STATE ROUTE 91

IMPLEMENTATION PLAN 2022

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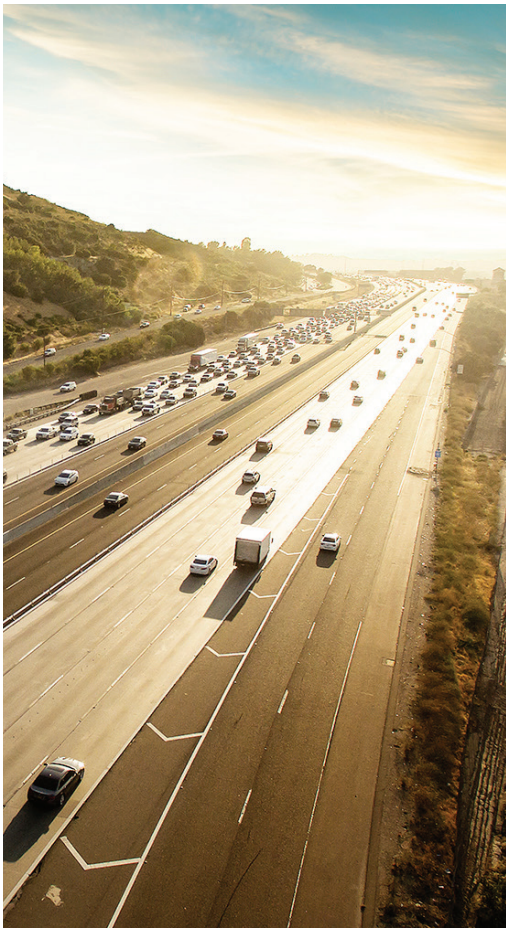

OCTA

RCTC RIVERSIDE COUNTY TRANSPORTATION COMMISSION

PREPARED BY: Michael Baker INTERNATIONAL

STATE ROUTE 91 (SR-91) IMPLEMENTATION PLAN
KEEPING MOTORISTS MOVING ON THE SR-91 CORRIDOR

Every year since 2003, OCTA, RCTC, and stakeholders have worked collaboratively to review a program of projects along the SR-91 corridor.

BENEFITS

- Provides seamless connectivity between Orange and Riverside Counties
- Increases travel options
- Optimizes vehicle throughput
- Reinvests net 91 Express Lanes revenues on the SR-91 corridor to improve regional mobility
- Investments to date: $1.9 billion

COMPLETED EFFORTS

	PROJECT	COST (MILLIONS)	COMPLETION
Orange County	Eastbound Lane Addition (SR-241 to SR-71)	$51.2	2010
	Fifth Lane Addition (SR-55 to SR-241)	$85.2	2013
	Westbound Lane at Tustin Avenue	$43.3	2016
Riverside County	Green River Road Overcrossing	$24.3	2009
	North Main Street Corona Metrolink Parking Structure	$25	2009
	91 Corridor Improvement Project (Initial Phase)	$1,407	2017
	La Sierra Metrolink Parking Improvements	$6.3	2019
Bi-County	Metrolink Service Improvements	$249	2016
	Express Bus Service	$6	2019
	SR-91 Corridor Operations Project	$38	2022

ANTICIPATED PROJECTS

	PROJECT	COST (MILLIONS)	CURRENT PHASE
Orange County	SR-91 Improvements (SR-57 to SR-55)	$460	Final Design
	Anaheim Canyon Metrolink Station Improvements	$34.2	Final Design
	Placentia Metrolink Rail Station	$34.8	Final Design
Riverside County	15/91 Express Lanes Connector	$270	Construction
	SR-71/SR-91 Interchange Improvements	$129	Final Design
	Improvements East of I-15	TBD	Environmental
Bi-County	SR-241/SR-91 Tolled Express Connector	$380	Final Design
	Sixth Lane Addition (SR-241 to SR-71)	TBD	Preliminary Engineering

CONCEPTS

LOCATION	COST (MILLIONS)
Elevated 4-Lane Facility (MIS Corridor A) from SR-241 to I-15 (Post-2035)	$2,720
Anaheim to Ontario International Airport Maglev High Speed Rail (Post-2035)	$2,770 - $3,200
Irvine-Corona Expressway (ICE) 4-Lane Facility from SR-241/SR-133 to I-15/Cajalco Road (Post-2035)	$8,855
WB SR-91 to SB SR-55 Connector Improvements (Post-2035)	$75 - $150
EB SR-91 Fifth Lane Addition at SR-241	$31
Fairmont Boulevard Improvements	$76.8

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SECTION 1: 2022 STATUS REPORT AND UPDATE

INTRODUCTION

Previous law authorized the California Department of Transportation (Caltrans) to enter into franchise agreements with private companies to construct and operate four demonstration toll road projects in California. This resulted in the development of the 91 Express Lanes facility in Orange County. The four-lane, 10-mile toll road runs along the median of State Route 91 (SR-91) in northeast Orange County between the Orange/Riverside County line and State Route 55 (SR-55). Since the 91 Express Lanes carried its first vehicle on December 27, 1995, the facility has saved users tens of millions of hours of commuting time.

While the 91 Express Lanes facility has improved travel time along the SR-91 corridor, provisions in the franchise agreement between Caltrans and the private franchisee, the California Private Transportation Company (CPTC), prohibited Caltrans and county transportation agencies from adding transportation capacity or operational improvements to the SR-91 corridor through the year 2030 from Interstate 15 (I-15) in Riverside County to the Orange/Los Angeles Counties border. Consequently, the public agencies were barred from adding new lanes, improving interchanges, and adding other improvements to decrease congestion on the SR-91 freeway.

Recognizing the need to eliminate the non-compete provision of the franchise agreement, Governor Gray Davis signed Assembly Bill 1010 (Lou Correa) (AB 1010) into law in September 2002, paving the way for much-needed congestion relief for thousands of drivers who use SR-91 to travel between Riverside and Orange Counties each day. The bill allowed the Orange County Transportation Authority (OCTA) to purchase the 91 Express Lanes franchise and eliminate the non-compete clause that prohibited capacity-enhancing improvements from being made to SR-91. Although the 91 Express Lanes operate within a 10-mile stretch of Orange County, between SR-55 and Orange/Riverside county lines the franchise technically allowed operation of toll lanes into Riverside County. The purchase agreement for the 91 Express Lanes was completed on January 3, 2003, placing the road in public hands at a cost of $207.5 million. With the elimination of the non-compete provision through AB 1010 and the subsequent 91 Express Lanes purchase by OCTA, Orange County and Riverside County public officials and Caltrans Districts 8 and 12 have been coordinating improvement plans for SR-91.

Senate Bill 1316 (Lou Correa) (SB 1316) was signed into law in September 2008 as an update to the provisions of AB 1010. SB 1316 authorizes OCTA to transfer its rights and interests in the Riverside County portion of SR-91 toll lanes by assigning them to the Riverside County Transportation Commission (RCTC) and authorizes RCTC to operate tolls for 50 years. In 2017, RCTC opened the extension of the 91 Express Lanes to traffic into Riverside County with completion of the initial phase of the SR-91 Corridor Improvement Project (see Appendix B). SB 1316 also requires OCTA and RCTC, in consultation with Caltrans, to issue an annual SR-91 Implementation Plan (Plan) for SR-91 improvements between State Route 57 (SR-57) and I-15. The Plans prior to adoption of SB 1316 included a westerly project limit of SR-55. The Plan establishes a program of potential improvements to relieve congestion and improve operations in the SR-91 corridor.

The 2022 Plan fulfills the requirement to provide the State Legislature with an annual Implementation Plan for SR-91 improvements and builds on the 2021 Plan. The projects included in the 2022 Plan have been infused with various sources of local, state, and federal funding. The 2022 Plan includes overviews, status summaries, and proposed costs and schedules for projects to improve mobility on SR-91. Also included are conceptual lane diagrams (as appropriate), and discussions of key considerations that need to be addressed in the planning and development of each project. This Plan will provide OCTA, RCTC, and Caltrans with a framework to implement SR-91 and other related improvements. Future annual Plan updates will continue to refine the scope, cost, and schedule of each project included in this version of the Plan.

91 EXPRESS LANES TOLL POLICY GOALS

With the completion of the State Route 91 Corridor Improvement Project's initial phase in spring 2017, there

are now approximately 18 miles of Express Lanes between Orange and Riverside counties. OCTA and RCTC have adopted goals for the 91 Express Lanes to continue to maintain a safe, reliable, and predictable travel time for express lane users traversing seamlessly between the two counties. The goals below take into consideration the 91 Express Lanes as well as the SR-91 corridor at large. These guiding principles include:

- optimizing vehicle throughput at free flow speeds;
- increasing average vehicle occupancy;
- balancing capacity and demand to serve customers who pay tolls as well as carpoolers (3+) who are offered discounted tolls;
- paying debt service and maintaining debt service coverage;
- generating sufficient revenue to sustain the financial viability of the 91 Express Lanes; and
- when appropriate, reinvesting net revenues on the SR-91 corridor to improve regional mobility.

PROJECT ACCOMPLISHMENTS

Much progress has been made since the initial 2003 SR-91 Implementation Plan was approved. The 2022 Plan includes select completed project exhibits as a historical reference (see Appendix B).

Completed Construction/Improvement Projects

The following improvements have been constructed or implemented:

- ❖ Repaved and sealed pavement surfaces, restriped, and replaced raised channelizers on the 91 Express Lanes.
- ❖ On EB SR-91 the roadway was restriped, and the median barrier was reconstructed. This project removed the CHP enforcement area and extended the EB auxiliary lane from SR-71 to the Serfas Club Drive off-ramp.
- ❖ The WB auxiliary lane was extended between the County line and SR-241. This project eliminated the lane drop at the 91 Express Lanes and extended the existing auxiliary lane from the County line to SR-241 in the westbound direction. This improvement minimized the traffic delays at the lane drop area, resulting in improved vehicle progression.
- ❖ On WB SR-91 the roadway was restriped to extend the auxiliary lane between SR-71 and the County line. This resulted in a new continuous lane between SR-71 and SR-241.
- ❖ Safety Improvements were constructed at the Truck Scales. Existing shoulders were improved, lanes were re-striped, illumination improved, and signage was modified into and out of the EB facilities.
- ❖ Green River Road overcrossing replacement (see Appendix B).
- ❖ Metrolink parking structure at the North Main Street Corona Metrolink Station (see Appendix B).
- ❖ EB SR-91 lane addition from SR-241 to SR-71 (see Appendix B).
- ❖ Additional SR-91 WB and EB travel lane between SR-55 and SR-241 (see Appendix B).
- ❖ SR-91 WB bypass lane to Tustin Avenue at SR-55 (see Appendix B).
- ❖ Metrolink Service Improvements (see Appendix B).
- ❖ Initial SR-91 Corridor Improvement Project (CIP) (see Appendix B).
- ❖ La Sierra Metrolink Parking Improvements (see Appendix B)
- ❖ Express Bus Service (see Appendix B)
- ❖ 91 Corridor Operations Project (see Appendix B)

These projects provide enhanced freeway capacity and/or improved mobility for one of the most congested segments of SR-91.

The completed EB SR-91 lane addition project from SR-241 to SR-71 (see Appendix B) has improved highway operations. This project reduced travel time by approximately 20 minutes during its opening year.

The Initial CIP project has provided significant benefits to drivers on SR-91. This $1.4 billion investment project included widening SR-91 by one GP lane in each direction east of SR-71, adding collector-distributor (CD) roads and direct south connectors at I-15/SR-91, extending the 91 Express Lanes to I-15, and providing system/local interchange improvements. The new lanes and other improvements provide time savings, offer choice and reliability, boost safety, enhance access and job creation, promote ridesharing, reduce pollution, and aid the movement of goods along the region's roadways.

The WB SR-91 Widening Project completed construction in 2016 from State College Blvd to Interstate 5 (I-5). This project added one WB general purpose lane and removed the dedicated exit lane to State College Blvd from the SB SR-57 to WB SR-91 Connector that contributed to operational issues due to the short weaving distance. While this project falls just to the west of the limits for the Plan study area, it will have an influence on operations within the Plan area.

In addition, there are two projects that impact future SR-91 widening projects. The first is the $2.8 billion U.S. Army Corps of Engineers (Corps) Santa Ana River Mainstem project that provides flood protection from the recently improved Prado Dam (near SR-71) to the Pacific Ocean. The project includes many features that have already been completed, including improvements to Seven Oaks Dam, 30 miles of levees and modifications to original project features including raising the Prado Dam embankment and installation of new, larger capacity outlet works. In 2021, the Corps and Orange County Flood Control District amended a cooperative agreement which would allow the Corps to use federal funds under the Bipartisan Budget Act to complete select features of the project.

SR-91 project teams have coordinated with the Corps, Orange County Flood Control District, Caltrans, and other federal, regional, and local agencies to accommodate planned SR-91 improvements adjacent to the Santa Ana River.

Completed Designs and Reports

There are various project development phase documents (Feasibility Reports, Studies, PSR, PA/ED, or PS&E) that are completed, or are in draft form and anticipated to be approved that identify mobility improvements. These documents include:

- MIS – Final Project Report: Locally Preferred Strategy Report (January 2006).
- Renewed Measure M Transportation Investment Plan (November 2006).
- RCTC 10-Year Western County Highway Delivery Plan (December 2006).
- SR-91/Fairmont Boulevard Feasibility Study (December 2009).
- Corridor System Management Plan (CSMP) Orange County SR-91 Corridor Final Report (August 2010).
- Renewed Measure M Early Action Plan, approved August 2007 and subsequently renamed as the Capital Action Plan (April 2011).
- PSR-PDS for SR-241/SR-91 Tolled Express Connector (January 2012).
- Project Report & Environmental Document for 91 Corridor Improvement Project (October 2012)
- PSR-PDS on SR-91 between SR-57 and SR-55 (October 2014).
- SR-71/SR-91 Interchange Environmental Phase (2011) and Final Design (2015).
- 2021 Next 10 Delivery Plan approved by OCTA Board, (December 2021).
- Project Report & Environmental Document for 15/91 Express Lanes Connector (June 2019)
- Project Report & Environmental Document for 91 Corridor Operations Project (April 2020)
- Project Report & Environmental Document for SR-241/SR-91 Tolled Express Connector (April 2020).

SR-91 CORRIDOR CONDITIONS

Project Limits

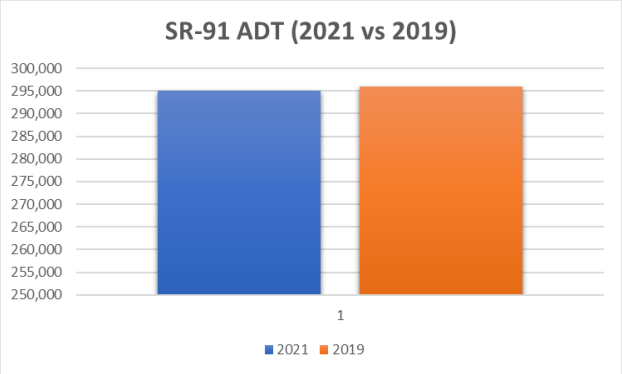
The project study limits encompass the segment of SR-91 from west of the junction of SR-57 and SR-91 in the City of Anaheim in Orange County, to east of the junction of SR-91 and I-15 in the City of Corona in Riverside County. The freeway segment is approximately 20.3 miles long and includes 12.7 miles within Orange County and 7.6 miles within Riverside County.

Existing Traffic Conditions Summary

Similar to other parts of the state, traffic demand on Orange County roadways, including the SR-91 corridor, encountered significant variations due to the COVID-19 pandemic and the Stay-at-Home Order that was implemented March 2020. Traffic demand started to increase following the lifting of the Stay-at-Home Order on June 15, 2021. Daily travel demand on the SR-91 corridor increased by over 6% from February 2021 (before the Stay-at-Home Order was lifted) to October 2021 (after the Stay-at-Home Order was lifted). However, the October 2021 traffic demand on the SR-91 corridor was still lower than the October 2019 demand by approximately 0.5% (Figure 1). The peak period times as well as day-to-day

variations of congestion patterns still show effects from the pandemic when compared to 2019 conditions.

Figure 1



Due to the aftereffect of the COVID-19 pandemic, the 2021 traffic patterns are not deemed as a true reflection of the typical existing conditions nor as a proper baseline to forecast the future demand and operations of the SR-91 corridor. Therefore, the 2019 traffic conditions are being utilized for the 2022 Plan.

Traffic conditions on the SR-91 corridor are expecting continued changes due to uncertainties related to the COVID-19 aftereffect. OCTA and RCTC will continue monitoring the SR-91 traffic pattern changes throughout the year of 2022. If traffic conditions are showing a trend of normalization (reverting back to pre-pandemic conditions), then the traffic analysis will be updated for the 2023 Plan.

A review of the 2019 traffic conditions in the corridor indicates that the existing capacity of the facility is inadequate to accommodate current and future peak demand volumes. Level of Service (LOS) F prevails in the peak direction during the entire peak period. The definition of LOS F is a density of more than 45 passenger cars/lane/mile and the worst freeway operating condition. The results also indicate that there are several physical conditions that contribute to unacceptable traffic queues.

During the weekdays, westbound SR-91 experiences heavier traffic conditions during the morning commute for travelers leaving Riverside County to employment areas in Orange and Los Angeles counties. The corridor is generally congested between the peak period of 6 a.m. to 10 a.m. in the westbound direction and the peak period of 3 p.m. to 7 p.m. in the eastbound direction. Due to the high demand, congestion in the corridor occurs before and after the peak periods. The eastbound afternoon conditions tend to be exacerbated by the lack of receiving capacity in the Riverside County portion of the SR-91 corridor. Accordingly, RCTC is working closely with Caltrans District 8 to sponsor improvements that will provide congestion relief for the eastbound afternoon condition. Some of these improvements include the 15/91 Express Lane Connector, SR-71/SR-91 Interchange, and Improvements East of I-15.

The following is a summary of the deficiencies identified along the SR-91 corridor:

- Heavy traffic volumes to/from I-15 converge with the SR-91 and increase delay during the morning and evening peak hours.
- SR-71 traffic demand as well as physical and operational constraints for the EB SR-91 to NB SR-71 connector contribute to mainline and EB SR-91 corridor delays.
- Traffic entering the WB SR-91 from the Green River Road and SR-71 on-ramps contribute to mainline congestion during the AM peak period.
- High traffic volumes entering the freeway from Gypsum Canyon Road, Santa Ana Canyon Road, Green River Road, Weir Canyon Road, Imperial Highway and Lakeview Avenue contribute to congestion on the SR-91 mainline.
- One of the two lanes from the Eastern Transportation Corridor (State Route 241) connector is dropped at the merge to EB SR-91 causing additional congestion on the EB SR-91 general purpose lanes.
- At the NB SR-55 interchange with EB SR-91, a lane on SR-91 is dropped (as a dedicated exit) at Lakeview Avenue and a second lane is dropped (as a dedicated exit) at Imperial Highway creating a weave condition.
- WB SR-91 drops two GP lanes and a 91 Express Lane to SB SR-55, contributing to mainline congestion. This drop also occurs on the left-hand side of SR-91, creating a weaving condition.
- WB traffic entering SR-91 at Lakeview Avenue traveling to SB SR-55 contributes to mainline congestion by weaving across three lanes on SR-91. The existing two-lane connector from WB SR-91 to SB SR-55 traffic volume exceeds operational capacity causing a queue on the SR-91 mainline.

- ❖ A lane drop on EB SR-91 at SB SR-241 creates a chokepoint.

