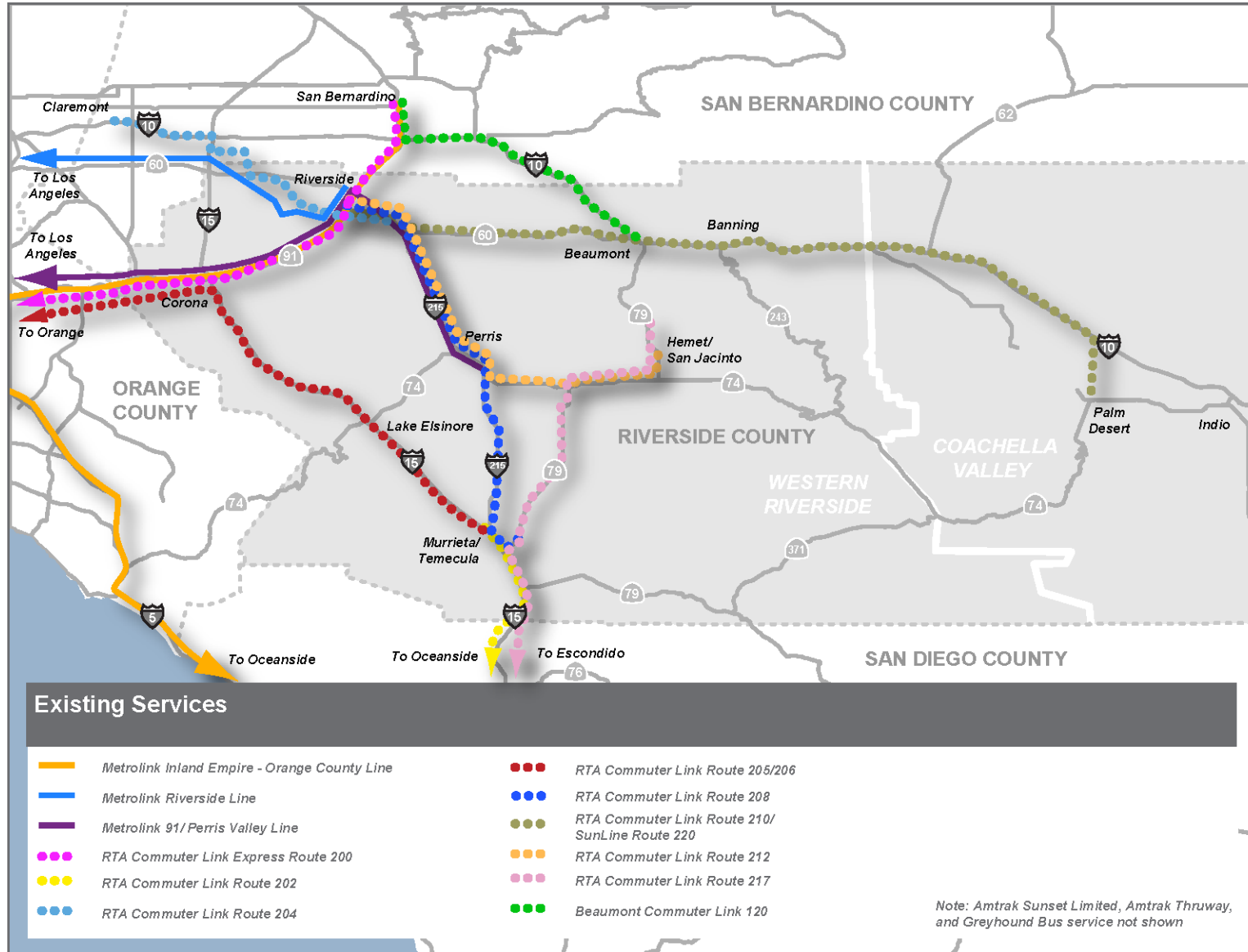




Corridor	Alignment	Service Levels	Technologies/ Service Type
<b>San Jacinto to Escondido</b>	RTA CommuterLink Route 217 between San Jacinto – Hemet – Temecula – Escondido	9 AM trips and 9 PM trips per weekday No weekend service	Express Bus (CommuterLink)
<b>Beaumont to San Bernardino</b>	Beaumont Pass Transit Commuter Link 120 between Beaumont – Calimesa – Loma Linda – San Bernardino	10 AM trips and 8 PM trips per weekday 4 AM trips and 6 PM trips per Saturday	Express Bus (CommuterLink)

Note: does not include express bus service operated by agencies outside Riverside County

Figure 2. Existing Regional Rail/Transit Service






## 2.2 Corridors Identified in Previous Studies

In order to compile a list of previously studied corridors and alignments, the team reviewed the following documents:

- RCTC Strategic Assessment and Technical Appendices (2016)
- Metrolink 10-year Strategic Plan 2015-2025
- Metrolink Short Range Transit Plan 2015-2020
- RCTC Commuter Rail Feasibility Studies (2005 and 2007)
- Riverside Transit Agency Comprehensive Operations Analysis (2015)
- Coachella Valley Rail Alternatives Analysis (2016)
- California State Rail Plan (2013)
- California High Speed Rail Business Plan (2016)
- Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (2016)
- Perris Valley Line Growth Study Market Assessment (2017)

Table 2 lists the 15 transit corridors identified in these studies. Color coding matches to the corridors shown on the map in Figure 3.

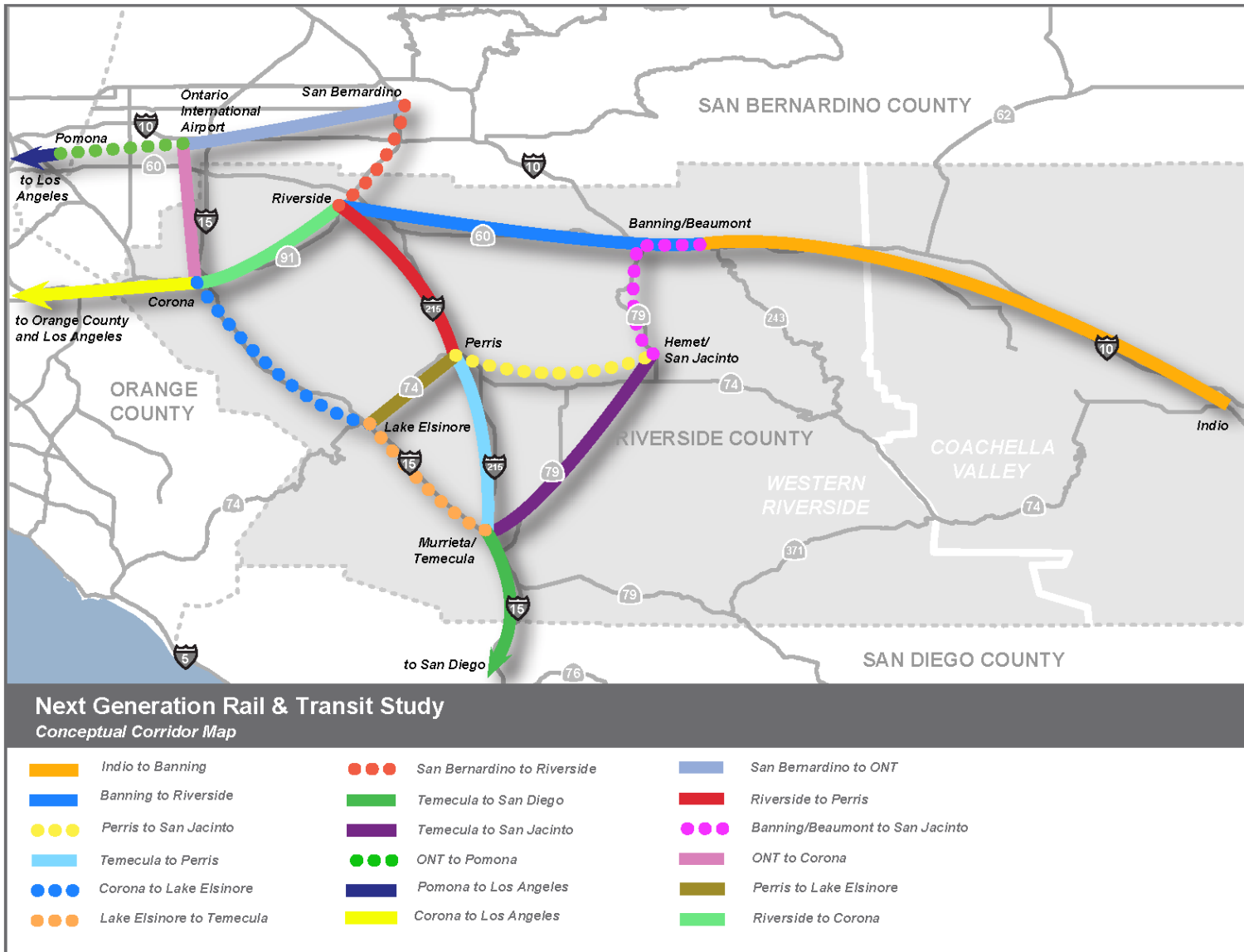
**Table 2. Regional Rail/Transit Corridors Identified in Previous Studies**

Corridor	Alignment	Technologies/ Service Type	Connection / Extension
 <b>Palm Springs to Indio/Coachella</b>	Along Highway 111, from Palm Springs to Indio/Coachella	BRT/Express Bus	Connections to: <ul style="list-style-type: none"> <li>• RTA CommuterLink Route 210/SunLine Route 220</li> </ul>
 <b>Indio to Riverside</b>	Via UP and BNSF railroad tracks	Commuter Rail	Connections to: <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• Riverside Line</li> <li>• 91/PVL Line</li> <li>• RTA CommuterLink                             <ul style="list-style-type: none"> <li>○ Route 200</li> <li>○ Route 208</li> <li>○ Route210/SunLine 220</li> <li>○ Route 212</li> </ul> </li> </ul>
 <b>Indio to Los Angeles (via Fullerton/Riverside)</b>	Uses UP Yuma Subdivision between Indio and Colton, then uses the BNSF San Bernardino Subdivision from Colton through Riverside and Fullerton to reach LAUS	Intercity Rail	Connections to: <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• Riverside Line</li> <li>• 91/PVL Line</li> </ul>

Corridor	Alignment	Technologies/ Service Type	Connection / Extension
<b>Banning to Riverside</b> 	Via UP and BNSF railroad tracks <hr/> Along SR 60	Commuter Rail <hr/> Express Bus	Connections to: <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• Riverside Line</li> <li>• 91/PVL Line</li> <li>• RTA CommuterLink                             <ul style="list-style-type: none"> <li>○ Route 200</li> <li>○ Route 208</li> <li>○ Route 210/SunLine 220</li> <li>○ Route 212</li> </ul> </li> </ul>
<b>Perris to San Jacinto</b> 	Via RCTC-owned San Jacinto Branch Line (SJBL) <hr/> Along SR 74 from Perris to Hemet	Commuter Rail or Intra-county Rail <hr/> Express Bus	Extends Perris Valley Line <hr/> Connections to: <ul style="list-style-type: none"> <li>• 91/PVL Line</li> <li>• RTA CommuterLink Route 208</li> </ul>
<b>Perris to Temecula</b> 	Via SJBL and an alignment paralleling Winchester Road <hr/> Via I-215 corridor	Commuter Rail or Intra-county Rail	Extends Perris Valley Line
<b>Riverside to Temecula</b> 	Along I-215	Express Bus	TBD depending on terminus location
<b>Los Angeles to San Diego via Inland Empire</b> <p>or</p>	From Downtown Los Angeles to San Diego, passing through Los Angeles, Riverside, San Bernardino, and San Diego counties. <hr/> Alignment alternatives include either I-10 or SR 60 through the San Gabriel Valley, and either I-15 or I-215 from the Inland Empire to San Diego County.	High-Speed Rail, Blended Service	Connections to: <ul style="list-style-type: none"> <li>• RTA CommuterLink                             <ul style="list-style-type: none"> <li>○ Route 200</li> <li>○ Route 205/206</li> <li>○ Route 208</li> </ul> </li> </ul>
<b>Corona to Lake Elsinore</b> 	Corona to Lake Street at Lake Elsinore <hr/> Corona to Lake Street at Lake Elsinore, with an additional station at Dos Lagos	Commuter Rail	Connections to: <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• 91/PVL Line</li> <li>• RTA CommuterLink                             <ul style="list-style-type: none"> <li>○ Route 200</li> <li>○ Route 205/206</li> </ul> </li> </ul>
<b>Corona to Temecula</b> 	Along Santa Fe Branch Line, entering I-15 at Nichols Road at Lake Elsinore	Commuter Rail	Connections to: <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• 91/PVL Line</li> </ul>

Corridor	Alignment	Technologies/ Service Type	Connection / Extension
	<p>Along Santa Fe Branch Line, entering I-15 at Nichols Road at Lake Elsinore, with an additional station at Dos Lagos</p> <hr/> <p>Along Santa Fe Branch Line, entering I-15 at Lake Street at Lake Elsinore</p> <hr/> <p>I-15 corridor, from Corona to Temecula/Murrieta</p>	Express Bus	<ul style="list-style-type: none"> <li>• RTA CommuterLink                             <ul style="list-style-type: none"> <li>○ Route 200</li> <li>○ Route 205/206</li> </ul> </li> </ul>
<p><b>San Bernardino to Temecula</b></p>	<p>San Bernardino to Temecula, entering I-15 at Nichols Road at Lake Elsinore</p> <hr/> <p>San Bernardino to Temecula, entering I-15 at Nichols Road at Lake Elsinore, with an additional station at Dos Lagos</p>	Commuter Rail	<p>Connections to:</p> <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• 91/PVL Line</li> </ul>
<p><b>Temecula to San Diego</b></p>	Temecula to downtown San Diego, along the alignment identified for the proposed California High-Speed Rail	Commuter Rail (DMUs might be considered for this corridor)	<p>Connections to:</p> <ul style="list-style-type: none"> <li>• RTA CommuterLink Route 217</li> </ul>
<p><b>Temecula to San Jacinto</b></p>	Along SR 79	Express Bus	TBD depending on terminus location
<p><b>San Jacinto to Banning/Beaumont</b></p>	Along SR 79	Express Bus	TBD depending on terminus location
<p><b>Lake Elsinore to Perris</b></p>	Along SR 74	Express Bus	TBD depending on terminus location

