2022 RIVERSIDE COUNTY REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM

RCTC
RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DECEMBER 2021

STATE OF CALIFORNIA
CALIFORNIA TRANSPORTATION COMMISSION

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

4080 Lemon St. 3rd Fl. Riverside, CA 92501
Mailing Address: P.O. Box 12008 Riverside, CA 92502-2208
951.787.7141 • rctc.org

December 15, 2021

Mr. Mitch Weiss
Executive Director
California Transportation Commission
1120 N Street, Mail Station 52
Sacramento, CA 95814

Mr. James Anderson
Chief, Division of Transportation Programming
Attention: Office of STIP
Department of Transportation
Mail Station 82
P.O. Box 942874
Sacramento, CA 94274-001

Subject: Submittal of Riverside County 2022 Regional Transportation Improvement Program

Dear Mr. Weiss and Mr. Anderson:

Enclosed is the Riverside County Transportation Commission's (RCTC) Regional Transportation Improvement Program (RTIP) proposal for inclusion in the 2022 State Transportation Improvement Program (STIP). RCTC approved the RTIP projects for submittal to the California Transportation Commission (CTC) at its October 13, 2021, meeting. The RTIP submittal consists of the following four high priority projects, in addition to Planning, Programming, and Monitoring to support STIP activities:

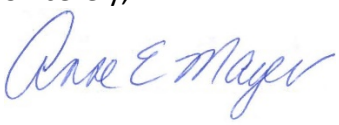
<u>New Projects:</u>
I-10/Highland Springs Interchange
Temescal Canyon Road
I-10/Monroe Street Interchange
Coachella Valley-San Gorgonio Pass Rail Corridor Service (Coachella Valley Rail)

The proposed 2022 RTIP is consistent with the Southern California Association of Governments' (SCAG) approved 2020 Regional Transportation Plan and Sustainable Communities Strategies (RTP/SCS) and Riverside County's transportation half-cent sales tax program, Measure A.

We appreciate the ongoing opportunities to work with CTC staff on updating the guidelines for the STIP and Senate Bill (SB) 1 programs. It is our intention to continue to pursue funding from these programs to enhance our transportation investments for our multimodal system. Riverside County's growth in population, housing, and employment continues at one of the highest rates in the state. To address these challenges, we will continue to work closely with the CTC and partner agencies to ensure equitable distribution of funds for transportation projects that are consistent with SCAG's adopted RTP/SCS and that contribute to state, regional, and local goals, including job creation and economic prosperity.

Thank you in advance for your consideration of the Riverside County 2022 RTIP. Please contact me or Jillian Guizado at (951) 787-7141 if you have any questions.

Sincerely,



Anne Mayer
Executive Director

C: Michael Beauchamp, District Director, Caltrans District 8
Kome Ajise, Executive Director, SCAG

2022 REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (2022 RTIP)

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A. Overview and Schedule

Section 1. Executive Summary

The Riverside County Transportation Commission (RCTC) is pleased to submit the Regional Transportation Improvement Program (RTIP) for the 2022 State Transportation Improvement Program (STIP). RCTC is proposing to utilize $51.9 million in STIP funds to support four high priority projects in Riverside County during the five-year 2022 STIP program period, from fiscal years (FY) 2022-23 through 2026-27. The STIP will be utilized in combination with a majority of local funds to make operational improvements, expand a vital regional arterial, and continue development of intercity rail service. The RTIP projects proposed are consistent with the 2022 STIP guidelines adopted by the California Transportation Commission (CTC) on August 18, 2021.

Section 2. General Information

- **Riverside County Transportation Commission**

- **Agency website links for Regional Transportation Improvement Program (RTIP) and Regional Transportation Plan (RTP).**

  Regional Agency Website Link: http://www.rctc.org

  RTIP document link: http://www.rctc.org/funding-and-planning

  RTP link: https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176

- **RCTC Executive Director**

  Name Anne Mayer
  Title Executive Director
  Email amayer@rctc.org
  Telephone (951) 787-7141

- **RCTC RTIP Staff**

  Name Jillian Guizado
  Title Planning & Programming Director
  Address 4080 Lemon Street, 3rd Floor
  City/State Riverside, CA
  Zip Code 92501
  Email jguizado@rctc.org
  Telephone (951) 218-3922

- **California Transportation Commission (CTC) Staff**

  Name Teresa Favila
  Title Deputy Director
  Address 1120 N Street

City/State Sacramento, CA
Zip Code 95814
Email teresa.favila@catc.ca.gov
Telephone 916-653-2064

Section 3. Background of Regional Transportation Improvement Program (RTIP)

A. What is the Regional Transportation Improvement Program?

The Regional Transportation Improvement Program (RTIP) is a program of highway, local road, transit, and active transportation projects that a region plans to fund with State and Federal revenue programmed by the California Transportation Commission in the State Transportation Improvement Program (STIP). The RTIP is developed biennially by the regions and is due to the Commission by December 15 of every odd numbered year. The program of projects in the RTIP is a subset of projects in the Regional Transportation Plan (RTP), a federally mandated master transportation plan which guides a region's transportation investments over a 20 to 25 year period. The RTP is based on all reasonably anticipated funding, including federal, state, and local sources. Updated every 4 to 5 years, the RTP is developed through an extensive public participation process in the region and reflects the unique mobility, sustainability, and air quality needs of each region.

B. Regional Agency's Historical and Current Approach to developing the RTIP

The STIP process at RCTC starts once the CTC and Caltrans release the Draft STIP Fund Estimate in June of every odd year. Project priorities are considered for inclusion in the RTIP and are discussed with the RCTC Technical Advisory Committee (TAC), consisting of Public Works Directors from the cities and County, transit operators, subregional agencies (Coachella Valley Association of Governments and Western Riverside Council of Governments) and Caltrans District 8. Based on RCTC's priority projects and programs, including the voter-approved Measure A program of projects, and input from the TAC, staff prepares project recommendations for review and approval by the RCTC Budget and Implementation Committee followed by final approval by the RCTC Board. The TAC, Budget and Implementation Committee, and RCTC Board agendas are published on the RCTC website and posted at its offices located at the Riverside County Administrative Center. Upon submittal of the Draft RTIP, or immediately following the RTIP submittal deadline of December 15, 2021, RCTC will post the draft RTIP on its website as required by the STIP guidelines. Once the CTC adopts the STIP at its March 2022 meeting, RCTC will post the adopted 2022 STIP project listing for Riverside County on its website.

Section 4. Completion of Prior RTIP Projects

Since approval of the 2020 STIP, no projects have been marked as completed. All uncompleted, allocated projects are currently under construction. Two of the new projects approved in the 2020 STIP in Riverside County have not yet requested allocation of funds and one is being deprogrammed with the funds being reprogrammed onto an existing STIP project.

Section 5. RTIP Outreach and Participation

A. RTIP Development and Approval Schedule

Action	Date
CTC adopts Fund Estimate and Guidelines	August 18, 2021
Caltrans identifies State Highway Needs	September 15, 2021
RCTC adopts 2022 RTIP	**October 13, 2021**
Caltrans submits draft ITIP	October 15, 2021
CTC ITIP Hearing, North	November 1, 2021
CTC ITIP Hearing, South	November 8, 2021
RCTC submits ITIP comment letter	**November 17, 2021**
Regions submit RTIP to CTC (postmark by)	December 15, 2021
Caltrans submits ITIP to CTC	December 15, 2021
CTC STIP Hearing, North	January 27, 2022
CTC STIP Hearing, South	February 3, 2022
CTC publishes staff recommendations	February 28, 2022
CTC Adopts 2020 STIP	March 23-24, 2022

B. Public Participation/Project Selection Process

RCTC selects projects for STIP-RIP funding from approved transportation plans and programs. All projects programmed with state and federal funding, or are deemed regionally significant, must be included in the Metropolitan Planning Organization's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Federal Transportation Improvement Program (FTIP). SCAG develops the RTP/SCS and FTIP, which undergoes an extensive public participation and outreach process. Public participation also occurs at the county level through the RCTC TAC, Budget and Implementation Committee, and RCTC Board meetings. At the local level, the cities and county provide input and propose projects based on planning activities, priorities, and input from the public. RCTC meeting agendas are posted on the Commission's website and are physically posted at the Riverside County Administrative Center located at 4080 Lemon Street, Riverside, CA 92502.

Project selection for RIP funds is based on several factors, including fiscal years available for programming and project delivery schedules. Priority candidate projects in Western Riverside County are first selected from RCTC's Measure A (Riverside County voter-approved half-cent sales tax measure for transportation) 10-Year Delivery Plan. If the 10-Year Delivery Plan does not have enough or any projects that meet the STIP-RIP programming requirements, next, projects that are consistent with or enhance Measure A projects are considered. Projects in the Coachella Valley (eastern portion of Riverside County) are recommended by the Coachella Valley Association of Governments (CVAG) and are consistent with CVAG's Transportation Project Prioritization Study (TPPS).

C. Consultation with Caltrans District (Required per Section 17)

Caltrans District: 8

RCTC consults with Caltrans District 8 on a regular basis regarding projects on the state highway system that are candidates for ITIP, State Highway Operation and Protection Program (SHOPP), and RTIP funding. Consultation continues throughout the development of the STIP. The Caltrans District 8 Director serves as a Governor-appointed non-voting member on the RCTC Board. As such, District 8 management benefits from being part of the public RTIP programming process.

B. 2022 STIP Regional Funding Request

Section 6. 2022 STIP Regional Share and Request for Programming

A. 2022 Regional Fund Share Per 2022 STIP Fund Estimate

Carryover $0

Regional Share $35,968,000

Maximum Share $51,945,000

B. Summary of Requested Programming –

Project Name and Location	Project Description	Requested RIP Amount
I-10/Avenue 50 Interchange -Coachella (2020 STIP)	Constructs a new interchange at I-10 and a six-lane arterial	-2,000,000
Coachella Valley Regional Signal Synchronization Phase 2 -Coachella Valley (2020 STIP)	Implements signal synchronization on 18 corridors in Coachella Valley	4,472,000
I-10/Highland Springs Interchange -Banning/Beaumont (New)	Improves existing WB off- and on-ramps	14,698,000
Temescal Canyon Road -Unincorporated Riverside Co. (New)	Widens Temescal Cyn Rd from two to four lanes, includes sidewalk and bike lanes	13,000,000
I-10/Monroe Street Interchange -Indio (New)	Reconstructs Monroe St interchange with four through lanes including bridge over Whitewater River Channel	7,550,000
PPM (New)	Planning, Programming and Monitoring	719,000
Coachella Valley Rail -Riverside County (Advance)	Tier 2 project-level environmental to analyze up to six stations and design and studies up to 76 miles of 3rd track	15,657,000
PPM (Advance)	Planning, Programming and Monitoring	319,000

Section 7. Overview of Other Funding Included With Delivery of Regional Improvement Program (RIP) Projects

Non-RTIP funding comes from various fund sources. Riverside County seeks to leverage local dollars to provide additional funding from state and federal funding opportunities, in addition to partnering with Caltrans. It is highly probable project sponsors and/or lead agencies will seek future state and/or federal funding opportunities to free up local funds committed on RTIP projects for other regional priority projects. Such funding opportunities may be state: LPP, SCCP, TCEP, SRA, TIRCP and federal: CRISI, BUILD, RAISE, and new programs authorized under the newly passed Infrastructure Investment and Jobs Act. At this time, non-proportional spending is not anticipated on these RTIP projects.

Interregional Transportation Improvement Program (ITIP)

- Coachella Valley Rail

Federal

- Temescal Canyon Road (Transportation Block Grant)
- Coachella Valley Rail (Congestion Mitigation and Air Quality)

State

- Coachella Valley Rail (State Rail Assistance – see Appendix F, Section 22)

Local

- I-10/Highland Springs Interchange (Transportation Uniform Mitigation Fee; Developer Impact Fee)
- Temescal Canyon Road (Transportation Uniform Mitigation Fee; Gas Tax; Various County Funds)
- I-10/Monroe Street Interchange (Gas Tax; Developer Impact Fee)

Proposed 2022 RTIP	Total RTIP	Other Funding					Total Project Cost
		ITIP	STBG/ CMAQ	Other Federal	State	Local	
I-10/Highland Springs Interchange	14,698					22,302	37,000
Temescal Canyon Road	13,000		7,150	5,000		21,802	46,952
I-10/Monroe Street Interchange	7,550			20,000		55,173	82,723
PPM	2,015						2,015
Coachella Valley Rail	15,658	10,000	28,400		5,942		60,000
PPM	319						319
Totals	**53,240**	**10,000**	**35,550**	**25,000**	**5,942**	**99,277**	**229,009**

Notes: Not included in the proposed 2022 RTIP are projects continued from the 2020 RTIP, including: I-15/French Valley Parkway Interchange, Phase II; Coachella Valley Regional Signal Synchronization, Phase II; and SR-71/SR-91 Interchange Connector.

Section 8. Interregional Transportation Improvement Program (ITIP) Funding and Needs

The purpose of the Interregional Transportation Improvement Program (ITIP) is to improve interregional mobility for people and goods in the State of California. As an interregional program, the ITIP is focused on increasing the throughput for highway and rail corridors of strategic importance outside the urbanized areas of the state. A sound transportation network between and connecting urbanized areas ports and borders is vital to the state's economic vitality. The ITIP is prepared in accordance with Government Code Section 14526, Streets and Highways Code Section 164 and the STIP Guidelines. The ITIP is a five-year program managed by Caltrans and funded with 25% of new STIP revenues in each cycle. Developed in cooperation with regional transportation planning agencies to ensure an integrated transportation program, the ITIP promotes the goal of improving interregional mobility and connectivity across California.

RCTC submitted a proposal for ITIP funding for the Coachella Valley Rail project for $10 million. Caltrans included this request in its Draft 2022 ITIP submitted by the October 15, 2021 deadline and is proceeding with including it in the Final 2022 ITIP to be submitted by the December 15, 2021 deadline. This cooperative funding approach between RCTC and Caltrans for the Tier 2 environmental document of the Coachella Valley Rail project is significant, inclusive of a jointly submitted federal Consolidated Rail Infrastructure and Safety Improvements (CRISI) grant application on November 23, 2021.

RCTC's opinions of what the most significant interregional highway and intercity rail needs are within the Riverside County region are consistent with the corridors and service identified in Caltrans' 2021 Interregional Transportation Strategic Plan (ITSP) and 2018 State Rail Plan, including:

Interregional Highway Needs –

- Interstate 15 and State Routes 86 and 111 linking Mexico and Riverside County, including the Coachella and Palo Verde Valleys, and Imperial County. These are critical to the state's economic competitiveness through trade, commerce, and agriculture.
- State Route 74 linking two other critical interregional corridors, Interstate 5 and Interstate 15, between south Orange County and Riverside County; this corridor is a vital link for Riverside County residents to jobs in Orange County and doubles as an emergency evacuation alternative for the adjacent wildfire-prone communities.
- Interstate 10 links southern California's Ports of Los Angeles and Long Beach with the rest of the country through San Bernardino and Riverside Counties. Interstate 10 is arguably the most vital interregional corridor in the country with its parallel routes (State Routes 91, 60, and 210) providing essential alternatives. RCTC agrees with the statements on page 44 of the 2021 ITSP.

Intercity Rail Needs –

- Coachella Valley-San Gorgonio Pass Corridor Intercity Passenger Rail Service (Coachella Valley Rail) will connect Los Angeles Union Station with the Coachella Valley and all major hubs in between.

Section 9. Projects Planned Within Multi-Modal Corridors

I-15 Corridor Improvements (STIP Project: Temescal Canyon Road) –

The I-15 corridor in Riverside County exists from the San Bernardino County line to the north and the San Diego County line to the south. The I-15 corridor is designated as a North America Free Trade Agreement (NAFTA) corridor, providing north/south access for goods distribution to and from the Mexico border and Ports of Los Angeles and Long Beach by way of intersecting I-10, SR-60, SR-91, and I-215. The Secretary of Transportation has designated the entirety of I-15 in Riverside County as a segment of the Primary Highway Freight System (PHFS), pursuant to the Fixing America's Surface Transportation Act, based on freight tonnage and volume, average daily truck traffic, truck traffic as a percentage of total traffic, population centers, network connectivity, ports of entry (land and sea), and access to energy exploration and production. The corridor experiences heavy congestion and is also a major truck corridor. The multi-state I-15 Corridor System Master Plan also identified critical projects and congestion choke-points from the Mexico border to northern Utah. Several of the projects identified are in Riverside County.

In April 2021, RCTC, in partnership with Caltrans, opened the first tolled segment on I-15 in Riverside County between SR-60 and Cajalco Road. This $450 million project added two tolled express lanes in each direction and connects to the 2017 expansion of the SR-91 express lanes into Riverside County from Orange County to I-15. RCTC is currently in the environmental phase to study extending the I-15 express lanes south another 14.5 miles to SR-74 in Lake Elsinore. The design phase of that project is anticipated to begin in 2023. Additionally, the San Bernardino County Transportation Authority is leading a project to construct express lanes from where the Riverside County express lanes end on I-15 at SR-60 north into San Bernardino County.

Temescal Canyon Road is the only north-south arterial adjacent to I-15 that provides an alternative to the interstate. This project complements recently completed widenings of Temescal Canyon Road at Dos Lagos and Dawson Canyon which included replacing an over-the-road drainage crossing at Coldwater Creek to an under-the-road box culvert, a slurry seal, repainting of pavement markings, and striping of bike lanes.

I-10 Corridor Improvements (STIP Projects: I-10/Highland Springs Interchange; I-10/Monroe Street Interchange; Coachella Valley Rail) –

I-10 is a major freeway that originates in Los Angeles County at the junction with SR-1 in Santa Monica and extends east to its terminus in Florida. Within Caltrans District 8 (San Bernardino and Riverside counties), I-10 is 194.8 miles long. Beginning as an eight-lane facility in San Bernardino County at the Los Angeles County line going east it transitions to a six-lane facility before entering Riverside County. I-10 passes through the cities of Calimesa and Beaumont where it transitions back to an eight-lane facility and traverses the cities of Banning, Palm Springs, Cathedral City, and Rancho Mirage. Between the Monterey Avenue interchange in Palm Desert and its junction with SR-86 in Indio, I-10 is a six-lane facility. East of SR-86, the

remainder of I-10 in Riverside County is a four-lane facility where it passes through Coachella and Blythe and continues into Arizona.

East of the junction of I-10 and State Route 60, I-10 has been identified in the 2021 Interregional Transportation Strategic Plan as a priority interregional highway, particularly in the Southern California – Southern Nevada/Arizona East-West Corridor.

I-10 runs in an east/west direction. In the vicinity of the I-10/Highland Springs Interchange, it is delineated to provide four general-purpose lanes in each direction. In the vicinity of the I-10/Monroe Street Interchange, it is delineated to provide three general-purpose lanes in each direction.

West of the I-10/Highland Springs Interchange, on SR-60, RCTC is in the midst of constructing a truck ascending and descending lane in each direction to improve goods movement and safety. Additionally, several other local interchanges on I-10 adjacent to Highland Springs are under project development or in the project development queue. These adjacent projects are critical to sustain the significant population growth Riverside County has seen and continues to see.

Adjacent to the I-10/Monroe Street Interchange, over the last 15 years a number of local interchanges have already been improved. I-10/Jackson Street Interchange, directly adjacent to Monroe Street Interchange, is on a similar path as Monroe. The I-10/Jackson Street Interchange has cleared environmental but needs funding to move into subsequent phases.

Section 10. Highways to Boulevards Conversion Pilot Program

Currently, there are no state routes in Riverside County that RCTC believes may be a potential candidate for a highways to boulevards conversion pilot program. RCTC looks forward to the opportunity to review and comment on any proposals Caltrans makes in Riverside County.

C. Relationship of RTIP to RTP/SCS/APS and Benefits of RTIP

Section 11. Regional Level Performance Evaluation (per Section 19A of the guidelines)

SCAG Region 2020 Connect SoCal (Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS)) Goals

1. Encourage regional economic prosperity and global competitiveness
2. Improve mobility, accessibility, reliability, and travel safety for people and goods
3. Enhance the preservation, security, and resilience of the regional transportation system
4. Increase person and goods movement and travel choices within the transportation system
5. Reduce greenhouse gas emissions and improve air quality
6. Support healthy and equitable communities
7. Adapt to a changing climate and support an integrated regional development pattern and transportation network
8. Leverage new transportation technologies and data-driven solutions that result in more efficient travel
9. Encourage development of diverse housing types in areas that are supported by multiple transportation options
10. Promote conservation of natural and agricultural lands and restoration of habitats

2022 RTIP Projects and 2020 RTP/SCS Goals and Performance Outcomes: Consistency by Project		
2020 RTP/SCS Performance Outcomes and Corresponding Goal(s)	**I-10/Monroe Street Interchange**	**Coachella Valley Rail**
Location Efficiency To measure progress toward achieving 2020 RTP/SCS Goals 4, 7, 9	$5.1 Million Average Annual Travel Time Savings	$653.0 Million Average Annual Travel Time Savings
Mobility and Accessibility To measure progress toward achieving 2020 RTP/SCS Goals 2, 4, 9	509,133 Average Annual Person-Hours of Time Saved	937,606 Average Annual Person-Hours of Time Saved
Safety and Public Health To measure progress toward achieving 2020 RTP/SCS Goals 2, 6, 7, 9	-$0.1 Million Average Annual Accident Cost Savings	$5.7 Million Average Annual Accident Cost Savings
Environmental Quality To measure progress toward achieving 2020 RTP/SCS Goals 5, 10	23,862 Tons CO2 Emissions Saved Over 20 Years	139,864 Tons CO2 Emissions Saved Over 20 Years
Economic Opportunity To measure progress toward achieving 2020 RTP/SCS Goals 1, 8	1,057 Jobs Created	15,090 Jobs Created
Investment Effectiveness To measure progress toward achieving 2020 RTP/SCS Goal 1	1.6 Benefit/Cost Ratio	0.55 Benefit/Cost Ratio
Transportation System Sustainability To measure progress toward achieving 2020 RTP/SCS Goals 3, 8	The STIP does not impact asset conditions in this cycle.	The STIP does not impact asset conditions in this cycle.
Environmental Justice To measure progress toward achieving 2020 RTP/SCS Goals 5, 6, 10	Meets federal requirements; no unaddressed disproportionately high and adverse effects for low income or minority communities.	Meets federal requirements; no unaddressed disproportionately high and adverse effects for low income or minority communities.

SCAG is the largest Metropolitan Planning Organization (MPO) in the country and the region is home to approximately 19 million Californians. The SCAG region's STIP includes several, often partial, projects included in SCAG's 2020 Regional Transportation Plan (RTP)/Sustainable Communities Strategies (SCS). The RTP/SCS meets the GHG targets established by the California Air Resources Board (CARB) pursuant to Senate Bill 375 (SB 375) specific to the SCAG region. Given the STIP projects are drawn from the conforming RTP/SCS, it is reasonable to affirm that these STIP projects move the region toward the successful implementation of the RTP/SCS. Please note the following related to the 2022 STIP-RTIP:

- The STIP-RTIP does not include system wide preservation investments. As such, it does not impact asset conditions on the State Highway System (SHS), local roads, or transit assets. However, life-cycle costs are considered in the analysis for the capital projects proposed by these STIP-RTIP Submittals.
- This STIP-RTIP does not include land use strategies and only modest transit and active transportation investments. Therefore, mode shift impacts are negligible.
- The STIP-RTIP includes several highway projects, several involving pricing on High Occupancy Toll (HOT) lanes. These projects work best in tandem with SCAG's RTP/SCS Travel Demand Management (TDM) strategies. As such, TDM strategies are included in the analysis.
- The STIP-RTIP does not include smart land use strategies or other broad based pricing strategies (mileage based user charges) included in the RTP/SCS. Therefore, impacts on several measures in the STIP guidelines are not considered (e.g., percent of housing and jobs within 0.5 miles of transit stops with frequent transit service).

Section 12. Regional and Statewide Benefits of RTIP

The STIP guidelines list a number of measures to report, depending on available data and tools. A brief summary of the analysis results for the applicable measures is provided on the following pages:

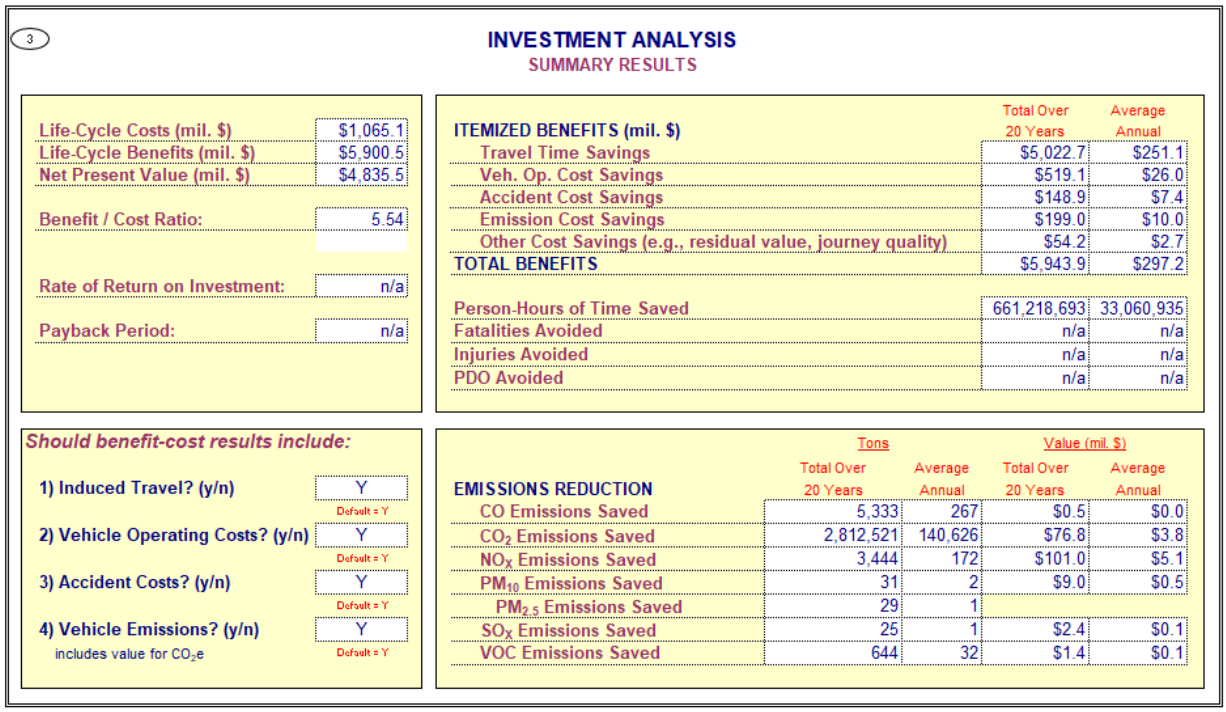
Investment Effectiveness

The 2022 STIP benefit/cost (B/C) analysis for the SCAG region utilizes the Cal-B/C model to calculate regional network benefits. It calculates and aggregates scenario benefits after travel impacts are evaluated using a regional travel demand model. The benefit/cost ratio compares the incremental benefits with the incremental costs of transportation investments. The benefits are divided into several general categories, including:

- Savings resulting from reduced travel delay;
- Accident cost savings;
- Air quality improvements; and
- Reductions in vehicle operating costs

For these categories, SCAG's travel demand model results are used to estimate the benefits of the 2022 STIP *Build* planning scenario compared with the *No Build* planning scenario. Model data for the 2022 STIP were summarized to facilitate analysis. Consistent with the overall STIP performance evaluation, benefits associated with SCAG's 2020 RTP/SCS TDM strategies are reflected in the analysis. Most of these benefits are a function of changes in Vehicle Miles

Traveled (VMT) and Vehicle Hours Traveled (VHT). Costs included in the analysis reflect estimates of lifecycle costs including capital and ongoing operations and maintenance costs. The 2022 STIP provides a regional network-level benefit/cost ratio of 5.54. Benefits and costs are estimated over the planning period of fifty years.



