SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

**DEVELOPMENT OF STRATEGIC PLAN**

# 10-YEAR STRATEGIC PLAN

## TECHNICAL APPENDIX


***Prepared by:***

PARSONS BRINCKERHOFF

444 S. Flower Street, Suite 800
Los Angeles, CA 90071

***Prepared for:***

METROLINK

Southern California Regional Rail Authority
One Gateway Plaza, 12th Floor
Los Angeles, CA 90012


**March 4, 2016**

# TABLE OF CONTENTS

# TABLE OF FIGURES

# LIST OF TABLES

## 1.0 INTRODUCTION

The Strategic Plan Technical Appendix is a compilation of the technical studies and reports that were developed in support of the Southern California Regional Rail Authority (SCRRA) FY2015-2024 Strategic Plan. The purpose of this Technical Appendix is to provide additional specifics to support the conclusions and recommendations presented in the Strategic Plan related to the overall 10-year strategy put forth by SCRRA.

The Technical Appendix is broken into seven (7) primary sections, reflecting the steps taken to evaluate historical trends, Member Agency and public needs and future growth. These sections include:

- **Survey and Interview Summary** – this summarizes the feedback received from public surveys as well as surveys and interviews conducted with the SCRRA Board members and alternates, Member Agency Chief Executive Officer (CEO)s, and the Technical Advisory Committee (TAC) members.
- **Cost and Budget Assessment** – an assessment that evaluated historical cost trends of SCRRA over the past 10 years, identifying the biggest contributors to the growth in costs and presenting a 10-year cost projection moving forward based on the historical trends.
- **Analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT)** – a comprehensive review of SCRRA focused around the five guiding principles approved by the SCRRA Board in February 2014: Customer Value, Focus (Discipline), Connectivity, Collaboration, and Transparency.
- **Market Analysis** – an assessment of the market to provide a review of existing commuter rail usage and summarize the projections for growth, or reductions, within the region serviced by Metrolink to assist in identifying where Metrolink needs to grow or enhance service.
- **Core Institutional Needs** – a summary of the core institutional needs identified for the agency to give focus to a number of core concerns that were been identified through the interviews and analyses that have the potential to impact the agency's ability to grow, provide reliable service and a create a positive customer experience.
- **Evaluation of Service Growth Scenarios** – a summary of potential growth scenarios, reflecting service growth, estimated costs, ridership and infrastructure needs for each scenario.
- **Summary Matrix of Capital Projects and Cost Estimates** – a matrix of the identified capital projects necessary to support the reliability and growth of the system.

# 2.0 SURVEY & INTERVIEW SUMMARY

## 2.1 BACKGROUND

The development of a multi-year Strategic Plan was one of the recommendations of the Safety Peer Review Panel to SCRRA. In November 2013, Parsons Brinckerhoff was selected as the consultant to assist the SCRRA Board and staff with the development of the Strategic Plan. The Parsons Brinckerhoff team strongly supports the early and continuous involvement of stakeholders throughout the strategic planning process and implementation. To that end, SCRRA has and will continue its outreach to Board members and alternates, Member Agency Chief Executive Officers (CEOs), the SCRRA Technical Advisory Committee (TAC) members, and other stakeholders to help shape the direction of the plan and secure consensus in setting agency priorities.

Separate online surveys were sent, beginning in December 2013, to three stakeholder groups related to the SCRRA Strategic Plan. The survey's respondents included the Board members and alternates, Member Agency CEOs, and the TAC members. The surveys had several similar questions, but differed slightly given that each stakeholder group holds different roles with SCRRA.

As of February 4, 2014 the survey return rate was:

- 17 of 21 Board members and alternates completed the survey.
- 7 of 7 CEOs completed the survey.
- 11 of 37 TAC members completed the survey (this survey remains open in hopes of more participation).

It should be noted that the identity of individual survey responders will not be shared and information submitted by individuals regarding the surveys or through interviews will not be shared.

The surveys were limited to nine questions. Generally, these questions were related to how respondents viewed SCRRA currently, areas that could be improved upon and areas of strength.

The Parsons Brinckerhoff team has also interviewed Board members, alternates, and CEOs. The interviews have served to affirm issues noted from the surveys and have allowed participants to amplify those and other matters of interest and concern. As of January 31, 2014, the team has interviewed:

- 18 Board members and alternates (8 Board members and 9 alternates, 1 non-voting).
- 6 CEOs (including an overview at the monthly CEO meeting).
- In addition, a presentation was made to the TAC.

This report details the findings from the surveys and interviews, identifying recurrent themes and illuminating possible direction for the next steps in the development of the SCRRA Strategic Plan.

## 2.2 SURVEY & INTERVIEW OVERVIEW

### 2.2.1 Survey Results

In reviewing the responses of all three surveys, it is clear that the vast majority agree safety enhancements are SCRRA's biggest success. That was followed by service reliability and service expansion.

As to challenges, the vast majority believe that financial management and funding are the greatest challenges that must be overcome for continued success. Another challenge to overcome is internal communication, policy, and service coordination between SCRRA staff and Member Agencies, and Board engagement. Another challenge identified includes leadership, defined in various ways by respondents including, but not limited to, CEO leadership, the changes in leadership that have occurred over a short period of time, and lack of staff oversight.

Survey respondents said that to resolve the challenges identified there must be:

- Improved coordination, integration, and communication among all levels related to policy, operational, and financial issues.
- Increased or changes in staffing (for some respondents this was about right sizing of organization, and for others, it meant the hiring of different staff).
- Improved leadership across all levels.

### 2.2.2 Board of Directors / Alternates

The following provides a breakdown of Board members' and alternates' responses to the survey questions:

- 13 of 17 said the greatest success was "safety enhancements."
- Regarding the greatest challenge to further success:
- 10 of 17 indicated "funding/finance management."
- 4 indicated "leadership."
- 9 ranked either "leadership," "work ethic/culture," or "staff" as second greatest challenge.
- 16 of 17 said they have concerns with the integration of policy decision-making between the Board and Member Agencies.
- 11 of 17 said they have concerns with the integration of SCRRA services with Member Agency services.
- 6 said they did not have concerns.

- On the question of the "relationship between staff and the Board":
- 9 of 17 said it was "strained due to incomplete communication" or "non-existent communication."
- 8 of 17 said it was "evolving."
- No one said it was "positive."

### 2.2.3 Chief Executive Officers / Executive Directors

The following provides a breakdown of CEOs' and Executive Directors' responses to the survey questions:

- 4 of 7 indicated "funding/finance management" was the biggest challenge to SCRRA future success.
- 3 of 7 indicated "Board engagement" was the biggest challenge to SCRRA future success.
- 6 of 7 said policy decision-making between SCRRA and Member Agencies is a concern.
- To resolve that concern, all agree it will take improved Board and financial management coordination.
- 4 of 7 said there is no need for legislative changes.

## 2.3 INTERVIEW RESULTS

The interviews verified much of what was noted in the surveys and, when reviewed collectively, provided several themes for further discussion and action.

There is a strong belief that the Agency has helped change the transportation landscape of Southern California by increasing commuter choices for residents. Growth in the system over the last twenty years is a significant point of pride for those interviewed. The burgeoning "safety" culture is also appreciated by Board members and alternates, although there is an undercurrent of concern with the ongoing and rising costs of Positive Train Control (PTC). There is a strong appreciation for the work effort toward safer equipment and the personal commitment of staff toward a safer service.

Interviewees nearly universally expressed as challenging three primary issues: (1) finances, (2) funding, and (3) communication.

The financial issues center on cashflow, billing, capital, and operating expenses, and transparency in budgeting. Many believe that these issues are being addressed through the work of KPMG and greater attention by the Board. It was stated by interviewees that systems have not yet been put into place to ensure that, once a clear financial picture emerges, the agency will be able to maintain a consistent and rigorous monitoring of the finances. Some interviewees express trust and

appreciation for the work of the Chief Auditor, but believe it is essential a Chief Financial Officer (CFO), and other line personnel in that discipline, be hired sooner rather than later.

In terms of securing the appropriate level of funding for the current system and possible expansion, some interviewees believe a dedicated funding source should be explored. Others believe that a dedicated funding source could be a long-term goal, but should not be at the forefront of current discussions. Most believe that greater funding stability is necessary and greater coordination with funding agencies is warranted.

Communication, or the lack thereof, was equally important to all interviewees. The concerns about communication run the gamut: between staff and Board; between staff and staff; between Board principals and Board alternates; between Board leadership and the rest of the Board members; between the SCRRA CEO and the Member Agency CEOs. In other words, everyone feels that the information flow is stymied or blocked and no one believes they are fully informed 100 percent of the time. Most interviewed shared that all Board members and alternates need to receive the same information, but many added that the information be the facts and should not always be "rosy." In addition, staff should be more transparent and timely with the information. Again, some felt systems have not been put into place to ensure effective communication. Several interviewed indicated concern with the amount of business being conducted by the agency in closed session.

Many interviewed believe that there is a need to review the joint powers agreement and perhaps consider changes in the near-term, with full engagement being a key component. Most shared that governance should be a long-term issue of discussion and should be addressed once "the house is in order." Similar sentiments were expressed regarding the funding formula.

The major themes, therefore, shared through the interviews and surveys and some of the suggested actions of the interviewees include:

- Transportation 101 – Getting "back to basics" by focusing on a key set of goals and improving and making the system attractive for the customers with better equipment, continued safe service, service reliability, and reaching out to employers and special event contacts to increase ridership.

- Suggested actions include enhancement of safety culture; implementation of systemwide improvements including double-tracking; providing new, clean equipment; ensuring all equipment has the Metrolink logo; ensuring staff accountability and oversight; exploring partnerships with noted venues and large employers; and the development of goals.

- Finances – Stability, coordination, transparency, adherence to standard accounting practices, and appropriate staffing.

- Suggested actions include hiring a CFO and hiring lower level personnel to ensure basic functions are executed, and reaching clear and multi-year agreements with Member Agencies.

- Funding – The funding formula should be a long-term issue of discussion, but other actions could be explored to access funding.

- Suggested actions include coordinating with Member Agencies on grant applications and efforts; coordinating with Member Agencies relating to countywide sales tax or other funding efforts; and greater outreach to federal and state officials on the importance of the rail line to the region.

- Communication – Implementation of simple systems and practices to enhance communication, thereby, reestablishing and sustaining trust.

- Suggested actions include greater discernment regarding items assigned to closed sessions; increasing communication between CEOs; inclusion of deputies into TAC meetings; early review of upcoming committee and Board deputies for TAC meetings; and assurance that all Board members receive the same information.

- Ownership and Culture – Foster a greater sense of ownership in the system with Board members and alternates viewing it as a system rather than a collection of rail lines. Work on creating a culture that is innovative but still "financially responsible."

- Suggested actions include increasing coordination of all operations within the service area, perhaps through quarterly summits or individual actions by county transportation CEOs and Executive Directors; increasing and coordinating efforts at the state and federal levels to promote the system and secure greater funding that does not compete with Member Agencies; and promoting cross discipline exposure with staff.

- Cost-effective actions – Less focus on big-ticket items and more identification of cost-effective changes that can improve service and/or increase ridership.

- Suggested actions include exploring Wi-Fi on all trains; coordination of all bus operations; greater and sustained coordination with Amtrak; and quicker decision-making at the executive level.

## 2.4 SURVEY & INTERVIEW SUMARY CONCLUSION

Some of the above-suggested actions could be fully implemented immediately or explored concurrent to the development of a Strategic Plan. As the strategic planning process progresses, it is also evident that some of the concerns, especially those relating to communication, are completely solvable with attention and effort. Other concerns of the stakeholders can and will be addressed or mitigated with the identification of priorities throughout the development of the SCRRA Strategic Plan. As envisioned, the SCRRA Strategic Plan is a tool that will assist the Board in creating funding priorities and in establishing a road map for the Agency and its funding partners. The plan will provide goals and a vision, identified through collaboration, for which the Agency and its members can all work together to achieve.

## 2.5 CONTINUED STEPS

Throughout the process, the team continued to confer with stakeholders through surveys and interviews. These discussions further assisted in the refinement of the goals and vision that

established the focus of the Strategic Plan. In support of this, the following meetings were held and actions were taken as part of the ongoing Strategic Plan process:

- An outreach campaign was initiated in February 2014 with the release of a public survey (see Figure 14 in Strategic Plan). This survey asked five questions:

  1. Where do you live? (enter 5-digit ZIP code)
  2. Where do you primarily travel on a regular basis? (enter City or 5-digit ZIP code)
  3. The one place I wish Metrolink served better is...
  4. Over the next ten years, I would like Metrolink to focus on…
  5. Do you have any other comments, questions, or concerns?

- February 28-March 1, 2014 Annual Board Workshop
- Board Visioning Workshop (May 2014)
- TAC Interviews
- The second survey was released in December 2014 (Figure 2–1) that solicited input from the public on some of the proposed service scenarios and on the direction of the Strategic Plan.
- Board and TAC Workshop (December 2015)

**Figure 2–1: Public Survey Released in December 2014**


*Dear Metrolink Stakeholder:*

In late 2013 Metrolink initiated work to prepare the agency for the next 10 years.
During the summer of 2014, riders and other stakeholders shared their thoughts about Metrolink's future in a brief survey. -
The results from that survey are available now by clicking here.

As Metrolink continues work on its 10-year Strategic Plan you are invited to review some of the proposed service scenarios and share your opinions with us.

Your survey responses will be strictly confidential and data from this research will be reported only in the aggregate.
Thank you very much for your time and support. Please start with the survey now by clicking on the Continue button below.

Metrolink has identified a list of priorities for moving Metrolink forward.
In your opinion, How should Metrolink allocate its resources among these?
Please rank the priorities from 1 (Highest Priority) to 6 (Lowest Priority). Select each number only once!

| | |
|---|---|
| Expand the Metrolink system and improve regional connectivity | |
| Stabilize fares and the cost to operate the system | |
| Continue to invest in safety technology | |
| Increase the availability of information | |
| Improve the customer experience | |
| Focus on collaboration with stakeholders and partner agencies | |

Rank values must be from 1 to 6

**Do you have specific ideas how Metrolink should address these priorities?**

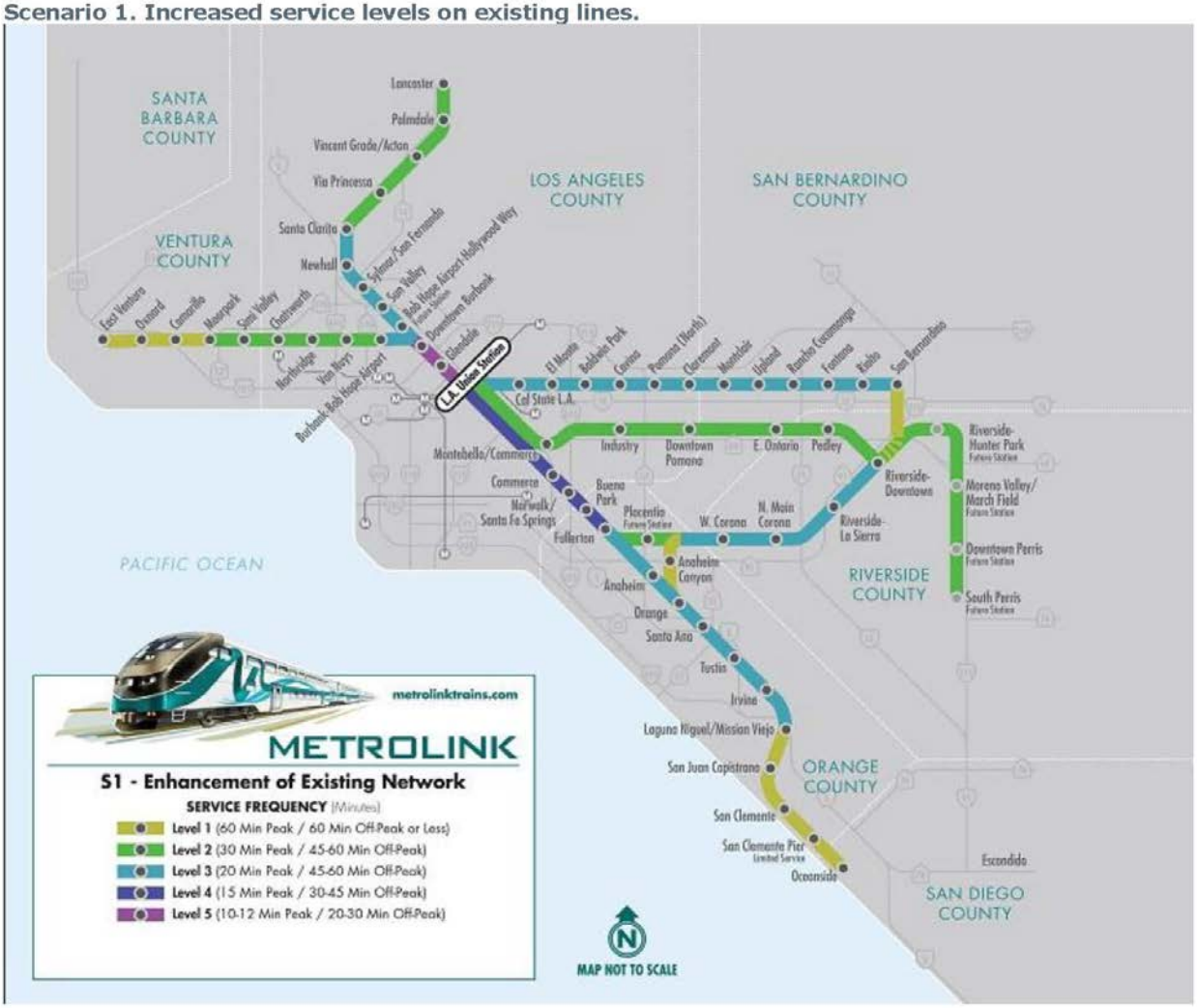
**In your opinion, are there are any other priorities Metrolink should focus on over the next 10 years?**

**Most responses in Metrolink's previous Strategic Plan Survey called for more frequent and expanded Metrolink service.**
**Service expansion is a major part of Metrolink's Strategic Plan and several service scenarios are being developed.**

**Below you have the opportunity to review some of the scenarios for expanding Metrolink service over the next 10 years. The maps indicate service levels based on frequency of train service during the peak and off-peak hours.**

Current Metrolink Service Levels.

**Scenario 1. Increased service levels on existing lines.**



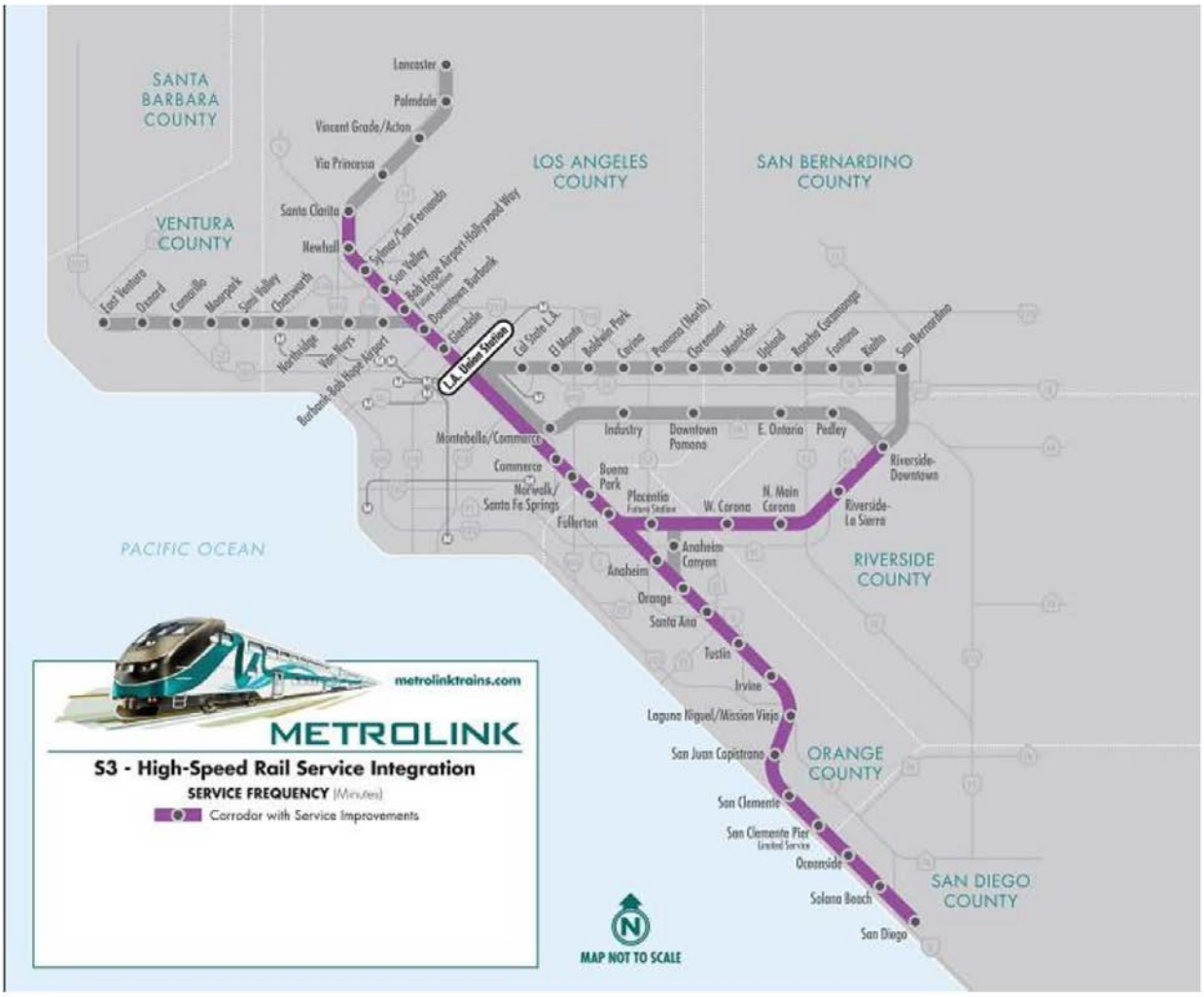

**Scenario 1. reflects enhanced service levels on the existing network, including the Perris Valley Line that is scheduled to open late in 2015.**
**Do you have any comments on this scenario?**

**Scenario 2. Additional lines and connections.**

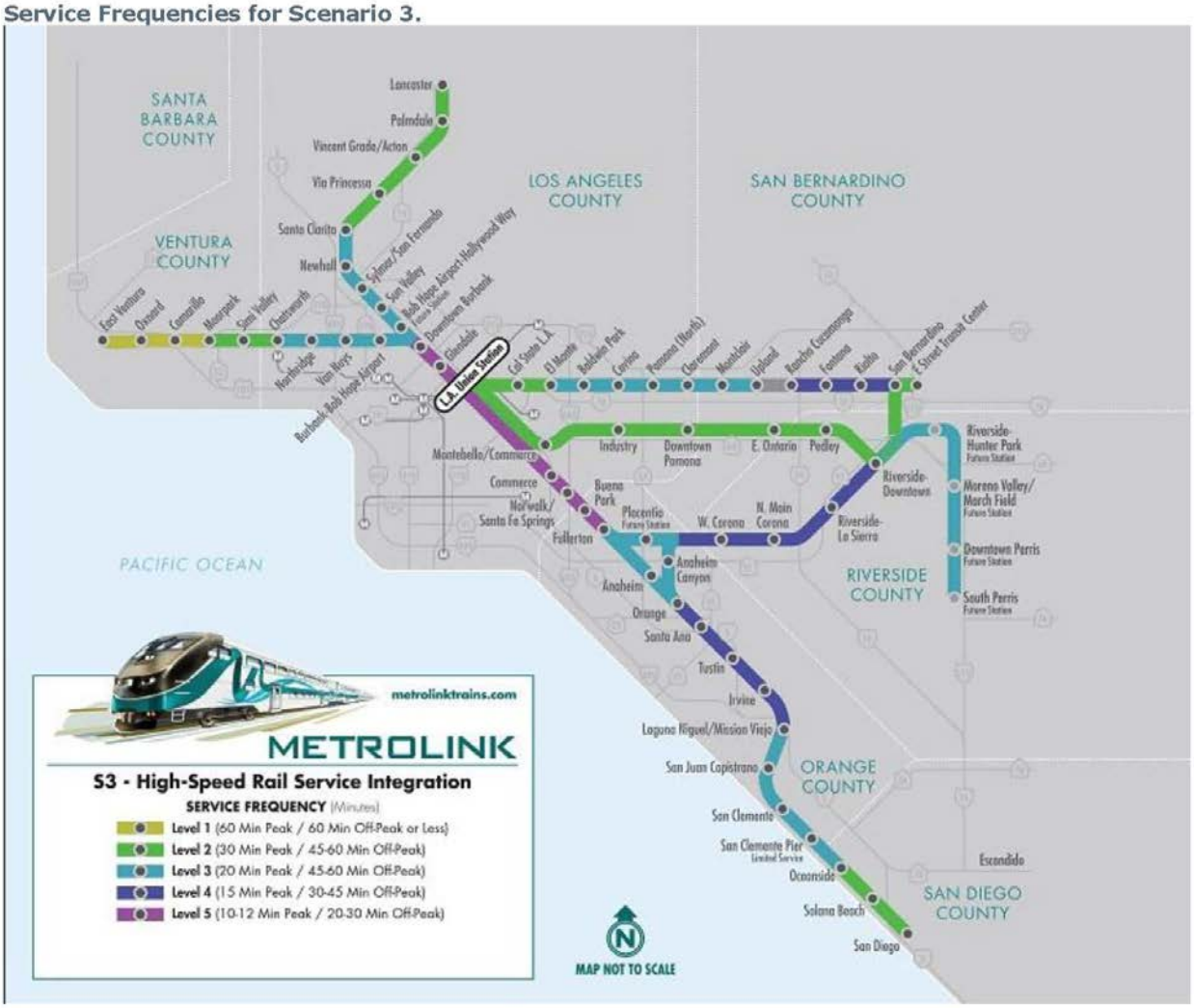

Service Frequencies for Scenario 2.


Scenario 2 extends Metrolink Lines into San Diego, Riverside, San Bernardino and Santa Barbara Counties. Additional connections are created to Ontario Airport and the USC Medical Center .
Do you have any comments or suggestions?

**Scenario 3. High Speed Rail Service Integration**



Service Frequencies for Scenario 3.




**Scenario 3. reflects enhanced feeder service to the planned High Speed Rail and expanded service to San Diego.**
**Do you have any comments or suggestions?**

**How often do you ride Metrolink?**

- ○ Every Week
- ○ A few times each month
- ○ A few times per year
- ○ Less than once per year

**What is your home ZIP code?**

**Thank you for your time.**
**Your feedback will help us prepare Metrolink for the future. Metrolink's Strategic Plan is expected to be released in April of 2015.**

**If you would like to receive future updates as the Strategic Plan is being completed please enter your email address.**

**Do you have any final comments you wish to share with Metrolink?**

# 3.0 COST & BUDGET ASSESSMENT

## 3.1 INTRODUCTION

In order to identify the feasibility of the Southern California Regional Rail Authority (SCRRA) to realize the goals and vision that will be established as part of the Metrolink FY2015-2024 Strategic Plan, it is important to establish a clear picture of where SCRRA is today in terms of financial stability and sustainability.

This memorandum compiles SCRRA's historical operating costs, capital investments, and investment in rehabilitation from the last 10 years and compares this information year-over-year to identify trends or "lessons learned." These trends are also used to develop conceptual cost projections over the next 10 years in order to define a base line estimate of what future operating budgets may be for SCRRA assuming existing conditions. From this information, SCRRA will have a baseline of data for use in analyzing its past performance as well as identifying opportunities for improvement and planning.

## 3.2 10-YEAR HISTORICAL COST ASSESSMENT

SCRRA's Metrolink commuter service has seen moderate growth and changes in service over the past ten (10) years. During the 10-year period of Fiscal Year (FY) 2003-04 to FY 2012-13, SCRRA weekday trains increased from 137 to 165 trains, an increase of 23 percent. The number of weekend trains increased from 32 to 76 trains, a 138 percent increase. In total, overall revenue train miles increased during this 10-year period by 24 percent, which supported an average increase in weekday ridership of 17 percent over the same period (from 36,399 to 42,526 weekday passengers). During this same time, the annual average on-time system train performance remained relatively constant at 94.5 percent. Table 3–1 and Figure 3–1 show the annual increase in train miles by county over the 10-year period.

**Table 3–1: Annual Train Miles by County**

| Time Period | Total | LACMTA | OCTA | RCTC | SANBAG | VCTC |
|---|---|---|---|---|---|---|
| **FY2003-04 Actual** | 2,108,707 | 1,204,813 | 403,048 | 159,672 | 254,899 | 86,275 |
| **FY2004-05 Actual** | 2,146,514 | 1,218,129 | 394,502 | 158,197 | 279,359 | 96,327 |
| **FY2005-06 Actual** | 2,232,612 | 1,223,728 | 438,615 | 193,548 | 279,373 | 97,347 |
| **FY2006-07 Actual** | 2,382,753 | 1,236,245 | 568,600 | 194,359 | 286,375 | 97,174 |
| **FY2007-08 Actual** | 2,444,453 | 1,265,839 | 556,779 | 218,773 | 305,418 | 97,644 |
| **FY2008-09 Actual** | 2,492,736 | 1,271,293 | 584,760 | 194,705 | 344,106 | 97,871 |
| **FY2009-10 Actual** | 2,468,994 | 1,293,191 | 550,545 | 187,738 | 345,843 | 91,677 |
| **FY2010-11 Actual** | 2,385,196 | 1,275,331 | 500,449 | 183,378 | 335,972 | 90,066 |
| **FY2011-12 Actual** | 2,608,435 | 1,402,305 | 570,140 | 178,061 | 367,768 | 90,161 |
| **FY2012-13 Budget** | 2,608,435 | 1,402,305 | 570,140 | 178,061 | 367,768 | 90,161 |
| **Increase** | 499,728 | 197,493 | 167,091 | 18,389 | 112,869 | 3,886 |

**Figure 3–1: Annual Train Miles by County**

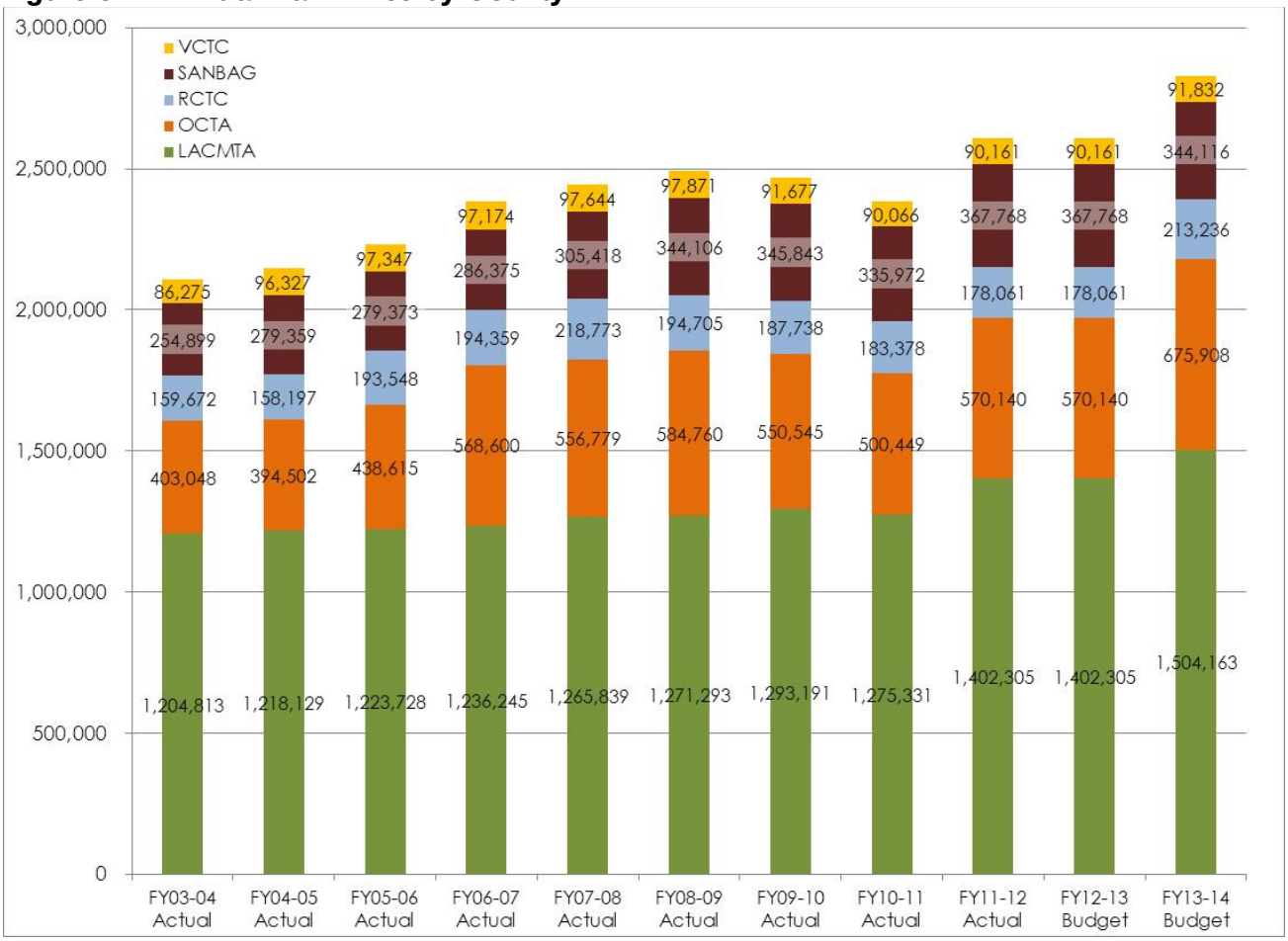
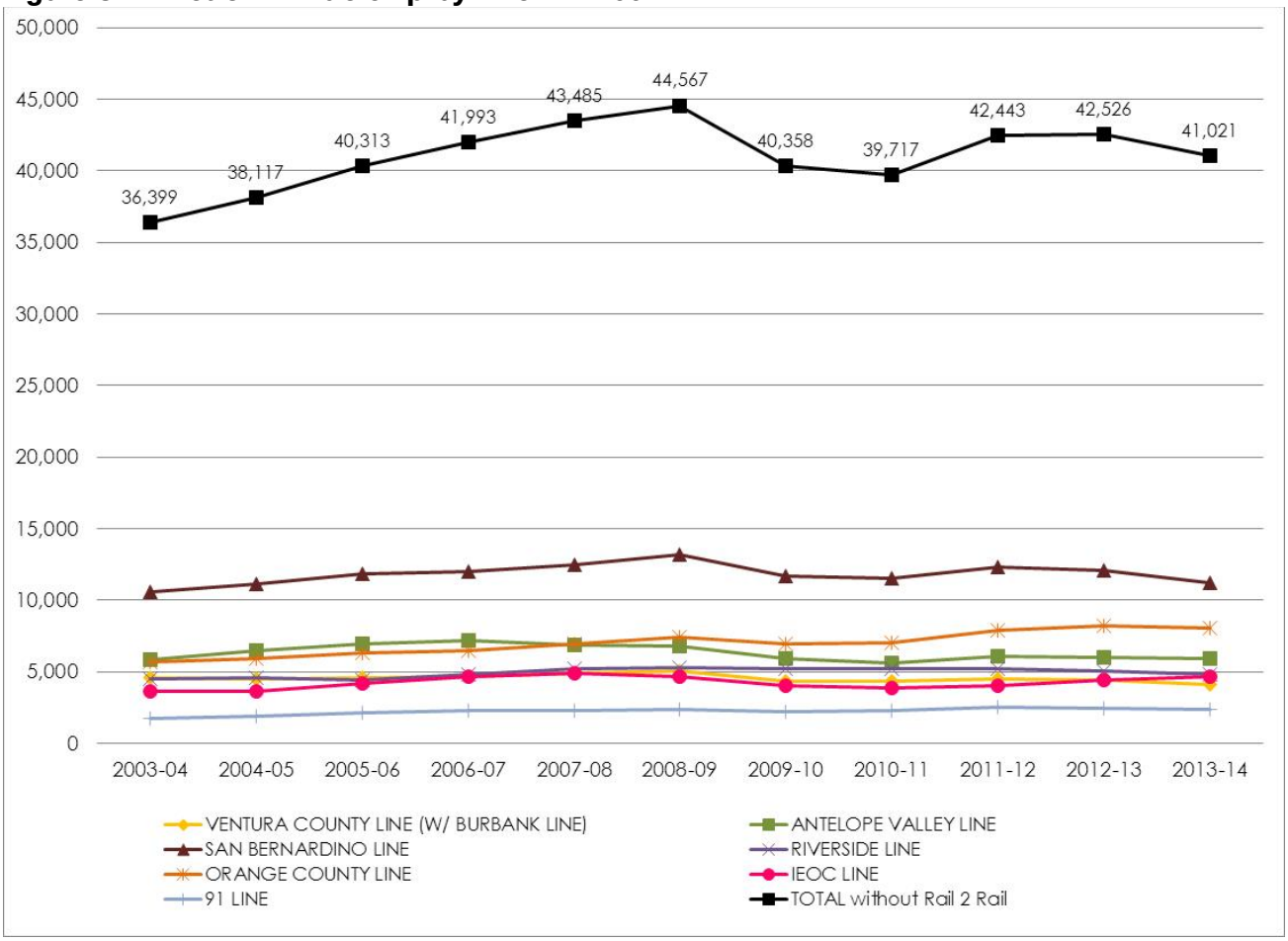



Figure 3–2 illustrates the 10-year growth (trains added during the period were 12 weekday and 10 weekend San Bernardino Line trains, 6 weekday and 10 weekend Antelope Valley line trains, 4 weekday and 8 weekend IEOC trains, and 10 weekday (MSEP) and 16 weekend Orange County Line trains) in overall ridership broken down by service line. The dip in ridership between FY2009 and FY2011 corresponds to the economic recession.

**Figure 3–2: Metrolink Ridership by Line – FY2004-14**




### 3.2.1 Operating Cost Comparisons

SCRRA's operating expenditures are categorized into four primary expenditure categories:

- Train operations and services
- Maintenance-of-way
- Administrative support for operations
- Risk management

Table 3–2 presents the annual operating expenditures and revenues from FY 2003-04 to FY 2013-14 (actuals).

**Table 3–2: Operating Expenditures/Revenues – FY2004-14 ($000)**

| Category | FY03-04 Actual | FY04-05 Actual | FY05-06 Actual | FY06-07 Actual | FY07-08 Actual | FY08-09 Actual | FY09-10 Actual | FY10-11 Actual | FY11-12 Actual | FY12-13 Actual | FY13-14 Actual | Growth FY14 vs. FY04 | % Increase FY14 vs FY04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Expenditures** | **$100,887** | **$112,785** | **$121,911** | **$126,801** | **$141,580** | **$162,217** | **$166,283** | **$168,215** | **$173,280** | **$188,360** | **$199,169** | **$98,282** | **97%** |
| **Revenues** | **$60,941** | **$63,307** | **$74,506** | **$79,892** | **$87,953** | **$92,796** | **$88,294** | **$91,556** | **$96,717** | **$101,652** | **$101,572** | **$40,631** | **67%** |
| **Net Local Subsidy** | **$39,946** | **$49,478** | **$47,405** | **$46,909** | **$53,627** | **$69,421** | **$77,989** | **$76,659** | **$76,563** | **$86,708** | **$97,597** | **$57,651** | **144%** |
| | | | | | | | | | | | | | |
| **Revenues - Total** | **$100,887** | **$112,785** | **$121,911** | **$126,801** | **$141,580** | **$162,217** | **$166,283** | **$168,215** | **$173,280** | **$188,360** | **$199,169** | **$98,282** | **97%** |
| **Non-Member Agency Revenues** | **$60,941** | **$63,307** | **$74,506** | **$79,892** | **$87,953** | **$92,796** | **$88,294** | **$91,556** | **$96,717** | **$101,652** | **$101,572** | **$40,631** | **67%** |
| **Farebox** | $44,588 | $47,709 | $54,656 | $62,275 | $69,892 | $73,057 | $69,343 | $74,105 | $79,986 | $84,360 | $85,673 | $41,085 | 92% |
| **Dispatching** | $2,824 | $2,938 | $2,962 | $2,957 | $3,050 | $3,111 | $3,071 | $3,079 | $2,957 | $2,598 | $2,480 | -$344 | -12% |
| **Other** | $4,559 | $2,167 | $3,652 | $3,868 | $3,455 | $2,380 | $3,599 | $1,334 | $308 | $355 | $319 | -$4,240 | -93% |
| **MofW** | $8,970 | $10,493 | $9,779 | $10,138 | $11,205 | $11,170 | $12,106 | $12,930 | $13,434 | $14,299 | $12,922 | $3,952 | 44% |
| **PL/PD** | $0 | $0 | $3,457 | $654 | $351 | $3,078 | $175 | $108 | $32 | $40 | $178 | $0 | N/A |
| **Member Agency Net Subsidy** | **$39,946** | **$49,478** | **$47,405** | **$46,909** | **$53,627** | **$69,421** | **$77,989** | **$76,659** | **$76,563** | **$86,708** | **$97,597** | **$57,651** | **144%** |
| | | | | | | | | | | | | | |
| **Expenditures - Total** | **$100,887** | **$112,785** | **$121,911** | **$126,801** | **$141,580** | **$162,217** | **$166,283** | **$168,215** | **$173,280** | **$188,360** | **$199,169** | **$98,282** | **97%** |
| **Operations & Services** | **$60,944** | **$68,205** | **$74,539** | **$81,409** | **$91,108** | **$99,775** | **$98,048** | **$98,279** | **$103,935** | **$119,193** | **$125,528** | **$64,584** | **106%** |
| **Train Operations** | $20,090 | $21,364 | $21,856 | $24,588 | $25,611 | $25,677 | $29,542 | $29,602 | $32,447 | $35,774 | $37,043 | $16,953 | 84% |
| **Equipment Maintenance** | $15,142 | $15,978 | $16,998 | $17,635 | $17,958 | $19,790 | $23,857 | $22,471 | $19,416 | $24,254 | $28,542 | $13,400 | 88% |
| **Fuel** | $6,763 | $9,089 | $13,158 | $13,640 | $19,126 | $20,797 | $12,670 | $17,116 | $22,945 | $26,288 | $26,161 | $19,398 | 287% |
| **Non-Scheduled Rolling Stock Repairs** | $29 | $230 | $37 | $60 | $256 | $123 | $52 | $1 | $0 | $0 | $2 | -$27 | -93% |
| **Operating Facilities Maintenance** | $596 | $928 | $588 | $528 | $595 | $991 | $836 | $707 | $972 | $1,062 | $1,056 | $460 | 77% |
| **Other Operating Train Services** | $157 | $224 | $250 | $193 | $301 | $229 | $477 | $364 | $511 | $382 | $264 | $107 | 68% |
| **Rolling Stock Lease** | $0 | $830 | $1,057 | $1,126 | $1,140 | $1,513 | $912 | $371 | $0 | $0 | $0 | $0 | N/A |
| **Security - Sheriff** | $2,902 | $2,959 | $3,185 | $4,038 | $4,972 | $5,390 | $5,628 | $5,250 | $4,862 | $4,952 | $4,482 | $1,580 | 54% |
| **Security - Guards** | $863 | $759 | $739 | $927 | $837 | $910 | $946 | $857 | $956 | $1,253 | $2,170 | $1,307 | 151% |
| **Supplemental Additional Security** | $112 | $259 | $169 | $344 | $549 | $960 | $605 | $562 | $176 | $363 | $763 | $651 | 581% |
| **Public Safety Program** | $403 | $672 | $928 | $472 | $556 | $565 | $550 | $250 | $203 | $100 | $157 | -$246 | -61% |
| **Passenger Relations** | $1,459 | $1,187 | $1,170 | $1,267 | $1,359 | $1,422 | $1,477 | $1,449 | $1,411 | $1,411 | $1,622 | $163 | 11% |
| **Holiday Trains** | $154 | $118 | $117 | $221 | $236 | $280 | $275 | $198 | $227 | $246 | $0 | -$154 | -100% |
| **TVM Maintenance/Revenue Collection** | $2,318 | $2,666 | $3,008 | $3,297 | $3,530 | $3,932 | $3,915 | $3,887 | $3,939 | $4,606 | $5,343 | $3,025 | 131% |
| **Marketing** | $901 | $768 | $863 | $881 | $1,158 | $953 | $880 | $696 | $927 | $1,147 | $949 | $48 | 5% |
| **Media & External Communications** | $620 | $488 | $460 | $510 | $746 | $625 | $537 | $680 | $404 | $265 | $226 | -$394 | -64% |
| **Utilities/Leases** | $1,785 | $1,985 | $1,901 | $2,096 | $2,288 | $2,874 | $2,932 | $3,519 | $2,729 | $4,634 | $3,180 | $1,395 | 78% |
| **Transfers to Other Operators** | $3,037 | $3,593 | $3,771 | $4,508 | $4,403 | $6,272 | $5,702 | $4,384 | $6,069 | $6,098 | $6,469 | $3,432 | 113% |
| **Amtrak Transfers** | $490 | $585 | $800 | $870 | $1,051 | $1,179 | $1,272 | $1,173 | $1,030 | $1,081 | $917 | $427 | 87% |
| **Station Maitenance** | $548 | $656 | $688 | $747 | $855 | $1,040 | $735 | $980 | $692 | $883 | $1,190 | $642 | 117% |

| Category | FY03-04 Actual | FY04-05 Actual | FY05-06 Actual | FY06-07 Actual | FY07-08 Actual | FY08-09 Actual | FY09-10 Actual | FY10-11 Actual | FY11-12 Actual | FY12-13 Actual | FY13-14 Actual | Growth FY14 vs. FY04 | % Increase FY14 vs FY04 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Rail Agreements** | $2,575 | $2,867 | $2,796 | $3,461 | $3,581 | $4,253 | $4,248 | $3,762 | $4,019 | $4,375 | $4,992 | $2,417 | 94% |
| | | | | | | | | | | | | | |
| **Maintenance-of-Way** | **$18,486** | **$20,416** | **$20,820** | **$19,914** | **$23,339** | **$22,932** | **$24,287** | **$30,686** | **$24,127** | **$27,633** | **$29,474** | **$10,988** | **59%** |
| **MoW - Line Segments** | $17,773 | $18,588 | $20,066 | $19,422 | $22,705 | $22,271 | $22,882 | $29,154 | $22,823 | $26,555 | $28,152 | $10,379 | 58% |
| **MoW - Extraordinary Maintenance** | $713 | $1,828 | $754 | $492 | $634 | $661 | $1,405 | $1,532 | $1,304 | $1,078 | $1,322 | $609 | 85% |
| | | | | | | | | | | | | | |
| **Risk Management** | **$6,516** | **$9,014** | **$12,454** | **$10,464** | **$11,172** | **$18,483** | **$21,392** | **$16,419** | **$19,264** | **$16,797** | **$16,452** | **$9,936** | **152%** |
| **Liability/Property/Auto** | $3,900 | $4,250 | $7,152 | $7,946 | $8,046 | $13,564 | $14,293 | $14,771 | $14,797 | $14,669 | $14,252 | $10,352 | 265% |
| **Claims** | $1,969 | $3,621 | $4,999 | $2,141 | $2,572 | $4,222 | $6,333 | $391 | $3,534 | $901 | $1,457 | -$512 | -26% |
| **Claims Administration** | $647 | $1,143 | $303 | $377 | $554 | $697 | $766 | $1,257 | $933 | $1,227 | $743 | $96 | 15% |
| | | | | | | | | | | | | | |
| **Administration & Services** | **$14,406** | **$14,884** | **$14,096** | **$14,979** | **$15,958** | **$21,019** | **$22,387** | **$22,793** | **$25,407** | **$24,663** | **$27,694** | **$13,288** | **92%** |
| **Wages & Fringe Benefits** | $6,442 | $5,956 | $6,422 | $6,596 | $6,912 | $7,805 | $9,342 | $9,679 | $10,405 | $10,533 | $11,127 | $4,685 | 73% |
| **Non-Labor Expenses** | $854 | $1,116 | $769 | $1,229 | $1,152 | $1,510 | $1,153 | $1,185 | $2,233 | $1,232 | $3,424 | $2,570 | 301% |
| **Indirect Administrative Expenses** | $5,758 | $6,108 | $5,851 | $6,587 | $7,243 | $10,058 | $10,894 | $11,399 | $11,857 | $11,954 | $12,679 | $6,921 | 120% |
| **Professional Services** | $1,352 | $1,704 | $1,054 | $567 | $651 | $1,646 | $998 | $530 | $912 | $944 | $464 | -$888 | -66% |
| | | | | | | | | | | | | | |
| **Contingency (Non-Train Ops)** | **$535** | **$266** | **$2** | **$35** | **$3** | **$8** | **$169** | **$38** | **$547** | **$74** | **$21** | **-$514** | **-96%** |

As reflected in Table 3–2, the annual operating expenditures rose 97 percent over the past 10 years. During this same period, the annual non-Member Agency operating revenues rose 67 percent and Member Agency net subsidies rose 144 percent.

To help illustrate these increases, Figure 3–3 displays the changes in operating revenues from FY 2003-04 to FY 2013-14. Figure 3–4 illustrates the changes in operating expenses during the same period.

**Figure 3–3: SCRRA Operating Revenues FY 2003-04 to FY 2013-14 ($000)**

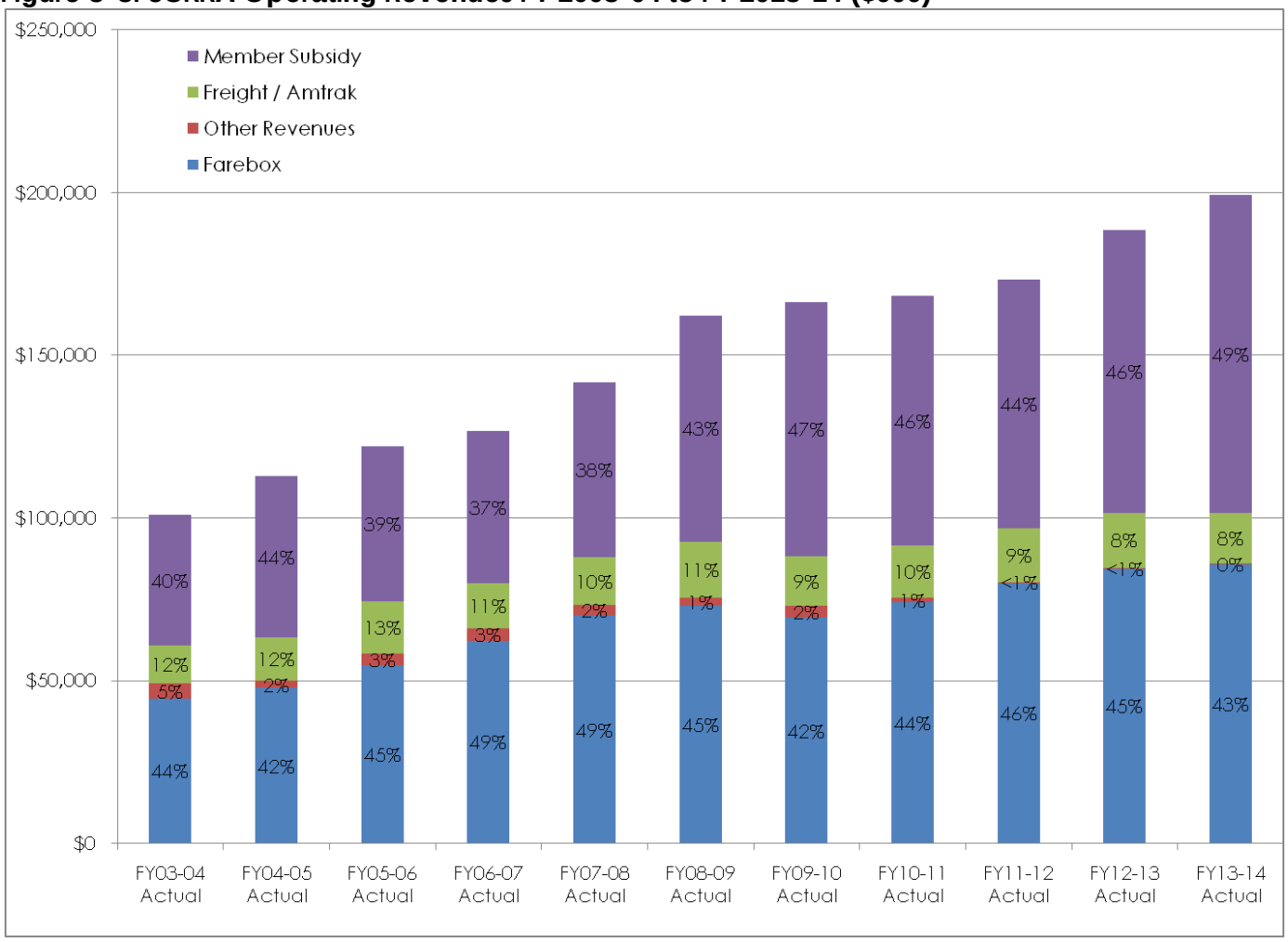
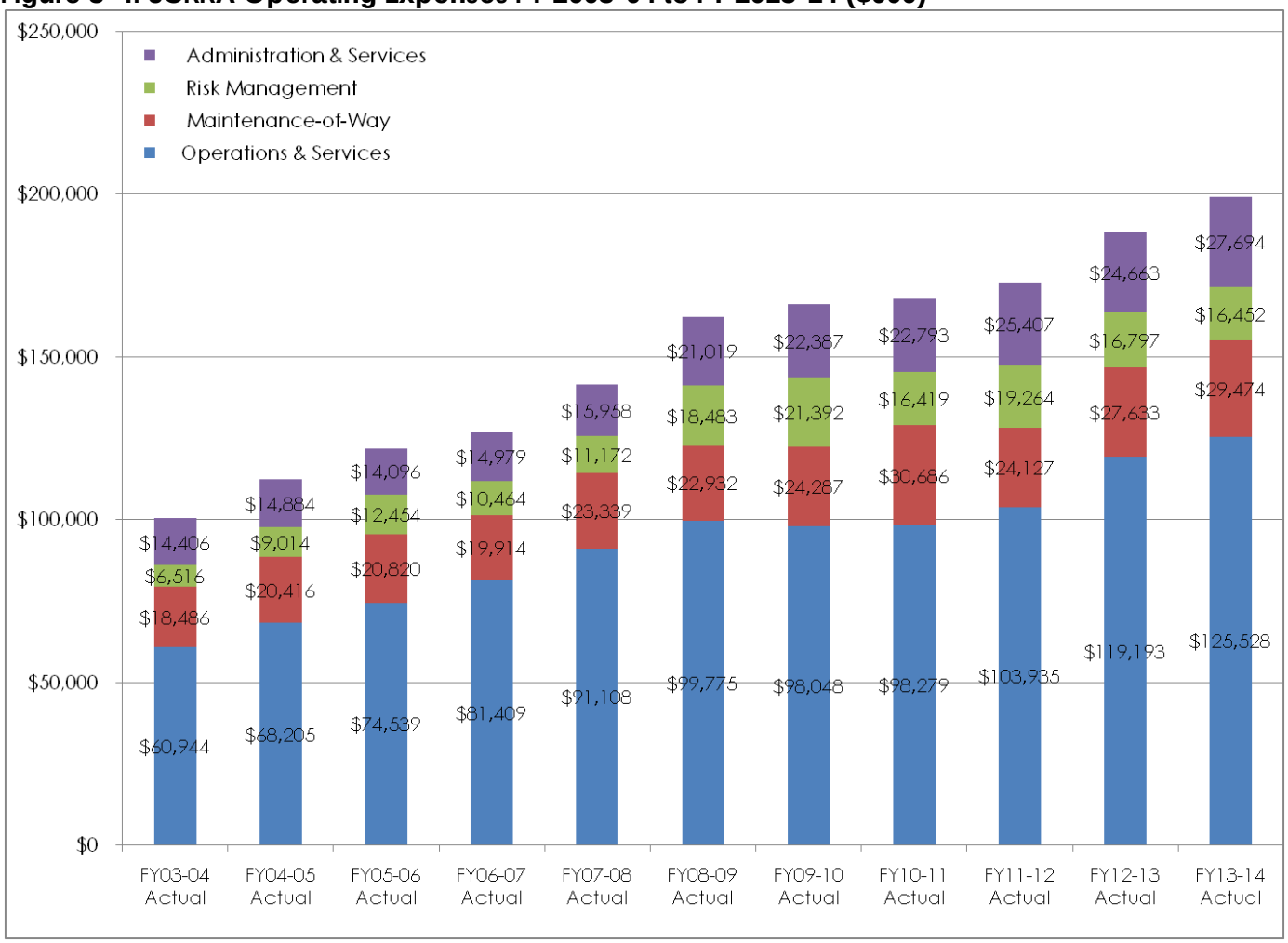


**Figure 3–4: SCRRA Operating Expenses FY 2003-04 to FY 2013-14 ($000)**




*Train Operations and Service*

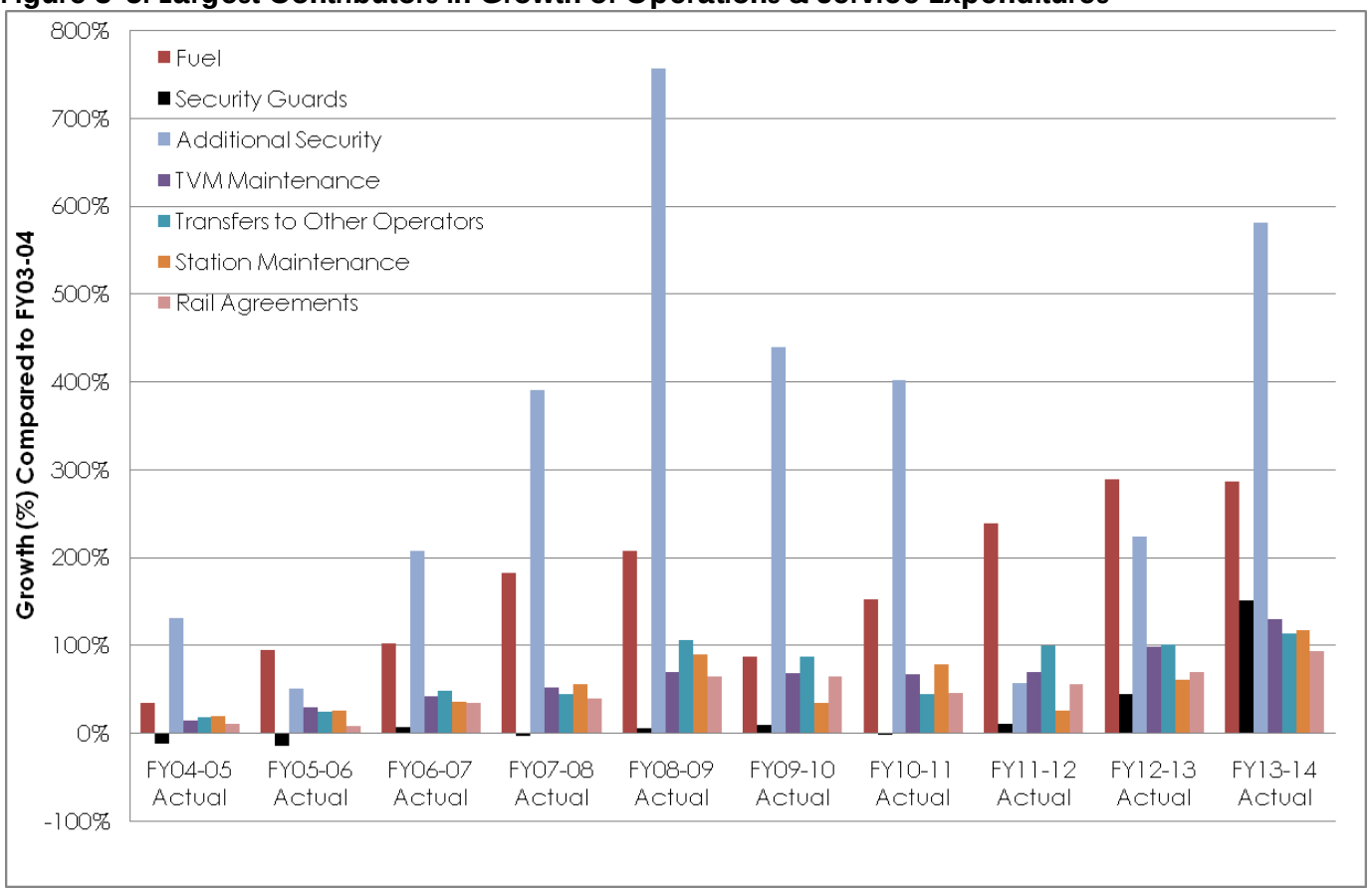
By far, Train Operations and Services expenditure category makes up the majority of the overall annual operating expenditures for the agency. Included within this category are 20 additional subcategories, which are listed below for reference.

- Train crews
- Dispatching
- Equipment (rolling stock) maintenance
- Fuel
- Non-scheduled rolling stock repairs
- Operating facilities maintenance

- Other operating train services
- Sheriff security
- Guard security
- Public safety program
- Passenger relations
- Holiday trains
- Ticket vending machine (TVM) maintenance and revenue collection
- Marketing
- Media & external communications
- Utilities/leases
- Transfers to other operators
- Amtrak transfers (Rail 2 Rail)
- Station maintenance
- Freight rail agreements

Over the past 10 years from FY2004 to FY2014, operations and services expenditures more than doubled, increasing by 106 percent. As illustrated in Figure 3–5, some of the largest contributors to this increase included fuel, security, TVM maintenance, transfers to other operators, station maintenance, and rail agreements.

**Figure 3–5: Largest Contributors in Growth of Operations & Service Expenditures**




Of the seven primary contributors, supplemental additional security was the largest at 581 percent. Security guards rose 151 percent. The cost of fuel is the second largest contributor, which is attributed to both rising fuel prices and increased train service. During this period, fuel costs increased 287 percent. In addition to fuel, the TVM maintenance and revenue collection increased 131 percent over the past 10 years. Station maintenance rose by 117 percent and transfers to other operators rose by 113 percent, primarily due to Los Angeles Union Station (LAUS) transfer costs. Rail agreements also increased by 94 percent during this period.

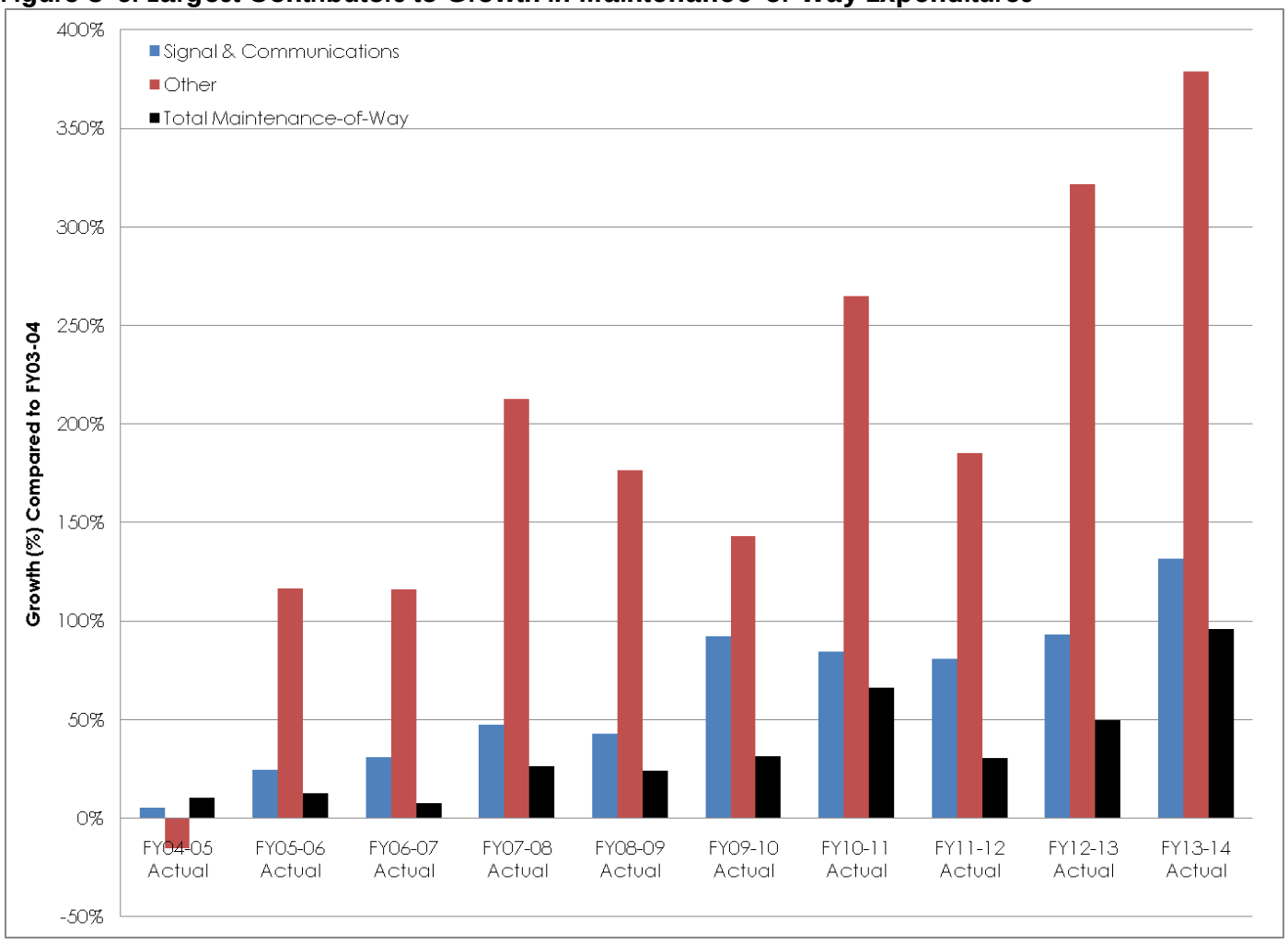
*Maintenance-of-Way*

Maintenance-of-Way expenditures are costs related to right-of-way inspection and repair, and include the following components:

- Track (e.g. rail, cross ties, other track material)
- Signal and communications (S&C)
- Structures, procurement

- Other (e.g. vegetation control, vehicle maintenance, vehicle lease, vehicle fuel, engineering, work trains, and miscellaneous)
- Agency costs
- Extraordinary maintenance (e.g. derailments, gate knockdowns, storm damage, vandalism)

**Figure 3–6: Largest Contributors to Growth in Maintenance-of-Way Expenditures**




Over the past 10 years, maintenance-of-way expenditures increased by 96 percent as illustrated in Figure 3–6. The two largest contributors to this increase were S&C maintenance expenditures and "Other" maintenance expenditures. S&C expenditures rose by 132 percent, primarily due to increased staff and wage increases. Expenditures under "Other" rose by 379 percent. This increase is primarily the result of four factors:

- Annual contingency fee paid to Mass Electric under their current contract
- Engineering effort associated with the development of updated bridge standards

- Positive Train Control (PTC) related moving costs
- Vegetation control costs

*Risk Management*

The costs currently included under the risk management expenditure category are:

- Operating liability
- Property
- Auto insurance premiums, claim payment, and claims administration

Overall, risk management expenditures rose by 152 percent over the previous 10 years, due almost entirely to increased insurance premiums. It was identified that there were also several years within the previous 10-year period in which significant increases were observed due to payment of claims. As an example, in FY 2010, the total actual expenditure for Risk Management reflected $21.4 million due to payments totaling $6.3 million in claims.

*Administration and Services*

Administration and Services expenditures reflect overhead and staff costs of the agency. Specific expenditure components under this category include:

- Wages and fringe benefits
- Non-labor expenses
- Indirect administrative expenses
- Professional services

From FY2004 to FY2014, Administration and Services expenditures increased by 92 percent, due primarily to increased SCRRA staff levels.

*Observations (lessons learned) from SCRRA Operating Cost/Revenue History*

- Annual "contingency fees" paid to Amtrak (currently $1.5 million) and Mass Electric (currently $0.5 million) is not for expenses incurred by those contractors in the performance of their services.
- The current S&C maintenance contract with Mass Electric is paying 90 percent of State general prevailing wage rates to union employees. The State Department of Industrial Relations has determined, however, that Brotherhood of Railroad Signalmen (BRS) union wage rates are the appropriate rates for the contract. BRS rates are significantly less than State prevailing rates (exact amounts vary depending on craft).

- Ridership has increased 17 percent while farebox revenues have increased 92 percent.
- Overall revenue recovery has decreased from 60 percent in FY04 to 51 percent in FY14 leading to an increase in Member Agency net subsidies as a percent of total expenditures from 40 percent in FY04 to 49 percent in FY14.

### 3.2.2 Rehabilitation Cost Comparisons

Rehabilitation expenditures are upgrades to existing assets that extend the useful life of those assets. As currently tracked, SCRRA rehabilitation expenditures fall into the following categories:

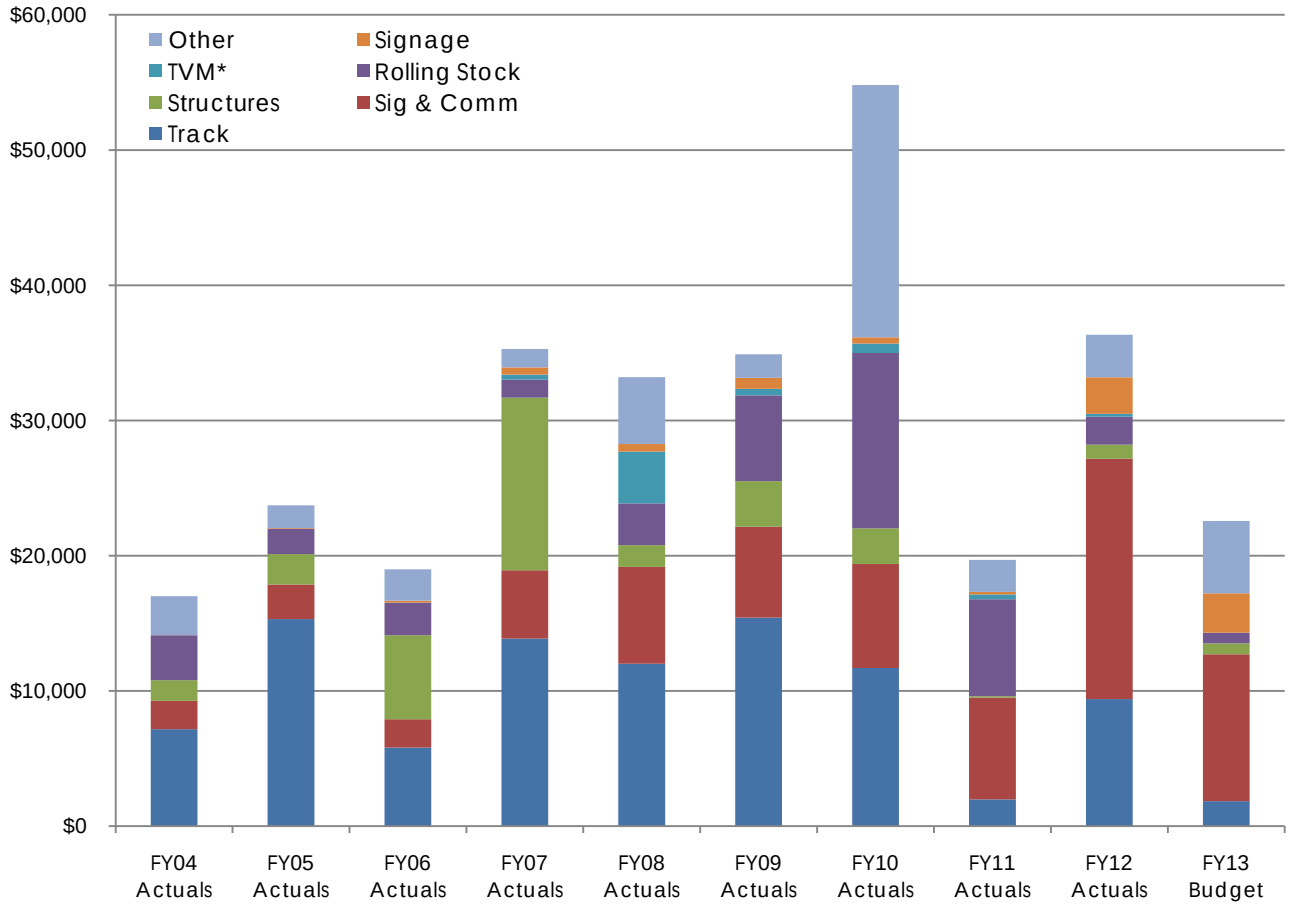
- Track (rail replacement, wood and concrete tie replacement, switch and frog replacement, and road crossing upgrades)
- Signal and communications (replacement/upgrades to signal system components)
- Structures (bridge, tunnel, and drainage upgrades, and rolling stock (replacement/upgrades to locomotive/passenger car components)
- TVM (upgrades to ticket vending machines)
- Signage (signage upgrades at stations)
- Other (rubber tire vehicle replacement, on-track equipment replacement, facility upgrades, IT, FIS, GIS mapping, and station upgrades)

Table 3–3 and Figure 3–7 represent SCRRA's actual rehabilitation expenditures for the 10-year period FY04 through FY13 by category.

**Table 3–3: SCRRA Rehabilitation Expenditures – FY2004-13 ($000)**

| Category | FY04 Actuals | FY05 Actuals | FY06 Actuals | FY07 Actuals | FY08 Actuals | FY09 Actuals | FY10 Actuals | FY11 Actuals | FY12 Actuals | FY13 Actuals | Total | % of Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Track** | $7,174 | $15,315 | $5,818 | $13,871 | $12,018 | $15,415 | $11,689 | $1,978 | $9,403 | $1,855 | **$94,536** | **31.9%** |
| **S&C** | $2,091 | $2,558 | $2,088 | $5,055 | $7,159 | $6,729 | $7,700 | $7,525 | $17,765 | $10,851 | **$69,521** | **23.4%** |
| **Structures** | $1,530 | $2,244 | $6,217 | $12,764 | $1,606 | $3,370 | $2,637 | $104 | $1,040 | $808 | **$32,320** | **10.9%** |
| **Rolling Stock** | $3,324 | $1,877 | $2,415 | $1,324 | $3,087 | $6,345 | $12,962 | $7,172 | $2,078 | $795 | **$41,379** | **14.0%** |
| **TVM** | $0 | $0 | $0 | $375 | $3,837 | $480 | $700 | $355 | $215 | $0 | **$5,962** | **2.0%** |
| **Signage** | $4 | $50 | $132 | $539 | $554 | $821 | $459 | $190 | $2,695 | $2,914 | **$8,358** | **2.8%** |
| **Other** | $2,885 | $1,678 | $2,326 | $1,355 | $4,944 | $1,732 | $18,666 | $2,374 | $3,142 | $5,345 | **$44,447** | **15.0%** |
| **Total** | **$17,008** | **$23,722** | **$18,996** | **$35,283** | **$33,205** | **$34,892** | **$54,813** | **$19,698** | **$36,338** | **$22,568** | **$296,523** | |

**Figure 3–7: SCRRA Rehabilitation Expenditures – FY2004-13 ($000)**




**TVM = Ticket Vending Machines*

Right-of-Way categories (such as track, signals & communication, and structures), in addition to rolling stock rehabilitation expenditures, total 80 percent of all expenditures. The total rehabilitation expenditures by subdivision and Member Agency (reflecting agreed upon cost splits) are reflected below in Table 3–4.

**Table 3–4: Rehabilitation Expenditures by Subdivision & Member Agency ($Millions)**

| Subdivision | Total Cost | LACMTA | OCTA | RCTC | SANBAG | VCTC |
|---|---|---|---|---|---|---|
| **San Gabriel** | $35.7 | 60% | 0% | 0% | 40% | 0% |
| **Ventura (L.A. County)** | $20.2 | 100% | 0% | 0% | 0% | 0% |
| **Ventura (Ventura County)** | $20.5 | 0% | 0% | 0% | 0% | 100% |
| **Valley** | $32.9 | 100% | 0% | 0% | 0% | 0% |
| **Orange** | $54.7 | 0% | 100% | 0% | 0% | 0% |
| **Olive** | $4.9 | 0% | 100% | 0% | 0% | 0% |
| **River*** | $11.6 | 47.5% | 19.8% | 11.1% | 14.4% | 7.2% |
| **Pasadena** | $1.0 | 100% | 0% | 0% | 0% | 0% |
| **Rialto** | $0.1 | 0% | 0% | 0% | 100% | 0% |
| **San Bernardino (BNSF)** | $1.3 | Determined by County Location | | | | |
| **Los Angeles (UPRR)** | $1.6 | Determined by County Location | | | | |
| **Systemwide Total (SCRRA)*** | **$111.7** | **47.5%** | **19.8%** | **11.1%** | **14.4%** | **7.2%** |

** Percentages determined by the SCRRA All-Share Formula, which defines the share of each Member Agency as LACMTA 47.5%, OCTA 19.8%, RCTC 11.1%, SANBAG 14.4%, and VCTC 7.2%.*

The current all-share formula was established in 1998 using unduplicated route miles, unduplicated stations, and ridership. Funding for SCRRA rehabilitation expenditures has historically come from the following sources:

- LACMTA – Local funds
- OCTA – Federal Transit Administration (FTA) 5309 and 5337
- SANBAG – FTA 5309 and 5337
- RCTC – FTA 5307 and 5309
- VCTC – State PTA and FTA 5307, 5309, 5337

The information presented in Table 3–3 and Figure 3–7 represents the money expended historically each fiscal year, but it is also important to acknowledge that expenditures have historically been less than the budget programmed for rehabilitation for each of those years (Figure 3–7 & Figure 3–8). The primary reason for the annual expenditure under runs is the multi-year nature of the rehabilitation program concerning the contracting out and material procurement processes. Member Agency annual budget approval and funding requirements require the program to be an annual process because funding is only approved as part of the overall annual budget process for the Member Agencies. Further, design changes necessitated by the implementation of positive train control (PTC) delayed several signal/communication rehabilitation projects after the incident in Chatsworth in 2008. In addition, and more recently, the SCRRA has made a decision not to start rehabilitation projects, due to cashflow concerns, until the appropriate FTA grants are executed. These grants are routinely not executed until well into the fiscal year.

A multi-year plan and funding source for the SCRRA rehabilitation budget is necessary to avoid continued expenditure carryovers each year.

**Figure 3–8: Rehabilitation Total Annual Expenditures vs. Budget ($000)**

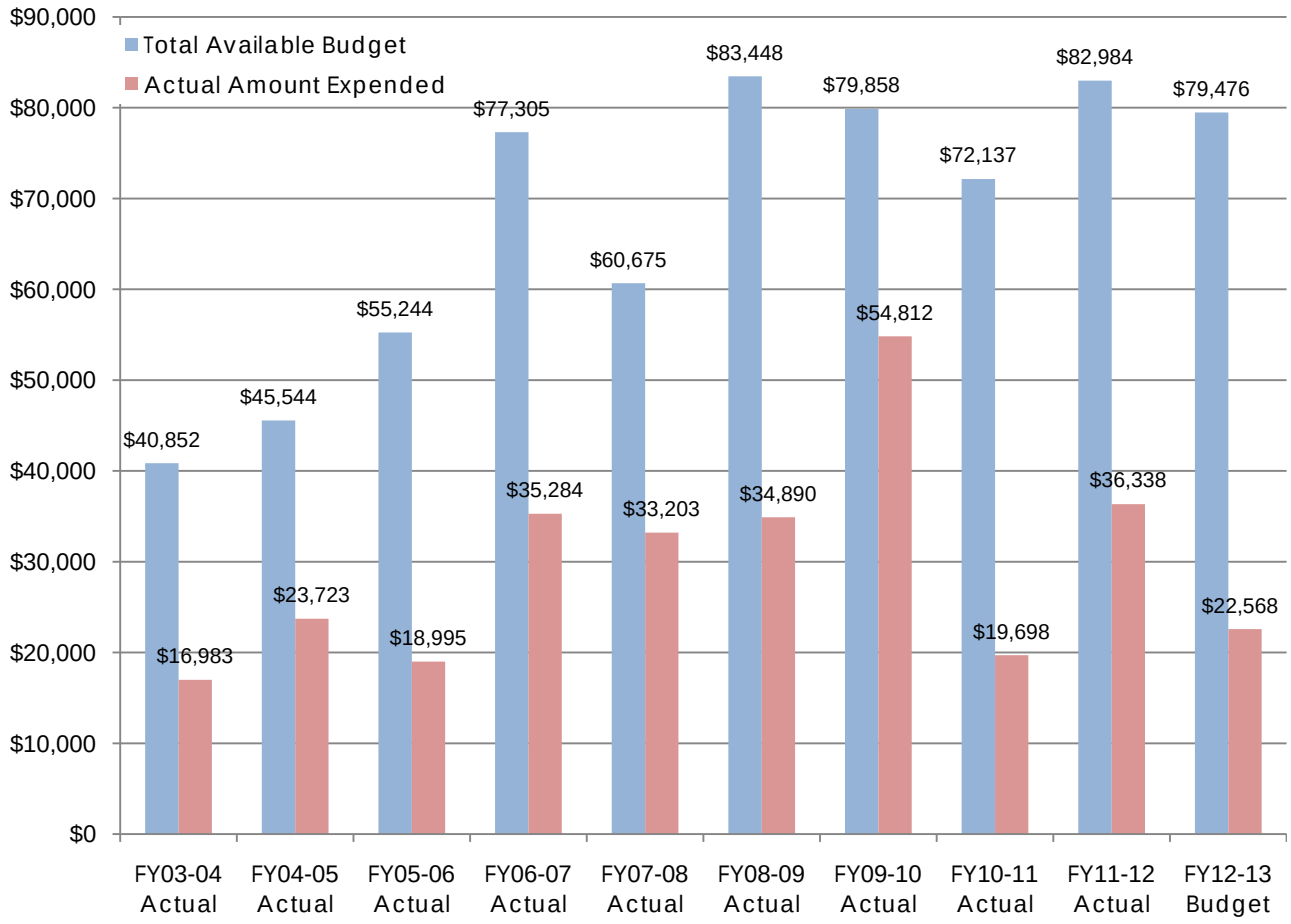
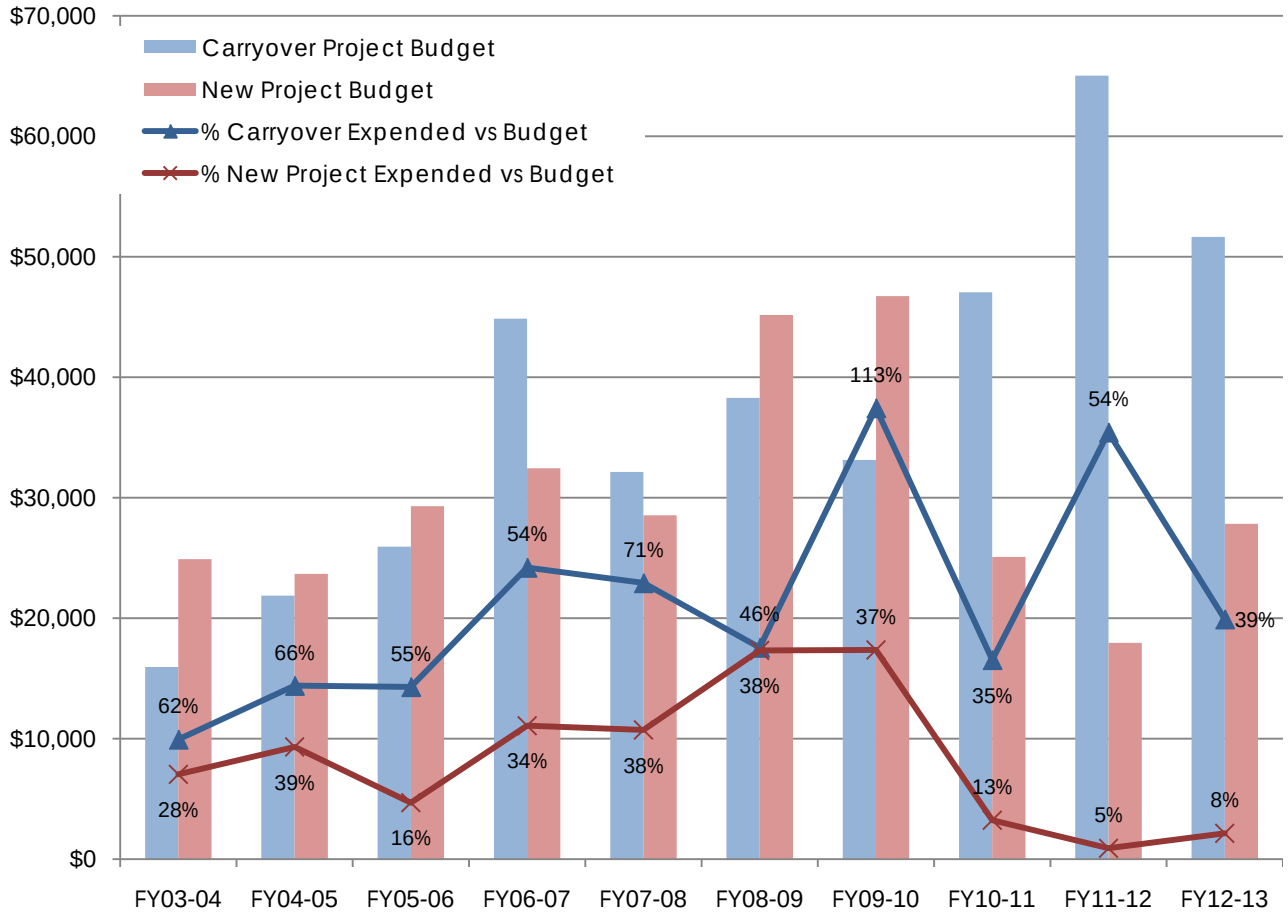


**Figure 3–9: Rehab Annual Expenditures vs. Carryover and New Programmed Budget ($000)**




*Observations (lessons learned) from SCRRA Rehabilitation Cost History*

- The annual rehabilitation requests from SCRRA Department Directors/Managers have typically exceeded the Member Agency annual budget allocations for the program. The difference between the annual requests and the constrained budget can be looked at as the gap between the "state of good repair" level of expenditures and the constrained level of expenditures. Whether or not the annual requests represent an accurate measure of "state of good repair" is difficult to determine from historical costs. Going forward, SCRRA will need more detailed tracking in the variance between "state of good repair" infrastructure needs and funding constraints to adhere to MAP-21 requirements.