Figure 3. Map of Corridors from Previous Studies



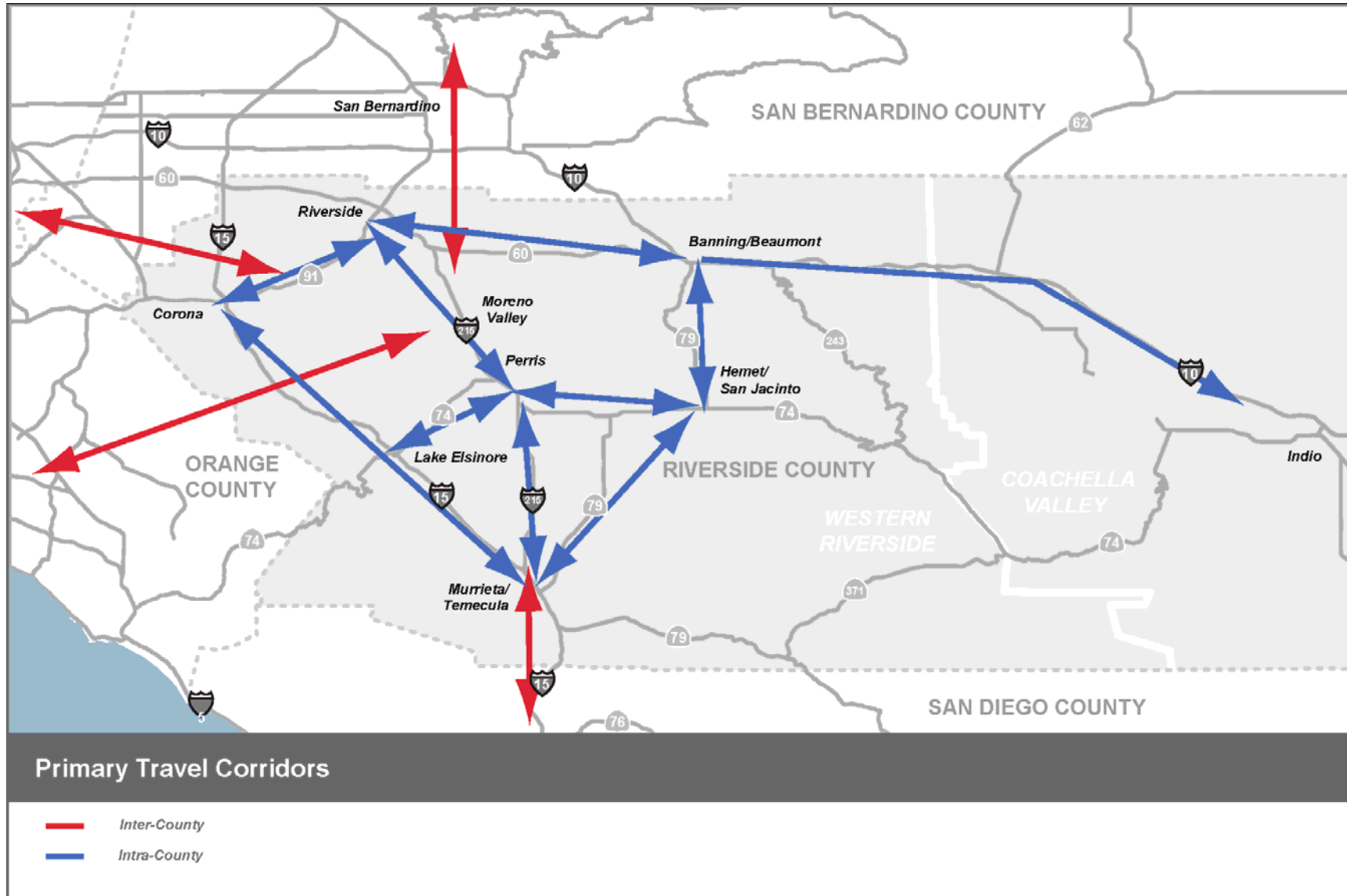
## 2.3 Additional Corridors Identified

To ensure that this study considers all corridors in Riverside County with the potential to support future rail lines, the County’s key regional travel flows were mapped in order to identify the primary travel corridors (current and future, intra-county and inter-county). The primary travel corridors are listed in Table 3 and illustrated in Figure 4. These primary travel corridors were then reviewed to determine which are already served by high-capacity rail transit (and are included in Table 1) and which have been identified as potential candidates for future high-capacity transit (and are included in Table 2). As indicated in Table 3, all of the County’s primary travel corridors either have existing Metrolink service or are on the list of potential corridors to be considered for high-capacity transit.

**Table 3. Review of Primary Regional Travel Corridors**

Inter- or Intra-County	Primary Travel Corridors	High Capacity Transit	Existing or Potential
Inter-county	Riverside County – Orange County	Metrolink (IEOC, 91/PVL Line)	Existing
Inter-county	Riverside to San Bernardino	Metrolink (IEOC)	Existing
Inter-county	Riverside to Los Angeles County	Metrolink (IEOC, 91/PVL, Riverside)	Existing
Inter-county	Riverside to San Diego County	Commuter Rail	Potential
Intra-county	Corona to Riverside	Metrolink (IEOC, 91/PVL Line)	Existing
Intra-county	Riverside to Perris/Moreno Valley	Metrolink (91/PVL Line)	Existing
Intra-county	Corona to Perris/Moreno Valley	Metrolink (91/PVL Line)	Existing
Intra-county	Perris/Moreno Valley to Hemet/San Jacinto	Metrolink Extension	Potential
Intra-county	Perris/Moreno Valley to Temecula	Metrolink Extension	Potential
Intra-county	Perris/Moreno Valley to Lake Elsinore	Express Bus / BRT	Potential
Intra-county	Murrieta/Temecula to Hemet/San Jacinto	Express Bus / BRT	Existing
Intra-county	Murrieta/Temecula to Corona	Express Bus / BRT or Rail	Existing
Intra-county	Riverside to Pass Area	Express Bus / BRT or Rail	Existing
Intra-county	Hemet/San Jacinto to Pass Area	Express Bus / BRT	Potential
Intra-county	Coachella Valley to Riverside	Intercity Rail	Potential

Figure 4. Map of Corridors from Previous Studies





For some of the corridors with existing Metrolink service, the potential for increasing service is limited by the number of available slots for passenger trains under the operating agreements with the private railroads. Train slots are made available through a Shared Use Agreement with the host railroad BNSF Railway or Union Pacific (UP), there are currently discussions that would allow for future service expansions, potentially based on additional capital improvements. Table 4 shows the potential for increased service in the primary travel corridors with existing Metrolink service under the current terms of the shared use agreements. Additional service to Los Angeles on the BNSF will be available when the Rosecrans/Marquardt grade separation in Los Angeles County is completed, potentially in 2019. For the Riverside – San Bernardino corridor, under the current agreement terms there are only four potential new train slots. Increased service on the IEOC route in this corridor is limited without a renegotiation of RCTC’s Shared Use Agreement with BNSF. Nevertheless, Metrolink is exploring opportunities to increase rail service along existing rail lines. There is also the Southern California Optimized Rail Expansion (SCORE) program that is looking to provide funding for capital improvements needed to increase Metrolink service to 15-30 minute frequencies on certain corridors.

**Table 4. Potential for Increased Passenger Service on Existing Rail Corridors**

Primary Travel Corridors	Existing Rail Service	Track Owner	Potential for increased passenger service?
<b>Riverside to Orange County</b>	Metrolink IEOC	BNSF/OCTA	There are limited slots available under the current agreement.
	Metrolink 91/PVL	BNSF	Additional slots become available with completion of the Rosecrans/ Marquardt grade separation
<b>Riverside to San Bernardino</b>	Metrolink IEOC	BNSF	Memorandum of understanding for Colton Crossing provides for the conversion of four non-revenue passenger train movements to revenue train movements between Riverside and San Bernardino
<b>Riverside to Los Angeles</b>	Metrolink 91/PVL	BNSF	Additional slots become available with completion of the Rosecrans/Marquardt grade separation
	Metrolink Riverside Line	UP	Limited to current service level of six round trips per day
<b>Corona to Riverside</b>	Metrolink 91/PVL	BNSF	Additional slots become available with completion of the Rosecrans/ Marquardt grade separation
<b>Riverside to Perris</b>	Metrolink 91/PVL	RCTC	Yes, as the Perris Valley Line is owned by RCTC

## 2.4 List of Corridors for Evaluation

Since the primary objective of this study is to identify the next regional rail corridor(s) for development by RCTC, the overall list of 15 potential corridors was simplified and reduced down to seven corridors for evaluation.

- Express Bus from Palm Springs to Indio/Coachella was removed because this corridor falls within the longer Coachella Valley Rail corridor and SunLine has existing high frequency service on the 111 route.
- Commuter Rail from Indio to Riverside was removed because this corridor falls within the longer Coachella Valley Rail corridor and existing express bus service is currently available in this corridor.

- Commuter Rail from Corona to Lake Elsinore as a unique corridor was removed for the initial phase of analysis and incorporated into the longer Corona to Temecula corridor.
- Commuter Rail from San Bernardino to Temecula was removed because high-capacity rail already exists between San Bernardino and Corona and the rest of this corridor will be studied as the Corona to Temecula corridor.
- High-Speed Rail from Los Angeles to San Diego was removed because it is a statewide service that will be implemented by another agency on a much longer timeline
- Express Bus from Riverside to Temecula was removed because high-capacity rail already exists between Riverside and Perris and the rest of this corridor will be studied as the Perris to Temecula corridor.
- Express Bus from San Jacinto to Temecula was removed because the service already exists.
- Express Bus and Commuter Rail from Banning to Riverside were removed because the express bus service already exists, and the rail service is met by the Indio to Los Angeles Intercity Rail.
- Commuter rail between Riverside and San Bernardino was removed because service already exists.

The seven corridors listed in Table 5 and illustrated in Figure 5 are the corridors that will move forward for high-level evaluation.

**Table 5. List of Potential Rail/Transit Corridors for Evaluation**








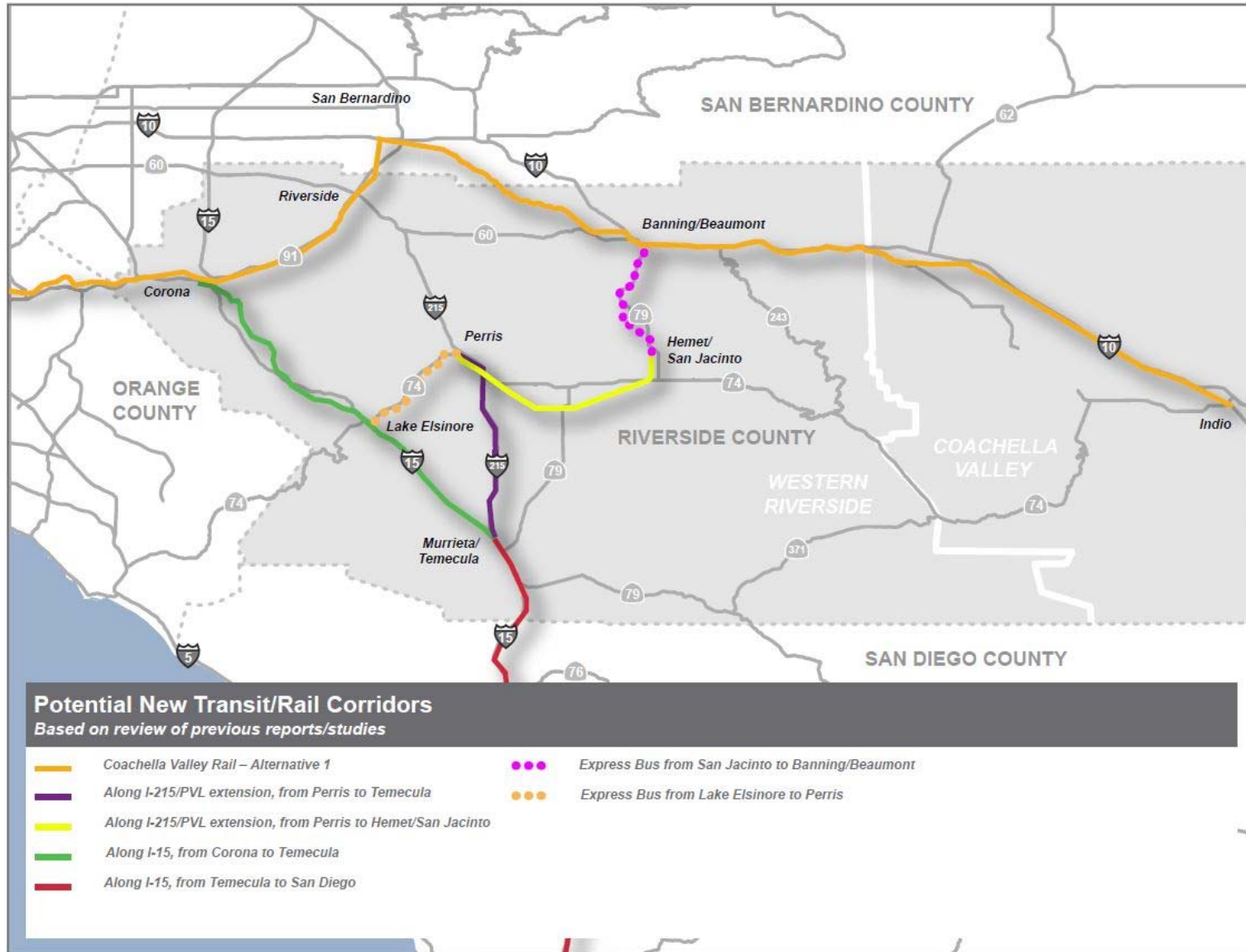
Corridor	Alignment	Connection/Extension
 <b>Indio to Los Angeles (via Fullerton/Riverside)</b>	Uses UP Yuma Subdivision between Indio and Colton, then uses the BNSF San Bernardino Subdivision from Colton through Riverside and Fullerton to reach LAUS	Connections to <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• Riverside Line</li> <li>• 91/PVL Line</li> </ul>
 <b>Perris to Temecula</b>	Via I-215 corridor	Extends Perris Valley Line
 <b>Perris to San Jacinto</b>	Via RCTC-owned SJBL	Extends Perris Valley Line
 <b>Corona to Temecula</b>	Along Santa Fe Branch Line, entering I-15 at Nichols Road at Lake Elsinore	Connections to: <ul style="list-style-type: none"> <li>• IEOC Line</li> <li>• 91/PVL Line</li> <li>• RTA CommuterLink                             <ul style="list-style-type: none"> <li>○ Route 200</li> <li>○ Route 205/206</li> </ul> </li> </ul>
 <b>Temecula to San Diego</b>	Along the alignment identified for the proposed California High-Speed Rail; bi-county project	Connection to: <ul style="list-style-type: none"> <li>• RTA CommuterLink Route 217</li> </ul>
 <b>Lake Elsinore to Perris</b>	SR 74	TBD depending on terminus location
 <b>Hemet/San Jacinto to Banning/Beaumont</b>	SR 79	TBD depending on terminus location

Figure 5. Potential Corridors for Evaluation



## 3 Evaluation of Technology Options

This section presents a high-level evaluation of the seven corridors to determine if rail technology is appropriate for each corridor, based on factors such as right-of-way (ROW), population and employment density, travel demand, and extension of an existing rail line. Research was performed on the key characteristics of six types of transit technology, then the factors were applied to the potential corridors. Corridors determined to be appropriate for rail technology were evaluated and prioritized in the subsequent chapters of this report.

### 3.1 Transit Technology Characteristics

This section describes the typical characteristics of transit technologies that are appropriate for regional transit services. They include two types of bus service and four types of rail service.

#### Express Bus

Express bus is a bus-based transit service with limited stops, designed to run at high travel speeds to serve commuter trips between suburban areas and urban employment centers/schools. Express bus service operates in mixed traffic on streets and highways (including high-occupancy vehicle or HOV lanes), typically along major travel corridors, which means they can experience congestion. Express buses primarily operate on weekdays during peak commuting hours, although some express bus systems also provide off-peak and weekend service. Express bus has the lowest capital costs of the modes considered herein.



A local example of express bus service is Riverside Transit Agency's (RTA) CommuterLink Express. RTA currently operates nine CommuterLink Express routes, providing service to Riverside, Orange, San Bernardino, and San Diego Counties. CommuterLink Express primarily operates on weekdays during AM and PM peak hours. In 2016, RTA's express bus operating cost per vehicle revenue mile was \$3.58, and its operating cost per passenger trip was \$13.73. In 2015, RTA's farebox recovery ratio for CommuterLink Express service was between 14 - 28%.

#### Bus Rapid Transit (BRT)

BRT is a high-quality, high-frequency bus service implemented in corridors with high travel demand, generally considered to be a cost-effective alternative to rail. Typically BRT includes specialized design elements and infrastructure (e.g., dedicated lanes or guideways, intelligent transportation systems (ITS), level boarding, etc.) which can contribute to reduced travel time and delay, and increased safety and reliability. BRT stations are spaced more widely apart than local fixed-route bus services. Because BRT often utilizes existing arterials by converting a traffic lane to a bus lane, it is typically lower in capital cost than a rail line.





A local example of BRT service is Omnitrans' sbX Green Line, which provides service between the communities of San Bernardino and Loma Linda. Service is provided on weekdays only, with 10-minute headways during peak hours and 15-minute headways during off-peak hours. In 2015, the sbX Green Line operating cost per vehicle revenue mile was \$5.38, and its operating cost per passenger trip was \$5.54. Omnitrans' 2015 farebox recovery ratio for sbX service was 15.2%.