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INVESTMENT ANALYSIS
SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$1,065.1
Life-Cycle Benefits (mil. $)	$5,900.5
Net Present Value (mil. $)	$4,835.5
Benefit / Cost Ratio:	5.54
Rate of Return on Investment:	n/a
Payback Period:	n/a

ITEMIZED BENEFITS (mil. $)	Total Over 20 Years	Average Annual
Travel Time Savings	$5,022.7	$251.1
Veh. Op. Cost Savings	$519.1	$26.0
Accident Cost Savings	$148.9	$7.4
Emission Cost Savings	$199.0	$10.0
Other Cost Savings (e.g., residual value, journey quality)	$54.2	$2.7
TOTAL BENEFITS	$5,943.9	$297.2
Person-Hours of Time Saved	661,218,693	33,060,935
Fatalities Avoided	n/a	n/a
Injuries Avoided	n/a	n/a
PDO Avoided	n/a	n/a

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y (Default = Y)
2) Vehicle Operating Costs? (y/n)	Y (Default = Y)
3) Accident Costs? (y/n)	Y (Default = Y)
4) Vehicle Emissions? (y/n) (includes value for CO_2e)	Y (Default = Y)

EMISSIONS REDUCTION	Tons: Total Over 20 Years	Tons: Average Annual	Value (mil. $): Total Over 20 Years	Value (mil. $): Average Annual
CO Emissions Saved	5,333	267	$0.5	$0.0
CO_2 Emissions Saved	2,812,521	140,626	$76.8	$3.8
NO_X Emissions Saved	3,444	172	$101.0	$5.1
PM_{10} Emissions Saved	31	2	$9.0	$0.5
$PM_{2.5}$ Emissions Saved	29	1		
SO_X Emissions Saved	25	1	$2.4	$0.1
VOC Emissions Saved	644	32	$1.4	$0.1

Note that a regional travel demand model may not be as sensitive to individual project-level impacts. As such, this analysis is not necessarily comparable to the project-level assessments as the regional evaluation accounts for the complementary or duplicative benefits of combinations of projects with the scenarios modeled externally using SCAG's regional travel demand model.

VMT per Capita

Impacts are projected to reduce VMT per capita by 0.004 miles or 0.02 percent per day (compared to the 2045 No Build scenario as previously discussed).

Percent of congested VMT at or below 35 mph

Impacts are projected to reduce congested VMT by 0.02 percent.

Commute mode share (travel to work or school)

Impacts are expected to maintain No Build scenario conditions.

Asset Conditions (State Highway and Local Streets)

Based on the 2018 California Asset Management Plan, 14.4 percent of the State Highway System (SHS) lane miles are in poor condition. The average Pavement Condition Index (PCI) for the region's local roads is 70 based on the 2020 Statewide Local Streets and Roads Needs Assessment. The STIP does not impact asset conditions in this cycle.

Percent of transit assets that have surpassed the FTA useful life period
Not applicable.

Highway Buffer Index (the extra time cushion that most travelers add to their average travel time when planning trips to ensure on-time arrival)
The full implementation of the region's STIP projects will improve travel time reliability since HOT lane implementations, auxiliary lanes, and interchange improvements have been shown to improve overall travel time reliability. However, it is not possible to estimate these impacts with current tools.

Fatalities
Not applicable.

Percent of housing and jobs within 0.5 miles of transit stops with frequent transit service
The full implementation of the region's STIP projects will maintain the No Build scenario percentage of housing and jobs within 0.5 miles of frequent transit service.

Mean commute travel time (to work or school)
Impacts are projected to maintain No Build scenario conditions.

Change in acres of agricultural land
Not applicable.

GHG Impacts
CO2 emissions per capita are projected to be reduced by 0.001 pounds per capita daily.
Table B2 summarizes the performance measures results as suggested by the RTP guidelines. Note that the table compares future conditions, as opposed to comparing to current condition, without the STIP-RTIP against future conditions with the STIP-RTIP. This allows for isolating the impacts of the STIP-RTIP without taking credit for other developments, such as improved fuel efficiencies or smart land use strategies.

D. Performance and Effectiveness of RTIP

Section 13. Evaluation of Cost Effectiveness of RTIP (Required per Section 19)

Table B2
Evaluation: Cost-Effectiveness Indicators and Measures

Goal	Indicator/Measure	Future Level of Performance (No Build planning scenario)		Projected Performance Improvement (2045)	
Congestion Reduction	Reduce Vehicle Miles Traveled/capita	20.679		Decrease in VMT per capita = 0.004 miles per day	
	Reduce Percent of congested VMT (at or below 35 mph)	7.79%		Reduction of 0.02%	
	Change in commute mode share (travel to work or school)	Travel to Work	Travel to School	Travel to Work: Maintains No Build scenario conditions.	Travel to School: Maintains No Build scenario conditions.
	Vehicle Trips Drive Alone	66.91%	9.96%		
	Vehicle Trips 2 Person Carpool	9.04%	1.49%		
	Vehicle Trips 3+ Person Carpool	6.52%	0.66%		
	Auto Passenger Trips	7.34%	52.71%		
	Transit Trips	6.03%	10.79%		
	Non-Motorized Person Trips	4.16%	24.29%		
Infrastructure Condition	Reduce percent of distressed state highway lane-miles	Not applicable		Not applicable	
	Improve Pavement Condition Index (local streets and roads)	Not applicable		Not applicable	
	Reduce percent of highway bridge lane-miles in need of replacement or rehabilitation (sufficiency rating of 80 or below)	Not applicable		Not applicable	
	Reduce percent of transit assets that have surpassed the FTA useful life period	Not applicable		Not applicable	
System Reliability	Reduce Highway Buffer Index (the time cushion added to the average commute travel times to ensure on-time arrival).	Future conditions cannot be modeled		Improvement cannot be modeled	
Safety	Reduce fatalities and serious injuries per capita (daily)	Not applicable		Not applicable	
	Reduce fatalities and serious injuries per VMT	Not applicable		Not applicable	
Economic Vitality	Increase percent of housing and jobs within 0.5 miles of transit stops with frequent transit service	Household % = 59.81% Jobs % = 69.26%		Household % = No change Jobs % = No change	
	Reduce mean commute travel time (to work or school)	Auto Home Based Work = 27.74 mins Auto School = 10.28 mins Transit Home Based Work = 69.52 mins Transit School = 20.68 mins		Maintains No Build scenario conditions	
Environmental Sustainability	Change in acres of agricultural land	Not applicable		Not applicable	
	CO_2 emissions reduction per capita (daily)	9.383 lbs		Daily Reduction per capita = 0.001 lbs	

SCAG certifies that the proposed 2022 Regional Transportation Improvement Program is consistent with the current approved Regional Transportation Plan and Sustainable Communities Strategies.

As required in the STIP Guidelines, this evaluation is included in the electronic Project Programming Request forms (see Appendices, Section 16). In Table B3 below, proposed new RTIP project outputs are combined and listed.

Table B3
Evaluation: Project Changes or Increased Capacity Benefits

Project Type Or Mode	Changes to Built Environment	Indicator/Measure	Benefits or Performance Improvement at Project Completion
State Highway	New general purpose lane-miles		
	New HOV/HOT lane-miles		
	Lane-miles rehabilitated		
	New or upgrade bicycle lane/sidewalk miles	Linear Feet	1,786
	Operational improvements	Miles	0.8
	New or reconstructed interchanges	Square Feet	11,700
	New or reconstructed bridges		
Transit or Intercity Rail	Additional transit service miles		
	Additional transit vehicles		
	New rail track miles	Miles	76
	Rail crossing improvements		
	Station improvements	Each	6
Local Streets and Roads	New lane-miles	Miles	1.5
	Lane-miles rehabilitated	Miles	3
	New or upgrade bicycle lane/sidewalk miles	Miles	2.5
	Operational improvements	Each	2
	New or reconstructed bridges	Square Feet	23,000

Section 14. Project Specific Evaluation (Required per Section 19D)

There are two projects that meet the criteria for a project level evaluation:

- I-10/Monroe Street Interchange
- Coachella Valley Rail

The Benefit Cost Analyses and Technical Memos for these projects are included in the Appendices, Section 21, with benefits summarized on the following page:

2022 STIP – New Projects		
	I-10/Monroe Street Interchange	**Coachella Valley Rail**
Life-Cycle Costs	$66,200,000	$2,579,200,000
Life-Cycle Benefits	$106,500,000	$1,773,500,000
Net Present Value	$40,300,000	-$805,700,000
Benefit/Cost Ratio	1.6	0.55

E. Detailed Project Information

Section 15. Overview of Projects Programmed with RIP Funding

I-10/Highland Springs Interchange

This is an operational improvement project that will improve the existing westbound on- and off-ramps on I-10 at Highland Springs. The project will accommodate increases in traffic volumes expected over the course of the 20-year time horizon without requiring a widening of the Highland Springs Avenue undercrossing bridge structure.

Due to lane constraints under the I-10 overcrossing and the short queueing distances for highway access, the area experiences high levels of congestion and delay during peak periods.

Current queue lengths exceed capacity at the left turn from Highland Springs Avenue to eastbound and westbound I-10 on-ramps, as do queues at the right- and left-hand turns from the westbound I-10 off-ramp onto Highland Springs Avenue.

Project Study Report: I-10/Highland Springs Interchange Project Study Report

Temescal Canyon Road

This is a gap closure project that will widen Temescal Canyon Road from two to four lanes, including construction of curb and gutter, sidewalk, bicycle lanes, and curb ramps, north of El Cerrito Road to Tom Barnes Street.

Temescal Canyon Road traverses the Temescal Valley between the cities of Corona and Lake Elsinore as the primary north-south arterial, paralleling Interstate 15, and often serving as an alternate route for motorists to bypass congestion on I-15 during peak hours. Despite ongoing regional development increasing traffic volumes through the valley significantly in the last two decades, the project location still exists as a rural two-lane road which exceeds its natural capacity.

The proposed improvements will improve the quality of life of local residents who complain of 30-minute travel times to take children to school one- to two-miles away. Additionally with this project, parents and students will have access to two new, sustainable modes of getting to school via the sidewalk and bicycle lane elements. Furthermore, the project will decrease emergency response time, increase pedestrian and bicyclist safety, improve access for persons with disabilities, and enhance the economic competitiveness of the local community.

Project Study Report Equivalent: Temescal Canyon Road Project Study Report Equivalent

I-10/Monroe Street Interchange

This project will reconstruct and widen the interchange from two to four through lanes, including a bridge over the Whitewater River Channel from Avenue 42 to south of the Channel. Additionally, the project will reconstruct and widen the on- and off-ramp's termini from one to two lanes and from one to three lanes, respectively. The project will construct auxiliary lanes

between Monroe Street and Jackson Street and extend ramps to include acceleration and deceleration lanes.

The project addresses the following needs, transportation deficiencies, and problems:

- The existing interchange and associated intersections are expected to operate at an unacceptable level of service by year 2045 due to forecasted growth in traffic volumes in conjunction with the current capacity of the interchange.
- Existing gaps in pedestrian and bicycle infrastructure across the interchange break the multi-modal connection between communities and businesses on either side of Interstate 10.
- Without the proposed improvements, and with anticipated daily traffic growth – the existing Monroe Street and corresponding Interstate 10 ramps will experience increased delays and diminished operations within the interchange.

Project Study Report: I-10/Monroe Street Interchange Project Report

Coachella Valley Rail

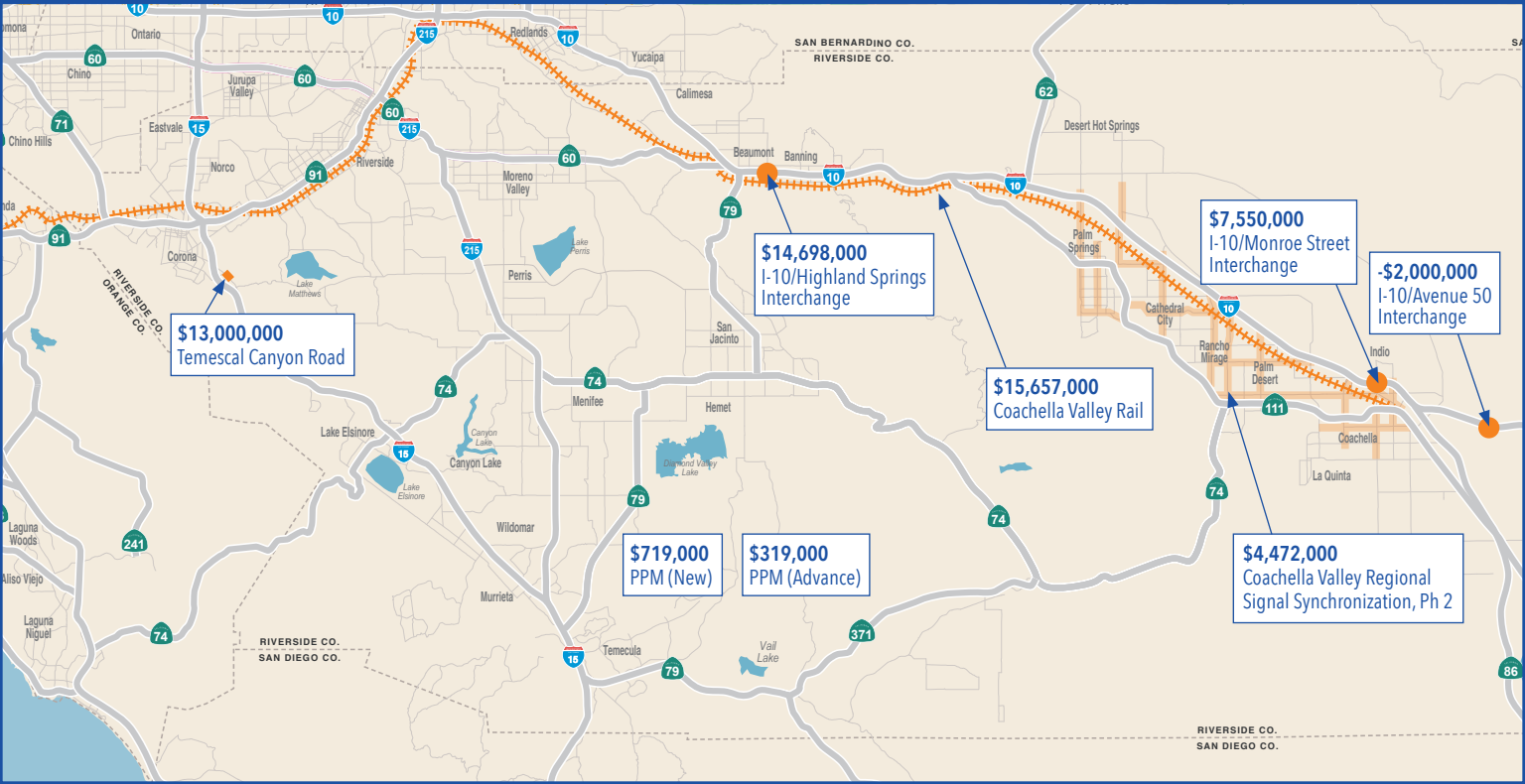
This project will prepare a Tier 2 project-level environmental analysis and design of up to six station locations and up to 76 miles of third track between the city of Colton to the Coachella Valley with five round trips per day.

The project will address the absence of effective transportation alternatives to the automobile between Los Angeles and the Coachella Valley while travel demand along the corridor due to population and employment growth is expected to increase. Congestion on this corridor continues to rise. The project will offer a safe, reliable, and convenient intercity passenger rail service that has the capability to meet the future mobility needs of residents, businesses, and visitors.

Project Study Report Equivalent: Coachella Valley Rail Program Project Study Report Equivalent

RCTC 2022 State Transportation Improvement Program Proposed Projects

RCTC RIVERSIDE COUNTY TRANSPORTATION COMMISSION



F. Appendices

Section 16. electronic Project Programming Request (ePPR) Forms

Section 17. Board Resolution or Documentation of 2022 RTIP Approval

Section 18. Omitted

Section 19. Detailed Project Programming Summary Table

Section 20. Omitted

Section 21. Benefit Cost Analyses and Technical Memos

Section 22. California State Transportation Agency Letter

Section 16. electronic Project Programming Request (ePPR) Forms

- I-10/Avenue 50 Interchange
- Coachella Valley Regional Signal Synchronization, Ph 2
- I-10/Highland Springs Interchange
- Temescal Canyon Road
- I-10/Monroe Street Interchange
- Coachella Valley Rail
- Planning, Programming, and Monitoring

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0002 v0

Amendment (Existing Project) ☒ YES ☐ NO | Date 12/10/2021 12:04:45

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☐ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
08	45210	0800000721	3016S	Coachella Valley Association of Governments	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
Riverside	10	62.300	63.700	Riverside County Transportation Commission	
				MPO	**Element**
				SCAG	Capital Outlay
Project Manager/Contact			**Phone**	**Email Address**	
Jonathan Hoy			760-238-1540	jhoy@coachella.org	

Project Title

I-10/Avenue 50 Interchange

Location (Project Limits), Description (Scope of Work)

ON I-10 IN EASTERN COACHELLA (AT 3.4 MILES E/O DILLON RD & 9.1 MILES W/O CACTUS CITY SRRA): CONSTRUCT NEW 6 THROUGH LANE AVENUE 50 IC (3 LANES EACH DIR. APPROX 600' N/O I-10 AND 1,100' S/O I-10), EB EXIT RAMP (3 LANES), WB EXIT RAMP (2 LANES), EB & WB ENTRY RAMPS (2 LANES), WB LOOP ENTRY RAMPS (2 LANES) & ADD ACC LN 3,800' WB DIR, WEST OF IC (EA: 45210)

Component	Implementing Agency
PA&ED	City of Coachella
PS&E	City of Coachella
Right of Way	City of Coachella
Construction	City of Coachella

Legislative Districts

Assembly:	56	Senate:	28	Congressional:	36

Project Milestone	Existing	Proposed
Project Study Report Approved	07/01/2003	
Begin Environmental (PA&ED) Phase	12/01/2013	12/01/2013
Circulate Draft Environmental Document Document Type (ND/MND)/FONSI	01/19/2017	01/19/2017
Draft Project Report	01/19/2017	01/19/2017
End Environmental Phase (PA&ED Milestone)	10/31/2017	10/31/2017
Begin Design (PS&E) Phase	01/01/2015	01/01/2015
End Design Phase (Ready to List for Advertisement Milestone)	04/01/2020	04/01/2020
Begin Right of Way Phase	01/01/2018	01/01/2018
End Right of Way Phase (Right of Way Certification Milestone)	04/01/2020	04/01/2020
Begin Construction Phase (Contract Award Milestone)	09/01/2023	09/01/2023
End Construction Phase (Construction Contract Acceptance Milestone)	11/01/2025	11/01/2025
Begin Closeout Phase	11/01/2025	11/01/2025
End Closeout Phase (Closeout Report)	12/01/2025	12/01/2025

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0002 v0

Date 12/10/2021 12:04:45

Purpose and Need

Construct a new interchange on I-10 to provide access to approved development, as identified in the LA Entrada Specific Plan and the City of Coachella General Plan, and to address anticipated increased traffic demand on the regional transportation system; and provide a new regional access point with I-10 for the City of Coachella and eastern Coachella Valley as identified in the City of Coachellas General Plan.

They Citys Land Use Plan element of the General Plan identifies ongoing and planned development in the eastern part of Coachella that is expected to increase the local population and local/regional traffic demands. The Circulation Plan element identifies Avenue 50 as a major arterial east-west corridor with access to I-10 to serve local and regional traffic needs; and Adjacent interchanges at I-10/Dillon Road are forecast to operate at an unacceptable Level of Service (LOS) by forecast year 2040 based on growth and traffic projections.

NHS Improvements ☒ YES ☐ NO	Roadway Class 1	Reversible Lane Analysis ☐ YES ☒ NO
Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO	Reduce Greenhouse Gas Emissions ☒ YES ☐ NO	

Project Outputs

Category	Outputs	Unit	Total
Bridge / Tunnel	New interchanges	SQFT	806,100

Additional Information

An extended acceleration lane would be constructed with the proposed project to minimize congestion from weaving within the merge area of the westbound loop and direct on ramp. Pedestrian, bicycle and neighborhood electric vehicles accommodations are provided with the proposed project (less than 1/2 mile).

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0002 v0

District	County	Route	EA	Project ID	PPNO
08	Riverside	10	45210	0800000721	3016S

Project Title

I-10/Avenue 50 Interchange

Existing Total Project Cost ($1,000s)									
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Implementing Agency
E&P (PA&ED)	3,000							3,000	City of Coachella
PS&E	3,000							3,000	City of Coachella
R/W SUP (CT)	500							500	City of Coachella
CON SUP (CT)	500							500	City of Coachella
R/W	3,000							3,000	City of Coachella
CON				62,000				62,000	City of Coachella
TOTAL	10,000			62,000				72,000	
Proposed Total Project Cost ($1,000s)									Notes
E&P (PA&ED)	3,000							3,000	
PS&E	3,000							3,000	
R/W SUP (CT)	500							500	
CON SUP (CT)	500							500	
R/W	3,000							3,000	
CON				62,000				62,000	
TOTAL	10,000			62,000				72,000	

Fund #1:	Local Funds - City Funds (Committed)								Program Code
Existing Funding ($1,000s)									20.XX.400.100
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)	3,000							3,000	City of Coachella
PS&E	3,000							3,000	
R/W SUP (CT)	500							500	
CON SUP (CT)	500							500	
R/W	3,000							3,000	
CON				60,000				60,000	
TOTAL	10,000			60,000				70,000	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)	3,000							3,000	
PS&E	3,000							3,000	
R/W SUP (CT)	500							500	
CON SUP (CT)	500							500	
R/W	3,000							3,000	
CON				62,000				62,000	
TOTAL	10,000			62,000				72,000	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0002 v0

Fund #2:	RIP - State Cash (Committed)								Program Code
Existing Funding ($1,000s)									20.XX.075.600
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)									Riverside County Transportation Com
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON				2,000				2,000	
TOTAL				2,000				2,000	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0002 v0

Complete this page for amendments only Date 12/10/2021 12:04:45

District	County	Route	EA	Project ID	PPNO
08	Riverside	10	45210	0800000721	3016S

SECTION 1 - All Projects

Project Background

Project advancement dependent upon development in adjacent area.

Programming Change Requested

Reason for Proposed Change

Agreement within Coachella Valley that is the project did not proceed to construction within a specified timeframe, the funds would be moved over to a previously programmed STIP project: CVAG Regional Signal Sync Phase II.

If proposed change will delay one or more components, clearly explain 1) reason for the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded

Other Significant Information

SECTION 2 - For SB1 Project Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

Deprogram $2 million 2020 STIP-RIP funds in 2022 STIP.

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.

Name (Print or Type)	Signature	Title	Date

SECTION 3 - All Projects

Attachments
1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0003 v0

Amendment (Existing Project) ☒ YES ☐ NO | Date 12/15/2021 08:49:39

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☐ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
08			1270	Coachella Valley Association of Governments	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
Riverside				Riverside County Transportation Commission	
				MPO	**Element**
				SCAG	Local Assistance
Project Manager/Contact			**Phone**	**Email Address**	
Eric Cowle			760-346-1127	ecowle@cvag.org	

Project Title

Coachella Valley Regional Signal Synchronization Phase II

Location (Project Limits), Description (Scope of Work)

IN EASTERN RIVERSIDE COUNTY FOR CVAG: REGIONAL SIGNAL SYNC PH II ON 18 CORRIDORS (MONTEREY, COOK, PALM DR, BOB HOPE, FRED WARING, DINAH SHORE, GENE AUTRY, DATE PALM, INDIO BLVD, JEFFERSON, PALM CANYON, VISTA CHINO, COUNTRY CLUB, MONROE, AVE 48, SUNRISE, INDIAN CYN, JACKSON) TO INCLUDE SIGNAL UPGRADES, COMMUNICATION SYSTEMS, HARDWARE AND SOFTWARE.

Component	Implementing Agency
PA&ED	Coachella Valley Association of Governments
PS&E	Coachella Valley Association of Governments
Right of Way	Coachella Valley Association of Governments
Construction	Coachella Valley Association of Governments

Legislative Districts

Assembly:	56	Senate:	37	Congressional:	44

Project Milestone	Existing	Proposed
Project Study Report Approved		
Begin Environmental (PA&ED) Phase		02/03/2020
Circulate Draft Environmental Document Document Type CE		06/16/2021
Draft Project Report		01/04/2021
End Environmental Phase (PA&ED Milestone)	10/01/2018	10/13/2021
Begin Design (PS&E) Phase	01/01/2019	06/01/2021
End Design Phase (Ready to List for Advertisement Milestone)	01/01/2020	11/17/2021
Begin Right of Way Phase		11/17/2021
End Right of Way Phase (Right of Way Certification Milestone)		01/31/2022
Begin Construction Phase (Contract Award Milestone)	07/01/2021	02/16/2022
End Construction Phase (Construction Contract Acceptance Milestone)	07/07/2024	06/03/2024
Begin Closeout Phase	07/07/2025	06/03/2024
End Closeout Phase (Closeout Report)	07/07/2026	11/13/2024

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0003 v0

Date 12/15/2021 08:49:39

Purpose and Need

In February 2018, the Executive Committee of the Coachella Valley Association of Governments (CVAG) adopted a Traffic Signal Interconnect Master Plan (Master Plan) for regional signal coordination improvements proposed throughout the Coachella Valley. The Master Plan provides the region's jurisdictions with a roadmap to improve their existing traffic management and communication systems with current technologies, providing state-of-the-art systems that will assist operators with managing traffic more effectively. The Regional Traffic Signal Interconnect Project - Phase II (project) will implement the results of the Master Plan along high-priority corridors.

