



MEETING AGENDA

Technical Advisory Committee

Time 10:00 a.m. (PLEASE NOTE TIME)

Date December 9, 2019

Location Riverside County Transportation Commission
Conference Room A
4080 Lemon Street
Riverside, CA 92501

COMMITTEE MEMBERS

Lori Askew, City of Calimesa
Vacant, City of Hemet
Chad Blais, City of Norco
K. George Colangeli, PVVTA
John A. Corella, Cathedral City
Jesse Eckenroth, City of Rancho Mirage
Tom Garcia, City of Palm Desert
Christopher Gray, WRCOG
Remon Habib, City of Lake Elsinore
Jeff Hart, City of Beaumont
Jonathan Hoy, City of Coachella
William Hemsley, City of Eastvale
Tom Koper, City of Corona
Steve Loriso, City of Jurupa Valley
Martin Magana, CVAG
Chris Mann, City of Canyon Lake
Bryan McKinney, City of La Quinta

Bob Moehling, City of Murrieta
Farshid Mohammadi, City of Riverside
Joel Montalvo, City of Palm Springs
Habib Motlagh, Cities of Perris and San Jacinto
Dan Ojeda, City of Blythe
Daniel Porras, City of Desert Hot Springs
Patricia Romo, County of Riverside
Ken Seumalo, City of Indian Wells
Jonathan Smith, City of Menifee
Brittney Sowell, SunLine Transit Agency
Patrick Thomas, City of Temecula
Art Vela, City of Banning
Alberto Vergel De Dios, Caltrans District 8
Kristin Warsinski, Riverside Transit Agency
Timothy T. Wassil, City of Indio
Michael Wolfe, City of Moreno Valley
Dan York, City of Wildomar

**RIVERSIDE COUNTY TRANSPORTATION COMMISSION
TECHNICAL ADVISORY SPECIAL COMMITTEE MEETING AGENDA***

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

TIME: **10:00 A.M. (PLEASE NOTE TIME)**

DATE: **December 9, 2019**

LOCATION: **Riverside County Transportation Commission
4080 Lemon Street, Third Floor
Conference Room A
Riverside, CA 92501**

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

- 1. CALL TO ORDER**
- 2. ROLL CALL**
- 3. APPROVAL OF SEPTEMBER 16, 2019 MINUTES**
- 4. PUBLIC COMMENTS** – This is for comments on items not listed on agenda. Comments relating to an item on the agenda will be taken when the item is before the Committee.
- 5. DRAFT TRAFFIC RELIEF PLAN (Attachment)**
- 6. NEXT GENERATION RAIL CORRIDORS ANALYSIS REPORT (Attachment)**
- 7. PARK AND RIDE STRATEGY AND TOOLKIT (Attachment)**
- 8. LONG RANGE TRANSPORTATION STUDY (LRTS) UPDATE (Attachment)**
- 9. SALT CREEK TRAIL FUNDING REQUEST (Attachment)**
- 10. HAMNER BRIDGE LOAN REQUEST (Verbal Presentation)**
- 11. STATUS OF SAFER AFFORDABLE FUEL EFFICIENT (SAFE) VEHICLES RULE (Attachment)**
- 12. SENATE BILL 1 (2017) PROGRAMS UPDATE (Attachment)**
- 13. DRAFT OBLIGATION DELIVERY PLAN UPDATE – FFY2019/20 (Attachment)**
- 14. CALTRANS UPDATE (Attachment)**

- 15. OCTOBER AND NOVEMBER COMMISSION MEETING HIGHLIGHTS (Attachment)**
- 16. 2020 TAC MEETING SCHEDULE (Attachment)**
- 17. OTHER ANNOUNCEMENTS**
- 18. OTHER BUSINESS**
- 19. ADJOURNMENT**

The next meeting of the TAC is scheduled to be held March 16, 2020, 10:30 a.m., at the Coachella Valley Association of Governments' Board Room, 73710 Fred Waring Drive, Palm Desert 92260.

MINUTES

**TECHNICAL ADVISORY COMMITTEE MEETING
MINUTES**

Monday, September 16, 2019

1. CALL TO ORDER

The meeting of the Riverside County Transportation Commission (RCTC) Technical Advisory Committee (TAC) was called to order by Chair Farshid Mohammadi at 10:00 a.m. at the Riverside County Transportation Commission, 4080 Lemon Street, Riverside, CA 92501.

2. Members Present:

Lori Askew, City of Calimesa
Brad Brophy, Cities of Perris and San Jacinto
John Corella, Cathedral City
Remon Habib, City of Lake Elsinore
Jeff Hart, City of Beaumont
William Hemsley, City of Eastvale
Jonathan Hoy, City of Coachella
Steve Loriso, City of Jurupa Valley
Martin Magana, Coachella Valley Association of Governments
Bob Moehling, City of Murrieta
Farshid Mohammadi, City of Riverside
Jonathan Smith, City of Menifee
Patrick Thomas, City of Temecula
Albert Vergel De Dios, Caltrans District 08
Kristin Warsinski, Riverside Transit Agency
Eric Weck, City of Indio
Michael Wolfe, City of Moreno Valley
Dan York, City of Wildomar

Others Present:

Manuel Alcala, SunLine Transit Agency
Amer Attar, City of Temecula
Leslie Avila, Caltrans District 8
Jenny Chan, RCTC
Shirley Gooding, RCTC
Jillian Guizado, RCTC
Eric Lewis, City of Moreno Valley
Patrick Louie, Caltrans Headquarters
Alfredo Machuca, RCTC
Martha Masters, RCTC
Shirley Medina, RCTC
Lorelle Moe-Luna, RCTC
Eduardo Moreno-Castaneda, Caltrans
Roy Null, County of Riverside

3. APPROVAL OF JULY 15, 2019 MINUTES

July 15, 2019 minutes were approved as submitted.

4. PUBLIC COMMENTS

There were no public comments.

5. DRAFT LONG RANGE TRANSPORTATION STUDY

Shirley Medina, RCTC, announced her impending retirement in December and introduced Jillian Guizado, RCTC's Planning and Programming Manager.

She reported that the Long Range Transportation Plan has been shifted to a Long Range Transportation Study (LRTS) that will serve as a framework for future planning and policy decisions.

The following various actions and developments have occurred that have delayed finalizing the LRTS:

- In July, RCTC approved developing a countywide transportation improvement and traffic relief plan that will be prepared for the possibility of a new measure or extension that will be taken to the voters in November 2020. RCTC's board and an ad hoc committee are overseeing the development of the traffic relief plan and potential new measure.
- The Commission took action to pause on project study reports for express lanes. The board is concerned about the possibility of existing HOV lanes being converted to express lanes.
- Caltrans just kicked off a management study and the Commissioners want to look at the outcome of that study.
- SCAG just came out with its financial assumptions for its RTP/SCS.

RCTC's analysis of the study is expected to be done in the next couple of weeks.

6. 2020 STATE TRANSPORTATION IMPROVEMENT PROGRAM (STIP) RECOMMENDATION FOR WESTERN RIVERSIDE COUNTY

Shirley Medina, reported the STIP program capacity is only \$21M. Per the STIP Intracounty MOU, Western County will get \$16M, which will be programmed on the 71/91 interchange. Coachella Valley will get \$4.4M and CVAG will be providing its recommendations.

7. CITY OF WILDOMAR'S FUNDING REQUEST FOR CONSTRUCTION OF BUNDY CANYON WIDENING PROJECT

Ms. Medina reported the City of Wildomar is working on its Bundy Canyon Road Widening project, which has been broken up into three segments and will start with segment No. 1. The City has a shortfall of \$3.5M and it requested some funding from RCTC.

Dan York, City of Wildomar, referenced a letter dated August 20, 2019 from the City's City Manager to RCTC's Executive Director that is part of the agenda in which the project was broken out into multiple phases.

He summarized the letter and what the City has done. The City of Wildomar requested RCTC fund \$3,516,000 to construct the widening of Bundy Canyon Road – Segment 1 in FY 19-20/20-21.

M/S/C (City of Menifee/City of Lake Elsinore) to approve funding \$3,516,000 to construct the widening of Bundy Canyon Road – Segment 1 in FY 19-20/20-21.

8. 2021 FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM AND PERFORMANCE MEASURES

Martha Masters, RCTC, stated that SCAG is responsible for updating the FTIP every two years and the Commission is responsible for gathering and inputting agency projects within Riverside County into the FTIP. All federal and state funded projects must be included in the FTIP prior to obligating these funds.

The 2021 FTIP covers federal fiscal years 2020/21 through 2025/26 with anticipated approval in December 2020.

Emails regarding the 2021 FTIP process along with agency FTIP project sheets for updating have been sent out. She asked that the TAC reach out to RCTC if an agency would like to meet with staff to go over the process and answer any questions.

New to the 2021 FTIP process are performance measures for highway safety, infrastructure conditions, congestion, delay air quality, freight movement and transit asset management. Caltrans and SCAG are required to adopt targets for these performance measures and those targets are required to be included in the FTIP. SCAG staff has not provided additional direction on how these will be included in the FTIP and the TAC should be aware that a second part to the 2021 FTIP process is to come once more information is received.

9. LEGISLATIVE UPDATE: SAFER AFFORDABLE FUEL EFFICIENT VEHICLES RULE

Jillian Guizado reported that over the weekend, the governor signed AB 1475, which allows that any transportation project not on the state highway system for the CMGC procurement delivery method can be used by any agency.

She provided her Legislative Update staff report in the agenda along with its attachments and reported that the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) are in the process of finalizing a rule named the SAFE rule. She explained the rule and its impacts on transportation projects.

She and Shirley Medina responded to various questions.

10. OBLIGATION DELIVERY PLAN UPDATE – FFY 2018/19

Jenny Chan, RCTC, referred to her staff report and its attachment – the draft 18/19 obligation plan for CMAQ and STPL funded projects. She stated that about seventy-four percent of Obligational Authority (OA) has been delivered with some projects waiting to be obligated with August OA redistribution.

11. CALTRANS UPDATE

Alberto Vergel De Dios, Caltrans District 8, introduced Leslie Avila, Eduardo Moreno-Castaneda, and Patrick Louie.

Caltrans provided Local Assistance Updates – August 1-September 11, 2019.

Alberto stated:

- New assignment sheets from District 8 that will be updated next month.
- The HBP survey sent to the TAC should be completed and returned by September 18.
- There is new information in the Office Bulletin 19-02 regarding the project delivery policy.
- At the SCLAMM meeting there was discussion where agencies would be able to proceed with PE phase project once the project is approved in the FTIP and there is no need to wait for an authorization. Implementation of that is upcoming.
- In the new fiscal year effective October 1, Caltrans will use Invoice Form 5A. An Office Bulletin will be provided.

Leslie Avila reported the following that are listed in Local Assistance Updates

- Caltrans released the FY 2020/21 Grant Application Guide and call for applications
The application deadline is October 11, 5:00 p.m.
- Office Bulletin 19-02 was released specific to the Interim ATP Count Guidance.
- She requested local agencies send their comments on the Local Assistance Procedures Manual (LAPM).
- Resident Engineers Academy - lists six dates in Southern California
- Free classes for local agencies – lists five dates
- Highway Program Funding Class
- Local Road Safety Plan Webinars

Eduardo Moreno-Castaneda reported:

- There were two HSIP webinars last week
- HSIP call in 2020 and 2022. A road safety plan is optional for the 2020 call and required for the 2022 call. There will be funding available - \$80,000 per plan of which \$72,000 will be through HSIP and \$8,000 for local match. Additional funding will be allowed depending on population size and complexity of the plan. It will be a one-page application. He will provide more information as it is available.
- Inactive projects – agencies are required to submit at least one invoice every six months.

12. SEPTEMBER COMMISSION MEETING HIGHLIGHTS

Shirley Medina reported:

- Express lane PSR's were put on hold pending outcome of Caltrans managed lanes study
- 71/91 connector will be submitted for the 2020 STIP
- SCAG is going to release draft 2020 RTP/SCS in November

Jillian Guizado reported:

- Truck lanes update
- Forty-hour closure on SR-60 in October

13. OTHER ANNOUNCEMENTS

There were no other announcements.

14. OTHER BUSINESS

Jenny Chan said she received a request from SCAG asking if there are any local projects that plan to pave unpaved roads. The information is needed for its air quality model.

15. ADJOURNMENT

There being no further business for consideration by the Technical Advisory Committee, the meeting adjourned at approximately 11:02 a.m. The next meeting will be November 18, 10:30 a.m., at the Coachella Valley Association of Governments, 73710 Fred Waring Drive, Palm Desert, CA 92260.

Respectfully submitted,



Shirley Medina
Planning and Programming Director

AGENDA ITEM 5

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Aaron Hake, External Affairs Director
SUBJECT:	Draft Traffic Relief Plan

STAFF RECOMMENDATION:

This item is to receive and file an update on development of the Draft Traffic Relief Plan.

BACKGROUND INFORMATION:

The Commission has authorized development of a draft Traffic Relief Plan (Plan) for potential placement on the November 3, 2020 general election ballot, accompanied by a countywide half-cent sales tax ordinance to fund the Plan.

To craft the Plan, the Chair of the Commission has appointed a Traffic Relief Strategy Committee consisting of ten Commissioners. The Committee has met three times thus far and has made progress in developing several components of the Plan which are attached to this staff report. All meetings of the Committee are held in public and staff reports and supplemental materials are published on the RCTC website.

The draft Plan will be presented to the Commission on January 8, 2020 as the first step in a multi-month public review and comment period. The Commission intends to vote on June 10, 2020 on whether to submit the Plan and a proposed sales tax ordinance to the voters.

The purpose of this staff report and verbal presentation is to inform TAC members of the process and progress underway for development of the Plan.

AGENDA ITEM 6

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Sheldon Peterson, Rail Manager
SUBJECT:	Next Generation Rail Corridors Analysis Report

STAFF RECOMMENDATION:

This item is to receive and file of the Next Generation Rail Corridors Analysis Report.

BACKGROUND INFORMATION:

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

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

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

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

Next Generation Rail Corridors Analysis Report

This item was approved by the Commission on November 13, 2019. The purpose of this report is to document the process used to identify and evaluate potential future regional transit corridors and to present the resulting recommendation of corridors to be planned for future extensions of the regional rail system. The steps of the process are identified as follows:



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

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

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

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

The potential corridors were analyzed with an initial screening using high level evaluation criteria that reviewed the big picture opportunities, which included corridor right of way (ROW), property issues, population and employment density. Several of the corridors initially identified would be good candidates for Intercity Rail or Express Bus alternatives. However, the balance of the study focused on options that would be good for commuter rail or DMU services; therefore, the San Jacinto to Banning/Beaumont and Lake Elsinore to Perris corridors were excluded for further evaluation because it was deemed more appropriate for express bus service. Three corridors (Indio to Los Angeles; Corona to Temecula; Temecula to San Diego) that would be appropriate for rail technology were not recommended for further evaluation for the following reasons:

- Indio to Los Angeles (via Fullerton and Riverside) corridor was removed because the planning process for developing this corridor is underway in the Coachella Valley-San Gorgonio Pass Rail Corridor Development Plan and Environmental Impact Report/Environmental Impact Statement.

- Corona to Temecula corridor was recommended to be scaled back to Corona to Lake Elsinore for further analysis because of ROW challenges and lack of good alignment for the full corridor. The full corridor could still be evaluated in future studies.
- Temecula to San Diego corridor was removed for further evaluation because the majority of the corridor is outside of the county limits and the corridor remains part of the future proposed High-Speed Rail alignment between Los Angeles to San Diego via the Inland Empire.

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

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

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

Key Findings

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

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

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

Next Steps

Task 2 of the study is underway and includes further analysis of the next generation corridors that extend from the existing 91/Perris Valley Line to both Temecula and Hemet/San Jacinto. The expanded analysis would include more detailed efforts to define the projects and alignments. The follow-up effort will develop a corridor description with Geographic Information Systems plan and profile exhibits, a ridership assessment based on industry standards, refined operating and capital costs estimates, a cost effectiveness review, air quality assessment, and a corridor implementation schedule. These details will be needed to prepare these projects for future grant and funding opportunities. The continuation of this study is included in the FY 2019/20 budget and is anticipated to be completed before summer 2020.

Attachment: Task 1: Next Generation Rail Corridors Analysis Report



Next Generation Rail Corridors Analysis: Task 1 Report

Next Generation Rail Study

Riverside County Transportation Commission
September 11, 2019





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Acronyms

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

1 Introduction

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

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

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

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



2 Identification of Potential Regional Transit Corridors

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

2.1 Existing Transit Corridors and Service

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

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

Table 1. Existing Regional Rail/Transit Corridors

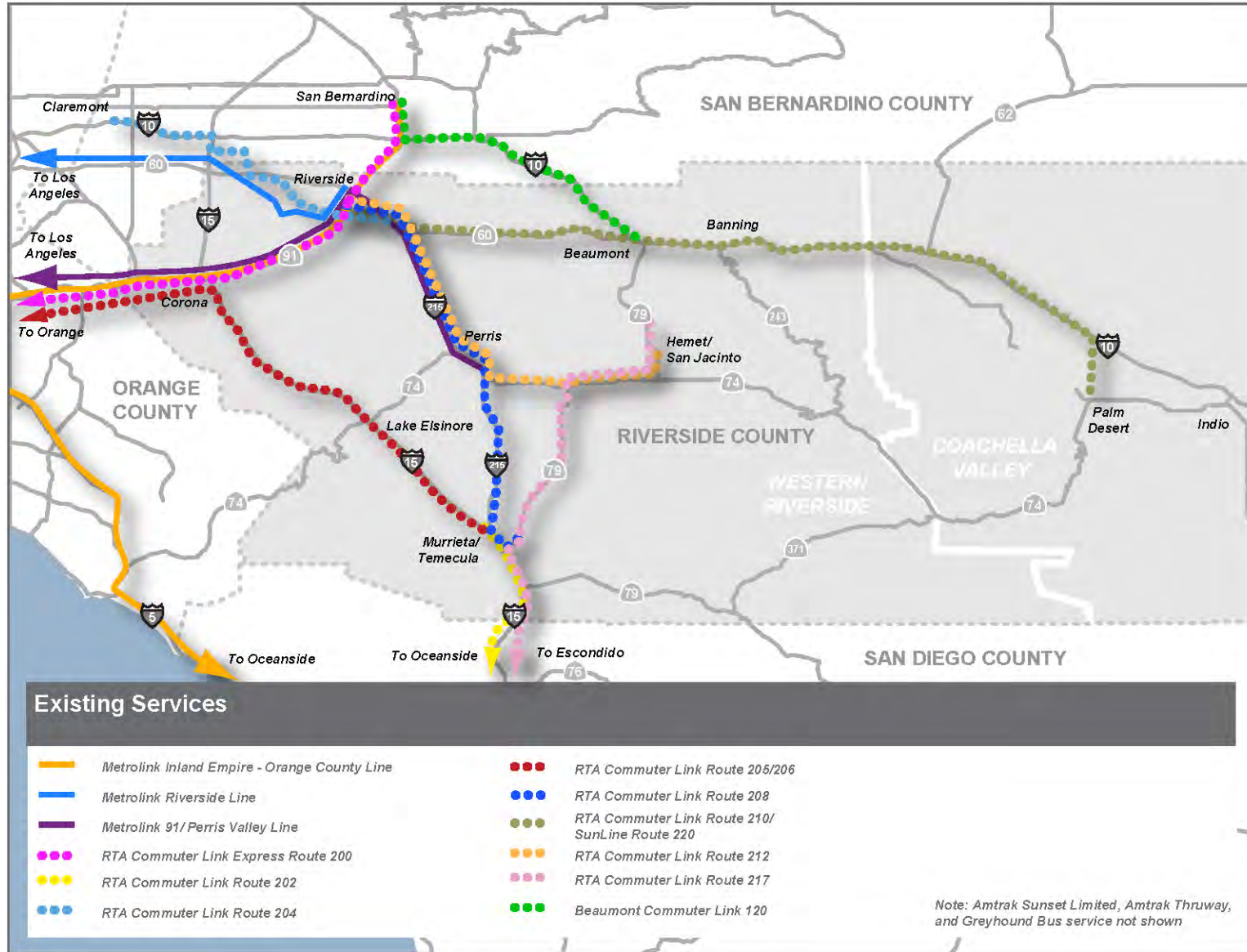
Corridor	Alignment	Service Levels	Technologies/ Service Type
Perris to Riverside	Metrolink 91/Perris Valley Line, parallel to I-215	6 trains operated per weekday (WB) 6 trains operated per weekday (EB) No weekend service	Commuter Rail
Riverside to Los Angeles	Metrolink 91/Perris Valley Line, parallel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



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

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

Figure 2. Existing Regional Rail/Transit Service










2.2 Corridors Identified in Previous Studies





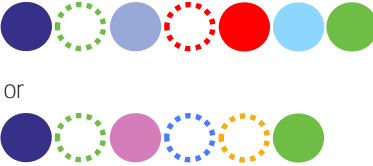



In order to compile a list of previously studied corridors and alignments, the team reviewed the following documents:

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

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

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

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

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






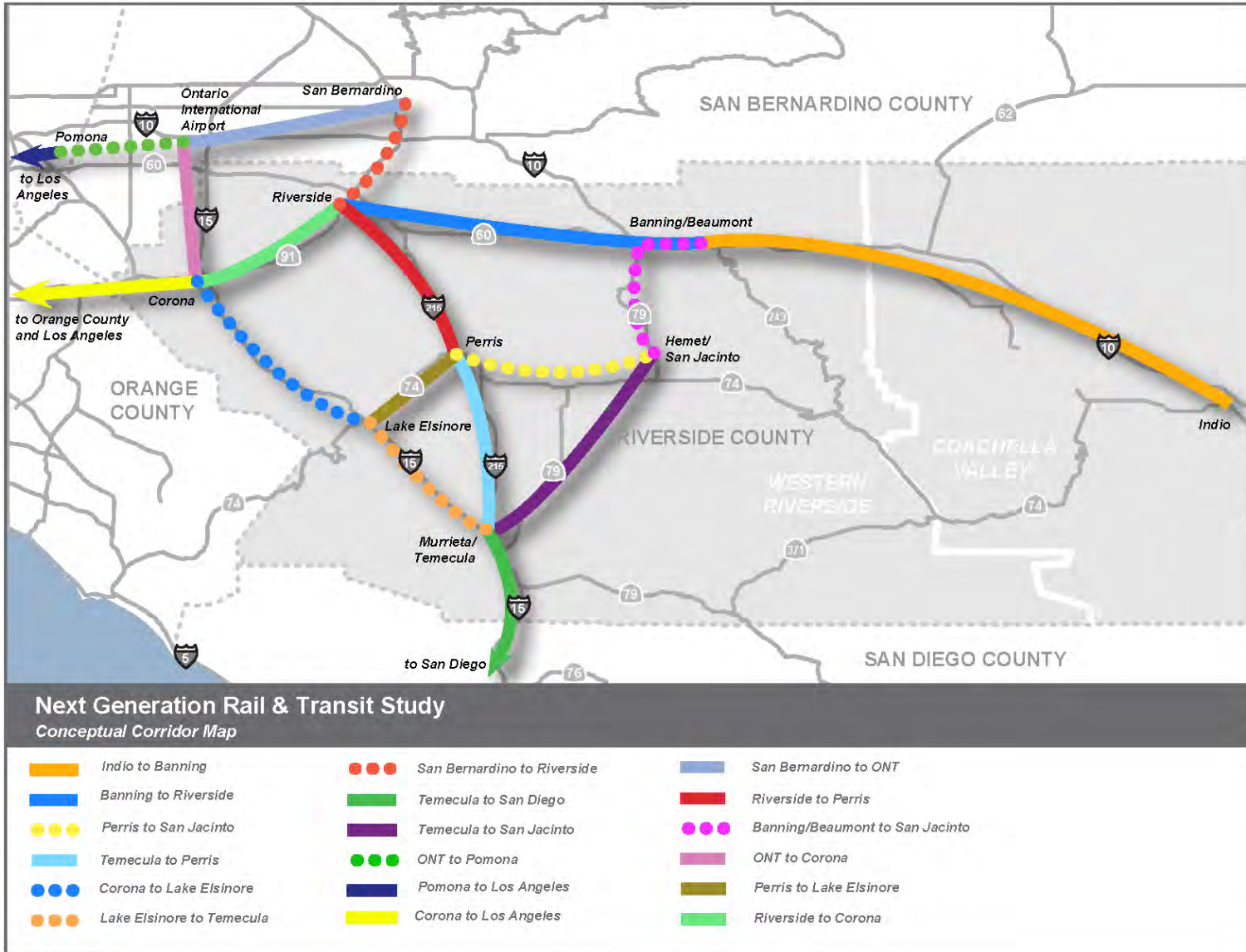
Corridor	Alignment	Technologies/ Service Type	Connection / Extension
	<p>Along Santa Fe Branch Line, entering I-15 at Nichols Road at Lake Elsinore, with an additional station at Dos Lagos</p> <hr/> <p>Along Santa Fe Branch Line, entering I-15 at Lake Street at Lake Elsinore</p> <hr/> <p>I-15 corridor,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

Figure 3. Map of Corridors from Previous Studies



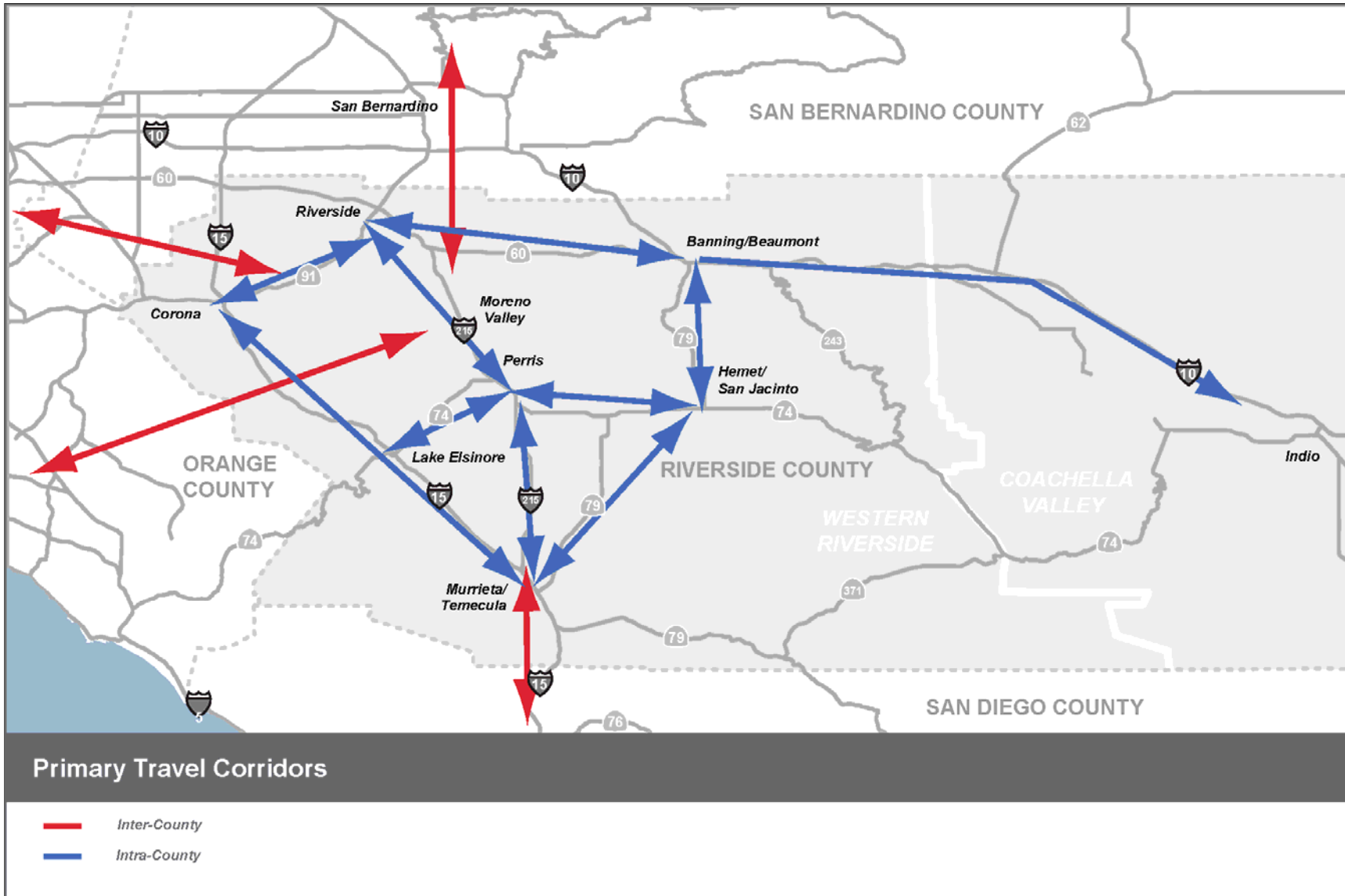
2.3 Additional Corridors Identified

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

Table 3. Review of Primary Regional Travel Corridors

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

Figure 4. Map of Corridors from Previous Studies



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

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

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

2.4 List of Corridors for Evaluation

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

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

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

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

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








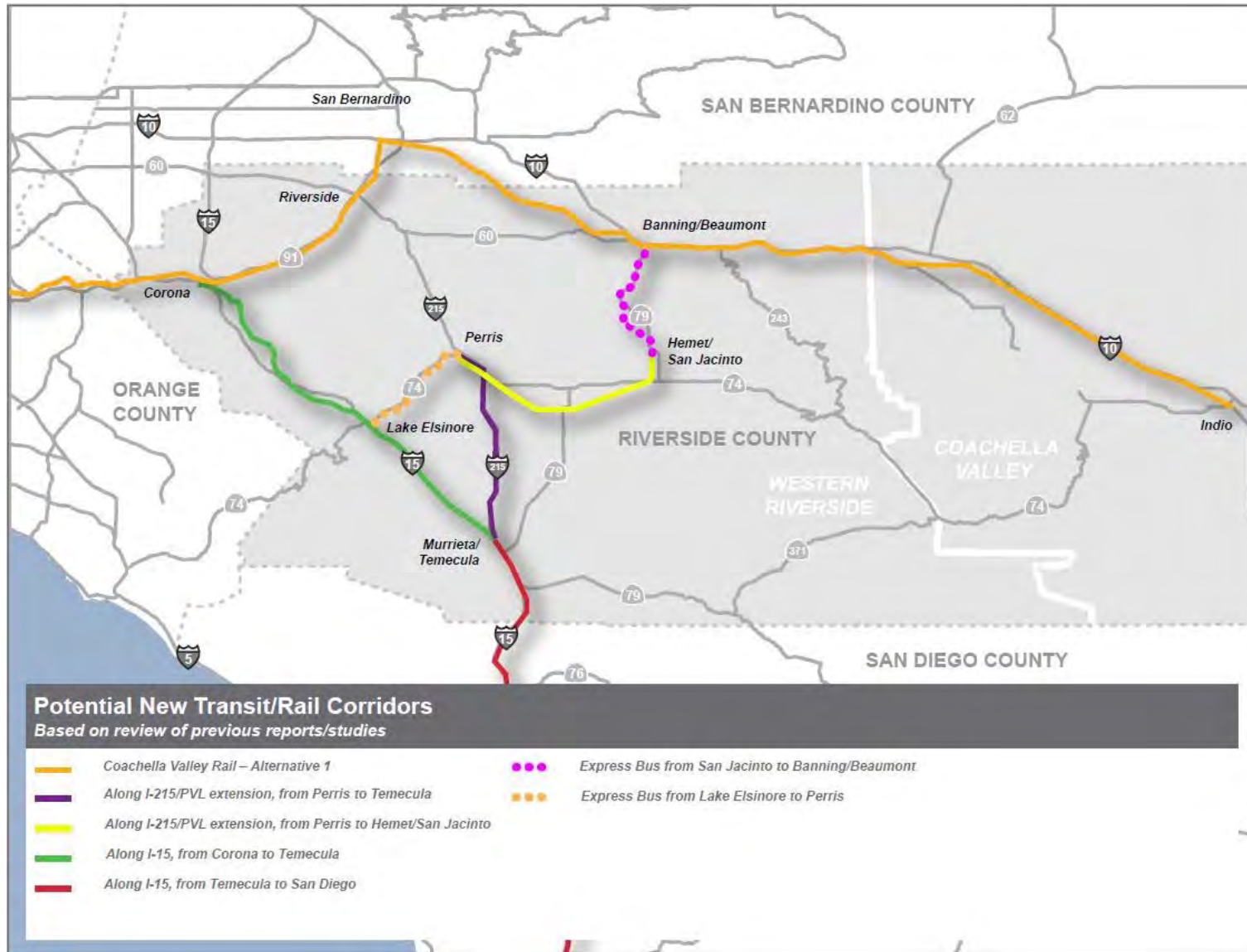
Corridor	Alignment	Connection/Extension
 Indio to Los Angeles (via Fullerton/Riverside)	Uses UP Yuma Subdivision between Indio and Colton, then uses the BNSF San Bernardino Subdivision from Colton through Riverside and Fullerton to reach LAUS	Connections to <ul style="list-style-type: none"> • IEOC Line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

Figure 5. Potential Corridors for Evaluation



3 Evaluation of Technology Options

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

3.1 Transit Technology Characteristics

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

Express Bus

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



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

Bus Rapid Transit (BRT)

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



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

Light Rail Transit (LRT)

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



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

Diesel Multiple Unit (DMU)

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



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

Commuter Rail

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



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

Intercity Rail

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



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

3.2 Transit Technology Comparison

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

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

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

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

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

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

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

3.3 Corridor Right-of-Way

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

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

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

Table 6. Types of ROW Potentially Available in each Corridor

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

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

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

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

Table 7. Description of ROW Ownership

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

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

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

3.4 Corridor Population and Employment Density

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

Table 8. Population Density (People per Square Mile)

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

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

Table 9. Employment Density (Jobs per Square Mile)

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

3.5 Corridor Travel Demand

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

Table 10. Average Annual Daily Traffic

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

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

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

3.6 Corridor Rail Extension

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

3.7 Transit Technology by Corridor

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

Table 11. Qualitative Comparison

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

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

Table 12. Feasible Technologies

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

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

3.8 Corridors Deemed Inappropriate for Rail Technology

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

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

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

3.9 Corridors Deemed Appropriate for Rail Technology

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

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

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

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

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

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

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

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

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

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

4 Evaluation Criteria and Methodologies

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

4.1 Evaluation Criteria

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

Table 13. Evaluation Criteria Overview

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

Corridor Characteristics

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

Table 14. Corridor Characteristics Evaluation Criteria

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

Demographics

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

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

Travel Demand

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

Highway Congestion

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

Land Use Intensities

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

Corridor Length

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

ROW Availability

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

Operational Characteristics

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

Table 15. Operational Characteristics Evaluation Criteria

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

Capacity

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

Capital Costs

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

Operations and Maintenance (O&M) Costs

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

Stations/Stops

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

Operating Speeds

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

Transit Travel Times

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

Integration

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

Rail Network Capacity

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

Frequency

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

Effectiveness Characteristics

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

Table 16. Effectiveness Characteristics Evaluation Criteria

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

Ridership

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

Transit Accessibility

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

Connectivity

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

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

GHG and Emissions Reductions

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

- Estimated weekday ridership
- APTA mode shift factor (mode shift factor of 0.47 for a large service area population),
- Average vehicle occupancy rate of 1.54
- Assuming 255 operating days per year
- 2040 baseline average work trip length of 15.1 miles from SCAG 2016 RTP/SCS
- California Air Resources Board auto vehicle emissions factor (343 gCO₂e for a Riverside County project with opening date 2030)

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

Cost Effectiveness

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

Other Characteristics

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

Table 17. Other Characteristics Evaluation Criteria

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

Environmental Fatal Flaws

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

Part of an Adopted Plan

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

Public or Political Perception

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

Safety

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

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

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

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

Table 18. Evaluation Criteria, Factors, and Methods

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

5 Evaluation of Corridors

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

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



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

5.1 Corridor Characteristics

Demographics

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

Table 19. Demographics Evaluation

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

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

Travel Demand

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

Table 20. Average Annual Daily Traffic: Perris to Temecula

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

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

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

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

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

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

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

Table 23. Travel Demand Results and Summary

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

Highway Congestion

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

Table 24. Highway Congestion Evaluation

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

Land Use Intensities

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

Table 25. Land Use Intensities

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

Corridor Length

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

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

ROW Availability

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

Table 26. ROW Availability

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

Corridor Characteristics Summary

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

Table 27. Overall Corridor Characteristics

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

5.2 Operational Characteristics

Capacity




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

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

Capital Costs

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







Table 28. Capital Costs

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

O&M Costs

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

Table 29. O&M Costs

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

Stations/Stops

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

Table 30. Stations/Stops

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

Operating Speeds and Transit Travel Times

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

Table 31. Operating Speeds and Transit Travel Times

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

Integration

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

Rail Network Capacity

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

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

Frequency

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

Operational Characteristics Summary

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

Table 32. Overall Operational characteristics

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

5.3 Effectiveness Characteristics

Ridership

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

Table 33. Ridership

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

Transit Accessibility

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

Table 34. Transit Accessibility

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

Connectivity

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

Table 35. Connectivity

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

GHG and Emissions Reductions

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

Table 36. GHG and Emissions Reductions

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

Cost Effectiveness

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

Table 37. Cost Effectiveness

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

Effectiveness Characteristics Summary

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

Table 38. Overall Effectiveness characteristics

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

5.4 Other Characteristics

Environmental Fatal Flaws

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

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

Part of an Adopted Plan

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

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

Public or Political Perception

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

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

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

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

Safety

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

Table 39. Safety

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

6 Conclusions and Recommendations

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

Table 40. Corridor Advantages and Disadvantages

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

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

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



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



Appendix A: Derivation of Unit Cost Factors

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

Capital Cost Index (from 2005 to 2018)
 1.43

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

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

costs include engineering, construction management, contingencies, etc.

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

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

Unit Costs of Other Projects in Southern California

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

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

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

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

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

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



Appendix B: Task 1h ROW Memo



Task 1h Technical Memorandum

Date: Thursday, December 20, 2018

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

To: Sheldon Peterson, RCTC

From: JD Douglas, HDR

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

Introduction

Background

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

Project Objectives

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

Task Objectives

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

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



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

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

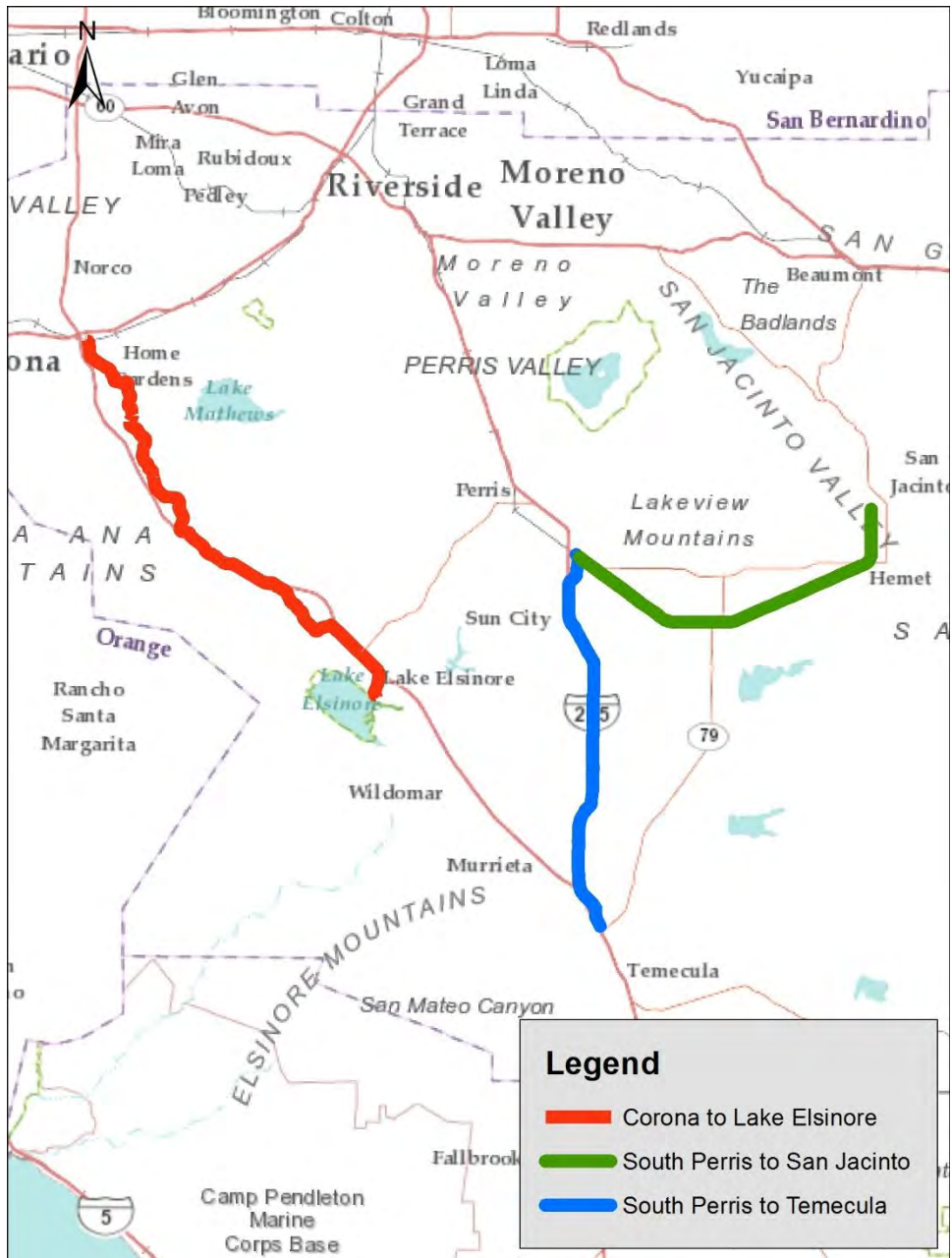


Figure 1 - Three Rail Corridors Studied in Task 1h

Methodology

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

The following steps comprise the methodology of Task 1h:

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

Recreating Historic Rail Lines

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

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

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

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

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

Parcel Overlay

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

Parcel Classification

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

Table 2 - Parcel Classification Definitions

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

Corona to Lake Elsinore Right-of-Way Preservation Evaluation

Route Description

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

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

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

Route Status Summary

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

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

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

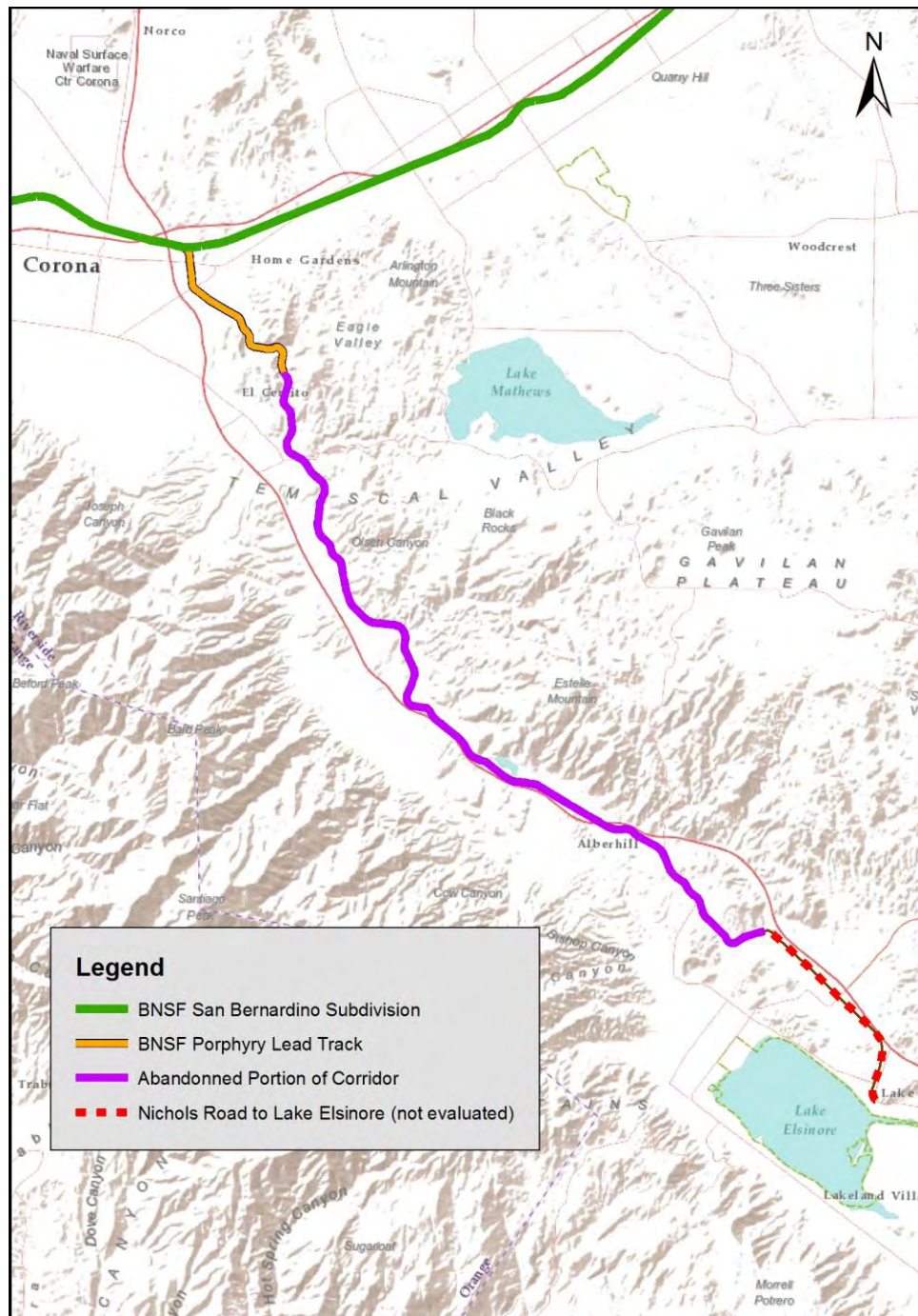


Figure 2 - Corona to Lake Elsinore Corridor Overview

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

Route Description

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

Route Status Summary

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

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

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

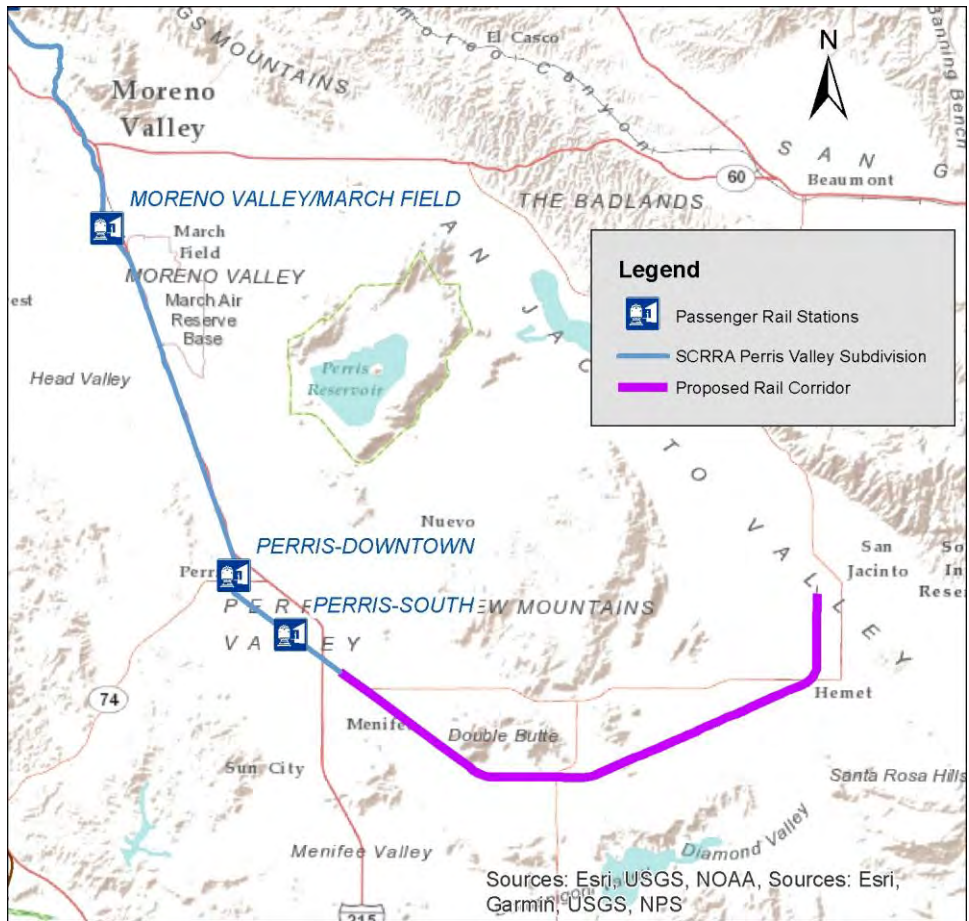


Figure 3 - South Perris to San Jacinto Corridor Overview

South Perris to Temecula Right-of-Way Preservation Evaluation

Route Description

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

Route Status Summary

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

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

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

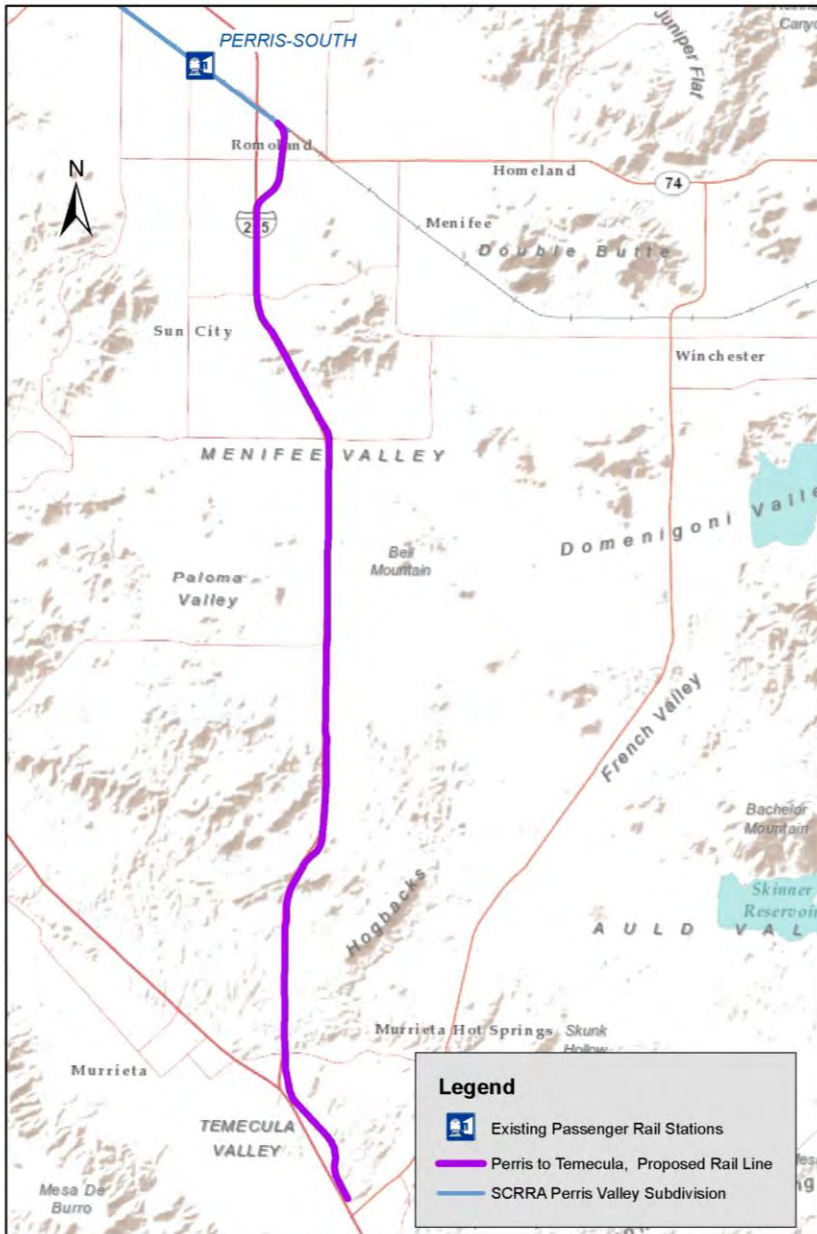


Figure 4 - South Perris to Temecula Corridor Overview

Comparison of Preservation Potential for Each Corridor

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

Table 6 - Preservation Potential for Each Studied Corridor

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

References

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

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



Appendix C: Notes from Stakeholder Outreach Meetings

Meeting Notes

Project: RCTC Next Generation Rail and Transit Study

Subject: Task 1d Stakeholder Outreach Meetings

Date: Thursday, October 25, 2018

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

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

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

Meeting Notes

Project: RCTC Next Generation Rail and Transit Study

Subject: Task 1d Stakeholder Outreach Meetings

Date: Thursday, October 25, 2018

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

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

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

Meeting Notes

Project: RCTC Next Generation Rail and Transit Study

Subject: Task 1d Stakeholder Outreach Meetings

Date: Thursday, October 25, 2018

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

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

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

AGENDA ITEM 7

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Brian Cunanan, Commuter & Motorist Assistance Manager
SUBJECT:	Park & Ride Strategy and Toolkit

STAFF RECOMMENDATION:

This item is to receive and file the Park and Ride Strategy and Toolkit.

BACKGROUND INFORMATION:

In 2017, San Diego Association of Governments (SANDAG) was awarded a \$288,000 grant from Caltrans to partner with the Riverside County Transportation Commission (Commission) to proactively address Park & Ride demand by better managing existing lots and identifying potential Park & Ride solutions to accommodate future demand. The San Diego and Western Riverside Interregional Park & Ride Strategy report was completed in the summer of 2019.

The resulting Park & Ride Strategy and Toolkit identify strategies and tools to help improve the planning, operation, and management of site-specific lots and the regional network as a whole. Additionally, the report identifies actions for the Commission, SANDAG, and their Park & Ride partners to consider incorporating and implementing within the parameters of agency policy. These actions represent a framework for Park & Ride stakeholders to evaluate how to adapt their existing assets, roles, and responsibilities to meet the needs of a changing mobility landscape.

Attachment: Park & Ride Strategy and Toolkit



PARK & RIDE

STRATEGY AND TOOLKIT

Park & Ride Regional Strategy for San Diego and
Western Riverside Counties

JULY 2019

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INTRODUCTION & APPROACH



INTRODUCTION & APPROACH

INTRODUCTION

Park & Ride facilities are a critical piece of a well-balanced transportation network that supports San Diego and Western Riverside counties' Sustainable Communities Strategy (SCS) goals of improving person throughput and increasing time-competitive travel alternatives to single occupant vehicle travel. Various regional stakeholders, including the San Diego Association of Governments (SANDAG) and Riverside County Transportation Commission (RCTC) have supplemented their existing Park & Ride networks by constructing new Park & Ride lots and/or leasing parking spaces to accommodate Park & Ride demand. Both regions also have made major investments in transit and HOV/Express lanes projects, and Park & Ride is important to the success of those regional transportation investments.

Although both regions continue to see an increase in utilization and demand, there are still challenges in prioritizing and seeking funding or staff time to support investment in Park & Ride operations, management, and development. This underinvestment can undermine the regions' ability to efficiently and strategically manage Park & Ride assets. If Park & Rides continue to be a low priority for investment in the overall transportation network, the regions may begin to see an impact on trip behaviors, which may include:

- Shifts in commute behavior and potentially increasing single-occupant trips
- Uncaptured latent demand for transit, carpool, and vanpool
- Spillover parking into nearby communities or retail facilities (i.e. "hide and ride" and informal lots)
- Wasted spending to operate and maintain underutilized lots
- Potential loss of valuable Park & Ride land assets due to lack of data to justify continued investment
- Ineffective corridor congestion management without balanced incentives for regional commute decision-making

With the ultimate goal of shifting commuter behavior to reduce greenhouse gas emissions throughout the region, Park & Rides provide an option that can encourage a person to consider alternative modes of transportation by providing a familiar and convenient first-mile/last-mile solution. This Park & Ride Regional Strategy details the tools available to stakeholders to enhance their Park & Ride systems, provides action steps for the regions to more fully embrace the benefits of Park & Rides, and highlights innovative Park & Ride solutions that have been implemented elsewhere – all contributing to more informed decision-making.

BACKGROUND

The San Diego region is a large metropolitan area with dispersed regional work sites throughout the county which causes continuous increases in congestion during commute periods. Riverside County has a significant number of residents who commute to jobs out of the county, including Los Angeles, Orange County, and San Diego. Access to Park & Ride facilities is a critical feature of transportation investments that support fulfilling SCS targets in both regions.

There are over 130 Park & Ride facilities (nearly 24,000 parking spaces) in the San Diego and Western Riverside counties, managed by California Department of Transportation (Caltrans), San Diego Metropolitan Transportation System (MTS), North County Transit District (NCTD), and Riverside County Transportation Commission (RCTC). Several of these facilities have support from SANDAG and/or local jurisdictions for management and policy development; however, data collection and enforcement procedures, performance metrics, siting methodologies, and user rules and regulations are developed and deployed variously by each stakeholder.

Through a grant awarded by Caltrans, SANDAG partnered with RCTC and community stakeholders, including NCTD, MTS, Caltrans Districts 8 and 11, and local municipalities to develop the Regional Park & Ride Strategy (Regional Strategy) to proactively address investment considerations for Park & Ride operation and management demands.

INTRODUCTION & APPROACH

WHAT IS A PARK & RIDE?

Park & Ride facilities are conveniently located facilities that serve as a parking lot and/or meet up point for commuters to leave their personal vehicles and transfer to alternative transportation modes such as transit, carpool, or vanpool for the remainder of their trip. Park & Ride facilities may also include drop-off locations and additional amenities that support other transportation alternatives (e.g. bike lockers, electric vehicle charging, and transfer services)

Park & Ride facility operations may vary from location to location—some may serve only transit, carpool, or vanpool users, while others may have shared uses with nearby community needs or multiple transportation uses (e.g. truck, university, residential, commercial, or shared transit and carpool/vanpool parking).

REGIONAL STRATEGY APPROACH

To complete the Regional Strategy, stakeholders were engaged through project development meetings, workshops, and deliverable reviews. The project team included staff members from SANDAG, RCTC, MTS, NCTD, and Caltrans.

The project team engaged local, regional, public, and private stakeholders to develop a multi-pronged and holistic approach to the regional strategy that resulted in actionable recommendations identified in this report. To inform the Regional Strategy, the following was conducted: Literature Review, Commute Behavior Survey, Private Sector Market Research, and Goals and Objectives Workshop.

As part of the literature review, peer agencies were interviewed to identify best practices and lessons learned for addressing Park & Ride challenges. The Commute Behavior Survey identified commute behaviors of employees in both regions, their interest, and willingness to use alternative modes for their commute—factors that would make them more likely to use alternative commutes in the future and amenities and improvements that they desire for Park & Ride lots to help inform the agencies' Transportation Demand Management (TDM) and Park & Ride programs. The Private Sector Market Research included an online survey and phone interviews with developers and property managers to identify private sector stakeholders' interests, motivations, and willingness to partner (including their perceived conditions for success). Staff members from local jurisdictions participated in the Goals and Objectives Workshop to identify regional priorities and opportunities to strengthen agency partnerships and priority needs relating to Park & Ride.

To support future decision-making, the Park & Ride Data Center, Guidance for Site Analysis, Park & Ride Toolkit and Moving Park & Rides Forward were developed. The Park & Ride Data Center is a web-based, geo-coded database to facilitate regional data collection, sharing, and analysis. The Guidance for Site Analysis provides key considerations when planning for future Park & Ride investments, and it is supported by the Park & Ride Toolkit that synthesizes promising strategies. The project team drew on the foundational knowledge from these deliverables to develop recommendations that will improve existing regional asset management and equip the agencies and their partners to adapt to a shifting transportation landscape.

Using the performed research and identified best practices, the Regional Strategy aims to provide the necessary information, tools, and recommended action steps for SANDAG, RCTC, and their stakeholders to leverage existing and future Park & Ride facilities investments to:

- achieve regional and state GHG goals
- meet the needs of the changing commuter environment
- provide options to support effective management and operations
- attract more commuters to use alternative transportation options
- support community needs (affordable gathering places for farmers markets, event shuttles, etc.)

INTRODUCTION & APPROACH

REGIONAL STRATEGY ORGANIZATION

The Regional Strategy is divided into the following sections to help provide context, information, and recommended tools and action steps for SANDAG, RCTC, and their stakeholders.

- *Regional Park & Ride Data Center*
- *Summary of Goals and Objectives*
- *Guidance for Site Analysis*
 - » *Guidance for Existing Site Analysis*
 - » *Guidance for New Site Analysis*
- *Community Partnerships*
- *Park & Ride Toolkit*
- *Moving Park & Rides Forward*
- *Look Ahead*

The detailed findings, best practices, and lessons learned gathered through literature review, case study research, stakeholder workshop, and market research were used to inform and develop the above sections of the Regional Strategy. The summaries of these items can be found in the Appendix of this report. Examples of the application for the How-To Guide for evaluating an existing individual Park & Ride lot is also available in the Appendix. A list of the appendix is provided below.

- *Appendix A: Existing Conditions and Policies*
- *Appendix B: Stakeholder Workshop Summary*
- *Appendix C: Literature Review Memo*
- *Appendix D: Case Studies Memo*
- *Appendix E: Park & Ride Commute Survey*
- *Appendix F: Private Sector Survey*
- *Appendix G: Funding Sources*
- *Appendix H: Existing Site Recommendation Examples*
- *Appendix I: Data Center*
- *Appendix J: Helpful Links*
- *Appendix K: Baseline Instructions*

HOW TO USE THIS DOCUMENT

The *Park & Ride Strategy and Toolkit* is an interactive document and is intended to provide the reader with a number of tools, resources, and guidance to implement promising strategies at Park & Ride locations. Areas in the document that are associated with a hyperlink are indicted in the following styles:

Sample hyperlink text to jump to a section within this document.

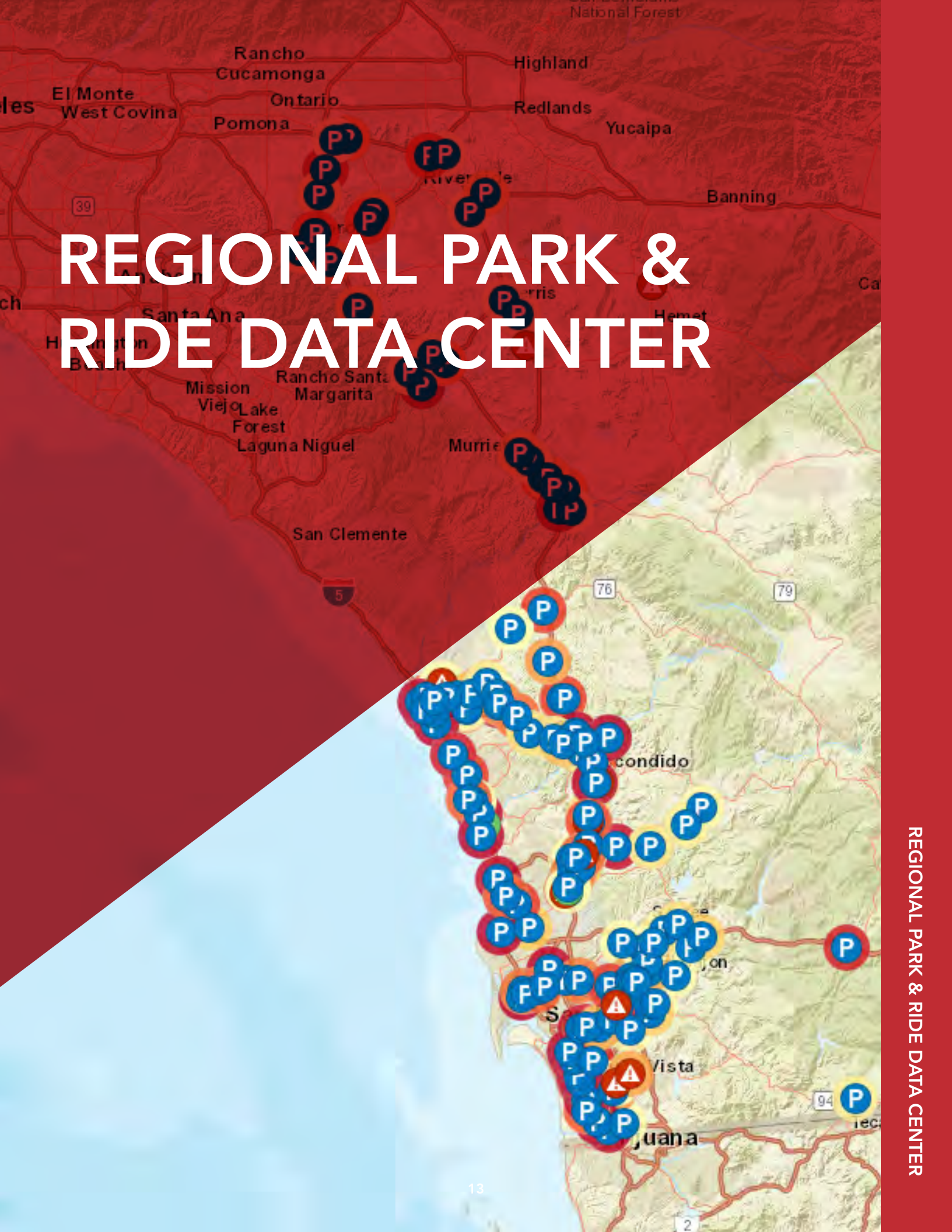
[Sample hyperlink text to jump to a resource not within this document.](#)

This document is also organized chronologically, allowing the reader to work through the report's approach and process on the way to identify context-sensitive Park & Ride strategies and tools.

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REGIONAL PARK & RIDE DATA CENTER





REGIONAL PARK & RIDE DATA CENTER

THE COMPLEXITY OF PARK & RIDE DECISION MAKING

To maximize effectiveness of regional Park & Ride investments, a cohesive database was identified as an early action strategy for the San Diego and Western Riverside regions. Effective data collection and sharing allows local agencies to leverage investments and direct scarce resources to where they are likely to make the greatest impact. Historic comparisons of utilization and incident reporting can justify investments in new strategies, including capacity expansion and educational outreach efforts that identify the value of Park & Ride for both public and private stakeholders. Most importantly, data will allow for the improved use of Park & Ride facilities and enhanced system management by identifying prevailing issues so that corrective action can be taken promptly and allow for proactive management of the available resources.

There are over 130 Park & Ride facilities (nearly 24,000 parking spaces) in San Diego and Western Riverside counties, managed by Caltrans, MTS, NCTD, SANDAG, and RCTC. Their disparate geographic and operational contexts inform how they each contribute to the region's transportation network. From transit lots to carpool/vanpool lots, urban facilities to suburban ones, and leased spaces to owned ones, Park & Ride managers must employ a comprehensive perspective to manage demand effectively. As the transportation system becomes increasingly multi-modal and reliant on digital services, Park & Ride data is primed to support an evolution toward a seamlessly integrated and optimized mobility network.

SAN DIEGO AND WESTERN RIVERSIDE PARK & RIDE CHARACTERISTICS

REGIONAL STATISTICS	
Total # P&R Spaces	23,821
Leased or Shared Use Lots	38%
Average Occupancy	
Transit Lots	63%
Park & Pool Lots	41%
Combined Lots	41%
Utilization of Network	
Overutilized Lots (>85%)	17% of network
30-85% Utilization	47% of network
Underutilized Lots (<30%)	36% of network

OPERATOR (% OF NETWORK)	TRANSIT LOTS	PARK & POOL LOTS	COMBINED LOTS
Caltrans (43%)	0	30	31
MTS (22%)	31	1	0
NCTD (13%)	18	0	0
RCTC (22%)	0	15	17
TOTAL:	49	46	48

➤ USING GIS TO ENHANCE SYSTEM PERFORMANCE MONITORING

The Regional Park & Ride Data Center ([Data Center](#)) was developed as part of this project to enable regional system performance monitoring and support proactive planning.

This tool will increase transparency and inform policy makers, grant applications, planners, and the public about the characteristics of the Park & Ride system. It can be accessed from any internet connected device and is designed to facilitate data sharing among all Park & Ride stakeholders, including the public and private sector. Over the course of this project, staff utilized the tool to manually input occupancy counts from the field. In the future, as connected infrastructure is deployed, the Data Center could receive real-time occupancy data and reduce labor costs associated with manual data collection.

The Data Center supports the following features and functions:

- Real time data updates
- Integration with local and regional datasets such as existing transit and land use
- Historic occupancy trends
- Reporting
- Comprehensive Park & Ride inventory information
- Web and mobile app accessibility

See [Appendix I](#) for a more in-depth guide to the Data Center.

CASE STUDY: ANNUAL SYSTEM PERFORMANCE REPORT

For nearly 20 consecutive years Metro Transit (Minnesota) - in conjunction with eight other regional transit and state authorities – has produced an annual Park & Ride system performance report that summarizes trends, complements their long-term planning documents, and informs policy makers.

Key reporting metrics from this report are:

- Occupancy trends (owned and leased lots)
- % change in utilization each year
- Capacity changes (spaces gained and lost)
- System utilization by corridor
- Planned capacity expansions
- User travel behavior derived from LPR data
- Cost per leased space
- Parking costs at destination

The 2012 annual report noted that “vehicle data and user home origin data are invaluable to the management of the overall network.”