### Light Rail Transit (LRT)

LRT is an electrically-powered rail system, usually with two- or three-car trains, that operates on a fixed guideway in exclusive ROW and/or existing street ROW. LRT cannot operate on freight tracks. LRT service is typically provided along high-demand corridors in metropolitan areas. Due to the ROW required, as well as the infrastructure construction costs, LRT has higher capital costs than most other modes.



A local example of LRT service is Los Angeles Metro's Gold Line. The Gold Line operates along a 31-mile alignment with a total of 27 stations. Service is provided daily, with approximately 7-minute headways during peak hours on weekdays, and approximately 12-minute headways during weekends. In 2016, Los Angeles Metro's light rail operating cost per vehicle revenue mile was \$23.15, and its operating cost per passenger trip was \$5.13. Metro's 2016 farebox recovery ratio for light rail was 15%.

### Diesel Multiple Unit (DMU)

A DMU, also known as hybrid rail, is a light rail-type train powered by on-board diesel engines. DMU operates on a fixed guideway completely separated from automobile traffic. Unlike LRT, DMU can operate on corridors that also have freight-rail traffic provided that the DMU rail vehicle meets certain safety criteria. Otherwise, temporal, or time of day, separation between DMU and freight-rail traffic is required. According to the Federal Transit Administration (FTA), DMUs have slightly higher operating costs than other urban transit modes, primarily since DMUs tend to be newer systems. Because DMUs can utilize existing rail corridors in some cases, construction costs can be lower than those of LRT systems.



A local example of DMU service is the North County Transit District (NCTD) Sprinter. The Sprinter provides daily service along a 22-mile route between Oceanside, CA and Escondido, CA with a total of 15 stations. This system utilizes temporal separation with the DMU passenger service during the day and limited freight service at night. In 2016, the Sprinter's operating cost per vehicle revenue mile was \$23.80, and its operating cost per passenger trip was \$6.09. NCTD's 2016 farebox recovery ratio for Sprinter service was 18.3%. Also a new system being developed by the San Bernardino County Transportation Authority (SBCTA) will use DMU technology for service from San Bernardino to Redlands starting in 2020. SBCTA is also exploring electric multiple unit (EMU) trains, which are similar to DMUs but are electrically-powered and have less emissions (air quality and noise).

## Commuter Rail

Commuter rail is an electric- or diesel-powered railway for regional passenger rail service that primarily operates between a central urban location and the surrounding suburbs. Commuter rail service is usually provided on weekdays during peak hours, in order to serve work- or school-related trips, although some systems also provide weekend service. Commuter rail operates on a fixed guideway completely separated from automobile traffic, typically on former or current freight tracks. The shared operations with freight railroads can impact service frequency and limit the potential for increasing passenger service. Capital costs for commuter rail systems can be similar to or slightly higher than those of DMU systems.



A local example of commuter rail service is the Metrolink system. The Metrolink system currently consists of seven routes operating in Los Angeles, Orange, Riverside, San Bernardino, Ventura, and San Diego counties. The Perris Valley Line, which extends the 91 Line service from Riverside to South Perris, is a recent extension of the Metrolink system. In FY 2016, Metrolink’s operating cost per vehicle revenue mile was \$17.32, and its operating cost per passenger trip was \$19.57. The FY 2016 farebox recovery ratio for Metrolink was 37.4%.

## Intercity Rail

Intercity rail is a regional passenger rail service that typically serves travel between cities, covering longer distances than commuter rail. Like both DMU and commuter rail service, intercity rail operates on a fixed guideway completely separated from automobile traffic, and can operate in freight rail corridors. Capital costs for intercity rail systems vary, depending on the potential for using existing facilities.



A local example of intercity rail service is Amtrak’s Pacific Surfliner. The Pacific Surfliner provides service along a 351-mile route, with a total of 31 stations across San Diego, Orange, Los Angeles, Ventura, Santa Barbara, and San Luis Obispo counties. The Pacific Surfliner operates 23 one-way trips per day between San Diego and Los Angeles/Santa Barbara/San Luis Obispo. For FY 2015-16, Amtrak’s average unit cost per train mile for the Pacific Surfliner service was \$69.66. In FY 2015-16, the operating cost per passenger trip was \$34.51. Amtrak’s FY 2015-16 farebox recovery ratio for the Pacific Surfliner service was 78.8%.

## 3.2 Transit Technology Comparison

Each transit technology discussed above offers opportunities and issues depending on the specific alignment, built environment, community, and potential users.

Express, or Commuter, Bus is best suited to medium to long distance trips in peak periods for commuters. It is low cost to construct since it utilizes existing freeways and arterials, but is subject to congestion in regular traffic lanes. HOV lanes, if not congested, can increase travel speeds for commuter bus.

BRT is best suited to short to medium distance trips along arterial routes at any time of day, with stations located approximately one mile apart. In order to provide dedicated lanes and a unique BRT brand, there are construction and overhead costs above and beyond those of a typical bus route.

LRT, similar to BRT, is best suited to short to medium distance trips at any time of day, with stations located at least one mile apart on an exclusive ROW. Due to the ROW needs and construction requirements, LRT is a relatively high cost system, but has the opportunity to carry higher ridership loads than the lower capacity BRT vehicles.

DMU is best suited to short to medium distances with higher frequencies and smaller peak loads. It has lower operating costs compared to commuter rail and similar costs for infrastructure.

Commuter rail, similar to express bus, is best suited to medium to long distance trips in peak periods. By sharing track or ROW with freight rail, infrastructure costs can be lower than LRT.

Intercity rail is best suited to long distance trips at any time of day. Infrastructure costs are similar to commuter rail and DMU.

### 3.3 Corridor Right-of-Way

As discussed in the previous section, each mode has specific ROW requirements for operations:

- Exclusive Rail ROW
- Shared Rail ROW
- Freeway/street ROW (exclusive or shared)

Table 6 illustrates the type of ROW potentially available in each corridor. In some cases, a corridor may have multiple types of ROW, such as the Corona to Temecula corridor. With the existing transportation corridors, the new services may or may not be able to fit within the current configurations and additional adjacent property may be needed. Other than the Indio route, the only corridor with a mostly complete rail alignment is the Perris to San Jacinto corridor along the San Jacinto Branch Line (SJBL).

**Table 6. Types of ROW Potentially Available in each Corridor**

Corridor	Alignment	Right-of-Way		
		Exclusive Rail	Shared Rail	Freeway/Street
<b>Indio to Los Angeles (via Fullerton/Riverside)</b>	Uses UP Yuma Subdivision between Indio and Colton, then uses the BNSF San Bernardino Subdivision from Colton through Riverside and Fullerton to Los Angeles, and to reach LAUS uses the SCRRA River Subdivision		X	
<b>Perris to Temecula</b>	Via I-215 corridor	X		X
<b>Perris to San Jacinto</b>	Via RCTC-owned SJBL	X	X	
<b>Corona to Temecula</b>	Along a former Santa Fe Branch Line, entering I-15 at Nichols Road in Lake Elsinore	X	X	X
<b>Temecula to San Diego</b>	Along the alignment identified for the proposed California High-Speed Rail	X	X	

Corridor	Alignment	Right-of-Way		
		Exclusive Rail	Shared Rail	Freeway/Street
Lake Elsinore to Perris	Along SR 74	X		X
Hemet/San Jacinto to Banning/Beaumont	Along SR 79	X		X

A key question related to ROW is ownership, and what it will take in order to begin operations on that ROW. Is it already owned or does it need to be purchased? Are rights to operate available, or do they need to be purchased/leased? In the case of freeway or street ROW, what agreements are needed in order to operate transit on the existing facility, and is ROW for new transit facilities (ramps, stations, etc.) needed?

Table 7 identifies the ownership and availability for service on each of the seven corridors.

**Table 7. Description of ROW Ownership**

Corridor	Alignment	Description of ROW Ownership
<b>Indio to Los Angeles (via Fullerton/Riverside)</b>	Uses UP Yuma Subdivision between Indio and Colton, then uses the BNSF San Bernardino Subdivision from Colton through Riverside and Fullerton to Los Angeles, and uses the River Subdivision to reach LAUS	In order to accommodate additional passenger trains on the UP Yuma Subdivision, a passenger rail agreement would be required along with additional track infrastructure. BNSF San Bernardino Subdivision has existing passenger rail agreements that could allow for additional service. SCRRA River Subdivision would provide a connection from BNSF ROW to LAUS. River Subdivision ROW is owned by Metro.
<b>Perris to Temecula</b>	Via I-215 corridor	A majority of the potential alignment parallels I-215. I-215 is a Caltrans facility consisting of 4-6-lane highway with one HOV lane existing or planned in each direction. A portion of the ROW is on parcels with minimal or no development.
<b>Perris to San Jacinto</b>	Via RCTC-owned SJBL	The SJBL is owned by RCTC.
<b>Corona to Temecula</b>	Along a former Santa Fe Branch Line, entering I-15 at Nichols Road in Lake Elsinore	The Santa Fe Branch Line is abandoned ROW, formerly part of the ATSF Railway. A portion of this old ROW is now covered by part of the Dos Lagos Golf Club, and would need to be purchased. Depending on the selected route, trackage rights may need to be acquired from BNSF for an existing, active BNSF industrial lead known as the Porphyry Spur, which is a 3.5-mile remnant of the former Santa Fe Elsinore Branch. I-15 is a Caltrans facility consisting of an approximately 4-6 lane highway. There are plans for Express Lanes to extend from the Cajalco Road interchange to SR 74 in Lake Elsinore, and then HOV lanes beyond the SR 74 interchange to the junction of I-15 and I-215 in Temecula. There is no excess median on I-15 available for rail transit.



Corridor	Alignment	Description of ROW Ownership
<b>Temecula to San Diego</b>	Along the alignment identified for the proposed California High-Speed Rail	Potential alignment parallels I-15 but ROW does not yet exist. Most of this corridor would be in San Diego County.
<b>Lake Elsinore to Perris</b>	Along SR 74	SR 74 is a Caltrans facility consisting of a 4 lane highway. An improvement along this corridor is currently being planned as part of the proposed Ethanac Expressway Project. The Ethanac Expressway Project would provide a new east-west interregional route by extending the existing Ethanac Road westerly to connect to SR 74, thus closing the existing road gap between Ethanac Road and SR 74. There are currently concepts to solicit input on a BRT or bus facility on Ethanac Expressway in addition to consideration of light rail. As of recent public meetings there does not seem to be much local interest in light rail, but extra median area or ROW beyond the travel way may be leveraged.
<b>Hemet/San Jacinto to Banning/Beaumont</b>	Along SR 79	SR 79 is a Caltrans facility consisting of a four-lane highway. There is not sufficient area available within the median or in the outside ROW for rail transit.

Based on the unique characteristics of the Corona to Temecula alignment (partly in a rail ROW, and partly on a Caltrans facility), for the purposes of this evaluation the two components will be shown separately in subsequent tables.

### 3.4 Corridor Population and Employment Density

Existing and forecasted population and employment is a key factor that drives ridership and ultimately, the success of a new transit system. Table 8 and Table 9 show 2012 and 2040 population and employment density for the seven corridors. Year 2012 data was used to represent current conditions since 2012 is the base year for the current SCAG Regional Transportation Model and its demographic data. The data show that the highest population and employment densities are found on the Indio to Los Angeles corridor, due largely to the density of development along the corridor within Los Angeles and Orange Counties. The Temecula to San Diego corridor and Perris to Temecula corridor have the second and third highest densities.

**Table 8. Population Density (People per Square Mile)**

Corridor	Population Density (ppl / sq mi)	
	2012	2040
<b>Indio to Los Angeles (via Fullerton/ Riverside)</b>	2,775	3,295
<b>Perris to Temecula</b>	1,600	2,308
<b>Perris to San Jacinto</b>	1,251	1,983
<b>Corona to Temecula</b>	Overall corridor: 1,359	Overall corridor: 1,892
	<i>Corona to Lake Elsinore: 1,384</i>	<i>Corona to Lake Elsinore: 1,802</i>

Corridor	Population Density (ppl / sq mi)	
	2012	2040
	<i>Lake Elsinore to Temecula: 1,328</i>	<i>Lake Elsinore to Temecula: 1,992</i>
<b>Temecula to San Diego</b>	1,803	2,312
<b>Lake Elsinore to Perris</b>	1,170	1,971
<b>Hemet/San Jacinto to Banning/Beaumont</b>	1,106	1,785

Table 9. Employment Density (Jobs per Square Mile)

Corridor	Employment Density (jobs / sq mi)	
	2012	2040
<b>Indio to Los Angeles (via Fullerton/ Riverside)</b>	1,192	1,563
<b>Perris to Temecula</b>	369	718
<b>Perris to San Jacinto</b>	206	503
<b>Corona to Temecula</b>	Overall corridor: 397 <i>Corona to Lake Elsinore: 428</i>	Overall corridor: 698 <i>Corona to Lake Elsinore: 690</i>
	<i>Lake Elsinore to Temecula: 361</i>	<i>Lake Elsinore to Temecula: 705</i>
<b>Temecula to San Diego</b>	601	992
<b>Lake Elsinore to Perris</b>	190	486
<b>Hemet/San Jacinto to Banning/Beaumont</b>	205	493

### 3.5 Corridor Travel Demand

Caltrans measures Average Annual Daily Traffic (AADT) on all of its facilities, which can serve as an indicator of the magnitude of travel demand in a particular corridor. Table 10 lists the AADT on major highways in the seven corridors.

Table 10. Average Annual Daily Traffic

Corridor	Highway / Location	AADT
<b>Indio to Los Angeles (via Fullerton/ Riverside)</b>	I-10, Indio, Monroe Street	64,000
	I-10, Banning, Jct. Rte. 243	129,000
	I-10, Beaumont, Jct. Rte. 79S	132,000
	I-10, San Bernardino, Waterman Avenue	205,000
	I-215, San Bernardino, Jct. Rte. 66W	125,000
	SR 91, Riverside, Central Avenue	165,000

Corridor	Highway / Location	AADT
	SR 91, Corona, Main Street	233,000
<b>Perris to Temecula</b>	I-215, Perris, Nuevo Road	103,000
	I-215, Murrieta, Murrieta Hot Springs Road	93,000
	I-15, Temecula, Rancho California Road	169,000
<b>Perris to San Jacinto</b>	SR 74, Hemet, State Street	29,000
	SR 74, Menifee, Menifee Road	30,000
<b>Corona to Temecula</b>	I-15, Corona, Magnolia Avenue	187,000
	I-15, Lake Elsinore, Main Street	125,000
	I-15, Murrieta, Murrieta Hot Springs Road	133,000
	I-15, Temecula, Rancho California Road	169,000
<b>Temecula to San Diego</b>	I-15, Temecula, Rancho California Road	169,000
	I-15, San Diego/Riverside County Line	140,000
<b>Lake Elsinore to Perris</b>	SR 74, Lake Elsinore, Jct. Rte. 15	31,500
	SR 74, Perris, Seventh Street	26,500
<b>Hemet/San Jacinto to Banning/Beaumont</b>	SR 79, San Jacinto, Gilman Springs Road	28,300
	SR 79, Beaumont, California Avenue	26,500

Based on the data in Table 10, the corridors with higher travel demand include Indio to Los Angeles, Perris to Temecula, Corona to Temecula, and Temecula to San Diego. The corridors with lower travel demand include Perris to San Jacinto, Lake Elsinore to Perris, and Hemet/San Jacinto to Banning/Beaumont.

### 3.6 Corridor Rail Extension

If a potential corridor has a connection to, or could be an extension of, an existing rail system, that corridor is likely to be appropriate for rail technology. As identified previously in Table 5, four of the seven corridors have potential connections to, or are extensions of, an existing rail system: Indio to Los Angeles, Perris to Temecula, Perris to San Jacinto, and Corona to Temecula. The Temecula to San Diego, Lake Elsinore to Perris, and Hemet/San Jacinto to Banning/Beaumont corridors do not have connections to/would not be extensions of an existing rail system.

### 3.7 Transit Technology by Corridor

Table 11 contains a qualitative comparison of five of the key evaluation factors to determine appropriate transit technology.