The project is CVAG's major effort to advance the development and implementation of Intelligent Transportation Systems (ITS) Programs in the Coachella Valley with an emphasis on the development of a traffic signal interconnect system and signal synchronization of new and existing signals. All project improvements for the corridors, consistent with the Master Plan, are included in the Southern California Association of Governments (SCAG) Final 2019 Federal Transportation Improvement Program (FTIP).

The purpose of the project is to improve the functionality of existing intersections along 18 prominent valley corridors, utilizing new and more efficient technology. The participating local agencies would utilize Traffic Management Centers (TMC) to remotely monitor and control the project intersections and make changes within their jurisdictions to improve signal timing and maximize regional traffic flow. The vision of this project is not only to link the participating agencies via the valley-wide traffic signal interconnect, but to implement new traffic signal and ITS technologies that will improve multimodal mobility, maximize highway and arterial system capacity, improve operational efficiency, safety and the environment throughout the Coachella Valley. It will also prepare the agencies for future emerging transportation technologies including connected vehicles, autonomous vehicles, big data, integrated corridor management (ICM), and smart cities. The project will enable the 18 corridors to operate more efficiently with less impact to the environment, particularly air quality, by alleviating congestion and reducing travel time and fuel consumption.

Currently, each agency within the Coachella Valley independently operates and maintains their respective Traffic Management Systems (TMS), which ultimately, when synchronized, control traffic throughout the Coachella Valley. However, regional signal timing plays a vital role in controlling traffic delays and reducing the number of traffic incidents valley-wide. Traffic patterns in the Coachella Valley are very unique. Typically, traffic volumes increase during the winter from seasonal residents when the local weather is favorable to harsh winters elsewhere. In addition, local agencies hold major events throughout the year that draw large volumes of visitors that temporarily increase the local population. This includes annual golf tournaments, parades, arts festivals and street fairs throughout the valley; the annual professional tennis tournament in the City of Indian Wells; the County Fair in the City of Indio; and the Coachella Valley Music and Arts and Stagecoach Festivals held at the Polo Fields in the City of Indio. As such, it has become necessary to begin considering traffic management from a regional perspective.

NHS Improvements ☐ YES ☒ NO	Roadway Class 2	Reversible Lane Analysis ☐ YES ☒ NO

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO Reduce Greenhouse Gas Emissions ☒ YES ☐ NO

Project Outputs

Category	Outputs	Unit	Total
TMS (Traffic Management Systems)	Traffic signal interconnect projects	EA	1
TMS (Traffic Management Systems)	Communications (fiber optics)	Miles	120
TMS (Traffic Management Systems)	TMC interconnect projects	EA	1
TMS (Traffic Management Systems)	Changeable message signs	EA	9
TMS (Traffic Management Systems)	Closed circuit television cameras	EA	69
TMS (Traffic Management Systems)	Software and hardware systems	EA	1
TMS (Traffic Management Systems)	Traffic monitoring detection stations	EA	157

Additional Information

Per Air Quality Report - Phase II will provide reductions in: reactive organic gases of 5.488 kg per day; CO 294.392 kg per day; Nox 44.257 kg per day; PM20 .0125 kg per day; PM2.5 .109 kg per day.

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**
Congestion Reduction	TCEP	Daily Vehicle Hours of Travel Time Reduction	Hours	3.91	4.6	-0.69
System Reliability	TCEP	Daily Vehicle Hours of Travel Time Reduction	Hours	3.91	4.6	-0.69
Air Quality & GHG	LPPF, LPPC, SCCP, TCEP	Carbon Monoxide (CO)	Tons	11,520	12,800	-1,280

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0003 v0

District	County	Route	EA	Project ID	PPNO
08	Riverside				1270

Project Title

Coachella Valley Regional Signal Synchronization Phase II

Existing Total Project Cost ($1,000s)									
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Implementing Agency
E&P (PA&ED)	5,167							5,167	Coachella Valley Association of Gove
PS&E									Coachella Valley Association of Gove
R/W SUP (CT)									Coachella Valley Association of Gove
CON SUP (CT)									Coachella Valley Association of Gove
R/W									Coachella Valley Association of Gove
CON		49,433						49,433	Coachella Valley Association of Gove
TOTAL	5,167	49,433						54,600	
Proposed Total Project Cost ($1,000s)									Notes
E&P (PA&ED)	4,600							4,600	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		38,047	11,953					50,000	
TOTAL	4,600	38,047	11,953					54,600	

Fund #1:	Local Funds - Agency (Committed)								Program Code
Existing Funding ($1,000s)									20.XX.400.100
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)									Coachella Valley Association of Gove
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		28,528						28,528	
TOTAL		28,528						28,528	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		10,379						10,379	
TOTAL		10,379						10,379	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0003 v0

Fund #2:	CMAQ - Congestion Mitigation (Committed)								Program Code
	Existing Funding ($1,000s)								20.30.010.820
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)	567							567	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		18,433						18,433	
TOTAL	567	18,433						19,000	
	Proposed Funding ($1,000s)								Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		18,933	11,953					30,886	
TOTAL		18,933	11,953					30,886	

Fund #3:	Local Funds - Measure A (Committed)								Program Code
	Existing Funding ($1,000s)								20.10.400.141
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)	4,600							4,600	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	4,600							4,600	
	Proposed Funding ($1,000s)								Notes
E&P (PA&ED)	4,600							4,600	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	4,600							4,600	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0003 v0

Fund #4:	RIP - State Cash (Committed)								Program Code
Existing Funding ($1,000s)									20.XX.075.600
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)									Riverside County Transportation Com
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		2,472						2,472	
TOTAL		2,472						2,472	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		4,472						4,472	
TOTAL		4,472						4,472	
Fund #5:	Other Fed - Coronavirus Response and Relief Supplemental Appro (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	21-22	22-23	23-24	24-25	25-26	26-27+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									Programmed by CTC 10/2021
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		4,263						4,263	
TOTAL		4,263						4,263	

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PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2021-0003 v0

Complete this page for amendments only Date 12/15/2021 08:49:39

District	County	Route	EA	Project ID	PPNO
08	Riverside				1270

SECTION 1 - All Projects

Project Background

Phase I already underway; Phase II anticipated to go to construction in FY21/22.

Programming Change Requested

Reason for Proposed Change

Agreement within Coachella Valley that if project PPNO 3016S did not proceed to construction within a specified timeframe, the funds would be moved over to this prior programmed STIP project.

If proposed change will delay one or more components, clearly explain 1) reason for the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded

Other Significant Information

SECTION 2 - For SB1 Project Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

Reprogram $2 million 2020 STIP-RIP funds from PPNO 3016S to PPNO 1270 in 2022 STIP.

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.

Name (Print or Type)	Signature	Title	Date

SECTION 3 - All Projects

Attachments
1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0003 v0

Amendment (Existing Project) ☐ YES ☒ NO				Date	12/10/2021 19:48:42
Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☒ STIP ☐ Other					
District	EA	Project ID	PPNO	Nominating Agency	
08				Riverside County Transportation Commission	
County	Route	PM Back	PM Ahead	Co-Nominating Agency	
Riverside	10	8.200	11.300	City of Beaumont,City of Banning	
				MPO	Element
				SCAG	Capital Outlay
Project Manager/Contact			Phone	Email Address	
David Lewis			951-787-7141	dlewis@rctc.org	

Project Title

I-10/Highland Springs Avenue Interchange

Location (Project Limits), Description (Scope of Work)

IN WESTERN RIVERSIDE COUNTY IN THE CITIES OF BANNING AND BEAUMONT: I-10/HIGHLAND SPRINGS IC IMPROVEMENTS - IMPROVE EXISTING W/B OFF RAMP AND W/B ON RAMP

Component	Implementing Agency
PA&ED	Riverside County Transportation Commission
PS&E	Riverside County Transportation Commission
Right of Way	Riverside County Transportation Commission
Construction	Riverside County Transportation Commission

Legislative Districts					
Assembly:	42	Senate:	23	Congressional:	36

Project Milestone	Existing	Proposed
Project Study Report Approved	12/10/2021	
Begin Environmental (PA&ED) Phase		04/01/2022
Circulate Draft Environmental Document Document Type (ND/MND)/FONSI		01/17/2023
Draft Project Report		01/17/2023
End Environmental Phase (PA&ED Milestone)		08/17/2023
Begin Design (PS&E) Phase		03/07/2024
End Design Phase (Ready to List for Advertisement Milestone)		01/08/2026
Begin Right of Way Phase		03/07/2024
End Right of Way Phase (Right of Way Certification Milestone)		10/16/2025
Begin Construction Phase (Contract Award Milestone)		04/24/2026
End Construction Phase (Construction Contract Acceptance Milestone)		02/24/2028
Begin Closeout Phase		02/25/2028
End Closeout Phase (Closeout Report)		05/18/2028

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
PROJECT PROGRAMMING REQUEST (PPR)
PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0003 v0

Date 12/10/2021 19:48:42

Purpose and Need

Purpose
The☐purpose of the project is to☐reduce queuing and congestion currently experienced☐by traffic on Highland Springs Avenue☐at the I-10/ Highland Springs Avenue interchange.☐The project will☐accommodate increases in traffic volumes expected over the course of the 20-year time horizon☐without requiring☐a widening of the☐Highland Springs Avenue undercrossing bridge structure.☐☐☐

Need
The proposed project is needed to address current☐and future☐operational performance☐issues. Due to lane constraints under the I-10 overcrossing and the short queuing distances for☐highway access, the area experiences high levels of congestion and delay during peak periods.☐☐☐

Current☐queue☐lengths exceed capacity☐at the left-hand turns from Highland Springs Avenue to☐the eastbound and westbound highway on-ramps.☐☐☐

Current☐queue lengths exceed capacity at the right- and left-hand turns from the westbound off-ramp onto Highland Springs Avenue.☐☐☐

NHS Improvements ☒ YES ☐ NO	Roadway Class 1	Reversible Lane Analysis ☐ YES ☒ NO
Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO	Reduce Greenhouse Gas Emissions ☒ YES ☐ NO	

Project Outputs

Category	Outputs	Unit	Total
ADA Improvements	New sidewalk	LF	1,786
ADA Improvements	New curb ramp installed	EA	6
Active Transportation	Bicycle lane-miles	Miles	0.12
ADA Improvements	Modify driveway	LF	30
Operational Improvement	Auxiliary lanes	Miles	0.8
Pavement (lane-miles)	Local road - reconstructed	Miles	2
Operational Improvement	Intersection / Signal improvements	EA	4
Operational Improvement	Ramp modifications	EA	4
Operational Improvement	Shoulder widening	EA	4
TMS (Traffic Management Systems)	Freeway ramp meters	EA	2
Active Transportation	Crosswalk	EA	4
Active Transportation	# Signs, lights, greenway, or other safety / beautification	EA	1
Pavement (lane-miles)	Local road - rehabilitated Miles	Miles	1.5

Additional Information

Reduce Greenhouse Gas Emissions - The proposed project is located in Riverside County, an area in the South Coast Air Basin, and is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The Basin is currently in nonattainment for federal ozone and particulate matter of 2.5 microns or less (PM2.5), maintenance area for carbon monoxide (CO) and particulate matter of 10 microns or less (PM10), and nonattainment for State ozone, PM10 and PM2.5 standards.

Sustainable Communities Strategy Goals - The project intends to extend Class II Bike Lanes along Highland Springs Ave as is crosses under the I-10 freeway, currently no bike lanes exist. Additional ADA improvements will be made on the sidewalks that abut Highland Springs Avenue and LED lighting will be provided for the pedestrian and bike lanes.

Performance Indicators and Measures

Measure	Required For	Indicator/Measure	Unit	Build	Future No Build	Change
Economic Development	LPPF, LPPC, SCCP, TCEP	Jobs Created (Direct and Indirect)	Number	209	0	209

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0003 v0

District	County	Route	EA	Project ID	PPNO
08	Riverside	10			

Project Title

I-10/Highland Springs Avenue Interchange

Existing Total Project Cost ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Implementing Agency
E&P (PA&ED)									Riverside County Transportation Com
PS&E									Riverside County Transportation Com
R/W SUP (CT)									Riverside County Transportation Com
CON SUP (CT)									Riverside County Transportation Com
R/W									Riverside County Transportation Com
CON									Riverside County Transportation Com
TOTAL									

Proposed Total Project Cost ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Notes
E&P (PA&ED)	2,000							2,000	
PS&E			3,000					3,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W			2,000					2,000	
CON						30,000		30,000	
TOTAL	2,000		5,000			30,000		37,000	

Fund #1: Local Funds - Transportation Uniform Mitigation Fee (Committed) — Program Code

Existing Funding ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									Western Riverside Council of Govern
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

Proposed Funding ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Notes
E&P (PA&ED)	2,000							2,000	
PS&E			3,000					3,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W			2,000					2,000	
CON						10,802		10,802	
TOTAL	2,000		5,000			10,802		17,802	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0003 v0

Fund #2:	Local Funds - Developer Fees (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON						4,500		4,500	
TOTAL						4,500		4,500	
Fund #3:	RIP - National Hwy System (Uncommitted)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON						14,698		14,698	
TOTAL						14,698		14,698	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5956-2020-0002 v0

Amendment (Existing Project) ☐ YES ☒ NO | Date 12/11/2021 05:42:28

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☒ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
08				Riverside County Transportation Commission	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
Riverside					
				MPO	**Element**
				SCAG	Local Assistance
Project Manager/Contact			**Phone**	**Email Address**	
Cathy Wampler			951-955-6803	cwampler@rivco.org	

Project Title

Temescal Cyn Rd - El Cerrito Rd to Tom Barnes St

Location (Project Limits), Description (Scope of Work)

IN WESTERN RIV. CO. SOUTHEAST OF CORONA - (GAP CLOSURE) WIDEN TEMESCAL CYN ROAD FROM TWO TO FOUR LANES INCLUDING BUT NOT LIMITED TO CURB&GUTTER, SIDEWALK, BIKE LANES, AND CURB RAMPS IN SEGMENT 1: N/O EL CERRITO RD TO TOM BARNES ST, PLUS 200' SEGMENT OF WIDENING N/O CAJALCO RD (SEGMENT 1 OF RIV150901-NEW SPLIT PROJECT)

Component	Implementing Agency
PA&ED	Riverside County
PS&E	Riverside County
Right of Way	Riverside County
Construction	Riverside County

Legislative Districts					
Assembly:	60	Senate:	31	Congressional:	42

Project Milestone	Existing	Proposed
Project Study Report Approved	12/01/2021	
Begin Environmental (PA&ED) Phase		01/07/2020
Circulate Draft Environmental Document Document Type (ND/MND)/FONSI		02/19/2024
Draft Project Report		02/20/2024
End Environmental Phase (PA&ED Milestone)		07/19/2024
Begin Design (PS&E) Phase		10/03/2022
End Design Phase (Ready to List for Advertisement Milestone)		04/28/2026
Begin Right of Way Phase		02/20/2023
End Right of Way Phase (Right of Way Certification Milestone)		12/26/2025
Begin Construction Phase (Contract Award Milestone)		08/25/2026
End Construction Phase (Construction Contract Acceptance Milestone)		11/26/2027
Begin Closeout Phase		11/29/2027
End Closeout Phase (Closeout Report)		05/30/2028

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
PROJECT PROGRAMMING REQUEST (PPR)
PRG-0010 (REV 08/2020)

PPR ID
ePPR-5956-2020-0002 v0

Date 12/11/2021 05:42:28

Purpose and Need

Temescal Canyon Road traverses the Temescal Valley between the cities of Corona and Lake Elsinore as the primary north-south arterial, paralleling Interstate 15 and often serving as an alternate route for motorists to bypass the congestion on the freeway during peak commuting hours. Regional development has increased traffic volumes through the valley significantly over the years. Portions of Temescal Canyon Road, particularly 0.7 miles between El Cerrito Road and Tom Barnes Street, still exist as a rural two-lane road and are currently loaded beyond the road's capacity. Local residents have reported that increased congestion on Temescal Canyon Road has resulted in travel times taking as much as 30 minutes to drive a mile or two to drop children off at school. This congestion is having a negative impact on the quality of life of the local residents. Widening Temescal Canyon Road from two lanes to four lanes, with the addition of sidewalks and bike lanes, can provide relief for residents. Furthermore, the proposed improvements will provide decreased response times for emergency responders, increase safety for pedestrians and bicyclists, a safe route to school for children, improve access for persons with disabilities, promote active transportation, and improve the quality of life for residents, workers, and visitors along the Temescal Valley corridor.

NHS Improvements ☐ YES ☒ NO | Roadway Class NA | Reversible Lane Analysis ☒ YES ☐ NO

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO Reduce Greenhouse Gas Emissions ☒ YES ☐ NO

Project Outputs

Category	Outputs	Unit	Total
Operational Improvement	Intersection / Signal improvements	EA	3
Operational Improvement	Two-way left turn lanes	EA	1
Active Transportation	Bicycle lane-miles	Miles	1.5
Active Transportation	Sidewalk miles	Miles	1
Active Transportation	# Signs, lights, greenway, or other safety / beautification	EA	10
ADA Improvements	New curb ramp installed	EA	8
ADA Improvements	Modify driveway	LF	750
ADA Improvements	Install new detectable warning surface	SQFT	96
Pavement (lane-miles)	Local road - reconstructed	Miles	1.5
Pavement (lane-miles)	Local road - new	Miles	1.5

Additional Information

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**
Economic Development	LPPF, LPPC, SCCP, TCEP	Jobs Created (Direct and Indirect)	Number	340	0	340

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PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

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District	County	Route	EA	Project ID	PPNO
08	Riverside				

Project Title

Temescal Cyn Rd - El Cerrito Rd to Tom Barnes St

Existing Total Project Cost ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Implementing Agency
E&P (PA&ED)									Riverside County
PS&E									Riverside County
R/W SUP (CT)									Riverside County
CON SUP (CT)									Riverside County
R/W									Riverside County
CON									Riverside County
TOTAL									

Proposed Total Project Cost ($1,000s)

									Notes
E&P (PA&ED)	4,439							4,439	
PS&E		2,723						2,723	
R/W SUP (CT)									
CON SUP (CT)									
R/W				16,790				16,790	
CON						23,000		23,000	
TOTAL	4,439	2,723		16,790		23,000		46,952	

Fund #1: Local Funds - County Funds (Committed) — Program Code

Existing Funding ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									Riverside County
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

Proposed Funding ($1,000s)

									Notes
E&P (PA&ED)	4,439							4,439	
PS&E		2,723						2,723	
R/W SUP (CT)									
CON SUP (CT)									
R/W				9,640				9,640	
CON						10,000		10,000	
TOTAL	4,439	2,723		9,640		10,000		26,802	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5956-2020-0002 v0

Fund #2:	RIP - State Cash (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									RCTC board approval to program STIP-RIP on October 13, 2021. CTC vote anticipated on March 23-24, 2022.
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON						13,000		13,000	
TOTAL						13,000		13,000	

Fund #3:	RSTP - STP Local (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									Riverside County Transportation Com
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W				7,150				7,150	
CON									
TOTAL				7,150				7,150	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5956-2022-0001 v0

Amendment (Existing Project) ☐ YES ☒ NO | Date 12/07/2021 17:53:42

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☒ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
08	0K730	0800000368		Riverside County Transportation Commission	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
Riverside	10	53.900	55.500	City of Indio,Coachella Valley Association of Governments	
				MPO	**Element**
				SCAG	Capital Outlay
Project Manager/Contact			**Phone**	**Email Address**	
John Ashlock			951-955-1511	jashlock@rivco.org	

Project Title

Interstate 10/Monroe Street Interchange

Location (Project Limits), Description (Scope of Work)

ON I-10 IN INDIO AT MONROE ST IC: RECONSTRUCT/WIDEN IC FROM 2 TO 4 THROUGH LANES INCLUDING BRIDGE OVER WHITEWATER RIVER CHANNEL FROM AVENUE 42 TO S/O WHITEWATER RIVER CHANNEL, RECONSTRUCT/WIDEN ON-RAMPS TERMINI 1 TO 2 LANES AND OFF RAMP TERMINI 1 TO 3 LANES, CONSTRUCT AUX LANES B/T MONROE AND JACKSON ST, AND EXTEND RAMPS WITH ACCELERATION/DECELERATION LANES

Component	Implementing Agency
PA&ED	Riverside County
PS&E	Riverside County
Right of Way	Riverside County
Construction	Riverside County

Legislative Districts					
Assembly:	56	Senate:	28	Congressional:	36

Project Milestone	Existing	Proposed
Project Study Report Approved	12/30/2016	
Begin Environmental (PA&ED) Phase		01/31/2018
Circulate Draft Environmental Document Document Type (ND/MND)/FONSI		05/23/2020
Draft Project Report		04/21/2020
End Environmental Phase (PA&ED Milestone)		12/22/2020
Begin Design (PS&E) Phase		04/27/2021
End Design Phase (Ready to List for Advertisement Milestone)		06/01/2023
Begin Right of Way Phase		01/01/2022
End Right of Way Phase (Right of Way Certification Milestone)		05/30/2023
Begin Construction Phase (Contract Award Milestone)		11/01/2023
End Construction Phase (Construction Contract Acceptance Milestone)		03/01/2026
Begin Closeout Phase		03/01/2026
End Closeout Phase (Closeout Report)		09/01/2026

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5956-2022-0001 v0

Date 12/07/2021 17:53:42

Purpose and Need

The purpose of the project is to increase capacity at the I-10/Monroe Street interchange to accommodate the forecast travel demand for the 2045 design year within the City of Indio. Accommodate multimodal travel consistent with the City of Indio's General Plan and regional plans. Improve operations by addressing existing non-standard shoulders on the ramps and Monroe Street, pedestrian, and bike facilities; non-standard compound curves, cross-falls, and profile grades; and seismic and scour susceptible bridges over I-10 and Whitewater River.

The project addresses the following needs, transportation deficiencies and problems: The existing interchange and associated intersections are expected to operate at unacceptable level of service by year 2045 due to forecasted growth in traffic volumes in conjunction with the current capacity of the interchange. Existing gaps in pedestrian and bicycle infrastructure across the interchange break the multi-modal connection between communities and businesses on either side of I-10; and without the proposed improvements, and with anticipated daily traffic growth – the existing Monroe Street and corresponding I-10 ramps will experience increased delays and diminished operations within the interchange.

NHS Improvements ☒ YES ☐ NO	Roadway Class 1	Reversible Lane Analysis ☐ YES ☒ NO
Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO	Reduce Greenhouse Gas Emissions ☐ YES ☒ NO	

Project Outputs

Category	Outputs	Unit	Total
Bridge / Tunnel	Modified / Improved interchanges	SQFT	11,700
Bridge / Tunnel	Local reconstructed bridge/tunnels	SQFT	23,000

Additional Information

- Project is exempt from VMT analysis by beginning PA&ED prior to 9/20/2020
- Change in Vehicle Miles Traveled (VMT) per capita is 829,971 daily (existing conditions 2018) to 1,265,130 daily (future conditions 2045).
- Project will include a multi-purpose pedestrian, bicycle, and LSEV (Low Speed Electric Vehicle) path on both structures and within the limits of the project. Project also includes connections to the 50-mile-long CV-Link multi-purpose trail paralleling the Coachella Valley Storm Water Channel which crosses under the bridge.
- Change in CO2 emissions reduction per capita 19% reduction by 2035.

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**
System Reliability	TCEP	Daily Vehicle Hours of Travel Time Reduction	Hours	2,817	3,492	-675
Velocity	TCEP	Travel Time or Total Cargo Transport Time	Hours	0.0528	0.0538	-0.001
	Optional	Average Peak Period Weekday Speed for Road Facility	Miles per Hour	61	62	-1

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5956-2022-0001 v0

District	County	Route	EA	Project ID	PPNO
08	Riverside	10	0K730	0800000368	

Project Title

Interstate 10/Monroe Street Interchange

Existing Total Project Cost ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Implementing Agency
E&P (PA&ED)									Riverside County
PS&E									Riverside County
R/W SUP (CT)									Riverside County
CON SUP (CT)									Riverside County
R/W									Riverside County
CON									Riverside County
TOTAL									

Proposed Total Project Cost ($1,000s)

									Notes
E&P (PA&ED)	3,100							3,100	
PS&E	5,765							5,765	
R/W SUP (CT)	935							935	
CON SUP (CT)					4,000			4,000	
R/W		5,637						5,637	
CON					63,286			63,286	
TOTAL	9,800	5,637			67,286			82,723	

Fund #1:	RIP - National Hwy System (Committed)	Program Code

Existing Funding ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									

Proposed Funding ($1,000s)

									Notes
E&P (PA&ED)									RCTC board approval to program STIP-RIP on October 13, 2021. CTC vote anticipated on March 23-24, 2022.
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON					7,550			7,550	
TOTAL					7,550			7,550	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-5956-2022-0001 v0

Fund #2:	Local Funds - City Funds (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)	3,100							3,100	
PS&E	5,765							5,765	
R/W SUP (CT)	935							935	
CON SUP (CT)					4,000			4,000	
R/W		5,637						5,637	
CON					55,736			55,736	
TOTAL	9,800	5,637			59,736			75,173	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0004 v3

Amendment (Existing Project) ☐ YES ☒ NO | Date 12/02/2021 16:22:45

Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☒ STIP ☐ Other

District	EA	Project ID	PPNO	Nominating Agency	
08			9891	Riverside County Transportation Commission	
County	**Route**	**PM Back**	**PM Ahead**	**Co-Nominating Agency**	
VAR				Caltrans HQ	
				MPO	**Element**
				SCAG	Rail
Project Manager/Contact			**Phone**	**Email Address**	
Sheldon Peterson			951-787-7141	SPeterson@RCTC.org	

Project Title

Coachella Valley-San Gorgonio Pass Rail Corridor Service

Location (Project Limits), Description (Scope of Work)

IN RIVERSIDE COUNTY - FOR RCTC/CALTRANS - INTERCITY RAIL SERVICE BETWEEN LOS ANGELES UNION STATION TO COACHELLA VALLEY (144 MILES, TIER 1 FOR 2 ROUNDTRIPS PER DAY). PAED TIER 2 PROJECT-LEVEL ENVIRONMENTAL FOR ANALYSIS OF UP TO SIX (6) STATION LOCATIONS AND DESIGN, AND UP TO 76 MILES OF 3RD TRACK BETWEEN COLTON TO COACHELLA VALLEY (5 ROUNDTRIPS PER DAY). LATER PHASES OF THE PROJECT, INCLUDING CONSTRUCTION, WOULD BE FUNDED BY OTHER SOURCES INCLUDING, BUT NOT LIMITED TO, VARIOUS LOCAL, STATE, AND FEDERAL SOURCES.