Logical Project Sequencing

As noted, the SR-91 Corridor in Riverside County, in the EB direction, lacks the receiving capacity during the afternoon peak period which creates a bottleneck condition. Due to the high levels of congestion experienced on this segment of the corridor, there is sensitivity to any changes that may affect traffic operations. Without first addressing the congestion in Riverside County, any performance or capacity enhancing projects upstream would further exacerbate congested conditions causing additional delays and queueing. Therefore, projects that have the potential to impact demand and/or provide additional capacity in the EB direction should be considered in a logical sequence to ensure that there is sufficient receiving capacity in Riverside County.

In October 2019, a consensus was reached between OCTA, RCTC, Caltrans, and the TCA that would set the stage for a series of projects to be implemented in sequential order to improve the SR-91 corridor. OCTA, RCTC, TCA, and Caltrans, Districts 8 and 12, as well as Caltrans Headquarters directors, worked through five major issues. This framework will enable the streamlining of the implementation of the SR-241/SR-91 Tolled Express Connector project while minimizing impacts to the 91 corridor. The subject matter of the multi-agency consensus is outlined below:

1. Setting priorities for SR-91 corridor projects to reduce construction-related impacts;
2. Allowing completion of the environmental approval process and updating related programming documents;
3. Clarifying lead agencies for final design, construction, and maintenance;
4. Identifying the principal funding agency for final design, construction, and maintenance; and
5. Designating lead agencies for retaining toll revenue and toll setting/operational control.

Based on the above framework, the agencies reached consensus on a 91 Corridor program of projects and sequencing as outlined below:

- ❖ 15/91 Express Lanes Connector
- ❖ SR-91 Corridor Operations Project
- ❖ SR-71/SR-91 Interchange Improvements*
- ❖ SR-241/SR-91 Tolled Express Connector

*Note: SR-241/SR-91 Tolled Express Connector is not dependent upon completion of SR-71/SR-91 Interchange Improvements

PROJECT SUMMARY

The projects in this Plan are presented in the following groups: Orange County Projects, Riverside County Projects and Bi-County Projects. The stage of development for each project, such as planning, final design, construction, or procurement and implementation, varies as noted in the project summaries. Table 1 summarizes the various planned projects, concept projects, and completed projects. For details on each project refer to Section 2 for planned projects and Appendix B for selected complete projects:

- The Orange County projects have a total cost of approximately $529 million. The projects include the SR-91 improvements between SR-57 and SR-55, Anaheim Canyon Metrolink station improvements, and Placentia Metrolink rail station.
- The Riverside County projects have a total cost of over $399 million. The improvements include: a 15/91 Express Lanes Connector, the SR-71/SR-91 Interchange Improvements, and the SR-91 improvements east of I-15.
- The Bi-County projects benefit both Orange and Riverside Counties. The total cost for the Bi-County projects exceeds $380 million. The improvements include: the SR-241/SR-91 Tolled Express Connector and a Sixth Lane Addition (SR-241 to SR-71).

Traffic Analysis

For the 2022 Plan, the traffic analysis for major SR-91 capacity projects used the Caliper TransModeler software model and traffic data calibrated to reflect existing traffic patterns of 2019 as described in the prior section. This traffic simulation model provides a better depiction of actual travel delays experienced by motorists compared to traditional travel demand models. The model can be used to analyze freeway bottlenecks sometimes neglected in traditional travel demand models. This approach is especially important given high SR-91 traffic volumes and the potential for relatively few vehicles to significantly slow down traffic. For example, a minor freeway merging area can cause many vehicles to slow, cascading delay through the traffic stream, and rapidly decreasing both speed and volume for major segments of the freeway. The metrics reported in the Plan include travel time

Table 1 – SR-91 Implementation Plan Projects

Project	Cost ($M)
Orange County Projects	
SR-91 Improvements between SR-57 and SR-55	460
Anaheim Canyon Metrolink Station Improvements	34.2
Placentia Metrolink Rail Station	34.8
SUBTOTAL	**529**
Riverside County Projects	
15/91 Express Lanes Connector	270
SR-71/SR-91 Interchange Improvements	129
SR-91 Improvements East of I-15	TBD
SUBTOTAL	**399+**
Bi-County Projects	
SR-241/SR-91 Tolled Express Connector	380
Sixth Lane Addition (SR-241 to SR-71)	TBD
SUBTOTAL	**380+**
Concept Projects	**Cost ($M)**
Elevated 4-Lane Facility (MIS Corridor A) from SR-241 to I-15	2,720
Anaheim to Ontario International Airport Maglev High Speed Rail	2,770 – 3,200
Irvine-Corona Expressway (ICE) 4-Lane Facility from SR-241/SR-133 to I-15/Cajalco Road	8,855
Westbound SR-91 to Southbound SR-55 Improvements	75 – 150
Eastbound SR-91 Fifth Lane Addition at SR-241	31
Fairmont Boulevard Improvements	76.8
SUBTOTAL	**14,527.8–15,032.8**
Completed Project Summary Since 2006 (Constructed Year)	**Cost ($M)**
Green River Road Overcrossing Replacement (March 2009)	24.3
North Main Street Corona Metrolink Station Parking Structure (June 2009)	25
Eastbound Lane Addition from SR-241 to SR-71 (September 2010)	51.2
Widen SR-91 between SR-55 and SR-241 by Adding a 5th GP Lane in Each Direction (January 2013)	85.2
SR-91 WB Lane at Tustin Avenue (April 2016)	43.2
Metrolink Service Improvements (June 2016)	249
Initial Phase CIP: Widen SR-91 by One GP Lane in Each Direction East of Green River Rd, CD Roads and I-15/SR-91 Direct South Connector, Extension of Express Lanes to I-15 and System/Local Interchange Improvements (2017)	1,407
Express Bus Service (2019)	6
La Sierra Metrolink Parking Improvements (2019)	6.3
SR-91 Corridor Operations Project (2022)	38
SUBTOTAL	**1,935.2**

from the beginning to the end of the study corridor and vehicle hours of delay experienced on study corridor, which both focus on operations for vehicles on SR-91. A third metric includes vehicles served by the system in the study corridor and takes into consideration vehicles on ramps and freeways that feed into or are fed by SR-91 in the study area. In addition to the existing year 2019 analysis, two future years of 2030 and 2045 were analyzed and include capacity enhancing projects that are scheduled to be completed by the respective year. The operations analysis quantified travel time savings for WB morning and EB afternoon conditions for the following major capacity enhancing projects:

Year 2030

- SR-91 Improvements between SR-57 and SR-55
- 15/91 Express Lanes Connector
- SR-71/SR-91 Interchange Improvements
- SR-91 Corridor Operations Project
- SR-241/SR-91 Tolled Express Connector

Year 2045

- Projects completed in 2030
- SR-91 Improvements East of I-15
- SR-91 Sixth Lane Addition
- Fairmont Boulevard Improvements

Westbound Analysis

The WB morning (a.m.) traffic analysis results indicate that for the year 2030 forecasts, peak hour travel times are anticipated to improve in Riverside County (by about 6 minutes) and in Orange County (by about 11 minutes). In addition to decreasing travel time, overall vehicle hours of delay in the corridor will decrease (by about 20 percent), while the entire system is serving more vehicles (by about 9 percent). Bottlenecks are anticipated at the Orange-Riverside County line and at the SR-241 interchange/Gypsum Canyon interchange area. The main bottlenecks in Riverside County will be relieved due to the completion of proposed projects. The bottleneck at the SR-55 interchange will also be relieved. However, with the additional vehicles traveling downstream, there is additional congestion at the SR-57 interchange. For the year 2045, travel times are anticipated to decrease (by about 16 minutes) in Riverside County, and increase (by about 23 minutes) in Orange County when compared to 2030. Overall vehicle hours of delay will increase (by about 68 percent) in the corridor, but the number of vehicles the system is serving will increase (by about 6 percent). Bottlenecks appear at SR-71 and at SR-57. Due to the SR-71 Corridor Improvement Project, there is a large increase of vehicles going to and from SR-71. Travel time in Orange County shows an increase in 2045 due to the growth in traffic, projects relieving congestion upstream allowing more vehicles to travel downstream, and no additional capacity enhancing projects in Orange County. OCTA and RCTC are exploring multi-modal opportunities on, or adjacent to, the SR-91 corridor that could provide additional congestion relief.

Express Lanes in the westbound direction operate satisfactorily in all the analysis years.

Eastbound Analysis

The EB evening (p.m.) traffic analysis indicates that for the year 2030 forecasts, peak hour travel times are anticipated to decrease (by about 7 minutes) in Riverside County and increase (by about 11 minutes) in Orange County. Although the overall travel time through the corridor will increase slightly, the vehicle hours of delay will decrease (by about 26 percent) and the number of vehicles served by the system will increase (by about 12 percent). The major bottleneck still occurs at the county line. Improvement projects near SR-55 and I-15 should alleviate congestion in those areas. For the year 2045, travel times are anticipated to increase (by about 4 minutes) in Riverside County and decrease in Orange County (by about 18 minutes) when compared to 2030. Overall vehicle hours of delay will increase (by about 40 percent) but the number of vehicles the system is serving will be greater (by about 8 percent). The main bottleneck remains at the county line. However, with the inclusion of the Sixth Lane Addition project, the congestion at the county line will be reduced. More vehicles traveling downstream will slightly increase congestion in Riverside County near I-15.

Express Lanes in the eastbound direction operate satisfactorily in all the analysis years.

Figures 1-1 and 1-2 below summarize the westbound corridor vehicle hours of delay and systemwide served vehicles, respectively. Figures 1-3 and 1-4 below summarize the eastbound corridor vehicle hours of delay and systemwide served vehicles, respectively.

Figure 1-1 – Westbound SR-91 from I-15 to SR-57 A.M. Peak Period Corridor Vehicle Hours of Delay

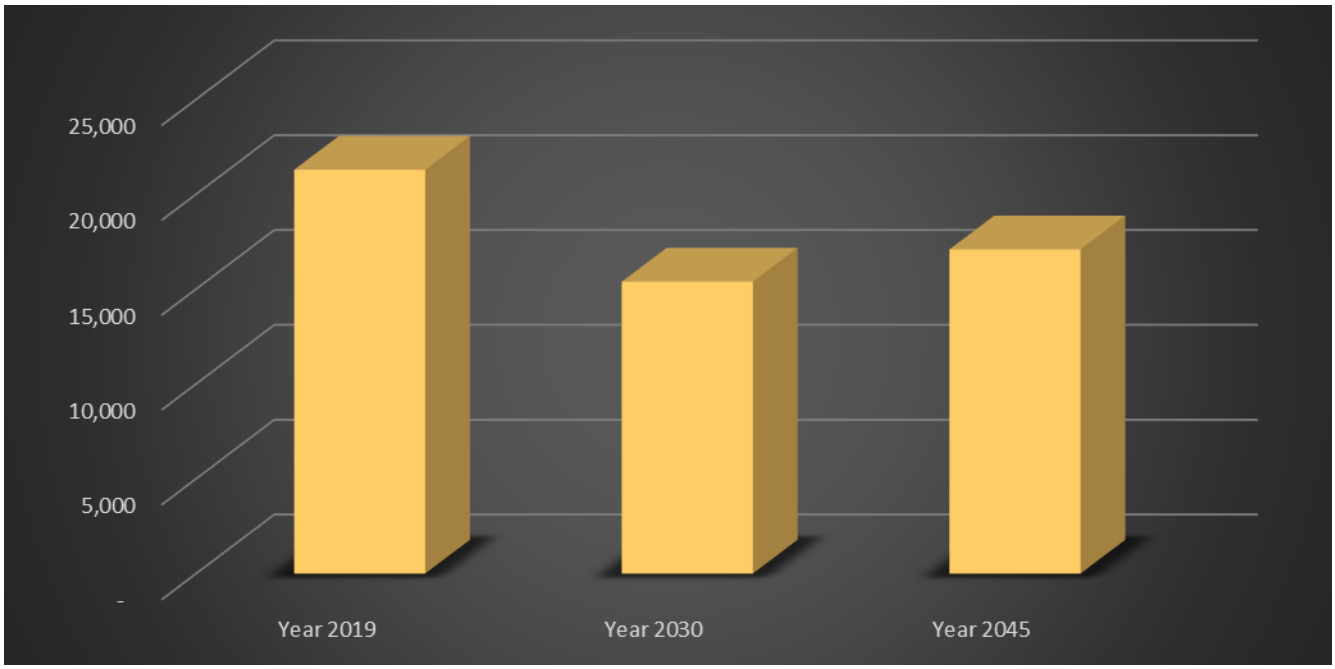


Figure 1-2 – Westbound SR-91 from I-15 to SR-57 A.M. Peak Period Systemwide Served Vehicles

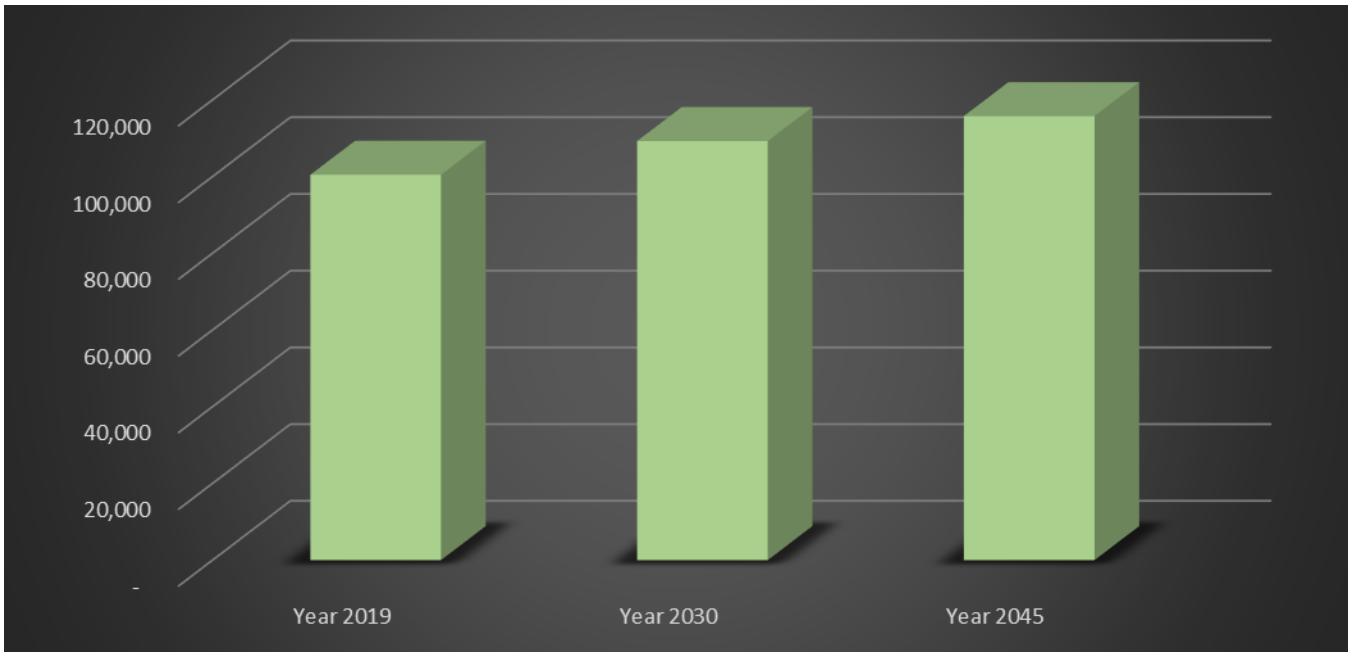


Figure 1-3 – Eastbound SR-91 from SR-57 to I-15 P.M. Peak Period Corridor Vehicle Hours of Delay

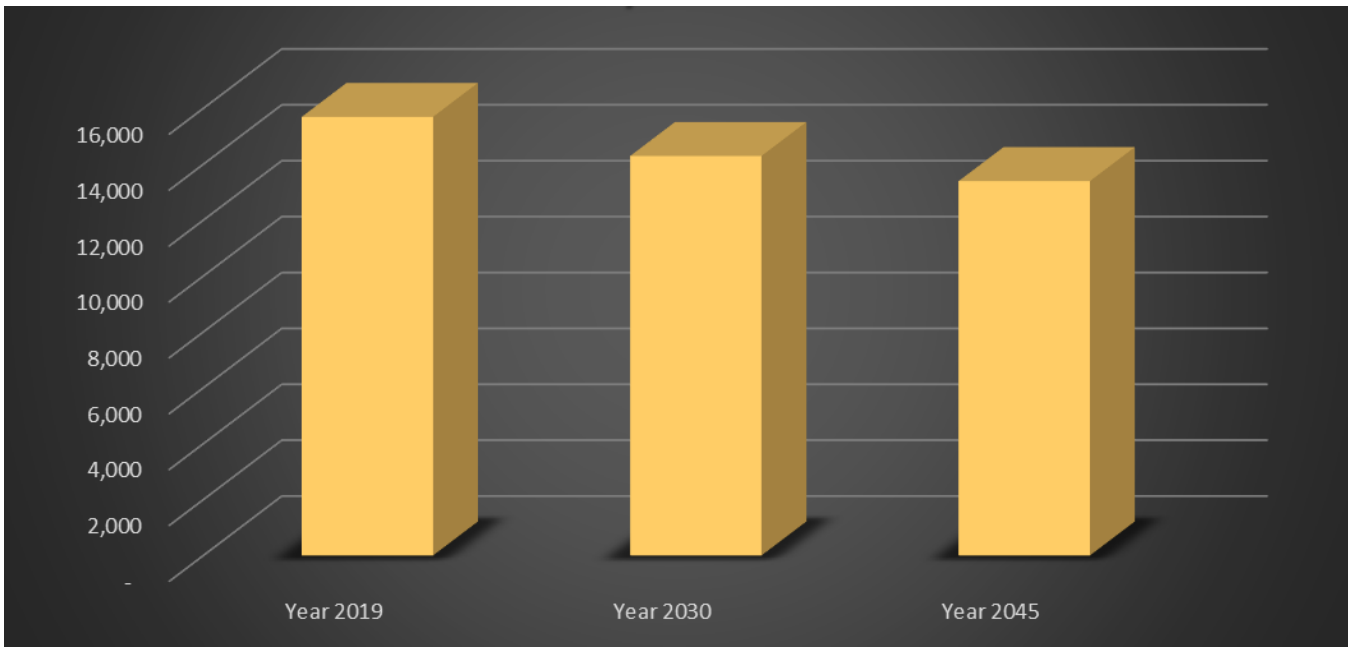
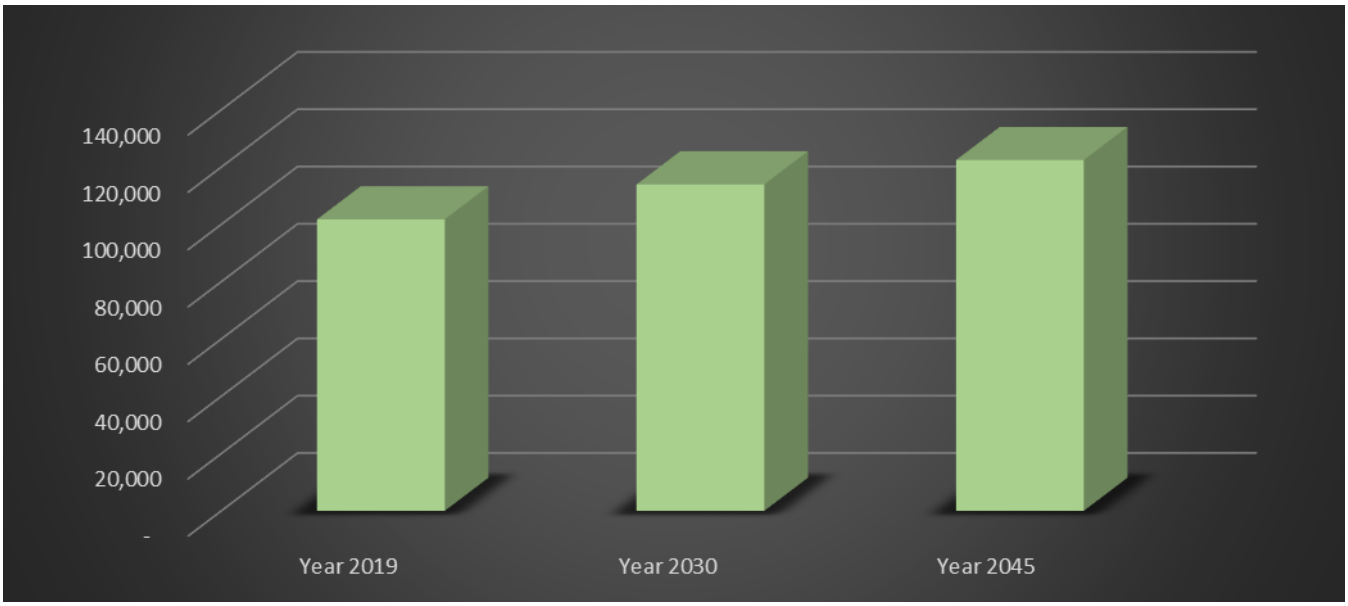


Figure 1-4 – Eastbound SR-91 from SR-57 to I-15 P.M. Peak Period Systemwide Served Vehicles



CONCEPT PROJECT SUMMARY

Many of the highway concept projects identified in this 2022 Plan are long lead time projects and/or projects without sufficient project development detail to be advanced into the Project Summary section. These potential concepts include significant environmental constraints and right of way requirements in addition to requiring a significant amount of planning, design, and future policy and public input. Many of these concept projects are multi-billion-dollar improvements that will remain a challenge to implement. Refer to Appendix A for details on each concept project.