**Table 11. Qualitative Comparison**

Corridor	Population Density	Employment Density	Corridor Demand	ROW Availability	Rail Extension
<b>Indio to Los Angeles (via Fullerton/Riverside)</b>	High	High	High	Yes	Yes
<b>Perris to Temecula</b>	Medium	Medium	High	Yes	Yes
<b>Perris to San Jacinto</b>	Low	Low	Low	Yes	Yes
<b>Corona to Temecula</b>	Medium	Low	High	Yes	Yes
	<i>Corona to Lake Elsinore:</i> Medium	<i>Corona to Lake Elsinore:</i> Low	<i>Corona to Lake Elsinore:</i> High	<i>Corona to Lake Elsinore:</i> Yes	<i>Corona to Lake Elsinore:</i> Yes
	<i>Lake Elsinore to Temecula:</i> Medium	<i>Lake Elsinore to Temecula:</i> Low	<i>Lake Elsinore to Temecula:</i> High	<i>Lake Elsinore to Temecula:</i> No	<i>Lake Elsinore to Temecula:</i> No
<b>Temecula to San Diego</b>	Medium	Medium	High	No	No
<b>Lake Elsinore to Perris</b>	Low	Low	Low	No	No
<b>Hemet/San Jacinto to Banning/Beaumont</b>	Low	Low	Low	No	No

Table 12 lists the technologies that, based on the high-level assessment of technology and alignment characteristics, are appropriate for each corridor.

**Table 12. Feasible Technologies**

Corridor	Express Bus	BRT	LRT	DMU	Commuter Rail	Intercity Rail
<b>Indio to Los Angeles (via Fullerton/Riverside)</b>	X	X				X
<b>Perris to Temecula</b>	X	X		X	X	
<b>Perris to San Jacinto</b>	X	X		X	X	
<b>Corona to Temecula</b>	X	X		X	X	
<i>Corona to Lake Elsinore</i>	X	X		X	X	
<i>Lake Elsinore to Temecula</i>	X	X				
<b>Temecula to San Diego</b>	X	X		X	X	

Corridor	Express Bus	BRT	LRT	DMU	Commuter Rail	Intercity Rail
Lake Elsinore to Perris	X	X				
Hemet/San Jacinto to Banning/Beaumont	X	X				

### 3.8 Corridors Deemed Inappropriate for Rail Technology

The Lake Elsinore to Perris corridor and Hemet/San Jacinto to Banning/Beaumont corridor were determined to be inappropriate for rail technology for the following combinations of reasons:

- Lake Elsinore to Perris corridor:
  - Low population and employment density along the corridor
  - Low corridor travel demand
  - ROW availability for transit service along this corridor is possible, but does not presently exist
- Hemet/San Jacinto to Banning/Beaumont corridor:
  - Low population and employment density along the corridor
  - Low corridor travel demand
  - There are currently no plans for this segment of SR 79 to be widened to include provisions for rail services/become a transit-supporting corridor
  - Lack of connections to the existing rail system

These corridors should be planned in coordination with RTA for possible Express Bus or BRT service to meet future regional transit needs.

### 3.9 Corridors Deemed Appropriate for Rail Technology

The following five corridors were determined to be appropriate for rail technology from the standpoint of population/employment density, travel demand, ROW availability, and/or extending an existing rail line:

- Indio to Los Angeles (via Fullerton and Riverside)
- Perris to Temecula
- Perris to San Jacinto
- Corona to Temecula
- Temecula to San Diego

Although these five corridors are appropriate for rail technology, they are not recommended to be further evaluated and prioritized in this study for the following reasons:

- Indio to Los Angeles (via Fullerton and Riverside) corridor
  - This corridor is recommended to be removed from further evaluation in this study because the planning process for developing this corridor is underway in the Coachella Valley – San Gorgonio Pass Rail Corridor Service Development Plan and EIS/EIR.
- Corona to Temecula corridor

- The full corridor is recommended to be removed from further evaluation in this study because of ROW challenges and lack of good alignment.
- The shorter Corona to Lake Elsinore corridor is recommended for further evaluation. The Corona to Lake Elsinore corridor could potentially utilize existing and former rail ROW until it reaches Nichols Road, and end without needing to use the I-15 ROW.
- The Lake Elsinore to Temecula section could be revisited in a future study.
- Temecula to San Diego corridor
  - This corridor is recommended to be removed from further evaluation in this study because the majority of the corridor lies outside RCTC's jurisdiction in San Diego County, and as of this time SANDAG has not indicated that this corridor is a priority for rail transit. The corridor remains part of the future High Speed Rail Phase II alignment between Los Angeles and San Diego via the Inland Empire.

The following corridors are appropriate for DMU or Commuter Rail technologies due particularly to the following factors:

- Perris to Temecula
  - Medium employment and population densities along the corridor
  - High corridor travel demand
  - Would connect to and extend the existing Perris Valley Line
  - Potentially available ROW
- Perris to San Jacinto
  - Would connect to and extend the existing Perris Valley Line
  - ROW is available
  - Strong potential for future development along the corridor

In summary, the corridors that appear viable for Commuter Rail/DMU service and are recommended for further evaluation and prioritization in this study include:

- Perris to Temecula
- Perris to San Jacinto
- Corona to Lake Elsinore

The next chapter describes the criteria, methods, and data sources to be used for further evaluation and prioritization.

## 4 Evaluation Criteria and Methodologies

This section presents the evaluation criteria and methodology used for evaluating the three corridors. The evaluation criteria consider feasibility in terms of corridor-related characteristics, operational characteristics, usage and effectiveness, and other factors. The evaluation results facilitate comparison of the corridors' benefits and costs, and feasibility and viability can be assessed.

### 4.1 Evaluation Criteria

Four categories of criteria were identified and are shown below in Table 13. Corridor characteristics are focused around the physical corridor itself. Operational characteristics refer to the specific mode attached to the alternative, such as commuter rail, DMU, or LRT. Effectiveness characteristics address factors like ridership, connectivity, and cost effectiveness. Finally, other characteristics relate to issues like political and financial feasibility. The purpose of developing a wide range of qualitative and quantitative criteria is to ensure that each corridor is afforded a full analysis of the benefits and impacts. Each evaluation criteria is described in detail below.

**Table 13. Evaluation Criteria Overview**

Characteristics	Criteria
<b>Corridor</b>	Demographics, highway congestion, travel demand, land use intensities, economic development opportunities, length, connectivity, ROW availability
<b>Operational</b>	Capacity, costs (capital, operating, maintenance), stations/stops, operating speeds, transit travel times, integration, rail network capacity, frequency
<b>Effectiveness</b>	Ridership, transit accessibility, connectivity to other existing and planned transit, GHG and emissions reductions, cost effectiveness
<b>Other</b>	Environmental fatal flaw issues, part of an adopted plan, public or political perception, safety

### Corridor Characteristics

Corridor characteristics are centered on the physical corridor itself. Each alignment traverses different areas of the county and as such will serve and impact different communities, demographics, and travel in different ways. Table 14 illustrates the specific criteria within this category, and each criterion is further described below.

**Table 14. Corridor Characteristics Evaluation Criteria**

Evaluation Criteria	Evaluation Factors
<b>Demographics</b>	Population density per square mile Employment density per square mile Disadvantaged communities in corridor (census tracts, population)
<b>Travel Demand</b>	Travel demand along the corridor
<b>Highway Congestion</b>	Current and future congestion levels on primary highway
<b>Land Use Intensities</b>	Number of high-employment TAZs adjacent to a new station
<b>Corridor Length</b>	Length of the corridor
<b>ROW Availability</b>	Availability of rail ROW

#### Demographics

This criterion measures population density, employment density, and the number of disadvantaged communities along the potential rail corridor. Existing and future population and employment density were calculated using socioeconomic data from the SCAG 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Population

density is expressed in the number of people per square mile. Employment density is expressed in the number of jobs per square mile. Disadvantaged communities refers to low-income and transit-dependent populations. GIS and demographic data from the California Environmental Protection Agency (CalEPA) were utilized to analyze the number of disadvantaged communities within a one-mile buffer of the rail corridors. The disadvantaged communities are expressed in the number of households within one mile of the corridor. The results are compared between the corridors and assigned a comparative low, medium, or high ranking.

### **Travel Demand**

This criterion considers existing travel demand along the potential corridors. Existing travel demand was identified using 2016 information from Caltrans. Caltrans measures average annual daily traffic (AADT) on all of its facilities, which can serve as an indicator of the relative number of people traveling in a particular corridor. Average AADT and Median AADT for each of the corridors were determined and assigned a comparative low, medium, or high ranking.

### **Highway Congestion**

Corridor highway congestion is a useful indicator of potential success attracting riders to a regional transit service. This criterion identifies locations along Riverside County's key highways which are currently over capacity/congested, or will be over capacity/congested in the future. This analysis of current and future congestion was based on the 2015 RCTC Strategic Assessment. The corridors are assigned a comparative low, medium, or high ranking for both current and future congestion levels.

### **Land Use Intensities**

This criterion considers if transit-supportive land uses are adjacent to potential station areas along the transit corridors. Transportation analysis zones (TAZs) along the potential corridors were analyzed to determine total employment/employment density adjacent to potential station locations, since transit-supportive land uses, indicated by factors such as concentrated areas of employment, facilitate greater use of public transit. Existing and future employment along each corridor were identified based on data from the SCAG 2016 RTP/SCS. Corridors with a greater number of high-employment TAZs adjacent to a potential station receive a high ranking, whereas corridors with a fewer number of high-employment TAZs adjacent to a station receive a low ranking.

### **Corridor Length**

This criterion identifies the approximate lengths of each of the potential rail corridors. The length of each corridor is for informational purposes and is not a part of the comparative feasibility analysis.

### **ROW Availability**

This criterion focuses on whether there is ROW availability for a new rail corridor. The ROW availability is assigned a comparative low, medium, or high ranking.

## **Operational Characteristics**

Operational characteristics are related to the specific mode attached to the alternative, such as commuter rail, DMU, or LRT. The study team determined that either commuter rail or DMU/hybrid rail could be appropriate rail technologies for each of the three corridors, so the evaluation was conducted for both technology options where applicable. The various transit modes have different capabilities and serve distinct types of trips (i.e., local or regional trips) based on factors such as station spacing, operating speed, and compatibility with existing services. Table 15 illustrates the specific criteria within this category, and each criterion is further described below.



**Table 15. Operational Characteristics Evaluation Criteria**

Evaluation Criteria	Evaluation Factors
<b>Capacity</b>	Maximum number of passengers per hour
<b>Capital Costs</b>	Estimated total capital cost
<b>O&amp;M Costs</b>	Estimated O&M costs
<b>Station/Stops</b>	Number of total stations/stops; Number of stations per mile
<b>Operating Speeds</b>	Estimated operating speed
<b>Transit Travel Times</b>	Transit travel time between selected locations
<b>Integration</b>	Extension of existing transit service
<b>Rail Network Capacity</b>	Availability of operating slots
<b>Frequency</b>	Estimated service frequency

### Capacity

This criterion is measured as the maximum number of passengers that can be carried past a single point on a fixed route, in a given period of time. The most common measure of capacity is in terms of passengers per hour. For this analysis, system capacity is determined based on a typical number of seats per vehicle for the technology, combined with the number of vehicles in operation during the peak hours of operation. The mode capacity is reported as the estimated maximum number of passengers per hour, and is assigned a comparative low, medium, or high ranking.

### Capital Costs

Capital costs include track work, signals, ROW, vehicles, and stations. These costs were estimated using information from previous corridor studies and typical unit cost factors based on recent projects in the region. The total estimated capital costs were reported as a range. Appendix A documents the basis of the unit cost factors. The cost is assigned a comparative low, medium or high ranking.

### Operations and Maintenance (O&M) Costs

The purpose of this criterion is to consider ongoing operations and maintenance costs associated with each alternative. O&M costs were developed by using typical operating costs per mile for the particular mode. Appendix A documents the basis of the O&M cost factors. The O&M costs are reported as a total (annual) amount and assigned a comparative low, medium or high ranking.

### Stations/Stops

This criterion will be developed using previous studies and reports. The total number of stations along each alignment, as well as the number of stations per mile, is reported.

### Operating Speeds

The average system speeds for Metrolink service and NCTD Sprinter service were used for this criterion. The estimated average operating speed in miles per hour is reported.

### Transit Travel Times

The estimated amount of time it takes to travel one way along the corridor (end-to-end trip) is calculated using the length of the corridor and the operating speeds reported above. The travel times are reported and assigned a comparative low, medium or high ranking, where lower travel times will receive a high ranking.

## Integration

The next generation rail corridor must be integrated with the regional rail system, so connectivity is a key component of this analysis. This criterion addresses the component of connectivity, identifying whether or not the alternative is an extension of an existing transit service. The outcome is a yes/no answer.

## Rail Network Capacity

As some of the region’s rail corridors are privately owned and used for freight and commuter purposes, this criterion addresses the availability of operating slots for additional service. The potential for additional operating slots is dependent on ownership of each corridor (if RCTC owns the ROW) and if there is an opportunity to increase the current service levels on the corridor. The outcome is a yes/no answer.

## Frequency

The estimated service frequency (the number of trains per peak hour or per day) is reported based on transit mode and previous reports and studies.

## Effectiveness Characteristics

Effectiveness characteristics indicate ridership potential and the corridor’s potential to improve regional accessibility and mobility and reduce emissions. Cost-effectiveness is an especially important indicator of a corridor’s viability for proceeding into project development. Table 16 illustrates the specific criteria within this category, and each criterion is further described below.

**Table 16. Effectiveness Characteristics Evaluation Criteria**

Evaluation Criteria	Evaluation Factors
<b>Ridership</b>	Estimated average daily ridership; estimated total annual ridership
<b>Transit Accessibility</b>	Number of people within 0.5 miles of a transit station
<b>Connectivity</b>	Connection to other existing and planned transit
<b>GHG and Emissions Reductions</b>	Estimated GHG and emissions reductions
<b>Cost Effectiveness</b>	Cost per opening year rider

### Ridership

The estimated average daily ridership and total annual ridership for each corridor is extracted from previous reports and studies. The ridership is reported as a range, with the projection from previous studies used for the high end of the range and, and the low end estimated by reducing the high end value by a factor of 0.1. The ridership numbers are reported and assigned a comparative low, medium, or high ranking.

### Transit Accessibility

Transit is most successful when stations are located near where the riders live and work. This criterion identifies the number of people within 5 miles of each transit station along the corridors. GIS was utilized to determine the number of people within a 5 mile-buffer around the proposed transit stations. The total number of people is summed within each corridor and reported, and then assigned a comparative low, medium, or high ranking.

### Connectivity

Expanding on the Integration criteria discussed previously, identifying connections to existing and planned transit reflects on systemwide networks and how riders will utilize the corridor. Specifically, the connections are listed and the number of

daily trains or buses at the connection are included. Each corridor receives a ranking of low, medium, or high based on the quality of its connections.

### GHG and Emissions Reductions

Ridership estimates are utilized to approximate vehicle trip reduction in order to estimate GHG and emissions reductions for each corridor. The estimated GHG and emissions reductions were calculated using the following variables:

- Estimated weekday ridership
- APTA mode shift factor (mode shift factor of 0.47 for a large service area population),
- Average vehicle occupancy rate of 1.54
- Assuming 255 operating days per year
- 2040 baseline average work trip length of 15.1 miles from SCAG 2016 RTP/SCS
- California Air Resources Board auto vehicle emissions factor (343 gCO<sub>2</sub>e for a Riverside County project with opening date 2030)

Outcomes are reported as a comparative low, medium, or high ranking, where low refers to less reductions in emissions and high refers to more reductions in emissions.

### Cost Effectiveness

The cost effectiveness of each corridor is calculated by utilizing a simple calculation of annualized capital costs, annual O&M costs, and annual trips. The estimated current-year capital costs were annualized assuming a 30-year useful life, then added to the annual O&M costs, and then divided by the number of annual trips. Annual trips were determined by multiplying daily ridership by 255 weekdays. Cost effectiveness is presented as an annualized cost per trip. Results are assigned a comparative low, medium, or high ranking, where the most cost effective corridor achieves a high ranking.