- Annual expenditures are not meeting the programmed rehabilitation budget each fiscal year. SCRRA needs to provide a multi-year rehabilitation plan and schedule and Member Agencies need to commit to a multi-year rehabilitation program regarding funding and planning as opposed to the current annual budget process. Many projects that make it into the annual rehabilitation budget are multi-year projects in terms of schedule, and unspent funding is "carried over" year after year.

- As new train service, such as the Redlands branch extension and the Perris Valley Line (PVL) service, is added, the all-share formula should be recalculated to consider the additional route miles, stations, and ridership by county.

### 3.2.3 Capital Cost Comparisons

SCRRA's capital budget consists of the annual rehabilitation program (as discussed above), which is associated with upgrades to existing assets in conjunction with the New Capital component. The New Capital component is associated with constructing or procuring new assets such as new track/facilities or procuring new rolling stock. New Capital projects are funded with varying combinations of local, state, and federal funding.

Table 3–5 and Figure 3–10 show New Capital expenditures as compared to Rehabilitation and Recollectable expenditures for the FY04-FY13 period. Recollectable expenditures are dependent on third party agreements and funding. These projects are not included in the annual SCRRA budget. New Capital (right-of-way and procurement) makes up 58 percent of the total 10-year expenditure of $1.3 billion. Of the New Capital expenditures, nearly 60 percent was on right-of-way. This included capital projects and programs such as:

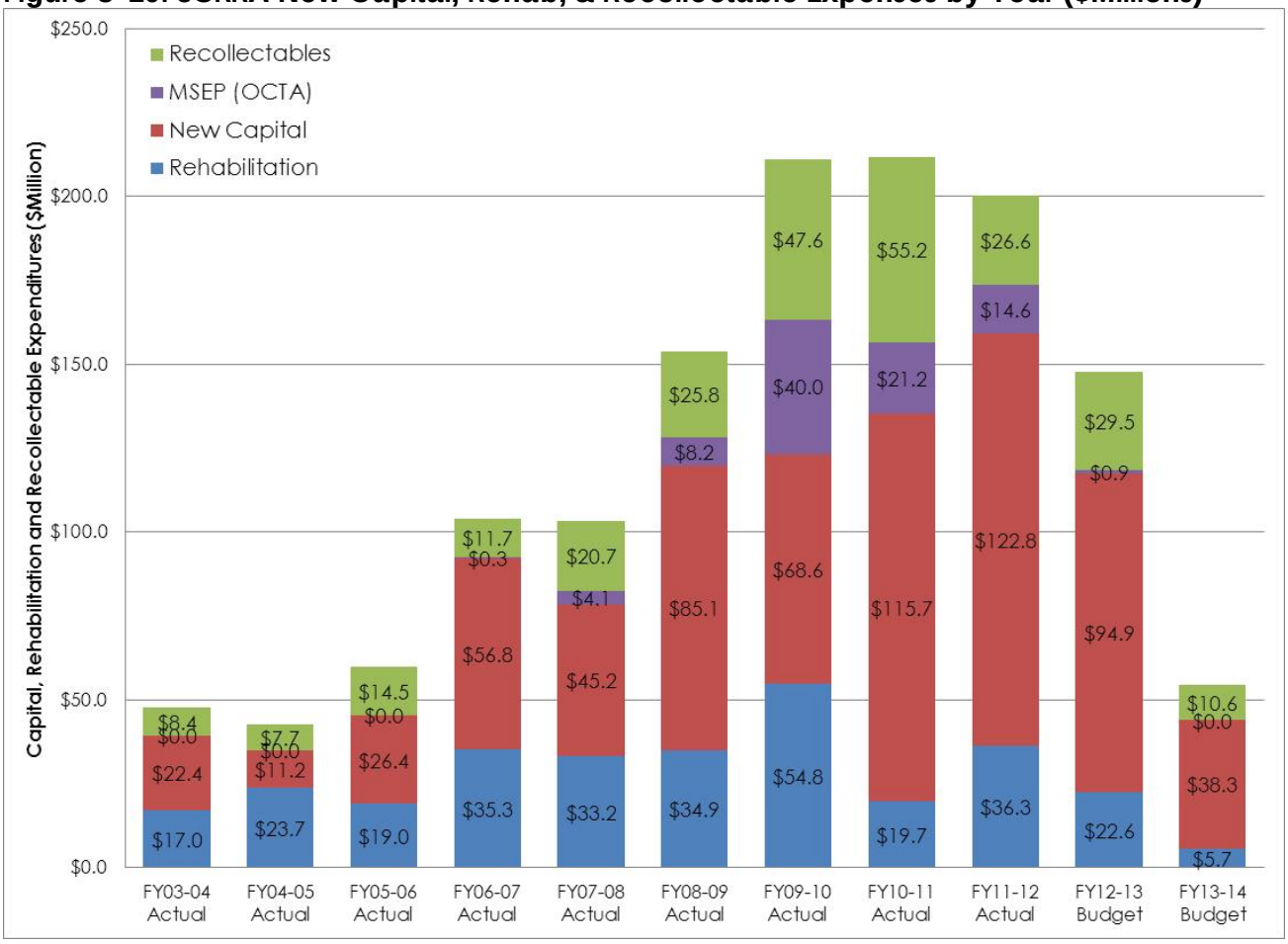
- $165 million for PTC
- $89 million for the Orange County MSEP construction (OCTA funded)
- $49 million for the Eastern Maintenance Facility (EMF)
- $25 million for the Lincoln Avenue double track project in Orange County
- $18 million for the mail dock project at Union Station
- $14 million for the construction of Keller Yard in Los Angeles
- $64 million on several other mostly track and structures projects

Of the $306 million expended on procurement of New Capital, $304 million was for rolling stock procurement and $2 million was for inward and outward facing cameras, ticket vending machines, and ticket validators.

**Table 3–5: SCRRA New Capital, Rehab, & Recollectable Expenditures – FY2004-13 ($Millions)**

| Expenditure | FY04 Actuals | FY05 Actuals | FY06 Actuals | FY07 Actuals | FY08 Actuals | FY09 Actuals | FY10 Actuals | FY11 Actuals | FY12 Actuals | FY13 Budget | Total | % of Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital – Right of Way** | $14.3 | $4.4 | $5.4 | $22.8 | $20.5 | $38.9 | $42.4 | $55.5 | $63.7 | $75.1 | **$343.0** | **27%** |
| **Capital – Procurement** | $8.2 | $6.8 | $21.1 | $34.1 | $24.7 | $46.2 | $26.2 | $60.2 | $59.1 | $19.2 | **$305.8** | **24%** |
| **MSEP (OCTA)** | $0.0 | $0.0 | $0.0 | $0.3 | $4.1 | $8.2 | $40.0 | $21.2 | $14.6 | $0.9 | **$89.3** | **7%** |
| **Rehabilitation** | $17.0 | $23.7 | $19.0 | $35.3 | $33.2 | $34.9 | $54.8 | $19.7 | $36.3 | $22.6 | **$296.5** | **23%** |
| **Recollectable** | $8.4 | $7.7 | $14.5 | $11.7 | $20.7 | $25.8 | $47.6 | $55.2 | $26.6 | $29.5 | **$247.7** | **19%** |
| **Total** | **$47.9** | **$42.6** | **$60.0** | **$104.2** | **$103.2** | **$154.0** | **$211.0** | **$211.8** | **$200.3** | **$147.3** | **$1,282.3** | |

**Figure 3–10: SCRRA New Capital, Rehab, & Recollectable Expenses by Year ($Millions)**




Recollectable projects number in the hundreds and range from small expenditures (e.g., flagging protection for utilities working on the right-of-way, prom trains, design review, etc.) to relatively large expenditures (e.g., shoo-fly track construction associated with new grade separations, Orange County grade crossing safety program, etc.). The recollectable costs are included here to reflect

the significant level of effort associated with SCRRA staff and contractors for expenditures that are not included in the SCRRA annual budget.

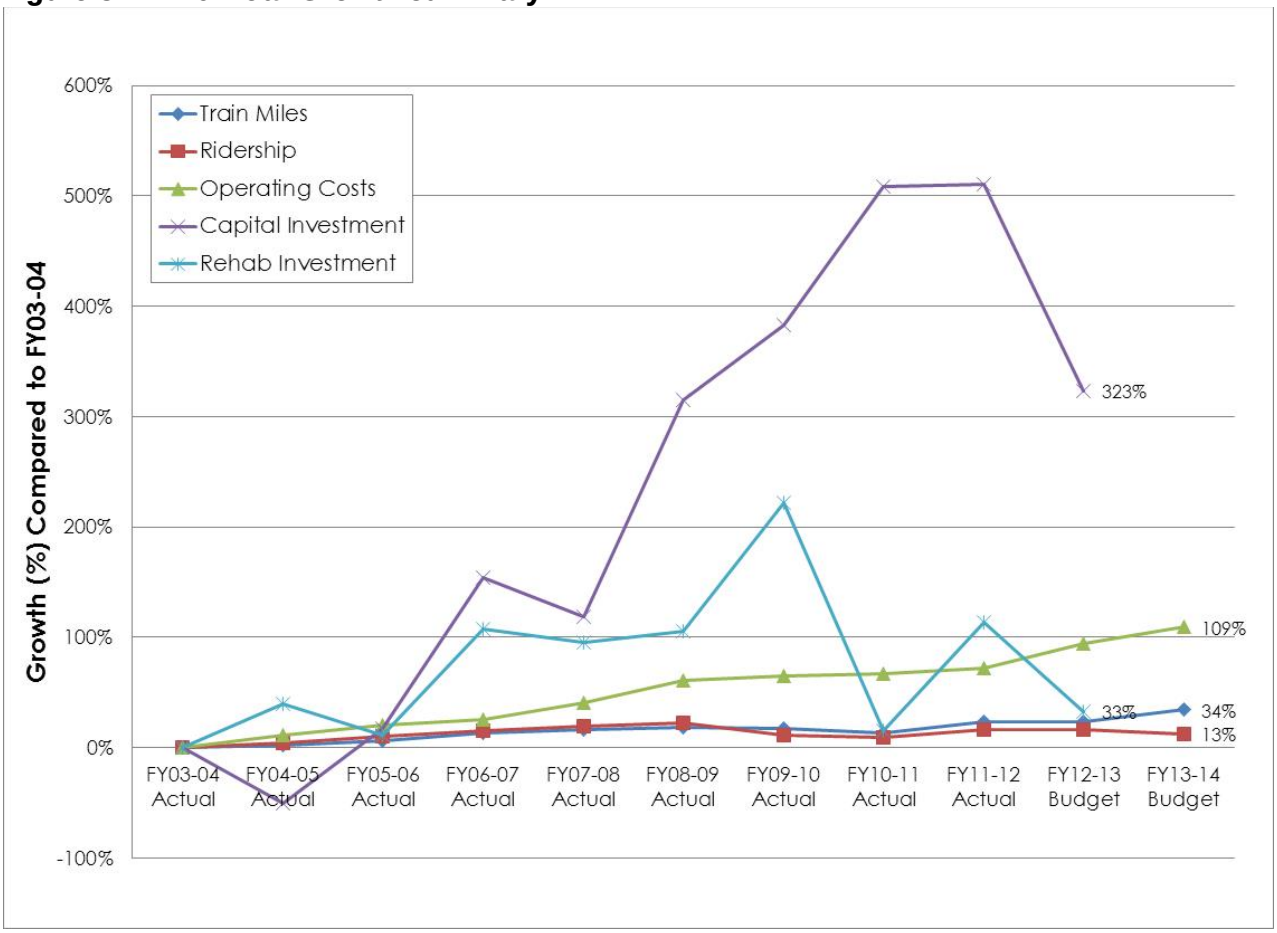
*Observations (lessons learned) from SCRRA New Capital Cost History*

- The level of expenditure for New Capital expenditures is dependent upon revenues provided by the Member Agencies or state or federal agencies.
- New capital expenditures for both right-of-way capacity additions and rolling stock procurement have major ramifications on SCRRA's operating budget in terms of maintenance-of-way expenditure increases and equipment maintenance expenditure increases. Potential maintenance expenditure increases should be included on the cost side of any cost-benefit analysis of a future capital project.

### 3.2.4 General Observations of 10-year Historical Costs

In reviewing the 10 years of historical costs and data from FY2004 to FY2014, the significant increase in new capital investment (projects and procurement) made by the agency is apparent. The new capital investment over this period includes the safety critical programs of Crash Energy Management (CEM) equipment, the design and implementation of Positive Train Control (PTC), as well as local programs such as Orange County's Metrolink Service Expansion Program (MSEP). As represented in Figure 3–11, operating costs also increased significantly during this same period, however, ridership, train miles, and investment in rehabilitation (existing equipment and infrastructure) showed relatively modest growth comparatively.

**Figure 3–11: 10-Year Growth Summary**




## 3.3 10-YEAR COST PROJECTIONS

In order to accommodate SCRRA's desire to develop a 10-year strategic plan, a forecast of the Agency's expenditures and revenues is necessary to give the SCRRA's Member Agencies an estimate of their fiscal year operating net subsidies, based on the current level of service projected over the next ten years. These estimates are intended to aid the business planning process in a constrained funding environment. New train service and capacity improvements can then only be pursued within available funds.

### 3.3.1 Growth and Escalation Assumptions

The 10-year forecast developed should be considered a "baseline" estimate. This estimate is based on the SCRRA's FY15 operating budget as approved by the Board on June 27, 2014. New service (beyond what was budgeted for in the FY15 budget) and new service extensions (such as PVL and Redlands 1st-mile extensions) are not considered. Staffing levels for the SCRRA and its operating contractors beyond FY15 (FY15 annualizes estimated PTC maintenance costs) are not considered. Fare increases are not assumed. Member Agency individual net subsidies are assumed the same

FY15 proportion of total net subsidies for the 10-year period. As new service is added, especially the PVL line in Riverside County, several formulas (all-share, train miles by county, unduplicated route miles by county, unduplicated stations by county, TVM's by county, ridership by county) used to determine operating funding shares for each Member Agency will need to be recalculated. These recalculations will change Member Agency net subsidy proportions.

Using SCRRA's approved FY15 operating budget as the base year, annual growth rates were estimated for each of the functional components of the budget (see Table 3–7).

Primary estimated annual growth rate assumptions on the expenditure side are:

- The "Big 5" operating contracts (Amtrak – train crews, Bombardier – equipment maintenance, VTMI – track/structures maintenance, Mass Electric – signal/communications, and LASD –sheriff security) are all assumed to grow at 4.0 percent per year over the period due to wage increases built into the contracts
- Diesel fuel for locomotives is projected to grow at 4.5 percent per year over the period, from an estimated $3.16 per gallon in FY15 to $4.50 per gallon in FY24
- Railroad shared-use agreement payments to BNSF and UPRR to operate over their railroads are assumed to grow at 4.0 percent a year based on historical AAR (American Association of Railroads) index increases
- Maintenance-of-way (which includes the VTMI and Mass Electric contracts) is estimated to grow at 4.0 percent a year, also based on historical AAR indices
- Risk management expenditures are estimated to grow at a modest 1.5 percent per year assuming a functioning PTC system and new grade separations keep downward pressure on operating liability premiums
- Administration and services (wages/fringe benefits, non-labor expenses, indirect administrative expenses, and professional services) are assumed to increase at 2.5 percent per year to keep pace with COLA increases

Estimated annual growth rate assumptions on the revenue side:

- Fare revenues are estimated to increase 1.5 percent per year based on weak ridership forecasts
- Dispatching revenues from BNSF, UPRR, and Amtrak are estimated to increase by 1.0 percent per year based on shared-use agreement requirements
- Other revenues (Amtrak TVM revenues, interest, miscellaneous) are assumed to remain flat over the period
- Maintenance-of-way revenues primarily from BNSF, UPRR, and Amtrak are estimated to increase by 4.0 percent per year based on AAR indices

### 3.3.2 General Observations of 10-Year Cost Projections

Using the assumed annual growth rates applied to the functional components of the SCRRA's approved FY15 operating budget, overall expenditures are projected to increase by $80.7 million over the next 10 years (or about 3.6 percent per year), as illustrated in Figure 3–12. Operating revenues are projected to increase by $19.3 million (about 1.8 percent per year) and total Member Agency net subsidies are projected to increase by $61.4 million (about 5.4 percent per year). Table 3–6 and Table 3–7 on the following pages break down the assumed operating budget increases by the estimated individual Member Agency share and by category for each fiscal year.

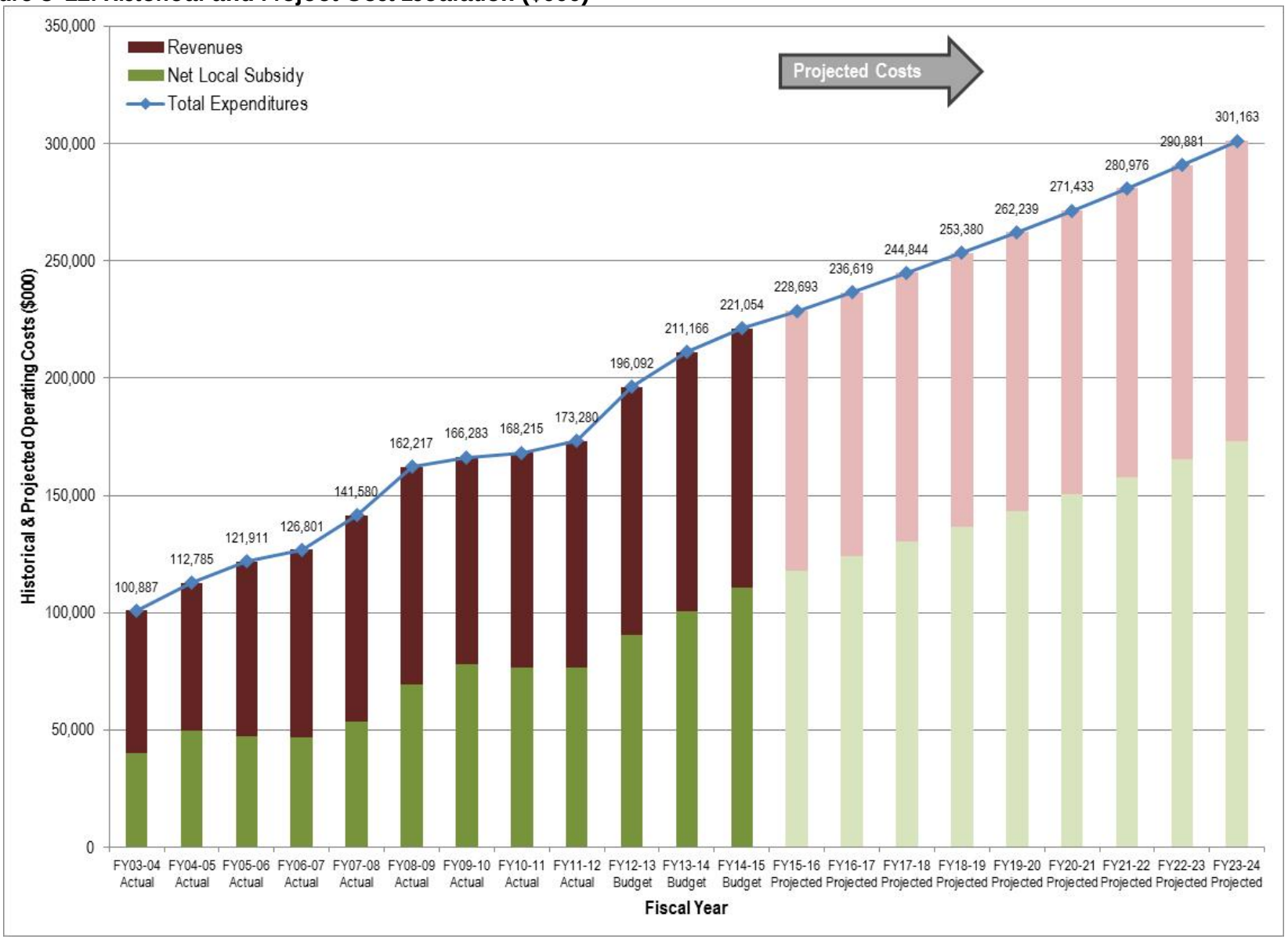
The information shows that under current assumptions, annual expenditures will continue to grow at a faster rate than annual revenues, primarily due to operating contract wage escalators and PTC operating maintenance costs. Revenue recovery will continue to fall and Member Agency net subsidies will continue to increase both in absolute terms and as a percent of expenditures.

It is important to note, however, that these estimates are based on several variables that can change over the next 10 years.

- Four of the "Big 5" operating contracts expire during the FY15-FY24 period and will have to be re-solicited with the possibility of new contractors and new bid prices. These include:
- Equipment maintenance (Bombardier) - expires June 2016
- Track/structures maintenance (VTMI) - expires December 2018
- Signal/communications (Mass Electric) - expires June 2020
- Operating services (Amtrak) - expires June 2017
- Annual PTC operating maintenance costs are still estimates and the accuracy of those estimates is not yet known.

In conclusion, changes to anyone or all of these variables could have a significant positive or negative impact to the projected operating budgets moving forward. The information presented in this section identifies where some of the primary increases in future budgets may originate, allowing SCRRA and its Member Agencies the option to define the best solution for mitigating these increases as opportunities are presented.

**Figure 3–12: Historical and Project Cost Escalation ($000)**



### Table 3–6: Member Agency Share of Projected Operating Expenditures/Revenues ($000)

| Member Agency (Net Subsidy Share) | FY15 Budget | Annual Growth Rate | FY16 Projected | FY17 Projected | FY18 Projected | FY19 Projected | FY20 Projected | FY21 Projected | FY22 Projected | FY23 Projected | FY24 Projected | Increase FY15-24 | % Increase FY15-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L.A. Metro (53.14%) | $58,903 | 5.61% | $62,729 | $65,870 | $69,147 | $72,564 | $76,127 | $79,842 | $83,716 | $87,755 | $91,966 | $33,064 | 56% |
| OCTA (20.06%) | $22,235 | 5.61% | $23,680 | $24,866 | $26,102 | $27,392 | $28,737 | $30,140 | $31,602 | $33,127 | $34,717 | $12,481 | 56% |
| RCTC (8.83%) | $9,788 | 5.61% | $10,423 | $10,945 | $11,490 | $12,058 | $12,650 | $13,267 | $13,911 | $14,582 | $15,282 | $5,494 | 56% |
| SANBAG (10.62%) | $11,772 | 5.61% | $12,536 | $13,164 | $13,819 | $14,502 | $15,214 | $15,956 | $16,731 | $17,538 | $18,379 | $6,608 | 56% |
| VCTC (7.36%) | $8,158 | 5.61% | $8,688 | $9,123 | $9,577 | $10,050 | $10,544 | $11,058 | $11,595 | $12,154 | $12,737 | $4,579 | 56% |
| **TOTAL NET LOCAL SUBSIDY** | **$110,855** | **5.61%** | **$118,056** | **$123,969** | **$130,135** | **$136,566** | **$143,271** | **$150,264** | **$157,555** | **$165,156** | **$173,081** | **$62,226** | **56%** |

### Table 3–7: Projected Operating Expenditures/Revenues – FY2015-24 ($000)

| Category | FY15 Budget | Annual Growth Rate | FY16 Projected | FY17 Projected | FY18 Projected | FY19 Projected | FY20 Projected | FY21 Projected | FY22 Projected | FY23 Projected | FY24 Projected | Increase FY15-24 | % Increase FY15-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Expenditures | $221,054 | 3.62% | $228,693 | $236,619 | $244,844 | $253,380 | $262,239 | $271,433 | $280,976 | $290,881 | $301,163 | $80,109 | 36% |
| Revenues | $110,210 | 1.62% | $110,649 | $112,663 | $114,722 | $116,828 | $118,982 | $121,184 | $123,437 | $125,741 | $128,100 | $17,890 | 16% |
| Net Local Subsidy | $110,844 | 5.61% | $118,044 | $123,956 | $130,122 | $136,552 | $143,257 | $150,249 | $157,539 | $165,140 | $173,064 | $62,220 | 56% |
| | | | | | | | | | | | | | |
| Revenues - Total | $221,054 | 3.62% | $228,693 | $236,619 | $244,844 | $253,380 | $262,239 | $271,433 | $280,976 | $290,881 | $301,163 | $80,109 | 36% |
| Non-Member Agency Revenues | $110,210 | 1.62% | $110,649 | $112,663 | $114,722 | $116,828 | $118,982 | $121,184 | $123,437 | $125,741 | $128,100 | $17,890 | 16% |
| Farebox | $91,242 | 1.50% | $92,611 | $94,000 | $95,410 | $96,841 | $98,294 | $99,768 | $101,264 | $102,783 | $104,325 | $13,083 | 14% |
| Dispatching | $3,596 | 1.00% | $2,678 | $2,705 | $2,732 | $2,759 | $2,787 | $2,815 | $2,843 | $2,871 | $2,900 | -$696 | -19% |
| Other | $398 | 0.00% | $398 | $398 | $398 | $398 | $398 | $398 | $398 | $398 | $398 | $0 | 0% |
| MofW | $14,974 | 4.00% | $14,962 | $15,560 | $16,183 | $16,830 | $17,503 | $18,204 | $18,932 | $19,689 | $20,476 | $5,502 | 37% |
| PL/PD | N/A | 0.00% | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Member Agency Net Subsidy | $110,844 | 5.61% | $118,044 | $123,956 | $130,122 | $136,552 | $143,257 | $150,249 | $157,539 | $165,140 | $173,064 | $62,220 | 56% |
| | | | | | | | | | | | | | |
| Expenditures - Total | $221,054 | 3.62% | $228,693 | $236,619 | $244,844 | $253,380 | $262,239 | $271,433 | $280,976 | $290,881 | $301,163 | $80,109 | 36% |
| Ops & Services | $132,868 | 4.17% | $138,094 | $143,532 | $149,191 | $155,080 | $161,210 | $167,589 | $174,228 | $181,138 | $188,330 | $55,462 | 42% |
| Train Operations | $41,906 | 4.06% | $43,521 | $45,200 | $46,943 | $48,755 | $50,638 | $52,595 | $54,628 | $56,741 | $58,936 | $17,030 | 41% |
| *Train Crews* | $37,839 | 4.00% | $39,353 | $40,927 | $42,564 | $44,266 | $46,037 | $47,878 | $49,794 | $51,785 | $53,857 | $16,018 | 42% |
| *Dispatching* | $4,067 | 2.50% | $4,169 | $4,273 | $4,380 | $4,489 | $4,601 | $4,716 | $4,834 | $4,955 | $5,079 | $1,012 | 25% |
| Equip. Maint. | $28,795 | 4.00% | $29,947 | $31,145 | $32,390 | $33,686 | $35,034 | $36,435 | $37,892 | $39,408 | $40,984 | $12,189 | 42% |
| Fuel | $25,082 | 4.50% | $26,211 | $27,390 | $28,623 | $29,911 | $31,257 | $32,663 | $34,133 | $35,669 | $37,274 | $12,192 | 49% |
| Non-Scheduled Rolling Stock Repairs | $252 | 2.50% | $258 | $265 | $271 | $278 | $285 | $292 | $300 | $307 | $315 | $63 | 25% |
| Operating Facilities Maint. | $1,361 | 4.00% | $1,415 | $1,472 | $1,531 | $1,592 | $1,656 | $1,722 | $1,791 | $1,863 | $1,937 | $576 | 42% |

| Category | FY15 Budget | Annual Growth Rate | FY16 Projected | FY17 Projected | FY18 Projected | FY19 Projected | FY20 Projected | FY21 Projected | FY22 Projected | FY23 Projected | FY24 Projected | Increase FY15-24 | % Increase FY15-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Operating Train Services | $540 | 5.00% | $567 | $595 | $625 | $656 | $689 | $724 | $760 | $798 | $838 | $298 | 55% |
| Rolling Stock Lease | $541 | 0.00% | $541 | $541 | $541 | $541 | $541 | $541 | $541 | $541 | $541 | $0 | 0% |
| Security - Sheriff | $5,272 | 4.00% | $5,483 | $5,702 | $5,930 | $6,167 | $6,414 | $6,671 | $6,938 | $7,215 | $7,504 | $2,232 | 42% |
| Security - Guards | $2,010 | 4.00% | $2,090 | $2,174 | $2,261 | $2,351 | $2,445 | $2,543 | $2,645 | $2,751 | $2,861 | $851 | 42% |
| Supplemental Add. Security | $684 | 4.00% | $711 | $740 | $769 | $800 | $832 | $865 | $900 | $936 | $974 | $290 | 42% |
| Public Safety Program | $275 | 2.00% | $281 | $286 | $292 | $298 | $304 | $310 | $316 | $322 | $329 | $54 | 20% |
| Pass. Relations | $1,643 | 2.00% | $1,676 | $1,709 | $1,744 | $1,778 | $1,814 | $1,850 | $1,887 | $1,925 | $1,964 | $321 | 20% |
| Holiday Trains | $0 | 0.00% | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | N/A |
| TVM Maint./ Revenue Collection | $5,644 | 5.00% | $5,926 | $6,223 | $6,534 | $6,860 | $7,203 | $7,563 | $7,942 | $8,339 | $8,756 | $3,112 | 55% |
| Marketing | $1,024 | 0.00% | $1,024 | $1,024 | $1,024 | $1,024 | $1,024 | $1,024 | $1,024 | $1,024 | $1,024 | $0 | 0% |
| Media & External Comm. | $424 | 2.00% | $432 | $441 | $450 | $459 | $468 | $477 | $487 | $497 | $507 | $83 | 20% |
| Utilities/Leases | $2,780 | 4.00% | $2,891 | $3,007 | $3,127 | $3,252 | $3,382 | $3,518 | $3,658 | $3,805 | $3,957 | $1,177 | 42% |
| Transfers to Other Operators | $5,900 | 3.00% | $6,077 | $6,259 | $6,447 | $6,641 | $6,840 | $7,045 | $7,256 | $7,474 | $7,698 | $1,798 | 30% |
| Amtrak Transfers | $1,400 | 2.00% | $1,428 | $1,457 | $1,486 | $1,515 | $1,546 | $1,577 | $1,608 | $1,640 | $1,673 | $273 | 20% |
| Station Maint. | $1,512 | 3.00% | $1,557 | $1,604 | $1,652 | $1,702 | $1,753 | $1,805 | $1,860 | $1,915 | $1,973 | $461 | 30% |
| Rail Agreements | $5,823 | 4.00% | $6,056 | $6,298 | $6,550 | $6,812 | $7,085 | $7,368 | $7,663 | $7,969 | $8,288 | $2,465 | 42% |
| | | | | | | | | | | | | | |
| Maintenance-of-Way | $39,845 | 3.69% | $41,248 | $42,702 | $44,212 | $45,777 | $47,401 | $49,086 | $50,834 | $52,647 | $54,528 | $14,683 | 37% |
| Track | $6,522 | 4.00% | $6,783 | $7,054 | $7,336 | $7,630 | $7,935 | $8,252 | $8,583 | $8,926 | $9,283 | $2,761 | 42% |
| Signal | $12,367 | 4.00% | $12,862 | $13,376 | $13,911 | $14,468 | $15,046 | $15,648 | $16,274 | $16,925 | $17,602 | $5,235 | 42% |
| Structures | $1,124 | 4.00% | $1,169 | $1,216 | $1,264 | $1,315 | $1,368 | $1,422 | $1,479 | $1,538 | $1,600 | $476 | 42% |
| Procurement | $1,264 | 4.00% | $1,315 | $1,367 | $1,422 | $1,479 | $1,538 | $1,599 | $1,663 | $1,730 | $1,799 | $535 | 42% |
| Other | $7,403 | 4.00% | $7,699 | $8,007 | $8,327 | $8,660 | $9,007 | $9,367 | $9,742 | $10,132 | $10,537 | $3,134 | 42% |
| Agency Costs | $10,216 | 2.50% | $10,471 | $10,733 | $11,002 | $11,277 | $11,558 | $11,847 | $12,144 | $12,447 | $12,758 | $2,542 | 25% |
| Extra-Ordinary | $949 | 0.00% | $949 | $949 | $949 | $949 | $949 | $949 | $949 | $949 | $949 | $0 | 0% |
| | | | | | | | | | | | | | |
| Risk Management | $17,678 | 1.39% | $17,935 | $18,195 | $18,460 | $18,728 | $19,001 | $19,278 | $19,560 | $19,846 | $20,136 | $2,458 | 14% |
| Liability/Property/Auto | $15,397 | 1.50% | $15,628 | $15,862 | $16,100 | $16,342 | $16,587 | $16,836 | $17,088 | $17,345 | $17,605 | $2,208 | 14% |
| Claims | $1,000 | 0.00% | $1,000 | $1,000 | $1,000 | $1,000 | $1,000 | $1,000 | $1,000 | $1,000 | $1,000 | $0 | 0% |
| Claims Administration | $1,281 | 2.00% | $1,307 | $1,333 | $1,359 | $1,387 | $1,414 | $1,443 | $1,471 | $1,501 | $1,531 | $250 | 20% |
| | | | | | | | | | | | | | |
| Administration & Services | $30,162 | 2.49% | $30,916 | $31,689 | $32,481 | $33,293 | $34,126 | $34,979 | $35,853 | $36,749 | $37,668 | $7,506 | 25% |
| Wages & Fringe Benefits | $11,511 | 2.50% | $11,799 | $12,094 | $12,396 | $12,706 | $13,024 | $13,349 | $13,683 | $14,025 | $14,376 | $2,865 | 25% |
| Non-Labor Expenses | $4,795 | 2.50% | $4,915 | $5,038 | $5,164 | $5,293 | $5,425 | $5,561 | $5,700 | $5,842 | $5,988 | $1,193 | 25% |

| Category | FY15 Budget | Annual Growth Rate | FY16 Projected | FY17 Projected | FY18 Projected | FY19 Projected | FY20 Projected | FY21 Projected | FY22 Projected | FY23 Projected | FY24 Projected | Increase FY15-24 | % Increase FY15-24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indirect Admin. Expenses** | $13,231 | 2.50% | $13,562 | $13,901 | $14,248 | $14,605 | $14,970 | $15,344 | $15,728 | $16,121 | $16,524 | $3,293 | 25% |
| **Professional Services** | $625 | 2.50% | $641 | $657 | $673 | $690 | $707 | $725 | $743 | $762 | $781 | $156 | 25% |
| | | | | | | | | | | | | | |
| **Contingency (Non-Train Ops)** | $501 | 0.00% | $501 | $501 | $501 | $501 | $501 | $501 | $501 | $501 | $501 | $0 | 0% |

## 4.0 ANALYSIS OF STRENGTH, WEAKNESSES, OPPORTUNITIES, AND THREATS

As part of the development of this Strategic Plan, an analysis of the Strengths, Weaknesses, Opportunities, and Threats (SWOT) was conducted to understand the risks and gaps for addressing the agency goals identified in the Strategic Plan document. The SWOT analysis builds the foundation for defining the core institutional needs that are necessary to strengthen the agency over the next 10 years.

The areas of SWOT analysis and the assessments themselves are informed by the guiding principles laid out at the February Board Workshop and the results of the Board, C.E.O., T.A.C., and staff interviews, and surveys, and presented in the Strategic Plan document. These principles emphasized:

- Customer Value
- Focus and Discipline
- Connectivity
- Collaboration
- Transparency

This section summarizes the methodology and results of the SWOT analysis. The complete SWOT analysis, as well as additional background information and data that was analyzed, is included as an attachment to this Technical Appendix.

## 4.1 CUSTOMER VALUE

The SWOT analysis performed on elements of the "Customer Value" discipline, emphasized evaluations of:

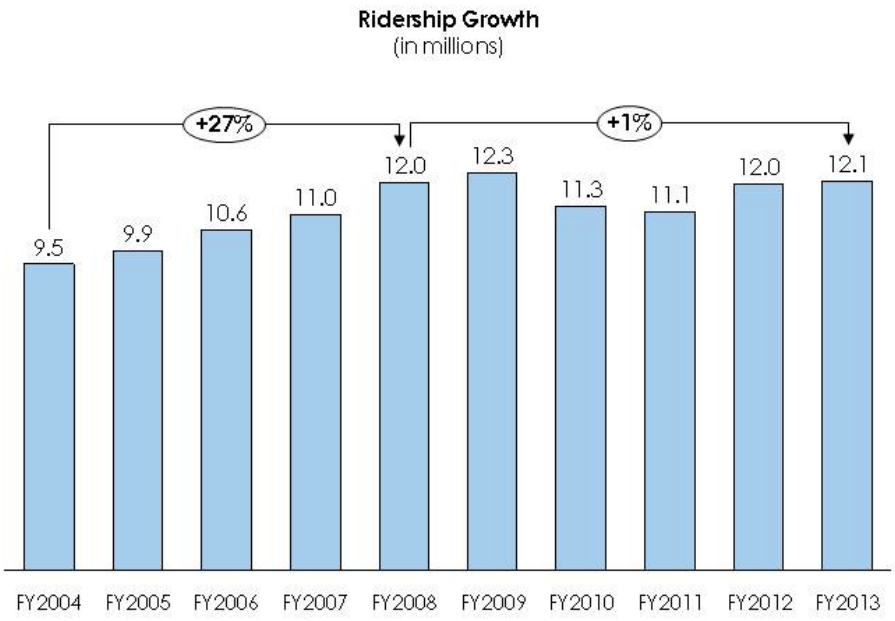
- Ridership
- On-time performance and Reliability
- Service Frequency
- Ticket Sales
- Customer Experience
- Branding

The Customer Value principle brings together all of the elements that go into riders' decisions to use Metrolink or opt for other transportation options. The key factors in that decision for most people include the cost of travel, the schedule/reliability of the service, the quality of the customer experience, and the brand.

### 4.1.1 Ridership

SCRRA ridership showed strong increases in the early 2000s before the recession, growing 27 percent from FY2004 to FY2008 (Figure 4–1). However, it has remained relatively flat since then (Figure 4–2:). The Recession likely affected ridership in FY2009 and beyond, but by FY2012, it rebounded to pre-recession levels. Annually, ridership grew 2.7 percent, but despite a small growth from FY2012 to FY2013, ridership has not yet fully reached pre-recession growth levels. SCRRA ridership growth exceeds the market average, but falls below industry average in ridership per vehicle revenue miles (VRM) (Figure 4–3). Ridership stagnated in 2013 with service issues being a factor in two-thirds of defector decisions (Figure 4–4). Service quality is a key determinant of rider loyalty.

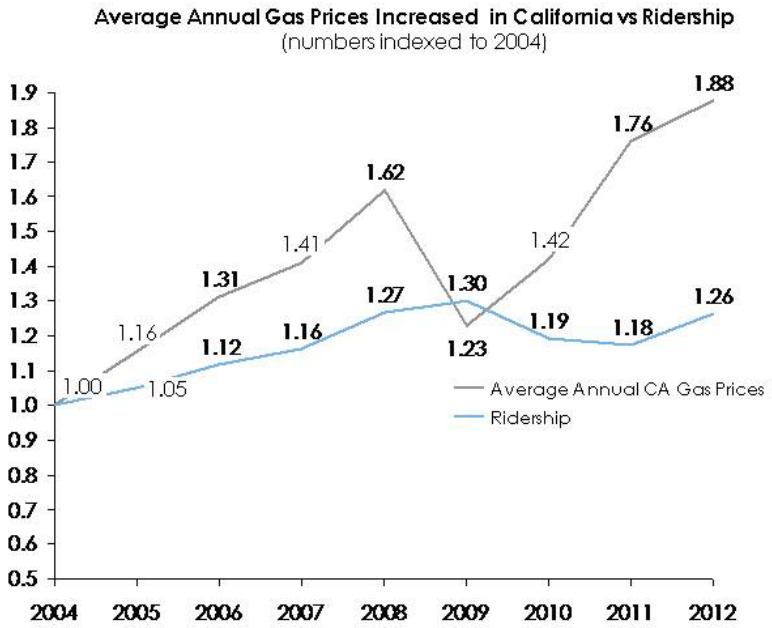
**Figure 4–1: SCRRA Ridership from FY2004 to FY2013**




**Comments**

- Ridership grew 27% from FY2004 to FY2008, but has remained approximately flat since
  - Recession likely affected ridership in FY2009 and beyond, but looks to have rebounded in FY2012 to pre-recession levels
- Annually, Ridership grew 2.7% over the time period analyzed
- Despite small growth from FY2012 to FY2013, ridership has not yet fully reached pre-recession growth levels

**Figure 4–2: Average Annual Gas Prices Increase in California vs. Ridership (Indexed to 2004)**




**Comments**

- Although California gas prices have nearly doubled since 2004, ridership increases are marginal
  - Since 2009, gas prices have increased almost 50%, while ridership remained flat
- SCRRA can leverage increasing gas prices to attract new riders looking to save on transportation
- In addition to rising gas prices, traffic patterns around LA remain congested
  - Cheaper and more relaxing commutes are available through SCRRA

**Figure 4–3: Ridership Growth and Ridership per VRM Growth FY2004-FY2012**

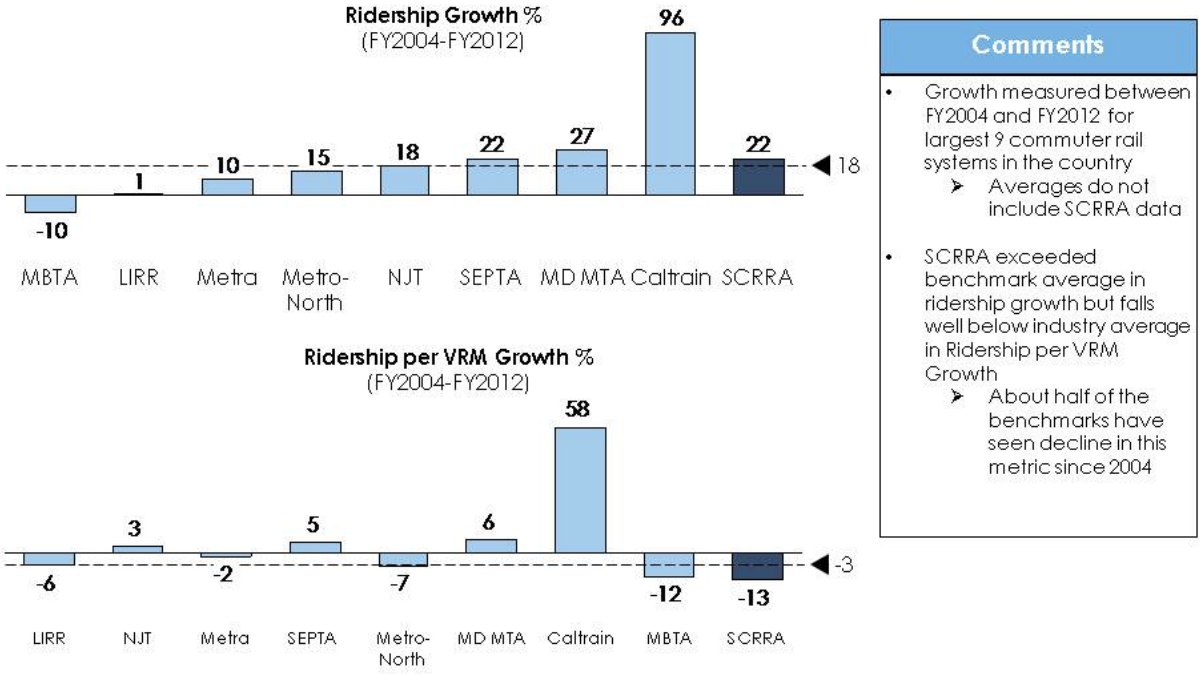
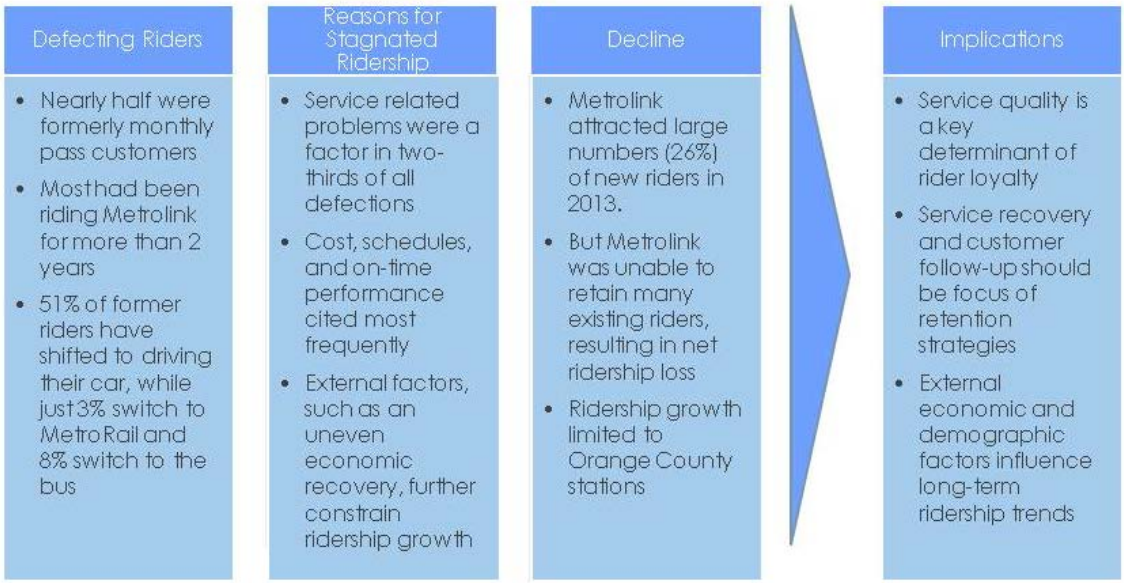


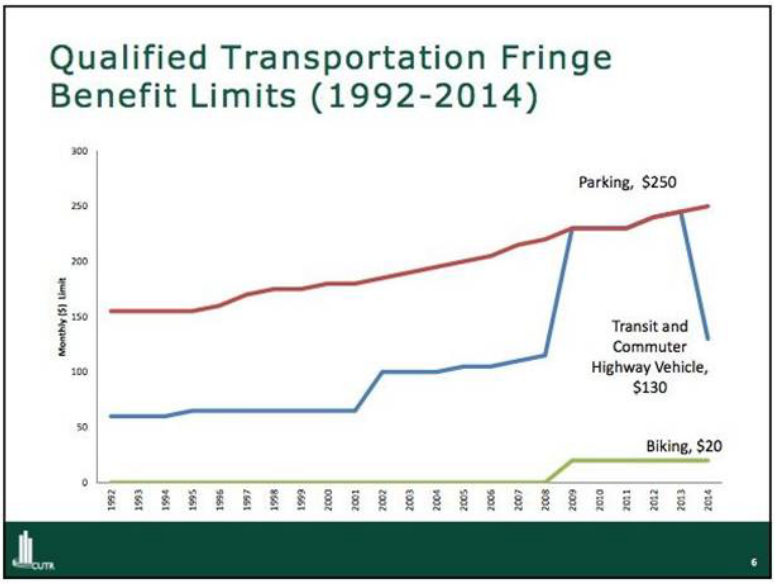

**Figure 4–4: Ridership Stagnated in 2013**




Since 2009, gas prices have increased almost 50 percent, while ridership remained flat (Figure 4–2). SCRRA can leverage increasing gas prices to attract new riders looking to save on transportation costs. In addition to rising gas prices, traffic patterns around Los Angeles remain congested. Cheaper and more relaxing commutes are available through SCRRA. Financial benefits of driving are currently superior to transit with higher pre-tax spending limits available to drivers (Figure 4–5).

However, Congress has been receiving pressure to restore parity between transit and driving giving SCRRA an opportunity to capitalize on potential additional transit benefits.

**Figure 4–5: Monthly Monetary Limits for Commuters – 1992 to 2014**

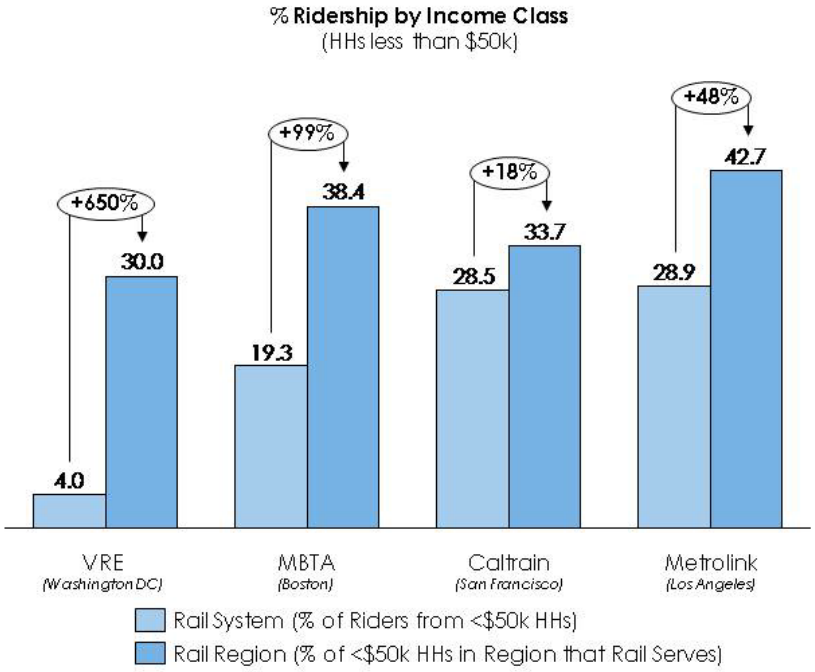



**Comments**

- Commuter benefits exist for driving
  - Can pay for parking passes with pre-tax money
- Pre-tax benefits also exist for transit (i.e. WageWorks)
- However, financial benefits to driving currently superior
  - Higher pre-tax spending limits available with driving
- Congress has been receiving pressure to restore parity between transit and driving
  - SCRRA can capitalize on potential additional transit benefits

SCRRA serves a disproportionately high level of low-income riders, given the percentage of low-income households (HHs) in the region (Figure 4–6). Caltrain also serves a high level of low-income riders. Caltrain, express bus, and Bust Rapid Transit (BRT) services provide fares that are typically less than Metrolink's (Figure 4–7). It will be a challenge for Metrolink to compete on price-point; therefore, Metrolink must focus on improved service, as additional competitive advantages may include convenience and customer service. In addition to lower fares, the competition also holds an advantage on trip-duration (Figure 4–8), which leaves Metrolink at a severe disadvantage when competing for riders on both price and duration of trip.

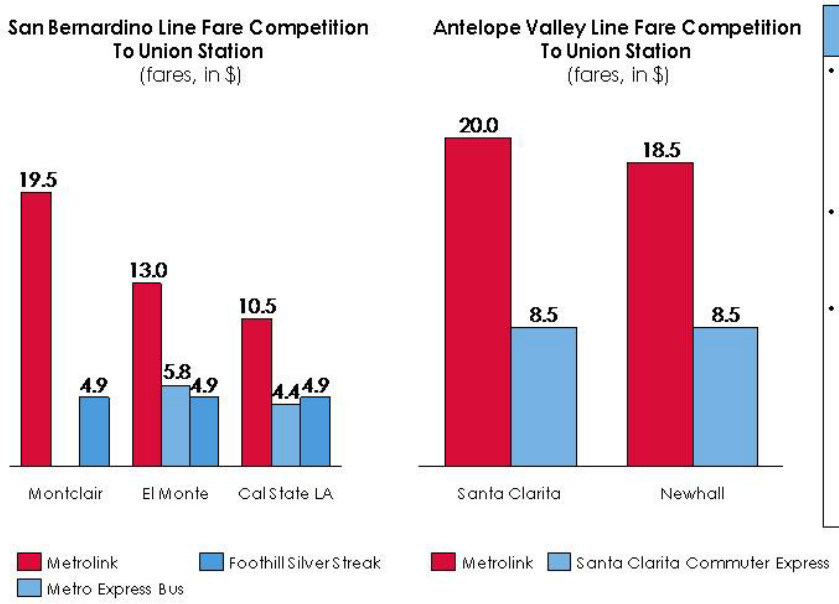
**Figure 4–6: Percent Ridership by Income Class**




**Comments**

- SCRRA serves a disproportionately high level of low-income riders, compared to some other commuter rail agencies
  - ~29% of riders on Metrolink come from <$50k HHs, while 43% of HHs in the region are from the same economic class
  - Just 4% and 19% of riders on VRE and MBTA come from low income HHs
- Caltrain also serves a high level of low-income riders, but Caltrain fares increased just 25% from 2003 to 2011, while SCRRA fares increased 44%

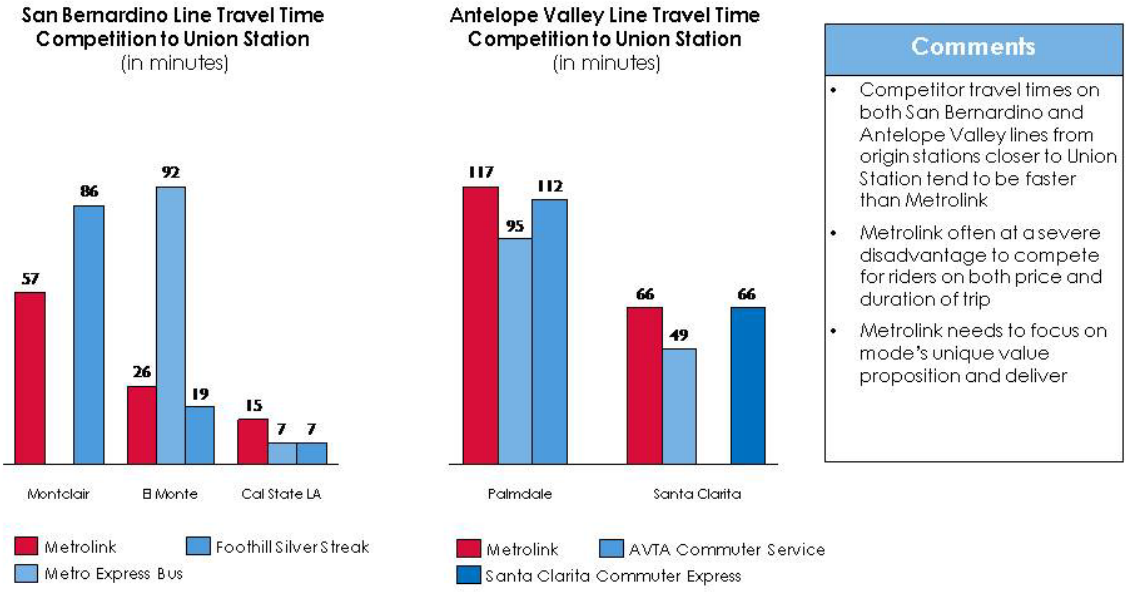
**Figure 4–7: Fare Comparison of Metrolink and Bus Services**




**Comments**

- Competition from express bus and BRT services on the San Bernardino Line provides fares that are typically greater than 50% less than Metrolink fares
- Competitors on Antelope Valley Line provide cheaper service from Santa Clarita and Newhall
- Challenge for Metrolink to compete on price-point, must focus on improved service
  - Additional competitive advantages may include comfort, convenience, customer service

**Figure 4–8: Time Travel Comparison of Metrolink and Bus Services**




*Next Steps for addressing Ridership moving forward:*

- Look more deeply at alternative fares based on Case Study success
- Address common reasons for Metrolink defectors
- Given generally loyal customer base, focus marketing efforts on attracting net new ridership
- Leverage potential tax benefits and congestion to attract new ridership
- Continue researching and collecting data on current riders and defectors to better understand reasons for staying / leaving Metrolink

### 4.1.2 On-Time Performance and Reliability

The percentage of SCRRA trains delayed over time remains consistent and overall on-time performance is in-line with industry peers (Figure 4–9 and Figure 4–10). However, the total number of train delays has increased in recent years (2 percent per year). This equates to about 5 percent of all trains delayed annually (Figure 4–11). Total delays grew 21 percent since 2005, but cancellations are up 340 percent. The total number of trains grew about 20 percent since 2005, but total delays are growing at the same rate as service. Everyday commuters in 2013 had a train cancelled/annulled once every other month; commuters in 2009 had one cancelled all year (Figure 4–12). Although overall on-time performance is consistent, cancelled trains comprise a higher percentage of delays (Figure 4–13). To reduce the fallout of cancelled/annulled trains, SCRRA can implement a variety of methods (Figure 4–14). However, potential ongoing threats to on-time performance remain (Figure 4–15).

**Figure 4–9: Percent of SCRRA Trains Delayed – 2005 to 2013**

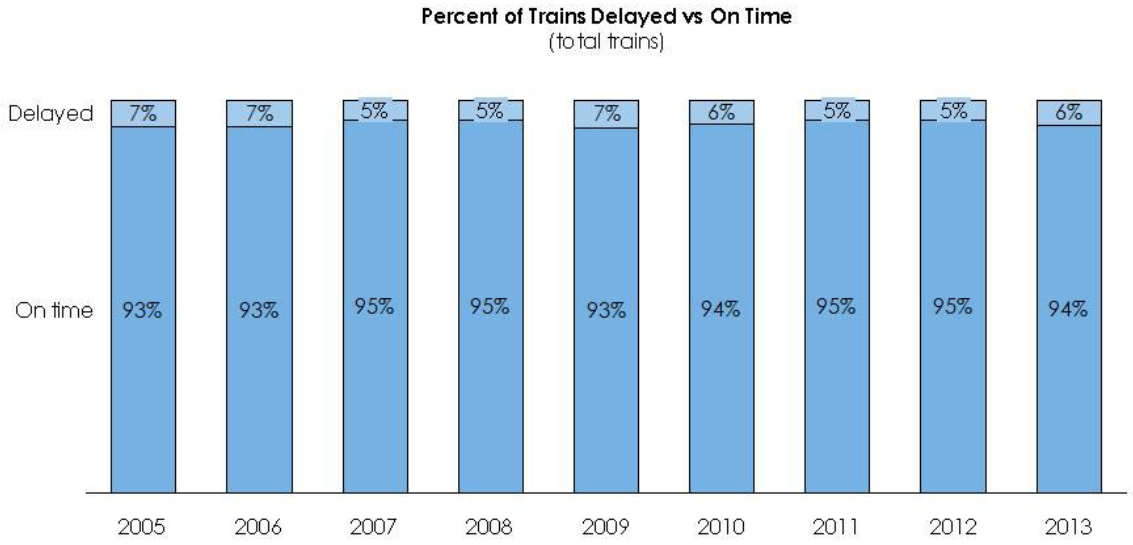



**Figure 4–10: On Time Performance**

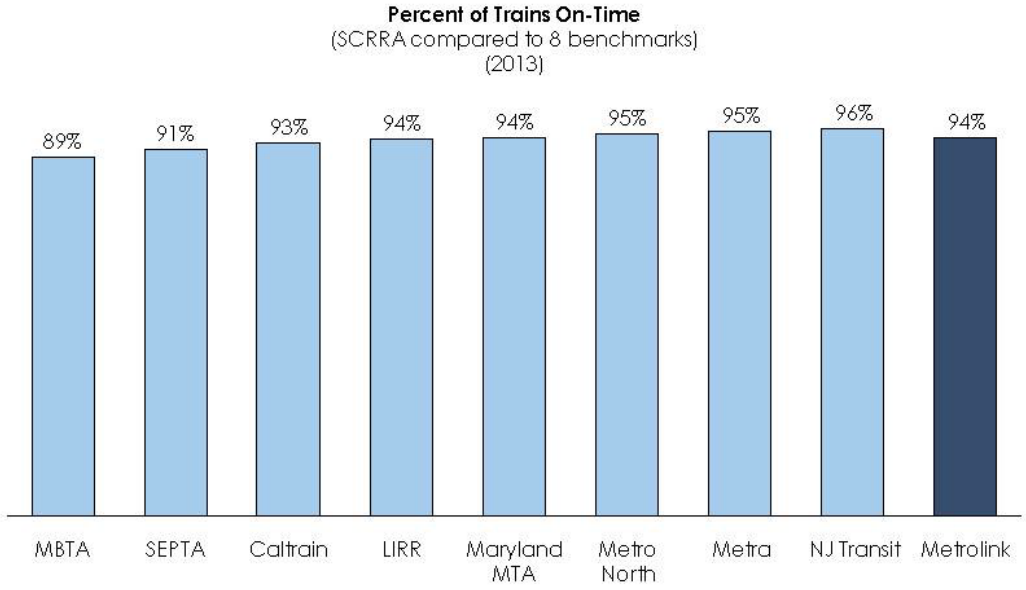
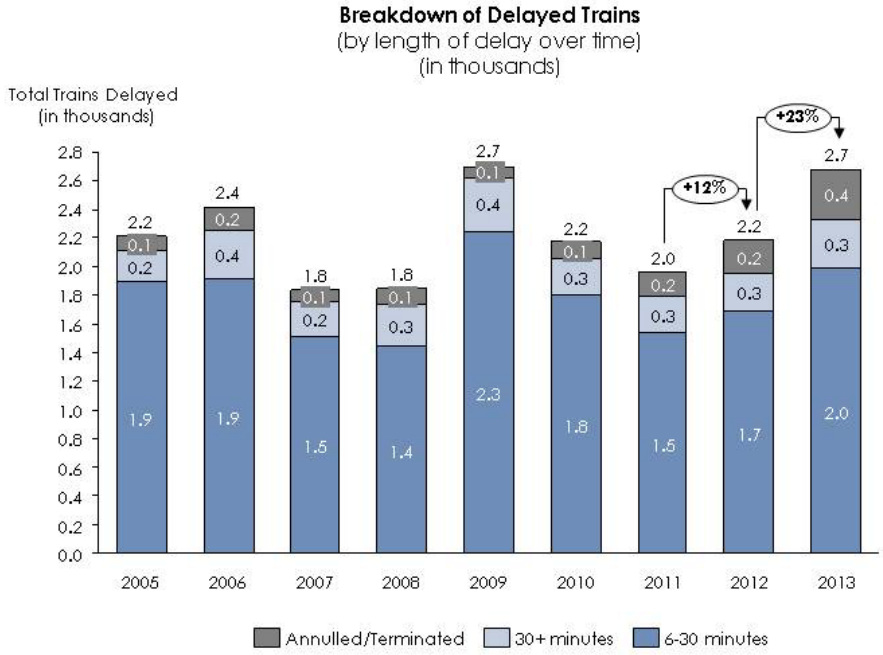


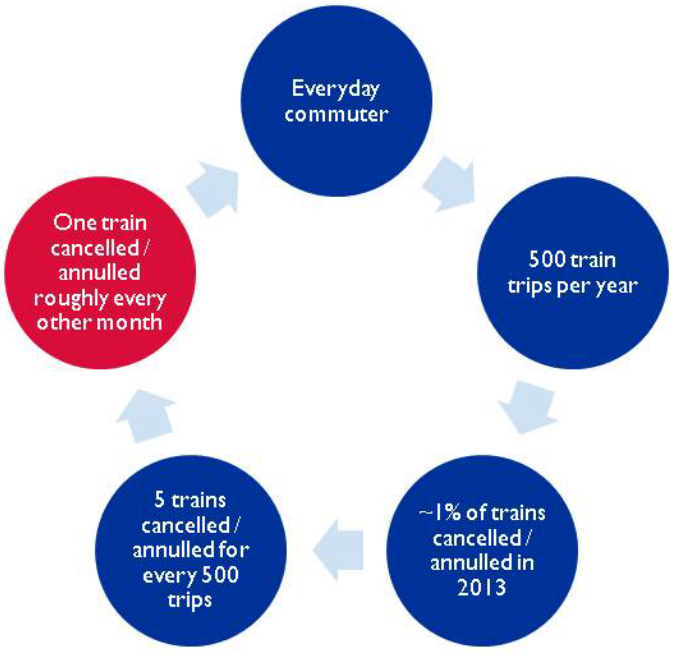
**Figure 4–11: Breakdown of Delayed Trains – 2005 to 2013**




**Comments**

- Delays increase 2% / year
  - ~5% of all trains delayed annually
- Customer survey OTP ratings decreasing; likely from increasing cancelled trains
  - Total delays grew 21% since 2005, but cancellations up 340%
  - Total trains grew ~20% since 2005 – total delays growing at same rate as service
- Cancelled/annulled trains the largest inconvenience to customers and most likely to be remembered
  - These delays growing most significantly

**Figure 4–12: Train Cancellations**




**Comments**

- To put the increase in cancelled / annulled trains in perspective, a rider that commutes round-trip to work will be subject to a cancelled train roughly once every other month, on average
  - In 2009, the average rider would have had one train cancelled all year
- By focusing on reducing cancellations specifically, SCRRA can have a dramatic impact on the customer experience

**Figure 4–13: Number of Riders on a Cancelled Train per Year**

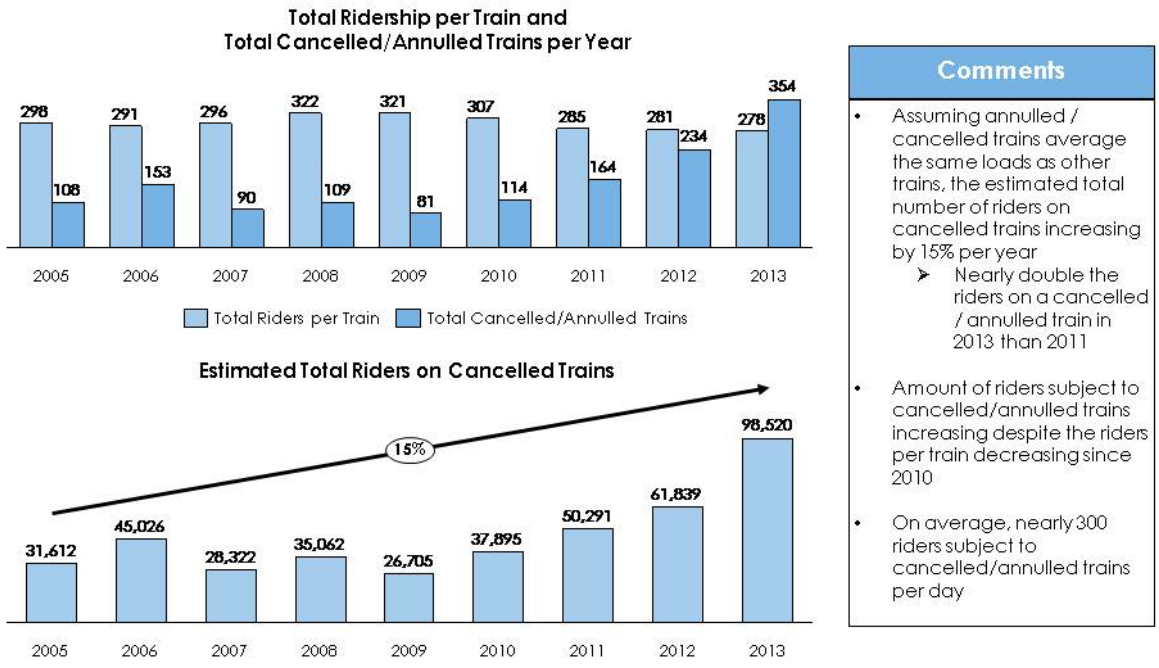



**Figure 4–14: Methods to Reduce Cancelled Trains**

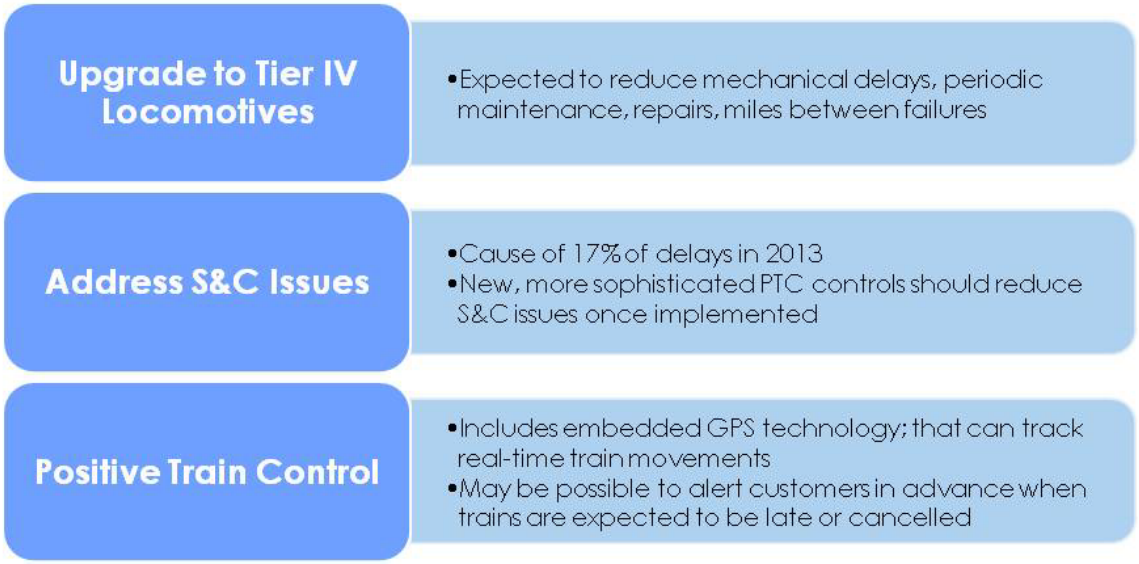


**Figure 4–15: Potential Threats to On-Time Performance**

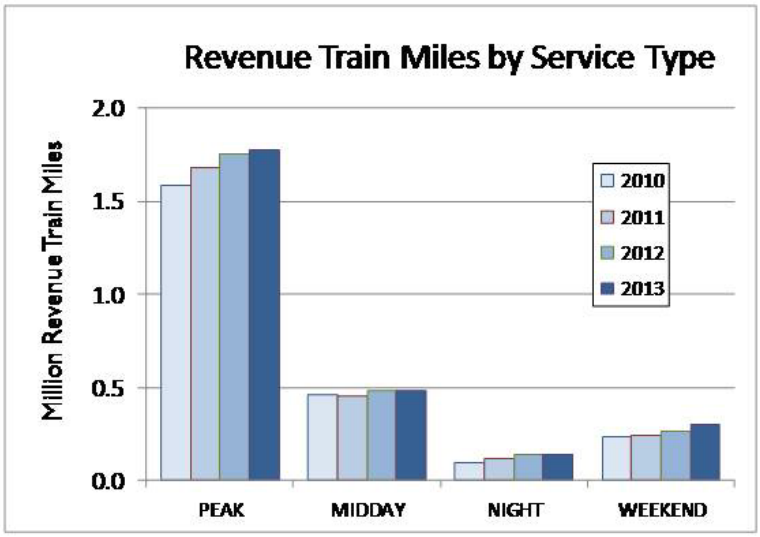

*Next Steps for addressing On-Time Performance and Reliability moving forward:*

- Develop long-term plan to address rise in cancelled/annulled trains
- Track Tier IV locomotive performance to understand where performance is improving or stagnant compared to older models

### 4.1.3 Service Frequency

Service frequency has increased 14 percent since 2010 with most new service added during peak (up 12 percent) and weekend (up 27 percent) periods (Figure 4–16). Since FY2004, SCRRA VRM growth has nearly tripled compared to the benchmark average (Figure 4–17). SCRRA service (VRM) growth compares favorably to peers showing effective service regionally while continuing to expand coverage. Ridership and VRM grew 2.7 percent and 4.4 percent respectively from FY2004 to FY2012, with most growth occurring before the recession (Figure 4–18). Growth bounced back in 2012, but stagnated in 2013 showing generally stronger growth in the mid-2000s. Despite growth in VRM, SCRRA has relatively light (less convenient) schedules compared to peers (Figure 4–19).

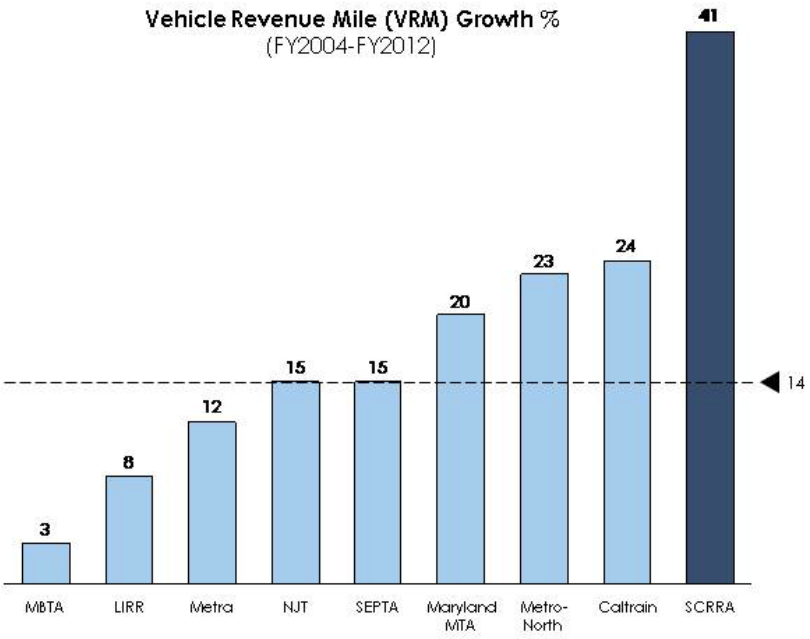
**Figure 4–16: Revenue Train Miles by Service Type**




**Comments**

- Since 2010 service frequency has increased by 14%
- Most new service was added during the peak, up 12% since 2010
- Weekend service has increased by 27%

**Figure 4–17: Percentage Growth of Vehicle Revenue Miles – FY 2004 to FY 2012**




**Comments**

- Growth measured between FY2004 and FY2012 for largest 9 commuter rail systems in the country
  - Averages do not include SCRRA data
- SCRRA service (VRM) growth compares favorably to peers and reflects a 32% increase in the number of cars in service
- The service increase over time suggests the SCRRA is able to add capacity by lengthening trains and adding new trains to the schedule

**Figure 4–18: Ridership Growth – FY 2004 to 2013**

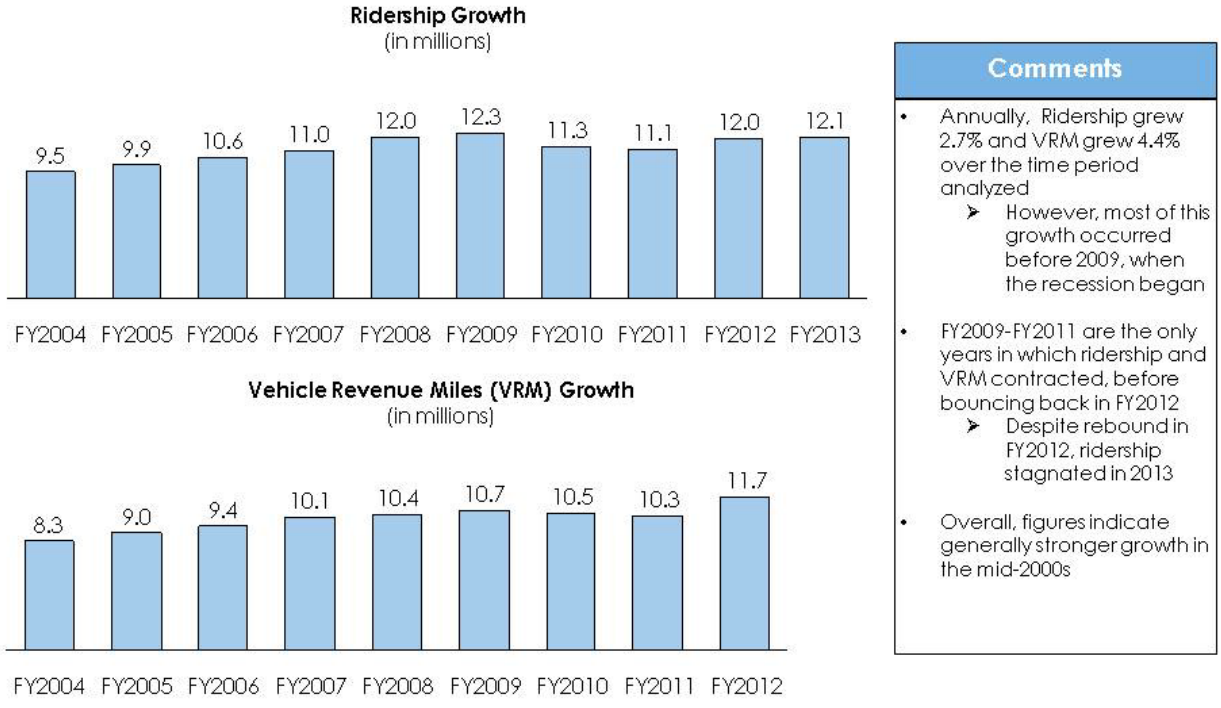
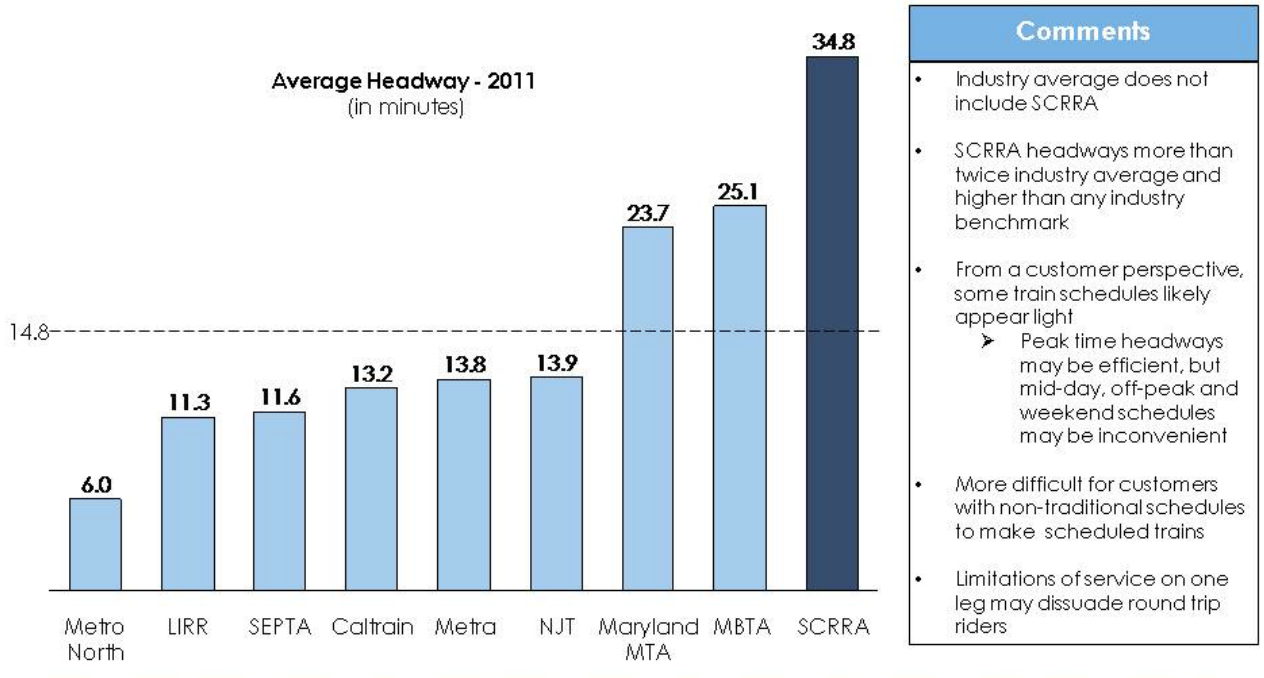


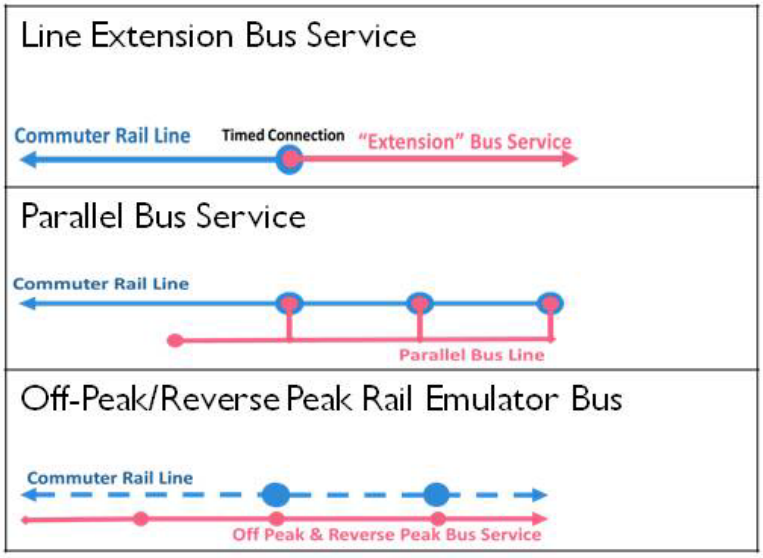

**Figure 4–19: Average Headways in 2011**




Some commuter rail agencies such as GO Transit in Toronto, Canada, operate bus service to augment the existing rail network (Figure 4–20). The AVTA Transporter accepts Metrolink fare media

and is an example for rail emulator bus service to fill gaps in the Metrolink schedule. New vehicle types, such as the Diesel Multiple Units (DMUs), offer opportunities to increase service frequency to match demand (Figure 4–21). DMUs have lower operating costs than full train sets and have recently achieved compliance with FRA standards (Austin, TX, Suburban Dallas, TX). New vehicle types allow cost effective service for specific time periods (midday, night, and weekend) or on line segments where demand does not support traditional trains. The Southern California Regional Interconnector Project (SCRIP), also known as the Run-Through Tracks Project, will significantly reduce terminal capacity constraints at Union Station (Figure 4–22). SCRIP will increase the number of trains that can operate through Union Station on average in one hour by 33 percent and reduce capacity occupancy by 50 percent. Other SCRRA and Member Agency projects currently in the pipeline will improve both line and terminal capacity (Table 4–1).

**Figure 4–20: Service Examples of Rail Agencies Operating Bus Service to Augment Rail Network**




| Comments |
| --- |
| • At commuter rail agencies such as GO Transit in Toronto, Canada, rail augmentation bus service fills gaps in the rail schedule and maintains service levels at a lower operating cost |
| • The AVTA Transporter accepts Metrolink fare media and is an example for rail emulator bus service to fill gaps in the Metrolink schedule |

**Figure 4–21: New Vehicle Types to Increasing Frequency**


| Comments |
| --- |
| • Diesel Multiple Units (DMU) have lower operating costs than full train sets<br>• DMU have recently achieved compliance with FRA standards (Austin, TX, Suburban Dallas, TX)<br>• Allow cost effective service for time periods (Midday, Night, Weekend) or on line segments where demand does not support traditional train consists |

**Figure 4–22: SCRIP Will Reduce Terminal Constraints at LA Union Station**


| Comments |
| --- |
| • SCRIP is also known as the Run-Through Tracks Project<br>• New tracks and a bridge at the southern end of Union Station will allow trains to run through, reducing delay and minimizing conflicting train movements<br>• Reduced delay has the potential to increase service significantly |

**Table 4–1: Projects to Improve Line and Terminal Capacity**

| SCRRA Designs and Builds without Member Agency Oversight | |
|---|---|
| Vincent Siding at CP Quartz | $34m |
| 2nd Platform at Vincent Grade/Acton Grade | $20m |
| Riverside Layover Facility | ~$3m |
| PTC | $216m |
| Tier 4 | $150m |

| Member Agency or other Lead Projects – SCRRA in Plan Oversight / Design Role | |
|---|---|
| Raymer Bernson Double Track | $83m |
| Van Nuys Station | $34m |
| State College Grade Separation | $5.1m |

*Next Steps for Service Frequency moving forward:*

- Identify ways to address operating constraints
- Evaluate potential for renegotiating agreements with freight railroads
- Discuss potential benefits to increasing off-peak service
- Align on implications of new vehicle types, investments in right-of-way, lines with opportunity to increase service for long-term planning
- Identify most beneficial ways to leverage SCRIP

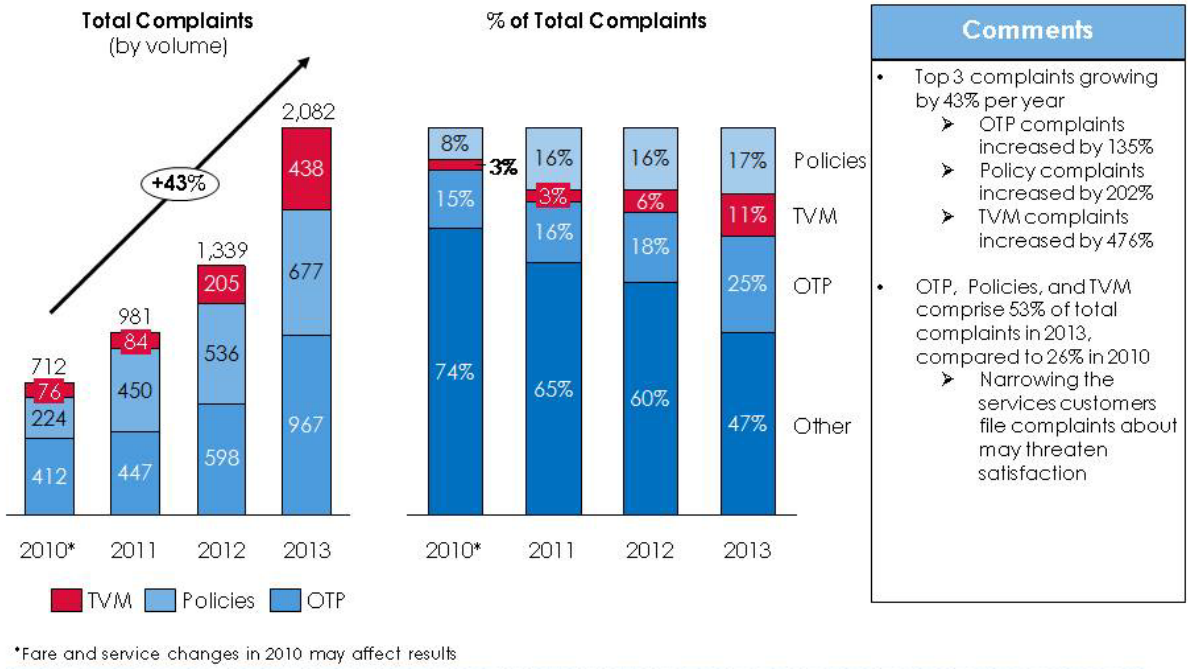
### 4.1.4 Ticket Sales

Support for new ticket programs and various ticket types create an array of options for customers (Table 4–2). However, ticket issuance problems and gaps in integration hinder ticket sales. The top three complaints, on-time performance, policy, and ticket vending machines (TVMs), are growing by 43 percent per year and comprise 53 percent of total complaints in 2013 as compared to 26 percent in 2010 (Figure 4–23). Service and convenience around buying tickets is rated poorly by customers as TVMs are dysfunctional too often and customers notice. Several industry peers offer different advanced ticketing options, such as mobile and online services (Table 4–3). Current risks to TVM ticket sales include limited capabilities related to current requirements, aging fleet, outdated technology, and paper stock limitations.