Component	Implementing Agency
PA&ED	Riverside County Transportation Commission
PS&E	Riverside County Transportation Commission
Right of Way	Riverside County Transportation Commission
Construction	Riverside County Transportation Commission

Legislative Districts

Assembly: 65,68,40,42,47,51,53,55,56,57,58,60 Senate: 32,33,20,37,23,24,28,29,31 Congressional: 34,36,38,39,40,41,42,45,46,31

Project Milestone	Existing	Proposed
Project Study Report Approved	09/30/2021	
Begin Environmental (PA&ED) Phase		07/01/2023
Circulate Draft Environmental Document Document Type EIR/EIS		07/01/2029
Draft Project Report		12/31/2029
End Environmental Phase (PA&ED Milestone)		06/01/2030
Begin Design (PS&E) Phase		09/01/2030
End Design Phase (Ready to List for Advertisement Milestone)		03/31/2032
Begin Right of Way Phase		09/01/2030
End Right of Way Phase (Right of Way Certification Milestone)		03/31/2032
Begin Construction Phase (Contract Award Milestone)		07/01/2032
End Construction Phase (Construction Contract Acceptance Milestone)		06/30/2035
Begin Closeout Phase		01/01/2036
End Closeout Phase (Closeout Report)		06/30/2036

Date 12/02/2021 16:22:45

Purpose and Need

THE PROJECT WILL ADDRESS THE ABSENCE OF EFFECTIVE TRANSPORTATION ALTERNATIVES TO THE AUTOMOBILE BETWEEN LOS ANGELES AND COACHELLA VALLEY AND THE PROJECTED INCREASE IN TRAVEL DEMAND ALONG THE CORRIDOR DUE TO POPULATION AND EMPLOYMENT GROWTH. CONGESTION CONTINUES TO RISE AND PROJECT WILL OFFER A SAFE, RELIABLE AND CONVENIENT INTERCITY PASSENGER RAIL SERVICE THAT HAS THE CAPABILITY TO MEET THE FUTURE MOBILITY NEEDS OF RESIDENTS, BUSINESSES, AND VISITORS.

NHS Improvements ☐ YES ☒ NO	Roadway Class NA	Reversible Lane Analysis ☐ YES ☒ NO

Inc. Sustainable Communities Strategy Goals ☒ YES ☐ NO Reduce Greenhouse Gas Emissions ☒ YES ☐ NO

Project Outputs

Category	Outputs	Unit	Total
Rail/ Multi-Modal	Miles of new track	Miles	76
Rail/ Multi-Modal	New stations	EA	6

Additional Information

Current project benefits are based on Tier 1 Program-level environmental which includes 2 roundtrips per day. Proposed Tier 2 Project-level environmental to include 5 roundtrips per day as the baseline. Long term project benefits to align with State Rail Plan which is to include hourly service.

The project follows the FRA preferred tiered approach for completing NEPA requirements for intercity rail projects. The Tier 1 Program-level Environmental Impact Statement (EIS) addresses broad service level issues along the corridor. The Tier 2 Project-level EIS addresses site-specific project environmental reviews.

Fund #1 through #3 notes: PAED includes the Tier 1 Program-level environmental. $5,085 was allocated and obligated with prior year FRA, STA, and PTIMSEA funds. This phase is anticipated to be complete by mid-2022.

Fund #4 through #7 notes: Tier 2 Project-level environmental would begin in FY 23/24 and includes ITIP/RTIP, SRA, and CMAQ (CRISI to replace $20,000 CMAQ if successful).

Fund #8 notes: As required in STIP guidelines, future phase costs are listed.

Performance Indicators and Measures

Measure	Required For	Indicator/Measure	Unit	Build	Future No Build	Change
Air Quality & GHG	LPPF, LPPC, SCCP, TCEP	Particulate Matter	PM 2.5 Tons	86.7	87.4	-0.7
			PM 10 Tons	215	216.7	-1.7
	LPPF, LPPC, SCCP, TCEP	Volatile Organic Compounds (VOC)	Tons	10	10.1	-0.1
	LPPF, LPPC, SCCP, TCEP	Sulphur Dioxides (SOx)	Tons	9.3	9.4	-0.1
	LPPF, LPPC, SCCP, TCEP	Carbon Monoxide (CO)	Tons	1,903.4	1,918.8	-15.4
	LPPF, LPPC, SCCP, TCEP	Nitrogen Oxides (NOx)	Tons	78.8	79.4	-0.6

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0004 v3

District	County	Route	EA	Project ID	PPNO
08	VAR				9891

Project Title

Coachella Valley-San Gorgonio Pass Rail Corridor Service

Existing Total Project Cost ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Implementing Agency
E&P (PA&ED)									Riverside County Transportation Com
PS&E									Riverside County Transportation Com
R/W SUP (CT)									Riverside County Transportation Com
CON SUP (CT)									Riverside County Transportation Com
R/W									Riverside County Transportation Com
CON									Riverside County Transportation Com
TOTAL									
Proposed Total Project Cost ($1,000s)									**Notes**
E&P (PA&ED)	5,085		60,000					65,085	
PS&E							100,000	100,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W							123,250	123,250	
CON							1,284,100	1,284,100	
TOTAL	5,085		60,000				1,507,350	1,572,435	

Fund #1:	Other Fed - Federal Railroad Administration Earmarks (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									**Notes**
E&P (PA&ED)	2,982							2,982	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	2,982							2,982	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0004 v3

Fund #2:	State Bond - Public Transportation Modernization Improvement (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)	1,000							1,000	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	1,000							1,000	

Fund #3:	Other State - STA Transit Assist (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)	1,103							1,103	
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL	1,103							1,103	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0004 v3

Fund #4:	IIP - ITIP (Uncommitted)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)			10,000					10,000	PAED incldS Tier 1 Prgm-lvl env. $5,085 alloc./oblgtd w prior yr FRA,STA&PTIMSEA funds. phse expctd compl. by mid-2022.Tier 2 Project-lvl env. wld bgn FY24 & incldS ITIP/RTIP, SRA, a oth. fed. funds.
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL			10,000					10,000	

Fund #5:	RIP - STIP Advance Construction (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)			15,658					15,658	RCTC board approval to program STIP-RIP on October 13, 2021. CTC vote anticipated on March 23-24, 2022.
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL			15,658					15,658	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0004 v3

Fund #6:	Other State - State Rail Assistance (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)			5,942					5,942	Awarded to RCTC in 2019.
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL			5,942					5,942	

Fund #7:	CMAQ - Congestion Mitigation (Committed)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)			28,400					28,400	CMAQ may be supplanted with FRA CRISI funds; awards anticipated by USDOT/FRA spring 2022.
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL			28,400					28,400	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0004 v3

Fund #8:	Future Need - Future Funds (Uncommitted)								Program Code
Existing Funding ($1,000s)									
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON									
TOTAL									
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E							100,000	100,000	
R/W SUP (CT)									
CON SUP (CT)									
R/W							123,250	123,250	
CON							1,284,100	1,284,100	
TOTAL							1,507,350	1,507,350	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0005 v0

Amendment (Existing Project) ☐ YES ☒ NO				Date	12/10/2021 14:39:26
Programs ☐ LPP-C ☐ LPP-F ☐ SCCP ☐ TCEP ☒ STIP ☐ Other					
District	EA	Project ID	PPNO	Nominating Agency	
08		0813000157	9803	Riverside County Transportation Commission	
County	Route	PM Back	PM Ahead	Co-Nominating Agency	
Riverside					
				MPO	Element
				SCAG	Local Assistance
Project Manager/Contact			Phone	Email Address	
Jillian Guizado			951-787-7923	jguizado@rctc.org	

Project Title

Planning, Programming and Monitoring

Location (Project Limits), Description (Scope of Work)

Planning, Programming and Monitoring

Component	Implementing Agency
PA&ED	
PS&E	
Right of Way	
Construction	Riverside County Transportation Commission

Legislative Districts					
Assembly:	64,65,66	Senate:	36,37,31	Congressional:	49,41,44,45

Project Milestone		Existing	Proposed
Project Study Report Approved			
Begin Environmental (PA&ED) Phase			
Circulate Draft Environmental Document	Document Type		
Draft Project Report			
End Environmental Phase (PA&ED Milestone)			
Begin Design (PS&E) Phase			
End Design Phase (Ready to List for Advertisement Milestone)			
Begin Right of Way Phase			
End Right of Way Phase (Right of Way Certification Milestone)			
Begin Construction Phase (Contract Award Milestone)			
End Construction Phase (Construction Contract Acceptance Milestone)			
Begin Closeout Phase			
End Closeout Phase (Closeout Report)			

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0005 v0

Date 12/10/2021 14:39:26

Purpose and Need

Development and review of regional transportation planning, including the development and preparation of the regional transportation plan; project planning, including the development of project study reports or major investment studies; program development, including the preparation of the FTIPs and studies supporting them; monitoring and implementation of STIP projects, including project delivery, timely use of funds, and compliance with State law and the Commission's guidelines.

NHS Improvements ☐ YES ☒ NO	Roadway Class	Reversible Lane Analysis ☐ YES ☒ NO

Inc. Sustainable Communities Strategy Goals ☐ YES ☒ NO Reduce Greenhouse Gas Emissions ☐ YES ☒ NO

Project Outputs

Category	Outputs	Unit	Total

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0005 v0

Date 12/10/2021 14:39:26

Additional Information

Performance Indicators and Measures						
Measure	**Required For**	**Indicator/Measure**	**Unit**	**Build**	**Future No Build**	**Change**

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0005 v0

District	County	Route	EA	Project ID	PPNO
08	Riverside			0813000157	9803

Project Title

Planning, Programming and Monitoring

Existing Total Project Cost ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total
E&P (PA&ED)	953							953
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON	14,331	1,105	396					15,832
TOTAL	15,284	1,105	396					16,785

Implementing Agency

Riverside County Transportation Com

Riverside County Transportation Com

Proposed Total Project Cost ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total
E&P (PA&ED)	953							953
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON	14,331	905	600	315	200	200	319	16,870
TOTAL	15,284	905	600	315	200	200	319	17,823

Notes

Fund #1: RIP - State Cash (Committed)

Program Code
20.30.600.670

Existing Funding ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total
E&P (PA&ED)	953							953
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON	14,306	900	396					15,602
TOTAL	15,259	900	396					16,555

Funding Agency

Riverside County Transportation Com

$1376 CON voted 09/07/98
$878 CON voted 12/23/99
$406 CON voted 08/01/00
$500 CON voted 03/29/01
$659 CON voted 07/01/01
$163 CON voted 06/13/02
$170 CON voted 03/03/05
$953 PAED voted 07/14/05

Proposed Funding ($1,000s)

Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total
E&P (PA&ED)	953							953
PS&E								
R/W SUP (CT)								
CON SUP (CT)								
R/W								
CON	14,306	700	600	315	200	200	319	16,640
TOTAL	15,259	700	600	315	200	200	319	17,593

Notes

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0005 v0

Fund #2:	RIP - State Cash (Committed)								Program Code
Existing Funding ($1,000s)									20.30.600.670
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									Riverside County Transportation Com
PS&E									$25 CON voted 09/28/00
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON	25							25	
TOTAL	25							25	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON	25							25	
TOTAL	25							25	

Fund #3:	RIP - COVID Relief Funds - STIP (Committed)								Program Code
Existing Funding ($1,000s)									20.30.010.817
Component	Prior	22-23	23-24	24-25	25-26	26-27	27-28+	Total	Funding Agency
E&P (PA&ED)									Riverside County Transportation Com
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		205						205	
TOTAL		205						205	
Proposed Funding ($1,000s)									Notes
E&P (PA&ED)									
PS&E									
R/W SUP (CT)									
CON SUP (CT)									
R/W									
CON		205						205	
TOTAL		205						205	

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

PROJECT PROGRAMMING REQUEST (PPR)

PRG-0010 (REV 08/2020)

PPR ID
ePPR-6054-2022-0005 v0

Complete this page for amendments only

Date 12/10/2021 14:39:26

District	County	Route	EA	Project ID	PPNO
08	Riverside			0813000157	9803

SECTION 1 - All Projects

Project Background

STIP PPM

Programming Change Requested

Reason for Proposed Change

New programming available

If proposed change will delay one or more components, clearly explain 1) reason for the delay, 2) cost increase related to the delay, and 3) how cost increase will be funded

Other Significant Information

SECTION 2 - For SB1 Project Only

Project Amendment Request (Please follow the individual SB1 program guidelines for specific criteria)

Decrease FY22/23 amount by $200k
Increase FY23/24 amount by $204k
Add FY24/25 through FY27/28 amounts

Approvals

I hereby certify that the above information is complete and accurate and all approvals have been obtained for the processing of this amendment request.

Name (Print or Type)	Signature	Title	Date

SECTION 3 - All Projects

Attachments
1) Concurrence from Implementing Agency and/or Regional Transportation Planning Agency
2) Project Location Map

Section 17. Documentation of 2022 RTIP Approval

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

MEETING MINUTES

Wednesday, October 13, 2021

1. CALL TO ORDER

The Riverside County Transportation Commission was called to order by Chair Jan Harnik at 9:31 a.m., via Zoom Meeting ID 870 4796 9262. This meeting was conducted virtually in accordance with AB 361 due to state or local officials recommending measures to promote social distancing.

2. ROLL CALL

Commissioners/Alternates Present		Commissioners Absent
Ben J. Benoit	Clint Lorimore	Steven Hernandez
Brian Berkson	Bob Magee	Ted Hoffman
Chuck Conder	Scott Matas	Kyle Pingree
Joseph DeConinck	Lisa Middleton	Jeremy Smith
Ray Desselle	Linda Molina	Chuck Washington
Maryann Edwards	V. Manuel Perez	
Waymond Fermon	Dana Reed	
Kathleen Fitzpatrick	Wes Speake	
Raymond Gregory	Karen Spiegel	
Yxstain Gutierrez	Michael M. Vargas	
Jan Harnik	Scott Vinton	
Jeff Hewitt	Ted Weill	
Kevin Jeffries*	Lloyd White	
Linda Krupa	Bill Zimmerman	
Alonso Ledezma*		

*Arrived after the meeting was called to order.

3. PLEDGE OF ALLEGIANCE

Commissioner Linda Molina led the Commission in a flag salute.

At this time, Commissioner Bill Zimmerman joined the meeting.

4. PUBLIC COMMENTS

Lisa Mobley, Administrative Services Manager/Clerk of the Board, noted receiving written notification from Mr. Barney Barnett and Pastor Mabon that they wanted to address the

Commission today. She stated that Mr. Barnett is on the line, however, Pastor Mabon did not appear t be on the line.

Chair Harnik provided additional information to Mr. Barnett about making public comments,

R.A. Barney Barnett, a Highgrove resident, noted he had emailed the Commissioners, Anne Mayer, Executive Director, the five County Supervisors, the Mayor, all seven Riverside City Council Members, the County Planning Director, the County Traffic Supervisor, the Riverside Unified District, the Highgrove MAC Chairman, Senator Roth, and Congressman Takano the Highgrove Traffic Plan and Page 3 from his Highgrove Happenings newspaper. He expressed appreciation for the Commissioners reading and acknowledging it was sent to them. Mr. Barnett expressed concern for rebuilding to expand Riverside's Metrolink station since only three and a half miles away is where Highgrove has had 20 years of support for a Metrolink station owned property that is owned by RCTC. Highgrove has hundreds of new homes and RCTC currently owns 17 acres right next to the track where the daily Metrolink trains operate, and all the trains need to do is stop for passengers. Mr. Barnett asked why bring the people to the station when you can bring the station to the people where they live. RCTC has $5,347,500 invested in vacant property at Highgrove and the Highgrove Traffic Plan will use land that is not being used for any other purposes. He asked what they would do if this location was in their district or in their city. Mr. Barnett suggested the RCTC owned property should be used for transportation purposes that includes a new road through it and a Metrolink station on it. He stated new housing construction has increased the need to accommodate the present and future needs of the residents on both sides of the county line. He requested the Commissioners be a part of this discussion and asked why the Supervisors have opposed a Metrolink station in Highgrove for over 20 years and suggested this subject needs to be put on a future agenda. Mr. Barnett provided his contact information so the Commissioners can contact him.

5. ADDITIONS / REVISIONS

There were no additions or revisions to the agenda.

6. CONSENT CALENDAR

M/S/C (Berkson/Molina) to approve the following Consent Calendar items.

6A. APPROVAL OF MINUTES – SEPTEMBER 15, 2021

6B. QUARTERLY INVESTMENT REPORT

Receive and file the Quarterly Investment Report for the quarter ended June 30, 2021.

6C. QUARTERLY FINANCIAL STATEMENTS

1) Receive and file the Quarterly Financial Statements for the 12 months ended June 30, 2021; and
2) Approve a budget adjustment of $14,593,400 to increase the Measure A local streets and roads turnback payments to the local jurisdictions through June 2021.

6D. AGREEMENTS FOR ON-CALL DESIGN ENGINEERING AND ENVIRONMENTAL SERVICES FOR COMMUTER RAIL AND STATION CAPITAL IMPROVEMENT PROJECTS

1) Award the following agreements to provide on-call design engineering and environmental services for the construction of commuter rail and station capital improvement projects for a three-year term, and one, two-year option to extend the agreements, in an amount not to exceed an aggregate value of $10 million;
   a) Agreement No. 21-33-127-00 to HDR Engineering, Inc.;
   b) Agreement No. 21-33-128-00 to Moffatt and Nichol;
   c) Agreement No. 21-33-129-00 to RailPros, Inc.; and
   d) Agreement No. 21-33-064-00 to STV Incorporated;
2) Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreements, including option years, on behalf of the Commission; and
3) Authorize the Executive Director, or designee, to execute task orders awarded to the consultants under the terms of the agreements.

6E. CITY OF LAKE ELSINORE REQUEST FOR ADDITIONAL FUNDS FOR CONSTRUCTION OF INTERSTATE 15/MAIN STREET INTERCHANGE IMPROVEMENT PROJECT

1) Approve additional programming of $2,463,000 of 2009 Measure A Western County Regional Arterial (MARA) funds for the city of Lake Elsinore's (Lake Elsinore) Interstate 15 (I-15)/Main Street Interchange Improvement Project (Main Street IC);
2) Approve Agreement No. 20-72-089-01, Amendment No. 1 to Agreement No. 20-72-089-00, between the Commission and Lake Elsinore for the additional programming of $2,463,000 of MARA for the construction phase of Main Street IC and a total amount not to exceed $7,946,000;
3) Approve an adjustment to the Fiscal Year (FY) 2021/22 budget to increase construction expenditures in the amount of $2,463,000; and
4) Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreement.

At this time, Commissioner Chuck Conder stated having problems with his computer on the last item and he wanted to respond to the public comments.

Chair Harnik suggested it would not be appropriate for any response at this time.

Commissioner Conder noted he will bring it up under new business.

7. 2022 STATE TRANSPORTATION IMPROVEMENT PROGRAM ADOPTED FUND ESTIMATE AND PROJECT RECOMMENDATIONS

Jenny Chan, Planning and Programming Manager, presented the 2022 State Transportation Improvement Program (STIP), highlight the following areas:

- Past STIP cycles, 2022 STIP Fund Estimate: Target Share, Palo Valley Verde recommendation, Western County Project recommendations, the Coachella Valley Project recommendation, and additional STIP recommendations
- 2022 STIP Fund Estimate: Maximum Share; Maximum share recommendations, Programming table, and next steps

At this time, Commissioner Alonso Ledezma joined the meeting.

Anne Mayer emphasized the comment Jenny Chan had made, which is as staff they do not typically recommend that they pursue their maximum share because very frequently there is not enough money available at the state level to program those maximum shares. They do however believe they are at a very critical point in time with the Coachella Valley-San Gorgonio Pass Rail Corridor Project, as the Tier 1 environmental document will be approved in the coming months. She explained it is very important to move forward with the next phase of the project, which is very expensive, but they believe having the investments that have been made locally in the Tier 1 document that it is time to put forward a project seeking state and federal partnership. Therefore, RCTC is recommending they seek their maximum target share for the STIP programming for part of the funding for Tier 2. Caltrans has been engaged in the conversation and they are anxiously awaiting the Department's publication of their Interregional Transportation Improvement Program (ITIP) nominations, so the 25 percent share of the STIP that Caltrans has so that they can see that the $10 million was included in the ITIP. Anne Mayer stated there is a CTC meeting today and on October 14 so hopefully they will know that in the next couple of days and as Jenny Chan stated RCTC is pursuing other state and federal funding and is currently seeking a federal grant. She expressed staff is putting every effort into seeking full funding for Tier 2 for the next phase of the San Gorgonio-Coachella Valley Rail and RCTC needs to be as aggressive as possible to seek that funding. Staff is available for any questions and is seeking their input.

Chair Harnik stated as Anne Mayer was speaking, she noticed the project was referred to as the Coachella Valley Rail or CV Rail, because the project name is so long. She suggested

they need to look at that closely when they brand it and come up with a name so it can be marketed appropriately and keep those seats filled with people. She stated if they can make that effort to move forward with a branding campaign for that rail it would be in the best interest for the success of it. Chair Harnik expressed appreciation to RCTC for making that effort to get the funds to move that forward as there are a lot of people at this meeting that would be very happy about that. She suggested to coordinate a branding effort as it would be in everybody's best interest and certainly that train lines' best interest for success.

Commissioner Karen Spiegel expressed appreciation to the team as she has never seen such a spread of projects throughout the County, as it is evenly disbursed with different focuses from the east end to the west end and it is exciting some of these projects are moving forward. She referred to the Temescal Canyon Road Widening and the I-10/Highland Springs Interchange Projects about the funds that were allocated for FY 2026/27 and had remembered at a Commission meeting that the timeframe is getting shortened. Commissioner Spiegel asked what happens if they get to the point of needing that money for the project as they are hopefully getting to construction earlier and the need of that money for construction on that project and does that mean the project gets delayed.

Jenny Chan replied no, with the STIP Program there could be an opportunity to advance any funding into earlier years.

Commissioner Spiegel expressed appreciation for the need of these projects and made the motion to move staff's recommendations.

Chair Harnik stated since there is a motion, she asked for a second so they can have further discussion.

At this time, Commissioner Fitzpatrick seconded the motion.

Commissioner Lisa Middleton fully supports the direction RCTC is going and stated as she said in the past the San Gorgonio-Coachella Valley Pass Rail Corridor Project is a mouth full to say although it is descriptive and supports the idea of coming up with branding, so it is easier to say. Commissioner Middleton explained clearly this identifies just how broad of reach of a project they are undertaking and expressed appreciation to staff for an incredible piece of work. There are projects throughout the County that are desperately needed and this is a real positive step forward.

Commissioner Wes Speake concurred with the Commissioners' comments and expressed appreciation as this is such an ambitious list of projects that are all over the County that will benefit virtually every single one of their constituents. He expressed appreciation that the Temescal Canyon Road Widening Project is on that list as a two-lane road that became a two-lane road basically 100 years ago and expressed appreciation to staff for

getting this project in there as lots of folks have pushed along for that over the many years. Commissioner Speake stated being excited as Anne Mayer talked in glowing terms about the San Gorgonio-Coachella Valley Pass Rail Corridor Project and that this project is being pushed forward and concurred they need to find a catchy phrase for that project, but he cannot wait to see that project become a reality.

Commissioner Jeff Hewitt stated the I-10/Highland Springs Interchange Project is very important in the Pass Area as people can go and shop in those two sections on both sides of it with the cities of Banning and Beaumont. If there is supply hold ups, they can be in the traffic queuing long enough for those supply hold ups to come back, which will help there. Commissioner Hewitt explained this rail line will do a lot more than just serve the San Gorgonio Pass Area and the Coachella Valley, it connects a huge county that has had a hard time identifying as one county and it brings together the Coachella Valley at the fingertips to everyone to get on a train to head down there and vice versa. He expressed appreciation for getting this going, to keep it moving forward, and to staff for doing that.

Commissioner Maryann Edwards stated being impressed by the diversity of the list on behalf of the city of Temecula and all their commuters who use the I-15/I-215 split and thanked them for continuing to support the French Valley Parkway. She stated Congressman Calvert came in with an additional $50 million last year so they are well underway for Phase 2, and on behalf of Temecula and Commissioner Matt Rahn who could not be here today thank you very much.

Commissioner Dana Reed stated in talking about the train to not forget that Los Angeles and Orange Counties are involved as well, and they are major forces in Sacramento. He suggested they need to recognize the fact that probably most of the traffic will be coming from Los Angeles and Orange Counties and they need to include those counties if not in the marketing at least include them in the lobbying effort to make this happen. Commissioner Reed stated this is their train but it is primarily Los Angeles and Orange Counties' visitors that will be using it to spend some money in the Coachella Valley and the Pass Area so they cannot forget about the other two counties because in terms of influence they are significantly larger than Riverside County.

Commissioner Waymond Fermon thanked staff for all their hard work and stated it was very promising to see the Monroe Bridge Project be included as that is a deal breaker for their community. He stated when they talk about transportation in the city of Indio it is often about the festivals, but there has been so much growth in residential, business, and economic development that they want to build the proper infrastructure to support that. He noted bringing their traffic through midtown is going to be a deal breaker for their businesses in their city who are trying to recover as the future is unpredictable post pandemic or working within the pandemic. Commissioner Fermon stated it is promising that this is still on the radar and hopefully they can get some dirt turned soon as it has been a project in the works for a while, so it is promising to see this on there along with the other projects. He explained these transportation and rail projects really support

their region and as it was noted earlier it connects them with Los Angeles and Orange Counties because those folks are coming to the Coachella Valley to also spend money and they want to continue to keep them doing that.

M/S/C (Spiegel/Fitzpatrick) to:

1) **Approve programming $27,698,381 of 2022 State Transportation Improvement Program (STIP) Western Riverside County and Palo Verde Valley target share funding capacity on the Interstate 10 (I-10)/Highland Springs Interchange and Temescal Canyon Road Widening projects, and forward to the California Transportation Commission (CTC);**
2) **Include programming $7,550,259 of 2022 STIP Coachella Valley target share funding capacity based on the project recommendation by the Coachella Valley Association of Governments (CVAG) and forward to the CTC;**
3) **Include programming Planning, Programming, and Monitoring (PPM) funds (2 percent of STIP target share programming capacity) in the amount of $719,360 in Fiscal Years (FY) 2024/25 through 2026/27;**
4) **Include programming $15,657,460 of 2022 STIP maximum share funding capacity on the Coachella Valley-San Gorgonio Pass Rail Corridor Service project and forward to the CTC;**
5) **Include programming PPM funds (2 percent of STIP maximum share programming capacity) in the amount of $319,540 in FY 2027/28;**
6) **Submit the 2022 STIP submittal to the CTC by the statutory deadline of December 15, 2021;**
7) **Forward the Riverside County 2022 STIP project recommendations to the Southern California Association of Governments (SCAG) to conduct regional performance measures analysis as required by the CTC STIP guidelines;**
8) **Approve a revision to Agreement No. 07-71-028-04, Amendment No. 4 to Agreement No. 07-71-028-00, with the city of Blythe (Blythe) to trade $155,094 of Palo Verde Valley STIP funds with Measure A Western Riverside County Highway funds to facilitate delivery of local arterial projects for a revised total amount not to exceed $198,391; and**
9) **Authorize the Executive Director, pursuant to legal counsel review, to execute the revised Agreement No. 07-71-028-04 on behalf of the Commission upon CTC adoption of the 2022 STIP in March 2022.**

8. STATE AND FEDERAL LEGISLATIVE UPDATE

David Knudsen, Interim External Affairs Director, presented an update for the state and federal legislative activities.