IRVINE CORONA EXPRESSWAY STATUS SUMMARY

The Irvine Corona Expressway (ICE) concept was conceived as part of the MIS and was established as part of a suite of projects to support future peak demand volumes between Riverside and Orange Counties. The ICE was further evaluated in the 2009 ICE Feasibility Study for financial and geotechnical feasibility. Seven (7) primary feasibility issues were considered:

- Geologic, hydrogeologic/hydrologic, and geotechnical conditions.
- Corridor concepts (full tunnel and partial tunnel/partial surface road).
- Tunnel configuration.
- Tunnel excavation and support methods.
- Tunnel systems (e.g., ventilation, emergency fire system, operation building, toll system, etc.).
- Construction considerations.
- Construction, Operation & Maintenance (O&M) costs.

Per the direction of the Riverside-Orange Corridor Authority Board (ROCA) in 2010, staff has reevaluated the concept annually, as part of the preparation of this Plan, to determine if construction costs and tunneling technology have changed and become less prohibitive.

Planned and constructed tunnel projects were reviewed for insight into how tunnel construction technology is changing. Projects such as the Las Vegas Convention Center (LVCC) Loop and the Ontario International Airport (ONT) Loop are utilizing innovative ideas that could deliver transit tunnel projects with faster construction timelines and at a lower cost. These projects propose smaller diameter tunnels (12-14 feet) and are designed to accommodate specialized vehicles with the intent of eventually incorporating autonomous electric vehicles. The Boring Company constructed the 1.7-mile LVCC Loop dual tunnels for $52.5 million over approximately two years. The current estimated cost (including all phases and support) for the 4-mile ONT Loop is $85 million and is expected to take 48 months to complete.

The Boring Company plans to develop technology to construct tunnels faster and at lower cost. To accomplish this, The Boring Company plans to reduce tunnel diameters and increase the speed and efficiency of tunnel boring machines (TBM). Additional initiatives include electrifying and automating TBMs to increase safety and efficiency.

Two shorter tunnels were constructed in California with similar lane configurations to the ICE concept. The Devil's Slide Tunnel in San Mateo County and the Caldecott Fourth Bore Tunnel in Contra Costa County both opened in 2013. These tunnels used a method of drilling and blasting (known as the New Austrian Tunneling Method), rather than operating a TBM. Both tunnels were approximately 1.2 miles long and took six years and three years to construct, respectively.

Based on recent tunnel projects, the challenges that were identified in the ICE Feasibility Study were also experienced by other tunnel construction projects which provides insight into how tunneling technologies have changed. The New Austrian Tunneling Method may be a way to reduce the cost of boring for the ICE tunnel. This method was discussed in the 2009 ICE Feasibility Study but was dismissed due to the proposed length of the ICE tunnel concept. In the future, more investigation would be required to assess the feasibility of using a boring method other than a TBM, and to qualitatively assess possible impacts to the ICE corridor construction cost and duration.

Reducing the bore diameter and proposed cross section of the ICE corridor concept may be a way to reduce the cost of the project. More investigation is required to determine how the cross-section and bore size could be reduced for the ICE concept. Additionally, there are several regulatory requirements that would likely need to be considered in designing the cross section. While it may be difficult to reduce the highway or rail tunnel cross section, a smaller diameter could be considered for an alternative design vehicle. The ONT Loop and LVCC Loop are example projects where smaller diameter bores were allowable for autonomous transit use.

Even if reducing the cross-section and bore diameter may not be feasible, new developments in the form of autonomous boring machines may be able to reduce project time and cost. A tunnel project in Malaysia has utilized an autonomous TBM setup, and a tunnel in Sydney Australia is expected to deploy specially designed autonomous TBMs by the end of next year. With their consistency and precision, these TBMs may be four times as fast as the projected speed of conventional TBMs for the ICE. However, these cutting-edge machines have limited technical maturity. While there is demonstrated use for tunnels of diameters comparable to the ICE's 26-foot rail tunnel, no autonomous TBM has been developed that could achieve the diameter proposed for the highway tunnel.

A review of land uses adjacent to proposed ICE eastern terminus near the Interstate 15/Cajalco Road junction revealed much has changed since the concept was developed in 2006. Significant development has occurred and is proposed in the area which complicates the viability of the eastern end of conceptual alignment of the ICE.

The review of recent tunneling projects shows feasibility for the ICE tunnel concept is slowly improving as tunneling technology is progressing. Technology has not advanced to the point where long, wide highway tunnels can be constructed at a lower cost. However, modern boring methods have lowered the cost on smaller, shorter tunnels.

OVERVIEW

The 2022 Plan describes projects, key considerations, benefits, current status, schedule, and costs (in 2022 dollars, or as noted) for major projects and concepts. The projects are grouped as follows: Orange County Projects, Riverside County Projects and Bi-County Projects.

The intent of the Implementation Plan is to present a list of projects and studies along the SR-91 corridor and highlight coordination between OCTA, RCTC, and Caltrans to improve the corridor.

As part of the project development process, detailed operational analysis will need to be conducted to evaluate operational issues associated with each project. The project development phases are discussed in the status updates and are defined as follows:

- **Conceptual Engineering = Pre-Project Study Report (Pre-PSR) –** Conceptual planning and engineering for project scoping and feasibility prior to initiating the PSR phase.
- **Preliminary Engineering = Project Study Report (PSR) –** Conceptual planning and engineering phase that allows for programming of funds.
- **Environmental = Project Approval/Environmental Document (PA/ED) –** The detailed concept design that provides environmental clearance for the project and programs for final design and right of way acquisition. The duration for this phase is typically 2-3 years.
- **Design = Plans, Specifications, and Estimates (PS&E) –** Provide detailed design to contractors for construction bidding and implementation.
- **Construction =** The project has completed construction and will provide congestion relief to motorists.

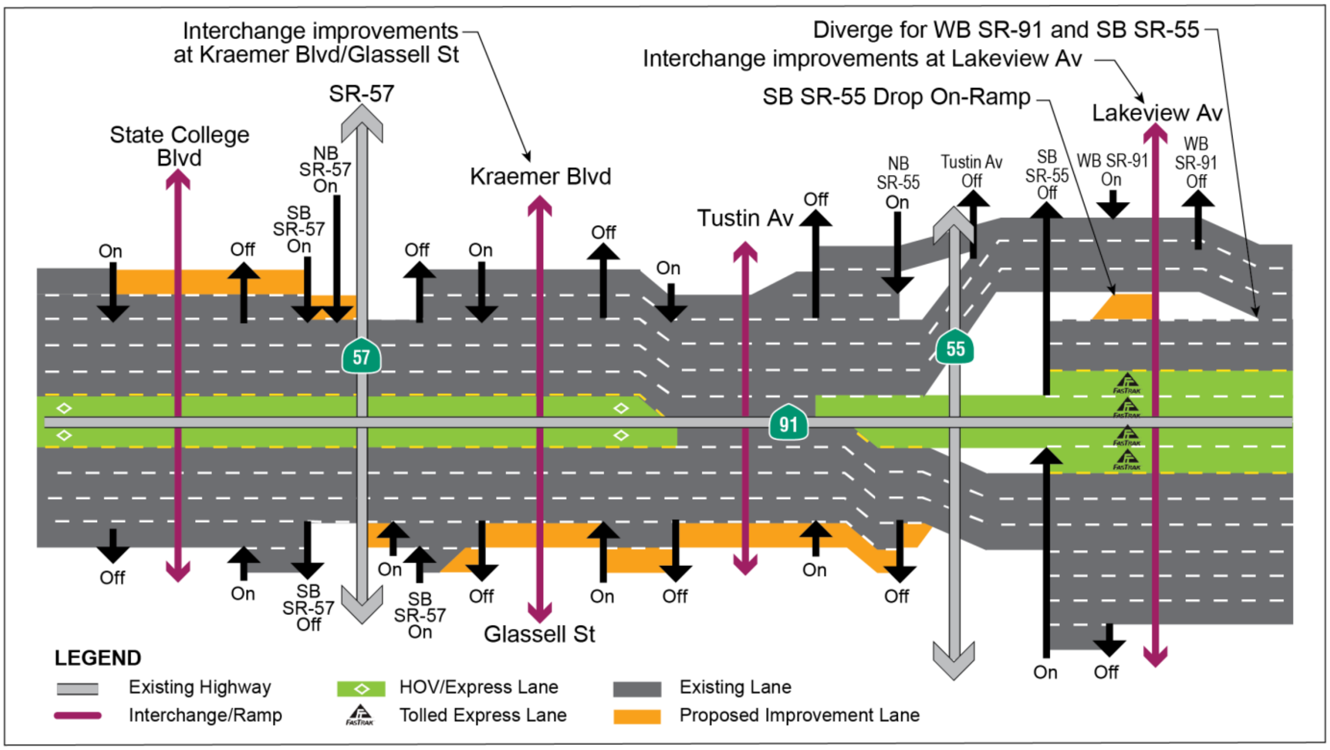
Figure 2-1 – SR-91 Project Study Area from SR-57 to I-15

Orange County Projects

The Orange County set of projects includes three improvements at a total cost of approximately $529 million (in 2022 dollars, or as noted). The projects include: SR-91 improvements between SR-57 and SR-55, Anaheim Canyon Metrolink station improvements, and new Placentia Metrolink rail station. Further details for each of the projects are included in the following summaries.

Orange County Project Summary	Cost ($M)
SR-91 Improvements between SR-57 and SR-55	460
Anaheim Canyon Metrolink Station Improvements	34.2
Placentia Metrolink Rail Station	34.8
SUBTOTAL	**529**

SR-91 Improvements between SR-57 and SR-55



Project Description

The project proposes to add EB capacity between SR-55 and SR-57, improve the SR-91/SR-57 and SR-91/SR-55 interchanges and local interchanges. In the SR-91/SR-57 interchange area, improvements identified in Project Approval/Environmental Document (PA/ED) phase include extending an additional lane on WB SR-91 from the NB SR-57 to WB SR-91 connector through State College Boulevard and terminating at the auxiliary lane to Raymond Avenue-East Street. At the SR-91/SR-55 interchange area, a drop on-ramp from Lakeview Avenue would be constructed between realigned WB SR-91 lanes for direct access to SB SR-55, allowing for the exit to SB SR-55 to be moved further east, separating WB SR-91 and SB SR-55 traffic west of the Lakeview Avenue bridge. The 91 Express Lanes will not be impacted by the project. In order to accommodate the improvements, the Lakeview, Tustin, Kraemer/Glassell, and La Palma bridges are proposed to be replaced. The improvements have been developed in cooperation with local jurisdictions and affected communities.

Key Considerations

The proposed project improvements on WB and EB SR-91 may require partial right-of-way acquisition and Temporary Construction Easements (TCEs). In some areas, a non-standard geometric cross-section is proposed to reduce the right-of-way impacts.

Benefits

The proposed project improvements on WB and EB SR-91 between SR-57 and SR-55 include, among other features, adding one EB general purpose lane to achieve lane balancing and interchange improvements. Project improvements will reduce congestion and delay and reduce weaving.

Current Status

The project improvements were originally studied in the SR-91 Feasibility Study, which was completed in June 2009. The Project Study Report was completed in 2014 and the Project Approval/Environmental Document (PA/ED) was completed in 2020. This project was then split into three separate segments and the Plans Specifications and Estimate (PS&E) phase began in 2020 for all three segments. The proposed improvements are included in the Measure M program.

Schedule and Cost

Construction is anticipated to be completed in 2028 and the total project cost is estimated to be approximately $460,000,000.

Anaheim Canyon Metrolink Station Improvements

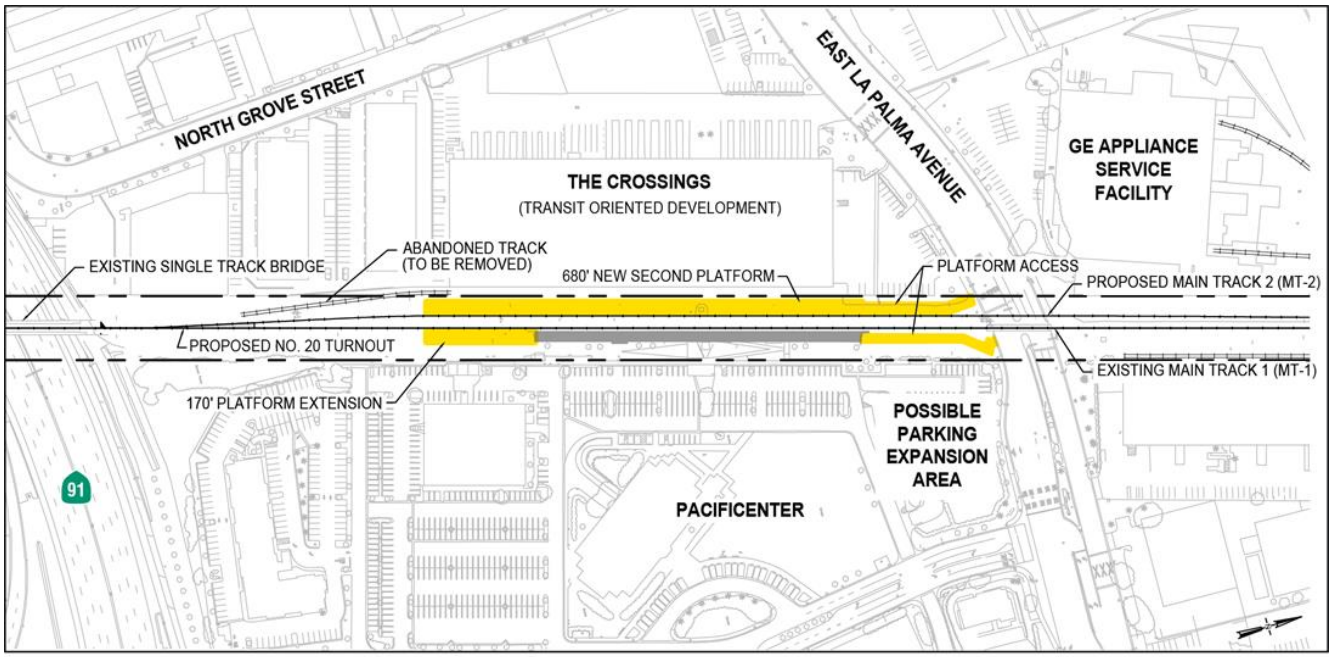


Image source:
Anaheim Canyon Station Project Definition Report, February 23, 2015

Project Description

The Anaheim Canyon Metrolink Station Improvement Project will include the addition of approximately 3,400 linear feet of secondary track; a second platform; extending the existing platform; improvements at two at-grade railroad crossings located at Tustin and La Palma; as well as new shade structures, benches, and ticket vending machines. These project improvements will accommodate planned future train service and will enhance on time service and safety.

Benefits

The project will enable future Metrolink service expansion, improve train service efficiency, and foster train ridership growth in the region, which will contribute to congestion relief on SR-91.

Current Status

OCTA is the lead agency on the project. Funding for the project is programmed to use Federal Congestion Mitigation and Air Quality Improvement Program (CMAQ), 5307 Federal Formula, M2 (OC Go), and City of Anaheim funds.

Schedule and Cost

The plans were completed, and the project was advertised for bid in October 2020. Construction began in May 2021 and is anticipated to be completed in November 2022. The total project cost is estimated to be $34.2 million.

Placentia Metrolink Rail Station

Image source: www.placentia.org/Placentia-Metrolink-Site-Plan (Wildan Engineering)

Project Description

The new Placentia Metrolink Station will serve the Metrolink 91/Perris Valley Line, providing commuter rail service between Perris and Los Angeles, via Riverside and Orange counties. The project includes construction of a parking structure, OCTA bus access, an area for passenger pick-up and drop-off, and two station platforms.

Benefits

The station will meet the current transit demand and foster train ridership growth in the region, contributing to congestion relief on SR-91.

Current Status

The City of Placentia is the lead on right-of-way and environmental clearance, and OCTA is the lead agency for design and construction of the project. Funding for the project is programmed to use 91 Toll Revenues, M2 (OC Go) and the City of Placentia funds for the construction phase. State Transportation Improvement Program (STIP), Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA), OC Go and City funds are programmed for the design and right-of-way costs. Project is currently on hold.