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An aerial photograph of a modern urban development. The scene includes a bus stop with a red and white bus, a parking lot with several cars, and landscaped areas with trees and shrubs. The image is overlaid with a semi-transparent green filter. The title 'SUMMARY OF GOALS AND OBJECTIVES' is prominently displayed in white, bold, sans-serif font across the upper portion of the image.

SUMMARY OF GOALS AND OBJECTIVES

SUMMARY OF GOALS AND OBJECTIVES

During the development of the Regional Strategy, a stakeholder workshop was held to help define the goals and objectives of the Regional Strategy. The project goals and objectives outlined in this section provided guidance and direction for the developed tools in the *Park & Ride Toolkit* and the identified action steps in the *Moving Park & Rides Forward*.

The following goals and objectives reflect the feedback received from the stakeholder workshop (see *Appendix B*) and the input from the project team. Goals and objectives represent a preferred situation for a Park & Ride facility. Given sites are subject to unique characteristics and restrictions; it is unlikely that every goal and objective can be achieved at every site.

MULTIMODAL ACCESS AND AMENITIES

During the workshop, stakeholders clearly communicated that Park & Rides should be as accessible as possible to the greater transportation network and offer amenities to enhance the Park & Ride experience (see *Appendix B*). Many of the current Park & Rides are sited in locations that are convenient for implementation, but not always where they would be the most useful. Effectively planning for current and future Park & Rides into pedestrian, bicycle, transit, and highway networks will expand the service areas and open the system to new users. Additional amenities like electric vehicle charging, package lockers, WiFi, bike parking, bikeshare, carshare, and other amenities identified in the [Regional Mobility Hub Features Catalog](#), many of which align with regional priorities and would further leverage investments made in the Park & Ride system.

GOAL STATEMENT:

INCREASE ACCESS AND USABILITY OF PARK & RIDES THROUGH OPTIMIZED SITING AND BY PROMOTING MULTIMODAL ACCESS FEATURES AND AMENITIES.

OBJECTIVES:

- Maximize investment in existing Park & Ride locations
- Partner with jurisdictions to create Park & Ride siting and design guidelines
- Develop guidance to balance Park & Ride amenities and supportive modes
- Manage demand at overutilized Park & Ride locations
- Utilize technology to promote the efficient use of Park & Rides
- Leverage emerging transportation modes and services provided by private and public sectors
- Provide cost effective amenities at Park & Ride locations
- Site Park & Rides in locations with access to pedestrian, bicycle, transit, and highway networks
- Address underutilized locations with new strategies

SUMMARY OF GOALS AND OBJECTIVES

SAFETY, SECURITY, AND OPERATIONS

One major barrier to greater utilization of the Park & Ride system is the perceived lack of safety and security measures at lots. The Regional Strategy considers both active measures like cameras and security checks as well as passive measures like locating lots in high traffic areas and removing landscaping screening. These strategies would promote safety and security and enhance operations during the typical commuter periods that Park & Rides primarily serve as well as during non-peak periods.

GOAL STATEMENT:

ENHANCE SAFETY, SECURITY, AND OPERATIONS OF PARK & RIDES DURING AND OUTSIDE COMMUTER PERIODS.

OBJECTIVES:

- Implement Crime Prevention through Environmental Design (CPTED) principles at current and future Park & Ride facilities (natural surveillance, natural access control, territorial reinforcement, and maintenance)
- Encourage on-site activities (retail/donation centers) at Park & Rides or siting of facilities within commercial environments
- Prioritize shared-use or leased parking agreements that include security, enforcement, and maintenance
- Leverage technology to improve operation for users and maintenance
- Develop a regional incident reporting database to support operations and policy decision-making

SUSTAINABLE FUNDING

Current funding sources for Park & Ride expansion, operations, and maintenance are limited and often inadequate to provide more than the basic levels of service. Because of constrained funding, enforcement and maintenance are often reactionary and complaint-based. Restrictive policies, distributed management responsibilities, and competition for transportation funds all contribute to a limited funding environment. New sources of funding combined with existing financial support could be used to enhance existing assets and provide opportunities to expand the Park & Ride system.

GOAL STATEMENT:

GENERATE SUSTAINABLE FUNDING STREAMS FOR NEW LOCATIONS AND EXISTING PARK & RIDE OPERATIONS AND MAINTENANCE THROUGH EXISTING AND NEW SOURCES.

OBJECTIVES:

- Consolidate the ownership and management of Park & Rides to maximize funding opportunities with policy control and decision making
- Right-size facilities to appropriate demands through utilization monitoring and piloting of new strategies
- Secure dedicated funding sources for capital and long term operations, maintenance, and replacement life cycle needs
- Work with private sector to identify public-private partnership (P3) opportunities that maximize value and use of Park & Ride right-of-way

SUMMARY OF GOALS AND OBJECTIVES

SYSTEM AWARENESS

Hurdles to increase Park & Ride system utilization include lack of public knowledge or awareness. Inconsistent branding, marketing of the system, and lack of a comprehensive “one stop shop” for Park & Ride information reduces the potential of a facility. Effective marketing methods, consistent branding, and targeted marketing would help educate the public about the location of Park & Rides, how to use them, and the benefits they offer to users and communities.

➤ GOAL STATEMENT:

CONSISTENTLY PROMOTE THE BENEFITS, AVAILABILITY, AND LOCATIONS OF PARK & RIDE TO THE PUBLIC.

➤ OBJECTIVES:

- Update the public facing Park & Ride map with complete information on all types of Park & Ride lots and information about lots and availability
- Create a consistent brand for Park & Rides to enhance awareness of available locations and supportive services (e.g., carpool and vanpool, and transit)
- Develop methodology to quantify the environmental impacts and user benefits of Park & Ride locations
- Create a marketing campaign to enhance awareness of the system targeting three different audiences: public/community, local agencies, and private sector property managers
- Provide real-time information to users where conditions are applicable
- Develop a regional database that includes statistical info to allow agencies to more effectively calculate Park & Ride investments and partnership benefits

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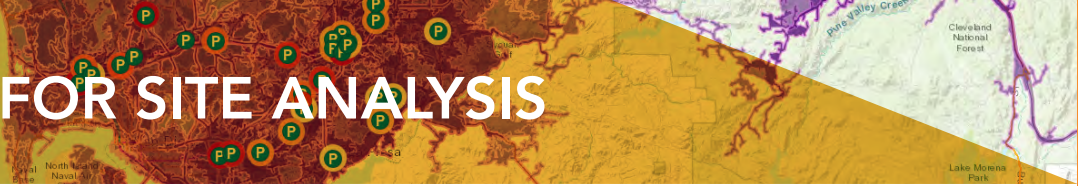
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GUIDANCE FOR SITE ANALYSIS



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GUIDANCE FOR SITE ANALYSIS



GUIDANCE FOR SITE ANALYSIS OVERVIEW

The Guidance for Site Analysis compiles supportive considerations for addressing challenges at existing Park & Ride sites and planning new Park & Ride sites. Using information from the case study research, literature review, stakeholder workshop, and project team meetings, the following two guides were developed:

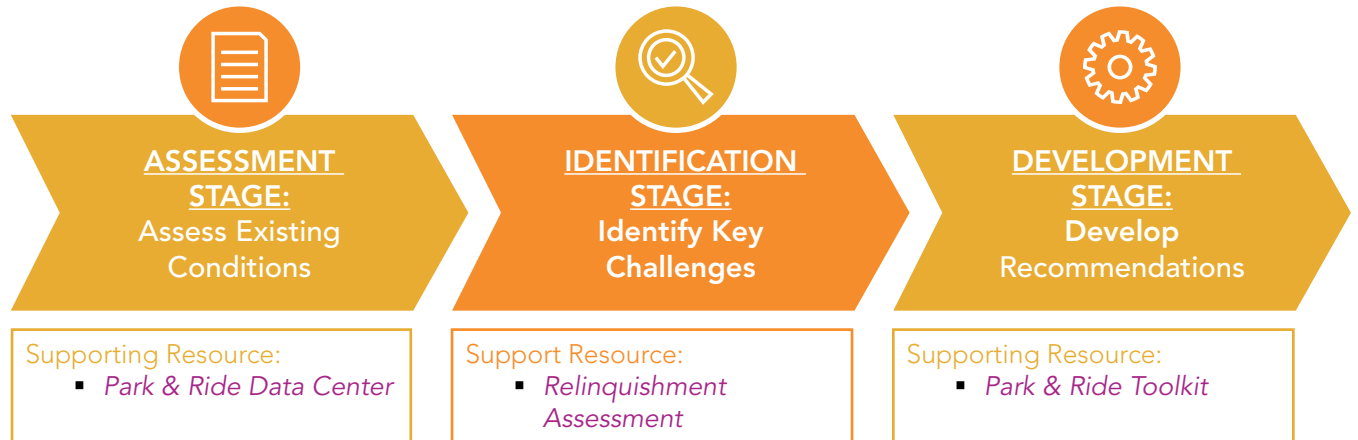
- *Guidance for Existing Site Analysis* provides direction for analyzing identified challenges and developing promising strategies to consider implementing at an existing Park & Ride location. It outlines recommended steps to assess the conditions of an existing Park & Ride site, identify its challenges, and utilize the Park & Ride Toolkit to develop recommendations to address those challenges.
- *Guidance for New Site Analysis* provides baseline steps for selecting a new Park & Ride location and estimating the potential demand and size of the new site. It outlines recommended steps to begin the initial process for creating a new Park & Ride site.

The above guidance provides a basic overview for addressing challenges at an existing site or developing a new site. However, there may be hurdles for existing and new sites that need to be addressed on a more regional level, such as data collection and monitoring, policies that affect the development and long-range planning of Park & Rides. Refer to the identified action steps in the *Moving Park & Rides Forward* section for guidance on how to address these regional challenges.

GUIDANCE FOR EXISTING SITE ANALYSIS

GUIDANCE FOR EXISTING SITE ANALYSIS

There are three stages for the existing site analysis – Assessment Stage, Identification Stage, and Development Stage. These stages and their supporting resources are listed below.



Suggestions and recommendations on how to complete each stage are provided in this guidance. Examples of the Guidance for Existing Site Analysis for six existing Park & Ride sites are provided in the *Existing Site Recommendation Examples* (see [Appendix H](#)).

ASSESSMENT STAGE: ASSESSING EXISTING CONDITIONS

It is important to compile an existing conditions summary to inform a full and accurate assessment of a site's challenges. When possible, key information should be gathered about the site's history, current conditions, and user profiles. Consider gathering information for existing site conditions outlined on the following page.

When developing the site's existing conditions summary, it is recommended to use both empirical and anecdotal information. Existing empirical data about a site's conditions can be found in the *Park & Ride Data Center* (see [Appendix I](#)). Anecdotal information can be obtained from a site visit, field surveys of the lot's users, and/or coordination with supporting agencies such as the local transit agency or Metropolitan Planning Organization (MPO). The assessment stage should also include a virtual and/or in-person site visit to assess how local, sub-regional, and regional factors are potentially influencing the existing site's performance.

Field surveys are excellent opportunities to obtain information about a Park & Ride from its users. Field surveys can help provide insight on the location's challenges, which may reveal unique or previously unidentified barriers. Consider using a survey to determine:

- User origin and/or destination
- Perception of lot safety, quality of transit service, and efficiency of wayfinding
- Reason for using Park & Ride (e.g., proximity to express lanes, parking at employment is expensive, access to transit)

GUIDANCE FOR EXISTING SITE ANALYSIS

EXISTING CONDITIONS TO ASSESS:

SITE CONDITIONS	NOTES
Parking Spaces: <i>What are the number and type of parking spaces available?</i>	
User Types: <i>What type of users utilize the site?</i>	
Owner/Operator: <i>Is the Park & Ride under shared ownership?</i>	
Leased or owned: <i>Is the site leased or owned?</i>	
Utilization: <i>What is the utilization of the site? What count collection period was used to develop the utilization rate?</i>	
Egress/Ingress: <i>Is egress/ingress Good/Fair/Poor?</i>	
Curb Space: <i>Is there a designated pick-up/drop-off area?</i>	

SITE AMENITIES	NOTES
Lighting: <i>Does the lighting make it feel secure at night?</i>	
Mobile Retail/Package Delivery Service: <i>Is mobile retail or package delivery service available to help reduce user trips?</i>	
Information Kiosks: <i>What type of information do the kiosks provide users?</i>	
Signs: <i>Is there proper wayfinding signage?</i>	
Bike Parking: <i>Is bike parking available? What kind?</i>	
Paving/Striping: <i>What is the pavement of the site like? Are the spaces striped?</i>	

OTHER CONDITIONS	NOTES
Wayfinding/Visibility: <i>Is it easy to find the site from main roadways? Can the site be seen from the freeway or major arterial?</i>	
Surrounding Land Uses: <i>What type of land uses surround the site?</i>	
Area Type: <i>Is the site in an urban, suburban, or rural area?</i>	
Surrounding Roadway Network: <i>Is the site far (>5+ minute drive) from freeway access ramps? What type of roadway provides access to the site?</i>	
Access: <i>Is the site easy to access? What types of modes can be used to access the site? (e.g., personal vehicle, transit, bike, walking, etc.)</i>	

ADDITIONAL CONSIDERATIONS	NOTES
Nearby Activity Centers: <i>What activity centers are within 1 mile of the site?</i>	
User Travel Patterns: <i>What are the travel patterns (e.g., origin-destination pairs) of the users of the site?</i>	
Adjacent Park & Ride Lots: <i>What are the differences between the site being assessed and nearby Park & Ride lots?</i>	
Regional Transportation Plan, Sustainable Communities Strategy, General Plan <i>Local/regional goals that can be met by expanding/improving Park & Rides?</i>	



GUIDANCE FOR EXISTING SITE ANALYSIS

IDENTIFICATION STAGE: KEY CHALLENGES

Refer to the existing conditions summary developed in the Assessments Stage to identify relevant key challenges and their potential causes from the list below.

- **Overutilization (Utilization > 85%):** *nearing or at maximum capacity during peak periods*
 - » Not enough parking to support the demand of a facility
 - » Competition between users to park in the available spaces and between eligible and illegal parkers
 - » Users can get frustrated with parking situation and not return
- **Utilization 30% - 85%:** *potential to increase utilization and use of lot*
 - » Diminished economic return in Park & Ride investment as there is excess land not being utilized
 - » Parking supply may need to be reduced to reflect geographic, demographic, and management factors affecting lot
- **Underutilization (Utilization < 30%):** *low utilization for the amount of parking provided*
 - » Land dedicated to parking could be put to a higher and better use
 - » People may not be aware of facility
 - » Facility may be perceived as unsafe or inconvenient
- **Modal Competition (Utilization > 85%):** *multiple modes competing for limited space at site*
 - » Facility accommodates several different modes of transportation including carpool/vanpool, transit, biking, and rideshare
 - » Modes compete with one another in terms of cost, speed, accessibility, frequency, safety, comfort, and time
 - » Users comparing modes available and choosing the ones that best fit their requirements and needs
- **Operations and Management:** *challenging operations and management requirements*
 - » Operations are the responsibility of multiple agencies, making defining roles and responsibilities cumbersome and creating confusion for users
 - » Maintenance issues such as waste disposal, landscaping meeting public safety guidelines, on-going maintenance and repair costs, and aging
- **System Management:** *difficult maintenance and operation of parking system*
 - » Lack of efforts to maintain data and parking counts
 - » Varying procedures and policies between owners and operators
- **Funding:** *difficulties securing funding for improvements and/or operations*
 - » Limited funding and resources
 - » High costs to maintain or high operation costs
- **Partnerships and Policy:** *Building successful partnerships and creating necessary policy to improve Park & Ride usage presents a challenge*
 - » Difficult to form private-public partnerships as private stakeholders do not see the benefit of Park & Rides
 - » Lack of consistent policy and requirement for Park & Ride lots between local municipalities
 - » Owner may wish to terminate the contract
 - » Problems that may arise when Park & Ride users of a location expand into non-designated spaces

It may not be necessary to develop recommendations for a site due to the existing conditions and key challenges. Before proceeding to the next step of this guidance (the Development Stage), it is recommended to go through the relinquishment assessment on the following page.

GUIDANCE FOR EXISTING SITE ANALYSIS

RELINQUISHMENT ASSESSMENT

The Relinquishment Assessment takes the site through an evaluation that determines if the site should proceed to the next stage of reviewing tools and developing site recommendations (the Development Stage).

	CHALLENGE	ACTION
STEP ONE	Utilization > 85%	Begin strategy identification matrix in the <i>Development Stage</i> .
	Utilization 30% - 85%	Begin strategy identification matrix in the <i>Development Stage</i> .
	Utilization < 30%	Continue step two to assess continued need for facility.

	CHALLENGE	ACTION
STEP TWO	Lack of Awareness	Begin strategy identification matrix in the <i>Development Stage</i> .
	Safety Concern	Begin strategy identification matrix in the <i>Development Stage</i> .
	Inconvenient	Continue step three to assess continued need for facility.

	ADDITIONAL CHALLENGE	ACTION
STEP THREE	Does facility meet needs of future population growth?	Begin strategy identification matrix in the <i>Development Stage</i> .
	Is facility serving high-capacity transit?	Begin strategy identification matrix in the <i>Development Stage</i> .
	Can the facility size be reduced?	Begin strategy identification matrix in the <i>Development Stage</i> .
	If no to previous questions.	Consider discontinuing operation at facility and investing in a new site. Proceed to the <i>Guidance for New Site Analysis</i> .

GUIDANCE FOR EXISTING SITE ANALYSIS

DEVELOPMENT STAGE: RECOMMENDATIONS

Using the strategy identification matrix below, review the strategies in *Park & Ride Toolkit* that correspond to the site's key challenges. Each strategy in the *Park & Ride Toolkit* identifies several tools that could be leveraged when developing recommendations for the site.

STRATEGY IDENTIFICATION MATRIX

		KEY CHALLENGES							
		Overutilization (>85%)	Utilization 30% - 85%	Underutilization (<30%)	Modal Competition	Operations and Management	System Management	Funding	Partnerships and Policy
STRATEGIES IN PARK & RIDE TOOLKIT	Maximizing Capacity at Facilities	●			●	●	●		
	Managing Parking Demand	●			●	●	●	●	
	Secure Facilities and Enforce Rules / Regulations		●	●		●	●		
	Incentivize Target Users		●	●		●			●
	Create Partnerships with Local Jurisdictions and Private-Sector	●	●	●		●	●	●	●
	Align Park & Ride Planning with Local and Regional Goals			●		●	●	●	●

RECOMMENDATIONS FOR THE SITE

Implementing new strategies may cause additional challenges to arise. Consider creating a suite of tools to anticipate and address these new challenges.

Review the action steps outlined in the *Moving Park & Ride Forward* to identify and address challenges that may require regional solutions.

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GUIDANCE FOR NEW SITE ANALYSIS

GUIDANCE FOR NEW SITE ANALYSIS

Planning for a new Park & Ride site involves a multi-step process for selecting a viable location (siting) and right-sizing the site to meet estimated demand (forecasting). In order to properly site and size a new site, *case study research* suggests Park & Ride planners utilize the local Travel Demand Model (if available) along with data from existing Park & Rides since the best sources for siting and sizing are predictive analytics and historical precedent. While siting and forecasting demand is traditionally driven by a Travel Demand Model, often times there is a need for an alternative analysis solution since the modeling process can be lengthy, intensive, and requires operation by modeling professionals. The process for siting and forecasting demand can be done by performing a common-sense approach based on analyzing existing conditions such as informal Park & Ride activity, land use contexts, and distance between major residential areas and employment centers.

Baselining is another alternative to using a Travel Demand Model. This approach does not require such intensive processes and can be completed by transportation professionals with access to Geographic Information Systems (GIS) and census data to produce a simplified estimation of demand. Baselining is the process of using existing key performance indicator (KPI) data and historical data to estimate the performance of similar future sites. An example of the baselining process as a tool for siting and sizing can be found in the *Baselining Exercise*. **Baselining, however, is not a good fit for all estimation situations due to the retrospective process it utilizes and has difficulty accounting for future development. Additionally, baselining is only as good as the data it is built upon. High-quality, comprehensive data is necessary to produce strong estimates.**

To help agencies and stakeholders with developing a new Park & Ride facility, the *Guidance for New Site Analysis* provide information for the following:



When developing a new Park & Ride site, consider employing strategies from the *Park & Ride Toolkit* to proactively leverage opportunities and mitigate challenges that may occur at the proposed location.

REGIONAL SITING

This stage in the process is designed to help the user identify areas with a strong propensity for successful Park & Rides. The user should use the following KPI to generate a “heat map” of locations that have characteristics of ideal Park & Ride locations. With GIS software, the key performance indicators and the associated Search Parameters can be used to scan the region for preferred sites. Each desired KPI will act as a layer on the map. Areas with more overlapping layers are the stronger candidates for Park & Rides. If some or all of the KPIs are unavailable in GIS format, they may still be used when combined with local knowledge, existing mapping tools, and professional planning judgment to identify areas of interest that exhibit qualities of successful Park & Ride locations.

KEY PERFORMANCE INDICATOR	SEARCH PARAMETER (FILTER)
Distance from Employment Center	5-minute driveshed
Distance from Highway	10-minute driveshed
Proximity to High-Capacity Transit/Direct Access Ramp (DAR)	15-minute driveshed
Population	Density by Census Block Group (CBG) above regional average
Vehicle Ownership	Density of 2+ vehicles owned by CBG above regional average
Park & Pool Utilization	Zip codes with Park & Pool usage above regional average

Additional factors for consideration include commuter behavior and existing transit characteristics, which are outlined in greater detail on the next page.

COMMUTER BEHAVIOR

- Where are commuters traveling within and between jurisdictions?
 - » Understanding existing origin and destination patterns, along with the existing transportation services available to commuters (i.e. Transit) can help indicate whether Park & Rides are an appropriate com-muting solution.
- Are the commuter corridors congested?
 - » More congestion typically leads to higher Park & Ride usage; lots sited upstream of congestion tend to outperform lots sited downstream.

EXISTING TRANSIT

- Is there existing transit near or at the potential site?
 - » Consider if the new site would be targeting Park & Ride users to utilize transit for the rest of their com-mute or to be a meet-up for carpools/vanpools. Incorporation of existing transit service into a new Park & Ride impacts the site's catchment area and design of the lot.
- What are the transit headways?
 - » 10 minutes or less is best for Park & Ride.
- Does existing transit have low ridership?
 - » A Park & Ride can help boost ridership by concentrating rider demand to a centralized location.

COMPARATIVE ANALYSIS SELECT AN AREA OF INTEREST

This stage in the process uses the heat map created within Regional Siting to allow the user to identify an area of interest. This area of interest is where several KPI layers are overlapping spatially.

APPLICABLE TYPOLOGY

Using the area of interest, the user should create an applicable typology, which the user will use to identify analogous existing Park & Rides. **Consider the following factors when creating a typology:**

- Community Context (Density, Land Uses, Distance from Employment)
- Proximity to Transit and Carpool/Vanpool supportive infrastructure (Direct Access Ramps, Express Lanes)
- Transit Service Frequency and Type (Local, Express, Park & Pool, etc.)
- Proximity to other Park & Rides (Are they sharing demand?)

COMPARE BASE STATISTICS

This stage in the process is focused on compiling and comparing utilization and population data to estimate demand. By comparing the utilization rate and population captured in the chosen analogous sites, planners can estimate future utilization for the area of interest. The steps for using the baselining approach to compare base statistics are outlined in the *Baselining Exercise*.

LOCAL SITING

This stage in the process is to search and select a viable new Park & Ride site within the area of interest. When evaluating potential local sites, successful Park & Rides typically exhibit the indicators listed below. While these indicators are typical of successful lots, it is not necessary to meet all them to be successful.

- Accessible Location
 - » Consider the safety, lighting, and walkability of the site and surrounding community. Also, consider the presence of active transportation facilities.
- Easy-to-Access from Regional Roadway Network
 - » Consider the visibility of the site from nearby major roads.
 - » Park & Rides at the nexus of many collector roads will benefit from being a natural location for trip consolidation.
- Non-Residential Parcels
 - » Park & Rides are most compatible as a stand-alone use or incorporated into non-residential uses (e.g., retail, commercial, institutional)
- Owned by the public sector or easily acquirable via partnerships.

Additionally, consider the following to encourage local siting feasibility:

- General Activity Density in Surrounding Area
 - » What is the job/housing density of surrounding area?
 - » Consider any anticipated developments that will put large demand on roadways and create the need for a Park & Ride. These developments offer the opportunity for public-private partnerships. Consult community plans and smart growth areas.
 - » Are there other attractions (retail, entertainment) nearby?
- Presence of Informal Lots
 - » Are there known informal lots where the space is currently or planned to be developed? Informal lots can indicate demand at specific sites.

GUIDANCE FOR SITE ANALYSIS

BASELINING EXERCISE

WHAT YOU NEED

- GIS (Software + Data)
- Occupancy data for existing Park & Ride lots

ANALYZING CHOSEN TYPOLOGY

1) Define Market Area for Chosen Typology

- The following are example market areas that can be used depending on community context. The market area is based on community context (urban, suburban, rural) with each one having the following recommended driveshed:
 - » Urban (1-3 mile driveshed)
 - » Suburban (3-5 mile driveshed)
 - » Rural 5+ mile driveshed)
- The Market Area can be calculated using GIS – please see [Appendix K](#) for additional guidance.

2) Research Analogous Utilization

- Select several (at least 5) existing Park & Rides from each market area and collect utilization data.

3) Measure Population in Market Area

- Using the market area definition, collect total population* for each selected Park & Ride using American Community Survey 5-Year Estimates
- The Population statistics can be calculated using GIS – please see [Appendix K](#) for additional guidance.

4) Calculate Equation and Result

- Divide the number of cars** currently parking at the lot by the population in the Market Area to determine an estimated “vehicles per person.”
- Average the “vehicles per person” ratio over all the example lots in chosen typology to determine a Baseline Ratio.
- Apply representative conversion rate to proposed Park & Ride to estimate potential demand.

For instances in which Market Areas overlap, the population must be adjusted and assumed to be distributed equally between each lot. More detailed guidance is available in [Appendix K](#).

BASELINING IN ACTION

In the following fictional scenario, baselining is utilized to forecast demand for a lot that will have new LRT service. This is intended to highlight how the baselining approach can be applied. Each individual application of the baselining approach will need to consider the unique characteristics of the site in question.

SCENARIO:

A new LRT alignment is planned to implement service between the US-Mexico border at San Ysidro and Kearny Mesa. The LRT will run through eastern Chula Vista and provide a more direct connection for the South Bay community to one of the region’s most significant employment centers. Currently, South Bay residents must take the Blue Line trolley into downtown and transfer to a bus that serves Kearny Mesa. A new stop is proposed at H Street adjacent to the I-805.

BASELINING APPROACH APPLICATION:

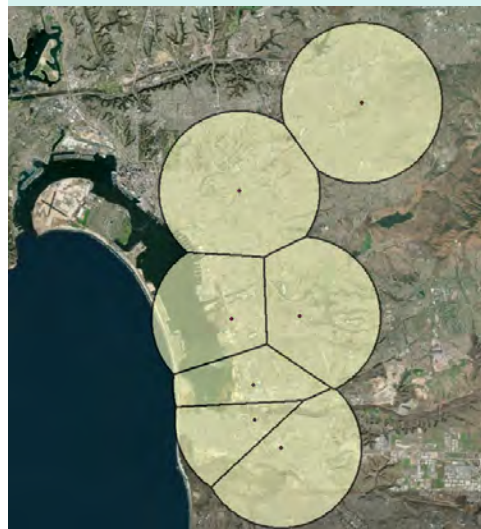
A typology was developed with the following criteria:

- Light Rail with frequent peak hour service
- Near to single family housing with little walk-up density
- Adjacent major arterial
- Serves major employment area

Lots identified that match this typology are listed below:

- Palomar (MTS, 245sp – Avg 216)
- Palm Ave (MTS, 481 spaces – avg 187)
- Iris Ave (MTS, 173sp – 153 Avg)
- Bayfront/E St (MTS, 246sp – Avg 223)

Using these locations, mutually exclusive market areas were identified and developed using the recommended drivesheds (shown in the map below).



GUIDANCE FOR SITE ANALYSIS

By comparing the population within these market areas with the occupied spaces at existing Park & Ride sites, a baseline ratio of 0.272% was calculated.

PARK & RIDE LOT	CURRENT POPULATION	OCCUPIED SPACES	RATIO
E Street	78,831	223	0.283%
Iris	84,839	153	0.180%
Palm	54,535	187	0.343%
Palomar	68,263	216	0.316%
Total	286,468	779	0.272%

Mutually exclusive market areas and populations were measured with the inclusion of the proposed I-805 and H Street Park & Ride location. Using adjusted market areas to avoid assigning specific populations to multiple Park & Ride sites, projected demand was calculated for each station:

PARK & RIDE LOT	EXISTING POPULATION	PROPOSED POPULATION	CHANGE	PROJECTED DEMAND	DEMAND CHANGE
E Street	78,831	54,796	(24,035)	158	(65)
Iris	84,839	84,795	(44)	153	(0)
Palm	54,535	54,533	(2)	187	(0)
Palomar	68,263	49,865	(18,398)	166	(50)
H (New)	-	105,304	105,304	286	286
Total	286,468	349,292	62,824	950	171

The new Park & Ride at H Street and I-805 is projected to have demand for 286 spaces based on the calculated baseline ratio. 115 of these spaces come from existing Park & Rides within the selected typology locations and 171 spaces are new Park & Ride demand.

CONCLUSION:

The baselining approach is a simple approach to estimating demand at potential Park & Ride sites. It requires knowledge of local transportation needs and access to existing data. With these assets, Park & Ride managers can use this approach to quickly and effectively assess the potential success of a Park & Ride.

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COMMUNITY PARTNERSHIPS

← Track 1 Southbound
→ Coaster Ticket Machines
→ Track Elevator
→ Track 2 Northbound

No Coaster Ticket Machines on Platform
No Track 2 Access from Track 1

FAIR CLOSED/ROUTE DOES NOT OPERATE
JUNE 3, 4, 10, 11, 17, 18, 24, & 25

FERIA CERRADA/RUTA NO OPERA
JUNIO 3, 4, 10, 11, 17, 18, 24, & 25

408 BUS TO FAIR
AUTOBÚS A LA FERIA

BOARD IN FRONT OF TRAIN STATION
(ON N. CEDROS AVE)

ABORDAR EN FRENTE DE LA ESTACIÓN
(EN N. CEDROS AVE)

NORTH COUNTY TRANSIT DISTRICT

PARKING ONLY

VAN ACCESSIBLE

UNAUTHORIZED VEHICLES NOT DISPLAYING DISTINGUISHING PLACARDS OR LICENSE PLATES ISSUED FOR DISABLED PERSONS WILL BE TOWED AWAY AT OWNER'S EXPENSE.

TOWED VEHICLES MAY BE RECLAIMED AT

OR BY TELEPHONING 966-3500



COMMUNITY PARTNERSHIPS

Park & Ride lots can be an asset for many community partners such as local municipalities, private entities, and the general public. Thus, it is important to develop targeted messaging and marketing materials that are supported by sufficient data to strategically demonstrate the benefits of Park & Ride partnerships to each stakeholder. This section provides initial guidance on educational materials that could help community partners see the value of Park & Rides and encourage them to be involved with developing, operating, and maintaining Park & Ride lots.

EDUCATING POTENTIAL PARTNERS

Community partners can play a pivotal role in the development, operations, and maintenance of Park & Rides. If partners are not actively engaged, the Park & Ride system may not fully maximize potential investments and miss out on opportunities. According to the private sector survey conducted (see [Appendix F](#)), 80% of private sector stakeholder participants are open to learning more about the benefits of Park & Rides. According to the commuter behavior survey (see [Appendix E](#)), commuters—especially interregional commuters—are interested in using Park & Rides as part of their commute.

Although both private stakeholder participants and commuters are interested in Park & Rides, most are not fully aware of the benefits of Park & Ride, which contributes to hesitation for partnerships and the lack of support from these community partners. To bring awareness of Park & Ride to community partners, it is recommended to develop an effective marketing plan that shows the value and benefits of Park & Rides.

Creating an effective marketing plan will help provide a framework for when, how, and to whom Park & Rides should be promoted. The primary purpose of this marketing plan is to outline potential strategies that educate community partners about Park & Ride benefits, and ultimately, increase engagement for future partnerships. When developing the marketing plan, it is important to think about each community partner's needs, how they benefit from Park & Rides, how they can be involved, and why they need to be involved.

- Developing a marketing plan to build and improve partnerships is identified as a key action in [Moving Park & Rides Forward](#).

SUPPORTIVE DATA & ANALYSIS

Community partners, especially private entities, desire quantified benefits that support statistical information like cost savings, parking demand reduction, or increase in sales. Investing in strategies that also support data collection and analysis will contribute to the success of Park & Ride marketing efforts and potential partnerships.

- Marketing to community partners is essential to the future of Park & Rides. Community partners can be more effectively engaged and partner on the development, operations, and maintenance of Park & Rides for the benefit of all community members when using this guidance, the tools identified in the [Park & Ride Toolkit](#), and the action steps identified in [Moving Park & Rides Forward](#).

POTENTIAL PARTNERSHIP BENEFITS & OPPORTUNITIES

▼ BENEFITS FOR LOCAL MUNICIPALITIES

- Park & Rides can support the implementation of Climate Action Plans by supporting services that facilitate the reduction of greenhouse gas emissions (GHG), vehicle miles traveled, and congestion by providing convenient first-mile / last-mile opportunities that incentivize alternative transportation mode choices.
- Park & Rides may support mobility hub enhancements including transit services, electric vehicle charging, bike amenities, or pick-up / drop-off zones for passengers or goods.
- Reduced parking requirements for new developments could be more effective with shared parking policies that support Park & Ride needs.
- Shared mobility policies at employment destinations encourages carpool, vanpool and carshare trips to those communities and reduce overall parking demands.
- Park & Ride lots could provide multi-purpose community spaces for social gatherings (e.g., farmers markets or movie nights) or shuttle services to major events

POTENTIAL OPPORTUNITIES

- Refer to the [Mobility Management Strategy](#), which includes a [VMT Reduction Calculator Tool](#) for services provided at Park & Ride.
- Distribute digital and printed marketing materials that identify Park & Ride benefits for developers, property managers, employers, and community members. Strategically market these materials with existing TDM marketing efforts. Participate in opportunities to educate private sector and communities about Park & Ride and TDM benefits.
- Consider updating policies to alleviate barriers for public-private partnerships. Consider potential incentivizing partnerships with developers and property managers through parking policy reductions, conditional zoning opportunities, reduced liability, flexible covenants, conditions and restrictions (CCRs), Mobility Hubs development, marketing/advertising, transit incentives and discounts, or shared-parking guidelines.
- Consider implementing a Transportation Demand Management (TDM) Program that includes Park & Ride policy for new development and mandatory monitoring and reporting requirements.
- Consider an agreement with agency partners to leverage existing enforcement and data collection efforts for the Park & Ride system. Develop a process to update regional inventory, utilization, and amenity updates on an annual basis. Quantify benefits to support marketing materials.
- Encourage volunteer opportunities to enhance Park & Ride facilities (e.g., neighborhood security patrol, public art installation, and maintenance).
- Consider using Park & Ride lots to support community events and raise awareness.



COMMUNITY PARTNERSHIPS

▼ BENEFITS FOR PRIVATE ENTITIES

(DEVELOPERS, PROPERTY MANAGERS, LAND OWNERS, EMPLOYERS)

- Park & Ride partnerships help the region achieve sustainability goals by reducing greenhouse gas (GHG), local air pollutant emissions, and other related public health and environmental impacts, while also reducing parking demand and traffic congestion. Incorporating Transportation Demand Management (TDM) strategies can also contribute to Leadership in Environmental and Energy Design (LEED) certification. Property managers should consider shared mobility parking policies that encourage carpool, vanpool, and carshare trips and/or shared parking with Park & Ride dedicated spaces. Additionally, employers and property managers should work with regional planning agencies, transit agencies, and/or local municipalities to promote Park & Rides and other TDM strategies to their employees and customers.
- Current parking allocations could be repurposed for future development and provide the flexibility to accommodate future changes to travel behavior and goods movement; shared Park & Rides could support mitigation.
- Park & Ride users are customers who are more likely to support nearby businesses.
- Successful Park & Ride lots could transition into future Smart Growth opportunities that also encourage multimodal travel choices.
- Park & Ride efforts can also be supported through the payment of impact fee assessments with new development.

POTENTIAL OPPORTUNITIES

- Distribute digital and printed marketing materials that identify Park & Ride and TDM benefits for tenants and/or employees. This could be included as part of employees' on-boarding process.
- Consider partnership pilot programs where perceived lack of excess parking is a concern. Pilot programs should include before/after parking demand analysis, combined with strategic TDM strategies, and marketing efforts that support multimodal transportation choices. Share "success stories" as examples for other developers and land owners.
- Create a financial incentives package that is developed in collaboration with local municipalities and transit agencies. This may include opportunities for shared operations & maintenance costs, decrease in number of required parking spaces for new development, or opportunities for traffic mitigation by incorporating Park & Ride spaces.
- Identify statistical datasets that would be useful for business decisions and partner with local municipalities to collect and analyze datasets, including but not limited to:
 - » Identifying foot-traffic statistics that could support advertising,
 - » Average money spent by Park & Ride users/customers of shared retail spaces,
 - » Decrease in parking utilization and demands, creating future development opportunities,
 - » Annual savings for maintenance with shared partnership, and
 - » Additional travel incentives for private entities' consumer base (e.g., transit services, EV Charging, and/or shared mobility).

COMMUNITY PARTNERSHIPS

▾ BENEFITS FOR GENERAL PUBLIC

- Park & Rides provide convenient first-mile / last-mile travel options for community members who would like to leave their car and take transit, carpool, or vanpool for the rest of their trip. These benefits provide options that help the environment, save money, and alleviate commuting stress.
- Park & Rides reduce traffic congestion throughout the region by encouraging multimodal travel choices. Community members should support new projects that increase Park & Ride opportunities in their region.
- Park & Ride lots could provide multi-purpose community spaces for social gatherings (e.g. farmers markets or movie nights). Community members should work with local municipalities to encourage activating Park & Ride spaces in the community.
- Park & Rides encourage investments in Mobility Hub amenities that enhance the movement of people and goods including Electric Vehicle charging, bike lockers, transit services, mobile retail services, and package delivery stations.

POTENTIAL OPPORTUNITIES

- Utilize services at existing Park & Ride locations and share the benefits with community members and local municipalities. Benefits may include time savings, cost savings, convenience and/or lifestyle changes attributed to Park & Ride. Consider sharing benefits on social media to support TDM campaigns.
- Support future investments that support overall transportation efforts, including smart parking considerations to support full-featured transportation app for trip planning.
- Enhance Park & Ride community value by volunteering to provide neighborhood security patrol, public art installation and maintenance, and/or data collection.
- Consider using Park & Ride lots to support community events and raise awareness.

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PARK & RIDE TOOLKIT
















PARK & RIDE TOOLKIT

The *Park & Ride Toolkit* (*Toolkit*) is a resource for operators and owners to refer to when addressing prevailing regional challenges identified by stakeholders through the stakeholder workshop (see [Appendix B](#)). Using best practices and lessons learned through the literature review, case study research, commuter survey, and private sector survey (see [Appendix C, D, E, and F](#)), the *Toolkit* provides strategies and respective tools for implementation to better plan, operate, and manage Park & Ride facilities. The strategies and their respective tools are outlined on the following page.

Each strategy identifies tools that can be implemented at a Park & Ride facility. The following information is provided for each tool:

Name of Tool	Recommended Phasing:		
	 NEAR-TERM	 MID-TERM	 LONG-TERM
 DEFINITION	 TYPICAL CHALLENGES		
<i>What is the tool?</i>	<i>What barriers should the owner or operator plan for when choosing to implement the new tool or strategy?</i>		
 BENEFIT	 RISKS		
<i>What are the benefits for implementing the tool?</i>	<i>What potential negative consequences may co-occur if an owner or operator chooses to implement the tool?</i>		
 COST	 EXAMPLES		
<i>What are the low/medium/high options for implementing the tool?</i>	<i>What are some examples of the tool?</i>		
 PREFERRED CONDITIONS			
<i>What top considerations warrant an investment in the new tool or strategy?</i>			
Tool in Action			
 2-5 sentence summary of an applicable case study for the tool. Additional relevant case studies can be found in the Case Studies Memo (Appendix D).			

For each tool, there is a recommended phasing for implementation as shown above with the green, orange, and blue circles. Near-Term describes improvements having minimal cost and policy barriers. Mid-Term describes improvements having average costs and policy barriers. Long-Term describes improvements having significant costs and policy barriers.

From the research, the following strategies and respective tools are described in the *Toolkit*:

MAXIMIZING CAPACITY AT FACILITIES
Dedicate Space for Alternative Access Modes
Proactive Siting
Increase Number of Parking Spaces
Annual Reporting and Performance Monitoring
Pilot Programs to Test Potential Maximizing Capacity Solutions

MANAGING PARKING DEMAND
Implement Paid Parking System
User Type Management
Smart Parking Systems

SECURE FACILITIES AND ENFORCE RULES
Focused Enforcement to Deter Abuse
Reduce Security Concerns

INCENTIVIZE TARGET USERS
Enhance Access Modes
Supporting Mobility Hub Amenities
Marketing Park & Ride Benefits

CREATE PARTNERSHIPS WITH LOCAL JURISDICTIONS AND PRIVATE-SECTOR
Campus Employer Partnerships
Activate, Lease, or Reuse Excess Capacity
Advertising at Park & Ride Facilities
Relinquishment

ALIGN PARK & RIDE PLANNING WITH LOCAL AND REGIONAL GOALS
Encourage Transit-Oriented Development (TOD)
Park & Ride Policy Integration
Transitory Park & Ride Facilities
Inter-Agency Coordination

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MAXIMIZING CAPACITY AT FACILITIES



- Encourage more efficient use of existing facilities by increasing the number of users at a facility
- Improve quality and consistency of service provided to users (space availability)
- Improve facility design

Implementation Tools

Dedicate Space for Alternative Access Modes

✓ NEAR-TERM

🔧 MID-TERM

○ LONG-TERM

🔍 DEFINITION

- Provide and prioritize dedicated space for travel alternatives to single occupancy vehicles

👍 BENEFIT

- Increase utilization without increasing automobile parking
- Encourage existing/new users to travel using alternative modes

💰 COST

🟢 **LOW** - Re-striping and signage; secure bike parking installation

💡 PREFERRED CONDITIONS

- Utilization > 85%
- Within walking/biking distance (0.25 mile - 0.5 mile) of residential community, employment area, or transit stop
- High visibility locations with potential mobility hub conversion

🧩 TYPICAL CHALLENGES

- Requires regular enforcement of existing assets to warrant new investment
- Reconfiguration of existing facility
- Confirm existing policies allow for alternative modes of access

⚠️ RISKS

- New alternative access space may require reconfiguration of existing lot, resulting in a loss of parking capacity for existing users
- Underutilization by alternatives modes of access

📄 EXAMPLES

- Providing dedicated vanpool/carpool spaces for transit users
- Providing dedicated curb space for Transportation Network Companies (TNCs)
- Provide specific spaces for compact modes of transportation (e.g. motorcycle, bicycle)

TOOL IN ACTION



Source: Scoop Technologies

- BART is working with the Metropolitan Transportation Commission (MTC) and Scoop Technologies to incentivize BART users to carpool to BART stations. Since parking at these stations fill early in the morning, carpool vehicles will have a guaranteed parking spot at the station until 10am.

Proactive Siting

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Effectively site a new Park & Ride for better access from the adjacent catchment area using factors such as available right-of-way, perceived area atmosphere, site size, visibility from adjacent travel routes, site access, existing transit service, road congestion, and lot design (Refer to *Guidance for New Site Analysis* for additional information)

BENEFIT

- Identify future sites with the greatest cost-benefit
- Meet expectations for demand while integrating facility with the surrounding community

COST

LOW - Developing lots on existing agency right-of-way

MEDIUM - Developing lots by entering agreements with local governments and private property owners

HIGH - Construction of structured lot at a major transit station

TYPICAL CHALLENGES

- Establishing a set criteria for evaluating and scoring candidate sites
- Securing funding to build and operate new lot
- Property owners may require additional incentives or requirements to allow Park & Ride operations (e.g., demonstrate increase in sales, shared maintenance of parking lot costs)

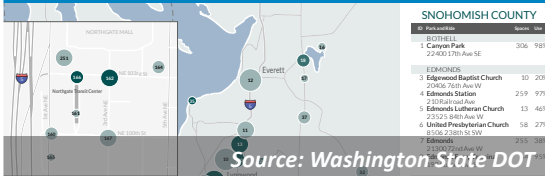
RISKS

- Incomplete data in siting process, resulting in under-informed decisions
- Variables and utility of Park & Ride may change over the time of site selection

EXAMPLES

- Common-sense approach and review of existing conditions (e.g. informal Park & Ride activity, density of residential and employment areas, and distance between residential areas and employment centers)
- Create a site suitability evaluation that assesses each potential Park & Ride lot

TOOL IN ACTION



Washington State DOT prepared a Park & Ride System plan that incorporated proactive forecasting and siting into planning. Travel forecast models were used to forecast future demand for Park & Ride assets using measured variables.

Increase Number of Parking Spaces

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Create additional parking spaces by restriping, expanding or relocating existing lot

BENEFIT

Additional parking spaces can accommodate existing and latent demand

COST

LOW - Reconfigure and restripe

MEDIUM - Lease agreements at adjacent lots

HIGH - New construction for lot/parking structure

PREFERRED CONDITIONS

- Utilization > 85%
- Locations of high latent demand
- Available adjacent land to expand lot size

TYPICAL CHALLENGES

- Temporary loss of capacity during construction
- Agreements with adjacent land owners for shared parking are not permanent
- Reconciling different peak demand times for adjacent activities and land uses

RISKS

- May not be as cost effective as subsidizing other first-mile/last-mile transportation service options
- Additional spaces may not reach optimal utilization to justify investment
- May need to investment in other amenities and access points combined with paid parking system

EXAMPLES

- Change from parallel to angled parking; Develop new or expand lots; Offer on-street parking; Structured parking; Lease parking

TOOL IN ACTION



Michigan DOT partnered with Meijer supercenter stores to provide carpool Park & Ride spaces in exchange for added signs for Meijer stores on adjacent highways.

DEFINITION

- Monitor, analyze, and report data relating to Park & Ride performance metrics in an accessible regional geo-coded database

BENEFIT

- Identify inefficiencies and improvement areas
- Provide decision-grade data and information
- Potential to utilize data for modeling
- Develop Park & Ride dashboard to monitor success, challenges, and opportunities

COST

- LOW** - Data maintenance and staff reporting; Software platforms to house performance data and key performance metrics
- HIGH** - Real-time data collection with smart parking technology

PREFERRED CONDITIONS

- Existing database on Park & Ride system that can be updated easily from year-to-year

- Agencies perform counts on a regular, consistent basis
- Agreed performance metrics to collect data among owners and operators
- Stakeholders readily open & able to share data

TYPICAL CHALLENGES

- Commitment across agencies for consistent data collection and reporting
- Determine variables to collect, report & share
- Update policies as necessary for cross-agency data sharing

RISKS

- Inconsistent data collection and not prioritizing need for annual reporting
- Low priority for agencies compared to other maintenance and operations efforts

EXAMPLES

- Park & Ride dashboard to monitor region wide performance; Status reports containing performance metrics (e.g., utilization and incident reports)

TOOL IN ACTION



Source: Metro Transit Annual Park & Ride Report (2018)

➔ Metro Transit performs an Annual Regional Park & Ride System Report that summarizes utilization trends in the Twin Cities. This effort has propelled the current Park & Ride initiatives in the Minnesota Metro Region.

Pilot Programs to Test Potential Maximizing Capacity Solutions

DEFINITION

- Evaluate potential strategies to maximize parking utilization at Park & Rides with short-term testing prior to major investment decisions

BENEFIT

- Able to test effectiveness of different strategies in the short-term without long-term commitment
- Implement successful strategies using lessons learned from pilots

COST

- LOW** - Short-term implementation costs
- MEDIUM** - Data collection of performance metrics

PREFERRED CONDITIONS

- Utilization >85%
- Current challenges outweigh the policy concerns that prevent agency support for pilot programs

TYPICAL CHALLENGES

- Receiving agency support and contractual approvals for pilot project
- Lack of funding and staff resources to support pilot project
- Determining the type of pilot project that is most appropriate

RISKS

- Unsuccessful pilot program can be seen as a waste of resources and deter continuing new pilot efforts

EXAMPLES

- Pilot Incentive Programs; [Mobility Hub Features Catalog](#); Permit/Smart/Paid parking

TOOL IN ACTION



➔ Metro has partnered with Via to offer on-demand rides to select transit stations in three service zones. Via will match passengers with other riders going their way to the same transit station.

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MANAGING PARKING DEMAND



➤ Manage parking spaces as a resource to leverage and achieve agency and regional goals.

Implementation Tools

Implement Paid Parking System

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Charge parking fees to control utilization and support Park & Ride operations and management

BENEFIT

- Parking availability during peak periods
- Additional revenue to offset maintenance and operations costs or reinvest in amenities, security, and services

COST

- **LOW** - Paper Permit System with Signage & Pavement Marking
- **MEDIUM** - Smart Parking Technology; Revenue control

PREFERRED CONDITIONS

- Consistent utilization > 85% during peak periods
- Existing management and enforcement programs with localized presence
- Smart Parking integration with Regional ITS Infrastructure
- Surveyed users willing to pay to ensure space availability

TYPICAL CHALLENGES

- Effective real-time enforcement is necessary for the success of this program
- Impacts on low-income or minority customers at existing facilities
- Difficult to implement for leased or shared use lots
- Impacts on neighboring land uses & lots through “hide & ride” behavior
- Caltrans policy prevents the implementation of a paid parking system at Park & Ride lots

RISKS

- Potential loss of Park & Ride users
- Cost and time of using Park & Ride may exceed cost of driving alone for choice users
- Smart paid parking system goes out of order

EXAMPLES

- Demand Based Pricing; Event Parking Fee; Duration escalating rates; Subscription/Parking Pass Service; Incorporate Parking Fee into Monthly Pass

TOOL IN ACTION



➤ At select Park & Ride locations with high demand, LA Metro has implemented a reserved monthly parking and/or a paid daily parking system. With monthly parking, users have the option of purchasing a METRO Monthly Permit, CARPOOL Monthly Permit, and the FLEX Permit. This system has been so successful that LA Metro has adopted these systems at most existing Park & Rides.



User Type Management

✔ NEAR-TERM
 ○ MID-TERM
 ○ LONG-TERM

DEFINITION

- Incentivize and manage desired parking behaviors through user limitations/restrictions, policies, and enforcement

BENEFIT

- Controls parking capacity for desired parking behaviors
- Discourages non-Park & Ride users

COST

- ✔ **LOW** - Re-striping; Signage; Paper Permit System; Decal Sticker; Enforcement
- **MEDIUM** - Smart Parking Technology; Enforcement

PREFERRED CONDITIONS

- Utilization > 85%
- High amounts of policy violation and/or undesired parking behavior

- Policy preventing paid parking to be in place
- Shared parking agreements with restrictions on desired user type and behavior from lot owner
- Existing management and enforcement programs with localized presence

TYPICAL CHALLENGES

- Adapting policies prioritizing desired parking behaviors
- Requires frequent enforcement
- Resources for programs
- Equipment failure and response time to fix it

RISKS

- Limiting demand for general parking spaces could result in the creation of latent demand

EXAMPLES

- Dedicated transit parking; Dedicated carpool/vanpool parking; Permit parking; Remote enforcement; Subscription parking service

TOOL IN ACTION



- ✔ Dallas DART Pilot program provides free reserved stalls for residents who display a valid resident parking permit on their vehicle.

Smart Parking Systems

✔ NEAR-TERM
 ○ MID-TERM
 ✔ LONG-TERM

DEFINITION

- Parking system providing users real-time space location and availability

BENEFIT

- Collect real-time space occupancies
- Allows users to interact more efficiently with the parking system
- Passive enforcement and integrates with other toolkit strategies
- Improves system management and staff efficiencies
- Improves customer perception of facility through "actively managed" information
- Improve demand allocation for limited parking

COST

- **MEDIUM** - Real-Time Sensing & Signage; Access Control; Mobile App Integration; Management and Operations of Smart Parking System

PREFERRED CONDITIONS

- Utilization > 85%

- Paired with other tools like regional trip planning apps/databases and *Park & Ride Data Center*
- Regional database for smart parking data analytics

TYPICAL CHALLENGES

- Calibration to ensure accurate and useful information
- Maintenance of mechanical and digital technologies
- May be difficult to implement at leased/shared lots
- Determining the responsible agency for maintenance of smart parking system and collecting and sharing parking data collected
- Customer information and understanding of smart parking system

RISKS

- Cost of system maintenance
- Limited deployments to only highly utilized lots may limit effectiveness of regional smart parking system

EXAMPLES

- Utilization Sensors; Real Time Availability; Parking Guidance Systems

TOOL IN ACTION



- ✔ Smart parking systems were installed at Park & Ride facilities at heavy rail stations. These smart parking systems included VMS on a nearby freeway that shows Park & Ride availability and allows users to reserve Park & Ride spots by phone or Internet.

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SECURE FACILITIES AND ENFORCE RULES



➤ Provide users with a safe and comfortable environment through active and passive enforcement

Implementation Tools

Focused Enforcement to Deter Abuse



DEFINITION

- Discourage unwanted parking behaviors by controlling access and utilization of Park & Ride lot through focused enforcement

BENEFIT

- Ability to implement Park & Ride restrictions & policies
- Increase capacity for desired users of facilities

COST

➔ **MEDIUM** - Parking enforcement officers/staff to patrol; Smart parking technology

PREFERRED CONDITIONS

- Utilization > 85% by desired users
- High rates of non-permitted or unwanted parking
- Policy supports enforcement with existing program to enforce

TYPICAL CHALLENGES

- Enforcement may lead to short-term drop in utilization
- Real time enforcement can be costly
- Some policies difficult to enforce (carpool one way, transit back)
- May lose ridership because of enforcement

RISKS

- Violators may adapt to exploit enforcement procedures
- Enforcement inconveniences may affect existing users
- May increase usage of "informal" lots

EXAMPLES

- Citations; Active Enforcement ; Access control, Subscription parking service; Cameras for remote enforcement; partnerships for enforcement with highway patrol or local jurisdictions

TOOL IN ACTION



Source: Denver RTD

➤ Denver RTD has implemented cameras at half of their facilities. CCTV cameras assist with real-time enforcement as it allows RTD to take a proactive approach to security and customer complaint investigations.

DEFINITION

- Implement security features to improve safety for all users

BENEFIT

- Decreased real and perceived security concern at facilities
- Possible increased usage of facility due to lowered security issues

COST

➔ **MEDIUM** - Design lots to include Community Planning and Economic Development features; Parking enforcement officers/staff; Security Monitoring Systems; Frequent & consistent maintenance

PREFERRED CONDITIONS

- Utilization < 15%
- Near other lots or other parking enforced areas to leverage existing security patrol investments

TYPICAL CHALLENGES

- Prioritizing facilities
- Funding for ongoing security
- Developing a process to track incidents, identify trends, and efficiently respond to address concerns

RISKS

- Criminal activity may adjust to new security protocol
- Response to problems/concerns not quick enough for users

EXAMPLES

- Security Patrol; Safety Infrastructure (e.g. Emergency-phone availability, Increase lot visibility through siting or removing obstructive landscaping); Cameras and Real Time Enforcement; Donation Centers

TOOL IN ACTION



- ➔ LA Metro has created monthly reserved spots at select Park & Ride locations. Enforcement is managed through the usage of TAP card and license plate recognition software. These automated systems are an effective tool to ensure only system users are parking at lots.

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INCENTIVIZE TARGET USERS

Provide users with incentives and information to make Park & Rides a more attractive choice for their mobility needs

Implementation Tools

Enhance Access Modes

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Provide fast, frequent, and reliable transit service and micromobility services and modes to connect Park & Rides to surrounding land uses

BENEFIT

- Increase the number of users the lot can serve while reducing the parking demand
- Enhance transit for existing commuting patterns

COST

MEDIUM - New and/or enhanced transit service; Subsidized transit passes; Subsidized rideshare to transit

PREFERRED CONDITIONS

- Utilization < 50%
- Located along high-frequency transit commuter route
- Within walking/biking distance from residential and/or employment areas

TYPICAL CHALLENGES

- Funding to implement, operate & maintain
- Awareness of enhanced/new service

RISKS

- New transit service and amenities are initially underutilized
- New amenities are vandalized
- Potential users continue to drive alone

EXAMPLES

- Enhanced Transit Waiting Areas; Passenger Loading Zones; Real-Time Travel Information; Dedicated transit lanes/signal priority; Subsidized transit passes; Subsidized rideshare; Microtransit; Neighborhood Electric Vehicles; Micromobility vehicles (e.g., e-bikes, bikes, scooters)

TOOL IN ACTION



Source: New Mexico Department of Transportation

When Park & Ride facilities are underutilized, New Mexico Department of Transportation incentivizes lot utilization by offering free bus services at a specific location for one week to stimulate ridership.

Supporting Mobility Hub Amenities

DEFINITION

- Dedicating space and infrastructure for Mobility Hub service amenities at Park & Ride lot to eliminate additional trips and/or incentivize new users at that location

BENEFIT

- More users accessing the Park & Ride from the surrounding community
- Access to convenient first/last mile services to complete errands and reduce vehicle trips

COST

LOW - Micromobility options; Mobile retail; EV Charging Infrastructure

MEDIUM - Construct enhanced bicycle and pedestrian facilities

PREFERRED CONDITIONS

- Utilization < 85%
- Supportive policy for amenities at Park & Ride
- Close proximity to residential/commercial areas

TYPICAL CHALLENGES

- Tailoring features to the existing and targeted users
- Identifying most impactful features
- Partnering with private sector to implement
- Funding

RISKS

- Competition between modes for space
- Remaining limited capacity may cause undesired behaviors
- Getting private partnerships and vendors to locate at Park & Rides

EXAMPLES

- Signage and Wayfinding; Package Delivery; Mobile Retail; Universal Transportation Account; EV Charging; Infrastructure for cars and micromobility vehicles; Improved Active Transportation Facilities; Bikeshare/scootershare/carshare

TOOL IN ACTION



➤ SANDAG developed a [Mobility Hub Features Catalog](#) along with a [Regional Mobility Hub Strategy](#) and [Mid-Coast Mobility Hub Strategy](#) for the new stations on the Mid-Coast Trolley Blue Line Extension.

Marketing Park & Ride Benefits

DEFINITION

- Communicate Park & Ride benefits to users, private sector, and general public (Refer to [Community Partnerships](#) for additional information)

BENEFIT

- Increase utilization of lots
- Increase awareness/participation of potential users and community partners

COST

LOW - Digital Marketing; Stakeholder Outreach

MEDIUM - Printed Marketing

PREFERRED CONDITIONS

- Utilization < 50%
- Lot located along high-demand commuter routes

TYPICAL CHALLENGES

- Funding
- Identifying benefits for each audience type
- Assessing behavior shifts resulting from effort

RISKS

- Ineffective or incongruent with existing experience
- Unable to reach targeted audience

EXAMPLES

- Facility Branding; Print/Digital media; Social Media; TDM App; Online Mapping; PR Campaign; Website; Print Collateral; Park & Ride Ambassadors

TOOL IN ACTION



➤ RTA (Chicago) has launched a multi-year marketing campaign to promote usage of park-and-ride and transit in the area. Campaign extends to TV, radio, social media, digital billboards.

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CREATE PARTNERSHIPS WITH LOCAL JURISDICTIONS AND PRIVATE-SECTOR

- Partner with local government to meet shared goals and objectives
- Partner with private-sector to cost-share in a joint-effort to provide parking for users

Implementation Tools

Campus Employer Partnerships

 NEAR-TERM
  MID-TERM
  LONG-TERM

DEFINITION

- Partner with large employment and university campuses to encourage use of Park & Rides

BENEFIT

- Decrease demand for campus parking on-site and surrounding neighborhoods
- Increase use alternative modes of transportation through Park & Rides
- Promote alternative transportation options
- Increase Park & Ride user base to campus populations

COST

- **LOW** - Partnership agreement with campus and employer
- **MEDIUM** - Providing shuttles service from campus or employment site

PREFERRED CONDITIONS

- Campuses with high off campus commuter population
- Campus with heavily restricted and limited parking facilities

- Existing transit service or shuttle to campus directly from Park & Ride lot

TYPICAL CHALLENGES

- Long-term stability of partnership
- Promoting Park & Ride to campus population
- Understanding user base through targeted origin data analysis and outreach
- Student desire to carpool/vanpool

RISKS

- Demand for Park & Ride exceeds existing capacity

EXAMPLES

- Joint development of Park & Ride; Shared maintenance & operation costs at Park & Ride primarily used by campus population; Reserved Parking & Subscription Services

TOOL IN ACTION

uh.edu/COAST

Source: University of Houston

- COAST Program at the University of Houston incentivizes students and employees to use transit and Park & Ride. The goal of the program was to help alleviate on-campus parking demand. Park & Ride students paid a 35% of full price and received 50% discount on bus/light rail tickets.

Activate, Lease, or Reuse Excess Capacity

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Excess Park & Ride space is activated, leased to other entities or reused to meet other community needs

BENEFIT

- More efficient use of land/parking spaces
- Creation of community spaces
- Possible revenue stream from leasing excess capacity

COST

LOW - Lease agreements; Outreach and coordination with stakeholders

PREFERRED CONDITIONS

- Consistent utilization < 50% at similar times on weekdays and weekends
- Surrounded by lots with limited parking available

TYPICAL CHALLENGES

- May require changes in Park & Ride policies for asset owner or transfer to public or private owner
- May require additional dedicated staff

RISKS

- Roles and responsibilities of different activated uses
- Increased operations and maintenance costs
- Lack of communication, signage, and marketing can cause confusion for users

EXAMPLES

- Lease to nearby employers or shopping centers, farmers markets and community groups; Use space for special events

TOOL IN ACTION



Source: Farm2ublog

- The City and County of Honolulu has partnered with the People's Open Market to provide Park & Ride space on weekends for use by the market.

Advertising at Park & Ride Facilities

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Use Park & Ride assets to promote local community or adjacent businesses

BENEFIT

- Public benefit through community advertising
- Potential revenue source to offset operations and maintenance costs
- Integration with local functions and/or community groups

COST

LOW - Outreach and coordination with stakeholders
MEDIUM - Implement dynamic displays at high activity locations

PREFERRED CONDITIONS

- Near freeway and major arterials to increase Daily Effective Circulation (DEC)
- Policy allows for advertisement to offset Operations and Maintenance costs

TYPICAL CHALLENGES

- Low number of viewers at each facility
- Over signage causing confusion among users
- Policy and zoning obstructions/restrictions
- Potential conflict with existing branding guidelines of Park & Ride program
- Right-of-Way challenges at shared lots
- Policy for revenue generation

RISKS

- Keeping up with changing marketing trends
- Lack of interest in advertising
- Protecting advertising assets

EXAMPLES

- Bus shelter advertisements; Signage; Billboards; Marketing on Park & Ride website; Park & Ride sponsorship packages

TOOL IN ACTION



Source: City of Portsmouth

- The City of Portsmouth, UK, has created a comprehensive guide for private companies to purchase advertising space at their facilities and on their vehicles.

DEFINITION

- The transfer of an asset within the public sector

BENEFIT

- Re-establishing agency goals & processes regarding Park & Ride system with partners
- More flexible management of assets

COST

LOW - Staff time for coordination between agencies and handling process to hand over state assets to local authorities

PREFERRED CONDITIONS

- Utilization < 30%
- Major policy changes needed for implementing another tool such as *Implement Paid Parking System*

TYPICAL CHALLENGES

- Local or state funding of Park & Ride relinquishment
- Potential policy changes needed beyond relinquishment
- Differing goals of state and local authorities

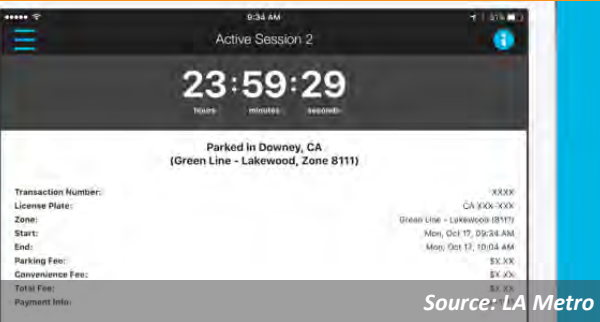
RISKS

- Agency coordination becomes difficult, burdensome, or non-productive
- Lost opportunities from relinquishing right-of-way (e.g. land value)

EXAMPLES

- Caltrans Relinquishment Process is outlined on their [website](#)

TOOL IN ACTION



- LA Metro was able to establish paid parking at Caltrans-owned Park & Ride locations through the relinquishment of operations and management responsibilities.

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ALIGN PARK & RIDE PLANNING WITH LOCAL AND REGIONAL GOALS

- Effective approaches for Park & Ride planning & implementation (e.g., siting, increasing utilization, managing asset) to meet local and regional goals

Implementation Tools

Encourage Transit-Oriented Development (TOD)



NEAR-TERM



MID-TERM



LONG-TERM

DEFINITION

- Incorporate housing at existing or near Park & Rides locations or provide Park & Ride spaces at TOD locations

BENEFIT

- Decrease greenhouse gas emissions (GHG)
- Maximizes use of Park & Ride footprint
- Decreased costs for agency due to private partnership at TODs

COST

- LOW** - Management of private-public partnerships
- MEDIUM** - Public incentives to encourage construction of TOD/housing at Park & Rides

PREFERRED CONDITIONS

- Parking is decoupled/unbundled from housing costs
- Large, underutilized lots that can be joint-developed
- Regional need for housing adjacent to transit
- Existing presence of a shared-use management program to support administration and enforcement

TYPICAL CHALLENGES

- Aquiring data and information on location of planned TOD
- Incentivizing developers to incorporate Park & Ride spaces
- Policy preventing TOD development at Park & Rides
- Effectively forecasting demand for each shared user type to ensure parking amount is adequate

RISKS

- Potential costs, management responsibilities, and additional liability associated with Park & Rides could be discouraging for developers
- Loss of real estate to expand when utilization of Park & Ride spaces increases

EXAMPLES

- Revised parking standards in Transit Priority Areas (TPAs) to encourage shared-use with Park & Ride; Smart Growth policies; Joint Use and Development of Property Policies and Procedures

TOOL IN ACTION

- Calgary removed all but 500 of the 1,750 Park & Ride spaces at its suburban Anderson light rail station, and gradually converted the space into a mixed-use development.



Source: City of Calgary

Park & Ride Policy Integration

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Incorporate Park & Ride initiatives into local, regional, & state policy framework to encourage Park & Ride considerations in future planning efforts

BENEFIT

- Highlight role of Park & Ride in local/regional planning efforts
- Continuity of investment across multiple jurisdictions
- Possible increased commitment for Park & Ride development/improvement from policymakers

COST

LOW - Staff time to support integration of Park & Ride policies into local/regional plans

PREFERRED CONDITIONS

Planning authorities desire to integrate Park & Ride policies into planning efforts

TYPICAL CHALLENGES

- Institutional commitment to incorporate Park & Ride initiatives
- Development of greenhouse gas (GHG) reduction estimates for Park & Ride services

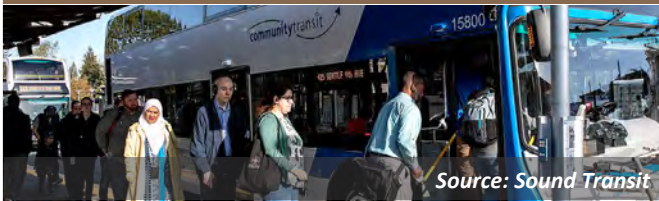
RISKS

- Framework policy plans not carried out
- Park & Ride policies conflict with other priorities

EXAMPLES

- Climate Action Plan; Local Transportation Demand Management (TDM) Planning Integration of Park & Rides; Area Wide Parking Policy (Policy/Ordinance)

TOOL IN ACTION



Sound Transit implemented a successful permitting program within their Park & Ride lots as a result of their Regional Parking Management Working Group. The working group was established by the local MPO and allows for the regional coordination of Park & Rides.

Transitory Park & Ride Facilities

NEAR-TERM MID-TERM LONG-TERM

DEFINITION

- Create temporary Park & Ride lots at future Transit-Oriented Development (TOD) locations along major corridor improvement projects

BENEFIT

- Land is already owned by public sector, so no new land is needed to create the temporary Park & Ride
- Land does not sit vacant while TOD is being planned and designed
- Building ridership prior to operations of new transit service

COST

LOW - Striping and signage
MEDIUM - Conversion of lots from construction or development purposes to Park & Ride

PREFERRED CONDITIONS

- Parking availability for at least one year

- Within existing demand for Park & Ride
- Lot near interim end-of-line station that has high potential Park & Ride use
- Lot easily convertible into Park & Ride and has high potential future use as TOD

TYPICAL CHALLENGES

- Determining which light rail construction staging lots are feasible for use
- Metrics to determine lots that are TOD candidates
- Agreements for Park & Ride operations at construction site

RISKS

- Eventual conversion of lot from Park & Ride to TOD will reduce transit usage and can anger users
- Lack of use of Park & Ride

EXAMPLES

- Establishing Park & Rides at interim end-of-line stations as transit networks are being built out

TOOL IN ACTION



The City of Edmonton strategically incorporates Park & Ride lots into project planning and construction. The agency plans to be cost effective by being mindful of land and construction costs for facilities and will focus on improving equity with the addition of Park & Ride facilities in an area.