M/S/C to receive and file an update on state and federal legislation.

At this time, Lisa Mobley asked Chair Harnik if she could call for public comments again, as there have been a few people that joined the meeting and she asked if Pastor Monrow Mabon joined the line as he had indicated he wanted to speak.

Commissioner Ben Benoit stated to press *6 to raise your hand if they are on the phone.

Lisa Mobley replied thank you and stated *6 to raise your hand *9 to unmute and asked again if Pastor Mabon was on the line.

There was no response from the public.

9. ITEM(S) PULLED FROM CONSENT CALENDAR FOR DISCUSSION

There were no items pulled from the consent calendar.

10. EXECUTIVE DIRECTOR'S REPORT

10A. Anne Mayer announced:

- Provided a detailed update on the Riverside Downtown Station Improvement Project and noted the draft environmental document will circulate at the end of 2021 and staff will be encouraging the public to comment on the proposed station improvements. She shared that RCTC has repeatedly over several years evaluated the feasibility of a station in Highgrove to replace improvements at the Downtown Riverside Station and from an operations cost effectiveness and a ridership perspective a station in Highgrove is not feasible. Anne Mayer stated the focus is on the Downtown Riverside Station and there have been concerns raised from some in the eastside community about the project's impact on the historic building called the FMC Complex and the concerns about a proposed new school being constructed in the area. RCTC team members are reaching out to neighbors within the project area and stakeholders within the eastside community to provide project updates and to actively listen to any concerns. Presentations are scheduled to be given to community groups over the next several weeks and the presentations will be offered in both English and Spanish. RCTC will be sensitive to the eastside community's concerns and she will update the Commission about the project in the coming months. Public outreach will continue for the project in preparation for the public review hearing and public review period, which is expected in late 2021 or early 2022 and they are working out the logistics of offering a hybrid approach or in person meetings and virtual options for the public hearings to reach as many people as possible. She noted in September they met with the Riverside Community Health Foundation and Healthy Eating Active Living Zone Collaboration; in

October they will meet with the Center for Community Action and Environmental Justice, the League of United Latin American Citizens, and the Downtown Area Neighborhood Alliance; and in November they are meeting with the City of Riverside Cultural Heritage Board and the Old Riverside Foundation.

- Provided an updated on the 91 Express Lanes Refinancing and noted that she had sent out an update to the Commissioners last week. She expressed appreciation for the team they put together and how Theresia Trevino has done a phenomenal job with her leadership. The team was really focused on making sure that RCTC benefited greatly from this bond sale. RCTC has now paid off its Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan on the 91 and are freed from the restrictions that were placed for the TIFIA Loan. She expressed appreciation to the Commissioners for their trust in the staff and the team to ensure that they were able to meet the financial goals of the Commission.

- Commissioner Chuck Conder stated that there has been a lot of criticism the Commission is not preserving the history of the Food Machinery Corporation Complex, although the Commission has already preserved the Solo Maxwas, which was one of those buildings. There were a couple of old Riversiders that told him about the building in question for the Downtown Station expansion was actually the Royal Citrus Packing House and noted to Anne Mayer to have their historians go back and look at it.

  Anne Mayer explained anytime there is a historical structure component to a project they are required by law to have exhausted cultural resource studies and analyses and everything RCTC does is reviewed by the State Historic Preservation Officer and it is a highly regulated process. RCTC will be following that process very rigidly and expressed appreciation to Commissioner Conder for that input and stated the project team is listening and will conduct some additional research there and make sure they have the full history of that building in their analyses.

- Vice Chair V. Manual Perez thanked staff for a great job and congratulated them on the bond sale for the 91 Express Lanes Refinancing. He also expressed appreciation to Anne Mayer for listening to the concerns of the community on the east end about the Downtown Station Improvements regardless of where the situation lands at the end of the day they need to be open minded, be listening to the community, and for taking his call on this issue, including others as well.

- Commissioner Spiegel stated to go along with Vice Chair Perez's comments, she has been for the last couple years hearing on this issue with the Downtown Station and Mr. Barnett's request for a proposed Highgrove

station and are both difficult situations. She noted Mr. Barnett has a passion for it for over 20 years and has been asking for a Metrolink station long before she was a Supervisor in this area. She has gone out to Highgrove with Mr. Barnett and spent time with Anne Mayer, staff, and everybody involved, and expressed it really is prudent for them to continue the path that we are on, because RCTC only has limited funds and it would be challenging to redirect funds for a station that close. She strongly supports the decision that the Commission has made and stated to Anne Mayer regarding the Downtown Station it is difficult whenever there is something historic and people want to preserve as much history. Commissioner Spiegel thanked Commissioner Conder so they can check on that information because she was getting the information as the FMC building, and it makes her feel better it is not the building they thought it was. She noted also to confirm that issue with the school. It is a high demand station, and they need to ensure that they allow for their passengers and their customers. She thanked staff and all those that have been working on this and their efforts.

- Commissioner Michael Vargas concurred with Commissioner Conder's comments and stated they have a lot of historical buildings in the city of Perris and anytime something can be preserved that is historic in a community it goes back many decades of families, and it is important that they preserve it.

- Chair Harnik noted participating in some of the bond meetings about the 91 Express Lanes Refinancing and echoed Anne Mayer's comments as Anne Mayer, Theresia Trevino, and the team did an amazing job, was\\ere so well prepared, they were well informed, the presentations were excellent, and it was a great experience.

At this time, Chair Harnik asked Lisa Mobley if Pastor Mabon joined the meeting.

Lisa Mobley responded she has not seen anybody else join the meeting and asked if Pastor Mabon was on the line again. There was no response from anybody.

11. COMMISSIONER COMMENTS

11A. Commissioner Fitzpatrick announced the La Quinta Art Celebration is back starting November 11-14 from 9:00 a.m. to 4:00 p.m. at the Civic Center Campus. There will be 200 world famous artists. There is a Veterans' Day Recognition Celebration in the city of La Quinta on November 11 at 9:00 a.m. Save the date for the La Quinta Art Celebration March 3 – 6, 2022.

11B. Commissioner Vinton announced he will be resigning from his city council seat as of December 21, 2021, after he finishes his mayor's term as he will be moving out of state. He expressed it has been his honor to serve with everyone on this Commission as it is a tremendous Commission.

- Chair Harnik stated she had read about that and the city of Murrieta and the County of Riverside has benefited from Commissioner Vinton's service. She thanked him and hoped he enjoys spending time with his family.

11C. Commissioner Brian Berkson expressed that Commissioner Vinton will be missed. He also expressed appreciation that Chair Harnik and Commissioner Spiegel attended the Groundbreaking Ceremony on September 29 for the $130 million Jurupa Road Grade Separation Project for the worst grade issue in the county. This project is now on its way and RCTC is the money holder on this project.

- Chair Harnik expressed it was a wonderful groundbreaking and it was great to see so many people from RCTC there that took their time to be there. It certainly is creating safe access for that entire community so they can get all the things they need to make sure that they have the quality of life we all want to see everybody have.

11D. Commissioner Molina expressed appreciation for that great recommendation on the branding for the San Gorgonio-Coachella Valley Pass Rail Corridor as it is a fantastic idea. She stated a few years ago when they were preparing for SB 1, she headed a local RTA team round meeting, and it was recommended that a PSA would be great to promote public transportation for all modes of transportation. She suggested that this might be another opportunity to prepare a PSA for all the stakeholders including Los Angeles and Orange Counties to show people how to connect to all parts of Riverside County. She thanked everyone for all the great work this month and always.

11E. Commissioner Middleton stated the city of Palm Springs is safely returning to their parades. She announced the LGBTQ Pride Parade will be held on November 7 at 10:00 a.m., the Veterans' Day Celebration Parade will be held on November 11 at 3:30 p.m., and the Festival of Lights Parade will be held on December 4 at 4:30 p.m.

11F. Commissioner Reed announced there is a tennis tournament in the city of Indian Wells on October 16-17, 2021.

12. CLOSED SESSION

12A. CONFERENCE WITH REAL PROPERTY NEGOTIATORS

Pursuant to Government Code Section 54956.8
Agency Negotiator: Executive Director or Designee

Item	Property Description	Property Owner	Buyer(s)
1	117-112-014, 015	RCTC	Exclusive Energy

12B. CONFERENCE WITH LEGAL COUNSEL: ANTICIPATED LITIGATION

Initiation of litigation Pursuant to Paragraph (4) of Subdivision (d) of Section 54956.9:
1 Potential Case

There were no announcements from the closed session.

13. ADJOURNMENT

There being no further business for consideration by the Riverside County Transportation Commission, Chair Harnik adjourned the meeting at 10:44 a.m. The next Commission meeting is scheduled to be held at 9:30 a.m., Wednesday, November 10, 2021.

Respectfully submitted,

Lisa Mobley
Administrative Services Manager/
Clerk of the Board

Section 19. Detailed Project Programming Summary Table

Agency	Project Description	RIP $(000's) FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26	FY 26/27	FY 27/28	Phase
Caltrans/ Temecula	I-15/French Valley IC (extension to FY 21/22)	47,600								Cons
RCTC	SR-71/SR-91 IC (AB 3090 - $66,377)			~~66,377~~ 19,913	33,189	13,275				Cons
RCTC	SR-71/SR-91 IC CRRSAA			10,069						Cons
~~Coachella~~	~~I-10/Ave 50 IC~~						~~2,000~~			~~Cons~~
CVAG	Coachella Valley Regional Signal Synchronization, Ph 2		~~2,472~~ 4,472							Cons
RCTC	I-10/Highland Springs IC							14,698		Cons
County of Riverside	Temescal Canyon Road -							13,000		Cons
CVAG	I-10/Monroe Street IC						7,550			Cons
RCTC	CV Rail								15,657	PA/ED
RCTC	PPM	1,000	900	~~900~~ 700	~~396~~ 600	315	200	200	319	Cons
RCTC	PPM - CRRSAA			205						Cons
	TOTAL	**48,600**	**5,372**	**20,613**	**33,789**	**13,590**	**7,750**	**27,898**	**15,976**	
	TOTAL - CRRSAA			**10,274**						

Section 21. Benefit Cost Analyses and Technical Memos

- I-10/Monroe Street Interchange Benefit Cost Analysis
- I-10/Monroe Street Technical Memo
- Coachella Valley Rail Benefit Cost Analysis
- Coachella Valley Rail Technical Memo

District: 8

PROJECT: Interstate 10 - Monroe Street Interchange Improvements

EA:
PPNO:

1A PROJECT DATA

Type of Project	Please select a type of op. improvement	
Select project type from list	Hwy Operational Improvement	
Project Location (enter 1 for So. Cal., 2 for No. Cal., or 3 for rural)	1	
Length of Construction Period	4	years
One- or Two-Way Data	2	enter 1 or 2
	Current	
Length of Peak Period(s) (up to 24 hrs)	5	hours

1B HIGHWAY DESIGN AND TRAFFIC DATA

Highway Design		No Build	Build
Roadway Type (Fwy, Exp, Conv Hwy)		C	C
Number of General Traffic Lanes		4	6
Number of HOV/HOT Lanes			
HOV Restriction (2 or 3)			
Exclusive ROW for Buses (y/n)		N	
Highway Free-Flow Speed		40	40
Ramp Design Speed (if aux. lane/off-ramp proj.)		35	35
Length (in miles)	Highway Segment	0.6	0.6
	Impacted Length	0.6	0.6

Average Daily Traffic			
	Current	63,860	
		No Build	Build
	Base (Year 1)	74,380	74,950
	Forecast (Year 20)	84,070	95,050
Average Hourly HOV/HOT Lane Traffic			0
Percent of Induced Trips in HOV (if HOT or 2-to-3 conv.)			100%
Percent Traffic in Weave		27.0%	0.0%
Percent Trucks (include RVs, if applicable)		9%	9%
Truck Speed			

On-Ramp Volume	Peak	Non-Peak
Hourly Ramp Volume (if aux. lane/on-ramp proj.)	0	0
Metering Strategy (1, 2, 3, or D, if on-ramp proj.)		

Queue Formation (if queuing or grade crossing project)	Year 1	Year 20
Arrival Rate (in vehicles per hour)	0	0
Departure Rate (in vehicles per hour)	0	0

Pavement Condition (if pavement project)		No Build	Build
IRI (inches/mile)	Base (Year 1)		
	Forecast (Year 20)		

Average Vehicle Occupancy (AVO)		No Build	Build
General Traffic	Non-Peak	1.30	1.30
	Peak	1.15	1.15
High Occupancy Vehicle (if HOV/HOT lanes)		2.15	2.15

1C HIGHWAY ACCIDENT DATA

Actual 3-Year Accident Data (from Table B)	Count (No.)	Rate
Total Accidents (Tot)		0.85
Fatal Accidents (Fat)		0.006
Injury Accidents (Inj)		0.29
Property Damage Only (PDO) Accidents		0.55

Statewide Basic Average Accident Rate	No Build	Build
Rate Group		
Accident Rate (per million vehicle-miles)		
Percent Fatal Accidents (Pct Fat)		
Percent Injury Accidents (Pct Inj)		

1D RAIL AND TRANSIT DATA

Annual Person-Trips		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Percent Trips during Peak Period		40%	
Percent New Trips from Parallel Highway			100%

Annual Vehicle-Miles		No Build	Build
	Base (Year 1)		
	Forecast (Year 20)		
Average Vehicles/Train (if rail project)			

Reduction in Transit Accidents	
Percent Reduction (if safety project)	

Average Transit Travel Time		No Build	Build
In-Vehicle	Non-Peak (in minutes)		0.0
	Peak (in minutes)		0.0
Out-of-Vehicle	Non-Peak (in minutes)	0.0	0.0
	Peak (in minutes)	0.0	0.0

Highway Grade Crossing	Current	Year 1	Year 20
Annual Number of Trains		0	
Avg. Gate Down Time (in min.)		0.0	

Transit Agency Costs (if TMS project)	No Build	Build
Annual Capital Expenditure		$0
Annual Ops. and Maintenance Expenditure		$0

Model should be run for both roads for intersection or bypass highway projects, and may be run twice for connectors. Press button below to prepare model to enter data for second road. After data are entered, results reflect total project benefits.

Prepare Model for Second Road

Enter all project costs (in today's dollars) in columns 1 to 7. Costs during construction should be entered in the first eight rows. Project costs (including maintenance and operating costs) should be net of costs without project.

1E

PROJECT COSTS (enter costs in thousands of dollars)

Col. no.	(1)	(2)	(3)	(4)	(5)	(6)	(7)		
Year	DIRECT PROJECT COSTS					Mitigation	Transit Agency Cost Savings	TOTAL COSTS (in dollars)	
	INITIAL COSTS			SUBSEQUENT COSTS					
	Project Support	R / W	Construction	Maint./ Op.	Rehab.			Constant Dollars	Present Value
Construction Period									
1	$2,400	$5,530						$7,929,520	$7,929,520
2			20,994					20,993,690	20,186,240
3			20,994					20,993,690	19,409,847
4			20,994					20,993,690	18,663,314
5								0	0
6								0	0
7								0	0
8								0	0
Project Open									
1								$0	$0
2								0	0
3								0	0
4								0	0
5								0	0
6								0	0
7								0	0
8								0	0
9								0	0
10								0	0
11								0	0
12								0	0
13								0	0
14								0	0
15								0	0
16								0	0
17								0	0
18								0	0
19								0	0
20								0	0
Total	$2,400	$5,530	$62,981	$0	$0	$0	$0	$70,910,590	$66,188,921

Present Value = Future Value (in Constant Dollars) / (1 + Real Discount Rate) ^ Year

2A

HIGHWAY SPEED AND VOLUME INPUTS

	Calculated by Model	Changed by User	Used for Proj. Eval.	Reason for Change
No Build				
Year 1				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	27,277		27,277	
Weaving Volume	0		0	
Truck Volume	2,698		2,698	
HOV Speed	55.0		55.0	
Non-HOV Speed	7.6		7.6	
Weaving Speed	55.0		55.0	
Truck Speed	7.6		7.6	
Non-Peak Period				
Non-HOV Volume	40,408		40,408	
Weaving Volume	0		0	
Truck Volume	3,996		3,996	
Non-HOV Speed	39.9		39.9	
Weaving Speed	55.0		55.0	
Truck Speed	39.9		39.9	
Year 20				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	30,831		30,831	
Weaving Volume	0		0	
Truck Volume	3,049		3,049	
HOV Speed	55.0		55.0	
Non-HOV Speed	7.6		7.6	
Weaving Speed	55.0		55.0	
Truck Speed	7.6		7.6	
Non-Peak Period				
Non-HOV Volume	45,673		45,673	
Weaving Volume	0		0	
Truck Volume	4,517		4,517	
Non-HOV Speed	39.7		39.7	
Weaving Speed	55.0		55.0	
Truck Speed	39.7		39.7	
Build				
Year 1				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	27,486		27,486	
Weaving Volume	0		0	
Truck Volume	2,718		2,718	
HOV Speed	55.0		55.0	
Non-HOV Speed	26.7		26.7	
Weaving Speed	55.0		55.0	
Truck Speed	26.7		26.7	
Non-Peak Period				
Non-HOV Volume	40,718		40,718	
Weaving Volume	0		0	
Truck Volume	4,027		4,027	
Non-HOV Speed	40.0		40.0	
Weaving Speed	55.0		55.0	
Truck Speed	40.0		40.0	
Year 20				
Peak Period				
HOV Volume	0		0	
Non-HOV Volume	34,858		34,858	
Weaving Volume	0		0	
Truck Volume	3,447		3,447	
HOV Speed	55.0		55.0	
Non-HOV Speed	7.6		7.6	
Weaving Speed	55.0		55.0	
Truck Speed	7.6		7.6	
Non-Peak Period				
Non-HOV Volume	51,638		51,638	
Weaving Volume	0		0	
Truck Volume	5,107		5,107	
Non-HOV Speed	40.0		40.0	
Weaving Speed	55.0		55.0	
Truck Speed	40.0		40.0	

Model speed estimates based on Highway Capacity Manual, pavement research, and research on weaving impacts

2B

HIGHWAY ACCIDENT RATES

	Calculated by Model	Changed by User	Used for Proj. Eval.	Reason for Change
No Build				
Fatal Accidents	0.006		0.006	
Injury Accidents	0.29		0.29	
PDO Accidents	0.55		0.55	
Total Accidents	0.846			

Hwy Safety or Weaving Improvement 0% collision reduction factor (per HSIP Guidelines)

Adjustment Factor (Actual/Statewide Avg. Existing)

Fatal Accidents	1.0000		1.0000	
Injury Accidents	1.0000		1.0000	
PDO Accidents	1.0000		1.0000	

Build				
Fatal Accidents	0.006		0.006	
Injury Accidents	0.29		0.29	
PDO Accidents	0.55		0.55	
Total Accidents	0.846			

2C

RAMP AND ARTERIAL INPUTS

(if detailed information is available for a TMS or an arterial signal management project)

Detailed Information Available? (y/n) N

Aggregate Segment Length (estimate as VMT/total volume)

All Ramps		miles
Arterials		miles

	Entered by User	Used for Proj. Eval.	Source/Notes
No Build (Peak Period Only)			
Year 1			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	
Year 20			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	

Build (Peak Period Only)			
Year 1			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	
Year 20			
Aggregate Ramp Volume		0	
Aggregate Arterial Volume		0	
Average Ramp Speed		5.0	
Average Arterial Speed		5.0	

2D

ANNUAL PERSON-TRIPS

(for HOV and HOT lane projects that affect average vehicle occupancy)

Year 1

	No Build	Build	Induced
Peak Period			
HOV Trips	0	0	
Non-HOV Trips	11,449,679	11,537,422	87,743
Truck Trips	984,683	992,229	7,546
Non-Peak Period			
Non-HOV Trips	19,173,797	19,320,732	146,936
Truck Trips	1,458,700	1,469,878	11,179
Total Trips	33,066,859	33,320,262	253,403

Year 20

Peak Period			
HOV Trips	0	0	
Non-HOV Trips	12,941,309	14,631,514	1,690,205
Truck Trips	1,112,965	1,258,324	145,359
Non-Peak Period			
Non-HOV Trips	21,671,700	24,502,143	2,830,442
Truck Trips	1,648,735	1,864,068	215,334
Total Trips	37,374,708	42,256,049	4,881,341

District: 8

PROJECT: Interstate 10 - Monroe Street Interchange Improvements

EA:
PPNO:

3

INVESTMENT ANALYSIS

SUMMARY RESULTS

Life-Cycle Costs (mil. $)	$66.2
Life-Cycle Benefits (mil. $)	$106.5
Net Present Value (mil. $)	$40.3
Benefit / Cost Ratio:	1.6
Rate of Return on Investment:	10.5%
Payback Period:	7 years

ITEMIZED BENEFITS (mil. $)	Passenger Benefits	Freight Benefits	Total Over 20 Years	Average Annual
Travel Time Savings	$85.4	$16.9	$102.3	$5.1
Veh. Op. Cost Savings	$2.3	$0.6	$2.9	$0.1
Accident Cost Savings	-$1.4	-$0.1	-$1.5	-$0.1
Emission Cost Savings	$0.6	$2.2	$2.8	$0.1
TOTAL BENEFITS	$87.0	$19.5	$106.5	$5.3
Person-Hours of Time Saved			10,182,665	509,133

Should benefit-cost results include:

1) Induced Travel? (y/n)	Y (Default = Y)
2) Vehicle Operating Costs? (y/n)	Y (Default = Y)
3) Accident Costs? (y/n)	Y (Default = Y)
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y (Default = Y)

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	-28	-1	-$0.0	-$0.0
CO_2 Emissions Saved	23,862	1,193	$0.8	$0.0
NO_X Emissions Saved	38	2	$1.7	$0.1
PM_{10} Emissions Saved	1	0	$0.3	$0.0
$PM_{2.5}$ Emissions Saved	1	0		
SO_X Emissions Saved	0	0	$0.0	$0.0
VOC Emissions Saved	5	0	$0.0	$0.0

INTERSTATE 10 – MONROE STREET INTERCHANGE IMPROVEMENTS
Benefit Quantification & Cost-Benefit Analysis

1.0 Introduction**:** Regional air quality improvement and congestion mitigation benefits expected from reconstructing the Interstate 10 – Monroe St. interchange were quantified using the California Life Cycle Benefit/Cost Analysis Model (Cal-B/C Sketch version 7.2). This memorandum is intended to provide additional insight into the technical approach, limitations, and results obtained through the modeling process.

2.0 Review of Results from I-10-Monroe Traffic Operations Analysis: The traffic flow analyses for the build and no-build scenarios in the Existing 2018, Project Opening year 2025, and Design Year 2045 conducted during preparation of the *Interstate 10 – Monroe St. Interchange Traffic Operations Analysis Report*[1] (TOAR) were reviewed, with two primary objectives:

1. Understand the projected systemwide improvements in interchange capacity and delay reductions derived using TOAR methodologies for the purpose of comparison with results obtained using the Cal-B/C model;
2. Use the TOAR analyses to derive traffic flow and corridor input data for use in the Cal-B/C tool.

2.1 Results of TOAR Interchange Capacity, Delay Reduction Modeling – Findings from the TOAR traffic flow and congestion mitigation analyses include the following:

- The TOAR projected the following reductions in motor vehicle delay:
    - As shown in Table 16-A of the TOAR, when compared to the No Build scenario, the interchange improvements result in a reduction in per vehicle delay from 35 seconds per vehicle to 31 seconds per vehicle in the AM peak hour for Opening Year 2025. The number of vehicles served improves from 35,410 to 35,430.
    - Table 16-B of the TOAR, when compared to the No Build scenario, the interchange improvements result in a reduction in per vehicle delay from 61 seconds per vehicle to 41 seconds per vehicle in the PM peak hour for Opening Year 2025. The number of vehicles served improves from 38,970 to 39,520.
    - Table 21-A of the TOAR, when compared to the No Build scenario, the interchange improvements result in a reduction in per vehicle delay from 114 seconds per vehicle

[1] Interstate 10 – Monroe Street Interchange Improvements Traffic Operations Analysis Report, Project Approval/Environmental Document (EA 0K730), Caltrans, Michael Baker International, & Fehr Peers, September 2019.

to 64 seconds per vehicle in the AM peak hour for Design Year 2045. The number of vehicles served improves from 40,700 to 45,540.

- As shown in Tables 21-B of the TOAR, when compared to the No Build scenario, the interchange improvements result in a reduction in per vehicle delay from 226 seconds per vehicle to 171 seconds per vehicle in the PM peak hour for Design Year 2045. The number of vehicles served improves from 43,370 to 49,510.

3.0 Cal-B/C Modeling Approach & Limitations: I-10 – Monroe St. Interchange traffic conditions for the baseline and horizon year derived from the TOAR was input into Cal-B/C tool. The interchange reconstruction has multiple improvements, including acceleration and deceleration lanes at the westbound on- and off-ramps and a deceleration lane at the eastbound off-ramp to improve traffic operations and to meet Caltrans ramp metering requirements. The interchange improvements also include an auxiliary lane in the eastbound direction between the Monroe Street onramp and the Jackson Street off-ramp. Additionally, the project includes construction of a 6.5-ft wide sidewalk and 10-ft Class II, on street bike / Low Speed Electric Vehicle (LSEV) path located on both sides of Monroe Street along the limits of improvement.

The Cal-B/C tool is designed to analyze the benefits of a relatively focused interchange reconstruction project, whereas the reconstruction of the I-10 – Monroe interchange has multiple elements as discussed above. As such, Cal-B/C is not a perfect fit with a reconstruction project as comprehensive as I-10 – Monroe St.

However, as the TOAR considers all elements of the reconstruction project and quantifies the benefits in units of volume and delay, these values can be applied as inputs to the Cal-B/C tool. Thus, the interchange improvements can be modeled as a system as opposed to individual project elements.

A systems level approach is arguably the correct analysis method given the number of project elements associated with the interchange reconfiguration. However, there are data entry limitations in the Cal-B/C tool, especially default values embedded within Cal-B/C, that introduce uncertainties in the output results. Specifically, Cal-B/C predicted output speeds based upon entered average daily traffic (ADT) values were constant under the No Build scenario although volume had increased. This result in nonintuitive. Also, peak period non-HOV volume output results were scrutinized; in this case it appears Cal-B/C assigns a default value to the length of the peak period.