Schedule and Cost

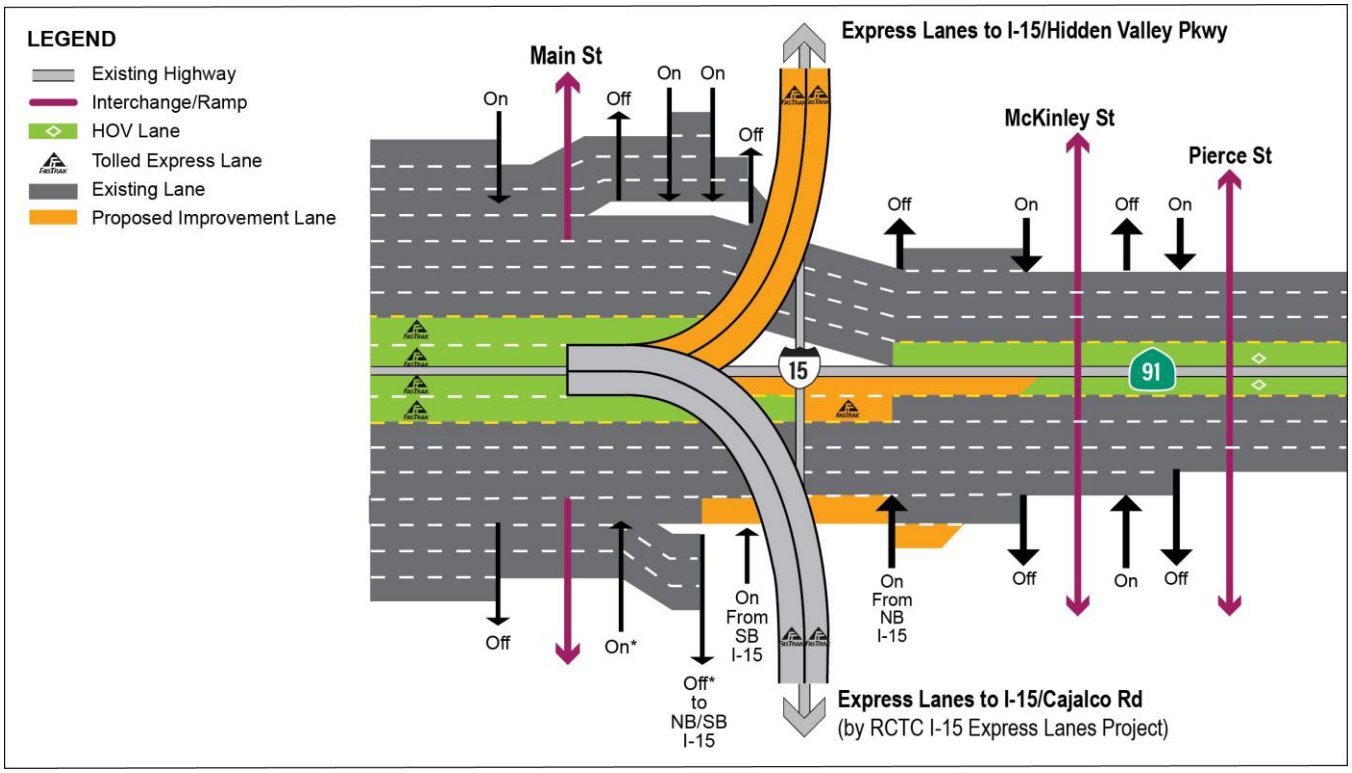
Plans are 100 percent complete, however, the construction contract cannot be advertised until a Construction and Maintenance Agreement is in place with BNSF Railway, the right-of-way owner. The project will be advertised for bids once an agreement is in place. The total project cost is estimated to be $34.8 million.

Riverside County Projects

The Riverside County set of projects includes three improvements: a 15/91 Express Lanes Connector, the SR-71/SR-91 Interchange Improvements, and SR-91 Improvements east of I-15. Projects for implementation in Riverside County are anticipated to cost in excess of $399 million (in 2022 dollars, or as noted).

Riverside County Project Summary	Cost ($M)
15/91 Express Lanes Connector	270
SR-71/SR-91 Interchange Improvements	129
SR-91 Improvements East of I-15	TBD
SUBTOTAL	**399+**

15/91 Express Lanes Connector



Project Description

The Project Approval and Environmental Document (PA/ED) for the SR-91 Corridor Improvement Project (CIP), from SR-241 to Pierce Street, included the addition of a 5th lane in each direction, the addition of auxiliary lanes at various locations, the addition of collector-distributor lanes at the I-15/SR-91 interchange, the extension of the 91 Express Lanes from the Orange County line to I-15, the construction of a SR-91 Express Lanes median direct connector to and from I-15 South, a SR-91 Express Lanes median direct connector to and from I-15 North (15/91 Express Lanes Connector, the subject project), and the construction of one Express Lane in each direction from the I-15/SR-91 interchange southerly to I-15/Cajalco Road (now part of RCTC I-15 Express Lanes Project), and easterly to east of McKinley Street. Due to funding constraints, a Project Phasing Plan was developed to allow an Initial Phase, with reduced improvements, to move forward as scheduled, with the remaining ultimate improvements to be completed later. Subsequently, the proposed 15/91 Express Lanes Connector improvements (the subject of this project) have been pulled out from the CIP as a standalone project.

Key Considerations

Coordination among many of the SR-91 freeway projects that overlap the project limits is critical to successfully delivering these projects on schedule and within budget. Designing to accommodate future projects is a recurring theme for each of these projects. Minimizing conflicts in scope between projects requires direct coordination between each project team. Additionally, future projects frequently have multiple alternatives under study, each with differing scope and construction footprints. Specifically, the project improvements need to continue to be coordinated with the SR-71/SR-91 interchange and the SR-241/SR-91 Tolled Express Connector.

Benefits

The 15/91 Express Lanes Connector project will reduce congestion and operational delays by providing direct median-to-median access between the SR-91 Express Lanes and I-15 Express Lanes. Traffic operations will improve by eliminating weaving conflicts and out-of-direction travel along SR-91 and I-15 by the use of the direct connectors. The project will provide motorists a choice to use the 15/91 Express Lanes Connector for a fee in exchange for time savings.

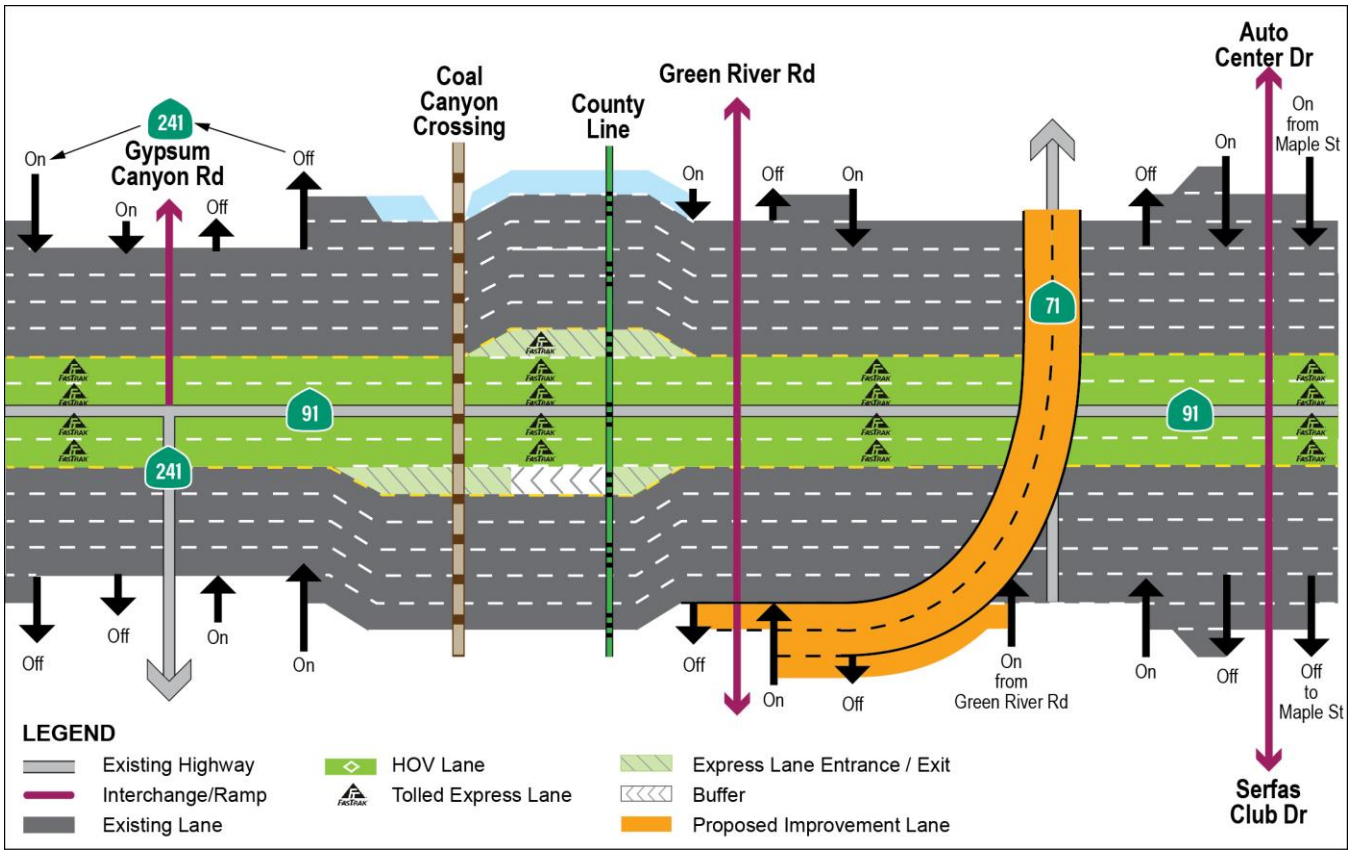
Current Status

The 15/91 Express Lanes Connector is currently discussed in the environmental document for the SR-91 CIP that was completed in 2012. An environmental revalidation was completed in 2019. A Design-Build contract was awarded in Spring 2020 and the project is currently under construction.

Schedule and Cost

Construction is planned to be completed in 2023. The total project cost is estimated to be $270,000,000.

SR-71/SR-91 Interchange Improvements



Project Description

The current project includes a new two-lane direct connector from eastbound (EB) SR-91 to northbound (NB) SR-71 and realignment of the existing Green River Road SR-91 EB on-ramp to provide connection to NB SR-71 and EB SR-91.

Key Considerations

Project improvements must be coordinated with the following projects: the SR-91 Sixth GP Lane Addition and the SR-241/SR-91 Tolled Express Connector. Close coordination with the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife will also be required as the connector crosses the Santa Ana River west of the Prado Dam.

Benefits

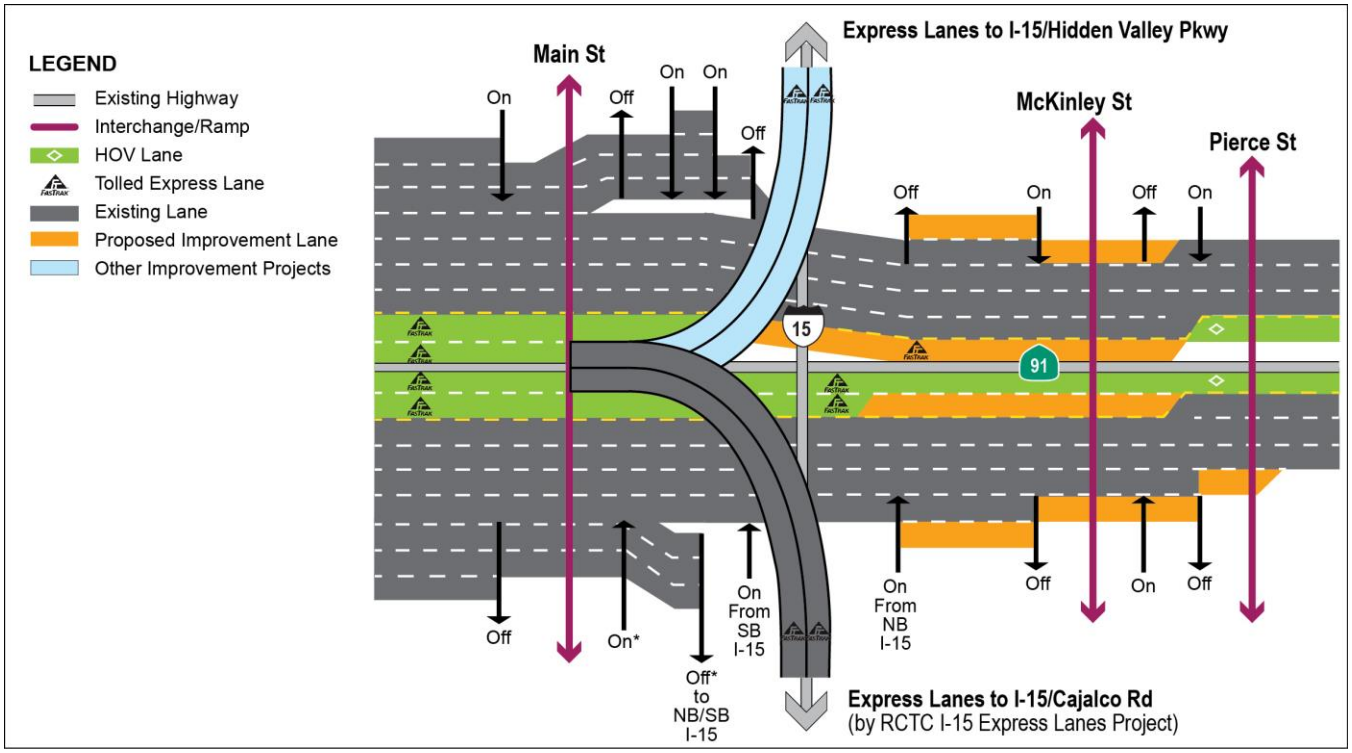
The project will provide a new direct connector improvement from EB SR-91 to NB SR-71, replacing the geometric choke point created by the existing loop connector. The project will also improve traffic operations and operational efficiency by eliminating or minimizing weaving conflicts through the use of auxiliary lanes.

Current Status

The environmental phase was completed in 2011 and final design in 2015. An environmental revalidation and update to the final design is underway.

Schedule and Cost

Construction is planned for completion in 2025. Construction cost is estimated to be $129,000,000.



Project Description

The Project Approval and Environmental Document (PA/ED) for the SR-91 Corridor Improvement Project (CIP), from SR-241 to Pierce Street, included the addition of a 5th lane in each direction, the addition of auxiliary lanes at various locations, the addition of collector-distributor lanes at the I-15/SR-91 interchange, the extension of the 91 Express Lanes from the Orange County line to I-15, the construction of a SR-91 Express Lanes median direct connector to and from I-15 South, a SR-91 Express Lanes median direct connector to and from I-15 North, and the construction of one Express Lane in each direction from the I-15/SR-91 interchange southerly to I-15/Cajalco Road (now part of RCTC I-15 Express Lanes Project), and easterly to east of McKinley Street. Due to funding constraints, a Project Phasing Plan was developed to allow an Initial Phase, with reduced improvements, to move forward as scheduled, with the remaining ultimate improvements to be completed later. The SR-91 improvements east of I-15, which includes extending an Express Lane east of McKinley Street and adding a general purpose lane to Pierce Street in each direction (the subject project), is a component of the SR-91 CIP that was not constructed with the Initial Phase.

Key Considerations

Coordination among many of the SR-91 freeway projects that overlap the project limits is critical to successfully delivering these projects on schedule and within budget. Designing to accommodate future projects is a recurring theme for each of these projects. Minimizing conflicts in scope between projects requires direct coordination between each project team. Additionally, future projects frequently have multiple alternatives under study, each with differing scope and construction footprints. Specifically, the project improvements need to continue to be coordinated with the SR-71/SR-91 interchange, the SR-241/SR-91 Tolled Express Connector, and 15/91 Express Lanes Connector.

Benefits

The SR-91 Improvements east of I-15 will reduce congestion and delays by providing additional SR-91 capacity from I-15 to Pierce Street.

Current Status

Preliminary engineering is complete but may need to be revisited at a future date. The SR-91 Improvements east of I-15 is currently discussed in the SR-91 CIP environmental document for the SR-91 that was completed in 2012.

Schedule and Cost

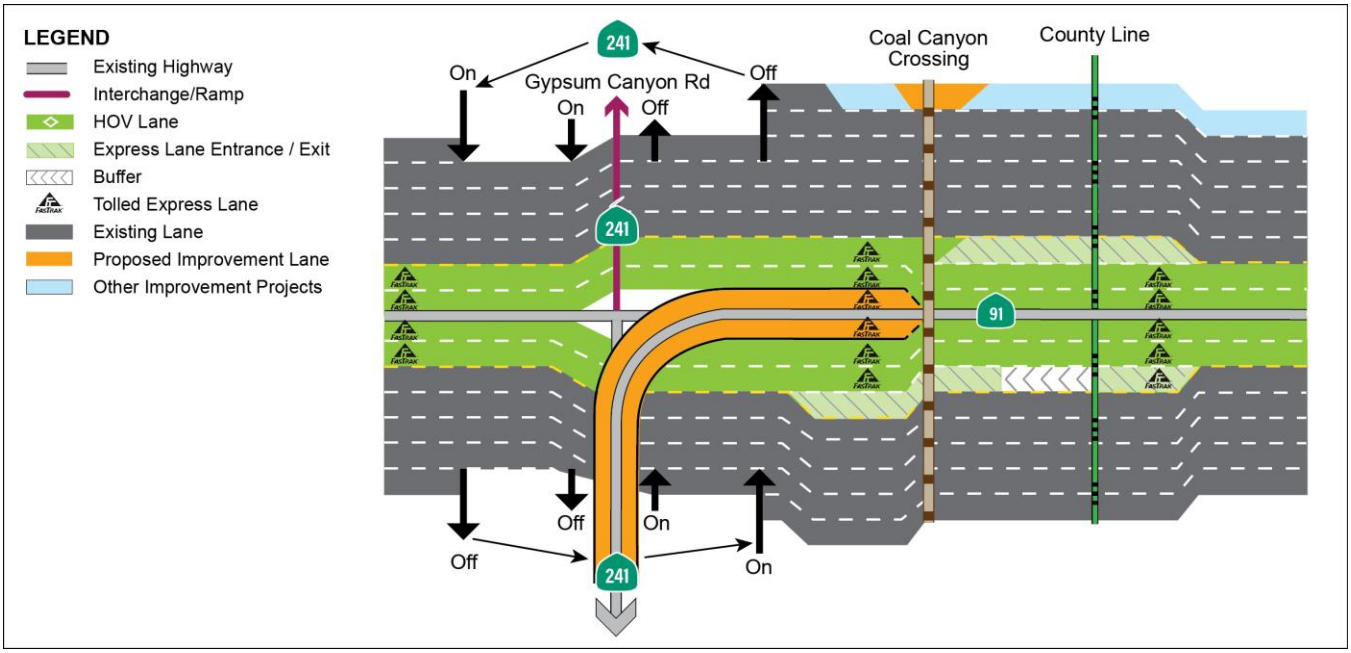
Anticipated project completion and cost are to be determined.

Bi-County Projects

There are three Bi-County improvement projects that will benefit both Orange and Riverside Counties. These projects include: the SR-241/SR-91 Tolled Express Connector and a Sixth Lane Addition (SR-241 to SR-71). The total cost for the projects is expected to be more than $380 million (in 2022 dollars, or as noted).

Riverside County Project Summary	Cost ($M)
SR-241/SR-91 Tolled Express Connector	380
Sixth Lane Addition (SR-241 to SR-71)	TBD
SUBTOTAL	**380+**

SR-241/SR-91 Tolled Express Connector



Project Description

The SR-241/SR-91 Tolled Express Connector will consist of a direct connector between the 241 Toll Road and 91 Express Lanes, carrying northbound 241 Toll Road traffic to the eastbound 91 Express Lanes and westbound 91 Express Lanes traffic to the southbound 241 Toll Road.

Key Considerations

The purpose of the project is to implement the build out of the Eastern Transportation Corridor as approved in 1994 in order to improve traffic operations on the northbound 241 Toll Road and the SR-91 general-purpose lanes while also maintaining reliable travel times and free flow speeds during peak periods on the 91 Express Lanes which were all key considerations in Caltrans' approval of the project. The project will require widening of SR-91 to accommodate the direct connector and associated Express Auxiliary Lanes in the median. The project's planned construction is aligned with the implementation of other planned improvements in the area including the 15/91 Express Lanes Connector, SR-91 Corridor Operations Project, and SR-71/SR-91 Interchange Improvements. Coordination will be conducted with local agencies to ensure the project avoids impacts to planned bicycle and trail connections on Gypsum Canyon Road per the City of Anaheim General Plan and OCTA Commuter Bikeways Strategic Plan.

Benefits

The project will provide connectivity between the 91 Express Lanes and the 241 Toll Road, which will enhance operations along the SR-91 general purpose lanes while also improving traffic operations on the northbound 241 Toll Road.