### Other Characteristics

Other characteristics touch on more qualitative issues such as perception, environmental impacts, and grant potential, all of which can influence the overall potential for transit corridor implementation. Table 17 illustrates the specific criteria within this category, and each criteria is further described below.

**Table 17. Other Characteristics Evaluation Criteria**

Evaluation Criteria	Evaluation Factors
<b>Environmental Fatal Flaws</b>	Potential impacts that could undermine corridor feasibility
<b>Part of an Adopted Plan</b>	Included in an adopted plan
<b>Public or Political Perception</b>	Political support / public opinion regarding the implementation of a rail system along the corridor
<b>Safety</b>	Reduced vehicle miles traveled (VMT)

### Environmental Fatal Flaws

This qualitative criterion takes into account any known potential “fatal flaw” environmental issues that could make it infeasible or unlikely to develop a rail line within the corridor. Information is based on previous studies and reports as well as inputs provided by local stakeholders during this study’s corridor outreach meetings. The outcome is “yes” if the corridor has a known potential “fatal flaw” environmental issue, and “no” if the corridor does not have a known potential “fatal flaw” environmental issue.

### Part of an Adopted Plan

To be eligible for state or federal funding, new rail corridors need to be part of the current state or regional rail plan. Corridors or alternatives that are included in an adopted plan, such as the LRTP or RTP, are awarded a “yes”; if the corridor is not included in an adopted plan the outcome is “no.”

### Public or Political Perception

This criterion is intended to gauge the level of public support for or opposition to having a rail line developed in the corridor. Information from the 2017 RCTC Transit Corridor Social Survey, public outreach meetings with stakeholders along the corridor, as well as client and team understanding of the corridors informs this analysis. If there is favorable support, the outcome is “yes”; if unfavorable, the outcome is “no.”

### Safety

Safety benefits, measured by potential for accident reduction, is a key measurement to qualify for grant funding. Potential safety benefits can be estimated based on reduction in vehicle-miles of travel (VMT). By shifting travelers from vehicles to transit, the VMT and thus the number of potential accidents, may be decreased. The estimated VMT reductions were calculated using the following variables:

- Estimated weekday ridership
- American Public Transportation Association (APTA) mode shift factor (mode shift factor of 0.47 for a large service area population)
- Average vehicle occupancy rate of 1.54
- Assuming 255 operating days per year
- 2040 baseline average work trip length of 15.1 miles per SCAG 2016 RTP/SCS

The reduction in potential vehicular accidents was estimated using the calculated VMT reduction and an accident rate for Riverside County (average of 0.56 accidents per million VMT per year countywide) obtained from Caltrans’ Performance Measurement System (PeMS). The outcome is reported as a comparative low, medium, or high ranking, where low refers to less estimated reduction in VMT and thus less reductions in potential vehicular accidents, and high refers to greater reductions in VMT and thus greater reductions in potential vehicular accidents.

Table 18 provides a summary of the full set of evaluation criteria.

Table 18. Evaluation Criteria, Factors, and Methods

Evaluation Criteria		Evaluation Factors	Basis/Method	Evaluation Outcome
<b>Corridor Characteristics</b>	Demographics	Population and employment density per square mile Number of disadvantaged communities	Based on SCAG 2016 RTP/SCS and CalEPA data	Population and employment density: low, medium, high; Number of disadvantaged communities
	Travel Demand	Travel demand along the corridor	Based on Caltrans AADT data	Travel demand: low, medium, high
	Highway Congestion	Current and future congestion levels on primary highways	Based on 2015 RCTC Strategic Assessment	Highway congestion: low, medium, high
	Land Use Intensities	Transit-supportive land uses adjacent to potential station locations	Based on SCAG 2016 RTP/SCS data	Number of high-employment TAZs adjacent to a new potential station: low, medium, high
	Corridor Length	Length of the corridor	Based on previous reports and studies	Length of the corridor (miles)
	ROW Availability	Availability of rail ROW	Use GIS to determine if there is ROW availability along the potential corridor	Percentage of ROW availability: low, medium, high
<b>Operational Characteristics</b>	Capacity	Maximum number of passengers per hour	Based on the typical number of seats per vehicle for the technology, combined with the number of vehicles in operation during the peak hours of operation	Estimated number of passengers per hour: low, medium, high
	Capital Costs	Estimated per mile capital costs	Based on typical unit cost factors based on recent projects in the region	Capital cost range (for total cost and per mile cost): low, medium, high
	O&M Costs	Estimated O&M costs	Based on typical operating costs per mile for the technology	Estimated annual O&M cost: low, medium, high
	Station/Stops	Number of stations/stops and stations per mile	Based on previous reports and studies	Number of stations; number of stations divided by total length
	Operating Speeds	Estimated operating speed	Based on average system speeds for Metrolink and NCTD Sprinter service	Operating speed (miles per hour)
	Transit Travel Times	Transit travel time between selected locations	Based on estimated operating speeds and a one-way trip from end-to-end of the corridor	Total one-way travel time: low, medium, high
	Integration	Extension of existing transit service	Determine if the rail corridor is an extension of an existing rail service	Yes/no for extension of an existing rail line(s)
	Rail Network Capacity	Availability of operating slots	Determine if the rail corridor has available operating slots, if RCTC has ownership of the ROW, or if there is an opportunity to increase service levels on the corridor	Yes/no for availability of operating slots along the rail corridor
	Frequency	Number of trains per peak hour or per day	Based on previous reports and studies	Service frequency in number of trains per day
<b>Effectiveness Characteristics</b>	Ridership	Estimated average daily ridership	Based on previous reports and studies	Estimated ridership range: low, medium, high
	Transit Accessibility	Number of people within 0.5 miles of a transit station	Use GIS to determine the number of people within a 0.5 mile-buffer around the proposed transit stations	Number of people within 0.5 miles of a station: low, medium, high
	Connectivity	Connection to other existing and planned transit	Identify any potential connections to existing and planned rail lines, and identify the number of daily trains that connect	Connections to existing/planned rail: low, medium, high
	GHG and Emissions Reductions	Estimated GHG and emissions reductions	Use ridership estimates to approximate vehicle trip reduction	GHG and emissions reductions: low, medium, high
	Cost Effectiveness	Annualized cost per trip	Takes into consideration annualized capital cost, annual O&M cost, and annual ridership	Cost effectiveness: low, medium, high
<b>Other Characteristics</b>	Environmental Fatal Flaw Issues	Potential impacts that could undermine corridor feasibility	Based on previous studies and reports as well as inputs provided by local stakeholders during this study's corridor outreach meetings	Yes/no for known potential fatal flaw environmental issues
	Part of an Adopted Plan	Included in an adopted plan	Determine if the transit corridor is listed in any adopted plans (such as the LRTP, RTP, etc.)	Yes/no, and a list of which plans the corridor is included in
	Political Support / Public Opinion	Political support / public opinion regarding the implementation of a rail system along the corridor	Determine what the political situation regarding this corridor is (i.e. is there political support, what is the public opinion, etc.)	Yes/no regarding political support/public opinion
	Safety	Potential for accident reduction	Based on calculated reductions in VMT and vehicular accident rate in Riverside County	Estimated reductions in VMT and potential vehicular accidents: low, medium, high

## 5 Evaluation of Corridors

This section presents the results of the corridor evaluations developed using the evaluation criteria, methodologies, and data sources identified in Section 4.

The three corridors evaluated are Perris to Temecula, Perris to San Jacinto, and Corona to Lake Elsinore. Analysis of the Perris to Temecula and Perris to San Jacinto corridors utilized information from the 2005 RCTC Commuter Rail Feasibility Study as a baseline for evaluation, and used updated data to reflect current conditions. Analysis of the Corona to Lake Elsinore corridor utilized information from the 2007 RCTC Commuter Rail Feasibility Study as a baseline for evaluation, and used updated data to reflect current conditions. The evaluation criteria (in the categories of Corridor Characteristics, Operational Characteristics, Effectiveness Characteristics, and Other Characteristics) were applied to the three corridors, and a yes/no or comparative low, medium, and high ranking was determined for each. These are relative rankings for the purpose of this comparison only. The following symbols are used:



The results of the evaluation are organized by category (Corridor Characteristics, Operational Characteristics, Effectiveness Characteristics, and Other Characteristics). The results are presented first by individual criteria, then in an overall category summary table at the end of each category section.

### 5.1 Corridor Characteristics

#### Demographics

Demographics for each corridor include calculations of current and future population and employment density, and the number of disadvantaged communities along the potential rail corridor. Table 19 shows the ranking for each of the corridors based on the demographics evaluation; low densities and a low number of disadvantaged communities have a low ranking, whereas high densities and a high number of disadvantaged communities received a high ranking.

Table 19. Demographics Evaluation

Evaluation Criteria	Corridor					
	Perris to Temecula		Perris to San Jacinto		Corona to Lake Elsinore	
<b>2012 Population Density per Square Mile</b> (people/square mile)	1,600		1,251		1,384	
<b>2040 Forecasted Population Density per Square Mile</b> (people/square mile)	2,308		1,983		1,802	
<b>2012 Employment Density per Square Mile</b> (jobs/square mile)	369		206		428	

<b>2040 Forecasted Employment Density per Square Mile</b> (jobs/square mile)	718		503		690	
<b>Disadvantaged communities in corridor</b> (number of census tracts designated as SB 535 disadvantaged communities within or adjacent to corridor)	1		4		6	

## Travel Demand

Table 20 through Table 22 list the 2016 Caltrans AADT for locations along the major highway in each corridor, and Table 23 shows the average and median traffic volumes for each corridor.

**Table 20. Average Annual Daily Traffic: Perris to Temecula**

Alignment	Highway / Location	AADT
<b>Via I-215 corridor</b>	I-15 Temecula, North Junction Route 79	190,000
	I-215 Murrieta, Junction Route 15	85,000
	I-215 Murrieta, Hot Springs Road	93,000
	I-215 Murrieta, Los Alamos Road	90,000
	I-215 Murrieta, Antelope Road	93,000
	I-215 Scott Road	85,000
	I-215 Sun City, Newport Road	80,000
	I-215 Sun City, McCall Boulevard	74,000
	I-215 Perris, Ethanac Road	72,000
	I-215 Perris, South Junction Route 74	88,000
	I-215 Perris, North Junction Route 74	82,000

**Table 21. Average Annual Daily Traffic: Perris to San Jacinto**

Alignment	Highway / Location	AADT
<b>Via RCTC-owned SJBL</b>	I-215 Perris, South Junction Route 74	88,000
	I-215 Perris, North Junction Route 74	82,000
<b>Includes volumes from SR 74, SR 79 and I-215</b>	SR 74 Perris, Junction Route 215	25,000
	SR 74 Perris, Ethanac Road	24,500
	SR 74 Menifee, Menifee Road	30,000
	SR 74 Junction Route 79 South	33,000
	SR 74 Hemet, Warren Road	28,000
	SR 74 Hemet, Lyon Road	30,000
	SR 74 Hemet, State Street	29,000
	SR 74 Hemet, Junction Route 79 North	27,000
	SR 79 Hemet, Junction Route 74	16,500
	SR 79 San Jacinto, Menlo Avenue/Main Street	11,800

**Table 22. Average Annual Daily Traffic: Corona to Lake Elsinore**

Alignment	Highway / Location	AADT
<b>Along Santa Fe Branch Line</b>	I-15 Lake Elsinore, Junction Route 74	117,000
	I-15 Lake Elsinore, Nichols Road	119,000
	I-15 Lake Elsinore, Lake Street	126,000
<b>Parallel to I-15</b>	I-15 Indian Trail Road	132,000



Alignment	Highway / Location	AADT
	I-15 Temescal Canyon Road	144,000
	I-15 Weirick Road	159,000
	I-15 Cajalco Road	169,000
	I-15 El Cerrito Road	174,000
	I-15 Corona, Ontario Avenue	169,000
	I-15 Corona, Magnolia Avenue	187,000
	I-15 Corona, Junction Route 91	158,000

The average and median highway traffic volumes are assigned a comparative low, medium, or high ranking in Table 23. Low traffic volumes received a low ranking; high traffic volumes received a high ranking.

**Table 23. Travel Demand Results and Summary**

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Average AADT</b>	93,818	35,400	150,364
<b>Median AADT</b>	85,000	28,500	158,000

## Highway Congestion

Table 24 indicates the congestion level on the primary roadway in each corridor in both 2012 and 2040, which was identified using information from the 2015 RCTC Strategic Assessment. Corridors that are over capacity along the entire corridor received a high ranking since they would see the most congestion relief if a transit service option were implemented along the corridor.

**Table 24. Highway Congestion Evaluation**

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>2012 Congestion</b>	Over capacity along the entire corridor	Over capacity on parts of the SR 74 section of the corridor	Over capacity along the entire corridor
<b>2040 Congestion</b>	Over capacity between Perris and Menifee only	Over capacity on most of the SR 74 section of the corridor	Over capacity along the entire corridor, except a small portion near SR 74

## Land Use Intensities

Existing and future employment along each corridor was identified based on data from the SCAG 2016 RTP/SCS. Corridors with a greater number of high-employment TAZs adjacent to a new station received a high ranking, whereas corridors with a fewer number of high-employment TAZs adjacent to a new station received a low ranking (as shown in Table 25).



**Table 25. Land Use Intensities**

Evaluation Criteria	Corridor					
	Perris to Temecula		Perris to San Jacinto		Corona to Lake Elsinore	
<b>2012 Land Use</b> (number of adjacent TAZs with high employment)	3		0		0	
<b>2040 Land Use</b> (number of adjacent TAZs with high employment)	4		2		0	

### Corridor Length

As previously mentioned, the approximate lengths of each of the potential rail corridors are listed based on previously developed information, and is reported for informational purposes (not part of the comparative analysis).

- Perris to Temecula: 16.4 miles
- Perris to San Jacinto: 15.7 miles
- Corona to Lake Elsinore: 18.3 miles

### ROW Availability

Corridors with available ROW are typically less expensive, involve fewer property impacts, and take less time to design and construct. The percentages shown in Table 26 indicate the percentage of available ROW (excluding roadway parcels) that can be preserved for future rail transit purposes. The percentages include railroad-owned parcels with no active rail lines, parcels with minimal development and/or temporary features, and County-owned flood control corridors that may be suitable for shared use with rail transit operations. The amount of street ROW intersecting the corridors is not included in these percentages since it does not represent ROW that can potentially be preserved for future rail transit purposes. See Appendix B for further details regarding the ROW analysis.

**Table 26. ROW Availability**

Evaluation Criteria	Corridor					
	Perris to Temecula		Perris to San Jacinto		Corona to Lake Elsinore	
<b>Percent of ROW Owned by RCTC</b>	0%		100%		0%	
<b>Percent of ROW that is not developed</b> (includes parcels with minimal or no development and/or temporary features. Not owned by a railroad or other transportation-related entity)	79%		100%		81%	

## Corridor Characteristics Summary

Based on the criteria evaluated for corridor characteristics, the Perris to Temecula corridor would have characteristics more conducive to rail service in terms of residential density and employment density along the corridor (see corridor characteristics summary shown in Table 27). The Perris to San Jacinto corridor has the advantage in terms of ROW availability since RCTC owns the ROW. Travel demand and highway congestion are highest along the Corona to Lake Elsinore corridor.

Table 27. Overall Corridor Characteristics

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Demographics</b>			
2012 Population Density per Square Mile (people/square mile)			
2040 Forecasted Population Density per Square Mile (people/square mile)			
2012 Employment Density per Square Mile (jobs/square mile)			
2040 Forecasted Employment Density per Square Mile (jobs/square mile)			
Disadvantaged communities in corridor (number of census tracts designated as SB 535 disadvantaged communities within or adjacent to corridor)			
<b>Travel Demand</b>			
Average AADT			
Median AADT			
<b>Highway Congestion</b>			
2012 Congestion			
2040 Congestion			
<b>Land Use Intensities</b>			
2012 Land Use (number of adjacent TAZs with high employment)			
2040 Land Use (number of adjacent TAZs with high employment)			
<b>ROW Availability</b>			
ROW Availability			

## 5.2 Operational Characteristics

### Capacity




System capacity was determined based on a typical number of seats per vehicle for the technology, combined with the number of vehicles in operation during the peak hours of operation. For this analysis, system capacity was developed based on existing Metrolink and NCTD Sprinter capacity. Per the Metrolink 2015-2020 Short Range Transit Plan (SRTP) and 2012-2017 Metrolink Fleet Plan, Metrolink train sets generally range from four to six coaches long, and seating capacity varies from 120 to 149 seats per car, depending on fleet and generation. Per the NCTD 2017-2026 Comprehensive Strategic, Operating and Capital Plan, the Sprinter is typically a three-car train set with a maximum capacity of 90 passengers per car. The number of vehicles in operation during peak hours of operation was determined based on the previous studies reviewed.