**Table 4–2: Options for Customers with New Ticket Programs**

| Fare Products | Sales Channel / Program |
|---|---|
| One-Way / Round-Trip | Ticket Vending Machines |
| One-Way / Round Trip – TAP | Corporate Pass Program |
| Monthly Pass | Corporate Quick Cards |
| Weekend Pass | Pass-by-Mail |
| 7 Day Pass | Retail Window Support for TOMs at LAUS |
| Flyaway Tickets | Flyaway Tickets |
| Amtrak | Vouchers |
| School Group Passes | TAP Enabled Tickets |
| Group Passes | Rail2Rail – Agreement |
| Promotional Tickets | 14 Transfer Agreements |
| Special Tickets (Angels, Dodger,s etc.) | Personal Care Attendant Cards |
| JuryLink | Revenue Data Management |

**Figure 4–23: Growing Ticket-Vending Machines Complaints**




*Fare and service changes in 2010 may affect results

**Table 4–3: Industry Peers Offer Different Advanced Ticketing Options**

| | Advanced/Mobile Ticketing? |
|---|---|
| Caltrain | Auto-loading regional fare card integrated with all connecting services |
| Metra | ✖ |
| Maryland MTA | Online ticketing available with tickets sent by mail or loaded on a SmartCard |
| NJT | Mobile ticketing launched |
| Metro North | Mobile ticketing launched |
| LIRR | Mobile ticketing launched |
| SEPTA | Advanced fare media including payment card and mobile app under development |
| MBTA | Mobile ticketing launched |
| SCRRA | ✖ |

*Next Steps for addressing Ticket Sales moving forward:*

- Outline and implement a plan to improve TVM functionality
- Seek out new, more technologically-savvy ways to issue tickets in order to keep up with peers
- Identify and prioritize, in marketing / communication, most successful ticket programs

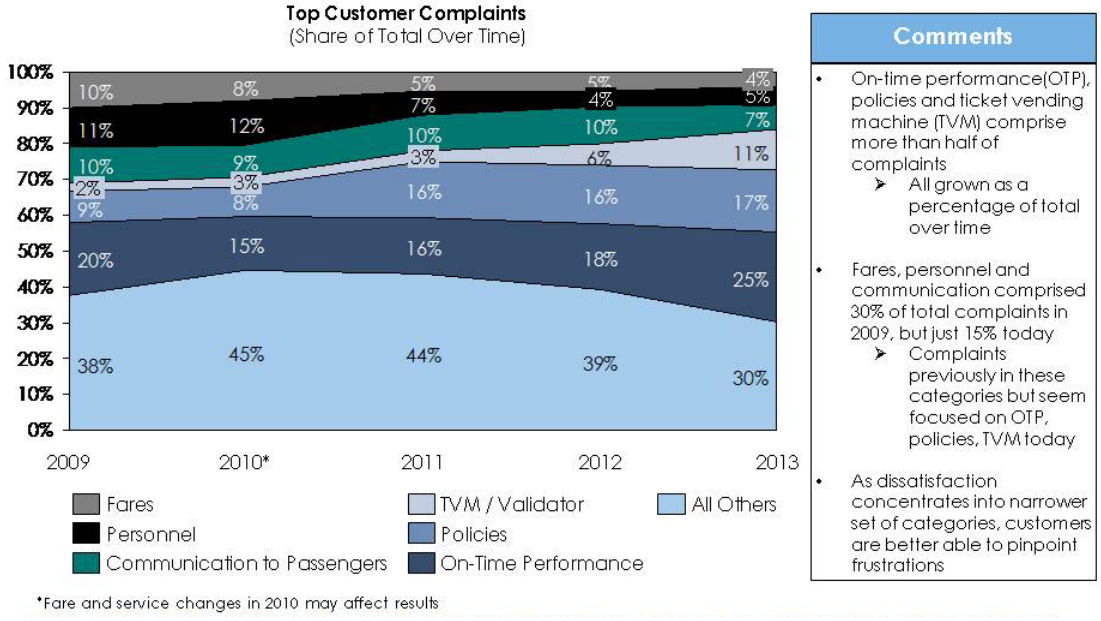
### 4.1.5 Customer Experience

Overall, SCRRA provides consistent service quality as shown by generally steady customer satisfaction ratings. Customer surveys addressing service indicate customers are currently most satisfied with conductor service, train safety, and parking availability (Table 4–4). In addition, SCRRA's ability to quickly respond to and address customer complaints has been helpful in keeping customers satisfied. Top customer complaints between 2009 and 2013 were on-time performance, policies, and ticket vending machines (TVMs) (Figure 4–24).

**Table 4–4: Customer Survey Ratings**

| Survey Question - 2013 | Rating 1-5 |
|---|---|
| Helpfulness and Courtesy of METROLINK conductors | 4.26 |
| Availability of parking at station | 4.16 |
| Safe operation of trains | 4.16 |
| Feeling secure from crime while riding train | 4.15 |
| Feeling secure from crime while at station | 3.90 |
| Availability of seating on train | 3.83 |
| Cleanliness of train interior | 3.81 |
| Availability of connecting transit buses at station | 3.80 |
| Train arriving at my destination on time | 3.65 |
| Ease of using ticket vending machine | 3.60 |
| Ease of obtaining train delay information by calling 1-800-371-LINK | 3.35 |
| **Average rating** | **3.88** |

**Figure 4–24: Top Customer Complaints – 2009 to 2013**




Except for on-board personnel, riders rate their experience on trains below average, with comfort and convenience being key drivers for new riders. Low ratings on many on-board service areas can threaten overall customer satisfaction with quality of service (Table 4–4). Overall customer satisfaction has generally been steady over time implying a steady and loyal customer base (Figure 4–25). Respondents to the Strategic Plan Survey indicate several aspects of Service Quality that can

be improved (Figure 4–26). Many of Metrolink's peers are adding Wi-Fi Internet Access to attract and retain riders.

**Figure 4–25: Service Metrics and Customer Satisfaction**

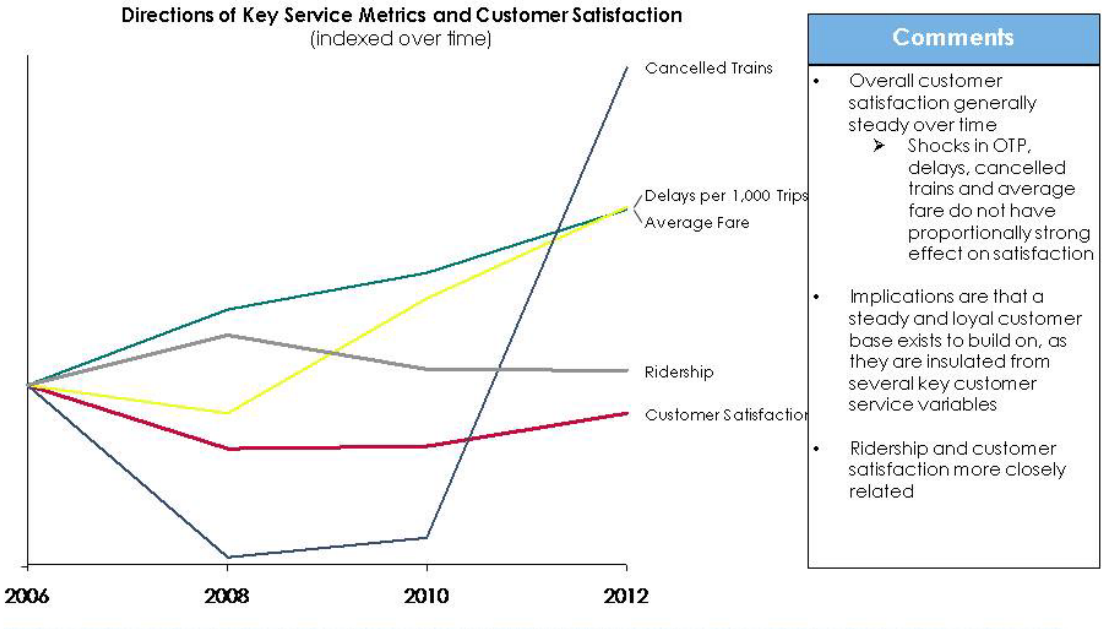



**Figure 4–26: Response in Strategic Plan Survey Regarding Service Quality**


*Next Steps for improving Customer Experience moving forward:*

- Address areas where complaints have become most concentrated (OTP, Policies, TVM)
- Although not high in complaints, on-board experience rated low - SCRRA must identify creative ways to improve this area

- Continue to refine Strategic Plan Survey to identify areas to focus

### 4.1.6 Branding

A brand assessment conducted in 2010 outlined strengths, weaknesses, and a need to improve branding. Key findings of the assessment were:

- A stable customer base was a key strength (Table 4–5)
- Brand confusion with Metro is significant (Figure 4–27)
- Metrolink brand is declining (Figure 4–28)

**Table 4–5: Key Findings of the Brand Assessment**

| | |
|---|---|
| 1 | Metrolink's brand has repeatedly been wounded |
| 2 | Accidents and incidents have created safety concerns – but does not affect current ridership |
| 3 | Reliability and convenience are prime concerns; rider experiences most important element for change |
| 4 | Confusion with Metro is significant, hampering SCRRA ability to elevate its own brand |
| 5 | Ticketing and verification processes should be customer-convenient |
| 6 | A new vision statement can be attributed to a new brand |
| 7 | A new brand and improved customer experience would benefit from personal contact |
| 8 | Metrolink graphic identity is dated and undistinguished |
| 9 | Time for change is now; new locomotives arriving provides platform for change, signage needs updating regardless of new brand |

**Figure 4–27: Metrolink Brand Recognition**

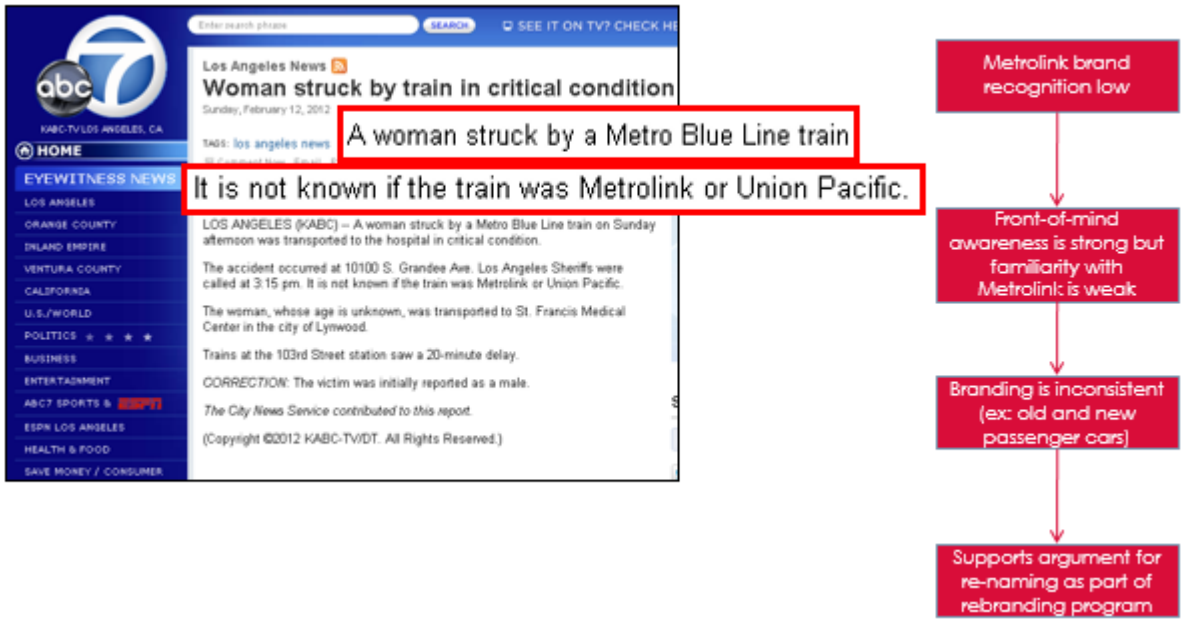
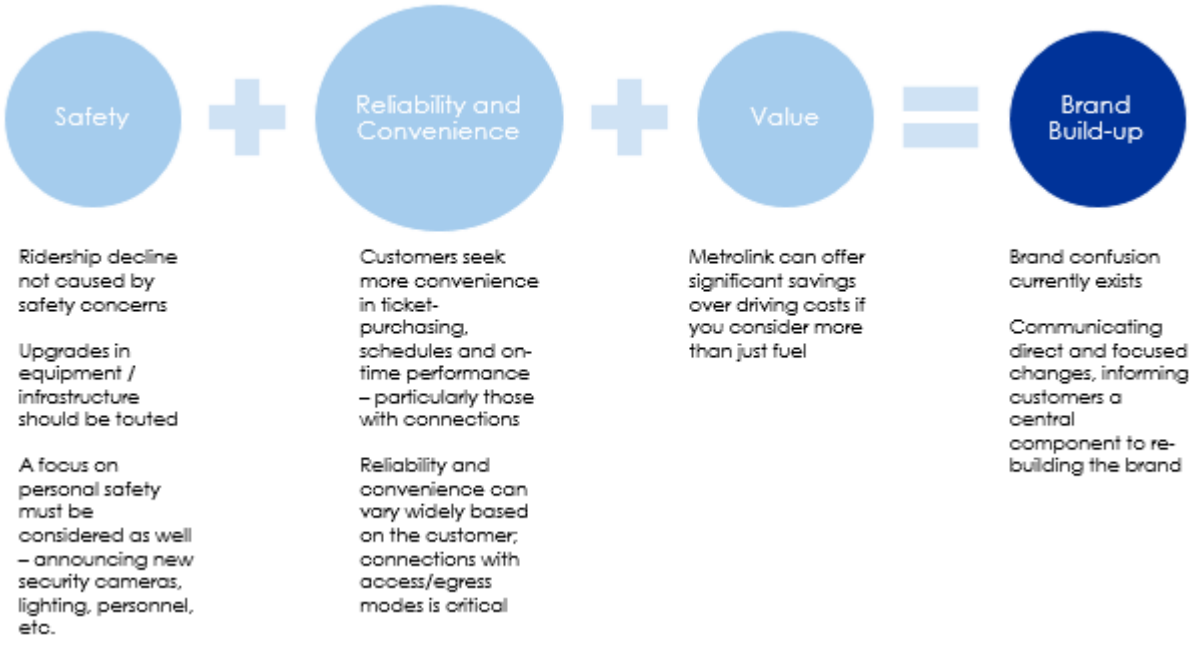



**Figure 4–28: Reasons for Metrolink Brand Erosion**


**Comments**

- A new brand would be enhanced by more personal contact
  - Front-line personnel must be brand ambassadors
- Physical improvements can help re-build the Metrolink brand
  - In addition to the new trains, signage and new graphics can add value
- Risks do exist with re-branding
  - Perception that change meant to "escape" past
  - Perception of unnecessary expenditures

**Figure 4–29: Opportunities to Rebuild Brand**




*Next Steps for Branding moving forward:*

- Develop a short-list of action items to begin redeveloping the brand
- Ensure changes to resurrect brand represent a clear, consistent message to customers

## 4.2 FOCUS

The SWOT analysis performed on elements of the "Focus" discipline, emphasized evaluations of:

- Operating costs
- Revenue and net subsidies
- Safety
- Condition of vehicles
- Condition of capital infrastructure
- Capital budgeting
- Project delivery

Defining areas of strength, opportunity, and weakness in managing the finances of the agency will help to set the course for managing operating costs and Member Agency subsidies, as well as provide the agency the ability to cost effectively manage aging capital, new investments, and project delivery of program priorities set forth by Member Agencies.

### 4.2.1 Operating Costs

Operating costs are growing at an annual rate of seven percent over the past 10 years, shown in year of expenditure (YOE$) (Figure 4–30), increasing faster than vehicle revenue mile growth (Figure 4–31). Other costs, such as maintenance-of-way (MOW) and administration/service only represent one third of the operating cost increases ($9 million and $7 million, respectively).

**Figure 4–30: Total Operating Costs – FY 2004 to FY2013**

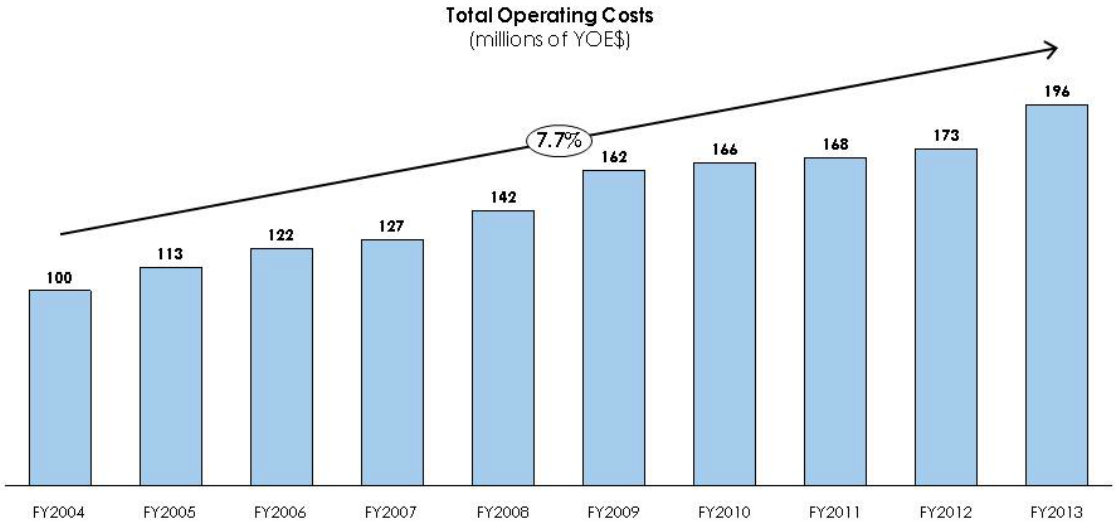
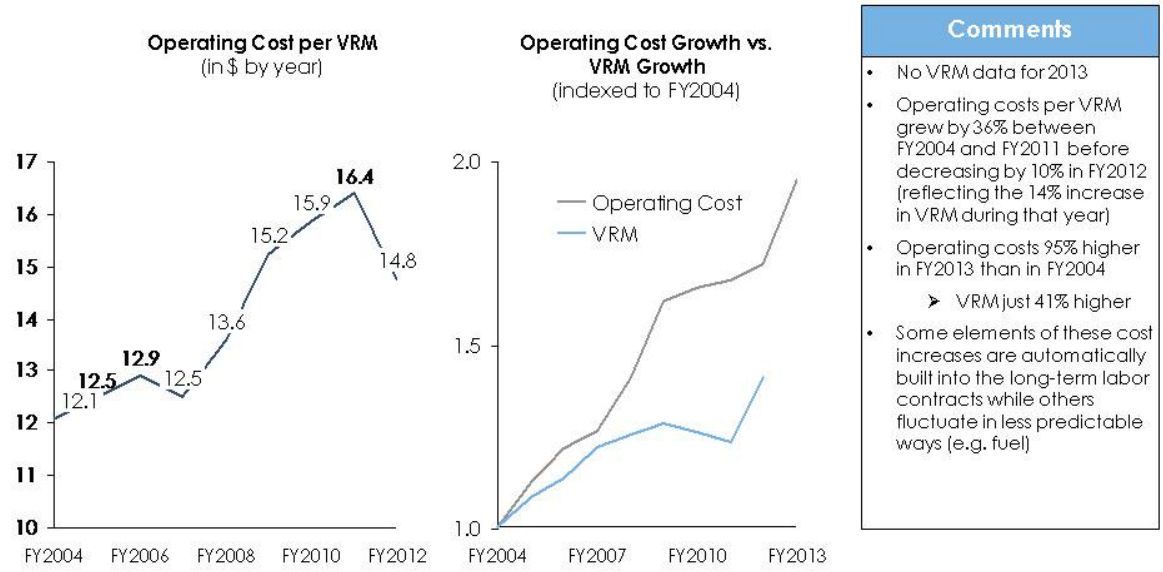
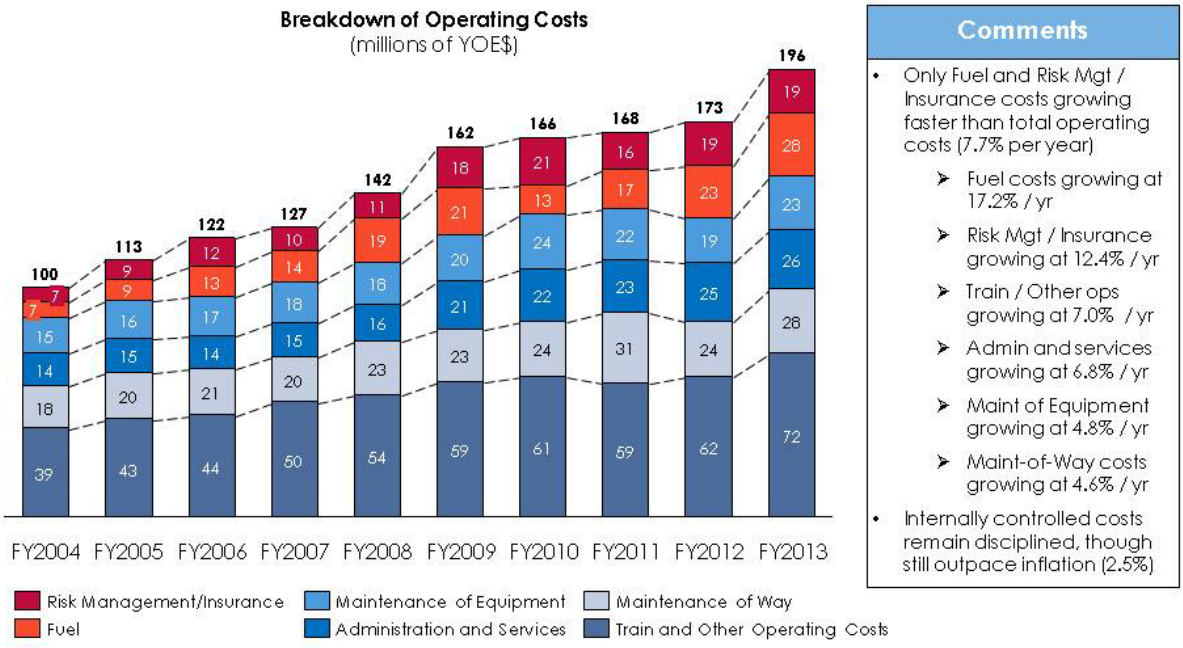


**Figure 4–31: Operating Cost in Comparison to Vehicle Revenue Mile**




Internally controlled costs remain disciplined, although they still outpace inflation by 2.5 percent (Figure 4–32). A majority of the increase is a result of inflation, fuel prices, and risk management. Fuel costs have grown by over 300 percent in the last 10 years, with volatility in diesel prices continuing to pose risks for further cost increases. The increase in service accounts for 10 percent of overall cost increase.

**Figure 4–32: Breakdown of Operating Costs – FY 2004 to 2013**



With operating costs growing and growth in total operating revenue slowing over the past five years (2.4 percent per year since FY2009) (Figure 4–33), member subsidies have had to cover the gap, increasing 126 percent (Figure 4–34). Member agency subsidies now cover nearly half of all operating costs. Some of these costs are associated with increased services initiated by Member Agencies, thereby increasing subsidy levels.

**Figure 4–33: Difference between Revenue and Operating Cost**

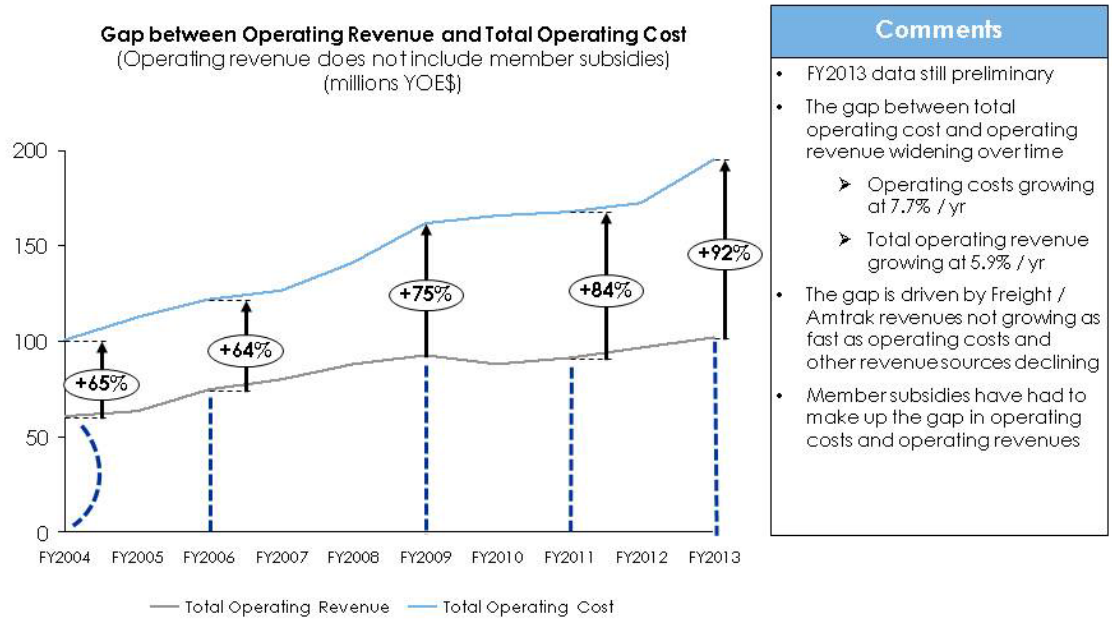
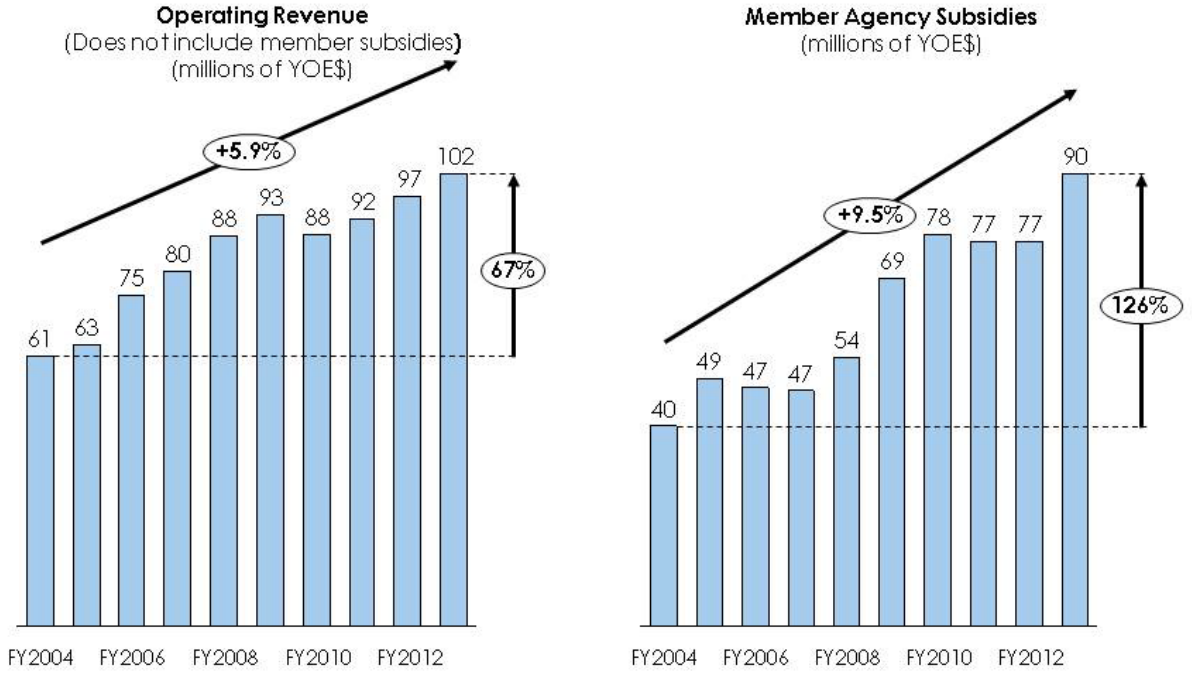


**Figure 4–34: Operating Revenues in Comparison to Member Agency Subsides**



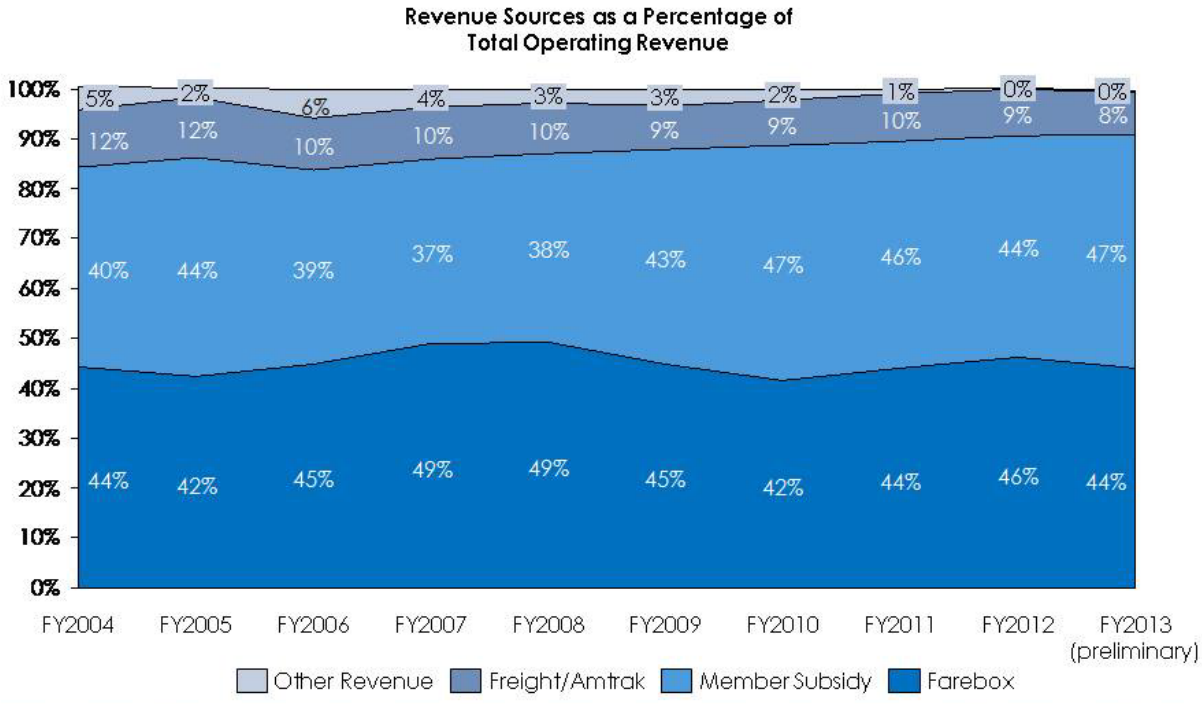

*Next Steps for Operating Costs moving forward:*

- Improve benchmarking of costs to better understand where Metrolink underperforms
- Consider strategies such as Fuel Hedging to stabilize fluctuations in fuel expenses
- Review risk management and insurance costs to ensure increases are in-line with market
- Identify operating inefficiencies and potential cost savings by performing a Comprehensive Operational Analysis

### 4.2.2 Revenue and Net Subsidies

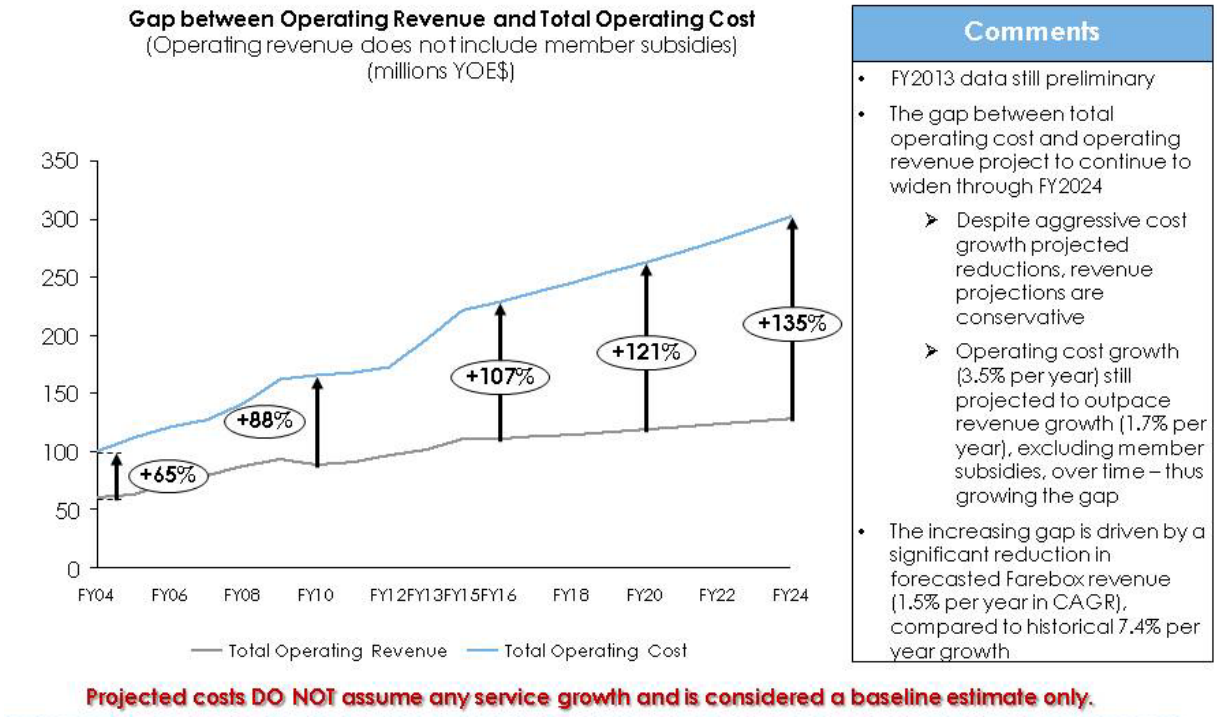
In addition to member subsidies, farebox revenue provides a substantial source of funding to the agency and remains the primary single source of income for SCRRA. Other non-farebox revenue currently comprises a smaller share of total revenue than in previous years (Figure 4–35).

**Figure 4–35: Revenue Sources as a Percentage of Total Operating Revenue**




Total operating revenue (without member subsidies) are growing at a compounded annual rate of 5.9 percent per year, but are forecasted to grow just 1.7 percent per year over the next 10 years. Despite the projected reduction in cost growth, the gap between total operating costs and operating revenue is projected to continue to widen through FY2024 (Figure 4–36).

**Figure 4–36: Difference between Revenue and Operating Cost Excluding Member Subsidies**

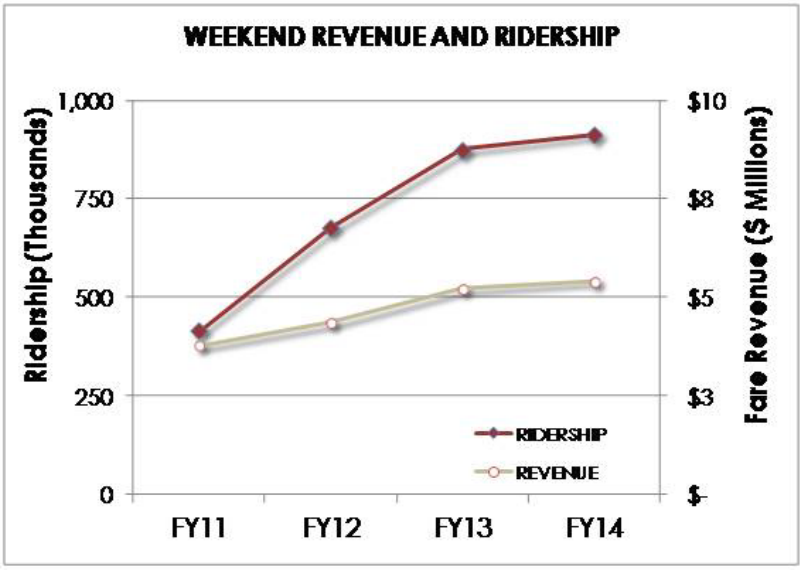



Threats to revenue are often closely associated with ridership (Table 4–6). Member agency subsidies can be reduced by increasing ridership, and thus, farebox revenue. Targeted fare discounts for price sensitive riders could provide revenue and ridership growth opportunities. Promotions associated with non-commute services, such as the $10 Weekend Pass introduced in July 2011, have yielded revenue gains (Figure 4–37).

**Table 4–6 Threats to Revenue in Relation to Ridership**

| Threats to revenue unrelated to ridership | Threats to revenue related to ridership |
|---|---|
| • Issues with ticket issuance and TVMs<br>• Fare enforcement / customer fare evasion<br>• Freight / Amtrak revenue<br>• Other revenue / leasebacks | • New competition provides customers more transportation options<br>• SCRRA customer base growing more low-income, potentially threatening ability to raise ticket prices in future<br>• Increase in cancelled / annulled trains may drive away loyal riders<br>• External macroeconomic environment<br>• Technological / improving fuel economy in automobiles |

**Figure 4–37: Case Study of Discount Program**




| Comments |
|---|
| • In July 2011 Metrolink introduced a $10 Weekend Pass |
| • During he following year ridership increased by 63% and fare revenue increased 15% |
| • In July 2013 the Weekend Pass became a Weekend Day Pass. Both ridership and revenue continued to grow by 4% |

Other funding sources that are an opportunity to incorporate new, long-term funding for operations include local measures, cap and trade, other state programs, federal programs, Congestion Management and Air Quality (CMAQ), and Air Quality Management District (AQMD) improvement programs.

*Next Steps for Revenue and Net Subsidies moving forward:*

- Test different fare structures/pass types to support revenue growth
- Create and implement methods to address non-farebox revenue
- Explore more joint marketing opportunities with operators of both local and expresses to gain access to key employment centers
- Be vigilant and creative on discussions at the local, state, and federal levels for dedicated sources of operating support
- Pursue joint partnerships with Managed Lane operators and sponsors of major highway construction projects to support Metrolink service and capital improvements

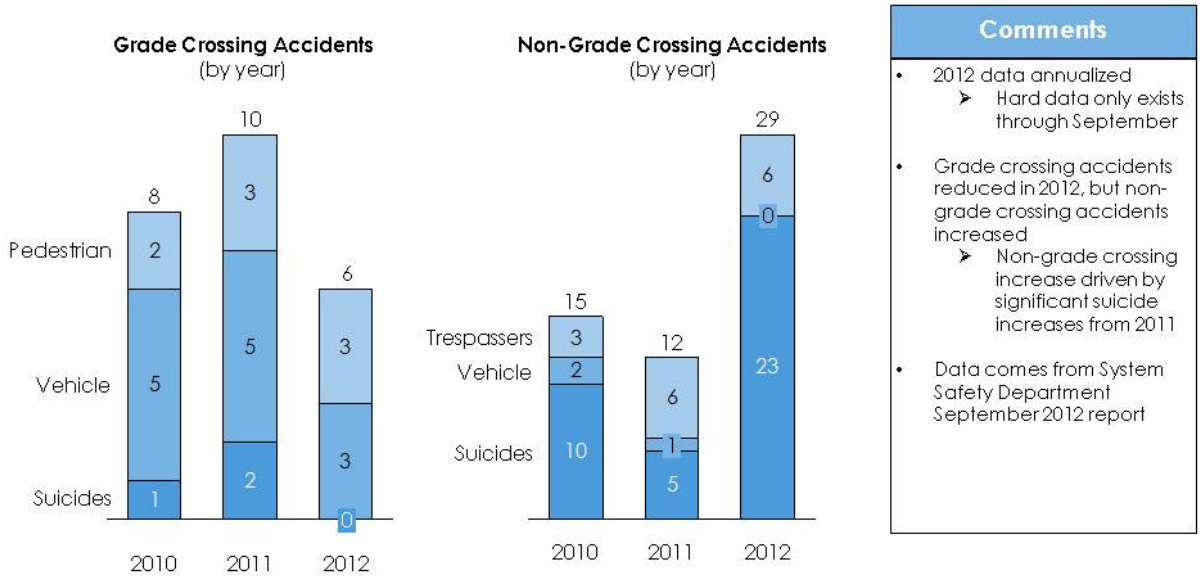
### 4.2.3 Safety

SCRRA safety statistics are generally in-line with industry benchmarks, and the safety program within Metrolink has established itself as an industry leader in recent years. Since 2005, Metrolink has continually invested in safety improvements, such as safety training, sealed corridor program, positive train control, crash energy management (CEM) technology, and policy changes and is poised to continue to do so into the future.

The strongest year for Metrolink in safety was 2011 with the 5-year average illustrating strong performance overall. However, while the perception and reality of safety on Metrolink has improved significantly in recent years, the agency continues to need improvement in reducing rule violations and trespasser violations. Since 2011, rule violations have stabilized, but the operating department is still shy of reaching their goal to reduce rule violations by 50 percent annually.

Grade crossing accidents declined in 2012, but non-grade crossing accidents increased due to significant rise in trespasser strikes on the railroad right-of-way since 2011 (Figure 4–38).

**Figure 4–38: Grade and Non-Grade Crossing Safety Trends – 2010 to 2012**




In general, however, customer feedback suggests that safe train operations rank high compared to most other customer service elements with a rating of 4.16 as compared to the average of 3.88 (Table 4–4).

*Next Steps for Safety moving forward:*

- Identify steps for further improving operational safety performance
- Retain institutional knowledge
- Ensure continued investments in safety in areas of performance decline

### 4.2.4 Condition of Vehicles

Mechanical delays have decreased on average from 33.5 train delays per month to 21, putting SCRRA near their performance goal. Rolling stock is spending fewer dwell days in the shop per visit. The decrease in locomotive dwell days per shop visit is driven by MP36PH and F59PH models (Figure

4–39). Cab/coach cars are also seeing decreased dwell time per visit in 2014 across all models. A continued decline in delays will have systemwide benefits, such as customer satisfaction, decline in costs, and more efficient operations. SCRRA can leverage declined delays to exceed the goal of 20 mechanical delays or less per month. Current locomotive use is steady, but remains well below 2004 levels and has increased only marginally since 2009 (Figure 4–40). Car utilization dipped significantly in 2011 due to the addition of Guardian cars (Figure 4–41). Fleet utilization is an important measure to assess rolling stock use and efficiency.

**Figure 4–39: Average Dwell Days in Shop**

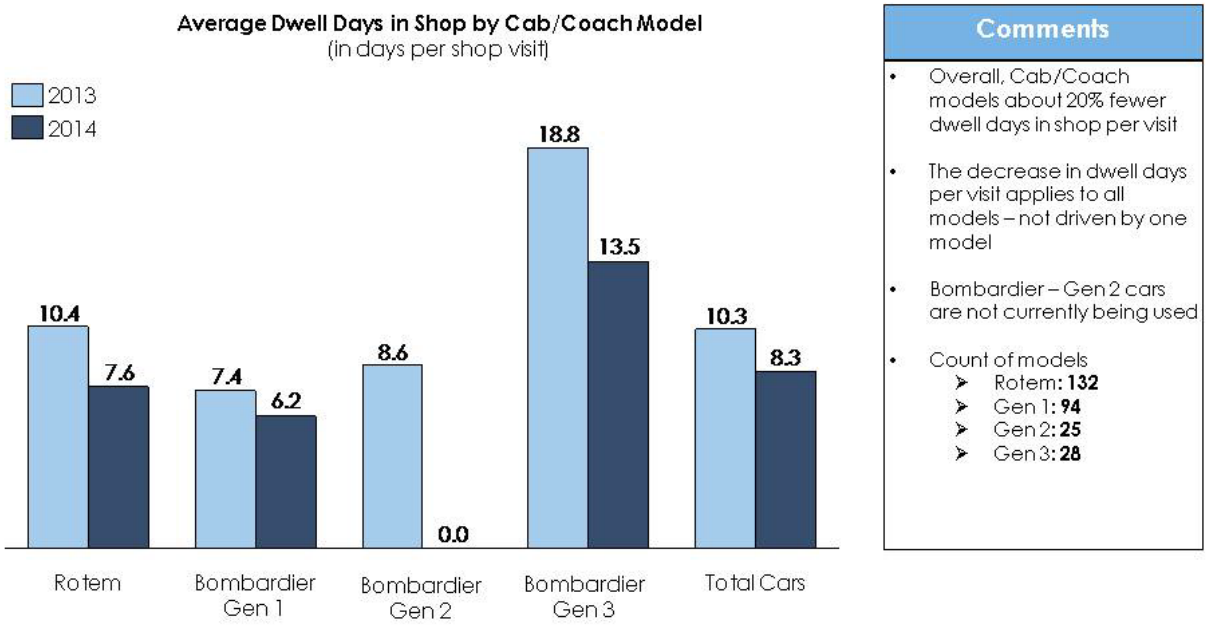
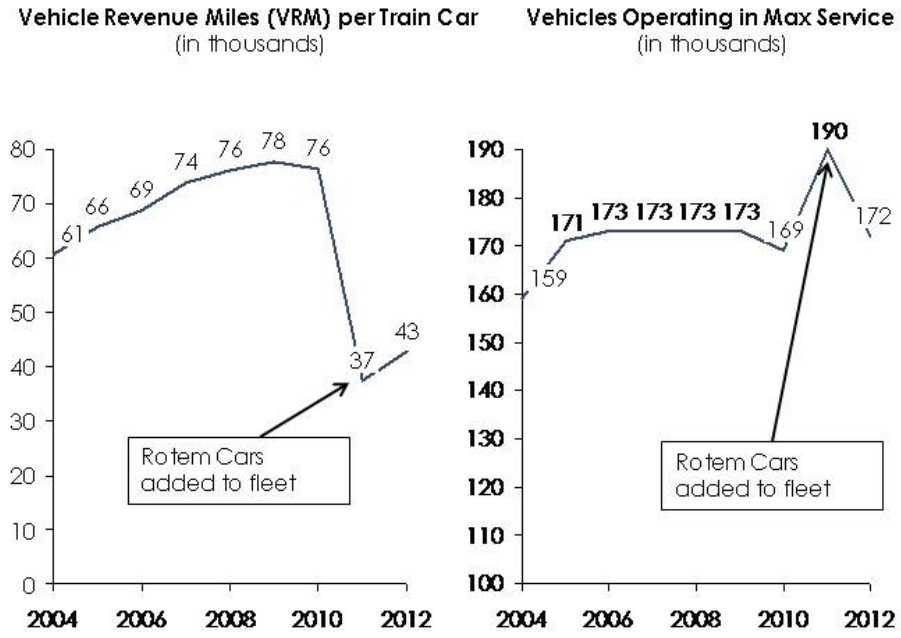


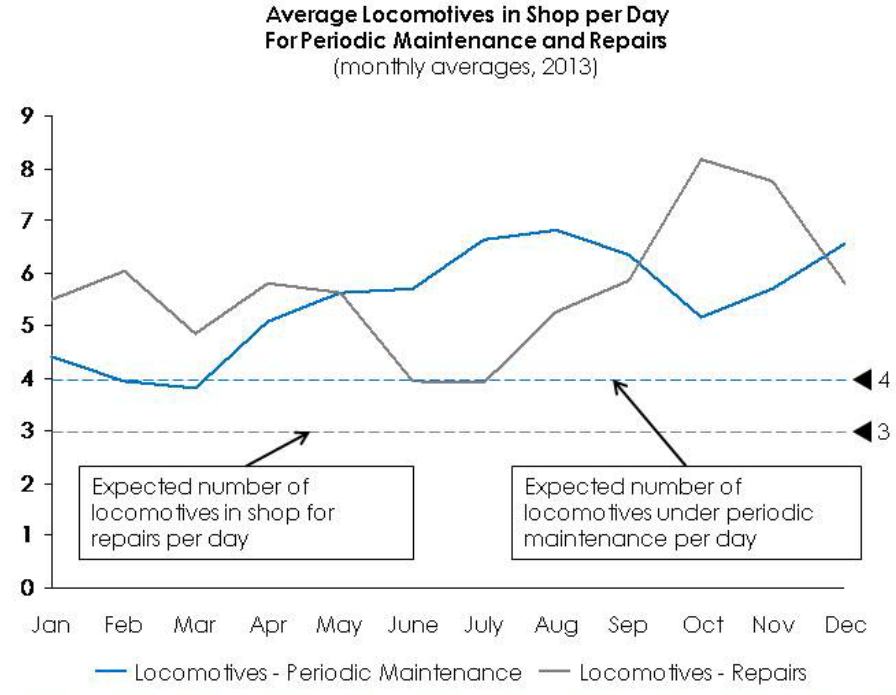
**Figure 4–40: Vehicle Revenue Miles per Train Car and Vehicle Operating**




**Comments**

- Fleet utilization an important measure to assess rolling stock use and efficiency
- Despite small increase in 2012, VRM per train car remains well below 2004-2010 levels
- Vehicles operating in max service also decreased significantly from 2011-2012, and are now at 2004-2010 levels
  - After SCRRA sells off some fleet, utilization will improve

**Figure 4–41: Average Locomotives in Shop per Day**




**Comments**

- On average, 5.5 locomotives undergoing period maintenance each day and 5.7 locomotives being repaired
  - SCRRA expects just 4 locomotives in shop per day for periodic maintenance and 3 for repairs
- Over the course of 2013, 79% of days had more than 4 locomotives in shop for periodic maintenance and 91% of days had more than 3 locomotives in for repairs
- Lag in repairs is not always related to mechanical department/Bombardier. Materials and other issues often lead to long stretches in the shop

The retirement of vehicles from SCRRA's fleet removes numerous vehicles requiring continual maintenance, thereby freeing up maintenance shop space and time, resulting in overall improved

fleet utilization. Maintenance shops are repairing and maintaining more locomotives and cars than expected. During 2013, 79 percent of the days had more than 4 locomotives in the shop for periodic maintenance and 91 percent of the days had more than 3 locomotives in for repairs (Figure 4–42). SCRRA expects just 4 locomotives in the shop per day for maintenance and 3 for repairs. Likewise, more cars were in the shop for maintenance or repairs in 2013 than expected (Figure 4–43). SCRRA expects 8 cars in the shop per day for periodic maintenance and 3 for repairs. On average, 9.5 cars were in for maintenance and 5.1 for repairs. The lag in repairs for both locomotives and cars is not always related to mechanical department/Bombardier issues, materials and other issues often lead to long stretches in the shop. In 2013 and January-February 2014, all locomotives were below goal in miles between failures and have not increased miles between failures over time (Figure 4–44). Decreased miles between failures means increased maintenance and delay costs. Bombardier's performance has been inconsistent, but a new contract with Bombardier or other maintenance contractor can address issues (Figure 4–45 and Figure 4–46).

**Figure 4–42: Average Cars in Shop per Day**

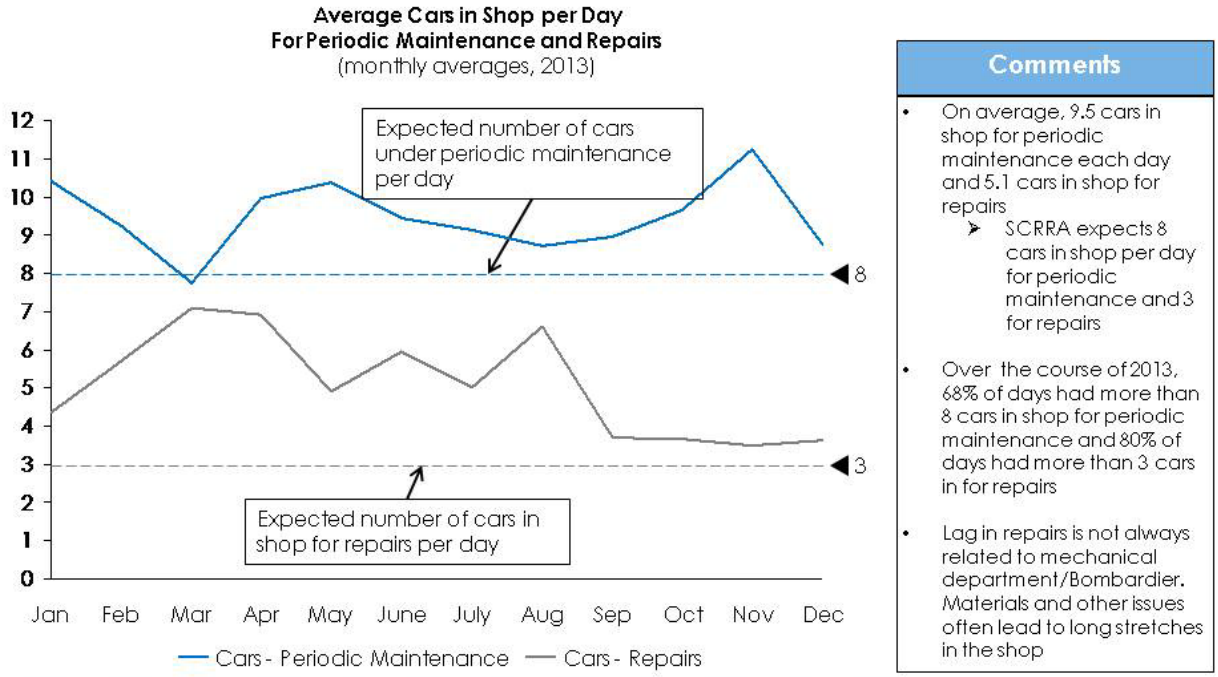
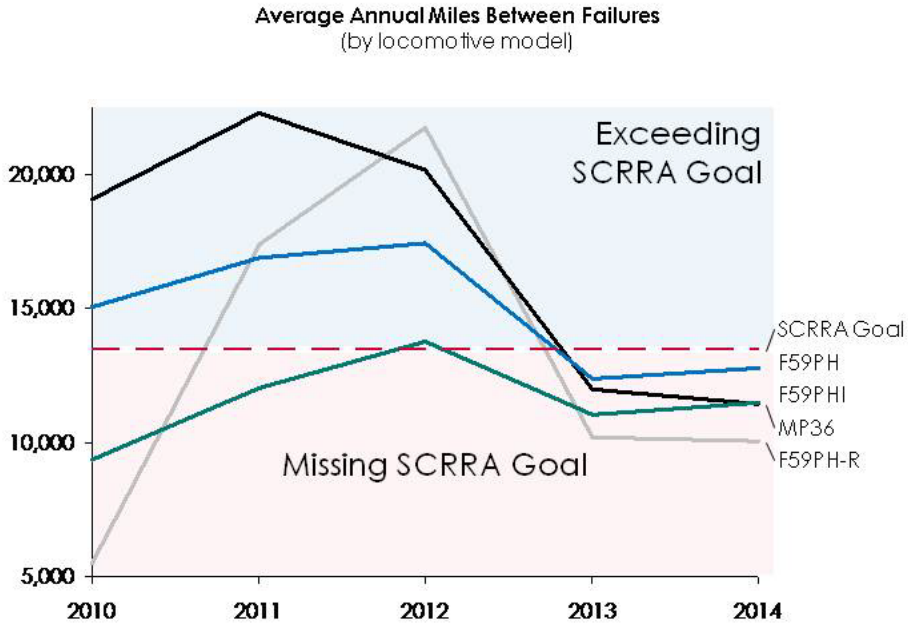


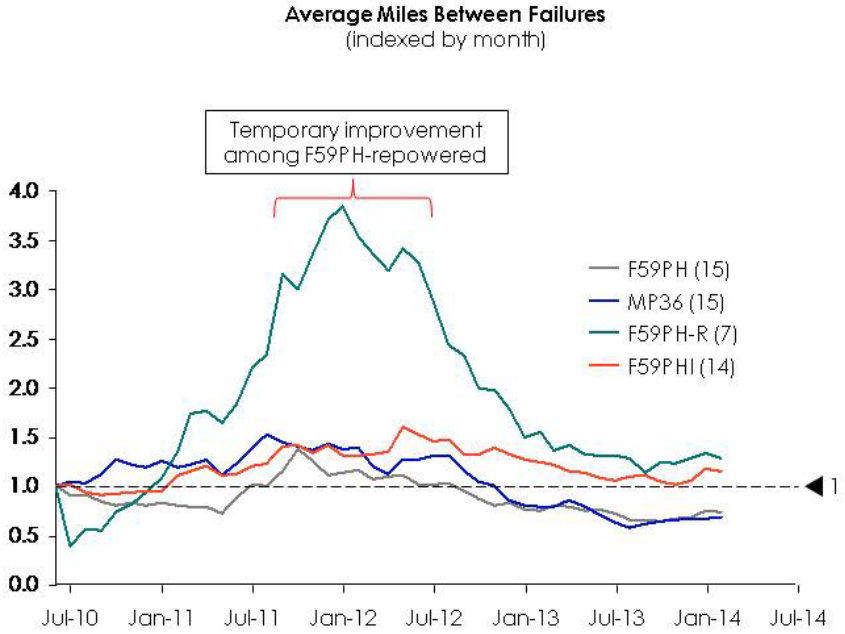
**Figure 4–43: Average Annual Miles between Failures**




**Comments**

- Data for 2010 limited to June through December and in 2014 limited to January and February
- Annually, on average, all models below 13,500 miles between failures goal in 2013 and 2014
  - Only the F59PH (March and April) and MP36 (Jan and April) reached SCRRA goal in any one month since January of 2013
- Repower of F59PH-R improved failure rate only in the short term when all equipment was performing better

**Figure 4–44: Average Miles between Failures**




**Comments**

- Decreasing mean miles between failures increases maintenance, delay costs
- F59PH models built in 1992/1993, MP36 built in 2008
  - Asset age does not predict performance
- F59PH-R models repowered in 2009, while F59PHI models built in 1995, 1998 and 2001
  - Repowering may have contributed to improved performance from 2010 to 2012

**Figure 4–45: Key Issues that can be addressed in New Contract with Bombardier**

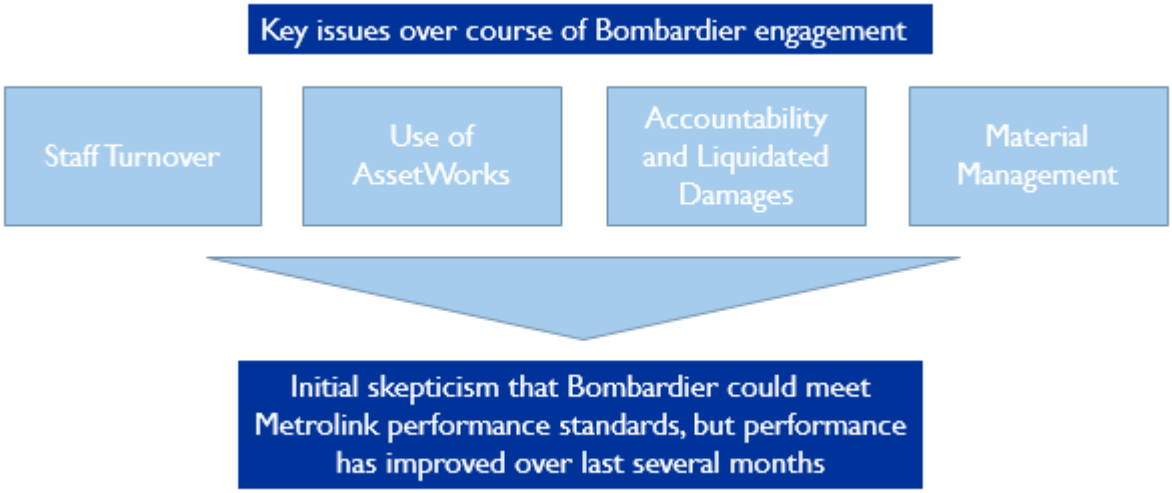
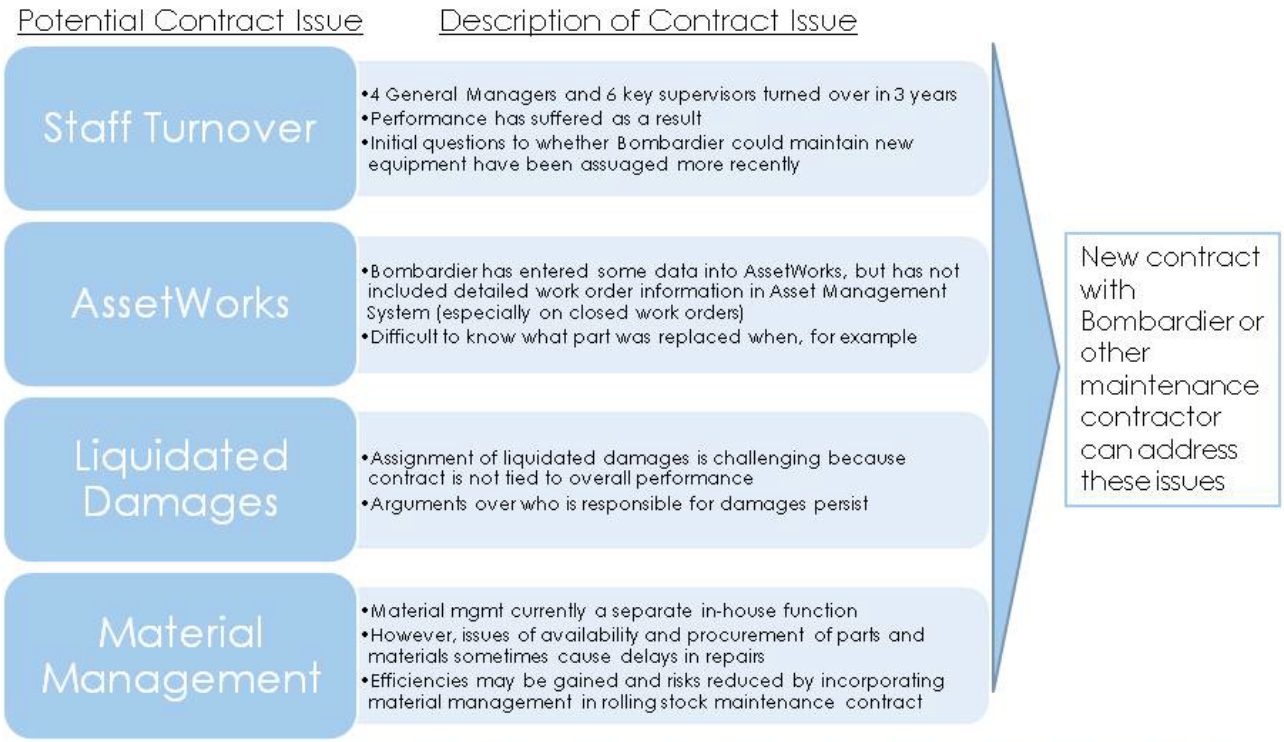



**Figure 4–46: Contract Issues that can be addressed in New Contract with Bombardier**




Current open projects and FY14-15 proposed rehab-budget reflect a rehab-program and improvement plan (Figure 4–47). Continued improvement in project delivery can re-inspire Member Agency trust, resulting in new capital project funding. Adherence to the current fleet management

plan will help track assets and maintenance schedule, providing better operating performance to customers and cost savings for SCRRA (Figure 4–48). Tier IV locomotive upgrades are expected to improve fleet performance as they represent the best technology option for maximum performance, reliability, and lowest emissions levels; however, funding hurdles remain (Figure 4–49). The new/revised management plans require Board and Member Agency buy-in to lead to improvements, but several factors may cause Member Agencies to reject/not-fund the plans, such as lack of confidence and funding constraints.

**Figure 4–47: Current and Future Rehab Program**

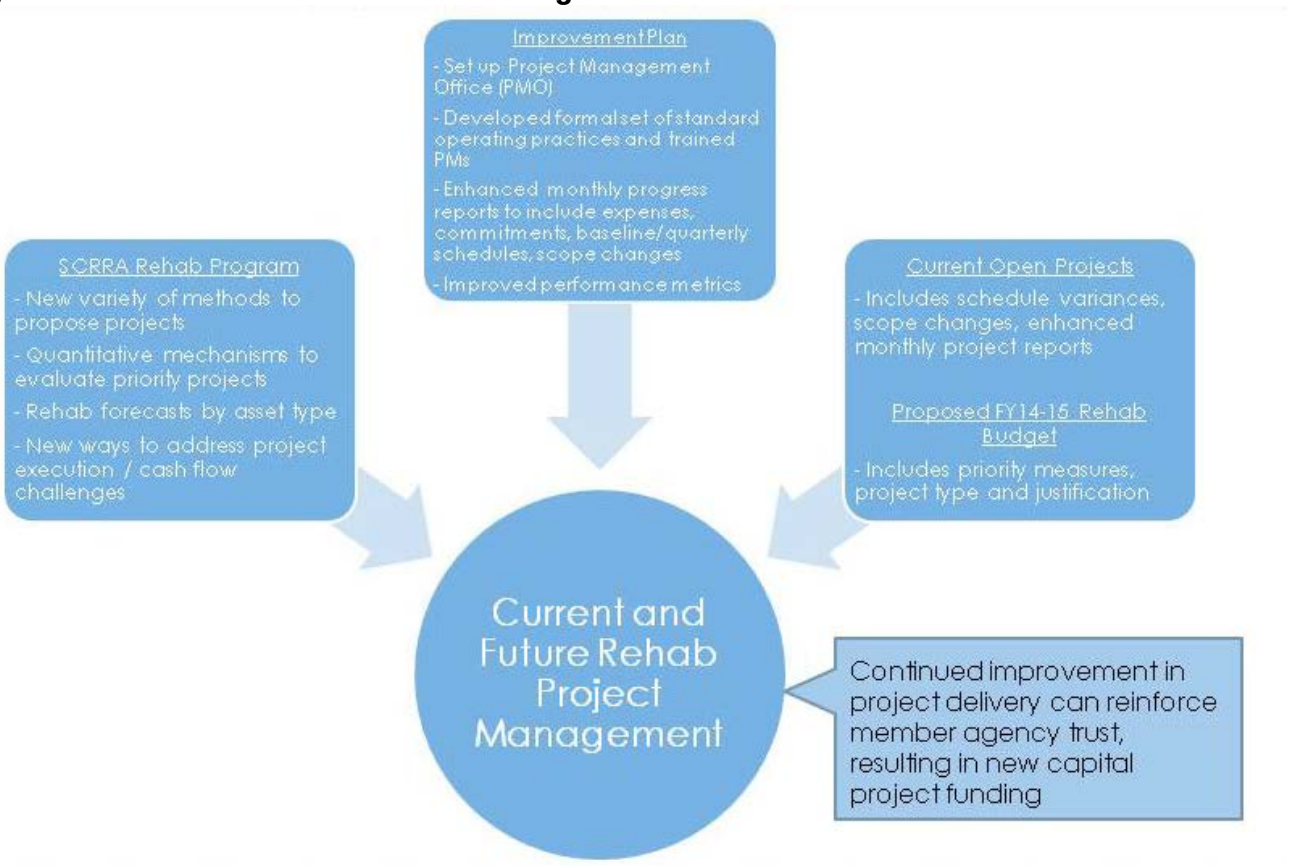


**Figure 4–48: Development of Fleet Management Plan**

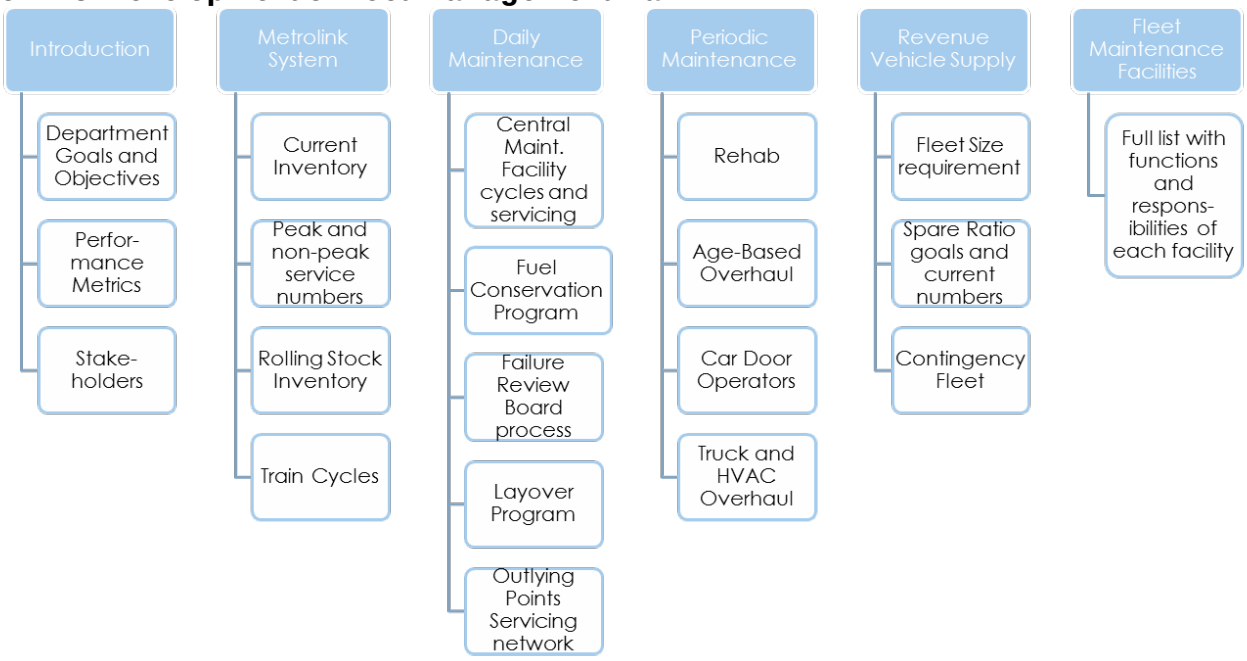
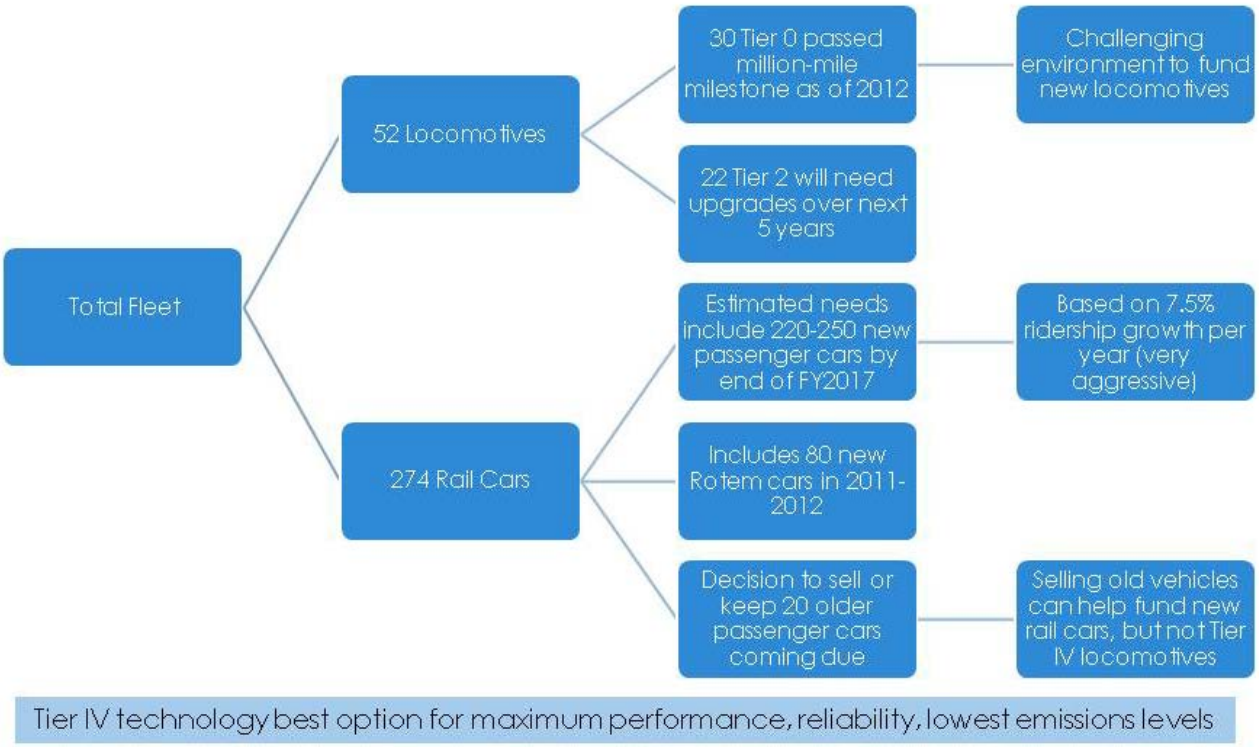



**Figure 4–49: Tier IV Locomotive Upgrades Expected to Improve Fleet Performance**



*Next Steps for Improving Vehicle Conditions moving forward:*

- Determine if decreased mechanical delays and fewer dwell days per shop visit based on change in approach
- Identify methods to increase utilization and miles between failures
- Prepare Bombardier renegotiation strategy
- Outline Tier IV locomotive integration strategy

### 4.2.5 Condition of Capital Infrastructure

Assets are in "good" to "excellent" condition and currently exceed SCRRA minimum standard of 75 (Figure 4–50). Asset condition can directly affect ability to maintain/improve key consumer priorities such as on-time performance and safety. While adherence to key best practices for maintenance and rehab-plans could be improved, some regulations are being met. Most bridges in the system were built prior to 1990 with over 10 percent of the bridge being more than 85 years old (Figure 4-51). An estimated 3.3 bridges are to be replace/rehabbed per year (Figure 4–52). Rehab-projects have been budgeted, but in 2013-14, the funding was allocated to perform capacity ratings. The 2013 Rehab Program addresses weaknesses identified in the 2010 Risk Assessment Analysis; however, despite improvements in the Rehab Program, additional areas must be addressed (Figure 4–53). While Map-21 created a new focus on transit state of good repair and asset management, funding constraints on Member Agencies may limit their ability to better support rehab-projects. Delays in funding result in delays to project start, which create high annual carryovers.

**Figure 4–50: Ratings by Asset Condition Category – 2009 to 2012**

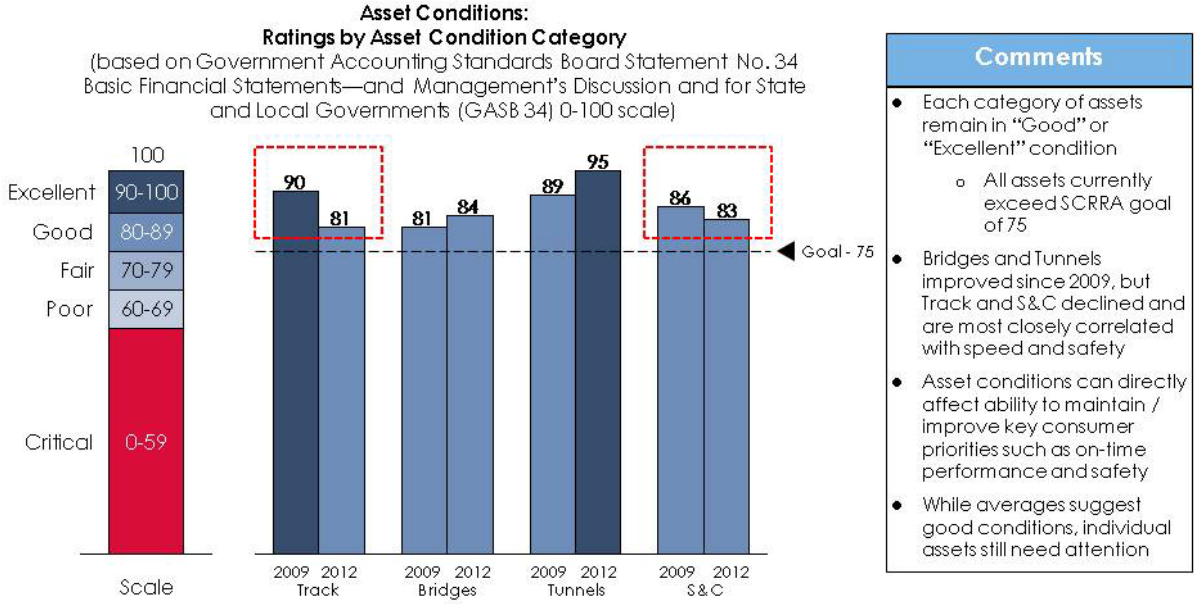


**Figure 4–51: Age of Bridges by Year Built and as Percent of Total**

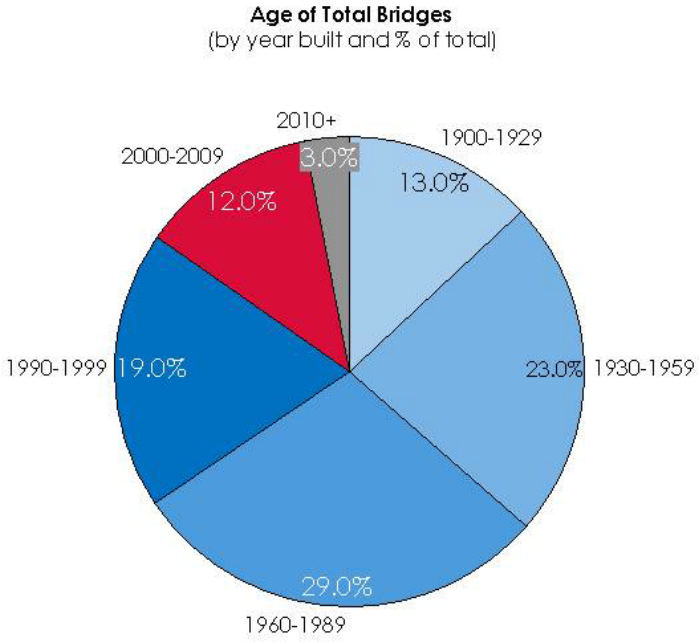
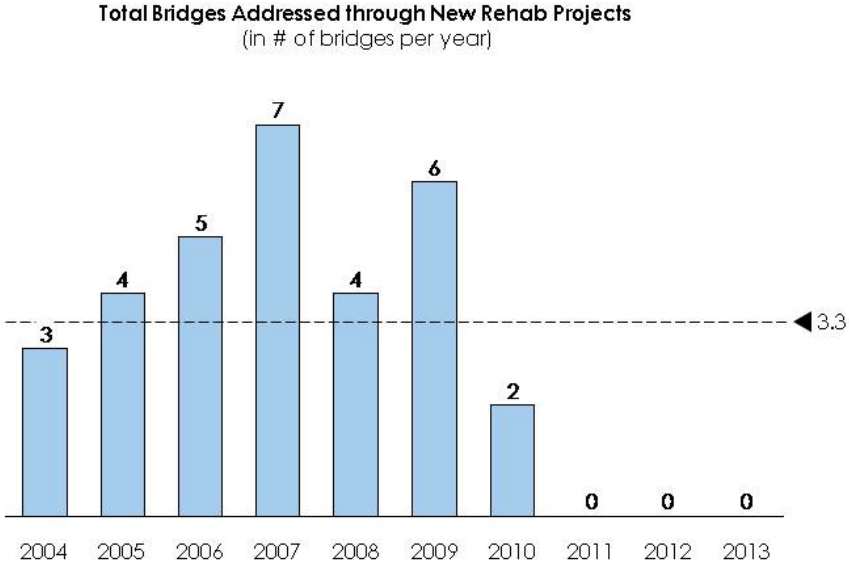


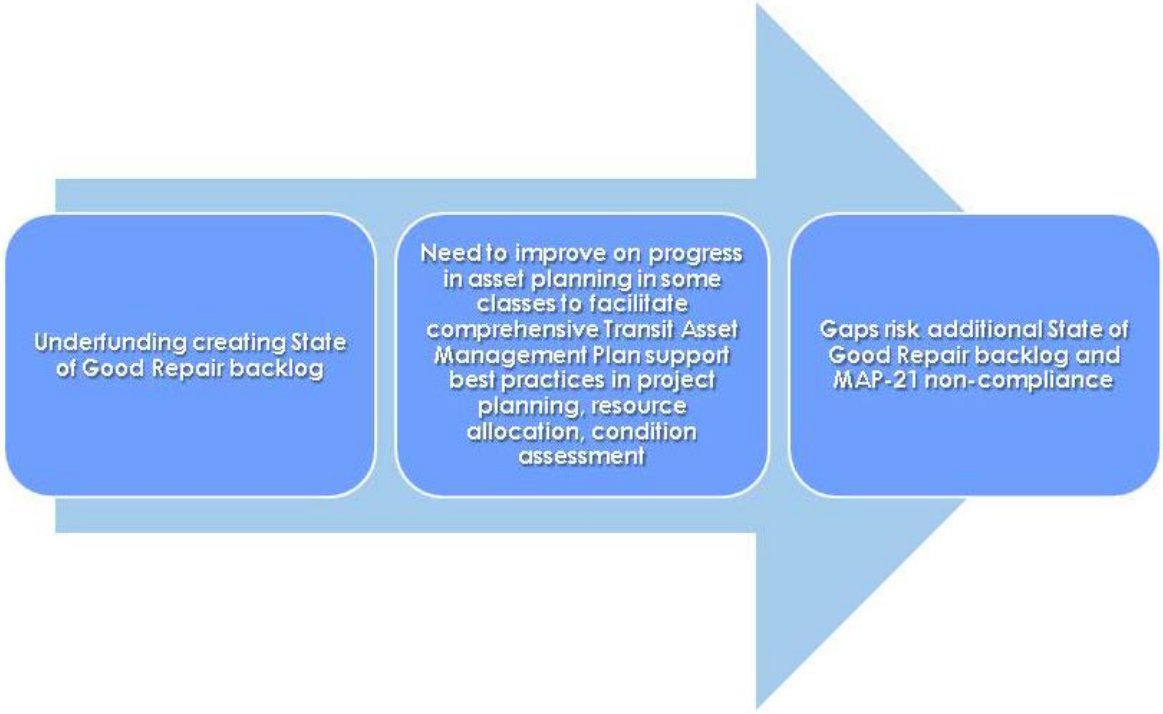

**Figure 4–52: Number of Bridges Addressed Through New Rehab Projects**




**Comments**

- Estimate 3.3 bridges to be replaced/rehabbed per year
  - ~230 bridges
  - ~70 year lifecycle
- Chart illustrates number of bridges invested in through new rehab projects by year
- Overall, expect to see about 30-40 bridges rehabbed in last decade
  - Data suggests aggregate number is in line with expectations, but support is frontloaded
- Over 10% of bridges are more than 85 years old
- 2013 data to be confirmed
  - In 2013-14, rehab funding was allocated to perform capacity ratings

**Figure 4–53: Area of Improvements for Rehab Program**




*Next Steps for Improving Condition of Capital Infrastructure moving forward:*

- Continue to develop and implement State of Good Repair and Asset Management Plans to address rehab gaps and Map-21
- Link rehab plan performance and priorities to asset ratings
- Monitor progress of 2013 Rehab Program to ensure it addresses risk assessment analysis

### 4.2.6 Capital Budgeting

Capital development efforts have shifted towards systemwide initiatives (Figure 4–54) with Metrolink and Member Agency roles evolving (Table 4–7).