DEFINITION

- Coordinate and collaborate with local stakeholders to align policies, processes, and goals

BENEFIT

- Compatible and harmonized strategies can eliminate regional inefficiencies
- Increase communication between stakeholders
- Maximize regional investment

COST

 **LOW** - Stakeholder staff time

PREFERRED CONDITIONS

- Similar goals and policies
- Policymaker to champion

TYPICAL CHALLENGES

- Turnover of policymakers and institutional leadership
- Keeping Park & Rides relevant with political and transportation trends

RISKS

- Wasted resources if unable to agree upon next steps or unable to show results
- Interdependencies of internal and external stakeholders making relationship and discussions more complicated

EXAMPLES

- Technical Working Group; Regional Working Group

TOOL IN ACTION



Source: Q106.5

- Maine DOT owns and operates Park & Ride lots in the state, but coordinates heavily with local jurisdictions to ensure alignment of priorities.

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MOVING PARK & RIDES FORWARD:

ACTION STEPS TO IMPROVE THE PARK & RIDE
SYSTEM

TRANSIT STATION
EAST PALOMAR
4000 EAST PALOMAR

MOVING PARK & RIDES FORWARD: ACTION STEPS TO IMPROVE THE PARK & RIDE SYSTEM

Moving Park & Rides Forward: Action Steps to Improve the Park & Ride System (Moving Park & Rides Forward) is a roadmap for planning and managing Park & Ride facilities for San Diego and Riverside counties. Park & Ride facilities provide numerous benefits for the San Diego and Riverside regions such as increasing access to transit, consolidating rider demand for transit services, providing convenient meeting points to promote carpools and vanpools, and reducing single-occupancy trips while also reducing associated vehicle miles traveled and greenhouse gas emissions. Park & Ride facilities are an asset that require continued planning, development, monitoring, assessment, and management to leverage these facilities and meet regional and state goals.

In response to changing land uses, a rapidly evolving mobility landscape, and new technology, SANDAG and RCTC are re-evaluating the role Park & Ride facilities will play in the transportation system moving forward. Using literature review, peer agency document review, case study research, stakeholder engagement, feedback from commuter surveys, and site-specific recommendations, an outline of regional action steps has been developed for SANDAG's and RCTC's consideration for future implementation. Each individual stakeholder has different policies that limit the types of actions that they can take when addressing Park & Ride challenges. The actions below should be implemented within the parameters of agency policy. By incorporating some or all of the following regional action steps, both agencies and their partners can leverage existing and future Park & Ride assets to enhance a transportation system to accommodate future growth in the regions, enable more travel options, and establish safer, greener options for the regions.

The following action steps have been organized into four categories:

PERFORMANCE

PLANNING

PROPERTY

PRICING AND TECHNOLOGY

Several specific actions have been identified as early action candidates. These actions could be initiated with minimal funding or policy changes while having notable impact.

These actions are marked with:



MOVING PARK & RIDES FORWARD: ACTION STEPS TO IMPROVE THE PARK & RIDE SYSTEM

PERFORMANCE

Measuring the performance and effectiveness of Park & Ride strategies is necessary to determine where continued investment is warranted and what efforts need to change to better meet the needs of stakeholders. Evaluating performance will also allow Park & Ride operators to analyze the impacts of new technologies and services over time. The following performance related actions focus on creating continued dialogue amongst stakeholders and maintaining robust data about the Park & Ride system.

Meet with relevant stakeholders regularly to discuss the success of existing strategies and develop strategies for implementing future recommendations.

- Share agency research on travel behavior data collection.
- Identify, monitor, and share information regarding informal Park & Ride formation and use.

Create a coordinated marketing strategy that can be leveraged to increase public/private partnerships.

- Work with transit agencies and local jurisdictions to develop a list of incentives and benefits for private sector partners. Incentives may include minimum parking requirement if certain amount of parking spaces are designated for Park & Ride use, marketing/advertising (agencies' websites, bus signage, Park & Ride maps), and transit incentives/discounts for employees.
- Create printed and digital material of Park & Ride benefits for the private sector such as potential for transit service at site, increased number of people per space, etc. Additional benefits are described in *Community Partnerships* section.

Coordinate an enforcement strategy that meets the safety and compliance needs of the system.

- Identify available resources for enforcement among agencies and jurisdictional partners.
- Identify cost effective and practical monitoring options for leased lot locations.
- Create a plan for enforcement that focuses resources on high-need areas with compliance and/or security concerns.
- Implement technologies that allow for remote monitoring of sites (CCTV).

Establish an integrated digital database and performance asset management platform. Utilize the platform to consistently and frequently assess the state of the Park & Ride system.

- Collect and document data points for the *Park & Ride Data Center* such as number of parking spaces by type, parking counts, restrictions, signage, available amenities, reported incidents, and other relevant information. Utilize a centralized platform accessible for all agencies to upload, review, confirm, and utilize data.
- Create annual summary reports from the *Park & Ride Data Center* to compare data for capacity, utilization, incidents, and other considerations that support Park & Ride planning efforts (e.g., corridor, sub-regional analysis, administrative expenditures, marketing partnerships and incentive programs). This report should also document related efforts including marketing and incentive programs including the results of these strategies.
- Assign ownership and management of the database to a single agency with support from partner agencies to collect, review, and provide data.
- Document occupancies during peak periods quarterly. Increase observation frequency as sensing technology is incorporated into facilities.

MOVING PARK & RIDES FORWARD:

ACTION STEPS TO IMPROVE THE PARK & RIDE SYSTEM

PLANNING

Transportation investments require sufficient planning in order to leverage existing developments to their fullest potential and to maximize the impact of future investments. Strategic and deliberate planning for Park & Rides will help to serve more users efficiently while helping to advance agency goals. The following actions focus on developing detailed planning studies that address specific aspects of the Park & Ride system, integrating Park & Ride components into other transportation related planning processes, and using best practices to inform decision-making.

Develop a Park & Ride Facility Master Plan to identify and evaluate existing and potential Park & Ride locations in the system.

- Utilize historic and existing data to evaluate the performance of specific Park & Ride facilities. Evaluate station access, ridership catchment, facility use, and need for existing or new facilities.
- Use Facility Master Plan to identify lots for repurpose, relinquishment, or closure.
- Estimate the long-term cost of operating and maintaining existing Park & Ride facilities. Consider the trade-offs between investing in new technologies and maintaining traditional management and operations.
- Include recommendations into long-range plans for the region, transit authority, and local jurisdictions

Update regional travel demand model to incorporate Park & Ride facilities, help assess the travel mode choice for travelers in the station's area, and identify potential areas that will benefit from a Park & Ride service.

- Establish key factors to estimate the demand for Park & Ride services such as baseline performance metrics of existing lots, proximity of alternative transportation modes to Park & Ride location, peak commuting congestion levels, and parking costs relative to transit service destinations. Additional information about estimating demand is provided in the *Guidance for New Site Analysis*.
- Utilize model to determine how much parking supply is needed at a given Park & Ride facility and identify facilities where spaces can be activated for other uses such as transit-oriented development (TOD).
- Reference occupancy surveys to calibrate forecasts and projections.

Integrate and prioritize Park & Ride facilities into long-range plans. Establish a regular time for the regions to reflect on existing Park & Ride policies or establish new ones, prioritize identified new facilities within available funding sources, and include Park & Rides in the future visions for the regional transportation system.

- Establish criteria for when and where Park & Ride spaces at transit stations and new development is appropriate. See *Guidance for New Sites* section for more information.
- Work with transit agencies, local jurisdictions, and the development community to coordinate regional Park & Ride/Park & Pool needs.
- Incorporate Park & Ride strategies into local and regional Transportation Demand Management (TDM) ordinances.
- Provide guidance for Park & Ride integration into local jurisdictional commercial and residential development processes.
- Identify opportunities to change station-area priorities of Park & Ride facilities including potential for TOD.
- Create standard Memorandum of Understanding (MOU) templates for public/public and public/private partnerships.
- Assign a stakeholder with the responsibility to consolidate and showcase funding opportunities that relate to Park & Rides as they arise.
- The placement of new or expanded Park & Ride facilities must keep pace with the expansion of High-Occupancy Vehicle (HOV) lanes and Express Lanes. These new lanes can only be filled to intended capacity if commuters have options on locations to join carpools/vanpools, and access transit.

MOVING PARK & RIDES FORWARD: ACTION STEPS TO IMPROVE THE PARK & RIDE SYSTEM

PROPERTY

Park & Rides are physical assets that support agency and regional transportation and service goals. Through these real estate assets, agencies are exploring new mechanisms to achieve the highest possible return on investment to sustain and grow transportation services and operations. The following actions aim to make existing Park & Ride assets as productive as possible, through dynamic usage, formalization of facilities, and strategic investment.

Activate the highest and best use of lot space that is underutilized based on existing occupancy counts.

- Update policies and regulations to allow for achievement of the highest and best use of space (vacant lot converting to transit-oriented development).
- Initiate relationships with development partners and property managers that preserve access while incenting additional demand for non-Single-Occupancy-Vehicle (SOV) travel modes.
- Leverage revenue streams (leases, user fees, etc.) to reinvest back into the system.
- Owners of lots share professional real-estate services (brokering and marketing) to facilitate development.
- Promote alternative uses of lot excess capacity including special events and mobile retail.
- Relinquish specific lots to other agencies to better align with site specific goals, where necessary, and relinquish to the private sector if investment is no longer aligned to Park & Ride goals.

Establish formal Park & Ride facilities from known informal lots or develop nearby alternatives to increase Park & Ride system capacity, awareness, and use.

- Identify land owners of informal lots and coordinate with owners to designate formal Park & Ride spaces.
- Create an internal inventory of parking behaviors and the location of informal lots.
- Create a standard liability agreement that alleviates concerns of existing owners while meeting the region's needs.

Invest in high-potential locations.

- Assess latent demand potential for existing lots in the system.
- Invest in (focused) mobility hub strategies that incentivize new users of the system.
- Lease and/or purchase property in areas that are un/under-served.
- Create a dedicated source of funding for system investment (capital and operations & maintenance).
- Acquire property near new transitway corridors for future Park & Ride facilities and potential for future joint development (P3) opportunities. Example P3 models can be found in [Appendix G: Funding Sources](#).

MOVING PARK & RIDES FORWARD: ACTION STEPS TO IMPROVE THE PARK & RIDE SYSTEM

PRICING AND TECHNOLOGY

Mass adoption of rapidly evolving consumer technologies is changing the way users interact with the transportation system. Future innovation will continue to create opportunities for the Park & Ride system to better meet the needs of users while increasing user expectations of the same system. The following actions focus on integrating technologies to enhance Park & Ride operations for the user while empowering agencies to strategically allocate parking resources congruent with their goals

Implement strategic technologies that advance multiple system and agency goals.

- Leverage sensing technologies for data collection and enforcement.
- Utilize access control for demand management and compliance.
- Explore technologies that could supplement and/or replace traditional Park & Ride operations (signage, permits, payment, if applicable).
- Partner with third-party technology developers to integrate Park & Ride information (trip planning services, parking availability, etc.) Additional information about partnering with the private-sector are described in *Community Partnerships*.

Develop a system that allows pricing parking spaces as a limited resource.

- Initiate a paid parking feasibility study at lots with sustained high occupancies.
- Utilize the travel demand model for Park & Rides to test the effects of parking pricing and improvements to other access modes on facility parking demand.
- Determine appropriate technologies for users to interact with the parking system.
- Develop marketing campaign that communicates the benefits of a paid parking system and the alternative to parking in paid lots.

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An aerial, top-down perspective of a modern urban intersection. A red and white train is traveling on an elevated track that runs diagonally across the upper portion of the frame. Below the track, a multi-lane road curves through the scene. The road features yellow diagonal markings for crosswalks and dashed white lines for lane boundaries. Various vehicles, including cars, buses, and a motorcycle, are visible on the road. Pedestrians are walking on sidewalks and crossing the street. The area is landscaped with green trees and grassy patches. The overall scene is brightly lit, suggesting a clear day.

LOOK AHEAD

LOOK AHEAD

Park & Ride facilities provide a comfortable and convenient first-mile connection to transit, carpooling, and vanpool services. However emerging technologies, changing commuter preferences, and increasing e-commerce will change the way Park & Rides serve the communities in which they reside. In order to effectively leverage these facilities, the current notion of Park & Ride may continually need to be monitored and evolve to meet these new technologies and commuter preferences, which continue to impact the transportation network in the future. This Regional Strategy identifies the framework for improving the Park & Ride system through more informed decision-making. The following trends highlight factors to consider as the regions look ahead.

DATA COLLECTION AND ANALYSIS

Consistent and robust data collection is foundational to informed decision-making. Continuous data collection and analysis at the regional level will support future Active Transportation and Demand Management (ATDM) efforts and encourage optimization of the roadway network to move people more efficiently by identifying Park & Ride space availability and sub-regional demands. Historic utilization analysis will support the identification of commute behavior trends and provide supporting evidence that could be leveraged for future management decisions and potential partnership opportunities. Collecting and analyzing incident reports also supports the effectiveness of supportive management and security programs. By collecting this information in one database, regional operators can identify and implement more effective crime prevention measures to minimize unwanted activities and provide active surveillance through both site personal and/or on-site activities that will discourage unwanted activity.

MOBILITY HUBS

Planning for mobility hub features at Park & Ride locations allows local agencies to demonstrate how transportation services, amenities and supporting technologies can work together to make it easier for communities to access transit and other shared mobility choices. Park & Rides may serve as transitory access locations that capture new riders and connect to the region's major residential, employment, and regional attractions while the rest of the transportation network evolves. Additionally, there may be opportunity to leverage funding needs through incentive programs that support new mobility hub features (e.g. electric vehicle charging infrastructure, smart growth, active transportation, etc.). Many communities are now looking at parking lots as the next development potential, and some existing Park & Ride lots may be considered for future transit-oriented development. Additionally, the assumptions for passenger and cargo vehicles are starting to align with several prototypes emerging that can accommodate both — with most Park & Ride facilities adjacent to freeway on/off-ramps, there may be opportunity in the future to share exchanges of both goods and passengers at Park & Ride locations.

SYSTEM AWARENESS

The unknown benefits of Park & Ride to varying audiences including commuters, property managers, local jurisdictions and major employers is a major challenge for future partnerships and expansion of Park & Ride. Capturing data and publishing collateral that identifies the benefits of Park & Ride information in strategic marketing materials and outreach to specified audiences across targeted platforms is essential for maximizing current and future investments in the transportation network. Smart applications are also changing the way we plan trips for goods and people, and analysis that supports understanding utilization and behavior of existing users and assets will support optimizing the effectiveness of future trip-planning applications. Understanding the value of Park & Ride investments at a regional and more localized level will create opportunities to leverage other smart city investments, including in smart parking, tolling or communications infrastructure.

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APPENDIX A: EXISTING POLICIES & FACILITIES

EXISTING POLICIES & FACILITIES

Existing Park & Ride facilities and policies help provide context for the current Park & Ride environment. It builds the foundation for proposed improvements and regional recommendations. The following presents an overview of agency policies and initiatives that support Park & Ride facilities, into the existing environment of facilities, planning initiatives, and management policies for each agency. It also defines agency differences as it relates to resources, policies, and planning efforts for Park & Ride facilities.

There are over 140 facilities in San Diego and Riverside counties combined that are operated and managed by Caltrans, San Diego Association of Governments (SANDAG), Riverside County Transportation Commission (RCTC), San Diego Metropolitan Transit System (MTS), and North County Transit District (NCTD). These agencies provide various services and operate their facilities differently from one another. Additionally, monitoring, surveillance, and equipment of individual lots varies between agencies and the lots operated by them. Table 1 summarizes these facilities and their overseeing agencies.

Table 1. Park & Ride Lots by Operating Agency

OPERATING AGENCY	TRANSIT	PARK AND POOL	COMBINED	AGENCY TOTALS
Caltrans	0	30	31	61
MTS	26	0	0	26
MTS / SANDAG	5	1	0	6
NCTD	18	0	0	18
RCTC	0	15	17	32
TOTAL	49	46	48	143

CALTRANS

Caltrans operates over 60 Park & Ride lots that often border freeway interchanges along commuter corridors. These facilities were developed in conjunction with the freeway build-out to accommodate commuter needs. With changes in commuting patterns, the demand for parking at specific locations has changed. Some lots now experience high demand, whereas others do not. Half of Caltrans' lots have been designated for carpool / vanpool spaces, whereas the other half are designated as combination of carpool / vanpool services and transit services. Additional information about Caltrans Park & Ride lots can be found [here](#).

PLANNING

CALIFORNIA TRANSPORTATION PLAN 2040

In June 2016, Caltrans developed The California Transportation Plan 2040 (CTP). This document is a statewide long-range policy plan that presents a vision for California's future transportation system. It defines goals, policies, and strategies to achieve the organization's transportation vision and recommends performance measures for assessing projects after implementation. Park & Rides are discussed in the Active Transportation and Demand Management section of this document. The CTP endorses Park & Rides to support alternative modes of transportation other than single occupancy vehicles (SOV). The CTP also supports Active Parking Management (APM) to maximize utilization of existing park and ride assets through overflow transit parking, parking reservations, wayfinding, and priced parking. APM strategies are considered a short-term goal.

INTEGRATED CORRIDOR MANAGEMENT

Caltrans will continue to incorporate park & rides through its Integrated Corridor Management (ICM) approach to corridor implementation. ICM leverages information technologies to increase the efficiency of existing corridors. Combined with Park & Rides, this can increase multimodal ridership and decrease travel times for commuters.

EXISTING POLICIES & FACILITIES

DISTRICT 11 SYSTEM MANAGEMENT PLAN

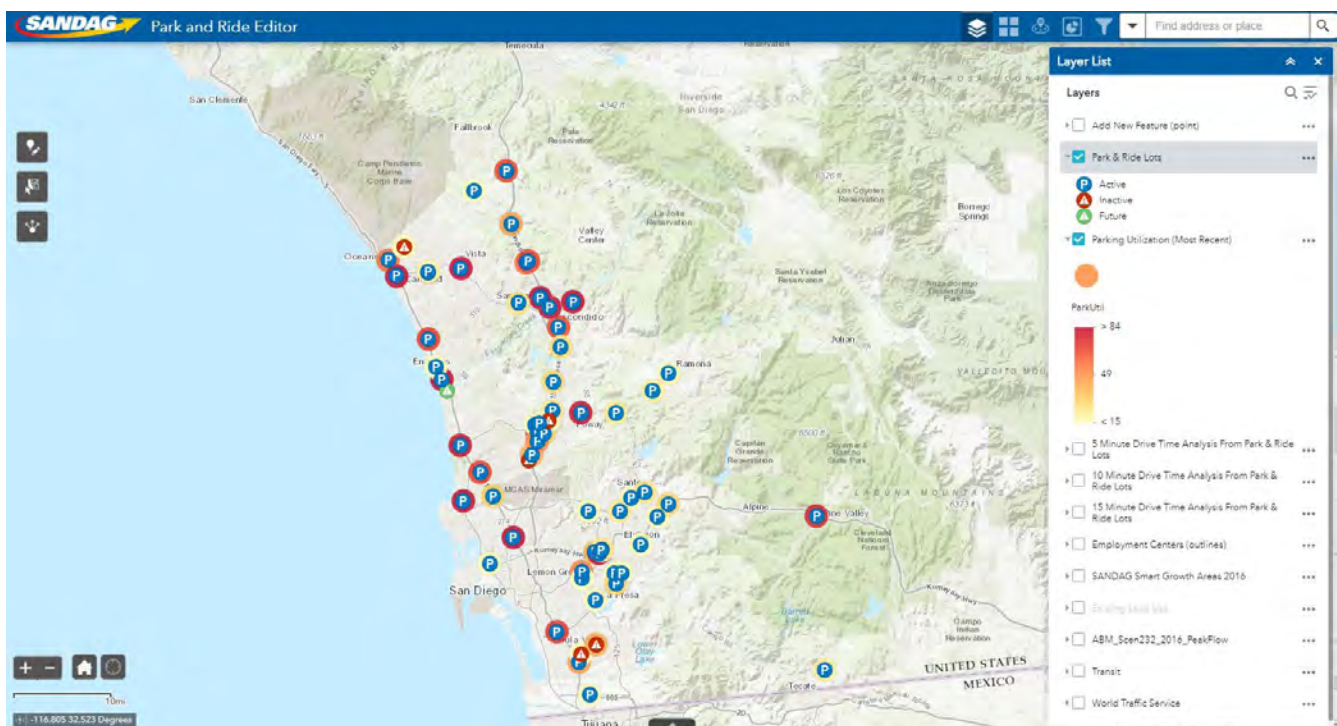
The District 11 System Management Plan (DSMP) identifies two strategies related to Park & Ride lots. The first is to improve asset management of Park & Ride facilities by utilizing GIS mapping technology to track lot attributes and asset condition. The second strategy is to identify pilot locations for an Adopt-a-Park & Ride program and to solicit participation from local businesses.

MANAGEMENT

Park & Rides are managed at the district-level. San Diego is managed by District 11 and Western Riverside is managed by District 8. Both districts have a webpage that identifies the location of the lots in their jurisdiction. Both areas also have interactive maps that give limited details about lot attributes including number of spaces, owner, and hours of operation. These maps are not inclusive of all Park & Rides in their respective areas as most facilities operated by transit agencies are absent. Caltrans conducts counts of their lots on a quarterly basis.

Caltrans has the following rules for usage of their lots:

- Park & Ride lots are for the ride share commuter (vanpool/carpool) parking and are not intended for residential, commercial, or long-term parking. Daily commuter parking at Caltrans operated Park & Ride lots is free of charge; no permits are required.
- Some Park & Ride lots are limited to Monday through Friday, 5:30 am to 6:00 pm. There are signs posted at each of these lots.
- 24-hour parking is not recommended. Vehicles parked outside of designated spaces or left in excess of 72-hours may be ticketed and towed at the owner's expense (California Vehicle Code Section 22651(k)).
- No loitering, camping, vending, or parking of vehicles 30-feet or longer is permitted at any Park & Ride lot (California Vehicle Code Section 22518).



The above map shows the existing active and inactive lots from the *Park & Ride Data Center* for Caltrans operated lots. Colors behind the Park & Ride lots indicate last recorded utilization with red showing almost full capacity.

EXISTING POLICIES & FACILITIES

SANDAG

SANDAG emphasizes the importance of mode shift through various transportation demand management (TDM) strategies. The SANDAG rideshare program iCommute matches commuters with similar travel needs. Their transit services, MTS and NCTD, provide both regional and local coverage, while their Park & Ride lots support commuters who engage in both rideshare and transit services. SANDAG has over five lots and over 1,340 Park & Ride spaces, some of which are managed in partnership with MTS and private sector stakeholders. Additional information about the Park & Ride program in the San Diego region can be found [here](#).

PLANNING

SANDAG has demonstrated a commitment to promoting mode shift through its agency outreach and planning efforts. They have considered innovative approaches to mobility challenges in the area, while publishing literature to support it. Their planning initiatives incorporates transit, transportation technology, and park & ride. This Regional Park & Ride Strategy builds from these previous efforts and supports future projects. The following section summarizes some of the key planning documents that SANDAG has recently released.

SAN DIEGO FORWARD

San Diego Forward: The Regional Plan (Regional Plan) serves as a blueprint for how San Diego will grow, and how SANDAG will invest in transportation infrastructure for the decades to come. This document's vision focuses on sustainable communities, innovative mobility, and a vibrant economy.

INTEGRATING TDM INTO THE PLANNING AND DEVELOPMENT PROCESS

This study was developed to provide municipal governments with the tools to implement and monitor TDM policies as part of their local plans and projects. This document explains how TDM can be effectively incorporated into urban design, site development, and parking strategies. The TDM study presents case studies and recommendations, which can be tailored and applied to local jurisdictions. The study was accepted by the Transportation Committee in May 2012, for inclusion as a resource in the SANDAG Smart Growth Toolbox.

REGIONAL PARKING MANAGEMENT TOOLBOX

SANDAG has created a Regional Parking Management Toolbox to provide cities with tools for evaluating, implementing, and managing parking management strategies that support their individual economic development, sustainability, and mobility goals. This interactive initiative provides a broad set of tools and step-by-step instructions for shaping successful parking management programs.

EMERGING TECHNOLOGIES WHITEPAPER

In January 2018, the Emerging Technologies White Paper was updated to reflect research and current trends in transportation. The White Paper presents technological and social trends that can radically impact the region's transportation system in the future. The document outlines policy considerations that enable the region to harness the benefits and reduce the negative aspects of these trends.

MOBILITY HUBS

SANDAG is currently planning to implement mobility hubs at locations across the region. Mobility hubs are places of connectivity where different modes of travel—walking, biking, transit, and shared mobility—converge. They typically coincide with places where there is a concentration of employment, housing, shopping, and/or recreation attractions.

Mobility hubs provide an integrated suite of mobility services, amenities, and technologies, including:

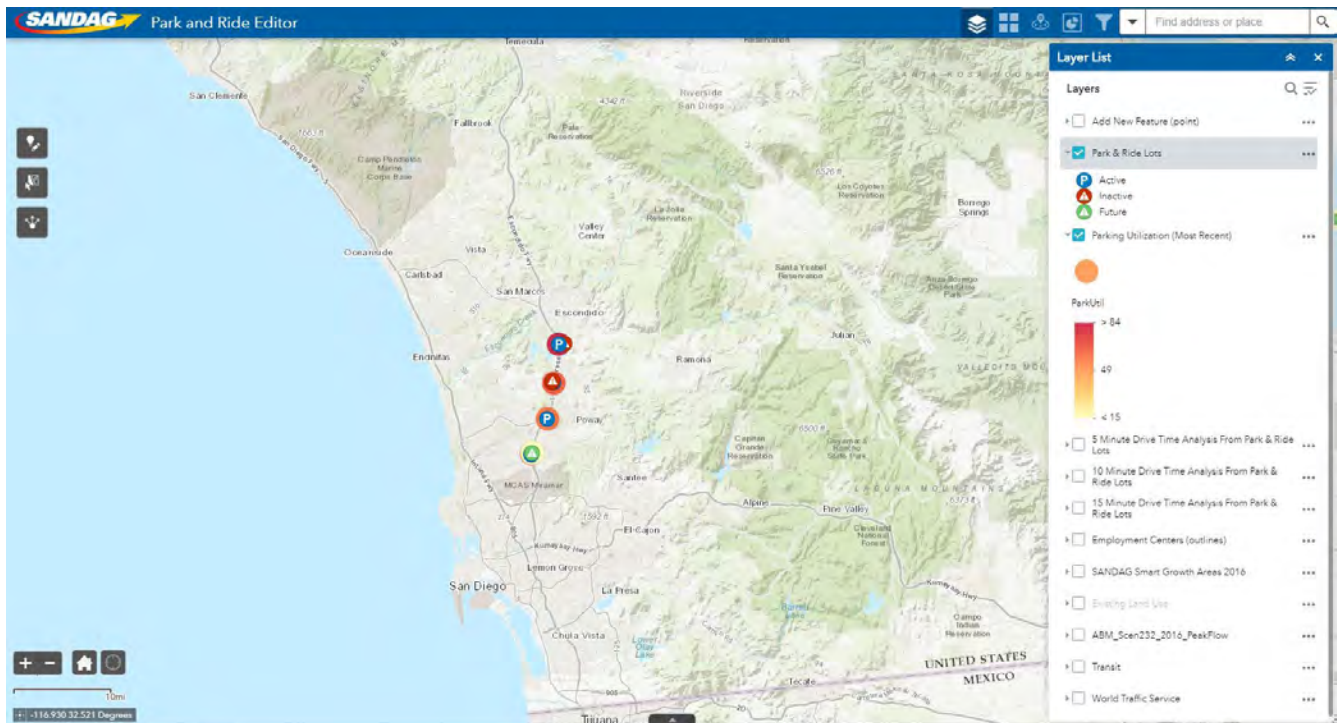
- Bikeshare / carshare
- Neighborhood electric vehicles
- Bike parking
- Dynamic parking management strategies
- Real-time traveler information / wayfinding
- Real-time ridesharing
- Microtransit services
- And urban design enhancements that specifically supports active and public transportation

EXISTING POLICIES & FACILITIES

These features help travelers connect to regional transit services and make short trips within the neighborhood and beyond. Future technology advancements, including connected and automated transportation services will present new opportunities for mobility hubs. Additional information about mobility hubs can be found [here](#).

MANAGEMENT

Transportation Demand Management (TDM) refers to programs and strategies that manage and reduce traffic congestion by encouraging the use of transportation alternatives. SANDAG coordinates many programs such as iCommute for carpooling and vanpooling programs and the Guaranteed Ride Home program. The Bike to Work Day and Rideshare Week are some of SANDAG's outreach initiatives to support mode shifts away from the single-occupancy vehicles. Most of SANDAG's lots are managed in partnership with MTS. SANDAG conducts counts on their lots, but this does not occur on a regular basis. For monitoring, SANDAG uses a compliant-based system to address issues.



The above map shows the existing active and inactive lots from the *Park & Ride Data Center* for SANDAG operated lots. Colors behind the Park & Ride lots indicate last recorded utilization with red showing almost full capacity.

RCTC

RCTC is responsible for planning highway and transit projects as well as identifying projects for state and federal funding. RCTC executes lease agreements and operates over 20 Park & Ride lots. Of these lots, about half are designated for park and pool (588 spaces), and the other half are combined (359 spaces) park and pool with transit operations. Most lots are distributed along I-15 and I-215 corridors serving commuters travelling out of the county to San Diego, Orange, and Los Angeles. Additional information regarding Park & Ride lots in Riverside can be found [here](#).

PLANNING

REGIONAL TRANSPORTATION PLAN / SUSTAINABLE COMMUNITIES STRATEGY

RCTC is the agency charged with recommending projects proposed for funding under the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS identifies strategies to meet mobility needs of all modes, legislative, financial and air quality requirements in the six-county area of Southern California and is overseen by the Southern California Association of Governments (SCAG). This plan is updated every four years, most recently in June 2016.

EXISTING POLICIES & FACILITIES

RCTC's role in the development of the RTP/SCS is to identify long range transportation improvement projects beyond those already programmed in the six-year federal funding plan. RCTC coordinates the input provided to SCAG with local agencies and transit operators in order to ensure consistency with city and county transportation plans and projects.

LONG-RANGE TRANSPORTATION PLAN

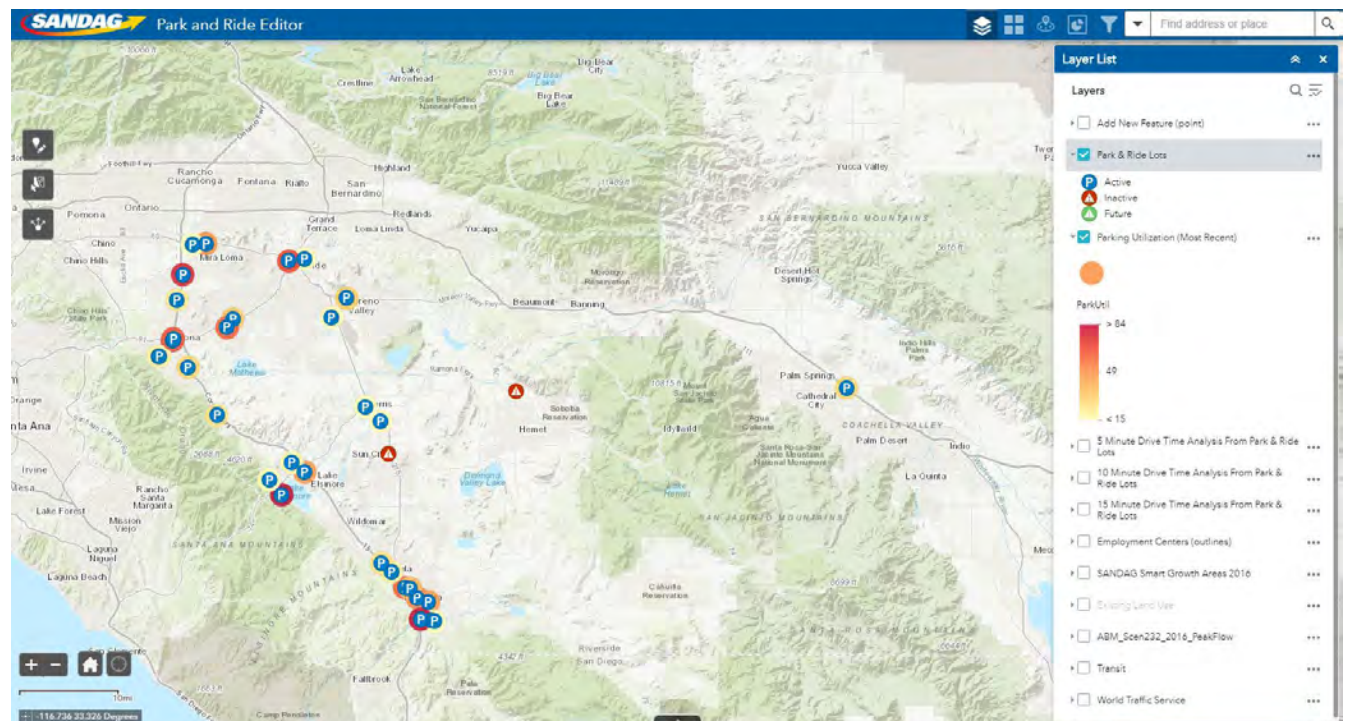
RCTC is starting to develop the first countywide Long-Range Transportation Plan (LRTP). The LRTP kicked off in mid-2017 and will be completed in 2019. It will provide a vision for what an integrated transportation system will look like in Riverside County in the next 20 years. The plan is taking a comprehensive review of projects on the state highway, regional arterials, rail and bus, freight network, and active transportation. It also will identify potential "bundles" of projects that can be developed in a systematic approach, demonstrate environmental benefits, and put RCTC and its member agencies in a more competitive position for funding opportunities.

MANAGEMENT

RCTC engages in a variety of activities to manage and operate their Park & Ride facilities. They are actively balancing high-demand for park & ride spaces with limited resources to construct new facilities. As such, RCTC regularly negotiates with private property owners to lease spaces for Park & Ride operations. These spaces are typically contracted on a pay-per-space basis and have restrictions on certain times of day and, occasionally, days of the year. Despite offering generous cash payments, leased parking can still be difficult to find.

Locations and lot attributes are communicated to the public using the Inland Empire 511 system (IE511.com). This helps users better plan their trip while also having access to other commuter resources on the 511 website including real-time traffic and road closure information.

To measure the performance of Park & Ride lots, RCTC conducts regular occupancy counts. These are recorded for historical tracking and to help inform decisions to add or remove spaces from certain regions. RCTC conducts customer service surveys to receive feedback from users of their facilities.



The above map shows the existing active and inactive lots from the PPark & Ride Data Center for RCTC operated lots. Colors behind the Park & Ride lots indicate last recorded utilization with red showing almost full capacity.

EXISTING POLICIES & FACILITIES

NCTD

NCTD offers dedicated Park & Ride spaces at over 15 transit service locations, consisting of over 3,500 dedicated spaces along the COASTER and SPRINTER rail lines. These lots were developed in conjunction with transit to support ridership. NCTD currently offers electric vehicle charging stations at the Oceanside Transit Center. Additional information about NCTD stations can be found [here](#).

PLANNING

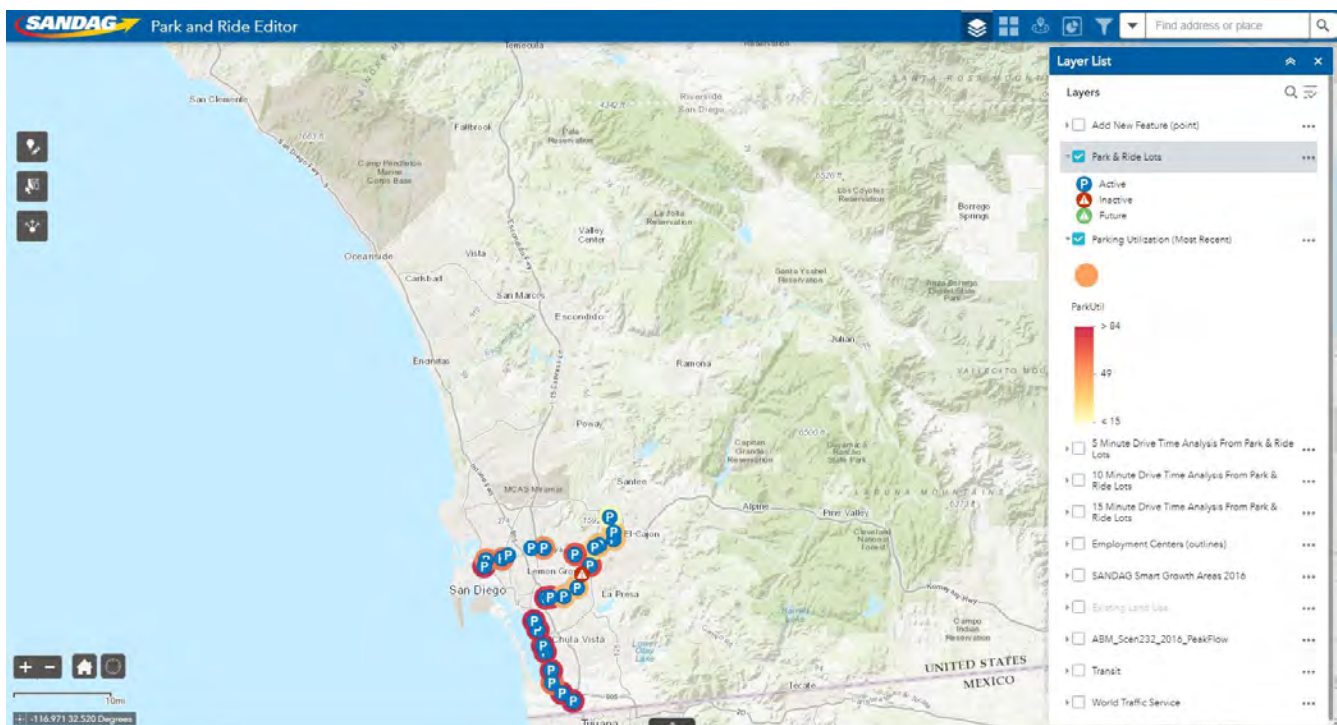
While NCTD is not currently planning for further expansion of its transit network, the agency is working toward planning initiatives to improve services. In coordination with SANDAG, NCTD is considering mobility hubs to provide further transportation services. This effort hopes to increase access through additional modes of transportation and increase ridership.

COASTER SMART PARKING PILOT

NCTD conducted an analysis of the cost effectiveness of smart parking features at COASTER Park & Ride lots and passengers' willingness to pay for them. The report builds on Smart Parking Pilot Project on COASTER Commuter Rail, which analyzes information obtained during test research at the Rockridge San Francisco Bay Area Rapid Transit (BART) District station. The report identified two key challenges for NCTD COASTER lots. For one, non-users of the system will park in the lots without permission. These non-users fall into two categories: non-transit riders and Amtrak / MetroLink riders. The second challenge is to maximize unused parking spaces by providing greater certainty with lot availability. This can be achieved through carpooling, delivering accurate traveler information, and by discouraging long-term parkers to generate more daily trips out of spaces.

MANAGEMENT

Current policy allows 96-hour parking at most SPRINTER stations and two-week parking at most COASTER Stations.



The above map shows the existing active and inactive lots from the *Park & Ride Data Center* for NCTD operated lots. Colors behind the Park & Ride lots indicate last recorded utilization with red showing almost full capacity.

EXISTING POLICIES & FACILITIES

MTS

MTS offers transit-only Park & Ride facilities at over 25 locations consisting of over 11,000 Park & Ride spaces along the Orange, Blue, and Green Trolley lines. These lots were developed in conjunction with transit to support ridership from neighboring residential areas. Additional information about MTS stations can be found [here](#).

PLANNING

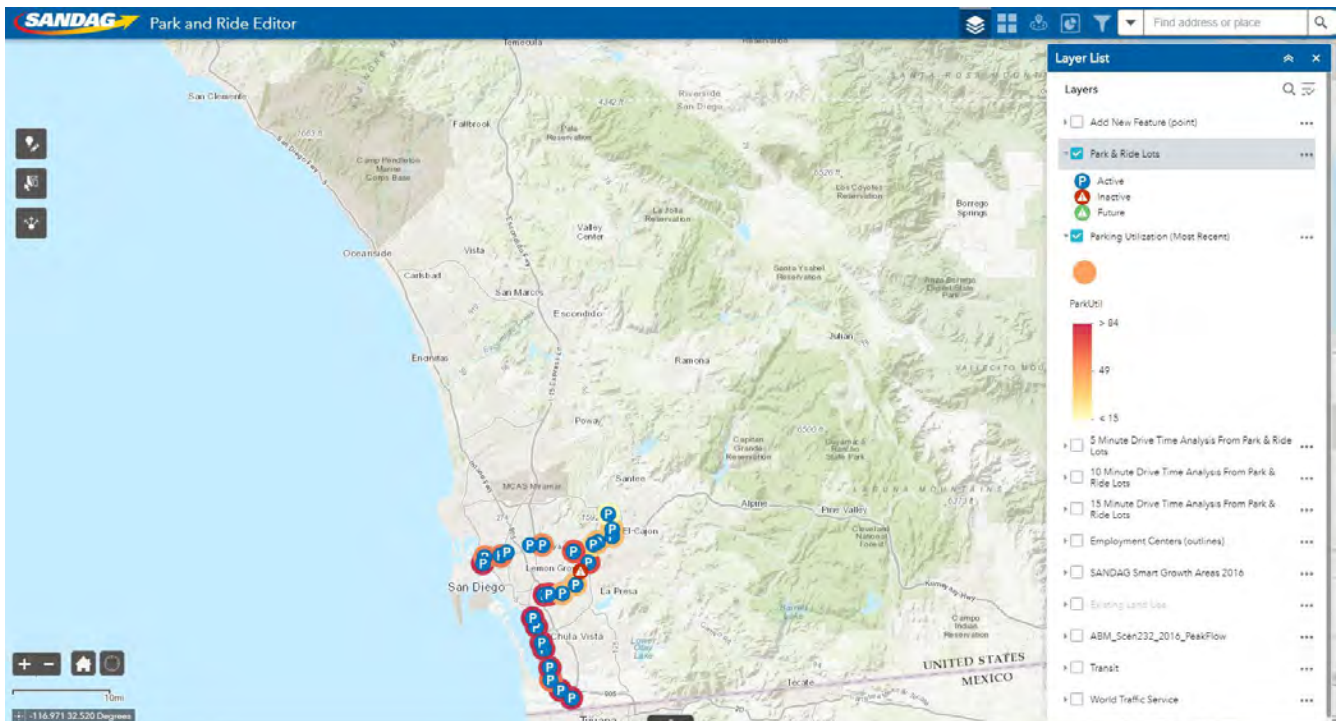
MTS is currently planning for an expansion of 800 spaces of parking at four locations to support the Blue Line Extension project. In coordination with SANDAG, MTS is considering mobility hubs to expand the suite of amenities offered to passengers, increase access through additional modes of transportation, and increase ridership.

JOINT DEVELOPMENT PROPERTY INVENTORY

MTS has had an active Joint Development Program for the past three decades. MTS is actively planning new developments for MTS properties. MTS revised MTS Board Policy 18 in 2018 to incorporate sustainability, active transportation, parking, and housing at MTS properties while improving transit ridership.

MANAGEMENT

MTS communicates the location and space capacity of its lots on the MTS website. Current policy limits parking at any Trolley station to 24 hours. Parked vehicles that exceed 24 hours are ticketed and towed. There is no overnight parking for RVs or campers. The MTS conducts monthly counts on their lots.



The above map shows the existing active and inactive lots from the *Park & Ride Data Center* for MTS operated lots. Colors behind the Park & Ride lots indicate the last recorded utilization with red showing almost full capacity.

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APPENDIX B: STAKEHOLDER WORKSHOP SUMMARY

San Diego and Western Riverside Counties Regional Park and Ride Strategy

Introduction

The San Diego Association of Governments (SANDAG) and Riverside County Transportation Commission (RCTC) are developing recommendations for managing and developing Park & Ride facilities in the region.

Stakeholders identified specific issues with existing management strategies, including a patchwork policy framework, constrained funding, unclear roles and responsibilities, limited enforcement, and a lack of a marketing identity for the system. Through research and engagement with stakeholders, the project will identify recommended management strategies for addressing these issues and others, including forecasting, siting, technology, enforcement, and pricing. Innovative strategies from academic literature and case studies will be inventoried for consideration as recommendations. Using a toolkit format, strategies will be organized by various Park & Ride typologies, using utilization, service type, and ownership status to group similar facilities. Goals and objectives were developed to help direct the research priorities and recommendations of the Regional Park & Ride Strategy. Potential strategies to improve the Park & Ride system requires a dynamic approach that acknowledges the unique variables that impact each facility. The project goals and objectives provide guidance to the Project Development Team (PDT) in weighing those trade-offs.

Goal statements describe what the project is trying to achieve in aspirational terms. The objectives describe the specific ways each goal will be achieved. This memorandum defines each project goal and objective and documents the process of how the goals and objectives were developed.

Stakeholder Outreach

To help inform the development of the goals and objectives, a project workshop was held on November 6, 2017. The workshop solicited input from Caltrans, SANDAG, Riverside County Transportation Commission (RCTC), San Diego Metropolitan Transportation System (MS), North County Transit District (NCTD), Riverside Transit Agency (RTA), and many of the local jurisdictions in San Diego and western Riverside Counties. Major issues that were brought up included:

Funding: Each agency has a different role pertaining to implementing, operating, and managing Park & Rides. Resources are limited, so the study will help identify creative funding opportunities to support regional needs. The following points are for the project team to consider:

- Pay to Park – Caltrans is not allowed to “make a profit” on public right-of-way, so charging for parking in Caltrans-owned lots could be challenging, unless policy is changed. The MTS has considered charging for parking in lots that are at capacity. The RCTC owns all of the Metrolink station in Riverside County; maintenance of these facilities is a major expense, and like MTS, there is opportunity and a benefit of charging for parking in lots that are at capacity in the future; it may also be used as an incentive for commuters to arrive in higher density alternatives for free parking.
- Activating the Space – Farmers’ Markets or food truck events could be a way to introduce communities to Park & Ride locations. Opportunities to develop public-private partnerships that could contribute funds toward operations and maintenance should also be considered.

- Other Opportunities – Can we leverage Park & Ride needs with other existing/planned projects? (e.g., CMAQ, Smart Growth Incentives, SB1) What are some developer incentives that should be considered?

Operations: Regional Park & Ride operations are the responsibility of multiple agencies, which makes defining roles and responsibilities cumbersome and creates confusion for potential users seeking information on the facilities. Since locations are spread throughout the region, management of the assets can be a challenge. The following points are for the project team to consider:

- Ownership – Private owners who are aware of informal Park & Rides (e.g. Walmart) are becoming less accommodating of Park & Ride operations when highly utilized. Private owners of leased lots don't mind high utilization if it doesn't exceed the allocated spaces. Commercial property owners, are less likely to accommodate any kind of Park & Ride arrangement for a variety of reasons, including but not limited to perceived liability, hassle, wanting to maintain their capacity regardless of actual usage, etc.) Agency-owned lots seem to be preferred over leased lots, from an operations standpoint, because they are not at the mercy of the property owners, which can sometimes lead to an uncertain future for the lot. There was a consensus that property managers do not effectively promote the location of Park & Ride spaces at sites with shared uses (ie. shopping malls). However, they enforce robustly adjacent spaces not available to Park & Ride users. Lack of signage and significant enforcement at nearby parking spaces can be very discouraging to Park & Ride users.
- Maintenance and Security – Dumping is an issue at some Park & Ride lots because citizens have realized that Caltrans maintenance crews will clean up for "free" as part of their maintenance duties. Users have complained about a significant number of RVs and that some lots draw unwanted activity. Many Park & Ride lots don't have security or cameras, but most have lighting. As part of the existing conditions research, the project team should contact local authorities and request activity reports from lots with multiple complaints.
- Access Control - All lots in both regions are free. Permit requirements have been introduced in some locations that are at capacity. Street parking is being used as informal Park & Rides. A solution for parking access control could be identified. This solution should be integrated with the transit payment systems to verify users.
- Marketing – A map with all Park & Ride locations (transit lots, carpool/vanpool lots, hybrid lots) does not exist in San Diego. Some Caltrans parcels don't have addresses and Google doesn't recognize them or list them accurately, which adds another layer of frustration. It can be difficult to know where facilities are located and what their operating hours are; not all are well identified, especially shared-use lots in a retail centers. Although electric vehicle infrastructure is available to the public, signage, websites, and marketing collateral is not explicitly clear. A centralized database of Park & Rides would be highly valuable. In concept, each agency could be responsible for their own data. This regional database could then feed into whatever 511 systems have Park & Ride information.
- Enforcement – There are limited resources for enforcement and parking capacity cannot be determined remotely; smart parking could be an opportunity to more effectively manage assets

remotely. Policies relating to enforcement need to be revised and clarified according to regional goals and objectives.

- Planning – Most Caltrans Park & Rides were established in the 1980s and '90s; the outlook on mobility has drastically changed since then. There is a need to update the definition and uses of Park & Ride to better meet current and future demand. What tools can we provide to local jurisdictions to engage developers about Park & Ride for specific sites? Perhaps through the development services Intergovernmental Review process? Provide something similar to Regional Complete Streets Checklist or the Regional Parking Management Toolbox? Can we incentivize business owners to build, operate, and maintain spaces?

Forecasting: The regional models are better suited for forecasting larger-scale impacts to the region, so it has been challenging to accurately forecast demand for specific Park & Ride parcels. More specifically, reliable vanpool/carpool data is hard to come by since they form randomly. These are some discussion points for the project team to consider:

- Air Pollution and Control District – Park & Ride facilities can be thought of as a component of climate action plans and as an option for reducing VMT by encouraging commuters to choose an alternative transportation mode. It would be interesting to capture Park & Ride ancillary uses, such as meeting spots for community bike rides, and then quantify the emission reductions resulting from those activities. Additional data, such as how far people travel to lots, would also be useful.
- Performance metrics – How can we capture Park & Ride performance? It would be nice to see the return on investment for Park & Ride facilities so we can analyze whether the costs associated with operating and maintaining them are helping the region achieve their climate action plan and transit ridership goals. When MTS invests in a Park & Ride at a transit station, what are they giving up (e.g., additional bus island, Kiss & Ride, dedicated curb space, etc.)? For leased lots, what are the usage rates for the spaces? How can we measure that?
- Demand – When pursuing leased spaces, what is the appropriate parking ratio? How can modeling account for future technology like autonomous vehicles? When is parking for freight required? Perhaps geotargeting and location based services can capture when people arrive and when they return to make strategic decisions.
- Looking ahead – Need to consider the future of vehicles, given advancements in automation. Will there still be a need for regions to construct new Park & Rides?

Siting: It is difficult for agencies to increase Park & Ride capacity for locations with high demand because vacant land is hard to come by and property managers are hesitant to share/lease available parking spaces. These are some discussion points for the project team to consider:

- Commuter Preference/Security – People are more comfortable leaving their cars in commercial areas where there are witnesses throughout the day. Locating lots near coffee shops, eateries, retail, mixed-use, and TOD is attractive to commuters.
- Connections – As an example, Del Lago isn't well connected to the active transportation network; it is hard to get there by other modes, such as walking and biking. Some lots have

accessibility issues and can be hard to get in and out of because of traffic signals, school drop-off queues, etc.

Other: These are additional discussion points for the project team to consider:

- Electric Vehicle Investment – San Diego Forward: The Regional Plan and EIR call for EV charging for passenger vehicles. How can we guide investment in infrastructure and public awareness? This is potentially a strategy for increasing EV ownership. Are there are EV amenities that could attract more drivers to use Park & Ride? Perhaps maybe “EV” charging lounge or a mobile app with EV locations, which could support carpool formation? EV charging is planned for new Mid-Coast trolley stations.
- Coronado Ferry – There is limited parking for ferry commuters, since parking is geared toward residential and business uses.
- Enhanced Trip Planners – Metrolink has done a good job of augmenting their trip planner so it notifies commuters how much money they save in fuel by using alternative modes. Is this something that’s possible for Park & Ride? Can using a trip planner to support first-last-mile choices be a gateway for commuters to use transit? Some users may find this valuable while others may not.
- Biking Amenities – It would be ideal for people to park their vehicle, then use bikeshare. Or, ride their bike to facilities, park it securely, and then connect to transit. Facilities also need to consider accommodating charging and storing electric bikes. SANDAG is planning for e-bikes in the Regional Mobility Hub Strategy, specifically at Mid-Coast trolley stations.
- Re-Opening of State Route 76 Park & Ride – The lot is located near a weigh station and the Temecula border. Enhancements were made through a partnership with the local tribe in hopes to increase casino attendance. 11 spaces are dedicated to freight parking since semis use this lot while traveling Route 76. This interests RCTC because there is a need for semi parking in Moreno Valley.
- Park & Ride for Airport Travel: There are currently no policies for Park & Ride use that would allow for long-term travel (parking over 72 hours to take transit to the airport).

Goals and Objectives

The following goals and objectives reflect the feedback received from the stakeholder workshop and the input from the PDT. Goals and objectives represent a preferred situation for a Park & Ride facility. Given sites are subject to unique characteristics and restrictions, it is unlikely that every goal and objective can be achieved at every site.

Multimodal Access and Amenities

Stakeholders clearly communicated that Park & Rides should be as accessible as possible to the greater transportation network and offer amenities to enhance the Park & Ride experience. Many of the current Park & Rides were sited in locations that were convenient for implementation, but not always where they would be most useful. Tying current and future Park & Rides into pedestrian, bicycle, transit, and highway networks will expand the service areas and open the system to new users. Additional amenities like electric vehicle charging, package lockers, Wi-Fi, bike parking, bikeshare, carshare, and other amenities identified in the [Regional Mobility Hub Catalog](#), many of which align with regional priorities, would further leverage investments made in the Park & Ride system.

Goal Statement: Increase access and usability of Park & Rides through optimized siting and by promoting multimodal access features and amenities.

Objectives:

- Site Park & Rides in locations with access to pedestrian, bicycle, transit, and highway networks
- Partner with jurisdictions to create Park & Ride siting and design guidelines for enhanced implementations
- Provide cost effective amenities at Park & Ride locations
- Develop guidance to balance preference for difference Park & Ride amenities and supportive modes (pick-up / drop-off area vs. bikeshare station vs. more parking spaces etc.)
- Leverage emerging transportation modes and services provided by private and public sector
- Maximize investment in existing Park & Ride locations
- Manage demand at over-utilized Park & Ride locations
- Utilize technology to promote the efficient use of Park & Rides
- Address underutilized locations with new strategies

Safety, Security, and Operations

One major barrier to greater utilization of the Park & Ride system is the perceived lack of safety and security measures at lots. The Park & Ride Strategy should consider both active measures like cameras and security checks as well as passive measures like locating lots in high traffic areas and removing landscaping screening. These strategies would promote safety and security and enhance operations during the typical commuter periods that Park & Rides primarily serve as well as during non-peak periods.

Goal Statement: Enhance safety, security, and operations of Park & Rides during and outside commuter periods.

Objectives:

- Implement Crime Prevention through Environmental Design (CPTED) principles at current and future Park & Ride facilities (natural surveillance, natural access control, territorial reinforcement, and maintenance)
- Encourage on-site activities (retail/donation centers) at Park & Rides or siting of facilities within commercial environments
- Prioritize shared-use or leased parking agreements that include security, enforcement, and maintenance
- Leverage technology to improve operation for users and maintenance

Sustainable Funding

Current funding sources for Park & Ride expansion, operations, and maintenance is limited and often inadequate to provide more than basic levels of service. Because of constrained funding, enforcement and maintenance are often reactionary and complaint-based. Restrictive policies, distributed management responsibilities, and competition for transportation funds all contribute to a limited funding environment. New sources of funding combined with existing financial support could be used to enhance existing assets and provide opportunities to expand the Park & Ride system.

Goal Statement: Generate sustainable funding streams for new locations and existing Park & Ride operations and maintenance through existing and new sources.

Objectives:

- Consolidate the ownership and management of Park & Rides
- Right-size facilities to demand
- Secure dedicated funding sources for the short-term and long-term
- Work with private sector to identify public-private partnership opportunities

System Awareness

One of the largest hurdles to increase Park & Ride system utilization is a lack of public knowledge. There is inconsistent branding and marketing of the system and no comprehensive “one stop shop” for Park & Ride information. Effective tools, consistent branding, and targeted marketing would help educate the public about the location of Park & Rides, how to use them, and the benefits they offer to users and communities.

Goal Statement: Consistently promote the benefits, availability, and locations of Park & Ride to the public.

Objectives:

- Update the public facing Park & Ride map with complete information on all types of Park & Ride lots and information about lots and availability
- Create a consistent brand for Park & Rides to enhance awareness of available locations and supportive services (carpool and vanpool)
- Develop methodology to quantify the environmental impact and user benefits of Park & Ride locations
- Create a marketing campaign to enhance awareness of the system
- Provide real-time information to users where conditions are applicable

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APPENDIX C: LITERATURE REVIEW MEMO

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Literature Review

PARK & RIDE REGIONAL STRATEGY

MAY 2019 FINAL

Prepared By:

Kimley»»Horn

LITERATURE REVIEW

The literature review documents key findings and information of previously published reports and studies from readily available industry sources. The research in the literature review explore practices for Park & Ride planning, management, and operations.

- Transportation Cooperative Research Program (TRCP) Report 153 - Guidelines for Providing Access to Public Transportation Stations
- TCRP Report 95 - Park & Ride/Pool: Traveler Response to Transportation System Changes
- TCRP Report 192 - Decision-Making Toolbox to Plan and Manage Park & Ride Facilities for Public Transportation
- Assessing Park & Ride Efficiency and User Reactions to Parking Management Strategies

TRCP REPORT 153: GUIDELINES FOR PROVIDING ACCESS TO PUBLIC TRANSPORTATION STATIONS

SUMMARY

Park & Ride TRCP Report 153 consolidates data on existing facilities and provides guidelines for design, placement and operation of efficient Park & Rides. These guidelines are relevant in developing new Park & Rides and in evaluating the successes and shortfalls of existing facilities. The report outlines the objectives, key characteristics, design guidelines, and technical specifications of successful Park & Ride facilities. These recommendations are summarized in **Table 1**.

Table 1: Design guidelines for Park & Ride facilities

Design Element	Guidelines
Distance from activity center served (minimum)	5-8 miles
Maximum size	
Lot (typical)	900 – 1,200 spaces
Garage (typical)	1,200 – 1,500 spaces
Parking spaces per acre	125 – 135
Square feet per space	400 – 425
Location of bus loading area	On-street or within lot
Separate bus access	
Less than 350 spaces	Optional
More than 350 spaces	Yes
Maximum passenger accumulation/shelter	80 – 150 people
Bus loading berths (typical)	1 to 4
Maximum desirable pedestrian walking distance	1,200 feet
Kiss-and-ride spaces (percent of total spaces)	2 – 6%
Peaking characteristics	
Peak hour directional movement as a percent of daily traffic	30 – 40%
Peak 15 minutes as a percent of peak hours	30%

Source: H.S. Levinson, adapted from various sources

All guidelines and recommendations are based on the data gathered from existing Park & Ride systems nationwide. Key focus cities include Atlanta, Boston, Chicago, Cleveland, San Francisco, Washington DC, Portland, and Toronto.

KEY TAKEWAYS

Additional relevant takeaways include:

- At rapid transit stations that mainly rely on auto access, there are typically 2.0 transit-boardings per parking space.
- Park & Ride facilities do well in low density areas; 15-40 miles from a central business district.
- The walking distance to most remote parking spaces should not exceed 600 feet.
- Numbered parking spaces are helpful for future considerations of pricing parking.
- For attractive costs, the Park & Ride fee + bus fare should be less than the downtown parking fee average.
- For efficient entrance and exit, busses should have separate roadway access to station entrances if more than 500 parking spaces exist.

PARK & RIDEPARK & RIDETRCP REPORT 95: PARK & RIDE/POOL

SUMMARY

TRCP Report 95 provides a large amount of case-studies and the responses to different Park & Ride systems. The report also includes studies of international Park & Ride systems, primarily those found in Europe. The report also analyzes the success of park-and-pool operations, which are typically no more than 50% occupied. The best practices are consolidated below in **Table 2**.

Some additional takeaways include:

- Park & Ride top demand indicators:
 - Saving money
 - Avoiding driving stress
- 87% of Park & Ride users take 5 or more round trips per week.
- Best catchment area:
 - 5 miles outwards from station, primarily upstream.
 - At least 10 miles from activity center.

Table 2: Characteristics of the "Most Successful" Park & Ride Lot at Each of 24 Transit Agencies

Urban Area	System	Facility	Distance (miles) from			Transit Service		Park-and-Ride Lot Amenities ^c	Lot Capacity – Spaces	Week-day Occupancy	Other Corridor P&R Parking ^d
			CBD	Urban Edge	Highway	Mode ^a	Frequency ^b				
Austin, TX	Capital Metro	Northwest	25	7	0.5	Freeway bus	10	S, L, K	135	135+	250
Columbus, GA	METRA	River Center	0 ^e	15-25	5-7	Arterial bus	45	C, L, G	685	475±	0
Corpus Christi, TX	Corpus Christi RTA	Calallen	14	1	0.2	Freeway bus	One trip	C	100	12	0
Dallas, TX	DART	Mockingbird	3	25	0.3	LRT, art. bus	5	S, L, K, B	750	750	3,000
Dayton, OH	Greater Dayton RTA	South Hub	12	2	0.1	Arterial bus, freeway bus	10-20	S, L, G, R, K, B	150	75	0
Hampton, VA	Hampton Roads Transit	Silverleaf	15	0	0.5	Freeway HOV lane bus	15	S, L, R, K, B	225	150	0
Houston, TX	METRO	Northwest	19	n/a	0.3	Freeway HOV lane bus	4-5	S, L, G, K, B	2,631	2,034	2,625
Miami, FL	Miami-Dade, Tri-Rail	Golden Glades	12	4	0.1	CRR, fwy. HOV lane & art. bus	5	S, L, G, K	n/a	750	No
Milwaukee, WI	MCTS	College Ave.	8	0	0	Freeway bus	15	S, L, K, B	651	352	204
Tacoma, WA	Pierce Transit Sound Transit	Tacoma Dome	<1 ^f	15	0.3	CRR, fwy. HOV bus, other bus	<3	S, C, L, G, R, K, B	2,400	1,600	5,000
Nashville, TN	MTA	Bellevue	14	0	0	Art. & fwy. bus	20	S, L, B	65	25	30
Oakland, CA	BARTD	Hercules	25	8	0.1	Fwy. HOV lane bus, fwy. bus	15	S, L, B	276	476±	100
Orlando, FL	Expressway Authority	Beeline at Narcosee	10	2	0	(None – lot is park-and-pool)	Not applicable	L	15	22	0
Philadelphia, PA	SEPTA	Cornwells Heights	14	6	0.2	CRR	15	S, L, G, R	1,600	725	922
Pittsburgh, PA	Port Auth. of Allegheny Co	South Hills Village	11	15	3	LRT	6	S, L, G, K, B	1,000	1,000	2,200

Urban Area	System	Facility	Distance (miles) from			Transit Service		Park-and-Ride Lot Amenities ^c	Lot Capacity – Spaces	Week-day Occupancy	Other Corridor P&R Parking ^d
			CBD	Urban Edge	Highway	Mode ^a	Frequency ^b				
San Diego, CA	M. T. D. B.	Old Town Transit Ctr.	5	30+	<1	CRR, LRT, art. lane & fwy. bus	10	S, L, G, R, B	550	550	200
Salt Lake City, UT	Utah Transit Authority	Sandy Civic Center	15	10-50	1	LRT, freeway bus	LRT 5-10 bus 15	S, L, K, B	1,186	693	2,840
Seattle, WA	King County Metro Transit	Federal Way	22	12	0	Fwy. HOV bus, art. & fwy. bus	5	S, L, G, B	894	929	2,570
Vancouver, WA	C-TRAN	Fisher's Landing	9	2-3	0	Freeway bus	15	S, L, R, K, B	600	540	0
Ottawa, Ontario	OC Transpo	Eagleson	14	14	1	Busway bus on arterial bus lane	5	S, L, G, B	807	880	3,245
Calgary, Alberta	Calgary Transit	Brentwood	4	6	0	LRT	5	S, L, K, B	1,254	1,254	530
Montreal, Quebec	Agence Met. de Transport	Brossard-Panama	10	0	0.3	Fwy. HOV, art. lane & art. bus	8	S, L, K, B	1,181	1,181	2,000
Winnipeg, Manitoba	Winnipeg Transit	Kildonan Pl. Shop. Ctr.	5	7	1	Bus on art. bus lane, art. bus	7	S, L, G, K, B	50	50	n/a
Wellington, New Zealand	W. Regional Council	Waterloo Int. Lower Hutt	10	0	2	CRR, arterial & freeway bus	10	S, L, R, K, B	600	600	500

Notes: ^a CRR = commuter rail, LRT = Light Rail Transit. ^b Peak period "frequency of transit" serving park-and-ride lot in minutes.
^c S = shelter, C = covered parking, L = lighting, G = security guard, R = Restrooms, K = kiss-and-ride spaces, B = bicycle racks.
^d Total number of cars parked at other park-and-ride lots in the same corridor ("0" = no other lots in the corridor).
^e This peripheral parking facility (see Chapter 18, "Parking Management and Supply" — "Response by Type of Strategy" — "Peripheral Parking Around Central Business Districts") is the only one of the 24 "lots" reported to have a parking fee (\$1.00).
^f Although peripheral parking in part, this facility also serves the 30-mile Tacoma to Seattle commuter rail and bus corridor.

Source: Adapted and condensed from "This Week's Survey Results" tabulation, Urban Transportation Monitor (2003b).

KEY TAKEAWAYS

TRCP Report 95 is a study of Park & Ride/Pool facilities that focuses more upon the decision-making process for users. This information is relevant in determining how best to attract users to new Park & Ride facilities.

TRCP REPORT 192: DECISION-MAKING TOOLBOX TO PLAN AND MANAGE PARK & RIDE FACILITIES

SUMMARY

TRCP Report 192 presents the most recent toolbox among the literature that was published in 2017. Key focus areas include:

- Financial planning and demand estimation
- Parking pricing
- The community and transit-oriented development

Some key takeaways include:

- Walking distance from vehicle to station should not exceed 600 feet.
- BART adjusts rates every 6 months by \$0.50 if a facility is over 95% utilized, up to a \$3.00 maximum.
- UTA prohibits multiday parking when a facility reaches 80% utilization.
- DART completes crime prevention through environmental design (CPTED) assessment of each Park & Ride every 3 years.

KEY TAKEAWAYS

TRCP Report 192 is a set of guidelines for the planning, design, implementation, and operation of Park & Ride facilities. The included study of effects on the community and TOD, the guidelines for implementing pricing, and the updating capital cost recommendations and data are relevant to the planning of future Park & Rides.

ASSESSING PARK & RIDE EFFICIENCY AND USER REACTIONS TO PARKING MANAGEMENT STRATEGIES

SUMMARY

This report collected survey data that confirmed that most vehicles parked at Park & Ride stations were driven by a single occupant for transit purposes. Additionally, the survey revealed reactions to potential parking management systems. Some key reactions include:

- Users are generally not willing to pay at already free Park & Rides, but they are more willing if the fee would reserve a parking space in advance.
- 25% of users would consider carpooling to avoid a fee.
- Users did not indicate that improving bike/pedestrian facilities would change their primary access mode to the facility.

KEY TAKEAWAYS

The data gathered on person-efficiency and user reactions is very relevant in efforts to improve the usage and efficiency of existing Park & Ride facilities.

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APPENDIX D: CASE STUDIES MEMO

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Case Studies Memo

PARK & RIDE REGIONAL STRATEGY FOR SAN DIEGO AND WESTERN
RIVERSIDE COUNTIES

JULY 2019

Prepared By:

Kimley»»Horn

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OVERVIEW

The San Diego and Western Riverside regions initiated case study research to gather insight from peer agencies on best practices for planning and managing Park & Ride facilities. The findings from these case studies were used to outline the tools and strategies in the Park & Ride Toolkit.

METHODOLOGY

The project development team performed an industry review of published material by peer agencies. Select agencies were interviewed over the phone to gather additional key details. Seventeen case studies are identified and documented in this memo:

<i>Sound Transit*</i>	Central Puget Sound Regional Transit Authority
<i>LA Metro*</i>	Los Angeles County Metropolitan Transportation Authority
<i>UTA*</i>	Utah Transit Authority
<i>Metro Transit</i>	Minnesota Metro Transit
<i>VDOT</i>	Virginia Department of Transportation
<i>Edmonton</i>	City of Edmonton
<i>King County*</i>	King County Metro
<i>Denver RTD</i>	Denver Regional Transportation District
<i>San Joaquin RTD*</i>	San Joaquin Regional Transit District
<i>Washington DOT</i>	Washington State Department of Transportation
<i>Michigan DOT</i>	Michigan State Department of Transportation
<i>DART</i>	Dallas Area Regional Transit
<i>BART</i>	Bay Area Rapid Transit
<i>Capital Metro (Austin)</i>	Capital Metropolitan Transportation Authority
<i>RTA (Chicago)</i>	Chicago Regional Transportation Authority
<i>COAST (University of Houston)</i>	Coogs On Alternative & Sustainable Transportation
<i>LinkNYC</i>	City of New York and CityBridge
*Phone interview conducted	

SOUND TRANSIT

This case study looks at Sound Transit to determine how their permit system, real-time parking pilot, and dedicated spaces for alternate modes impact the agency's Park & Ride lots.