Based on these assumptions, the maximum number of passengers per hour for all corridors would range from 540 to 960 passengers, depending on transit mode.

### Capital Costs

An estimated capital cost was developed by using typical unit cost factors from recent projects (including the Redlands Passenger Rail Project/Arrow and PVL), and is presented as a range. For the Perris to Temecula and Corona to Lake Elsinore corridors, the capital cost was estimated at \$25-\$35 million per mile. The estimate for the Perris to San Jacinto corridor used a lower unit cost of \$21-\$30 million per mile, to account for the fact that RCTC already owns the SJBL ROW along this corridor.

**Table 28. Capital Costs**

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Total Capital Cost (in millions)</b>	\$410 - \$574 	\$333 - \$467 	\$458 - \$641 

## O&M Costs

O&M costs were developed by using typical operating costs per train mile for Metrolink or hybrid rail service. The O&M costs are reported as a total annual amount. The estimated O&M cost for the commuter rail options assumes 16 daily trains (six peak-period, peak-direction trains in both the morning and evening, plus two midday round trips), whereas the costs for the hybrid rail options assume 72 daily trains (from 4:00am to 10:00pm, with 30-minute headway).

Table 29. O&M Costs

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Commuter Rail</b>			
Annual O&M Cost (in millions)	\$2.8	\$2.7	\$3.1
<b>Hybrid Rail</b>			
Annual O&M Cost (in millions)	\$12.0	\$11.5	\$13.4

## Stations/Stops

The number of stations or stops (shown in Table 30) was determined using previous studies and reports. This count only includes new station locations.

Table 30. Stations/Stops

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
Number of New Stations	3	3	3
Number of Stations per Mile	One station every 5.5 miles	One station every 5.2 miles	One station every 6.1 miles

## Operating Speeds and Transit Travel Times

Estimated operating speed was obtained from previous reports and studies. The estimated operating speed in miles per hour is shown in Table 31. The amount of time it takes to travel via transit between selected locations is also shown in Table 31.

Table 31. Operating Speeds and Transit Travel Times

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
Operating Speed	25-36 mph	25-36 mph	25-36 mph
Travel Time	27-39 minutes	26-38 minutes	31-44 minutes

## Integration

Both the Perris to Temecula and Perris to San Jacinto corridors would be extensions of the existing PVL commuter rail service. The Corona to Lake Elsinore corridor is not an extension of an existing transit service, but might potentially be connected as a branch of the IEOC Line or the 91/PVL Line. If DMU technology is used for these corridors, passengers would be required to transfer to the Metrolink commuter service unless DMU technology is implemented on Metrolink lines in the future.

## Rail Network Capacity

The potential for additional operating slots is dependent on ownership of each corridor when rail service is in operation, and if there is an opportunity to increase the current service levels on the corridor. The bullet points below state whether or not RCTC would have the ability to determine future service levels along the rail corridors:

- Perris to Temecula – Yes, the proposed route for this rail corridor is a new alignment parallel to I-215 and would be under RCTC purview
- Perris to San Jacinto – Yes, RCTC owns the SJBL, yet BNSF does have operating rights per the original purchase agreement.
- Corona to Lake Elsinore – No, depending on the selected route, a portion of this corridor could be owned by BNSF and future service levels would be subject to an operating agreement with BNSF.

## Frequency

The estimated service frequency (number of trains per day) was established based on transit mode and previous reports and studies. As previously mentioned in the calculation of the annual O&M cost estimate, for commuter rail options, the assumption is 16 trains per day (six peak-direction trains in the AM peak-period, two midday round trips, and six peak-direction trains in the PM peak-period). For the hybrid rail options, the assumption is 72 trains per day (service every 30 minutes in both directions between 4:00am and 10:00pm).

## Operational Characteristics Summary

Based on the criteria evaluated for operational characteristics, the Perris to San Jacinto and Perris to Temecula corridors have lower costs in terms of capital cost and annual O&M cost due to their shorter length (see operational characteristics evaluation summary shown in Table 32). Additionally, both the Perris to Temecula and Perris to San Jacinto corridors would have the benefit of potentially being extensions of an existing commuter rail service, though it might be possible for Corona to Lake Elsinore to be operated as a Metrolink extension as well. The Corona to Lake Elsinore corridor has the highest total capital cost and annual O&M cost.

Table 32. Overall Operational characteristics

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Capital and O&amp;M Costs</b>			
Total Capital Cost (in millions)			
Annual O&M Cost (in millions)		Commuter Rail	
		Hybrid Rail	

### 5.3 Effectiveness Characteristics

#### Ridership

The estimated daily ridership (in 2030) for each corridor is presented as a range in Table 33.

Table 33. Ridership

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
Daily Ridership (in 2030)	295 – 2,166	182 – 1,338	126 – 921

#### Transit Accessibility

GIS analysis of population data from the SCAG 2016 RTP/SCS was used to identify the number of people within five miles of each potential transit station along the corridors. Table 34 presents the number of people within five miles of the potential corridor’s transit stations (for current and future years).

Table 34. Transit Accessibility

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
Number of People within 5 miles of a transit station (2012)	432,430	337,466	361,694
Number of People within 5 miles of a transit station (2040)	623,687	534,971	470,794

## Connectivity

Table 35 lists how many connections to existing rail service each of the potential corridors has, as well as the number of daily trains at the connection (which serves as an indication of the quality of the connection).

Table 35. Connectivity

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Total Number of Connections</b>	1 Metrolink Line 	1 Metrolink Line 	2 Metrolink Lines 
<b>Connection (# daily trains/ buses)</b>	<b>91/PVL</b> 12 trains operated per weekday (six in the eastbound direction, six in the westbound direction), no weekend service	<b>91/PVL</b> 12 trains operated per weekday (six in the eastbound direction, six in the westbound direction), no weekend service	<b>91/PVL</b> 9 trains operated per weekday (four in the westbound direction, five in the eastbound direction), 4 trains operated per Saturday (two in the westbound direction, two in the eastbound direction), 4 trains operated per Sunday (two in the westbound direction, two in the eastbound direction)
			<b>IEOC</b> 16 trains operated per weekday (eight in the westbound direction, eight in the eastbound direction), 4 trains operated per Saturday (two in the westbound direction, two in the eastbound direction), 4 trains operated per Sunday (two in the westbound direction, two in the eastbound direction)

## GHG and Emissions Reductions

Ridership estimates were used to calculate vehicle trip reduction in order to estimate GHG and emissions reductions. Table 36 shows the estimated range of emissions reductions for each corridor

Table 36. GHG and Emissions Reductions

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>GHG and Emissions Reductions</b> (in metric tons of carbon dioxide equivalent)	873.07 MTCO <sub>2e</sub> - 896.19 MTCO <sub>2e</sub> 	539.32 MTCO <sub>2e</sub> - 553.60 MTCO <sub>2e</sub> 	371.23 MTCO <sub>2e</sub> - 381.07 MTCO <sub>2e</sub> 

## Cost Effectiveness

Estimated annualized capital costs, annual O&M costs, and annual trips were used to calculate the cost effectiveness of each corridor (shown in Table 37). The cost effectiveness is represented as an annualized cost per trip, and is presented as a range, depending on high-end/low-end cost and high-end/low-end ridership.

Table 37. Cost Effectiveness

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Cost Effectiveness</b> (annualized capital cost plus annual O&M divided by annual trips)	\$29.75 – \$291.09 per trip ●	\$40.29- \$392.43 per rtrip ◐	\$78.14- \$761.00 per trip ○

## Effectiveness Characteristics Summary

Based on the criteria evaluated for effectiveness characteristics, the Perris to Temecula corridor is ranked highest in ridership, transit accessibility, GHG and emissions reductions, and cost effectiveness (see effectiveness characteristics evaluation summary in Table 38). The Corona to Lake Elsinore corridor would have better connectivity to the regional rail system.

Table 38. Overall Effectiveness characteristics

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Ridership</b>			
<b>Ridership (in 2030)</b>	●	◐	○
<b>Transit Accessibility</b>			
<b>Number of People within 5 miles of a transit station (2012)</b>	◐	○	○
<b>Number of People within 5 miles of a transit station (2040)</b>	●	◐	◐
<b>Connectivity</b>			
<b>Total number of connections to other rail transit service</b>	○	○	◐
<b>GHG and Emissions Reductions</b>			
<b>GHG and Emissions Reductions (in metric tons of carbon dioxide equivalent)</b>	●	◐	○
<b>Cost Effectiveness</b>			
<b>Cost Effectiveness (\$/opening day rider)</b>	●	◐	○



## 5.4 Other Characteristics

### Environmental Fatal Flaws

If there are any known potential “fatal flaw” environmental issues that could make it infeasible or unlikely to develop a rail line within the corridor, that corridor is given a “yes”, if there are no known potential “fatal flaw” environmental issues, that corridor is given a “no”. Based on previous studies and reports, as well as inputs provided by local stakeholders during this study’s corridor outreach meetings:

- Perris to Temecula: No
- Perris to San Jacinto: No
- Corona to Lake Elsinore: No

### Part of an Adopted Plan

As previously mentioned, corridors that are included in an adopted plan are given a “yes”, and corridors that are not included in an adopted plan are given a “no”.

- Perris to Temecula – Yes, included in the 2016-2040 SCAG RTP/SCS as a major strategic plan project
- Perris to San Jacinto – Yes, included in the 2016-2040 SCAG RTP/SCS as a financially-constrained RTP/SCS project
- Corona to Lake Elsinore – No

### Public or Political Perception

The level of public/political support for the three potential transit corridors was determined based on feedback gathered during targeted stakeholder outreach meetings held in the corridors. Meeting attendees included local agency Planning and Public Works staff. The main purpose of the stakeholder outreach meetings was to determine if there are any adopted local plans or ongoing planning activities that would support or conflict with future rail service (e.g. land uses that would support or conflict with rail ridership, actions that have been taken to preserve ROW for a future rail alignment, discussions at the City Council level about potential rail service, etc.). Input regarding public or political perception of the three corridors included the following:

- Perris to Temecula
  - Residents of Temecula would oppose a rail alignment on the east side of I-15. The west side of I-15 is more industrial (less residential) and would therefore be preferred for a potential rail corridor.
  - The Temecula City Council would be supportive of a new rail corridor.
  - Murrieta would have concerns about train-related vibrations, particularly near hospitals.
- Perris to San Jacinto
  - The City Councils of Hemet and San Jacinto have had discussions about this potential rail corridor before. Both cities also have plans for more high-density development, which could support future rail service.

- Any impacts to traffic (caused by or related to a new rail corridor) would likely be the biggest concern from the local communities.
- Corona to Lake Elsinore
  - Residents of Lake Elsinore would have concerns about rail-related noise, air quality, and bike/pedestrian safety.
  - In terms of general support for rail, residents of Lake Elsinore view Metrolink as favorable, and high-speed rail as unfavorable.
  - Corona has some constituents who would be vocal about their opposition to rail.

Additionally, all stakeholders mentioned that funding would be the greatest barrier to future implementation of a new rail corridor. Notes from the stakeholder outreach meetings are provided in Appendix C. Further public outreach would occur when the corridors are studied in more detail.

## Safety

As previously mentioned, a primary objective in grant programs and regional plans is to improve safety. By shifting travelers from vehicles to transit, these potential transit corridors would be contributing to fewer vehicle miles traveled, thus decreasing the likelihood of vehicular accidents. The outcome of this criterion is reported as a comparative low, medium, and high based on estimated reductions in VMT and vehicular accidents.

**Table 39. Safety**

Evaluation Criteria	Corridor		
	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Estimated VMT Reduction</b> (annual, in miles)	2,545,381	1,572,354	877,245
<b>Estimated Vehicular Accident Reduction</b> (annual)	1.43	0.88	0.61



## 6 Conclusions and Recommendations

Key findings from the Task 1 corridor evaluation are summarized in Table 40 in terms of the advantages and disadvantages of each corridor.

**Table 40. Corridor Advantages and Disadvantages**

	Perris to Temecula	Perris to San Jacinto	Corona to Lake Elsinore
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Extension to an existing transit system</li> <li>• Employment centers along the corridor</li> <li>• High travel demand along the corridor</li> <li>• Larger population within a 5-mile catchment area</li> <li>• Highest forecasted ridership</li> <li>• Greater GHG and emissions reductions</li> <li>• Included in an adopted plan</li> <li>• Political support</li> <li>• Greater potential reductions in vehicular accidents</li> </ul>	<ul style="list-style-type: none"> <li>• Extension to an existing transit system</li> <li>• Availability of rail ROW</li> <li>• Lowest capital cost per mile</li> <li>• Included in an adopted plan</li> <li>• Political support</li> <li>• Potential high growth corridor</li> </ul>	<ul style="list-style-type: none"> <li>• Highest travel demand along the corridor</li> <li>• Connectivity to multiple Metrolink lines (91/PVL and IEOC)</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Highest overall capital cost and cost per mile</li> <li>• Less connectivity to Metrolink lines (91/PVL only)</li> <li>• ROW needs to be acquired</li> </ul>	<ul style="list-style-type: none"> <li>• Low forecasted population and employment density along the corridor</li> <li>• Lack of employment centers along the corridor</li> <li>• Less connectivity to Metrolink lines (91/PVL only)</li> </ul>	<ul style="list-style-type: none"> <li>• Low forecasted population and employment density along the corridor</li> <li>• Lack of employment centers along the corridor</li> <li>• Lowest projected ridership</li> <li>• ROW needs to be acquired</li> <li>• Highest capital cost</li> <li>• Highest annual O&amp;M cost</li> <li>• Not included in adopted plan</li> </ul>

Based on the findings from this evaluation, it is recommended that all three corridors be included as potential future rail corridors in RCTC’s Long Range Transportation Study. In terms of near-term potential for corridor development, the Perris to Temecula corridor appears more promising than the Perris to San Jacinto and Corona to Lake Elsinore corridors because it has greater ridership potential (based on corridor population, transit accessibility, and forecast ridership) and better overall cost-effectiveness for rail service.

The next step in the corridor evaluation process should involve developing refined estimates of costs, ridership, and cost-effectiveness in order to better understand the corridors’ viability, financial feasibility, and potential to compete for federal funds for corridor development. The refined capital cost estimates need to be based on conceptual design studies and include year of expenditure (YOE) cost estimates. The ridership forecasts need to be developed specifically for each corridor and based on the specific technology and service parameters being planned for the corridor. The O&M costs need to be based on service assumptions that are consistent with the ridership forecasts. The refined estimates of cost



and ridership can be used to develop a corridor funding and implementation strategy which will be needed when RCTC seeks funding opportunities from the state or federal government.



**Appendix A: Derivation of Unit Cost Factors**

**RCTC Next Generation Rail & Transit Study**  
**Appendix A - Derivation of Unit Cost Factors**

Capital Cost Index (from 2005 to 2018)  
 1.43

**Unit Cost Estimated from 2005/2007 Studies' Cost Estimates Inflated to 2018**

	<b>2005/2007</b> (millions \$)	<b>Miles</b> (rounded)	<b>escalated to 2018</b> (millions \$)	<b>Cost per mile</b> (millions \$)
Perris - Temecula*	250	16	358	22
Corona - Lake Elsinore*	262	18	375	21
Perris - Hemet/San Jacinto**	112	16	160	10

*costs include engineering, construction management, contingencies, etc.*

*\*ROW, structures, and earthwork account for approximately 51% of the total cost.*

*\*\* ROW, structures, and earthwork account for approximately 5% of the total cost.*

**Unit Costs of Other Projects in Southern California**

	<b>Cost</b> (millions \$)	<b>Miles</b>	<b>Cost per mile</b> (millions \$)
Mid-Coast	987	11	90
RPRP	140	9	16
PVL	250	24	10

The unit cost for these corridors will be more similar to RPRP and PVL than to Mid-Coast.