**Figure 4–54: Metrolink's Capital Development Efforts – 2006 to 2014**

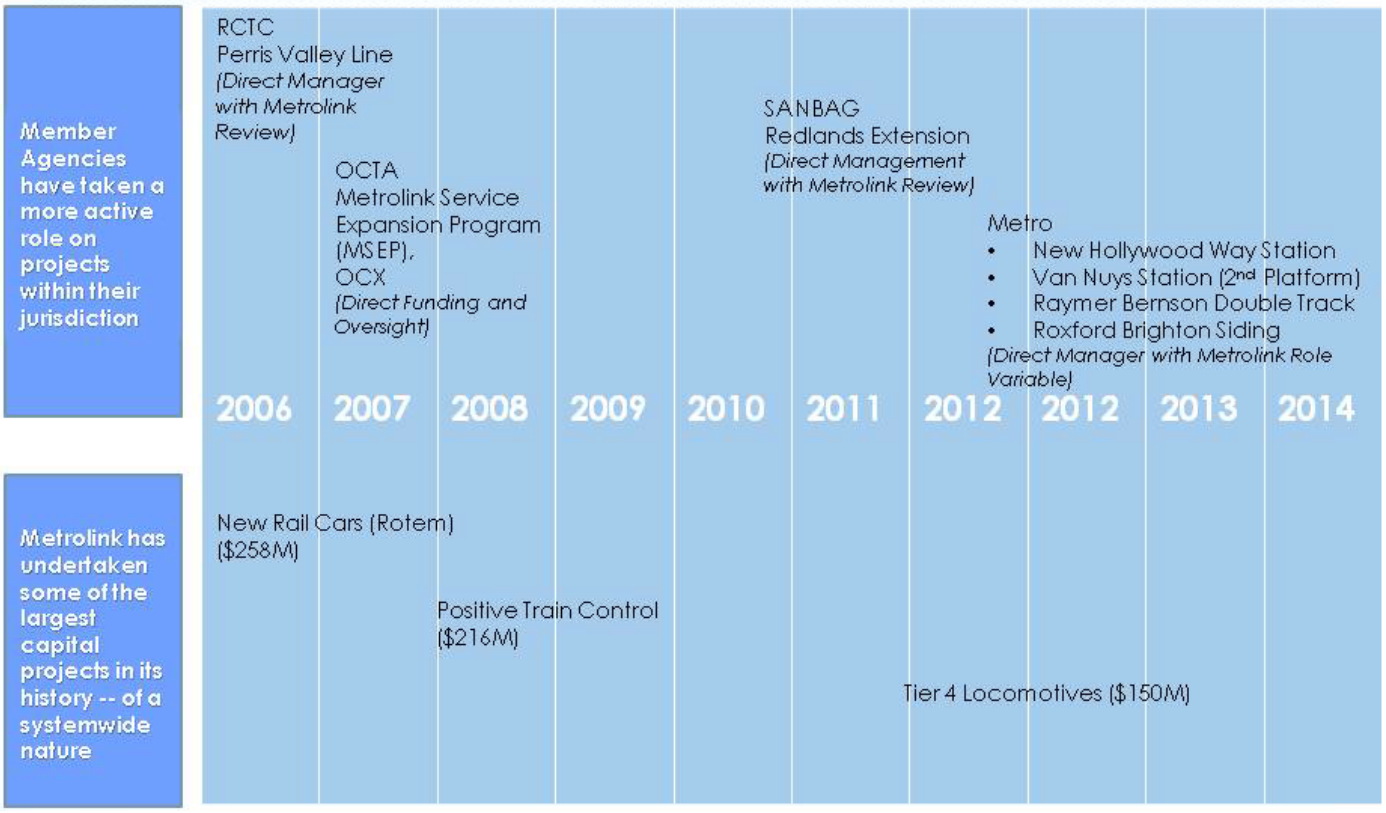
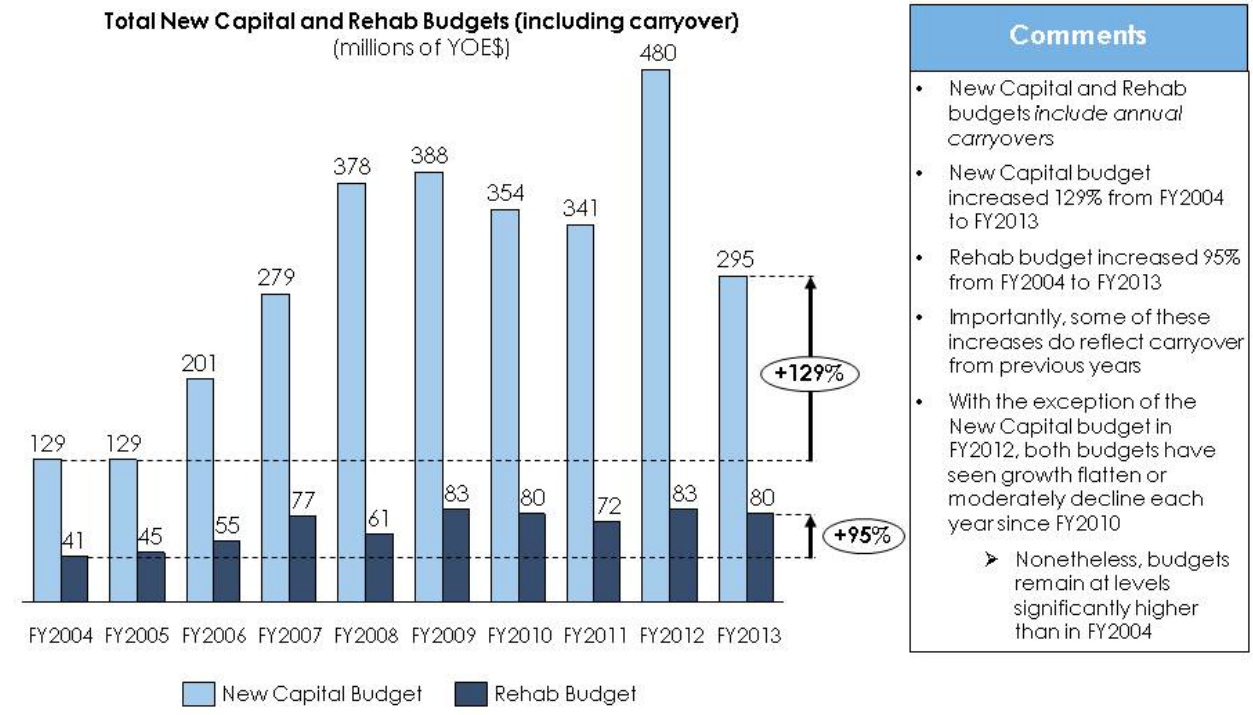



**Table 4–7: Evolution of Roles in Capital Project Development**

| Program | Early 1990s – mid 2000s | Now |
|---|---|---|
| New Corridor Development (New Starts) | • Metrolink / Predecessor Member Agency (LACTC) | • Member Agency |
| Capacity Enhancement | • Metrolink | • Metrolink (Direct)<br>• Metrolink (with Active Member Agency Management)<br>• Member Agency |
| Grade Crossings | • Metrolink + Cities | • Metrolink + Cities<br>• Member Agency + Cities |
| Systemwide Capital Projects | • Metrolink | • Metrolink |
| Rehabilitation Projects | • Metrolink | • Metrolink |

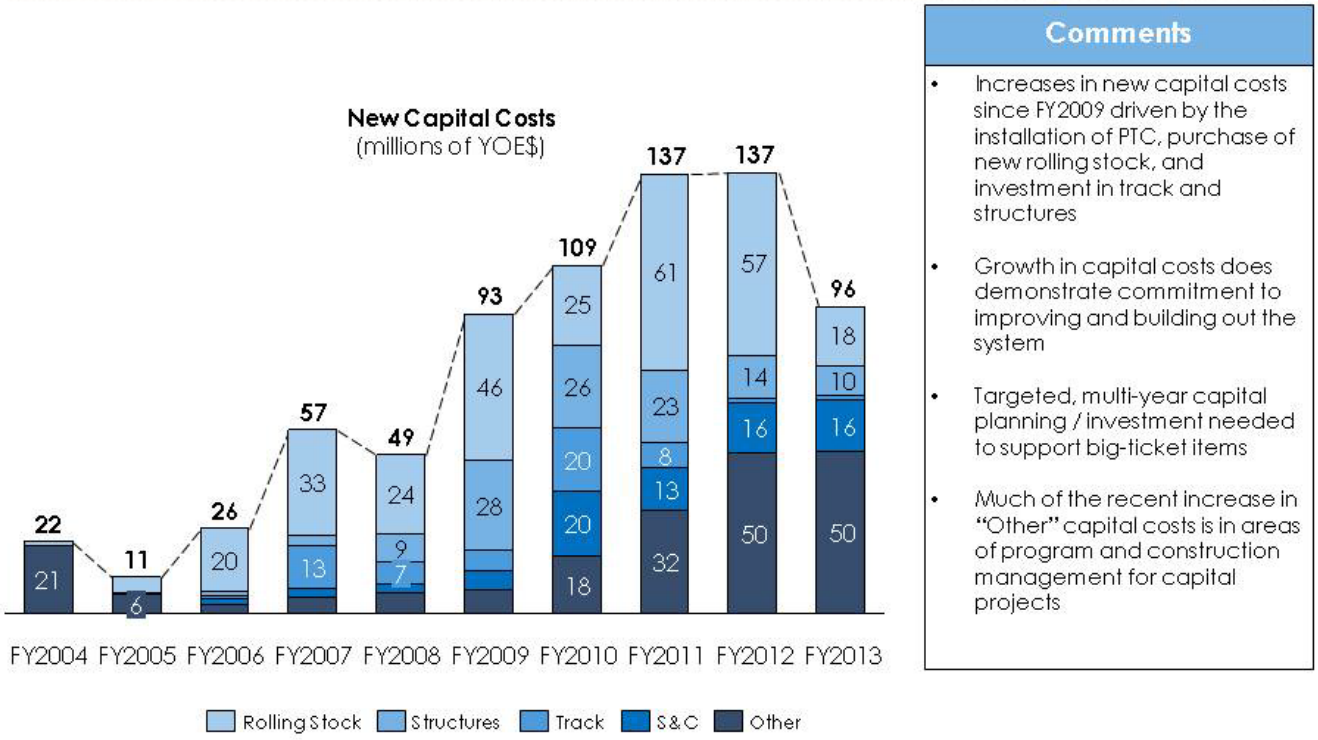
New capital and rehab budgets and expenditures, which include annual carryovers, show Member Agency commitment to SCRRA growth. With the exception of the New Capital budget in FY2012, both budgets have seen growth flatten or moderately decline each year since FY2010; however, budgets remain at levels significantly higher than in FY2004 (Figure 4–55).

**Figure 4–55: Total New Capital and Rehab Budget**




Annual capital costs are highly volatile over time with increases over FY2009 driven by installation of PTC, purchase of new rolling stock, and investment in track and structures (Figure 4–56). The growth in capital costs demonstrates commitment to improving and building out the system. Rehab costs are growing at a slower pace than new capital costs, but they also exhibit significant fluctuation, which, similar to capital costs, have also been driven by volatile investments in track, S&C, and rolling stock. Uneven expenditures due to Member Agency contributions and a complex funding formula reflect annual rehab budgeting decisions and project execution instead of multi-year investment planning.

**Figure 4–56: Annual Capital Cost – FY2004 to FY2013**



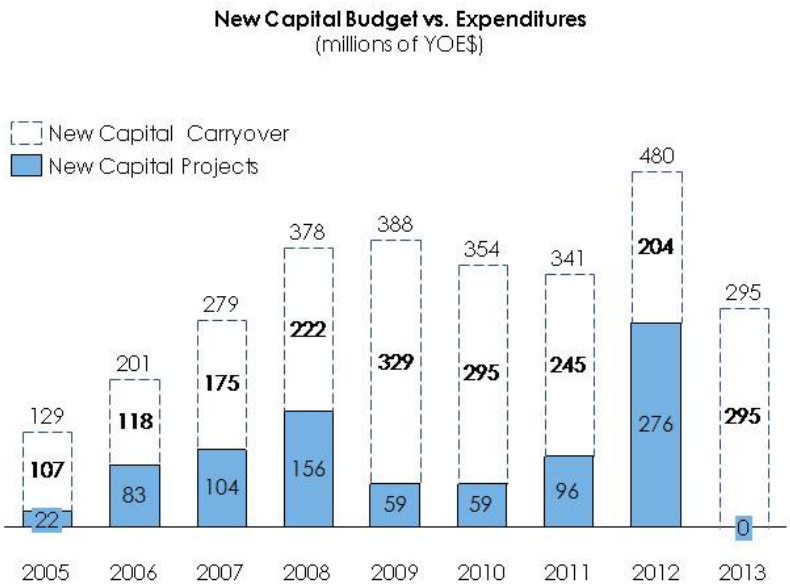

New capital and rehab budgets include large carryovers from previous years. Only in the last few years has the backlog of capital projects started to decrease (Figure 4–57 and Figure 4–58). Large, annual capital and rehab carryovers may threaten Member Agencies' support of new projects (Figure 4–59 and Figure 4–60). Carryover may cause budgets to be perceived as "too high." Backlogs and large carryovers can create tension with Member Agencies who are concurrently being asked to contribute more and more. The Rehab project backlog demonstrates that many budgeted projects are not executed in a single year. Annual planning may lead to volatile rehab costs and budget imbalances. Multi-year rehab plans may help identify actual annual rehab expenditures and will help to manage schedule and costs for projects that last more than a year. Multi-year rehab plans and budgets, properly executed, will improve project management and inspire Member Agency confidence. Each step in the process to draw down budgets is increasing in time (Figure 4–61). A potential solution to reduce the lag between rehab funding and project commencement is reverting back to previous policy and allowing Member Agencies advance working capital to SCRRA and return to pre-award authority requests (Figure 4–62). Metrolink has taken the following steps to reduce delays in project task initiation and completion:

- Continued monthly progress meetings
- Supplemental regular support
- Weekly look-ahead task listings

- Quarterly accountability meetings with those PMs/Directors who are behind schedule on their rehab projects
- Internal departmental status meetings to prioritize project delivery
- New staff and reassignment of workload
- Training
- Project Management
- Risk Assessment

Fewer capital projects affect agency overhead rates. G&A/overhead pool expenses are spread to all programs/projects via a two-tier calculation. The pool follows SCRRA labor, but not contracted labor. Operating receives about 86 percent of the pool, capital 11 percent, and re-collectables, 3 percent.

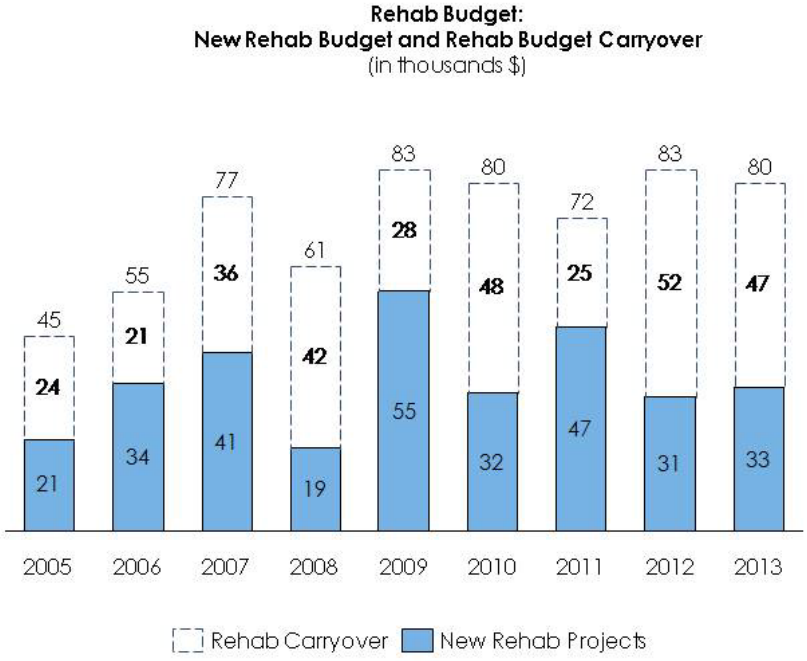
**Figure 4–57: New Capital Budget: Carryover and Projects**




**Comments**

- Dotted bars illustrate carryover and data for 2013 not yet confirmed
- New Capital expenditures generally less than 40% of the total budget for New Capital
- Only in the last few years has the backlog of capital projects started to decrease
- Many capital projects span multiple fiscal years but their budgets are obscured in annual budgets that do not identify multi-year expenditures
- Requiring all funds for projects to come from a single member agency creates challenges to fund large capital projects

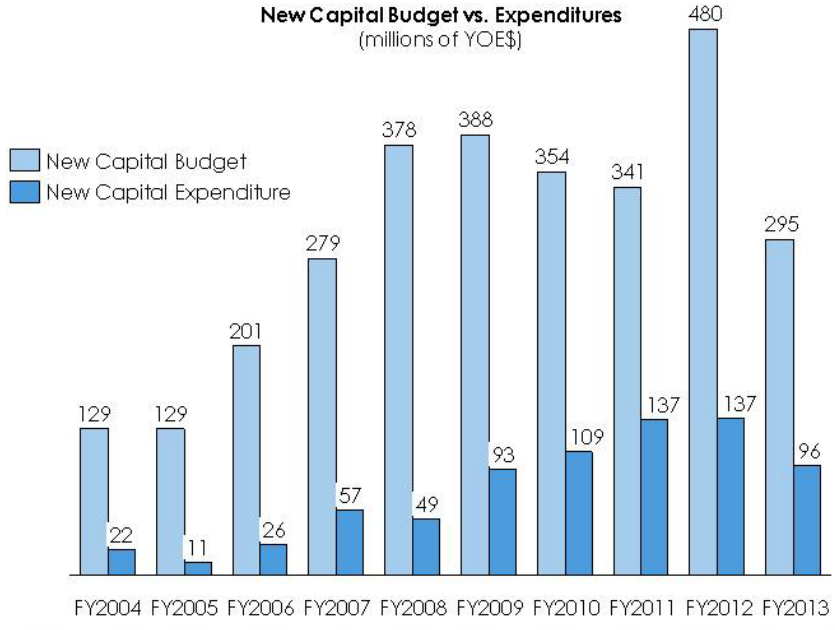
**Figure 4–58: Rehab Budget: Carryover and New**




**Comments**

- Dotted bars illustrate carryover and data for 2013 not yet confirmed
- New rehab project data estimated by subtracting carryover from total budget
- Large carryovers indicate agencies providing funding now, but projects are not completed until later
- Project Management improvement plan help to better predict year-to-year carryovers
  - Developing a multi-year rehab plan with buy-in from member agencies can further help minimize carryovers

**Figure 4–59: New Capital Budget: Budget and Expenditures**




**Comments**

- New Capital expenditures have generally been less than 40% of the total amount budgeted
- Carryovers may cause budgets to be perceived as "too high"
- Many capital projects span multiple fiscal years but their budgets do not identify multi-year expenditures
- Backlogs and large carryovers can create tension with member agencies, who are concurrently being asked to contribute more and more

**Figure 4–60: Rehab Budget: Budget and Expenditure**

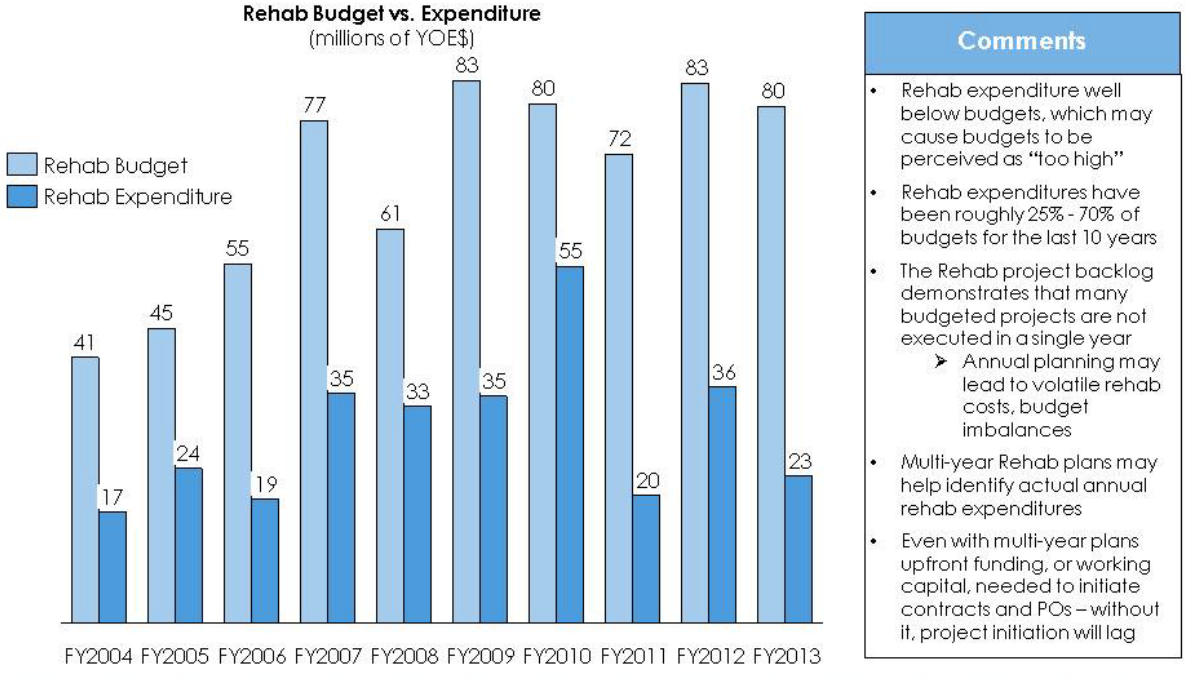



**Figure 4–61: Process to Draw Down Budget**

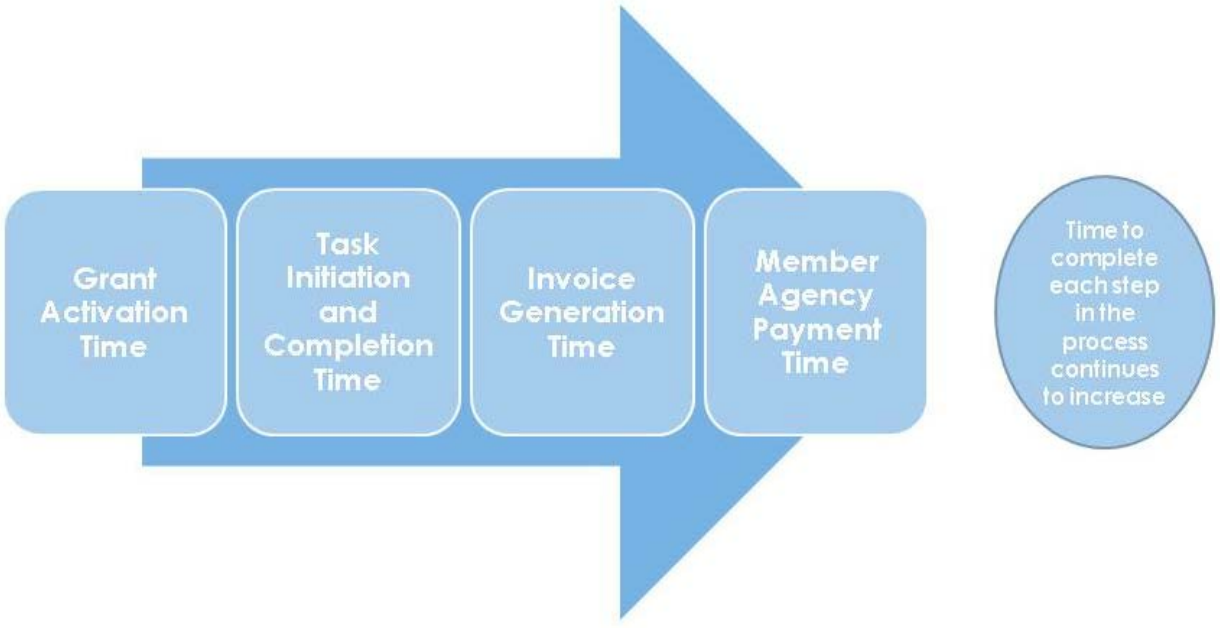
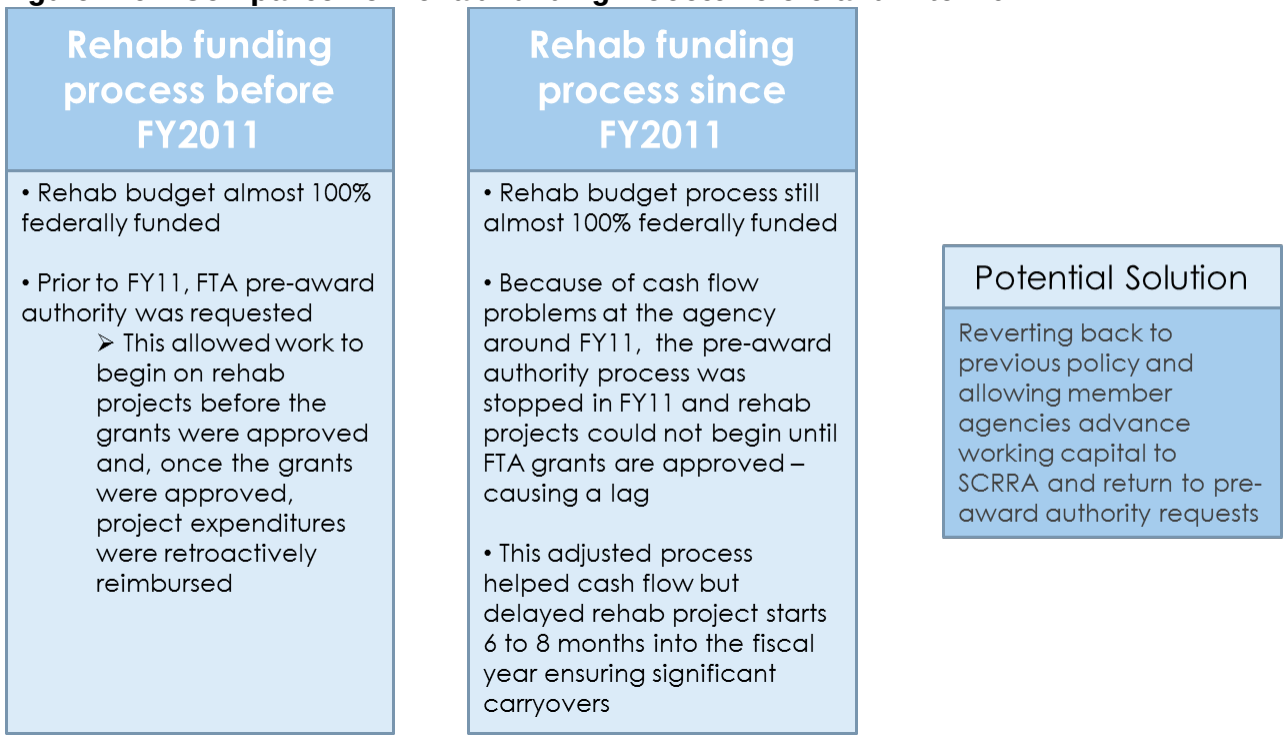


**Figure 4–62: Comparison of Rehab Funding Process Before and After 2011**




*Next Steps for Capital Budgeting moving forward:*

- Align with Member Agencies on cause of and best solutions to carryovers to ensure timely starts to future project initiation
- Explore costs and benefits to multi-year rehab plans
- Identify ways to reduce time to draw down rehab and capital budgets
- Work with Member Agencies and departments to create innovative ways to reduce project task initiation and completion delays

### 4.2.7 Project Delivery

SCRRA maintains several important strengths related to project delivery. Few projects contained significant scope changes (Figure 4–63). Projects under $500k often finish on or under-budget despite schedule overruns (Figure 4–64). Projects greater than $5m were also likely to finish under-budget despite schedule overruns (Figure 4–65). Equipment rehab, S&C rehab, and New Capital-Capital projects finish under budget, on average (Figure 4–66).

**Figure 4–63: Projects with Scope Changes**

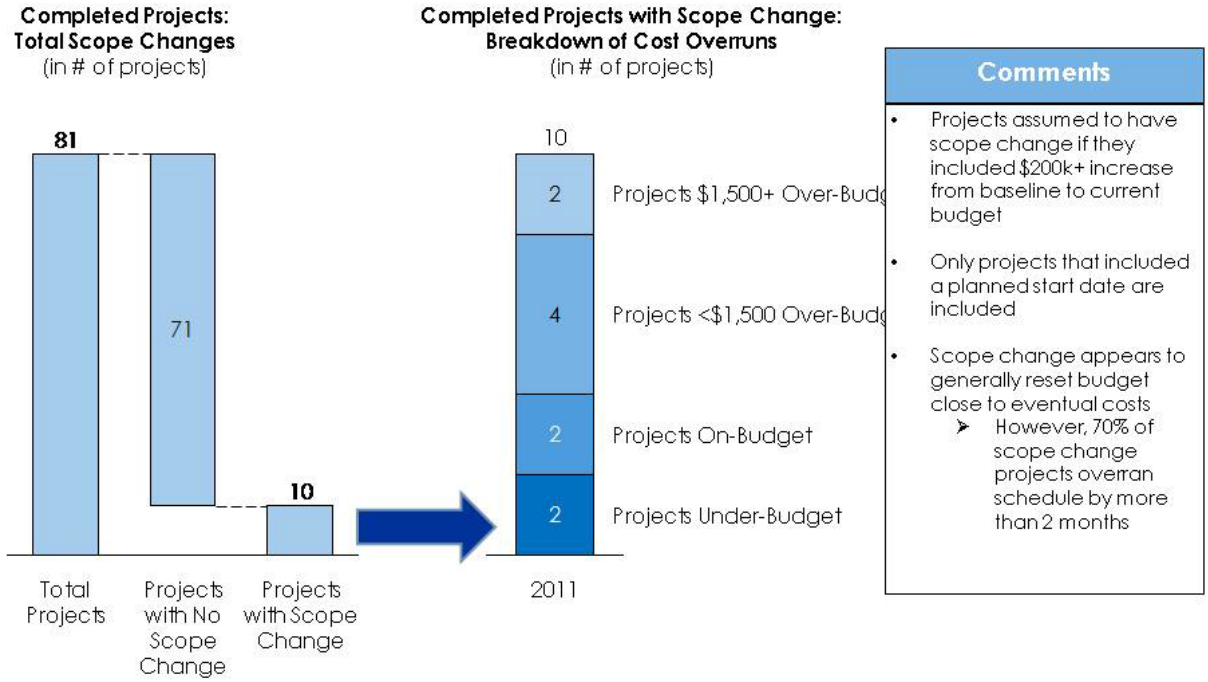



**Figure 4–64: Projects under $500k Often Finish On Or Under-Budget Despite Schedule Overruns**

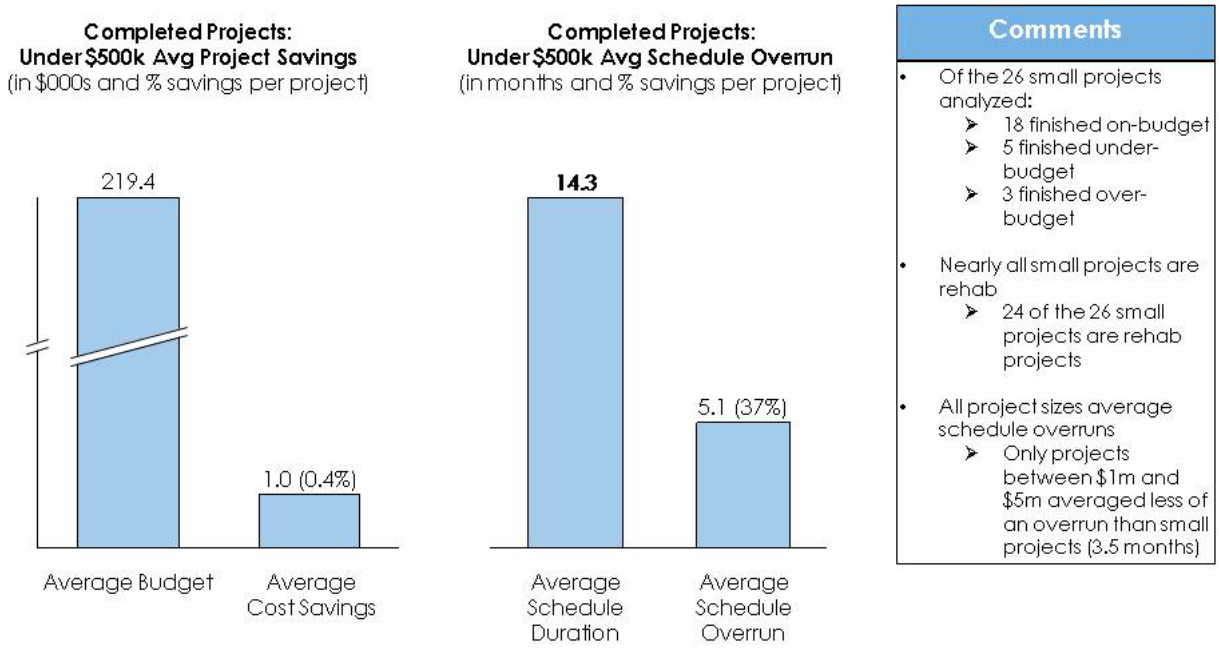


**Figure 4–65: Projects Greater than $5m Also Likely To Finish Under-Budget Despite Schedule Overruns**

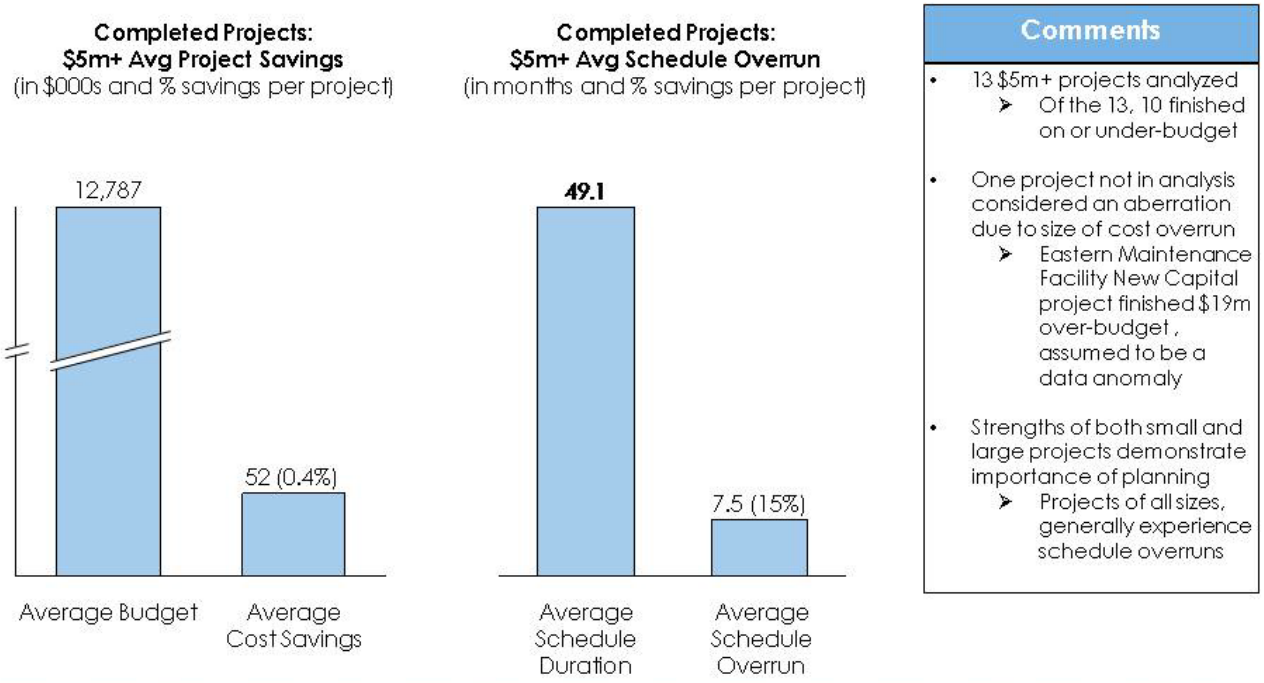
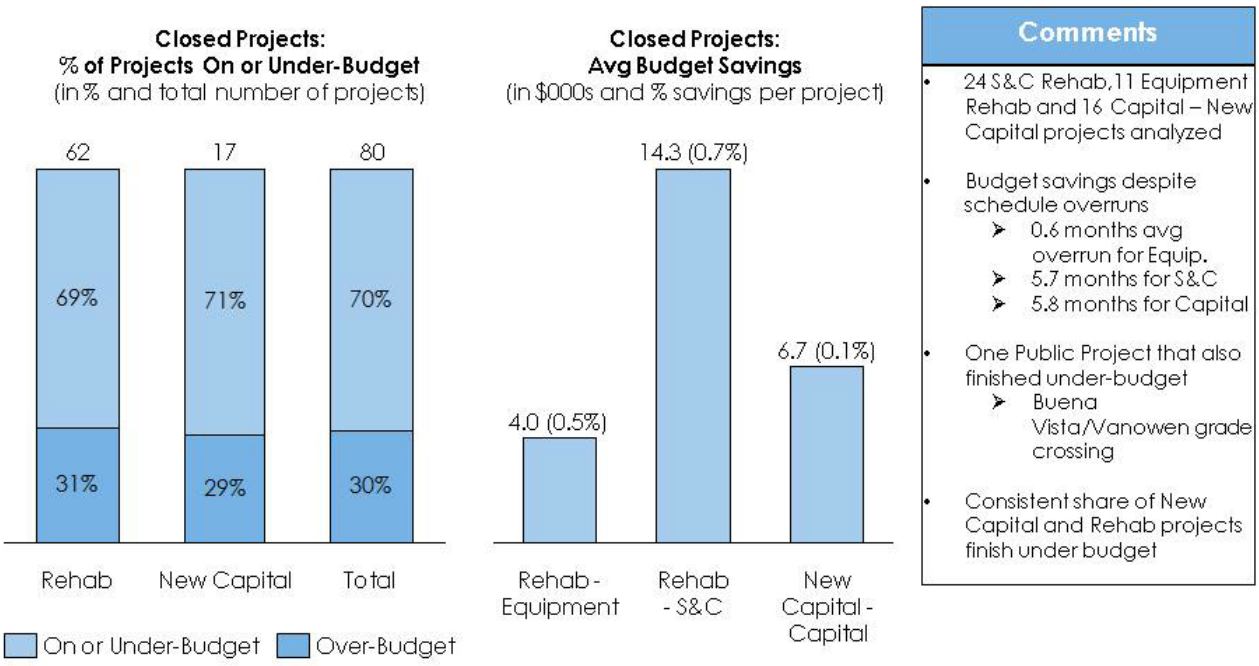
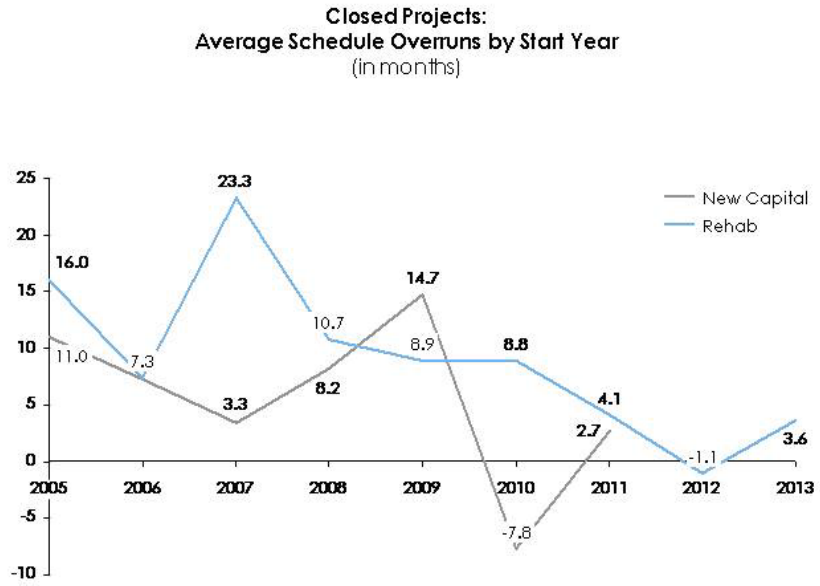



**Figure 4–66: Closed Project Percent on Budget and Average Budget Savings**



The length of project overruns fluctuates over time, but recent decreases should inspire Member Agency confidence and show that Project Management Improvement in 2011 had an effect in 2012-13 (Figure 4–67). 30 percent of projects with scope change finish over-budget and 60 percent overrun projected schedule (Figure 4–68).

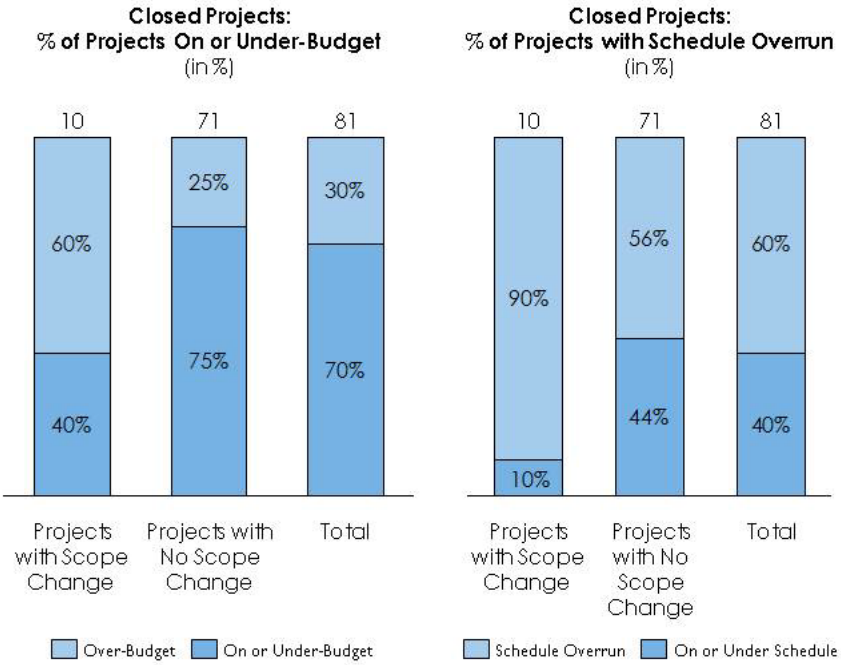
**Figure 4–67: Closed Projects Average Schedule Overruns**




**Comments**

- Rehab project overruns decreasing since 2009
- No data for new capital projects in 2012 and 2013
- 2013 San Gabriel Signals Program removed from data due to assumed data anomaly
- 2011 Project Management Improvement has had an effect in 2012-13
- Improvements should inspire member agency confidence
- Sample sizes very low – <8 projects per category

**Figure 4–68: Projects with Scope Change More Likely To Have Budget and Schedule Overruns**

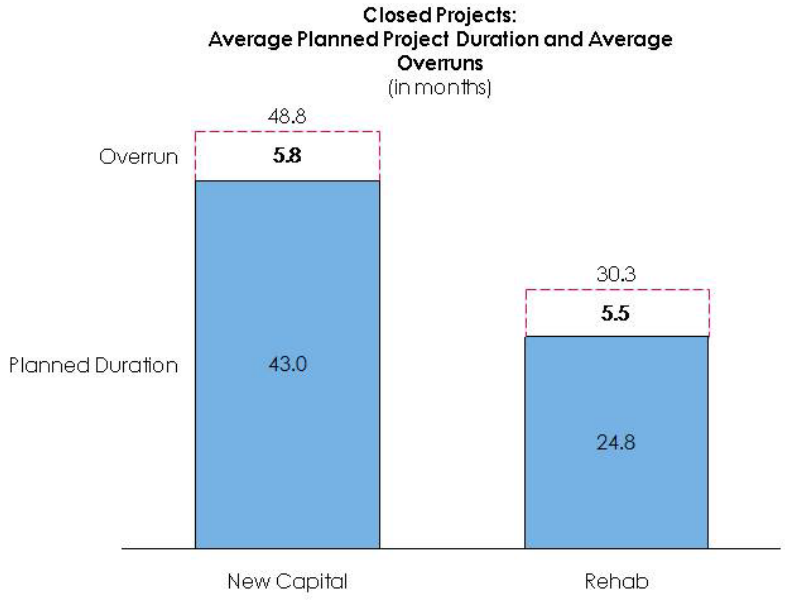



**Comments**

- 81 closed projects analyzed
  - No project included in data that did not have "planned start" information in the data set
- 30% of all projects finish over-budget and 60% overrun projected schedule
- Projects with scope changes perform worse than projects without scope changes
- Previous issues with project management have resulted in low confidence from member agencies so they have taken recent New Capital projects in-house

Schedule overruns are common regardless of project size, but do not indicate cost overruns. Both New Capital and Rehab projects overrun estimated schedules, on average, by nearly 6 months, which is a greater concern for rehab projects as 6 months represents a 25 percent schedule overrun (Figure 4–69). Schedule overruns are also common across most project types and are driven by high frequency of overruns, rather than infrequent large overruns (Figure 4–70).

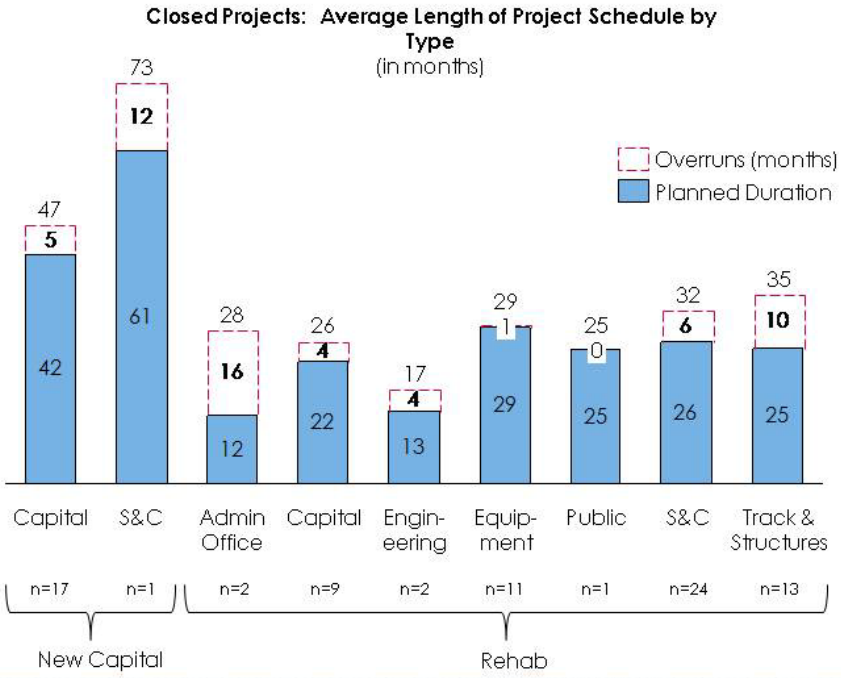
**Figure 4–69: Average Planned Project Duration and Average Overruns**




**Comments**

- Both New Capital and Rehab projects overrun estimated schedules, on average, by nearly 6 months
- This is a greater concern for Rehab projects as 6 months represents a 25% schedule overrun
  - However, New Capital projects estimated to take 15% longer than planned – still a significant figure
- In total, ~60% of both New Capital projects and Rehab projects incurred a schedule overrun

**Figure 4–70: Average Length of Project Schedule by Type**

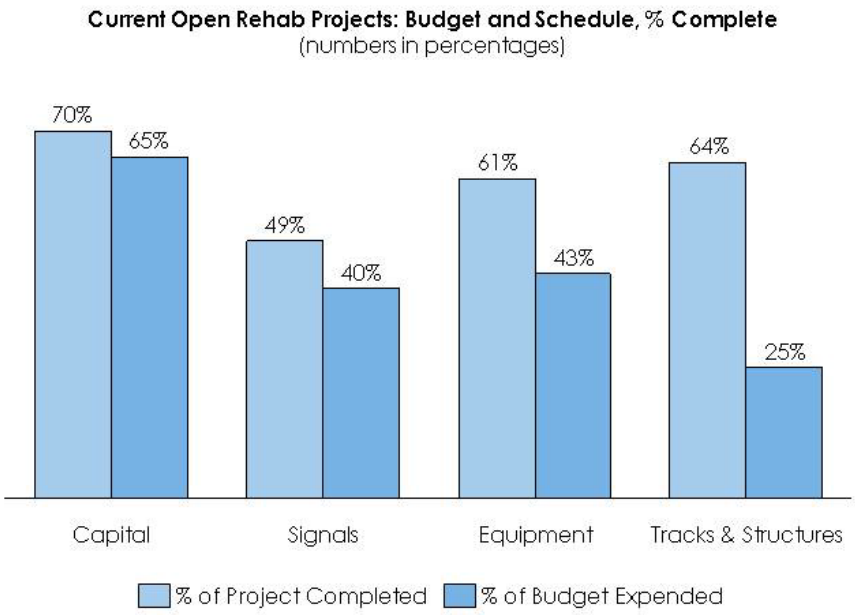



**Comments**

- Percent of New Capital projects overrun schedule:
  - Capital – 59%
  - S&C – 100% (1 project)
- Percent of Rehab projects that overrun schedule:
  - Admin – 50%
  - Capital – 56%
  - Engineering – 50%
  - Equipment – 18%
  - Public – 0% (1 project)
  - S&C – 75%
  - T&S – 77%
- Average overruns driven by high frequency of overruns, rather than infrequent, large overruns

A likely cause of overruns is that schedule outpaces budget, leaving more work left than time (Figure 4–71). Schedule overruns are both frequent and significant in size of overrun; however, schedule overruns are not necessarily associated with high cost overruns (schedule and cost overruns do not appear to drive each other). This has two important implications; focusing on tightening schedules may allow for smaller budgets and yield cost savings, and it is possible that "current budget" is frequently adjusted to reflect extending schedule; therefore, small cost overruns may be misleading. Open projects are starting on time, but many are projected to finish late (Figure 4–72).

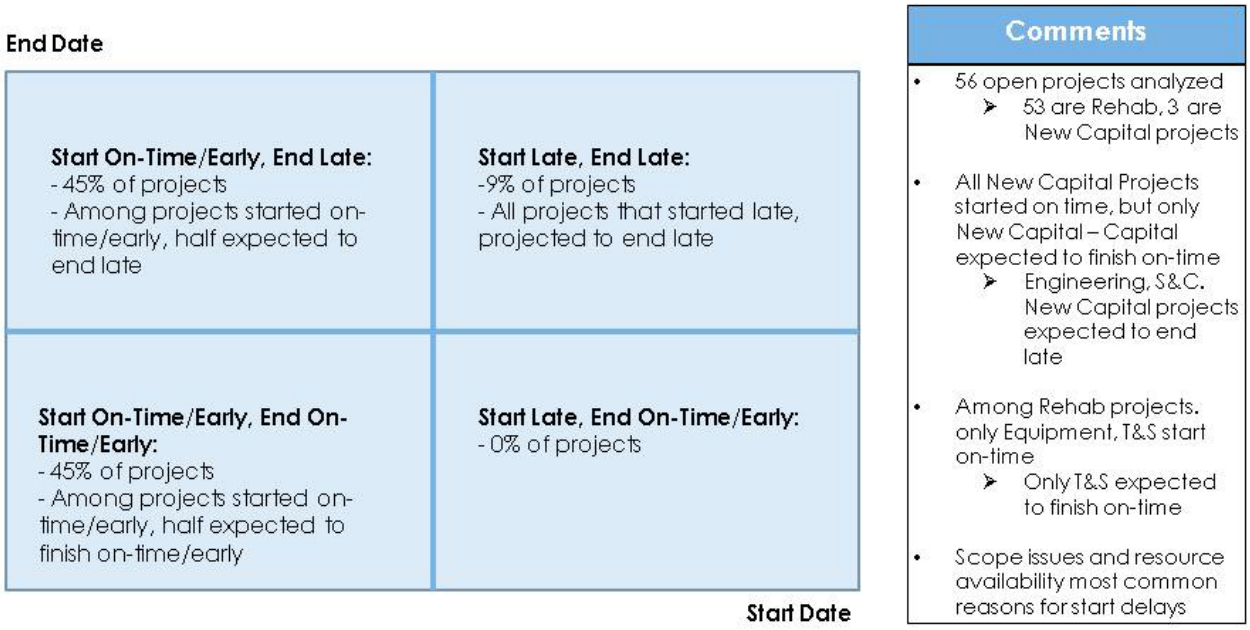
**Figure 4–71: Open Rehab Projects: Percent Completed and Budget Expended**




**Comments**

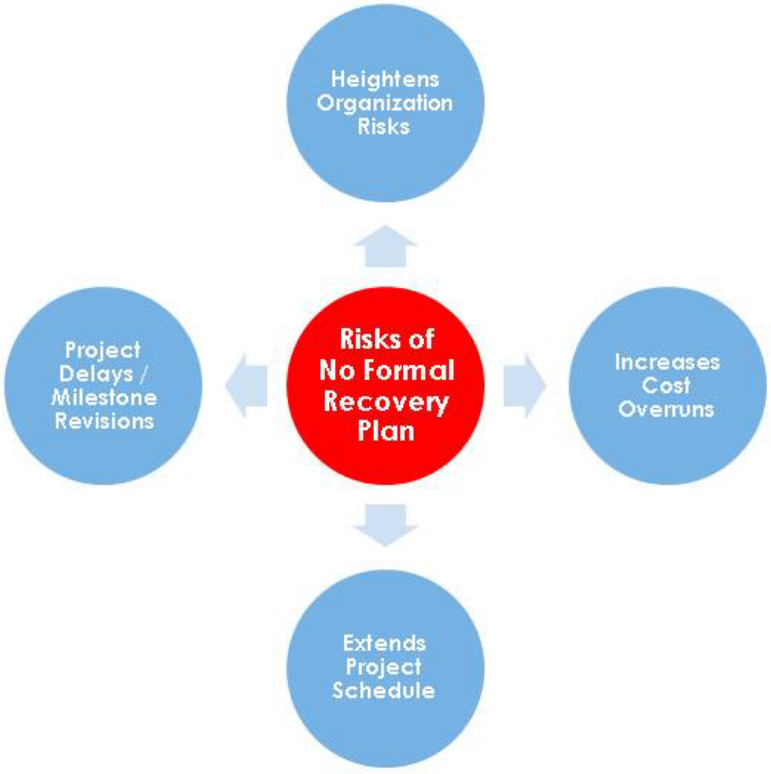
- Data from 6 capital projects, 13 equipment projects, 27 signals projects, 7 track and structure projects
- Data does not outline when major costs are due
  - Possible that major costs happen late in project schedules
  - However, it is more likely that as schedule outpaces budget, there is more work left than time left, causing schedule overruns

**Figure 4–72: Open Projects Start and End Dates**




SCRRA often does not include formal recovery plans to leverage in the event of a project delay or cost overrun. The lack of formal recovery plans during project management increases risks and does not allow for mitigation of schedule delays and cost overruns (Figure 4–73). New project management oversight processes will help improve project delivery. SCRRA can reduce cost overruns by addressing concerns early in the project lifecycle since the highest percentage of projects estimated over-budget occur closest to completion. 27 percent of all projects greater than 75 percent complete project EAC to be higher than the current budget. Therefore, 75 percent of projects in this category estimate cost to be in-line with the baseline budget (Figure 4–74). However, several management and administrative issues threaten project delivery improvements, such as unfilled positions and un-reconciled data from Oracle.

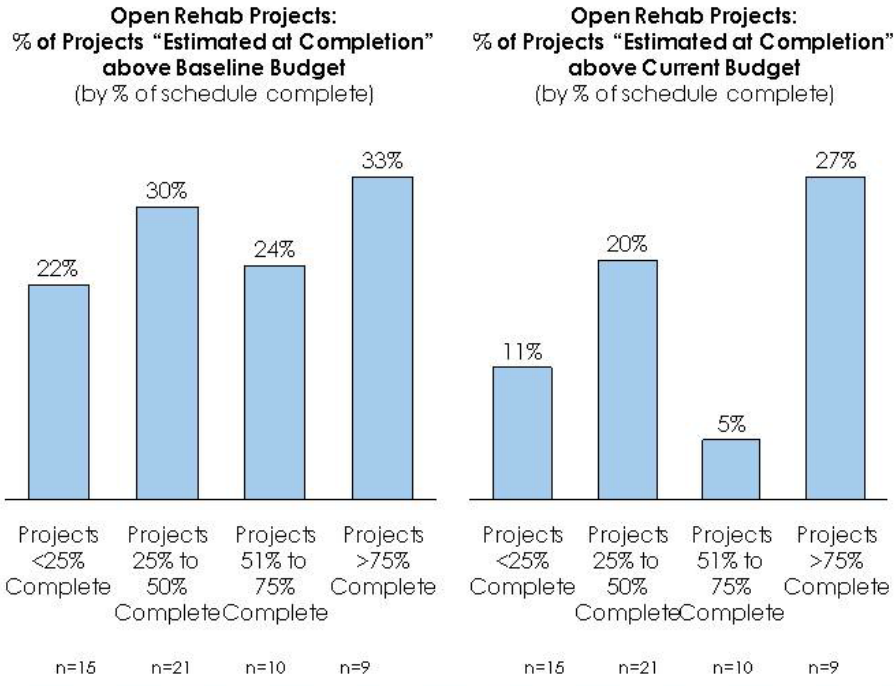
**Figure 4–73: Lack of Formal Recovery Plans During Project Management Increases Risks**




**Comments**

- SCRRA often does not include formal recovery plans to leverage in the event of a project delay, or cost overrun
- Formal recovery plans essential to mitigate risk, minimize schedule and cost overruns
- Policy and procedures must be outlined at outset of project to mitigate risks, cost delays and overruns

**Figure 4–74: SCRRA Can Reduce Cost Overruns by Addressing Concerns Early In Project Lifecycle**




**Comments**

- Projects near completion more likely to estimate cost overruns
- To illustrate the data, 27% of all projects >75% complete project EAC to be higher than the current budget
  - Therefore, 73% of projects in this category estimate cost to be in-line with the baseline budget
- Highest percentage of projects with estimated cost at completion over-budget occur with projects closest to completion

*Next Steps for Project Delivery:*

- Identify reasons for reduction in projection overruns
- Better understand what factors result in projects finishing at or under-budget
- Develop formal recovery plans to mitigate project schedule risks
- Implement methods to identify project risks early in the project lifecycle

## 4.3 CONNECTIVITY

The SWOT analysis performed on elements of the "Connectivity" discipline, emphasized evaluations of:

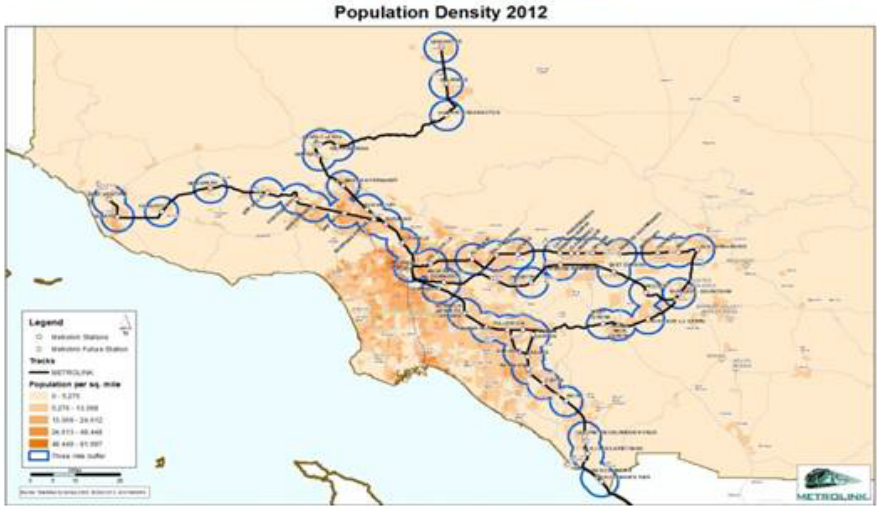
- Connection to People and Jobs
- Bus / Rail Connections
- Connectivity to Development and Multimodal Access
- Intermodal Connectivity

Metrolink serves a large, dispersed region by combining core commuter rail services with other transportation systems operated by Member Agencies and other providers. To improve service, SCRRA needs to focus on how the Metrolink system fits into the regional transportation framework and connects land use and development. Evaluating bus/rail connections for feeder services to Metrolink, connectivity with supportive land uses and development, and connections from Metrolink to other intermodal services such as airports and eventually high-speed rail will determine how Metrolink can better serve the region.

### 4.3.1 Connection to People and Jobs

Metrolink serves a six-county area, where most population and employment centers are not near a station (Figure 4–75). The Inland Empire has experienced large population increases since 2003 with the High Desert and Western Riverside County areas showing significant population increases in areas not served by Metrolink (Figure 4–76). Coastal areas in LA and Orange County have experienced widespread employment growth with some growth along the Metrolink system, but also in areas not served by Metrolink, such as the I-15 corridor and western LA and Orange Counties (Figure 4–77). Metrolink's service covers just 55 percent of employment locations in Southern California (Figure 4–78). Within three miles of a Metrolink station lives 28 percent of the region's population and 30 percent of the region's employment (2012).

**Figure 4–75: Population and Employment Density - 2012**


| Comments |
|---|
| • 6.9 million people (28% of the 5-county population) live within three miles of a Metrolink station<br>• 3.2 million jobs (30% of the 5-county total employment) are located within three miles of a Metrolink station<br>• Notable service gaps exist in coastal LA County, northern Orange County, and the Inland Empire |

**Figure 4–76: Population Change 2003 - 2012**

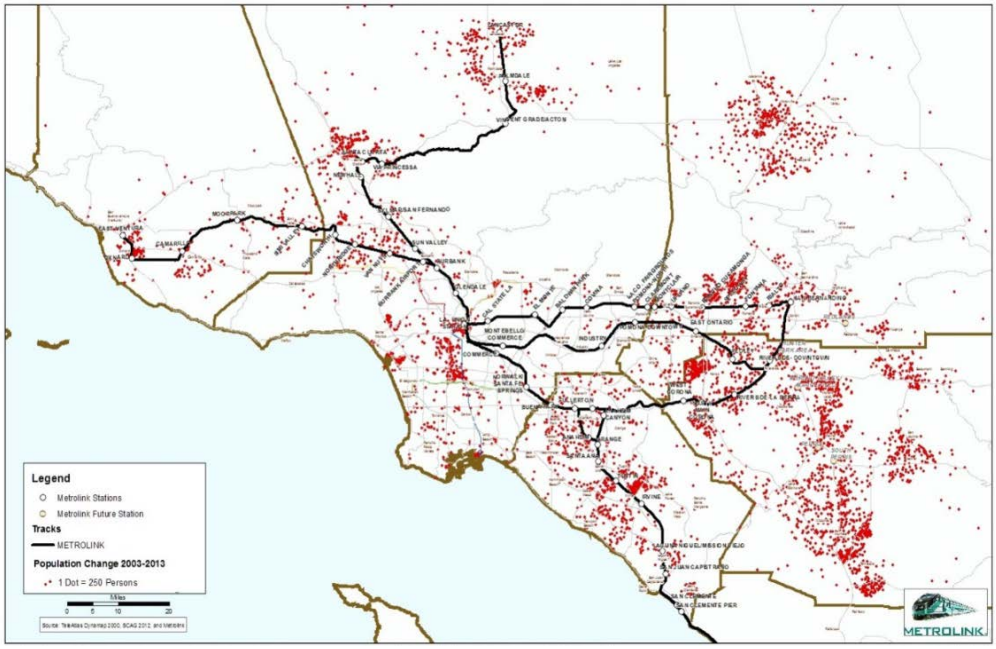



**Figure 4–77: Employment Change 2003 - 2012**

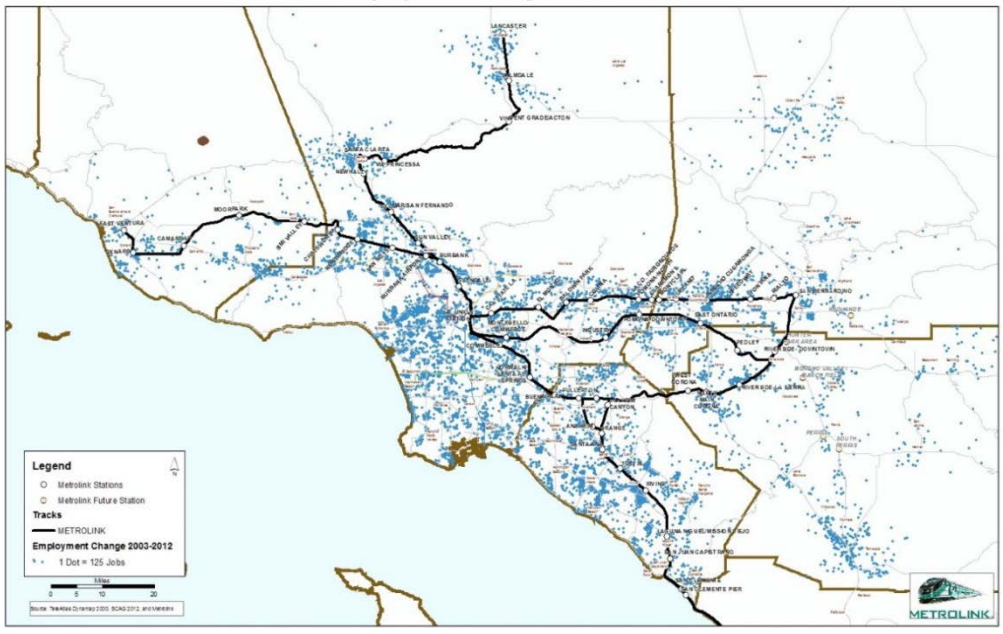
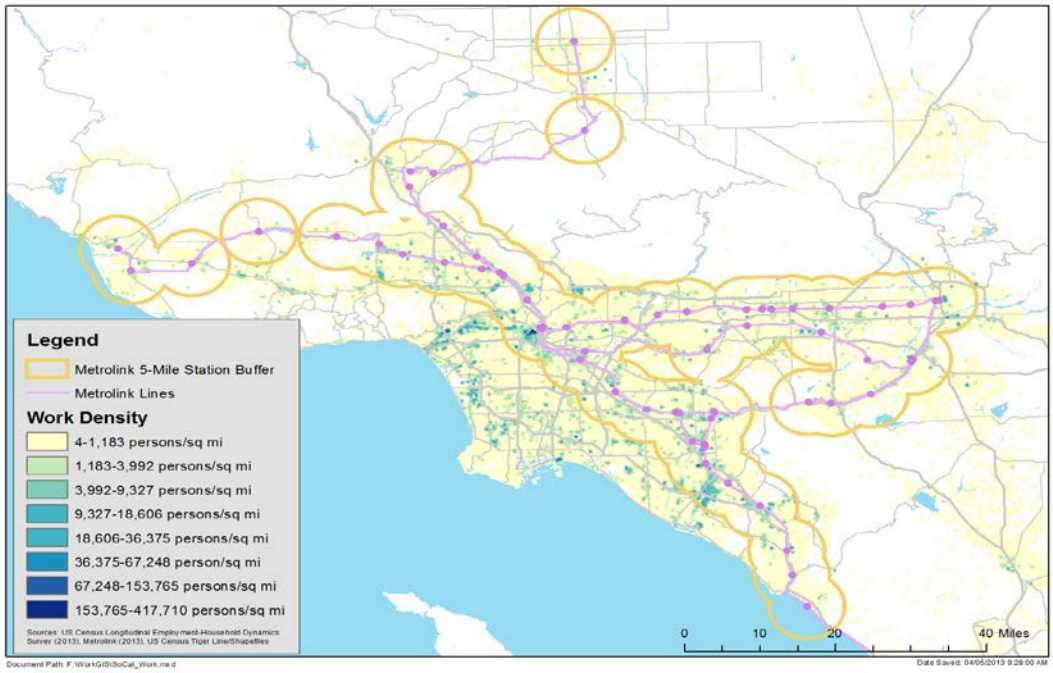
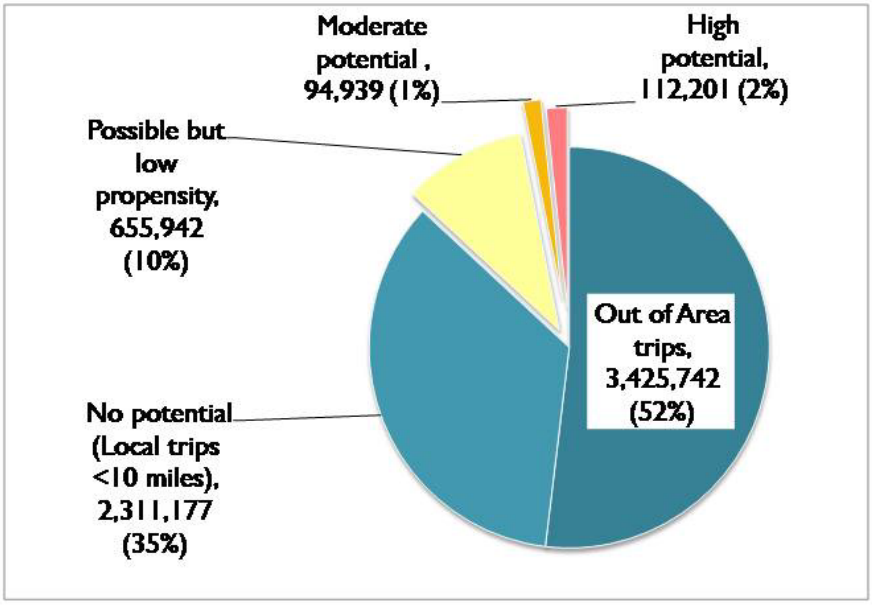


**Figure 4–78: Medium to High Income Work Locations in Southern CA**




There is considerable ridership potential and based on its current network, Metrolink could potentially serve up to 13 percent (or 863,000) of all commute trips – both origin and destination are within catchment areas (Figure 4–79). Based on user characteristics, 200,000 of these commute trips have some propensity to use Metrolink.

**Figure 4–79: Considerable Ridership Potential Remains**




**Comments**

- Metrolink serves approximately 1/3 of 1% of the region's 6.5 milliion commute trips
- 87% of the region's trips cannot be served by Metrolink existing network
- Based on current network, Metrolink could still potentially serve up 13% (or 863,000) of all commute trips – both origin and destination are within catchment areas
- Based on user characteristics, 200,000 of these commute trips have some propensity to use Metrolink

Source: US Census LEHD 2011, Metrolink 2013 Latent Demand Study

Stakeholders have indicated a desire to improve service to many locations already served by Metrolink, mostly with more trains (Figure 4–80). Likewise, Stakeholders have also indicated a desire for service connections to new areas (Figure 4–81).

**Figure 4–80: Location Where Stakeholders' Desire Improve Service**

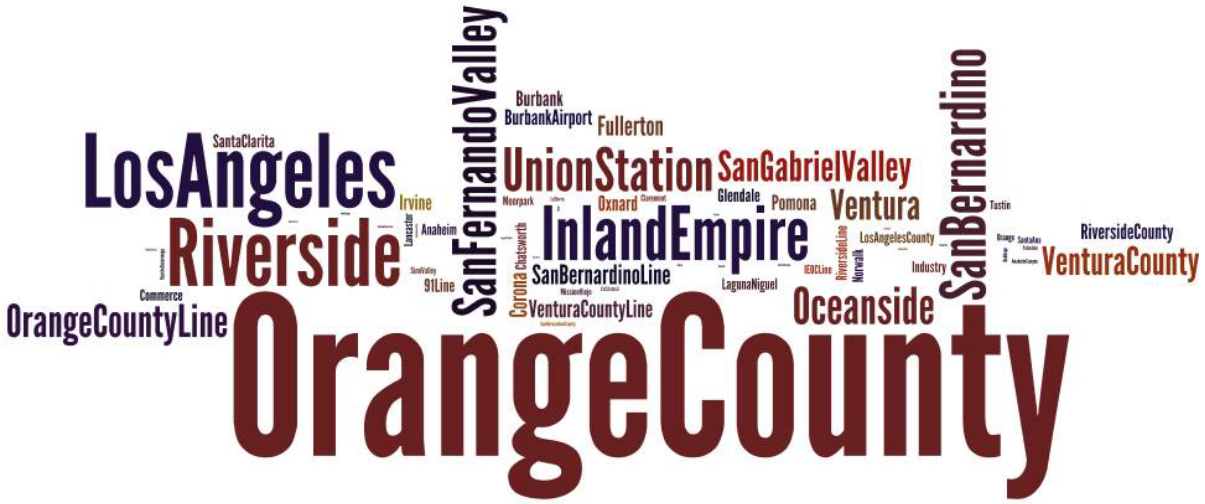



**Figure 4–81: Stakeholders' Desired Connections to New Areas**


The following presents projects being pursued by Member Agencies and other parties that will expand Metrolink directly and improve connections:

**Perris Valley Line (RCTC)**

- Connects to Perris Valley / I-215 Corridor

**Redlands Extension**

- Extends Metrolink service to downtown San Bernardino (E Street)
- Extends Freight-compatible rail service (potentially with alternate vehicles) to Redlands

**Intercity Rail Connections**

- LOSSAN Corridor – Improvements to the LOSSAN Corridor (between San Luis Obispo to San Diego) can have spillover benefits to service on the Ventura County Line, Antelope Valley Line, Orange County Line, and 91 Line and better connections to Santa Barbara and San Diego
- Coachella Valley Rail – Pursued by RCTC, can promote connections via intercity rail

**Local Rail Connections**

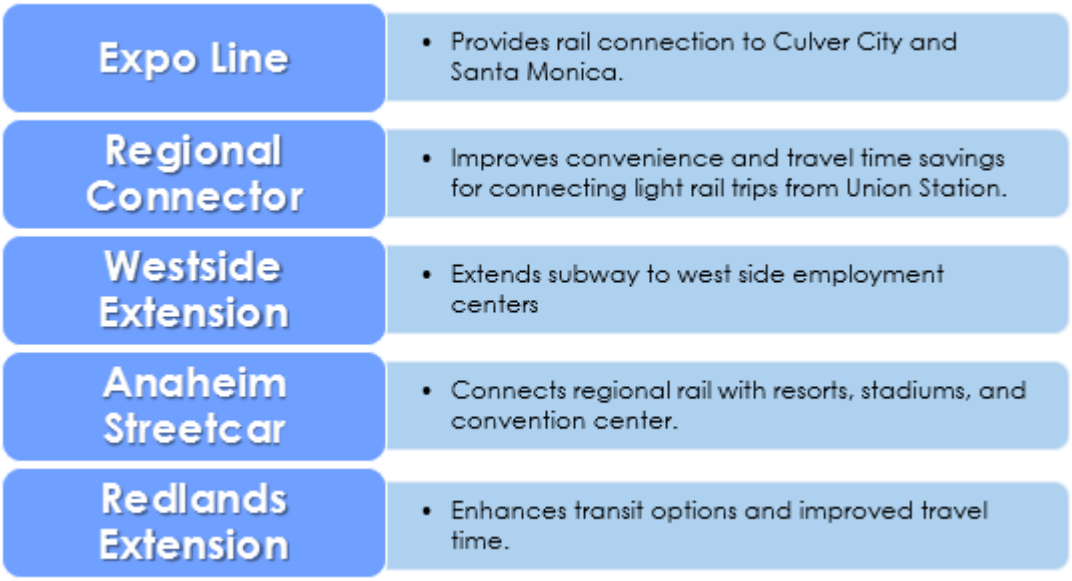
- Westside Extension (Metro) – Provides service to Beverly Hills (Phase I), Century City, and Westwood
- Regional Connector (Metro) – Provides one less transfer for trips to Downtown Los Angeles, South Los Angeles, and Long Beach
- Santa Ana Streetcar (OCTA) – Connects between Santa Ana Station to Santa Ana Civic Center
- Anaheim Streetcar (OCTA/City of Anaheim) – Connects to Anaheim Resort Corridor (Convention Center and Disneyland) from ARTIC

**High-speed Rail Connections**

- Palmdale to LA Corridor and LA to Orange County Corridor parallel/overlap with Metrolink lines
- High Desert Corridor – may provide rail service to the High Desert via the Antelope Valley

Likewise, projects undertaken by Member Agencies have the potential to create more robust connections to employment centers (Figure 4–82).

**Figure 4–82: Projects from Member Agencies Improving Connectivity to Employment Centers**



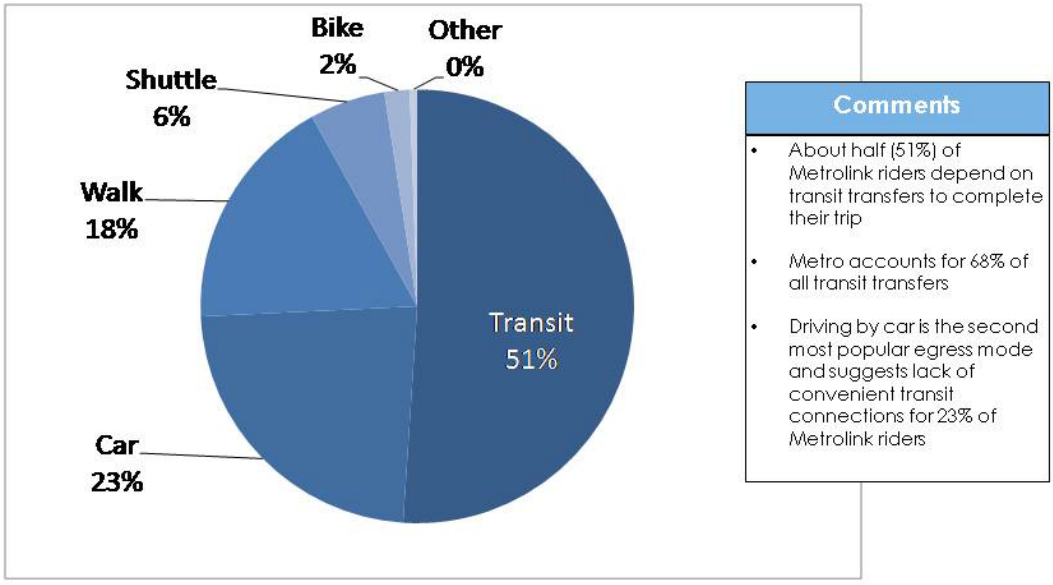

*Next Steps for improving Connection to People and Jobs moving forward:*

- Utilize future demographic and employment growth around stations to project ridership forecasts
- Identify opportunities to serve more commute trips
- Understand the systemwide effects that new Member Agency projects will have on ridership, growth potential, and cost demands

### 4.3.2 Bus / Rail Connections

About half of Metrolink riders depend on transit transfers to complete their trip with the car being the second most popular egress. This suggests a lack of convenient transfer connections for 25 percent of Metrolink riders (Figure 4–83). Transfer agreements provide access to many of the major transit systems in the region; however, the rating of bus connections has fallen since 2004 with recent improvements since 2010 (Table 4–7). A decrease in customer satisfaction of "Availability of Connecting Transit Buses at Stations" from 2004 through 2010 has been followed with a small rebound in 2012 and 2013. Los Angeles and Orange counties show a high rate of transit transfers with 55 percent of Metrolink riders using connecting transit service to travel to or from the station (Figure 4–84). Cooperative partnerships with Member Agencies can improve bus-rail connections as demonstrated through two case studies (Figure 4–85).

**Figure 4–83: Egress Modes of Metrolink Riders**




Source: Metrolink 2010 Origin-Destination Survey

**Table 4–8: Ridership from Transfer Agreement with Major Transit Systems**

| SCRRA Transfer Agreements | Ridership* |
|---|---|
| LA Metro | 464.9m |
| OCTA | 55.2m |
| OmniTrans | 16.2m |
| NCTD | 12.1m |
| RTA | 8.8m |
| Anaheim Resort Transit | 7.6m |
| Sunline Transit Agency | 4.6m |
| City of Santa Clara | 3.6m |
| AVTA | 3.2m |
| City of Simi Valley | 0.5m |
| City of Thousand Oaks | 0.3m |
| City of Irvine | 0.2m |
| City of Corona | 0.2m |
| City of El Monte | Data not available |
| LAWA | Data not available |

**Ridership numbers not mutually exclusive; based on 2012 NTD data*

**Figure 4–84: Transit Transfer Mode Share**

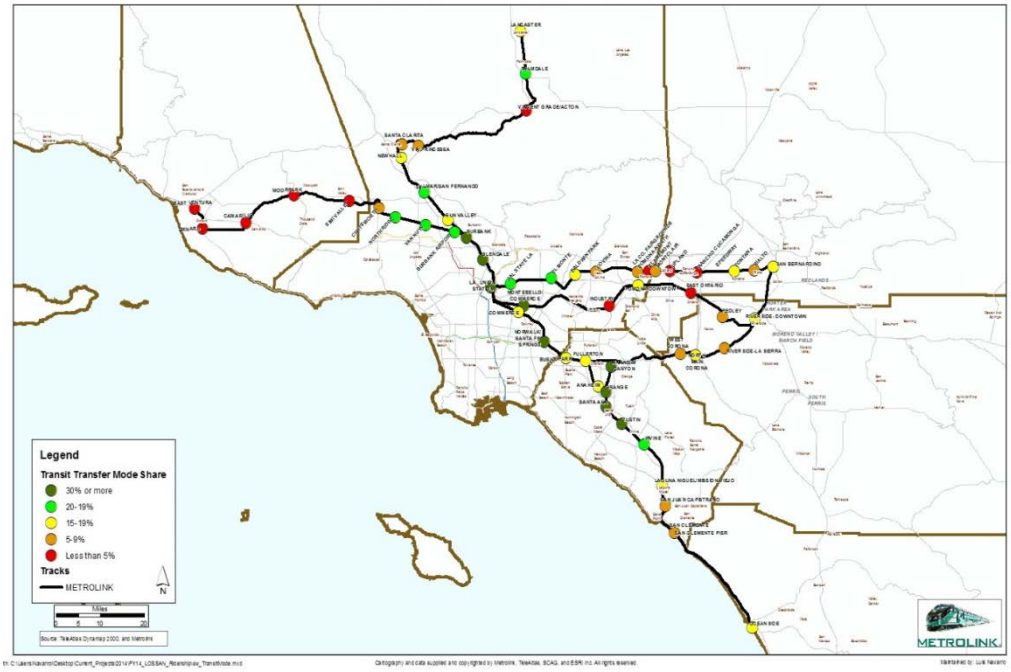



**Figure 4–85: Case Studies of Cooperation Partnerships to Improve Bus-Rail Connections**

**Case Study: Chatsworth**

As a result of the 2012 Board Strategic Work Session on connectivity Metrolink developed a methodology for evaluating bus-rail schedule connectivity.

Missed connections are identified and addressed during schedule changes.

Schedule changes require 60-90 days lead time to connecting operators.

**Model Rating System for Transit Connectivity**

| Bus Departs | Connection rating | Bus Arrives |
|---|---|---|
| Greater than 11 mins Before | bad or no connection | Greater than 11 mins After |
| 0-10 min Before | needs major attention | 0-10 min After |
| 1-5 mins After | needs minor work | 1-5 mins Before |
| 6-10 mins After | good connection | 6-10 mins Before |
| Greater than 11 mins After | bad or no connection | Greater than 11 mins |

**Case Study: OCTA StationLink**

- Connecting transit service dedicated to serving rail station
- Both feeder and distributing service.
- Timed transfers.


*Next Steps for improving Bus / Rail Connections:*

- Pursue and rationalize partnerships with local bus operators to promote first mile/last mile transit service

- Promote regular communication with local bus operators to optimize schedule coordination
- Leverage Advanced/Electronic Fare Collection systems to promote regional transit integration (mobile ticketing and smart cards)

### 4.3.3 Connectivity to Development and Multimodal Access

Station access is an important element of people's travel decisions. Customers view availability of parking at stations favorably, rating availability of parking as "above average" as compared to other customer satisfaction metrics (Figure 4–86). The 2013 "Potential Market Study" found station inconvenience deterred 36 percent of respondents from SCRRA. Convenient stations were rated as more important than convenient schedules. The Southern California Association of Governments (SCAG) offers resources to support transit-oriented station area planning (Figure 4–87). Member agencies are also supporting transit-oriented station area planning and development (Figure 4–88). Alternate modes of travel provide opportunities for multi-modal access at stations, but they require coordination (Figure 4–89). Station area developments can increase the market of residents and employment sites served by Metrolink. However, Metrolink has limited influence over station area development, and compared to station cities and other transit systems, limited influence over station area development. Since SCRRA does not control stations, station parking, or station area development, decisions related to these critical system elements are left to local jurisdictions whose priorities may not always lead to optimized results for SCRRA. Additionally, there is not yet any systemwide coordination to create consistent parking or development policies, which has led to a variety of outcomes in different parts of the system. Coordination is necessary to limit impacts to ridership and revenue.

**Figure 4–86: Metrolink Parking Utilization Rates (April 2014)**

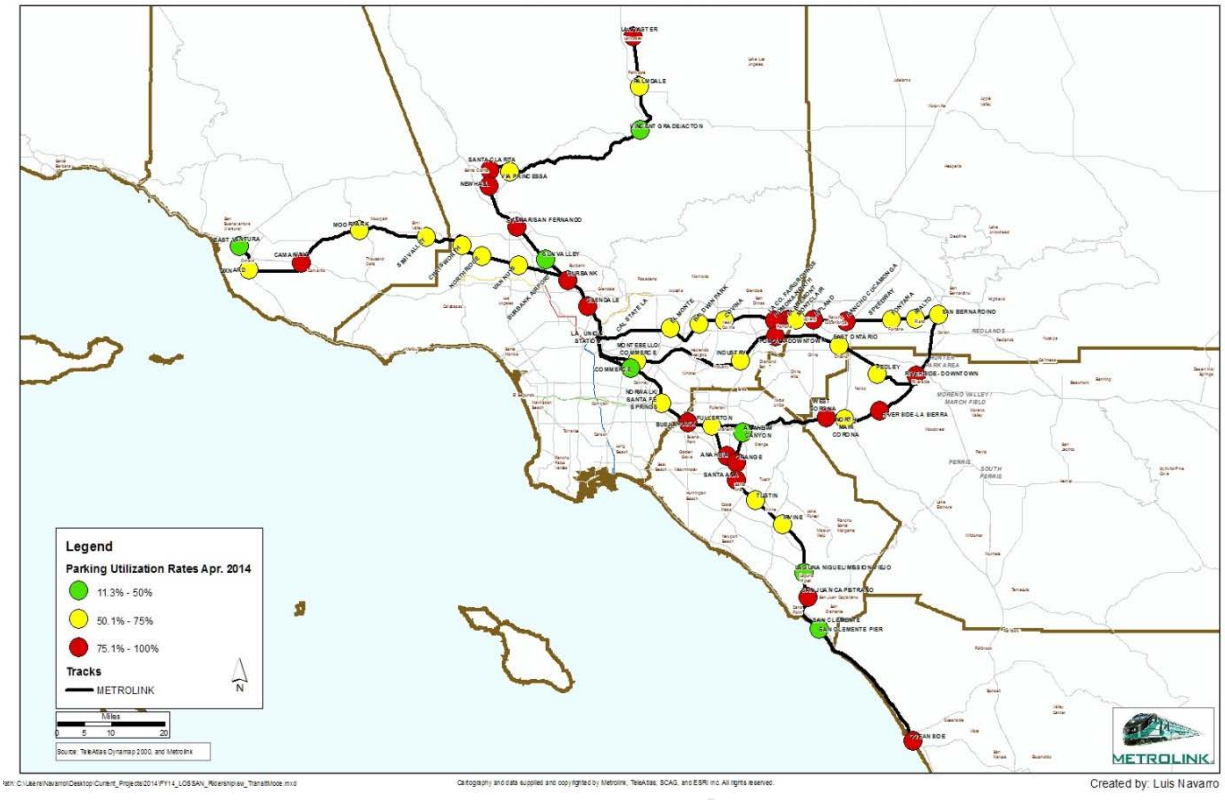
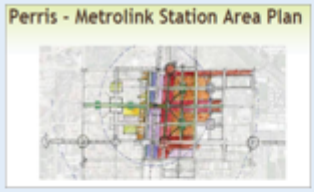


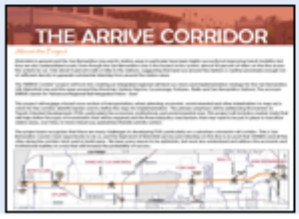

**Figure 4–87: SCAG's Transportation Area Development (TOD) Resources**

**Figure 4–88: Member Agencies' Support of TOD Area Planning and Development**




RCTC Perris Valley Line


OCTA Program




SANBAG ARRIVE Program

**Figure 4–89: Examples of Alternate Modes for Multimodal Access to Stations**

Connectivity – Regional Bike Trail Access in Anaheim


Secure Bicycle Facilities – Bike Station in Covina


Vanpools – UCLA Vanpool

Car-Sharing -- Toyota Car Sharing Demonstration in Irvine

*Next Steps for improving Connectivity to Development and Multimodal Access:*

- Identify creative ways to influence parking policies and increase availability of multimodal access to stations
- Seek out ways to support station area development
- Develop a coordinated plan to manage, support, and remain connected to alternative modes of travel

### 4.3.4 Intermodal Connectivity

New intermodal terminals are creating a platform for more effective connections between Metrolink and other travel modes (Figure 4–90).