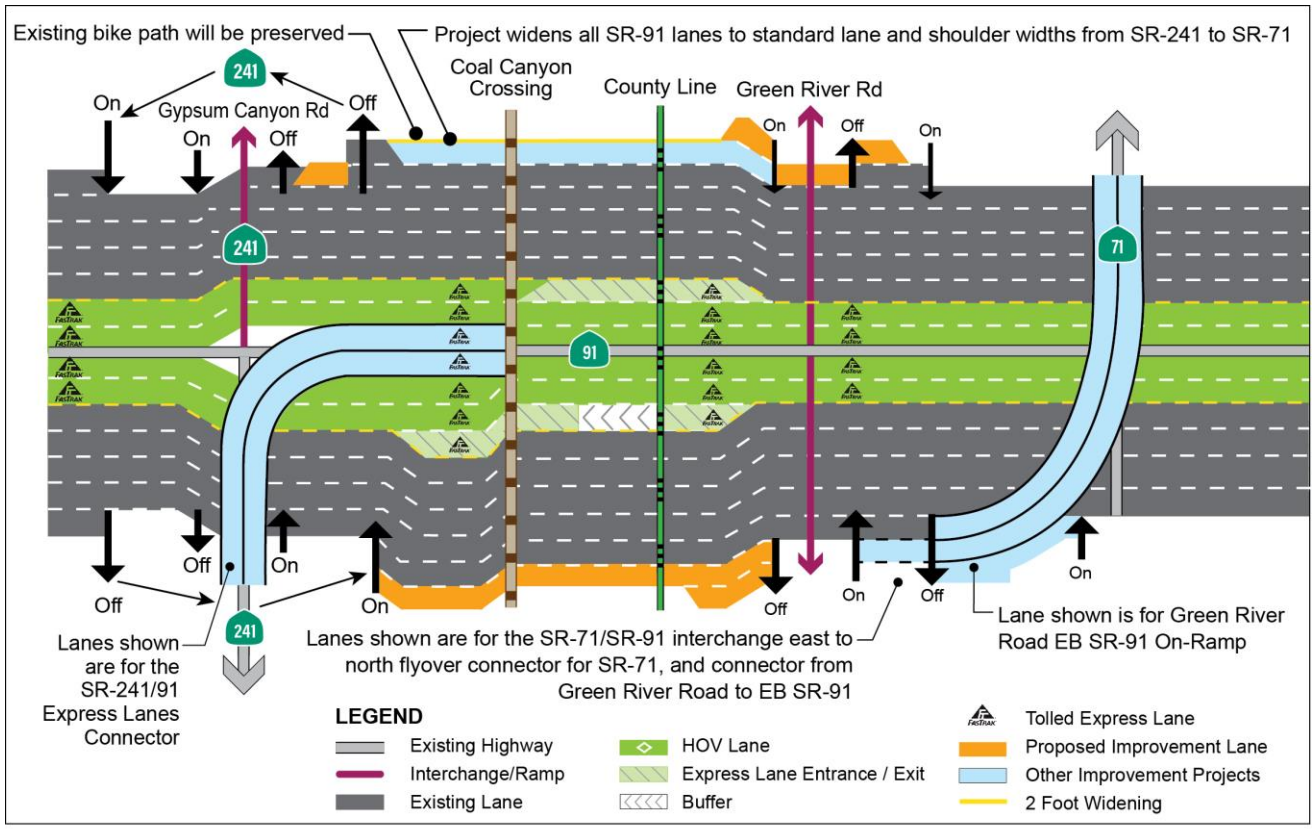
Current Status

Preliminary engineering concepts for a SR-241/SR-91 Tolled Express Connector have been developed by the Foothill/Eastern Transportation Corridor Agency (F/E TCA) and Caltrans, which were utilized for the environmental analysis. The 91 Express Lanes Extension and SR-241 Connector Feasibility Study was completed in March 2009 and was initiated to evaluate various alternatives. A Project Study Report was initiated in January 2011 and was completed in January 2012. The Draft Environmental Document was circulated for public review from November 7, 2016, through January 9, 2017. Caltrans's approval of the project with the Record of Decision was completed in March 2020. Final design is in progress.

Schedule and Cost

Agreements to document roles and responsibilities for F/ETCA funding, Caltrans construction, and OCTA/RCTC tolling operation of the project are under development by the multi-agency team. Final Design is expected to be completed in 2022. Construction is anticipated to last approximately 36 months beginning in 2023 with project opening in 2026. The total cost of the project will be approximately $380,000,000.

Sixth Lane Addition (SR-241 to SR-71)



Project Description

The Project Approval and Environmental Document (PA/ED) for the SR-91 Corridor Improvement Project (CIP), from SR-241 to Pierce Street, included the addition of a 5th lane in each direction, the addition of auxiliary lanes at various locations, the addition of collector-distributor lanes at the I-15/SR-91 interchange, the extension of the 91 Express Lanes from the Orange County line to I-15, the construction of a SR-91 Express Lanes median direct connector to and from I-15 South, a SR-91 Express Lanes median direct connector to and from I-15 North, and the construction of one Express Lane in each direction from the I-15/SR-91 interchange southerly to I-15/Cajalco Road (now part of RCTC I-15 Express Lanes Project), and easterly to east of McKinley Street. Due to funding constraints, a Project Phasing Plan was developed to allow an Initial Phase, with reduced improvements, to move forward as scheduled, with the remaining ultimate improvements to be completed later. The SR-91 sixth lane in each direction between SR-241 and SR-71 (the subject of this project) is a component of the SR-91 CIP that was not constructed with the Initial Phase.

Key Considerations

Coordination among many of the SR-91 freeway projects that overlap the project limits is critical to successfully delivering these projects on schedule and within budget. Designing to accommodate future projects is a recurring theme for each of these projects. Minimizing conflicts in scope between projects requires direct coordination between each project team. Additionally, future projects frequently have multiple alternatives under study, each with differing scope and construction footprints. Specifically, the project improvements need to continue to be coordinated with the SR-71/SR-91 interchange and the SR-241/SR-91 Tolled Express Connector.

Benefits

The Sixth Lane Addition will reduce congestion and delays by providing additional SR-91 capacity from SR-241 to SR-71.

Current Status

The Sixth Lane Addition is discussed in the SR-91 CIP environmental document that was completed in 2012. An alternatives analysis to evaluate potential improvement options in the eastbound direction was initiated in 2020 and completed in 2022.

Schedule and Cost

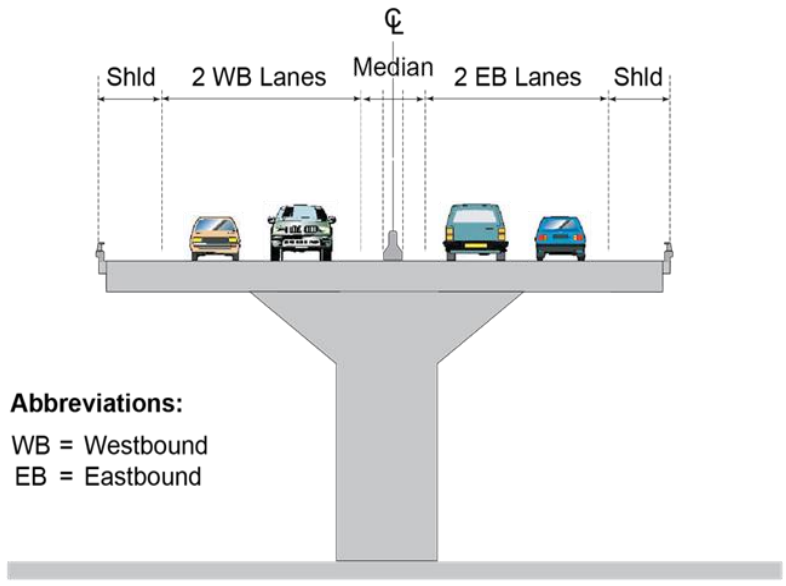
Anticipated project completion and cost are to be determined.

Appendix A - Post-2035 and Conceptual Projects

Concepts for potential Post-2035 implementation (potentially earlier if funding becomes available) focus on longer-lead time projects. This multi-billion dollar program may include: an elevated 4-lane facility (MIS Corridor A) from SR-241 to I-15; the Anaheim to Ontario International Airport Maglev High Speed Rail; the Irvine-Corona Expressway (ICE) 4-lane facility from SR-241/SR-133 to I-15/Cajalco Road (formerly known as MIS Corridor B), Westbound SR-91 to Southbound SR-55 Connector Improvements, Eastbound SR-91 Fifth Lane Addition at SR-241 and Fairmont Boulevard Improvements. These potential concepts include significant environmental constraints and right of way requirements in addition to requiring a significant amount of planning, design, and future policy and public input.

Concept Summary	Cost ($M)
Elevated 4-Lane Facility (MIS Corridor A) from SR-241 to I-15	2,720
Anaheim to Ontario International Airport Maglev High Speed Rail	2,770-3,200
Irvine-Corona Expressway (ICE) 4-Lane Facility from SR-241/SR-133 to I-15/Cajalco Road	8,855
Westbound SR-91 to Southbound SR-55 Connector Improvements	75-150
Eastbound SR-91 Fifth Lane Addition at SR-241	31
Fairmont Boulevard Improvements	76.8
SUBTOTAL	**14,527.8 – 15,032.8**

Elevated 4-Lane Facility from SR-241 to I-15 (MIS Corridor A)



Elevated 4-Lane Facility (MIS Corridor A) Cross-Section

Concept Description

The improvements primarily consist of constructing a new 4-lane elevated expressway near or within the Santa Ana Canyon with freeway-to-freeway connectors at SR-241 and I-15. The facility may include managed lanes and potential reversible operations.

Key Considerations

Choice of alignment will be key to determining net capacity increase. Extensive right-of-way (R/W) will be required to implement the improvements if the alignment is not in the SR-91 corridor. When median connector projects or HOV/HOT projects are constructed and this 4-lane elevated facility is proposed within the median of SR-91 through Corona, then extensive managed lane closures would be required during construction (thus temporarily reducing SR-91 capacity during construction).

An alternative could be studied for the median Corridor A viaduct along with reduced SR-91 geometric standards to minimize R/W impacts. Also, direct connectors (such as for High Occupancy Vehicle (HOV) / High Occupancy Toll (HOT) at I-15/SR-91) to/from the median could be precluded by Maglev columns located within the same median area. Caltrans and Maglev highway R/W, maintenance, safety, and operations considerations would need to be analyzed if shared use with a Maglev facility were pursued. Additional mitigation costs may be required for improvements to SR-241 and SR-133 as a result of additional Corridor traffic volumes. Corridor A as managed lanes, with the extension of 91 Express Lanes to I-15, this project concept may affect traffic distribution due to "parallel" tolled facilities.

Benefits

The concept would provide significant congestion relief by allowing vehicles to bypass the at-grade freeway lanes and local arterial interchanges between SR-241 and I-15. Connections are proposed directly between SR-91, SR-241, and I-15.

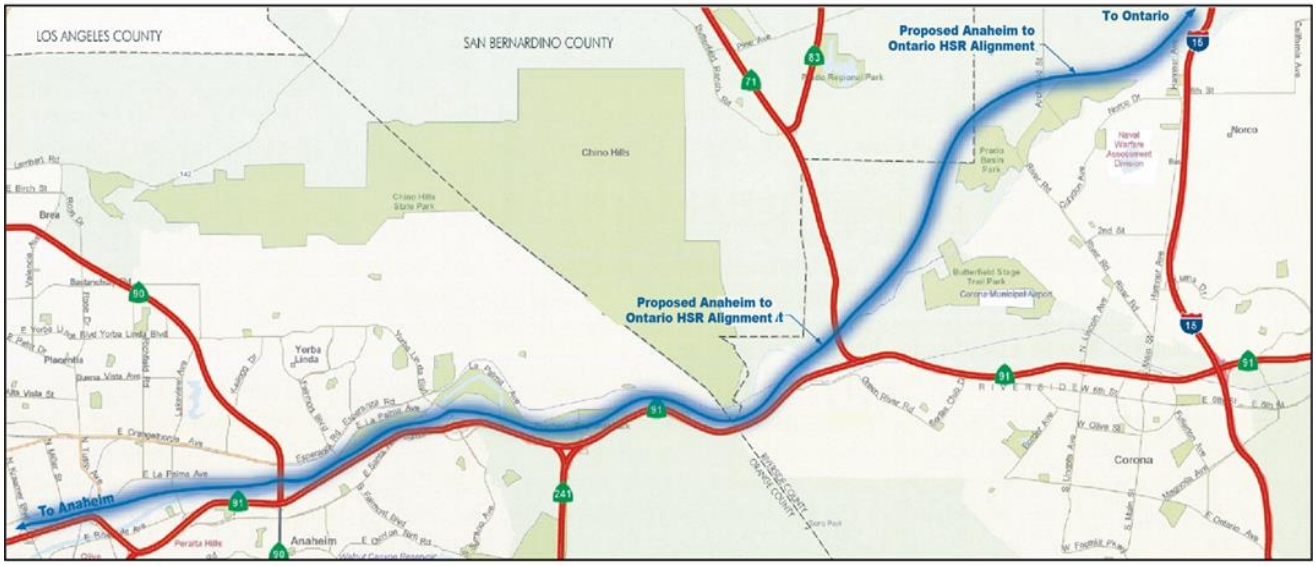
Current Status

This concept is identified in the Riverside County - Orange County Major Investment Study (MIS) as part of the Locally Preferred Strategy to improve mobility between Riverside County and Orange County. No project development work is planned at this time.

Schedule and Cost

Anticipated project completion is post-2035 and construction cost is estimated to be $2,720,000,000 (2005 dollars).

Anaheim to Ontario International Airport Maglev High Speed Rail



REPRESENTATIVE ALIGNMENT SHOWN FOR ILLUSTRATIVE PURPOSES ONLY

Concept Description

Proposals for a new super-speed train corridor from Anaheim to Ontario are included in this concept. This concept includes an alternative that would use SR-91 right-of-way or would be aligned adjacent to SR-91 right-of-way or could potentially be co-located with the Major Investment Study (MIS) Corridor A alignment. Another alignment opportunity is being investigated along SR-57.

Key Considerations

Alternative alignment impacts to SR-91 right-of-way envelope and/or Santa Ana River are undetermined. The choice of alignment will potentially impact MIS Corridor A. Right-of-way (R/W) will be required to implement the improvements. Potential considerations for co-locating the Magnetic Levitation (Maglev) train adjacent to Corridor A (and also SR-91) include providing a two-column structure with a barrier between the trains and vehicles. Caltrans and Maglev highway R/W, maintenance, safety, and operations considerations would need to be analyzed if shared use with a Maglev facility were pursued. See the MIS Corridor A project for additional considerations. Coordination with Metrolink improvements will be required.

Benefits

The concept would provide congestion relief by providing a direct high-speed/high-capacity connection with Ontario International Airport for Orange County air passengers and business next-day deliveries. Maglev will make the trip in just 14.5 minutes. Relieves congestion on SR-91 by providing additional capacity in the corridor.

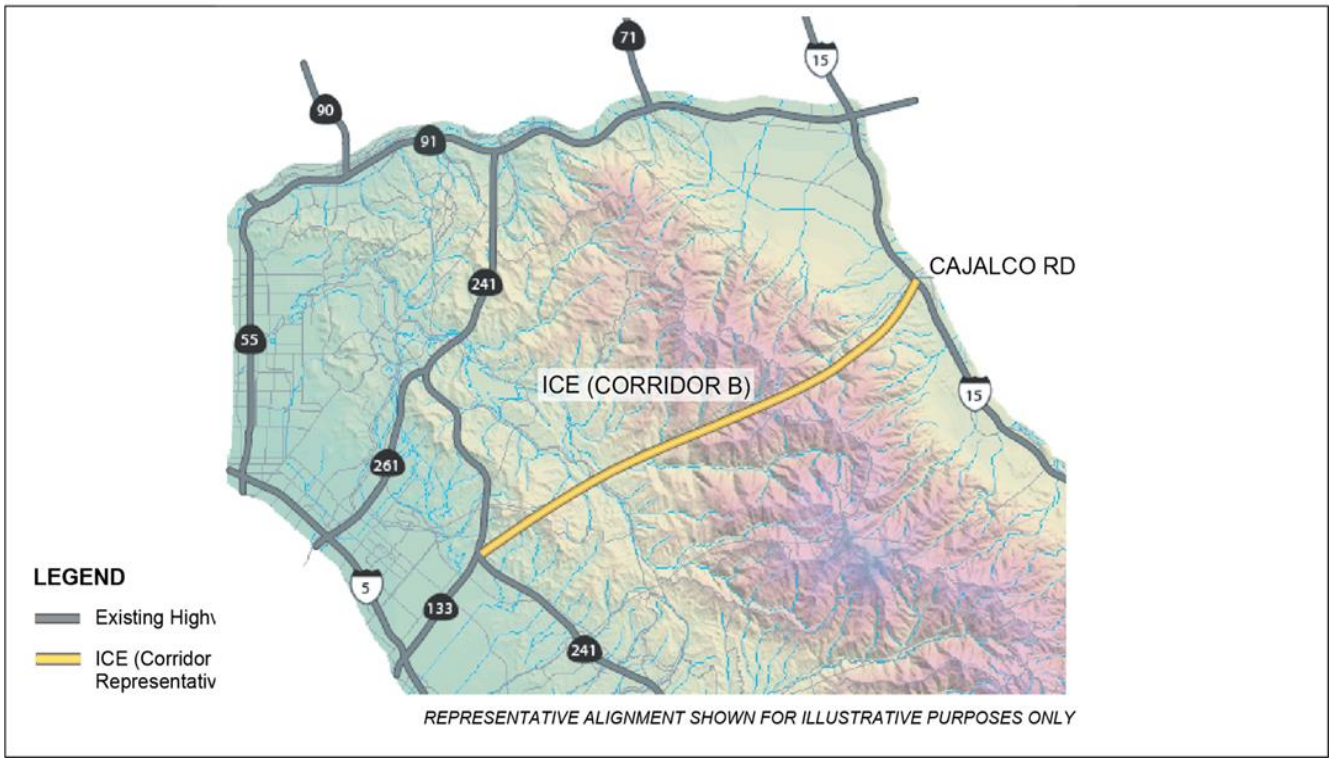
Current Status

Since 2012, no progress on this project has occurred. Preliminary design, engineering and Phases 1 and 2 of a Preliminary Environmental Impact Statement/Environmental Impact Statement (PEIS/EIS) are completed. Congress approved $45M in SAFETEA-LU for the environmental phase of the project. Construction funding of up to $7 billion was identified through a loan commitment from the China Export-Import Bank.

Schedule and Cost

Anticipated project completion is to be determined and construction cost is estimated to be from $2,770,000,000 to $3,200,000,000 (2012 dollars).

Irvine-Corona Expressway (ICE) from SR-241/SR-133 to I-15



Concept Description

The improvements primarily consist of constructing a highway and rail facility through the Cleveland National Forest with freeway-to-freeway connectors at SR-241/SR-133 and I-15/Cajalco Road. The facility would essentially be a continuation of SR-133 on the west end of the corridor, to I-15 on the east end.

Key Considerations

The tunnel concept is technically feasible based on the geotechnical investigation completed in December 2009. The initial project phase would be the construction of one 2-lane highway tunnel and one rail tunnel. The second project phase would include construction of a second 2-lane highway tunnel. Additional technical studies and geotechnical borings would be needed to refine the tunnel alignments and grades. Costs associated with the Irvine-Corona Expressway (ICE) tunnels are based on the Feasibility Evaluation Report completed in December 2009. A financial analysis will be needed for the construction, operations and toll requirements of the ICE tunnels. Land use changes and development have occurred in locations where this concept was conceptualized in 2006 which complicate the viability of original concept alignment. With further analysis, these changes would not exclude future potential alignment(s) connecting I-15 and SR-241/SR-133 via tunneling through the Cleveland National Forest. Land use patterns in the vicinity of this concept will be evaluated as part of this Plan's annual updates.