4.0 Benefit Cost Ratio: The benefit cost ratio for the I-10 – Monroe St. interchange improvement project is 1.6. This is a favorable result and consistent with the substantial benefits documented in the TOAR related to interchange throughput improvements and overall reductions in travel delay.

Air pollutant reduction results from Cal-B/C modeling are consistent with the delay reduction improvements cited in the TOAR.

5.0 Conclusion: The results of the Cal-B/C assessment are consistent with the results of the traffic modeling analyses documented in the 2019 I-10 – Monroe St. TOAR. The interchange reconstruction will substantially improve interchange throughput and reduce delay during both the AM and PM peak periods.

While limitations exist in applying the Cal-B/C tool to the I-10 – Monroe St. interchange, the approach of modeling the traffic conditions based on the overall interchange system is a practical method of assessing this project and arguably the only feasible technical approach. While uncertainties in the output data are inherently present, the overall consistency in results between Cal-B/C and the TOAR confirm the positive benefits that will result from this interchange improvement project.

GENERAL PROJECT PARAMETERS

All figures in millions of 2019 dollars

Inputs	Value
Discount Rate	7.0%
Base Year	2019
Construction Start	2029
Construction End	2033
Years of Operations	30
First Year of Benefits	2034
Final Year of Benefits	2063
Study Period (Years)	35

ALTERNATIVE 1

																1	2	3	4	5	6	7	8
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Discount Factor	7%	0.93	0.87	0.82	0.76	0.71	0.67	0.62	0.58	0.54	0.51	0.48	0.44	0.41	0.39	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.23
	3%	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.77	0.74	0.72	0.70	0.68	0.66	0.64	0.62	0.61	0.59	0.57	0.55	0.54	0.52
Undiscounted, 2019$	**Total (M)**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**
Travel Time Savings	$653.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$4.5	$9.3	$9.6	$9.8	$17.1	$17.5	$18.0	$18.4
Accident Costs Savings	$169.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.1	$2.3	$2.4	$2.5	$4.4	$4.5	$4.6	$4.8
Emissions Cost Savings	$0.0																						
CAC	$0.2	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
CO2	$18.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.2	$0.2	$0.2	$0.4	$0.4	$0.5	$0.5
Productivity Benefits	$158.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.1	$2.3	$2.3	$2.4	$4.1	$4.2	$4.4	$4.5
Agency Benefits	$489.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$3.7	$7.6	$7.8	$8.0	$12.9	$13.2	$13.5	$13.9
Highway Pavement Maintenance Savings	$1.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Residual Value of Capital	$281.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Benefits	**$1,773.5**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$10.6**	**$21.8**	**$22.3**	**$22.9**	**$39.0**	**$40.0**	**$41.0**	**$42.0**
Capital Construction Costs	$1,737.5	$0.0	$5.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$105.1	$382.6	$419.7	$419.7	$209.9	$0.0	$0.0	$0.0	$195.5	$0.0	$0.0	$0.0	$0.0
Rehabilitation and Major Maintenance	$50.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.4	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8
Operations and Maintenance, O&M, Net Annual	$790.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$5.8	$11.5	$11.5	$11.5	$28.9	$28.9	$28.9	$28.9
Total Costs	**$2,579.2**	**$0.0**	**$5.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$105.1**	**$382.6**	**$419.7**	**$419.7**	**$209.9**	**$6.2**	**$12.3**	**$12.3**	**$207.9**	**$29.6**	**$29.6**	**$29.6**	**$29.6**
Net Impacts	**-$805.7**	**$0.0**	**-$5.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**-$105.1**	**-$382.6**	**-$419.7**	**-$419.7**	**-$209.9**	**$4.5**	**$9.5**	**$10.0**	**-$185.0**	**$9.4**	**$10.3**	**$11.4**	**$12.4**
BC Ratio	0.55																						
	-2%	$841.7																					

Discounted at 7%, 2019$	**Total (M)**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**
Travel Time Savings	$86.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.6	$3.2	$3.0	$2.9	$4.7	$4.5	$4.3	$4.2
Accident Costs Savings	$22.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.4	$0.8	$0.8	$0.7	$1.2	$1.2	$1.1	$1.1
Emissions Cost Savings																							
CAC	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
CO2	$7.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2
Productivity Benefits	$21.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.4	$0.8	$0.7	$0.7	$1.1	$1.1	$1.1	$1.0
Agency Benefits	$65.6	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.3	$2.6	$2.5	$2.4	$3.6	$3.4	$3.3	$3.1
Highway Pavement Maintenance Savings	$0.2	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Residual Value of Capital	$14.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Benefits	**$217.8**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$3.9**	**$7.4**	**$7.1**	**$6.8**	**$10.9**	**$10.5**	**$10.0**	**$9.6**
Capital Construction Costs	$739.3	$0.0	$4.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$53.4	$181.8	$186.4	$174.2	$81.4	$0.0	$0.0	$0.0	$57.9	$0.0	$0.0	$0.0	$0.0
Rehabilitation and Major Maintenance	$6.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
Operations and Maintenance, O&M, Net Annual	$114.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2.1	$3.9	$3.7	$3.4	$8.0	$7.5	$7.0	$6.5
Total Costs	**$859.8**	**$0.0**	**$4.4**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$53.4**	**$181.8**	**$186.4**	**$174.2**	**$81.4**	**$2.2**	**$4.2**	**$3.9**	**$61.5**	**$8.2**	**$7.7**	**$7.2**	**$6.7**
Net Impacts/NPV	**-$642.0**	**$0.0**	**-$4.4**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**-$53.4**	**-$181.8**	**-$186.4**	**-$174.2**	**-$81.4**	**$1.7**	**$3.3**	**$3.2**	**-$54.7**	**$2.7**	**$2.8**	**$2.9**	**$2.9**
BC Ratio	0.14																						

Discounted at 3%, 2019$	**Total (M)**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**
Travel Time Savings	$260.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2.9	$5.8	$5.8	$5.8	$9.7	$9.7	$9.7	$9.6
Accident Costs Savings	$67.6	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.7	$1.5	$1.5	$1.4	$2.5	$2.5	$2.5	$2.5
Emissions Cost Savings																							
CAC	$0.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
CO2	$7.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2
Productivity Benefits	$63.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.7	$1.4	$1.4	$1.4	$2.4	$2.3	$2.3	$2.3
Agency Benefits	$196.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2.4	$4.7	$4.7	$4.7	$7.4	$7.3	$7.3	$7.2
Highway Pavement Maintenance Savings	$0.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Residual Value of Capital	$76.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Benefits	**$671.9**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$6.8**	**$13.6**	**$13.5**	**$13.4**	**$22.2**	**$22.1**	**$22.0**	**$21.9**
Capital Construction Costs	$1,193.1	$0.0	$4.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$78.2	$276.4	$294.4	$285.8	$138.8	$0.0	$0.0	$0.0	$114.9	$0.0	$0.0	$0.0	$0.0
Rehabilitation and Major Maintenance	$20.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.2	$0.5	$0.5	$0.5	$0.4	$0.4	$0.4	$0.4
Operations and Maintenance, O&M, Net Annual	$327.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$3.7	$7.2	$7.0	$6.8	$16.5	$16.0	$15.5	$15.1
Total Costs	**$1,540.9**	**$0.0**	**$4.7**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$78.2**	**$276.4**	**$294.4**	**$285.8**	**$138.8**	**$4.0**	**$7.7**	**$7.4**	**$122.1**	**$16.9**	**$16.4**	**$15.9**	**$15.5**
Net Impacts/NPV	**-$869.0**	**$0.0**	**-$4.7**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**-$78.2**	**-$276.4**	**-$294.4**	**-$285.8**	**-$138.8**	**$2.9**	**$5.9**	**$6.1**	**-$108.6**	**$5.3**	**$5.7**	**$6.1**	**$6.5**
BC Ratio	0.28																						

60 years of Operations

Undiscounted, 2019$ - 60 years of operations	Total (M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Travel Time Savings	$1,726.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$4.5	$9.3	$9.6	$9.8	$17.1	$17.5	$18.0	$18.4
Accident Costs Savings	$453.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.1	$2.3	$2.4	$2.5	$4.4	$4.5	$4.6	$4.8
Emissions Cost Savings																							
CAC	$1.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
CO2	$51.6	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.2	$0.2	$0.2	$0.4	$0.4	$0.5	$0.5
Productivity Benefits	$418.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.1	$2.3	$2.3	$2.4	$4.1	$4.2	$4.4	$4.5
Agency Benefits	$1,280	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$3.7	$7.6	$7.8	$8.0	$12.9	$13.2	$13.5	$13.9
Highway Pavement Maintenance Savings	$4.5	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.01	$0.03	$0.03	$0.03	$0.05	$0.05	$0.05	$0.05
Residual Value of Capital	$0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Benefits	**$3,936.8**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$10.6**	**$21.8**	**$22.3**	**$22.9**	**$39.0**	**$40.0**	**$41.0**	**$42.0**
Capital Construction Costs	$1,737.5	$0.0	$5.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$105.1	$382.6	$419.7	$419.7	$209.9	$0.0	$0.0	$0.0	$195.5	$0.0	$0.0	$0.0	$0.0
Rehabilitation and Major Maintenance	$69.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.4	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8
Operations and Maintenance, O&M, Net Annual	$1,483.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$5.8	$11.5	$11.5	$11.5	$28.9	$28.9	$28.9	$28.9
Total Costs	**$3,290.30**	**$0.00**	**$5.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$105.07**	**$382.57**	**$419.75**	**$419.75**	**$209.87**	**$6.16**	**$12.31**	**$12.31**	**$207.85**	**$29.63**	**$29.63**	**$29.63**	**$29.63**
Net Impacts/NPV	**$646.5**	**$0.0**	**-$5.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**-$105.1**	**-$382.6**	**-$419.7**	**-$419.7**	**-$209.9**	**$4.5**	**$9.5**	**$10.0**	**-$185.0**	**$9.4**	**$10.3**	**$11.4**	**$12.4**
BC Ratio	1.36																						
	1%																						

Discounted at 7%, 2019$ - 60 years of operations	Total (M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Travel Time Savings	$110.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.6	$3.2	$3.0	$2.9	$4.7	$4.5	$4.3	$4.2
Accident Costs Savings	$28.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.4	$0.8	$0.8	$0.7	$1.2	$1.2	$1.1	$1.1
Emissions Cost Savings																							
CAC	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
CO2	$13.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2
Productivity Benefits	$26.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.4	$0.8	$0.7	$0.7	$1.1	$1.1	$1.1	$1.0
Agency Benefits	$83	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$1.3	$2.6	$2.5	$2.4	$3.6	$3.4	$3.3	$3.1
Highway Pavement Maintenance Savings	$0.3	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Residual Value of Capital	$0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Benefits	**$263.7**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$3.9**	**$7.4**	**$7.1**	**$6.8**	**$10.9**	**$10.5**	**$10.0**	**$9.6**
Capital Construction Costs	$739.3	$0.0	$4.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$53.4	$181.8	$186.4	$174.2	$81.4	$0.0	$0.0	$0.0	$57.9	$0.0	$0.0	$0.0	$0.0
Rehabilitation and Major Maintenance	$6.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
Operations and Maintenance, O&M, Net Annual	$130.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2.1	$3.9	$3.7	$3.4	$8.0	$7.5	$7.0	$6.5
Total Costs	**$877.08**	**$0.00**	**$4.36**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$53.41**	**$181.76**	**$186.37**	**$174.18**	**$81.39**	**$2.23**	**$4.17**	**$3.90**	**$61.50**	**$8.19**	**$7.66**	**$7.16**	**$6.69**
Net Impacts/NPV	**-$613.4**	**$0.0**	**-$4.4**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**-$53.4**	**-$181.8**	**-$186.4**	**-$174.2**	**-$81.4**	**$1.7**	**$3.3**	**$3.2**	**-$54.7**	**$2.7**	**$2.8**	**$2.9**	**$2.9**
BC Ratio	0.18																						

Discounted at 3%, 2019$ - 60 years of operations	Total (M)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Travel Time Savings	$459.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2.9	$5.8	$5.8	$5.8	$9.7	$9.7	$9.7	$9.6
Accident Costs Savings	$120.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.7	$1.5	$1.5	$1.4	$2.5	$2.5	$2.5	$2.5
Emissions Cost Savings																							
CAC	$0.2	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
CO2	$13.5	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2
Productivity Benefits	$111.4	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.7	$1.4	$1.4	$1.4	$2.4	$2.3	$2.3	$2.3
Agency Benefits	$343	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$2.4	$4.7	$4.7	$4.7	$7.4	$7.3	$7.3	$7.2
Highway Pavement Maintenance Savings	$1.2	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Residual Value of Capital	$0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Total Benefits	**$1,048.7**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$6.8**	**$13.6**	**$13.5**	**$13.4**	**$22.2**	**$22.1**	**$22.0**	**$21.9**
Capital Construction Costs	$1,193.1	$0.0	$4.7	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$78.2	$276.4	$294.4	$285.8	$138.8	$0.0	$0.0	$0.0	$114.9	$0.0	$0.0	$0.0	$0.0
Rehabilitation and Major Maintenance	$23.6	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.2	$0.5	$0.5	$0.5	$0.4	$0.4	$0.4	$0.4
Operations and Maintenance, O&M, Net Annual	$460.9	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$3.7	$7.2	$7.0	$6.8	$16.5	$16.0	$15.5	$15.1
Total Costs	**$1,677.54**	**$0.00**	**$4.71**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$0.00**	**$78.18**	**$276.38**	**$294.40**	**$285.83**	**$138.75**	**$3.95**	**$7.67**	**$7.45**	**$122.09**	**$16.90**	**$16.40**	**$15.93**	**$15.46**
Net Impacts/NPV	**-$628.9**	**$0.0**	**-$4.7**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**$0.0**	**-$78.2**	**-$276.4**	**-$294.4**	**-$285.8**	**-$138.8**	**$2.9**	**$5.9**	**$6.1**	**-$108.6**	**$5.3**	**$5.7**	**$6.1**	**$6.5**
BC Ratio	0.48																						

9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069
0.21	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.09	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03
0.51	0.49	0.48	0.46	0.45	0.44	0.42	0.41	0.40	0.39	0.38	0.37	0.36	0.35	0.33	0.33	0.32	0.31	0.30	0.29	0.28	0.27	0.26	0.26	0.25	0.24	0.23	0.23

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063
$18.9	$19.4	$19.9	$20.4	$20.9	$21.4	$22.0	$22.5	$23.1	$23.7	$24.3	$24.9	$25.6	$26.2	$26.9	$27.6	$28.3	$29.0	$29.8	$30.5	$31.3	$32.1
$4.9	$5.0	$5.2	$5.3	$5.4	$5.6	$5.7	$5.9	$6.0	$6.2	$6.3	$6.5	$6.7	$6.9	$7.0	$7.2	$7.4	$7.6	$7.8	$8.0	$8.2	$8.4
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.5	$0.5	$0.5	$0.6	$0.6	$0.6	$0.6	$0.7	$0.7	$0.7	$0.7	$0.7	$0.8	$0.8	$0.8	$0.8	$0.9	$0.9	$0.9	$0.9	$0.9	$1.0
$4.6	$4.7	$4.8	$4.9	$5.1	$5.2	$5.3	$5.5	$5.6	$5.7	$5.9	$6.0	$6.2	$6.4	$6.5	$6.7	$6.9	$7.0	$7.2	$7.4	$7.6	$7.8
$14.2	$14.6	$14.9	$15.3	$15.7	$16.1	$16.5	$16.9	$17.3	$17.7	$18.1	$18.6	$19.1	$19.5	$20.0	$20.5	$21.0	$21.6	$22.1	$22.7	$23.2	$23.8
$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$281.5
$43.1	**$44.2**	**$45.4**	**$46.5**	**$47.7**	**$48.9**	**$50.2**	**$51.5**	**$52.8**	**$54.1**	**$55.5**	**$56.9**	**$58.4**	**$59.9**	**$61.4**	**$63.0**	**$64.6**	**$66.2**	**$67.9**	**$69.6**	**$71.4**	**$354.8**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$29.0	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8
$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9
$29.6	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$57.9**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**	**$29.6**
$13.5	**$14.6**	**$15.7**	**$16.9**	**$18.1**	**$19.3**	**$20.5**	**$21.8**	**$23.2**	**$24.5**	**$25.9**	**-$0.9**	**$28.7**	**$30.2**	**$31.8**	**$33.3**	**$34.9**	**$36.6**	**$38.3**	**$40.0**	**$41.8**	**$325.1**

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063
$4.0	$3.8	$3.7	$3.5	$3.4	$3.2	$3.1	$3.0	$2.8	$2.7	$2.6	$2.5	$2.4	$2.3	$2.2	$2.1	$2.0	$1.9	$1.9	$1.8	$1.7	$1.6
$1.0	$1.0	$0.9	$0.9	$0.9	$0.8	$0.8	$0.8	$0.7	$0.7	$0.7	$0.7	$0.6	$0.6	$0.6	$0.6	$0.5	$0.5	$0.5	$0.5	$0.4	$0.4
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3
$1.0	$0.9	$0.9	$0.9	$0.8	$0.8	$0.7	$0.7	$0.7	$0.7	$0.6	$0.6	$0.6	$0.6	$0.5	$0.5	$0.5	$0.5	$0.5	$0.4	$0.4	$0.4
$3.0	$2.9	$2.7	$2.6	$2.5	$2.4	$2.3	$2.2	$2.1	$2.0	$1.9	$1.9	$1.8	$1.7	$1.6	$1.6	$1.5	$1.4	$1.4	$1.3	$1.3	$1.2
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$14.3
$9.2	**$8.9**	**$8.5**	**$8.2**	**$7.8**	**$7.5**	**$7.2**	**$6.9**	**$6.7**	**$6.4**	**$6.1**	**$5.9**	**$5.7**	**$5.4**	**$5.2**	**$5.0**	**$4.8**	**$4.6**	**$4.4**	**$4.3**	**$4.1**	**$18.3**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.2	$0.2	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$2.9	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.0	$0.0	$0.0	$0.0
$6.1	$5.7	$5.3	$5.0	$4.6	$4.3	$4.1	$3.8	$3.5	$3.3	$3.1	$2.9	$2.7	$2.5	$2.4	$2.2	$2.1	$1.9	$1.8	$1.7	$1.6	$1.5
$6.3	**$5.8**	**$5.5**	**$5.1**	**$4.8**	**$4.5**	**$4.2**	**$3.9**	**$3.6**	**$3.4**	**$3.2**	**$5.8**	**$2.8**	**$2.6**	**$2.4**	**$2.3**	**$2.1**	**$2.0**	**$1.8**	**$1.7**	**$1.6**	**$1.5**
$3.0	**$3.0**	**$3.1**	**$3.1**	**$3.1**	**$3.1**	**$3.1**	**$3.1**	**$3.0**	**$3.0**	**$3.0**	**$0.1**	**$2.9**	**$2.8**	**$2.8**	**$2.8**	**$2.7**	**$2.7**	**$2.6**	**$2.5**	**$2.5**	**$16.8**

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063
$9.6	$9.5	$9.5	$9.4	$9.4	$9.4	$9.3	$9.3	$9.2	$9.2	$9.2	$9.1	$9.1	$9.1	$9.0	$9.0	$8.9	$8.9	$8.9	$8.8	$8.8	$8.7
$2.5	$2.5	$2.5	$2.5	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3
$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.1	$2.1	$2.1	$2.1
$7.2	$7.2	$7.1	$7.1	$7.1	$7.0	$7.0	$6.9	$6.9	$6.9	$6.8	$6.8	$6.8	$6.7	$6.7	$6.7	$6.6	$6.6	$6.6	$6.5	$6.5	$6.5
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$76.7
$21.8	**$21.8**	**$21.7**	**$21.6**	**$21.5**	**$21.4**	**$21.3**	**$21.2**	**$21.1**	**$21.0**	**$20.9**	**$20.8**	**$20.7**	**$20.7**	**$20.6**	**$20.5**	**$20.4**	**$20.3**	**$20.2**	**$20.1**	**$20.0**	**$96.6**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.4	$0.4	$0.4	$0.4	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$10.6	$0.3	$0.3	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
$14.6	$14.2	$13.8	$13.4	$13.0	$12.6	$12.2	$11.9	$11.5	$11.2	$10.9	$10.6	$10.3	$10.0	$9.7	$9.4	$9.1	$8.8	$8.6	$8.3	$8.1	$7.9
$15.0	**$14.6**	**$14.2**	**$13.7**	**$13.3**	**$12.9**	**$12.6**	**$12.2**	**$11.9**	**$11.5**	**$11.2**	**$21.2**	**$10.5**	**$10.2**	**$9.9**	**$9.6**	**$9.4**	**$9.1**	**$8.8**	**$8.6**	**$8.3**	**$8.1**
$6.8	**$7.2**	**$7.5**	**$7.8**	**$8.1**	**$8.4**	**$8.7**	**$9.0**	**$9.3**	**$9.5**	**$9.8**	**-$0.3**	**$10.2**	**$10.4**	**$10.6**	**$10.8**	**$11.0**	**$11.2**	**$11.4**	**$11.6**	**$11.7**	**$88.6**

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069
$18.9	$19.4	$19.9	$20.4	$20.9	$21.4	$22.0	$22.5	$23.1	$23.7	$24.3	$24.9	$25.6	$26.2	$26.9	$27.6	$28.3	$29.0	$29.8	$30.5	$31.3	$32.1	$32.9	$33.8	$34.7	$35.5	$36.5	$37.4
$4.9	$5.0	$5.2	$5.3	$5.4	$5.6	$5.7	$5.9	$6.0	$6.2	$6.3	$6.5	$6.7	$6.9	$7.0	$7.2	$7.4	$7.6	$7.8	$8.0	$8.2	$8.4	$8.7	$8.9	$9.1	$9.3	$9.6	$9.8
$0.00	$0.00	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.5	$0.5	$0.5	$0.6	$0.6	$0.6	$0.6	$0.7	$0.7	$0.7	$0.7	$0.7	$0.8	$0.8	$0.8	$0.8	$0.9	$0.9	$0.9	$0.9	$0.9	$1.0	$1.0	$1.0	$1.1	$1.1	$1.1	$1.1
$4.6	$4.7	$4.8	$4.9	$5.1	$5.2	$5.3	$5.5	$5.6	$5.7	$5.9	$6.0	$6.2	$6.4	$6.5	$6.7	$6.9	$7.0	$7.2	$7.4	$7.6	$7.8	$8.0	$8.2	$8.4	$8.6	$8.8	$9.1
$14.2	$14.6	$14.9	$15.3	$15.7	$16.1	$16.5	$16.9	$17.3	$17.7	$18.1	$18.6	$19.1	$19.5	$20.0	$20.5	$21.0	$21.6	$22.1	$22.7	$23.2	$23.8	$24.4	$25.0	$25.6	$26.3	$26.9	$27.6
$0.05	$0.05	$0.05	$0.05	$0.06	$0.06	$0.06	$0.06	$0.06	$0.06	$0.06	$0.07	$0.07	$0.07	$0.07	$0.07	$0.07	$0.08	$0.08	$0.08	$0.08	$0.08	$0.09	$0.09	$0.09	$0.09	$0.10	$0.10
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$43.1	**$44.2**	**$45.4**	**$46.5**	**$47.7**	**$48.9**	**$50.2**	**$51.5**	**$52.8**	**$54.1**	**$55.5**	**$56.9**	**$58.4**	**$59.9**	**$61.4**	**$63.0**	**$64.6**	**$66.2**	**$67.9**	**$69.6**	**$71.4**	**$73.2**	**$75.1**	**$77.0**	**$79.0**	**$81.0**	**$83.0**	**$85.2**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$29.0	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8
$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9
$29.63	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$57.87**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**
$13.5	**$14.6**	**$15.7**	**$16.9**	**$18.1**	**$19.3**	**$20.5**	**$21.8**	**$23.2**	**$24.5**	**$25.9**	**-$0.9**	**$28.7**	**$30.2**	**$31.8**	**$33.3**	**$34.9**	**$36.6**	**$38.3**	**$40.0**	**$41.8**	**$43.6**	**$45.5**	**$47.4**	**$49.3**	**$51.4**	**$53.4**	**$55.5**

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069
$4.0	$3.8	$3.7	$3.5	$3.4	$3.2	$3.1	$3.0	$2.8	$2.7	$2.6	$2.5	$2.4	$2.3	$2.2	$2.1	$2.0	$1.9	$1.9	$1.8	$1.7	$1.6	$1.6	$1.5	$1.4	$1.4	$1.3	$1.3
$1.0	$1.0	$0.9	$0.9	$0.9	$0.8	$0.8	$0.8	$0.7	$0.7	$0.7	$0.7	$0.6	$0.6	$0.6	$0.6	$0.5	$0.5	$0.5	$0.5	$0.4	$0.4	$0.4	$0.4	$0.4	$0.4	$0.3	$0.3
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3
$1.0	$0.9	$0.9	$0.9	$0.8	$0.8	$0.7	$0.7	$0.7	$0.7	$0.6	$0.6	$0.6	$0.6	$0.5	$0.5	$0.5	$0.5	$0.5	$0.4	$0.4	$0.4	$0.4	$0.4	$0.3	$0.3	$0.3	$0.3
$3.0	$2.9	$2.7	$2.6	$2.5	$2.4	$2.3	$2.2	$2.1	$2.0	$1.9	$1.9	$1.8	$1.7	$1.6	$1.6	$1.5	$1.4	$1.4	$1.3	$1.3	$1.2	$1.2	$1.1	$1.1	$1.0	$1.0	$0.9
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$9.2	**$8.9**	**$8.5**	**$8.2**	**$7.8**	**$7.5**	**$7.2**	**$6.9**	**$6.7**	**$6.4**	**$6.1**	**$5.9**	**$5.7**	**$5.4**	**$5.2**	**$5.0**	**$4.8**	**$4.6**	**$4.4**	**$4.3**	**$4.1**	**$3.9**	**$3.8**	**$3.6**	**$3.5**	**$3.4**	**$3.2**	**$3.1**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.2	$0.2	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$2.9	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$6.1	$5.7	$5.3	$5.0	$4.6	$4.3	$4.1	$3.8	$3.5	$3.3	$3.1	$2.9	$2.7	$2.5	$2.36	$2.21	$2.06	$1.9	$1.8	$1.7	$1.6	$1.5	$1.4	$1.3	$1.2	$1.1	$1.0	$1.0
$6.25	**$5.84**	**$5.46**	**$5.10**	**$4.77**	**$4.46**	**$4.16**	**$3.89**	**$3.64**	**$3.40**	**$3.18**	**$5.80**	**$2.78**	**$2.59**	**$2.42**	**$2.27**	**$2.12**	**$1.98**	**$1.85**	**$1.73**	**$1.62**	**$1.51**	**$1.41**	**$1.32**	**$1.23**	**$1.15**	**$1.08**	**$1.01**
$3.0	**$3.0**	**$3.1**	**$3.1**	**$3.1**	**$3.1**	**$3.1**	**$3.1**	**$3.0**	**$3.0**	**$3.0**	**$0.1**	**$2.9**	**$2.8**	**$2.8**	**$2.8**	**$2.7**	**$2.7**	**$2.6**	**$2.5**	**$2.5**	**$2.4**	**$2.4**	**$2.3**	**$2.3**	**$2.2**	**$2.2**	**$2.1**