**Figure 4–90: Examples of Intermodal Terminals Served by Metrolink**

| | | |
|---|---|---|
| Bob Hope Airport (BUR) Regional Intermodal Transit Center (RITC) |  | • Amtrak<br>• Local Bus<br>• California High-Speed Rail (future)<br>• Bob Hope Airport (BUR) |
| Anaheim Regional Transportation Intermodal Center (ARTIC) |  | • Amtrak<br>• Intercity Bus (Greyhound, Megabus)<br>• Local Bus<br>• Anaheim Resort Transportation<br>• Anaheim Rapid Connection (future)<br>• California High-Speed Rail (future) |
| Los Angeles Union Station Master Plan |  | • Amtrak<br>• Intercity Bus (Bolt Bus, Megabus, Amtrak Thruway)<br>• Metro Rail<br>• Local Bus<br>• Express Bus<br>• LAX Flyaway<br>• California High-Speed Rail (future) |

Beyond Burbank Airport, connections to other airports are indirect or non-existent.

- LAX – Los Angeles International Airport
- Flyaway Bus Service from Union Station
- Now selling tickets from Metrolink TVMs

- Connections to the Metro Green Line to the Norwalk/Santa Fe Springs Station requires two transfers to and from a local bus
- ONT – Ontario International Airport
- No direct bus service between either of the two nearby Metrolink Lines
- San Bernardino Line (Upland or Rancho Cucamonga Stations)
- Riverside Line (East Ontario Station) – shuttle service was eliminated
- SNA – John Wayne Airport
- No connecting bus service
- OCTA Line 472 passes by but has no stops at the terminal or nearby

*Next Steps for Intermodal Connectivity:*

- Create a plan to leverage new intermodal connections to increase ridership
- Explore and evaluate benefits and costs to allocating resources toward new airport connections

## 4.4 COLLABORATION

The SWOT analysis performed on elements of the "Collaboration" discipline emphasized evaluations of:

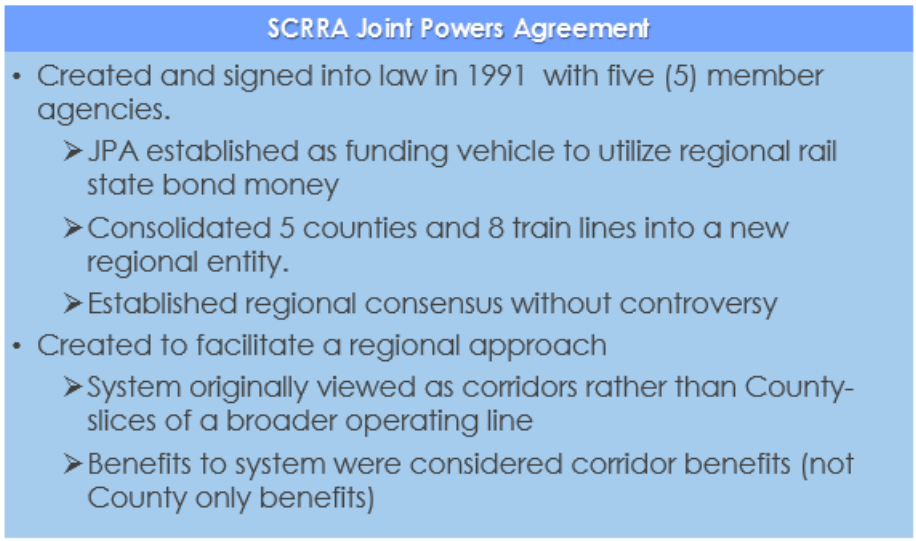
- Relationship with Member Agencies and Funding Priority Alignment
- Relationship with Railroads
- Collaboration with Intercity – Opportunities with Join Infrastructure
- Collaboration with Other Constituents
- Security
- System Resilience
- Sustainability

SCRRA's role as a Joint Powers Authority (JPA) makes it dependent on coordination with its Member Agencies and other organizations. SCRRA's coordination with its stakeholders helps to implement the Strategic Plan. An assessment of Metrolink's coordination efforts will help to define areas of cooperation and coordination that may be hampering the vision's implementation.

### 4.4.1 Relationship with Member Agencies and Funding Priority Alignment

Metrolink's JPA structure reflects regional consensus created to facilitate a regional approach (Figure 4–91). Benefits to the system were considered corridor benefits, not County only benefits.

**Figure 4–91: Metrolink's JPA**



The role of Member Agencies in marketing of service varies from providing additional funding to Metrolink for additional county specific marketing, to not doing any additional marketing. Duplicate efforts need to be coordinated to eliminate customer confusion and to support brand cohesion. Additional funding resources are needed to market Metrolink in the second largest market in the United States.

Member agencies developed and agreed on cost allocation formulas allowing full visibility in how costs are allocated. Any dissension around costs are more likely to do with Member Agency skepticism (are funds being used appropriately), than whether costs are allocated fairly (Figure 4–92). However, formulas (particularly all-share) need to be updated to reflect new service lines. Metrolink's outdated funding formulas will need updating upon Perris Valley Line opening (Figure 4–93).

**Figure 4–92: Member Agency Allocation of All Shared Expenses and Total Net Subsides**

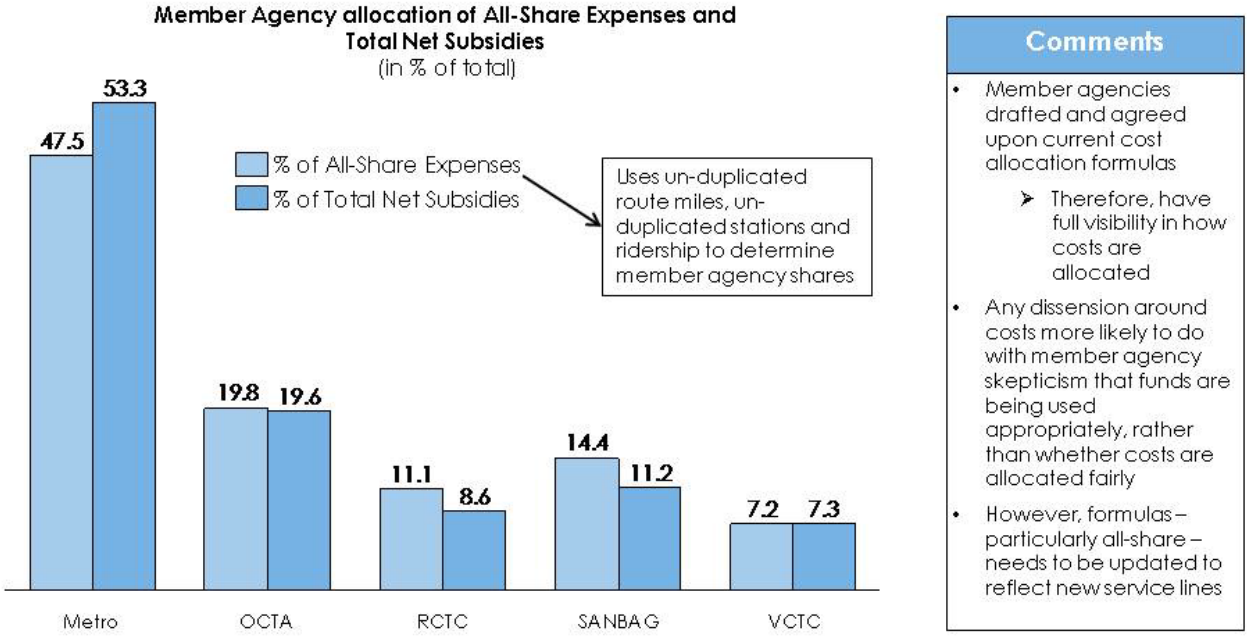
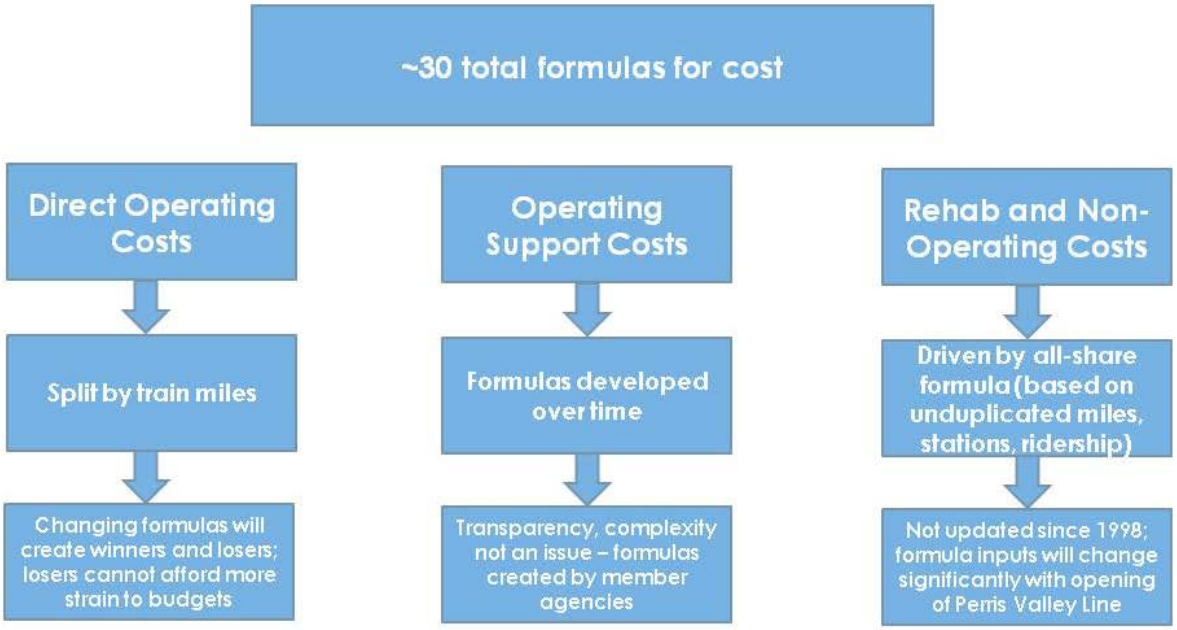


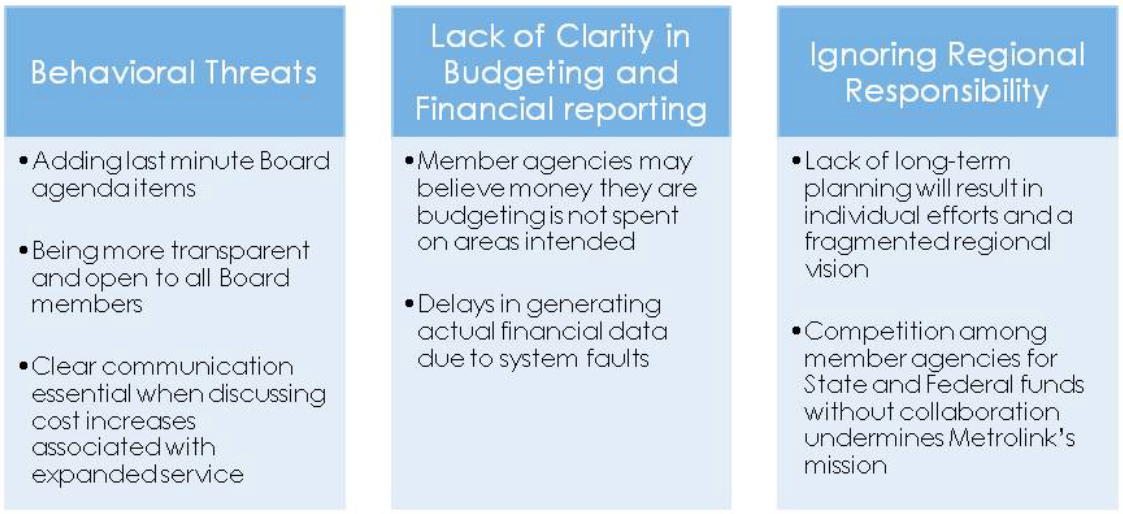
**Figure 4–93: Metrolink Funding Formula**




Metrolink can improve their relationship with Member Agencies in several areas related to transparency (Figure 4–94). However, several threats exist that could exacerbate mistrust between SCRRA and Member Agencies (Figure 4–95).

**Figure 4–94: Opportunities to Improve Transparency**

**Figure 4–95: Potential Threats to SCRRA and Member Agencies Relationship**




*Next Steps for improving Relationships with Member Agencies and Funding Priority Alignment:*

- Outline plan to update all-share formula
- Consider practical areas where Metrolink can improve transparency and engagement with Board members and TAC
- Increase visibility and assurance that all budget dollars go to their intended use

### 4.4.2 Relationship with Railroads

Railroads and SCRRA maintain a healthy operating relationship (Figure 4–96); however, weaknesses in the negotiating approach lead to cost risks for SCRRA and Member Agencies (Figure 4–97).

**Figure 4–96: Railroad and Metrolink Operating Relationship**

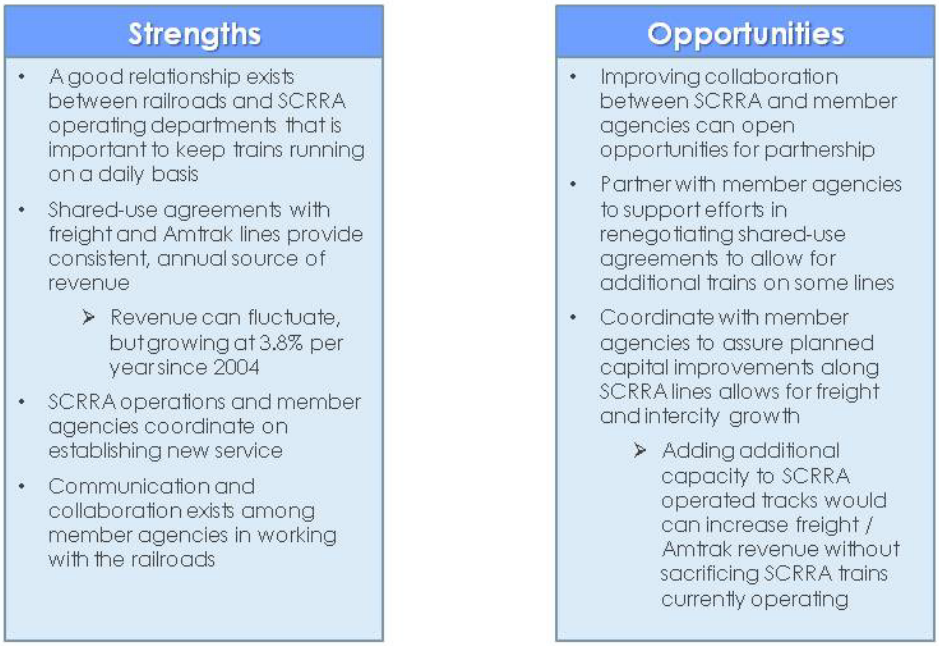
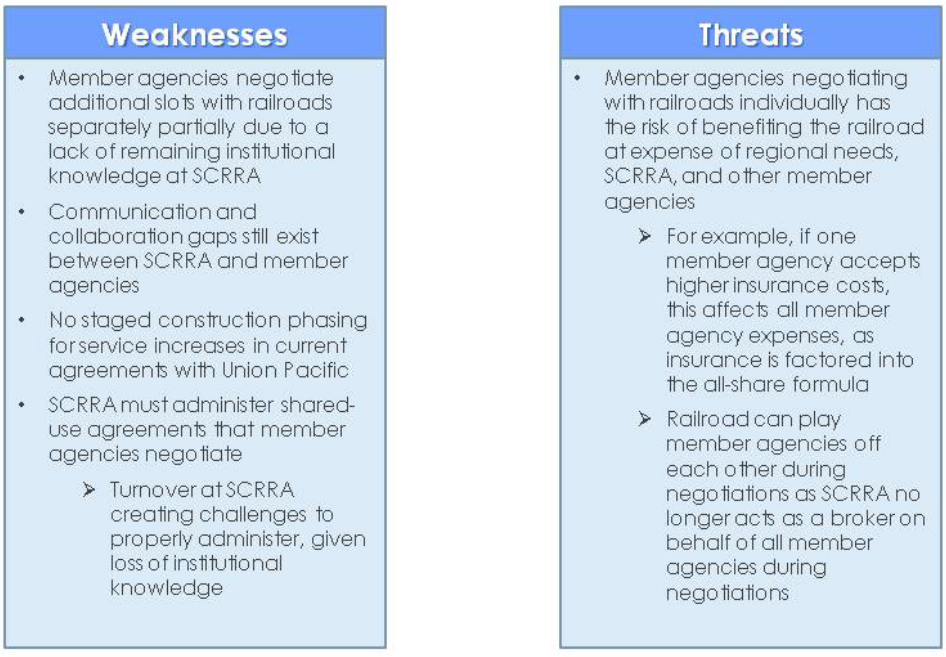



**Figure 4–97: Weaknesses and Threats in Negotiating Approach**




*Next Steps for Relationship with Railroads:*

- Prioritize maintaining healthy operational relationships with railroads

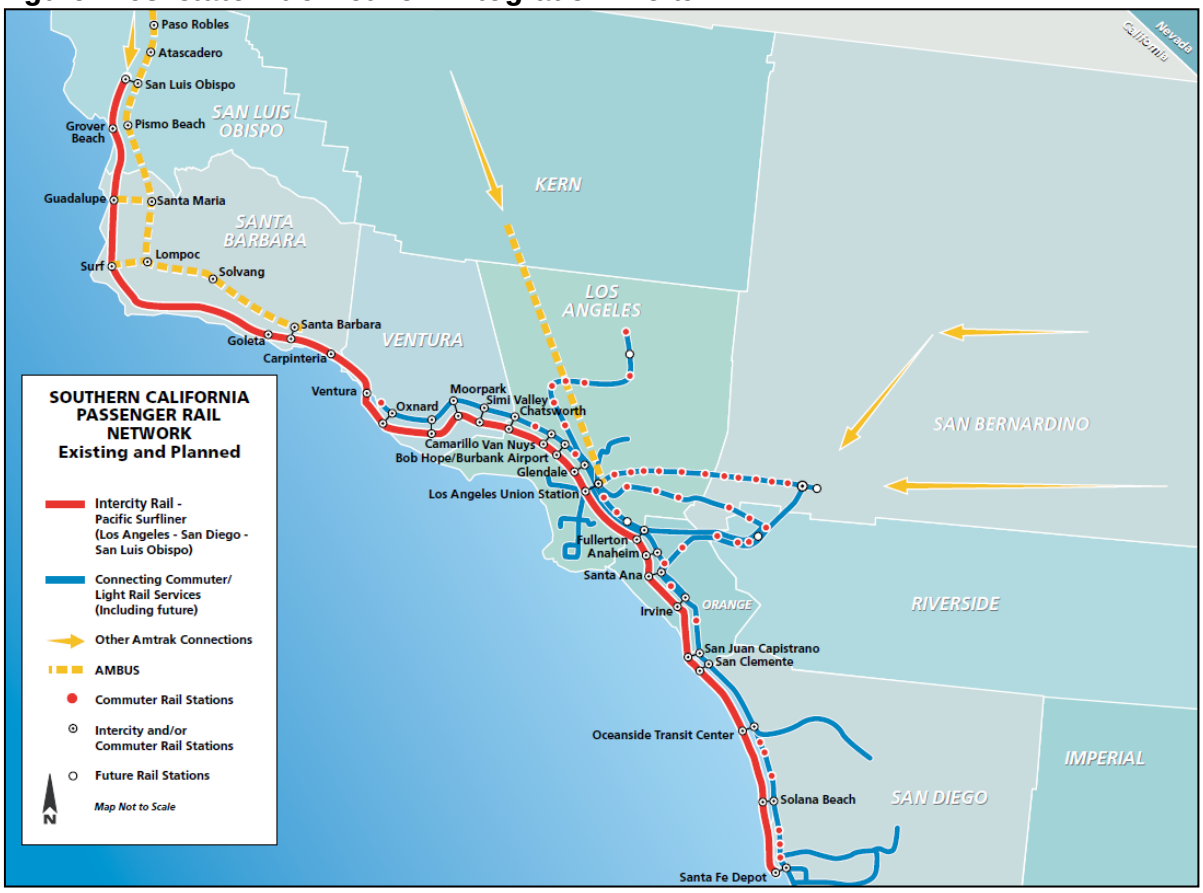
- Improve coordination with Member Agencies regarding negotiations with railroads and to ensure planned capital improvements
- Minimize turnover to improve administration of shared-use agreements

### 4.4.3 Collaboration with Intercity – Opportunities with Joint Infrastructure

On September 29, 2012, California Senate Bill 1225 was signed into law authorizing the creation of two new intercity passenger rail Joint Power Authority's (JPA); the San Joaquin JPA and the Los Angeles-San Diego-San Luis Obispo (LOSSAN) JPA. The LOSSAN JPA, as of July 1, 2015 assumed direct administrative authority over Amtrak's Pacific Surfliner service between San Luis Obispo, Santa Barbara, Los Angeles, Orange County, and San Diego. As illustrated in Figure 4–98, the Pacific Surfliner provides limited stop and overlay service along part or all of five of the seven Metrolink Lines; Ventura County, Antelope Valley, 91, Orange County, and Inland Empire Orange County (IEOC).

This overlay of service between Metrolink and the Pacific Surfliner creates an important need to collaborate between the two services to maximize accessibility and connectivity for passengers. (Figure 4–98).

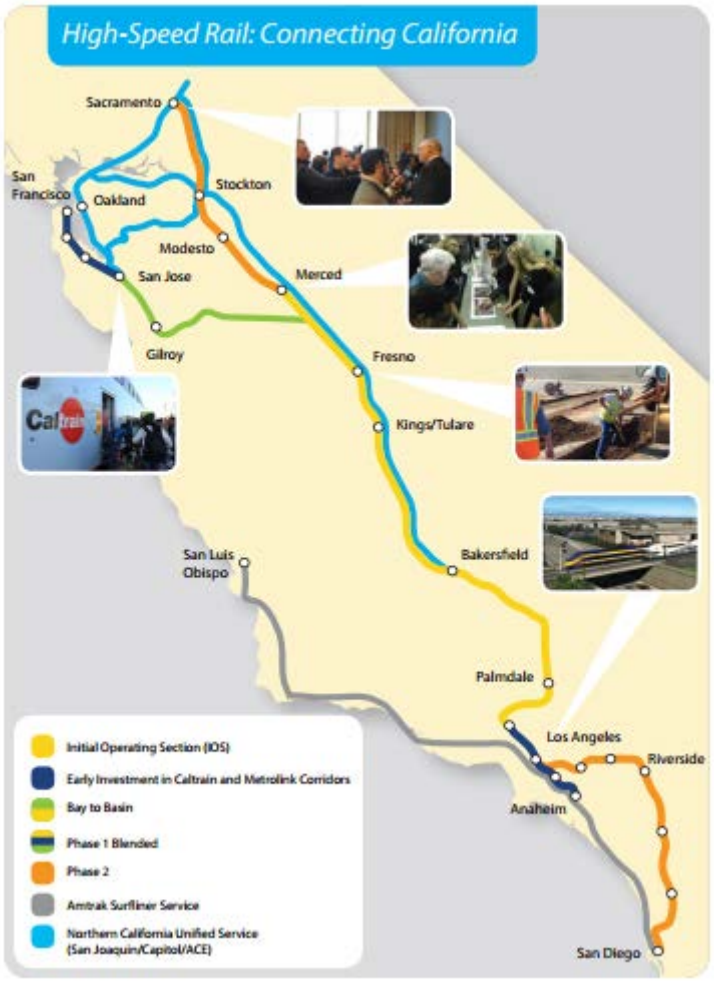
**Figure 4–98: Statewide Network Integration Efforts**




Source: LOSSAN Joint Power Authority

A Memorandum of Understanding (MOU) with the High-Speed Rail was signed in April 2012 and calls for investment of up to $1 billion for projects in Southern California. The projects include a prioritized list starting with LAUS Run-Through Track (SCRIP). Funded projects include Member Agency priorities for much of the SCRRA system. If fully executed, funded projects could bring significant investment to the SCRRA system and significantly improve service. High-speed rail plans call for operations to begin in 2022 between Merced and the San Fernando Valley and for connection to Metrolink at Palmdale or other station(s) (Figure 4–99). SCRRA can take on a role by feeding passengers to/from the High-Speed Rail system and allowing customers to connect to a statewide rail system. A seamless connection can attract new riders and improve overall customer satisfaction.

**Figure 4–99: CA High-Speed Rail Plans for Connections to Metrolink**




*Next Steps for Collaboration with Intercity:*

- Incorporate future HSR plans into cost, revenue, and ridership forecasts
- Coordinate with state and LOSSAN JPA in ongoing transportation network integration efforts

- Collaborate with LOSSAN JPA in discussions and plans for improvement to ticketing systems to help ensure coordinate ticketing for the customer
- Track statewide rail funding programs for opportunities to take advantage of funds geared toward network integration

### 4.4.4 Collaboration with Other Constituents

Metrolink maintains strong engagement with Transit and Transportation Communities such as Rail Pac, Transit Coalition, Metrolink 101, and transportation advocacy groups. Metrolink's collaboration with external stakeholders is broad, but is dispersed across the different departments within the organization:

- Government Relations
- Public Affairs
- Customer Engagement
- Marketing and Sales
- Planning and Development

Yet, some gaps exist in reaching out to various communities and constituencies:

- No dedicated community relations functions
- Inconsistent attention to dispersed geography that makes significant attention to local governments difficult
- Limited outreach to cities
- Some groups and constituent types are not engaged as strongly as others
- Environmental group

Opportunities through different forums and channels of information exist that Metrolink can leverage. These include taking advantage of social media and blogs for planning and safety outreach efforts, taking a more active role among transportation advocates, utilizing existing infrastructure of regional forums offered by SCAG, the different COGS, and others. Metrolink can also improve its in-house multi-lingual capabilities, establish engagement protocols with Member Agencies, and untapped market potentials.

*Next Steps for Collaboration with Other Constituents:*

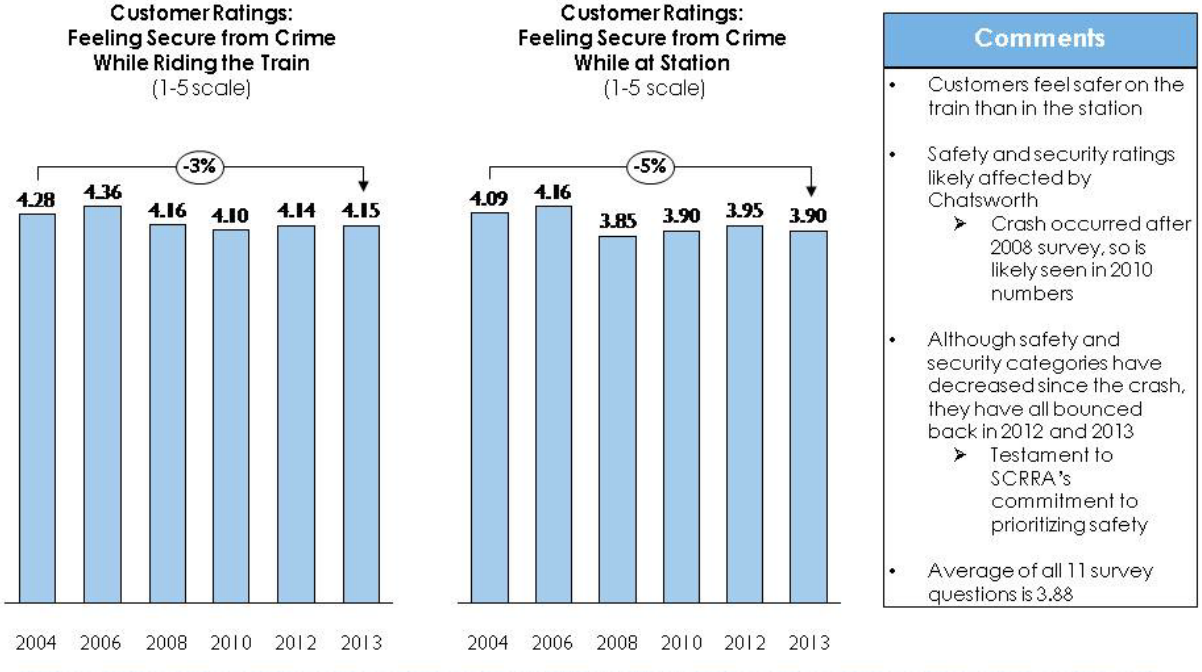
- Internal working group
- Take advantage of social media beyond customer relations

- Formalize coordination of plans, leverage Member Agency initiatives
- Participation in regional forums
- Speakers bureaus program

### 4.4.5 Security

Security strengths include relationships with external entities, reporting culture, and new initiatives. Mature relationships with relevant entities like TSA, DHS, FBI in the region for shared resources, information, training, multi-agency drills, and emergency response. Relationships with local law enforcement are particularly strong. Security is rated above average as compared to other customer service metrics; however, this has decreased over time (Figure 4–100). Customers feel safer on the train than in the station, but safety and security ratings were likely affected by the Chatsworth's crash, which occurred after the 2008 survey, so is likely reflected in the 2010 numbers. Although safety and security categories have decreased since the crash, they have all bounced back in 2012 and 2013 as a testament to SCRRA's commitment to prioritizing safety. SCRRA can increase funding opportunities to supplement the security culture; however, security is constrained by lack of sustainable funding sources and inconsistent/disparate decision-making among Member Agencies.

**Figure 4–100: Customer Ratings of Feeling Secure at Trains and Stations**




FTA 2013 Triennial Review identifies several safety and security oversights:

- No security training for non-operating personnel

- Security and emergency management plans not adequately endorsed
- Audit of security policies and procedures not performed

New plans have been developed in response to the FTA Triennial Review (Figure 4–101).

**Figure 4–101: Actions Undertaken to Address FTA Triennial Review**

| Safety Gap | Breach in FTA Regulation ? | Comments | FTA Recommendation | Metrolink Action |
|---|---|---|---|---|
| No security training for non-operating personnel | No | Senior leadership received emergency management training but non-operating personnel have not | SCRRA should conduct safety, security, and emergency management training with all non-operating personnel | NIMS and other training ongoing |
| Security and emergency management plans not adequately endorsed | No | SSEPP in draft form and has not been formally endorsed by the CEO or Board of Directors | SCRRA should formalize SSEPP and CEO should endorse final plan | Completed |
| Audit of security policies and procedures not performed | No | SCRRA has not conducted an audit of existing safety, security and emergency management policies and procedures | SCRRA should conduct a formal audit of all safety and security policies annually | Internal and External Audits are ongoing (SCRRA Auditor completed special Security Audit July, 2014) |

Underestimating the size of the system and its critical needs remains a threat to security:

- Open system (un-gated access to trains, 50 percent of system exposed to non or substandard fencing)
- Complicated rights-of-way
- Various railroads utilizing the infrastructure
- Exposure of grade crossings
- Lack of in-depth personnel training
- Risks along the right-of-way (strikes, pedestrians, trespassers, and suicides)
- 22 locations building infrastructure, layover, and shops
- Approximately 300 crossings that SCRRA maintains and 200 additional SCRRA operates over on freight carrier lines

- 280 bridges and 680 culverts require protection and monitoring
- 512 total miles of track – SCRRA inspects 300 miles and monitoring with over 50 percent exposed to non or substandard fencing
- Total 595 signals, not including grade crossings
- Equipment rolling stock also requires monitoring
- Notwithstanding, providing on-board and station protection

*Next Steps for Security:*

- The SCRRA Board and Member Agencies adopt a Security Plan that benefits Metrolink as a regional system
- Continue to grow and establish an external view of the system utilizing technology
- Continue to seek funding and resources that benefit a regional system
- Work towards building a "smart corridor" approach on the regional system
- Continue to build relationships with Federal state and local authorities and law enforcement

### 4.4.6 System Resilience

Durability of the infrastructure and experience highlight the system's resiliency and strengths. Railroad system infrastructure that has existed for over a century has a natural resilience. This system resilience can be enhanced by incorporating lessons learned, mitigating risks, training personnel, building relationships with external entities, and creating a culture of readiness. Another key method of enhancing system resilience is building plans. Some Metrolink plans are listed below:

- System Safety Program Plan (SSPP)
- Incident Response Plan (IRP)
- Security Emergency Preparedness Plan (SEPP)
- Threat and Vulnerability Assessment (TVA)
- Technology of Tunnel Intrusion Detection Plan
- Incident Communication Plan
- Debriefing Critique Process
- Manual of Engineering Instructions & Procedures

However, system weaknesses, such as open system, in-depth personnel training, and right-of-way risks, threaten system resiliency. There are opportunities to upgrade resources to improve system resiliency, such as continued coordination and joint planning and engineering efforts between Southern California Rail System, JPAs, and Member Agencies, including LOSSAN and regulatory agencies. Some resource examples include security design and engineering toward improved facilities, structural hardening, and resources, threat, and crime prevention analysis; physical, personnel, and electronic security analysis; and continued drive toward advanced technology.

*Next Steps for System Resilience:*

- Continue to work toward building infrastructure, smart corridors, and safety initiatives (PTC, etc.)
- Continue to work with various outside entities (e.g. DHS, law enforcement, staff, and contractors)on planning, training, and tactical efforts
- Work with local, state, and federal partners toward building additional funding
- Continue joint planning efforts (TransMAC, etc) and complete interagency Cooperative Agreements

### 4.4.7 Sustainability

Metrolink has many initiatives supporting sustainability under travel choices, operations, and facilities:

- Travel Choices
- Metrolink's average trip length of 33 miles results in significant reduction of automobile emissions and congestion
- Bike Cars in the system accommodate active transportation and have supported events like Ciclavia
- Operations
- Procurement of 20 Locomotives at Tier 4 (the most stringent) emissions standards
- Urea Dispensing System (Tier 4 Locomotives)
- Sustainable Facilities
- Induction of lighting at facilities
- Moorpark Layover Facility
- CMF progressive track shop

- Battery powered car mover
- Durable infrastructure: concrete ties, rehabilitated bridges

Metrolink contributes to significant congestion reduction by offering an alternative to auto travel (Figure 4–102). By offering an alternative to automobile transportation, Metrolink plays an integral part in reducing vehicle emissions and traffic congestion in Southern California. Metrolink removes approximately 8,500,000 weekday automobile trips every year. Most other policy levers and funding are outside of Metrolink's control (Figure 4–103).

**Figure 4–102: Metrolink's Contribution to Congestion Reduction**

| | |
|---|---|
| Average length of a one-way Metrolink trip: | 37 miles |
| % of Metrolink riders who would otherwise drive: (2010 Onboard Survey) | 83% |
| Annual emissions reduced by Metrolink riders: (CALPIRG) | 178,000 Metric tons of $CO_2$ |

**Comments**

- By offering an alternative to automobile transportation, Metrolink plays an integral part in reducing vehicle emissions and traffic congestion in Southern California
- Metrolink removes approximately 8,500,000 weekday automobile trips every year

**Figure 4–103: Examples of Policies and Funding outside Metrolink's Control**

- Local Cities
  - Land use and development policy
  - Station area land for joint development
  - Funding for pedestrian and bicycle linkages
  - Participation in active transportation programs
- Member Agencies
  - Capital Funding
  - Compliance with Design Criteria
  - Support for active transportation

- Dispersed Decision-Making
- Lack of Consensus among Member Agencies
- Annual Budget Cycle

Difficulty for solutions that span:

- Multiple jurisdictions considering cross-border externalities
- Multiple years considering life-cycle costs

Metrolink has significant partners such as the Air Quality Management District (AQMD) and local cities in promoting sustainable initiatives:

- Carl Moyer Program
- Committed $52 million in 2012 to support procurement of 20 Tier 4 locomotives through the Carl Moyer program
- May support future rehabilitations of locomotives
- Multiple Source Reduction Program (MSRP)
- Angel's Express Metrolink supplemental service
- Marketing for service to Dodger games
- Service to AAA Speedway in Fontana
- Demonstration of program for alternative locomotive propulsion system
- Station Cities promote station area pedestrian planning, bicycle facilities, and TOD planning

*Next Steps for Sustainability:*

- Develop sustainability indicators and communicate and promote Metrolink's role in regional sustainability
- Continue building and leveraging relationships that increase resources to implementing sustainable programs
- Build partnerships with local cities to support alternative station access and develop a template/guidance for a common approach

## 4.5 TRANSPARENCY

The SWOT analysis performed on elements of the "Transparency" discipline emphasized evaluations of:

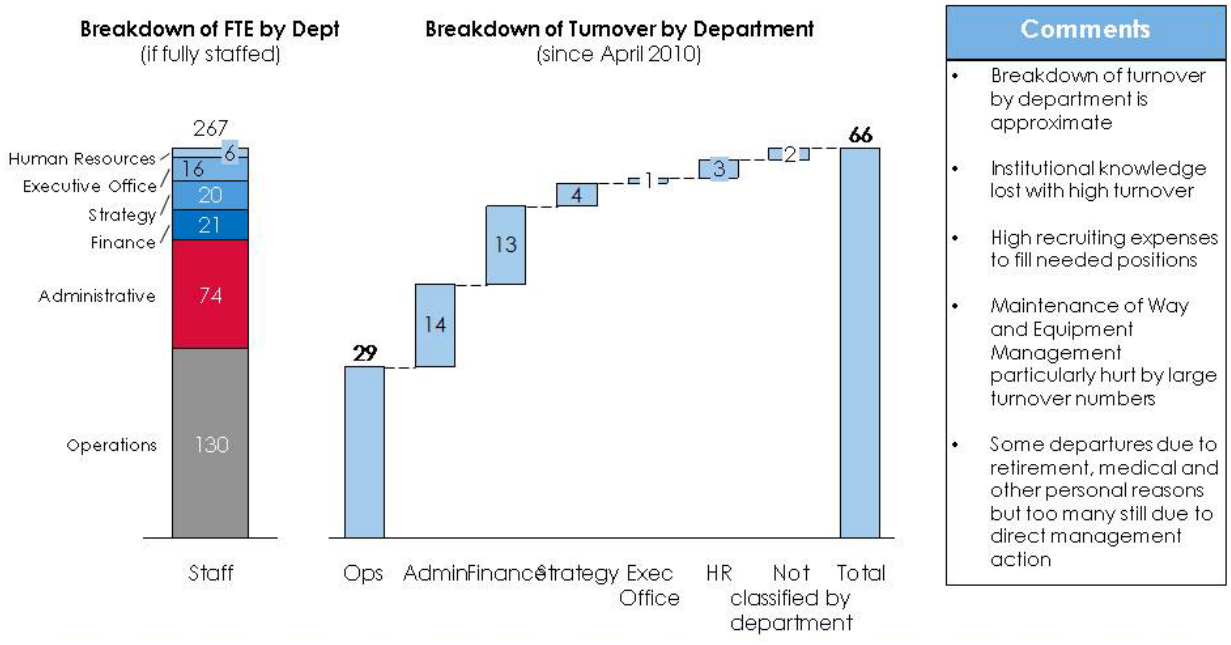
- Institutional Knowledge
- Performance Analysis and Reporting
- Information to Customers
- Board Communication and Decision-Making

Transparency is integral to gain Member Agency trust and is a way to share information with customers. To get a comprehensive look at some of the practices and processes that Metrolink uses to present information, it is important to focus on institutional knowledge, agency performance analysis, information sharing with customers, and Board-level communication and governance.

### 4.5.1 Institutional Knowledge

Since April 2010, Metrolink has seen a 33 percent staff turnover (Figure 4–104). Staff turnover has caused loss of institutional knowledge and increased recruiting expenses. Maintenance-of-way and equipment management has been particularly hurt by the large turnover numbers. Some of the turnover is due to retirement, medical, and other personal reasons, but too many are still due to direct management action.

**Figure 4–104: Staff Turnover**



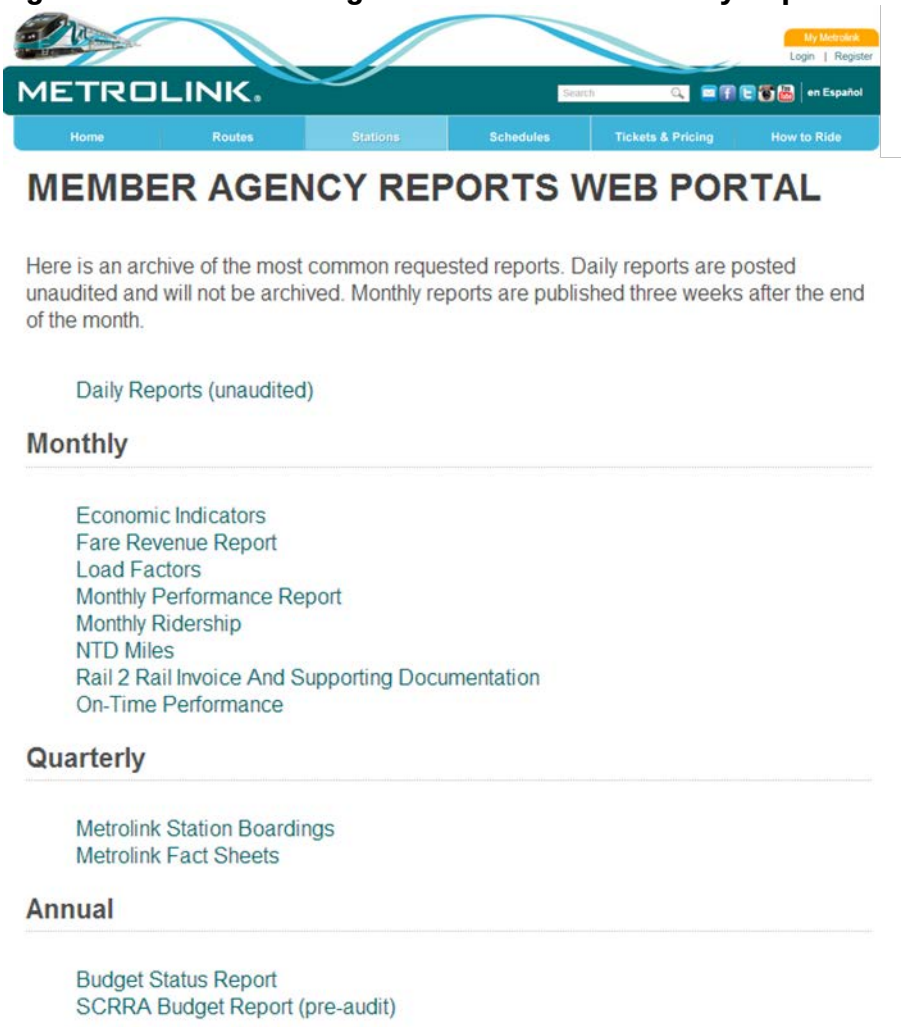
*Next Steps for addressing Institutional Knowledge:*

- Create and implement plan to retain staff, particularly in key departments
- Implement succession management program

### 4.5.2 Performance Analysis and Reporting

In cooperation with Member Agencies, Metrolink has created a web portal for selected reports requested by Member Agencies. Performance reports are updated daily and posted online, making reporting on individual systems, like operating and safety, successful. Member agencies have a portal for collecting shared data (Figure 4–105).

**Figure 4–105: Member Agencies Can Access to Key Reports Online**



Data collection processes can be standardized and made more efficient to reduce gaps in the data collection process and data inconsistencies (Figure 4–106). A Data Warehouse can automate collection and dissemination of data for performance reporting (Figure 4–107). In addition, new PTC technology can provides new data that will benefit SCRRA and its customers (Figure 4–108).

**Figure 4–106: Data Collection Processes can be Standardized**

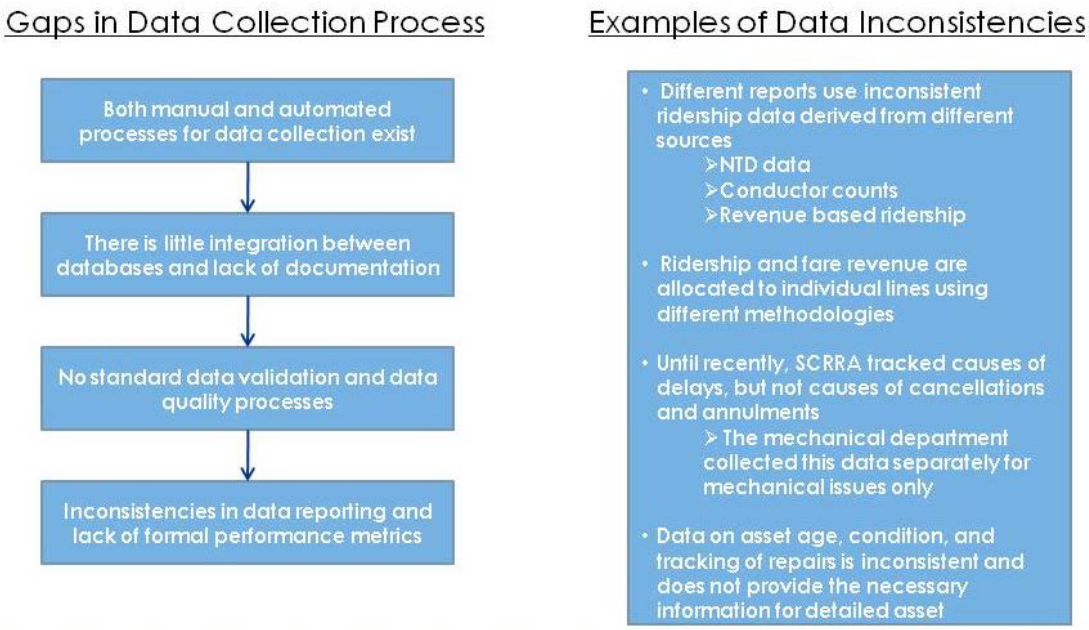



**Figure 4–107: Automate Collection and Dissemination of Data**

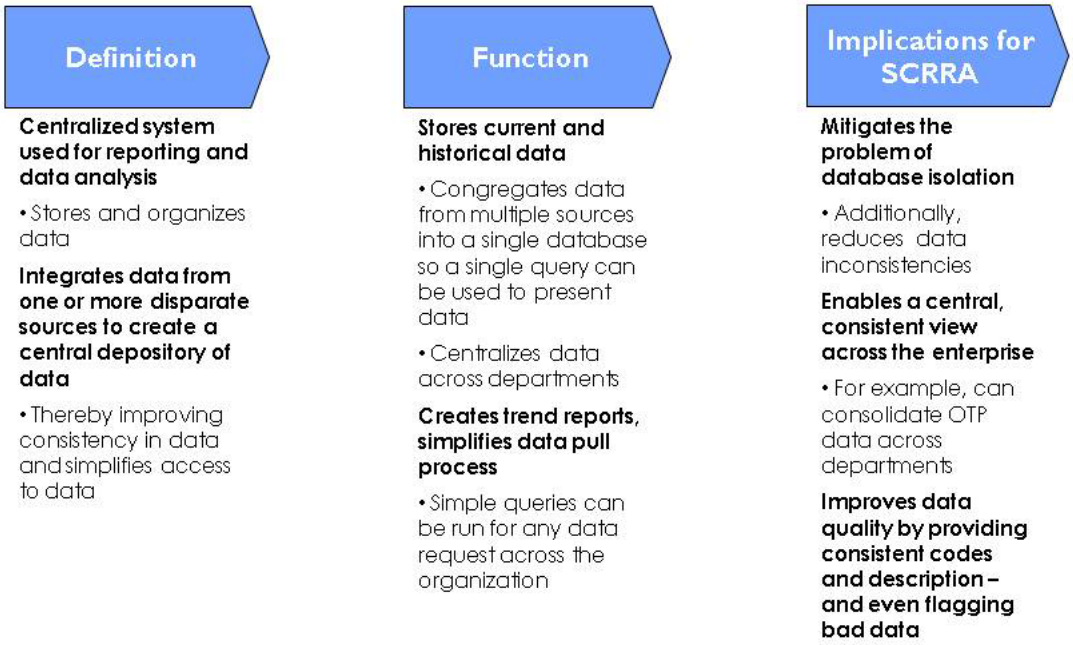
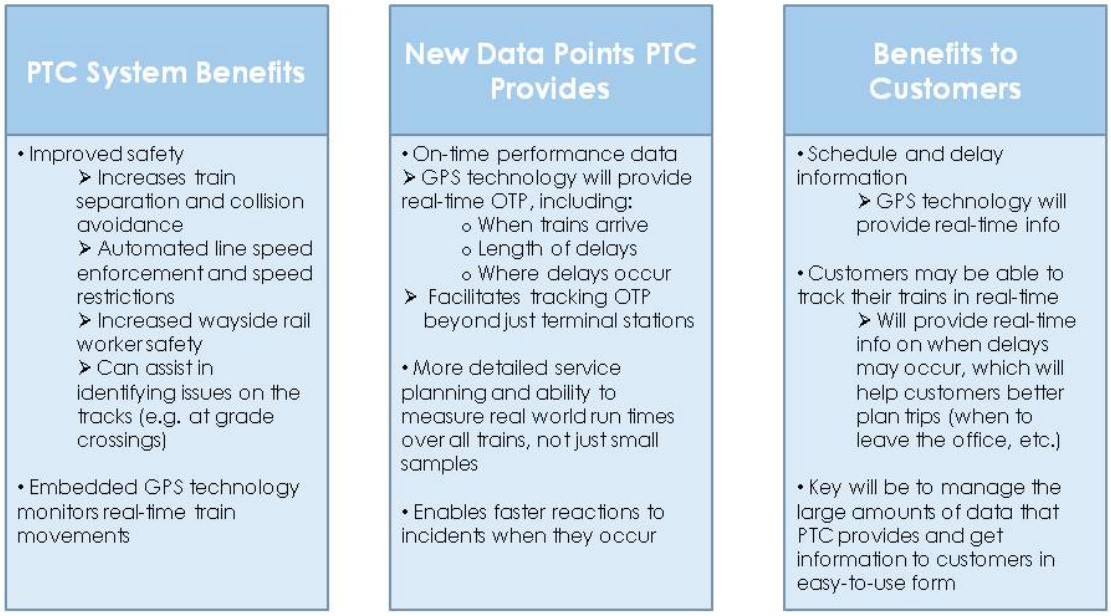


**Figure 4–108: Ways Positive Train Control Technology Provides Additional Data**




*Next Steps for Performance Analysis and Report :*

- Develop strategy to ensure data is consistent across organization
- Explore potential software programs to launch a data warehouse
- Prepare data collection methods for new data that PTC technology will provide

### 4.5.3 Information to Customers

Metrolink has a robust social media presence using platforms, such as Facebook, Twitter, YouTube, and Instagram (Figure 4–109). Metrolink also reaches customers through traditional channels, such as Metrolink Matters (Figure 4–110). However, customers rate service and convenience in obtaining information on delays as poor. Ratings have dropped significantly since 2008, remaining steady since 2010 (Figure 4–111). Fare and schedule changes may have affected customer ratings in 2010, but the metric has yet to have rebounded. New technologies, such as open data standards, mobile apps, and Global Positioning System (GPS) capability of PTC provide potential platforms for sharing real-time information on train arrivals. Transit agencies have collectively developed a format for data to share real time information on transit vehicle (bus and train) locations (General Transit Feed Specification – Real Time [GTFS-RT]). Likewise, many common platforms, including Google Transit, provide that information to their users in real-time. Additionally, the GPS capability of PTC may have the capability of generating feeds of data on train location.

**Figure 4–109: Metrolink's Presence in Social Media**

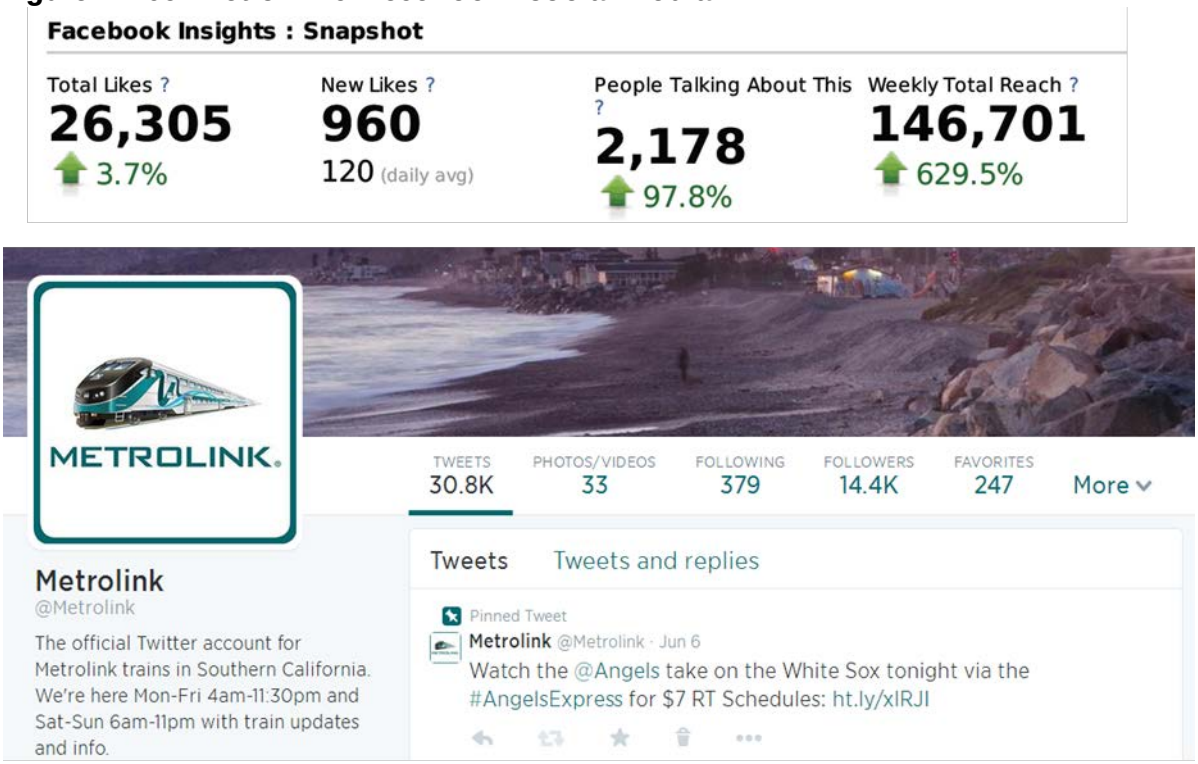



**Figure 4–110: Metrolink Matters**

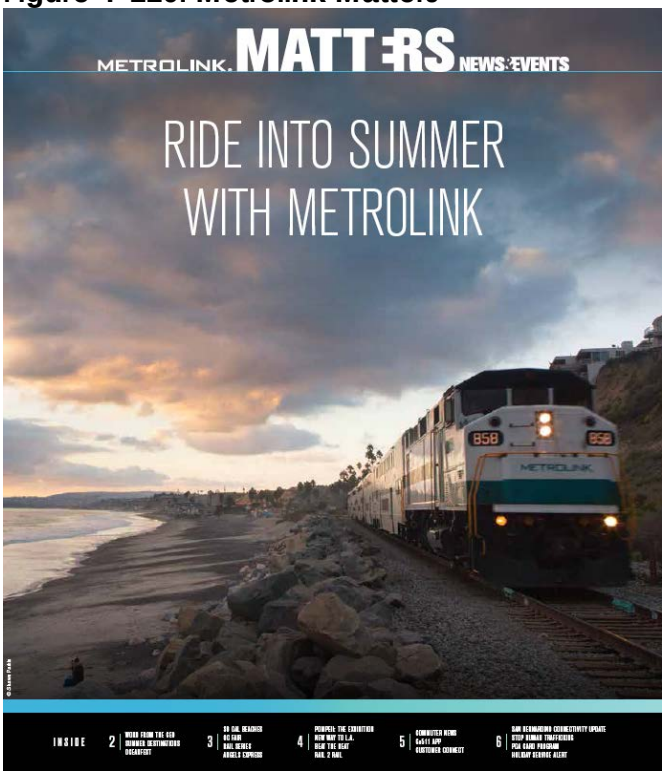
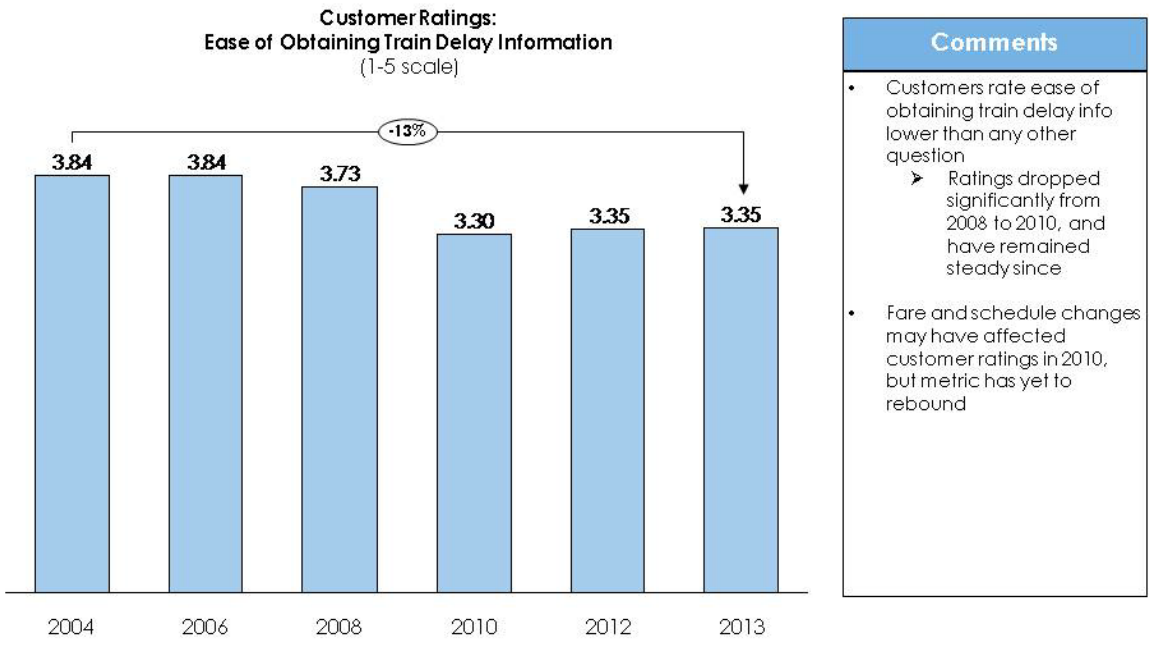


**Figure 4–111: Customer Ratings on Obtainability of Train Delay Information**




*Next Steps for addressing Information to Customers:*

- Explore new methods to reach customers that provide train delay information
- Evaluate potential of new technology platforms as a way to reach customer base

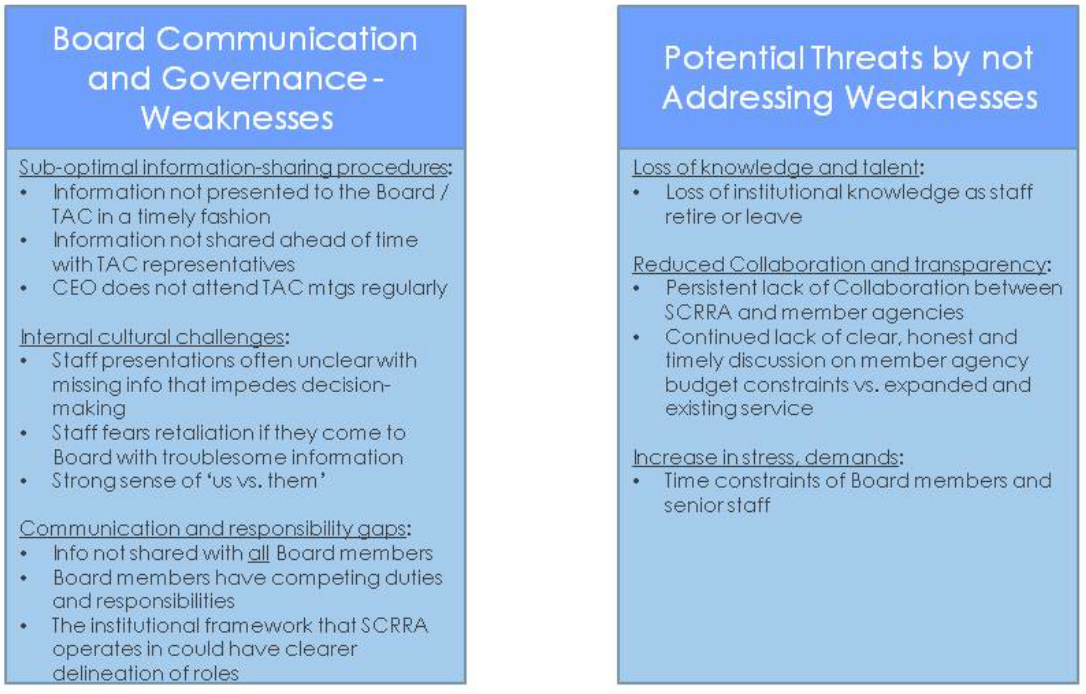
### 4.5.4 Board Communication and Decision-Making

SCRRA can capitalize on a successful reorganization to improve Board and stakeholder engagement. However, the lack of internal cohesion between Board and staff undermines SCRRA's ability to improve performance. In addition, SCRRA and Member Agencies are part of a variety of planning and operating agreements between agencies in Southern California, but the agreements lack a clear definition of roles. Coordination could be improved if the institutional framework that SCRRA operates in established a defined role or set of responsibilities to clarify tasks for SCRRA and tasks for Member Agencies.

**Figure 4–112: Board Communication and Governance - Strengths**


Note: Information based on interviews with Board members, T.A.C. and C.E.O.'s

**Figure 4–113: Board Communication and Governance - Weaknesses**




Note: Information based on interviews with Board members, T.A.C. and C.E.O.'s

*Next Steps for Board Communication and Decision-Making:*

- Implement outlined methods to increase stakeholder engagement
- Create long-term plan to minimize loss of institutional knowledge and talent
- Clearly define roles and sets of responsibilities for SCRRA and Member Agencies

# 5.0 MARKET ANALYSIS

## 5.1 INTRODUCTION

Metrolink currently operates seven (7) lines over 512 miles of network. For all of the Metrolink lines, except the Inland Empire Orange County (IEOC) Line, the downtown Los Angeles central business district (CBD) is the primary destination from all stations and corridors today and is projected to continue to be in the future. While the CBD is projected to remain the primary destination for most Metrolink service, suburban markets are forecast to draw a greater share of riders, while the CBD is forecast to provide a growing share of riders as an area for home based origins.

The purpose of this market analysis is to provide a review of existing commuter rail usage and summarize the projections for growth, or reductions, within the region serviced by Metrolink.

Highlighted findings from this report include:

- Regional demand is expected to increase
- Continued growth in regional population and employment driving need for additional transportation capacity and more efficient modes of transportation
- Traditional Metrolink commuter market to/from CBD will remain the largest single travel market served by Metrolink
- Trend of dispersing employment – leading to growth of non-CBD and reverse commute trips at a higher rate than traditional commuting. Demand is projected to grow faster in trips originating in the CBD then in trips destined to the CBD
- A shift in regional population and employment reflects an increase in demand to/from areas served by the Antelope Valley Line as well as areas in the San Fernando Valley served by the Ventura County Line. By comparison, decreases are projected to/from areas served by the Orange, Riverside, and 91 Lines
- Highest proportional growth will be along the IEOC Line
- Demand for trips destined through the CBD to areas of in the San Fernando Valley and north from Orange County is projected to decrease. This trend reinforces the need to address the first mile and last mile challenges associated with accessing the Metrolink rail system

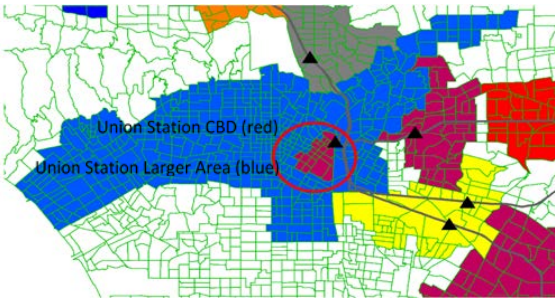
## 5.2 METHODOLOGY

The market assessment presented in this report is based on data collected from Metrolink Ridership data (2014 Q3), Southern California Association of Governments (SCAG) model (2008 for 2010 and 2035 projections), Metrolink on-board survey data (2008 and 2010), and research of services at each station collected from various transit providers that serve Metrolink stations.

A key step in evaluating the potential travel market for Metrolink focused on the examination of average weekday trips in the SCAG model from "home capture areas" (approximately 3-5 miles surrounding Metrolink stations) to Metrolink "destination areas" (approximately ½-1 mile from Metrolink stations). All trip purposes were used for much of this analysis (Home-Based Work tables are included in Attachments A and C to this report.) The home capture areas and destination areas are based on Metrolink riders' documented access and final destinations captured from on-board surveys. The Los Angeles central business district (CBD) is represented by two catchment areas for trip destinations: the Union Station CBD - comprising the portion of downtown Los Angeles within walking distance of Union Station, and the larger Union Station zone, forming a ring around the Union Station CBD zone that encompasses Central West and South Los Angeles. Specific catchment areas assumed for this assessment are presented in Attachment F: Catchment areas & Corridor Performances.

**Figure 5–1: Union Station CBD and Union Station Larger Area (Central**

Based on the actual use of Metrolink passengers, the Union Station CBD and Union Station larger area (Central Los Angeles) are both analyzed as destinations for this comparison. The areas are analyzed separately, and CBD trips are not added to the data for the larger area.




For Union Station as an origin, only one location is examined.


Data in this report that examines mode share and growth is based on output from the SCAG 2012 Regional Transportation Plan (RTP) model. It should be noted that these modeled figures are slightly higher, on average, than actual ridership for Metrolink; however, modeled output is the best tool for examining an apples-apples comparison of mode share, growth, and origins/destinations of the SCAG region. The modeled output also includes Amtrak as a mode for commuter rail, which helps to show the total commuter rail market demand with the SCAG region. Since data for Oceanside to the SCAG region is not available within the SCAG model, information obtained from the San Diego Association of Governments (SANDAG) is used for reference to identify potential demand to/from Oceanside.

According to SCAG, the region is expected to grow over the RTP planning period (2008–2035)—adding 4.2 million new residents, 1.5 million new households, and 1.7 million new jobs by 2035 (see Figure 5–2). While the majority of residence and jobs for the region are expected to remain in Los Angeles and Orange Counties, the data does project a small but growing shift in the population

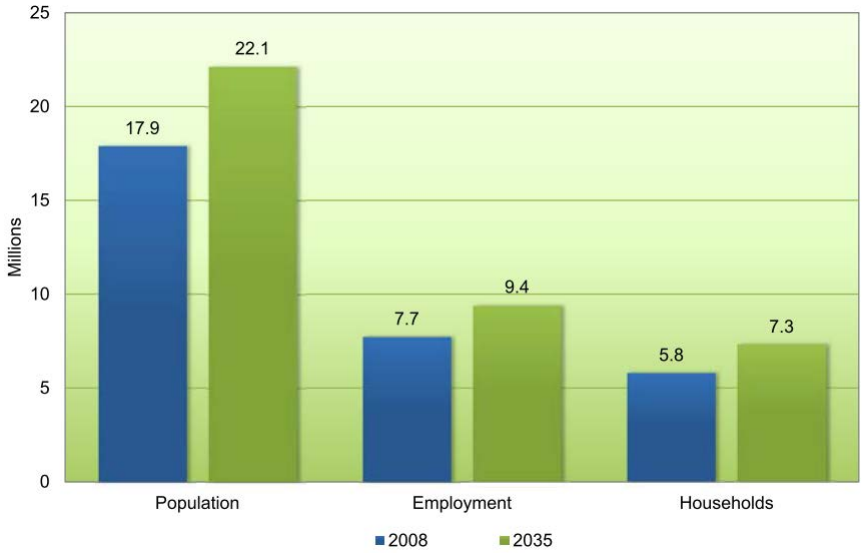
and employment balance from Los Angeles and Orange Counties to Riverside and San Bernardino Counties, as shown in Table 5–1.

**Table 5–1: Regional Population & Employment Shares by County (2010, 2020, and 2035)**

| | Share of Regional Population | | | Share of Regional Employment | | |
|---|---|---|---|---|---|---|
| Year | 2010 | 2020 | 2035 | 2010 | 2020 | 2035 |
| **Imperial** | 1% | 1% | 1% | 1% | 1% | 1% |
| **Los Angeles** | 54% | 53% | 51% | 57% | 54% | 51% |
| **Orange** | 17% | 17% | 15% | 21% | 19% | 19% |
| **Riverside** | 12% | 13% | 15% | 8% | 11% | 13% |
| **San Bernardino** | 11% | 12% | 12% | 9% | 10% | 11% |
| **Ventura** | 5% | 5% | 4% | 5% | 5% | 4% |
| **SCAG** | 100% | 100% | 100% | 100% | 100% | 100% |

*Source: U.S. Census Bureau and SCAG*

**Figure 5–2: Population, Employment, and Household Growth, SCAG Region, 2008 and 2035**




*Source: SCAG*

## 5.3 ASSESSMENT & KEY FINDINGS

This section summarizes the analysis performed of Metrolink's actual and projected capture of regional markets, the mode share to the CBD, and other significant destinations served by Metrolink.

A key finding of the assessment identified that the CBD as a destination for Metrolink trips is projected to decline; however, growth is projected for most station areas outside of the CBD. In contrast, station areas expected to have growth as origins are in the CBD and surrounding area, as

well as station areas at the east end of the Inland Empire. Growth between station area pairs is projected to be greatest on the IEOC line from the Inland Empire to destinations in Orange County.

As part of this assessment, it is important to understand the factors that help contribute to the growth or decline of a station as either an origin or a destination. A breakdown of the assessment conducted and findings by origin and destination is provided below.

### 5.3.1 Destinations

While a decline in the total share of destination trips to the CBD is projected, the CBD area will continue to remain the primary market for destination trips. However, emerging primary markets for trip destinations that will increase in the total share of destination trips include cities in central Orange County, and the San Gabriel and Antelope Valleys. Figure 5–3 and Figure 5–4 show the ranking of markets for destination trips for 2010 and 2035.

**Figure 5–3: 2010 Work Catchment Areas Trips from All Home Origin Areas (All Purposes, Commuter Rail)**

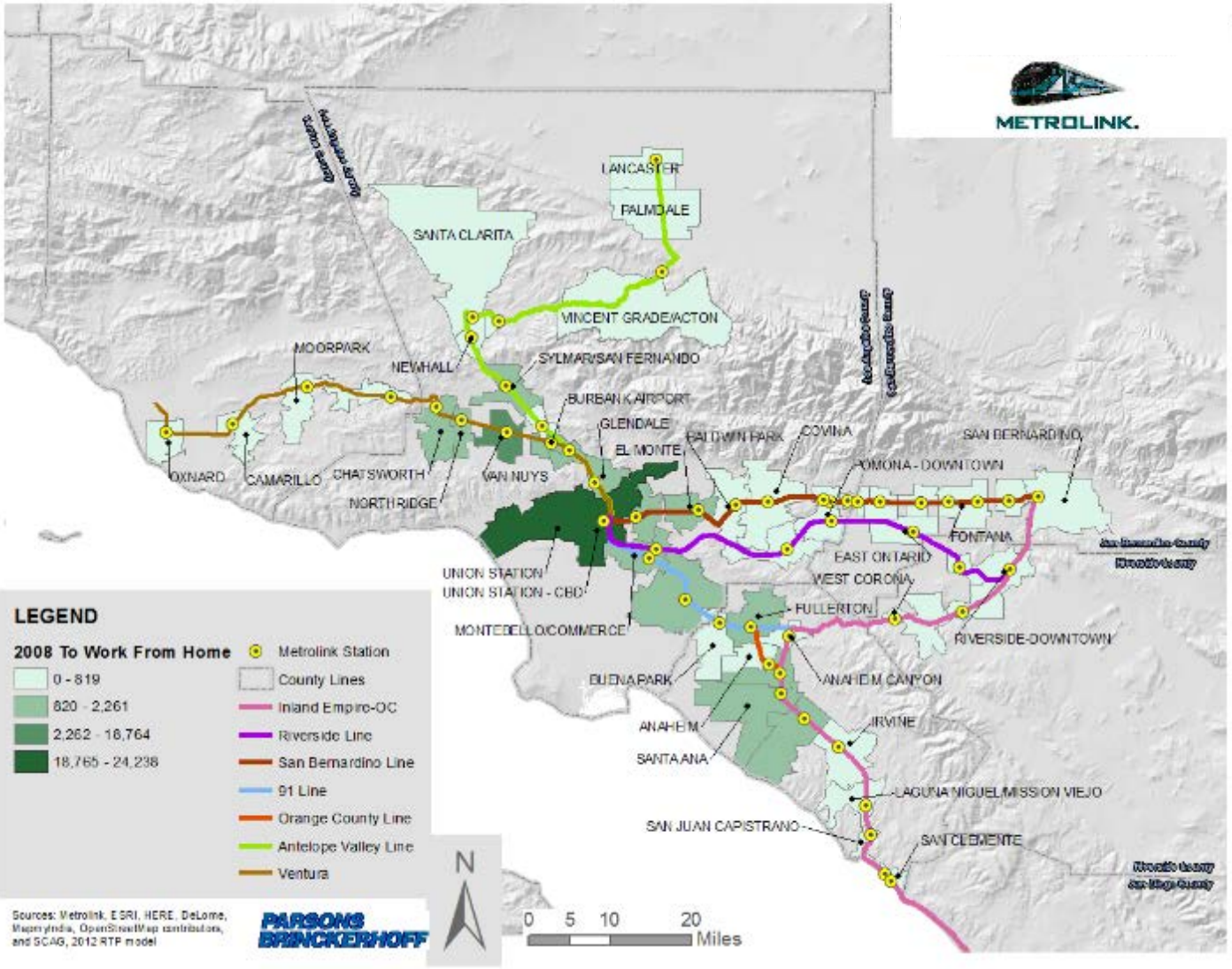
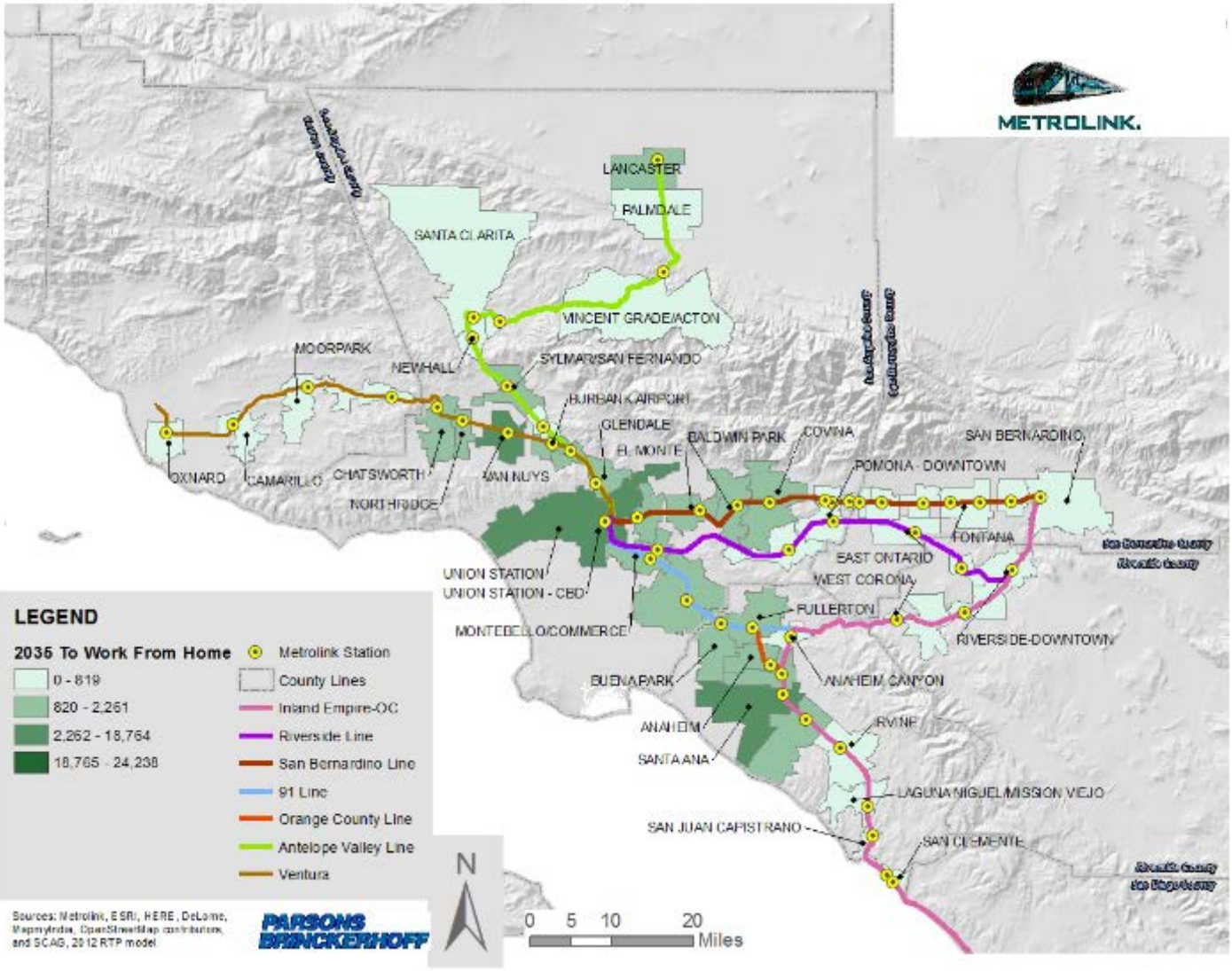


**Figure 5–4: 2035 Work Catchment Area Trips from All home Origin Areas (All Purposes, Commuter Rail)**




### 5.3.2 Origins

A more significant change is reflected in the primary markets for origin trips. Significant growth in origins is projected for the CBD and surrounding areas as well as the Gateway Cities area of Los Angeles County. Declines in origin trips are projected for parts of Orange County. Trip origins in the Inland Empire and San Fernando Valley show little change. Figure 5–5 and Figure 5–6 display the ranking of markets for origin trips for 2010 and 2035.

**Figure 5–5: 2010 Home Catchment Area Trips to Work Destination Catchment Areas (All Purposes, Commuter Rail)**

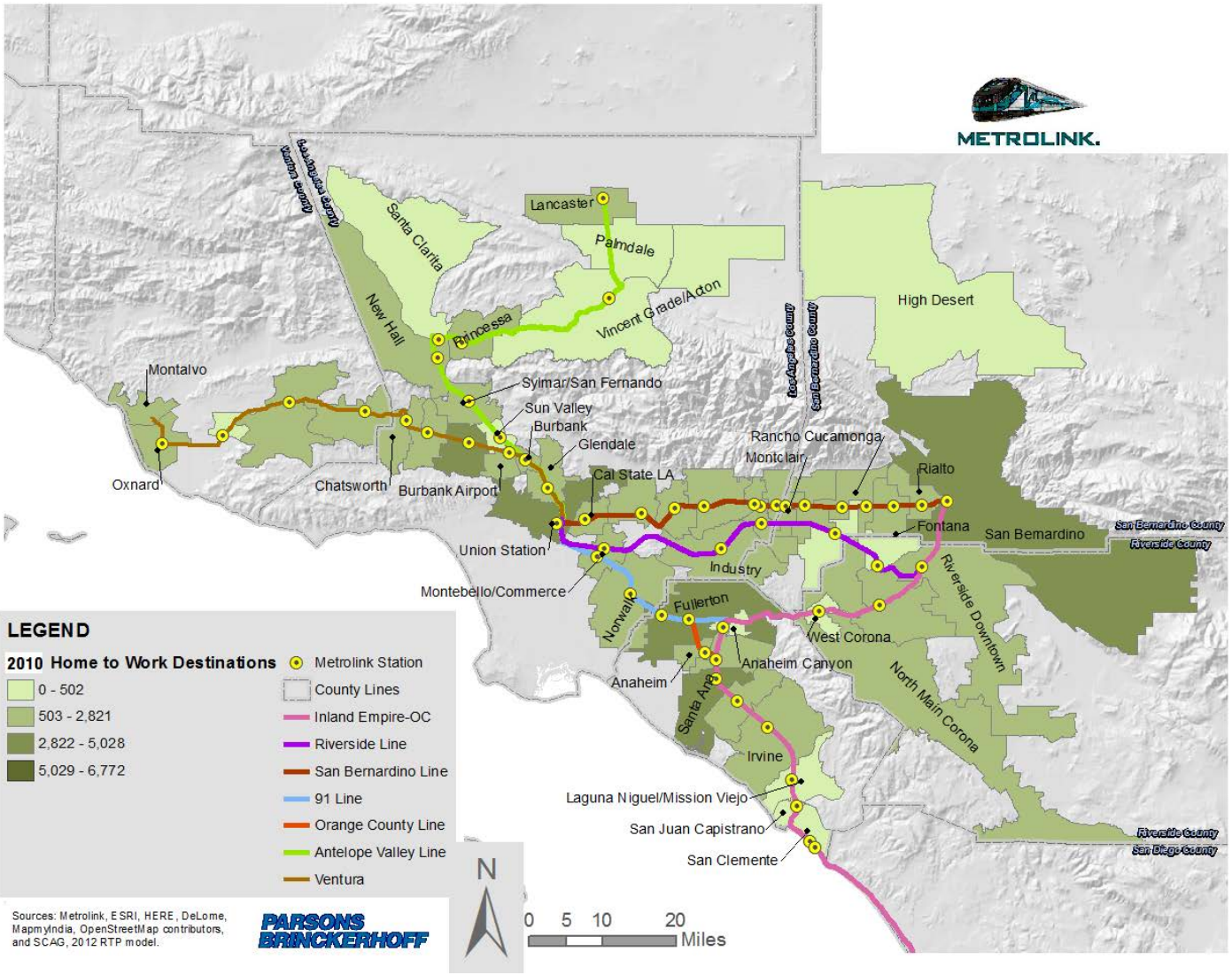
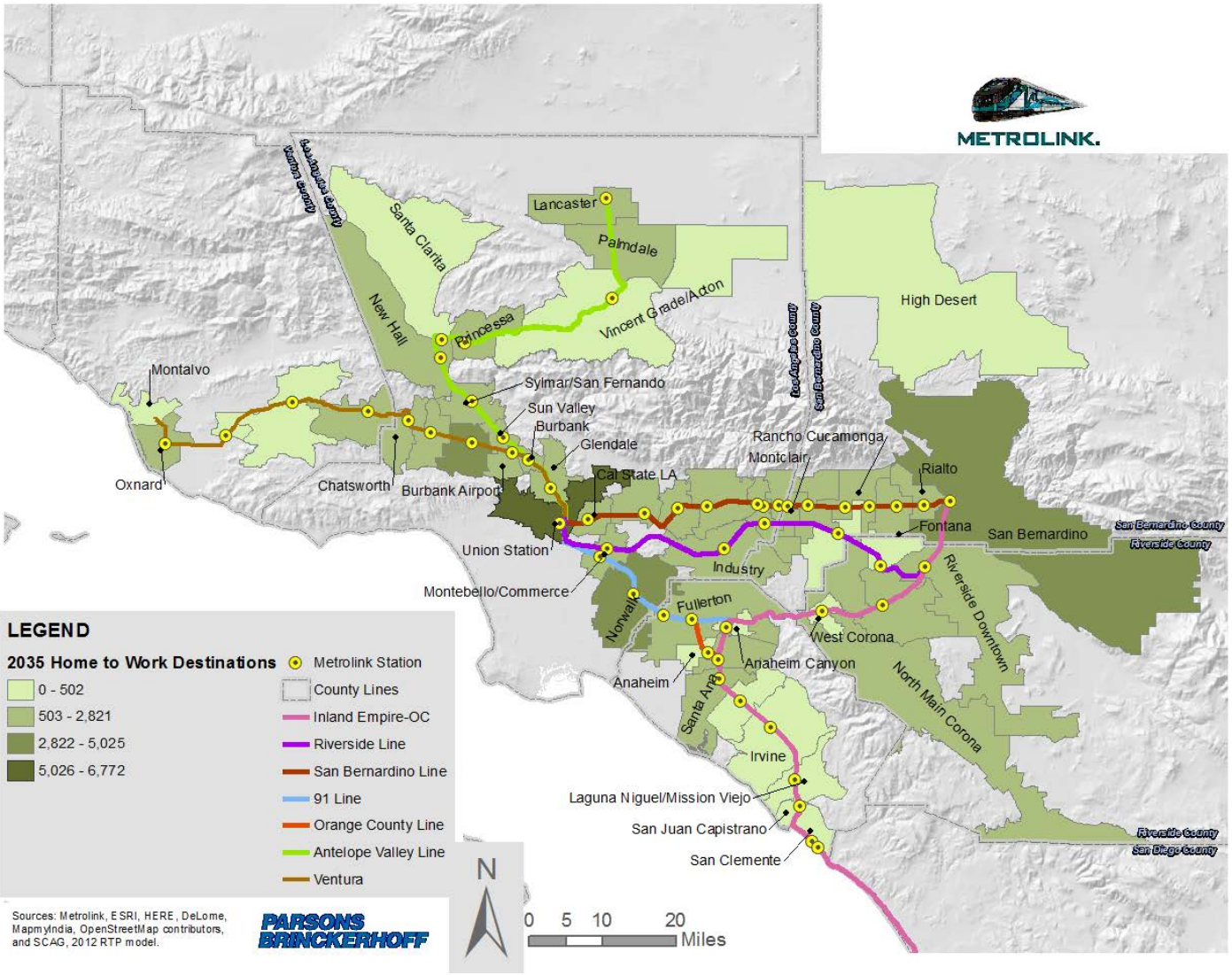


**Figure 5–6: 2035 Home Catchment Area Trips to Work Destination Catchment Areas (All Purposes, Commuter Rail)**




### 5.3.3 Growth to and from Markets

In summary, a shift in the growth rate is projected for regional origin and destination trips. Important key observations in growth or decline in travel markets include:

- Growth to destination areas: Net commuter rail trip growth is projected to increase most strongly to the destination areas of Lancaster, Sylmar, Van Nuys, Santa Ana, Orange, Chatsworth, Tustin, and Norwalk/Santa Fe Springs (see Figure 5–7).