Benefits

The concept would provide significant congestion relief by providing an alternative route between Orange and Riverside counties and would allow vehicles to bypass SR-91 between SR-241 and I-15. The concept would not disrupt SR-91 traffic during construction and would allow for additional route selection for incident management, emergency evacuation, and for continuity of the highway network by linking SR-133 to I-15.

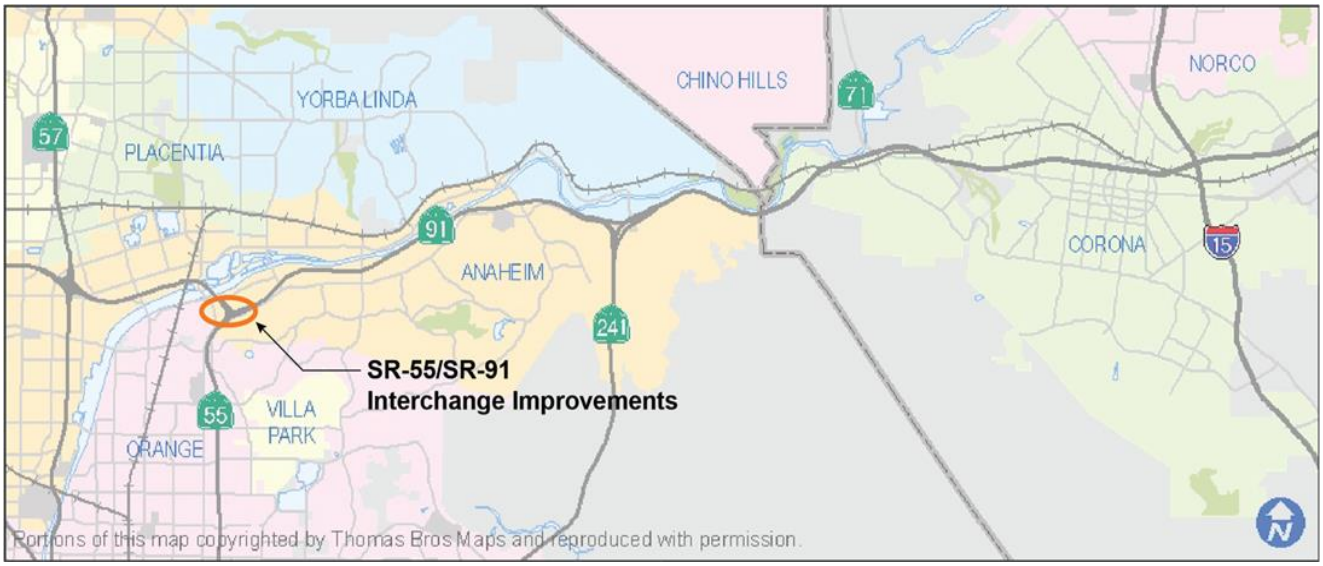
Current Status

On August 27, 2010, the Riverside Orange Corridor Authority Board took action to defer additional study of the ICE concept until such time as financial considerations improve and/or technological advancements warrant reexamination. Review of the concept shall be done annually through the SR-91 Implementation Plan update to determine if any of the major assumptions about financial considerations, private sector interest, or technological advancements have changed to make the tunnel financially viable. (See "ICE status summary" for further discussion).

Schedule and Cost

Anticipated project completion is post-2035 and construction cost is estimated to be $8,855,000,000 (2009 dollars).

Westbound SR-91 to Southbound SR-55 Connector Improvements



Concept Description

The project consists of operational improvements by modifying the connector to SB SR-55 from WB SR-91. The improvements would extend to Lakeview Avenue to the east and would include a new connector from WB SR-91 to SB SR-55 as a potential right-hand exit.

Key Considerations

Right-of-way impacts, detailed SR-55/SR-91 interchange improvements, and downstream impacts to SR-55 require further evaluation in a subsequent phase of project development. Conceptual design of SR-55/SR-91 would be coordinated with completed improvements at SR-91 and Tustin Avenue, and with the SR-91 Environmental Study Improvements from SR-57 to SR-55. This study is currently being conducted.

Operational enhancements between SR-55 and Lakeview Avenue will provide some benefit for SR-55/SR-91 by addressing WB SR-91 weaving issues. In addition, the proposed WB drop-ramp from Lakeview AV has been designed to accommodate three WB through lanes on either side in order to reduce throwaway costs in the future should the SR-91 be shifted to accommodate a right-hand exit for SB SR-55.

Benefits

Interchange improvements are anticipated to provide congestion relief for WB SR-91 traffic and potentially improve the connection from WB SR-91 to SB SR-55.

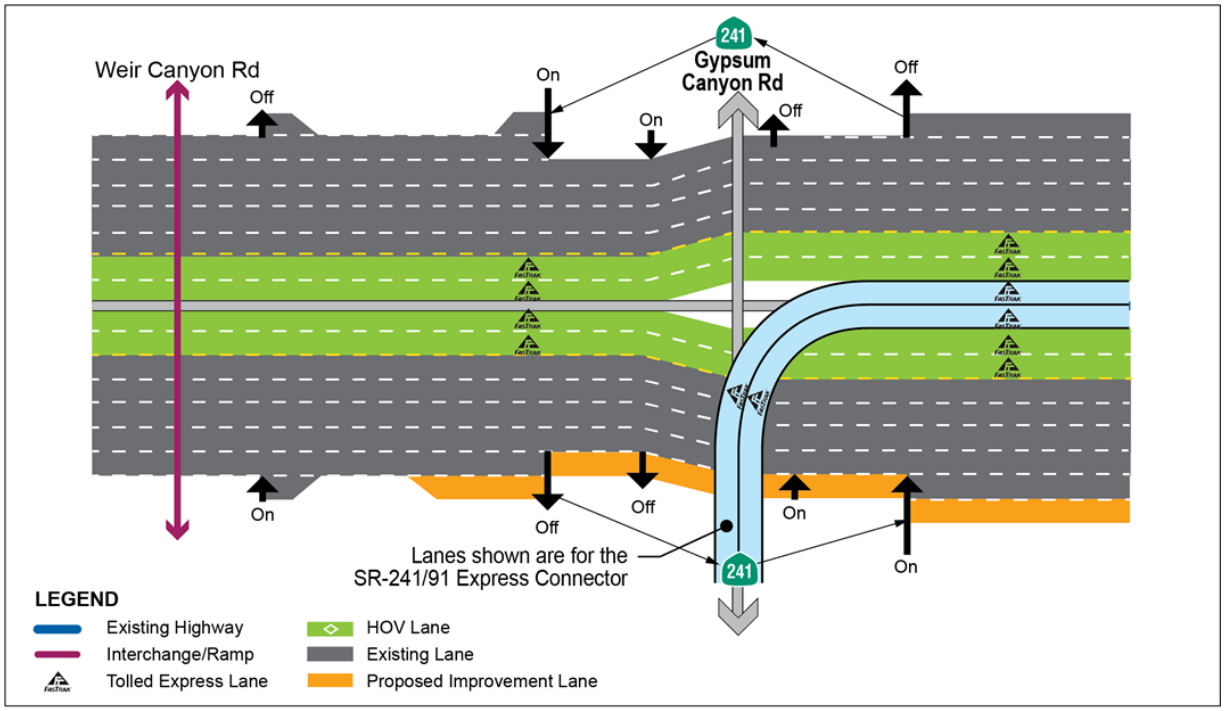
Current Status

SR-55/SR-91 project information was derived from the Final Alternatives Evaluation and Refinement Report, December 2005, by the Riverside County - Orange County Major Investment Study (MIS). Focused SR-91/SR-55 conceptual engineering needs to be scheduled. However, initial conceptual engineering was also studied as part of the SR-91 Feasibility Study Between State Route 57 and State Route 55 Interchange Areas in June 2009, and as part of the SR-91 Environmental Study Improvements from SR-57 to SR-55.

Schedule and Cost

Anticipated project completion is post-2035 and construction cost is estimated to be from $75,000,000 to $150,000,000 (2014 dollars).

Eastbound Fifth Lane Addition at SR-241



Concept Description

The location of the proposed EB SR-91 fifth general purpose (GP) lane addition (The Segment) is on EB SR-91 from Weir Canyon Road to the NB SR-241 Connector. The Segment consists of four GP lanes and two managed lanes (91 Express Lanes).

Upstream (westerly) from The Segment the EB SR-91 has 5 GP lanes and the 5th lane drops to the SB SR-241 Connector as some traffic volume exits to the SB SR-241. Downstream from The Segment the EB SR-91 gains the 5th lane back as the NB SR-241 Connector merges with SR-91 in a dedicated lane addition. This 5th lane continues beyond the Riverside County line providing enhanced mobility.

Key Considerations

This segment with four GP lanes might be creating a traffic choke point due to the decrease of capacity, potentially contributing to significant traffic delays passing through this segment along with other traffic issues such as queue jumping, weaving, merging and operational speed differential. However, additional traffic from NB SR-241 to EB SR-91 and Gypsum Canyon Rd on-ramp suggest balancing the number of lanes should be carefully examined. As such, additional capacity will enhance EB freeway operations along this Segment.

Benefits

1) Extends the existing 5th EB GP lane easterly and ties it to the existing 5th lane downstream. This could provide capacity enhancement and may result in removing an existing choke point. Significant delay savings is anticipated.
2) Potentially eliminate queue jumping in this area from EB SR-91 as well as Weir Canyon Rd.
3) Potentially reduce speed differential between through lanes, thus creating a more balanced flow.
4) Potentially provide balanced lane utilization at high traffic demand area.

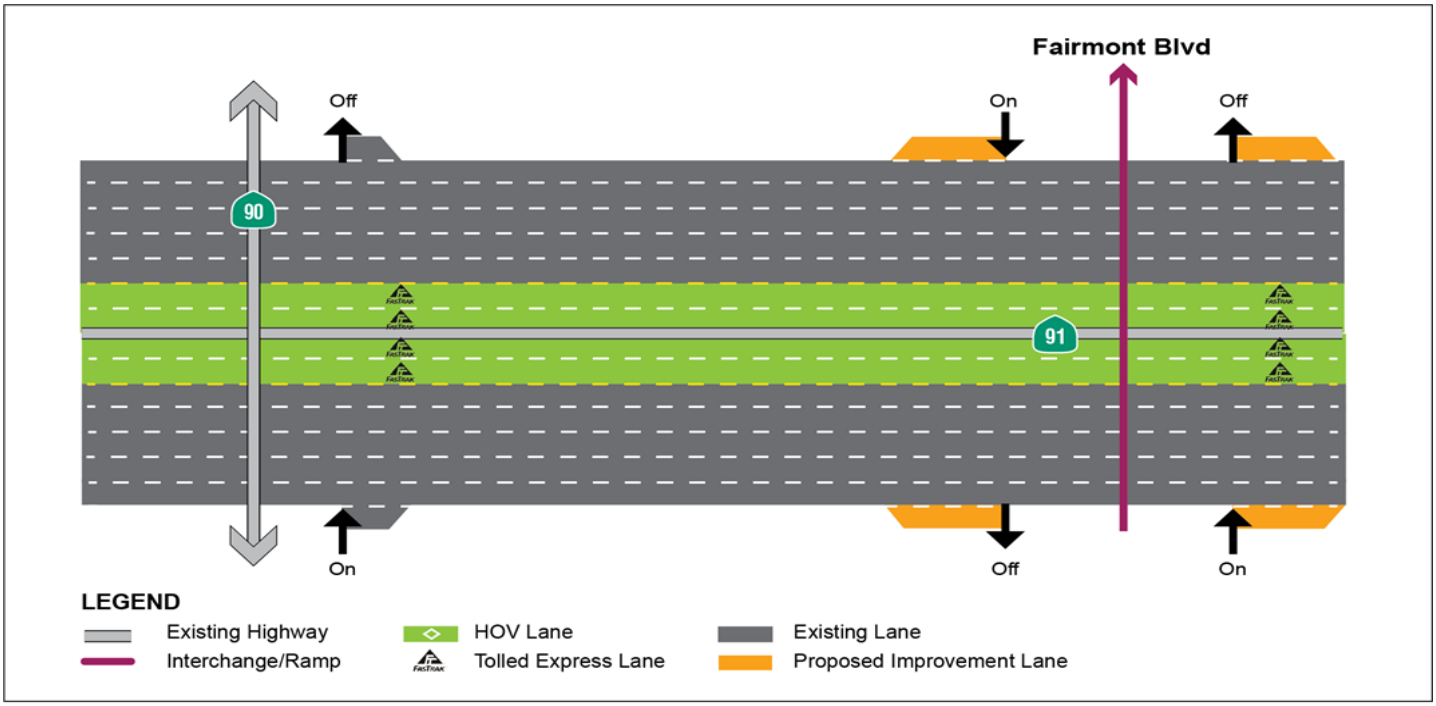
Current Status

Additional traffic analysis and study is required to confirm the benefits to EB SR-91 by the proposed improvements. This location was identified by Caltrans as a high congestion location in the County. The concept is intended to improve the choke point that exists due to the presence of a 4-lane segment between 5-lane freeway segments.

Schedule and Cost

Total project cost, based on Caltrans' estimate, is $31.25 million Project schedule has not been determined.

Fairmont Boulevard Improvements



Project Description

The project would provide a new interchange with SR-91 at Fairmont Boulevard. On and off ramps will connect Fairmont Boulevard from the north to eastbound (EB) and westbound (WB) SR-91. The proposed interchange does not include a vehicular Fairmont Boulevard connection to Santa Ana Canyon Road to the south. A pedestrian/bicycle connection is also proposed between La Palma Avenue and Santa Ana Canyon Road. This bridge and pathway will allow for direct Santa Ana River Trail access from both Anaheim south of SR-91 and from Yorba Linda.

Key Considerations

Interchange spacing and weaving issues (to SR-55) need to be evaluated. Widening of SR-91 may be needed to accommodate interchange ramps. Proximity of the Santa Ana River may require that the WB ramp junction be located north of the river. New connection requirements and interchange spacing needs to be considered. Ramp and bridge placement needs to take pedestrian/bicycle bridge into account or incorporate the pedestrian/bike path into the design beyond the vehicular access limits of the project.

Benefits

The interchange is expected to relieve congestion at Imperial Highway (SR-90), Lakeview Avenue, and Weir Canyon Road Interchanges. Preliminary traffic modeling shows a 10-15% decrease in volumes at Weir Canyon and SR-90 interchanges with the interchange alternative.

Current Status

The City of Anaheim completed a conceptual engineering study in December 2009 for the interchange. Multiple alternatives have been developed as part of the conceptual engineering study. Bicycle/pedestrian bridge is currently in initial planning stages. Project development is pending funding identification. On July 24, 2017, OCTA staff along with a senior staff member of WSP presented the findings of a 91 Express Lanes intermediate access study. The study provided various alternatives, traffic modeling, and financial impacts of the additional access. At the conclusion of the discussion, the OCTA Board of Directors did not authorize additional analysis for the intermediate access.

Schedule and Cost

Anticipated project completion is post 2035 and construction cost is estimated to be $76,800,000 (costs from 2009 Feasibility Study). R/W cost is undetermined. Cost excludes any potential impact to Santa Ana River.

Appendix B - Completed Project Exhibits

The following exhibits represent completed projects from previous Plans since 2006 and are intended to be used as a reference to illustrate the progress made since the inception of the Plan. Note: some projects listed in the Plan as completed (see Section 1, Project Accomplishments) are not included herein since there was no exhibit created or necessary for use with prior Plans (such as for restriping projects, various safety enhancements, minor operational improvements, etc.).

Project Improvements	Constructed
Green River Road Overcrossing Replacement	March 2009
North Main Street Corona Metrolink Station Parking Structure	June 2009
Eastbound Lane Addition from SR-241 to SR-71	September 2010
Widen SR-91 between SR-55 and SR-241 by Adding a 5th GP Lane in Each Direction	December 2012
SR-91 WB Lane at Tustin Avenue	April 2016
Metrolink Service Improvements	June 2016
Initial Phase CIP: Widen SR-91 by One GP Lane in Each Direction East of Green River Rd, CD Roads and I-15/SR-91 Direct South Connector, Extension of Express Lanes to I-15 and System/Local Interchange Improvements	July 2017
Express Bus Service	2019
La Sierra Metrolink Parking Improvements	February 2019
SR-91 Corridor Operations Project	February 2022

Green River Road Overcrossing Replacement

Appendix Project No: B-1

Actual Completion: March 2009

Project Costs

Capital Cost	$ 21,000,000
Support Cost	$ 3,000,000
R/W Cost	$301,000
Total Project Cost	$ 24,301,000

Project Schedule

Preliminary Engineering	Completed
Environmental	Completed
Design	Completed
Construction	Completed

Project Schedule Caltrans Equivalents:
Preliminary Engineering = PID
Environmental = PA/ED
Design = PS&E

Abbreviations:
CD = Collector Distributor Lane
FTR = Future
HOV = High Occupancy Vehicle
SHLD = Shoulder

Project Description

Improvements primarily consist of replacing the existing Green River Road overcrossing with a new six-lane wide, 4-span overcrossing to accommodate future widening of SR-91. The interior spans will accommodate up to eight mainline lanes in each direction including two HOV lanes. The exterior spans can accommodate two lanes, either for auxiliary lanes or collector distributor roads. Entrance and exit ramps will be realigned and widened to accommodate the new bridge, yet the interchange will retain its current configuration. New signals will be installed at the ramp intersections. Ramp and bridge improvements will be constructed within existing right of way.

Key Considerations

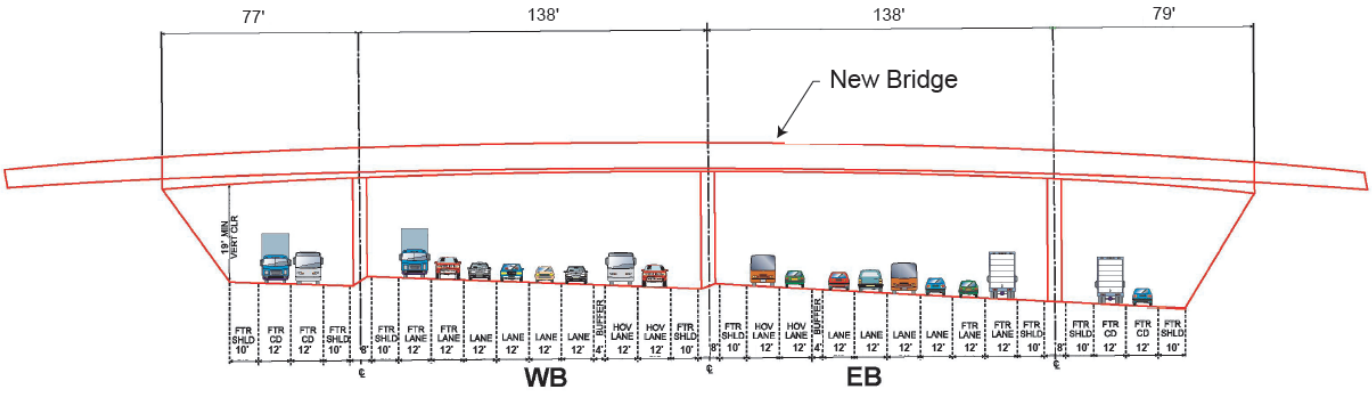
Design interface is required with the Eastbound Lane Addition from SR-241 to SR-71, SR-71/SR-91 Interchange Improvements, SR-91 Corridor Improvement Project, and SR-241/SR-91 HOV/HOT Connector.

Benefits

The project will improve the level of service at ramp and local street intersections at the interchange. Improvements will reduce ramp queues that extend into the freeway's general purpose lanes, thus contributing to congestion relief on SR-91.

Current Status

The project began construction in March 2007 and was completed in March 2009.