AGENCY CHALLENGES

Sound Transit experiences a high demand for their park and ride facilities at certain lots. Some of these lots are consistently parked at 97% capacity or more. However, these same Park & Ride lots are typically empty during off-peak hours.

SUMMARY

Sound Transit owns Park & Ride lots in East County, Snohomish County, Pierce County, South King County, Seattle & North King County. In 2015, the agency launched into a pilot program for permitting, which provides permits to single-occupancy vehicles (SOV) (at \$33 per quarter) and carpool vehicles (at \$5 per quarter). Carpool spaces are open to permit holders between 4:30-8:30 AM. After this time, these spaces become available for general riders. These permits are implemented at lots where Sound County has full control and not at shared-use lots with other agencies. Initially, Sound Transit was open to technology for their permit system but decided on a hang-tag system, based on responses. The permit program is administered through a private firm called Republic Parking.

A real-time parking pilot program was also released to test out parking technologies. This system implemented video camera feeds with the University of Washington to test the reliability of the technology.

KEY TAKEAWAY #1

Generally, the permitted carpool spaces to permit holder ratio is about 50-70%. Lots continue to be full, and Sound Transit thinks this could be linked to latent demand of newly-available general spaces. The system uses general operating funds toward the permit system. They are hoping to exceed their break-even amount through SOV sales, but this has not happened yet.

KEY TAKEAWAY #2

Sound Transit offers free parking permits to vehicles that regularly carpool (two or more individuals) to a station to access the bus or train during the morning rush hour.

KEY TAKEAWAY #3

The real-time parking pilot found that the technology was unreliable. While people liked the concept of the system, they were generally unsatisfied with the program due to distrust with the technology. Sound Transit found that the pilot program was expensive to implement. The pilot program has not been abandoned and Sound Transit is considering real-time parking at new facilities but will have to consider different alternatives that could be more reliable and less costly.

KEY TAKEAWAY #4

The MPO for this area, Puget Sound Regional Council, established the Regional Parking Management Working Group, which allows for regional coordination of park & ride facilities. By establishing a

coordinated park & ride system, customers have expressed an interest in having a single payment system.

INTERVIEW WITH AGENCY

Sound Transit provided information on partnerships with other agencies. The agency shared that maintenance and operation costs are divided at shared lots. One agency will take responsibility for maintaining and operating the facility, whereas the other agency will take on the costs. In the future, they may consider how to use lots during off-peak hours for event parking.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Align Park & Ride Planning with Local and Regional Goals

LA COUNTY METRO

This case study looks at LA County Metro and describes how their parking management pilot and enforcement technologies impacts the agency's Park & Ride lots.

AGENCY CHALLENGES

Los Angeles faces congestion issues like most major cities. LA Metro's Park & Ride facilities have experienced a high demand. On the other hand, if drivers find themselves circling lots looking for a parking space, they eventually will decide to drive to work. Some lots have also been challenged by non-transit riders who use the lots for their convenient location, but not for their intended purpose.

SUMMARY

LA Metro owns Park & Ride lots connected to their facilities and transit system. LA Metro's lots can be found throughout the region and along the Blue, Expo, Gold, Green, Orange, Purple Red, and Silver Lines. Many of these lots have both free and paid reserved spots. The free spaces are on a first-come, first-served basis. Monthly reserved spots are at select locations. The project uses an integrated payment system through the TAP card and license plate recognition software for enforcement. Their goals are to manage congestion, capture revenue, and ensure that only system users are parking at lots. The LA Metro Park & Ride system integrates various technologies at some of their stations.

KEY TAKEAWAY #1

LA Metro found that \$40 per month for reserved parking until 11AM was not successful. Some people used this service as a parking convenience, but did not ride the metro. They found that in other locations Park & Ride lots could be used as general parking during non-commuting hours. They established an MOU in the City of Monrovia to use the Park & Ride lot for evening parking for attractions such as movie theaters and restaurants. They set the price at \$3 per night. They have also been able to implement enforcement at some stations, where there are repeat offenses. It costs the agency about \$1 million per year for enforcement.

KEY TAKEAWAY #2

LA Metro determined that stations within 2 miles from one another should have the same fare structure. Otherwise, commuters will drive to the other station to avoid the higher fees or to get free parking.

KEY TAKEAWAY #3

Collaborating with the Getaround application, more than 25 LA Metro stations reserve parking spots for privately-owned vehicles participating in the car-sharing Getaround app to be used to complete first- and last mile trips.

INTERVIEW WITH AGENCY

LA Metro explained in their interview that they are cautious with setting prices, despite the high demand for parking along transit lines. They need Board approval to increase prices, and there can often be moral and institutional limits to how high a public agency can set pricing. They have spent a considerable amount in campaigning and providing educational programs to the public on how to use park & ride.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Managing Parking Demand, Secure Facilities and Enforce Rules, Align Park & Ride Planning with Local and Regional Goals

UTAH TRANSIT AUTHORITY (UTA)

This case study looks at the Utah Transit Authority and describes how agreements with outside entities and residents' resistance to paid parking has impacted the agency's Park & Ride lots.

AGENCY CHALLENGES

UTA has experienced high demand at specific locations and non-riders will utilize their lots to meet personal parking needs. They have parking garages, where they should recapture their construction costs, but currently cannot get most people to pay for parking where free parking surrounds their lots. This causes spillover and problems with nearby businesses and attractions.

SUMMARY

UTA has Park & Ride lots throughout their Salt Lake region. Lots can best be categorized as free extended parking lots, free day parking only, non-rail park & ride lots, and Latter Day Saints (LDS) Church parking lots, which are executed through an agreement.

KEY TAKEAWAY #1

UTA has tried to implement paid parking at Park & Ride lots to recoup construction costs of parking garages, but have found that even with a \$1 charge, people will try to avoid paid parking. This could be linked to the selected locations, which were at low demand to begin with. People often resort to parking on the street or somewhere else nearby with available free parking.

KEY TAKEAWAY #2

UTA has found that agreements work best with churches, where their parking needs are typically restricted to weekends, especially Sundays. This means these lots can serve other uses during their off-peak times such as transit riders during typical commute days (Monday-Friday). The agency currently holds one agreement with the LDS Church, which allows them to use 99 lots.

INTERVIEW WITH AGENCY

UTA provided details about their agreements. Along with establishing a partnership with churches, they also provide a service to Utah Valley University. Students park at the Orem Commuter Station take UTA shuttles to the campus. This station provides free parking and regional rail and bus service. This tends to be a high-demand parking facility. UTA also leases 70 spaces at the Salt Lake Central Station, which provides service to Amtrak and Greyhound customers, along with UTA. UDOT is also an owner of many lots in the area.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Managing Parking Demand, Align Park & Ride Planning with Local and Regional Goals

METRO TRANSIT (MINNESOTA)

This case study looks at Metro Transit and describes how the rider demand and smart parking system impact the transit agency's Park & Ride lots.

AGENCY CHALLENGES

In 2016, a survey illustrated that 15 of the Park & Ride facilities were at 90% or above capacity. This illustrated a new opportunity for parking management in the Park & Ride network. Additionally, freeway congestion has shown an upward trend from 2008-2016, where park & ride utilization has remained relatively the same.

SUMMARY

Currently, the Minnesota Metro regional Park & Ride network holds 34,172 spaces at 109 park-and-ride facilities and 43 park-and-pool facilities. The Minnesota Metro Transit only owns and operates a portion of these lots, while other agencies and private companies manage the remaining lots. Minnesota Metro developed the Park & Ride Plan, which was adopted in 2010. This Plan has propelled the current park & ride initiatives in the Minnesota Metro region. The agency also found that the Park & Ride utilization is impacted by express bus usage, freeway congestion, motor fuel costs, employment, and the housing market.

KEY TAKEAWAY #1

Annual Park & Ride reports are generated to assess current trends in the regional Park & Ride system and provide performance updates corresponding to the Metropolitan Council long-term planning documents for the area.

KEY TAKEAWAY #2

Minnesota Metro Transit focuses on siting Park & Ride lots that have good visibility from primary roadways or cross-roadways. The lots are also located on the right side of the roadway so arriving commuter can turn right in. The agency has a policy to build lots concurrent with new projects. In addition, the agency aims to preserve areas even if demand is low.

KEY TAKEAWAY #3

Along with building an efficient Park & Ride transportation service, Metro Transit also provides advertisers with various platforms to reach audiences. Not only are exterior and interior advertisements used, but Metro Transit provides unique marketing opportunities through rail advertising, fully branded interior/exterior systems, and station advertisements.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Managing Parking Demand, Incentivize Target Users, Align Park & Ride Planning with Local and Regional Goals

VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)

This case study looks at VDOT and describes how partnerships with nearby businesses can provide opportunities for riders and park & ride lots.

SUMMARY

In the state of Virginia there are approximately 300 park & ride lots that are state-owned and privately owned. Lots will provide space for vehicles, and some have designated spaces for bicycles. VDOT provides free ride-matching services to promote carpooling. In Virginia, informal carpooling is an issue.

KEY TAKEAWAY #1

Park & Ride spaces should be clearly marked and, where applicable, retailers or other corporations may place their logos on Park & Ride lot signs to inform that they are providing the spaces to users.

KEY TAKEAWAY #2

Park & Ride users can add an additional \$1,000 / user / year to adjacent retailers. This can develop strong partnerships with nearby retailers as they have a vested interest in Park & Ride success.

Applicable Strategies in the Park & Ride Toolkit: Incentivize Target Users

EDMONTON

This case study looks at Edmonton and describes how the agency plans to expand park & ride services as the light rail network grows.

AGENCY CHALLENGES

Currently, Edmonton offers Park & Ride facilities at either little to no cost. Facilities are already reaching capacity. Therefore, they would like to open opportunities to increase costs at new and existing facilities.

SUMMARY

Edmonton currently has a total 6,365 parking spaces in its Park & Ride network throughout the City. 2,435 of these stalls are paid stalls. Four of their lots offer these reserved spots at \$50 per month, whereas one lot provides the service at \$40 a month. Four of the remaining lots are free. Edmonton

provides a few key objectives for their Park & Ride program. The agency plans to be cost effective by being mindful of land and construction costs for facilities. Edmonton plans to expand services as the park & ride network grows. This includes integrating technologies and services such as carsharing and ridesharing to support riders.

KEY TAKEAWAY #1

Park & Ride facilities should be a service for residential communities that do not have direct access to transit services. They should be strategically placed to meet the needs of these commuters.

KEY TAKEAWAY #2

Park & Ride can either improve or reduce equity in an area. Edmonton suggests that to improve equity at Park & Ride facilities free or subsidized parking should be provided to disadvantaged groups such as their unemployed, low income, and disabled riders.

Applicable Strategies in the Park & Ride Toolkit: Align Park and Ride Planning with Local and Regional Goals

KING COUNTY

This case study looks at King County Metro and how lease agreements, space for alternate modes, and enforcement impacts the use of park & ride facilities.

AGENCY CHALLENGES

King County Transit regularly enforces their lots, but still finds it challenging to regulate all parking lots. They have various mechanisms in place to see if invalid users are parked. Enforcement is also costly and it takes multiple steps to get a vehicle removed for illegally parking in a lot.

SUMMARY

There are around 150 park & ride lots that are available in the King County Metro area. These lots are owned by both public agencies and private entities. Park & Ride lots with private firms are established through the Park by Transit Program, which establishes agreements between Diamond Parking and property owners to sell permits to park & ride users. King County Metro lots reserve spaces for carshare services and for carpools to enhance their services. They typically implement these strategies at lots that are 90%, or above, capacity. They have enforcement staff, who will patrol lots once a day. King County Transit provides parking discounts for low-income riders.

KEY TAKEAWAY #1

Through the Diamond Partnership, property owners with vacant spaces are eligible to create monthly Park & Ride permit agreements with costumers.

KEY TAKEAWAY #2

King County Metro has found that providing additional services at high-volume lots is effective. They currently have food services at the Northgate Transit Center.

KEY TAKEAWAY #3

In the past, King County has found it challenging to gauge drop off / pick up demands. Their goal is to do a better job of studying these needs to designate these areas at appropriate lots.

INTERVIEW WITH AGENCY

King County Transit is experimenting with new strategies at their Park & Ride lots. At the Northgate Transit Center, they have newly implemented carsharing as a pilot program. They are working with developers to determine what is the right amount of parking to meet both building and Park & Ride needs. The King County Right Size Parking Calculator can help developers determine these numbers.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Secure Facilities and Enforce Rules, Incentivize Target Users

DENVER REGIONAL TRANSPORTATION DISTRICT (RTD)

This case study looks at Denver Regional Transportation District's innovative approach to parking technology and how it impacts the agency's Park & Ride lots.

AGENCY CHALLENGES

Denver RTD faces security, enforcement, and capacity issues like most park & ride lots. They take a proactive approach to mitigating these issues through the use of technology and expanded resources.

SUMMARY

Denver RTD has implemented various technologies to support their over 70 park & ride facilities. This includes cellular phone technology to provide real-time bus schedules. They provide automated pay stations that accept various forms of payment. Geographic Information Systems (GIS) is used to locate the residence status of parked vehicles based on their license plates. This integrates with cameras and computer technology to interpret license plate numbers. One-half of RTD lots have cameras and the rest have real-time enforcement. Denver RTD also provides performance monitoring and reporting to keep an updated database on their facilities.

KEY TAKEAWAY #1

Cameras can serve as a real-time enforcement strategy. This allows RTD to take a proactive approach to enforcement and investigate customer service complaints, ADA issues, liability claims, and security concerns. Cameras can also reduce manpower requirements.

KEY TAKEAWAY #2

Additional services can be applied to popular park & ride lots, especially when capacity is reached. These services may include carshare, carpooling, and food services.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Secure Facilities and Enforce Rules

SAN JOAQUIN RTD

This case study looks at San Joaquin RTD to examine how agency partnerships, leasing agreements, and monthly data capture impacts the agency's Park & Ride facilities.

AGENCY CHALLENGES

San Joaquin RTD relies on leasing agreements to establish parking facilities in the area. They have a limited budget for contracts, so they need to think carefully about when to use leasing agreements. Retailers will also sometimes complain that riders are occupying their ideal retail parking spaces. Enforcement and security are typically not issues, with the exception of the Lodi parking lot.

SUMMARY

San Joaquin RTD has a Park & Ride network of 11 facilities that are established through agency owned property, agency partnerships, and privately-owned land. They develop MOUs with retail owners, churches, and the agencies to lease parking spaces. Parking typically costs about \$3.75-\$5 per space.

KEY TAKEAWAY #1

Conducting monthly counts at the Park & Ride facilities provides the agency with an understanding of the average demand. This can also help justify funding for Park & Ride facilities.

KEY TAKEAWAY #2

The agency uses special striping and logos to delineate their spaces in shared lots. People typically obey this signage and striping, making enforcement not an issue.

INTERVIEW WITH AGENCY

San Joaquin RTD shared that churches can make the best partners due to their limited demand for parking on the weekdays. San Joaquin RTD is looking to expand their Park & Ride network and pair this with expanded transit and commuter service.

Applicable Strategies in the Park & Ride Toolkit: Align Park & Ride Planning with Local and Regional Goals

WASHINGTON STATE DOT – MAXIMIZING EFFICIENCY

Washington State DOT prepared a Park-and-Ride Study focused on maximizing efficiency at overcrowded locations.

AGENCY CHALLENGES

The purpose of this project is to provide the Washington State Department of Transportation (WSDOT), King County Metro Transit, and Sound Transit with more detailed information on the use of 17 of the busiest park and ride facilities in the Central Puget Sound Region. These Park & Ride lots, like a large fraction of lots across the region, are currently operating at or near capacity. The agencies would like to obtain detailed information on their use to inform potential parking management strategies in the future. In

particular, the agencies' long-term objective is to eventually implement strategies to increase the number of people served by the limited parking spaces.

SUMMARY

Two empirical data collection efforts were performed. The first was an on-site audit of the existing use of 10 of the 17 facilities. During this audit, field data collectors visited each location to measure vehicle (and person) entries and exits to these facilities. The second data collection effort was a user intercept survey administered both in-person at all 17 lots and electronically to the set of registered vanpool users at these facilities and those who could not complete the survey on site. The survey collected more detailed information from individual Park & Ride users, including: trip purpose, origin-destination information, mode of entry and exit, and reasons for using Park & Rides.

KEY TAKEAWAY #1

Having Park & Ride data affords the WSDOT, King County Metro Transit, and Sound Transit with information on parking lot operation. The database can be referenced to establish effective management strategies.

KEY TAKEAWAY #1

First, it appears that single-occupant vehicles tend to dominate parking spaces at these facilities. While this result is not unexpected, the empirical data provide a clear justification to implement strategies designed to improve the efficiency per person of parking spaces at these lots.

KEY TAKEAWAY #2

Second, people parking at the Park & Ride facilities tend to use the lots for transit purposes—very little non-transit use was noted. Of the transit uses, fixed-route transit (such as bus or train service) was dominant, although at several lots heavy carpool or vanpool use was noted.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities

WASHINGTON STATE DOT – RIDERSHIP FORECASTING

Washington State DOT prepared a Park & Ride System plan that incorporated proactive forecasting and siting into planning. Travel forecast models were used to forecast future demand for Park & Ride assets using measured variables.

AGENCY CHALLENGES

Washington State DOT faced challenges incorporating Park & Ride systems into the Ridership Forecasting Report.

SUMMARY

The 2015 ST model version relies on a matrix estimation process for the development of base-year trip tables that is based on using a seed matrix with a high number of non-zero cells. The process includes seeding of counts on appropriate segments to capture potential demand at each Park & Ride facility.

These considerations, together with the fact that existing Park & Ride facilities are adequately represented throughout the region provide a good database from which to calculate access shares.

KEY TAKEAWAY #1

Park & Ride lots are an integral piece of a successful transit system and the impact they have on ridership should be utilized in development of all ridership forecasting.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities

MICHIGAN STATE DOT WITH MEIJER SUPERCENTER STORES

Michigan DOT collaborated with Meijer supercenter stores to create additional outlets for carpoolers. For example, one Meijer stores allocated 50 spaces for Park & Ride use, which MDOT marked as potential Park & Ride spaces. In return, MDOT added signs for Meijer stores on adjacent highways directing drivers to the lots.

AGENCY CHALLENGES

Michigan State DOT was looking to expand its Carpool Parking Lot Program, which began in 1974 with just 11 carpool lots. Acquiring or developing lots, however, was an expensive process.

SUMMARY

Through a partnership with Meijer Stores and general expansion, the system now has 235 carpool parking lots with more than 9000 spaces. The collaboration requires Meijer Supercenter Stores to offer carpool parking in their existing parking lots, and in return Michigan DOT places signs advertising the stores at nearby freeway off-ramps.

KEY TAKEAWAY #1

Partnerships with existing private entities can be an effective method of increasing parking spaces within a park-and-ride system without building any additional capacity.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities

DALLAS DART PILOT PROGRAM CASE STUDY

Dallas DART Pilot program at one station providing free reserved stalls for residents who display a valid resident parking permit on their vehicle.

AGENCY CHALLENGES

Plano's Parker Road Station consistently reached over 85% capacity during peak periods, and local residents were frustrated that they couldn't find parking in the facility which was most local to them. In response, DART created a reserved parking system for area residents.

SUMMARY

Standards for Reserved Parking for Service Area Residents

DART offers free reserved parking for service area residents in the following instances only:

- The maximum lot utilization must be at least 85% of available spaces on an average weekday;
- The percent of non-service area vehicles in the lot must exceed 45% of the vehicles parked in the lot;
- DART must have onsite concierge staff at the parking lot on weekdays.

As of April 3, 2014, the only DART park & ride lot which meets the requirements for reserved parking is [Parker Road Station](#) in the City of Plano.

KEY TAKEAWAY #1

Managing parking demand is an effective way to increase the user-satisfaction of nearby residents.

KEY TAKEAWAY #2

Reserved parking can create additional incentive for carpool usage as a means of arrival to the Park & Ride.

KEY TAKEAWAY #3

Along with Park & Ride lot utilization, DART performs Crime Prevention Through Environmental Design (CPTED) reports every three years. The analysis provides security assessments and risk ratings to guide amenity, safety, and security updates to the lots.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Managing Parking Demand

BART SMART PARKING SYSTEM CASE STUDY

BART- Smart parking systems were installed at Park & Ride facilities at heavy rail stations. These smart parking systems included VMS on a nearby freeway that showed Park & Ride availability and allowed users to reserve Park & Ride spots by phone or Internet.

AGENCY CHALLENGES

In the San Francisco Bay Area, parking has recently been at or near capacity at many of the 31 Bay Area Rapid Transit (BART) District stations with parking facilities. Smart parking management technologies may provide a cost-effective tool to address near-term parking constraints at BART transit stations.

SUMMARY

This report presents early findings from an application of advanced parking technologies to maximize existing parking capacity at the Rockridge BART station, which was launched in December 2004 in the East San Francisco Bay Area. The smart parking system includes traffic sensors that count the number of vehicles entering and exiting the parking lots at the station. A reservation system allows travelers to reserve spaces by Internet, personal digital assistant (PDA), phone, and cell phone. The real-time information obtained from the sensors and the reservation system is displayed on variable message signs (VMS) (on Highway 24 leading to the station) to alert drivers of parking space availability.

KEY TAKEAWAY #1

Reserved parking is a very attractive attribute to commuters who often park at stations which reach maximum capacity.

KEY TAKEAWAY #2

The largest complaint about Park & Rides on the BART system was that it filled up too early in the morning.

Applicable Strategies in the Park & Ride Toolkit: Maximizing Capacity at Facilities, Managing Parking Demand

CAPITAL METRO (AUSTIN) CASE STUDY

Capital Metro (Austin, TX) has a system of mobility hubs at their Park & Ride rail stations.

AGENCY CHALLENGES

In Austin, roadways are at capacity, so transit improvements are a priority. The agency is focused on creating a system that benefits the diverse population in Central Texas, including those who do not currently take transit.

SUMMARY

The Mobility Hub program for Austin includes thirteen different locations that are each designated as one of three different hub types. Gateway hubs are centrally located within the regional transportation network and have the highest density of mobility options on site. Anchor hubs are important transfer points and terminus locations where riders can make seamless connections to a variety of travel modes. Neighborhood hubs are critical access points for the regional transportation network where most trips within the network begin and end.

KEY TAKEAWAY #1

Categorizing mobility hubs as “Neighborhood,” “Anchor,” or “Gateway” allows for a more standardized system of investments.

KEY TAKEAWAY #2

Mobility Hubs must be developed as a system, not individually. A coordinated system of amenities creates a more tangible incentive for targeted users.

Applicable Strategies in the Park & Ride Toolkit: Incentivize Target Users

RTA (CHICAGO) CASE STUDY

RTA (Chicago) has launched a multi-year marketing campaign to promote usage of Park & Ride and transit in the area. Campaign extends to TV, radio, social media, and digital billboards.

AGENCY CHALLENGES

The Regional Transportation Authority in Chicago faces low transit ridership and general lack of awareness of transit services.

SUMMARY

The transit agencies' "Ride On." campaign highlights the benefits and convenience of riding public transit in Cook, DuPage, Kane, Lake, McHenry and Will counties juxtaposed against the challenges drivers face in the nation's third-most congested region. The ads, developed by Chicago-based Downtown Partners Communications, Inc., will be on cable television, radio, social media, digital billboards throughout the region, and online. They highlight the shared real-life pain points of driving, such as traffic and parking costs, as opposed to the money saving and low-stress experience of more than two million people who ride the nation's third largest transit system each weekday.

KEY TAKEAWAY #1

Engaging target users with ads highlighting the pain points of driving alone is an effective strategy to promote Park & Ride usage, which is a lower stress and lower cost option.

Applicable Strategies in the Park & Ride Toolkit: Incentivize Target Users

COAST PROGRAM AT UNIVERSITY OF HOUSTON

COAST Program at the University of Houston incentivizes students and employees to use transit and Park & Ride. The goal was to reduce the demand for parking on campus. Park & Ride students paid 35% of full price and received 50% discount on bus/light rail tickets.

AGENCY CHALLENGES

The University of Houston consistently oversells student parking by a factor of 1.7+, and the campus is anticipated to grow. Additionally, Houston is not friendly for alternative transportation, with walkability, bike-ability, and transit scores all falling below 50 out of 100.

SUMMARY

Coogs On Alternative & Sustainable Transportation (COAST) is an integrated program to incentivize student usage of alternative modes of transportation. Launched in the summer of 2016, this program had the goal of reducing demand for parking on campus by 2,000 spaces. By providing discounts for students who carpooled or used transit, COAST worked to make transit the more logical option.

KEY TAKEAWAY #1

Cost is a large factor in commute choices. When driving alone becomes less convenient and costlier than using transit, the choice is simple for students.

KEY TAKEAWAY #2

Student schedules vary and can be extreme. This can make carpooling or the schedules of transit very inconvenient. Oftentimes, driving alone is the only option.

Applicable Strategies in the Park & Ride Toolkit: Create Partnerships with Local Jurisdictions and Private-Sector

LINKNYC CASE STUDY

LinkNYC is not currently transit based but could easily be. The program leverages downtown pylons for targeted advertising.

AGENCY CHALLENGES

With a large population of transit users, New York struggles to keep users informed of transit options, changes, or delays.

SUMMARY

New York City has partnered with LinkNYC to provide more than 2,200 informational kiosks for the use of city residents. When not in use for information, the kiosks display attractive advertisements in densely populated areas.

KEY TAKEAWAY #1

Advertising space can be an incentive for private companies to assist with amenities at Park & Ride facilities.

Applicable Strategies in the Park & Ride Toolkit: Create Partnerships with Local Jurisdictions and Private-Sector

ADDITIONAL CASE STUDIES TO CONSIDER

BAY AREA

BART is working with the Metropolitan Transportation Commission (MTC) and Scoop Technologies to incentivize BART users to carpool to the Dublin/Pleasanton station. Since parking at these stations fill early in the morning, carpool vehicles will have a guaranteed parking spot at the station until 10 am.

KEY TAKEAWAY

Collaborating with other companies and agencies can promote and optimize use of Park & Ride facilities.

Applicable Strategies in the Park & Ride Toolkit: Create Partnerships with Local Jurisdictions and Private-Sector, Managing Parking Demand

CITY OF RENTON

The City Center Parking Garage reserves over 100 free parking spots in the morning for customers using the Park & Ride services.

KEY TAKEAWAY

Partnerships with private parking garages allow for additional overflow for Park & Rides lots.

Applicable Strategies in the Park & Ride Toolkit: Create Partnerships with Local Jurisdictions and Private-Sector

CALGARY

The regional interest in Transit Oriented Development (TOD) has removed all but 500 of the 1,750 original Park & Ride spots at its Anderson Light Rail Station. This provides space for retail, office, and commercial uses at this suburban site.

KEY TAKEAWAY

The intent of this TOD is to make use of off-peak capacity of the station and attract individuals to the site through various mixed-use amenities.

Applicable Strategies in the Park & Ride Toolkit: Align Park & Ride Planning with Local and Regional Goals

SANTA CLARA VALLEY TRANSPORTATION AUTHORITY

Ohlone-Chynoweth Commons is a 194-unit medium- and high-density affordable housing and mixed-use development project. It was built along the Guadalupe light-rail line in San Jose, California on an underused 1,100 spot Park & Ride lot. The project was established under the coordination of the Santa Clara Valley Transportation Authority and the Eden Housing Inc.

KEY TAKEAWAY

Understanding the utilization of Park & Ride lots and recognizing community needs allows for public and private partnerships to form and build useful development projects.

Applicable Strategies in the Park & Ride Toolkit: Align Park & Ride Planning with Local and Regional Goals

LAKETRAN CLEVELAND

The “Adventure of Commuting” is a marketing video for the Laketran Park & Ride service. This information video identifies the benefits and ways to access the Laketran service.

KEY TAKEAWAY

Using various mediums of marketing, a broader audience can be reached which increases awareness of the Park & Ride service and grows ridership. Certain platforms such as video advertising suggest that the service is up to date and efficient.

Applicable Strategies in the Park & Ride Toolkit: Incentivize Target Users

PORTSMOUTH UNITED KINGDOM

With the proximity of Portsmouth to London, the amount of commuters using various transportation systems presents a large market for advertising. Some of these marketing platforms include outdoor graphics, on departure screens for transit, and terminal displays on Park & Ride spots.

KEY TAKEAWAY

Optimizing Park & Ride services can provide advertising opportunities that can not only stimulate the local economy but also use these marketing relationships to fund Park & Ride operation and maintenance.

Applicable Strategies in the Park & Ride Toolkit: Create Partnerships with Local Jurisdictions and Private-Sector

CITY AND COUNTY OF HONOLULU

The City and County of Honolulu has partnered with the People's Open Market to provide Park & Ride space on weekends for use by the market.

KEY TAKEAWAY

On the weekends, Park & Ride space can be used for activities which benefit the community. This, in turn, can create community awareness of Park & Ride locations.

Applicable Strategies in the Park & Ride Toolkit: Create Partnerships with Local Jurisdictions and Private-Sector

METROPOLITAN COUNCIL MINNESOTA

In 2010, the Metro Council in Minneapolis approved the 2030 Park-and-Ride Plan: a comprehensive master plan for Park & Ride development throughout the system.

KEY TAKEAWAY

Park & Ride Master Plans create the opportunity to evaluate existing facilities, identify areas of need, and plan future changes and additions to an agency's Park & Ride network which will address needs and expand upon successes.

Applicable Strategies in the Park & Ride Toolkit: Create Partnerships with Local Jurisdictions and Private-Sector

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APPENDIX E: PARK & RIDE/ COMMUTE SURVEY

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PARK & RIDE COMMUTE SURVEY

The following pages contain the Introduction, Key Findings, and Park & Ride sections of the 2018 Park & Ride/ Commute Survey prepared for SANDAG.

The link to the full survey can be found here:

https://www.sandag.org/uploads/publicationid/publicationid_4549_24879.PDF



INTRODUCTION

The San Diego Association of Governments (SANDAG) and the Riverside County Transportation Commission (RCTC) are the transportation planning agencies for San Diego County and Riverside County, respectively. The agencies' primary function is to plan and invest in the transportation system so that it best meets the mobility needs of their region—now and in the future. By better integrating the regions' freeway, transit, and road networks, linking land-use and transportation planning, and strategically investing in infrastructure improvements where they are most needed, SANDAG and RCTC help to promote a sustainable, high quality of life.

MOTIVATION FOR STUDY To successfully fulfill their planning roles, both SANDAG and RCTC must have up-to-date information regarding the travel behaviors of residents and others who place demands on the transportation infrastructure and transit systems in their respective regions. Although the need for travel-related information applies to residents in general, it is especially true for *employees* who commute for their jobs, as this subgroup accounts for a large percentage of the trips and vehicle miles traveled (VMT) in both regions. By profiling employees' commute characteristics (frequency, mode, distance, destination, and timing) and estimating the prevalence of teleworking and use of alternative modes, the study described in this report will help SANDAG and RCTC better plan and manage the regions' transportation and transit systems.

In addition to the general goal of profiling employee commute behavior, this study was also designed to help inform the agencies' Transportation Demand Management (TDM) and Park & Ride programs.¹ Understanding employees' interest and willingness to use alternative modes, the conditions/factors that would make them more likely to use alternative modes in the future, and the amenities and improvements that they desire for Park & Ride lots is key to estimating the latent market/potential growth for alternative modes in general, and rideshare in particular. It will also help SANDAG and RCTC better manage existing Park & Ride lots and locate new lots where they will be most effective.

Finally, although the study gathered the aforementioned information for commuters in general, both SANDAG and RCTC were particularly interested in the subgroup of commuters that live and work in different counties. Known as *interregional commuters*, these employees typically endure longer commutes with respect to both distance and time, often travel congested corridors, and are thus thought to be prime candidates for alternative modes including transit and rideshare. For the purposes of this study, the interregional commuters of interest included San Diego residents who travel outside of the county for their employment, as well as Western Riverside County residents who commute to San Diego or other counties for their jobs.

OVERVIEW OF METHODOLOGY For a full discussion of the research methods and techniques used in this study, turn to *Methodology* on page 97. In brief, the survey was administered in two phases to a random sample of 4,337 employees who reside in San Diego County or Western Riverside County. During Phase 1, all qualified employees were eligible to participate in the survey regardless of their commute destination. Phase 2 involved screening to identify and oversample for interregional commuters. The survey followed a mixed-method design that employed multiple recruiting methods (telephone and email) and multiple data collection meth-

1. Park & Ride lots serve carpools, vanpools, and transit.

ods (telephone and online). Administered in English and Spanish between February 23 and May 3, 2018, the average interview lasted 18 minutes.

To accommodate SANDAG's and RCTC's interest in obtaining reliable parameter estimates for the regions as a whole, as well as within the various subregions identified in Figures 1 and 2, the study employed a strategic oversample by subregion to balance the statistical margins of error associated with estimates at the subregion level. Oversampling was also used to increase the number of interregional commuters in the sample, as the incidence rate for this type of commuter is generally quite low. To adjust for the oversampling, the raw data were weighted according to *American Community Survey (ACS)* estimates of the number of employed persons in each subregion (by age) prior to analyses and presentation. Interregional commuters were also weighted down to match their natural proportions by subregion based on the findings of the Phase 1 data collection effort. The results presented in this report are the weighted results, which are representative for the San Diego and Riverside regions combined, by county, as well as within each subregion.

FIGURE 1 SAN DIEGO SUBREGIONS MAP

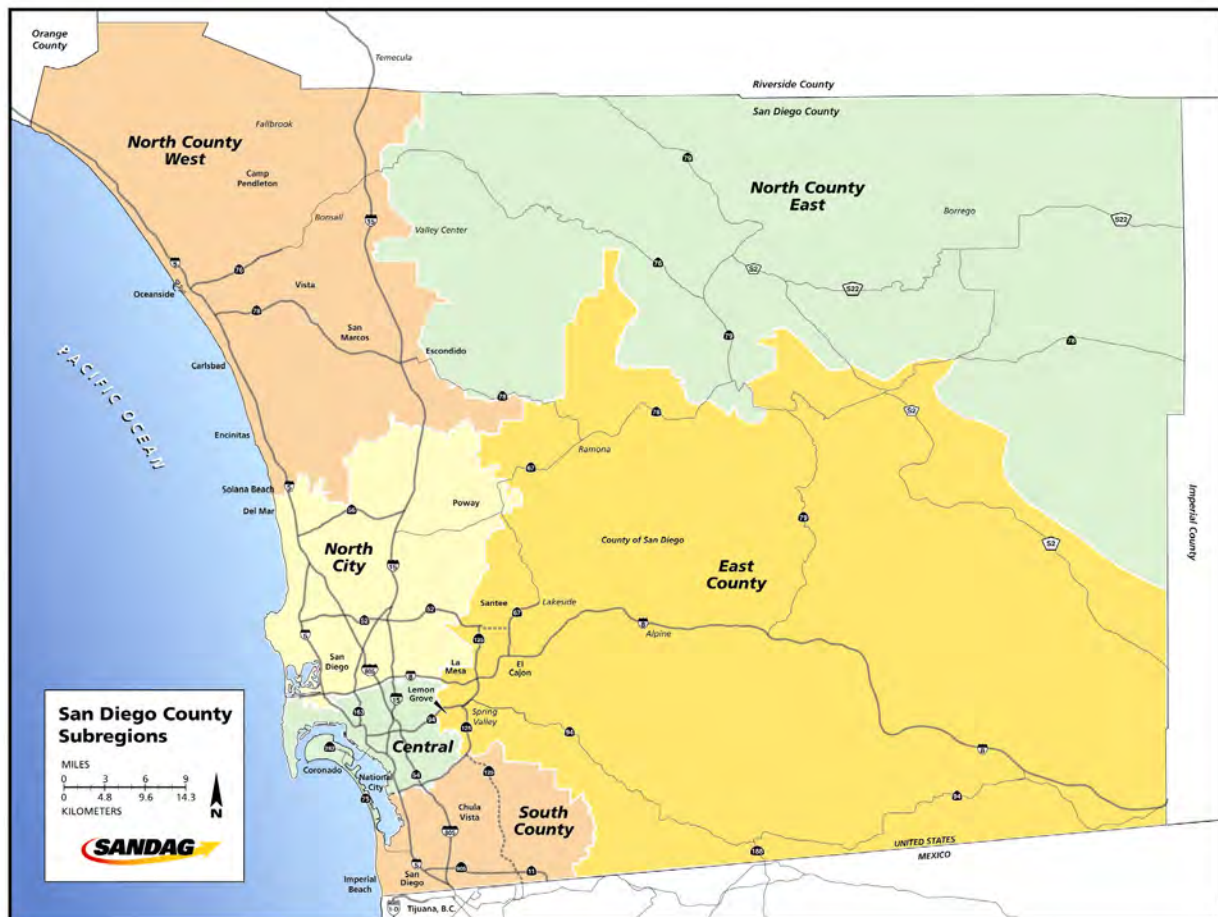
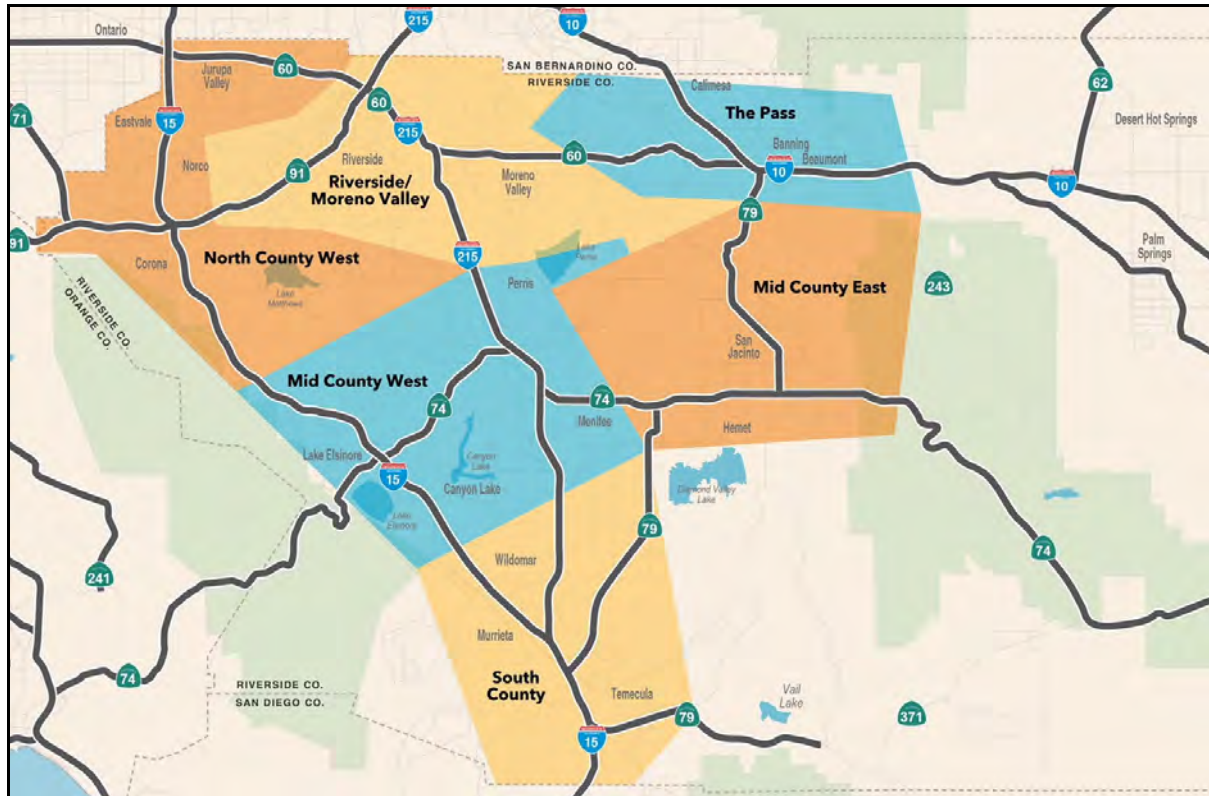


FIGURE 2 RIVERSIDE SUBREGIONS MAP



ORGANIZATION OF REPORT This report is designed to meet the needs of readers who prefer a summary of the findings as well as those who are interested in the details of the results. For those who seek an overview of the findings, the section titled *Key Findings* is for you. It provides a summary of the most important factual findings of the survey and a discussion of their implications. For the interested reader, this section is followed by a more detailed question-by-question discussion of the results from the survey by topic area (see *Table of Contents*), as well as a description of the methodology employed for collecting and analyzing the data. And, for the truly ambitious reader, the questionnaire used for the interviews is contained at the back of this report (see *Questionnaire* on page 104) and a complete set of crosstabulations for the survey results is contained in Appendix A.

ACKNOWLEDGMENTS True North thanks SANDAG and RCTC for the opportunity to assist the agencies in this important study. The collective expertise, local knowledge, and insight provided by SANDAG and RCTC staff improved the overall quality of the research presented here.

DISCLAIMER The statements and conclusions in this report are those of the authors (Dr. Timothy McLarney and Richard Sarles) at True North Research, Inc. and not necessarily those of SANDAG or RCTC. Any errors and omissions are the responsibility of the authors.

ABOUT TRUE NORTH True North is a full-service survey research firm that is dedicated to providing public agencies with a clear understanding of the values, opinions, priorities and behaviors of their residents and customers. Through designing and implementing scientific sur-

veys, as well as expert interpretation of the findings, True North helps its clients to move with confidence when making strategic decisions in a variety of areas—such as planning, policy evaluation, performance management, organizational development, establishing fiscal priorities, and developing effective public information campaigns. During their careers, Dr. McLarney (President) and Mr. Sarles (Principal Researcher) have designed and conducted over 1,000 survey research studies for public agencies, including more than 500 studies for councils of government, transportation planning agencies, municipalities, and special districts.

KEY FINDINGS

As noted in the *Introduction*, this study was designed to provide up-to-date and reliable information to SANDAG and RCTC regarding the commute behaviors of employees, their interest and willingness to use alternative modes for their commute, the conditions/factors that would make them more likely to use alternative modes in the future, and the amenities and improvements that they desire for Park & Ride lots to help inform the agencies' Transportation Demand Management (TDM) and Park & Ride programs. Whereas subsequent sections of this report are devoted to conveying the detailed results of the survey, in this section we attempt to “see the forest through the trees” by noting how the collective results of the survey answer some of the key questions that motivated the research.

What are the commute characteristics of employees in the study region? Across the study region (San Diego County and Western Riverside County), nearly nine-in-ten employees (88%) commute to a work destination outside of their home, with the average one-way commute to work being 19.77 miles and taking 33.57 minutes to complete. Among these commuters and as shown in Table 1, by far the most common *primary* mode² for their commute was driving alone in a car, truck, SUV or van (84%). Ridesharing via carpool (5%), vanpool (<1%), and on-demand rideshare services such as Uber, Lyft, or Waze Carpool (<1%) accounted for approximately 6% of commutes, while a similar percentage was represented by transit services including a local bus (2%), express bus (<1%), train (2%), and the San Diego Trolley (1%). Active transportation modes (biking, walking, jogging, running) were mentioned by just over 2% of employees as their primary method of commuting to work. All other modes were mentioned by less than 2% of respondents, collectively.

TABLE 1 PRIMARY COMMUTE MODE BY OVERALL, REGION & INTERREGIONAL COMMUTE STATUS³

	Overall	Region		Interregional Commute Status			
		San Diego County	Western Riverside County	Not Interregional Commuter	Out of San Diego County	Out of Riverside County Southbound	Out of Riverside County Other
Drive alone in a car, truck, SUV, or van	83.9	84.4	82.9	84.9	82.3	77.4	78.7
Motorcycle	0.9	1.0	0.5	0.9	0.2	1.4	0.3
Carpool (ride together 2 to 4 people)	5.1	4.6	6.1	4.6	0.6	11.0	7.9
Vanpool (ride together with 5 to 15 people)	0.7	0.5	1.1	0.3	3.5	5.9	1.4
On-demand rideshare service like Uber, Lyft, or Waze Carpool	0.6	0.7	0.4	0.7	0.2	0.9	-
<i>Pooled rideshare service (Uber Pool, Lyft Line)</i>	0.2	0.4	-	0.3	0.2	-	-
Zipcar	-	-	-	-	-	-	-
Taxi	0.0	0.0	-	0.0	0.6	-	-
Employer-provided shuttle/bus	0.2	0.2	0.2	0.3	0.2	-	-
Local bus	2.4	2.2	2.8	2.7	-	-	1.4
Express bus/premium bus/ Rapid/CommuterLink	0.6	0.6	0.5	0.5	-	1.6	0.9
Train: Metrolink/Metro Rail/ COASTER/Amtrak/	1.8	1.2	3.3	0.9	5.0	-	9.1
San Diego Trolley	1.2	1.8	0.0	1.4	-	0.5	-
SPRINTER	-	-	-	-	-	-	-
Other public transit	0.0	-	0.0	-	-	0.5	-
Bike	1.4	1.6	1.0	1.7	-	0.1	-
Walk/jog/run	0.8	0.6	1.2	0.9	-	-	0.2
Other	0.2	0.3	0.1	0.1	5.9	0.7	0.1
Prefer not to answer	0.1	0.1	-	0.1	1.4	-	-

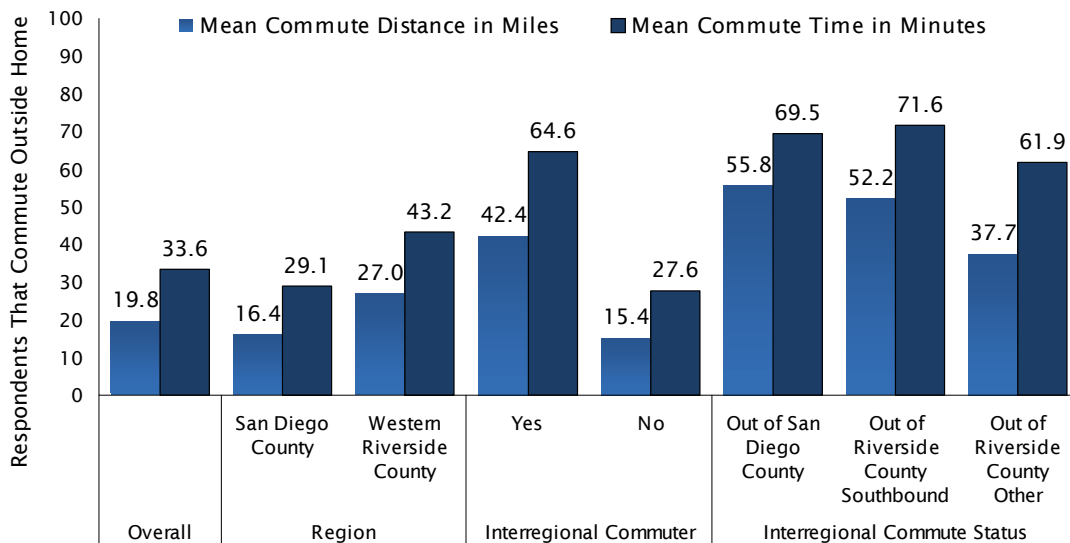
- These percentages reflect the mode respondents indicated they use most often when commuting to work. For respondents who used multiple modes, they were asked to report on the mode they use for the longest portion of their commute.
- Other* responses primarily consisted of flying via airplane or helicopter. Additional responses included being an Uber or Lyft driver or citing multiple commute modes instead of the one used most often.

With respect to work *destination*, nearly all employees who reside in San Diego County (97%) reported that they also work in San Diego County. Less than 1% of employees commute to a work destination in Los Angeles County, Orange County, Riverside County, or other location, respectively.

The patterns are much different among employees who reside in Western Riverside County. Being an area that is rich in affordable housing (comparatively speaking) but lacking the job markets found in neighboring counties, Riverside County exports a sizeable percentage of its workforce on a daily basis to work outside of the County. Overall, just six-in-ten employees (61%) who reside in Western Riverside County commute to a work destination within the County. The remainder commute to Orange County (12%), San Bernardino County (11%), San Diego County (8%), Los Angeles County (7%), or other destinations (2%) for their work.⁴

Do employees' commute characteristics vary substantially by destination? Commute distance, duration, and primary mode choice all varied by commute destination (intra-regional or inter-regional), as well as by *type*⁵ of inter-regional commuter. With respect to distance and duration, inter-regional travelers reported an average one-way commute distance nearly three times as long as their intra-regional counterparts (42.4 miles vs. 15.4 miles), and more than twice as long in terms of average duration (64.6 minutes vs. 27.6 minutes). Among inter-regional commuters, those traveling into/out of San Diego County reported the longest average trip lengths and durations (see Figure 3).

FIGURE 3 MEAN COMMUTE DISTANCE & TIME



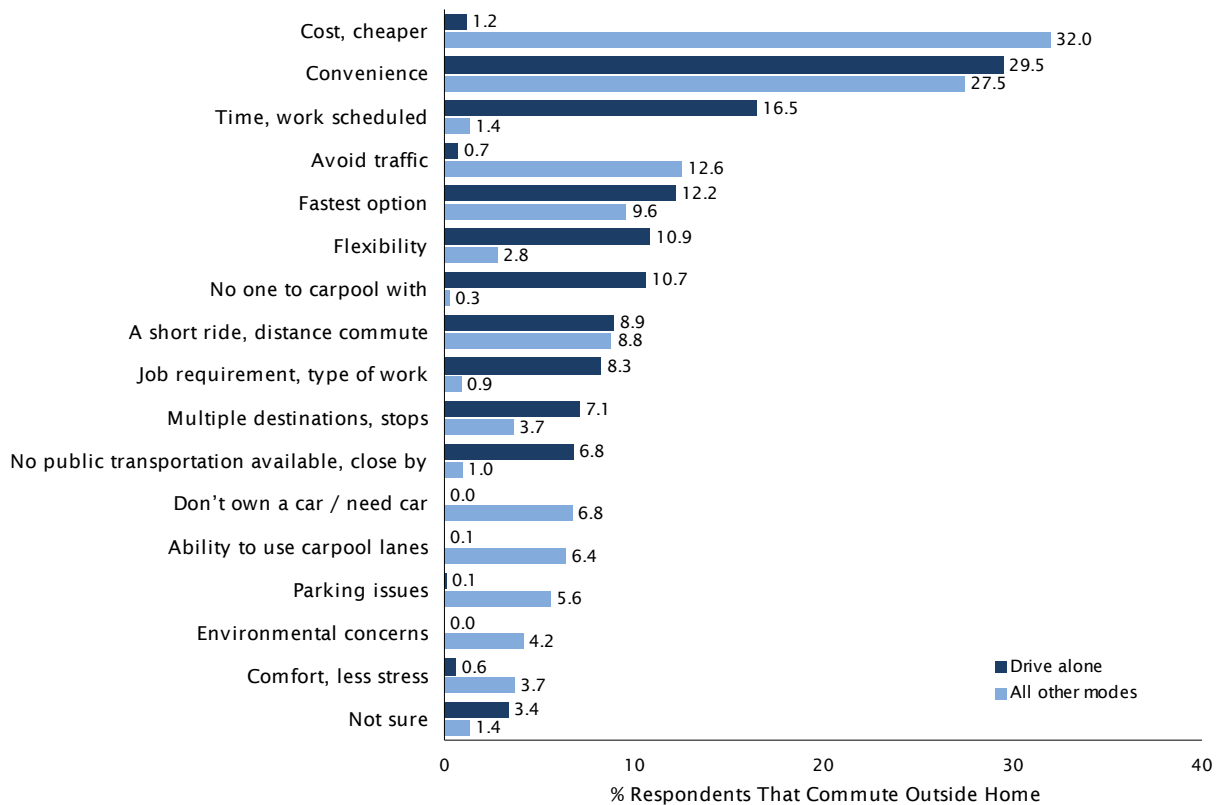
- It is also worth noting that the percentages reported in this section for interregional commuters include teleworkers, which means that—among those who commute outside of the home—the prevalence of interregional commuting is somewhat higher.
- For this study, three types of interregional commuters were of interest: those who reside in San Diego County and commute out of the County for their employment, those who reside in Western Riverside County and commute southbound out of the County for their employment, and those who live in Western Riverside County and commute out of the County in a direction 'other' than southbound.

In addition to enduring longer commutes in terms of both time and distance, interregional commuters were also more likely than intraregional commuters to report using alternative modes as their primary method of traveling to/from work. As previously shown in Table 1, interregional commuters who reside in Western Riverside County and commute south into/through San Diego County were the most likely to report carpooling (11%), vanpooling (6%), and using an express bus (2%) for their commute. Their counterparts who commute out of Western Riverside County west or north were the most likely to report using a train (9%) for their commute, and also exhibited comparatively high rates of carpooling (8%). San Diego-based interregional commuters, on the other hand, reported moderately high rates for vanpooling (4%), using a train (5%), and ‘other’ modes not represented (6%) for their commute.

For more details on the commute characteristics of those who live and work in the study region, see *Commute Status* on page 21.

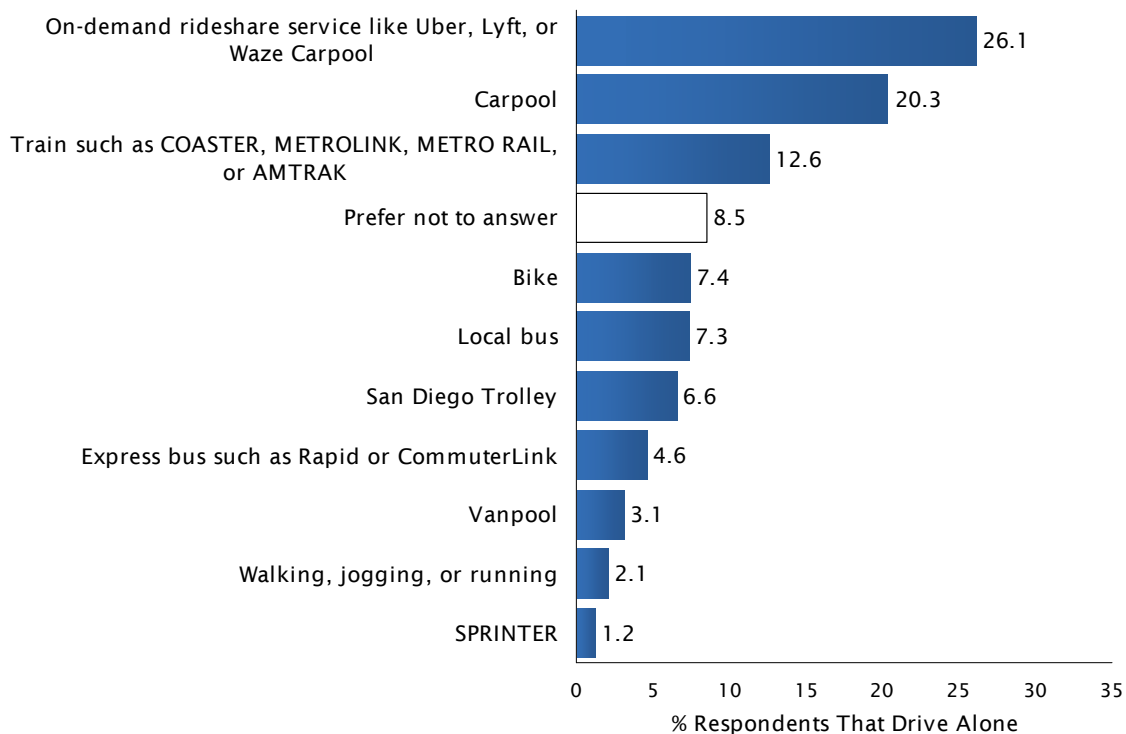
Why do commuters select a particular primary mode for their commute? Among those who drive alone to work in the study region, convenience was the most common reason mentioned for why they select their primary commute mode (30%), followed by timing/scheduling for their work (17%), it is the fastest option (12%), and it provides flexibility (11%). The reasons offered by those who use alternative modes were generally quite different, with 32% mentioning cost/being cheaper as the primary reason they use an alternative mode for their commute. Other top reasons mentioned for using an alternative mode for their commute included convenience (28%), avoiding traffic (13%), and that it is the fastest option (10%).

FIGURE 4 MOST IMPORTANT FACTORS IN CHOOSING PRIMARY COMMUTE MODE BY DRIVE ALONE VS. ALL OTHERS



Which alternative modes would work best for drive-alone commuters? When employees who currently drive alone to work were asked to choose an alternative mode that would work *best* for their commute, one-quarter (26%) preferred an on-demand rideshare service like Uber, Lyft or Waze Carpool, one-in-five (20%) preferred a traditional carpool, and 3% selected vanpool. Nearly one-third of respondents selected a form of public transit including a train (13%), local bus (7%), San Diego Trolley (7%), express bus such as Rapid or CommuterLink (5%), and SPRINTER (1%). Active transportation modes including a bike (7%) and walking, jogging or running (2%) were preferred by nearly one-in-ten solo drivers as their preferred alternative commute method.

FIGURE 5 PREFERRED ALTERNATIVE COMMUTE MODE AMONG THOSE WHO DRIVE ALONE⁶



Here again, however, we see important differences between intraregional and interregional commuters (see Table 2 on the next page). At a general level, interregional commuters were much more likely than intraregional commuters to prefer using a train, carpooling, and vanpooling for their commute. This general pattern, however, does not hold across all types of interregional commuters. Western Riverside County residents who commute into San Diego County for their work showed a distinct preference for carpooling and vanpooling, whereas residents of Western Riverside County who commute to other areas (typically Orange, San Bernardino, and Los Angeles counties) were most likely to prefer using a train. San Diego County residents who commute out of the County for their jobs, meanwhile, preferred using a train or on-demand rideshare services.

6. Pooled vs. non-pooled on-demand rideshare services were not differentiated at Question 10.

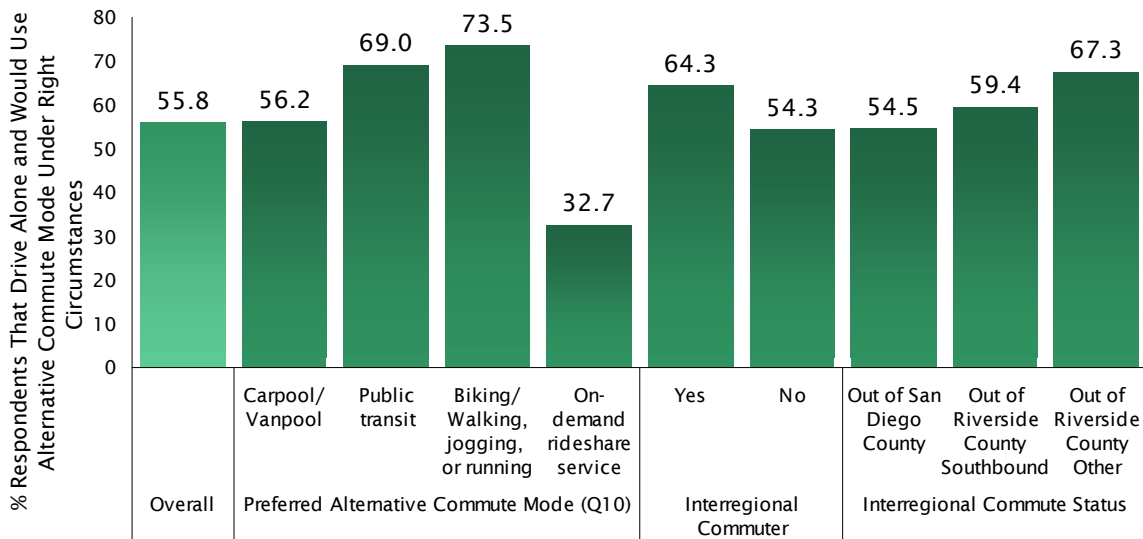
TABLE 2 PREFERRED ALTERNATIVE COMMUTE MODE AMONG THOSE WHO DRIVE ALONE BY REGION, INTERREGIONAL COMMUTER & INTERREGIONAL COMMUTE STATUS

	Region		Interregional Commuter		Interregional Commute Status		
	San Diego County	Western Riverside County	Yes	No	Out of San Diego County	Out of Riverside County Southbound	Out of Riverside County Other
On-demand rideshare service like Uber, Lyft, or Waze Carpool	28.8	20.3	14.7	28.2	24.3	10.4	14.0
Carpool	18.8	23.7	23.1	19.8	11.2	32.0	23.2
Train such as COASTER, METROLINK, METRO RAIL, or AMTRAK	8.2	22.2	37.1	8.2	33.9	19.1	42.2
Prefer not to answer	7.4	10.9	11.7	7.9	13.9	11.7	11.3
Bike	8.7	4.7	0.9	8.6	0.7	0.4	1.0
Local bus	7.3	7.4	0.6	8.6	1.7	0.2	0.4
San Diego Trolley	9.4	0.4	0.8	7.6	2.6	1.7	0.2
Express bus such as Rapid or CommuterLink	4.8	4.1	3.5	4.8	5.5	4.7	2.8
Vanpool	2.7	4.0	6.0	2.6	1.3	17.1	4.2
Walking, jogging, or running	2.2	1.9	0.9	2.3	5.0	0.3	0.3
SPRINTER	1.6	0.4	0.7	1.3	-	2.4	0.4

What percentage of drive-alone commuters are willing to consider an alternative mode?

Employees who currently drive alone to work were asked to choose which statement best matches their overall attitude about using their preferred alternative mode at least once per week to commute to work: *I would only do it if I had no other options*, or *I would do it under the right circumstances*. Because the second statement allows the respondent to define what they consider the *right circumstances*, this question is a useful litmus test for identifying employees who are not in the potential market for their preferred alternative mode because they are unwilling to use it at least once per week for their work commute even under the right circumstances.

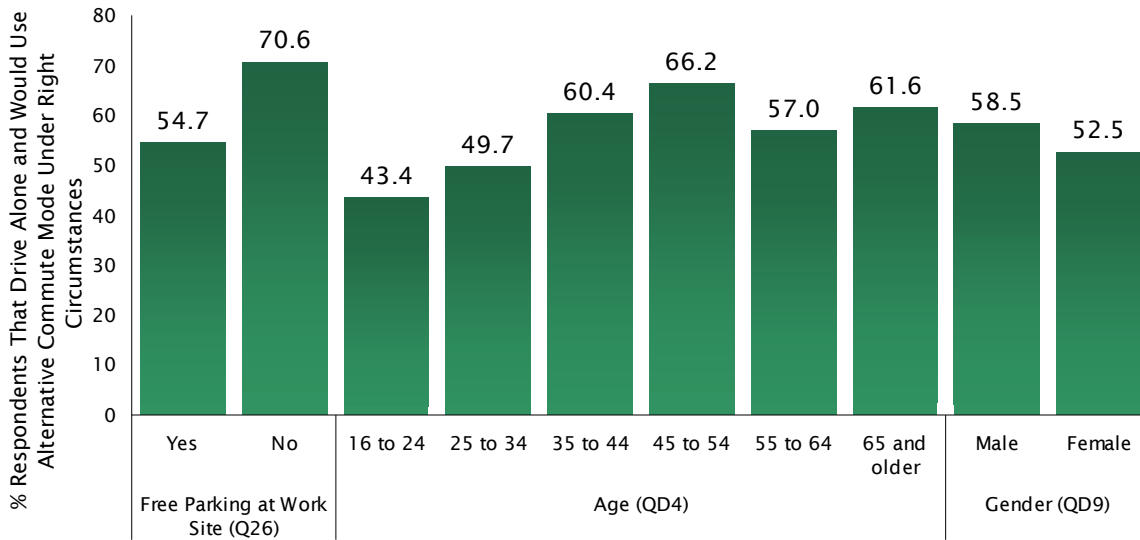
FIGURE 6 WOULD USE ALTERNATIVE MODE AT LEAST ONCE PER WEEK UNDER RIGHT CIRCUMSTANCES BY OVERALL, PREFERRED ALTERNATIVE COMMUTE MODE, INTERREGIONAL COMMUTER & INTERREGIONAL COMMUTE STATUS AMONG THOSE THAT DRIVE ALONE



Overall, 56% of employees who reside in the study region and currently drive alone to work indicated that they would commute to work at least once per week using their preferred alternative mode under the right circumstances, whereas 44% were unwilling to do so unless they had no other options. In general, a willingness to use an alternative mode for their work commute at least once per week was highest for those who preferred active transportation and public transit, interregional commuters, those who reside in Western Riverside County and commute out of the

County for their work in a direction other than southbound, those who work at a location that does not have free parking available, employees over the age of 34, and males (see Figures 6 & 7).

FIGURE 7 WOULD USE ALTERNATIVE MODE AT LEAST ONCE PER WEEK UNDER RIGHT CIRCUMSTANCES BY FREE PARKING AT WORK SITE, AGE & GENDER



What factors would make drive alone commuters more likely to use alternative modes? In terms of what would incentivize drive-alone commuters to make the switch to an alternative mode for their work commute at least one day per week, the answers varied depending on their preferred mode.

Among those who indicated **carpooling** or **vanpooling** was their preferred alternative mode, the most impactful factors were: finding people to travel with that have the same schedule/having people they know to carpool with, a guaranteed ride home in case of emergencies or unscheduled overtime, a \$50 per month incentive for not driving to and parking at your work site, and being able to get to work in about the same amount of time as driving alone were viewed as the conditions most likely to increase their use of carpooling/vanpooling for their work commute (see Figure 8).

When compared to commuters in general, those who were identified as having the highest potential for conversion to carpooling or vanpooling for their work commute at least once per week (Top Targets) were at least 5% *more* likely to reside in Western Riverside County, have three or more vehicles in their household, have five or more individuals in their household, be female, and work for a government agency (see Table 3).⁷

7. Only those variables for which there was a difference of 5% or more in the subgroup results when comparing all commuters with Top Targets are presented in Tables 3-7. Industry and occupation are not shown due to small samples sizes within each industry or occupation group.

FIGURE 8 FACTORS INFLUENCING USE OF CARPOOL/VANPOOL TO WORK AT LEAST ONCE PER WEEK AMONG THOSE THAT DRIVE ALONE

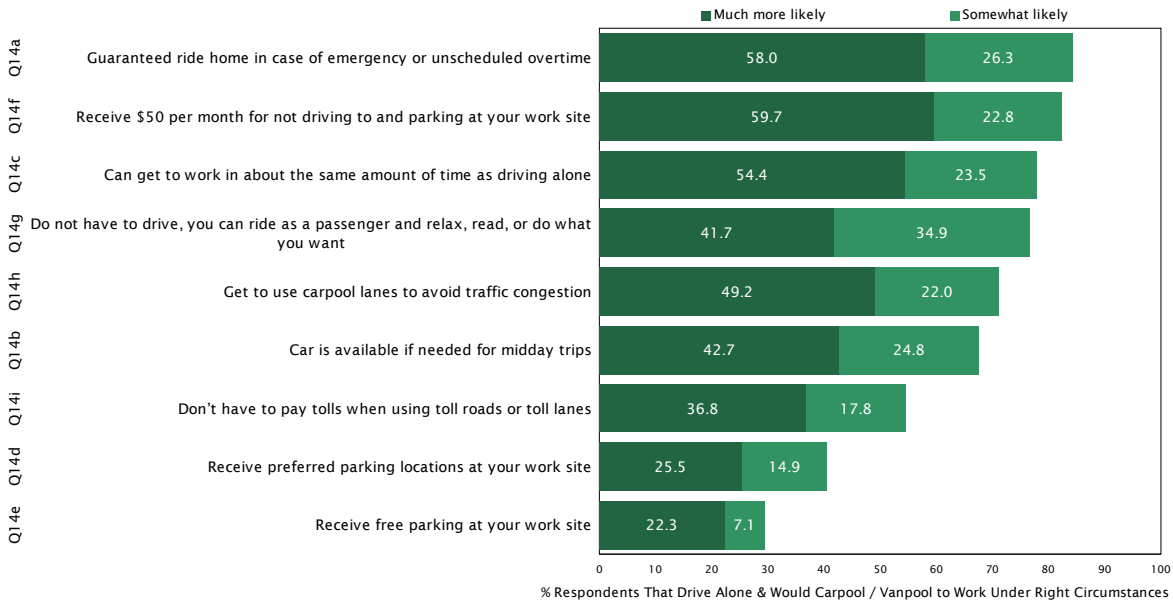


TABLE 3 DEMOGRAPHIC COMPARISON OF COMMUTERS AND CARPOOL / VANPOOL ALTERNATIVE MODE TARGETS

	All Commuters	Carpool/ Vanpool Top Targets
Region		
San Diego County	67.9	59.9
Western Riverside County	32.1	40.1
Working Vehicles in Hsld (QD1)		
One	16.7	11.2
Two	38.9	39.7
Three or more	41.0	47.4
Number of People in Hsld (QD2)		
One	11.7	6.9
Two	30.0	24.4
Three	19.1	22.3
Four	19.4	20.4
Five or more	16.8	23.2
Number of People 16+ in Hsld (QD3)		
One	14.2	9.1
Two	47.0	45.6
Three	18.3	23.3
Four	10.5	7.4
Five or more	6.5	11.8
Gender (QD9)		
Male	50.6	42.4
Female	46.9	56.1
Business Type (QD8)		
Private sector	53.5	42.7
Gov agency	22.1	32.8
Not-for-profit org	14.0	13.1

Drive-alone commuters who preferred **public transit** as their alternative mode rated having stations/stops closer to their work and/or home, more frequent transit service, being able to get to work in about the same amount of time as driving alone, and having a convenient way to get from a transit station to their work and home as being the changes most likely to increase their use of public transit for their work commute (see Figure 9).