- Growth from origin/home areas: Net trip growth is projected to occur most strongly from the CBD and surrounding area, as well as Norwalk/Santa Fe Springs, Riverside-Downtown, Van Nuys, Sylmar/San Fernando, San Bernardino, Cal State L.A., Montebello/Commerce, and

Glendale. Areas beyond the catchment areas for either home or work are expected to experience the largest growth for origin and destination trips (see Figure 5–8).

**Figure 5–7: Net Change to Work Catchment Areas from All Home Catchment Areas (All Purposes, Commuter Rail 2010-2035)**

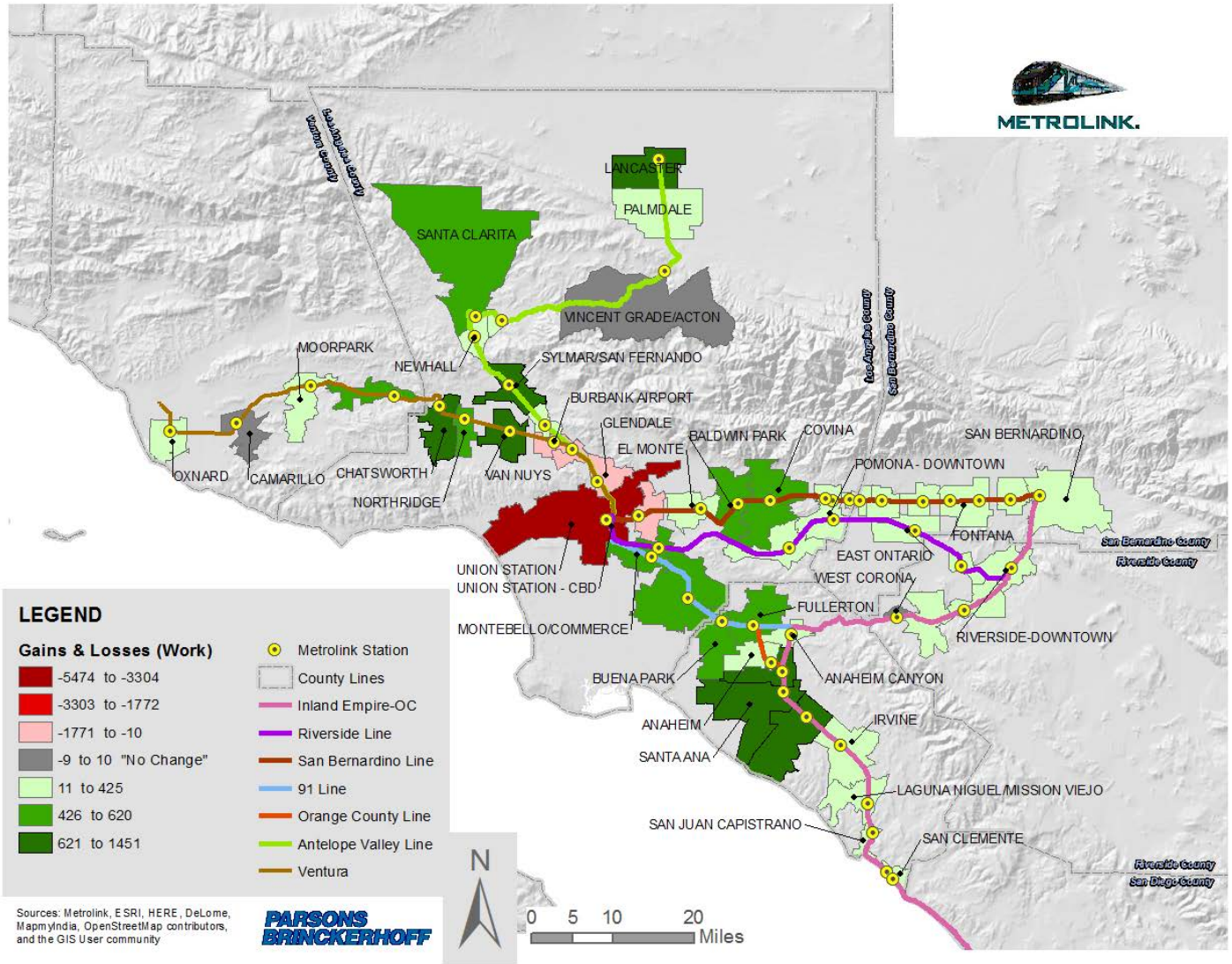
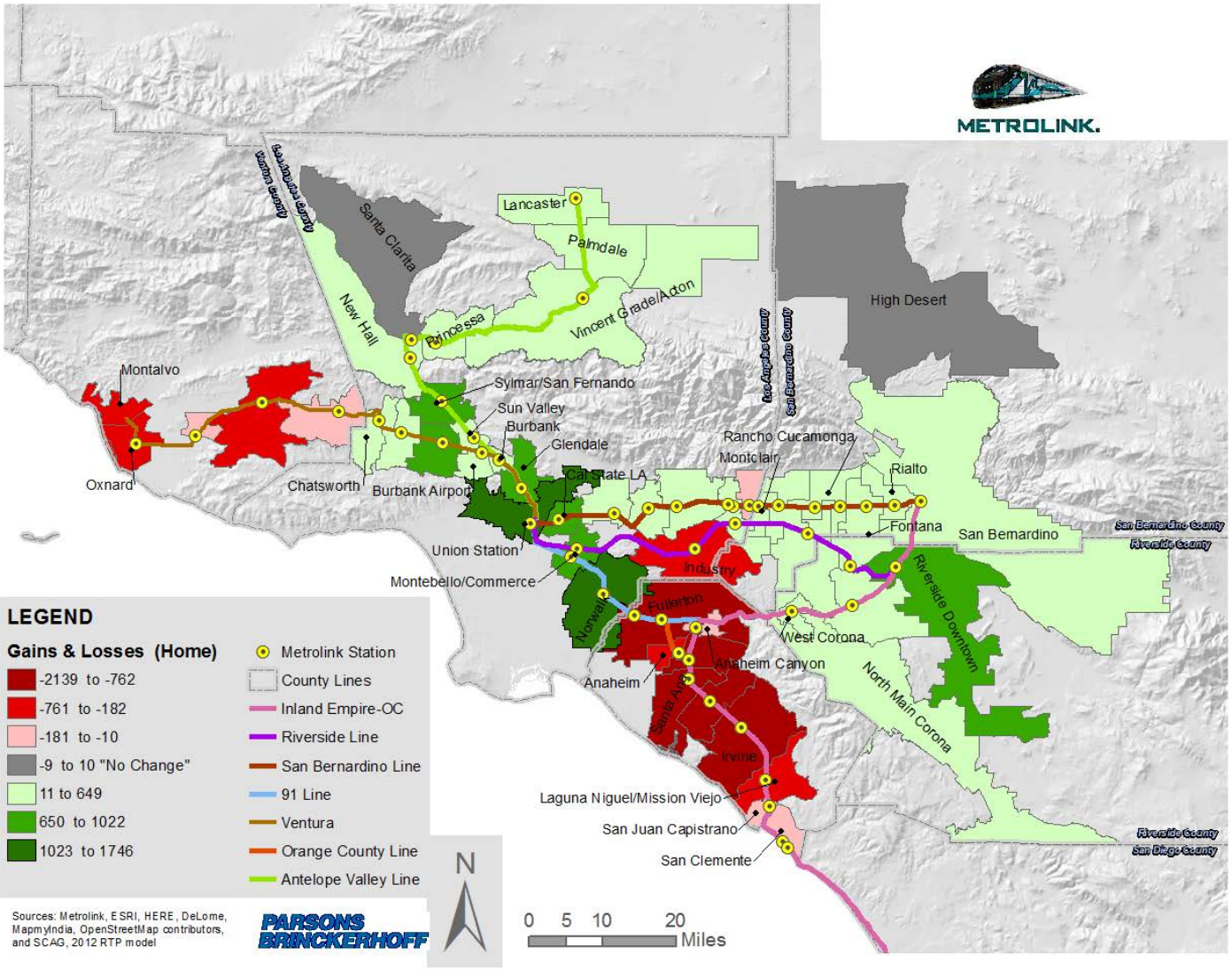


**Figure 5–8: Net Change from Home Catchment Areas to All Work Destination Areas (All Purposes, Commuter Rail 2010-2035)**




## 5.3.4 Union Station (CBD) and Union Station (Greater L.A. Central Region)

Despite the shift in origin and destination growth rates, the Union Station CBD and Union Station (larger area) are projected to remain the dominant market for commuter rail trips. The projected changes in regional population and employment indicate that demand for commuter rail will follow these changes.

Trips traveling to the Union Station CBD are projected to decline by 28 percent daily trips, and the larger Union Station area are projected to decline by 23 percent. This decline translates into a reduction in the overall growth of trips attracted to central Los Angeles as a destination, with the CBD capturing 9 percent of commuter rail trips today and falling to 6 percent in year 2035. The larger Union Station area captures 34 percent of commuter rail trips today and is projected to

capture 23 percent in year 2035. A more detailed review in the growth or decline of origin and destination stations is provided as Attachment A for reference.

The increase of trips originating from the Union Station CBD is projected to increase by 35 percent. This translates into the demand for trips from the CBD as an origin growing from 7 percent of regional commuter rail origins to 8 percent, as shown on Attachment B.

*Top Origin Areas to Union Station*

To provide a comparison on the regional growth projected over time, the top 10 home catchment station areas with the strongest attraction to Union Station in 2010 are shown in Table 5–2 and illustrated in Figure 5–9. These can be compared to the top 10 home catchment station areas for 2035 presented in Table 5–3 and Figure 5–10.

**Table 5–2: Top 10 Origins to Union Station (All Trips, Commuter Rail 2010)**

| To Union Station (CBD) and Greater L.A. Central Region from: | Average Daily Trips (CBD) | Average Daily Trips to Union Station (non CBD) |
|---|---|---|
| **Santa Ana** | 427 | 1,944 |
| **San Bernardino** | 398 | 1,754 |
| **Fullerton / Buena Park** | 317 | 1,555 |
| **Orange** | 154 | 708 |
| **Oxnard** | 220 | 696 |
| **Fontana** | 111 | 692 |
| **Downtown Pomona / Pomona (North)** | 105 | 686 |
| **Norwalk / Santa Fe Springs** | 194 | 682 |
| **Upland** | 107 | 671 |
| **Northridge** | 181 | 645 |

**Figure 5–9: 2010 Home Catchment Area Trips to Union Station Work Catchment Area (All Purposes, Commuter Rail)**

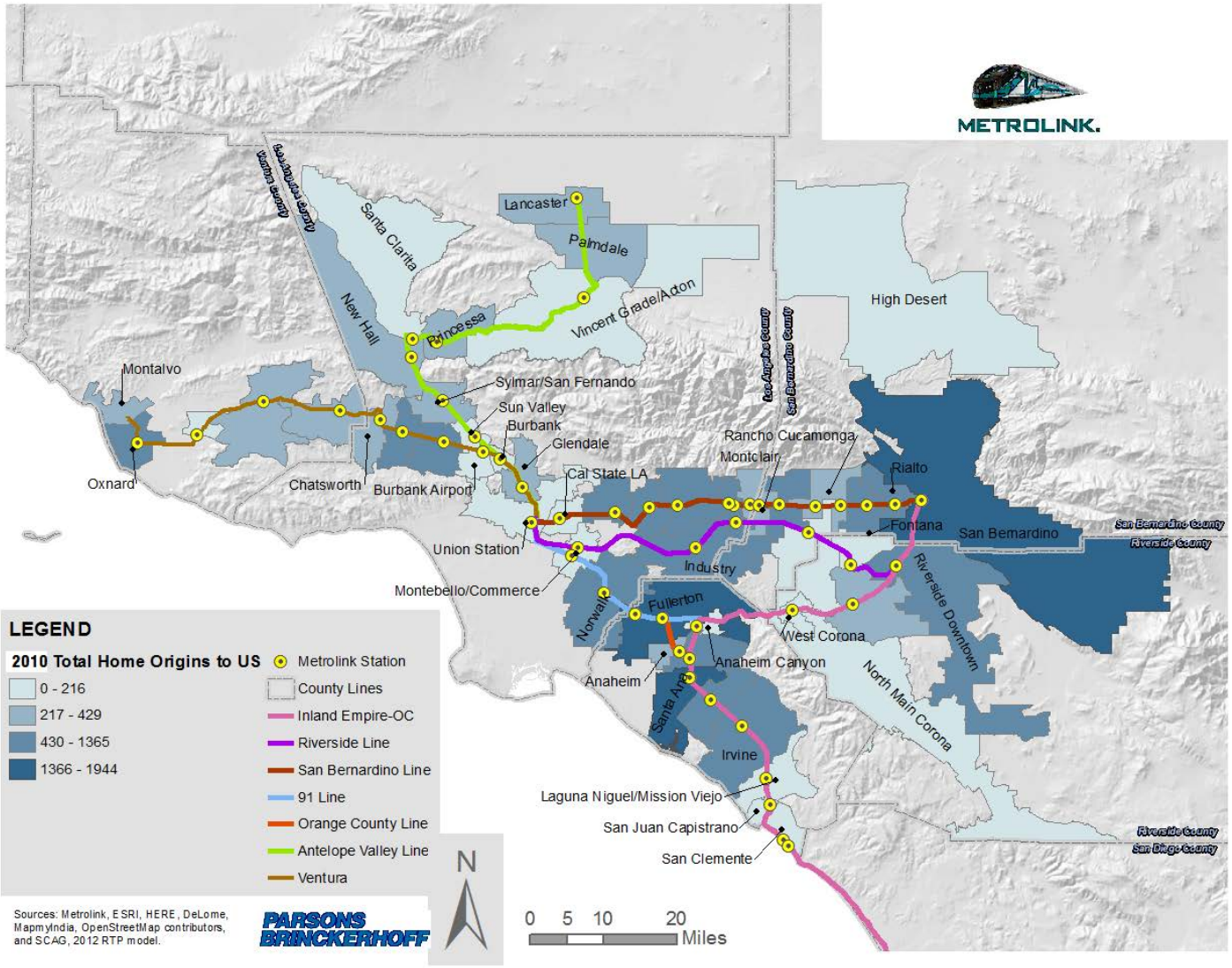
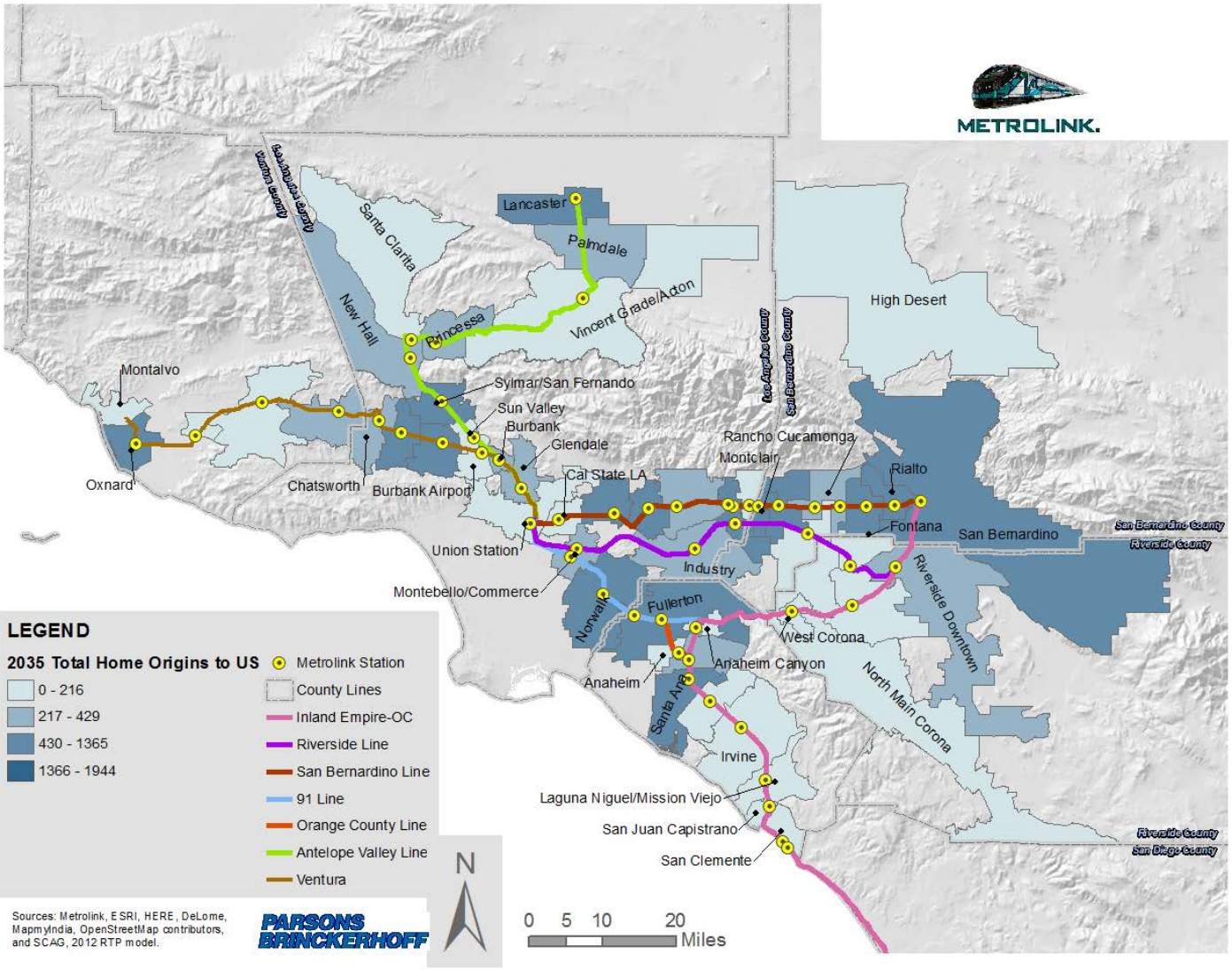


**Table 5–3: Top 10 Origins to Union Station (All Trips, Commuter Rail 2035)**

| To Union Station (CBD) and Greater L.A. Central Region from: | Average Daily Trips (CBD) | Average Daily Trips to Union Station (non CBD) |
|---|---|---|
| **San Bernardino** | 296 | 1,364 |
| **Norwalk / Santa Fe Springs** | 341 | 1,337 |
| **Van Nuys** | 249 | 1,064 |
| **Fullerton / Buena Park** | 209 | 717 |
| **Fontana** | 89 | 647 |
| **Upland** | 79 | 643 |
| **Santa Ana** | 187 | 631 |
| **Lancaster** | 118 | 583 |
| **Sylmar / San Fernando** | 148 | 570 |
| **Downtown Pomona / Pomona (North)** | 76 | 557 |

**Figure 5–10: 2035 Home Catchment Area Trips to Union Station Work Catchment Area (All Purposes, Commuter Rail)**




*Top Destination Areas from Union Station*

In contrast, the top destination areas originating from Union Station in 2010 are centered on central Orange County and north Los Angeles County. Specific stations are identified in Table 5–4 and illustrated in Figure 5–11. This can be compared to Table 5–5 and Figure 5–12 that represent the projected destinations from the Union Station CBD in year 2035. The top destination areas that people are projected to travel to in 2035 focus on central Orange County and north Los Angeles County, with some increase in the Gateway Cities of Los Angeles County. The greatest growth, however, occurs in north Los Angeles County, specifically in the Antelope Valley and west San Fernando Valley.

**Table 5–4: Top 10 Destinations from Union Station (All Purposes, Commuter Rail 2010)**

| From Union Station home area to: | Average Daily Trips |
|---|---|
| Santa Ana | 580 |
| Van Nuys | 446 |
| Fullerton | 409 |
| Orange | 271 |
| Anaheim | 261 |
| Lancaster | 261 |
| Tustin | 230 |
| Chatsworth | 225 |
| Northridge | 218 |
| Union Station Larger Area | 192 |

**Table 5–5: Top 10 Destinations from Union Station (All Purposes, Commuter Rail 2035)**

| From Union Station home area to: | Average Daily Trips |
|---|---|
| Lancaster | 694 |
| Van Nuys | 659 |
| Chatsworth | 439 |
| Santa Ana | 389 |
| Sylmar/San Fernando | 371 |
| Northridge | 349 |
| Fullerton | 319 |
| Orange | 232 |
| Santa Clarita | 217 |
| Norwalk/Santa Fe Springs | 201 |

**Figure 5–11: Work Catchment Area Destination Trips from Union Station Home Catchment Area (All Purposes, Commuter Rail)**

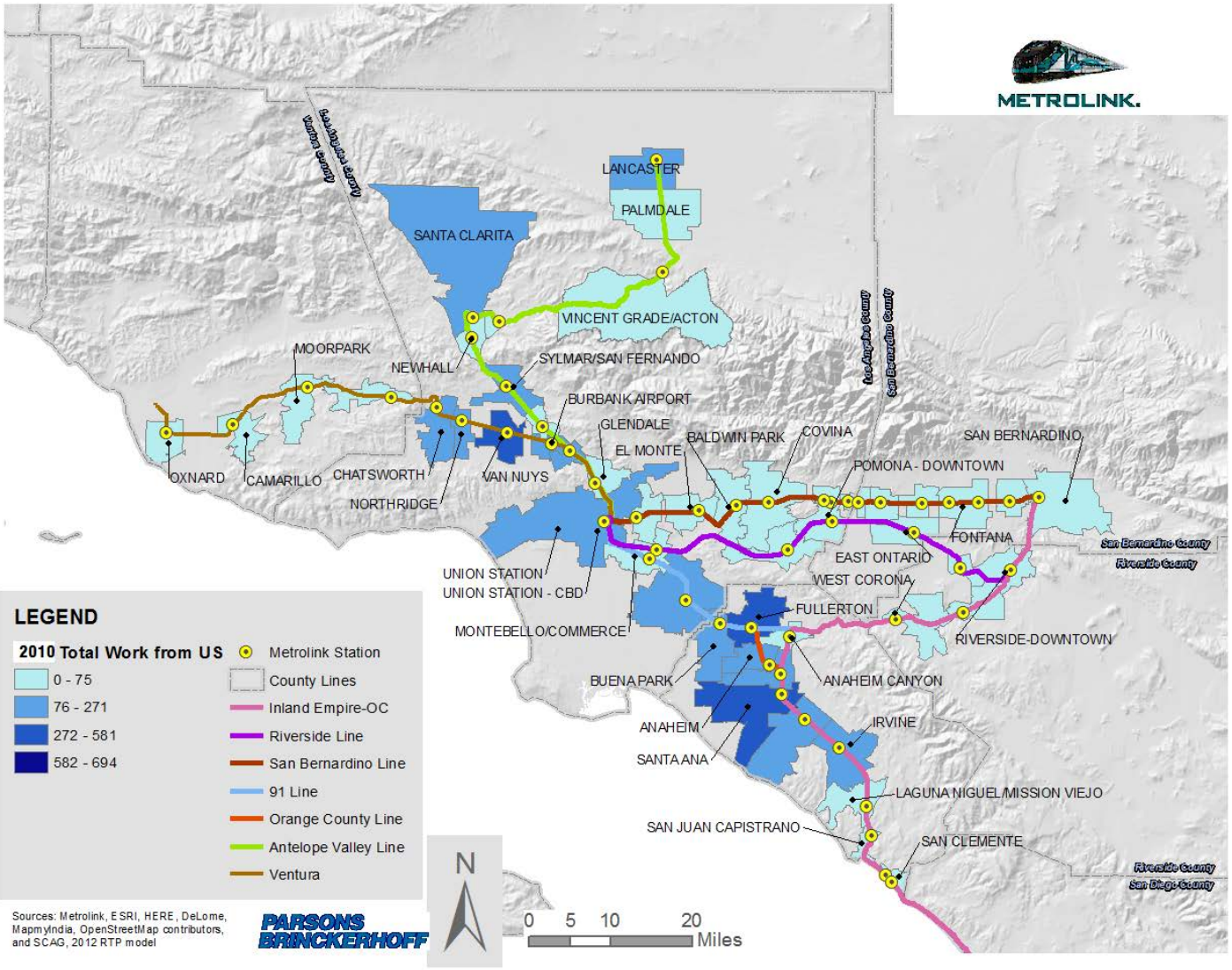
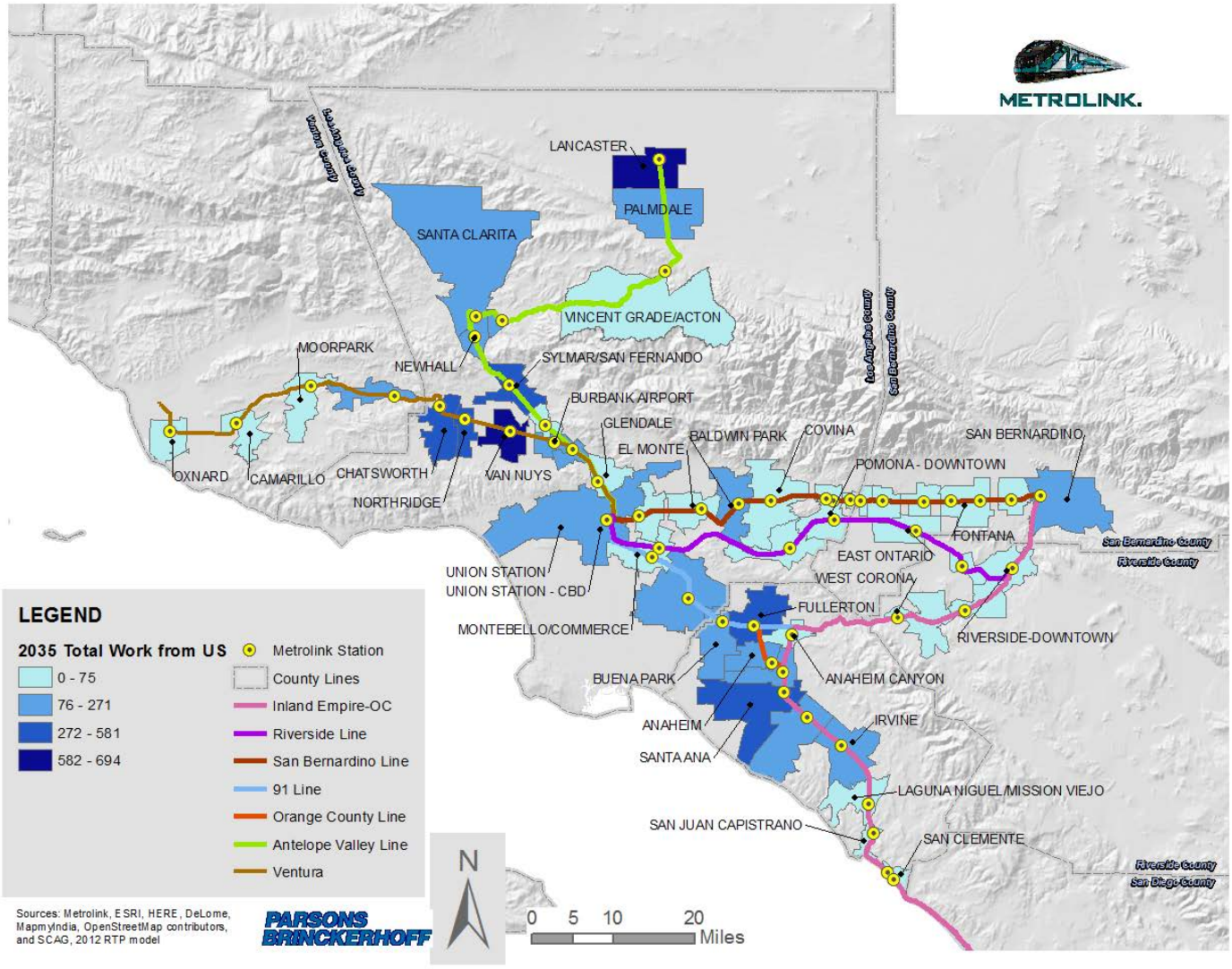


**Figure 5–12: Work Catchment Area Trips from Union Station Home Catchment Area (All Purposes, Commuter Rail 2035)**




*Top areas of growth and decline to Union Station*

Projected growth to the Union Station CBD from the top 10 station catchment areas is shown in the Table 5–6. The largest single growth station area to the Union Station CBD is projected from Norwalk/Santa Fe Springs, which is serviced by the Orange County and/or 91 Lines. Seven of the top ten stations from where growth is projected in travel to Union Station are from stations on the Antelope Valley and/or Ventura County Lines.

**Table 5–6: Top 10 Areas of Growth, Origins to LAUS (All Trips, Commuter Rail 2010-2035) ranked by trips to Union Station non-CBD trips**

| To Union Station (CBD) and Greater L.A. Central Region from: | Average Daily Trips Growth (CBD) | % Growth of Trips to CBD | Average Daily Trips Growth to Union Station (non-CBD) | % Growth of Trips to Union Station (non-CBD) |
|---|---|---|---|---|
| Norwalk / Santa Fe Springs | 147 | 76% | 655 | 96% |
| Sylmar / San Fernando | 9 | 6% | 199 | 54% |
| Montebello / Commerce | 26 | 68% | 176 | 118% |
| Lancaster | 11 | 10% | 155 | 36% |
| Montclair | -5 | -9% | 88 | 22% |
| Palmdale | 0 | 1% | 65 | 28% |
| Glendale | -6 | -4% | 49 | 13% |
| Burbank | -1 | 10% | 31 | 16% |
| Sun Valley | 0 | 0% | 22 | 19% |
| Newhall | -7 | -10% | 20 | 8% |

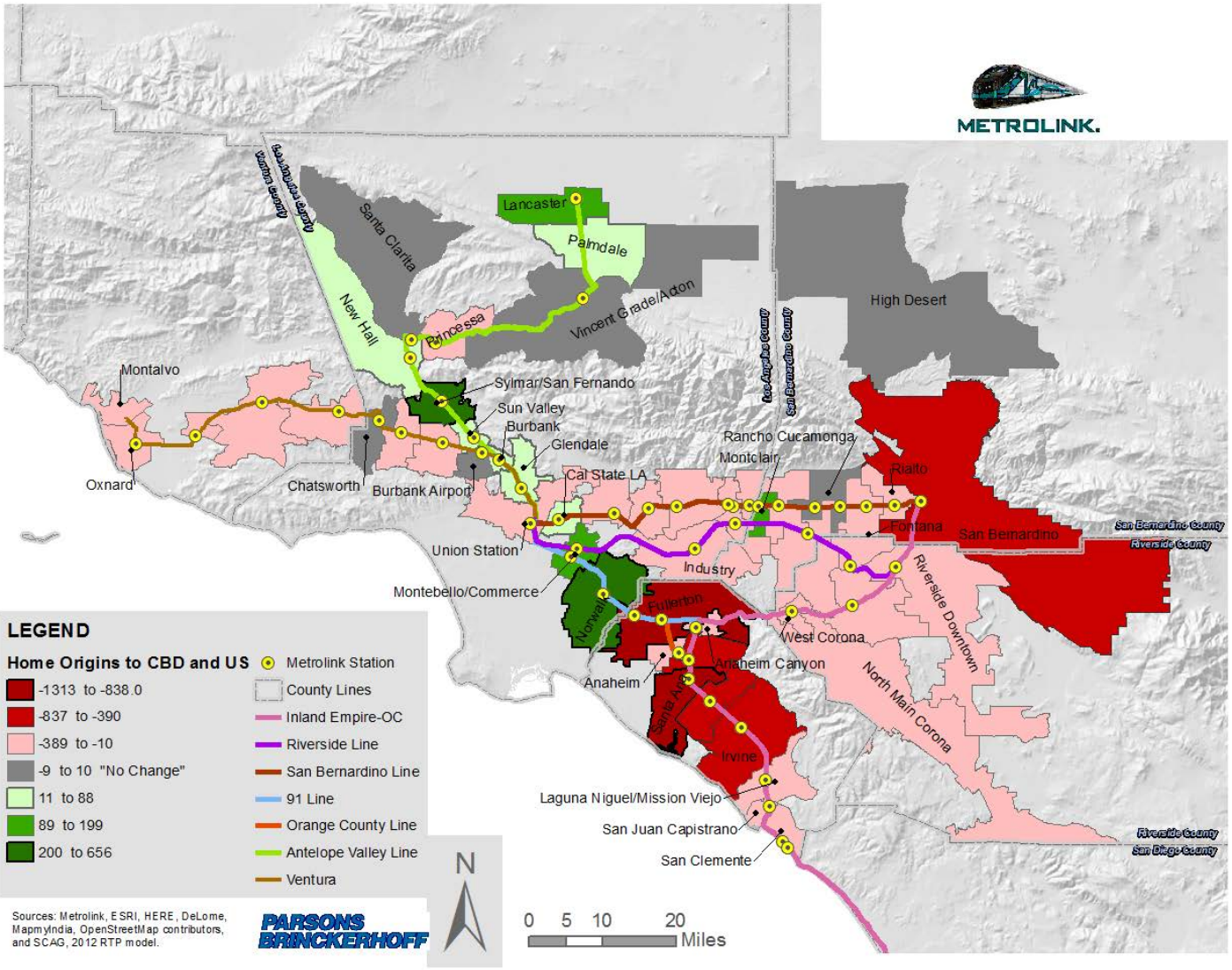
The top 10 areas of projected decline in trips to the Union Station CBD are shown in Table 5–7. Most of the stations that are projected to decline in the number trips to the Union Station CBD are projected to originate from station areas on the Orange County Line. Several stations on the 91 Line are projected to show some of the greatest decline in demand to the Union Station CBD and surrounding areas.

The net change between 2010 and 2035 in projected growth and decline to Union Station from home catchment areas is illustrated in Figure 5–13.

**Table 5–7: Top 10 Areas of Decline, Origins to LAUS (All Trips, Commuter Rail 2010-2035) ranked by Union Station non-CBD trips**

| To Union Station (CBD) and Greater L.A. Central Region from: | Average Daily Trips Decline (CBD) | % Decline of Trips to CBD | Average Daily Trips Decline (non CBD) | % Decline of Trips to Non CBD |
|---|---|---|---|---|
| Santa Ana | -240 | -56% | -1,313 | -68% |
| Fullerton/Buena Park | -107 | -34 | -838 | -54% |
| Tustin | -103 | -64% | -461 | -74% |
| Orange | -71 | -46% | -448 | -63% |
| Irvine | -123 | -66% | -393 | -73% |
| San Bernardino | -102 | -26% | -390 | -22% |
| Industry | -86 | -53% | -245 | -41% |
| Riverside La Sierra | -89 | -84% | -234 | -86% |
| Riverside Downtown | -102 | -38% | -220 | -43% |
| North Main Corona | -64 | -82% | -186 | -86% |

**Figure 5–13: Change in Home Origin Catchment Area Trips to Union Station Catchment Area (All Purposes, Commuter Rail 2010-2035)**




*Top areas of growth and decline from Union Station*

The Union Station home catchment area includes the Union Station CBD and some close-in areas around the CBD (based on current Metrolink patronage). Travel demand is projected to grow between this area and areas to the north along the Antelope Valley Line. Overall, the net trips from Union Station, as an origin, are projected to grow by 1,746 daily trips, a 35 percent increase. Table 5–8 shows the top 10 areas of growth from the Union Station home catchment area.

**Table 5–8: Top 10 Areas of Growth from Union Station Home Area (All Trips, Commuter Rail 2010-2035)**

| From Union Station Home Area to: | Average Daily Trips Growth | % Growth of Trips from Union Station |
|---|---|---|
| Lancaster | 433 | 166% |
| Sylmar / San Fernando | 273 | 279% |
| Chatsworth | 214 | 95% |
| Van Nuys | 213 | 48% |
| Simi Valley | 147 | 447% |
| Santa Clarita | 138 | 175% |
| Northridge | 131 | 60% |
| Palmdale | 104 | 144% |
| Norwalk / Santa Fe Springs | 78 | 63% |
| Baldwin Park | 75 | 671% |

The areas where travel from Union Station is projected to decline the most are primarily to the south along the Orange County Line. The top areas of decline are roughly only a third of the growth shown in the top areas of growth (see Table 5–9).

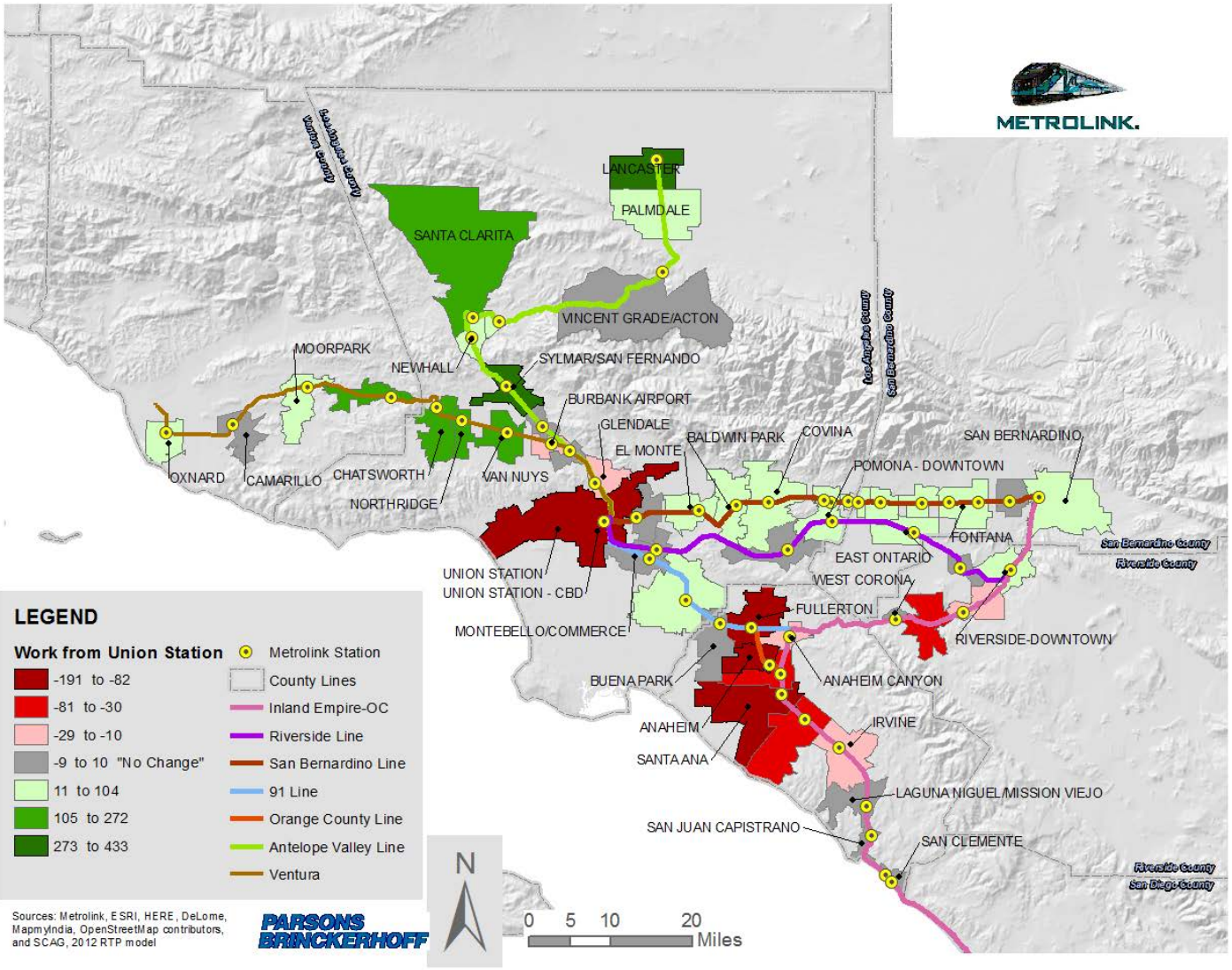
Figure 5–14 illustrates the net change in trips from the Union Station home catchment areas to work catchment areas.

**Table 5–9: Top 10 Areas of Decline from Union Station Home Area (All Trips, Commuter Rail 2010-2035)**

| From Union Station Home Area to: | Average Daily Trips Decline | % Decline of Trips from Union Station |
|---|---|---|
| Santa Ana | (191) | -33% |
| Fullerton | (90) | -22% |
| Anaheim | (82) | -31% |
| Tustin | (68) | -30% |
| North Main Corona | (40) | -66% |
| Orange | (38) | -14% |
| Anaheim Canyon | (22) | -50% |
| Irvine | (22) | -20% |
| Burbank-Bob Hope Airport | (19) | -15% |
| Riverside-La Sierra | (19) | -74% |

*Note: Table excludes trips within CBD and to areas beyond work catchment areas.*

**Figure 5–14: Change in Work Catchment Area Trips from Union Station Home Catchment Area (All Purposes, Commuter Rail 2010-2035)**



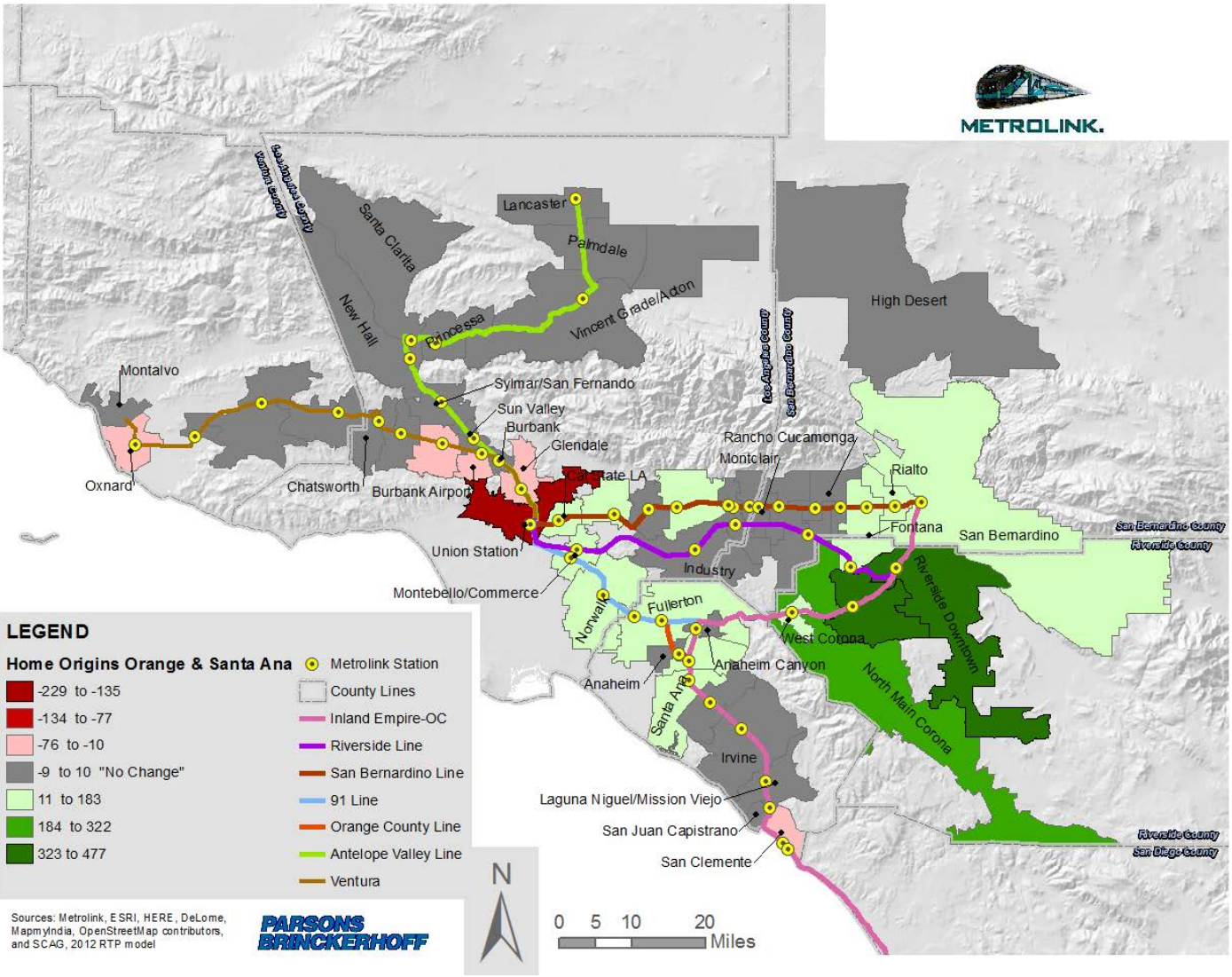

### 5.3.5 Projected growth and decline between non-CBD station areas

The strongest growth between station areas outside of the Union Station CBD are shown in Table 5–10 and illustrated in Figure 5–15. Most non-Union Station CBD growth is shown between station areas served on the IEOC Line, followed by the 91 Line. Growth is also projected between some station areas on the Antelope Valley Line.

**Table 5–10: Top 10 Non-CBD O&D Growth Areas (All Trips, Commuter Rail 2010-2035)**

| From station area to station area (non-CBD) | Average Daily Trip Growth | Percentage Growth |
|---|---|---|
| **Riverside Downtown to Santa Ana** | 299 | 467% |
| **Riverside La Sierra to Santa Ana** | 205 | 252% |
| **Riverside Downtown to Orange** | 178 | 242% |
| **Riverside Downtown to Fullerton** | 176 | 239% |
| **North Main Corona to Santa Ana** | 143 | 262% |
| **Riverside Downtown to Tustin** | 135 | 228% |
| **Riverside La Sierra to Fullerton** | 121 | 296% |
| **Van Nuys to Lancaster** | 111 | 198% |
| **Glendale to Lancaster** | 107 | 120% |
| **Riverside Downtown to Buena Park** | 104 | 188% |

**Figure 5–15: Change in Home Origin Catchment Areas Trips to Orange and Santa Ana Work Catchment Areas (All Purposes, Commuter Rail 2010-2035)**

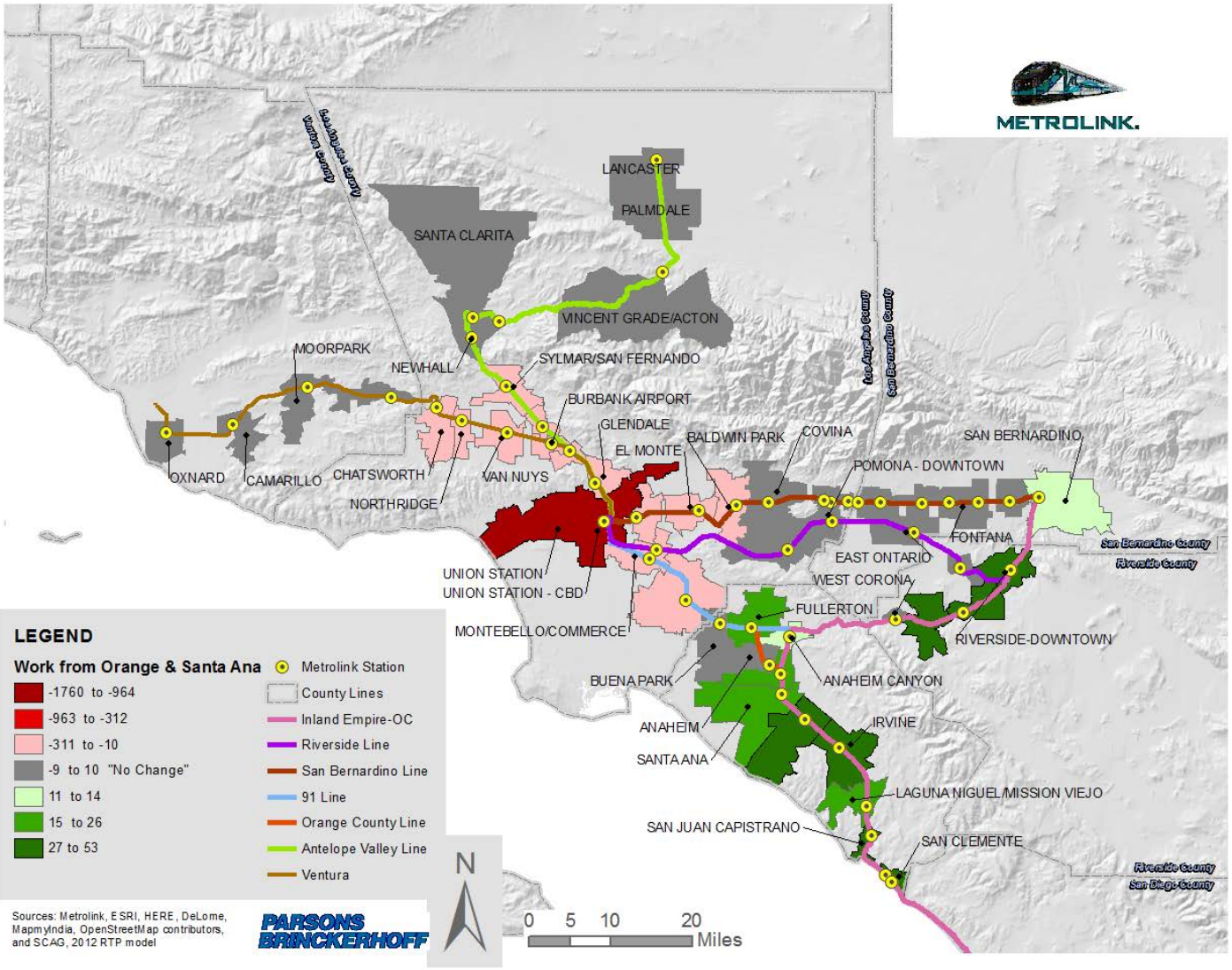



The station area pairs with the greatest decline in demand are shown on Table 5–11 and illustrated in Figure 5–16. The projections indicate that the greatest decline in demand is not along the same lines, but rather between station pairs on non-through lines. Trips from stations on the Orange County Line are projected have the most decline to the close-in station areas of the Antelope Valley/Ventura County Lines (e.g. Glendale and Van Nuys).

**Table 5–11: Top 10 Non-CBD O&D Decline Areas (All Trips, Commuter Rail 2010-2035)**

| From station area to station area (non-CBD) | Average Daily Trip Decline | Percentage Decline |
|---|---|---|
| **Santa Ana to Glendale** | -105 | -84% |
| **Santa Ana to Cal State LA** | -101 | -64% |
| **Fullerton/Buena Park to Glendale** | -72 | -67% |
| **Fullerton/Buena Park to Van Nuys** | -71 | -68% |
| **Santa Ana to El Monte** | -69 | -72% |
| **Santa Ana to Norwalk/Santa Fe Springs** | -69 | -35% |
| **Irvine to Norwalk/Santa Fe Springs** | -52 | -75% |
| **Santa Ana to Van Nuys** | -52 | -81% |
| **Fullerton/Buena Park to El Monte** | -45 | -65% |
| **Oxnard to Van Nuys** | -38 | -24% |

**Figure 5–16: Change in Work Destination Areas Trips from Orange and Santa Ana Home Catchment Area (All Purposes, Commuter Rail 2010-2035)**




## 5.3.6 Implications for Service

It is important to note that changes in projected growth or decline in demand does not necessarily translate into potential increases or decreases in ridership. The potential for specific increases or decreases in service should be modeled to determine more accurate future potential ridership increases or reductions. However, based on the available information, four observations can be made:

- There is a projected growth in travel demand between the Union Station CBD and station areas to the north served by the Antelope Valley Line and close in the Ventura County Line

- There is a projected growth in travel demand between station areas in Riverside and San Bernardino and station areas in central Orange County, served by the IEOC and 91 lines
- There is a projected decrease in demand between the Union Station CBD and areas served by the San Bernardino, 91, and Riverside Lines
- There is a projected decrease in demand between the Union Station CBD and north Orange County station areas served by 91 and Orange County Lines

## 5.4 CORRIDOR & STATION PERFORMANCE

While the focus of this assessment is on general market trends and travel patterns, it is important to note an evaluation on the performance and the first and last mile transit connections at each of the stations is critical in any detailed market analysis as this can affect the ability to attract or sustain riders.

Attachment E shows the performance of each station given current conditions of bus service, number of stops each day, parking availability, and population and employment served. An examination of the entire system provides average uses and metrics (See Table 5–12) to help determine which corridors are below/above average and which stations are below/above average. These averages were taken outside of Union Station, since Union Station was found to "skew" the average due to its disproportionately high transit usage compared to other stations within the system. The data presented in Attachment E offers several variables that can be examined to determine how well the current system is capturing the existing market. These metrics include average boardings per Metrolink service stop, average train users per bus trip, average users per parking spaces, and the relationship of non-motorized access to the average home area capture area population and employment.

**Table 5–12: System Performance Metrics based on Current Use**

| | Metrics | | | |
|---|---|---|---|---|
| **Line** | **Avg. Boarding / Service Stop** | **Avg. Users / Bus Trip** | **Auto Users / Parking Space** | **Non-motorized Access / 10,000 People in Service Area** |
| **System Avg. without Union Station** | **29** | **0.53** | **0.74** | **2.11** |
| **Antelope Valley** | 15 | 0.40 | 0.56 | 2.94 |
| **Inland Empire-Orange County** | 57 | 1.04 | 0.67 | 2.30 |
| **Orange County** | 28 | 0.89 | 0.70 | 1.96 |
| **Riverside** | 46 | 0.25 | 0.98 | 0.61 |
| **San Bernardino** | 13 | 0.45 | 0.96 | 2.76 |
| **Ventura County** | 17 | 0.44 | 0.57 | 2.08 |
| **91-Line** | 95 | 0.67 | 0.80 | 0.93 |

This information is useful in determining where the best performing stations are on the system and how they could potentially be replicated in other areas to attract ridership.

For example, corridors with higher than average utilization of bus transfer trips are, in priority order:

- IEOC Line
- Orange County Line
- 91 Line

High performing stations, in these corridors can be examined in further analysis to determine why the bus transfer rate is higher than average.

The most productive stations for bus-train transfer include:

- Irvine
- Tustin
- Oceanside
- Northridge
- Orange
- Santa Ana

Stations with the least productive bus transfers include:

- Camarillo
- Oxnard
- Montclair
- San Clemente
- Simi Valley
- Claremont
- Downtown Pomona
- Moorpark

### 5.4.1 Station Performance Comparisons

This assessment does not delve into detailed station performance comparisons. Further examination and comparison of the stations, beyond what was performed as part of this assessment, is recommended to help better identify what is working well, and what can be replicated in stations

across the system to improve Metrolink ridership. For example, the stations at Montclair and Downtown Burbank offer comparative bus connections, yet the Downtown Burbank Station's bus transfer rate to rail is significantly higher. Specifically, the Montclair Station is served by 599 bus trips per day, yet only achieves 6 percent mode share for bus-train mode of access. In comparison, the Downtown Burbank Station is served by 533 bus trips per day and captures 46 percent bus-train access mode share. At closer examination of the data, however, it appears that there is a strong correlation between percent of transit trips and percent of attraction trips. In other words, the Downtown Burbank Station may have a higher bus-rail mode of access share because it is major employment center (i.e., Media District). It is also served by both the Metrolink Antelope Valley Line and the Ventura Line, and there is a free shuttle service that connects with Bob Hope Airport. Conversely, the Montclair Station has four times the number of parking spaces than the Downtown Burbank Station, which incentivizes driving to the Montclair Station, and may explain the difference in transit mode shares. Further examination of station design features, fare policies, and service characteristics of connecting bus routes, and active transportation amenities at each station should also be examined in greater detail for their influence on transit mode shares.

### 5.4.2 Corridor Performance

In order to evaluate the performance and growth potential for Metrolink, each line (or corridor) was examined for the mode share it captures, and the different attributes of competitive services. Each corridor is documented in the charts and graphs in Attachment F. These graphics illustrate how well Metrolink is competing with services to and from the downtown Union Station CBD, except in the case of the IEOC line, where the primary market areas are defined by the data as being the Cities of Santa Ana and Orange. Attachment C presents the number of trips for the primary market areas along the IEOC Line based on data from the Metrolink 2008 On-Board Surveys.

The figures in Attachment F illustrate the corridor performance versus the competing modes for different types of trips. The types of trips evaluated include home-based work, non-home based non-work, non-home based work trips, and social/recreation/shopping/other trips.

From these charts, it can be observed that Metrolink is most competitive with non-auto modes to the Union Station CBD on the Antelope Valley Line, Riverside Line, and Orange County Line. The Antelope Valley Line also has the least percentage of auto trips to the Union Station CBD. The San Bernardino Line competes for non-work trips more than the any other line. However, local bus trips provide substantial competition for Metrolink trips to the Union Station CBD.

## 5.5 CONCLUSIONS

In conclusion, review of the available SCAG model data and previous Metrolink on-board survey's suggests the primary market for Metrolink will continue to be Central Los Angeles over the next 20 years. However, the market for additional service to outlying areas of the region is growing rapidly. The Antelope Valley is a notable area of projected growth, with less competition from other modes, including the automobile. Ridership growth potential on the IEOC Line between the Inland Empire and Orange County indicate some of the strongest demand for growth. Further, growth in areas outside of the Union Station CBD suggests Metrolink should explore ways to improve last-mile connections through additional service connections or partnership with local transit operators.

Lessons from the current system on capturing riders, such as bus transfers, needs further analysis on how successes can be targeted to stations in corridors with the most expected growth.

## 5.6 ATTACHMENTS: MARKET ANALYSIS

### 5.6.1 Attachment A: Destination Area-Total Trips

**Attachment A: Destination Area – Total Trips, Commuter Rail Trips (2010 and 2035)**

| | All Trip Purposes | | | | | | Home-Based Work Trip Purposes | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Destination Area Description | 2010 Commuter Rail Daily Trips to Destination Areas (Top 10 highlighted) | 2008 Metro Percent of all trips | 2035 Commuter Rail Daily Trips to Destination Areas (Top 10 highlighted) | Percent of all trips | Change in Commuter Rail Daily Trips 2035-2010 (Top 10 highlighted) | Percentage growth or decline between 2010 and 2035 (Top 10 highlighted) | 2010 Commuter Rail Daily Trips to Destination Areas (Top 10 highlighted) | Percent of all trips | 2035 Commuter Rail Daily Trips to Destination Areas (Top 10 highlighted) | Percent of all trips | Change in Commuter Rail Daily Trips 2035-2010 (Top 10 highlighted) | Percentage growth or decline between 2010 and 2035 (Top 10 highlighted) |
| ANAHEIM | 804 | 1% | 1,028 | 1% | 224 | 28% | 672 | 1% | 931 | 1% | 259 | 39% |
| ANAHEIM CANYON | 164 | 0% | 352 | 0% | 187 | 114% | 140 | 0% | 326 | 0% | 185 | 132% |
| BALDWIN PARK | 677 | 1% | 1,141 | 1% | 464 | 69% | 615 | 1% | 1,064 | 1% | 449 | 73% |
| BUENA PARK | 557 | 1% | 1,116 | 1% | 560 | 101% | 540 | 1% | 1,085 | 1% | 545 | 101% |
| BURBANK | 1,014 | 1% | 971 | 1% | (42) | -4% | 880 | 1% | 822 | 1% | (57) | -7% |
| BURBANK AIRPORT | 1,369 | 2% | 1,294 | 2% | (75) | -5% | 1,235 | 2% | 1,162 | 2% | (72) | -6% |
| CAL STATE LA | 1,980 | 3% | 1,919 | 2% | (61) | -3% | 1,792 | 3% | 1,774 | 2% | (18) | -1% |
| CAMARILLO | 0 | 0% | 0 | 0% | 0 | 24% | 0 | 0% | 0 | 0% | 0 | 24% |
| CHATSWORTH | 1,401 | 2% | 2,174 | 3% | 773 | 55% | 1,356 | 2% | 2,041 | 3% | 686 | 51% |
| CLAREMONT | 87 | 0% | 291 | 0% | 204 | 234% | 80 | 0% | 272 | 0% | 193 | 242% |
| COVINA | 554 | 1% | 1,147 | 1% | 593 | 107% | 511 | 1% | 1,085 | 1% | 574 | 112% |
| EAST ONTARIO | 22 | 0% | 158 | 0% | 136 | 611% | 22 | 0% | 157 | 0% | 135 | 611% |
| EL MONTE | 1,557 | 2% | 1,768 | 2% | 211 | 14% | 1,429 | 2% | 1,648 | 2% | 219 | 15% |
| FONTANA | 147 | 0% | 283 | 0% | 136 | 93% | 125 | 0% | 226 | 0% | 101 | 81% |
| FULLERTON | 1,311 | 2% | 1,865 | 2% | 553 | 42% | 1,166 | 2% | 1,738 | 2% | 572 | 49% |
| GLENDALE | 1,847 | 3% | 1,666 | 2% | (180) | -10% | 1,487 | 2% | 1,362 | 2% | (124) | -8% |
| INDUSTRY | 169 | 0% | 264 | 0% | 95 | 56% | 167 | 0% | 262 | 0% | 95 | 57% |
| IRVINE | 479 | 1% | 792 | 1% | 313 | 65% | 387 | 1% | 728 | 1% | 341 | 88% |
| LAGUNA NIGUEL/MISSION VIEJO | 76 | 0% | 203 | 0% | 127 | 167% | 72 | 0% | 201 | 0% | 129 | 180% |
| LANCASTER | 809 | 1% | 2,260 | 3% | 1,451 | 179% | 809 | 1% | 2,244 | 3% | 1,435 | 177% |
| MONTCLAIR | 55 | 0% | 204 | 0% | 149 | 270% | 37 | 0% | 165 | 0% | 129 | 352% |
| MONTEBELLO/COMMERCE | 928 | 1% | 1,353 | 2% | 425 | 46% | 884 | 1% | 1,329 | 2% | 445 | 50% |
| MOORPARK | 25 | 0% | 88 | 0% | 63 | 254% | 25 | 0% | 86 | 0% | 61 | 248% |
| NEWHALL | 171 | 0% | 357 | 0% | 186 | 109% | 160 | 0% | 318 | 0% | 158 | 99% |
| NORTH MAIN CORONA | 260 | 0% | 448 | 1% | 189 | 73% | 258 | 0% | 397 | 1% | 139 | 54% |
| NORTHRIDGE | 1,271 | 2% | 1,719 | 2% | 448 | 35% | 1,213 | 2% | 1,564 | 2% | 351 | 29% |
| NORWALK/SANTA FE SPRINGS | 1,502 | 2% | 2,107 | 3% | 606 | 40% | 1,489 | 2% | 2,089 | 3% | 600 | 40% |
| ORANGE | 1,038 | 1% | 1,835 | 2% | 796 | 77% | 872 | 1% | 1,678 | 2% | 806 | 92% |
| OXNARD | 22 | 0% | 89 | 0% | 67 | 310% | 20 | 0% | 72 | 0% | 52 | 262% |
| PALMDALE | 240 | 0% | 564 | 1% | 323 | 135% | 240 | 0% | 562 | 1% | 322 | 134% |
| PEDLEY | 6 | 0% | 28 | 0% | 22 | 359% | 6 | 0% | 27 | 0% | 21 | 354% |
| POMONA NORTH | 232 | 0% | 645 | 1% | 413 | 178% | 214 | 0% | 610 | 1% | 396 | 185% |
| RANCHO CUCAMONGA | 65 | 0% | 242 | 0% | 177 | 270% | 62 | 0% | 227 | 0% | 165 | 268% |
| Remaining Work | 11,367 | 16% | 15,184 | 18% | 3,818 | 34% | 10,794 | 17% | 14,761 | 19% | 3,968 | 37% |
| RIALTO | 89 | 0% | 154 | 0% | 65 | 73% | 87 | 0% | 138 | 0% | 52 | 60% |
| RIVERSIDE-DOWNTOWN | 55 | 0% | 271 | 0% | 216 | 396% | 55 | 0% | 261 | 0% | 206 | 378% |
| RIVERSIDE-LA SIERRA | 128 | 0% | 241 | 0% | 114 | 89% | 127 | 0% | 231 | 0% | 104 | 82% |
| SAN BERNARDINO | 304 | 0% | 589 | 1% | 285 | 94% | 299 | 0% | 545 | 1% | 246 | 82% |
| SAN CLEMENTE | 22 | 0% | 160 | 0% | 137 | 615% | 21 | 0% | 151 | 0% | 130 | 617% |
| SAN JUAN CAPISTRANO | 67 | 0% | 173 | 0% | 105 | 156% | 54 | 0% | 161 | 0% | 107 | 199% |
| SANTA ANA | 2,086 | 3% | 2,913 | 4% | 827 | 40% | 1,742 | 3% | 2,738 | 4% | 996 | 57% |
| SANTA CLARITA | 325 | 0% | 819 | 1% | 493 | 152% | 321 | 0% | 772 | 1% | 451 | 140% |
| SIMI VALLEY | 141 | 0% | 608 | 1% | 467 | 331% | 137 | 0% | 560 | 1% | 423 | 309% |
| SUN VALLEY | 319 | 0% | 349 | 0% | 30 | 9% | 301 | 0% | 323 | 0% | 22 | 7% |
| SYLMAR/SAN FERNANDO | 840 | 1% | 1,966 | 2% | 1,126 | 134% | 821 | 1% | 1,867 | 2% | 1,046 | 128% |
| TUSTIN | 848 | 1% | 1,469 | 2% | 621 | 73% | 764 | 1% | 1,413 | 2% | 649 | 85% |
| UNION STATION | 24,238 | 34% | 18,763 | 23% | (5,474) | -23% | 22,155 | 34% | 17,283 | 22% | (4,871) | -22% |
| UNION STATION - CBD | 6,410 | 9% | 4,637 | 6% | (1,773) | -28% | 5,415 | 8% | 3,634 | 5% | (1,781) | -33% |
| UPLAND | 61 | 0% | 368 | 0% | 306 | 499% | 51 | 0% | 334 | 0% | 282 | 549% |
| VAN NUYS | 2,991 | 4% | 3,819 | 5% | 828 | 28% | 2,816 | 4% | 3,503 | 5% | 687 | 24% |
| VIA PRINCESSA | 155 | 0% | 307 | 0% | 152 | 98% | 152 | 0% | 283 | 0% | 131 | 86% |
| VINCENT GRADE/ACTON | - | 0% | - | 0% | - | NA | - | 0% | - | 0% | - | NA |
| WEST CORONA | - | 0% | - | 0% | - | NA | - | 0% | - | 0% | - | NA |

## 5.6.2 Attachment B: Home Catchment Areas

### Attachment B: Home Catchment Areas – Commuter Rail Trips (2010 and 2035)

| | All Trip Purposes | | | | | | Home Based Work Trip Purposes | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Home Origin Catchment Area Desription | 2010 Commuter Rail Daily Trips from home areas (Top 10 highlighted) | Percent of all trips | 2035 Commuter Rail Daily Trips from home areas (Top 10 highlighted) | Percent of all trips | Change in Commuter Rail Daily Trips 2035-2010 (Top 10 highlighted) | Percentage growth or decline between 2010 and 2035 (Top 10 highlighted) | 2010 Commuter Rail Daily Trips from home areas (Top 10 highlighted) | Percent of all trips | 2035 Commuter Rail Daily Trips from home areas (Top 10 highlighted) | Percent of all trips | Change in Commuter Rail Daily Trips 2035-2010 (Top 10 highlighted) | Percentage growth or decline between 2010 and 2035 (Top 10 highlighted) |
| Anaheim | 911 | 1% | 453 | 1% | (458) | -50% | 878 | 1% | 393 | 1% | (484) | -55% |
| Anaheim Canyon | 85 | 0% | 47 | 0% | (37) | -44% | 72 | 0% | 37 | 0% | (36) | -49% |
| Baldwin Park | 1,092 | 2% | 1,440 | 2% | 348 | 32% | 947 | 1% | 1,340 | 2% | 393 | 41% |
| Burbank | 667 | 1% | 945 | 1% | 278 | 42% | 566 | 1% | 803 | 1% | 237 | 42% |
| Burbank Airport | 578 | 1% | 899 | 1% | 321 | 55% | 510 | 1% | 818 | 1% | 308 | 60% |
| Cal State LA | 1,353 | 2% | 2,179 | 3% | 826 | 61% | 1,258 | 2% | 2,019 | 3% | 761 | 61% |
| Camarillo | 270 | 0% | 157 | 0% | (113) | -42% | 241 | 0% | 138 | 0% | (102) | -43% |
| Chatsworth | 1,010 | 1% | 1,108 | 1% | 98 | 10% | 867 | 1% | 996 | 1% | 129 | 15% |
| Claremont | 609 | 1% | 581 | 1% | (28) | -5% | 548 | 1% | 554 | 1% | 7 | 1% |
| Covina | 1,038 | 1% | 1,161 | 1% | 123 | 12% | 903 | 1% | 1,082 | 1% | 179 | 20% |
| East Ontario | 356 | 0% | 415 | 0% | 59 | 17% | 287 | 0% | 395 | 1% | 108 | 37% |
| El Monte | 1,602 | 2% | 2,128 | 3% | 526 | 33% | 1,422 | 2% | 1,944 | 3% | 522 | 37% |
| Fontana | 1,561 | 2% | 1,973 | 2% | 413 | 26% | 1,431 | 2% | 1,936 | 3% | 506 | 35% |
| Fullerton/Buena Park | 3,379 | 5% | 2,322 | 3% | (1,057) | -31% | 3,187 | 5% | 2,088 | 3% | (1,099) | -34% |
| Glendale | 1,790 | 3% | 2,578 | 3% | 788 | 44% | 1,610 | 2% | 2,327 | 3% | 717 | 45% |
| High Desert | - | 0% | - | 0% | - | NA | - | 0% | - | 0% | - | NA |
| Industry | 1,141 | 2% | 939 | 1% | (202) | -18% | 982 | 2% | 870 | 1% | (112) | -11% |
| Irvine | 1,283 | 2% | 459 | 1% | (824) | -64% | 1,176 | 2% | 380 | 0% | (796) | -68% |
| Laguna Niguel/Mission Viejo | 502 | 1% | 175 | 0% | (327) | -65% | 477 | 1% | 152 | 0% | (325) | -68% |
| Lancaster | 1,025 | 1% | 1,631 | 2% | 606 | 59% | 991 | 2% | 1,565 | 2% | 575 | 58% |
| Montalvo | 670 | 1% | 464 | 1% | (206) | -31% | 595 | 1% | 416 | 1% | (179) | -30% |
| Montclair | 1,009 | 1% | 1,526 | 2% | 517 | 51% | 917 | 1% | 1,490 | 2% | 573 | 62% |
| Montebello/Commerce | 660 | 1% | 1,542 | 2% | 882 | 134% | 596 | 1% | 1,431 | 2% | 835 | 140% |
| Moorpark | 578 | 1% | 384 | 0% | (193) | -33% | 517 | 1% | 341 | 0% | (176) | -34% |
| New Hall | 592 | 1% | 659 | 1% | 67 | 11% | 523 | 1% | 541 | 1% | 18 | 3% |
| North Main Corona | 620 | 1% | 975 | 1% | 355 | 57% | 613 | 1% | 941 | 1% | 329 | 54% |
| Northridge | 1,845 | 3% | 2,107 | 3% | 263 | 14% | 1,672 | 3% | 1,969 | 3% | 297 | 18% |
| Norwalk | 1,899 | 3% | 3,553 | 4% | 1,654 | 87% | 1,640 | 3% | 3,111 | 4% | 1,471 | 90% |
| Orange | 1,539 | 2% | 777 | 1% | (762) | -50% | 1,447 | 2% | 690 | 1% | (758) | -52% |
| Oxnard | 1,921 | 3% | 1,421 | 2% | (500) | -26% | 1,811 | 3% | 1,351 | 2% | (459) | -25% |
| Palmdale | 477 | 1% | 683 | 1% | 206 | 43% | 470 | 1% | 667 | 1% | 197 | 42% |
| Pedley | 254 | 0% | 358 | 0% | 104 | 41% | 238 | 0% | 343 | 0% | 106 | 45% |
| Pomona | 1,594 | 2% | 1,728 | 2% | 135 | 8% | 1,446 | 2% | 1,670 | 2% | 223 | 15% |
| Princessa | 722 | 1% | 733 | 1% | 10 | 1% | 648 | 1% | 639 | 1% | (9) | -1% |
| Rancho Cucamonga | 734 | 1% | 963 | 1% | 230 | 31% | 633 | 1% | 924 | 1% | 291 | 46% |
| Remaining Home | 8,787 | 12% | 12,912 | 16% | 4,125 | 47% | 7,938 | 12% | 11,973 | 16% | 4,035 | 51% |
| Rialto | 1,170 | 2% | 1,575 | 2% | 404 | 35% | 1,090 | 2% | 1,546 | 2% | 456 | 42% |
| Riverside Downtown | 1,798 | 3% | 2,820 | 3% | 1,022 | 57% | 1,705 | 3% | 2,717 | 4% | 1,012 | 59% |
| Riverside-La Sierra | 882 | 1% | 1,459 | 2% | 576 | 65% | 869 | 1% | 1,420 | 2% | 551 | 63% |
| San Bernardino | 4,221 | 6% | 4,870 | 6% | 649 | 15% | 3,866 | 6% | 4,749 | 6% | 884 | 23% |
| San Clemente | 323 | 0% | 142 | 0% | (181) | -56% | 303 | 0% | 126 | 0% | (177) | -59% |
| San Juan Capistrano | 179 | 0% | 64 | 0% | (115) | -64% | 169 | 0% | 51 | 0% | (118) | -70% |
| Santa Ana | 4,110 | 6% | 1,970 | 2% | (2,140) | -52% | 3,912 | 6% | 1,811 | 2% | (2,101) | -54% |
| Santa Clarita | 386 | 1% | 394 | 0% | 9 | 2% | 334 | 1% | 320 | 0% | (14) | -4% |
| Simi Valley | 838 | 1% | 742 | 1% | (97) | -12% | 746 | 1% | 662 | 1% | (84) | -11% |
| Sun Valley | 463 | 1% | 810 | 1% | 347 | 75% | 406 | 1% | 741 | 1% | 335 | 83% |
| Sylmar/San Fernando | 1,078 | 2% | 2,066 | 2% | 988 | 92% | 1,002 | 2% | 1,969 | 3% | 967 | 96% |
| Tustin | 1,361 | 2% | 405 | 0% | (956) | -70% | 1,278 | 2% | 329 | 0% | (950) | -74% |
| Union Station | 5,027 | 7% | 6,772 | 8% | 1,746 | 35% | 4,438 | 7% | 6,014 | 8% | 1,576 | 36% |
| Upland | 1,497 | 2% | 1,801 | 2% | 304 | 20% | 1,359 | 2% | 1,763 | 2% | 404 | 30% |
| Van Nuys | 3,578 | 5% | 4,521 | 5% | 943 | 26% | 3,324 | 5% | 4,308 | 6% | 985 | 30% |
| Vincent Grade/Acton | 19 | 0% | 30 | 0% | 12 | 64% | 18 | 0% | 30 | 0% | 12 | 63% |
| West Corona | 203 | 0% | 341 | 0% | 138 | 68% | 197 | 0% | 322 | 0% | 125 | 63% |

### 5.6.3 Attachment C: Top 10 Commuter Rail Trips Origins/Dest. (2010-2035)

**Table C.1: Top 10 Origin / Destinations – All Purposes, Commuter Rail (2010)**

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips (CBD) | Average daily trips to Union Station – non-CBD | From station area to station area (non-CBD) | Average daily trips |
|---|---|---|---|---|
| **Santa Ana** | 427 | 1,944 | San Bernardino to El Monte | 209 |
| **San Bernardino** | 398 | 1,754 | Van Nuys to Cal State LA | 201 |
| **Fullerton/Buena Park** | 317 | 1,555 | Santa Ana to Norwalk/Santa Fe Springs | 198 |
| **Orange** | 154 | 708 | Cal State LA to Van Nuys | 190 |
| **Oxnard** | 220 | 696 | San Bernardino to Cal State LA | 189 |
| **Fontana** | 111 | 692 | Van Nuys to Glendale | 169 |
| **Downtown Pomona/Pomona (North)** | 105 | 686 | Oxnard to Van Nuys | 160 |
| **Norwalk** | 194 | 682 | Santa Ana to Cal State LA | 157 |
| **Upland** | 107 | 671 | San Bernardino to Covina | 153 |
| **Northridge** | 181 | 645 | Riverside Downtown to Santa Ana | 144 |

**Table C.2: Top 10 Origin / Destinations – All Purposes, Commuter Rail (2035)**

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips (CBD) | Average daily trips to Union Station – non-CBD | From station area to station area (non-CBD) | Average daily trips |
|---|---|---|---|---|
| **San Bernardino** | 296 | 1,364 | Riverside Downtown to Santa Ana | 443 |
| **Norwalk** | 341 | 1,337 | Riverside La Sierra to Santa Ana | 286 |
| **Van Nuys** | 249 | 1,064 | Riverside Downtown to Orange | 251 |
| **Fullerton/Buena Park** | 209 | 717 | Riverside Downtown to Fullerton/Buena Park | 249 |
| **Fontana** | 89 | 647 | San Bernardino to El Monte | 247 |
| **Upland** | 79 | 643 | Cal State LA to Van Nuys | 236 |
| **Santa Ana** | 187 | 631 | San Bernardino to Cal State LA | 228 |
| **Lancaster** | 118 | 583 | San Bernardino to Covina | 205 |
| **Sylmar/San Fernando** | 148 | 570 | Van Nuys to Norwalk/Santa Fe Springs | 201 |
| **Downtown Pomona/Pomona (North)** | 76 | 557 | Riverside Downtown to Tustin | 195 |

### Table C.3: Top 10 Origin / Destinations – Home-Based Work, Commuter Rail (2010)

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips (CBD) | Average daily trips (larger area) | From station area to station area (non-CBD) | Average daily trips |
|---|---|---|---|---|
| **Santa Ana** | 393 | 1,819 | Santa Ana to Norwalk/Santa Fe Springs | 196 |
| **San Bernardino** | 365 | 1,586 | San Bernardino to El Monte | 188 |
| **Fullerton/Buena Park** | 283 | 1,464 | Cal State LA to Van Nuys | 180 |
| **Van Nuys** | 218 | 1,048 | San Bernardino to Cal State LA | 170 |
| **Oxnard** | 204 | 664 | Van Nuys to El Monte | 155 |
| **Orange** | 139 | 649 | Santa Ana to Cal State LA | 152 |
| **Fontana** | 101 | 625 | Oxnard to Van Nuys | 149 |
| **Downtown Pomona/Pomona (North)** | 93 | 608 | San Bernardino to Covina | 142 |
| **Upland** | 97 | 599 | Riverside Downtown to Santa Ana | 141 |
| **Northridge** | 146 | 584 | Riverside to Santa Ana | 140 |

### Table C.4: Top 10 Origin / Destinations – Home-Based Work, Commuter Rail (2035)

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips (CBD) | Average daily trips (larger area) | From station area to station area (non-CBD) | Average daily trips |
|---|---|---|---|---|
| **San Bernardino** | 278 | 1,325 | Riverside Downtown to Santa Ana | 433 |
| **Norwalk** | 189 | 1,170 | Riverside La Sierra to Santa Ana | 281 |
| **Van Nuys** | 181 | 998 | Riverside Downtown to Orange | 238 |
| **Fullerton/Buena Park** | 143 | 634 | Riverside Downtown to Fullerton/Buena Park | 236 |
| **Fontana** | 85 | 632 | San Bernardino to El Monte | 235 |
| **Upland** | 76 | 627 | San Bernardino to Cal State LA | 220 |
| **Northridge** | 121 | 579 | Cal State LA to Van Nuys | 210 |
| **Santa Ana** | 149 | 557 | Van Nuys to Norwalk/Santa Fe Springs | 200 |
| **Sylmar/San Fernando** | 122 | 539 | Riverside Downtown to Tustin | 194 |
| **Downtown Pomona/Pomona (North)** | 67 | 535 | Van Nuys to Cal State LA | 193 |

### Table C.5: Top 10 Origin / Destinations Growth – All Purposes, Commuter Rail (2010 and 2035)

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips growth (CBD) | % growth of trips to CBD | Average daily trips growth (larger area) | Average daily trips growth (larger area) | From station area to station area (non-CBD) | Average daily trip growth | Percentage growth |
|---|---|---|---|---|---|---|---|
| **Norwalk** | 147 | 76% | 655 | 96% | Riverside Downtown to Santa Ana | 299 | 467% |
| **Sylmar** | 9 | 6% | 199 | 54% | Riverside La Sierra to Santa Ana | 205 | 252% |
| **Montebello/Commerce** | 26 | 68% | 176 | 118% | Riverside Downtown to Orange | 178 | 242% |
| **Lancaster** | 11 | 10% | 155 | 36% | Riverside Downtown to Fullerton | 176 | 239% |
| **Montclair** | -5 | -9% | 88 | 22% | North Main Corona to Santa Ana | 143 | 262% |
| **Palmdale** | 0 | 1% | 65 | 28% | Riverside Downtown to Tustin | 135 | 228% |
| **Glendale** | -6 | -4% | 49 | 13% | Riverside La Sierra to Fullerton | 121 | 296% |
| **Burbank** | -1 | 10% | 31 | 16% | Van Nuys to Lancaster | 111 | 198% |
| **Sun Valley** | 0 | 0% | 22 | 19% | Glendale to Lancaster | 107 | 120% |
| **Newhall** | -7 | -10% | 20 | 8% | Riverside Downtown to Buena Park | 104 | 188% |

### Table C.6: Top 10 Origin / Destinations Decline – All Purposes, Commuter Rail (2010 and 2035)

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips growth (CBD) | % decline of trips to CBD | Average daily trips decline (larger area) | Average daily trips decline (larger area) | From station area to station area (non-CBD) | Average daily trip decline | Percentage decline |
|---|---|---|---|---|---|---|---|
| **Santa Ana** | -240 | -56% | -1,313 | -68% | Santa Ana to Glendale | -105 | -84% |
| **Fullerton/Buena Park** | -107 | -34 | -838 | -54% | Santa Ana to Cal State LA | -101 | -64% |
| **Tustin** | -103 | -64% | -461 | -74% | Fullerton/Buena Park to Glendale | -72 | -67% |
| **Orange** | -71 | -46% | -448 | -63% | Fullerton/Buena Park to Van Nuys | -71 | -68% |
| **Irvine** | -123 | -66% | -393 | -73% | Santa Ana to El Monte | -69 | -72% |
| **San Bernardino** | -102 | -26% | -390 | -22% | Santa Ana to Norwalk/Santa Fe Springs | -69 | -35% |
| **Industry** | -86 | -53% | -245 | -41% | Irvine to Norwalk/Santa Fe Springs | -52 | -75% |
| **Riverside La Sierra** | -89 | -84% | -234 | -86% | Santa Ana to Van Nuys | -52 | -81% |
| **Riverside Downtown** | -102 | -38% | -220 | -43% | Fullerton/Buena Park to El Monte | -45 | -65% |
| **North Main Corona** | -64 | -82% | -186 | -86% | Oxnard to Van Nuys | -38 | -24% |

### Table C.7: Top 10 Origin / Destinations Growth – Home-Based Work, Commuter Rail (2010-2035)

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips (CBD) | % growth of trips to CBD | Average daily trips (larger area) | Average daily trips (larger area) | From station area to station area (non-CBD) | Average daily trips | Percentage growth |
|---|---|---|---|---|---|---|---|
| **Norwalk** | 81 | 77% | 539 | 85% | Riverside Downtown to Santa Ana | 292 | 207% |
| **Sylmar/San Fernando** | 8 | 7% | 192 | 55% | Riverside La Sierra to Santa Ana | 201 | 254% |
| **Montebello/Commerce** | 17 | 54% | 167 | 115% | Riverside Downtown to Orange | 167 | 236% |
| **Lancaster** | 8 | 8% | 144 | 35% | Riverside Downtown to Fullerton | 164 | 226% |
| **Montclair** | -1 | -2% | 119 | 34% | North Main Corona to Santa Ana | 141 | 273% |
| **Palmdale** | 0 | 0% | 60 | 27% | Riverside Downtown to Tustin | 134 | 226% |
| **Rancho Cucamonga** | -10 | -18% | 46 | 16% | Riverside La Sierra to Fullerton | 114 | 284% |
| **Upland** | -21 | -22% | 28 | 5% | Van Nuys to Lancaster | 111 | 197% |
| **Glendale** | -14 | -16% | 23 | 7% | Glendale to Lancaster | 106 | 119% |
| **Sun Valley** | -3 | -8% | 19 | 18% | Riverside La Sierra to Tustin | 90 | 288% |

### Table C.8: Top 10 Origin / Destinations Decline – Home-Based Work, Commuter Rail (2010-2035)

| To Union Station (CBD) and Larger Union Station area from: | Average daily trips (CBD) | % growth of trips to CBD | Average daily trips (larger area) | Average daily trips (larger area) | From station area to station area (non-CBD) | Average daily trips | Percentage decline |
|---|---|---|---|---|---|---|---|
| **Santa Ana** | -243 | -62% | -1,263 | -69% | Santa Ana to Glendale | -101 | -78% |
| **Fullerton/Buena Park** | -140 | -49% | -830 | -57% | Santa Ana to Cal State LA | -99 | -65% |
| **Tustin** | -103 | -70 | -448 | -79% | Fullerton/Buena Park to Van Nuys | -71 | -68% |
| **Orange** | -82 | -59% | -426 | -66% | Fullerton/Buena Park to Glendale | -70 | -68% |
| **Irvine** | -117 | -70% | -365 | -75% | Santa Ana to El Monte | -69 | -73% |
| **Anaheim** | -52 | -65% | -303 | -74% | Santa Ana to Norwalk/Santa Fe Springs | -68 | -35% |
| **San Bernardino** | -86 | -24% | -261 | -16% | Tustin to Norwalk/Santa Fe Springs | -67 | -81% |
| **Riverside La Sierra** | -87 | -84% | -229 | -86% | Santa Ana to Burbank Airport | -61 | -78% |
| **Riverside Downtown** | -94 | -37% | -196 | -41% | Fullerton/Buena Park to Burbank Airport | -61 | -158% |
| **Industry** | -63 | -49% | -194 | -37% | Santa Ana to Burbank | -58 | -79% |