GREEN RIVER BRIDGE CROSS-SECTION

NOTE: All dimensions are approximate

North Main Street Corona Metrolink Station Parking Structure

Appendix Project No: B-2

Actual Completion: June 2009

Project Costs

Capital Cost	$ 20,000,000
Support Cost	$ 5,000,000
R/W Cost	$0
Total Project Cost	$ 25,000,000

Project Schedule

Preliminary Engineering	Completed
Environmental	Completed
Design	Completed
Construction	Completed

Project Description

The project provides a six level parking structure with 1,065 parking stalls. The construction is within the existing North Main Street Metrolink station property in Corona.

Key Considerations

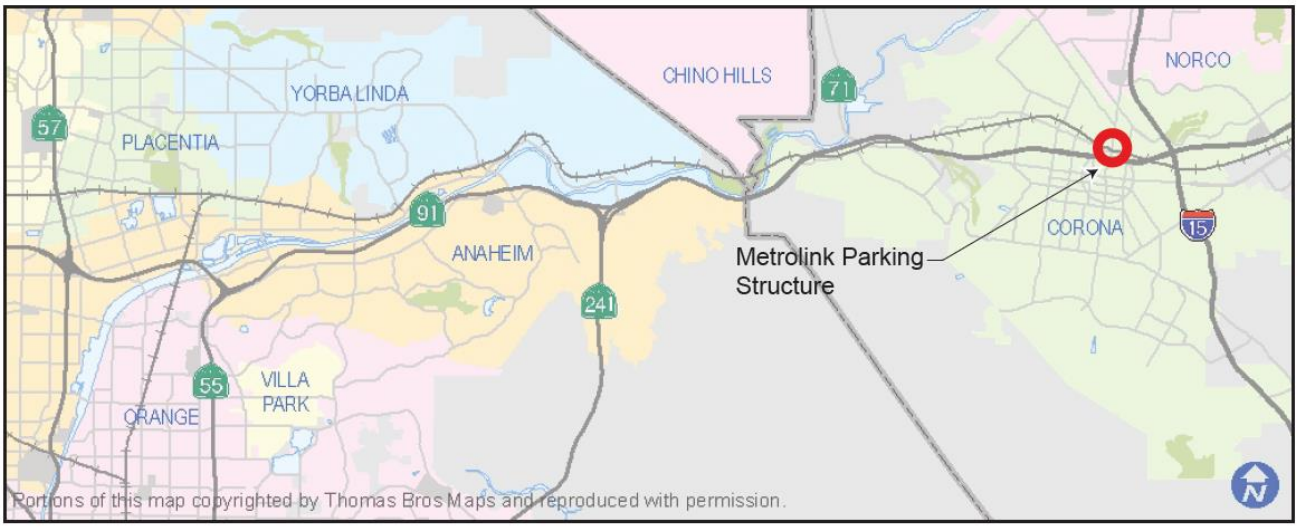
Proposed improvements were constructed within existing right of way. Currently there are 700 users of the facility, 200 more that were previously able to accomodate. Additionally RCTC has opened up the lot to park and ride carpools and vanpools and has issued over 120 permits for carpoolers to use the expanded station. This shows an added benefit of supporting carpooling as well as transit to offset congestion on SR-91.

Benefits

Demand for parking currently exceeds the capacity at the North Main Street Corona station. New parking capacity will allow Metrolink ridership to increase thereby diverting vehicle trips from SR-91.

Current Status

Construction was initiated in January 2008 and was completed in June 2009. The project was funded with Federal Congestion Management and Air Quality (CMAQ) funds.



Eastbound Lane Addition from SR-241 to SR-71

Appendix Project No: B-3

Actual Completion: September 2010

Project Cost Estimate

Capital Cost	$ 41,000,000
Support Cost	$ 8,000,000
R/W Cost	$ 2,200,000
Total Project Cost	$ 51,200,000

Project Schedule

Preliminary Engineering	Completed
Environmental	Completed
Design	Completed
Construction	Completed

Project Description

The project will provide an additional eastbound (EB) lane from the SR-91/SR-241 interchange to the SR-71/SR-91 interchange and will widen all EB lanes and shoulders to standard widths.

Key Considerations

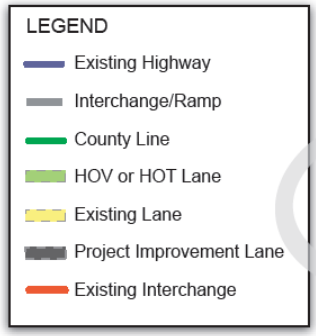
Coordination with the SR-91 Corridor Improvement Projects (Project #3 and #11) will be required. Staged construction would be required for all ramp reconstruction and freeway widening. Freeway operations would most likely be affected by this project, however, freeway lane closures are not anticipated. An EB concrete shoulder will be constructed with a 12 foot width to provide for future widening as contemplated by Project #3 and #11.

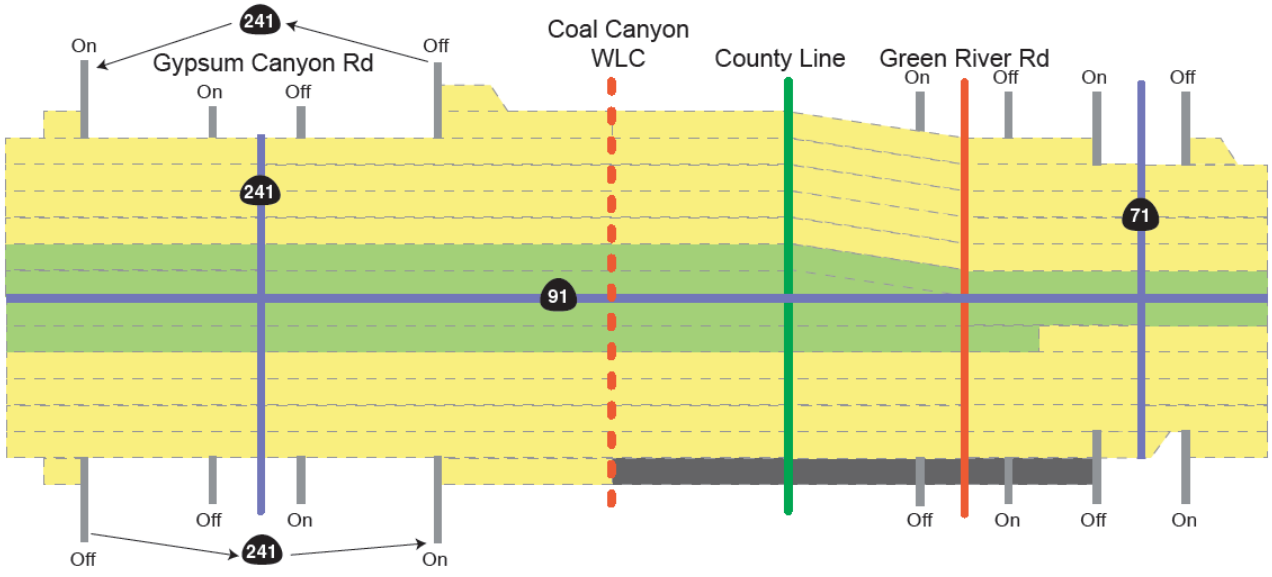
Benefits

The lane addition would help to alleviate the weaving condition between SR-241 and SR-71, as well as remove vehicles from the SR-91 mainline that would be exiting at Green River Road and SR-71.

Current Status

Funding is from the American Recovery and Reinvestment Act (ARRA) with $71.44M approved, and the balance of project costs are from other sources. Construction began in late 2009 and was completed in September 2010.





Widen SR-91 between SR-55 and SR-241 by Adding a 5th GP Lane in Each Direction

Appendix Project No: B-4
Actual Completion: January 2013

Project Costs

Capital Cost	$ 65,005,000
Support Cost	$ 19,639,000
R/W Cost	$ 573,000
Total Project Cost	$ 85,217,000

Project Schedule

Preliminary Engineering	Completed
Environmental	Completed
Design	Completed
Construction	Completed

Project Description

This project proposes capacity and operational improvements by adding one general purpose (GP) lane on eastbound (EB) SR-91 from the SR-55/ SR-91 connector to east of the Weir Canyon Road interchange and on westbound (WB) SR-91 from just east of Weir Canyon Road interchange to the Imperial Highway (SR-90) interchange. Additionally, this project would facilitate truck traffic approaching the truck scales in both directions.

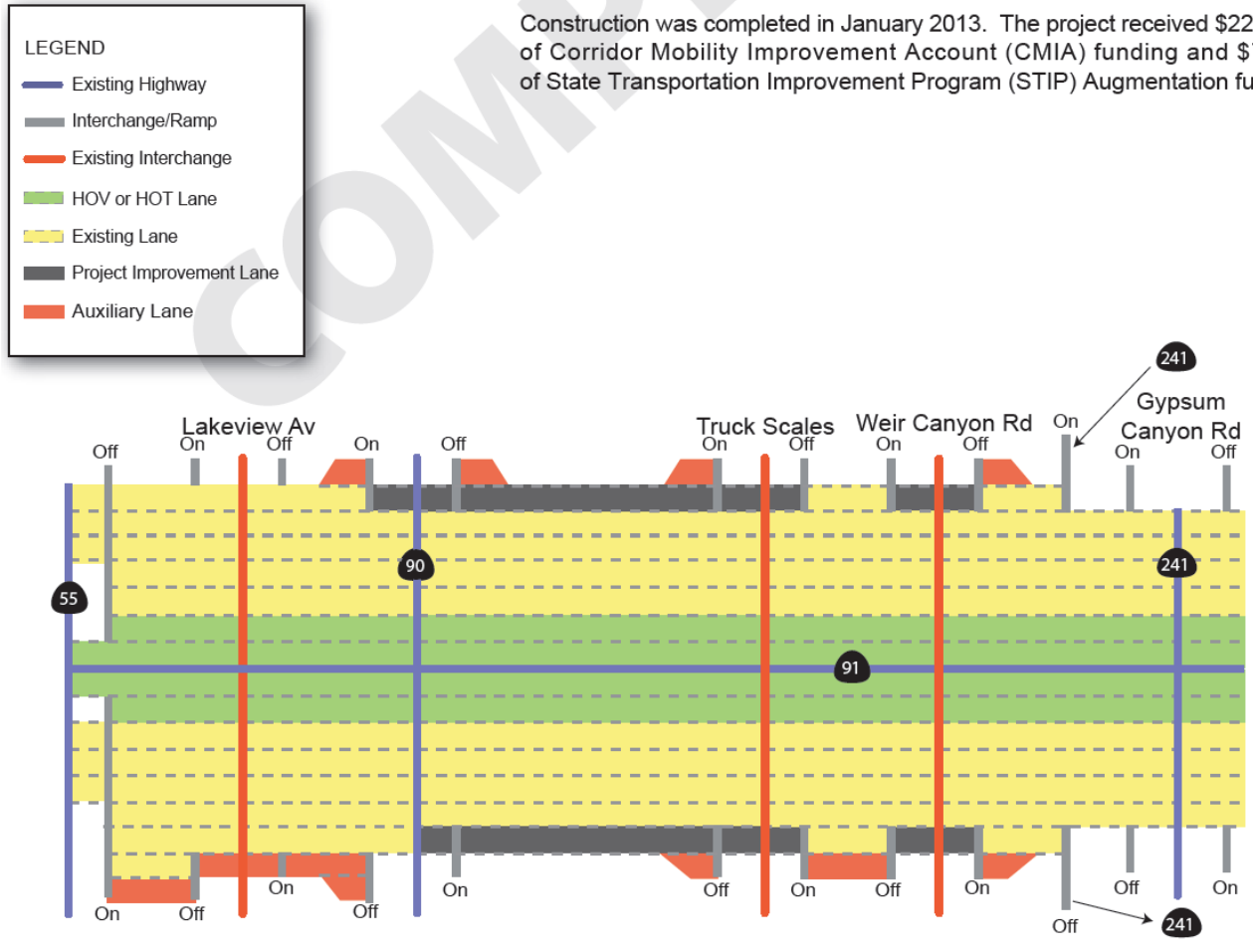
Key Considerations

Caltrans is not considering relocation of the truck scales at this time.

Benefits

Alleviates congestion on WB SR-91 by eliminating the lane drop at the truck scales and providing a continuous GP lane to SR-90. Alleviates congestion on EB SR-91 by eliminating the lane drop for northbound (NB) SR-55 at SR-91 by providing an auxiliary lane to Lakeview Avenue, and at SR-90 by providing a continuous GP lane through Weir Canyon

Construction was completed in January 2013. The project received $22M of Corridor Mobility Improvement Account (CMIA) funding and $74M of State Transportation Improvement Program (STIP) Augmentation funds.



NOTE: FAIRMONT BLVD IS CONTINGENT UPON IMPLEMENTATION OF THE PROJECT

Appendix Project No: B-5
Actual Completion: April 2016

Project Cost Estimate*

Capital Cost	$ 22,218,000
Support Cost	$ 16,382,000
R/W Cost	$ 4,682,000
Total Project Cost	$ 43,282,000

Project Schedule

Preliminary Engineering	Completed
Environmental	Completed
Design	Completed
Construction	Completed

Project Description

The project will add a westbound (WB) auxiliary lane on SR-91 beginning at the northbound (NB) SR-55 to WB SR-91 connector through the Tustin Avenue interchange. This project includes approximately 1.1 lane miles.

Key Considerations

Build Alternative 3 was selected from the Project Study Report (PSR), *On Westbound (WB) SR-91 Auxiliary Lane from the Northbound (NB) SR-55/WB SR-91 Connector to the Tustin Avenue Interchange,* and requires additional right-of-way. City of Anaheim utilities are within close proximity of the proposed widening section. Widening of the Santa Ana River bridge is required. Coordination with the City of Anaheim occurred for widening of Tustin Avenue and the WB SR-91 Off-Ramp that was completed in early 2011.

Benefits

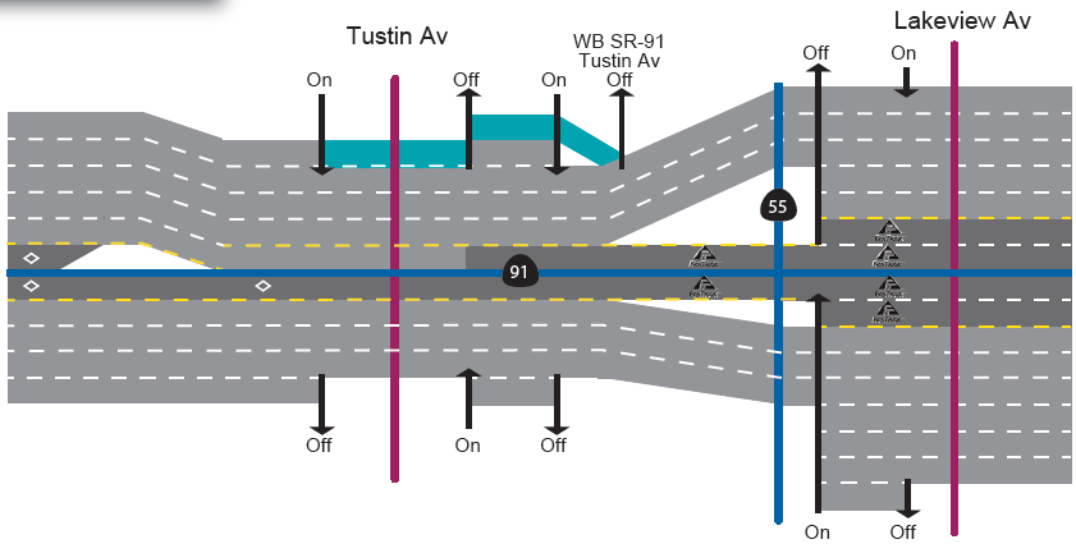
The project would reduce or eliminate operational problems and deficiencies on this section of WB SR-91 including weaving and merging maneuvers. This project would also address choke-point conditions, which are caused primarily by extensive weaving between the NB SR-55 to WB SR-91 connector and the WB SR-91 off-ramp to Tustin Avenue.

Current Status

Preliminary engineering was completed and approved by Caltrans. The environmental phase was completed in November 2010, and design was completed in mid-2013. Construction was initiated in February 2014. The project received $14M from the Proposition 1B State-Local Partnership Program (SLPP), $14M from Measure M, with the balance from Regional Improvement Program (RIP) funds. Contract acceptance and open to traffic in May 2016.

LEGEND

- Existing Highway
- Interchange/Ramp
- County Line
- HOV Lane
- Tolled Express Lane
- Existing Lane
- Proposed Improvement Lane



Appendix Project No: B-6
Actual Completion: 2016

Project Cost Estimate*

IEOC Service Cost	$ 1,160,000
Perris Valley Line Cost	$ 248,000,000
Total Metrolink Costs	$ 249,160,000

Project Schedule
Complete 2016

* Costs from OCTA and RCTC (in 2015 dollars)

Project Description

There are sixteen daily trains that run on the IEOC Line and nine trains running on the Los Angeles to Riverside portion of 91/Perris Valley (91/PV) Line for a total of 25 daily trains. The long-term service improvements will include 24 IEOC trains by 2030.

The Perris Valley portion of the 91 Line extends Metrolink service southeast by 25 miles, from Riverside to Perris. The project is located within the right of way of the existing San Jacinto Branch Line through Riverside, Moreno Valley and Perris. Construction began in October 2013, cost approximately $248 million, and the extension opened to the public in June 2016. The inaugural schedule (December 2015) includes nine trains through to Los Angeles and 12 between Perris and Riverside.

Key Considerations

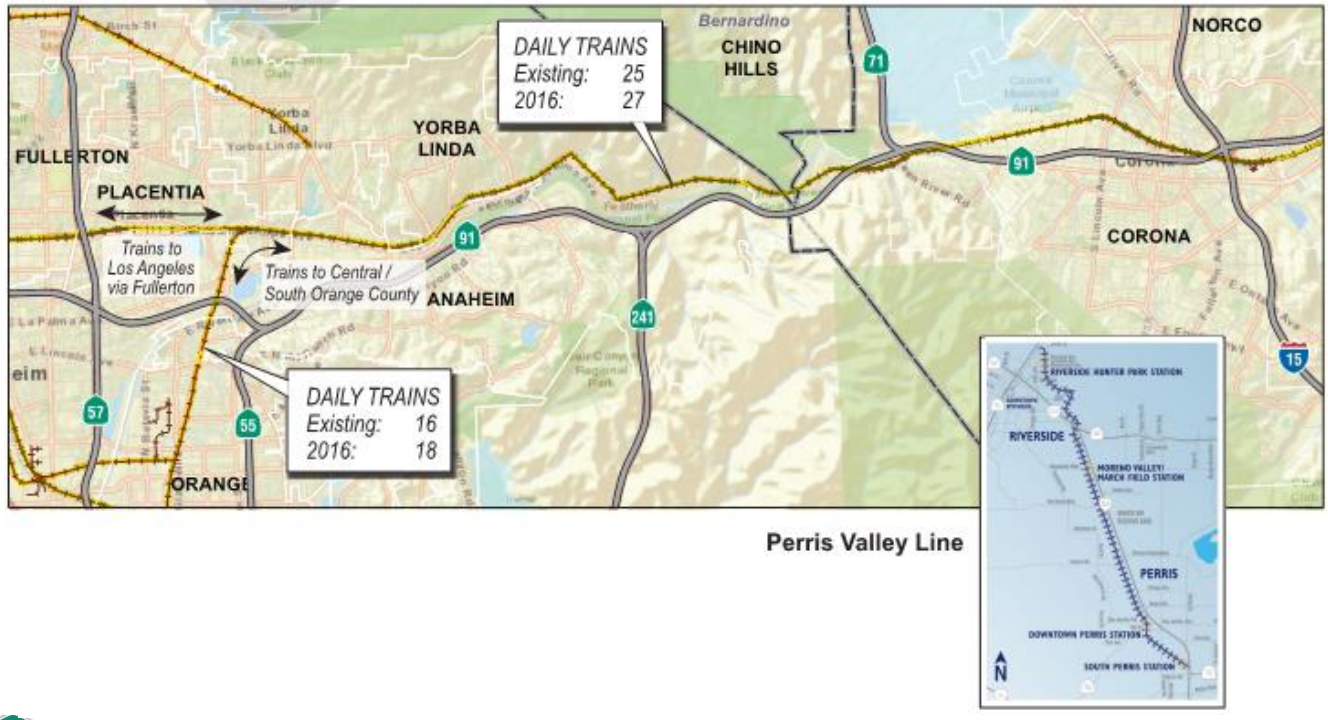
Construction of the new Placentia Metrolink station will improve passenger access to the 91/PV Line, by creating a station between Fullerton and Corona. Improvements at the Anaheim Canyon station are designed to account for future expansion of the IEOC rail service.