FIGURE 9 FACTORS INFLUENCING USE OF PUBLIC TRANSIT TO WORK AT LEAST ONCE PER WEEK AMONG THOSE THAT DRIVE ALONE

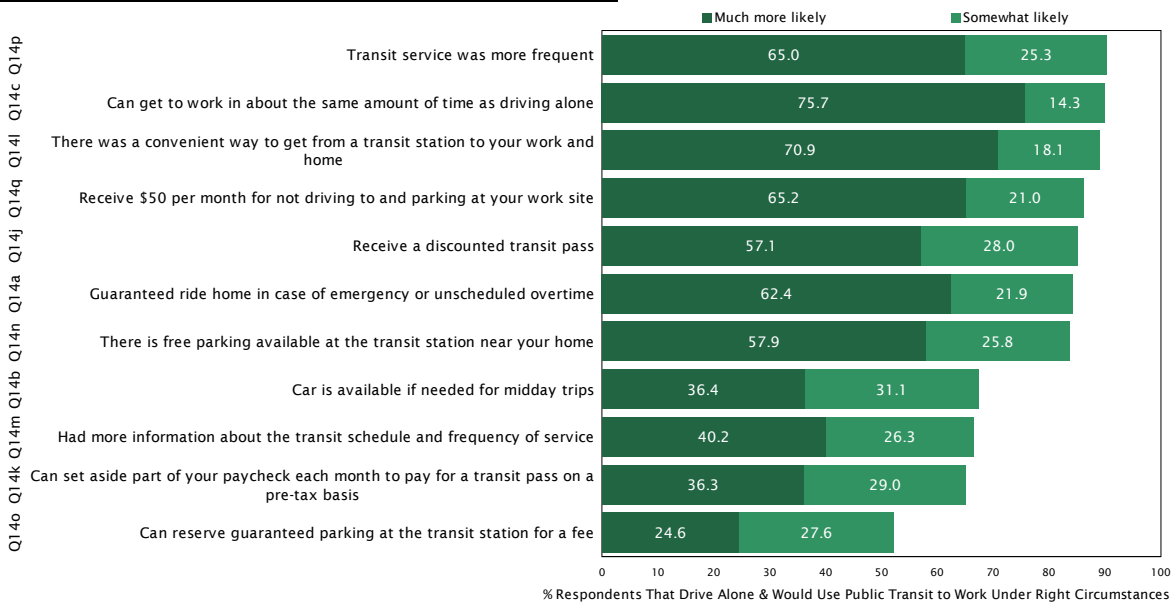


TABLE 4 DEMOGRAPHIC COMPARISON OF COMMUTERS AND PUBLIC TRANSIT ALTERNATIVE MODE TARGETS

	All Commuters	Public Transit Top Targets
Region		
San Diego County	67.9	59.4
Western Riverside County	32.1	40.6
Interregional Commuter		
Yes	16.3	27.4
No	83.7	72.6
Interregional Commute Status		
Out of San Diego County	2.1	2.9
Out of Riverside County Southbound	2.9	4.0
Out of Riverside County Other	11.3	20.6
Commute Duration in Minutes (Q7)		
Less than 10	6.4	1.5
10 to 19	23.8	15.9
20 to 29	21.1	18.5
30 to 44	20.2	22.7
45 to 60	17.7	24.7
More than 60	10.2	16.4
Working Vehicles in Hsld (QD1)		
One	16.7	16.9
Two	38.9	45.8
Three or more	41.0	36.3
Age (QD4)		
16 to 24	14.7	7.4
25 to 34	25.4	26.1
35 to 44	21.0	22.6
45 to 54	19.7	25.6
55 to 64	13.2	12.7
65 and older	3.1	3.2
Business Type (QD8)		
Private sector	53.5	55.3
Gov agency	22.1	20.1
Not-for-profit org	14.0	19.4

When compared to commuters in general, those who were identified as having the highest potential for conversion to public transit for their work commute at least once per week (Top Targets) were at least 5% *more* likely to reside in Western Riverside County, be an interregional commuter, commute out of Riverside County for the work in a direction other than southbound, have commute durations in excess of 44 minutes, have two working vehicles in the home, be between 45 and 54 years of age, and work for a not-for-profit organization (see Table 4).

Solo drivers who indicated that their preferred alternative mode for their work commute was an **on-demand rideshare** service like Uber, Lyft, or Waze Carpool were cost sensitive, citing cheaper prices/discounts for service and a \$50 per month incentive for not driving to and parking at their work site as being the changes most likely to increase their use of an on-demand

rideshare service for their work commute, followed by a guaranteed ride home in case of emergencies or unscheduled overtime, and being able to get to work in about the same amount of time as driving alone (see Figure 10).

FIGURE 10 FACTORS INFLUENCING USE OF ON-DEMAND RIDESHARE SERVICE TO WORK AT LEAST ONCE PER WEEK AMONG THOSE THAT DRIVE ALONE

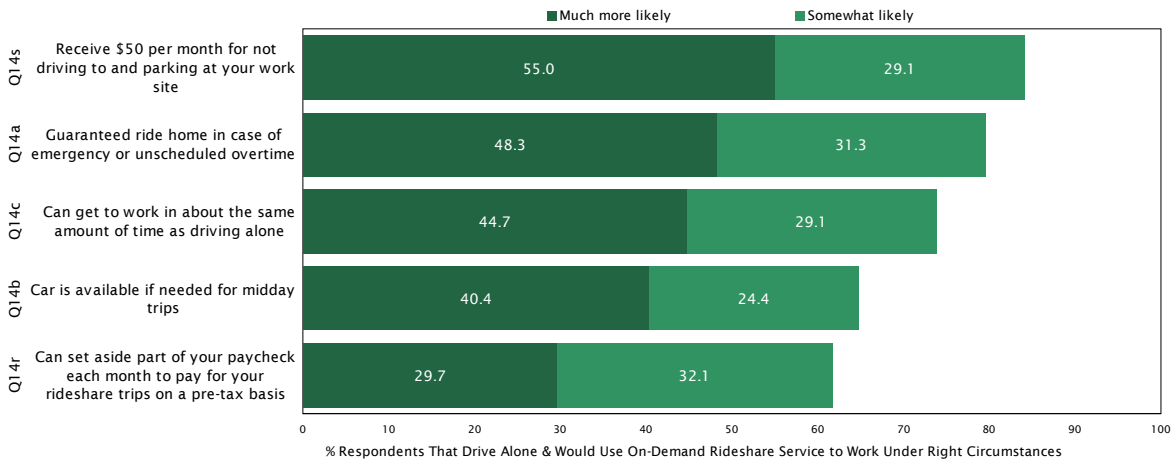


TABLE 5 DEMOGRAPHIC COMPARISON OF COMMUTERS AND RIDESHARE ALTERNATIVE MODE TARGETS

	All Commuters	Rideshare Top Targets
Region		
San Diego County	67.9	78.8
Western Riverside County	32.1	21.2
Interregional Commuter		
Yes	16.3	10.1
No	83.7	89.9
Commute Duration in Minutes (Q7)		
Less than 10	6.4	4.1
10 to 19	23.8	22.4
20 to 29	21.1	28.6
30 to 44	20.2	24.3
45 to 60	17.7	10.3
More than 60	10.2	9.4
Working Vehicles in Hsld (QD1)		
One	16.7	18.0
Two	38.9	45.2
Three or more	41.0	36.3
Number of People 16+ in Hsld (QD3)		
One	14.2	12.8
Two	47.0	58.2
Three	18.3	18.6
Four	10.5	4.2
Five or more	6.5	2.5
Age (QD4)		
16 to 24	14.7	0.8
25 to 34	25.4	28.1
35 to 44	21.0	34.5
45 to 54	19.7	15.2
55 to 64	13.2	13.9
65 and older	3.1	3.3

When compared to commuters in general, those who were identified as having the highest potential for conversion to an on-demand rideshare service for their work commute at least once per week (Top Targets) were at least 5% *more* likely to reside in San Diego County, not be an interregional commuter, have a commute duration of 20 to 29 minutes, have two working vehicles and two individuals of driving age in the household, and be between 35 and 44 years of age (see Table 5).

With respect to *active transportation*, those who considered **biking** to work as their preferred alternative mode were most apt to cite a \$50 per month incentive for not driving to and parking at their work site, better/safer roads and dedicated bike lines for most of their route to work, and a guaranteed ride home in case of emergencies or unscheduled overtime to be the conditions most likely to get them to use that alternative mode for their work commute (see Figure 11). Those who preferred to **walk, jog, or run** to work as their alternative commute mode found a \$50 per month incentive for not driving to and parking at their work site to be the condition most likely to get them to use that alternative mode for their work commute, followed by a guaranteed ride home in case of emergencies or unscheduled overtime, and being able to get to work in about the same amount of time as driving alone (see Figure 12).

FIGURE 11 FACTORS INFLUENCING BIKING TO WORK AT LEAST ONCE PER WEEK AMONG THOSE THAT DRIVE ALONE

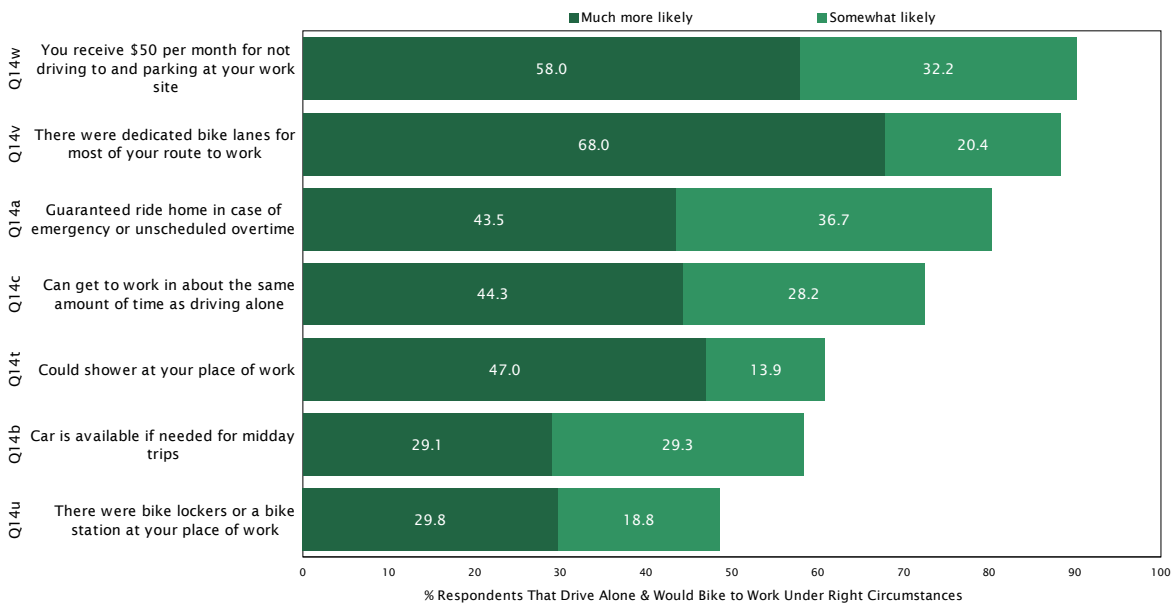


FIGURE 12 FACTORS INFLUENCING WALKING, JOGGING, OR RUNNING TO WORK AT LEAST ONCE PER WEEK AMONG THOSE THAT DRIVE ALONE

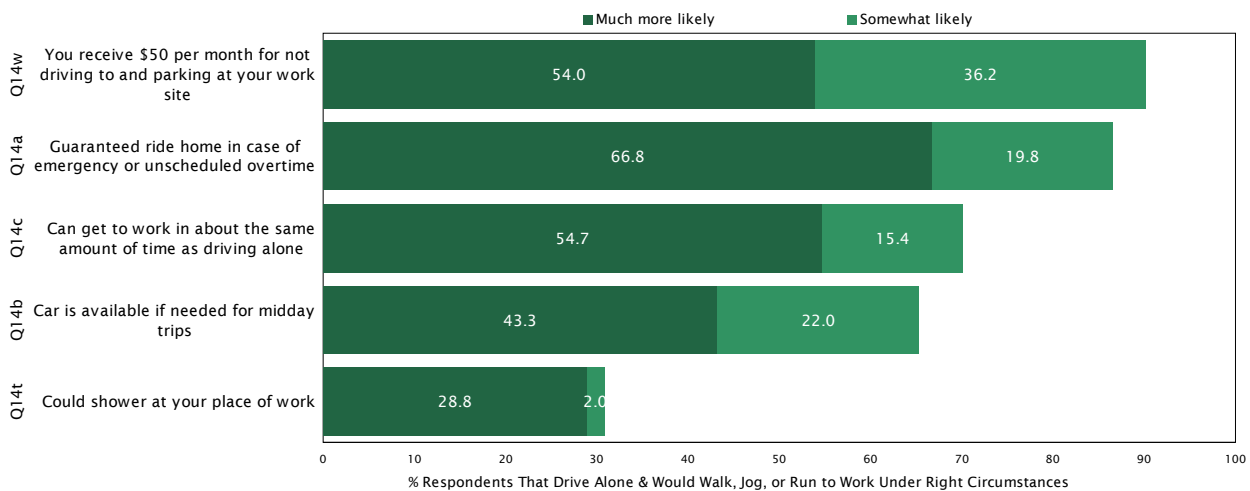


TABLE 6 DEMOGRAPHIC COMPARISON OF COMMUTERS AND ACTIVE TRANSPORTATION ALTERNATIVE MODE TARGETS

	All Commuters	Active Top Targets
Region		
San Diego County	67.9	80.9
Western Riverside County	32.1	19.1
Interregional Commuter		
Yes	16.3	2.0
No	83.7	98.0
Commute Distance in Miles (Q6)		
Less than 5	16.9	64.4
5 or more	82.5	35.6
Commute Duration in Minutes (Q7)		
Less than 10	6.4	38.5
10 to 19	23.8	42.3
20 to 29	21.1	9.3
30 to 44	20.2	7.3
45 to 60	17.7	2.5
More than 60	10.2	0.1
Working Vehicles in Hsld (QD1)		
One	16.7	14.1
Two	38.9	32.6
Three or more	41.0	53.3
Number of People in Hsld (QD2)		
One	11.7	13.8
Two	30.0	26.5
Three	19.1	14.8
Four	19.4	17.2
Five or more	16.8	23.4
Age (QD4)		
16 to 24	14.7	25.8
25 to 34	25.4	19.4
35 to 44	21.0	23.6
45 to 54	19.7	20.8
55 to 64	13.2	8.3
65 and older	3.1	0.9
Gender (QD9)		
Male	50.6	63.7
Female	46.9	35.2
Employees at Primary Workplace (QD7)		
1 to 4	7.5	6.4
5 to 9	7.5	8.6
10 to 19	11.3	23.7
20 to 49	14.8	21.5
50 to 99	12.2	10.5
100 or more	40.5	27.4
Business Type (QD8)		
Private sector	53.5	61.6
Gov agency	22.1	19.8
Not-for-profit org	14.0	11.4

When compared to commuters in general, those who were identified as having the highest potential for conversion to active transportation⁸ for their work commute at least once per week (Top Targets) were at least 5% *more* likely to reside in San Diego County, not be an interregional commuter, have commute distances of less than 5 miles and durations of less than 20 minutes, have at least three working vehicles in their household, have at least five members of their household, be under the age of 25, male, work at mid-sized companies (20 to 99 employees), and work in the private sector.

For more on the size and demographic make-up of the potential markets for alternative modes among commuters who currently drive solo, see *Market Target Summary* on page 60 and *Demographic Comparison of Commuters and Market Targets* on page 63.

How frequently are commuters using Park & Ride lots? Although 16% of commuters in the study area primarily use an alternative mode for their work commute, it appears that comparatively few are making regular use of Park & Ride lots for their commute.

Among all commuters, approximately 3% indicated they used a local Park & Ride lot weekly during the preceding 12 month period, 2% one to three times per month, 3% once every two to three months, and 9% estimated they used a local Park & Ride lot one to three times during the preceding year. The remainder (83%) offered that they did not use a local Park & Ride lot during the period of interest (see Figure 13). Even among those subgroups that expressed the highest frequency of using Park & Ride lots (those who use carpool and public transit, and interregional commuters), fewer than one-in-five reported that they use a local Park & Ride lot on a weekly basis (see Figure 14).

8. Due to the comparatively small percentage of commuters who preferred a form of active transportation for their work commute, all forms of active transportation were combined when identifying market targets.

FIGURE 13 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR AMONG THOSE WHO COMMUTE OUTSIDE HOME

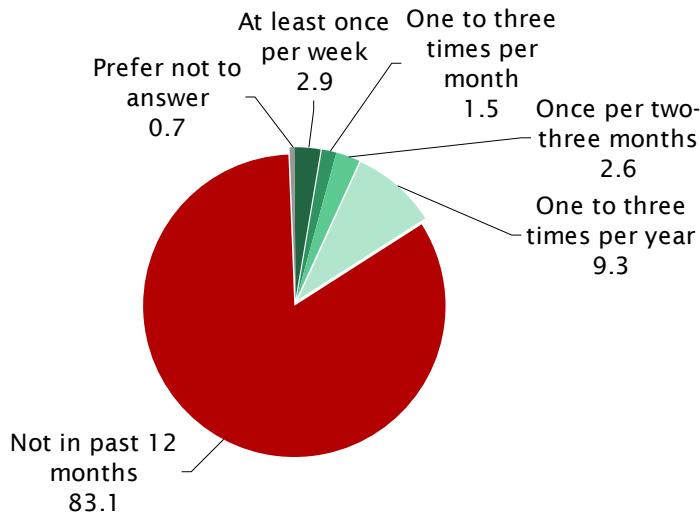
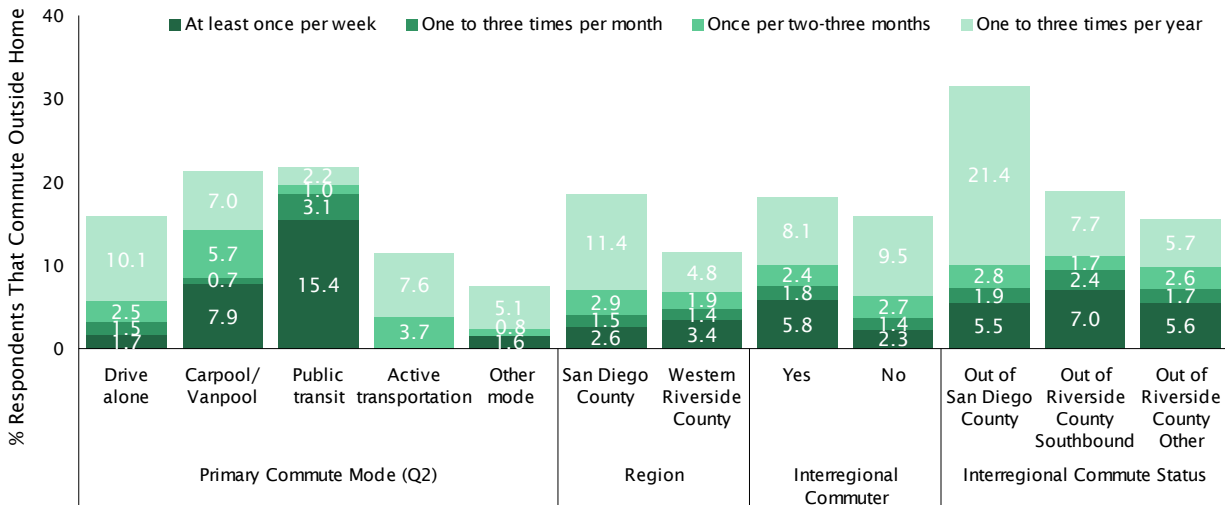
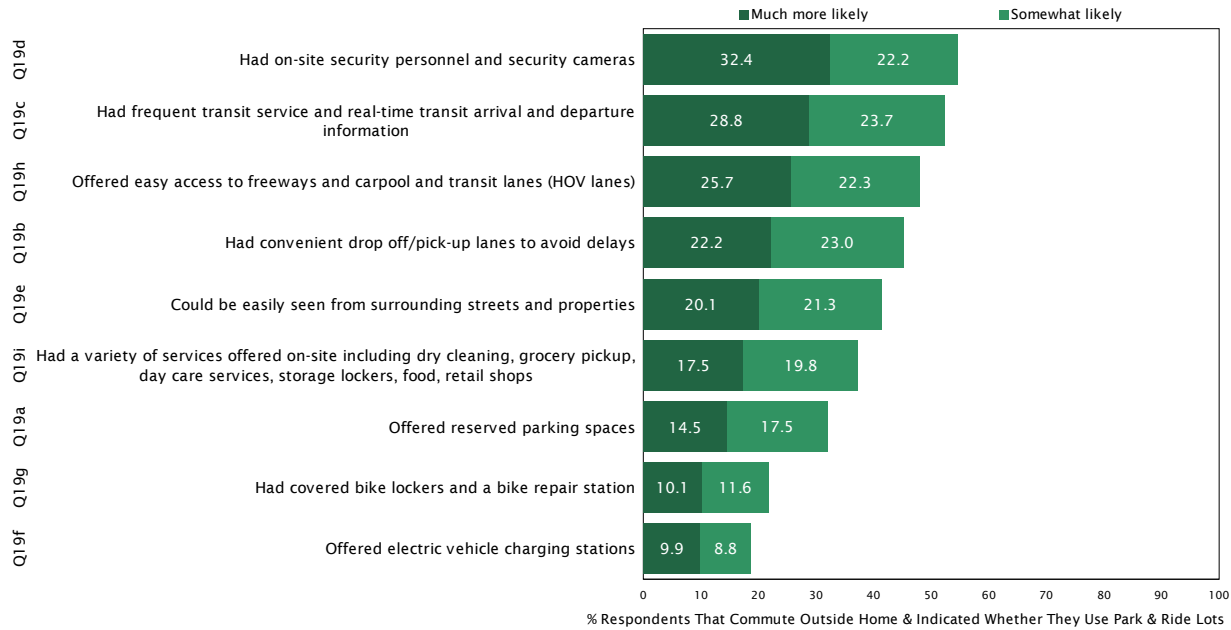


FIGURE 14 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR AMONG THOSE WHO COMMUTE OUTSIDE HOME BY PRIMARY COMMUTE MODE, REGION, INTERREGIONAL COMMUTER & INTERREGIONAL COMMUTE STATUS



What conditions would increase commuters' use of Park & Ride lots? Although the most common reasons cited for not using a Park & Ride lot were no need (30%) and no particular reason (26%), the study found that offering amenities and improvements at Park & Ride lots was attractive to some commuters. Having on-site security personnel and security cameras, frequent transit service and real-time transit arrival and departure information, and easy access to free-ways and carpool/transit lanes were the features that respondents indicated were most likely to positively influence their use of Park & Ride lots for their work commute (see Figure 15). At least one-third of respondents also indicated that having convenient drop-off/pick-up lanes to avoid delays, that the lot can be easily seen from surrounding streets and properties, and offering a variety of on-site services including dry cleaning, grocery pick-up, day care services, storage lockers, and food and retail shops would make them at least somewhat more likely to use a Park & Ride lot in the future for their commute.

FIGURE 15 INFLUENCE OF FACTORS IN LIKELIHOOD OF USING LOCAL PARK & RIDE LOT FOR WORK COMMUTE



At the other end of the spectrum, fewer respondents found the presence of electric vehicle charging stations, covered bike lockers and a repair station, and the ability to reserve parking as amenities that would make them more likely to use a Park & Ride lot for their work commute.

Are there any distinguishing characteristics of those most likely to use Park & Ride lots for their commute? Based on how drive-alone commuters responded to potential amenities and improvements that could be incorporated into Park & Ride lots, as well as their own suggested improvements, the most promising candidates for using Park & Ride lots were most often found among interregional commuters, those who reside in Western Riverside County and commute to a destination outside of the County in a direction other than southbound, commuters who have one-way commutes exceeding 60 minutes, those living in larger households (4+ people) with three or more vehicles, younger employees (under the age of 35), and individuals who work for a private or not-for-profit organization (see Table 7).

For more on the size and demographic make-up of the potential market for Park & Ride lots, see *Market Target Summary* on page 74 and *Demographic Comparison of Commuters and Market Targets* on page 75.

TABLE 7 DEMOGRAPHIC COMPARISON OF COMMUTERS AND PARK & RIDE TOP TARGETS

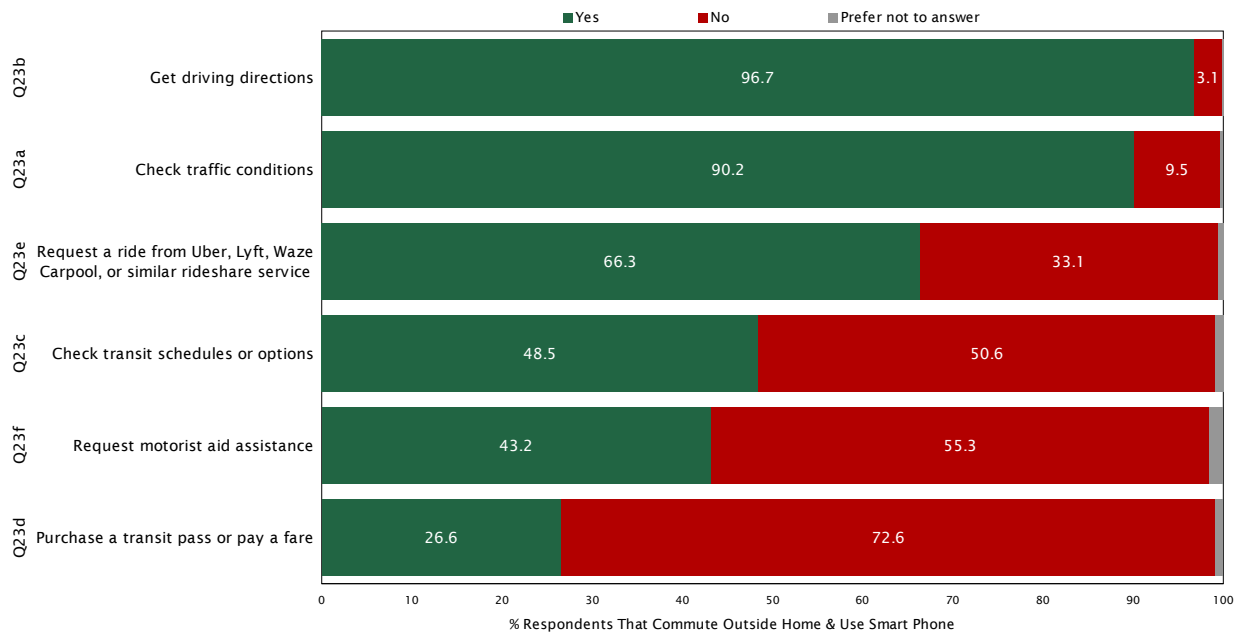
	All Commuters	Top Targets
Interregional Commuter		
Yes	16.3	21.9
No	83.7	78.1
Interregional Commute Status		
Out of San Diego County	2.1	2.5
Out of Riverside County Southbound	2.9	2.0
Out of Riverside County Other	11.3	17.4
Commute Duration in Minutes (Q7)		
Less than 10	6.4	5.9
10 to 19	23.8	26.6
20 to 29	21.1	17.1
30 to 44	20.2	19.1
45 to 60	17.7	15.5
More than 60	10.2	15.9
Working Vehicles in Hsld (QD1)		
None	1.5	1.2
One	16.7	16.2
Two	38.9	30.5
Three or more	41.0	51.5
Number of People in Hsld (QD2)		
One	11.7	6.3
Two	30.0	21.9
Three	19.1	19.3
Four	19.4	29.3
Five or more	16.8	20.5
Number of People 16+ in Hsld (QD3)		
One	14.2	11.0
Two	47.0	33.4
Three	18.3	21.3
Four	10.5	19.7
Five or more	6.5	12.0
Age (QD4)		
16 to 24	14.7	21.1
25 to 34	25.4	29.9
35 to 44	21.0	20.3
45 to 54	19.7	18.0
55 to 64	13.2	7.8
65 and older	3.1	1.4
Business Type (QD8)		
Private sector	53.5	58.7
Gov agency	22.1	18.3
Not-for-profit org	14.0	21.6

How are commuters using their smart phones for travel-related purposes? The advent of the smart phone and mobility apps has had a substantial impact on travel choices and travel behaviors in recent years. Although Uber and Lyft are perhaps the most prominent examples of how a smart phone app can transform how people travel, there are dozens of widely-used mobility apps, vehicle connectivity apps, smart parking apps, and courier network services apps that have fundamentally changed the way people plan for trips, get real-time transportation information, and connect with on-demand vehicle services. Moreover, as impactful as these apps have been to date, the potential for change is arguably even greater over the next decade with contin-

ued advances in technology, real-time data sharing, multimodal aggregators, and public-private partnerships.⁹

The smart phone is nearly ubiquitous among commuters in the study region, with 98% reporting that they currently utilize a smart phone.¹⁰ At least nine-in-ten commuters indicated that they use their smart phone to get driving directions (97%) and check traffic conditions (90%), and nearly two-thirds (66%) reported that they occasionally use their phone to request a ride from Uber, Lyft, Waze Carpool, or a similar rideshare service (see Figure 16). Although less common, many commuters also reported using their smart phone to check transit schedules or options (49%), request motorist aid assistance (43%), and purchase a transit pass or pay a fare (27%).

FIGURE 16 SPECIFIC USES FOR SMART PHONE



Given that many commuters are already using their smart phone to enhance their travel experience, it is not surprising that the vast majority also expressed interest in a user-friendly smart phone app that would allow them to plan a trip, book the trip, and pay for the trip on *any* transportation mode or service. Overall, 41% of commuters stated that they would be very interested in this full-featured transportation app, 44% were somewhat interested, whereas just 14% expressed no interest in the app. Interest in the user-friendly smart phone app was widespread, with at least two-thirds of respondents in every identified commuter subgroup expressing interest in the app. For more details, see *Transportation Information & Smart Phone Apps* on page 78.

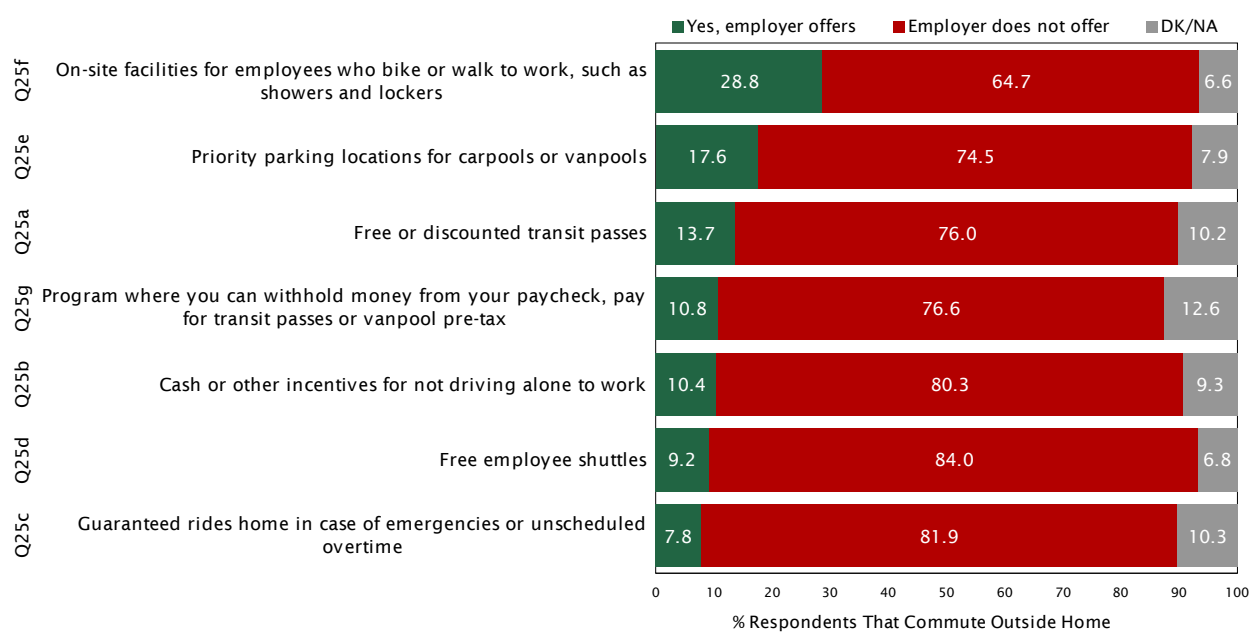
9. For a detailed review of this topic, see *Smartphone Applications to Influence Travel Choices: Practices and Policies*, U.S. Department of Transportation Publication # FHWA-HOP-16-023: April 2016.

10. Even among the subgroup with the lowest rate of smart phone usage (seniors), approximately 9-in-10 commuters indicated they currently use a smart phone.

To what extent are employers offering commute benefits? Employer-offered commute benefit programs encourage the use of alternative modes by offering monetary and other types of incentives. For the employer, such programs can help boost employee morale, job satisfaction, and retention by reducing the burden of the work commute for employees. Employer-offered commute benefits can also be influential in decreasing motor vehicle travel and traffic congestion, reducing emissions of greenhouse gases and other pollutants, and ultimately help protect the climate and public health.

Given the above, it was of interest to develop an up-to-date understanding of the extent to which employers are offering commute benefits, as well as the type of benefits being offered. Unfortunately, the dominant response for every commute benefit tested in the survey was that it is *not* offered by their employer (see Figure 17).

FIGURE 17 EMPLOYER BENEFITS OFFERED



Among the most commonly offered benefits were on-site facilities for employees who bike or walk to work, such as showers and lockers (29%), priority parking locations for carpools and vanpools (18%), and free or discounted transit passes (14%). Approximately one-in-ten commuters reported that their employer offers the opportunity for employees to purchase transit passes or pay for vanpool services pre-tax (11%), cash or other incentives for not driving alone to work (10%), free employee shuttles (9%), and a guaranteed ride home in case of emergencies or unscheduled overtime (8%).

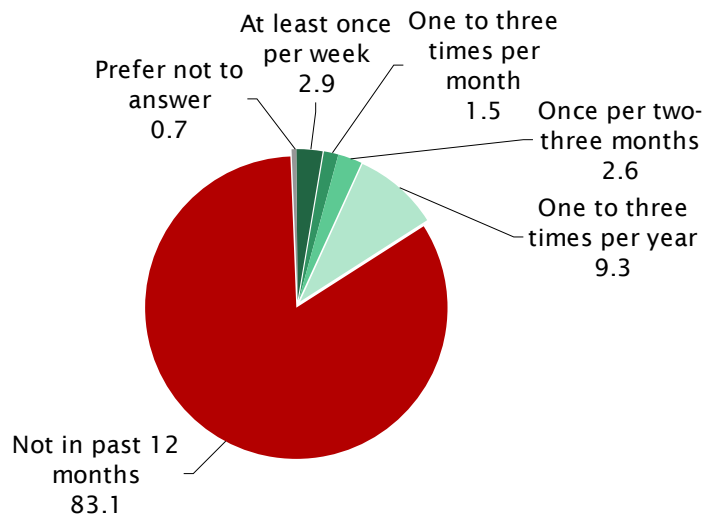
PARK & RIDE

Having profiled commuters' willingness to use alternative modes for their work commute, the survey transitioned to the topic of Park & Ride lots. Specifically, commuters were asked to describe their recent experiences using a local Park & Ride lot, their reasons for not using a Park & Ride lot (if applicable), and the amenities or improvements that could be made to Park & Ride lots that would increase their likelihood of use.

USE OF LOCAL PARK & RIDE LOT The first question in this series simply asked respondents to describe the frequency with which they have used a local Park & Ride lot in the 12 months preceding the interview. As shown in Figure 80, more than eight-in-ten respondents (83%) indicated they had not used a Park & Ride lot during the period of interest. Approximately 3% indicated they used a local Park & Ride lot weekly, 2% one to three times per month, 3% once every two to three months, and 9% estimated they used a local Park & Ride lot one to three times during the past 12 months.

Question 16 *Have you used a local Park & Ride lot in the past 12 months? If yes, ask: How often have you used a local Park & Ride lot during this period?*

FIGURE 80 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR AMONG THOSE WHO COMMUTE OUTSIDE HOME



The following figures show how frequency of using a local Park & Ride lot varied among subgroups of commuters in the study region overall (Figure 81), among San Diego County residents who commute to work (Figures 82 & 83), and among commuters who reside in Western Riverside County (Figures 84 & 85). Among all commuters in the study, it is worth noting that those who primarily commute to work by carpool/vanpool or public transit, as well as interregional commuters, were the most likely to report using a Park & Ride lot on a weekly basis.

FIGURE 81 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR AMONG THOSE WHO COMMUTE OUTSIDE HOME BY PRIMARY COMMUTE MODE, REGION, INTERREGIONAL COMMUTER & INTERREGIONAL COMMUTE STATUS

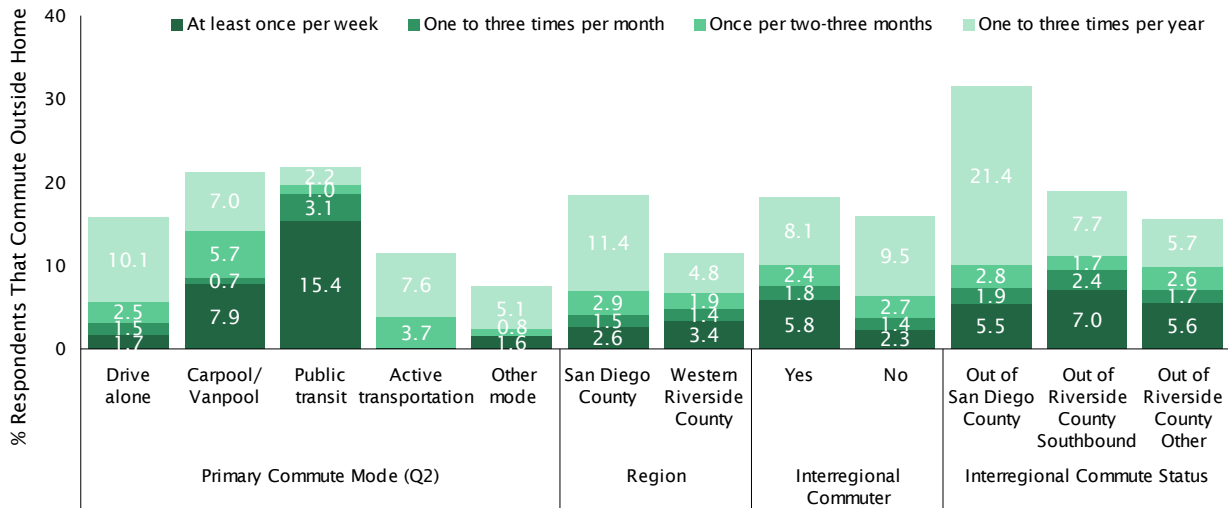


FIGURE 82 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR BY SUBREGION, INTERREGIONAL COMMUTER & INTERREGIONAL COMMUTE DESTINATION AMONG SAN DIEGO COUNTY RESIDENTS WHO COMMUTE OUTSIDE HOME

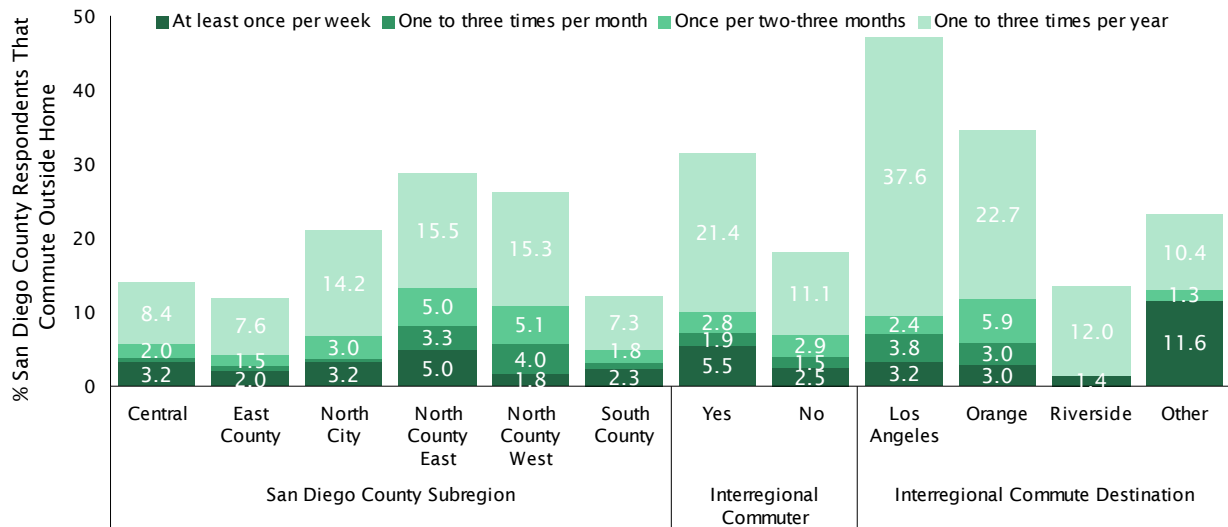


FIGURE 83 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR BY AGE, GENDER & WORKING VEHICLES IN HOUSEHOLD AMONG SAN DIEGO COUNTY RESIDENTS WHO COMMUTE OUTSIDE HOME

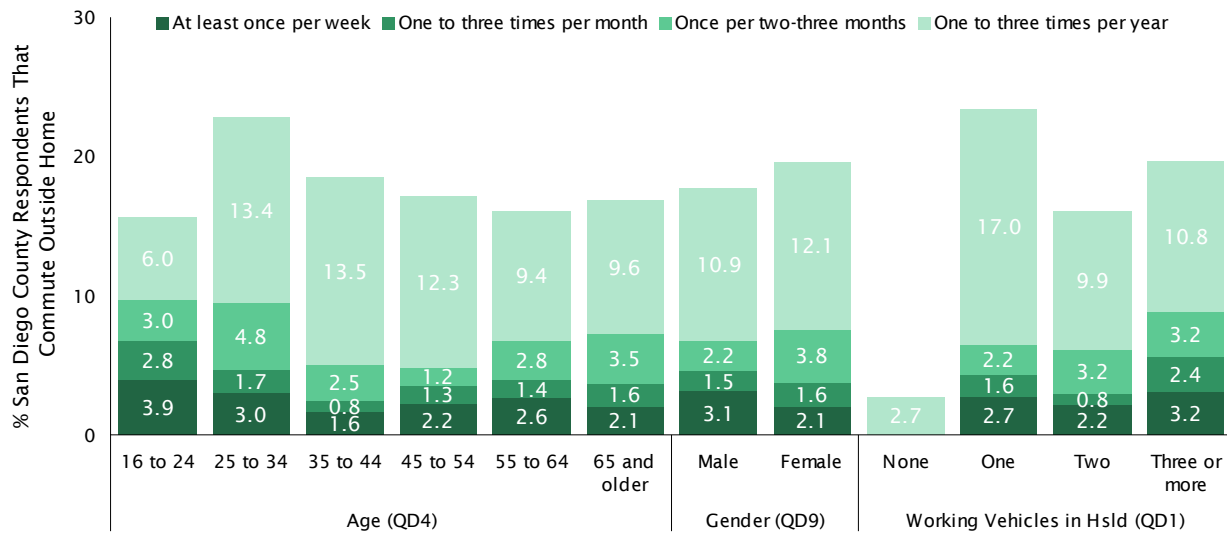
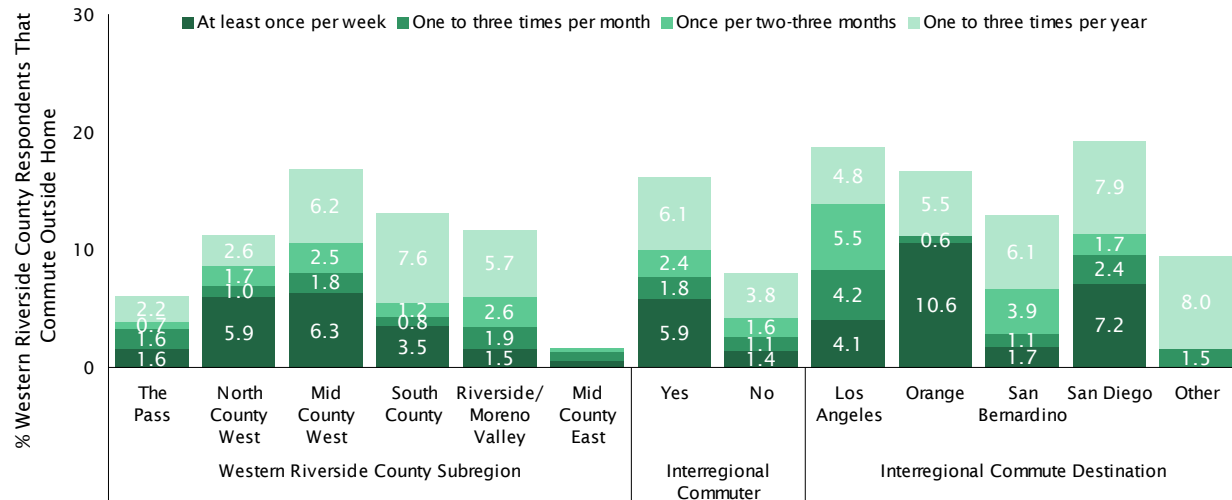
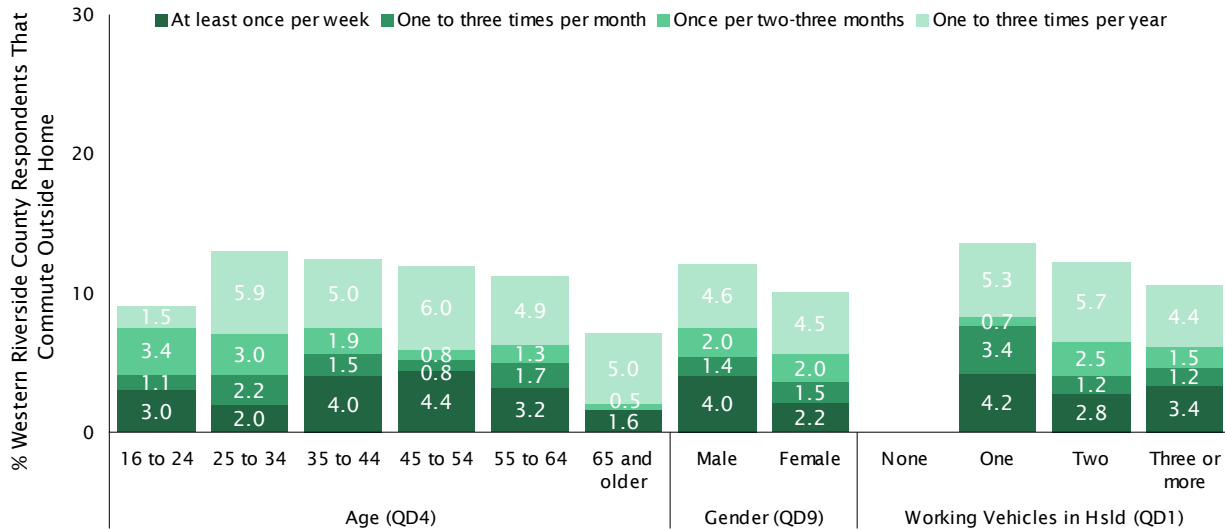


FIGURE 84 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR BY SUBREGION, INTERREGIONAL COMMUTER & INTERREGIONAL COMMUTE DESTINATION AMONG WESTERN RIVERSIDE COUNTY RESIDENTS WHO COMMUTE OUTSIDE HOME²⁶



26. Given the small number of Mid County East commuters who have used a Local Park & Ride Lot in the past year, this subgroup is not shown on Figure 89 displaying responses to the follow-up question about using Park & Ride Lots for reasons other than commuting to work.

FIGURE 85 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR BY AGE, GENDER & WORKING VEHICLES IN HOUSEHOLD AMONG WESTERN RIVERSIDE COUNTY RESIDENTS WHO COMMUTE OUTSIDE HOME

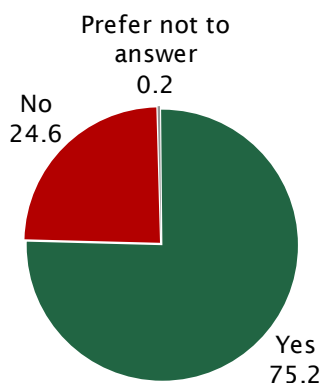


USE OF PARK & RIDE LOT FOR PURPOSE OTHER THAN COMMUTING TO WORK

Respondents who indicated they had used a local Park & Ride lot in the 12 months preceding the interview were subsequently asked if they had ever used a local Park & Ride lot for something other than commuting to work—such as going to a sporting event, a concert, or jury duty. Among this subgroup of commuters, three-quarters (75%) offered that they had used a Park & Ride lot for purposes other than commuting to work (Figure 86).

Question 17 *Have you ever used a local Park & Ride lot for something other than commuting to work - such as when going to a sporting event, a concert, or jury duty?*

FIGURE 86 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR FOR REASON OTHER THAN COMMUTING TO WORK



Figures 87-89 illustrate how the answers to Question 17 varied across subgroups of commuters who had used a Park & Ride lot in the 12 months preceding the interview. When comparing the patterns of responses to Question 16 and Question 17, an interesting pattern emerges. Although high frequency users of Park & Ride lots are most common among those who use carpool/vanpool and public transit for their commute, and interregional commuters, when isolating those who have used a Park & Ride lot in the past 12 months these groups are generally *less* likely than their counterparts to have ever used a Park & Ride lot for *non-work* purposes. This pattern suggests that those who are using a Park & Ride lot frequently for work purposes are also more likely to be one-dimensional in their use of the lots (work trips only).

FIGURE 87 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR FOR REASON OTHER THAN COMMUTING TO WORK BY REGION, INTERREGIONAL COMMUTER, INTERREGIONAL COMMUTE STATUS & COMMUTE DISTANCE IN MILES

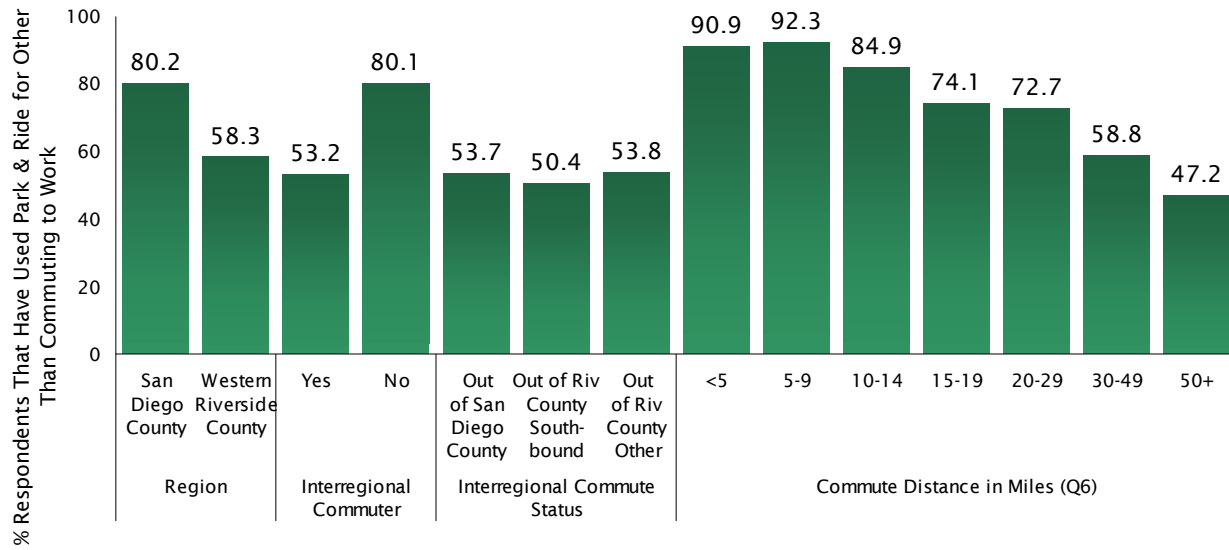


FIGURE 88 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR FOR REASON OTHER THAN COMMUTING TO BY PRIMARY COMMUTE MODE, FREQUENCY OF PARK & RIDE USE, SUBREGION & INTERREGIONAL COMMUTER AMONG SAN DIEGO COUNTY RESIDENTS THAT HAVE USED PARK & RIDE

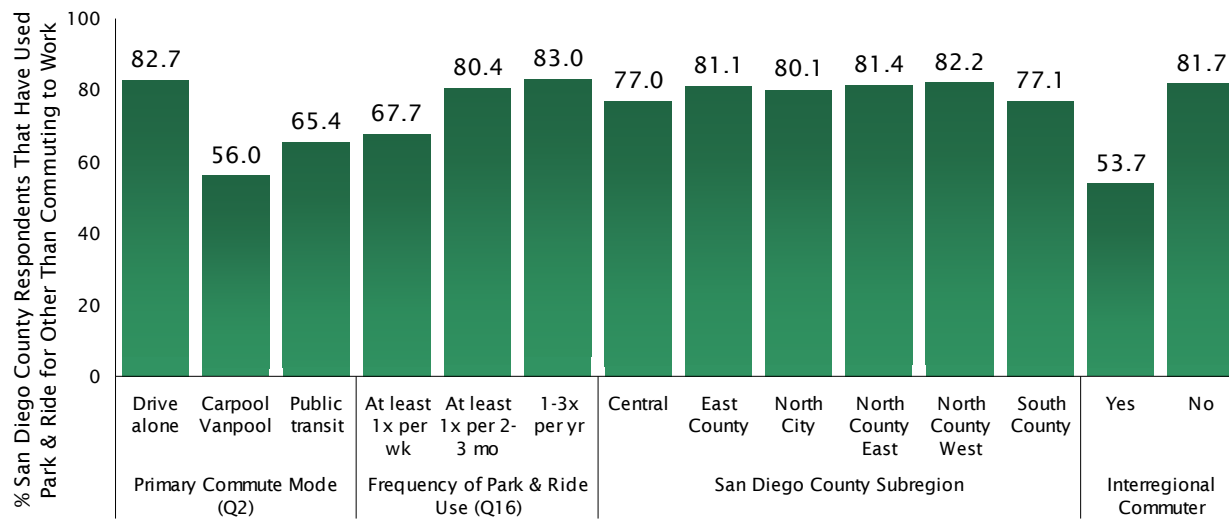
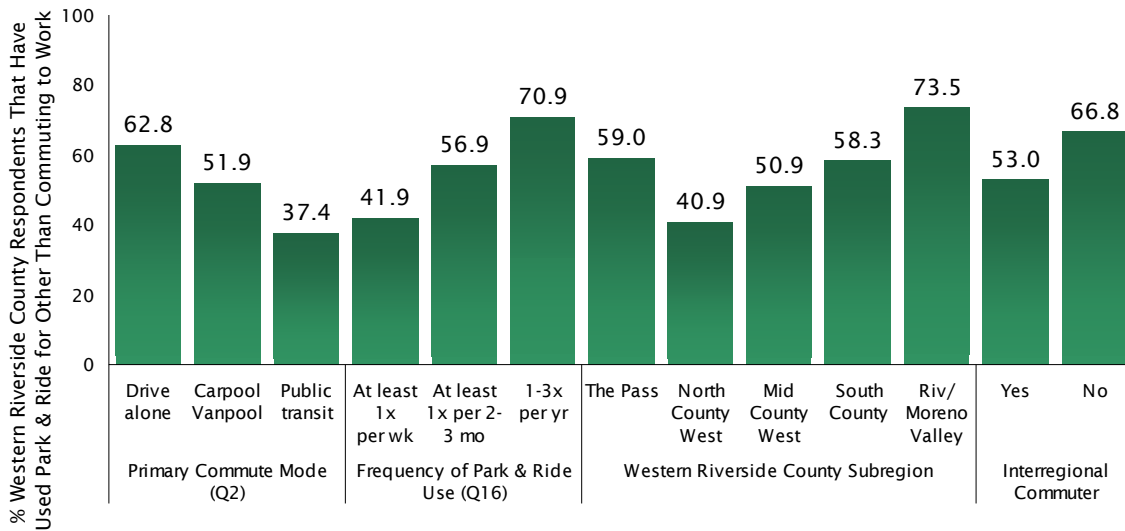


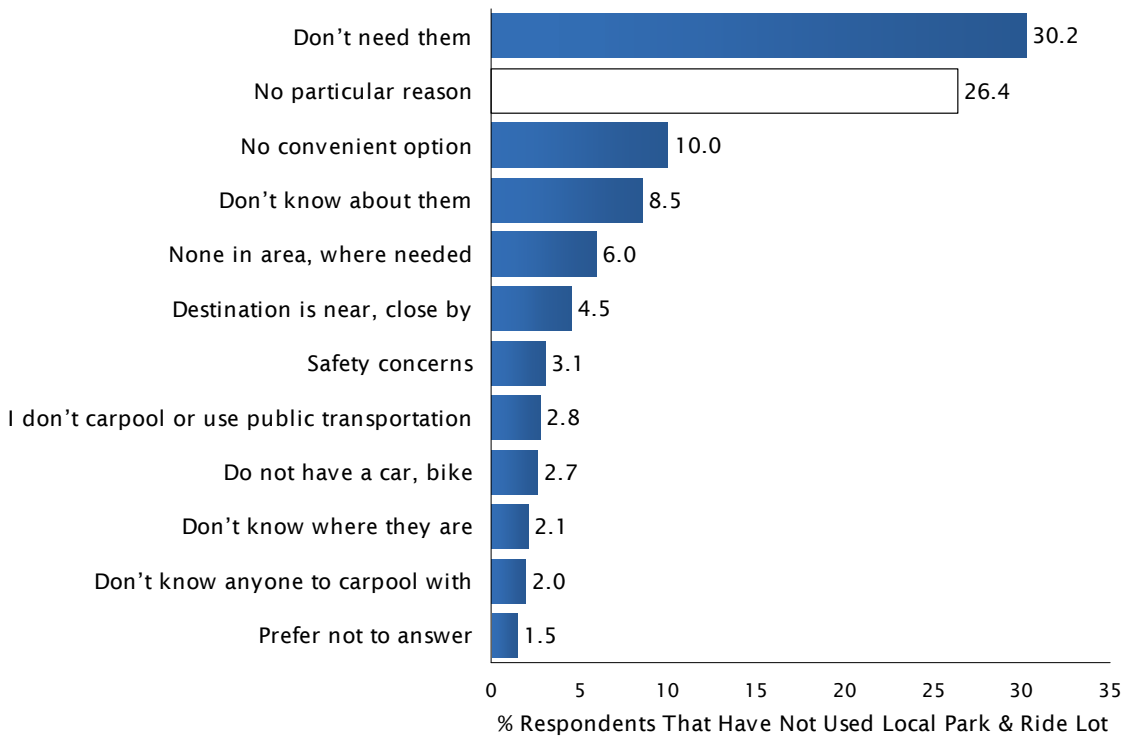
FIGURE 89 USE OF LOCAL PARK & RIDE LOT IN PAST YEAR FOR REASON OTHER THAN COMMUTING TO WORK BY PRIMARY COMMUTE MODE, FREQUENCY OF PARK & RIDE USE, SUBREGION & INTERREGIONAL COMMUTER AMONG WESTERN RIVERSIDE COUNTY RESIDENTS THAT HAVE USED PARK & RIDE



REASONS FOR NOT USING A PARK & RIDE LOT Commuters who indicated they hadn't used a Park & Ride lot were subsequently asked in an open-ended manner to describe their reasons. The verbatim answers were categorized and are presented below in Figure 90.

Question 18 *Is there a particular reason why you haven't used a local Park & Ride lot in the past 12 months?*

FIGURE 90 MAIN REASON FOR NOT USING LOCAL PARK & RIDE LOT IN PAST YEAR²⁷



Overall, the most common reasons reported for not using a local Park & Ride lot in the 12 months preceding the interview were no need (30%), no particular reason (26%), not having a convenient option locally (10%), not knowing about them (9%), and a perception that there are none in the area/where needed (6%). Aside from 3% mentioning safety concerns, no respondents mentioned an operational aspect or lack of amenities as their reason for not using a Park & Ride lot.

The following tables list the top five reasons offered for not using a local Park & Ride lot according to region of residence, interregional commute status, and primary commute mode.

TABLE 25 TOP 5 REASONS FOR NOT USING LOCAL PARK & RIDE LOT IN PAST YEAR BY REGION & INTERREGIONAL COMMUTE STATUS

Region		Interregional Commute Status			
San Diego County	Western Riverside County	Not Interregional Commuter	Out of San Diego County	Out of Riverside County Southbound	Out of Riverside County Other
Don't need them	Don't need them	Don't need them	Don't need them	Don't need them	Don't need them
No particular reason	No particular reason	No particular reason	No particular reason	No particular reason	No particular reason
No convenient option	Don't know about them	No convenient option	Don't know about them	Safety concerns	No convenient option
Don't know about them	No convenient option	Don't know about them	No convenient option	None in area, where needed	Don't know about them
None in area, where needed	None in area, where needed	None in area, where needed	I don't carpool or use public transportation	No convenient option	None in area, where needed

TABLE 26 TOP 5 REASONS FOR NOT USING LOCAL PARK & RIDE LOT IN PAST YEAR BY PRIMARY COMMUTE MODE

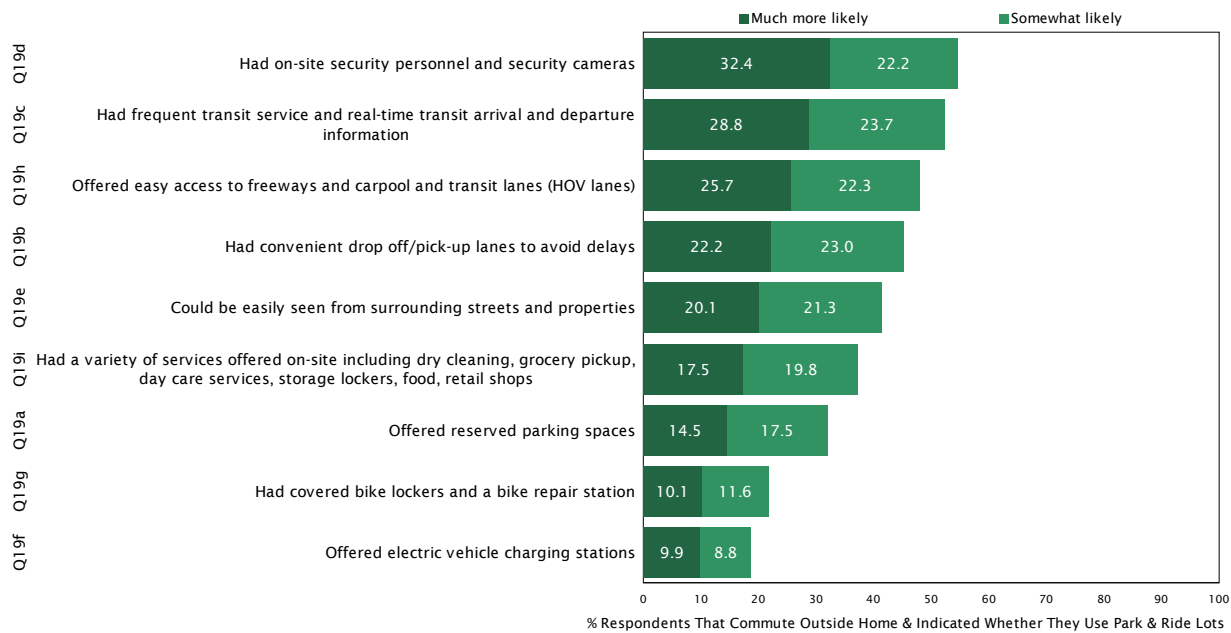
Primary Commute Mode (Q2)				
Drive alone	Carpool / Vanpool	Public transit	Active transportation	Other mode
Don't need them	Don't need them	No particular reason	Don't need them	Don't need them
No particular reason	No particular reason	Do not have a car, bike	Do not have a car, bike	No particular reason
No convenient option	No convenient option	Don't need them	No particular reason	No convenient option
Don't know about them	Don't know about them	Don't know about them	No convenient option	Prefer not to answer
None in area, where needed	Carpool partners live close by	Have own parking spot, park in other places	Don't know about them	Do not have a car, bike

27. Only responses cited by at least 1.5% of respondents who had not used a local Park & Ride lot in the past 12 months are displayed in Figure 90.

CONDITIONS THAT WOULD INCREASE USE OF PARK & RIDE LOT Similar to the method used previously to identify conditions that would increase a respondent’s likelihood of using alternative modes for their commute, Question 19 presented a list of specific conditions and asked respondents to indicate, for each condition, whether it would make them more likely to use a Park & Ride lot for their work commute, or if it would have no impact. The list of conditions, and respondents’ answers, are shown in Figure 91.

Question 19 *If a local Park & Ride lot: _____, would you be more likely to use it for your work commute, or would it have no impact? If says 'yes, more likely', ask: Would that be much more likely, or somewhat more likely?*

FIGURE 91 INFLUENCE OF FACTORS IN LIKELIHOOD OF USING LOCAL PARK & RIDE LOT FOR WORK COMMUTE



Having on-site security personnel and security cameras (55%), frequent transit service and real-time transit arrival and departure information (53%), and easy access to freeways and carpool/transit lanes (48%) were the features that respondents indicated were most likely to positively influence their use of Park & Ride lots for their work commute. At least one-third of respondents also indicated that having convenient drop-off/pick-up lanes to avoid delays (45%), that the lot can be easily seen from surrounding streets and properties (41%), and offering a variety of on-site services including dry cleaning, grocery pick-up, day care services, storage lockers, and food and retail shops (37%) would make them at least somewhat more likely to use a Park & Ride lot in the future for their commute.

At the other end of the spectrum, fewer respondents found the presence of electric vehicle charging stations (19%), covered bike lockers and repair station (22%), and the ability to reserve parking (32%) as amenities that would make them more likely to use a Park & Ride lot for their work commute.

Table 27 shows how the percentage who listed a condition as making them much more likely to use a Park & Ride lot for their commute differed by region of residence. Although the percentages varied somewhat, the general ranking of conditions was similar.

TABLE 27 INFLUENCE OF FACTORS IN LIKELIHOOD OF USING LOCAL PARK & RIDE LOT FOR WORK COMMUTE BY REGION SHOWING % MUCH MORE LIKELY

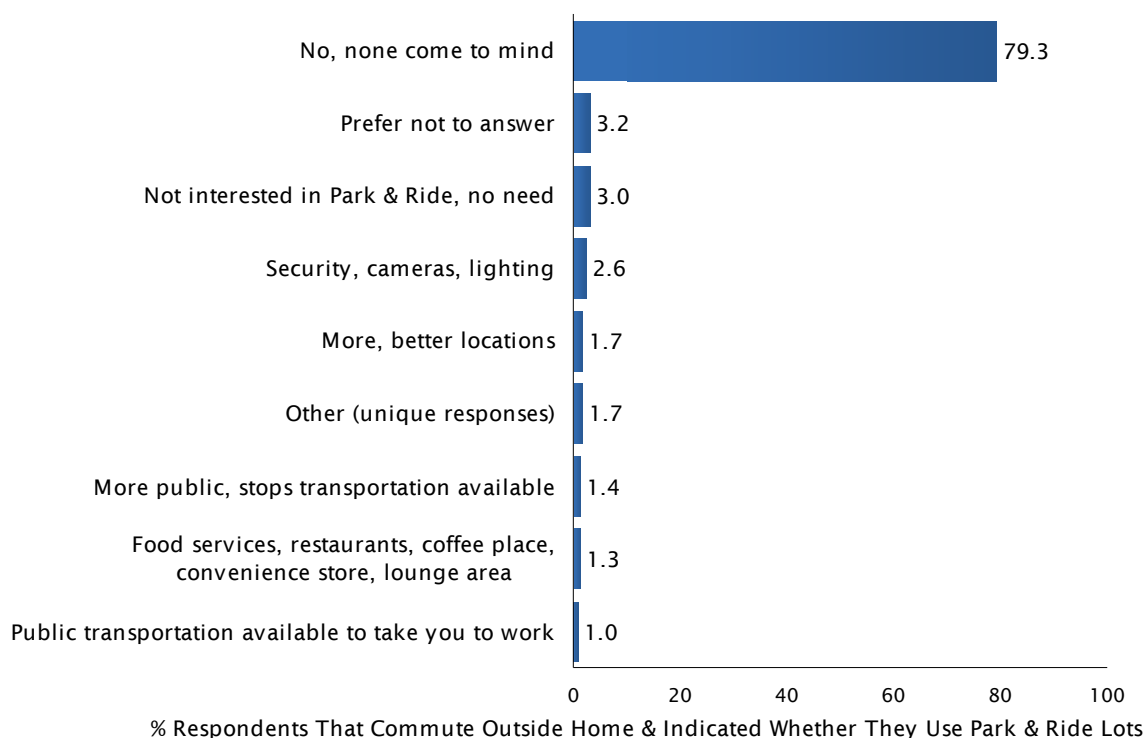
	Region	
	San Diego County	Western Riverside County
Q19d Had on-site security personnel and security cameras	31.3	34.7
Q19c Had frequent transit service and real-time transit arrival and departure information	28.4	29.6
Q19h Offered easy access to freeways and carpool and transit lanes (HOV lanes)	24.8	27.4
Q19b Had convenient drop off/pick-up lanes to avoid delays	21.6	23.5
Q19e Could be easily seen from surrounding streets and properties	19.7	21.0
Q19i Had a variety of services offered on-site including dry cleaning, grocery pickup, day care services, storage lockers, food, retail shops	17.8	16.8
Q19a Offered reserved parking spaces	13.4	16.8
Q19g Had covered bike lockers and a bike repair station	9.9	10.6
Q19f Offered electric vehicle charging stations	9.7	10.4

Recognizing that the list of conditions tested in Question 19 was not exhaustive, the survey followed-up by asking respondents to describe any amenity or improvement not already mentioned that would make them more likely to use a Park & Ride lot for their work commute. Question 20 was administered in an open-ended manner, which allowed respondents to mention any amenity or improvement that came to mind, without prompting or constraint. True North later reviewed the verbatim responses and grouped them into the categories shown in Figure 92 on the next page.