## 5.6.4 Attachment D: Change in Trips from Station Home-Destination Areas

### Attachment D: Projected Change in Commuter Rail Trips from Station Home Areas to Station Destination Areas – All Trips (2010 to 2035)

| Description | **Total** | UNION STATION - CBD | UNION STATION | CBD US + CBD | SANTA ANA | ORANGE | ANAHEIM | ANAHEIM CANYON | BALDWIN PARK | BUENA PARK | BURBANK | BURBANK AIRPORT | CAL STATE LA | CAMARILLO | CHATSWORTH | CLAREMONT | COVINA | EAST ONTARIO | EL MONTE | FONTANA | FULLERTON | GLENDALE | INDUSTRY | IRVINE | LAGUNA NIGUEL/MISSION VIEJO | LANCASTER | MONTCLAIR | MONTEBELLO/COMMERCE | MOORPARK | NEWHALL | NORTH MAIN CORONA | NORTHRIDGE | NORWALK/SANTA FE SPRINGS | OXNARD | PALMDALE | PEDLEY | POMONA NORTH | RANCHO CUCAMONGA | RIALTO | RIVERSIDE-DOWNTOWN | RIVERSIDE-LA SIERRA | SAN BERNARDINO | SAN CLEMENTE | SAN JUAN CAPISTRANO | SANTA CLARITA | SIMI VALLEY | SUN VALLEY | SYLMAR/SAN FERNANDO | TUSTIN | UPLAND | VAN NUYS | VIA PRINCESSA | VINCENT GRADE/ACTON | WEST CORONA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | 4,628 | -1,773 | -5,474 | -7,247 | 827 | 796 | 224 | 187 | 464 | 560 | -42 | -75 | -61 | 0 | 773 | 204 | 593 | 136 | 211 | 136 | 553 | -180 | 95 | 313 | 127 | 1,451 | 149 | 425 | 63 | 186 | 189 | 448 | 606 | 67 | 323 | 22 | 413 | 177 | 65 | 216 | 114 | 285 | 137 | 105 | 493 | 467 | 30 | 1,126 | 621 | 306 | 828 | 152 | 0 | 0 |
| Montalvo | -294 | -25 | -64 | -88 | -7 | -3 | -3 | 0 | -1 | -2 | -6 | -6 | -4 | 0 | -8 | 0 | 0 | 0 | -1 | 0 | -4 | -7 | -1 | -1 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | -4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 1 | -3 | -10 | -2 | 0 | -18 | 0 | 0 | 0 |
| Oxnard | -743 | -59 | -185 | -244 | -11 | -2 | -4 | -1 | -3 | -3 | -14 | -12 | -8 | 0 | -19 | 0 | 1 | 0 | -4 | 0 | -7 | -18 | -2 | -2 | 0 | 0 | 0 | -3 | 1 | -1 | 0 | -8 | -4 | 1 | 0 | 0 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | 2 | -6 | -20 | -3 | 0 | -38 | -1 | 0 | 0 |
| Camarillo | -180 | -17 | -49 | -67 | -1 | -1 | -1 | 0 | -1 | -1 | -3 | -3 | -2 | 0 | -3 | 0 | 0 | 0 | -1 | 0 | -1 | -4 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | -2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -3 | -1 | 0 | -5 | 0 | 0 | 0 |
| Moorpark | -303 | -29 | -81 | -110 | -4 | -2 | -2 | 0 | -2 | -1 | -4 | -3 | -6 | 0 | -4 | 0 | 0 | 0 | -4 | 0 | -2 | -7 | 0 | -1 | 0 | 0 | 0 | -2 | 0 | 0 | 0 | -2 | -1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | -1 | -3 | -1 | 0 | -8 | 0 | 0 | 0 |
| Simi Valley | -145 | -15 | -33 | -48 | -5 | -2 | -3 | -1 | -1 | 0 | -2 | 0 | -7 | 0 | -1 | 0 | 0 | 0 | -4 | 0 | -4 | -3 | -1 | -1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | 0 | -2 | 0 | 0 | 0 |
| Chatsworth | 77 | -18 | -2 | -20 | -4 | -2 | -2 | 0 | 2 | 0 | -1 | 0 | -2 | 0 | 0 | 1 | 7 | 1 | -3 | 0 | -2 | -1 | 0 | -1 | 0 | 13 | 1 | 9 | 1 | 0 | 0 | 0 | 13 | 4 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | -3 | 1 | 3 | 0 | 0 | 0 |
| Northridge | 214 | -30 | -18 | -48 | -7 | -2 | -4 | 0 | 5 | 1 | -3 | 0 | -2 | 0 | 5 | 3 | 18 | 1 | -3 | 1 | -4 | -3 | 1 | -2 | 0 | 38 | 3 | 23 | 3 | 0 | 0 | 0 | 27 | 9 | 7 | 0 | 3 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 6 | 22 | 1 | 2 | -3 | 3 | 5 | 1 | 0 | 0 |
| Van Nuys | 833 | -44 | -66 | -110 | -14 | -2 | -9 | -1 | 19 | 10 | -6 | 0 | 1 | 0 | 27 | 14 | 55 | 5 | 2 | 5 | -9 | -7 | 2 | -4 | 0 | 111 | 10 | 68 | 6 | 2 | -2 | 20 | 93 | 12 | 21 | 0 | 18 | 10 | 2 | 1 | 0 | 4 | 0 | 0 | 9 | 46 | 0 | 1 | -6 | 16 | 0 | 3 | 0 | 0 |
| Burbank Airport | 320 | -1 | 0 | -1 | -11 | -3 | -5 | -1 | 16 | 7 | 0 | 0 | 8 | 0 | 7 | 6 | 16 | 2 | 20 | 1 | -5 | 8 | 0 | -2 | 0 | 44 | 3 | 9 | 2 | 7 | -2 | 8 | 22 | 2 | 12 | 0 | 10 | 4 | 1 | 1 | 0 | 1 | 0 | 0 | 19 | 13 | 0 | 3 | -4 | 6 | 2 | 7 | 0 | 0 |
| Burbank | 318 | 9 | 31 | 40 | -7 | -1 | -2 | 0 | 2 | 1 | 1 | 1 | 4 | 0 | 19 | 1 | 8 | 1 | 2 | 0 | -3 | 6 | 0 | -1 | 0 | 25 | 1 | 6 | 1 | 5 | -1 | 13 | 8 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 13 | 8 | 1 | 11 | -2 | 1 | 20 | 4 | 0 | 0 |
| Glendale | 831 | -6 | 49 | 43 | -20 | -4 | -10 | -2 | 6 | 1 | 4 | -3 | 10 | 0 | 61 | 3 | 13 | 2 | 14 | 1 | -10 | 3 | 2 | -2 | -1 | 107 | 2 | 16 | 3 | 9 | -3 | 31 | 19 | 3 | 24 | 0 | 3 | 2 | 1 | 2 | -1 | 0 | 0 | 0 | 30 | 22 | 2 | 79 | -8 | 2 | 84 | 8 | 0 | 0 |
| Lancaster | 772 | 11 | 155 | 166 | 1 | 2 | 1 | 0 | 9 | 3 | 17 | 21 | 17 | 0 | 21 | 2 | 13 | 1 | 9 | 1 | 2 | 31 | 5 | 0 | 0 | 0 | 3 | 11 | 0 | 3 | 0 | 10 | 13 | 0 | 1 | 0 | 4 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 9 | 3 | 9 | 27 | 1 | 2 | 34 | 3 | 0 | 0 |
| Palmdale | 272 | 0 | 65 | 66 | 0 | 1 | 1 | 0 | 2 | 1 | 6 | 7 | 5 | 0 | 3 | 1 | 3 | 0 | 4 | 1 | 1 | 11 | 2 | 0 | 0 | 0 | 1 | 5 | 0 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 8 | 0 | 1 | 11 | 1 | 0 | 0 |
| Vincent Grade/Acto | 16 | 0 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Princessa | -19 | -15 | -14 | -29 | -2 | -1 | -1 | 0 | -1 | -1 | 0 | 2 | -4 | 0 | 2 | 0 | 1 | 0 | -4 | 0 | -1 | 1 | 0 | -1 | 0 | 29 | 0 | -1 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | -2 | 0 | 4 | 0 | 0 | 0 |
| Santa Clarita | 4 | -6 | 1 | -5 | -1 | -1 | -1 | 0 | -1 | 0 | 1 | 3 | -1 | 0 | 0 | 0 | 0 | 0 | -2 | 0 | -1 | 2 | 0 | 0 | 0 | 11 | 0 | -1 | 0 | 0 | 0 | 0 | -1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | -1 | 0 | 2 | 0 | 0 | 0 |
| New Hall | 80 | -7 | 20 | 13 | -2 | -1 | -1 | 0 | 0 | 0 | 1 | 2 | -2 | 0 | 1 | 0 | 1 | 0 | -2 | 0 | -1 | 3 | 0 | 0 | 0 | 16 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 3 | -1 | 0 | 4 | 0 | 0 | 0 |
| Sylmar/San Fernan | 1,196 | 9 | 199 | 208 | -6 | -1 | -3 | 0 | 10 | 6 | 10 | 2 | 22 | 0 | 4 | 4 | 23 | 1 | 15 | 2 | -3 | 32 | 4 | -2 | 0 | 99 | 3 | 34 | 2 | 7 | 0 | 5 | 48 | 4 | 28 | 0 | 5 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 16 | 11 | 2 | 2 | -2 | 4 | 2 | 5 | 0 | 0 |
| Sun Valley | 369 | 0 | 22 | 22 | -4 | 1 | -1 | 0 | 8 | 4 | 0 | 0 | 11 | 0 | 4 | 3 | 12 | 1 | 11 | 1 | 0 | 7 | 0 | -1 | 0 | 43 | 2 | 13 | 1 | 4 | 0 | 3 | 22 | 2 | 9 | 0 | 5 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 12 | 8 | 0 | 2 | -1 | 4 | 0 | 4 | 0 | 0 |
| **Riverside Down** | 701 | -102 | -220 | -321 | 299 | 178 | 89 | 48 | 4 | 104 | -2 | -2 | 1 | 0 | 0 | -1 | 9 | 0 | 1 | 1 | 176 | -5 | 0 | 34 | 12 | 0 | 1 | 4 | 0 | 0 | 20 | 0 | 27 | 0 | 0 | 0 | -5 | 1 | 0 | 0 | 2 | 5 | 10 | 11 | 0 | 0 | 0 | 0 | 135 | 1 | 0 | 0 | 0 | 0 |
| **San Bernardino** | 157 | -102 | -390 | -492 | 95 | 88 | 29 | 30 | 39 | 29 | 10 | 1 | 38 | 0 | 9 | 8 | 52 | 7 | 38 | 5 | 76 | 18 | 34 | 20 | 4 | 4 | 4 | 57 | 0 | 1 | 11 | 4 | 87 | 0 | 0 | 0 | 33 | 7 | 3 | 1 | 2 | 14 | 1 | 2 | 1 | 0 | 1 | 3 | 69 | 11 | 4 | 0 | 0 | 0 |
| Fontana | 345 | -23 | -45 | -68 | 5 | 9 | 1 | 3 | 15 | 8 | 9 | 10 | 20 | 0 | 6 | 3 | 24 | 2 | 17 | 0 | 5 | 16 | 12 | 1 | 0 | 4 | 1 | 36 | 0 | 0 | 1 | 5 | 44 | 0 | 0 | 0 | 11 | 2 | 0 | 0 | 0 | 9 | 0 | 0 | 1 | 0 | 2 | 5 | 2 | 4 | 11 | 1 | 0 | 0 |
| **Rancho Cucam** | 224 | -14 | 8 | -6 | 2 | 1 | 1 | 0 | 8 | 4 | 5 | 5 | 9 | 0 | 6 | 1 | 9 | 0 | 9 | 1 | 1 | 11 | 3 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 4 | 17 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 8 | 0 | 0 | 0 |
| Upland | 247 | -28 | -29 | -57 | 4 | 1 | 1 | 0 | 13 | 7 | 9 | 7 | 9 | 0 | 10 | 1 | 17 | 0 | 10 | 3 | 1 | 18 | 2 | 1 | 0 | 2 | 0 | 17 | 0 | 1 | 0 | 5 | 27 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 3 | 6 | 1 | 0 | 12 | 0 | 0 | 0 |
| Montclair | 601 | -5 | 88 | 83 | 4 | 1 | 1 | 0 | 12 | 7 | 11 | 8 | 14 | 0 | 10 | 0 | 12 | 1 | 13 | 5 | 0 | 21 | 2 | 1 | 0 | 1 | 0 | 24 | 0 | 1 | 0 | 6 | 31 | 0 | -1 | 0 | 1 | 1 | 3 | 0 | 0 | 11 | 0 | 0 | 1 | 0 | 3 | 7 | 1 | 0 | 15 | 0 | 0 | 0 |
| Claremont | -97 | -13 | -55 | -69 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | -2 | 0 | 2 | 0 | 1 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 0 |
| **Pomona** | -24 | -29 | -129 | -159 | 3 | 1 | 1 | 0 | 10 | 3 | 4 | 2 | 8 | 0 | 7 | 0 | 7 | 1 | 14 | 7 | 0 | 7 | 1 | 1 | 0 | 2 | 1 | 14 | 0 | 1 | 2 | 4 | 30 | 0 | 0 | 0 | 1 | 2 | 4 | 3 | 2 | 16 | 0 | 1 | 0 | 1 | 1 | 7 | 2 | 1 | 8 | 0 | 0 | 0 |
| **Covina** | -72 | -53 | -142 | -195 | 10 | 5 | 3 | 0 | 4 | 5 | 9 | 14 | 5 | 0 | 24 | 3 | 2 | 3 | 12 | 7 | 4 | 7 | 1 | 3 | 0 | 15 | 3 | 4 | 0 | 3 | 1 | 17 | 11 | 0 | 1 | 0 | 6 | 4 | 3 | 3 | 1 | 11 | 0 | 0 | 4 | 5 | 4 | 25 | 4 | 7 | 42 | 3 | 0 | 0 |
| Baldwin Park | 264 | -37 | -46 | -83 | 5 | 2 | 1 | 0 | 4 | 4 | 2 | 10 | 14 | 0 | 14 | 6 | 9 | 3 | 11 | 7 | 1 | 3 | 1 | 1 | 0 | 6 | 5 | 15 | 0 | 2 | 2 | 10 | 9 | 0 | -3 | 0 | 11 | 6 | 3 | 5 | 3 | 11 | 0 | 0 | 3 | 3 | 2 | 13 | 2 | 10 | 24 | 1 | 0 | 0 |
| **El Monte** | 441 | -37 | -48 | -85 | 6 | 10 | 2 | 0 | 23 | 11 | 2 | 3 | 7 | 0 | 29 | 14 | 25 | 5 | 6 | 11 | 1 | -4 | 4 | 1 | 0 | 59 | 9 | 5 | 1 | 7 | -1 | 19 | 10 | 0 | 5 | 0 | 30 | 12 | 4 | 9 | 6 | 20 | 0 | 0 | 13 | 14 | 5 | 40 | 2 | 24 | 40 | 5 | 0 | 0 |
| Cal State LA | 837 | 1 | 10 | 11 | 11 | 12 | 4 | 4 | 42 | 30 | -1 | -9 | 0 | 0 | 37 | 17 | 37 | 6 | 26 | 4 | 15 | -12 | 3 | 2 | 1 | 82 | 11 | 0 | 2 | 8 | 3 | 21 | 53 | 1 | 29 | 1 | 41 | 14 | 3 | 8 | 3 | 11 | 0 | 0 | 27 | 18 | 8 | 59 | 5 | 25 | 46 | 6 | 0 | 0 |
| Pedley | 51 | -11 | -42 | -53 | 26 | 19 | 9 | 5 | 3 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 2 | 0 | 18 | 1 | 1 | 4 | 1 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 5 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 13 | 1 | 0 | 0 | 0 | 0 |
| East Ontario | -5 | -14 | -51 | -65 | 4 | 5 | 2 | 2 | 3 | 2 | 1 | 1 | 4 | 0 | 1 | 0 | 4 | 0 | 2 | 1 | 4 | 2 | 1 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | 2 | 1 | 12 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 |
| Industry | -533 | -86 | -245 | -331 | 0 | 7 | 2 | 1 | 2 | 2 | -2 | -1 | 4 | 0 | 3 | 1 | 3 | 1 | 4 | 4 | 2 | -2 | 0 | 1 | 1 | 1 | 2 | 2 | 0 | 1 | 3 | 1 | 8 | 0 | -1 | 0 | 2 | 2 | 2 | 3 | 1 | 7 | 1 | 0 | 2 | 1 | 1 | 6 | 3 | 2 | 3 | 1 | 0 | 0 |
| Montebello/Comm | 1,085 | 26 | 176 | 203 | 80 | 46 | 28 | 11 | 13 | 35 | 5 | 6 | 4 | 0 | 10 | 6 | 14 | 4 | 4 | 2 | 51 | -3 | 3 | 14 | 5 | 17 | 3 | 0 | 1 | 3 | 10 | 6 | 25 | 0 | 6 | 1 | 19 | 6 | 2 | 7 | 3 | 4 | 1 | 1 | 12 | 5 | 7 | 35 | 33 | 11 | 20 | 2 | 0 | 0 |
| San Clemente | -244 | -19 | -43 | -63 | -7 | -5 | -4 | -2 | -2 | -6 | 0 | -1 | -6 | 0 | -1 | 0 | -1 | 0 | -3 | 0 | -8 | -2 | -1 | 1 | 0 | 0 | 0 | -8 | 0 | 0 | -2 | 0 | -24 | 0 | 0 | 0 | 0 | 0 | 0 | -2 | -3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| San Juan Capistran | -168 | -13 | -40 | -53 | 0 | -1 | -1 | -1 | -1 | -3 | -1 | -1 | -4 | 0 | -1 | 0 | 0 | 0 | -3 | 0 | -4 | -2 | 0 | 1 | 0 | 0 | 0 | -3 | 0 | 0 | -1 | 0 | -13 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Laguna Niguel/Mis | -529 | -53 | -150 | -202 | -5 | 0 | -1 | -1 | -3 | -6 | -4 | -1 | -9 | 0 | -1 | 0 | -1 | 0 | -6 | 0 | -5 | -8 | 0 | 1 | 0 | 0 | 0 | -6 | 0 | 0 | -1 | 0 | -20 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | -1 | 0 | 0 | 0 |
| Irvine | -1,339 | -123 | -393 | -515 | -3 | 0 | 0 | 1 | -7 | -13 | -10 | -8 | -28 | 0 | -3 | 0 | -3 | 0 | -17 | 0 | -8 | -21 | -1 | 2 | 0 | 0 | 0 | -15 | 0 | 0 | -2 | -2 | -52 | 0 | 0 | 0 | -1 | 0 | 0 | -3 | -3 | 0 | 4 | 2 | 0 | -1 | -1 | -1 | 3 | 0 | -4 | 0 | 0 | 0 |
| Tustin | -1,520 | -103 | -461 | -564 | 1 | 4 | 2 | 3 | -10 | -7 | -19 | -15 | -42 | 0 | -5 | 0 | -5 | 0 | -24 | 0 | -3 | -30 | -2 | 5 | 1 | 0 | 0 | -22 | 0 | 0 | 2 | -3 | -67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 1 | 6 | 4 | 0 | 0 | -4 | -2 | 2 | 0 | -14 | 0 | 0 | 0 |
| Santa Ana | -3,693 | -240 | -1,313 | -1,554 | 4 | 12 | 6 | 10 | -22 | 4 | -60 | -62 | -101 | 0 | -25 | 0 | -6 | 1 | -69 | 0 | 17 | -105 | -4 | 34 | 12 | 0 | 0 | -11 | 0 | 0 | 39 | -17 | -69 | -1 | 0 | 3 | 0 | 0 | 0 | 29 | 28 | 8 | 28 | 20 | -3 | -1 | -15 | -19 | 23 | 0 | -52 | 0 | 0 | 0 |
| Orange | -1,281 | -71 | -448 | -519 | 10 | 5 | 2 | 2 | -7 | 1 | -21 | -26 | -32 | 0 | -13 | 0 | -2 | 0 | -25 | 0 | 6 | -35 | -1 | 16 | 8 | 0 | 0 | -7 | 0 | 0 | 14 | -12 | -32 | 0 | 0 | 1 | 0 | 0 | 0 | 9 | 10 | 3 | 8 | 7 | -1 | 0 | -9 | -9 | 17 | 0 | -28 | 0 | 0 | 0 |
| **Anaheim** | -795 | -38 | -300 | -337 | 4 | 4 | 1 | 1 | -5 | 1 | -17 | -19 | -22 | 0 | -9 | 0 | -2 | 0 | -18 | 0 | 3 | -27 | -1 | 14 | 7 | 0 | 0 | 3 | 0 | 0 | 12 | -9 | -5 | -1 | 0 | 1 | 0 | 0 | 0 | 9 | 9 | 3 | 7 | 5 | -2 | -1 | -6 | -6 | 17 | 0 | -20 | 0 | 0 | 0 |
| **Fullerton** | -2,003 | -107 | -838 | -946 | 14 | 36 | 5 | 2 | -8 | 4 | -43 | -61 | -53 | 0 | -30 | 1 | 0 | 1 | -45 | 1 | 7 | -72 | -2 | 61 | 26 | 0 | 1 | 34 | 0 | -2 | 57 | -32 | -5 | -3 | 0 | 5 | 1 | 1 | 1 | 39 | 41 | 12 | 28 | 16 | -11 | 3 | -19 | -19 | 69 | 1 | -71 | -1 | 0 | 0 |
| **Norwalk** | 2,457 | 147 | 655 | 803 | 54 | 59 | 26 | 6 | 14 | 15 | 15 | 28 | 28 | 0 | 30 | 8 | 15 | 4 | 11 | 7 | 28 | 24 | 3 | 27 | 11 | 4 | 6 | 7 | 0 | 4 | 11 | 18 | 0 | 0 | -1 | 1 | 17 | 9 | 2 | 6 | 3 | 11 | 7 | 4 | 4 | 7 | 8 | 48 | 44 | 14 | 55 | 3 | 0 | 0 |
| **Riverside-La Sie** | 254 | -89 | -234 | -322 | 205 | 118 | 63 | 30 | 0 | 81 | -6 | -3 | -6 | 0 | -1 | -1 | 1 | 0 | -3 | 0 | 121 | -9 | 1 | 24 | 11 | 0 | 0 | 9 | 0 | 0 | 12 | -1 | 18 | 0 | 0 | 0 | -2 | 0 | 0 | 3 | 0 | 1 | 9 | 11 | 0 | 0 | 0 | -1 | 90 | -1 | -1 | 0 | 0 | 0 |
| North Main Corona | 105 | -64 | -186 | -249 | 143 | 76 | 41 | 20 | -1 | 59 | -4 | -2 | -5 | 0 | -1 | 0 | 0 | 0 | -5 | 0 | 76 | -9 | 0 | 14 | 5 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 2 | 5 | 5 | 0 | 0 | -1 | 0 | 65 | 0 | -1 | 0 | 0 | 0 |
| **West Corona** | 48 | -25 | -64 | -89 | 47 | 27 | 14 | 7 | 0 | 21 | -1 | -1 | -1 | 0 | 0 | 0 | 1 | 0 | -1 | 0 | 26 | -1 | 0 | 6 | 2 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 2 | 2 | 3 | 0 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 |
| Anaheim Canyon | -74 | -8 | -28 | -37 | 0 | 2 | 0 | 0 | 0 | 0 | -1 | -1 | -1 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | -1 | 0 | 0 | 0 |
| High Desert | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Union Station** | 1,613 | -28 | -104 | -132 | -191 | -38 | -82 | -22 | 75 | 8 | 2 | -19 | 9 | 0 | 214 | 33 | 60 | 23 | 56 | 18 | -90 | -16 | -1 | -22 | -4 | 433 | 25 | 4 | 22 | 53 | -40 | 131 | 78 | 18 | 104 | 2 | 54 | 23 | 3 | 24 | -19 | 14 | -1 | -3 | 138 | 147 | 6 | 273 | -68 | 49 | 213 | 40 | 0 | 0 |
| Remaining Home | 3,584 | -157 | -385 | -542 | 89 | 119 | 29 | 31 | 162 | 104 | 53 | 36 | 17 | 0 | 323 | 62 | 117 | 56 | 128 | 36 | 78 | -15 | 9 | 63 | 23 | 278 | 46 | 8 | 14 | 64 | 27 | 188 | 84 | 7 | 62 | 5 | 126 | 61 | 18 | 50 | 20 | 64 | 18 | 15 | 191 | 118 | 20 | 536 | 92 | 98 | 415 | 52 | 0 | 0 |

### 5.6.5 Attachment E: Corridor & Station Performance

| | | Performance | Service | Service | Service | Metric | Service | Service | Performance | Performance | Metric | Service | Performance | Performance | Metric | Service | Performance | Performance | Metric |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Station | Metrolink Station Boardings (Average Weekday FY14 Q3) | Average Weekday Inbound (One Day) | Average Weekday Outbound (One Day) | Weekday Total Stops (inbound and outbound) | Average Boarding/ Service Stop | Total Number of Bus Routes Serving Each Station | Total Number of Bus Trips Serving Each Station Per Day | Transfer Mode: Transit | Transfer Mode: Transit (Absolute: Ridership X %) | Average users per bus trip | Number of Parking Spaces | Transfer Mode: Car | Transfer Mode: Car (Absolute: Ridership X %) | Auto users/parking space | 2008 Population and employment | Transfer Mode: Non-Motorized | Transfer Mode: Non-Motorized (Absolute: Ridership X %) | Non-motorized/Pop and Employment served |
| Antelope Valley | Lancaster | 365 | 9 | 9 | 18 | 20 | 7 | 160 | 0 | 47 | 0 | 420 | 1 | 277 | 1 | 203683 | 0 | 37 | 0 |
| Antelope Valley | Palmdale | 368 | 10 | 10 | 20 | 18 | 12 | 221 | 0 | 99 | 0 | 750 | 1 | 239 | 0 | 205127 | 0 | 29 | 0 |
| Antelope Valley | Vincent Grade/Acton | 103 | 8 | 9 | 17 | 6 | 0 | 0 | 0 | 1 | NA | 414 | 1 | 101 | 0 | 48991 | 0 | 2 | 0 |
| Antelope Valley | Via Princessa | 417 | 13 | 13 | 26 | 16 | 2 | 67 | 0 | 29 | 0 | 401 | 1 | 313 | 1 | 93463 | 0 | 75 | 0 |
| Antelope Valley | Santa Clarita | 266 | 15 | 15 | 30 | 9 | 5 | 114 | 0 | 19 | 0 | 446 | 1 | 245 | 1 | 82536 | 0 | 5 | 0 |
| Antelope Valley | Newhall | 319 | 14 | 14 | 28 | 11 | 7 | 222 | 0 | 35 | 0 | 324 | 1 | 252 | 1 | 143222 | 0 | 32 | 0 |
| Antelope Valley | Sylmar/San Fernando | 469 | 15 | 15 | 30 | 16 | 9 | 579 | 0 | 103 | 0 | 375 | 1 | 314 | 1 | 333965 | 0 | 52 | 0 |
| Antelope Valley | Sun Valley | 82 | 14 | 14 | 28 | 3 | 2 | 129 | 0 | 16 | 0 | 320 | 0 | 36 | 0 | 147119 | 0 | 30 | 0 |
| Antelope Valley | Downtown Burbank | 866 | 15 | 15 | 30 | 29 | 13 | 533 | 0 | 398 | 1 | 458 | 0 | 320 | 1 | 154218 | 0 | 139 | 0 |
| Antelope Valley | Glendale | 620 | 14 | 14 | 28 | 22 | 8 | 332 | 1 | 335 | 1 | 304 | 0 | 192 | 1 | 358697 | 0 | 81 | 0 |
| Antelope Valley | L.A. Union Station | 12381 | 15 | 15 | 30 | 413 | 38 | 2352 | 1 | 8048 | 3 | 0 | 0 | 1981 | NA | 1935384 | 0 | 2229 | 0 |
| **Average** | | **1478** | **13** | **13** | **26** | **51** | **9** | **428** | **0** | **830** | **1** | **383** | **1** | **388** | **1** | **336946** | **0** | **246** | **0** |
| **Average less US** | | **388** | **13** | **13** | **26** | **15** | **7** | **236** | **0** | **108** | **0** | **421** | **1** | **229** | **1** | **177102** | **0** | **48** | **0** |
| Inland Empire-OC | San Bernardino | 766 | 4 | 4 | 8 | 96 | 4 | 115 | 0 | 123 | 1 | 777 | 1 | 582 | 1 | 872223 | 0 | 61 | 0 |
| Inland Empire-OC | Riverside-Downtown | 1070 | 8 | 8 | 16 | 67 | 6 | 452 | 0 | 107 | 0 | 1115 | 1 | 920 | 1 | 636422 | 0 | 32 | 0 |
| Inland Empire-OC | Riverside-La Sierra | 694 | 8 | 8 | 16 | 43 | 1 | 47 | 0 | 42 | 1 | 1082 | 1 | 632 | 1 | 267716 | 0 | 21 | 0 |
| Inland Empire-OC | North Main Corona | 997 | 8 | 8 | 16 | 62 | 6 | 176 | 0 | 189 | 1 | 1386 | 1 | 768 | 1 | 583864 | 0 | 40 | 0 |
| Inland Empire-OC | West Corona | 414 | 8 | 8 | 16 | 26 | 1 | 73 | 0 | 25 | 0 | 526 | 1 | 377 | 1 | 104123 | 0 | 12 | 0 |
| Inland Empire-OC | Anaheim Canyon | 337 | 8 | 8 | 16 | 21 | 6 | 184 | 0 | 128 | 1 | 144 | 0 | 142 | 1 | 86504 | 0 | 67 | 0 |
| Inland Empire-OC | Orange | 756 | 8 | 8 | 16 | 47 | 5 | 181 | 0 | 272 | 2 | 375 | 0 | 333 | 1 | 320948 | 0 | 144 | 0 |
| Inland Empire-OC | Santa Ana | 831 | 8 | 8 | 16 | 52 | 6 | 169 | 0 | 249 | 1 | 719 | 1 | 474 | 1 | 880988 | 0 | 100 | 0 |
| Inland Empire-OC | Tustin | 1137 | 8 | 8 | 16 | 71 | 5 | 197 | 0 | 432 | 2 | 823 | 0 | 557 | 1 | 490117 | 0 | 136 | 0 |
| Inland Empire-OC | Irvine | 1367 | 8 | 8 | 16 | 85 | 8 | 148 | 0 | 355 | 2 | 1993 | 1 | 793 | 0 | 550062 | 0 | 191 | 0 |
| Inland Empire-OC | Laguna Niguel/Mission Viejo | 346 | 7 | 8 | 15 | 23 | 4 | 123 | 0 | 62 | 1 | 476 | 1 | 242 | 1 | 207747 | 0 | 42 | 0 |
| Inland Empire-OC | San Juan Capistrano | 173 | 2 | 2 | 4 | 43 | 2 | 81 | 0 | 14 | 0 | 172 | 1 | 137 | 1 | 66609 | 0 | 22 | 0 |
| Inland Empire-OC | San Clemente * | 125 | 2 | 2 | 4 | 31 | 4 | 159 | 0 | 6 | 0 | 150 | 1 | 101 | 1 | 128810 | 0 | 13 | 0 |
| Inland Empire-OC | San Clemente Pier | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| Inland Empire-OC | Oceanside | 524 | 2 | 2 | 4 | 131 | 8 | 350 | 0 | 63 | 2 | 995 | 1 | 372 | 0 | 974185 | 0 | 52 | NA |

| | | Performance | Service | Service | Service | Metric | Service | Service | Performance | Performance | Metric | Service | Performance | Performance | Metric | Service | Performance | Performance | Metric |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Station | Metrolink Station Boardings (Average Weekday FY14 Q3) | Average Weekday Inbound (One Day) | Average Weekday Outbound (One Day) | Weekday Total Stops (inbound and outbound) | Average Boarding/ Service Stop | Total Number of Bus Routes Serving Each Station | Total Number of Bus Trips Serving Each Station Per Day | Transfer Mode: Transit | Transfer Mode: Transit (Absolute: Ridership X %) | Average users per bus trip | Number of Parking Spaces | Transfer Mode: Car | Transfer Mode: Car (Absolute: Ridership X %) | Auto users/parking space | 2008 Population and employment | Transfer Mode: Non-Motorized | Transfer Mode: Non-Motorized (Absolute: Ridership X %) | Non-motorized/Pop and Employment served |
| **Average** | | **681** | **6** | **6** | **13** | **57** | **5** | **175** | **0** | **148** | **1** | **767** | **1** | **459** | **1** | **440737** | **0** | **67** | **0** |
| | | | | | | | | | | | | | | | | | | | |
| Orange County | Oceanside | 524 | 6 | 6 | 12 | 44 | 8 | 350 | 0 | 63 | 0 | 995 | 1 | 372 | 0 | 974185 | 0 | 52 | 0 |
| Orange County | San Clemente Pier | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0 | NA | NA | NA |
| Orange County | San Clemente * | 125 | 6 | 6 | 12 | 10 | 4 | 159 | 0 | 6 | 0 | 150 | 1 | 101 | 1 | 128810 | 0 | 13 | 0 |
| Orange County | San Juan Capistrano | 173 | 6 | 6 | 12 | 14 | 2 | 81 | 0 | 14 | 0 | 172 | 1 | 137 | 1 | 66609 | 0 | 22 | 0 |
| Orange County | Laguna Niguel/Mission Viejo | 346 | 13 | 13 | 26 | 13 | 4 | 123 | 0 | 62 | 1 | 476 | 1 | 242 | 1 | 207747 | 0 | 42 | 0 |
| Orange County | Irvine | 1367 | 15 | 14 | 29 | 47 | 8 | 148 | 0 | 355 | 2 | 1993 | 1 | 793 | 0 | 550062 | 0 | 191 | 0 |
| Orange County | Tustin | 1137 | 15 | 14 | 29 | 39 | 5 | 197 | 0 | 432 | 2 | 823 | 0 | 557 | 1 | 490117 | 0 | 136 | 0 |
| Orange County | Santa Ana | 831 | 15 | 14 | 29 | 29 | 6 | 169 | 0 | 249 | 1 | 719 | 1 | 474 | 1 | 880988 | 0 | 100 | 0 |
| Orange County | Orange | 756 | 15 | 14 | 29 | 26 | 5 | 181 | 0 | 272 | 2 | 375 | 0 | 333 | 1 | 320948 | 0 | 144 | 0 |
| Orange County | Anaheim | 486 | 15 | 14 | 29 | 17 | 5 | 190 | 0 | 68 | 0 | 400 | 1 | 374 | 1 | 217732 | 0 | 44 | 0 |
| Orange County | Fullerton | 1514 | 15 | 14 | 29 | 52 | 6 | 281 | 0 | 151 | 1 | 1321 | 1 | 1196 | 1 | 1078211 | 0 | 167 | 0 |
| Orange County | Buena Park | 569 | 10 | 9 | 19 | 30 | 4 | 142 | 0 | 57 | 0 | 302 | 1 | 432 | 1 | 0 | 0 | 74 | NA |
| Orange County | Norwalk/Santa Fe Springs | 737 | 10 | 9 | 19 | 39 | 4 | 190 | 0 | 228 | 1 | 694 | 1 | 413 | 1 | 1129126 | 0 | 96 | 0 |
| Orange County | Commerce | 72 | 4 | 4 | 8 | 9 | 3 | 23 | 0 | 14 | 1 | 135 | 1 | 42 | 0 | 336040 | 0 | 14 | 0 |
| Orange County | L.A. Union Station | 12381 | 10 | 9 | 19 | 652 | 38 | 2352 | 1 | 8048 | 3 | 0 | 0 | 1981 | NA | 1935384 | 0 | 2229 | 0 |
| **Average** | | **1501** | **11** | **10** | **22** | **73** | **7** | **328** | **0** | **716** | **1** | **611** | **1** | **532** | **1** | **554397** | **0** | **237** | **0** |
| **Average less US** | | **664** | **11** | **11** | **22** | **28** | **5** | **172** | **0** | **152** | **1** | **658** | **1** | **420** | **1** | **455755** | **0** | **84** | **0** |
| | | | | | | | | | | | | | | | | | | | |
| Riverside | Riverside-Downtown | 1070 | 6 | 6 | 12 | 89 | 6 | 452 | 0 | 107 | 0 | 1115 | 1 | 920 | 1 | 636422 | 0 | 32 | 0 |
| Riverside | Pedley | 177 | 6 | 6 | 12 | 15 | 1 | 24 | 0 | 11 | 0 | 288 | 1 | 163 | 1 | 107774 | 0 | 4 | 0 |
| Riverside | East Ontario | 376 | 6 | 6 | 12 | 31 | 1 | 25 | 0 | 4 | 0 | 656 | 1 | 361 | 1 | 180863 | 0 | 11 | 0 |
| Riverside | Downtown Pomona | 242 | 6 | 6 | 12 | 20 | 13 | 404 | 0 | 24 | 0 | 76 | 1 | 189 | 2 | 288754 | 0 | 29 | 0 |
| Riverside | Industry | 979 | 6 | 6 | 12 | 82 | 1 | 79 | 0 | 20 | 0 | 1715 | 1 | 950 | 1 | 547740 | 0 | 10 | 0 |
| Riverside | Montebello/Commerce | 439 | 6 | 6 | 12 | 37 | 3 | 456 | 0 | 167 | 0 | 255 | 1 | 237 | 1 | 336040 | 0 | 35 | 0 |
| Riverside | L.A. Union Station | 12381 | 6 | 6 | 12 | 1032 | 38 | 2352 | 1 | 8048 | 3 | 0 | 0 | 1981 | NA | 1935384 | 0 | 2229 | 0 |
| **Average** | | **2238** | **6** | **6** | **12** | **186** | **9** | **542** | **0** | **1197** | **1** | **586** | **1** | **686** | **1** | **576140** | **0** | **336** | **0** |
| **Average less US** | | **547** | **6** | **6** | **12** | **46** | **4** | **240** | **0** | **55** | **0** | **684** | **1** | **470** | **1** | **349599** | **0** | **20** | **0** |
| | | | | | | | | | | | | | | | | | | | |
| San Bernardino | Riverside-Downtown | NA | 1 | 0 | 1 | NA | 6 | 452 | 0 | NA | NA | 1115 | 1 | NA | NA | 636422 | 0 | NA | NA |
| San Bernardino | San Bernardino | 766 | 22 | 21 | 43 | 18 | 4 | 115 | 0 | 123 | 1 | 777 | 1 | 582 | 1 | 872223 | 0 | 61 | 0 |
| San Bernardino | Rialto | 247 | 20 | 20 | 40 | 6 | 2 | 132 | 0 | 20 | 0 | 208 | 1 | 207 | 1 | 170739 | 0 | 20 | 0 |
| San Bernardino | Fontana | 419 | 20 | 20 | 40 | 10 | 10 | 554 | 0 | 54 | 0 | 309 | 1 | 339 | 1 | 223714 | 0 | 17 | 0 |
| San Bernardino | Rancho Cucamonga | 972 | 21 | 21 | 42 | 23 | 1 | 25 | 0 | 19 | 1 | 1000 | 1 | 923 | 1 | 177290 | 0 | 29 | 0 |
| San Bernardino | Upland | 492 | 20 | 20 | 40 | 12 | 2 | 51 | 0 | 15 | 0 | 294 | 1 | 413 | 1 | 298071 | 0 | 64 | 0 |
| San Bernardino | Montclair | 284 | 20 | 20 | 40 | 7 | 15 | 599 | 0 | 17 | 0 | 1836 | 1 | 253 | 0 | 118563 | 0 | 9 | 0 |
| San Bernardino | Claremont | 403 | 20 | 20 | 40 | 10 | 5 | 242 | 0 | 12 | 0 | 881 | 1 | 330 | 0 | 78766 | 0 | 64 | 0 |

| | | Performance | Service | Service | Service | Metric | Service | Service | Performance | Performance | Metric | Service | Performance | Performance | Metric | Service | Performance | Performance | Metric |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Line | Station | Metrolink Station Boardings (Average Weekday FY14 Q3) | Average Weekday Inbound (One Day) | Average Weekday Outbound (One Day) | Weekday Total Stops (inbound and outbound) | Average Boarding/ Service Stop | Total Number of Bus Routes Serving Each Station | Total Number of Bus Trips Serving Each Station Per Day | Transfer Mode: Transit | Transfer Mode: Transit (Absolute: Ridership X %) | Average users per bus trip | Number of Parking Spaces | Transfer Mode: Car | Transfer Mode: Car (Absolute: Ridership X %) | Auto users/parking space | 2008 Population and employment | Transfer Mode: Non-Motorized | Transfer Mode: Non-Motorized (Absolute: Ridership X %) | Non-motorized/Pop and Employment served |
| San Bernardino | Pomona (North) | 544 | 20 | 20 | 40 | 14 | 1 | 43 | 0 | 33 | 1 | 300 | 1 | 430 | 1 | 288754 | 0 | 82 | 0 |
| San Bernardino | Covina | 935 | 21 | 21 | 42 | 22 | 1 | 65 | 0 | 65 | 1 | 455 | 1 | 767 | 2 | 358222 | 0 | 103 | 0 |
| San Bernardino | Baldwin Park | 380 | 20 | 20 | 40 | 10 | 4 | 58 | 0 | 42 | 1 | 420 | 1 | 277 | 1 | 300557 | 0 | 61 | 0 |
| San Bernardino | El Monte | 435 | 20 | 20 | 40 | 11 | 11 | 942 | 0 | 126 | 0 | 238 | 1 | 261 | 1 | 454836 | 0 | 48 | 0 |
| San Bernardino | Cal State L.A. | 537 | 20 | 20 | 40 | 13 | 13 | 376 | 0 | 129 | 0 | 0 | 0 | 81 | NA | 345680 | 1 | 311 | 0 |
| San Bernardino | L.A. Union Station | 12381 | 21 | 21 | 42 | 295 | 38 | 2352 | 1 | 8048 | 3 | 0 | 0 | 1981 | NA | 1935384 | 0 | 2229 | 0 |
| **Average** | | **1446** | **19** | **19** | **38** | **35** | **8** | **429** | **0** | **669** | **1** | **560** | **1** | **527** | **1** | **447087** | **0** | **238** | **0** |
| **Average less US** | | **535** | **19** | **19** | **38** | **13** | **6** | **281** | **0** | **55** | **0** | **603** | **1** | **405** | **1** | **332603** | **0** | **72** | **0** |
| | | | | | | | | | | | | | | | | | | | |
| Ventura | East Ventura | 46 | 3 | 3 | 6 | 8 | 0 | 0 | 0 | 0 | NA | 60 | 1 | 38 | 1 | 167967 | 0 | 8 | 0 |
| Ventura | Oxnard | 80 | 3 | 3 | 6 | 13 | 13 | 222 | 0 | 2 | 0 | 110 | 1 | 66 | 1 | 288931 | 0 | 10 | 0 |
| Ventura | Camarillo | 109 | 3 | 3 | 6 | 18 | 3 | 97 | 0 | 0 | 0 | 406 | 1 | 104 | 0 | 76408 | 0 | 5 | 0 |
| Ventura | Moorpark | 236 | 7 | 7 | 14 | 17 | 3 | 29 | 0 | 2 | 0 | 270 | 1 | 205 | 1 | 209911 | 0 | 28 | 0 |
| Ventura | Simi Valley | 391 | 7 | 7 | 14 | 28 | 2 | 92 | 0 | 4 | 0 | 560 | 1 | 356 | 1 | 168059 | 0 | 31 | 0 |
| Ventura | Chatsworth | 334 | 10 | 10 | 20 | 17 | 8 | 178 | 0 | 27 | 0 | 816 | 1 | 224 | 0 | 251805 | 0 | 84 | 0 |
| Ventura | Northridge | 364 | 10 | 10 | 20 | 18 | 3 | 40 | 0 | 73 | 2 | 290 | 1 | 277 | 1 | 396897 | 0 | 18 | 0 |
| Ventura | Van Nuys | 169 | 10 | 10 | 20 | 8 | 6 | 377 | 0 | 42 | 0 | 360 | 1 | 95 | 0 | 610432 | 0 | 34 | 0 |
| Ventura | Burbank - Bob Hope Airport | 219 | 15 | 16 | 31 | 7 | 3 | 150 | 0 | 59 | 0 | 0 | 0 | 88 | NA | 280160 | 0 | 72 | 0 |
| Ventura | Downtown Burbank | 866 | 15 | 16 | 31 | 28 | 13 | 533 | 0 | 398 | 1 | 458 | 0 | 320 | 1 | 154218 | 0 | 139 | 0 |
| Ventura | Glendale | 620 | 15 | 16 | 31 | 20 | 8 | 332 | 1 | 335 | 1 | 304 | 0 | 192 | 1 | 358697 | 0 | 81 | 0 |
| Ventura | L.A. Union Station | 12381 | 15 | 16 | 31 | 399 | 38 | 2352 | 1 | 8048 | 3 | 0 | 0 | 1981 | NA | 1935384 | 0 | 2229 | 0 |
| **Average** | | **1318** | **9** | **10** | **19** | **48** | **8** | **367** | **0** | **749** | **1** | **303** | **1** | **329** | **1** | **408239** | **0** | **228** | **0** |
| **Average less US** | | **312** | **9** | **9** | **18** | **17** | **6** | **186** | **0** | **86** | **0** | **330** | **1** | **179** | **1** | **269408** | **0** | **46** | **0** |
| | | | | | | | | | | | | | | | | | | | |
| 91 Line | Riverside-Downtown | 1070 | 4 | 5 | 9 | 119 | 6 | 452 | 0 | 107 | 0 | 1115 | 1 | 920 | 1 | 636422 | 0 | 32 | 0 |
| 91 Line | Riverside-La Sierra | 694 | 4 | 5 | 9 | 77 | 1 | 47 | 0 | 42 | 1 | 1082 | 1 | 632 | 1 | 267716 | 0 | 21 | 0 |
| 91 Line | North Main Corona | 997 | 4 | 5 | 9 | 111 | 6 | 176 | 0 | 189 | 1 | 1386 | 1 | 768 | 1 | 583864 | 0 | 40 | 0 |
| 91 Line | West Corona | 414 | 4 | 5 | 9 | 46 | 1 | 73 | 0 | 25 | 0 | 526 | 1 | 377 | 1 | 104123 | 0 | 12 | 0 |
| 91 Line | Fullerton | 1514 | 4 | 5 | 9 | 168 | 6 | 281 | 0 | 151 | 1 | 1321 | 1 | 1196 | 1 | 1078211 | 0 | 167 | 0 |
| 91 Line | Buena Park | 569 | 4 | 5 | 9 | 63 | 4 | 142 | 0 | 57 | 0 | 302 | 1 | 432 | 1 | 0 | 0 | 74 | NA |
| 91 Line | Norwalk/Santa Fe Springs | 737 | 4 | 5 | 9 | 82 | 4 | 190 | 0 | 228 | 1 | 694 | 1 | 413 | 1 | 1129126 | 0 | 96 | 0 |
| 91 Line | L.A. Union Station | 12381 | 4 | 5 | 9 | 1376 | 38 | 2352 | 1 | 8048 | 3 | 0 | 0 | 1981 | NA | 1935384 | 0 | 2229 | 0 |
| **Average** | | **2297** | **4** | **5** | **9** | **255** | **8** | **464** | **0** | **1106** | **1** | **803** | **1** | **840** | **1** | **716856** | **0** | **334** | **0** |
| **Average less US** | | **856** | **4** | **5** | **9** | **95** | **4** | **194** | **0** | **114** | **1** | **918** | **1** | **677** | **1** | **542780** | **0** | **63** | **0** |

### 5.6.6 Attachment F: Catchment areas & Corridor Performances

**Figure 5–17: Attachment F-1.1 Home Catchment Areas and Destination Area (Riverside Line)**

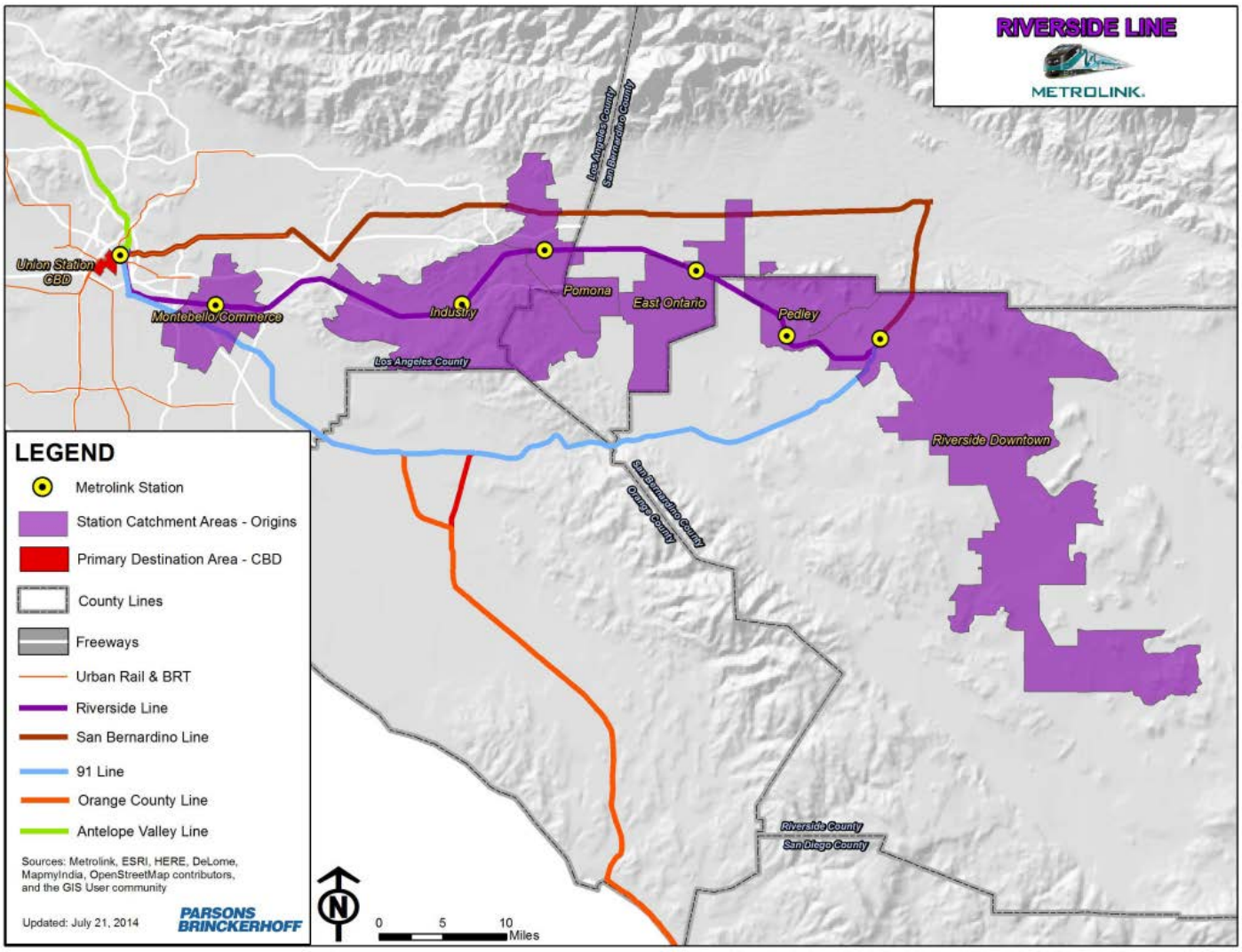
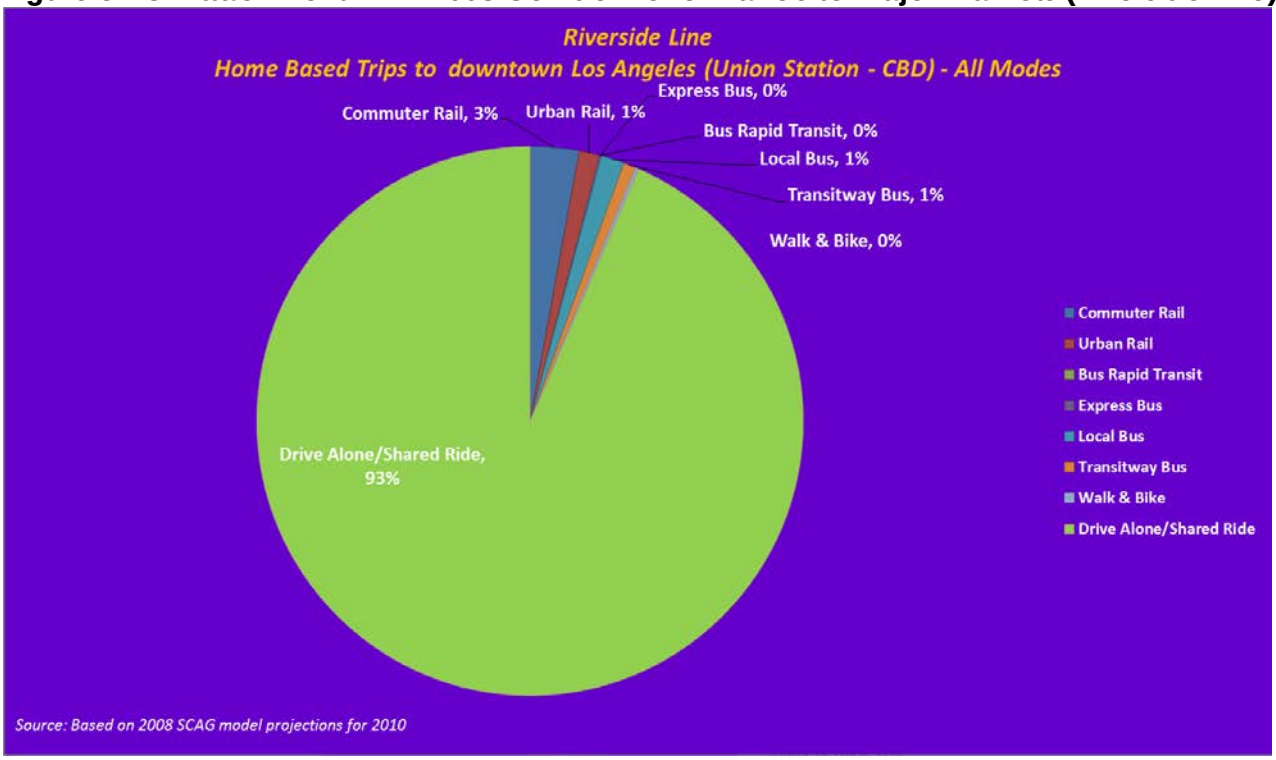


**Figure 5–18: Attachment F-1.2 2008 Corridor Performance to Major Markets (Riverside Line)**



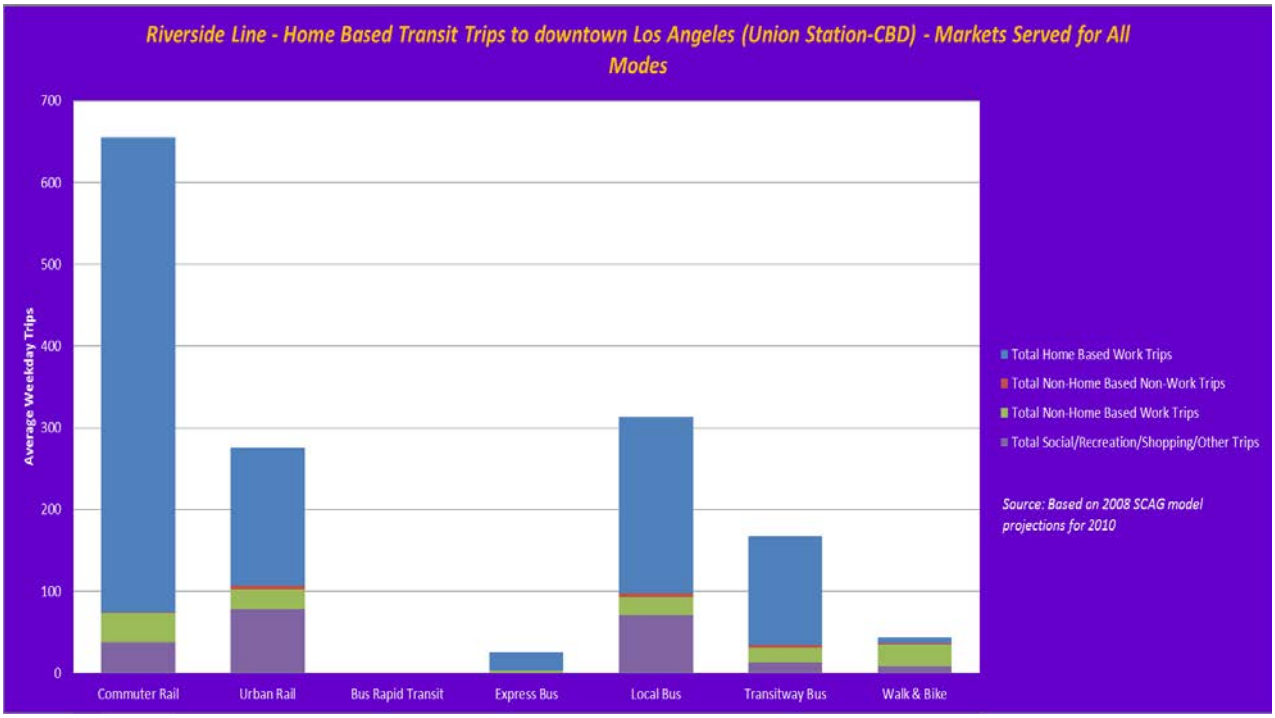



**Figure 5–19: Attachment F-2.1 Home Catchment Areas and Destination Area (San Bernardino Line)**

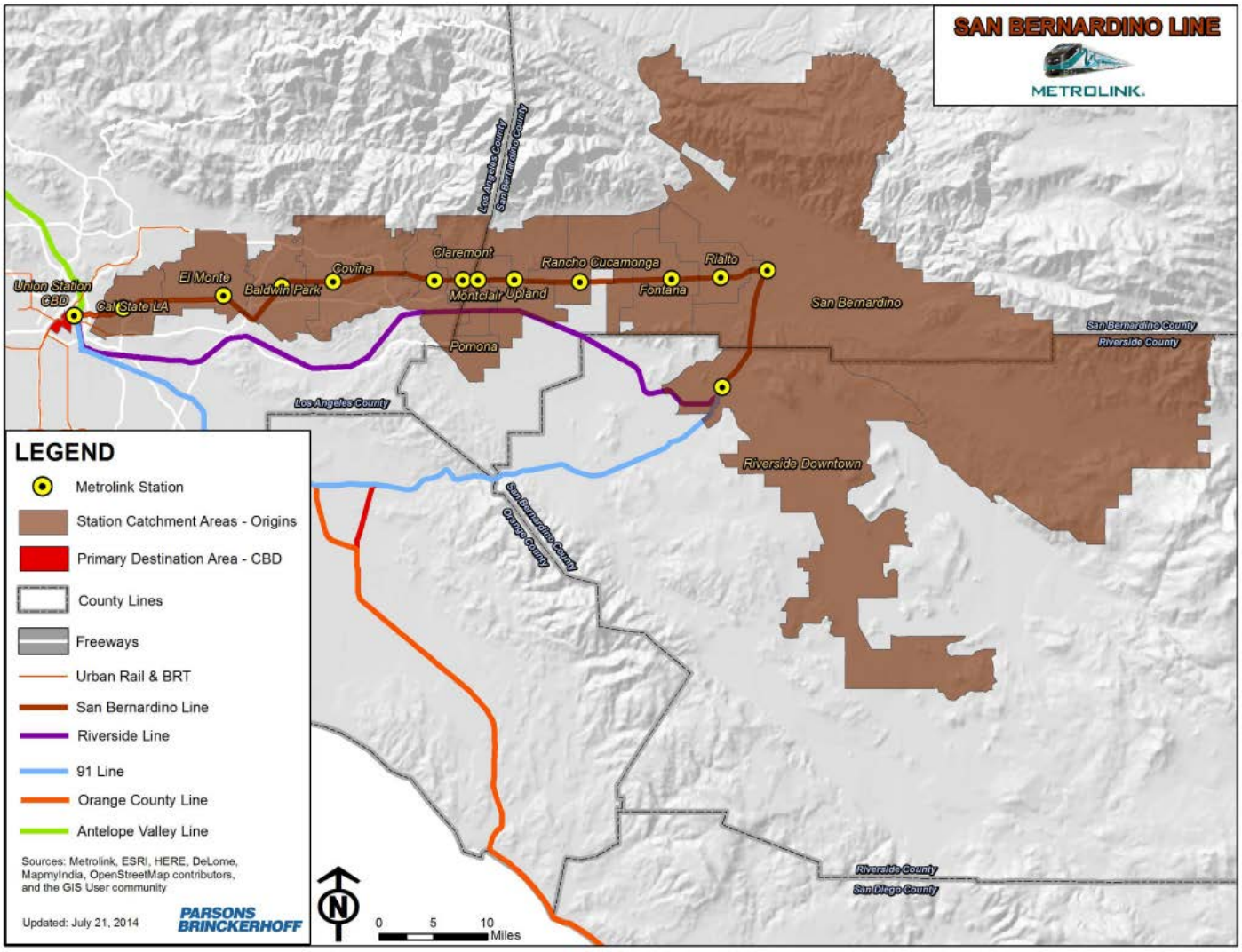
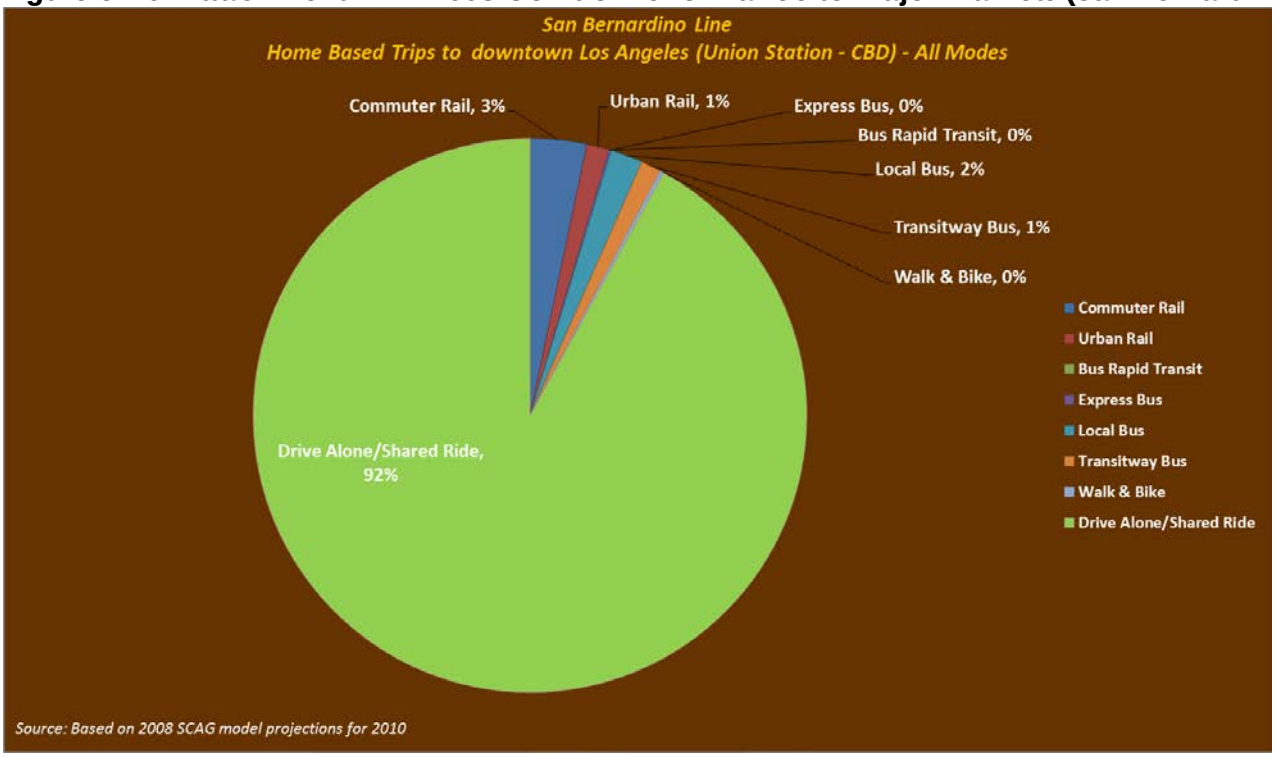


**Figure 5–20: Attachment F-2.2 2008 Corridor Performance to Major Markets (San Bernardino Line)**



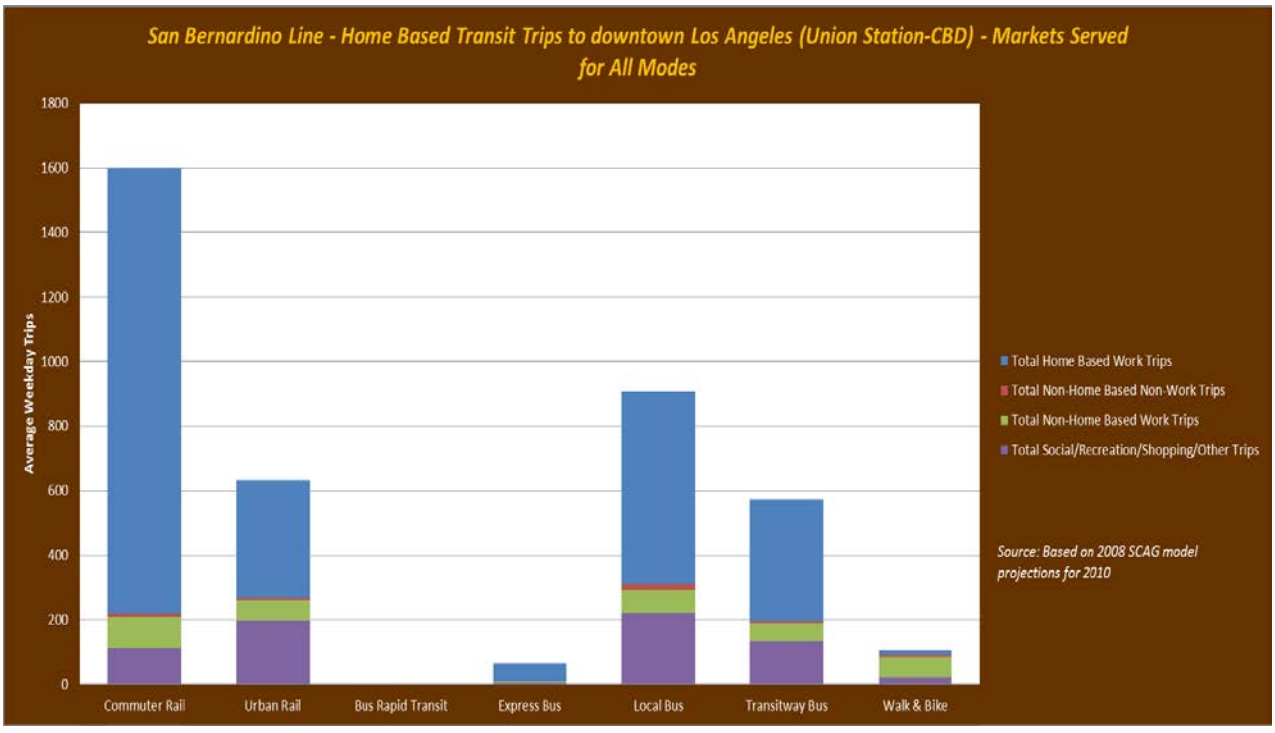



**Figure 5–21: Attachment F-3.1: Home Catchment Areas and Destination Area (91-Line)**

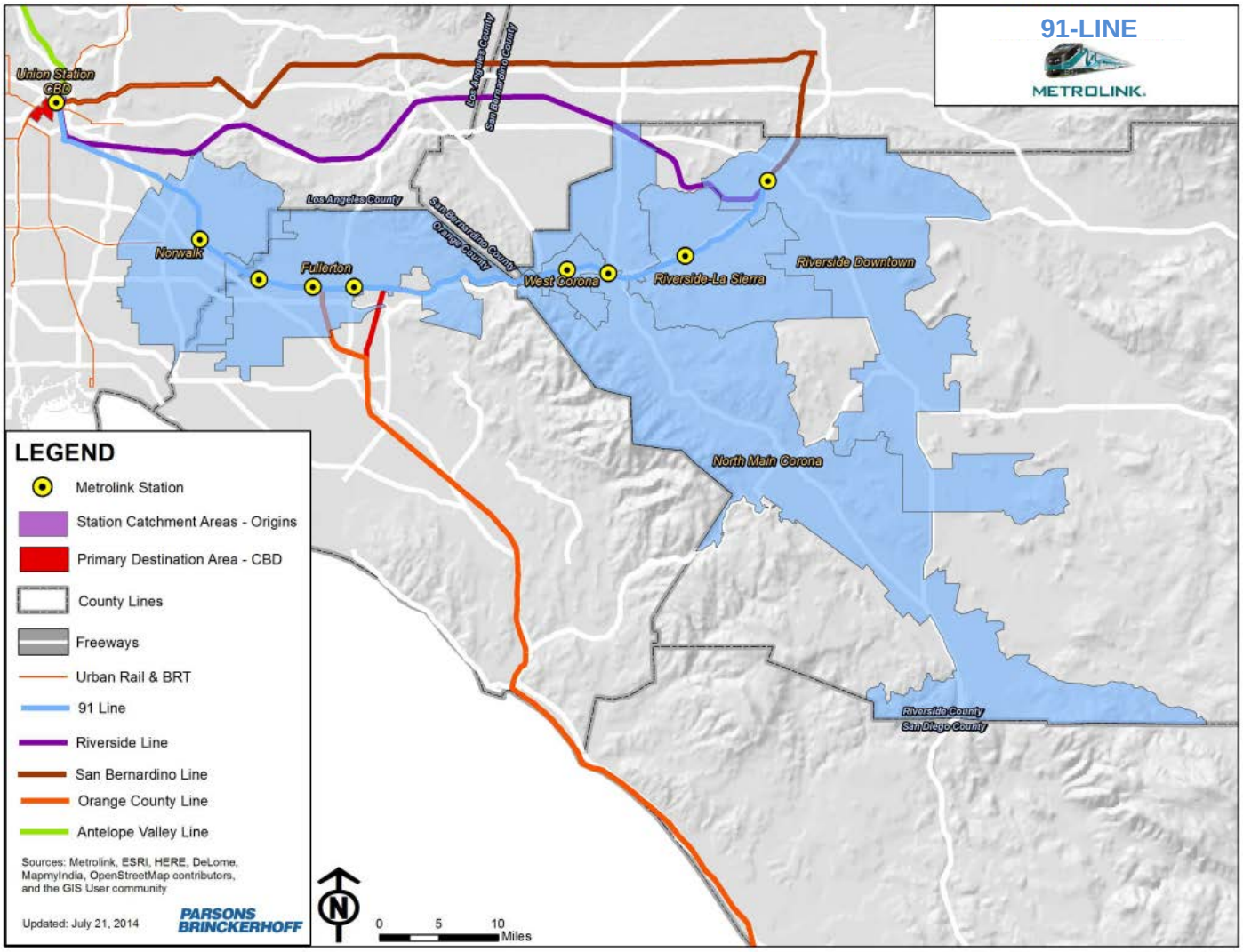
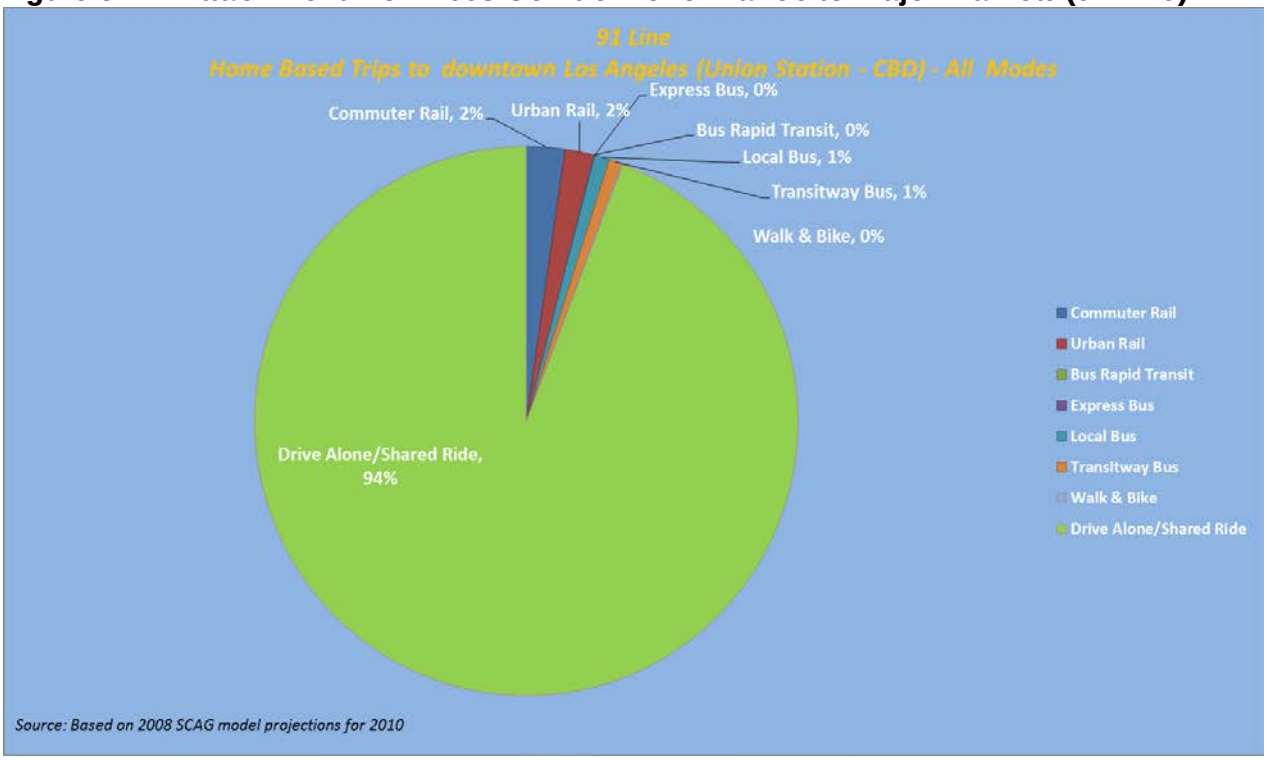


**Figure 5–22: Attachment F-3.2 2008 Corridor Performance to Major Markets (91-Line)**



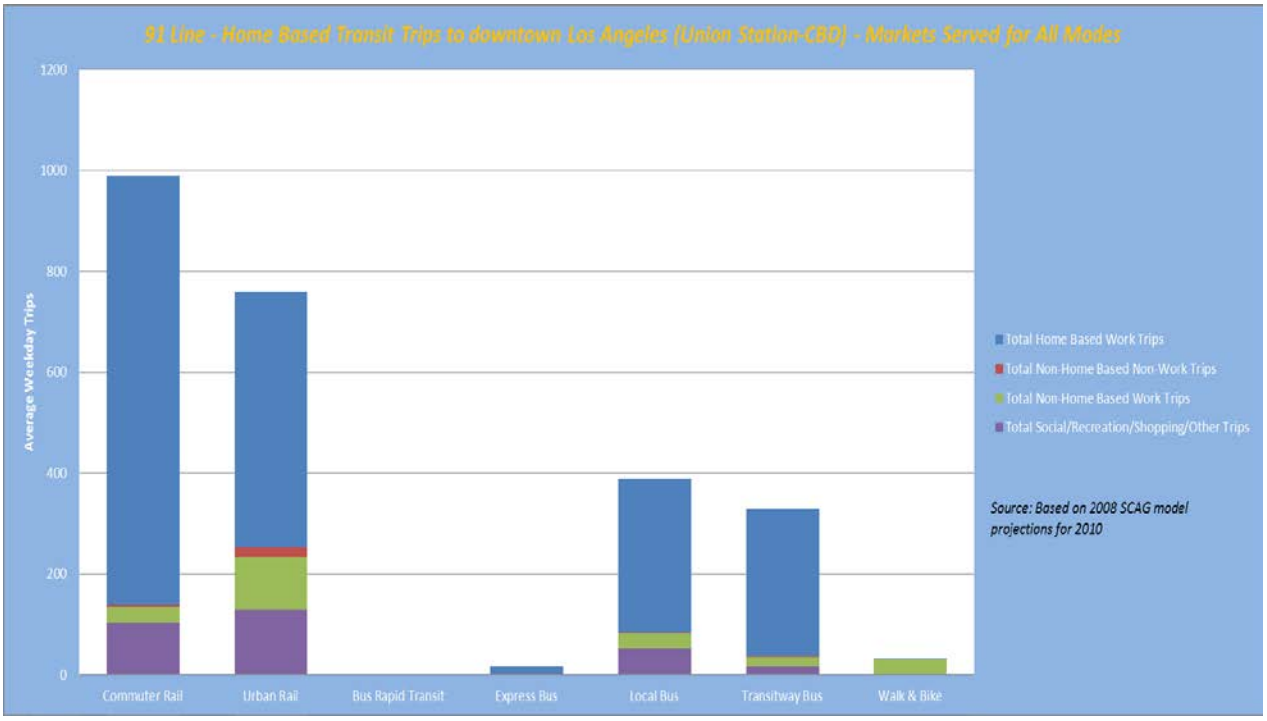



**Figure 5–23: Attachment F-4.1 Home Catchment Areas and Destination Area (Ventura County Line)**

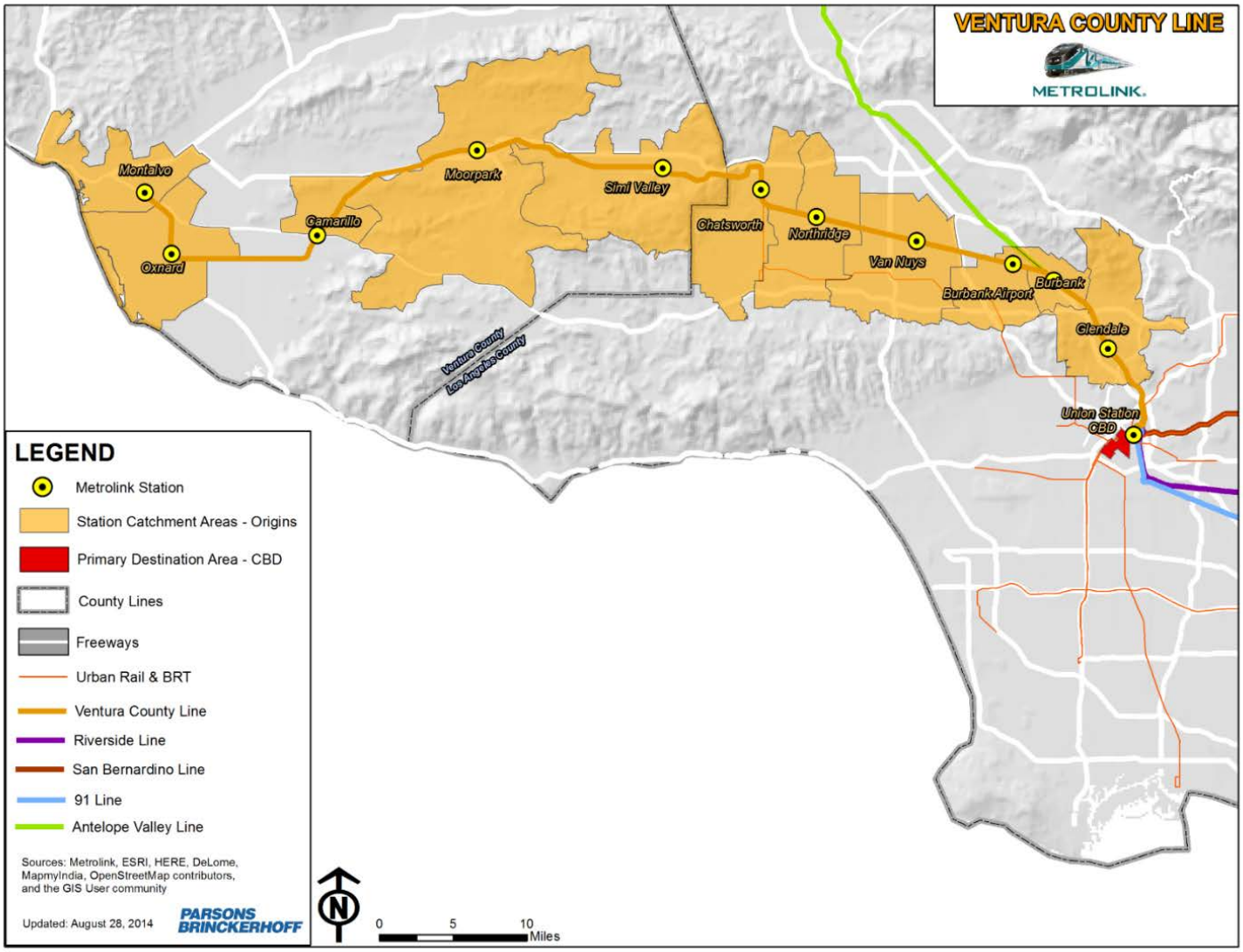
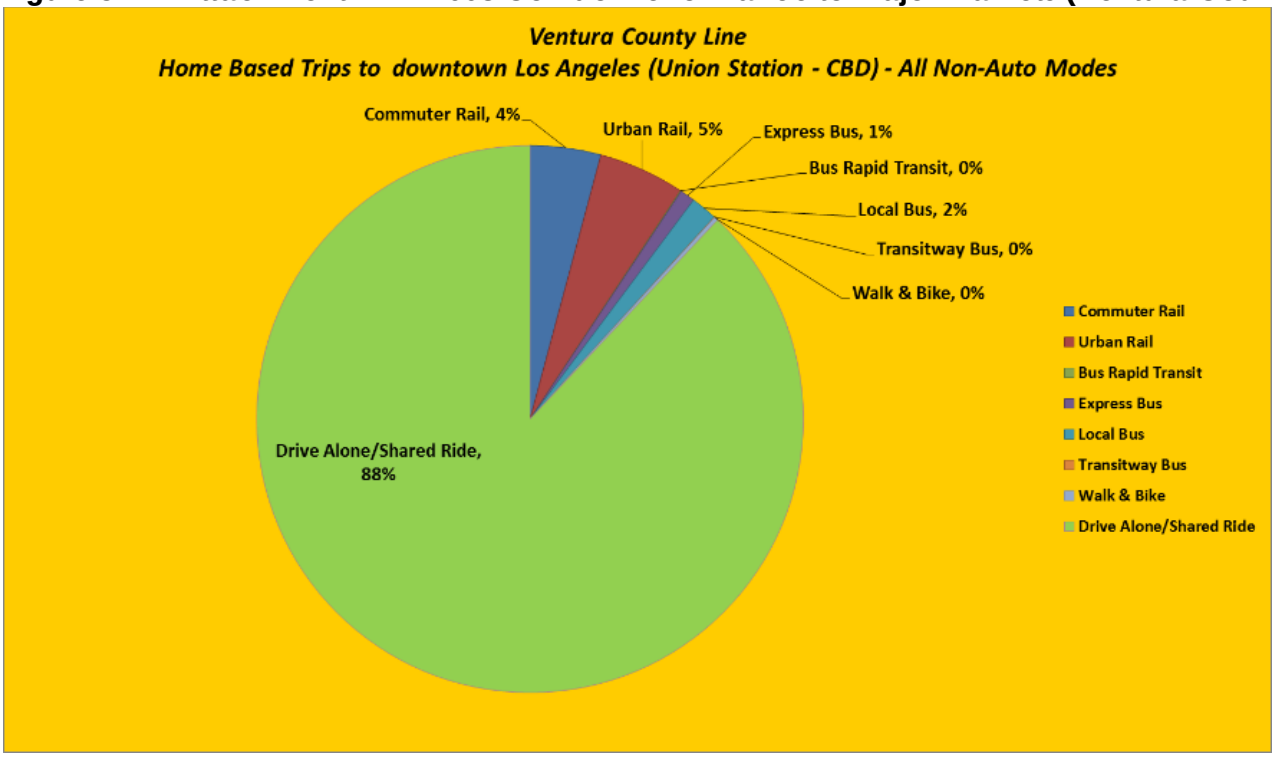