2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069
$9.6	$9.5	$9.5	$9.4	$9.4	$9.4	$9.3	$9.3	$9.2	$9.2	$9.2	$9.1	$9.1	$9.1	$9.0	$9.0	$8.9	$8.9	$8.9	$8.8	$8.8	$8.7	$8.7	$8.7	$8.6	$8.6	$8.6	$8.5
$2.5	$2.5	$2.5	$2.5	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.4	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.2
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3
$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.3	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.1	$2.1	$2.1	$2.1	$2.1	$2.1	$2.1	$2.1	$2.1	$2.1
$7.2	$7.2	$7.1	$7.1	$7.1	$7.0	$7.0	$6.9	$6.9	$6.9	$6.8	$6.8	$6.8	$6.7	$6.7	$6.7	$6.6	$6.6	$6.6	$6.5	$6.5	$6.5	$6.5	$6.4	$6.4	$6.4	$6.3	$6.3
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$21.8	**$21.8**	**$21.7**	**$21.6**	**$21.5**	**$21.4**	**$21.3**	**$21.2**	**$21.1**	**$21.0**	**$20.9**	**$20.8**	**$20.7**	**$20.7**	**$20.6**	**$20.5**	**$20.4**	**$20.3**	**$20.2**	**$20.1**	**$20.0**	**$19.9**	**$19.9**	**$19.8**	**$19.7**	**$19.6**	**$19.5**	**$19.4**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.4	$0.4	$0.4	$0.4	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$10.6	$0.3	$0.3	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
$14.6	$14.2	$13.8	$13.4	$13.0	$12.6	$12.2	$11.9	$11.5	$11.2	$10.9	$10.6	$10.3	$10.0	$9.7	$9.4	$9.1	$8.8	$8.6	$8.3	$8.1	$7.9	$7.6	$7.4	$7.2	$7.0	$6.8	$6.6
$15.01	**$14.58**	**$14.15**	**$13.74**	**$13.34**	**$12.95**	**$12.57**	**$12.21**	**$11.85**	**$11.51**	**$11.17**	**$21.18**	**$10.53**	**$10.22**	**$9.93**	**$9.64**	**$9.36**	**$9.08**	**$8.82**	**$8.56**	**$8.31**	**$8.07**	**$7.83**	**$7.61**	**$7.39**	**$7.17**	**$6.96**	**$6.76**
$6.8	**$7.2**	**$7.5**	**$7.8**	**$8.1**	**$8.4**	**$8.7**	**$9.0**	**$9.3**	**$9.5**	**$9.8**	**-$0.3**	**$10.2**	**$10.4**	**$10.6**	**$10.8**	**$11.0**	**$11.2**	**$11.4**	**$11.6**	**$11.7**	**$11.9**	**$12.0**	**$12.2**	**$12.3**	**$12.4**	**$12.6**	**$12.7**

37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
2070	**2071**	**2072**	**2073**	**2074**	**2075**	**2076**	**2077**	**2078**	**2079**	**2080**	**2081**	**2082**	**2083**	**2084**	**2085**	**2086**	**2087**
0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
0.22	0.22	0.21	0.20	0.20	0.19	0.19	0.18	0.17	0.17	0.16	0.16	0.16	0.15	0.15	0.14	0.14	0.13

2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087
$38.3	$39.3	$40.3	$41.4	$42.4	$43.5	$44.6	$45.8	$46.9	$48.1	$49.4	$50.6	$51.9	$53.3	$54.6	$56.0	$57.5	$58.9
$10.1	$10.4	$10.6	$10.9	$11.2	$11.5	$11.8	$12.1	$12.4	$12.7	$13.0	$13.4	$13.7	$14.1	$14.5	$14.8	$15.2	$15.6
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1
$1.2	$1.2	$1.2	$1.3	$1.3	$1.3	$1.4	$1.4	$1.4	$1.5	$1.5	$1.6	$1.6	$1.6	$1.7	$1.7	$1.8	$1.8
$9.3	$9.5	$9.8	$10.0	$10.3	$10.6	$10.8	$11.1	$11.4	$11.7	$12.0	$12.3	$12.6	$12.9	$13.2	$13.6	$13.9	$14.3
$28.3	$29.0	$29.7	$30.5	$31.3	$32.0	$32.9	$33.7	$34.5	$35.4	$36.3	$37.2	$38.1	$39.1	$40.1	$41.1	$42.2	$43.2
$0.10	$0.10	$0.11	$0.11	$0.11	$0.11	$0.12	$0.12	$0.12	$0.12	$0.13	$0.13	$0.13	$0.14	$0.14	$0.14	$0.15	$0.15
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$87.3	**$89.6**	**$91.9**	**$94.2**	**$96.6**	**$99.1**	**$101.6**	**$104.2**	**$106.9**	**$109.6**	**$112.4**	**$115.3**	**$118.2**	**$121.2**	**$124.3**	**$127.5**	**$130.8**	**$134.1**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8	$0.8
$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9	$28.9
$29.63	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**	**$29.63**
$57.7	**$59.9**	**$62.2**	**$64.6**	**$67.0**	**$69.4**	**$72.0**	**$74.6**	**$77.2**	**$80.0**	**$82.8**	**$85.6**	**$88.6**	**$91.6**	**$94.7**	**$97.9**	**$101.1**	**$104.5**

2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087
$1.2	$1.2	$1.1	$1.1	$1.0	$1.0	$0.9	$0.9	$0.9	$0.8	$0.8	$0.8	$0.7	$0.7	$0.7	$0.6	$0.6	$0.6
$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
$0.3	$0.3	$0.3	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.1	$0.1
$0.9	$0.9	$0.8	$0.8	$0.8	$0.7	$0.7	$0.7	$0.6	$0.6	$0.6	$0.6	$0.5	$0.5	$0.5	$0.5	$0.5	$0.4
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$3.0	**$2.9**	**$2.8**	**$2.7**	**$2.6**	**$2.5**	**$2.4**	**$2.3**	**$2.2**	**$2.1**	**$2.0**	**$2.0**	**$1.9**	**$1.8**	**$1.8**	**$1.7**	**$1.6**	**$1.6**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.9	$0.9	$0.8	$0.7	$0.7	$0.7	$0.6	$0.6	$0.5	$0.5	$0.5	$0.4	$0.4	$0.4	$0.4	$0.3	$0.3	$0.3
$0.94	**$0.88**	**$0.82**	**$0.77**	**$0.72**	**$0.67**	**$0.63**	**$0.59**	**$0.55**	**$0.51**	**$0.48**	**$0.45**	**$0.42**	**$0.39**	**$0.36**	**$0.34**	**$0.32**	**$0.30**
$2.1	**$2.0**	**$1.9**	**$1.9**	**$1.8**	**$1.8**	**$1.7**	**$1.7**	**$1.7**	**$1.6**	**$1.6**	**$1.5**	**$1.5**	**$1.4**	**$1.4**	**$1.4**	**$1.3**	**$1.3**

2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087
$8.5	$8.5	$8.4	$8.4	$8.3	$8.3	$8.3	$8.2	$8.2	$8.2	$8.1	$8.1	$8.1	$8.0	$8.0	$8.0	$7.9	$7.9
$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.2	$2.1	$2.1	$2.1	$2.1	$2.1	$2.1	$2.1
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.3	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
$2.1	$2.1	$2.0	$2.0	$2.0	$2.0	$2.0	$2.0	$2.0	$2.0	$2.0	$2.0	$2.0	$1.9	$1.9	$1.9	$1.9	$1.9
$6.3	$6.2	$6.2	$6.2	$6.2	$6.1	$6.1	$6.1	$6.0	$6.0	$6.0	$6.0	$5.9	$5.9	$5.9	$5.8	$5.8	$5.8
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$19.3	**$19.3**	**$19.2**	**$19.1**	**$19.0**	**$18.9**	**$18.8**	**$18.8**	**$18.7**	**$18.6**	**$18.5**	**$18.4**	**$18.4**	**$18.3**	**$18.2**	**$18.1**	**$18.0**	**$18.0**
$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
$0.2	$0.2	$0.2	$0.2	$0.2	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1
$6.4	$6.2	$6.0	$5.8	$5.7	$5.5	$5.4	$5.2	$5.0	$4.9	$4.8	$4.6	$4.5	$4.4	$4.2	$4.1	$4.0	$3.9
$6.56	**$6.37**	**$6.18**	**$6.00**	**$5.83**	**$5.66**	**$5.50**	**$5.34**	**$5.18**	**$5.03**	**$4.88**	**$4.74**	**$4.60**	**$4.47**	**$4.34**	**$4.21**	**$4.09**	**$3.97**
$12.8	**$12.9**	**$13.0**	**$13.1**	**$13.2**	**$13.3**	**$13.3**	**$13.4**	**$13.5**	**$13.6**	**$13.6**	**$13.7**	**$13.8**	**$13.8**	**$13.9**	**$13.9**	**$14.0**	**$14.0**

Benefit-Cost Analysis Technical Memorandum

Riverside County Transportation Commission – Coachella Valley-San Gorgonio Pass Rail Corridor

December 2021

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1 Introduction

This document provides detailed technical information on the economic analyses conducted to develop a benefit-cost analysis (BCA) for the Coachella Valley – San Gorgonio Pass Rail Corridor Project ("the Project") in California. The project area extends from the eastern terminus in Coachella, California, to Los Angeles, California, in the west.

The remainder of this document is organized as follows:

- Section 2, Methodological Framework and General Assumptions, introduces the conceptual framework used in the BCA and outlines the assumptions used in the estimation of project costs and benefits.
- Section 3, Project Overview, includes a brief description of existing conditions and the proposed alternative; a summary of cost estimates and schedule; and a description of the types of effects that the project is expected to generate.
- Section 4, Demand Projections, shows the estimates of travel demand and traffic growth.
- Section 5, Benefits Measurement, Data and Assumptions, presents specific data elements and assumptions pertaining to projected long-term outcomes, along with associated benefit estimates.
- Section 6, Summary of Findings and BCA Outcomes, introduces estimates of the Project's Net Present Value (NPV), its Benefit/Cost Ratio (BCR) and other project evaluation metrics.

2 Methodological Framework and General Assumptions

The BCA conducted for this project is based on the monetized benefits and costs of the Project measured using USDOT guidance for BCA, as well as the quantitative and qualitative merits of the project. A BCA provides estimates of the benefits that are expected to accrue from a project over a specified period and compares them to the anticipated costs of the project. Costs include both the resources required to develop the project and the costs of maintaining the new or improved asset over time. Estimated benefits are based on the projected impacts of the project on both users and non-users of the facility, valued in monetary terms.[1]

While a BCA is just one of many tools that can be used in making decisions about infrastructure investments, it provides a useful benchmark from which to evaluate and compare potential transportation investments.[2]

The specific methodology features the following:

- Establishing existing and future conditions under the build and no-build scenarios;
- Measuring benefits in dollar terms, whenever possible, and expressing benefits and costs in a common unit of measurement;
- Using USDOT guidance for the valuation of travel time savings and safety benefits, while relying on industry best practices for the valuation of other effects;
- Discounting future benefits and costs with the real discount rate recommended by USDOT (7 percent and 3 percent for sensitivity); and
- Conducting a sensitivity analysis to assess the impacts of changes in key input assumptions.

[1] USDOT, *Benefit-Cost Analysis Guidance for Discretionary Grant Programs*, February 2021.

[2] Ibid.

A BCA measures benefits against costs of a project throughout a period of analysis beginning at the start of construction and including operations over a period sufficient for full realization of benefits. The methodology makes several important assumptions and seeks to avoid overestimation of benefits and underestimation of costs. Specifically:

- Input prices are expressed in 2019 dollars so as to align with BCA valuation parameters recommended by USDOT at the time of this analysis;[3]
- The period of analysis begins in 2029 and ends in 2063. It includes construction years (2030–2033) and 30 years of operations (2034–2063);
- A constant 7 percent real discount rate is assumed throughout the period of analysis[4] and 3 percent discount rate for sensitivity analysis;
- Opening-year demand and benefits are inputs to the BCA and assumed to be fully realized after construction is finished and project starts operations in 2034 (no ramp-up); and
- Unless specified otherwise, the results shown in this report correspond to the effects of the Build alternative as described in Section 4.

3 Project Overview

3.1 Project Description, Current Conditions and Challenges

The Project area extends approximately 144 miles from the eastern terminus in Coachella, California, to Los Angeles Union Station, California, in the west.

Currently, passenger rail transportation services between Los Angeles and destinations in the Coachella Valley are limited. They include the following:

- Amtrak Pacific Surfliner service between Los Angeles and Fullerton and Amtrak Thruway Bus between Fullerton and Indio. Total travel time between Los Angeles and Indio using these services is between 4 and 5 hours.
- Amtrak Sunset Limited service operates one nighttime train in each direction three days a week between Los Angeles and Palm Springs.
- Metrolink commuter trains between Los Angeles, Fullerton, and Riverside.

Overall, public transportation services are limited and inconvenient for most origin-destination city pairs. Auto travel – with trips on Interstate 10 (I-10) or Route 91 – is the predominant mode of transportation. Travel in the I-10 corridor is becoming increasingly congested as the Coachella Valley experiences an increase in population, employment, and tourism. During non-congested periods, a trip between Los Angeles and Indio along I-10 takes approximately 2 hours, and during peak congested travel periods such as Friday evening, it may take up to 3.5 hours.

An effective intercity rail service between Los Angeles and the Coachella Valley would provide a new travel option that will help meet future mobility needs for residents, business, and visitors. In addition, it will also serve disadvantaged communities and help the region conform to air quality regulations. Major public transportation projects of this nature are typically heavily subsidized, particularly for capital expenses, and are not expected to break even from a profit perspective.

[3] Based on: US Department of Transportation, *Benefit-Cost Analysis Guidance for Discretionary Grants Program*, February 2021. All valuation parameters are expressed in 2019 dollars.

[4] Except for the quantification of impacts on CO_2 emissions which are discounted using a 3 percent discount rate as per USDOT guidance.

The Project entails operating two (then five) daily roundtrip intercity passenger trains between Los Angeles and the Coachella Valley, with morning and evening departures from each endpoint. The passenger service is being planned with an approximate trip time of 3 hours and 15 minutes, providing a comparable trip time to auto travel time on congested I-10 and Route 91. The project would provide travelers between the Coachella Valley and Los Angeles with a public transportation service that offers more convenient and competitive trip times, better station access, and more frequency than currently available public transportation services.

3.2 Base Case and Alternative

The Base Case for the Project is defined as the No-Build scenario. The No-Build scenario reflects the continuation of current conditions with no major investments to address the identified deficiencies. The Alternative Case is defined as the Build scenario that includes all project components outlined above.

3.3 Types of Impacts

The Project is expected to have the following impacts:

- Reduction in travel times to travelers. Currently, passenger rail services between Los Angeles and destinations in the Coachella Valley are limited and inconvenient for most origin-destination city pairs. The project would provide travelers a transportation choice with shorter travel time and service at more convenient times of day.
- Reduction in the number of accidents and corresponding social cost of accidents. The project would result in auto trip diversion to train which would lead to a reduction in highway vehicle-miles of travel (VMT). This will reduce exposure to accident risks and can be expected to reduce the number of highway accidents and the social costs of these accidents.
- Environmental protection. Reduction in highway VMT due to diversion of auto trips to rail will also result in reduced motor vehicle emissions.
- Productivity Benefits. Passengers traveling on business diverting from auto to the new rail service will be able to engage in some productive work on the train such as reading, writing, reviewing documents.
- Agency Benefits. Under Build, the Amtrak Thruway Bus from Fullerton to Indio would be discontinued. This will generate operating cost savings. In addition, the Project will generate revenues to the agency operating the service, including fare revenues as well revenues from auxiliary services.
- Improvement in state of good repair. Reduction in highway VMT due to diversion of auto trips to rail will result in reduced highway pavement wear and tear and a reduction in pavement maintenance costs to the responsible agency.
- Residual value. At the end of the analysis period, Project capital will still have some value remaining and offer the potential to generate benefits for future years (until the end of its useful life).

3.4 Project Cost and Schedule

Total Project capital costs (i.e., initial construction and development costs along with additional rolling stock cost) are estimated at $1,737.5 million in 2019 undiscounted dollars and $739.3 million discounted at 7 percent.

Operation and maintenance costs (O&M) are estimated at $11.5 million in 2019 constant dollars in the first full year of operation and $28.9 million per year in 2019 constant dollars once service increases from two to five daily roundtrips. In addition to the initial capital outlay for equipment, it is anticipated that periodic capital investments in equipment overhauls will be needed to maintain the locomotive and rolling stock in a state of good repair. After 25 years of operations, the Project will require replacement of locomotives.

Total O&M costs for 30 years of operations are estimated at $790.8 million in 2019 constant dollars and $114.1 million discounted at 7 percent. Total rehabilitation and major maintenance costs are estimated at $50.9 million and $6.4 million discounted at 7 percent. The Project costs as outlined above are summarized in Table 3-1.

Table 3-1. Summary of Costs, Millions of 2019 Dollars

Cost Element	In Constant Dollars	Discounted at 7 Percent	Discounted at 3 Percent
Construction & Development Costs	$1,542.0	$681.5	$1,078.2
Additional Rolling Stock	$195.5	$57.8	$114.9
Rehabilitation and Major Maintenance	$50.9	$6.4	$20.0
Operations and Maintenance	$790.8	$114.1	$327.7
Total	**$2,579.2**	**$859.8**	**$1,540.9**

Construction is anticipated to start in mid-2030 and be completed in mid-2033.

4 Demand Projections

When quantifying the benefits of transportation infrastructure improvements, current and future travel demand in the study area needs to be analyzed and quantified.

Ridership and revenue forecasts for the Coachella Valley-San Gorgonio Pass Rail Service Development Plan were prepared by Steer Davies Gleave (SDG) under contract to the California Department of Transportation (Caltrans), Division of Rail and Mass Transportation.[5] SDG employed the Caltrans Mode Share Model developed by SDG in April 2018 to support rail planning activities throughout the State of California.

The model is structured as a nested logit choice model with parameter estimates based on experience with rail forecasting models in California. The model was calibrated to match observed ridership for the three Amtrak California routes currently in operation: Pacific Surfliner, Capitol Corridor, and San Joaquins.

The modeling process started with an estimate of current total person travel by automobile and rail estimated from cell phone trace data obtained from AirSage.[6] This cell phone data was converted into a person trip table representing travel between each pair of origin and destination locations in the State of California. A mode choice model separated these trips into travel made by automobile and travel made by rail. Future travel demand was estimated by factoring the current person trip tables using growth factors based on projections of population, employment, and income growth obtained from Moody's Analytics.

[5] See: "Ridership and Revenue Forecast. Coachella Valley – San Gorgonio Pass Rail Corridor Service Study", June 2019 SDG (2019).

[6] AirSage is a large data analytics company that specializes in the collection and analysis of anonymous people location data from mobile phones and GPS devices.

This model was used to test four different Coachella Valley rail service options defined by the number of station stops east of Colton, and ridership was estimated for each origin-destination pair (OD pair) within the service area. It is noted that ridership between Los Angeles and Fullerton was not included in this modeling as currently this OD pair is well served by the existing intercity and commuter train services. The model was applied for three different horizon years: 2018, 2024, and 2044.

SDG also estimated revenue by multiplying station-to-station rail trips by a projection of the average fare for each journey based on prior rail modeling experience in California and confirmed with a series of validation and sensitivity tests.

In order to account for the increased frequency from two to five daily roundtrips starting in 2038, HDR subsequently revised SDG's projections for 2044.

As shown in Table 4-1, estimated ridership in 2018 ranges from 129,100 to 175,500 annual one-way trips depending on the number of stations each train serves east of Colton. Each option that provides additional station stops adds ridership as compared to options that offer fewer station stops. Ridership for 2024 ranges from 150,100 to 204,100 annual one-way trips, a 16 percent increase over 2018. Ridership for 2044 is estimated at 574,200 annual trips, a 227 percent increase over 2018. The option with 6 stops east of Colton highlighted in the table is evaluated in this BCA.

Table 4-1. Coachella Valley – San Gorgonio Pass Rail Ridership Annual Estimates, by Year, and Station Stops Option

Number of Station Stop East of Colton	2018	2024	2044
6 Stops	175,500	204,100	574,200
5 Stops	161,900	188,300	-
4 Stops	137,800	160,300	-
3 Stops	129,100	150,000	-

Sources: SDG (2019) and HDR (2021)

Ridership for years between those shown in Table 4-1 was interpolated while ridership beyond 2044 was extrapolated assuming the same rate of growth as in the earlier years.

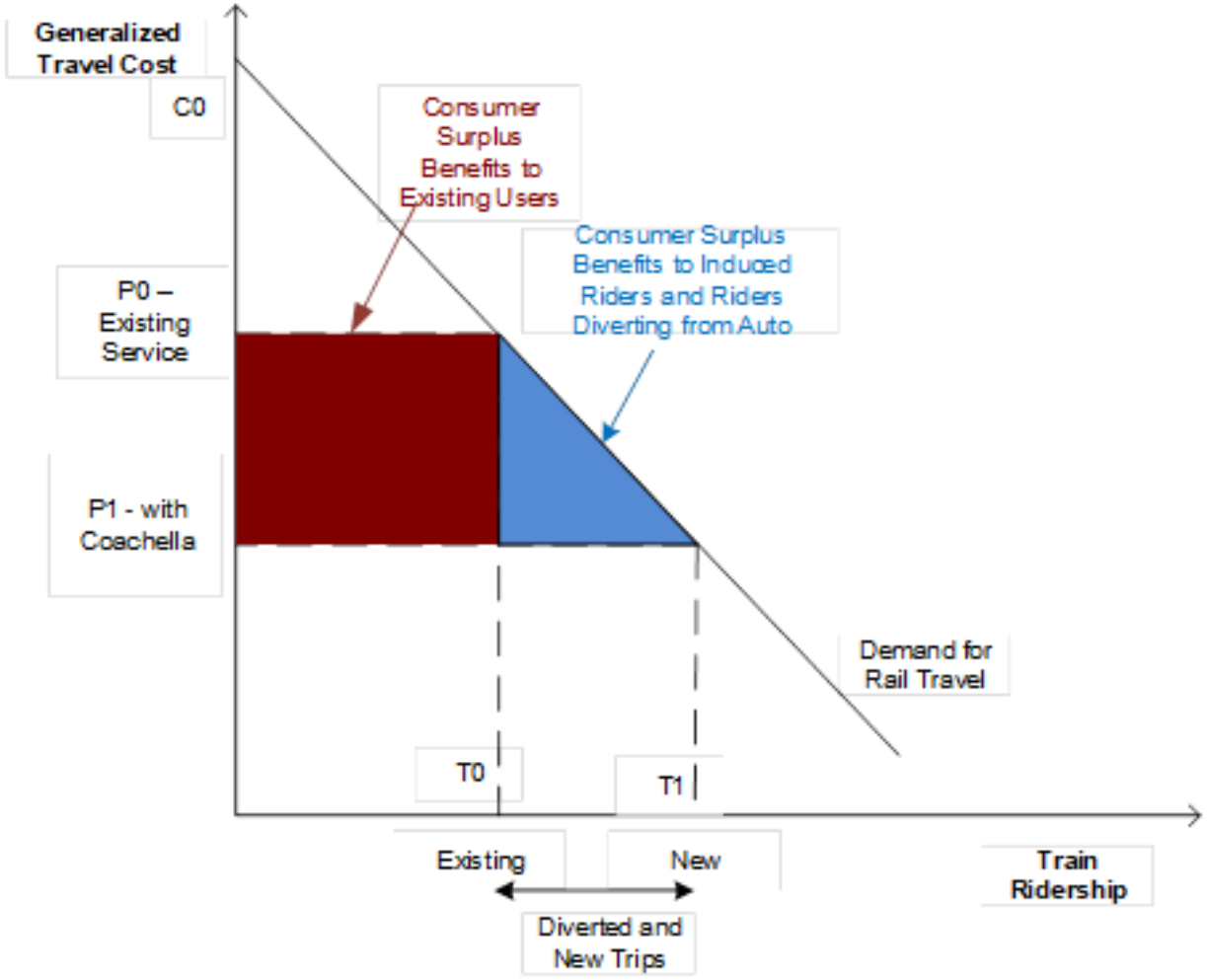
It is also noted that during the Alternatives Analysis phase of the Coachella Valley Rail service planning, preliminary ridership forecasts were also tested to determine the sensitivity of ridership to the frequency of service in the corridor. The results indicated that ridership in the corridor would be expected to increase with increasing daily service frequency, but the average number of passengers per train would be expected to decrease. Based on the Coachella Valley – San Gorgonio Pass Rail Corridor Service Development Plan, two round trips per day were assumed as the service level that would provide the best performance in terms of riders per train while providing an opportunity for passengers to make a limited round trip in one day. Ridership shown in Table 4-1 represents the option of two round trips (for a total of four one-way trips).

5 Benefits Measurement, Data and Assumptions

5.1 General Overview

Passengers traveling between Los Angeles and Coachella Valley destinations will derive benefits from the public transportation service improvements in the Build scenario. The magnitude of these benefits can be quantified using the concept of consumer surplus illustrated on Figure 5-1 on the next page. The figure shows the relationship between demand for travel and the generalized cost of travel.

Figure 5-1. Consumer Surplus Benefits to Existing and New Train Ridership



The demand for travel is measured as the total number of trips while the generalized cost of travel represents the value of travel time and any out-of-pocket expenses such as fares. The travel demand curve is downward sloping: as the generalized cost of travel decreases, the number of trips increases. Riders on an improved passenger rail service may experience travel time savings compared to their previous travel arrangements, improvements in reliability, and a reduction in their out-of-pocket costs. In addition, the availability of transportation at a lower cost (including time and fare) will encourage users to travel more, or attract entirely new users, increasing the total number of trips.

Consumer surplus is a concept of a benefit that captures the difference between the price that a consumer would be willing to pay (or the willingness to pay) and the price that he/she actually pays.

Graphically, consumer surplus can be illustrated as the area below the demand curve and above the price line. Shifts in the price line will then increase or reduce the consumer surplus.