With inflation increasing recently, the escalated 2018 cost per mile is likely to be conservatively low.

Based on the above, assume \$25 million per mile as the low-end cost per mile for Perris-Temecula and Corona- Lake Elsinore. Assume the high-end of the range is 40% greater than the low-end.

Assume the cost range for Perris - Hemet/San Jacinto is 49% of the cost for the other two corridors to account for expected lower costs for ROW, structures, and earthwork.

	For Perris - Temecula and Corona - Lake Elsinore corridors		For Perris - Hemet/San Jacinto corridor	
	low-end cost per mile	high-end cost per mile	low-end cost per mile	high-end cost per mile
<b>Capital Cost (2018 dollars)</b>	\$25 million	\$35 million	\$12 million	\$17 million



**Appendix B: Task 1h ROW Memo**



# Task 1h Technical Memorandum

Date: Thursday, December 20, 2018

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Project: Riverside County Transportation Commission (RCTC)  
Next Generation Rail & Transit Study

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To: Sheldon Peterson, RCTC

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From: JD Douglas, HDR

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Subject: Task 1h: Identify Potential Rights-of-Way

## Introduction

### Background

The Next Generation Rail & Transit Study was identified as a follow-up action in the 2016 RCTC (Commission) Strategic Assessment effort that identified regional transportation needs and challenges. This Study will serve as one of the modal “building blocks” for an overall Riverside County Long Term County Transportation Plan, and will provide guidance to assist the Commission in developing a path forward for improving regional rail and transit in the County of Riverside.

### Project Objectives

The objectives of the Study are to review previously identified high-capacity transit corridors, identify potential new corridors, prioritize one rail corridor for proceeding into project development, and develop additional information and data about the high priority corridor.

### Task Objectives

Task 1 of the Study identifies potential future transit corridors in Riverside County and evaluates their costs, benefits, and impacts to identify the highest priority corridor(s) for implementation in the coming years. The top priority corridor will be defined and further evaluated in Task 2.

Earlier efforts within Task 1 established a final list of four potential corridors for further study, as listed in Table 1 and depicted on Figure 1. The objective of Task 1h is to review available data to evaluate opportunities and challenges for establishing rail and/or transit service within the four corridors.



**Table 1 - Corridors Evaluated for Right-of-Way Preservation**

<b>Corridor</b>	<b>Route Length</b>	<b>Alignment</b>	<b>Connection/Extension</b>
<b>Corona to Lake Elsinore</b>	18.3 miles	The route that follows an existing active BNSF Railway industry lead track in Corona and continues along a historic rail corridor southward to Nichols Road in the City of Lake Elsinore.	Connects with existing Metrolink service operating on the BNSF Railway San Bernardino Subdivision: <ul style="list-style-type: none"> <li>• 91/PVL</li> <li>• IEOC</li> </ul>
<b>South Perris to San Jacinto</b>	15.7 miles	Follows the existing RCTC-owned San Jacinto Industrial Lead from Romoland to San Jacinto.	Extends 91/Perris Valley Line
<b>South Perris to Temecula</b>	16.4 miles	Along the I-215 Corridor from a junction with the existing RCTC-owned Perris Valley Subdivision to a location north of Winchester Road in Temecula.	Branch route from the 91/Perris Valley Line

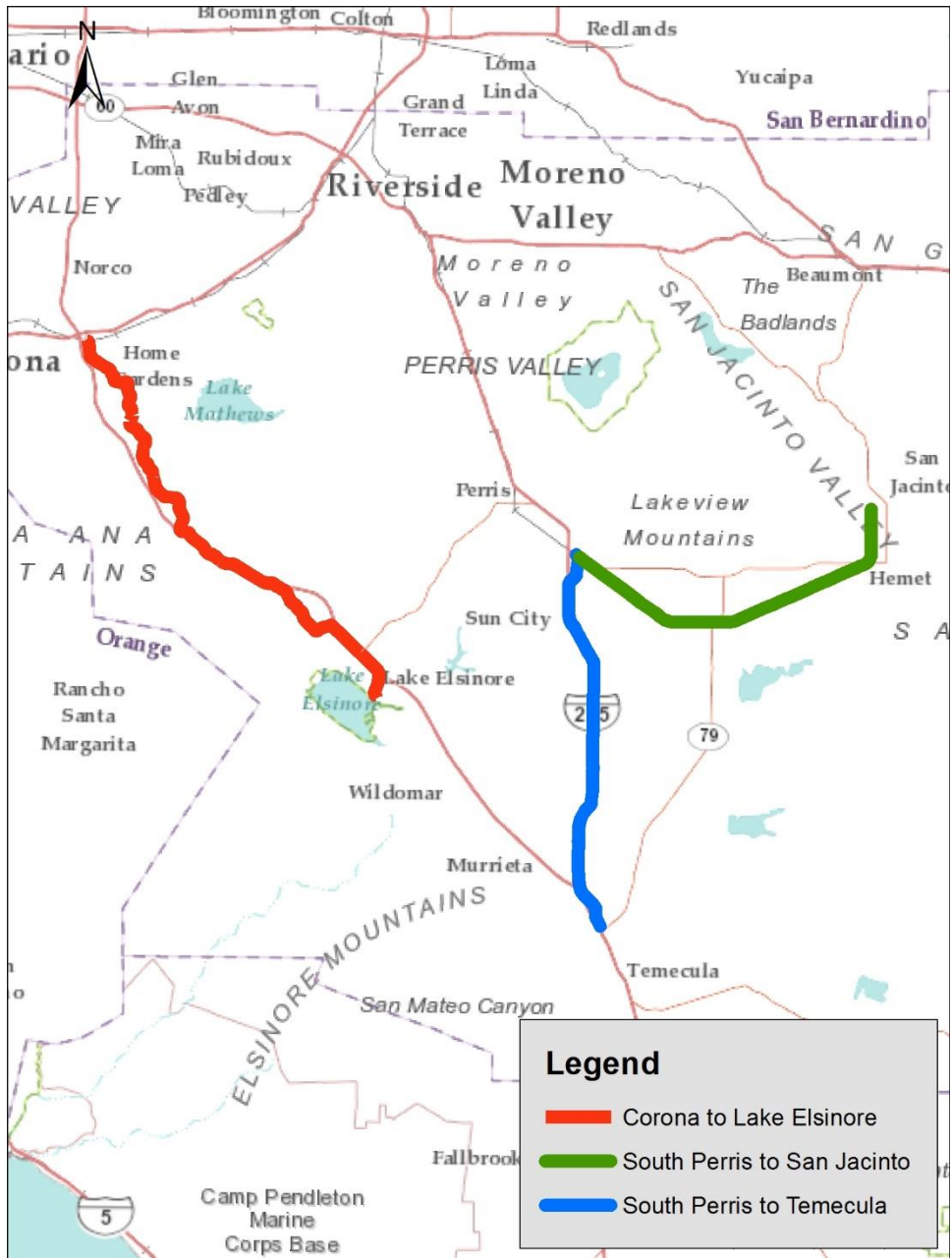


Figure 1 - Three Rail Corridors Studied in Task 1h

## Methodology

The methodology for Task 1h consists of a desktop review of available geographic information systems (GIS) databases with the aim of identifying and quantifying existing and potential rights-of-way to support rail transit service within each Corridor. No onsite reviews were performed to verify the findings of this Task.

The following steps comprise the methodology of Task 1h:

1. Establish Corridor Routes: Corridor routes were established as polyline features within GIS mapping software.
2. Establish Corridor Right-of-Way Limits by one of the following methods:
  - a. Remnant parcels: select by spatial overlay the corridor line feature with the former rail-route parcels.
  - b. New route; no previous rail parcels: create an 80-ft. buffer polygon representing a new right of way.
3. Parcel Overlay: These corridor linear features were overlaid on the County of Riverside parcel base map. Parcels were selected from the parcel basemap based on a spatial join.
4. Parcel Classification: each intersecting parcel was classified according to its existing land use as determined by an interpretation of the aerial mapping.
5. Rail Line/Parcel intersect: using the “Intersect” GIS tool, divide the corridor line feature into segments according to the parcel overlay locations. The resulting line feature includes the right-of-way status attribute.
6. Calculate Geometry: the length of each intersect line feature in Feet (US).
7. Export Line Features Attribute Table/Calculate Route Mileage: route mileage per R/W Status Category as a pivot table in Excel.

### Recreating Historic Rail Lines

Within two of the three corridors exist the remnants of previous rail routes. The South Perris to Temecula Route along I-215 does not follow a previous rail route. In many instances, these historic corridors were recreated by a digitizing rail line features using geo-referenced digital USGS topographic maps. The following geospatial data sources were used as sources for historical USGS topographic maps:

- topoView: <https://ngmdb.usgs.gov/topoview/>
- California Department of Fish and Wildlife Map Service: <https://map.dfg.ca.gov/ArcGIS/services>
- USGS Historical Topographic Map Explorer: <http://historicalmaps.arcgis.com/usgs/>

The original route was established within the GIS software by tracing rail lines shown in historic USGS topographic maps.

Existing rail lines were derived from the National Transportation Atlas Database (NTAD) as downloaded from the Bureau of Transportation Statistics website:

<https://www.bts.gov/geospatial/national-transportation-atlas-database>. The NTAD 2017 “Rail Lines” dataset was used for this Task.

### Parcel Overlay

County assessor records identify historic rail rights-of-way or other potential linear rights-of-way that could serve any of the corridors being studied. On the corridor GIS maps, the general location of these rights-of-way (R/W) are indicated as areas where the R/W has been developed for another use or is no longer available for other reasons. For potential corridors where available linear right-of-way constitutes a substantial majority of the corridor length, the analysis identifies the factors/circumstances under which preserving the right-of-way might be a viable strategy in the absence of funding for early acquisition

### Parcel Classification

Those parcels that comprise the route of each corridor were classified according one of six potential statuses as summarized in Table 2.

**Table 2 - Parcel Classification Definitions**

Status	Definition	Examples
<b>Active Railroad Right-of-Way</b>	Rail-owned property with existing, active rail operations.	<ul style="list-style-type: none"> <li>• BNSF</li> <li>• UP</li> <li>• SCRRA</li> </ul>
<b>Railroad-Owned, but No Active Rail Use</b>	Parcels with railroad ownership, but no active rail lines.	<ul style="list-style-type: none"> <li>• BNSF</li> <li>• UP</li> <li>• SCRRA</li> </ul>
<b>Preservable</b>	Parcels with minimal or no development and/or temporary features. Not owned by a railroad or other transportation-related entity.	<ul style="list-style-type: none"> <li>• Open space</li> <li>• Vacant lots</li> <li>• Golf courses</li> <li>• RCTC-owned parcels</li> <li>• Materials storage areas</li> <li>• Truck trailer parking</li> </ul>
<b>Developed</b>	Properties with permanent structures. Not owned by a railroad or other transportation-related entity.	<ul style="list-style-type: none"> <li>• Industrial</li> <li>• Commercial</li> <li>• Residential</li> </ul>
<b>Flood Control</b>	County-owned flood control corridors that may be suitable for shared use with rail transit operations.	<ul style="list-style-type: none"> <li>• Flood control levees</li> <li>• Flood control maintenance roads</li> </ul>
<b>Street Right-of-Way Intersecting the Corridor</b>	Parcels with the designation “RW” within the County database denoting active or preserved street rights of way.	<ul style="list-style-type: none"> <li>• Local streets</li> <li>• State highways</li> </ul>

# Corona to Lake Elsinore Right-of-Way Preservation Evaluation

## Route Description

An approximately 18 mile corridor with a combination of active railroad line and well-preserved former rail rights-of-way. The Corridor consists of the northerly portion of a former Atchison, Topeka and Santa Fe Railway Elsinore District, which was abandoned in 1981 and its rails removed in 1985 (Gustafson and Serpico, 1992. p 138).

As per the 2007 I-15 Commuter Rail Feasibility Study, the intended southern terminus of this corridor would be located in the vicinity of Nichols Road. The assumption is that a further extension of rail service would be accomplished within the I-15 right-of-way.

There is an additional 3 miles of the Elsinore District south of Nichols Road that extends into the downtown core area of the City of Lake Elsinore that is not a part of this evaluation. Figure 2 provides an overview of the Corona to Lake Elsinore Corridor.

## Route Status Summary

A good majority of the route remains preservable or consists of minor developments. Table 3 provides status categories

**Table 3 - Corona to Lake Elsinore (Nichols Rd.) R/W Status Summary**

<b>R/W Status</b>	<b>Route Miles</b>	<b>Percentage</b>
<b>Active Railroad Right-of-Way</b>	2.57	14%
<b>Developed</b>	0.73	4%
<b>Preservable</b>	12.77	70%
<b>Railroad-Owned But No Active Rail Use</b>	0.89	5%
<b>Street Right-of-Way</b>	1.31	7%
<b>Total</b>	<b>18.28</b>	<b>100%</b>

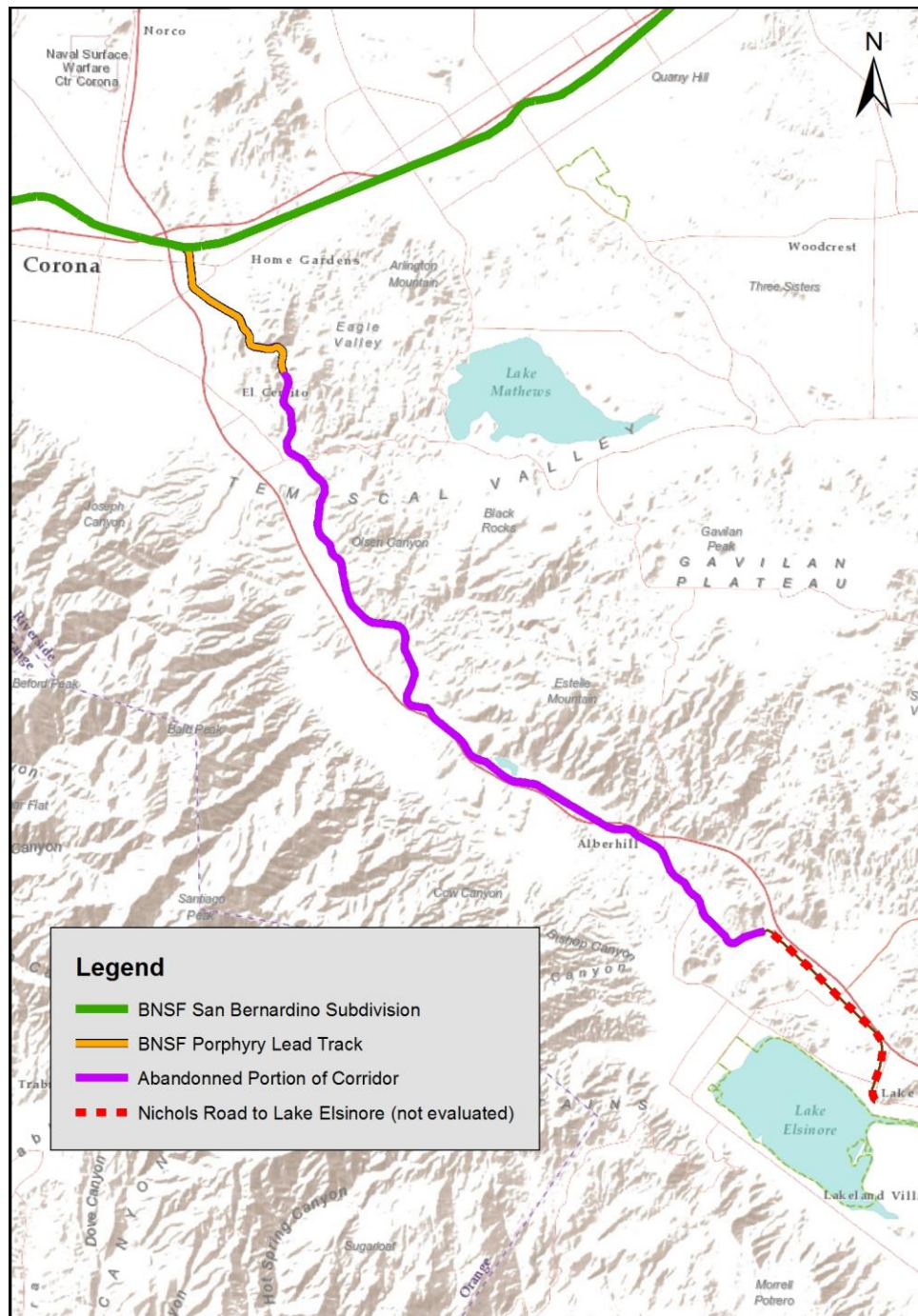


Figure 2 - Corona to Lake Elsinore Corridor Overview

# South Perris to San Jacinto Right-of-Way Preservation Evaluation

## Route Description

This route is an approximately 16-mile corridor via the RCTC-owned San Jacinto Branch Line. This route would extend the Metrolink 91/Perris Valley Line from its current terminus at South Perris to San Jacinto, near the intersection of State Street and 7<sup>th</sup> Street (as per the 2005 RCTC Commuter Rail Feasibility Study).