Benefits

Enables development of expanded Metrolink service, improved efficiency, and fosters train ridership growth in the region, which will contribute to congestion relief on SR-91.

Current Status

Two additional IEOC Line roundtrips were added in late 2015, and in mid-2016, nine trains began service on the Perris Valley extension to the 91/PV Line.



Perris Valley Line

Initial Phase CIP: Widen SR-91 by One GP lane In Each Direction East of Green River Road, CD Roads and I-15/SR-91 Direct South Connector, Extension of Express Lanes to I-15 and System / Local Interchange Improvements

Project No: B-7
Actual Completion: 2017

Project Cost Estimate*

Total Capital Cost	$ 1,161,000,000
Support Cost	$ 246,000,000
Total Project Cost	$ 1,407,000,000

Project Schedule**

Preliminary Engineering	Completed
Environmental	Completed
Design/Construction	2013-2017

* Cost obtained for Initial Phase is from RCTC (2014 dollars)
** Schedule for Inital Phase; subsequent phase for Ultimate Project anticipated in 2035

Project Description

The approved Project Study Report (PSR) for the SR-91 Corridor Improvement Project (CIP), from SR-241 to Pierce Street, includes the addition of a 5th general purpose lane in each direction, the addition of auxiliary lanes at various locations, additional lanes at the SR-71/SR-91 interchange (Project #5), and collector-distributor (CD) lanes at the I-15/SR-91 interchange. Subsequently, the Riverside County Transportation Commission's (RCTC) 10-Year Delivery Plan recommended the following in addition to the PSR recommended improvements: the extension of the 91 Express Lanes from the Orange County line to I-15, the construction of SR-91 (EB/WB)/I-15 (SB/NB) Express Lanes median direct connectors, and the construction of one Express Lane in each direction from the I-15/SR-91 interchange southerly to I-15/Cajalco Road, and northerly to I-15/Hidden Valley Parkway. An Express Lanes ingress/egress lane is also planned near the County Line. Due to economic conditions, a Project Phasing Plan was developed to allow an Initial Phase with reduced improvements to move forward as scheduled, with the remaining ultimate improvements to be completed later. The following is a summary of the deferred ultimate improvements: I-15/SR-91 median North Direct Connector, and I-15 Express Lanes North to Hidden Valley Parkway (Project #9); general purpose lanes and Express Lanes from I-15 to Pierce Street; and general purpose lanes from SR-241 to SR-71. The I-15 Express Lanes to be extended from Ontario Avenue to Cajalco Road are included in RCTC's I-15 Express Lane Project with an anticipated completion in 2020.

Key Considerations

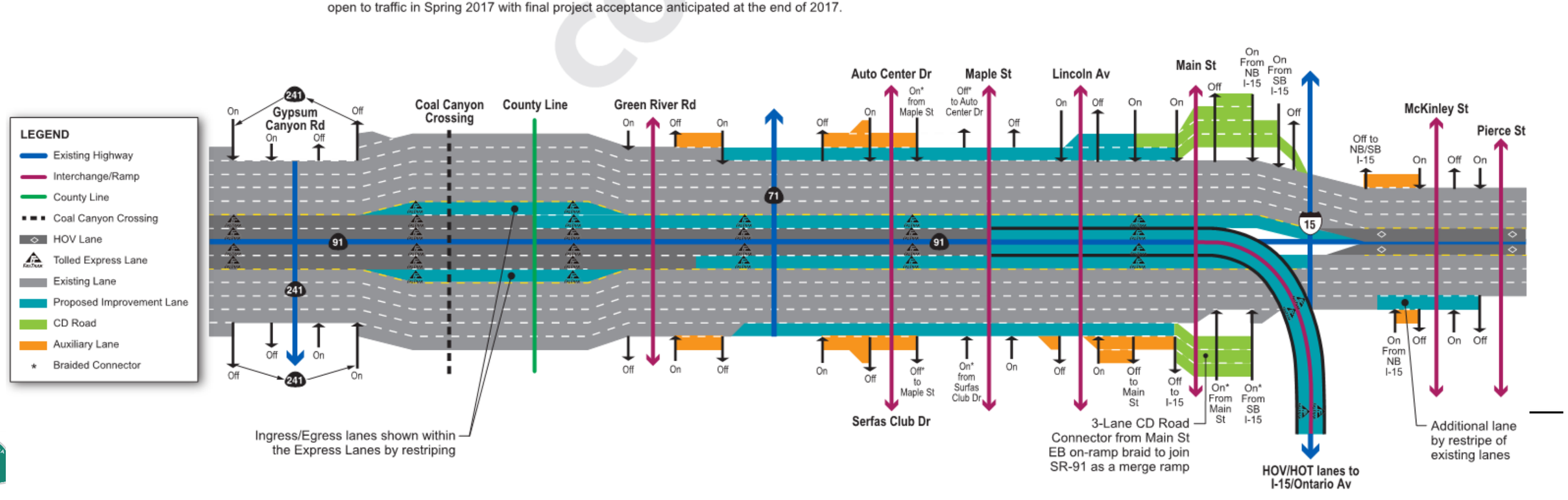
Coordination among many of the SR-91 freeway projects that overlap the project limits is critical to successfully delivering these projects on schedule and within budget. Designing to accommodate future projects is a recurring theme for each of these projects. Minimizing conflicts in scope between projects requires direct coordination between each project team. Additionally, future projects frequently have multiple alternatives under study, each with differing scope and construction footprints. Specifically, the project improvements need to continue to be coordinated with the SR-71/SR-91 Interchange, the SR-241/91 Express Connector, and RCTC's I-15 Express Lane Project.

Benefits

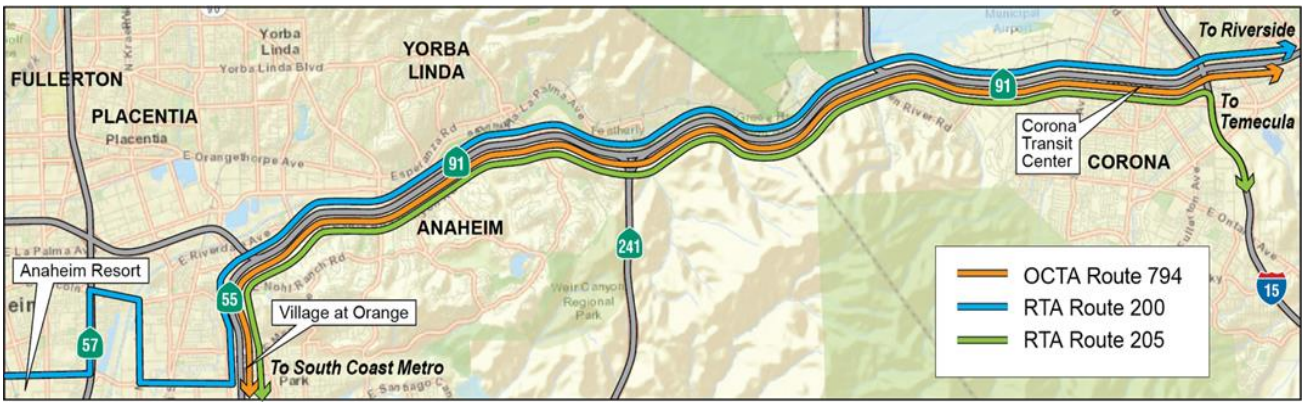
The Initial Phase and Ultimate CIP projects will reduce congestion and delays by providing additional SR-91 capacity from SR-241 to Pierce Street, along I-15 from SR-91 to Cajalco Road to the south, and to Hidden Valley Parkway to the north. Traffic operations will improve by eliminating or reducing weaving conflicts along SR-91 and I-15 by the use of CD roads and auxiliary lanes. The project will provide motorists a choice to use Express Lanes for a fee in exchange for time savings.

Current Status

The environmental phase was completed in Fall 2012. A Design-Build contractor was selected in May 2013 and construction activities began in early 2014 for the Initial Phase. The project is anticpated to open to traffic in Spring 2017 with final project acceptance anticipated at the end of 2017.



Express Bus Service Improvements



Project Description

Orange County Transportation Authority (OCTA), working with the Riverside County Transportation Commission (RCTC) and the Riverside Transit Agency (RTA), operate Express Bus service between Riverside and Orange counties. Commuters lack direct transit connections to some Orange County employment centers not served by Metrolink. The Express Bus service provides this connection.

Existing Service

OCTA has operated Route 794 since 2006 from Riverside County to Hutton Centre and South Coast Metro (shown in orange above). On Route 794, OCTA removed trips to Corona in February 2018 based on low ridership. OCTA currently operates six morning westbound trips and five afternoon eastbound trips to/from the La Sierra Metrolink Station. Two new Express Bus routes were implemented by RTA in January 2018 between Riverside County and Orange County including RTA Route 200 (shown in blue above) from San Bernardino/Riverside to the Anaheim Resort. The route provides hourly service on weekdays and 90-120 minute service on weekends with a fleet of six buses. RTA Route 205 (shown in green above) from Lake Elsinore/Temecula/ Corona to the Village at Orange includes three AM and three PM roundtrips with 3 buses.

New Service

The Express Bus Routes have been fully implemented as of FY19 and there are no planned service additions. Changes to routes may be made in the future based on available funding and ridership demand.

Key Considerations

Intercounty Express Bus service is effective between locations where transit travel times by Express Bus would be more competitive than Metrolink and connecting rail feeder buses.

Benefits

Express Bus services contribute to congestion relief on SR-91.

Current Status

Since completion of the 91 Express Lanes, RTA more than doubled its Express Bus service on SR-91. Currently, OCTA operates 11 bus trips per day on SR-91. RTA now operates 47 trips on weekdays (up from 18 trips that Route 216 provided weekdays) and 18 trips on weekends (up from 8 trips provided by Route 216) on SR-91 Express Lanes. Service hours for this expansion is an extra 21,445 hours per year and is being served by five new coaches added to the RTA fleet.

Schedule and Cost

The Express Bus Routes have been fully implemented as of FY19. Ongoing operating costs average $4,892,000 per year and capital costs average $1,174,000 per year (2019 dollars). The annual capital cost was increased in 2019 to reflect the future cost of complying with the new Innovative Clean Transit regulation.

La Sierra Metrolink Parking Improvements

Image source:
Riverside Transit Agency, April 2019

Project Description

There are currently 1,000 spaces available. RCTC is implementing a parking lot expansion to include an additional 496 spaces and six bus bays to accommodate RTA Express Lane Service 200 that originates at Metrolink San Bernardino Transit Center with stops along Riverside Downtown Metrolink Station, Metrolink La Sierra, the Village at Orange, ARTIC, Disneyland, and Anaheim Convention Center, as well as other potential bus routes in the future.

Benefits

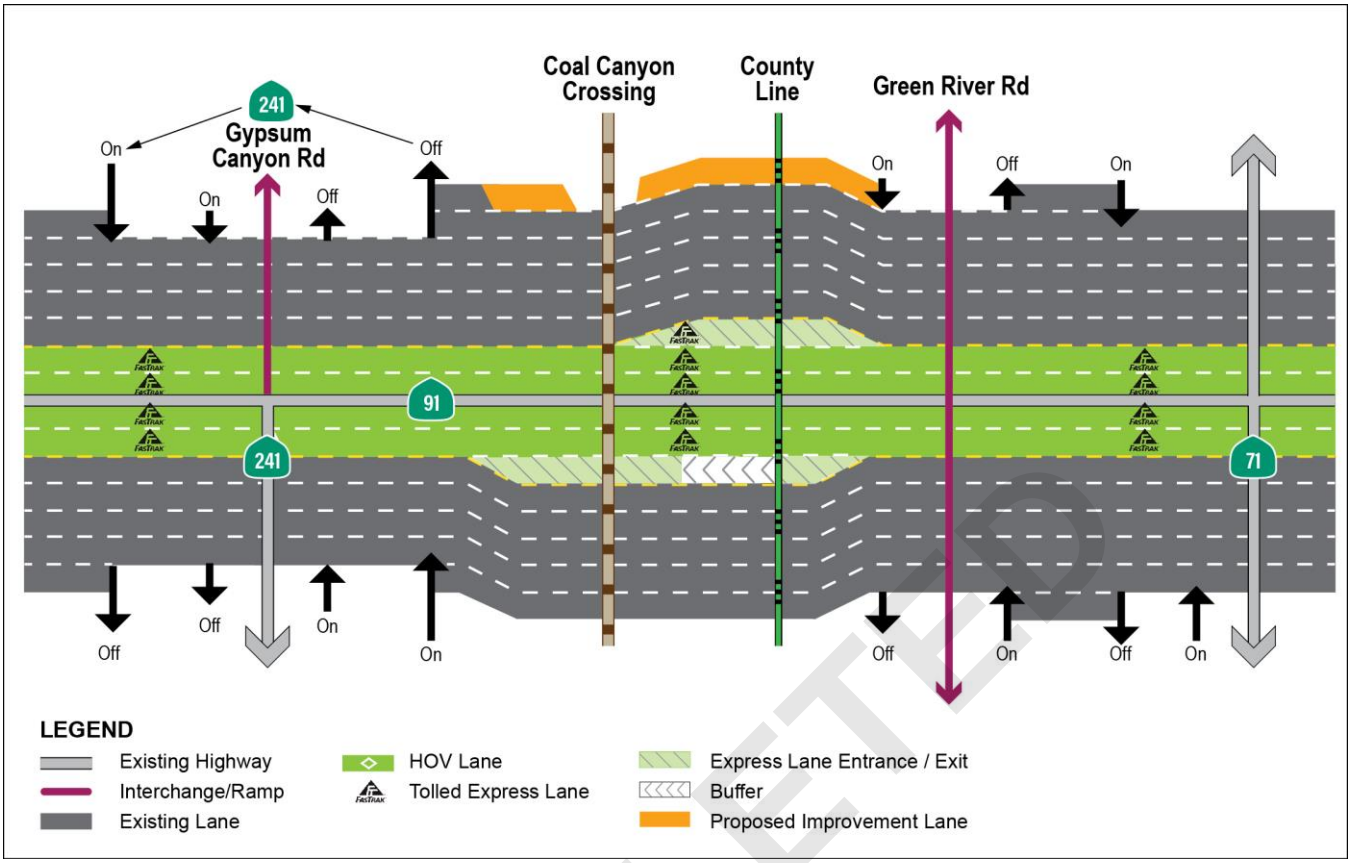
The 496 parking spaces will provide for existing and future demand. The parking lot expansion will provide for ADA parking, RTA express service, commuter rail, and vanpool.

Current Status

Construction and project implementation has begun.

Schedule and Cost

Construction was completed in February 2019. The project cost is estimated to be $6,260,000.



Project Description

The Riverside County portion of the 91 Express Lanes began operation in March 2017. Throughout the first year of operation, RCTC made minor operational improvements to improve the SR-91 corridor travel between State Route 241 (SR-241) and McKinley Street. In November 2018, RCTC implemented additional striping and signage improvements to westbound SR-91 at the McKinley entrance to the 91 Express Lanes as well as the County Line access location to further enhance efficiency along the westbound SR-91 corridor between McKinley Street and SR-241. In December 2018, the RCTC Commission authorized its staff to proceed with a project to construct an additional westbound lane along SR-91 between Green River Road and SR-241 (the subject of this project). This new project is now known as the SR-91 Corridor Operations Project (91 COP).

Key Considerations

The goal of this project is to implement a substantial operational improvement that is cost effective and timely to address the peak period bottleneck conditions along westbound SR-91 near the County Line. Key considerations include reducing impacts to adjacent land and local streets by the use of retaining walls and minimizing throw-away costs with future projects. Specifically, the project improvements need to be coordinated with the SR-241/SR-91 Tolled Express Connector and the SR-91 Sixth GP Lane Addition projects.

Benefits

The 91 COP will reduce congestion and delays along westbound SR-91 between McKinley Street and SR-241.

Current Status

This project is within the footprint of the SR-91 Sixth GP Lane Addition project that was an element of the SR-91 CIP environmental document approved in 2012. An environmental revalidation for the 91 COP was completed in Spring 2020. Construction began in November 2020.

Schedule and Cost

Construction is planned for completion in 2022. The total project cost is estimated to be $38,000,000.

Appendix C - REFERENCES

The following documents and resources were used in the development of the 2022 Plan. Data was provided by OCTA, RCTC, Caltrans Districts 8 and 12, Transportation Corridor Agencies (TCA), other agencies, and online resources.

Measure M Next 10 Delivery Plan (Next 10 Plan), November 14, 2016

Riverside Transit Agency, Ten-Year Transit Network Plan, January 22, 2015

PSR-PDS on Route 91 Between SR-57 and SR-55, October 2014

PS&E for "Westbound State Route 91 Auxiliary Lane from the NB SR-55/WB SR-91 Connector to the Tustin Avenue Interchange", 2014

PS&E for Initial SR-91 CIP Project, 2014

California Transportation Commission, Corridor Mobility Improvement Account (CMIA), Amended December 2012

M2020 Plan (Measure M), September 2012

PSR-PDS for SR-241/SR-91 Tolled Express Connector, January 2012

Project Report and Environmental Document (EIR/EIS) for SR-91 CIP from SR-241 to Pierce Street Project, October 2012

PS&E "On State Route 91 Between the SR-91/SR-55 Interchange and the SR-91/SR-241 Interchange in Orange County", April 2011

Corridor System Management Plan (CSMP) Orange County SR-91 Corridor Final Report, August 2010

Project Study Report/Project Report "Right of Way Relinquishment on Westbound State Route 91 Between Weir Canyon Road and Coal Canyon", May 2010

SR-91/Fairmont Boulevard Feasibility Study, December 2009

Feasibility Evaluation Report for Irvine-Corona Expressway Tunnels, December 2009

Plans, Specifications and Estimates (PS&E) for Eastbound SR-91 lane addition from SR-241 to SR-71, May 2009

PSR "On State Route 91 Between the SR-91/SR-55 Interchange and the SR-91/SR-241 Interchange in Orange County", April 2009

91 Express Lanes Extension and State Route 241 Connector Feasibility Study, March 2009

PSR/PR "On Gypsum Canyon Road Between the Gypsum Canyon Road/SR-91 Westbound Off-Ramp (PM 16.4) and the Gypsum Canyon Road/SR-91 Eastbound Direct On-Ramp (PM 16.4)", June 2008

Orange County Transportation Authority Renewed Measure M Transportation Investment Plan, November 2006

Riverside County-Orange County Major Investment Study (MIS) – Final Project Report: Locally Preferred Strategy Report, January 2006

California – Nevada Interstate Maglev Project Report, Anaheim-Ontario Segment; California-Nevada Super Speed Train Commission, American Magline Group, August 2003

Route Concept Reports for SR-91, Caltrans Districts 8 and 12

Various Preliminary Drawings and Cross Sections, Caltrans Districts 8 and 12