On Figure 5-1, P0 is the generalized travel cost corresponding to the cost of travel under the No-Build scenario. Under Build (after the completion of an investment project), the travel time is decreased, reducing the generalized travel cost to P1 and increasing ridership from T0 to T1. The increased ridership includes the exiting users, as well as new riders who diverted from auto or who were not making the trip at all.

The existing travelers gain the consumer surplus illustrated by the red rectangular area, while the diverted travelers and new travelers gain the consumer surplus illustrated by the blue triangular area. The former can be estimated as savings in the generalized travel cost (essentially travel time savings, assuming fares remain unchanged under the Build scenario) multiplied by the number of existing travelers. The latter can be estimated as savings in the generalized travel cost multiplied by the number of new and diverted travelers and divided in half ("rule of half").

The availability of rail service can result in social cost savings as well which represent benefits in addition to direct travel trip savings. These include benefits stemming from reduced auto travel leading to a reduction in tailpipe emissions, highway accidents, as well as highway maintenance costs. This section describes the measurement approach used for each quantifiable benefit or impact category identified in Section 4 and provides an overview of the associated methodology, assumptions, and estimates of benefits and impacts.

5.2 Consumer Surplus/Travel Time Savings Benefits

Travel time savings are one of the key benefits of transportation project improvements and the key driver of changes in consumer surplus. To assess travel time savings benefits, we compared the scheduled travel times on the Project with those on currently available services.

Currently, passenger rail services between Los Angeles and destinations in the Coachella Valley are limited and inconvenient for most origin-destination city pairs. They include the following:

- Amtrak Pacific Surfliner service between Los Angeles and Fullerton and Amtrak Thruway Bus between Fullerton and Indio (also serving Riverside, Palm Springs, Palm Desert, and La Quinta). Passengers traveling eastbound would take the 2:58 PM Pacific Surfliner train in Los Angeles, arrive in Fullerton at 3:29 PM, wait 1 hour 21 min and board the Amtrak Thruway Bus at 4:50 PM and arrive in Indio at 7:50 PM for a total travel time of 4 hours and 52 minutes. Passengers traveling westbound would board the Amtrak Thruway connecting bus in Indio at 6:50 AM, arrive in Fullerton at 10:05 AM, wait 21 minutes, take the 10:26 AM train and arrive in Los Angeles at 11:06 AM for a total travel time of 4 hours and 16 minutes.[7]
- Amtrak Sunset Limited service between Los Angeles and Palm Springs, which operates three days per week. Passengers traveling eastbound would board the train in Los Angeles at 10:00 PM and arrive in Palm Springs at 12:26 AM for a total travel time of 2 hours 26 minutes. Passengers traveling westbound would board the train in Palm Springs at 2:02 AM and arrive in Los Angeles at 5:35 AM for a total travel time of 3 hours 33 minutes.[8]
- Metrolink commuter trains between Los Angeles and Riverside and Riverside and Fullerton. Travel times from Riverside to Los Angeles on the Riverside Line is 1 hour 27 min while travel time from Riverside Downtown to Fullerton on the 91/Perris Valley Line is 49 minutes.

For the city pairs between Riverside and Indio/Coachella, there are currently no existing rail services and travelers wishing to use public transport must rely on a combination of local transit services or intercity bus services such as Greyhound.[9]

[7] Based on Amtrak Pacific Surfliner schedule effective June 1, 2020 and accessed in February 2021.

[8] Based on Amtrak Southwest Chief schedule effective October 1, 2020 and accessed in February 2021.

[9] Amtrak Thruway bus can be used only in conjunction with Amtrak train but not on its own.

The above suggests that for the purpose of comparing the new service with the existing services and estimating travel time savings, total ridership can be divided into three markets: 1) Trips between LA/Fullerton and Riverside, 2) Trips to/from Los Angeles (excluding Riverside), and 3) Other trips in corridor.

The ridership for the Build Case for each of these markets was compiled based on OD pairwise forecasts completed by SDG. These forecasts were also used to calculate the average trip length. Table 5-1 shows the estimated ridership by market and average trip length in each of the markets. The table shows that trips between Los Angeles and various destinations in the Coachella Valley are forecast to account for about 63 percent of total ridership. Destinations to/from Riverside account for about 9 percent of total ridership and remaining trips in the corridor for 28 percent.

Table 5-1. Ridership and Average Trip Distance, by Market

Market	Average Trip Length (Miles)	Ridership, Projected Annual Trips		
		2018	2024	2044
Riverside - Los Angeles / Fullerton	52.1	15,700	18,300	51,500
Other Trips to/from Los Angeles	121.3	110,800	128,900	362,600
Other Trips in Corridor	83.2	49,000	56,900	160,100
Total with 6 Stops	**N/A**	**175,500**	**204,100**	**574,200**

Source: Calculated by HDR based on SDG ridership forecasts.

Average Build travel times for each market were calculated based on the average trip length in each market and average speed of the Coachella train service.

No-Build travel times for each of the markets were calculated as follows:

- Riverside market. No-Build travel time was calculated as the weighted average travel time on Metrolink commuter trains between Riverside and LA, and between Riverside and Fullerton.
- Trips to/from Los Angeles excluding Riverside. No-Build travel time was calculated as Amtrak train travel time from Los Angeles to Fullerton + waiting time for Amtrak Thruway Bus in Fullerton (average of eastbound and westbound direction) + in-vehicle travel time on Amtrak Thruway Bus (travel time for the entire route *average distance travelled/entire bus route length).
- Other trips in corridor. This market presents challenges in estimating No-Build travel times and calculating travel time savings benefits as currently there is no existing comparable public transportation service. Referring to Figure 5-1, we need an estimate of a point on the demand curve close to C0, where the demand is very low, and the demand curve (almost) intersects the vertical axis. This point can be interpreted as the maximum willingness to pay. Existing literature and guidance for such cases is limited. The benefits could be sometimes calculated directly from the utility function within the underlying transportation model used to estimate ridership. Alternatively, point C0 could be simulated with a demand function. However, these approaches may present their own challenges, and access to the respective functionalities was not available for this study. A pragmatic approach was developed by the United Kingdom Department for Transport for their computerized project evaluation tool, the Transport User Benefits Appraisal (TUBA) tool and documented in the respective guidance document. This guidance recommends an approximation for the generalized No-Build travel costs calculated as Build travel cost multiplied by an elasticity coefficient equal to (E-0.98)/E where “E” is the elasticity of demand with

respect to travel costs.[10] Considering typical E in the range of –0.1 to –0.5, this gives No-Build costs between approximately 3 and 10 times the Build generalized cost of travel. As a conservative approach, TUBA recommends a coefficient equal to 3. This implies the No-Build travel cost for this market equal to 3 times of the Build/Coachella train travel cost. Assuming that total travel cost is equal to travel time cost + fare, the project benefit to this market is equal to C0 – P1 = 3 P1 – P1 = 2 P1= 2*Build Travel Time+ 2* Build Fare. The fare component of the benefit expresses the willingness to pay for train service that captures a range of benefits perceived by users.

All travel time/consumer surplus benefits were assumed constant over the analysis period. For each market, the difference in travel time between the No-Build and Build cases was multiplied by ridership (existing, new) to obtain the person-hours saved under the Build scenario. The person-hours saved were multiplied by the value of time to obtain the monetary value of travel time savings. Existing passengers were assigned the entire value of travel time savings while new users of rail service – users diverting from auto and entirely new users – obtained half of that value (consistently with the "rule of half").

Estimation of the value of travel time savings on the new service also requires assumptions as to the source of the ridership, i.e., percentage of the estimated train ridership that would be diverted from existing public transportation services, percentage diverted from auto, and entirely new users. This information was not directly available with ridership forecasts. Assumptions as to the source of the ridership were made for each market based on its characteristics and potential attractiveness of the new train service to various groups of prospective passengers, as discussed below.

- Other trips to/from LA. The proposed new service would be very attractive to the current users of Amtrak services (train + Thruway Bus) as it would offer substantial travel time savings and a seamless trip. Based on the Alternatives Analysis report, in 2013 ridership on the Thruway Bus between Fullerton and Coachella Valley amounted to 17,648.[11] This ridership amounts to about 17 percent of total ridership in this market at 2018 levels. New demand is not expected to account for a significant share of total ridership. Its share was assumed at a relatively low level of 5 percent. The reminder of the trips, 78 percent of total, was assumed to be trips diverted from auto.
- Other trips in corridor. As discussed earlier, currently there is no comparable public transportation service in the corridor and travelers wishing to use public transport must rely on a patchwork of service providers which varies by OD city pair. Private auto is expected to be the "default" transportation mode and the key source of trip diversion to the new service. By its nature, the "existing" ridership would be very low. TUBA guidance recommends an assumption of 2 percent of ridership as the "existing" demand. Similarly, as for trips to/from LA, new demand was assumed at 5 percent. The reminder of ridership, 93 percent of total, are then trips diverted from auto.
- Riverside – LA/Fullerton. This market is already well served by existing Metrolink commuter trains; however, they are mostly scheduled in the early morning in the direction to Los Angeles and early evening in the direction to Riverside. For the remaining times of the day, private auto can be expected to be the default transportation mode and provide the key source of trip diversion to the new service. Therefore, for the purpose of this BCA it was assumed that 25 percent of ridership would be trips diverted from existing demand, 5 percent of ridership would be new demand, and the remaining 70 percent of ridership would be trips diverting from auto.

The results of the above discussion are summarized in Table 5-2. Other assumptions and parameters used to quantify and monetize travel time savings are shown in Table 5-3.

[10] Department of Transportation, Transport User Benefits Appraisal (TUBA): General Guidance and Advice, Version 1.9.13, July 2019, Chapter 12, page 12-5.

[11] HDR, "Alternatives Analysis. Coachella Valley-San Gorgonio Pass Rail Corridor Service Study", July 25, 2016. The data was obtained from Caltrans Division and Rail and Amtrak.

Table 5-2. Source of Coachella Valley Train Ridership, by Market

Ridership Source	Riverside - Los Angeles / Fullerton	Other Trips to/from Los Angeles	Other Trips in Corridor
Diverted from Other Rail / Public Transport	25%	17%	2%
Diverted from Auto	70%	78%	93%
New	5%	5%	5%

Table 5-3. Assumptions Used in the Estimation of Travel Time Savings

Data Item	Unit	Value	Source
Average speed of Coachella train	mph	44.3	Calculated from schedule forecasts
Average Build travel times on Coachella rail service	Hours		Calculated from average trip length and forecasted train speed. Assumed constant over analysis period
Riverside (including Los Angeles)		1.17	
Trips to/from Los Angeles (excluding Riverside)		2.74	
Other Trips in Corridor		1.88	
Average travel times on existing services	Hours		Calculated from average trip length and current schedules. Assumed constant over analysis period
Riverside (including Los Angeles)		1.22	Based on Metrolink commuter train travel time
Trips to/from Los Angeles (excluding Riverside)		4.02	Based on Amtrak service travel time
Other Trips in Corridor		5.63	Calculated as 3 times the travel time on the proposed service based on UK TUBA Guidance
Wait time component included in trips to Los Angeles	Hours	0.85	Amtrak schedule as of January 2021
Average auto occupancy (trips diverting to train)	Persons per Vehicle	1.40	HDR assumption
Value of time, by type of travel	$/h		USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021. All figures in 2019 dollars

Table 5-3. Assumptions Used in the Estimation of Travel Time Savings

Data Item	Unit	Value	Source
Personal - autos and transit, intercity (greater than 50 miles)		$23.10	
Business - autos and transit, intercity (greater than 50 miles)		$39.06	
Percent of riders traveling on business	Percent	30%	Coachella Valley Planning Study 2013, Table 2-5
Average Train Fare for "Other" Trips	$	$23.36	Calculated from SDG assumptions on average fare and ridership by OD pairs. 2018 value inflated to 2019 dollars

5.3 Accident Costs Savings

Diversion of some auto trips to rail service will lead to a reduction in highway vehicle-miles of travel (VMT). In addition, as mentioned in Section 4, Amtrak Thruway Bus from Fullerton to Indio would be discontinued under Build contributing further to a reduction in highway VMT in the corridor. This will reduce exposure to accident risks and will reduce the social costs associated with road accidents.

To estimate the social safety benefits, first VMT diverted from highway to rail service were estimated as the number of trips diverted and average trip length. Bus VMT displaced were calculated as the number of daily trips multiplied by the distance between Fullerton and Indio. Highway VMT reduced were then multiplied by the accident rates (number of accidents per 1 million VMT, by type) derived from historical statistics to obtain the number of accidents avoided. The accidents avoided were then multiplied by unit social cost of accidents (by type) to derive the monetary value of accidents avoided.

It is recognized that the benefit of avoided highway accidents is offset by incremental accidents related to incremental train miles. To estimate the number of such accidents, annual Coachella train miles were multiplied by train accident rates derived from historical statistics. These were then multiplied by unit social cost of accidents (by type) to derive the monetary value of accidents avoided.

Table 5-4 shows the assumptions and data sources used in the estimation of safety benefits.

Table 5-4. Assumptions Used in the Accident Costs Savings

Data Item	Unit	Value	Source
Highway Accident Rates 3-Year Average (2015-2017)	Number per Million VMT		Calculated from accident statistics data, 2015-2017, California Department of Transportation. Includes Los Angeles County, San Bernardino County, and Riverside County; Freeway Travel
Total Accidents		1.06	
Property Damage Only (PDO) Accidents		0.74	
Injury Accidents		0.32	
Fatal Accidents		0.005	

Table 5-4. Assumptions Used in the Accident Costs Savings

Data Item	Unit	Value	Source
Fatalities per Fatal Accident		1.14	
Injured per Injury Accident		1.47	
Train Accidents - per Train Mile	Number per Million VMT		
Injury Accidents		0.31	
Fatal Accidents		0.07	
Accident Costs			USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021. All figures in 2019 dollars
Fatal	$/Victim	$10,900,000	
Injury Crash	$/Accident	$284,100	Adjusted for the number of victims (based on USDOT Guidance)
Fatal Crash	$/Accident	$12,071,000	Adjusted for the number of victims (based on USDOT Guidance)
No injury/PDO	$/Vehicle	$4,500	
No injury/PDO	$/Accident	$8,820	Adjusted for the number of vehicles involved (as below)
Average Number of Vehicles Involved in PDO Accidents	Number	1.96	Cal-BC Model. Original source is California Department of Transportation accident statistics

5.4 Emissions Cost Savings

Reduction in highway VMT due to diversion of auto travelers to rail service will also result in reduced motor vehicle emissions. Highway VMT avoided were estimated using the methodology described in Section 2 in the context of accident cost savings. The amounts of emissions avoided were then estimated using emission factors (grams of emissions per VMT, by pollutant type) adopted from Cal-B/C Sketch benefit-cost analysis tool version 7.2 and monetized using unit costs of emissions recommended by USDOT BCA Guidance.[12] The recommended values vary by year, and specific values are available for years until 2050. For years after 2050, the unit values were assumed at the same constant level as for 2050. Table 5-5 shows values for 2034, the first year of Project operations, with comments how the value changes over time.

Emissions generated by the incremental train miles were estimated based on Tier 4 level locomotive emissions factor standards (grams of emissions per gallon of fuel) developed by the Environmental

[12] The Cal-B/C modeling tool can be obtained directly from the California Department of Transportation (Caltrans) website at http://www.dot.ca.gov/hq/tpp/offices/eab/LCBC_Analysis_Model.html.. Version 7.2 was used in this application.

Protection Agency.[13] These were converted to grams per locomotive mile assuming a fuel efficiency factor of 4.5 miles per gallon. Total emissions by pollutant were then monetized according to USDOT BCA guidance using emissions unit costs shown in Table 5-5.

Table 5-5. Unit Emission Cost Savings, 2034

Pollutant	Unit	Value	Source and Notes
NO_X	$/metric ton	$17,500	USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021 value in 2019 dollars. Value increases to $18,000 in 2030
PM	$/metric ton	$829,800	USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021 value in 2019 dollars. Value increases to $852,700 in 2030
SO_X	$/metric ton	$46,900	USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021 value in 2019 dollars. Value increases to $48,200 in 2030
VOC	$/metric ton	$0	USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021. VOCs no longer monetized
CO_2	$/metric ton	$59	USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021. Value varies by year, from $50/metric tonne for 2020 to $84/metric tonne for 2050

CO_2 = carbon dioxide, NO_X = oxides of nitrogen, PM = particulate matter, SO_X = oxides of sulfur, VOC = volatile organic compounds

5.5 Productivity Benefits

Casual observations suggest that many rail passengers work while traveling on the train. This includes reading, writing, or reviewing documents. These activities are not possible while driving. Passengers diverting from auto to the new service will experience a benefit from being able to engage in such activities.

These productivity benefits are particularly valuable for business passengers. In the context of business travel, the value of this benefit can be estimated as the train trip time multiplied by the value of time for business travelers and multiplied by the number of passengers traveling on business. It is assumed (conservatively) that 75 percent of business travelers work on the train and that only half of the trip time would be spent on productive work. Key assumptions used in the estimation of productivity benefits are shown in Table 5-6.

Table 5-6. Assumptions Used in the Productivity Benefits

Data Item	Unit	Value	Source
Ridership Traveling on Business	Percent	30%	Coachella Valley Planning Study 2013, Table 2-5
Business Travelers Working on Train	Percent	75%	HDR assumption

[13] United States Environmental Protection Agency, Office of Transportation and Air Quality, "Emission Factors for Locomotives", EPA-420-F-09-025, April 2009.

Table 5-6. Assumptions Used in the Productivity Benefits

Data Item	Unit	Value	Source
Percent of Time Business Travelers Working on Train Engage in Work	Percent	50%	HDR assumption
Value of Time, Business - Autos and Transit, Intercity Trips (greater than 50 Miles)	$/h per Person	$39.06	USDOT, Benefit-Cost Analysis Guidance for Discretionary Grants Program, February 2021

5.6 Agency Benefits

As indicated earlier in this report, under the Build scenario current Amtrak Thruway Bus service between Fullerton and Indio would be discontinued. The operating and maintenance (O&M) cost of this service would then constitute a saving that can be counted toward the benefits of the Project. The O&M costs of this service were calculated on the basis of estimated revenue hours discontinued plus a layover assumption (a total of 12 hours a day) and an hourly O&M cost based on SunLine, a transit agency operating in the Coachella Valley ($119.71 in 2019)[14]. This provided an annual estimate of $524,330 assumed to be constant over the analysis period.

The Project will generate fare revenues for the agency operating the service which will partially offset the operating costs. For the portion of ridership that consists of trips diverted from auto and entirely new trips, these revenues are incremental. For the BCA purposes, they were counted as agency benefits.[15] These revenues were estimated for each market based on ridership (new and diverted from auto) and average fare in that market. The average fare was calculated from OD pair ticket prices assumed by SDG (2019) and adjusted to 2019 dollars (Table 5-7). Fares were assumed constant over the analysis period.

Table 5-7. Average Fares by Market, 2019 Dollars

Market	Average Fare
Riverside - Los Angeles / Fullerton	$18.03
Other Trips to/from Los Angeles	$29.99
Other Trips in Corridor	$23.36

Source: Calculated by HDR based on SDG (2019) fare assumptions, Table 5-29, and adjusted to 2019 dollars

In addition, it is expected that the Build scenario will generate some auxiliary non-fare revenue associated with various on-train services, most notably on-board food and beverage service. This revenue was estimated by SDG for years 2018, 2024, and 2044.

Revenues for years between those shown in Table 5-8 were interpolated while revenues beyond 2044 were extrapolated assuming the same rate of growth as in the earlier years.

[14] National Transit Database. SunLine 2019 Annual Agency Profile. https://cms7.fta.dot.gov/sites/fta.dot.gov/files/transit_agency_profile_doc/2019/90079.pdf

[15] Calculation of consumer surplus benefits intrinsically specifies fare as a cost to riders. As a balance, fares are then included as a benefit to the operating agency. For the “existing” demand, the net effect between No Build and Build scenarios is zero, because the operating agency receives the same fare revenues under both scenarios (assuming that fares remain constant). For the “new” demand, the net effect is fare revenues corresponding to that portion of demand.

Table 5-8. Agency Revenues Forecasts, Millions of 2019 Dollars

Category of Agency Benefits	2018	2024	2044
Fare Revenues	$4.09	$4.76	$13.39
Thruway Bus O&M Costs Savings	$0.52	$0.52	$0.52
Auxiliary Revenues	$0.52	$0.61	$1.01
Total	**$5.14**	**$5.89**	**$14.92**

Notes:
Fare Revenues: calculated from ridership (new and diverted from auto) in each market and average ticket prices for each market.
Auxiliary fare revenues: SDG (2019), inflated to 2019 dollars using the inflation factor of 1.0179. Amtrak Thruway Bus operating cost savings estimated by HDR based on cost of similar operations incurred by other transit agencies in the region.

5.7 Highway Pavement Maintenance Savings

Reduction in highway VMT due to diversion of auto travelers to rail will result in reduced highway pavement wear and tear and a reduction in pavement maintenance costs to the responsible agency. These costs were estimated on the basis of auto VMT diversion to rail service, and unit pavement damage cost for autos derived from the Addendum to the 1997 Federal Highway Cost Allocation Study, as shown in Table 5-9.

Table 5-9. Assumptions Used in the Highway Pavement Maintenance Savings

Data Item	Unit	Value	Source
Pavement Damage Cost, Urban Interstate Autos	$/million VMT	$1,442	Addendum to the 1997 Federal Highway Cost Allocation Study Final Report, inflated to 2019 using GDP deflator
Pavement Damage Cost, Urban Interstate Bus (Using 4-axle Truck)	$/million VMT	$44,696	

5.8 Residual Value of Capital

At the end of the analysis period, Project capital will still have some value remaining and offer the potential to generate benefits for future years. To account for this benefit, the residual value of the Project capital at the of the analysis period was included as a benefit.

The residual value was calculated only for track and structures as well as locomotives that would be replaced after 25 years of operations. The original costs were depreciated in a linear manner over 60 years for track and structures and 25 years for locomotives, as shown in Table 5-10.

Table 5-10. Assumptions Used in the Residual Value of Capital

Data Item	Unit	Value	Source
Capital Cost, Track and Structures	$M	$517.9	HDR cost estimate

Table 5-10. Assumptions Used in the Residual Value of Capital

Data Item	Unit	Value	Source
Service Life (Project Capital)	Years	60	HDR assumption
Major Equipment (Locomotives)	$M	$28.2	HDR cost estimate
Service Life (Locomotives)	Years	25	Equipment specifications

5.9 Aggregation of Benefit Estimates

Table 5-11 provides the monetary estimates of the quantified and monetized benefits of this Project. Benefits include the residual value of structures constructed under this Project.

Table 5-11 shows that total Project benefits amount to $217.8 million in 2019 dollars discounted at 7 percent. Travel time savings account for the largest share of benefits at $86.7 million (or 40 percent of total), followed by agency benefits estimated at $65.6 million (30 percent of total), productivity benefits at $21.0 million (10 percent of total), and residual value of capital at $14.3 million (7 percent of total).

Table 5-11. Summary of Project Benefits; Millions of 2019 Dollars

Benefit Categories	Over Project Operations (2034-2063)		
	Undiscounted	Present Value at 7% Discount Rate	Present Value at 3% Discount Rate
Travel Time Savings/Consumer Surplus Benefits	$653.0	$86.7	$260.3
Accident Cost Savings	$169.9	$22.4	$67.6
Emissions Cost Savings	$19.0	$7.4	$7.4
Productivity Benefits	$158.3	$21.0	$63.1
Agency Benefits	$489.9	$65.6	$196.0
Highway Pavement Maintenance Costs Savings	$1.8	$0.2	$0.7
Residual Value of Capital	$281.5	$14.3	$76.7
Total Benefits	**$1,773.5**	**$217.8**	**$671.9**

6 Summary of Findings and BCA Outcomes

Table 6-1 summarizes the BCA findings. Annual costs and benefits are estimated over the lifecycle of the Project. As stated earlier, construction is expected to be completed by mid-2033. Benefits accrue during the operation of the project (over the years 2034-2063).

Table 6-1. Overall Results of the Benefit-Cost Analysis, Millions of 2019 Dollars

Project Evaluation Metric	Undiscounted	Present Value at 7% Discount Rate	Present Value at 3% Discount Rate
Total Benefits	$1,773.5	$217.8	$671.9
Rehabilitation and Major Maintenance	$50.9	$6.4	$20.0
O&M Costs	$790.8	$114.1	$327.7
Capital Costs	$1,737.5	$739.3	$1,193.1
Total Costs	$2,579.2	$859.8	$1,540.9
Net Present Value	-$805.7	-$642.0	-$869.0
Benefit / Cost Ratio (Ratio)	0.55	0.14	0.28
Internal Rate of Return (%)	-2.49%		

Considering all monetized benefits and costs, the estimated internal rate of return of the project is -2.49 percent. With a 7 percent real discount rate, the $739.3 million investment would result in $217.8 million in total benefits, a net present value of -$642 million, and a benefit-cost ratio of 0.14. With a 3 percent real discount rate, the net present value of the project is -$869 million, for a benefit-cost ratio of 0.28.

Section 22. California State Transportation Agency Letter

Gavin Newsom
Governor

David S. Kim
Secretary

915 Capitol Mall, Suite 350B
Sacramento, CA 95814
916-323-5400
www.calsta.ca.gov

December 10, 2021

Ms. Anne Mayer
Executive Director
Riverside County Transportation Commission
4080 Lemon Street, 3rd Floor
P.O. Box 12008
Riverside, CA 92502

Dear Ms. Mayer:

RCTC was selected in April 2019 for a State Rail Assistance Flexible Funds award for Emerging and Expanding Corridors for the Coachella Valley Special Event Train Platform project, in an amount totaling $5,942, 510. At the same time, RCTC also submitted an application for the Coachella Valley San Gorgonio Pass Rail Corridor Study Tier 2 Environmental Impact Report and Conceptual Engineering Development Report. With insufficient funding to award both projects, CalSTA prioritized the Special Event Train Platform project while continuing to work with RCTC to identify funding for the continuation of work supporting intercity rail expansion into the Coachella Valley.

RCTC has since determined that the special events platform project is not able to advance under the current structure, and has requested that the funding be made available to support the completion of the environmental phase for the proposed Coachella Valley Rail Corridor, including conceptual engineering, six (6) station locations and design, and a Tier 2 Project Level Environmental Document, consistent with the second priority submitted in 2019. This request is in support of additional efforts to completely fund the environmental phase work with other state, local and federal funds.

CalSTA has reviewed its original selection process and has determined that this change in project priority is beneficial to advancing rail in this emerging corridor, and hereby approves the request to transfer the funding.

If you have any questions, please contact CalSTA Chief Deputy Secretary Chad Edison at 916-323-5401.

Sincerely,

David S. Kim

DAVID S. KIM
Secretary