Nearly eight-in-ten respondents (79%) indicated that no additional amenities or improvements come to mind that would make them more likely to use a Park & Ride lot for their work commute, and 6% declined to answer the question or stated flatly that they are not interested in using a Park & Ride lot. Among the specific amenities and/or improvements that were mentioned in response to Question 20, improved security/security cameras/security lighting was most common (3%), followed by more/better lot locations (2%).

Question 20 *Is there an amenity or improvement that I didn't mention that would make you more likely to use a local Park & Ride lot for your work commute? If yes, ask: Please describe it to me.*

FIGURE 92 AMENITY OR IMPROVEMENT TO INCREASE LIKELIHOOD OF USING LOCAL PARK & RIDE LOT FOR WORK COMMUTE²⁸



MARKET TARGET SUMMARY Recognizing that not every commuter is in the potential market for Park & Ride lots, we developed a tiered-market profile for Park & Ride lots using an approach similar to that described previously for alternative modes (see *Market Target Summary* on page 60). A respondent's position in the market for Park & Ride lots was based on how they responded to the amenities and improvements tested in Question 19 and their suggestions in response to Question 20. The four tiers are described below.

Top Targets The most promising potential users of Park & Ride lots for their work commute indicated that at least half of the amenities/improvements tested in Question 19 would cause them to be much more likely to use a Park & Ride lot for their work commute, *and* they offered a meaningful suggestion in Question 20 when asked to describe additional improvements that would positively influence their use of Park & Ride lots.

Mid-Level Targets Individuals qualified as Mid-Level Targets if they found at least half of the amenities/improvements tested in Question 19 would cause them to be much more likely to use a Park & Ride lot for their work commute, *but* they did not offer a meaningful suggestion in

²⁸ Only responses cited by at least 1% of commuters who indicated whether or not they use Park & Ride lots for their work commute are shown in Figure 92.

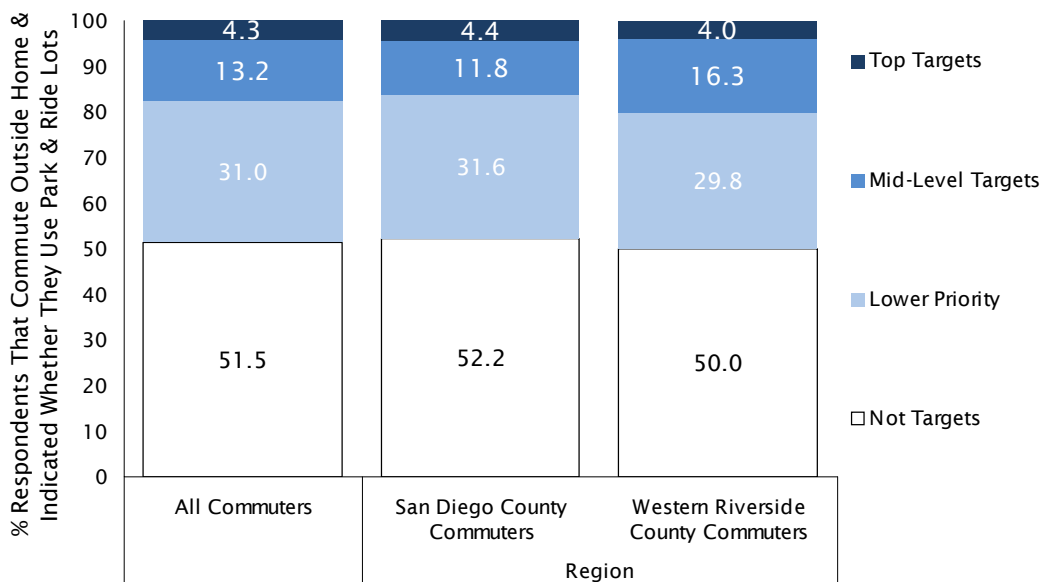
response to Question 20 when asked to describe additional improvements that would positively influence their use of Park & Ride lots.

Lower Priority Individuals in this group indicated that one to four of the amenities tested in Question 19 would cause them to be much more likely to use a Park & Ride lot for their work commute *or* don't meet this condition, but have used a Park & Ride lot for their work commute at least one time in the past year.

Not Targets Individuals in this group did not find any of the amenities or improvements tested in Question 19 to be compelling reasons (much more likely) to use a Park & Ride lot for their work commute.

Figure 93 presents the market tiers for Park & Ride lots among all commuters in the study, as well as by region. Among all commuters, 4% qualified as Top Targets for Park & Ride lots, 13% as Mid-Level Targets, and 31% as Lower Priority Targets. Just over half (52%) were classified as not being a target for Park & Ride lots for their work commute. The distribution of market tiers was generally similar when comparing San Diego County residents to those in Western Riverside County.

FIGURE 93 PARK & RIDE FOR WORK COMMUTE TARGET TIERS



DEMOGRAPHIC COMPARISON OF COMMUTERS AND MARKET TARGETS For the interested reader, Tables 28 and 29 present individual, household, and workplace information for all commuters, as well as each market tier for Park & Ride lots. Within the tables, differences of at least five percent between an individual target group and all commuters are highlighted in grey. When compared to commuters in general, Top Targets were somewhat more likely to be interregional commuters, reside in Western Riverside County and commute to a destination outside of the County (but not San Diego County), have one-way commutes exceeding 60 minutes, live in larger households (4+ people) with three or more vehicles, be under the age of 35, and work for a private or not-for-profit organization.

TABLE 28 DEMOGRAPHIC BREAKDOWN OF ALL COMMUTERS AND PARK & RIDE TARGET TIERS

	All Commuters	Top Targets	Mid-Level Targets	Lower Priority	Not Targets
Region					
San Diego County	67.9	70.4	60.6	69.2	68.9
Western Riverside County	32.1	29.6	39.4	30.8	31.1
Interregional Commuter					
Yes	16.3	21.9	20.9	15.1	15.3
No	83.7	78.1	79.1	84.9	84.7
Interregional Commute Status					
Out of San Diego County	2.1	2.5	2.5	1.9	2.1
Out of Riverside County Southbound	2.9	2.0	3.0	3.3	2.6
Out of Riverside County Other	11.3	17.4	15.5	9.9	10.6
Commute Distance in Miles (Q6)					
Less than 5	16.9	18.4	15.6	14.0	18.9
5 to 9	11.4	10.3	4.8	10.7	13.6
10 to 14	17.9	17.7	15.5	19.0	18.0
15 to 19	13.0	10.5	15.9	13.0	12.6
20 to 29	17.6	16.9	21.4	18.0	16.6
30 to 49	15.3	16.5	18.9	17.0	13.0
50 or more	7.2	8.9	7.9	7.7	6.7
Commute Duration in Minutes (Q7)					
Less than 10	6.4	5.9	3.9	5.3	7.8
10 to 19	23.8	26.6	25.5	20.7	25.0
20 to 29	21.1	17.1	18.7	23.1	21.0
30 to 44	20.2	19.1	18.8	19.7	20.9
45 to 60	17.7	15.5	20.5	20.2	15.5
More than 60	10.2	15.9	12.4	10.1	9.2
Working Vehicles in Hsld (QD1)					
None	1.5	1.2	1.1	0.9	1.9
One	16.7	16.2	16.3	19.0	15.7
Two	38.9	30.5	42.3	41.0	37.6
Three or more	41.0	51.5	38.9	37.7	42.4
Number of People in Hsld (QD2)					
One	11.7	6.3	8.2	12.6	12.4
Two	30.0	21.9	27.7	30.9	31.0
Three	19.1	19.3	18.3	19.4	19.0
Four	19.4	29.3	17.7	17.9	20.0
Five or more	16.8	20.5	23.8	16.6	14.9
Number of People 16+ in Hsld (QD3)					
One	14.2	11.0	13.2	14.9	14.2
Two	47.0	33.4	40.3	47.7	49.7
Three	18.3	21.3	19.1	17.9	17.9
Four	10.5	19.7	9.8	11.0	9.8
Five or more	6.5	12.0	11.7	5.7	5.1
Age (QD4)					
16 to 24	14.7	21.1	16.9	15.3	13.3
25 to 34	25.4	29.9	30.0	30.3	21.0
35 to 44	21.0	20.3	20.8	22.6	20.2
45 to 54	19.7	18.0	17.7	16.4	22.2
55 to 64	13.2	7.8	10.1	11.0	15.6
65 and older	3.1	1.4	1.8	2.4	3.9
Gender (QD9)					
Male	50.6	51.0	44.8	51.0	51.6
Female	46.9	46.6	50.3	46.6	46.3

TABLE 29 DEMOGRAPHIC BREAKDOWN OF ALL COMMUTERS AND PARK & RIDE TARGET TIERS CONTINUED

	All Commuters	Top Targets	Mid-Level Targets	Lower Priority	Not Targets
Employees at Primary Workplace (QD7)					
1 to 4	7.5	10.1	3.0	6.8	8.8
5 to 9	7.5	9.2	7.5	8.5	6.9
10 to 19	11.3	9.4	14.4	11.0	10.8
20 to 49	14.8	17.1	16.7	12.8	15.5
50 to 99	12.2	14.1	10.5	13.5	11.5
100 or more	40.5	35.8	40.3	42.9	39.7
Business Type (QD8)					
Private sector	53.5	58.7	46.0	52.7	55.6
Gov agency	22.1	18.3	24.4	23.7	20.9
Not-for-profit org	14.0	21.6	14.7	12.6	13.9
Occupation (QD5)					
Operator / Fabricator / Laborer	4.9	2.9	4.5	5.5	4.9
Craft and repair	3.8	0.7	2.1	4.0	4.3
Food preparation, serving	2.1	2.1	1.8	1.3	2.6
Protective services	3.4	2.0	3.3	3.4	3.5
Physician	1.1	0.7	1.3	1.4	1.0
Nurse	3.1	4.1	4.8	2.5	3.0
Medical assistant	2.5	4.2	4.7	1.9	2.2
Sales	5.5	3.1	6.8	5.5	5.4
Customer service / Telemarketer	2.9	8.2	2.4	2.2	3.1
Professional specialty (not IT)	24.2	33.0	26.0	25.4	22.5
Professional specialty (IT)	1.5	0.4	1.0	2.1	1.3
Administrative / Office worker	7.5	7.6	6.2	8.0	7.5
Supervisor / Manager	1.3	0.6	1.3	1.3	1.3
Executive	14.0	10.5	13.3	12.4	15.6
Teacher	7.3	6.0	6.9	7.7	7.4
Other	4.4	10.1	3.5	5.1	3.8
Industry (QD6)					
Agriculture	0.4	-	-	0.4	0.6
Construction	2.5	0.8	1.9	1.8	3.2
IT-Manufacturing services	7.9	3.9	4.1	9.2	8.4
Retail	5.8	8.6	6.4	5.7	5.6
Transportation	3.8	7.2	4.2	2.7	4.1
Energy / Natural Resources	1.7	1.5	1.9	1.8	1.6
Business services	14.1	20.1	15.9	14.6	12.8
Hospitality, visitor, entertainment services	9.5	14.9	7.8	7.7	10.3
Financial services	5.0	3.2	3.9	4.7	5.7
Education	13.5	12.4	14.9	13.7	13.2
Medical, social services	13.3	16.6	17.1	11.6	13.3
Government / Public Administration	9.5	5.5	8.0	10.7	9.6
Biosciences / Pharmaceuticals	1.7	-	1.4	2.6	1.4
Religious / Non-profit	1.5	1.1	1.4	2.0	1.3
Other	0.5	0.2	0.7	0.6	0.5

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APPENDIX F: PRIVATE SECTOR SURVEY

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Private Sector Survey Memo

PARK & RIDE REGIONAL STRATEGY

MARCH 2019 | FINAL

Prepared By:

Kimley»»Horn

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INTRODUCTION

As part of the San Diego and Western Riverside Park & Ride Strategy (Park & Ride Strategy), strategies and regional recommendations are being developed to help the Park & Ride program adapt to the Region's changing mobility needs. One strategy of interest is:

Developing public-private partnerships to incorporate and improve Park & Ride facilities within private property.

To support SANDAG's and RCTC's efforts to engage in more effective public-private partnerships, private sector stakeholders were engaged through an online survey and phone interviews. These engagement tools were used to enhance the understanding of private sector stakeholders' interests, motivations, and willingness to partner (including their perceived conditions for success). This memorandum summarizes key findings and recommendations for SANDAG and RCTC to incorporate into the Regional Park & Ride Strategy.

OVERVIEW OF SURVEY METHODOLOGY

Survey development was implemented in three steps:

- 1) A draft survey was developed collaboratively with members of the project development team (PDT) of the Park & Ride Strategy.
- 2) The draft survey was tested with a developer, a property owner, and a property manager separately via phone interviews.
- 3) After the phone interviews were complete, the survey was refined and finalized for distribution to a wider list of stakeholders.

The final survey was administered in two rounds: 1) an online survey distributed to a list of private sector stakeholders developed by PDT members (July 2018); and 2) an online survey distributed to existing partnerships and professional organization membership lists (between September 2018 and February 2019). Between the two rounds, the survey was distributed to over 200 private sector stakeholders. The survey tool can be found in **Appendix A**.

SUMMARY OF KEY FINDINGS

The phone interviews and online survey results revealed the private sector's interest in better understanding and learning more about Park & Ride facilities. This was primarily demonstrated in the results of the first question where nearly 80% of participants selected the option of "open to learning more about the benefits [of Park & Rides]." This represents a clear opportunity for RCTC and SANDAG to actively engage the private sector into the future.

Shared maintenance costs and conditional zoning for additional development were the top incentives highlighted by participants for accommodating Park & Ride operations at their respective sites. However, the lack (or perceived lack) of excess parking was reported as the largest obstacle for the private sector to enter a Park & Ride partnership.

Based on this feedback, it is recommended for SANDAG and RCTC to engage in the following activities:

- *Develop readily accessible digital and printed marketing material to inform the private sector of what Park & Rides are and how each audience type can benefit.*

Participants wanted to be more informed about what benefits they can receive. It was also pointed out by property owners and managers that it would help to be able to give their tenants a marketing brochure on the Park & Ride program as each tenant is allocated a certain number of parking spaces through their lease agreements. Tenants would need to be engaged for parking spaces to be reserved for Park & Ride operations.

- *Collaborate with transit operators and jurisdictions to develop additional financial incentives and mobility services for private sector partners. Quantify benefits for private sector stakeholders to create a sense of value for Park & Ride facilities by developing and including relevant data (e.g. how much Park & Rides can increase foot traffic). Advertise the benefits that help private sector financially and ways partnership could reduce parking demand while increasing foot traffic at their sites.*

The private sector cares about how they can financially benefit and how they can meet their parking demand. If one or both of these criteria are met, they are more likely to partner.

The private sector cares about data. Multiple participants pointed out about wanting to know exactly how much a Park & Ride can benefit them.

- *Review and update existing policies to identify and mitigate barriers private sector stakeholders have that prevent them from partnering.*

The private sector pointed out several barriers that prevent them from partnering such as lack of excess parking, parking restrictions, increased liability, and covenants, conditions and restrictions (CCRs).

Responses from the private sector are encouraging and suggest that continued engagement could lead to new, mutually-beneficial partnerships.

SURVEY RESULTS

The private sector survey was designed to identify potential strategies to increase private-public partnerships in the context of Park & Ride development. The following section describes the questions that were asked of participants and provides a summary of the primary results. The questions are presented in the order participants were asked. Figures showing the detailed responses are included in **Appendix B**.

Q1. WOULD YOU CONSIDER PARK & RIDE OPERATIONS AT FUTURE SITES?

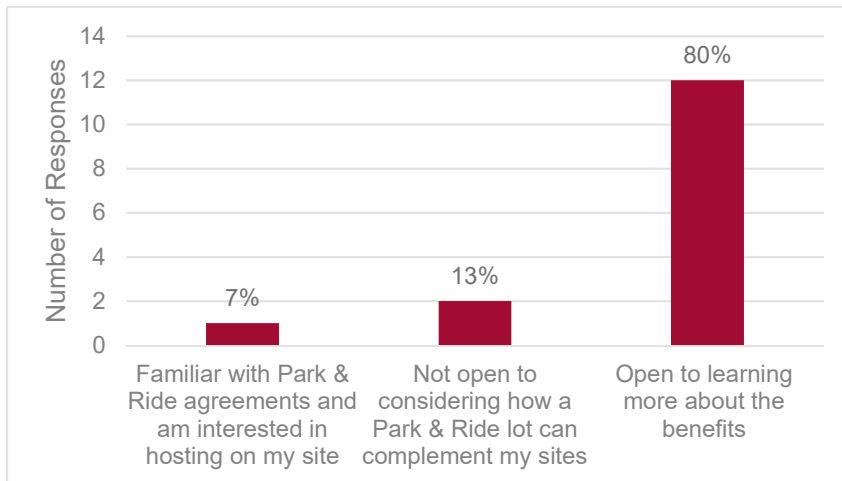
Question 1 (Q1) was included to understand the current interest of Park & Ride among private sector stakeholders.

RESULTS

Nearly 80% of survey respondents were open to learning more about the benefits to Park & Ride facilities (see **Figure 1**). About 7% were already interested in hosting a Park & Ride facility at their site.

Participants from the phone interviews indicated being interested in learning more about the benefits. One participant asked if there was accessible material that informed what a Park & Ride is and what the benefits are. This participant highlighted the need for this material to inform their tenants and have them be part of the process.

Figure 1. Q1 Results



Q1 Key Highlights

Results:

- 80% of survey participants interested in learning benefits

Recommendations:

- Improve existing marketing program to effectively target developers, property owners, property managers, and their tenants
- Develop accessible and persuasive digital and/or printed marketing material
- Focus on marketing how private sector stakeholders can benefit

RECOMMENDATIONS

The online survey and phone interviews show that most private sector stakeholders are interested in Park & Ride lots but may not be aware of how they can benefit from them. This lack of awareness shows that SANDAG and RCTC should investigate ways to improve the marketing of the Park & Ride program to

effectively target private sector stakeholders. Currently, neither agency has printed or digital marketing material to easily deliver to a potential private sector partner or their tenants.

SANDAG and RCTC should consider developing marketing material that succinctly displays key information and reasons for having Park & Ride operations. Some information to consider including in the material are:

- What is a Park & Ride?
- Who uses a Park & Ride?
- What are the benefits?
- How can a Park & Ride bring you success?
- Who should you contact for more information?
- What are examples of successful Park & Ride partnerships

Q2. BELOW ARE A LIST OF CHARACTERISTICS THAT MIGHT BE SUPPORTIVE OF PARK & RIDE OPERATIONS. DO ANY OF THESE APPLY TO NEW DEVELOPMENTS YOU ARE CONSIDERING?

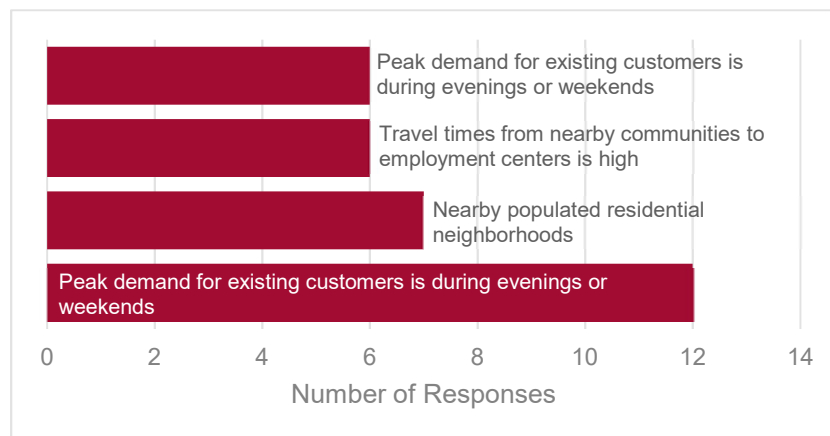
Question 2 (Q2) helps gauge whether or not new developments for the private sector align with characteristics of an ideal Park & Ride lot. Through this question, SANDAG and RCTC can understand what type of developments the private sector is moving forward with.

RESULTS

Many survey participants have sites that meet one or more characteristics for ideal Park & Ride locations. The top site characteristics selected by survey participants were:

- near a freeway,
- places where travel times from nearby communities to employment centers is high,
- nearby populated residential neighborhoods, and
- places where peak demand for existing customers is during evenings or weekends.

Figure 2. Q2 Top Results



Q2 Key Highlights

Results:

- Site locations of participants meet several characteristics of ideal locations for Park & Ride operations
- Peak demand for parking at many sites was during evenings or weekends

Recommendations:

- Develop characteristics of an ideal Park & Ride location to be included in marketing material
- Develop a process to engage jurisdictions in identifying Park & Ride lots
- Create an inventory of potential Park & ride locations

RECOMMENDATIONS

SANDAG and RCTC should consider adding the characteristics of Park & Ride lots to any marketing material. Informing the private sector about what makes an ideal Park & Ride lot may help them understand which of their sites might work for this program.

If possible, the regions should investigate creating an inventory of potential sites that fit the characteristics. This could be achieved through the following ways:

- performing a GIS analysis of parcels in the regions that align with high performing characteristics
- create a platform that jurisdictions can access to add “strong candidate” sites currently going through the entitlement process or have been approved

Q3. WHAT WOULD MAKE YOU INTERESTED IN PARTNERING WITH A PUBLIC AGENCY TO ALLOW PARK & RIDE OPERATIONS AT YOUR FUTURE DEVELOPMENT?

Question 3 (Q3) addresses a key purpose for this survey effort which is to identify the ways which the public sector might motivate private sector stakeholders to partner for the implementation of Park & Ride lots.

RESULTS

From the online survey results, the top incentives selected by survey participants were:

- shared maintenance cost,
- conditional zoning to allow additional development on site,
- increased security,
- increase in customer sales and customer base,
- one-time cost reimbursements (e.g. implementation costs, enhancements costs, and tax breaks), and
- the opportunity for transit to serve areas closer to my site.

Participants were also allowed to suggest incentives not listed as an option. Some of the written-in responses included:

- free transit for team members,
- provide a built-in customer base,
- a reduction in employee expenses,
- quicker commute times to draw from a broader employee base,
- reducing greenhouse gas (GHG) emissions, and
- quantifying benefits.

The phone interviews also re-enforce the online survey results. The top incentives from the phone interviews were conditional zoning to allow additional development on site and reducing parking requirements for a site.

Q3 Key Highlights

Results:

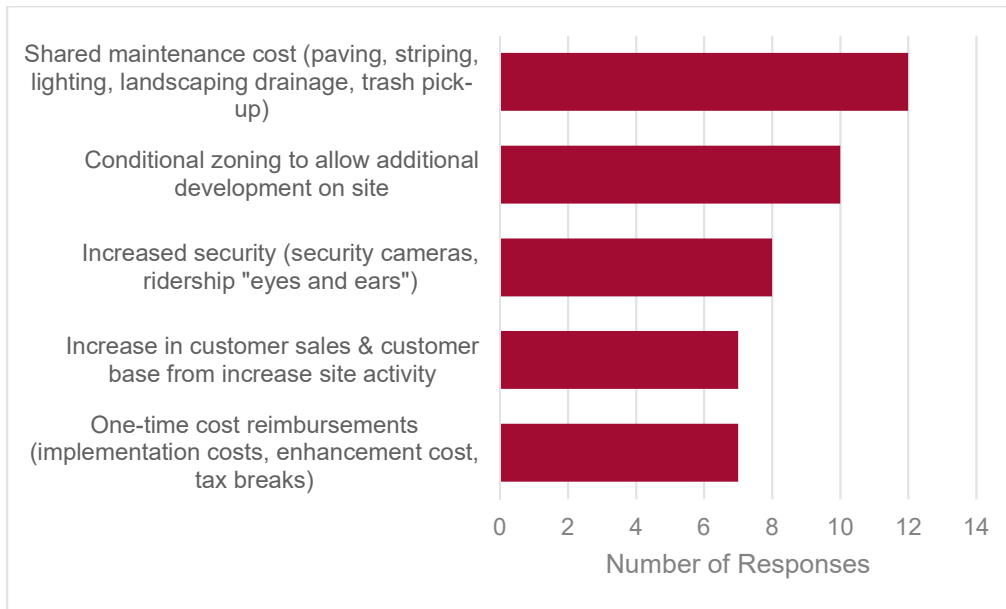
Top incentives for partnering:

- Shared maintenance cost
- Conditional zoning to allow additional development
- Private sector cares about financial benefits

Recommendations:

- Include list of benefits in marketing material
- Develop benefits that are cost-saving or provide a financial value
- Quantify benefits to have the private sector understand “how much” they can benefit

Figure 3. Q3 Top Results



RECOMMENDATIONS

The incentives highlighted by participants in the online survey and phone interviews show that financial benefits are important to private sector stakeholders. They are more inclined to partner with public agencies and develop Park & Ride operations at their site if they can offset existing maintenance costs or receive in-kind payments. Some ideas for financial benefits included:

- reimbursements,
- leasing spots for a fee, and
- a reduction in their parking footprint to make available more square footage for future development.

SANDAG and RCTC should consider working with their respective jurisdictions and transit operators to identify and develop a list of feasible benefits they can offer to private sector stakeholders. This list can then be advertised in marketing material, be included in the entitlement process, and used in future Park & Ride negotiations with private sector stakeholders. Private sector stakeholders are financially motivated, and data driven. If an identified benefit can be quantified or include a cost-saving/monetary value, it would be important to do so. Some benefits that can be quantified include:

- increase in sales and customers,
- cost savings for people who use Park & Ride facilities, and
- reduction in parking if a Park & Ride facility is included at the site.

Q4. WHAT OBSTACLES ARE PREVENTING YOU FROM PURSUING PARTNERSHIPS FOR PARK & RIDE LOTS?

The next question (Q4) in the survey identifies the challenges private sector stakeholders have for developing Park & Ride operations at their existing and future sites.

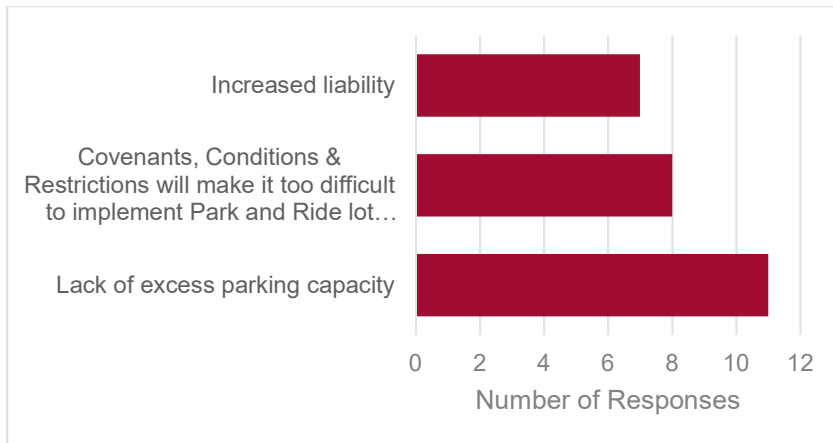
RESULTS

The online survey results show that the top obstacles for participants are:

- lack of excess parking capacity
- increased liability, and
- covenants, conditions, and restrictions (CC&Rs) make it too difficult.

The participants from the phone interviews pointed out similar obstacles in addition to lease agreements. Participants mentioned that existing standing lease agreements guarantee a specific number of parking spots for their tenants, making it hard to find additional parking spots for Park & Ride operations.

Figure 4. Q4 Top Results



RECOMMENDATIONS

The results from questions 3 and 4 highlight that parking is an important consideration for private sector stakeholders when pursuing partnerships for Park & Ride lots. Meeting parking requirements and parking demand make it difficult for private sector stakeholders to allocate spaces for Park & Ride operations. If SANDAG and RCTC find a site that has potential for being a Park & Ride location, both agencies can investigate the following:

- add provisions to the shared-use agreement to provide mobility services
- perform a shared parking study to demonstrate parking availability

Q4 Key Highlights

Results:

Top obstacles for partnering:

- Lack of excess parking
- Parking restrictions
- Private sector stakeholders make financial and data driven decisions.

Recommendations:

- Help reduce parking demand at sites with additional mobility services
- Perform a shared parking study to show that the peak parking demand at sites is opposite of Park & Ride operations

Provisions for additional transit service, bikeshare, transportation network company (TNCs) pick up/drop off areas, a shuttle program, and other shared mobility services, can help alleviate parking demand at the site. This in turn would make the private sector stakeholders more inclined to allocate spaces at their site for Park & Ride operations.

In addition, performing a shared parking study can help the private sector stakeholder better understand what their actual parking demand is and when it occurs. Private sector stakeholders have a perception that their parking lots are full when, they may not be a reality. A shared parking study can show that their parking demand occurs at a different time from Park & Ride operations. This can help alleviate the perception that there is no excess parking available. SANDAG and RCTC can also work with their respective jurisdictions to potentially make a shared parking study as a requirement for the entitlement process.

Despite the obstacles participants have about pursuing partnerships for Park & Ride lots, many of them are open to learning more about the benefits as shown in the results for question one (Q1). SANDAG and RCTC should consider ways to rebrand the perception of Park & Ride lots and bring more awareness to the benefits for partnering. Through marketing materials and presentations, there is an opportunity to show that the benefits of Park & Ride lots outweigh the obstacles. It is also an opportunity to inform private sector stakeholders that there are strategies and tools that can be implemented to address their concerns about parking demand and security.

NEXT STEPS

The key results and recommendations identified in this memorandum will be used to inform the Park & Ride Regional Strategy. This strategy will aim to outline the regional action steps for SANDAG and RCTC regarding the framework of the future Park & Ride program.

Appendix A

Distributed Survey

Public-Private Partnership

5-Minute Survey

The San Diego Association of Governments (SANDAG) and Riverside County Transportation Commission (RCTC) would like to gain a better understanding of how to improve current and potential public-private partnerships relating to Park & Ride lots.

Park & Ride lots allow commuters to leave their vehicles and transfer to a bus, rail system, or carpool/vanpool. A common trend in developing Park and Ride lots is the shared use of existing parking lots at commercial establishments such a shopping centers, movie theaters, and other businesses.

We are seeking your feedback on potential incentives that could encourage more partnerships between public agencies and private sector developers or property managers. We anticipate this survey to take less than five minutes.

* Required

1. Would you consider Park and Ride operations at future sites? (Select One) *

- Familiar with Park & Ride agreements and am interested in hosting on my site
- Open to learning more about the benefits
- Not open to considering how a Park & Ride lot can complement my sites

2. Below are a list of characteristics that might be supportive of Park & Ride operations. Do any of these apply to new developments you are considering? (Select All that Apply) *

- Lot(s) with more than 50 spaces
- Current land is "over-parked"—more parking is provided than is needed

Back

 Computer Mob

2. Below are a list of characteristics that might be supportive of Park & Ride operations. Do any of these apply to new developments you are considering? (Select All that Apply) *

- Lot(s) with more than 50 spaces
- Current land is "over-parked"—more parking is provided than is needed
- Peak demand for existing customers is during evenings or weekends
- Lot(s) are close (within 1 mile) or near (within 5 miles) of the freeway
- Travel times from nearby communities to employment centers is high
- Nearby populated residential neighborhoods
- Ample amenities available on-site (benches, bike racks, trash receptacles, shelter, etc.)

3. What would make you interested in partnering with a public agency to allow Park and Ride operations at your future development? (Select All that Apply) *

- Conditional zoning to allow additional development on site
- Shared maintenance cost (paving, striping, lighting, landscaping drainage, trash pick-up)
- One-time cost reimbursements (implementation costs, enhancement cost, tax breaks)
- Increase in customer sales & customer base from increase site activity
- Advertisement / Campaigns placed on trains, buses or high-visibility locations (hub transfer locations, freeway walls, etc.)
- Free marketing opportunity for strategic placement of advertising material (banners, signs, or online marketing) at high-traffic transportation sites or on relevant agency websites
- Public acknowledgement for helping the community (e.g. sign on freeway, recognition on public agency's social media)
- Increased security (security cameras, ridership "eyes and ears")
- Opportunity for transit to serve areas closer to my site
- Other (Please Specify Below)

4. Other reasons that would make you interested in partnering with a public agency to

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Other (Please Specify Below)

4. Other reasons that would make you interested in partnering with a public agency to allow/expand Park & Ride operations at your site?

Enter your answer

5. What obstacles are preventing you from pursuing partnerships for Park and Ride lots? (Select All that Apply) *

- My site will be too far from transit service
- Covenants, Conditions & Restrictions will make it too difficult to implement Park and Ride lot operations
- Standing lease agreements
- Lack of excess parking capacity
- Increased liability
- Limited knowledge about Park & Ride
- Other (Please Specify Below)

6. Other obstacles that are preventing you from pursuing partnerships for Park & Ride lots?

Enter your answer

7. Please provide any comments you wish for public partners to consider when it comes to Park & Ride facilities.

Enter your answer

[Back](#) Computer Mob

- Lack of excess parking capacity
- Increased liability
- Limited knowledge about Park & Ride
- Other (Please Specify Below)

6. Other obstacles that are preventing you from pursuing partnerships for Park & Ride lots?

Enter your answer

7. Please provide any comments you wish for public partners to consider when it comes to Park & Ride facilities.

Enter your answer

8. Please provide your name and email. *

Enter your answer

Submit

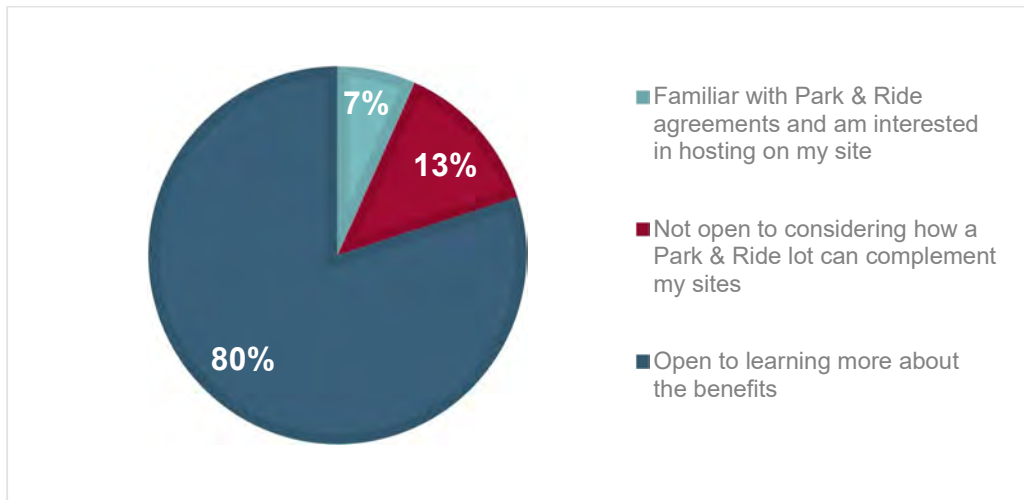
This content is created by the owner of the form. The data you submit will be sent to the form owner. Never give out your password.

Powered by Microsoft Forms [Privacy and Cookies \(https://go.microsoft.com/fwlink/p/?linkid=857875\)](https://go.microsoft.com/fwlink/p/?linkid=857875)

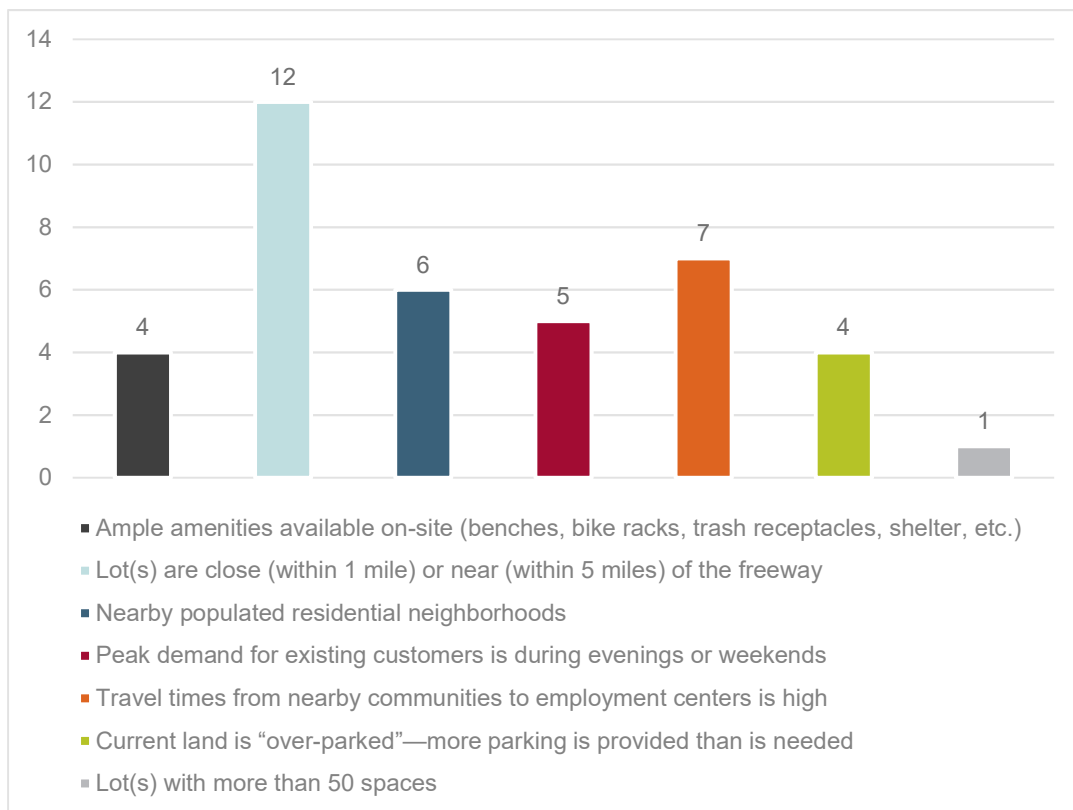
Appendix B

Detailed Breakdown of Survey Results

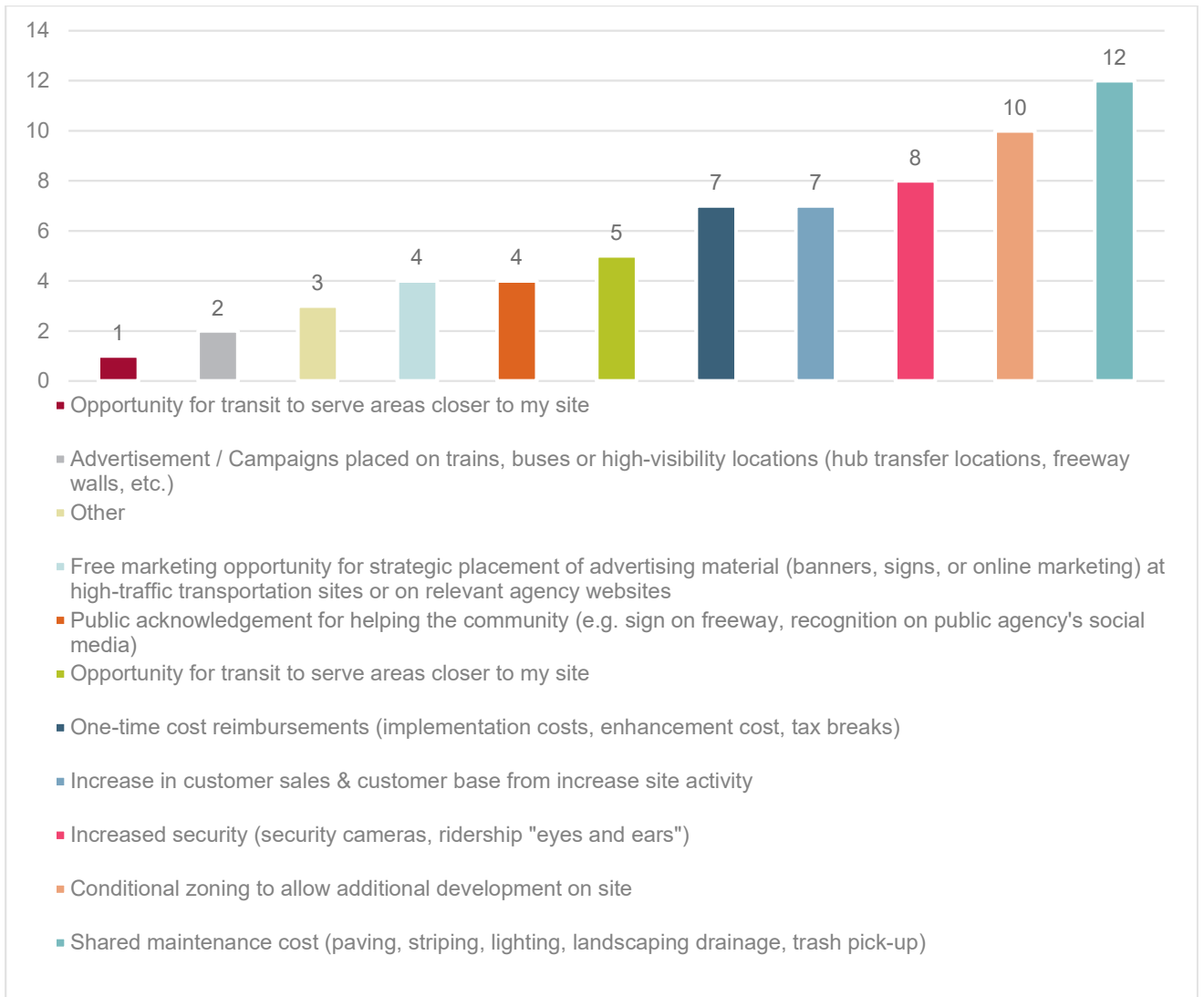
Response results to "Would you consider Park & Ride operations at future sites?"



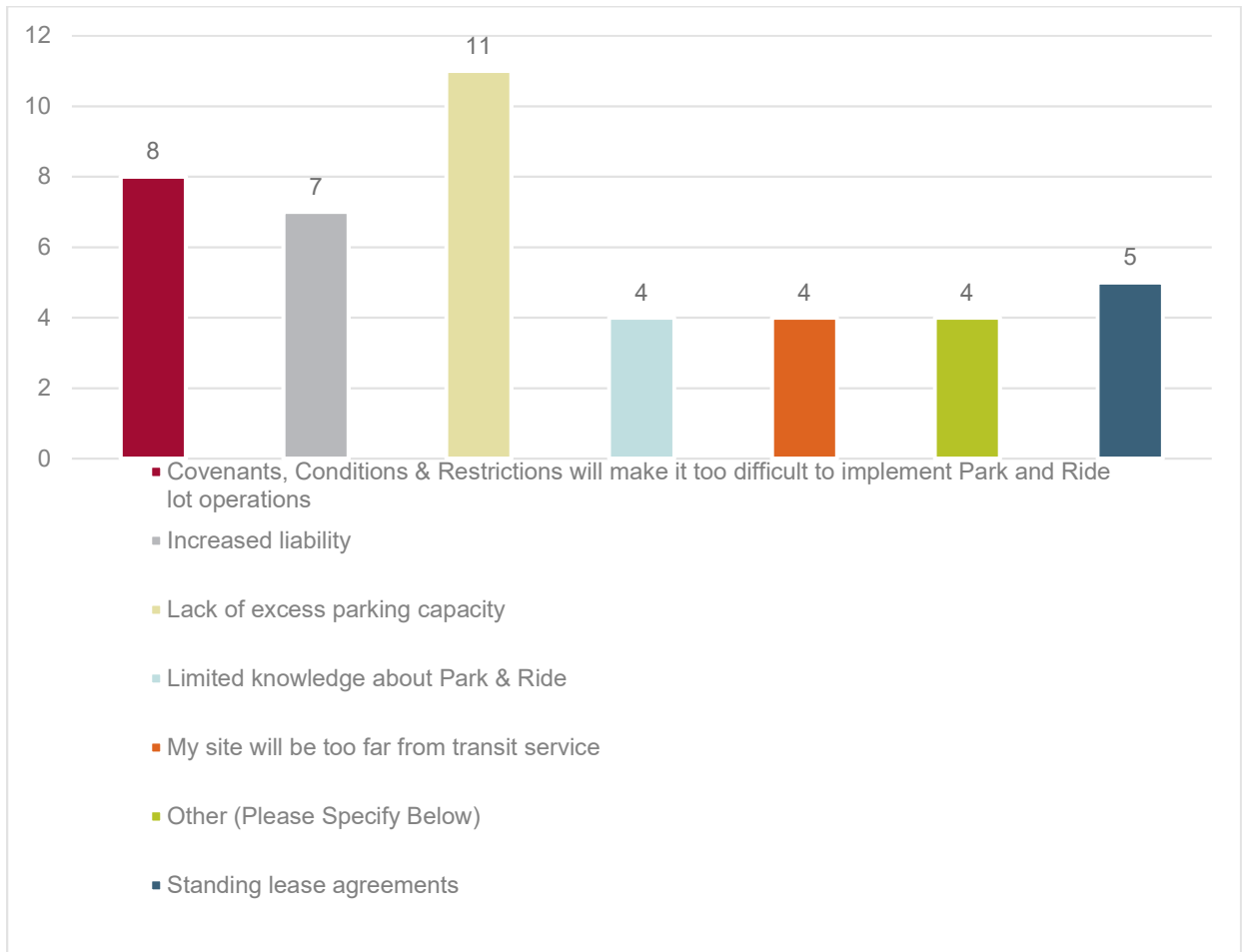
Response results to "Below are a list of characteristics that might be supportive of Park & Ride operations. Do any of these apply to new developments you are considering?"



Response results to "What would make you interested in partnering with a public agency to allow Park & Ride operations at your future development?"



Response results to "What obstacles are preventing you from pursuing partnerships for Park & Ride lots?"



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APPENDIX G: FUNDING SOURCES

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POTENTIAL FUNDING SOURCES

This section identifies potential funding sources that can be leveraged for planning, building, and improving Park & Ride facilities. Submitted funding applications compete with other agencies and other project types. It is recommended that applicants requesting funds for a Park & Ride lot include other critical transportation components and elements such as improvements and amenities for bikeways, pedestrian access, transit, freeway, and roadway safety. This will allow the application to be more competitive but potentially improve the conditions of the Park & Ride lots near other transportation assets.

Public Sources

Program Name	Agency	Description	Eligible Projects
Federal Lands Access Program (FLAP)	FLAP, FHWA	Provides funds for projects on federal lands access transportation facilities that are located on or adjacent to, or that provide access to, federal lands.	<ul style="list-style-type: none"> • Transportation planning, research, engineering, preventive maintenance rehabilitation, restoration, construction, and reconstruction of federal lands access transportation facilities • Operation and maintenance of transit facilities • Any transportation project eligible under title 23 of the United States Code that is within or adjacent to, or that provides access to, federal lands open to the public
Federal Lands Transportation Program (FLTP)	FHWA	The FLTP funds projects that improve access within the federal estate (national forests, national parks, national wildlife refuges, national recreation areas, and other federal public lands) on transportation facilities in the national federal lands transportation inventory and owned and maintained by the federal government.	<ul style="list-style-type: none"> • Program administration, transportation planning, research, preventive maintenance, engineering, rehabilitation, restoration, construction, and reconstruction of federal lands transportation facilities • Operations and maintenance of transit facilities • Any transportation project eligible under title 23 of the United States Code that is within or adjacent to, or that provides access to, federal lands open to the public
Highway Safety Improvement Program (HSIP)	FHWA	The HSIP is a core federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads, including non-state-owned public roads and roads on tribal lands.	<p>Any project on a public road, trail, or path that is consistent with the state's Strategic Highway Safety Plan and corrects a safety problem is eligible for HSIP funding. Eligible projects include:</p> <ul style="list-style-type: none"> • Intersection improvements • Construction of shoulders • Traffic calming • Improvements for bicyclists, pedestrians, and individuals with disabilities • Minimum standards of retro-reflectivity of traffic signs and pavement markings

Program Name	Agency	Description	Eligible Projects
National Highway Performance Program (NHPP)	FHWA	The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a state's asset management plan for the NHS.	<ul style="list-style-type: none"> • Construction, reconstruction, resurfacing, restoration, rehabilitation, preservation, or operational improvements of NHS roadways and bridges • Bridge and tunnel inspection and evaluation • A project to reduce the risk of failure of critical NHS infrastructure • Construction, reconstruction, resurfacing, restoration, rehabilitation, and preservation of, and operational improvements for a federal aid highway or bridge not on the NHS, if the project is in the same corridor and in proximity to a fully access-controlled NHS route • Construction of a transit project eligible for assistance • Bicycle transportation and pedestrian walkways • Highway safety improvements • Capital and operating costs for traffic and traveler information, monitoring, management, and control facilities and programs • Infrastructure-based ITS capital improvements • Environmental restoration and pollution abatement • Control of noxious weeds and establishment of native species • Environmental mitigation related to NHPP projects • Construction of publicly owned intracity or intercity bus terminals
Bus and Bus Facilities Program (Section 5339)	Federal Transit Administration (FTA)/Caltrans Division of Rail and Mass Transportation	The Grants for Buses and Bus Facilities program makes federal resources available to states and direct recipients to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities. Eligible recipients include direct recipients that operate fixed route bus service or that allocate funding to fixed route bus operators; state or local governmental entities; and federally-recognized Indian tribes that operate fixed route bus service.	<ul style="list-style-type: none"> • Capital projects to replace, rehabilitate, and purchase buses, vans, and related equipment, and to construct bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities

Program Name	Agency	Description	Eligible Projects
Rural Public Transportation Program (Section 5311)	FTA/Caltrans Division of Rail and Mass Transportation	This program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000, where many residents often rely on public transit to reach their destinations. Funds may be used for public transit services operating: within small urban and rural communities, among small urban and rural communities, or between small urban and rural communities and urbanized areas (cities of 50,000 or more).	<ul style="list-style-type: none"> An eligible recipient may use the funding for capital, operating, and administrative expenses for public transportation projects that meet the needs of rural communities. Examples of eligible activities include capital projects; operating costs of equipment and facilities for use in public transportation; and the acquisition of public transportation services, including service agreements with private providers of public transportation services.
Rural Transit Assistance Program (RTAP)	FTA/Cal ACT	The RTAP provides a source of funding to assist in the design and implementation of training and technical assistance projects and other support services tailored to meet the needs of transit operators in nonurbanized areas. Eligible recipients include states, local governments, and providers of rural transit services.	<ul style="list-style-type: none"> An eligible recipient may use the funding for capital, operating, and administrative expenses for public transportation projects that meet the needs of rural communities. Examples of eligible activities include capital projects; operating costs of equipment and facilities for use in public transportation; and the acquisition of public transportation services, including service agreements with private providers of public transportation services.
Surface Transportation Block Grant Program	FHWA/Caltrans	The STBGP provides flexible funding that may be used by states and localities for projects to preserve and improve the conditions and performance on any federal aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals.	<ul style="list-style-type: none"> States and metropolitan regions may use these funds for highway, bridge, transit (including intercity bus terminals), and pedestrian and bicycle infrastructure projects. Eligible projects include: Construction, reconstruction, rehabilitation, resurfacing, restoration, preservation, or operational improvements for highways, bridges, and tunnels on any public roadway Construction of new bridges and tunnels on a federal-aid highway Inspection and evaluation of bridges, tunnels, and other highway assets as well as training for bridge and tunnel inspectors Transit capital projects Bicycle, pedestrian, and recreational trails Environmental mitigation efforts

Program Name	Agency	Description	Eligible Projects
Transportation Investment Generating Economic Recovery (TIGER) grants	U.S. DOT	The TIGER Discretionary Grant program provides a unique opportunity for the DOT to invest in road, rail, transit, and port projects that promise to achieve national objectives.	Eligible applicants for TIGER Discretionary Grants are state, local, and tribal governments, including US territories, transit agencies, port authorities, MPOs, and other political subdivisions of state or local governments. Funding is eligible for: <ul style="list-style-type: none"> • Highway or bridge projects eligible under title 23, United States Code • Public transportation projects eligible under chapter 53 of title 49, United States Code • Freight rail projects • High speed and intercity passenger rail projects • Port infrastructure investments
Partnerships to Improve Community Health (PICH)	Centers for Disease Control and Prevention (CDC)	PICH is a three-year initiative that supports implementation of evidence-based strategies to improve the health of communities and reduce the prevalence of chronic disease. Awardees will address, in their communities, chronic conditions in tobacco use and exposure, poor nutrition, physical inactivity, and lack of access to opportunities for chronic disease prevention, risk reduction, and disease management.	Eligible transportation-related improvements include projects that improve community designs to make streets safe for pedestrians, bicyclists, and public transit users (e.g., neighborhood slow zones, community-wide traffic calming)
Transportation Alternatives Program (TAP)	FHWA	FAST Act replaced the TAP program with a set-aside of fund under the STBGP. The TA set-aside encompasses a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity.	<ul style="list-style-type: none"> • Bicycle and pedestrian facilities • Safe routes projects for non-drivers • Construction of turnouts and overlooks • Community improvement activities including vegetation management and historic preservation • Environmental mitigation activity

Program Name	Agency	Description	Eligible Projects
Caltrans Sustainable Transportation Planning Grant Program	Caltrans	New grant funding through Senate Bill 1	Funds transportation planning studies of interregional and statewide significance, in partnership with Caltrans. Sustainable Communities Project Types: <ul style="list-style-type: none"> • Active transportation plans • Studies that advance a community's effort to reduce transportation related greenhouse gases • Complete Streets Plans • First Mile / Last Mile project development planning • Jobs and affordable housing proximity studies • Studies that evaluate accessibility and connectivity of the multimodal transportation network
Urbanized Area Formula Grants – Section 5307	FTA	Federal resources available to urbanized areas and to governors for transit capital and operating assistance in urbanized areas and for transportation-related planning	<ul style="list-style-type: none"> • planning, engineering, design and evaluation of transit projects and other technical transportation-related studies • capital investments in bus and bus-related activities (e.g., replacement, overhaul and rebuilding of buses, crime prevention and security equipment and construction of maintenance and passenger facilities) • capital investments in new and existing fixed guideway systems (e.g., rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software) • associated transit improvements and certain expenses associated with mobility management programs are eligible under the program

Program Name	Agency	Description	Eligible Projects
Capital Investment Grants – Section 5309	FTA	Funds transit capital investments, including heavy rail, commuter rail, light rail, streetcars and bus rapid transit	<ul style="list-style-type: none"> • Bus and Bus-related Facilities <ul style="list-style-type: none"> • buses and other rolling stock, ferry boats, ancillary equipment, and the construction of bus facilities (e.g., maintenance facilities, garages, storage areas, waiting facilities and terminals, transit malls and centers, and transfer facilities and intermodal facilities) • bus rehabilitation and leasing, Park & Ride facilities, parking lots associated with transit facilities, bus passenger shelters, and intercity bus stations and terminals • Modernization of Fixed Guideway Systems <ul style="list-style-type: none"> • infrastructure improvements such as track and right-of-way rehabilitation, modernization of stations and maintenance facilities, rolling stock purchase and rehabilitation, and signal and power modernization • New Fixed Guideway Capital Projects (New Starts and Small Starts) <ul style="list-style-type: none"> • preliminary engineering (PE), acquisition of real property (including relocation costs), final design and construction, and initial acquisition of rolling stock for the system • corridor bus projects that either operate in a separate right-of-way during peak hours or contain significant investment in corridor-based bus improvements • Corridors to Support New Fixed Guideway Projects <ul style="list-style-type: none"> • protecting rights-of-way through acquisition • construction of dedicated bus and high occupancy vehicle (HOV) lanes • Park & Ride lot • “nonvehicular” capital improvements that will increase transit use in the corridor (e.g., additional safety features that would encourage riders to use transit, walkways and pathways that make transit more readily available, bus shelters, and joint development projects that would improve the livability of a community and increase the benefits transit offers)
Community Development Block Grants	HUD	Flexible program that provides communities with resources to address a wide range of unique community development needs	Urban redevelopment, but Park & Ride lot projects in urban redevelopment areas will be considered

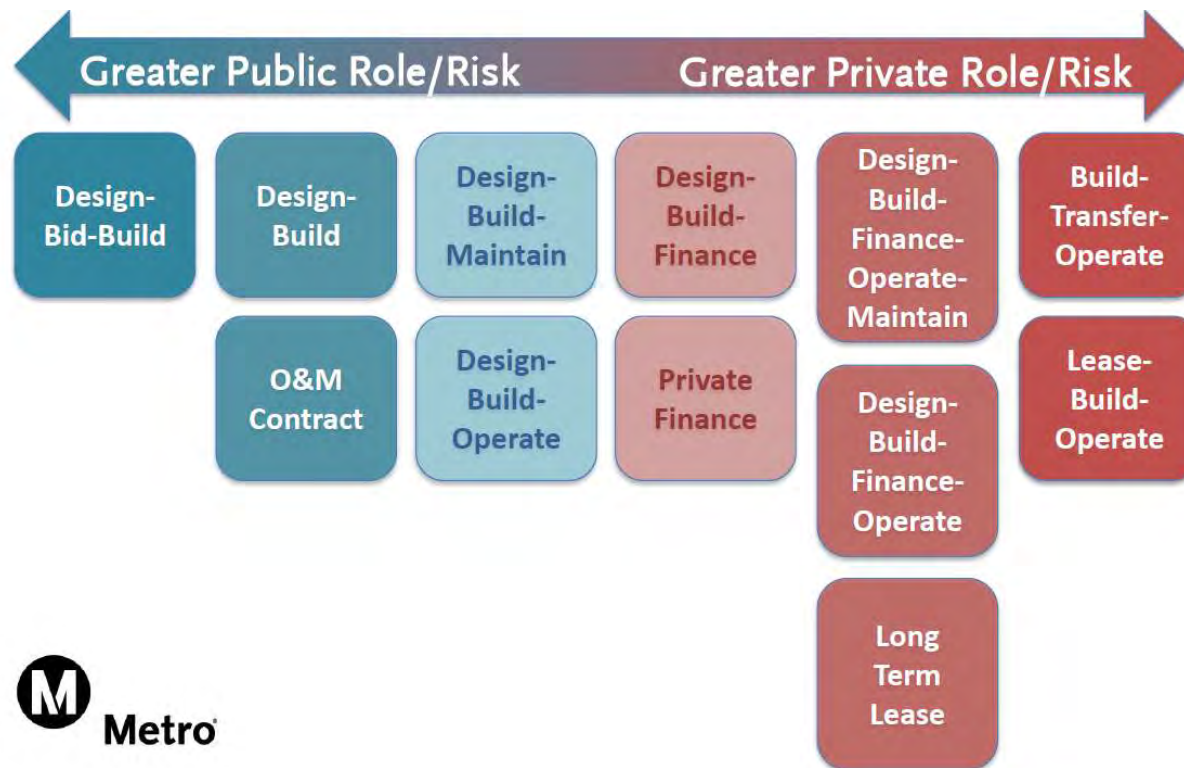
Program Name	Agency	Description	Eligible Projects
State Transportation Improvement Program (STIP)	CTC	<p>STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other funding sources. STIP programming generally occurs every two years.</p> <p>Local agencies work through their Regional Transportation Planning Agency (RTPA), County Transportation Commission, or Metropolitan Planning Organization (MPO), to nominate projects for inclusion in the STIP.</p>	<ul style="list-style-type: none"> • Interregional Improvement Program <ul style="list-style-type: none"> • State highway, intercity passenger rail, mass transit guideway, or grade separation projects. Non-capital costs for transportation system management or transportation demand management may be included where Caltrans finds the project to be a cost-effective substitute for capital expenditures • intercity rail projects (including interregional commuter rail and grade separation projects) and to improvements outside urbanized areas on interregional road system routes • Regional Improvement Program <ul style="list-style-type: none"> • capital projects (including project development costs) needed to improve transportation in the region • improving State highways, local roads, public transit (including buses), intercity rail, pedestrian and bicycle facilities, grade separations, transportation system management, transportation demand management, soundwalls, intermodal facilities, and safety • Non-capital costs for transportation system management or transportation demand management may be included where the regional agency finds the project to be a cost-effective substitute for capital expenditures. Other non-capital projects (e.g. road and transit maintenance) are not eligible

Public-Private Partnerships (P3)

In addition to pursuing funding from public sources, the private sector is an increasingly willing partner on transportation improvement projects. Public stakeholders can engage the private sector on one or more components of project delivery including planning, design, construction, finance, operations, and maintenance. The benefits and challenges of P3s for public stakeholders include:

Benefits	Challenges
<ul style="list-style-type: none"> • Reduced financial risk • Condensed project delivery timelines • Quality assurances • Lower ongoing costs • Innovation • Greater access to financial resources 	<ul style="list-style-type: none"> • Complex contracting • Matching expertise with project scope • Management and oversight • Partner financial stability

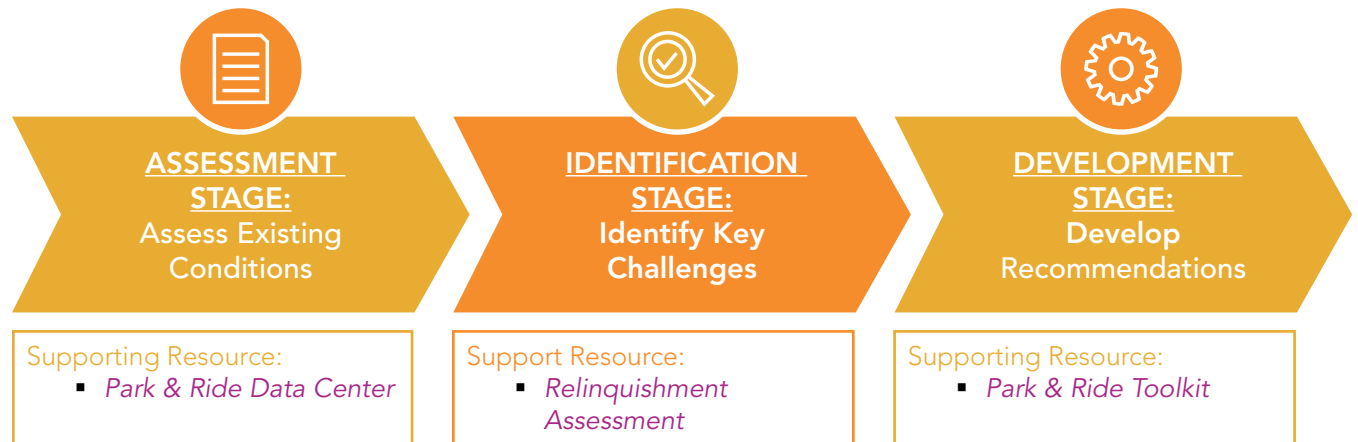
Figure 1 - Different P3 Models (LA METRO)



APPENDIX H: EXISTING SITE RECOMMENDATION EXAMPLES

EXISTING SITE RECOMMENDATION EXAMPLES

The *Existing Site Recommendation Examples* applies the recommended process shown in the *Guidance for Existing Site Analysis* to six existing sites in the regions of San Diego and Riverside. SANDAG and RCTC provided the six existing sites. Each site is taken through the three stages outlined in the *Guidance for Existing Site Analysis* to help users see what could be produced at each stage.



EXISTING SITE RECOMMENDATION EXAMPLES

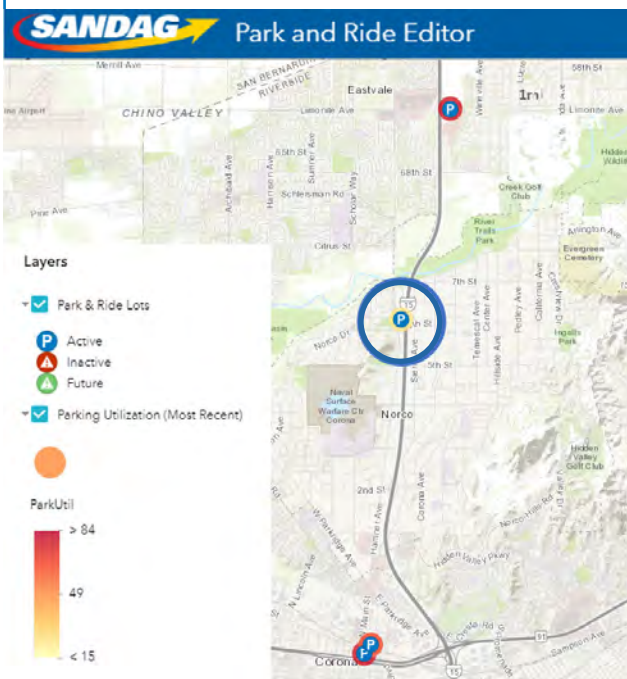
SITE: HAMNER-NORCO PARK & RIDE

3945 Old Hammer Road, Norco, CA 91760

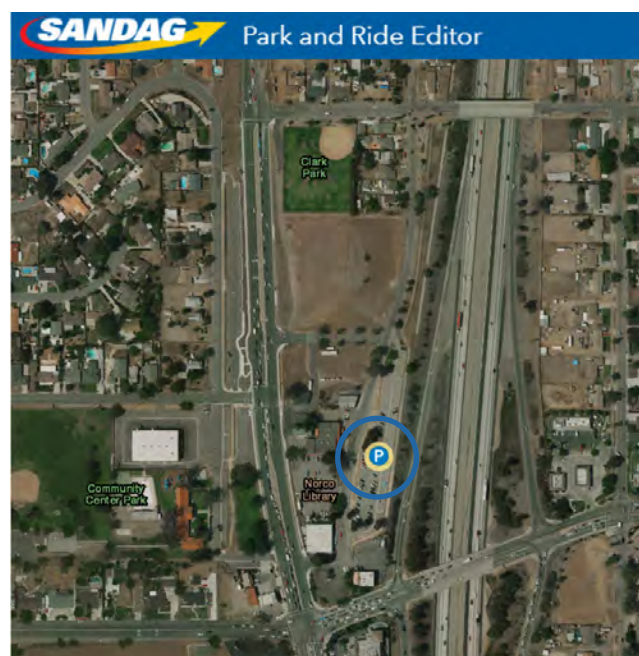
ASSESSMENT STAGE: ASSESSING EXISTING CONDITIONS

Using the Park & Ride Data Center, a virtual site visit was performed to review the influence of transportation conditions on the site. The following maps highlight the site's transportation conditions at the regional, local, and site circulation perspectives. The site is identified with a blue outlined circle in the maps.

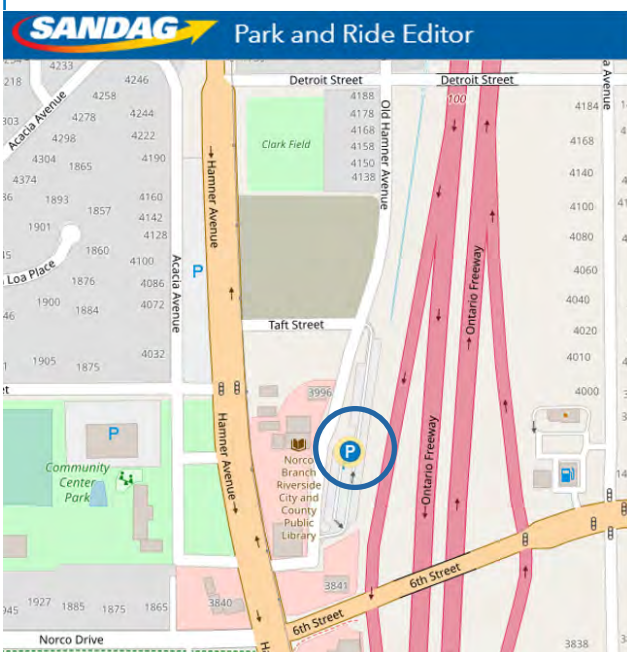
Regional Perspective



Local Perspective



Site Circulation Perspective



Although this city is considered “horse country,” there are still a significant number of residents who commute to jobs in other parts of the county. Express lanes located on SR 91, provide access to the Park & Ride location, which is about four miles south of Norco. The 6th Street Park & Ride is sandwiched between two well utilized lots in nearby communities of Corona to the south and Mira Loma to the north. In 2020, 15-miles of express lanes are set to open on the I-15 between Cajalco Road and SR-60. This Park & Ride in Norco will be an ideal location that provides access to the future express lanes.