## Route Status Summary

The route is well-preserved: 98% of the corridor can be preserved for future rail transit purposes, as summarized in Table 4.

**Table 4 - S. Perris to San Jacinto R/W Status Summary**

R/W Status	Route Miles	Percentage
<b>Flood Control</b>	2.03	13%
<b>RCTC Owned But No Active Rail Use</b>	13.31	85%
<b>Street Right-of-Way Intersecting Corridor</b>	0.34	2%
<b>Total</b>	<b>15.68</b>	<b>100%</b>



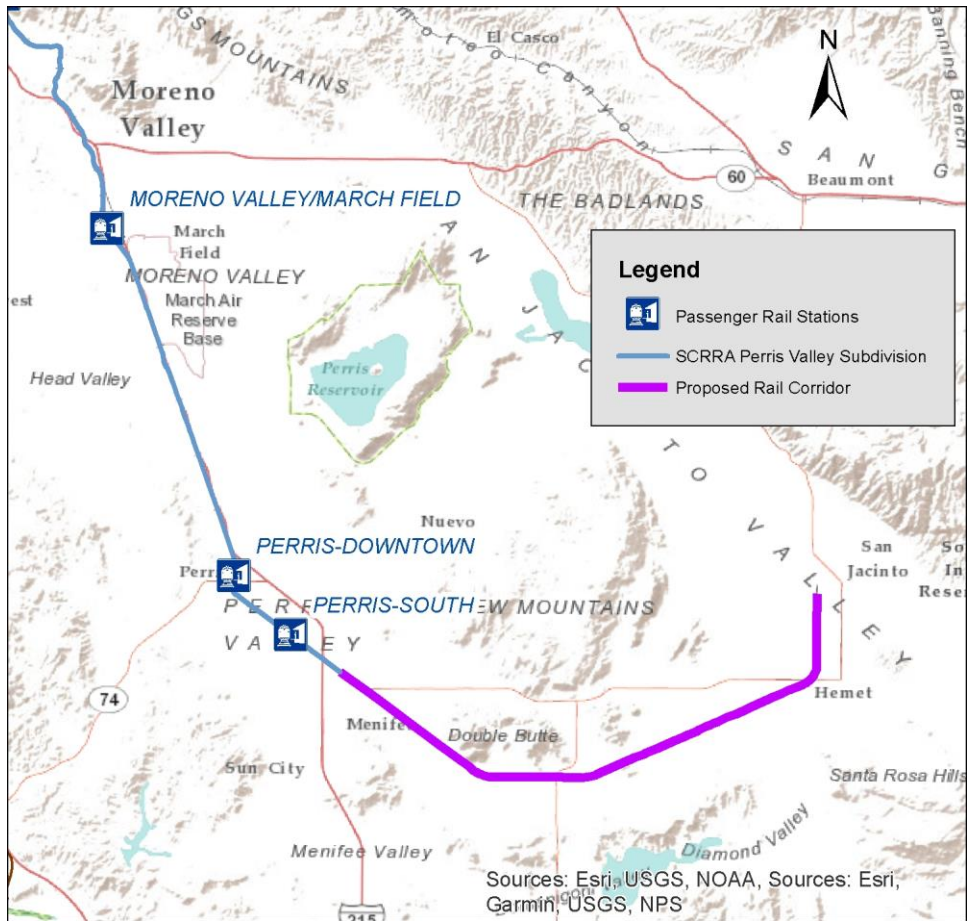


Figure 3 - South Perris to San Jacinto Corridor Overview



## South Perris to Temecula Right-of-Way Preservation Evaluation

### Route Description

This route provides service between Perris and Temecula along the I-215 corridor (generally on the east side of the freeway). This route would extend the Metrolink 91/Perris Valley Line from its current terminus at South Perris to Temecula, at Winchester Road (as per the 2005 RCTC Commuter Rail Feasibility Study).

### Route Status Summary

Much of this route is within state highway right-of-way, as summarized in Table 5.

Table 5 - S. Perris to Temecula R/W Status Summary

R/W Status	Route Miles	Percentage
Developed	1.03	13%
Flood Control	0.03	-
Preservable	4.04	25%
RCTC Owned, Active Rail Line	0.06	-
Street Right-of-Way Intersecting Corridor	11.20	68%
<b>Total</b>	<b>16.36</b>	<b>100%</b>

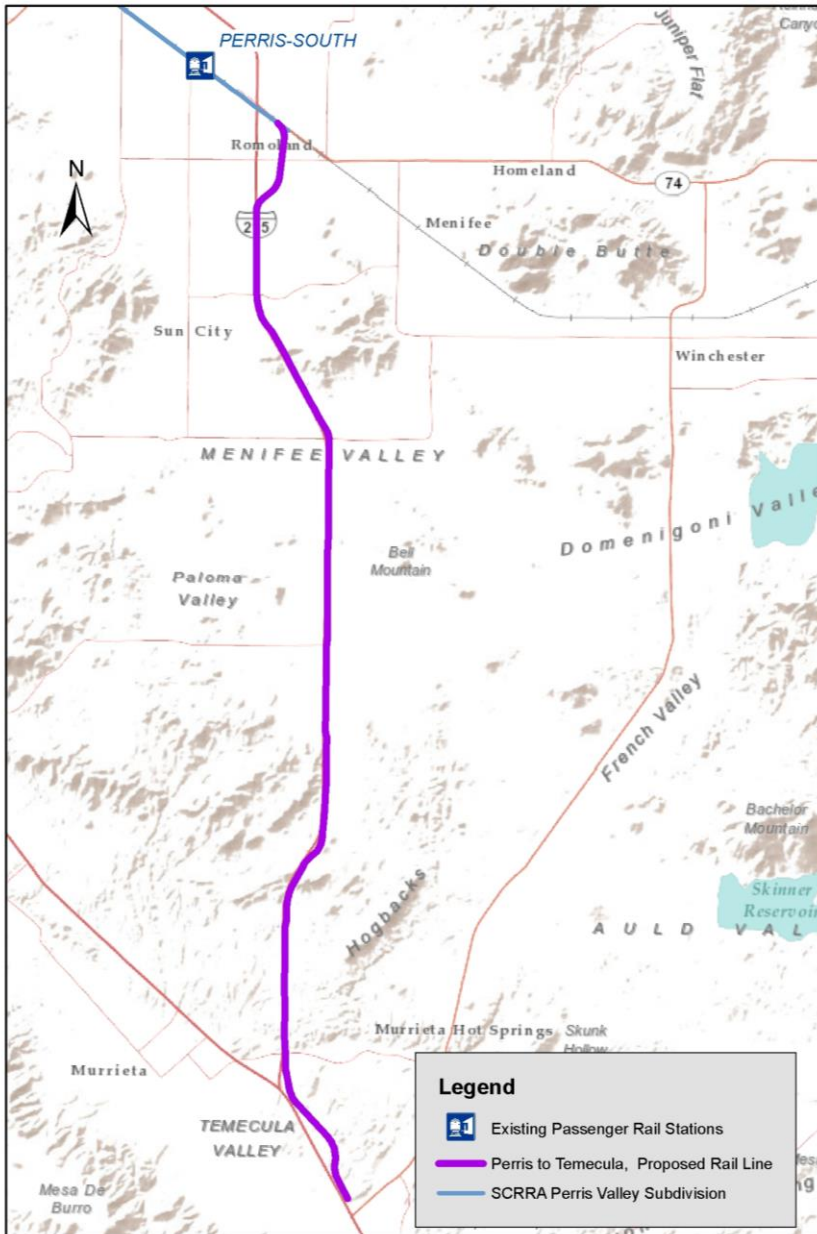


Figure 4 - South Perris to Temecula Corridor Overview

## Comparison of Preservation Potential for Each Corridor

The three corridors that were evaluated for Task 1h represent opportunities for RCTC to preserve rights-of-way for future rail transit purposes. Table 7 summarizes the availability of preservable right-of-way within each Corridor, excluding street right-of-way.

**Table 6 - Preservation Potential for Each Studied Corridor**

Corridor	Active Railroad Right-of-Way	Street Right-of-Way Intersecting the Corridor	Developed	PRESERVATION OPPORTUNITIES			Preservation Potential (Percentage Excluding Roadway Parcels)
				Railroad-Owned, but No Active Rail Use	Preservable	Flood Control	
<b>Corona to Lake Elsinore</b>	14%	7%	4%	5%	70%	-	<b>81%</b>
<b>South Perris to San Jacinto</b>	-	2%	-	85%		13%	<b>100%</b>
<b>South Perris to Temecula</b>	-	68%	6%	-	25%	-	<b>79%</b>

## References

Gustafson, Lee, and Philip C. Serpico. *Coast Lines Depots: Los Angeles Division*. Omni Publications, 1992.

Wilbur Smith Associates et. al, *I-15 Commuter Rail Feasibility Study*, June 29, 2007



**Appendix C: Notes from Stakeholder Outreach Meetings**

# Meeting Notes

Project: RCTC Next Generation Rail and Transit Study

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Subject: Task 1d Stakeholder Outreach Meetings

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Date: Thursday, October 25, 2018

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Location: City of Perris Council Chambers (101 North D Street, Perris, CA 92750)

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Attendees:	Sheldon Peterson (RCTC)	Ron Mathieu (SCRRA/Metrolink)
	Cheryl Donahue (RCTC)	Ron Running (City of Hemet)
	Ruby Arellano (RCTC)	Rob Johnson (City of San Jacinto)
	Cheryl Kitzerow (City of Menifee)	JD Douglas (HDR)
	Jonathan Smith (City of Menifee)	Gerard Reminiskey (HDR)
	Clara Miramontes (City of Perris)	Crystal Wang (HDR)

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- City of San Jacinto
  - The City is working on its General Plan 2040 update
  - The Downtown Specific Plan includes the development of a high-density downtown with a casino and hotel
  - Mt. San Jacinto College has property available for a potential future rail station
  - Population density in San Jacinto is currently 2,156 people/square mile
  - There is currently a lot of growth in San Jacinto; the number of housing is increasing
  - San Jacinto City Council has had discussions about this potential rail corridor before
- City of Hemet
  - The Hemet General Plan identifies potential locations for stations
  - The area around SR-79 has the potential for more development
  - Planning for a multimodal transit center with the Riverside Transit Agency
  - Hemet City Council has had discussions about this potential rail corridor before
- City of Menifee
  - Menifee's economic development corridor is potentially a good location for transit (business park, industrial)
  - A lot of growth is planned around Ethanac Road
- Traffic would likely be the biggest concern from the local community
- Look into consolidation to avoid having multiple consecutive grade crossings
- Funding is the greatest barrier to implementation of a new rail corridor

# Meeting Notes

Project: RCTC Next Generation Rail and Transit Study

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Subject: Task 1d Stakeholder Outreach Meetings

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Date: Thursday, October 25, 2018

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Location: City of Perris Council Chambers (101 North D Street, Perris, CA 92750)

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Attendees:	Sheldon Peterson (RCTC)	Brandon Rabidou (City of Temecula)
	Cheryl Donahue (RCTC)	Jarrett Ramaiya (City of Murrieta)
	Ruby Arellano (RCTC)	Ron Mathieu (SCRRA/Metrolink)
	Lorelle Moe-Luna (RCTC)	Ron Running (City of Hemet)
	Cheryl Kitzerow (City of Menifee)	Rob Johnson (City of San Jacinto)
	Jonathan Smith (City of Menifee)	JD Douglas (HDR)
	Amer Attar (City of Temecula)	Gerard Reminiskey (HDR)
	Dale West (City of Temecula)	Crystal Wang (HDR)

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- City of Temecula
  - The Specific Plans identify new developments that could potentially serve as future transit stops
    - Uptown Temecula Specific Plan – contains plans for high-density, walkable development west of I-15
    - New Mt. San Jacinto College facility/campus
    - Old Town Temecula Specific Plan – contains plans to create a walkable, mixed-use destination
    - Focus on connectivity between the college campuses
  - The City is planning for a major general plan update in 2020
  - Residents of Temecula would oppose an alignment on the east side of I-15. The west side of I-15 is more industrial, and would be more feasible for a potential rail corridor.
  - Temecula City Council would be supportive of a new rail corridor, with CEQA exemptions
  - Reach out to the tribes early on in the planning process
  - If the messaging for a new rail corridor stresses the vehicular traffic benefits that a train can offer, there might be more public support for the project
- City of Murrieta
  - The City of Murrieta is in the process of their general plan update now
  - The City has concerns about train-related vibrations, particularly near hospitals
- City of Menifee
  - The proposed rail corridor alignment could have a potential conflict with a planned pedestrian overpass

# Meeting Notes

Project: RCTC Next Generation Rail and Transit Study

Subject: Task 1d Stakeholder Outreach Meetings

Date: Thursday, October 25, 2018

Location: Lake Elsinore Cultural Center (183 North Main Street, Lake Elsinore, CA 92530)

Attendees:	Sheldon Peterson (RCTC)	Nelson Nelson (City of Corona)
	Cheryl Donahue (RCTC)	Ron Mathieu (SCRRA/Metrolink)
	Lorelle Moe-Luna (RCTC)	JD Douglas (HDR)
	Richard MacHott (City of Lake Elsinore)	Gerard Reminiskey (HDR)
	Nicole Dailey (City of Lake Elsinore)	Crystal Wang (HDR)

- City of Lake Elsinore
  - Lake Elsinore has a 2040 long-range plan in the works, with an expected completion date in Spring 2019.
  - Plans for new development in the city are detailed in the Alberhill Villages Specific Plan
    - The Plan includes development of a new high-density, mixed-use community, including 8,000 new residential units, a business park, and a university complex
    - Development will be located just south of I-15 near Lake Street and Temescal Canyon Road
    - The Alberhill Villages Specific Plan development would be adjacent to the Alberhill Ranch Specific Plan residential development
  - Extending the rail alignment further south to the Lake Elsinore Storm baseball stadium could help with ridership
  - Lake Elsinore needs more bus routes to feed people into the Outlets/transit center.
  - Regarding the corridor alignment, there is a potential MSHCP issue at the Temescal Wash, a potential conflict with the Alberhill Substation project, and a potential conflict with Southern California Edison's Valley-Ivyglen Project (which is waiting on approval from the CPUC)
  - Residents of Lake Elsinore would have concerns about rail-related sound/noise, air quality, and bike/pedestrian safety
  - HSR is not favorable to the residents of Lake Elsinore, but they are comfortable with Metrolink (in terms of messaging and introducing residents to the idea of potential new rail service)
- City of Corona
  - Corona has some constituents who would be vocal about their opposition to rail
  - Butterfield Trail should be preserved