EXISTING SITE RECOMMENDATION EXAMPLES

EXISTING CONDITIONS TO ASSESS:

SITE CONDITIONS	NOTES
Parking Spaces: <i>What are the number and type of parking spaces available?</i>	<ul style="list-style-type: none"> • 100 spaces (existing) • 74 spaces (new) • New lot serves as a spillover lot for a community center on the corner of Norco Dr. and Hamner Ave
User Types: <i>What type of users utilize the site?</i>	<ul style="list-style-type: none"> • Carpool and Vanpool Only
Owner/Operator: <i>Is the Park & Ride under shared ownership?</i>	<ul style="list-style-type: none"> • Owner of Existing: Caltrans • Operator of Existing: RCTC
Leased or owned: <i>Is the site leased or owned?</i>	<ul style="list-style-type: none"> • Caltrans owned
Utilization: <i>What is the utilization of the site? What count collection period was used to develop the utilization rate?</i>	<ul style="list-style-type: none"> • 31% during field counts
Egress/Ingress: <i>Is egress/ingress Good/Fair/Poor?</i>	<ul style="list-style-type: none"> • 2 entrance points from main road, but one entrance point into lot • 2 exit points onto main road, vehicles must turn right at both • 2 exit points for leaving lot
Curb Space: <i>Is there a designated pick-up/drop-off area?</i>	<ul style="list-style-type: none"> • None

OTHER CONDITIONS	NOTES
Wayfinding/Visibility: <i>Is it easy to find the site from main roadways? Can the site be seen from the freeway or major arterial?</i>	<ul style="list-style-type: none"> • No visibility from adjacent major arterials and freeway • Limited signs along main access roads (e.g., No signs on Hamner Ave designating "need to turn right" for entrance points, No signs for lot on the I-15 leading to Sixth St exit) • 1 wayfinding sign found at Sixth St/Hamner Ave intersection (heading westbound on Sixth Ave) but none for users travelling eastbound on Norco Dr
Surrounding Land Uses: <i>What type of land uses surround the site?</i>	<ul style="list-style-type: none"> • Residential
Area Type: <i>Is the site in an urban, suburban, or rural area?</i>	<ul style="list-style-type: none"> • Rural
Surrounding Roadway Network: <i>Is the site far (>5+ minute drive) from freeway access ramps? What type of roadway provides access to the site?</i>	<ul style="list-style-type: none"> • Bordered by I-15 • Offramp is two blocks away
Access: <i>Is the site easy to access? What types of modes can be used to access the site? (e.g., personal vehicle, transit, bike, walking, etc.)</i>	<ul style="list-style-type: none"> • Personal Vehicle

SITE AMENITIES	NOTES
Lighting: <i>Does the lighting make it feel secure at night?</i>	<ul style="list-style-type: none"> • Fair
Mobile Retail/Package Delivery Service: <i>Is mobile retail or package delivery service available to help reduce user trips?</i>	<ul style="list-style-type: none"> • No
Information Kiosks: <i>What type of information do the kiosks provide users?</i>	<ul style="list-style-type: none"> • No
Signs: <i>Is there proper wayfinding signage?</i>	<ul style="list-style-type: none"> • None • 1 entrance sign at the lot entrance of Old Hamner Rd and Veterans Memorial St
Bike Parking: <i>Is bike parking available? What kind?</i>	<ul style="list-style-type: none"> • None
Paving/Striping: <i>What is the pavement of the site like? Are the spaces striped?</i>	<ul style="list-style-type: none"> • Good • Striped

ADDITIONAL CONSIDERATIONS	NOTES
Nearby Activity Centers: <i>What activity centers are within 1 mile of the site?</i>	<ul style="list-style-type: none"> • Norco Community Center
User Travel Patterns: <i>What are the travel patterns (e.g., origin-destination pairs) of the users of the site?</i>	<ul style="list-style-type: none"> • No travel pattern data available
Adjacent Park & Ride Lots: <i>What are the differences between the site being assessed and nearby Park & Ride lots?</i>	<ul style="list-style-type: none"> • No utilization available via Database

IDENTIFICATION STAGE: KEY CHALLENGES

- **Underutilization (Utilization < 30%):**
 - » Currently averaging 31%. Because it is on the cusp, it is assumed that underutilization is a key challenge for the existing site analysis.

- **Operations and Management:**
 - » **Difficult to Access:** The main arterials to access I-15 are Norco Avenue and Hamner Avenue, and this Park & Ride is not visible from either street because it is located behind the library, Chamber of Commerce, American Legion and Maverick Saloon buildings.
 - » **Security Concerns:** Frequent RV and camping activity incident reports.

- **System Management:**
 - » **Lack of Awareness:** Although this location is identified on the region’s 511 website and Google maps, there is no wayfinding signage on the main arterials or on the freeway. Although there is a small Park & Ride sign that is located at the entrance of the lot on Old Hamner Road, there are no wayfinding signs that direct users to turn right on Taft or Veterans American Street to access Old Hamner Road. The site is identified as “Park N Ride” in Google maps, which could allow users to direct them to the site. However, the user would need to know about the site and have an idea of its location to find it in Google maps.

RELINQUISHMENT ASSESSMENT

	CHALLENGE	ACTION
STEP ONE	Utilization > 85%	Begin strategy identification matrix in the Development Stage.
	Utilization 30% - 85%	Begin strategy identification tool in the Development Stage.
	Utilization < 30%	Continue step two to assess continued need for facility.

EXISTING SITE RECOMMENDATION EXAMPLES

DEVELOPMENT STAGE: RECOMMENDATIONS STRATEGY IDENTIFICATION MATRIX

		KEY CHALLENGES							
		Overutilization (>85%)	Utilization 30% - 85%	Underutilization (<30%)	Modal Competition	Operations and Management	System Management	Funding	Partnerships and Policy
STRATEGIES IN PARK & RIDE TOOLKIT	Maximizing Capacity at Facilities	•			•	•	•		
	Managing Parking Demand	•			•	•	•	•	
	Secure Facilities and Enforce Rules / Regulations		•	•		•	•		
	Incentivize Target Users		•	•		•			•
	Create Partnerships with Local Jurisdictions and Private-Sector	•	•	•		•	•	•	•
	Align Park & Ride Planning with Local and Regional Goals			•		•	•	•	•

RECOMMENDATIONS FOR THE SITE

NEAR-TERM

- To increase awareness and usability of this lot, RCTC should work with the City of Norco and Caltrans District 8 to provide wayfinding signage on arterial streets and freeways for this Park & Ride lot.
 - » **Tools:** *Inter-Agency Coordination, and Supporting Mobility Hub Amenities*
- Consider a pilot test of focused enforcement to deter abusive camping at the Park & Ride location. Enforcement may include warnings, ticketing or towing. Consider random security patrols to deter undesired users from loitering and vandalizing on-site. This is also an opportunity to work with the City of Norco Police Department to support this effort. Another option is to partner with donation centers like Salvation Army or Goodwill—these donation centers could provide staff at the Park & Ride lot throughout the day, which should deter undesired activity that occurs at vacant lots. Consider combining this effort with a strategic marketing outreach program to raise awareness for potential new users.
 - » **Tools:** *Focused Enforcement to Deter Abuse, Pilot Programs to Test Potential Maximizing Capacity Solutions, and Marketing Park & Ride Benefits*
- Survey users of this location and adjacent Park & Ride locations to determine the neighborhood origins of users and the employment destinations. Understanding who is parking at the lot may also help identify where a targeted marketing campaign could be successful.
 - » **Tools:** *Proactive Siting, Annual Reporting and Performance Monitoring, and Marketing Park & Ride Benefits*

MID-TERM

- Consider partnership pilot programs to activate the space and raise awareness of the Park & Ride location in the community. Examples may include [Farmers markets](#), movie nights (e.g., New York Park & Ride lot hosts a Farmers Market; create a [pop-up drive-in!](#)).
 - » **Tools:** *Pilot Programs to Test Potential Maximizing Capacity Solutions and Activate, Lease or Reuse Excess Capacity*
- Consider a targeted marketing campaign with Caltrans District 8 to highlight the opportunity for commuters to carpool and utilize the Express Lanes that are planned to open in 2020.
 - » **Tools:** *Marketing Park & Ride Benefits and Inter-Agency Coordination*

LONG-TERM

- Consider relocating this Park & Ride at a new location with better access and visibility to major arterials that access the freeway.
 - » **Tool:** *Proactive Siting*

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EXISTING SITE RECOMMENDATION EXAMPLES

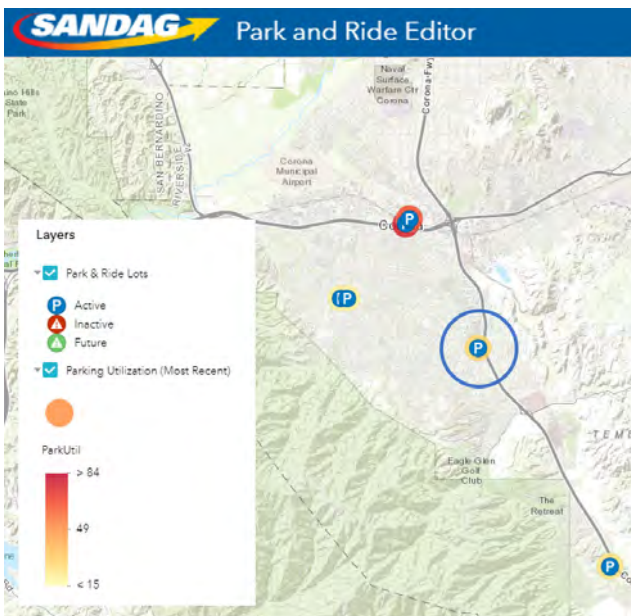
SITE: CANYON COMMUNITY CHURCH (OF THE NAZARENE) PARK & RIDE

1504 Taber St. Corona, CA 92881

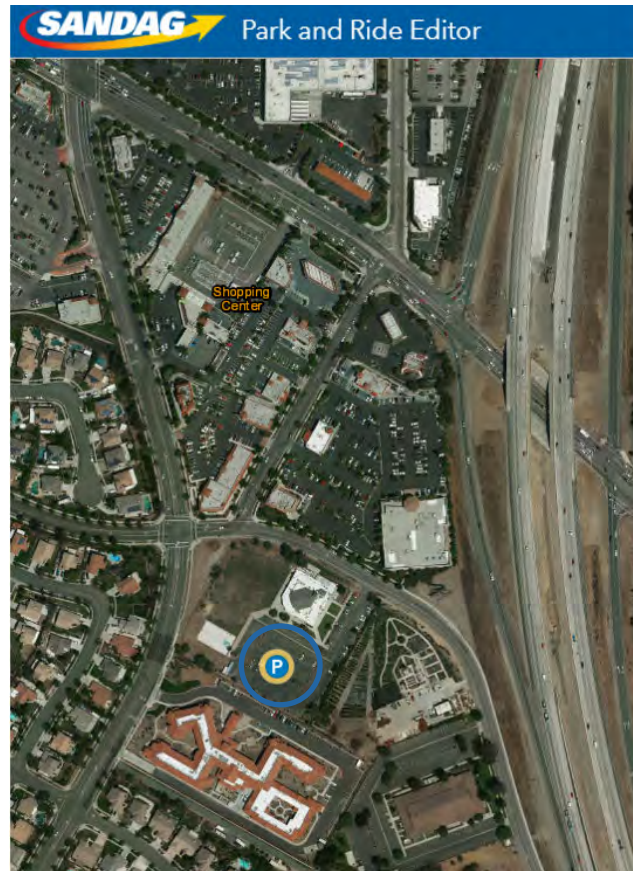
ASSESSMENT STAGE: ASSESSING EXISTING CONDITIONS

Using the Park & Ride Data Center, a virtual site visit was performed to review the influence of transportation conditions on the site. The following maps highlight the site's transportation conditions at the regional, local, and site circulation perspectives. The site is identified with a blue outlined circle in the maps.

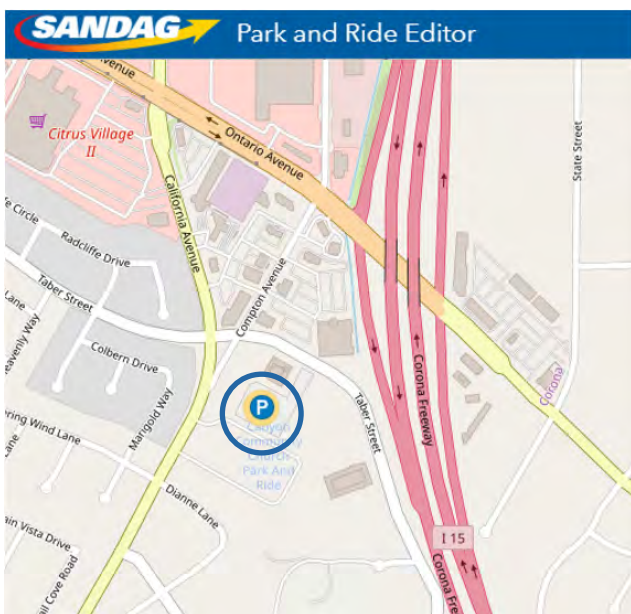
Regional Perspective



Local Perspective



Site Circulation Perspective



There are Express Lanes located on SR 91 between I-15 and SR 71, and this location is just south of that improvement. RCTC leases this location from Canyon Community Church for \$8/space for 75 spaces to use Monday - Friday.

EXISTING SITE RECOMMENDATION EXAMPLES

EXISTING CONDITIONS TO ASSESS:

SITE CONDITIONS	NOTES
Parking Spaces: <i>What are the number and type of parking spaces available?</i>	<ul style="list-style-type: none"> 75 spaces
User Types: <i>What type of users utilize the site?</i>	<ul style="list-style-type: none"> Carpool & Vanpool Transit
Owner/Operator: <i>Is the Park & Ride under shared ownership?</i>	<ul style="list-style-type: none"> Operator of Existing: RCTC Owner of New: Canyon Community Church
Leased or owned: <i>Is the site leased or owned?</i>	<ul style="list-style-type: none"> Leased
Utilization: <i>What is the utilization of the site? What count collection period was used to develop the utilization rate?</i>	<ul style="list-style-type: none"> 53% during field counts
Egress/Ingress: <i>Is egress/ingress Good/Fair/Poor?</i>	<ul style="list-style-type: none"> Poor
Curb Space: <i>Is there a designated pick-up/drop-off area?</i>	<ul style="list-style-type: none"> None

OTHER CONDITIONS	NOTES
Wayfinding/Visibility: <i>Is it easy to find the site from main roadways? Can the site be seen from the freeway or major arterial?</i>	<ul style="list-style-type: none"> Poor No sign on the main road Sign at entrance
Surrounding Land Uses: <i>What type of land uses surround the site?</i>	<ul style="list-style-type: none"> Residential Commercial
Area Type: <i>Is the site in an urban, suburban, or rural area?</i>	<ul style="list-style-type: none"> Suburban
Surrounding Roadway Network: <i>Is the site far (>5+ minute drive) from freeway access ramps? What type of roadway provides access to the site?</i>	<ul style="list-style-type: none"> Bordered major arterial (California Ave) Entrance along minor road Freeway entrance is two blocks from station
Access: <i>Is the site easy to access? What types of modes can be used to access the site? (e.g., personal vehicle, transit, bike, walking, etc.)</i>	<ul style="list-style-type: none"> Personal Vehicle

SITE AMENITIES	NOTES
Lighting: <i>Does the lighting make it feel secure at night?</i>	<ul style="list-style-type: none"> Fair
Mobile Retail/Package Delivery Service: <i>Is mobile retail or package delivery service available to help reduce user trips?</i>	<ul style="list-style-type: none"> No
Information Kiosks: <i>What type of information do the kiosks provide users?</i>	<ul style="list-style-type: none"> No
Signs: <i>Is there proper wayfinding signage?</i>	<ul style="list-style-type: none"> None 1 entrance sign
Bike Parking: <i>Is bike parking available? What kind?</i>	<ul style="list-style-type: none"> None
Paving/Striping: <i>What is the pavement of the site like? Are the spaces striped?</i>	<ul style="list-style-type: none"> Good Striped

ADDITIONAL CONSIDERATIONS	NOTES
Nearby Activity Centers: <i>What activity centers are within 1 mile of the site?</i>	<ul style="list-style-type: none"> South of commercial center East of Residential Neighborhood
User Travel Patterns: <i>What are the travel patterns (e.g., origin-destination pairs) of the users of the site?</i>	<ul style="list-style-type: none"> No travel pattern data available
Adjacent Park & Ride Lots: <i>What are the differences between the site being assessed and nearby Park & Ride lots?</i>	<ul style="list-style-type: none"> No utilization available via <i>Data Center</i>

EXISTING SITE RECOMMENDATION EXAMPLES

IDENTIFICATION STAGE: KEY CHALLENGES

- **Utilization 30%-85%:**
 - » Currently averaging 53%.

- **Operations and Management:**
 - » Security Concerns: This is a RCTC leased facility with good usage rate; however, it suffers from loitering and occasional vandalism.

- **System Management/Partnership and Policy:**
 - » Lack of Awareness: Although this location is identified on the region's 511 website, there is no wayfinding signage on the main arterials and none on the freeway. The only Park & Ride sign is on Taber Street. There is another sign within the lot, but users still need to travel through the church parking to get to the Park & Ride lot. The sign on Taber Street does not face the direction of drivers so it can easily be missed.

RELINQUISHMENT ASSESSMENT

	CHALLENGE	ACTION
STEP ONE	Utilization > 85%	Begin strategy identification matrix in the Development Stage.
	Utilization 30% - 85%	Begin strategy identification tool in the Development Stage.
	Utilization < 30%	Continue step two to assess continued need for facility.

EXISTING SITE RECOMMENDATION EXAMPLES

DEVELOPMENT STAGE: RECOMMENDATIONS STRATEGY IDENTIFICATION MATRIX

		KEY CHALLENGES							
		Overutilization (>85%)	Utilization 30% - 85%	Underutilization (<30%)	Modal Competition	Operations and Management	System Management	Funding	Partnerships and Policy
STRATEGIES IN PARK & RIDE TOOLKIT	Maximizing Capacity at Facilities	●			●	●	●		
	Managing Parking Demand	●			●	●	●	●	
	Secure Facilities and Enforce Rules / Regulations		●	●		●	●		
	Incentivize Target Users		●	●		●			●
	Create Partnerships with Local Jurisdictions and Private-Sector	●	●	●		●	●	●	●
	Align Park & Ride Planning with Local and Regional Goals			●		●	●	●	●

RECOMMENDATIONS FOR THE SITE

NEAR-TERM

- Survey users of this location and adjacent Park & Ride locations to determine the neighborhood origins of users and the employment destinations. Understanding who is parking at the lot may also help identify where a targeted marketing campaign could be successful.
 - » Tools: *Proactive Siting, Annual Reporting and Performance Monitoring, and Marketing Park & Ride Benefits*
- To increase awareness and usability of this lot, RCTC should work with the City of Corona and Caltrans District 8 to provide wayfinding signage on arterial streets and freeways for this Park & Ride lot.
 - » Tools: *Inter-Agency Coordination and Supporting Mobility Hub Amenities*
- To combat vandalism, loitering, and other safety related issues, it would be beneficial to look at implementing focused enforcement that can include both staffing and technology resources. Consider random security patrols to deter undesired users from loitering and vandalizing on-site. This is also an opportunity to work with the City of Corona Police Department to support this effort. Another option is to partner with donation centers like Salvation Army or Goodwill—these donation centers could provide staff at the Park & Ride lot throughout the day, which should deter undesired activity that occurs at vacant lots.
 - » Tools: *Reduce Security Concerns and Inter-Agency Coordination*

MID-TERM

- Cameras could help with real-time surveillance and support enforcement. This does require capital improvements on right-of-way that is not owned by RCTC. Investment in cameras could also be combined with smart parking data collection and sharing. If this investment is considered, it would need to be in partnership with Canyon Community Church to support funding, permitting installation and longer-term leases to justify the investment.
 - » Tools: *Smart Parking Systems and Reduce Security Concerns*

LONG-TERM

- Consider relocating this Park & Ride at a new location with better access and visibility to major arterials that access the freeway.
 - » Tools: *Proactive Siting*

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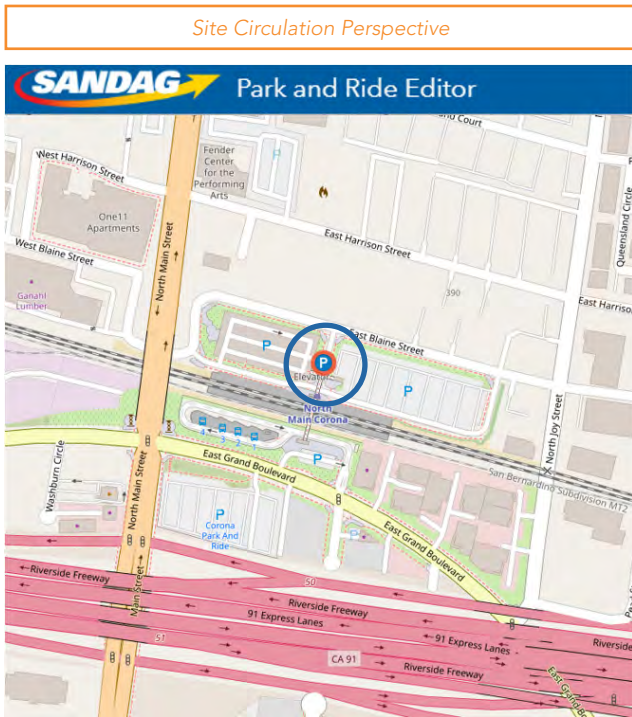
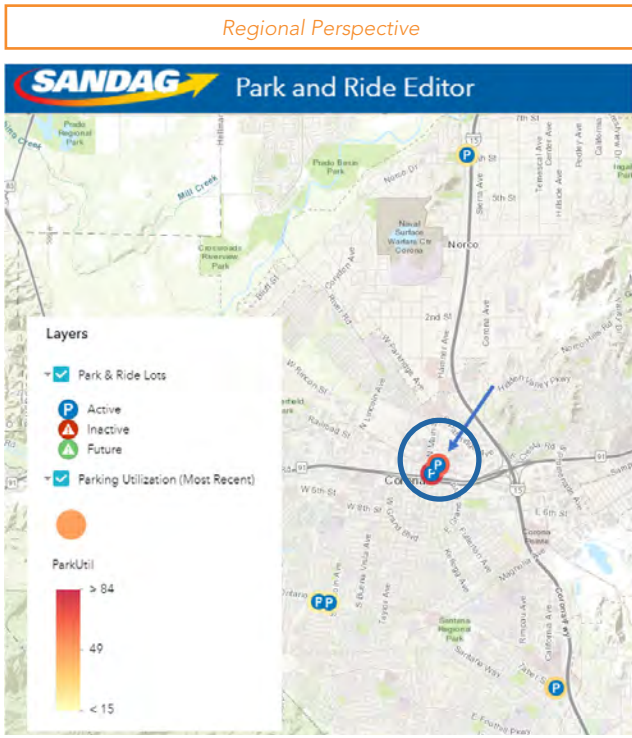
EXISTING SITE RECOMMENDATION EXAMPLES

SITE: NORTH MAIN CORONA METROLINK STATION PARK & RIDE

250 East Blaine Street Corona, CA 92879

ASSESSMENT STAGE: ASSESSING EXISTING CONDITIONS

Using the Park & Ride Data Center, a virtual site visit was performed to review the influence of transportation conditions on the site. The following maps highlight the site's transportation conditions at the regional, local, and site circulation perspectives. The site is identified with a blue outlined circle in the maps.



RCTC owns and operates all Metrolink facilities in Riverside County. This is an RCTC owned and operated facility where parking is primarily for Metrolink patrons, carpool and vanpool users. Of the 1,386 spaces, 118 are designated for carpool and vanpool. The structure and adjacent level lot benefit from 24/7 monitoring and on-site security. This location also has a "Rideshare 2 Rails" program with 27 spaces dedicated to commuters who carpool to this Metrolink facility. Rideshare 2 Rails participants are issued individually numbered parking permits that must be displayed to allow them to park in specially designated areas. This Metrolink Park & Ride is served by two Commuter Rail lines with connections to UC Riverside, San Diego, Anaheim and L.A. Union Station. The Corona Transit Center is located at this Park & Ride which provides additional local bus service to connect to the Commuter Rail network.

EXISTING SITE RECOMMENDATION EXAMPLES

EXISTING CONDITIONS TO ASSESS:

SITE CONDITIONS	NOTES
Parking Spaces: <i>What are the number and type of parking spaces available?</i>	<ul style="list-style-type: none"> • 1,386 total spaces • 118 designated Park & Ride spaces • Parking spaces free • Overnight parking permitted (up to 72 hours)
User Types: <i>What type of users utilize the site?</i>	<ul style="list-style-type: none"> • Carpool & Vanpool • Transit
Owner/Operator: <i>Is the Park & Ride under shared ownership?</i>	<ul style="list-style-type: none"> • Owned & Operated: RCTC
Leased or owned: <i>Is the site leased or owned?</i>	<ul style="list-style-type: none"> • Owned
Utilization: <i>What is the utilization of the site? What count collection period was used to develop the utilization rate?</i>	<ul style="list-style-type: none"> • 81% during field counts
Egress/Ingress: <i>Is egress/ingress Good/Fair/Poor?</i>	<ul style="list-style-type: none"> • Poor • Can't access from North Main Street
Curb Space: <i>Is there a designated pick-up/drop-off area?</i>	<ul style="list-style-type: none"> • Yes

OTHER CONDITIONS	NOTES
Wayfinding/Visibility: <i>Is it easy to find the site from main roadways? Can the site be seen from the freeway or major arterial?</i>	<ul style="list-style-type: none"> • Poor • No sign along the main road • No sign at entrance
Surrounding Land Uses: <i>What type of land uses surround the site?</i>	<ul style="list-style-type: none"> • Residential • Commercial
Area Type: <i>Is the site in an urban, suburban, or rural area?</i>	<ul style="list-style-type: none"> • Urban
Surrounding Roadway Network: <i>Is the site far (>5+ minute drive) from freeway access ramps? What type of roadway provides access to the site?</i>	<ul style="list-style-type: none"> • Surrounded by local roads • North of CA-91 freeway
Access: <i>Is the site easy to access? What types of modes can be used to access the site? (e.g., personal vehicle, transit, bike, walking, etc.)</i>	<ul style="list-style-type: none"> • Personal Vehicle • Transit

SITE AMENITIES	NOTES
Lighting: <i>Does the lighting make it feel secure at night?</i>	<ul style="list-style-type: none"> • Good
Mobile Retail/Package Delivery Service: <i>Is mobile retail or package delivery service available to help reduce user trips?</i>	<ul style="list-style-type: none"> • None
Information Kiosks: <i>What type of information do the kiosks provide users?</i>	<ul style="list-style-type: none"> • Yes
Signs: <i>Is there proper wayfinding signage?</i>	<ul style="list-style-type: none"> • Poor • Lacks signage for Park & Ride users
Bike Parking: <i>Is bike parking available? What kind?</i>	<ul style="list-style-type: none"> • None
Paving/Striping: <i>What is the pavement of the site like? Are the spaces striped?</i>	<ul style="list-style-type: none"> • Good • Striped

ADDITIONAL CONSIDERATIONS	NOTES
Nearby Activity Centers: <i>What activity centers are within 1 mile of the site?</i>	<ul style="list-style-type: none"> • South of commercial center • East of Residential Neighborhood
User Travel Patterns: <i>What are the travel patterns (e.g., origin-destination pairs) of the users of the site?</i>	<ul style="list-style-type: none"> • No travel pattern data available
Adjacent Park & Ride Lots: <i>What are the differences between the site being assessed and nearby Park & Ride lots?</i>	<ul style="list-style-type: none"> • No utilization available via Data Center

IDENTIFICATION STAGE: KEY CHALLENGES

Refer to the existing conditions summary developed in the Assessments Stage to identify relevant key challenges and their potential causes from the list below.

- **Underutilization (Utilization < 85%):**
 - » Currently averaging 81%. Because it is on the cusp, it is assumed that overutilization is a key challenge for the existing site analysis.

- **Modal Competition (Utilization > 85%) / System Management / Partnerships and Policy:**
 - » This is a shared lot with varying user types and high utilization. Only the reserved “Rideshare 2 Rails” spaces are marked at this Park & Ride lot, which makes it difficult to distinguish between carpool, vanpool and transit users. Although station security provides parking counts, they cannot easily distinguish counts for each user type. Additionally, station counts must be conducted manually.

RELINQUISHMENT ASSESSMENT

	CHALLENGE	ACTION
STEP ONE	Utilization > 85%	Begin strategy identification matrix in the Development Stage.
	Utilization 30% - 85%	Begin strategy identification tool in the Development Stage.
	Utilization < 30%	Continue step two to assess continued need for facility.

EXISTING SITE RECOMMENDATION EXAMPLES

DEVELOPMENT STAGE: RECOMMENDATIONS STRATEGY IDENTIFICATION MATRIX

		KEY CHALLENGES							
		Overutilization (>85%)	Utilization 30% - 85%	Underutilization (<30%)	Modal Competition	Operations and Management	System Management	Funding	Partnerships and Policy
STRATEGIES IN PARK & RIDE TOOLKIT	Maximizing Capacity at Facilities	•			•	•	•		
	Managing Parking Demand	•			•	•	•	•	
	Secure Facilities and Enforce Rules / Regulations		•	•		•	•		
	Incentivize Target Users		•	•		•			•
	Create Partnerships with Local Jurisdictions and Private-Sector	•	•	•		•	•	•	•
	Align Park & Ride Planning with Local and Regional Goals			•		•	•	•	•

RECOMMENDATIONS FOR THE SITE

NEAR-TERM

- Survey users of this location and adjacent Park & Ride locations to determine the neighborhood origins of users and the employment destinations. Understanding who is parking at the lot may also help identify where additional access modes at the Corona Transit Center could be successful.
 - » *Tools: Proactive Siting, Annual Reporting and Performance Monitoring, and Enhance Access Modes*
- Consider dedicating space for pick-up and drop-off for Transportation Network Companies that encourage ride-sharing like UberPool, Lyft Line and Waze Carpool. Strategize potential partnerships directly with these companies. In addition, consider re-routing local bus service to this site.
 - » *Tools: Enhance Access Modes and Supporting Mobility Hub Amenities*
- Consider a pilot that expands the Dial-a-Ride service to all users and serves as an on-demand, door-to-door Microtransit option for the nearby community. This could also be implemented through a service like RideCo or Via.
 - » *Tools: Pilot Programs to Test Potential Maximizing Capacity Solutions, Enhance Access Modes, and Supporting Mobility Hub Amenities*

MID-TERM

- Consider additional partnerships for the “Rideshare 2 Rails” program that encourages dedicated space for carpooling to this Park & Ride location. A partnership with a service like Scoop will provide ride-matching services for commuters who are driving to the Park & Ride from the same neighborhoods.
 - » *Tools: Marketing Park & Ride Benefits and Dedicate Space for Alternative Access Modes*
- Consider a strategic marketing effort with other transit agencies and TDM programs or key campus destinations like UC Riverside to increase the number of potential new users who access this transit hub.
 - » *Tools: Campus Employer Partnerships and Marketing Park & Ride Benefits*

LONG-TERM

- Consider investing in smart parking. This would provide real-time information that could be integrated into regional apps, dynamic freeway signage and throughout the parking lot and structure. Smart parking investment could be combined with a reservation or paid-parking system. Enforcement could be managed through license plate recognition software with a combined permit system. Revenue from a paid parking system could support other operations and management needs at this location or others in the system.
 - » *Tools: User Type Management, Smart Parking Systems, Inter-Agency Coordination, Annual Reporting and Performance Monitoring, and Implement Paid Parking System*

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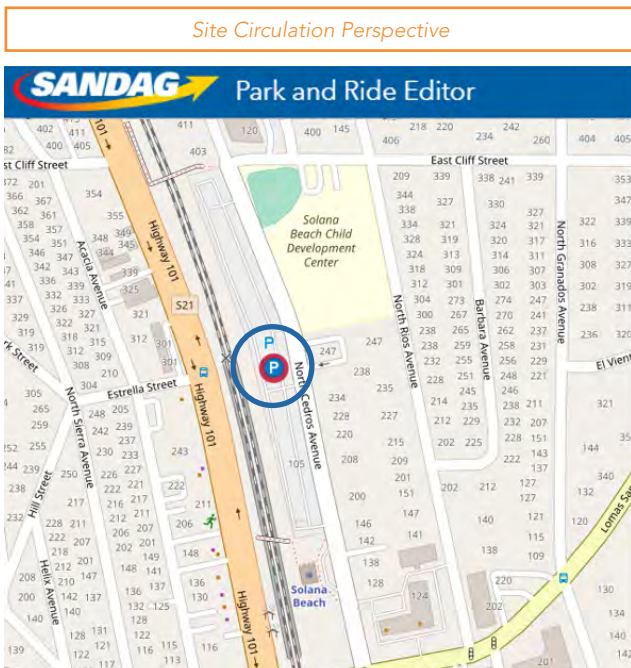
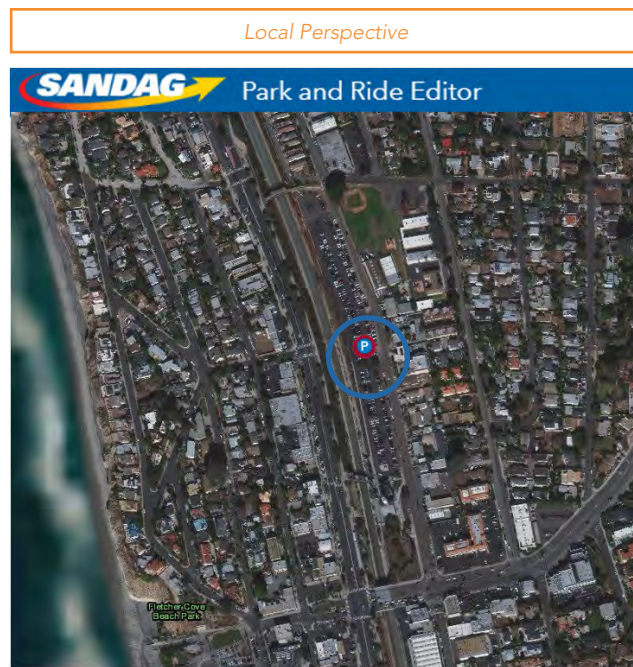
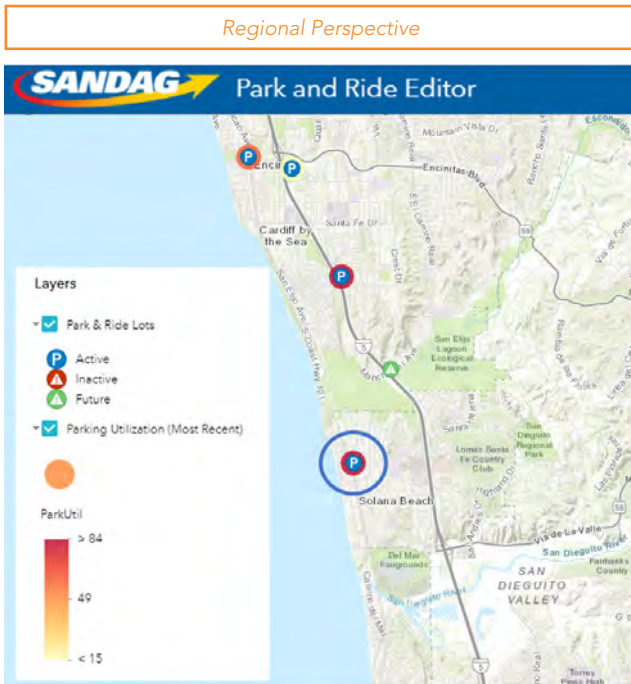
EXISTING SITE RECOMMENDATION EXAMPLES

SITE: SOLANA BEACH TRANSIT STATION PARK & RIDE

105 N. Cedros Avenue, Solana Beach 92075

ASSESSMENT STAGE: ASSESSING EXISTING CONDITIONS

Using the Park & Ride Data Center, a virtual site visit was performed to review the influence of transportation conditions on the site. The following maps highlight the site's transportation conditions at the regional, local, and site circulation perspectives. The site is identified with a blue outlined circle in the maps.



This is a transit-only lot that serves both Coaster and Amtrak commuter trains and local bus route 308 that connects to Escondido Transit Center. It is owned and operated by NCTD. This location, along with the other Park & Ride lots that serve Coaster and Amtrak, is frequently at 100% capacity. This location is walking distance to the beach, retail and single family homes.

Much of the commuter demand may be generated from southern and eastern communities. Due to infrequent headways, some residents who live in the southern parts of the county may choose to drive north to this location even though there are Park & Ride locations closer to their homes. If the I-5 isn't congested enough to delay their trip, some commuters may choose to "race the train" up the freeway. Residents who live in the eastern parts of the county do not have a competitive service connection to the Coaster and Amtrak services. This location is just north of the I-5 and SR 56 interchange which also makes it a more attractive Park & Ride lot compared to the other Coaster Stations.

This location is considered a "Town Center" in SANDAG's Smart Growth Concept Match, which allows for a variety of mixed-use development projects including multi-family residential of up to 20 dwelling units per acre.

EXISTING SITE RECOMMENDATION EXAMPLES

EXISTING CONDITIONS TO ASSESS:

SITE CONDITIONS	NOTES
Parking Spaces: <i>What are the number and type of parking spaces available?</i>	<ul style="list-style-type: none"> • 319 regular, 6 ADA • 325 totale spaces
User Types: <i>What type of users utilize the site?</i>	<ul style="list-style-type: none"> • Carpool & Vanpool • Transit
Owner/Operator: <i>Is the Park & Ride under shared ownership?</i>	<ul style="list-style-type: none"> • Owned & Operated: NCTD
Leased or owned: <i>Is the site leased or owned?</i>	<ul style="list-style-type: none"> • Owned
Utilization: <i>What is the utilization of the site? What count collection period was used to develop the utilization rate?</i>	<ul style="list-style-type: none"> • Near 100% utilization at peak periods
Egress/Ingress: <i>Is egress/ingress Good/Fair/Poor?</i>	<ul style="list-style-type: none"> • Good
Curb Space: <i>Is there a designated pick-up/drop-off area?</i>	<ul style="list-style-type: none"> • Yes

OTHER CONDITIONS	NOTES
Wayfinding/Visibility: <i>Is it easy to find the site from main roadways? Can the site be seen from the freeway or major arterial?</i>	<ul style="list-style-type: none"> • Good
Surrounding Land Uses: <i>What type of land uses surround the site?</i>	<ul style="list-style-type: none"> • Retail • Residential
Area Type: <i>Is the site in an urban, suburban, or rural area?</i>	<ul style="list-style-type: none"> • Urban
Surrounding Roadway Network: <i>Is the site far (>5+ minute drive) from freeway access ramps? What type of roadway provides access to the site?</i>	<ul style="list-style-type: none"> • 1 mile of freeway ramps • Adjacent to two major arterials
Access: <i>Is the site easy to access? What types of modes can be used to access the site? (e.g., personal vehicle, transit, bike, walking, etc.)</i>	<ul style="list-style-type: none"> • Auto, Bike, Transit Connection, Pedestrian

SITE AMENITIES	NOTES
Lighting: <i>Does the lighting make it feel secure at night?</i>	<ul style="list-style-type: none"> • Good
Mobile Retail/Package Delivery Service: <i>Is mobile retail or package delivery service available to help reduce user trips?</i>	<ul style="list-style-type: none"> • No
Information Kiosks: <i>What type of information do the kiosks provide users?</i>	<ul style="list-style-type: none"> • Yes • Amtrak Ticket Sales, Information Kiosk
Signs: <i>Is there proper wayfinding signage?</i>	<ul style="list-style-type: none"> • Good
Bike Parking: <i>Is bike parking available? What kind?</i>	<ul style="list-style-type: none"> • Yes • 4 bike lockers, bike racks
Paving/Striping: <i>What is the pavement of the site like? Are the spaces striped?</i>	<ul style="list-style-type: none"> • Good, Yes • Straight-in parking

ADDITIONAL CONSIDERATIONS	NOTES
Nearby Activity Centers: <i>What activity centers are within 1 mile of the site?</i>	<ul style="list-style-type: none"> • North and east of commercial center • West of Residential Neighborhood
User Travel Patterns: <i>What are the travel patterns (e.g., origin-destination pairs) of the users of the site?</i>	<ul style="list-style-type: none"> • No travel pattern data available
Adjacent Park & Ride Lots: <i>What are the differences between the site being assessed and nearby Park & Ride lots?</i>	<ul style="list-style-type: none"> • No utilization available via Database

EXISTING SITE RECOMMENDATION EXAMPLES

IDENTIFICATION STAGE: KEY CHALLENGES

Refer to the existing conditions summary developed in the Assessments Stage to identify relevant key challenges and their potential causes from the list below.

- **Overutilization (Utilization > 85%):**
 - » Frequently at 100% capacity. Nearby Coaster Park & Ride lots are also highly utilized

- **Modal Competition (Utilization > 85%) / System Management / Partnerships and Policy:**
 - » The lot is adjacent to retail locations and near the beach. It has been reported that this attracts unauthorized parking at the lot.

 - » Much of the commuter demand may be generated from a very large market area that captures the southern and eastern parts of the county.

- **Funding / System Management:**
 - » NCTD does not have staff to support data collection to monitor utilization, and there is no funding available to support capital investments to increase the number of Park & Ride spaces.

RELINQUISHMENT ASSESSMENT

	CHALLENGE	ACTION
STEP ONE	Utilization > 85%	Begin strategy identification matrix in the Development Stage.
	Utilization 30% - 85%	Begin strategy identification tool in the Development Stage.
	Utilization < 30%	Continue step two to assess continued need for facility.

EXISTING SITE RECOMMENDATION EXAMPLES

DEVELOPMENT STAGE: RECOMMENDATIONS STRATEGY IDENTIFICATION MATRIX

		KEY CHALLENGES							
		Overutilization (>85%)	Utilization 30% - 85%	Underutilization (<30%)	Modal Competition	Operations and Management	System Management	Funding	Partnerships and Policy
STRATEGIES IN PARK & RIDE TOOLKIT	Maximizing Capacity at Facilities	●			●	●	●		
	Managing Parking Demand	●			●	●	●	●	
	Secure Facilities and Enforce Rules and Regulations		●	●		●	●		
	Incentivize Target Users		●	●		●			●
	Create Partnerships with Local Jurisdictions and Private-Sector	●	●	●		●	●	●	●
	Align Park & Ride Planning with Local and Regional Goals			●		●	●	●	●

EXISTING SITE RECOMMENDATION EXAMPLES

RECOMMENDATIONS FOR THE SITE

NEAR-TERM

- Consider piloting focused enforcement examples to deter unauthorized users such as warnings, ticketing, towing, and on-site patrols at random. This is also an opportunity to work with the City of Solana Beach for shared parking enforcement efforts throughout the City.
 - » *Tools: Focused Enforcement to Deter Abuse, Pilot Programs to Test Potential Maximizing Capacity Solutions, and Marketing Park & Ride Benefits*
- Survey users of this site and adjacent Park & Ride locations to determine the origins of users and their employment destinations. Validating origins of parking lot users may help identify where additional transportation access service opportunities could be successful. Consider strategic partnerships with microtransit companies to expand the first-mile/last-mile service opportunities.
 - » *Tools: Proactive Siting, Annual Reporting and Performance Monitoring, and Enhance Access Modes*
- Consider renting camera equipment to evaluate ongoing uses at the Park & Ride location to better assess user behaviors. This will document the user types, when the lot fills as it relates to service times, and any potential latent demand or “hide and ride” activity. This data would help identify enforcement needs and times or justify potential partnerships and future investments.
 - » *Tools: Proactive Siting, Annual Reporting and Performance Monitoring, User Type Management, Smart Parking Systems, and Inter-Agency Coordination*
- Consider a pilot permit program that guarantees a priority space for those who carpool to transit, which could increase the person per space utilization. A partnership with a service like Scoop will provide ride-matching services for commuters who are driving to the Park & Ride from the same neighborhoods.
 - » *Tools: Dedicate Space for Alternative Access Modes, Pilot Programs to Test Potential Maximizing Capacity Solutions, User Type Management, Enhance Access Modes, and Marketing Park & Ride Benefits*

MID-TERM

- Consider a partnership with the City of Solana Beach for a Neighborhood Electric Vehicle Program that provides on-demand free rides that serve adjacent retail facilities and the beach. Companies like Circuit that has partnered with the City of San Diego could serve as a model for this Microtransit service.
 - » *Tools: Enhance Access Modes, Inter-Agency Coordination, and Supporting Mobility Hub Amenities*

LONG-TERM

- Consider investing in smart parking and/or paid parking system. This would provide real-time information that could be integrated into regional apps, dynamic freeway signage and throughout the parking lot and structure. Smart parking investment could be combined with a reservation or paid-parking system. Enforcement could be managed through license plate recognition software with a combined permit system. Including real-time transit arrival and departure times could also help balance demand. Early and accessible information provides a more reliable service by helping re-route commuters to stations or lots with more capacity. Revenue from a paid parking system could support other operations and management needs at this location or others in the system.
 - » *Tools: User Type Management, Smart Parking Systems, Inter-Agency Coordination, Annual Reporting and Performance Monitoring, and Implement Paid Parking System*
- This Park & Ride is located in SANDAG’s Smart Growth concept map. Thus, future Transit-Oriented Development is encouraged at this location. Until a robust mobility options become available, there may still be demand for Park & Ride users and may warrant shared-use parking at the TOD. Smart parking can support operations and enforcement to control different user types as it relates to shared-use policies.
 - » *Tools: Encourage Transit-Oriented Development (TOD), User Type Management, and Inter-Agency Coordination*

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EXISTING SITE RECOMMENDATION EXAMPLES

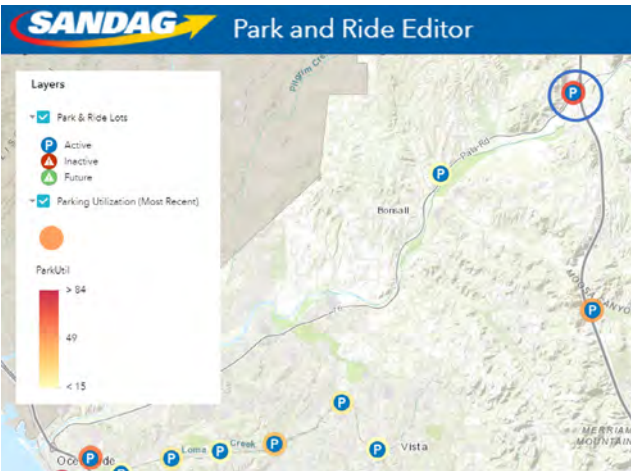
SITE: I-15 AT SR 76 PALA ROAD PARK & RIDE

3340 Old Hwy, Fallbrook, 92028

ASSESSMENT STAGE: ASSESSING EXISTING CONDITIONS

Using the Park & Ride Data Center, a virtual site visit was performed to review the influence of transportation conditions on the site. The following maps highlight the site's transportation conditions at the regional, local, and site circulation perspectives. The site is identified with a blue outlined circle in the maps.

Regional Perspective



Local Perspective



Site Circulation Perspective



This lot was relocated to the north side of SR 76 in 2017. It has a capacity of 223 spaces that are shared to accommodate carpool, vanpool, transit, and truck parking. It has fast electric vehicle charging stations and bike lockers. The SR 76 experiences sections of heavy peak hour congestion, particularly westbound. This area is a common stopover for goods movement trucks that sometimes park illegally on the freeway shoulders at night. There is a Mobil gas station and convenient store adjacent to this Park & Ride lot. This is not a designated truck rest stop, but there are no designated truck rest stops in this corridor so there is a significant number of truck activity in designated spaces and around the freeway since there are legal requirements that create the need to stop and rest. Utilization counts are only conducted twice per year, so the data relating to each user type is not available.

There are a significant number of Riverside commuters who are employed in San Diego. Because the I-15 is congested north of SR 76, some commuters informally use Pala Temecula Road to bypass traffic along I-15 and take SR 76 westbound, so there is a significant number of commuters who converge at the I-15 and SR 76 intersection. The ingress and egress of this Park & Ride connects to SR 76, following state policies. The shelter provided at this location was in partnership with the local tribal governments in both San Diego County and Riverside county. There is limited service at this transit facility and wayfinding signage, which may cause confusion.

EXISTING SITE RECOMMENDATION EXAMPLES

EXISTING CONDITIONS TO ASSESS:

SITE CONDITIONS	NOTES
Parking Spaces: <i>What are the number and type of parking spaces available?</i>	<ul style="list-style-type: none"> • 223 total spaces
User Types: <i>What type of users utilize the site?</i>	<ul style="list-style-type: none"> • Carpool & Vanpool • Transit
Owner/Operator: <i>Is the Park & Ride under shared ownership?</i>	<ul style="list-style-type: none"> • Owned & Operated: Caltrans
Leased or owned: <i>Is the site leased or owned?</i>	<ul style="list-style-type: none"> • Owned
Utilization: <i>What is the utilization of the site? What count collection period was used to develop the utilization rate?</i>	<ul style="list-style-type: none"> • experiences 50-60% occupancy • As of 1/3 capacity increased from 163 spaces to 216. NOTE counts through Spring 217 based on old capacity (163). Updated on 11/22 to 223 spaces. Reopened Nov. 1 217 and now includes 11 spaces for semitrucks and 1 spaces for electric vehicles
Egress/Ingress: <i>Is egress/ingress Good/Fair/Poor?</i>	<ul style="list-style-type: none"> • Good
Curb Space: <i>Is there a designated pick-up/drop-off area?</i>	<ul style="list-style-type: none"> • None

OTHER CONDITIONS	NOTES
Wayfinding/Visibility: <i>Is it easy to find the site from main roadways? Can the site be seen from the freeway or major arterial?</i>	<ul style="list-style-type: none"> • Poor
Surrounding Land Uses: <i>What type of land uses surround the site?</i>	<ul style="list-style-type: none"> • Residential (north)
Area Type: <i>Is the site in an urban, suburban, or rural area?</i>	<ul style="list-style-type: none"> • Rural
Surrounding Roadway Network: <i>Is the site far (>5+ minute drive) from freeway access ramps? What type of roadway provides access to the site?</i>	<ul style="list-style-type: none"> • near an intersection of a major on / off ramp to I-15 and SR-76
Access: <i>Is the site easy to access? What types of modes can be used to access the site? (e.g., personal vehicle, transit, bike, walking, etc.)</i>	<ul style="list-style-type: none"> • Auto • Transit

SITE AMENITIES	NOTES
Lighting: <i>Does the lighting make it feel secure at night?</i>	<ul style="list-style-type: none"> • Poor
Mobile Retail/Package Delivery Service: <i>Is mobile retail or package delivery service available to help reduce user trips?</i>	<ul style="list-style-type: none"> • None
Information Kiosks: <i>What type of information do the kiosks provide users?</i>	<ul style="list-style-type: none"> • None
Signs: <i>Is there proper wayfinding signage?</i>	<ul style="list-style-type: none"> • Poor
Bike Parking: <i>Is bike parking available? What kind?</i>	<ul style="list-style-type: none"> • None
Paving/Striping: <i>What is the pavement of the site like? Are the spaces striped?</i>	<ul style="list-style-type: none"> • Good, Yes • Straight-in parking

ADDITIONAL CONSIDERATIONS	NOTES
Nearby Activity Centers: <i>What activity centers are within 1 mile of the site?</i>	<ul style="list-style-type: none"> • Nearby truck rest stop and gas station
User Travel Patterns: <i>What are the travel patterns (e.g., origin-destination pairs) of the users of the site?</i>	<ul style="list-style-type: none"> • No travel pattern data available
Adjacent Park & Ride Lots: <i>What are the differences between the site being assessed and nearby Park & Ride lots?</i>	<ul style="list-style-type: none"> • High utilization at Park & Ride south of site

EXISTING SITE RECOMMENDATION EXAMPLES

IDENTIFICATION STAGE: KEY CHALLENGES

Refer to the existing conditions summary developed in the Assessments Stage to identify relevant key challenges and their potential causes from the list below.

- **Utilization 30% - 85%:**
 - » Currently averaging 50-60% occupancy

- **Modal Competition (Utilization >85%) / System Management / Partnerships and Policy:**
 - » There are a number of shared users at this location and significant congestion on SR 76. This Park & Ride accommodates commuters who are looking for fast charging, carpool and vanpool commuters, transit users and truck drivers and there is no data available to quantify the usage types and peak times of activity. There is a significant amount of congestion on SR 76 and limited service at this location. Wayfinding is limited and there are no official truck rest stops in this corridor area.

RELINQUISHMENT ASSESSMENT

	CHALLENGE	ACTION
STEP ONE	Utilization > 85%	Begin strategy identification matrix in the Development Stage.
	Utilization 30% - 85%	Begin strategy identification tool in the Development Stage.
	Utilization < 30%	Continue step two to assess continued need for facility.

EXISTING SITE RECOMMENDATION EXAMPLES

DEVELOPMENT STAGE: RECOMMENDATIONS STRATEGY IDENTIFICATION MATRIX

		KEY CHALLENGES							
		Overutilization (>85%)	Utilization 30% - 85%	Underutilization (<30%)	Modal Competition	Operations and Management	System Management	Funding	Partnerships and Policy
STRATEGIES IN PARK & RIDE TOOLKIT	Maximizing Capacity at Facilities	•			•	•	•		
	Managing Parking Demand	•			•	•	•	•	
	Secure Facilities and Enforce Rules / Regulations		•	•		•	•		
	Incentivize Target Users		•	•		•			•
	Create Partnerships with Local Jurisdictions and Private-Sector	•	•	•		•	•	•	•
	Align Park & Ride Planning with Local and Regional Goals			•		•	•	•	•

RECOMMENDATIONS FOR THE SITE

NEAR-TERM

- Survey users of this location to determine the neighborhood origins of users and the destinations of each user type. Validating the origins of parking lot users may also help identify where additional investments could be successful.
 - » *Tools: Proactive Siting, Annual Reporting and Performance Monitoring, and Enhance Access Modes*
- Another option would be to consider renting camera equipment to evaluate ongoing uses at the Park & Ride location to better assess user behaviors. This data would help identify enforcement needs and times or justify potential partnerships and future investments. This effort could be combined with a truck parking needs assessment to determine the truck parking demand along the corridor and a supply and capacity assessment. Camera footage can provide utilization rates and demand activity over a longer period of time.
 - » *Tools: Proactive Siting, Annual Reporting and Performance Monitoring, User Type Management, Smart Parking Systems, and Inter-Agency Coordination*
- Consider a pilot program to allow goods movement trucks to utilize the full lot overnight, when it is not utilized by regular commuters. This could increase safety of freeway drivers as well as the truck drivers.
 - » *Tools: Annual Reporting and Performance Monitoring, Pilot Programs to Test Potential Maximizing Capacity Solutions, User Type Management, Activate, Lease, or Reuse Excess Capacity, and Inter-Agency Coordination*

MID-TERM

- Consider a partnership with the local tribal governments for potential Microtransit service solutions to this Park & Ride location. This could also be implemented through a service like RideCo or Via.
 - » *Tools: Enhance Access Modes, Inter-Agency Coordination, and Supporting Mobility Hub Amenities*

LONG-TERM

- Consider investing in smart parking. This would provide real-time information that could be integrated into regional apps, dynamic freeway signage and throughout the parking lot and structure. The real-time information could also support websites like www.americantrucparking.com that helps truck drivers make decisions on where to rest.
 - » *Tools: User Type Management, Smart Parking Systems, Inter-Agency Coordination, and Annual Reporting and Performance Monitoring*

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EXISTING SITE RECOMMENDATION EXAMPLES

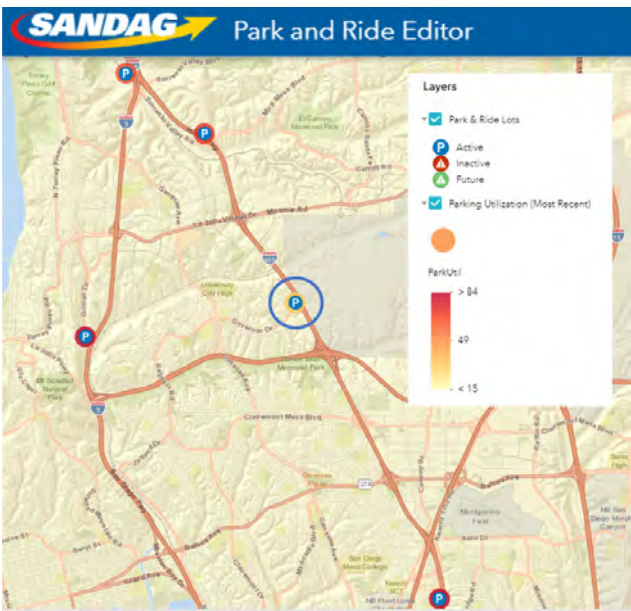
SITE: GOVERNOR DRIVE PARK & RIDE

5196 Governor Drive San Diego, CA 92122

ASSESSMENT STAGE: ASSESSING EXISTING CONDITIONS

Using the Park & Ride Data Center, a virtual site visit was performed to review the influence of transportation conditions on the site. The following maps highlight the site's transportation conditions at the regional, local, and site circulation perspectives. The site is identified with a blue outlined circle in the maps.

Regional Perspective



Local Perspective



Site Circulation Perspective



This Park & Ride Lot is owned and operated by Caltrans and is located in the City of San Diego adjacent to I-805 and just north of SR 52. Just north of this Park & Ride location is the Tier 1 employment centers of UTC/ Sorrento Valley. South of this location is another Tier 1 employment center at Kearny Mesa. The lot counts are generally low, which is surprising since there are a significant number of residents in this area who add to the peak hour congestion on I-805, SR 52 and surrounding major arterials. There are a few business parks south of Governor Drive and suburban single-family homes surrounding this Park & Ride. To the east of I-805 are MCAS Miramar and village nurseries. There is a vacant parcel behind this Park & Ride lot that has potential for future development.

EXISTING SITE RECOMMENDATION EXAMPLES

EXISTING CONDITIONS TO ASSESS:

SITE CONDITIONS	NOTES
Parking Spaces: <i>What are the number and type of parking spaces available?</i>	<ul style="list-style-type: none"> 76 total spaces
User Types: <i>What type of users utilize the site?</i>	<ul style="list-style-type: none"> Carpool & Vanpool
Owner/Operator: <i>Is the Park & Ride under shared ownership?</i>	<ul style="list-style-type: none"> Owned & Operated: Caltrans
Leased or owned: <i>Is the site leased or owned?</i>	<ul style="list-style-type: none"> Owned
Utilization: <i>What is the utilization of the site? What count collection period was used to develop the utilization rate?</i>	<ul style="list-style-type: none"> Experiences 32% occupancy Tour Bus Passes - Dash Pass
Egress/Ingress: <i>Is egress/ingress Good/Fair/Poor?</i>	<ul style="list-style-type: none"> Good
Curb Space: <i>Is there a designated pick-up/drop-off area?</i>	<ul style="list-style-type: none"> None

OTHER CONDITIONS	NOTES
Wayfinding/Visibility: <i>Is it easy to find the site from main roadways? Can the site be seen from the freeway or major arterial?</i>	<ul style="list-style-type: none"> Poor
Surrounding Land Uses: <i>What type of land uses surround the site?</i>	<ul style="list-style-type: none"> Residential (north)
Area Type: <i>Is the site in an urban, suburban, or rural area?</i>	<ul style="list-style-type: none"> Rural
Surrounding Roadway Network: <i>Is the site far (>5+ minute drive) from freeway access ramps? What type of roadway provides access to the site?</i>	<ul style="list-style-type: none"> Located near the Governor Drive on and off-ramps for I-805
Access: <i>Is the site easy to access? What types of modes can be used to access the site? (e.g., personal vehicle, transit, bike, walking, etc.)</i>	<ul style="list-style-type: none"> Auto

SITE AMENITIES	NOTES
Lighting: <i>Does the lighting make it feel secure at night?</i>	<ul style="list-style-type: none"> Poor
Mobile Retail/Package Delivery Service: <i>Is mobile retail or package delivery service available to help reduce user trips?</i>	<ul style="list-style-type: none"> Salvation Army Donation Center
Information Kiosks: <i>What type of information do the kiosks provide users?</i>	<ul style="list-style-type: none"> None
Signs: <i>Is there proper wayfinding signage?</i>	<ul style="list-style-type: none"> Poor
Bike Parking: <i>Is bike parking available? What kind?</i>	<ul style="list-style-type: none"> None
Paving/Striping: <i>What is the pavement of the site like? Are the spaces striped?</i>	<ul style="list-style-type: none"> Good, Yes Straight-in parking

ADDITIONAL CONSIDERATIONS	NOTES
Nearby Activity Centers: <i>What activity centers are within 1 mile of the site?</i>	<ul style="list-style-type: none"> Office park south of site Residential community to the west Military base east of site
User Travel Patterns: <i>What are the travel patterns (e.g., origin-destination pairs) of the users of the site?</i>	<ul style="list-style-type: none"> No travel pattern data available
Adjacent Park & Ride Lots: <i>What are the differences between the site being assessed and nearby Park & Ride lots?</i>	<ul style="list-style-type: none"> High utilization at Park & Ride north and south of site However, site has the same number of occupied spaces as the adjacent sites

IDENTIFICATION STAGE: KEY CHALLENGES

Refer to the existing conditions summary developed in the Assessments Stage to identify relevant key challenges and their potential causes from the list below.

- **Underutilization (Utilization < 30%):**
 - » Currently averaging 32%. Because it is on the cusp, it is assumed that underutilization is a key challenge in the site analysis.

- **System Management / Operations and Management / Partnerships and Policy:**
 - » This Park & Ride is in the middle of two Tier 1 regional employment centers and has direct access to two major freeway connections but still demonstrates poor utilization. There is no wayfinding signage on the major arterials or on the freeway streets leading to this location. Additionally, the Park & Ride is not visible from the street or freeway level.

RELINQUISHMENT ASSESSMENT

	CHALLENGE	ACTION
STEP ONE	Utilization > 85%	Begin strategy identification matrix in the Development Stage.
	Utilization 30% - 85%	Begin strategy identification tool in the Development Stage.
	Utilization < 30%	Continue step two to assess continued need for facility.

EXISTING SITE RECOMMENDATION EXAMPLES

DEVELOPMENT STAGE: RECOMMENDATIONS STRATEGY IDENTIFICATION MATRIX

		KEY CHALLENGES							
		Overutilization (>85%)	Utilization 30% - 85%	Underutilization (<30%)	Modal Competition	Operations and Management	System Management	Funding	Partnerships and Policy
STRATEGIES IN PARK & RIDE TOOLKIT	Maximizing Capacity at Facilities	•			•	•	•		
	Managing Parking Demand	•			•	•	•	•	
	Secure Facilities and Enforce Rules / Regulations		•	•		•	•		
	Incentivize Target Users		•	•		•			•
	Create Partnerships with Local Jurisdictions and Private-Sector	•	•	•		•	•	•	•
	Align Park & Ride Planning with Local and Regional Goals			•		•	•	•	•

RECOMMENDATIONS FOR THE SITE

NEAR-TERM

- Survey users of this location to determine the neighborhood origins of users and the destinations of each user type. Validating the origins of parking lot users may also help identify where additional investments could be successful.
 - » *Tools: Proactive Siting, Annual Reporting and Performance Monitoring, and Enhance Access Modes*
- To increase awareness and usability of this lot, RCTC should work with the City of San Diego and Caltrans District 11 to provide wayfinding signage on arterial streets and freeways for this Park & Ride lot.
 - » *Tools: Inter-Agency Coordination and Supporting Mobility Hub Amenities*

MID-TERM

- Consider a partnership with employers in UTC/Sorrento Valley or Kearny Mesa for a shuttle service that provides direct access to major employer campuses combined with parking reduction policies. Shuttle service could relieve some of the parking demands at their employment locations.
 - » *Tools: Campus Employer Partnerships, Enhance Access Modes, Inter-Agency Coordination, and Supporting Mobility Hub Amenities*
- Consider partnership pilot programs to activate the space and raise awareness of the Park & Ride location in the community. Examples may include [Farmers markets](#), movie nights (New York Park & Ride program hosts a Farmers Market; create a [pop-up drive-in](#)).
 - » *Tools: Pilot Programs to Test Potential Maximizing Capacity Solutions and Activate, Lease or Reuse Excess Capacity*

LONG-TERM

- Consider investing in smart parking. This would provide real-time information that could be integrated into regional apps, dynamic freeway signage and throughout the parking lot and structure. Work with well-used mapping applications to show Park & Ride as viable alternative to SOV usage.
 - » *Tools: User Type Management, Smart Parking Systems, Inter-Agency Coordination, and Annual Reporting and Performance Monitoring*
- Consider plans for future infrastructure investments on I-805 or SR 52 to include plans for future land uses at this Park & Ride lot. With the addition of transit services or managed lanes, there are so many opportunities to maximize the available Caltrans-owned right of way at this Park & Ride lot. Because of its unique location, it could be a future mobility hub or transit-oriented development.

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APPENDIX I: DATA CENTER

Regional Park & Ride Data Center

Part I: The project team developed the Data Center to enhance Park & Ride system performance monitoring capabilities and support efficient and effective regional planning strategies. Part I describes how the Data Center meets that goal.

Part II: The poster in Part II of this Appendix was presented at the 2019 California Transportation Planning Conference. It outlines the ways in which the project team envisions the Data Center can add functionality in the future given sustained regional coordination and funding.

Part I

The Challenge

The project team identified two key opportunities to improve regional Park & Ride decision making and developed a Data Center to address them.

1. Inefficient Data Collection

Many agencies throughout the region manage Park & Ride facilities and collect occupancy (count) data on those lots. However, the type of data collected and consistency in reporting varies. Much of this data collection and management is done through field visits using paper and pen and is documented on separate excel sheets which are emailed back and forth. A regional dataset founded on standardized collection procedures would reduce inaccuracies, inconsistencies, and incompatible performance measures.

- Improve and standardize data collection procedures
- Mitigate data transfer errors

2. Lack of Regional Visibility

Lack of data sharing limits the knowledge base stakeholders rely on to operate and manage their Park & Ride networks. Agencies that only assess their assets through the lens of jurisdictional boundaries are blinded to regional trends that are likely affecting their system performance.

Intra-agency and inter-agency data sharing is equally important. Many Park & Ride responsibilities, such as maintenance and security, may be under the purview of an external partner like a local jurisdiction or private developer (under a shared use agreement). These disparate roles and responsibilities contribute to gaps in data or a lack of data standardization.

- Improve data sharing between and within stakeholders
- Improve data analysis

Actionable Insights

The Data Center is a foundational step in strengthening regional knowledge and preparing for the role of the facilities in the future. By consolidating and standardizing Park & Ride data, the Data Center drives actionable insights on a local and regional scale.

The following pages describe how the Data Center was designed to address key challenges and opportunities. While the tool addresses these baseline challenges, it is designed to add functionality—particularly in analysis and reporting—to adapt to a stakeholder's or region's needs if funding were to become available to sustain its development.

Park & Ride data should not be considered in isolation. Paired with relevant datasets—such as transit service levels, ridership, peak hour congestion, land use, goods movement corridors, and commuter origin/destination (O/D) pairs—the role of Park & Ride is amplified, and a planner or manager's perspective broadened.

Data Center Walkthrough

1. Accessibility
2. Visualizing Data
3. Comprehensive Site Information
4. Regional Visibility
5. Virtual Site Visit
6. Collecting Data from the Field
7. System Performance Monitoring
8. Reporting

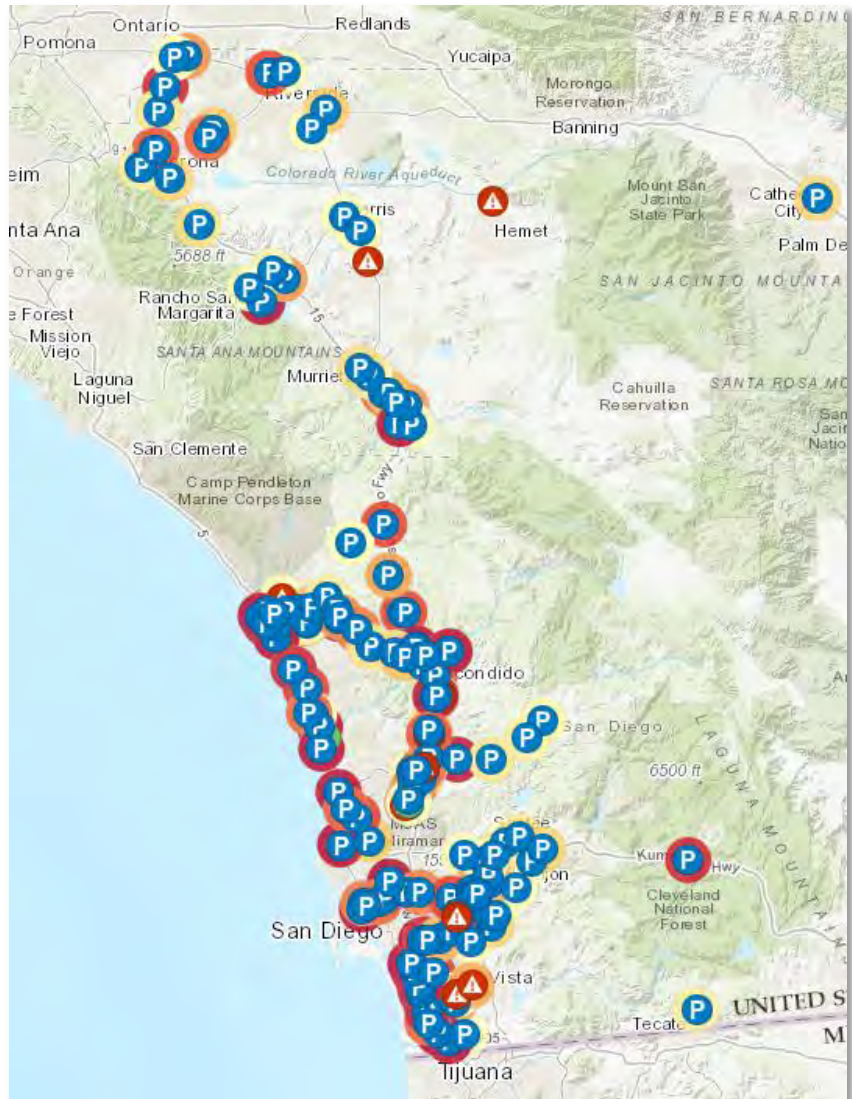
Accessibility

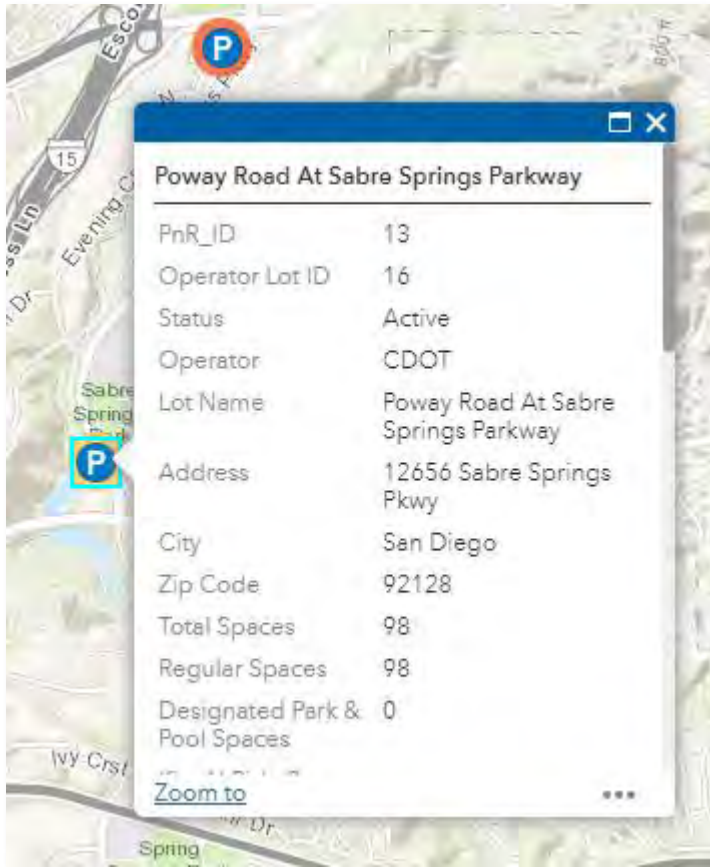
The Data Center is hosted by ArcGIS online. It can be accessed through a web browser or the ArcGIS Collector App on a mobile device. It requires minimal GIS acumen, although some familiarity with filtering and exporting tables is desirable. A cloud-based system facilitates knowledge sharing between agencies and with the public.

Visualizing Data

The Data Center visualizes the active, future, and inactive facilities in the regional Park & Ride network. These data points are accompanied by a host of layers to inform decision making, which will be described in depth later. The color behind each data point represents the last reported utilization and allows a user to quickly assess network health and corridor occupancy relationships. (yellow represents underutilized lots and the darkest red represents overutilized lots).

Symbology could be used to differentiate Park & Rides such as by operator, capacity, or service type; alternatively, users can establish quick-access filters such as "Only Show Active Lots" or "Only Show MTS Lots."





Comprehensive Site Information

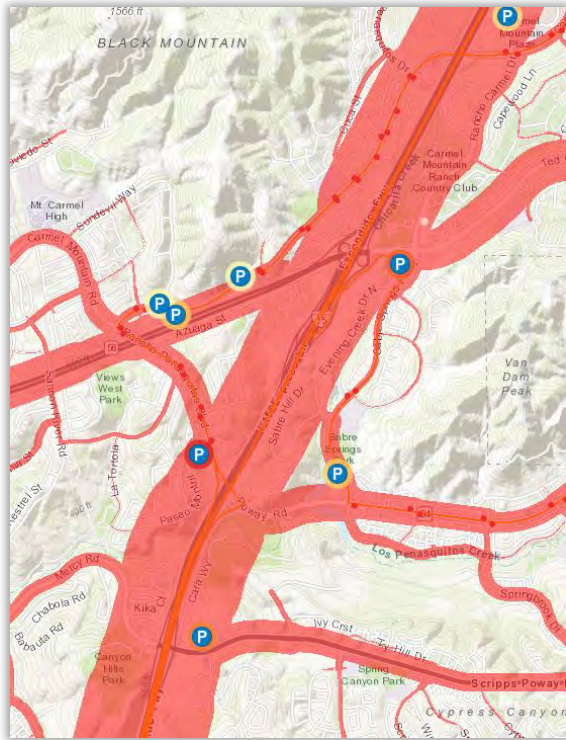
The Data Center consolidated data from several agencies and departments, creating a “one stop shop” that expedites information gathering and analysis.

The type and breadth of data stored is scalable and adaptable to a region’s needs; a public version of the tool with restricted information could be published as a commuter resource.

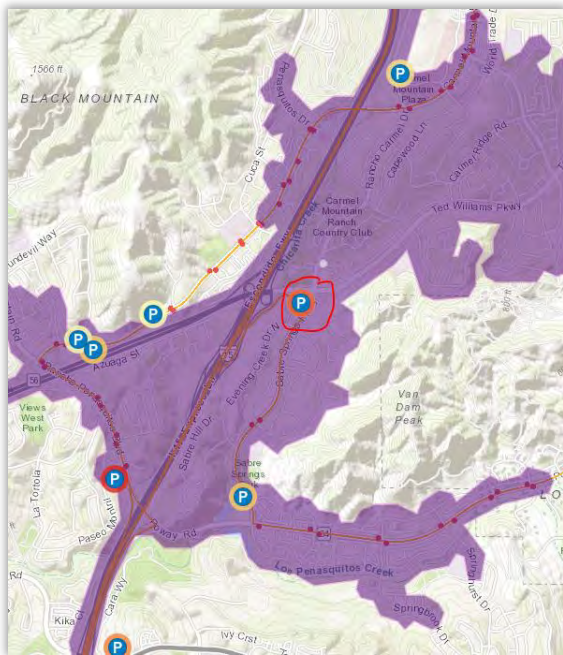
A user can quickly view and edit a single lot’s characteristics in a pop-up window (pictured) or in an attribute table similar to an online Excel spreadsheet. The project team identified over 20 lot attributes to collect and maintain such as the existence of bike lockers, the number and type of spaces provided, and administrative information such as lease costs and service hours. The currently collected attributes are listed below.

Park & Ride Attributes Collected Currently:

- Status
- Operator
- Lot Name, Address, City, Zip Code
- Total Spaces (regular, designated carpool/vanpool, Kiss N Ride, ADA)
- Service Type
- Owner Note (State, private, city)
- Shared or Exclusive
- Shared With (Church, Retail, etc)
- Lease (Y/N)
- Lease Cost (Per space)
- Parking Permit Required
- Posted Service Hours/Days
- Donation Center (Y/N)
- Lighting (Y/N)
- CCTV (Y/N)
- Food/Beverage Kiosk (Y/N)
- Trash Can (Y/N)
- Public Restroom (Y/N)
- Notes/Comments



This layer (above) shows peak AM hour congestion. Thicker lines equate to more congestion. Understanding which arterials and major roadways experience heavy traffic can help inform siting decisions.



Regional Visibility

The tool allows the user to access several layers to increase their understanding of local and regional contexts. This information can be instrumental for siting and forecasting decisions. A list of included layers is below.

- Existing transit service
- SANDAG Smart Growth
- Lot utilization (last count)
- SANDAG Land Use
- 5-,10-, and 15-minute drive time travel shed from each lot
- Largest employment center in San Diego region
- Major roadway peak hour congestion (this is a draft layer), but helps give quick visual context

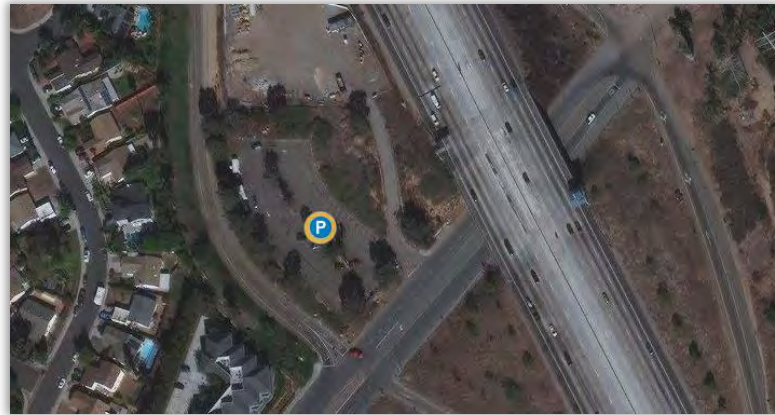
Given sustained funding, additional layers that could be developed and included:

- Peak-hour traffic conditions on major corridors and arterials
- Population density
- Location of Direct Access Ramps and High-Occupancy Vehicle lanes
- Location of Park & Ride wayfinding signs on freeways and local streets
- Electric Vehicle charging network
- IGR Projects to help provide context for potential development in the area of a new or existing Park & Ride
- Parcel data to show exact location of Park & Ride spaces (especially important for shared-use lots where spaces may not be marked clearly or individually at the site)
- Traffic Counts – Number of people who pass by the site every day (data to support an advertising public private partnership opportunity)

This layer (left) shows a 5-minute peak hour drive time catchment area from the circled lot. A travel shed, paired with assumptions about the distance people are willing to travel to a Park & Ride, can help inform siting decisions.

A Virtual Site Visit

Different basemaps, layers, and historic data can help a Park & Ride manager perform a virtual site visit to support siting decisions and operations strategies. Although in-person site visits are always recommended, satellite images can provide quick and basic insight such as a lot's visibility from the street and surrounding land use.



Collecting Data from the Field

By facilitating data collection from the field, the tool allows a user to see and share updates in real-time. The collection form can be customized to match region's field survey needs. In the future, smart systems like sensors or video analysis could feed into the Data Center to provide truly automated real-time system information. This would eliminate the extensive staff time spent visiting sites and performing counts in person in the region every year.

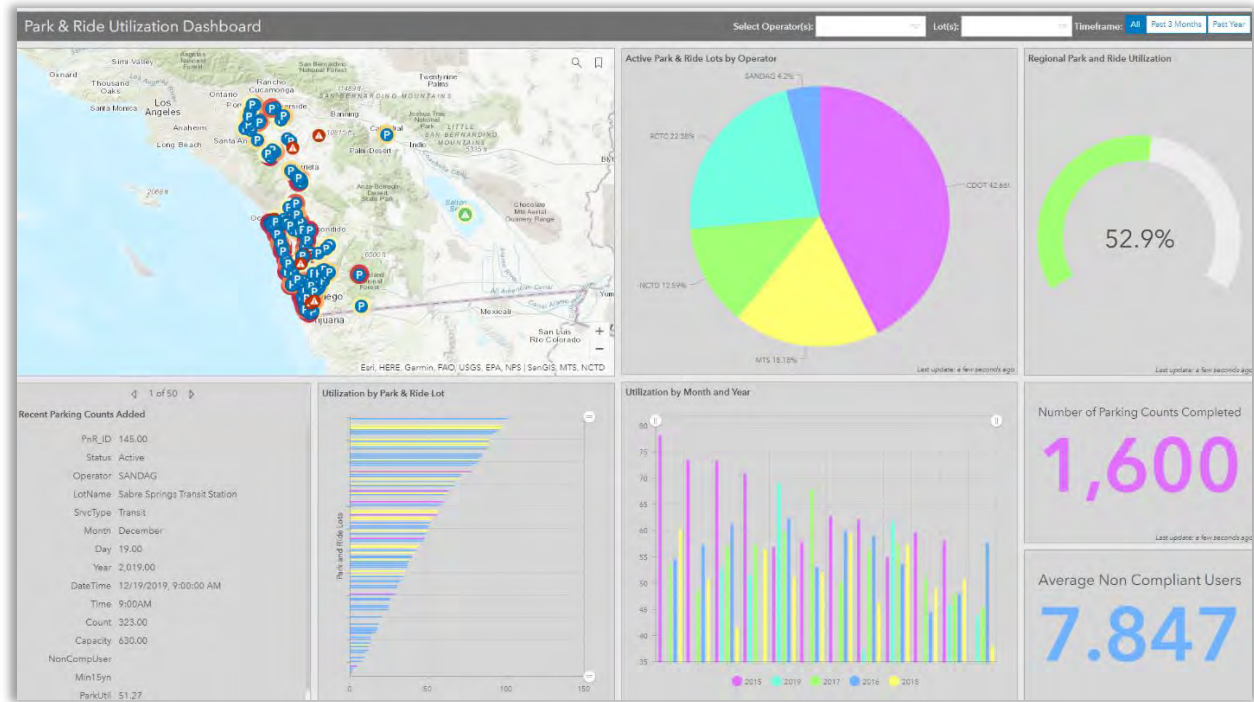
The Data Center currently allows pictures, counts of compliant and non-compliant users, and an option to include notes for things such as maintenance issues for review back in the office.

A screenshot of a mobile application's 'Edit Attributes' screen. The form has a blue header with a back arrow and the title 'Edit Attributes'. Below the header, there are several input fields: 'PnR_ID' with the value '3', 'DateTime', 'Count', 'Capacity', 'Non Compliant User', '15 Minute Count', 'Username', and 'Notes'. At the bottom, there is an 'Attachments' section with the text 'None' and a file upload area that says 'Add: Choose File No file chosen'.A screenshot of a mobile application's 'Park & Ride Counts' screen. It features a blue header with a back arrow and the title 'Park & Ride Counts'. Below the header is a list of 'Related records' with a dropdown arrow on the right. The list contains ten entries, each with a date and time followed by a right-pointing arrow: 3/1/2016, 9:00 AM; 4/1/2016, 9:00 AM; 5/1/2016, 9:00 AM; 6/1/2016, 9:00 AM; 7/1/2016, 9:00 AM; 8/1/2016, 9:00 AM; 9/1/2016, 9:00 AM; 10/1/2016, 9:00 AM; 3/1/2017, 9:00 AM; and 4/1/2017, 9:00 AM. A three-dot menu icon is visible at the bottom right of the list.

System Performance Monitoring

The ArcGIS Dashboard platform synthesizes Park & Ride Data Center inputs in real time, enabling regional system performance monitoring. A filter allows the user to view data by operator, lot, and/or timeframe.

The Dashboard can be customized to show dynamic charts, graphs, and maps. At this time, ArcGIS Online does not support exporting reports from the Dashboard, but this may be part of a future feature update. Table exports are enabled from the Data Center map itself.



Reporting

This Utilization Report can be accessed from the Data Center and exported into excel. The fields (Utilization by Year or Quarter) can be set up to fit an agency's reporting standards. Summary tables can help identify trends and outliers per site and across the region.

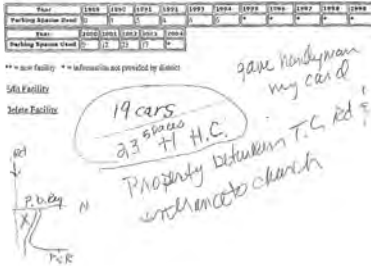
Name	Address	Owner	Spaces	Utilization Most Recent	Utilization Quarter (Past 3 months)	Utilization Year (Past 12 months)	Utilization 2018	Utilization 2017	Notes
Twin Peaks Road (St Gabriel Church)	13734 Twin Peaks Rd	PRIVATE	33	81.8	81.8	95.5	68.2	53.5	
Grossmont Blvd	5230 Bancroft Dr	STATE	29	86.2	86.2	93.1	77.6	83.9	

Part II

This poster was presented at the 2019 California Transportation Planning Conference (CTPC).

BACK TO THE FUTURE: Modernizing Park & Ride Management with GIS

Do you manage P&R by taking notes like this?



Or this?



Don't limit your potential. Go paperless with GIS!

- Make data more accessible
- Improve resource allocation
- Visualize and identify trends
- Reduce data entry errors

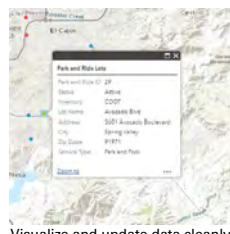
Paper? Where we're going we don't need paper.

Why GIS and not Excel?

Dynamic data:

can be viewed and updated from the field using the cloud

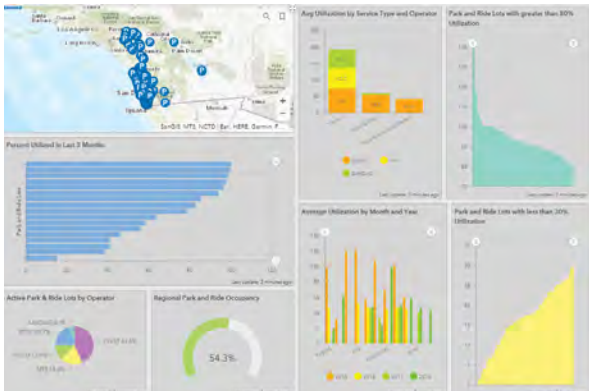
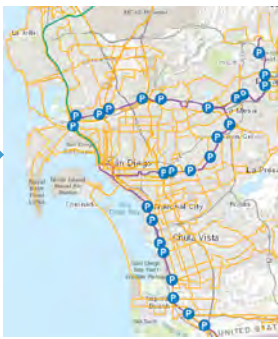
Name	Location	Description	Inventory Address	Station	City	Zip Code	Service Type
Active	London Transit Center	4th St	4th St	London	CA	94501	Transit
Active	San Jose	San Jose	San Jose	San Jose	CA	95128	Transit
Active	San Francisco	San Francisco	San Francisco	San Francisco	CA	94102	Transit



Visualize and update data cleanly for internal and public use

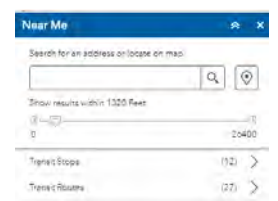
Provide better management tools

	Aug	Sept	Oct
Beyer Boulevard *	89%	90%	85%
Iris Avenue	80%	91%	92%
Palm Avenue	34%	36%	35%
Palmer Street	90%	71%	84%
11 Street	90%	86%	86%
Bayfront/11 Street	83%	87%	85%
24th Street	94%	100%	100%
8th Street	100%	99%	80%
47th Street	65%	73%	63%
Castell Avenue	67%	83%	82%
Encanto / 62nd Street *			
Massachusetts Avenue	45%	34%	40%
Spring Street	54%	44%	54%
Grossmont Center *	28%	51%	74%
Alameda Drive	87%	86%	86%
El Cajon	54%	37%	58%
Armede Avenue	50%	67%	35%
Gillespie Field	11%	10%	13%
Old Town Transit Center	94%	99%	83%
Morena	37%	51%	47%
Fashion Valley	62%	51%	61%
Granville	73%	62%	61%
70th Street	50%	42%	31%
	67%	64%	65%

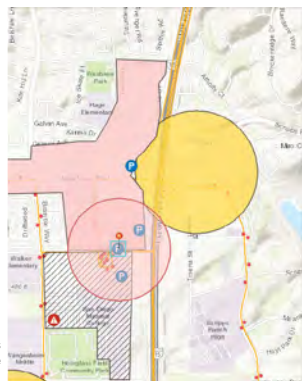


Spatial analysis:

supports siting, forecasting, and local and regional decision making



Layer complex data and analysis tools to gain a detailed perspective and drive improved decision making



By the numbers

111 active P&R lots in the San Diego region managed and operated by transit agencies, local jurisdictions, and state and regional agencies.

- 31 Park & Pool lots
- 50 Transit lots
- 30 lots serve both users

1,295 paper or Excel counts inputted and visualized in our beta GIS map

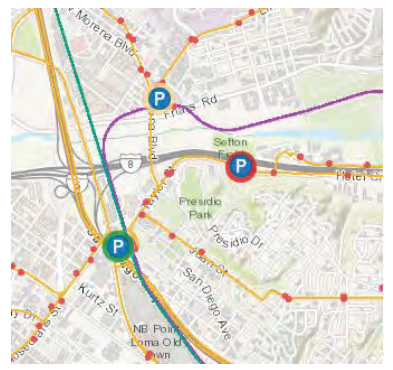
64% average utilization of P&R lots in the region in Fall 2018 (August - October)

9 lots consistently overutilized in Fall 2018 (average more than 80%)

23 lots consistently underutilized in 2018 (average less than 30%)

Features coming soon

- Automatic Quarterly Reporting
- Signage and Wayfinding Inventory
- Forecasting Analysis Tool
- Public Facing Version
- Security Trend Tracking



Beta testing ways to display quarterly utilization

Park & Ride Data provided by MTS, CALTRANS, SANDAG, RCTC, and NCTD
 Poster prepared by:
 Allison Woodworth, Transit Planning Intern (SANDAG)
 GIS support from Adam Attar, Associate Researcher & Modeler (SANDAG)
 Rachel Graffeo, Graphic Design Intern (SANDAG)

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APPENDIX J: HELPFUL LINKS

Helpful Links and Resources

There are a variety of useful resources to leverage when implementing Park & Ride strategies. The following links contain information related to previous agency plans/studies, transportation related data, policies, and existing programs.

511sd

- A service that consolidates regional transportation information and resources for San Diego
 - <https://511sd.com/>

Caltrans

- Statewide transportation resources
 - <https://dot.ca.gov/>
- Caltrans Park and Ride Program Resource Guide (2010)
 - <https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/f0019533-park-and-ride-program-resource-guide.pdf>

iCommute

- TDM for Local Governments
 - <https://icommutesd.com/planners/TDM-local-governments>
- TDM for Developers
 - <https://icommutesd.com/planners/TDM-developers>
- iCommute Mobility Management Toolbox
 - <https://icommutesd.com/planners/TDM-local-governments>

IE511

- A service that consolidates regional transportation information and resources for the Inland Empire
 - <https://www.ie511.org/>

MTS

- Transit information for central and southern San Diego County
 - <https://www.sdmts.com/>

NCTD

- Transit information for northern San Diego County
 - <https://www.gonctd.com/>

RCTC

- Transportation resources in Riverside County
 - <https://www.rctc.org/>

RTA

- Transit information for northern Riverside County
 - <https://www.riversidetransit.com/>

San Diego Forward

- SANDAG's Regional Transportation Plan and supporting resources
 - <https://sdforward.com/>

SANDAG Emerging Technologies White Paper (2018)

- Explores technology trends that have the potential to get more out of our existing infrastructure, improve safety, and provide more mobility choices that reduce greenhouse gas emissions such as shared mobility, electrification, connectivity, and automation.
 - <https://www.sdforward.com/mobility-planning/emerging-technologies>

SANDAG Regional Climate Action Planning Framework (ReCAP)

- Establishes a technical framework for regionally-consistent climate action planning that preserves local policy flexibility for the unique needs and circumstances of each local jurisdiction.
 - <https://www.sandag.org/index.asp?classid=17&subclassid=46&projectid=565&fuseaction=projects.detail>

SANDAG Regional Mobility Hub Strategy and Mobility Hub Features Catalog

- Demonstrates how transportation services, amenities, and supporting technologies can work together to make it easier for communities to access transit and other shared mobility choices.
 - <https://www.sdforward.com/mobility-planning/regionalmobilityhub>

SANDAG Regional Parking Management Toolbox

- Provides guidance on parking management using strategies, technologies, and best practices so that it benefits the economy as well as the overall transportation system.
 - <https://sdforward.com/mobility-planning/parking-toolbox>

SANDAG Smart Growth Tool Box

- Includes planning and financing tools to encourage smart growth development.
 - <https://www.sandag.org/index.asp?projectid=334&fuseaction=projects.detail>

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APPENDIX K: BASELINE INSTRUCTIONS

Baselining: GIS Instructions

This appendix is a detailed walk-through of the methodology outlined in the Guidance for New Site Analysis section of this report. Please note: although a reasonable estimating tool, baselining is a guideline and is limited by the accuracy of the data inputs. This tool does not replace a travel demand model, but rather provides managers and planners a method by which to efficiently estimate demand for Park & Ride within an area.

Process Summary

- Create a typology which summarizes the area of interest. Consider the following factors:
 - Community Context (density, land uses, distance from employment)
 - Proximity to Transit and Carpool/Vanpool supportive infrastructure (Direct Access Ramps, Express Lanes)
 - Transit Service Frequency and Type (Local, Express, Park & Pool, etc.)
 - Amenities
 - Proximity to other Park & Rides (are they sharing demand)
- Collect info for several analogous lots in selected Typology
 - Occupancy (# parked cars)
 - Population within Market Area (census data)
 - **Vehicles per Person (Occupancy / Pop in Market Area) = Ratio**
- Average Ratio for all selected lots to get **Baseline Ratio** for selected Typology
- Apply **Baseline Ratio** to a PROPOSED NEW SITE within defined typology to determine expected occupancy

Process for Calculating [Baseline Ratio]

Data/Layers Needed

- Population by Census Block Group
 - *Source: American Community Survey*
- Existing Park & Ride inventory
 - *M:\RES\DataSolutions\GIS\Projects\ParkandRide\Data\PnR_Backup.gdb*
- [Market Areas]
 - Based on distance from site/proposed site
 - [BUFFER] of [drive distance] for each [P&R Lot] typology
 - Urban (1-3 miles)
 - Suburban (3-5 miles)
 - Rural (5+ miles)

Process in ArcMap

Do this process separately for each Typology.

1. Import [CBG], [Market Areas], P&R Layer (points)
2. Adjust the Areas for Accuracy
 - i. Add field to [CBG] "CBG_Area"
 - Right click on header, use "Calculate Geometry" tool.
3. Clip the Population
 - i. Overlay [CBG] on [Market Area Buffer*]

- ii. [Clip] (mutually exclusive) [Market Areas] from [CBG]
 - To achieve mutually exclusive population, please execute the following:
 - IF [Market Areas] overlap:
 - Use [Thiessen Polygon Function](#) to determine accurate [CBG] population
 - Else:
 - Calculate [CBG] normally
 - iii. NOTE: *Only do analysis for the analogous lots & Market Areas
 - iv. Achieves: [Clipped_CBG]
3. GIS Analysis
- a. Calculate Geometry of [Clipped_CBG]
 - i. Add new (double) field in [Clipped_CBG] attribute table "A_Area"
 - i. Right click on header, use "Calculate Geometry" tool.
 - ii. NOTE: calculate same geometry as the units in "CBG_Area" (typically done in Square Meters)
 - b. Calculate **Overlap Ratio**
 - i. Add new (double) field in [Clipped_CBG] attribute table "Overlap"
 - ii. Use Field Calculator to divide: "A_Area" / "CBG_Area"
 - 2. NOTE: After clip, Result should be 1 or less than 1
 - c. Calculate **Adjusted Population** for [Clipped_CBG]
 - i. Add new (double) field "A_Pop" for adjusted population
 - 1. Right click field header and use the Field Calculator to multiply "Population" x "Overlap"
 - 2. Achieves final statistic "A_Pop"
4. **Sum adjusted population** of each block group for market area
- i. [SUM] clipped population (A_Pop) for all selected Market Areas - "Sum Population"

Create Average Baseline Ratio

- 5. Divide "Sum Population" by "Occupancy" for each sample Park & Ride within Typology. (Create **Baseline Ratio**)
- 6. Average **Baseline Ratio(s)** to create Baseline Ratio for Typology [**Baseline Ratio**]

Application: Sizing a Facility

- $[\text{Sum Population}^*] / [\text{Baseline Ratio}] = \text{Projected Site Occupancy}$
 - *Population of estimated new site facility

AGENDA ITEM 8

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Shirley Medina, Planning and Programming Director
SUBJECT:	Long Range Transportation Study

BUDGET AND IMPLEMENTATION COMMITTEE AND STAFF RECOMMENDATION:

This item is to receive and file the [Riverside County Long Range Transportation Study \(LRTS\)](#).

BACKGROUND INFORMATION:

At its January 2016 workshop, the Commission approved the Strategic Assessment and recommendations to pursue additional studies to develop a vision for the future of transportation in Riverside County — including the Next Generation Rail Study, Next Generation Toll Feasibility Study, and the development of a Countywide LRTS. In 2017, the Commission approved a contract with VRPA Technologies to prepare the LRTS, which would also serve as input to the Southern California Association of Government’s (SCAG) 2020 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), also referred to as Connect SoCal, scheduled to be adopted by SCAG in April 2020 and federally approved in June 2020.

The Riverside County LRTS effort provides data and analysis for the Commission to consider as it develops future transportation policies and strategies in addressing growth and demand on the multimodal transportation system over the next 25 years. The LRTS is the Commission’s first countywide transportation study and sets the stage for additional discussion and coordination with Riverside County jurisdictions, transit operators, Coachella Valley Association of Governments, Western Riverside Council of Governments, Caltrans, SCAG, and other transportation stakeholders. The study reviewed population and employment growth and its impact on the multimodal transportation system, planned projects included in the RTP/SCS, and anticipated available funding sources. The LRTS also incorporates the Commission’s adopted 2019-2029 Western Riverside County Highway Delivery plan approved in July 2019. The LRTS is itself not a policy document, but rather a collection of information and analysis that reflects the current and future state of transportation in Riverside County. It is also a snapshot in time; conditions are continually changing and elements of the study may require updating in the future.

Key LRTS discussion topics/chapters include:

- Chapter I. Introduction
- Chapter II. Delivering the Promise

- Chapter III. Riverside County Profile
- Chapter IV. Riverside County Today - Existing Conditions
- Chapter V. Riverside County in the Future – Multimodal Transportation System
- Chapter VI. Major Projects and Evaluation Assumptions and Methods
- Chapter VII. Funding of Roadway and Transit Capital Investment
- Chapter VIII. Financial Sources Analysis
- Chapter IX. Riverside County Congestion Management Program/Process
- Chapter X. Study Update Process

The LRTS findings primarily highlight the need for additional funding to implement planned projects for the multimodal system including strategies to reduce congestion. In order to accommodate the growth in population and employment, improvements are needed for all transportation modes in addition to programs that enhance ridesharing, increase rail and transit ridership, and promote active transportation. Building new highway capacity will be challenging as capacity enhancement projects face limited funding opportunities at the state level as competitive programs are geared toward reducing greenhouse gases (AB 32, SB 375) and vehicle miles traveled (SB 743). At the federal level, transportation funding is not expected to increase at levels needed to support transportation demand in Riverside County, and national grant funding opportunities are extremely competitive and do not award grants large enough to build the billions of dollars in capacity needs in Riverside County.

Per the LRTS financial analysis, the amount of funding needed to support projects over the next 25 years totals approximately \$10 billion for highways and arterials, and just over \$3 billion for transit capital for a total unfunded need of \$13 billion. Transit operating needs were not specifically examined; however, shortfalls in transit operating funds are expected to continue.

It should be noted that SCAG as the Metropolitan Planning Organization for Southern California is mandated to prepare a RTP/SCS in accordance with state and federal statutes. SCAG's Connect SoCal is a six-county regional transportation plan that addresses several requisite elements, such as air quality conformity, land use, multimodal performance measurement, and financial forecasting to name a few. The intention of the LRTS was not to address or duplicate those specific elements conducted by SCAG, as the focus and role of the Commission is to address transportation issues. In comparing the financial assumptions between the LRTS and SCAG's Draft Connect SoCal, the LRTS is conservative and based on current known funding sources. SCAG's financial forecast assumed new funding programs, such as a mileage-based road charge fee and a federal gasoline tax increase.

The LRTS will be a living document and updated periodically; it has no current fiscal impact. Future updates to the LRTS may be initiated by several activities including, but not limited to, new legislative requirements; policies; planning studies; funding changes; and population, housing, employment growth forecasts.

AGENDA ITEM 9

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Shirley Medina, Planning and Programming Director
SUBJECT:	County of Riverside Request for Additional Funds for the Salt Creek Trail

BUDGET AND IMPLEMENTATION COMMITTEE AND STAFF RECOMMENDATION:

This item is to receive and file information about the County of Riverside’s request for additional funds for the Salt Creek Trail.

BACKGROUND INFORMATION:

In 2014, the Commission approved the Multifunding Call for Projects consisting of federal CMAQ, Surface Transportation Block Grant (STBG), and 2009 Measure A Western County Regional Arterial funds. The Salt Creek Trail project was approved for \$5,090,000 of CMAQ funds to construct a 4-mile segment in the city of Menifee and a 1-mile segment in the city of Hemet. A Class I bike path and a soft pedestrian path will be constructed along the north side of the Salt Creek flood control channel and along Domenigoni Parkway (Attachment 1).

The County of Riverside (County) is the lead agency for the project, which has gone through a lengthy and complex environmental process through the National Environmental Protection Act. The project is located within a major creek requiring extensive biological and cultural studies. The project was originally an 8-mile segment; however, a decision to remove a 3-mile segment was necessary as it would have significantly increased costs for habitat restoration.

Coordination efforts with private and public property owners including Riverside County Flood Control & Water Conservation District, Caltrans, and the cities of Hemet and Menifee were also undertaken. Approval of design review, maintenance agreements, and permits were required by each of these agencies. In addition, reviews were required by Caltrans Headquarters and the Federal Highway Administration as the trail crosses under Interstate 215 necessitating an encroachment permit exception. The County also worked on securing a public trail easement as a gift with no cost to the County.

The County recently opened bids on the project, which came in higher than the engineer’s estimate. The low bid for the project was \$3,849,275. Adding in 10 percent contingency and non-bid items, the total cost of construction is \$5,684,203, as summarized in the table below. The County anticipates awarding the contract in December 2019; however, the total project cost exceeds the CMAQ funding previously approved by \$594,203.

Construction Costs for Salt Creek Trail Project

Construction Contract	\$ 3,849,275
10% Contingency	384,928
Agency Furnished Material	720,000
Construction Management	730,000
Total Construction	<u>5,684,203</u>
CMAQ Funding Approved	<u>(5,090,000)</u>
Funding Shortfall	<u>\$ 594,203</u>

The Salt Creek Trail is an important regional active transportation project and will benefit the cities of Hemet and Menifee and nearby communities. This regional trail will provide greenhouse gas and public health benefits. The ultimate length of the trail is planned to be 16 miles, and this first segment will serve as a catalyst for future extensions.

Staff recommends increasing CMAQ funds for this project bringing the total of CMAQ funding for the Salt Creek Trail to \$5,684,203. Currently, there are sufficient CMAQ funds to cover the \$594,203 shortfall without impacting other approved CMAQ projects.




Federal CMAQ funds are administered through Caltrans. Therefore, there is no fiscal impact to the Commission's budget.

Attachment: Salt Creek Trail Map

16 MILE SALT CREEK TRAIL



LEGEND

-  **Current Project - environmental document and construction limits**
-  **Current Project - environmental document only**
-  **Future Project**

AGENDA ITEM 10

A presentation will be made but there is no attachment to the agenda for item 10.

AGENDA ITEM 11

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Jillian Guizado, Planning and Programming Manager
SUBJECT:	Status of SAFE Vehicles Rule

STAFF RECOMMENDATION:

This item is to receive and file an update on the status of the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule.

BACKGROUND INFORMATION:

On August 24, 2018, the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) issued a joint proposed rule, "The Safer Affordable Fuel Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks." Part one of the SAFE Vehicles Rule, as it is referred to, became effective on November 26, 2019 and eliminated California's waiver to set its own greenhouse gas emissions reductions standards and zero-emission vehicle implementation targets. It is anticipated that part two of the SAFE Vehicles Rule will freeze fuel economy standards for new cars at 2020 levels through model year 2026 rather than continuing the proposed annual increases as originally established under the Obama administration. NHTSA and EPA contend higher fuel economy standards have diminishing returns, unnecessarily increasing the cost of vehicles.

As applicable to the Commission, the Southern California Association of Governments (SCAG) region, and the entire state of California, the SAFE Vehicles Rule rescinded California's ability to set its own more stringent fuel standards. The Clean Air Act generally preempts the state regulation of motor vehicles, but given California's unique air quality challenges, the state had been granted a preemption waiver since 1967. The SAFE Vehicles Rule argued the waiver should not be allowed because the higher fuel economy standards push the rest of the country to adopt standards above and beyond what is required by federal law. California can no longer enforce its more stringent vehicle emissions standards, which challenges the state's ability to achieve federal air quality standards, state greenhouse gas emission reduction requirements, and zero-emission vehicle targets.

DISCUSSION:

Because California no longer has preemption, the air quality emissions model used by SACG, which is developed by the California Air Resources Board (CARB), is now invalid. CARB has since issued model adjustment factors using the new lower emissions standards. SCAG is in the process of running its model using the adjustment factors to determine how well the SCAG region is now meeting conformity.

The Federal Highway Administration (FHWA) is waiting on EPA to issue guidance on implementing the SAFE Vehicles Rule with an unknown date of issuance. It is still believed that the Commission will not be able to amend the Federal Transportation Improvement Program (FTIP) to make changes to projects involving changes to scope or schedule. Without the ability to amend the FTIP, which is necessary to do frequently as projects evolve, the Commission and local agencies may be challenged to deliver many of their projects.

The California Association of Councils of Governments (CALCOG), of which the Commission is a member, is heavily engaged with state and federal agencies and stakeholders regarding the SAFE Vehicles Rule. The latest update from CALCOG is attached. Staff continues to be engaged on this matter with CALCOG and other Regional Transportation Planning Agencies throughout the state.

Attachments:

- 1) CALCOG Proposed Safe Vehicles Rule Update – October 2019
- 2) Riverside County Projects Potentially Impacted by SAFE Vehicles Rule



SAFE VEHICLES RULE UPDATE

OCTOBER 2019

U.S. EPA Threatens Highway Sanctions.

In September, CALCOG reported that Trump administration officials threatened to withhold federal highway funds from California, arguing that California failed to show what steps it is taking to improve its air quality. EPA's [letter](#) suggests the state "has failed to carry out its most basic tasks under the Clean Air Act," and needs to either update its plans [SIPs] to tackle air pollution or risk losing federal highway funds. At the time, EPA requested a response from the California Air Resources Board (CARB) by October 10, 2019 indicating whether CARB intends to withdraw the SIPs in question.

On October 9th CARB provided its [response](#). CARB highlights it has been working with U.S. EPA to clear the SIP backlog since 2014. Since 2014, CARB, EPA, and local air districts have cleared over 200 SIPs from the backlog; however, many of the SIPs that remain in the backlog are awaiting approval from Regional U.S. EPA staff. The issue (partially) - U.S. EPA staff shortages, competing federal administrative priorities, and a lack of clear guidelines from U.S. EPA headquarters in D.C.

CARB's preliminary review of the SIP backlog suggest CARB has already provided needed information to U.S. EPA for two-thirds of the outstanding SIPs. These SIPs are merely awaiting U.S. EPA approval. Less than 20 items require additional action by CARB or local air districts before U.S. EPA can act. That work is already underway but requires clear and consistent guidelines from U.S. EPA. Finally, about two dozen SIPs are candidates for withdrawal.

Which Nonattainment Areas have SIPs on the SIP Backlog?

- Coachella Valley
- Mono Basin
- Mojave Desert
- Ventura County
- San Diego County
- South Coast
- East Kern
- Sacramento Region

What Does This Mean for Transportation?

EPA's letter requests CARB withdraw un-approvable SIPs by October 10, 2019, if CARB does not, U.S. EPA will begin the SIP disapproval process. If implemented, the disapproval process would trigger statutory clocks for sanctions, including highway sanctions after 24 months. Additional information on highway sanctions can be found [here](#).

As laid out in CARB's October 9th response to EPA's threat of Highway Sanctions, an action plan to address the SIP backlog has been established. Additional information on the status of this issue will be provided as necessary.



CALCOG

GM, Toyota, Chrysler and Others Side with Trump in Clean Air Fight Against California.

On October 29th, General Motors, Toyota, Fiat Chrysler, Nissan, Hyundai, Kia, Isuzu, Maserati, McLaren, Aston-Martin, Ferrari, and two other smaller automakers sided with the Trump administration in the president's efforts to end California's ability to regulate tailpipe emissions through the SAFE Vehicles Rule Part 1. CARB, until this announcement, worked in hopes of striking additional deals like the [emissions reduction deal](#) struck with Ford, Honda, BMW, and Volkswagen in July 2019 with additional automakers. This action splits the auto industry (four support California, thirteen support the Trump administration). In response, CARB Chair Mary Nichols stated, "We are disappointed in the Association of Global Automakers for hiding behind the Trump administration's skirts and its assault on public health." With this announcement, the assumption is Part 2 of the rule (anticipated by the end of 2019) may be more favorable to the needs of this block of automakers. Stay tuned...

Federal Court Dismisses California Case Challenging Trump Car Emissions Rules, Or Did They?

On October 25th, headlines read, "Federal court dismisses California case challenging Trump car emissions rules". On the surface, this seems to indicate the California Air Resources Board's (CARB) case against the final SAFE Rule Part One was thrown out. That is not the case. CARB has filed numerous lawsuits throughout the development of the SAFE Rule. This suit was filed prior to the rule's finalization (September 19, 2019) and should not be confused with CARB's active litigation filed September 20th. That litigation is ongoing, and can be found [here](#). Additional litigation is anticipated to be filed by CARB against the finalization of SAFE Rule Part 2.

FHWA Speaks, What Did They Say?

At an October 2019 meeting of regional transportation agencies, FHWA stated they have received a lot of questions. The U.S. Environmental Protection Agency (EPA) and the National Highway Transportation Safety Administration (NHTSA) have not yet come together to provide guidance on how to address Part 1. FHWA is not prepared to answer questions right now and asked for patience. FHWA is still not clear on how to implement the final rule, but encourages amendments be processed prior to the November 26th effective date. Current approved projects can move forward if they remain consistent (scope and schedule) with the TIP and RTP. Complications could arise for existing projects which changed scope or new projects that need to be modeled with EMFAC. Currently, FHWA is approving amendments that are using EMFAC 2014 and 2017 to complete the transportation conformity process.

CARB Announces Interagency Workgroup (CARB, CalSTA, and Caltrans).

CARB has established an Interagency working group with CalSTA and Caltrans. The workgroup is exploring conformity issues in the near-term and considering ways to address them quickly. This work is anticipated to take months, not years to complete. A map of the scale of the impacts will be developed in order to prepare an appropriate policy response.

CALCOG Website Provides Continuous Updates.

Please visit the CALCOG Policy Tracker (www.calcog.org/policytracker) for up to date information regarding the status of the SAFE Vehicles Rule (Part 1 and Part 2).

Riverside County Projects Potentially Impacted by SAFE Vehicles Rule

2019 FTIP Projects: Federal Action Anticipated in Next 3 Years (NEPA Approval/Revalidation, PS&E Cert)

Below projects are **not** impacted **unless** requires modeling for conformity purposes after November 26, 2019

Lead Agency	Project Description	Total Project Cost \$(000's)	Comments
Beaumont	SR-60/Potrero Interchange Ph 2	45,000	NEPA Reval Jan 2020, PS&E Comp Mar 2020
Beaumont	I-10/Oak Valley Parkway Interchange	47,500	NEPA & PS&E mid 2021
Beaumont	California Ave Grade Separation	36,000	NEPA & PS&E mid 2021
Calimesa	County Line Road Widening	2,366	NEPA Comp, CEQA in process
Coachella	SR-86/Ave 50 New Interchange	32,160	NEPA Comp May 2019
Coachella	I-10/Ave 50 New Interchange	61,201	PS&E Comp Jan 2020
Coachella	Dillon Rd Widening, Including Reconst Bridge Over CVSC	45,300	NEPA Comp Jun 2021
Coachella	Ave 50 Bridge Over Coachella Stormwater Channel	29,915	NEPA Comp May 2019
Corona	Magnolia Ave Bridge Over Temescal Channel	?	NEPA Comp Jan 2021
Indio	I-10/Jackson St Interchange	85,000	NEPA Comp Jun 2020
Indio	I-10/Monroe St Interchange	85,000	NEPA Comp Jun 2020
La Quinta	Avenue 50 Widening, Low Water Bridge Crossing	15,224	NEPA Comp Jun 2021, PS&E Dec 2023
Lake Elsinore	I-15/SR-74 Interchange Improvement	58,250	NEPA Comp Dec 2020
Moreno Valley	I-215/Cactus Ave Interchange	65,370	NEPA Comp Jun 2022
Moreno Valley	SR-60/Redlands Blvd Widen Overcrossing	52,000	NEPA Comp Jun 2022
Moreno Valley	SR-60/World Logistics Center Pkwy IC	96,613	NEPA Comp Jun 2020
Murrieta	I-215/Keller road Interchange	31,700	NEPA Comp Aug 2020
Palm Springs	Indian Canyon Bridge UPRR OC to Garnet	23,984	NEPA Comp, PS&E Comp Apr 2020
Temecula	Murrieta Creek Bridge Low Water Crossing, 2 to 4 lanes	9,270	NEPA Comp Jun 2020, PS&E Oct 2021
Temecula	I-15/French Valley Interchange Ph 2	100,000	NEPA Reval Comp Jul 2020, PS&E Comp Aug 2020
Riverside	SR-91/Adams Street Interchange	112,800	NEPA Comp Apr 2022, PS&E Comp Dec 2023
Riverside County	I-10 Bypass	100,000	NEPA Comp Feb 2020
Riverside County	Cajalco Road Widening	532,391	NEPA Comp 2022, PS&E Comp 2023
Riverside County	Ave 56/Airport Dr Replace Bridge	15,755	NEPA Comp Nov 2022, PS&E Comp 2023
Riverside County	Hamner Bridge	65,000	NEPA Comp, PS&E Comp Feb 2020
RCTC	I-15/SR-91 Direct Connector	180,000	NEPA Comp, Design-Build
RCTC	SR-91 COP	41,800	NEPA Reval Comp Mar 2020, PS&E Comp Jun 2020
		\$ 1,969,599	

Red = NEPA Not Cleared, Potential Impact in 2020

Orange = NEPA Not Cleared, Potential Impact in 2021

Yellow = NEPA Not Cleared, Potential Impact in 2022

Blue = NEPA Cleared but PS&E Not Cleared, Potential Impact Not Known Yet for PS&E

AGENDA ITEM 12

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Jillian Guizado, Planning and Programming Manager
SUBJECT:	Senate Bill 1 (2017) Programs Update

STAFF RECOMMENDATION:

This item is to receive and file an update on Senate Bill 1 (2017) programs.

BACKGROUND INFORMATION:

In April 2017, the California State Legislature and then-Governor Jerry Brown passed Senate Bill (SB) 1 (Statutes of 2017), a \$5.2 billion annual transportation funding bill for the state of California. The primary intent behind SB 1 was to be a fix-it-first measure which infused nearly half of all annual revenues into state facilities. Several other portions of SB 1 are administered by the California Transportation Commission (CTC) and are competitively awarded. Competitive programs created and/or funded by SB 1 include:

- Transit and Intercity Rail Capital Program (TIRCP);
- Active Transportation Program (ATP);
- Solutions for Congested Corridors Program (SCCP);
- Local Partnership Program (LPP); and
- Trade Corridors Enhancement Program (TCEP).

Each competitive program goes through a regular guidelines development and adoption process ultimately resulting in competitive calls for projects.

Additionally, in the spirit of SB 1's fix-it-first approach, formula allocations to cities and counties for Local Streets and Roads increased by well-over 50 percent. Transit received a sizeable increase in formula State Transit Assistance funds and also benefit from a new transit program: State Transit Assistance State of Good Repair.

DISCUSSION:

The CTC is currently in the guidelines development process for the ATP, SCCP, LPP, and TCEP competitive programs (TIRCP is administered by Caltrans and the call for projects is currently open). Attachment 1 is a summary of the five programs with tentative dates, eligible applicant and project information, and programming years and funding amounts. Riverside County cities and the county are eligible to pursue ATP, LPP competitive, and TCEP funds. Applications for projects on the state highway system require communication and cooperation with Caltrans. Attachment 2 are the current estimates for Local Streets and Roads funds cities and the County receive by formula from SB 1, as well as

estimates for the pre-existing Local Streets and Roads program funded by the Highway Users Tax Account.

Attachments:

- 1) Senate Bill 1 (2017) Upcoming Competitive Programs for 2020
- 2) Senate Bill 1 (2017) FY 19/20 Estimated Local Streets and Roads Funding

Senate Bill 1 (2017) Upcoming Competitive Programs for 2020

Competitive Grant Funding Opportunity	Draft Guidelines Release	Guidelines Adopted	Applications Due	Recommendations	Awards Made	Eligible Applicants	Eligible Projects
Transit and Intercity Rail Capital Program (TIRCP) FY 2020-21 through 2024-25 \$450-500 million	September 13, 2019	October 18, 2019	January 16, 2020	N/A	April 1, 2020	Public agencies, including JPAs, that operate or have planning responsibility for existing or planned regularly scheduled intercity or commuter passenger rail service, urban rail transit service, or bus or ferry transit service.	Rail capital and rail cars Projects to increase service, reliability Rail/bus integration BRT
Active Transportation Program (ATP) FY 2021-22 through 2024-25 \$445 million	January 29, 2020	March 25, 2020	June 2020	October 31, 2020	December 2, 2020	Local, regional, and state agencies; Caltrans; transit agencies; natural resources or public land agencies (including federal, tribal, state, or local); public schools/districts; tribal governments; private non-profits; other entities with oversight responsibility of transportation or recreational trails.	Infrastructure Plans Non-infrastructure
Solutions for Congested Corridors Program (SCCP) FY 2021-22 through 2022-23 (maybe more) \$500 million (or more)	December 4, 2019	January 29, 2020	June 1, 2020	September 15, 2020	October 14, 2020	RTPAs or CTCs or another authority responsible for preparing a regional transportation improvement plan.	Managed lanes Transit infrastructure Rail infrastructure Transit hubs and adjacent roads Purchase of buses, rail cars Ops improvements: IC/ramp mods; aux lanes LSR gap closures Safety improvements Environmental mitigation ITS AV infrastructure TMS, TDM Bike/ped facilities
Local Partnership Program (LPP) competitive FY 2020-21 through 2022-23 \$ TBD	January 29, 2020	March 25, 2020	May 18, 2020	September 15, 2020	October 14, 2020	Taxing authorities with voter-approved taxes, tolls, fees, imposed fees (including uniform developer fees) dedicated to transportation improvements. Taxing authorities with imposed fees are only eligible for the competitive program.	<u>Highways</u> Major rehab; increased capacity; safety/ops; soundwalls <u>Transit</u> facilities; purchase buses; rehab maintenance facilities, transit stations <u>LSR</u> major rehab; increased capacity; safety/ops <u>ATP</u> <u>Mitigation</u> air quality; water quality; environmental
Trade Corridors Enhancement Program (TCEP) FY 2020-21 through 2022-23 \$1.3 billion (state and federal)	January 29, 2020	March 25, 2020	June 15, 2020	September 15, 2020	October 14, 2020	Local, regional, and public agencies (such as: cities, counties MPOs, RTPAs, port authorities, public construction authorities, and Caltrans).	Consistent with CA Freight Mobility Plan Highway improvements for freight mvmt Freight rail improvements enhancing goods mvmt, incl grade seps Port capacity/efficiency Truck corridor improvements Border access to enhance goods mvmt LSR improvements for goods mvmt Rail to facilitate intermodal access ITS to improve freight flow Environmental mitigation

Senate Bill 1 (2017)

FY 19/20 Estimated Local Streets and Roads Funding

	FY 2019/20 (HUTA)	FY 2019/20 SB 1 Funding*** (estimated 5/13/19)
Banning	\$ 788,107	\$ 549,393
Beaumont	\$ 1,209,411	\$ 847,166
Blythe	\$ 527,068	\$ 365,600
Calimesa	\$ 227,354	\$ 155,886
Canyon Lake	\$ 281,579	\$ 193,505
Cathedral City	\$ 1,373,767	\$ 962,272
Coachella	\$ 1,144,755	\$ 801,469
Corona	\$ 4,203,588	\$ 2,960,596
Desert Hot Springs	\$ 749,840	\$ 522,346
Eastvale	\$ 1,623,841	\$ 1,139,021
Hemet	\$ 2,078,839	\$ 1,460,610
Indian Wells	\$ 145,305	\$ 97,894
Indio	\$ 2,196,049	\$ 1,543,453
Jurupa Valley	\$ 2,650,069	\$ 1,862,583
La Quinta	\$ 1,034,652	\$ 723,649
Lake Elsinore	\$ 1,586,817	\$ 1,112,853
Menifee	\$ 2,295,915	\$ 1,614,036
Moreno Valley	\$ 5,174,041	\$ 3,646,502
Murrieta	\$ 2,836,108	\$ 1,994,074
Norco	\$ 683,271	\$ 475,296
Palm Desert	\$ 1,323,523	\$ 926,760
Palm Springs	\$ 1,196,216	\$ 837,840
Perris	\$ 1,946,422	\$ 1,367,019
Rancho Mirage	\$ 474,409	\$ 329,088
Riverside	\$ 8,111,889	\$ 5,722,944
San Jacinto	\$ 1,207,149	\$ 845,568
Temecula	\$ 2,827,163	\$ 1,987,751
Wildomar	\$ 912,473	\$ 637,294
TOTAL	\$ 50,809,620	\$ 35,682,468
County of Riverside	\$ 46,567,476	\$ 30,825,273
*** http://www.californiacityfinance.com/LSR1905.pdf		
Indicates a Coachella Valley City		

AGENDA ITEM 13

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Jenny Chan, Management Analyst
SUBJECT:	Obligation Delivery Plan Update – FFY 2019/20

STAFF RECOMMENDATION:

This item is to receive and file an update on the Federal Fiscal Year 2019/20 Obligation Delivery Plan.

BACKGROUND INFORMATION:

As the Regional Transportation Planning Agency (RTPA), the Commission is responsible for ensuring that federal Congestion Mitigation and Air Quality (CMAQ) and Surface Transportation Block Grant (STBG) funds apportioned to Riverside County are obligated in a timely manner to prevent funds from lapsing. Federal Obligation Authority (OA) for the region is provided on an annual basis and has to be used in the Federal Fiscal Year (FFY) it is provided. The Commission's goal is to ensure that 100 percent of its OA is obligated.

Commission staff work closely with our local agencies and the California Department of Transportation (Caltrans) to ensure projects on the Obligation Delivery Plan are obligated and delivered. Many of these projects are from the 2013 Multi-Funding Call for Projects, 2013 Regional Surface Transportation Program (RSTP, also known as STBG) Call for Projects, Coachella Valley Association of Governments' 2014 CMAQ Call for Projects, and various other projects that have been awarded CMAQ or STBG funds by the Commission. The attached obligation plan provides an outline of the projects that have CMAQ or STBG programmed in FFY 2019/20. The information provided in the attached obligation plan comes from milestone updates received from agencies, discussions with project sponsors, and our monthly meetings with Caltrans Local Assistance. It is recommended local agencies begin the federal-aid process as soon as possible to secure timely obligation of federal funds. If a local agency anticipates a delay in obligating these funds, please provide Commission staff a project status update. Commission staff is available to assist cities with the processing of Request for Authorization (RFA) submittals and the overall navigation through the federal-aid process.

Attachment: Draft FFY 2019/20 Obligation Plan

DEC 2019 TAC - DRAFT 19/20 OBLIGATION PLAN

Agency	FTIP ID	FPN	Project Location	CMAQ 19/20	STPL 19/20	PA&ED	R/W	Status
						Completion Date	Clearance Completion Date	
CVAG	RIV140820A		Signal Synch Phase II	\$ 567,000				
Rancho Mirage	RIV140815		Ramon Rd & Dinah Shore Dr	\$ 31,000		1/23/2019	5/1/2020	
Moreno Valley			ITS & CCTV <i>Post Programming</i>	\$ 107,000		N/A	N/A	HQ Review
RCTC	RIV031218B		MCP Phase II		\$ 4,169			
RCTC	RIV151221	HP21STPL-6054(082)	Pachappa Underpass (SR91 HOV Remnant Work) <i>AC Conversion</i>		\$ 10,744,000	6/29/2016		Distric Review
Riverside County	RIV071288	5956(221)	Ave 66 Grade Separation <i>AC Conversion</i>	-	\$ 12,110,000	N/A	7/3/2019	Obligated
Riverside	RIV151216	STPL 5058(102)	Magnolia Ave from Buchanan to Banbury (Widening 4 -6 Ins) <i>AC Conversion</i>		\$ 2,620,000	1/25/2018	6/6/2018	Distric Review
Riverside County	RIV151210	CML 5956(241)	Salt Creek Multi-Modal Trail <i>Post Programming</i>	\$ 595,000		10/20/2017		

DRAFT Obligation \$ 1,300,000 \$ 25,478,169

AGENDA ITEM 14

Training Opportunities

TRAINING AVAILABILITY

Register @ <http://californialtap.org/index.cfm?pid=1077>

Highway Program Funding

Jan. 29-30, 2020 @ CSUS- CCE

This instructor-led training provides an overview of the Federal-aid Highway Program, focusing on various aspects of highway program funding unique to the Federal Highway Administration (FHWA). Topics include: the operation of the Highway Trust Fund and its significance to the funding level of the Federal-aid Highway Program; the content and policy implications of authorizing and appropriating legislation; the FHWA apportionment process; obligation limitation, allocations, deductions, earmarking, and transferability; and the effect of policy and budget considerations on the use of Federal-aid funds.

Local Road Safety Plan: In-Person Training

Feb. 12, 2020 @ Camarillo Public Library

This in person training will focus on the development process and a resulting plan and show how the plan can vary depending on the local agency's needs, available resources, and targeted crash types. Identifying stakeholder engagement, collaboration among municipal, Tribal, State and/or Federal entities, implementation and varied funding sources.

Resident Engineers Academy

Apr. 28 – May 1, 2020 @ Marysville

Jun. 2 – 5, 2020 @ Sac State University Alumni Center

The Resident Engineers Academy provides core training in state and federal regulations for Local Agency Resident Engineers. The Academy, partially subsidized by Caltrans, is ideal for both seasoned and newly-hired Resident Engineers.

No-Cost Training for Local and Tribal Agencies

Local practitioners everywhere will have access to 120 training modules in construction, maintenance and materials – online, anytime. Courses provided by TC3 are developed through a collaboration of national best practices and a network of knowledgeable subject matter experts.

For more information, visit: <http://californialtap.org/index.cfm?pid=1093&aid=286>

Berkeley's Tech Transfer Program

Additional Caltrans-subsidized trainings are available through UC Berkeley's Technology Transfer Program at <http://www.techtransfer.berkeley.edu/schedule>.



Reminders

Caltrans Oversight Information Notice (COIN)

<https://dot.ca.gov/programs/local-assistance/guidelines-and-procedures/division-of-local-assistance-office-bulletins-dla-obs>

Division of Local Assistance Office Bulletins (DLA-OBs)

<https://dot.ca.gov/programs/local-assistance/guidelines-and-procedures/division-of-local-assistance-office-bulletins-dla-obs>

Plans, Specification, and Estimate DSA Review

COIN #19-02

Local Agencies need to forward Active Transportation Program (ATP) "Safe Routes to School" (SRTS) projects funded by SB-1 to the DSA for review. This requirement applies only to SRTS projects and does not apply to SB-1 transportation infrastructure improvement projects mandated under the Road Repair and Accountability Act of 2017 for review.

*DSA reviews should be completed and on file prior to advertisement. The DSA review is independent of the allocation submittal process, however, **the local agencies are responsible for meeting all state requirements, and the State Architect review applies as well.***

Project Delivery Requirements

COIN #19-01

Senate Bill 1 (SB1) is resulting in higher levels of State funds being available to deliver transportation projects. Accordingly, local agencies / MPOs are programming and funding projects in strategic ways to leverage these State funds in combination with available Federal funds.

COIN #19-01 clarifies some project delivery requirements triggered using Federal vs. non-Federal (State or local) funds for various project phases. This COIN provides five principles that summaries which project delivery requirements apply to various funding scenarios.

Indirect Cost Allocation Plan/Indirect Cost Rate Proposal Submission

COIN #18-01

LGA must submit the proposed rate or rates to Caltrans Independent Office of Audits and Investigations (IOAI) prior to invoicing for indirect costs. IOAI will then perform a high-level review to determine whether the ICAP/ICRP complies with the applicable cost principles. If it is determined that the LGA rate(s) do comply with applicable cost principles IOAI will send the rate acceptance letter to the LGA. The rate acceptance letter must be received by the LGA prior to the LGA billing for indirect costs. These reviews are subject to an audit at a later date. If the LGA decides to invoice for another ICAP/ICRP for the following fiscal year (FY), it must be noted that LGA must submit ICAP/ICRPs certification within six months after the close of the LGA's FY per 2 CFR 200 Appendix VII D 1 d. Submission of Indirect Cost Rate Proposals. Not complying with the above procedures may result in unreimbursed indirect costs.



Local Agency Invoicing

DLA-OB #19-05

Local agencies may submit monthly invoices for reimbursement of participating costs (costs eligible for state and/or federal reimbursement) to the appropriate District. Local agencies prepare an invoice using Local Agency Invoice form, LAPM 5-A, and applicable supporting documents as determined by inputs on the form. Applicable supporting documentation from local agencies is listed in Section 4 of the LAPM 5-A.

Invoices dated October 15, 2019 or later must use LAPM 5-A to request reimbursement through our invoicing process. Requests received using prior forms will be returned to the project sponsor for resubmittal using LAPM 5-A.

Note: for Optional Federal Exchange and State Match Program invoicing, do not use the LAPM 5-A, but instead see Chapter 18 of the LAPG.

DBE and GRE Review Procedures

DLA-OB #19-03

Agencies will need to provide Exhibit 9-D “Disadvantaged Business Enterprise (DBE) Contract Goal Methodology” to their DLAE for review and concurrence for all contracts.

For construction contract estimates greater than \$2 million and consultant contract estimates greater than \$500,000, the DLAE will email Exhibit 9-D in Microsoft Excel format to HQ DLA: dbegoal.gfe@dot.ca.gov to have the contract goal approved by Caltrans prior to advertising. If these contracts are awarded based on a GFE, have Caltrans review and provide feedback on the bidder/proposer’s GFE prior to award. Local agencies will have an opportunity to discuss and resolve any differences in the respective goal calculations; however, the final decision rests with Caltrans.

The District Local Assistance Engineers will conduct a cursory review of Exhibit 9-D for consultant contract estimates ≤ \$500,000 and construction contract estimates ≤ \$2,000,000. The DLAE’s will not review GFEs as these will be administered directly by local agencies as subrecipients of federal-aid contracts consistent with 49 CFR 26.53.

A copy of the approved Exhibit 9-D must be kept in the agency file.

Interim ATP Count Methodology Guidance

DLA-OB #19-02

Pre-construction user counts shall be conducted prior to contract award, but no greater than six months prior to contract award. Post-construction user counts shall be conducted as prescribed by the Interim Guidance. Project sponsors shall document pre-construction user counts in the project closure report. Post-construction user counts may be documented in the project closure report if they are conducted prior to the project closure report’s submittal. If post-construction user counts are conducted after the project closure report is submitted, then the postconstruction user counts, along with the pre-construction user counts will be documented in the final project report.

Interim ATP Count Methodology Guidance

DLA-OB #19-01

Policy changes for programmed projects were implemented to address funds and delivery management. The intent of the changes is to maximize the use of funds and to have project delivery a high priority for HBP projects. Office Bulletin 19-01 (DLA-OB 19-01), HBP Project Delivery Policy, issued on April 25, 2019, details those policy changes.



AGENDA ITEM 15

RIVERSIDE COUNTY TRANSPORTATION COMMISSION

DATE:	December 9, 2019
TO:	Technical Advisory Committee
FROM:	Shirley Medina, Planning and Programming Director
SUBJECT:	October and November Commission Meeting Highlights

STAFF RECOMMENDATION:

This item is to receive and file the October and November Commission meeting highlights.

BACKGROUND INFORMATION:

October 2019 Commission Meeting [\(Link\)](#)

Countywide Transportation Improvement and Traffic Relief Plan: Vision, Goals, and Objectives

COUNTYWIDE TRANSPORTATION IMPROVEMENT & TRAFFIC RELIEF PLAN: VISION, GOALS, AND OBJECTIVES

- 1) Receive background information on the Traffic Relief Strategy Committee; and
- 2) Discuss the vision, goals, and objectives of the Countywide Transportation Improvement & Traffic Relief Plan

2020 STATE TRANSPORTATION IMPROVEMENT PROGRAM ADOPTED FUND ESTIMATE AND

- 1) Approve programming \$16,376,513 of 2020 State Transportation Improvement Program (STIP) Western Riverside County and Palo Verde Valley funding capacity and \$50 million made available from the STIP AB 3090 replacement placeholder for a total of \$66,376,513 to the State Route 71/State Route 91 (71/91) Direct Connector project, and forward to the California Transportation Commission (CTC);
- 2) Include programming \$4,472,007 of 2020 STIP Coachella Valley funding capacity based on the project recommendation by the Coachella Valley Association of Governments (CVAG) and forward to the CTC;
- 3) Include programming Planning, Programming, and Monitoring (PPM) funds (2 percent of STIP programming capacity) in the amount of \$425,480 in Fiscal Year 2022/23;
- 4) Submit the 2020 STIP submittal to CTC by the statutory deadline of December 15, 2019;
- 5) Forward the Riverside County 2020 STIP project recommendations to the Southern California Association of Governments (SCAG) to conduct regional performance measures analysis as required by the CTC STIP guidelines;
- 6) Approve Agreement No. 07-71-028-03, Amendment No. 3 to Agreement No. 07-71-028-00, with the city of Blythe (Blythe) to trade \$89,649 of Palo Verde Valley STIP funds with Measure A Western Riverside County Highway funds to facilitate delivery of local arterial projects;

- 7) Authorize the Executive Director, pursuant to legal counsel review, to execute Agreement No. 07-71-028-03 on behalf of the Commission upon CTC adoption of the 2020 STIP in March 2020; and
- 8) Authorize the Executive Director to seek and pursue competitive funding opportunities for the 71/91 Interchange project.

November 2019 Commission Meeting [\(Link\)](#)

PACHAPPA UNDERPASS CONSTRUCTION CONTRACT AWARD AND AMENDMENT FOR CONSTRUCTION SUPPORT SERVICES

- 1) Award Agreement No. 19-31-094-00 to SEMA Construction, Inc. (SEMA) to construct the Pachappa Underpass project (Project), in the amount of \$8,237,419, plus a contingency amount of \$862,581 for potential change orders and supplemental work during construction, for a total not to exceed contract authorization of \$9.1 million;
- 2) Waive informalities and minor irregularities in the SEMA bid;
- 3) Approve Agreement No. 16-31-051-04, Amendment No. 4 to Agreement No. 16-31-051-00, with Jacobs Project Management Company (Jacobs) to provide construction management (CM), materials testing, and construction surveying services for the Project, for an additional amount of \$1,245,509, and a total amount not to exceed \$3,245,509;
- 4) Authorize the Executive Director, or designee, to approve contingency work as may be required for the Project;
- 5) Authorize the Chair or the Executive Director, pursuant to legal counsel review, to execute the agreements on behalf of the Commission.

FRAMEWORK FOR IMPLEMENTATION OF THE STATE ROUTES 241/91 EXPRESS LANES CONNECTOR

- 1) Approve the State Routes 241/91 Express Lanes Connector term sheet as a framework for future agreements, contingent on all parties agreeing to the term sheet; and
- 2) Direct staff to work with agencies to prepare associated agreements for each respective governing board's consideration, consistent with the terms included in this report.

TRAFFIC RELIEF PLAN STRUCTURE: GEOGRAPHY AND EXPENDITURE CATEGORIES

This item is for the Commission to approve geographic divisions and expenditure categories for the countywide Traffic Relief Plan (Plan).

ECONOMIC IMPACT STUDY

- 1) Approve Agreement No. 20-19-012-00 to University of California, Riverside (UCR) School of Business, Center for Economic Forecasting & Development (UCR Center) to perform an economic impacts analysis related to the investment of an additional sales tax for transportation improvements in Riverside County in an amount not to exceed \$199,500; and
- 2) Authorize the Chair or Executive Director, pursuant to legal counsel review, to execute the agreement on behalf of the Commission.

AGENDA ITEM 16

2020 TAC MEETING SCHEDULE

Following is the 2020 Technical Advisory Committee (TAC) meeting schedule. There will not be a January meeting.

The meetings will be every other month, in odd months, continuing to alternate meeting locations between Riverside and CVAG. Meetings will be convened if there are urgent items that require the TAC's attention.

Every other meeting will be at RCTC's offices, Riverside County Regional Complex, 4080 Lemon Street, Third Floor Conference Room A, Riverside, CA 92501 (951) 787-7141, **10:00**.

Alternate meetings will be at the Coachella Valley Association of Governments Board Room, 73710 Fred Waring Drive, Palm Desert, CA 92260 (760) 346-1127, **10:30**.

March 16	CVAG
May 18	Riverside
July 20	CVAG
September 21	Riverside
November 16	CVAG