**Figure 5–24: Attachment F-4.2 2008 Corridor Performance to Major Markets (Ventura County Line)**



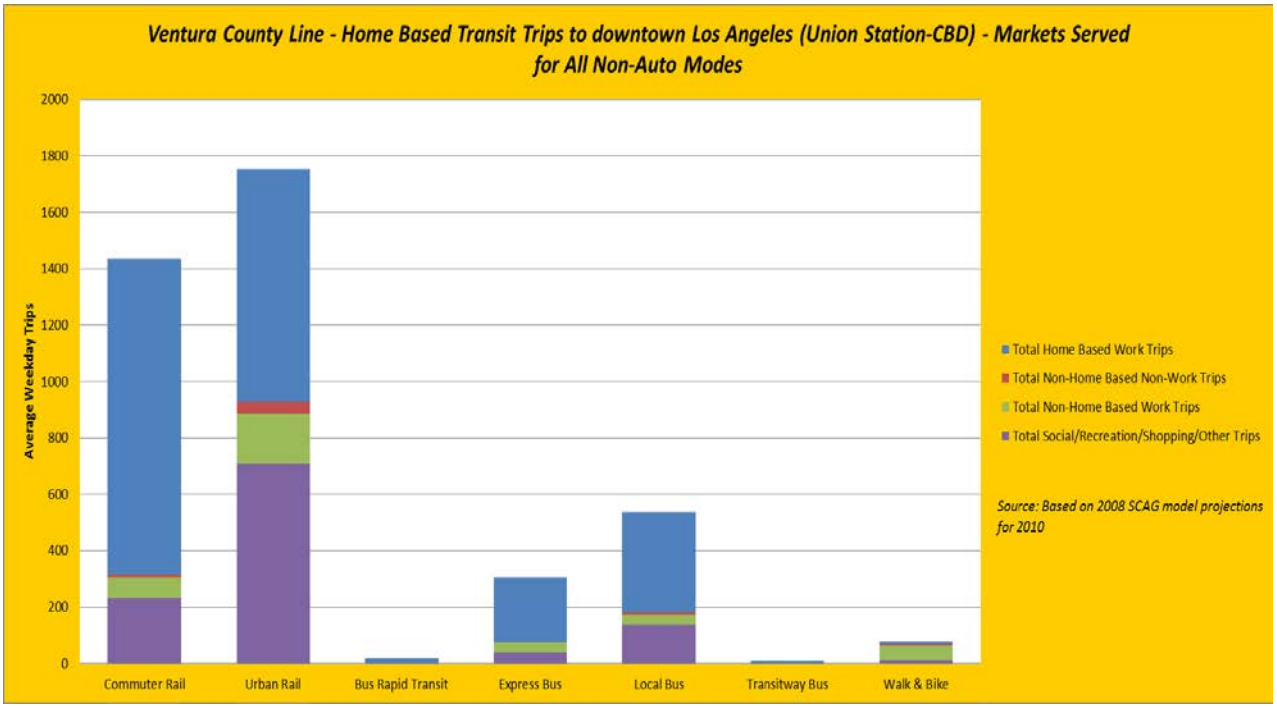



**Figure 5–25: Attachment F-5.1 Home Catchment Areas and Destination Area (Antelope Valley Line)**

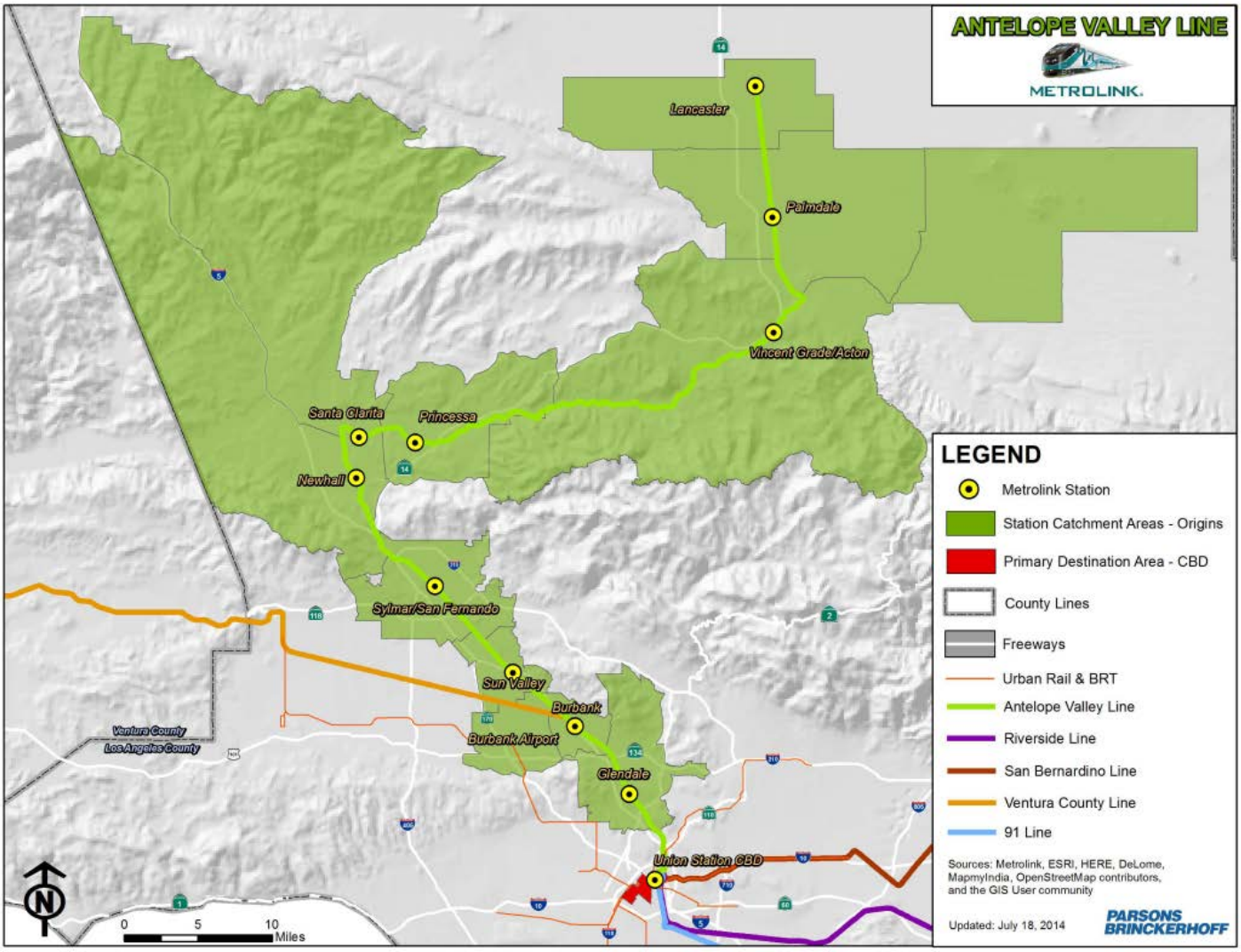
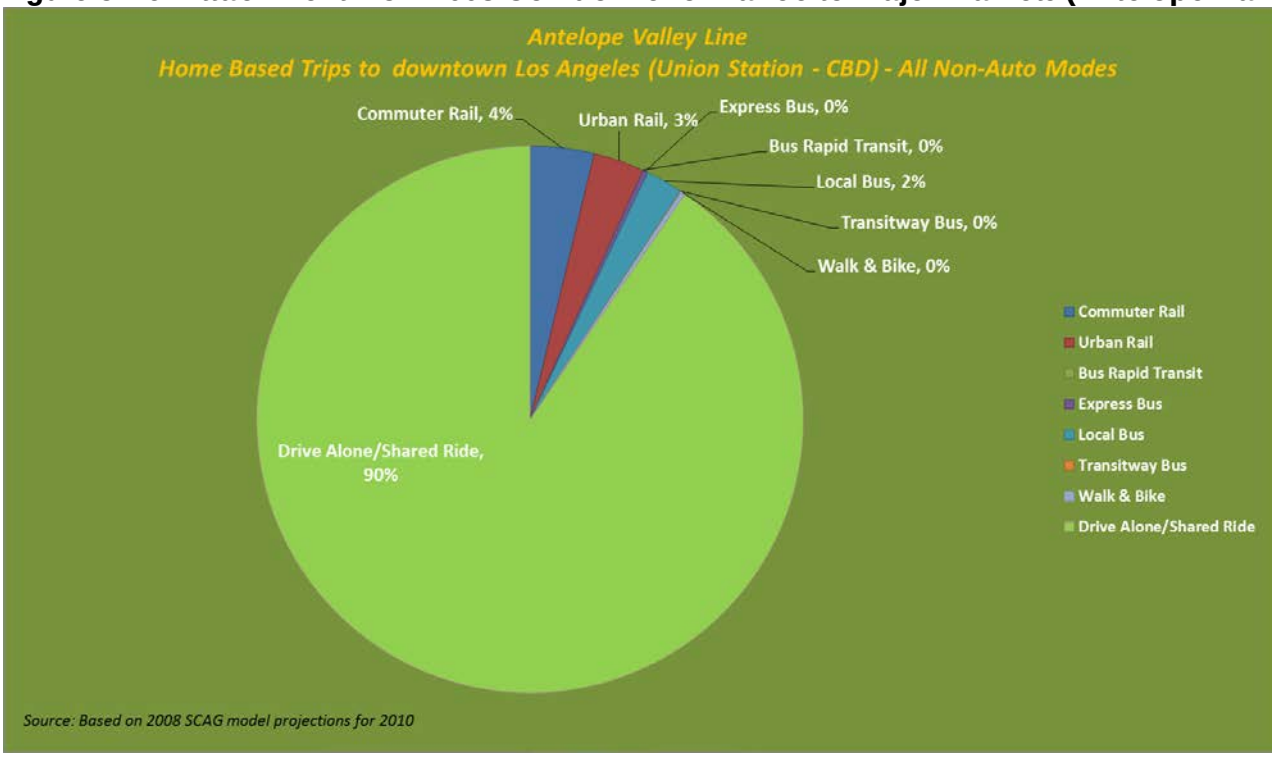


**Figure 5–26: Attachment F-5.2 2008 Corridor Performance to Major Markets (Antelope Valley Line)**



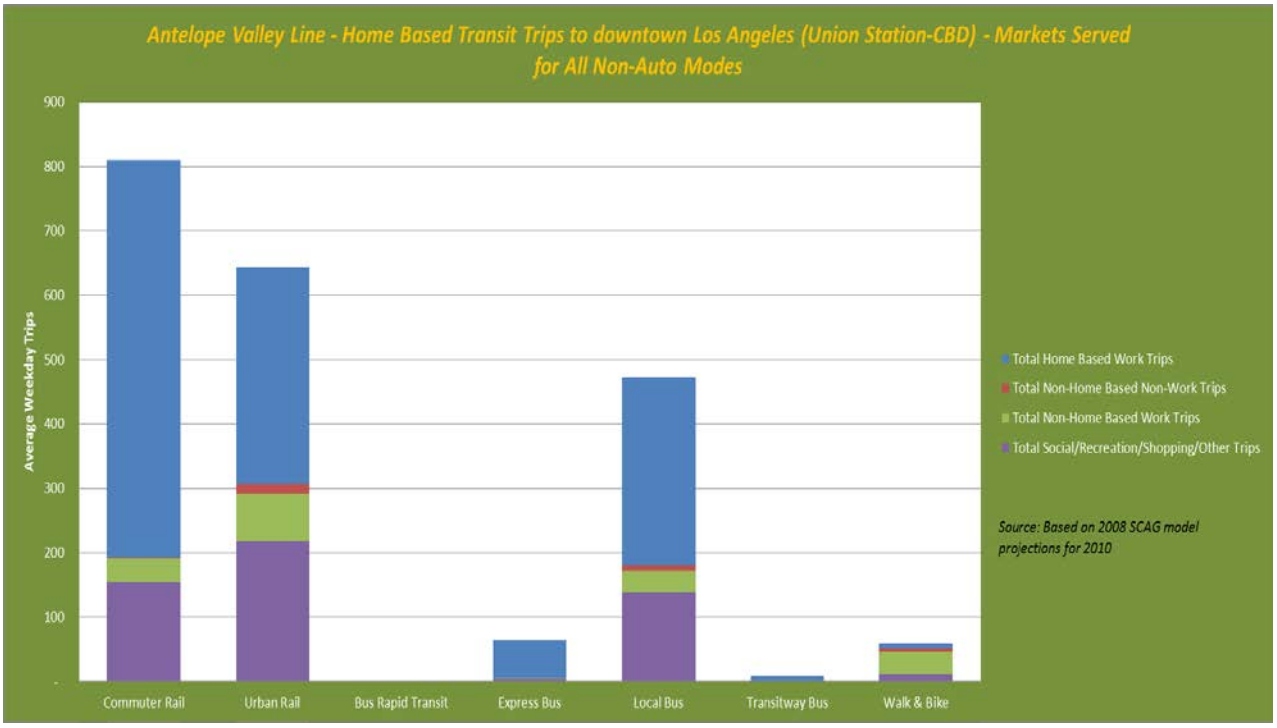



**Figure 5–27: Attachment F-6.1 Home Catchment Areas and Destination Area (Orange County Line)**

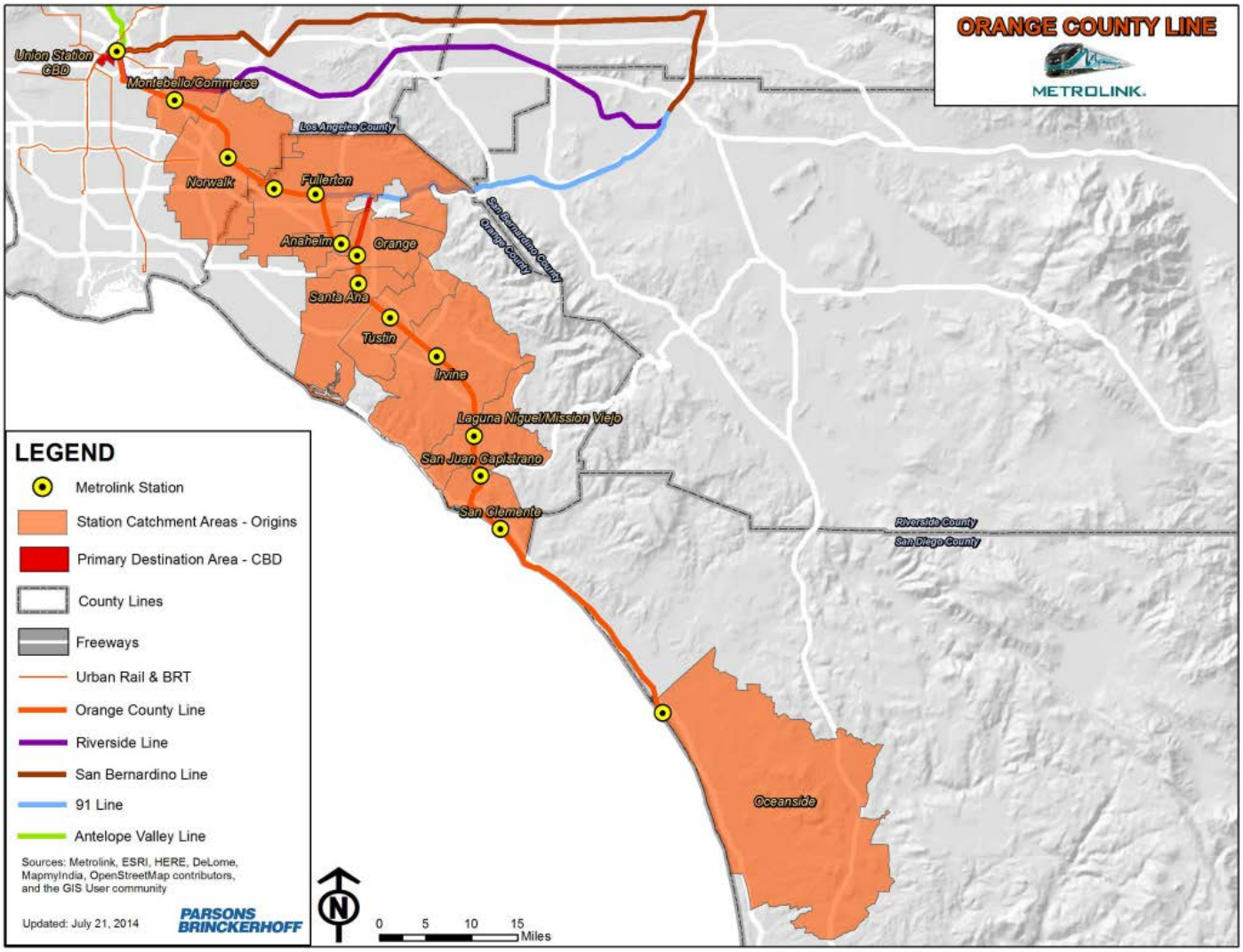
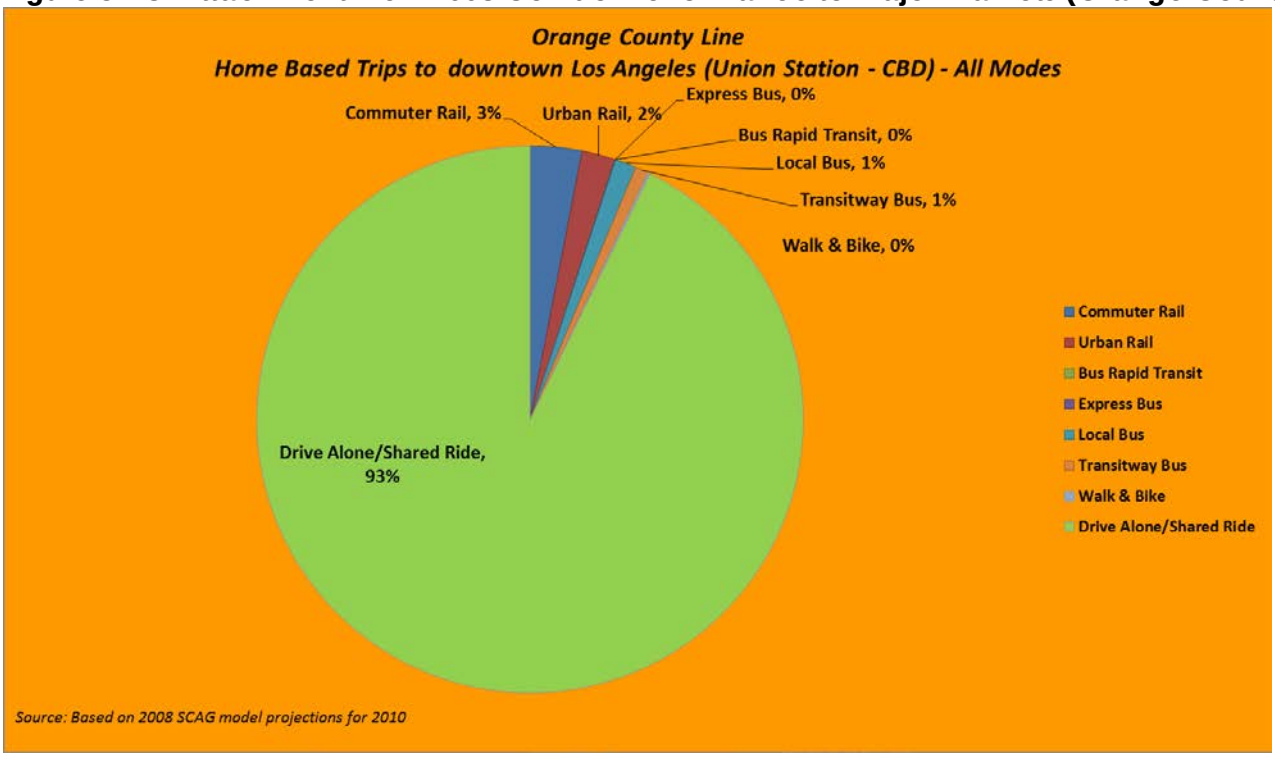


**Figure 5–28: Attachment F-6.2 2008 Corridor Performance to Major Markets (Orange County Line)**



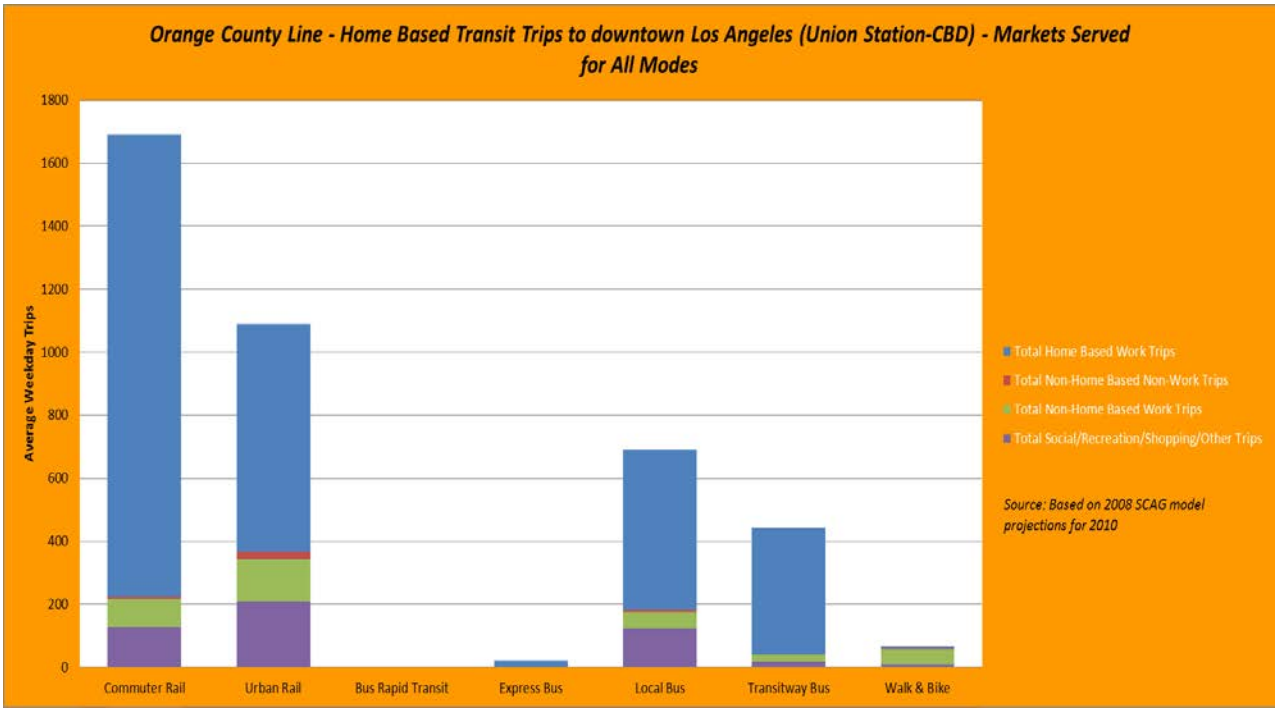
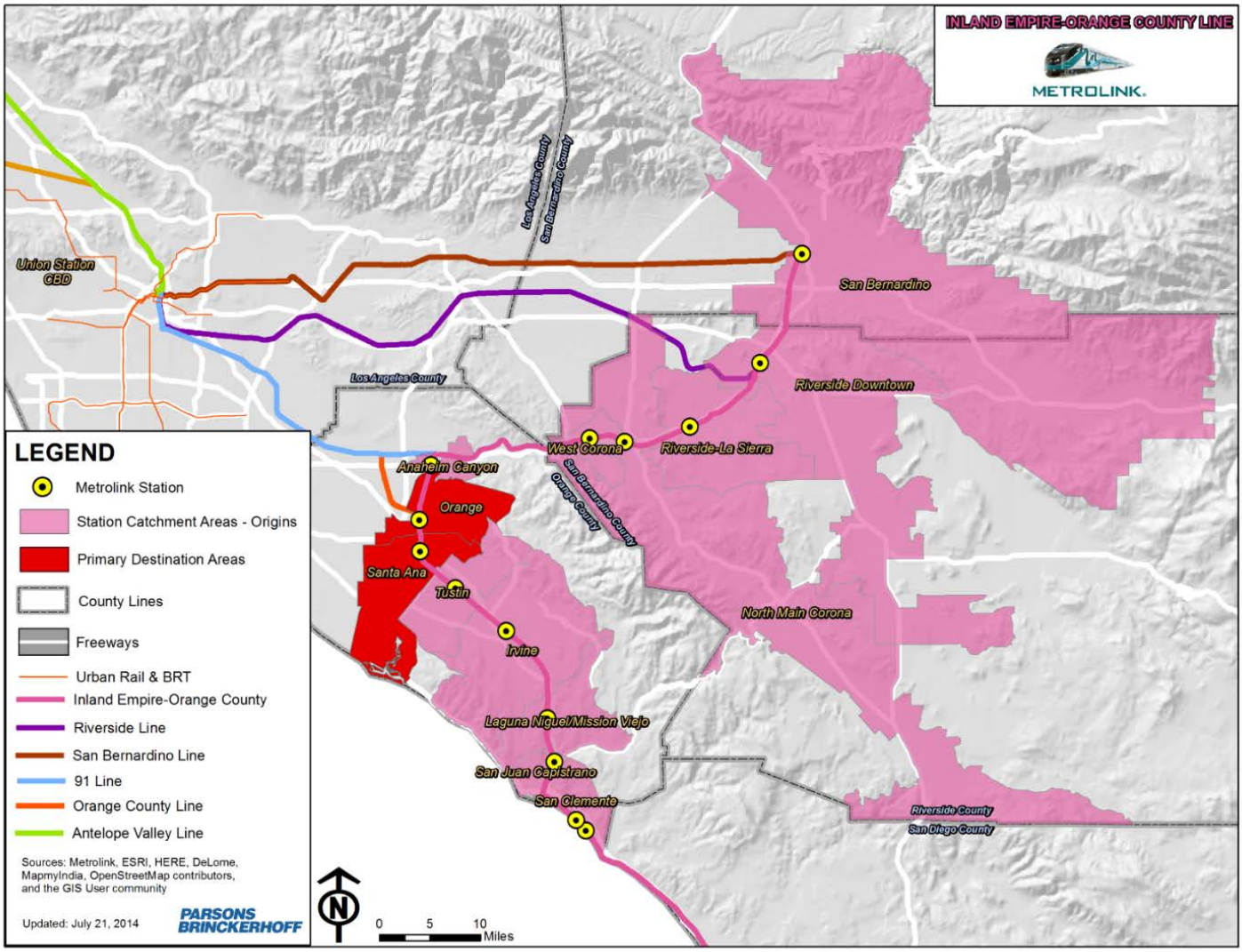
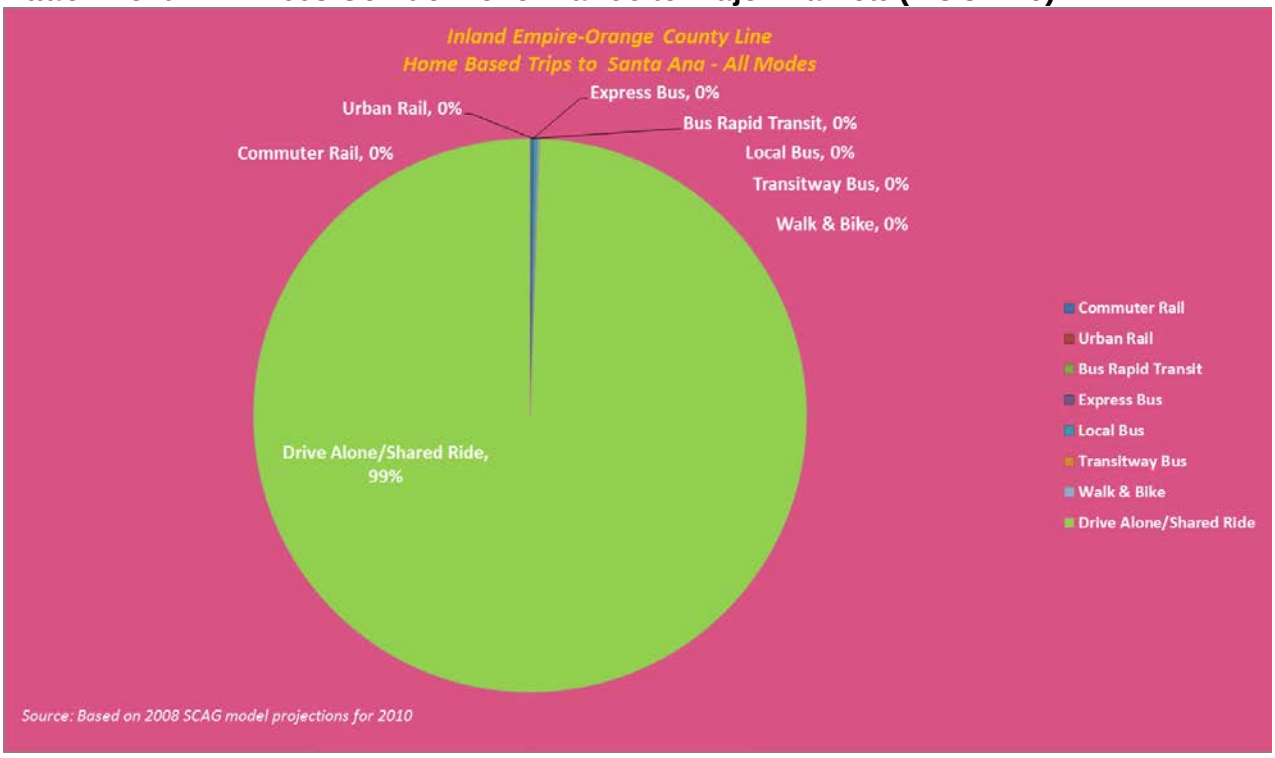



**Figure 5–29: Attachment F-7.1: Home Catchment Areas and Destination Area (IEOC Line)**



**Attachment F-7.2: 2008 Corridor Performance to Major Markets (IEOC Line)**



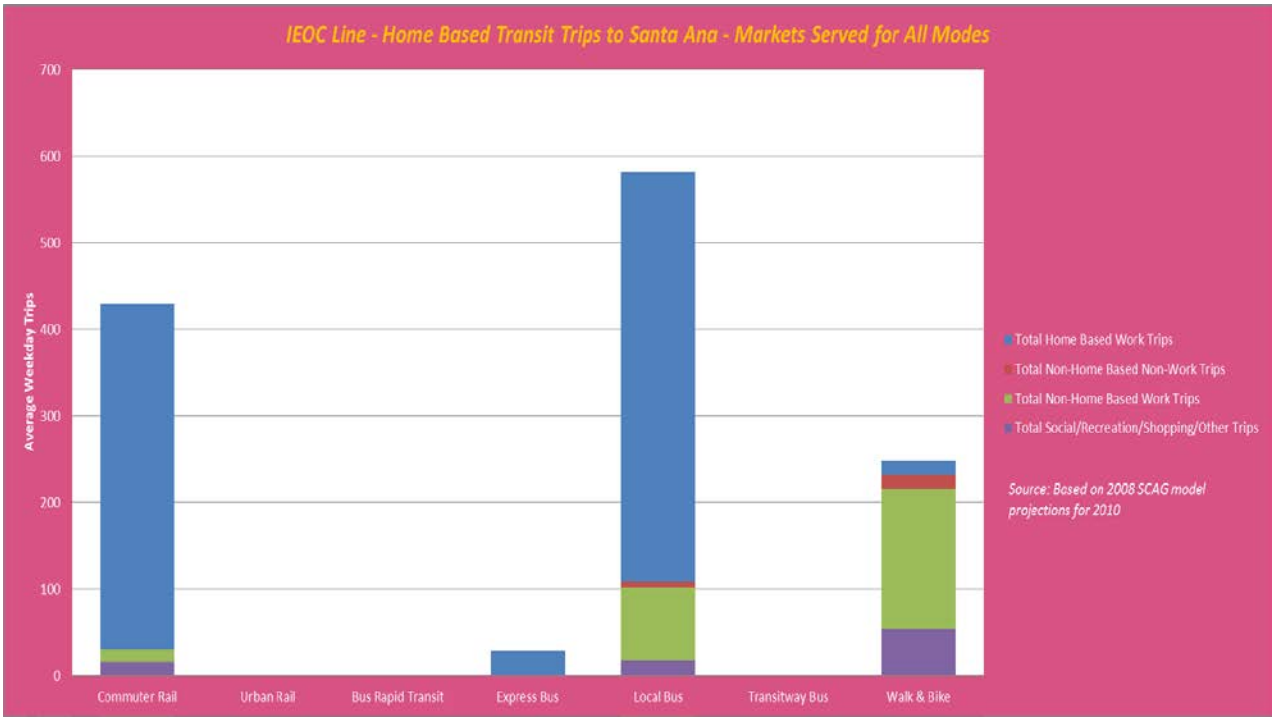



**Figure 5–30: Attachment F-8.1 Home Catchment Areas (Systemwide)**

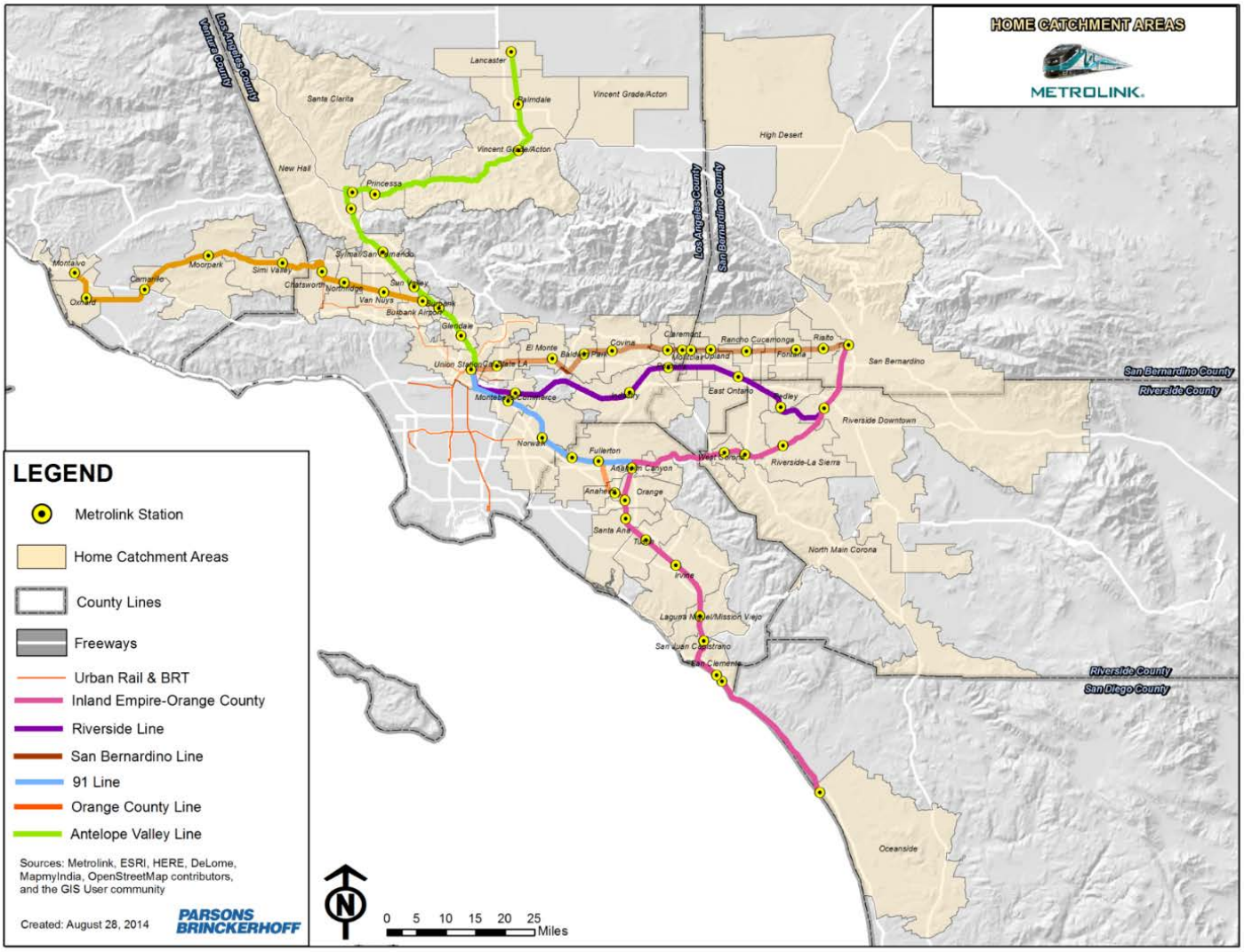
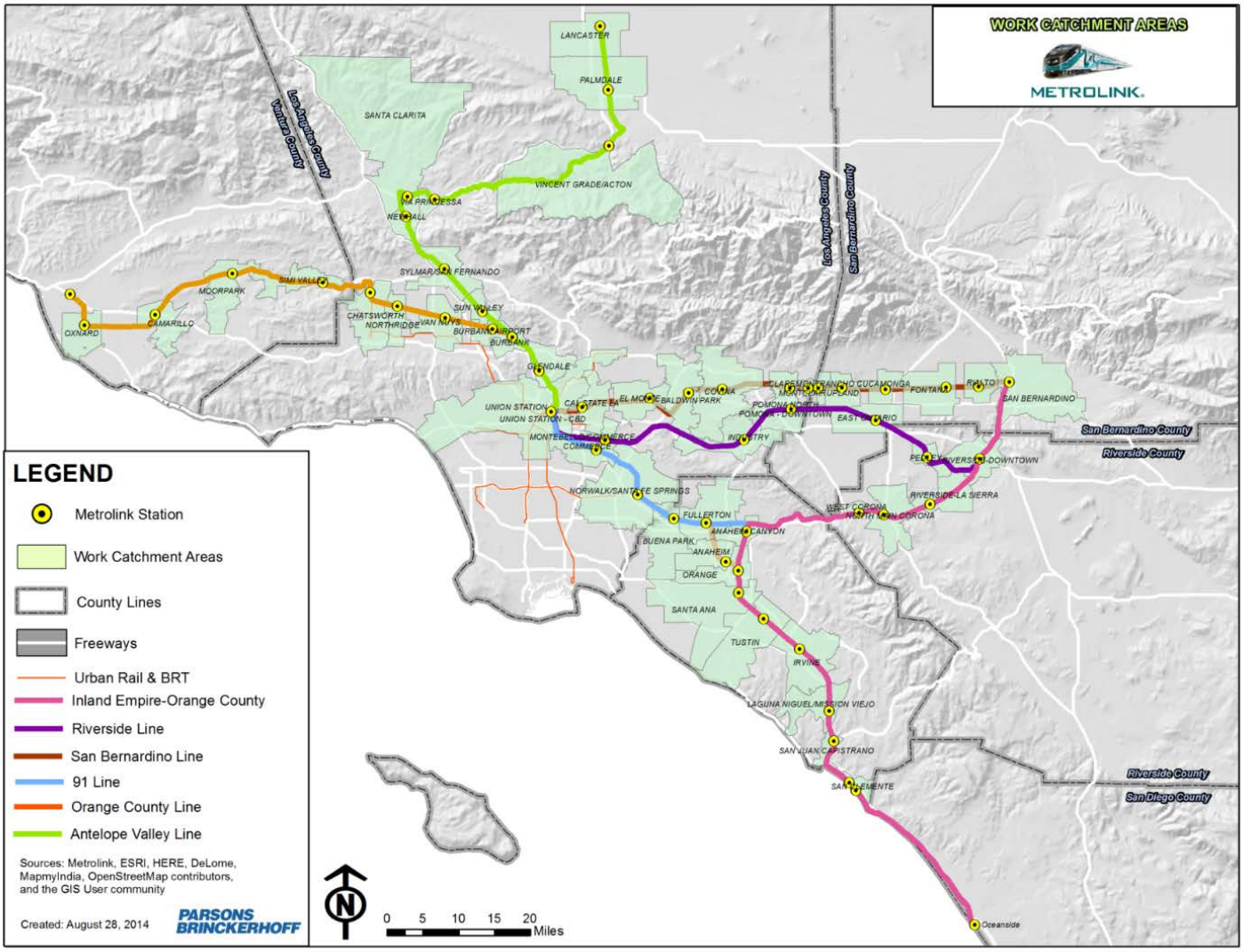


**Figure 5–31: Attachment F-8.2: Work Catchment Areas (Systemwide)**



# 6.0 CORE INSTITUTIONAL NEEDS

## 6.1 INTRODUCTION

As part of the Strategic Plan process for SCRRA, a number of core institutional needs were identified for the agency to focus on in the immediate term (1-3 years). The purpose of this report is to give focus to a number of core concerns that have been identified through various interviews and analyses that have the potential to impact the agency's ability to grow, provide reliable service and a create a positive customer experience.

## 6.2 CORE INSTITUTIONAL NEEDS

The core institutional needs as defined in this report began with the interviews conducted with each of the Board members, alternates, and Technical Advisory Committee (TAC) members in working to establish a framework to begin the Strategic Planning process. These core needs were expressed as weaknesses or concerns by each Board or TAC member. Many of these core needs formed the basis for the "Guiding Principles" that were defined by the Board and TAC at the annual workshop on February 28, 2014, and were later quantified in the development of the Strengths, Weaknesses, Opportunities, and Threats (SWOT) report as more specific weaknesses or threats to the agency.

The Core Institutional Needs have been identified as basic priorities that must be met before serious consideration can be given to increasing service extensions beyond current service limits. These needs constitute institutional investments that must be made in each of defined core areas together as part of an overall program in order for SCRRA to move forward to again build trust with its Member Agencies and allow it to grow to meet the needs of its customers.

The following core needs have been identified and are described in more detail below:

- Stabilize Operating Cost Growth
- Strengthen the Case for Supporting System Rehabilitation
- Focus on Ridership Retainage and Growth
- Improve Transfer of Institutional Knowledge
- Clarify Cross-Agency Roles and Responsibilities
- Develop Agency Goals
- Improve Coordination and Transparency with Member Agencies and other Partners

### 6.2.1 Stabilize Operating Cost Growth

One of the most fundamental needs of SCRRA will be to stabilize the operating cost growth. Over the past 10 years, the operating costs have increased an average of seven percent each year

and, as of the end of fiscal year FY2013, had grown nearly 100-percent since FY2004. SCRRA's operating costs have grown nearly double the average rate over the past 10 years compared to SCRRA's peer agencies across the country. With SCRRA's sole source of operating funds currently being provided by its Member Agencies in terms of their net subsidy obligations, this rate of growth threatens to limit the ability of these agencies to fund any future growth and improvement in the system. For this reason, the stabilization of the operating cost growth rate is seen as a core institutional need for SCRRA to address in the immediate term.

The purpose of this section is to present some potential solutions and next steps for addressing the increasing rate of growth in the operating budget.

In order to stabilize the growth, the first step is to identify the largest contributors to this growth. This was done as part of the SWOT analysis and Cost & Budget Assessment (included as an appendix to this Plan). As laid out in both the SWOT analysis and Cost & Budget Assessment, the largest contributors currently to the operating budget growth rate include:

- Operating contracts (the Big "5" contracts):
- Train operations
- Vehicle maintenance
- Right-of-way / Maintenance-of-Way
- Security
- Signals and Communication
- Fuel Costs
- Risk Management and Insurance
- General Inflation (except fuel)

Some of the factors contributing to the high growth rate are based on multi-year fixed agreements and can be difficult to address in the immediate term. Several key improvements or changes however, that can help in reducing the annual growth rate of the operating budget moving forward can include:

- Developing documentation that defines how annual labor rates in the contracts are negotiated. This information should be included in bid packages for contractors to comply with when bidding on the operating contracts. This can include:
- Wages for all non-exempt positions within the train operations contract cannot be tied to national union agreements in which passenger rail operators do not currently contribute to in the negotiations. Each agreement must be negotiated locally with the unions. Continuing to

tie wages to national union agreements can easily exceed the available annual increase possible by some Member Agencies.

- Wages for all non-exempt positions within the signal and communications contract should be based on the determination of the State Department of Industrial Relations (SDIR) and not based on the contractor requirements. The SDIR has determined that the Brotherhood of Railroad Signalmen (BRS) union wage rates are the appropriate rates for the SCRRA signal and communications contract. These rates are on average 30 percent less than SCRRA is currently paying as part of the signal and communication contract.

- Eliminating contingency fees on operating contracts that do not reflect actual expenditures in the performance of the services.

- Enforcing more rigorously the liquidated damages associated with not meeting the performance elements outlined within each contract to help improve the overall performance of the system.

- Investing in fuel hedging to lock in multi-year fuel rates.

- Continuing to capitalize on new safety improvements such as Positive Train Control (PTC) and Crash Energy Management (CEM) to help reduce the annual operating liability insurance premiums.

- Continuing to focus on systemwide safety improvements to reduce the overall cost associated with claims.

- The actual costs versus the budget are volatile since it relates, in part, to the number of claims that the agency must pay out. By continuing to focus on safety improvements and enhancing its risk management program, SCRRA can reduce the number of incidents that require a claim to be paid.

In addition to the steps outlined to stabilize the growth in the operating budget, improvement in the transparency of the process is also required. The process for developing the annual operating budget, and the three-year look ahead, should be clearly defined and documented. Documenting the process is important in managing the expectations of the Member Agencies and the general public. Moving forward, the fiscal year SCRRA budgets transmitted to the Member Agencies for their approval per the SCRRA Joint Powers Authority (JPA) Agreement should not exceed Member Agencies' available funding.

### 6.2.2 Strengthen the Case for Supporting System Rehabilitation

Rehabilitation projects replace or upgrade existing assets before those assets reach their useful life. The replacement/upgrade of infrastructure assets (rail, cross ties, switches, structures, and signal systems) and rolling stock assets (locomotives and passenger cars) is essential for a safe and reliable commuter rail system.

Over the past five years, however, SCRRA has not made an effective case to the Member Agencies to fund the proposed rehabilitation budget. To improve this situation, SCRRA should focus on two key strategies.

- Quantifying Metrolink "state of good repair" (SOGR) for Member Agencies.

- Since FY2012, SCRRA's annual rehabilitation budget has been 100 percent funded with Member Agency federal funds (LACMTA annual rehabilitation contribution is local funded but swapped with VCTC federal funding). FTA MAP-21 requires transit agency rehabilitation expenditures to be at a SOGR level. SOGR means that all assets are well within their useful life and there is no deferred maintenance. SCRRA senior staff should ensure that the Member Agencies are informed of 1) any assets that are not in a SOGR backlog, 2) the rehabilitation expenditure necessary to eliminate the backlog, and 3) the exposure if investment is deferred, since deferred investment can lead to slower train speeds, higher ordinary maintenance costs, and accidents.

- Reducing Rehabilitation Carryovers

- In the past, rehabilitation projects received FTA pre-award authority and started once the annual budget had been approved by the SCRRA Board. This allowed projects to incur expenditures while the FTA grant approval process was proceeding. In 2011, due to SCRRA cashflow problems not related to the rehabilitation budget, SCRRA opted not to use pre-award authority. This helped the cashflow but delayed projects until the FTA grants were approved, which was often 8 to 9 months into the fiscal year. Since FY2012, this administrative delay has become one of the primary reasons annual rehabilitation budgets "carryover" year after year. SCRRA should work with the Member Agencies to obtain working capital and return to utilizing pre-award authority from the FTA for annual rehabilitation projects.

- Many rehabilitation projects are multi-year in nature. Infrastructure and rolling stock projects can take years to complete under the best of circumstances. Non-infrastructure projects, such as Oracle upgrades and signage projects, are multi-year. Rehabilitation projects are forced into an annual program due to the annual budget process. This has also led to significant carryovers year after year. While SCRRA currently prepares a multi-year rehabilitation budget, SCRRA needs to transmit this multi-year rehabilitation budget to the Member Agencies each year, along with the operating budget. The Member Agencies should use this budget to try to commit to planning for multiyear funding commitments beyond the current budget year (recognizing that actual contributions each year will be limited to the Section 5309, 5307, or 5337 Federal funds available to each Member Agency)

### 6.2.3 Focus on Ridership Retention and Growth

Metrolink has not seen a resurgence in ridership following the end of the economic recession, despite increasing gas prices, which has caused transit ridership overall to grow. While the Strategic Plan process is taking the first step in evaluating the potential causes for the stagnation in ridership, SCRRA should define a process for continually reviewing and diagnosing ridership trends to identify ongoing or potential issues that have or may cause further decline.

Several key strategies that can help in evaluating the cause of stagnated ridership and the potential for growth moving forward should include:

- Launching a Ridership & Revenue Initiative
- SCRRA should identify and track, on a regular basis, the competition for its service in order to identify areas of potential ridership decline. By tracking the pricing, travel time, frequency, and ridership of the competing services, SCRRA can better respond to declines in ridership and develop a focused marketing strategy to mitigate any impact to ridership. This can also include partnering with different transit agencies to create a more user-friendly and convenient service to the customers.
- Developing a more Comprehensive Marketing Plan that is continually updated and distributed to the Member Agencies for reference
- The Plan should focus on highlighting areas of potential ridership growth for the service and lay out a targeted strategy for marketing those areas. As part of this effort, marketing partnerships with Member Agencies should be developed with roles and responsibilities for each agency clearly defined.
- Updating Origin-Destination surveys every two years to provide more up-to-date and accurate information in tracking the needs of the customers.
- Developing a policy for conducting and evaluating periodic pilot programs, based on market research, which might help promote ridership. This can include potential fare structure adjustments (e.g. premium fares on express trains).

Reliability and on-time performance are important metrics that relate directly to customer experiences and the ability to retain existing and attract new riders. To help address this, the metrics used to measure the performance of the system should be better aligned to reflect the customer needs and experiences. A formal and documented strategy for reducing cancellations/annulments while maintaining overall on-time performance is required and can include:

- Adjusting in On-Time Performance (OTP) metrics to review OTP at all stations, not just terminals
- Tracking of passenger delay minutes (raw OTP) to be used as a metric of OTP

In addition to OTP, other metrics that warrant further review and attention include:

- Providing the Board/CEO/TAC a summary of recurring customer complaints and subsequent responses (indicating response time, understanding customer request/need, and providing adequate solutions)
- Reporting on the reliability of customer signage at stations and on-board trains
- Reporting on the customer feedback and lessons learned from delays experienced by customers from incidents with significant delays, annulments, and cancellations
- Improving plans to solicit better community feedback and participation in Board decisions/hearings

### 6.2.4 Retaining and Improving the Transfer of Institutional Knowledge

Retaining institutional knowledge is critical to understanding how to move forward in growing and improving the agency. Currently, SCRRA has no succession plan for retaining this knowledge as seasoned staff leave the agency; therefore, much of this institutional knowledge is lost. SCRRA should develop the internal processes to retain this internal expertise.

Several key strategies should be evaluated to help retain institutional knowledge and develop a succession plan, which include:

- Developing business processes and standard operating procedures for day-to-day operations that can lead to proper documentation and easy transfer of knowledge and practices to staff and contractors.
- Developing written transition and succession plans to pass on valuable knowledge for key positions within each discipline.
- The plan should outline the positions most sensitive to the loss of institutional knowledge and define an apprenticeship process for those positions.
- Instituting internal programs to promote knowledge sharing between departments
- Developing a management training program to help with development of staff within agency. Encouraging advancement within the agency will help in retaining the institutional knowledge by helping staff identify career opportunities within SCRRA.

### 6.2.5 Clarify Cross-Agency Roles & Responsibilities

The need to clarify the roles and responsibilities between SCRRA and its Member Agencies has been identified as a core institutional need throughout the Strategic Planning process. As SCRRA has grown over the past 22 years and, in particular, over the past 5 years, the Member Agencies have assumed increasing responsibilities related to capital project design and construction, marketing, security, and service planning. No documentation, however, has been prepared to

formalize the specific responsibilities between SCRRA and the Member Agencies. A lack of clear definition in the roles and responsibilities can lead to confusion as to which agency is responsible for what and can result in either the duplication of efforts or a delay of a task or project, thereby increasing overall costs.

SCRRA should work with the Member Agencies to identify areas where roles and responsibilities need to be clarified and defined. To do this, several key strategies should be evaluated and include, but not be limited to:

- Developing a process for securing agreement for what types of functions SCRRA or the Member Agencies should take responsibility.
- Documenting the roles and responsibilities for reference by all parties once agreement has been achieved.
- Defining the process for executing MOUs with Member Agencies that summarize the roles and responsibilities between SCRRA and the Member Agencies for specific tasks or projects, as well as between the Member Agencies for issues related to Metrolink.

### 6.2.6 Develop Agency Goals

SCRRA should establish goals for its agency. Through the SWOT analysis interviews, a concern was expressed regarding the lack of clear direction and goals for the agency and a request that the Strategic Plan take the first step in the development of these goals. Setting agency goals is critical in being able to improve the overall performance of the system and in communicating to the public what the agency seeks to accomplish. When focusing on outcomes that are set by clear and measureable goals, SCRRA will be able to operate more effectively. SCRRA should move forward with establishing a set of agency goals, such as:

- Developing goals that are attainable and realistic and that the customer can understand and support.
- Developing goals that are compatible with regional rail service goals of its Member Agencies, as well as the Los Angeles-San Diego-San Luis Obispo Joint Powers Authority (LOSSAN JPA).
- Developing a process for tracking performance against agency and department goals and producing an easy-to-follow summary that can serve as a measure towards improvement and service sustainability.

### 6.2.7 Improve Coordination and Transparency with Member Agencies and Other Partners

The SWOT interviews with Board and TAC members indicate that there remains a significant concern regarding coordination between SCRRA and its Member Agencies and Board members and the transparency of information provided for decision-making. The success of any agency is based on trust and communication between agency staff and its Board, as well as between an agency and its funding partners. Several key strategies should be evaluated to help improve the

coordination and transparency between agency staff and the Board and TAC members, which include:

- Developing a process for the management of Board materials and presentations that includes a look-ahead of future Board topics and review of Board items.
- Strengthening the relationship between SCRRA staff and management and the TAC and Member Agency CEOs to develop more Member Agency trust.
- Ensuring that the SCRRA CEO attend regular TAC meetings and interface with the TAC members on concerns and solutions.
- Communicating with TAC and Member Agency CEOs individually on a regular basis by SCRRA management.
- Ensuring that SCRRA Board members update their respective Member Agency Boards on a regular basis regarding the status of SCRRA.
- These recommendations will help the SCRRA strengthen its core institutional needs and lead to a stronger and more effective commuter rail agency.
-

# 7.0 EVALUATION OF SERVICE GROWTH SCENARIOS

The following growth scenarios focus on 2025 service objectives and were evaluated independently against ridership, capital, and operating costs but can be also seen as complementary and cumulative to each other. Scenario development focused on determining weekday and weekend service levels for each Metrolink line.

The scenarios evaluated in this Strategic Plan include:

- No Service Growth Scenario
- Scenario 1: Enhancement of Existing Network
- Scenario 2: Overlay of Additional Service Patterns
- Scenario 3: High-Speed Rail Service Integration

## 7.1 NO SERVICE GROWTH SCENARIO

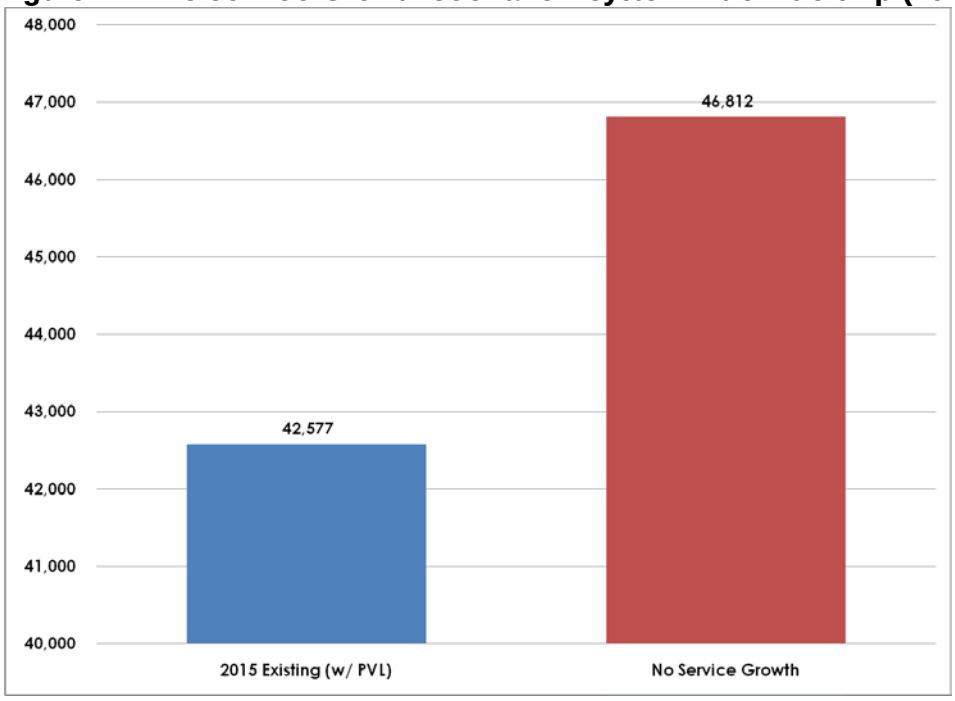
The No Service Growth Scenarios represents a "No Build" scenario between an existing base line condition (2015) and future condition (2025). This scenario assumes no significant change in the level or extent of Metrolink service over the next 10 years and is the scenario against which each of the other growth scenarios are compared. The ridership estimates for this scenario reflect only organic growth based on population and employment growth in the region. The service assumptions defined below for this scenario are based on the projected service that is planned to be in operation as of December 2015, with the implementation of the service extension to South Perris in Riverside County and to the E Street Transit Center in San Bernardino.

### 7.1.1 Projected Ridership

A ridership analysis was conducted by the Southern California Association of Governments (SCAG) on the No Service Growth Scenario, as well as Scenarios 1 and 2, using the 2012 Regional Transportation Plan (RTP) calibrated regional model. Information from the latest California High-Speed Rail Authority (CHSRA) ridership analysis was not available at the time of the ridership analysis; therefore, a ridership analysis could not be conducted on Scenario 3 utilizing the SCAG regional model.

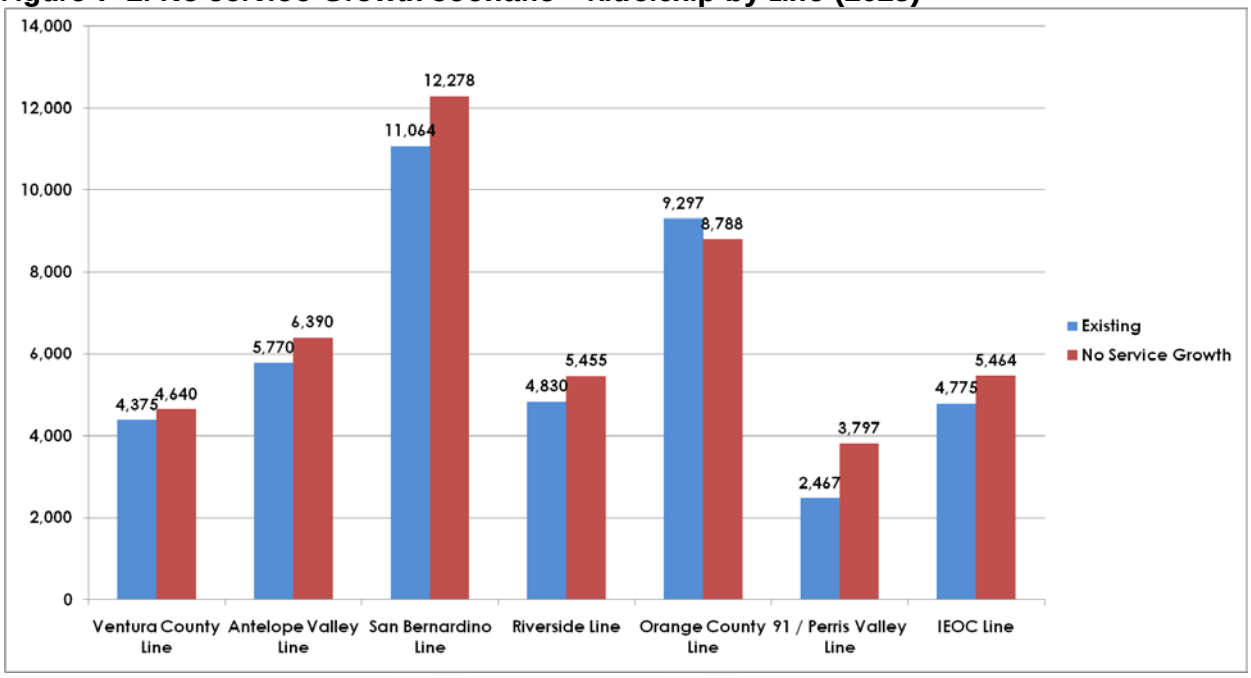
The results of the ridership analysis, as shown in Figure 7–1, suggest nominal systemwide growth over the next 10 years under the No Service Growth scenario, reflecting an increase of 9.9 percent.

**Figure 7–1: No Service Growth Scenario – Systemwide Ridership (2025)**




Ridership increases for each line under the No Service Growth Scenario compared to existing ridership. The 91/ Perris Valley Line shows the largest growth at 54 percent compared to existing ridership.

**Figure 7–2: No Service Growth Scenario – Ridership by Line (2025)**



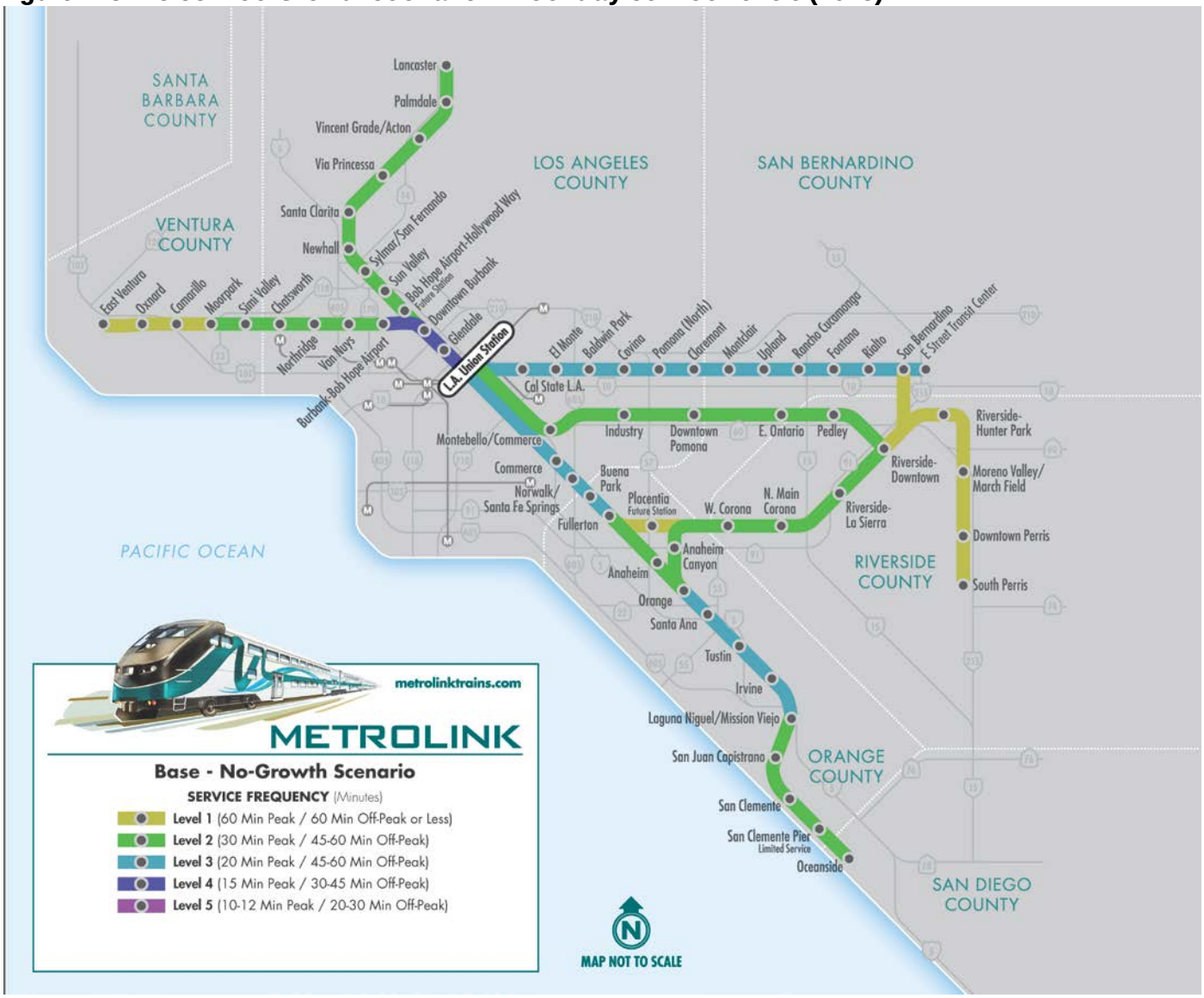
### 7.1.2 Weekday Service Assumptions

By definition, weekday Metrolink service levels and patterns are assumed to remain the same as they are today in this scenario. Table 7–1 presents the service levels in terms of the number of revenue trains, by direction of traffic and time of day. The map in Figure 7–3 summarizes this information by categorizing the peak and off-peak frequency of Metrolink service on each segment of the regional rail network. The map shows that operations are densest in the territory surrounding Los Angeles Union Station (LAUS), as multiple branch lines converge.

**Table 7–1: No Service Growth Scenario – Weekday Service Assumptions (2025)**

| Line | TOTAL | INBOUND AM Peak | INBOUND Midday | INBOUND PM Peak | INBOUND Evening | INBOUND Night | OUTBOUND AM Peak | OUTBOUND Midday | OUTBOUND PM Peak | OUTBOUND Evening | OUTBOUND Night |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ventura County (Burbank Turns) | 31 | 6 | 4 | 5 | 0 | 0 | 5 | 2 | 8 | 0 | 1 |
| Antelope Valley | 30 | 5 | 6 | 2 | 1 | 1 | 2 | 5 | 6 | 1 | 1 |
| San Bernardino | 38 | 9 | 5 | 2 | 2 | 1 | 2 | 5 | 8 | 2 | 2 |
| Riverside | 12 | 4 | 1 | 1 | 0 | 0 | 0 | 1 | 5 | 0 | 0 |
| Orange County: | | | | | | | | | | | |
| To/from Los Angeles | 19 | 6 | 1 | 2 | 0 | 1 | 2 | 1 | 6 | 0 | 0 |
| To/From Fullerton | 10 | 0 | 2 | 2 | 0 | 1 | 0 | 2 | 1 | 1 | 1 |
| 91 / Perris Valley | 9 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 |
| Inland Empire-Orange County | 16 | 0 | 3 | 4 | 1 | 0 | 5 | 2 | 1 | 0 | 0 |

**Figure 7–3: No Service Growth Scenario – Weekday Service Levels (2025)**




### 7.1.3 Weekend Service Assumptions

In the No Service Growth scenario, weekend service remains the same, at approximately 30 percent of the level of weekday service. Table 7–2 presents the total number of revenue trains systemwide in both directions is 48 on Saturdays and 42 on Sundays. The San Bernardino Line has the highest level of service, with 20 Saturday trains and 14 Sunday trains. The Antelope Valley Line operates 12 trains on weekend days. The Orange County Line has 8 daily trains on weekends, and the 91 Line and IEOC Line offer limited weekend service.

**Table 7–2: No Service Growth Scenario – Weekend Service Assumptions (2025)**

| Line | No Service Growth |
|---|---|
| **Ventura County** | -- |
| **Antelope Valley** | 12 |
| **San Bernardino (Saturday)** | 20 |
| **San Bernardino (Sunday)** | 14 |
| **Riverside** | -- |
| **Orange County** | 8 |
| **91 / Perris Valley** | 4 |
| **Inland Empire-Orange County** | 4 |
| **New Services** | -- |
| **TOTAL** | **42-48** |
| **% Growth Over No Service** | **--** |

### 7.1.4 Estimated Parking Needs by Station

In the No Service Growth scenario, overall system parking requirements are not found to exceed available parking, with 31,077 spaces available in 2015 and only 23,756 spaces required in 2025. Table 7–3 shows parking requirements by county for this scenario.

All estimates of existing and future parking requirements in this section are based off modeled results. Estimates for existing demand may deviate from actual current parking usage at stations (Table 7–4). Further, these estimates only account for Metrolink demand. Many stations in the Metrolink network share parking facilities with other transit properties. For this reason, counts of existing spaces and utilization that do not differentiate usage by purpose will deviate significantly from the existing parking demand estimates used in this section as a basis for comparison to the growth scenarios.

**Table 7–3: No Service Growth Scenario – Parking Demand and Growth by County**

| County | Existing Spaces Available (2015) | No Service Growth | (Deficit) / Surplus |
|---|---|---|---|
| **Los Angeles** | 10,486 | 8,479 | 2,007 |
| **Orange** | 8,304 | 7,410 | 894 |
| **Riverside*** | 6,055 | 3,645 | 2,410 |
| **San Bernardino** | 4,826 | 3,449 | 1,377 |
| **Ventura** | 1,406 | 773 | 633 |
| **TOTAL** | **31,077** | **23,756** | **7,321** |

**Includes Perris Valley Line Stations, which come online December 2015*

**Table 7–4: No Service Growth Scenario – Parking Demand and Growth by Station**

| Station | County | Existing Spaces Available (2015) | No Service Growth | (Deficit) / Surplus |
|---|---|---|---|---|
| **Anaheim** | Orange | 560 | 484 | 76 |
| **Anaheim Canyon** | Orange | 144 | 280 | -136 |
| **Baldwin Park** | Los Angeles | 460 | 245 | 215 |
| **Buena Park** | Orange | 302 | 442 | -140 |
| **Burbank Airport** | Los Angeles | 458 | 125 | 333 |
| **Camarillo** | Ventura | 406 | 99 | 307 |
| **Chatsworth** | Los Angeles | 816 | 271 | 545 |
| **Claremont** | Los Angeles | 440 | 384 | 56 |
| **Commerce** | Los Angeles | 135 | 0 | 135 |
| **Covina** | Los Angeles | 455 | 750 | -295 |
| **Downtown Burbank** | Los Angeles | 40 | 640 | -600 |
| **Downtown Pomona** | Los Angeles | 76 | 281 | -205 |
| **East Ontario** | San Bernardino | 656 | 422 | 234 |
| **East Ventura** | Ventura | 60 | 38 | 22 |
| **El Monte** | Los Angeles | 238 | 285 | -47 |
| **Fontana** | San Bernardino | 309 | 271 | 38 |
| **Fullerton** | Orange | 1,321 | 1,476 | -155 |
| **Glendale** | Los Angeles | 304 | 239 | 65 |
| **Hunter Park/Palmyrita Ave** | Riverside | 368 | 39 | 329 |
| **Industry** | Los Angeles | 1715 | 1,013 | 702 |
| **Irvine** | Orange | 1,993 | 1,218 | 775 |
| **Laguna Niguel /Mission Viejo** | Orange | 476 | 387 | 89 |
| **Lancaster** | Los Angeles | 420 | 144 | 276 |
| **Montclair** | San Bernardino | 1836 | 318 | 1,518 |
| **Montebello / Commerce** | Los Angeles | 255 | 412 | -157 |
| **Moorpark** | Ventura | 270 | 193 | 77 |
| **Moreno Valley/March Air Reserve Base** | Riverside | 316 | 168 | 148 |
| **Newhall** | Los Angeles | 324 | 223 | 101 |
| **North Main Corona** | Riverside | 1394 | 830 | 564 |
| **Northridge** | Los Angeles | 290 | 448 | -158 |
| **Norwalk / Santa Fe Springs** | Los Angeles | 694 | 537 | 157 |
| **Oceanside** | Orange | 995 | 416 | 579 |
| **Orange** | Orange | 375 | 481 | -106 |
| **Oxnard** | Ventura | 110 | 77 | 33 |

| Station | County | Existing Spaces Available (2015) | No Service Growth | (Deficit) / Surplus |
|---|---|---|---|---|
| **Palmdale** | Los Angeles | 750 | 159 | 591 |
| **Pedley** | Riverside | 288 | 194 | 94 |
| **Perris** | Riverside | 392 | 123 | 269 |
| **Placentia** | Orange | 274 | 287 | -13 |
| **Pomona (North)** | Los Angeles | 300 | 452 | -152 |
| **Rancho Cucamonga** | San Bernardino | 350 | 799 | -449 |
| **Rialto** | San Bernardino | 208 | 198 | 10 |
| **Riverside-Downtown** | Riverside | 990 | 1,036 | -46 |
| **Riverside-La Sierra** | Riverside | 1082 | 735 | 347 |
| **San Bernardino** | San Bernardino | 777 | 569 | 208 |
| **San Bernardino Transit Center** | San Bernardino | 396 | 435 | -39 |
| **San Clemente** | Orange | 150 | 92 | 58 |
| **San Juan Capistrano** | Orange | 172 | 86 | 86 |
| **Santa Ana** | Orange | 719 | 755 | -36 |
| **Santa Clarita** | Los Angeles | 446 | 297 | 149 |
| **Simi Valley** | Ventura | 560 | 366 | 194 |
| **South Perris** | Riverside | 699 | 88 | 611 |
| **Sun Valley** | Los Angeles | 320 | 75 | 245 |
| **Sylmar / San Fernando** | Los Angeles | 375 | 351 | 24 |
| **Tustin** | Orange | 823 | 1,006 | -183 |
| **Upland** | San Bernardino | 294 | 437 | -143 |
| **Van Nuys** | Los Angeles | 360 | 166 | 194 |
| **Via Princessa** | Los Angeles | 401 | 369 | 32 |
| **Vincent Grade / Acton** | Los Angeles | 414 | 99 | 315 |
| **West Corona** | Riverside | 526 | 432 | 94 |
| **New Stations** | | | | |
| **CSULA** | Los Angeles | 0 | 310 | -310 |
| **Hollywood Way** | Los Angeles | 0 | 204 | -204 |
| **New York Street** | San Bernardino | 0 | 0 | 0 |
| **Ontario Airport** | San Bernardino | 0 | 0 | 0 |
| **Redlands** | San Bernardino | 0 | 0 | 0 |
| **University** | San Bernardino | 0 | 0 | 0 |
| **USC Medical Center** | Los Angeles | 0 | 0 | 0 |
| **Total** | | 31,077 | 23,756 | 7,321 |

## 7.2 SCENARIO 1: ENHANCEMENT OF EXISTING NETWORK

The Enhancement of Existing Network Scenario represents a managed growth scenario based on feedback from Member Agencies of service assumptions they believe could be realistic to fund over the next 10 years. The growth for each line was validated against projected market growth along each corridor and refined based on Member Agency input. This scenario focuses on enhancing midday and evening services, addressing the need for additional reverse peak service, the maturity of the Perris Valley Line, the introduction of a new Placentia station in Orange County, a new Hollywood Way/Burbank Airport station in Los Angeles County. It also includes the Eastern Maintenance Facility (EMF) in Colton for regular maintenance of the fleet as well as the development of additional maintenance facility in outlying areas, such as Southern Orange County Riverside County, and the Antelope Valley.

Going beyond the Metrolink service increases, this scenario also identifies opportunities and strategies for improving (or creating) partnerships with regional transit providers. These opportunities would seek to improve the first and last mile connection for Metrolink passengers. In addition, creative fare structures are reviewed as possible solutions for encouraging additional ridership and flexibility for the customers. Key elements of the partnering and fare structure solutions include:

*Transit Partnerships*

- Explore more joint marketing opportunities with operators of both local and expresses to gain access to key employment centers
- Be vigilant and creative on discussions at the local, state, and federal levels for dedicated sources of operating support
- Pursue joint partnerships with managed lane operators and sponsors of major highway construction projects to support Metrolink service and capital improvements

*Innovative Fare Structures*

- Case study of student riders showed increased ridership in FY11 with the introduction of a 10 percent student discount. Growth weakened in FY12 after a 7 percent fare increase. In FY13, growth continued unchanged when student fares were exempted from a 5 percent fare increase.
- Case study of weekend day pass (non-commute service promotion) - in July 2011, Metrolink introduced a $10 weekend pass, the following year ridership increased by 63 percent, and fare revenue increased 15 percent. In July 2013, the weekend pass became a weekend day pass, and ridership and revenue continued to grow by 4 percent.
- Case study of Corporate Partner Program - some fluctuations suggesting inconsistency in sales and overall success, but some growth overall.
- Test different fare structures/pass types to support revenue growth.

### 7.2.1 Projected Ridership

Systemwide ridership under Scenario 1 is anticipated to increase 19.9 percent over existing 2015 daily boardings. When ridership is broken down by line, as shown in Figure 7–5, moderate growth is shown on each line, but only nominally on the Orange County Line. Ridership more than doubles on the 91 / Perris Valley Line with the enhancement of the existing network.

**Figure 7–4: Scenario 1 – Systemwide Ridership (2025)**

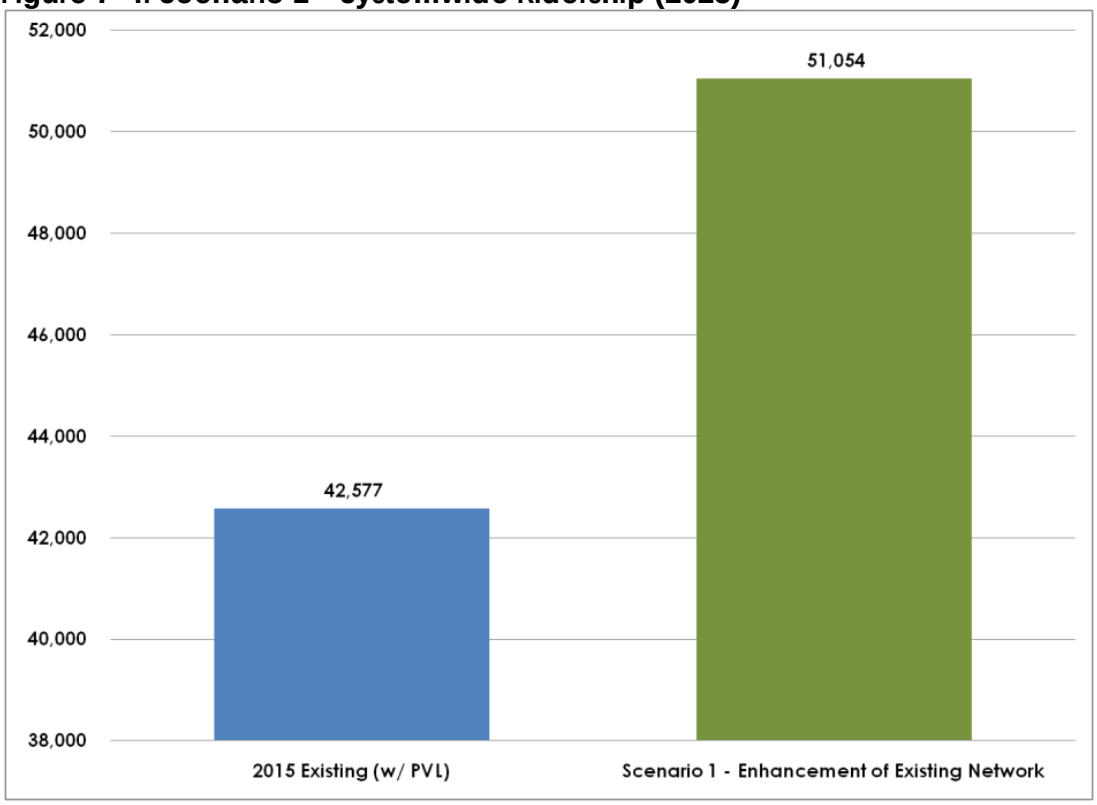
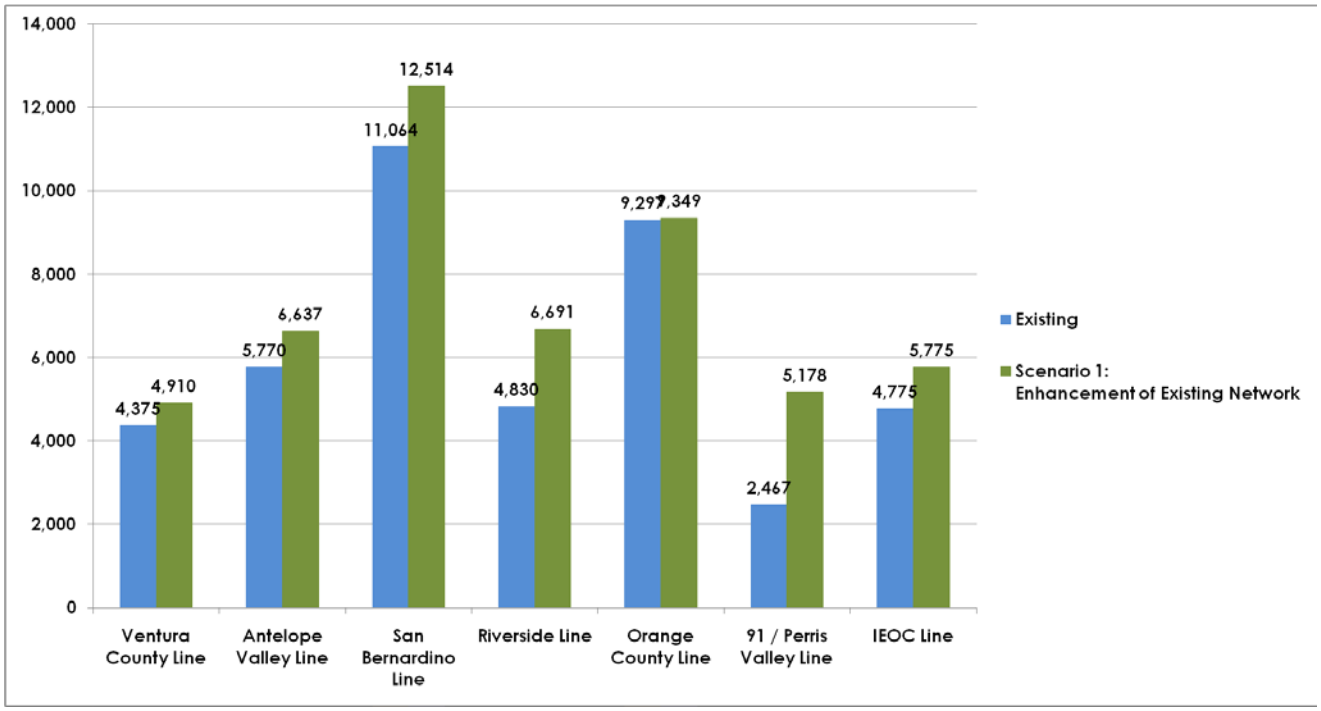


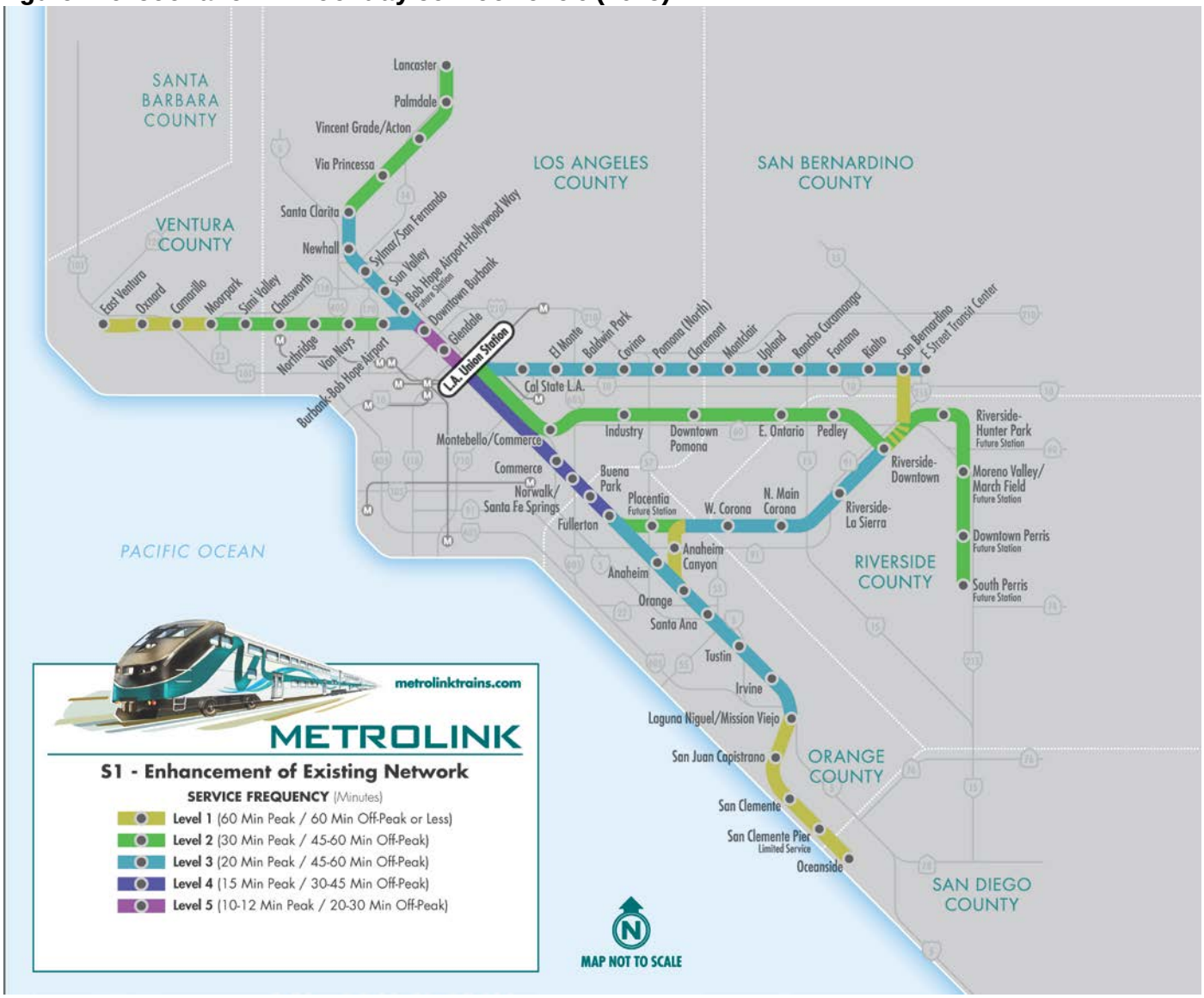
**Figure 7–5: Scenario 1 – Ridership By Line (2025)**




### 7.2.2 Weekday Service Growth

Metrolink rail service in this scenario is assumed to grow to better serve existing travel markets and to tap new markets within the existing and planned Metrolink service area. This scenario includes the planned Perris Valley extension east of Riverside. Traditional commuters receive service that is more frequent during weekday peak periods. As Figure 7–6 illustrates, the inner portions of Metrolink network operate at peak headways of 20 minutes or better, with the core between Burbank and Fullerton via Union Station operating with trains at 10-15 minute intervals during peak periods. Reverse-peak service and off-peak service is introduced or expanded to enable trips to be made on Metrolink across the entire region and at times of day other than rush hours.

**Figure 7–6: Scenario 1 – Weekday Service Levels (2025)**




In the Enhancement Scenario (Scenario 1), the level of Metrolink service increases on all Metrolink branch lines and in all periods of the day, as shown in the following graphs. Peak service is defined to be toward downtown Los Angeles in the morning peak three hours and outbound from Los Angeles during the evening peak three hours. The IEOC Line peak direction of travel is southbound toward Orange County in the morning and northbound in the afternoon. Reverse peak service is provided in the direction opposite the peak, during the three morning and afternoon peak hours. Off-peak service includes trains operating in the mid-day, in between the morning and afternoon peaks, as well as evening and late night service.

In this scenario, the San Bernardino, Antelope Valley, and Orange County lines remain the Metrolink lines with the greatest volume of total daily rail service. Peak service increases on all lines, but the greatest proportional increases are on the 91 Line, resulting from the introduction of Perris Valley

service, and on the Antelope Valley Line. Reverse-peak service is increased significantly on the Ventura County, San Bernardino, Orange County, and IEOC lines. Off-peak service is expanded on all lines. The increases are most significant on the lines with the least off-peak service today. Incremental increases in off-peak service are provided on the San Bernardino, Antelope Valley, and Orange County lines.

**Figure 7–7: Scenario 1 – Peak Trains**

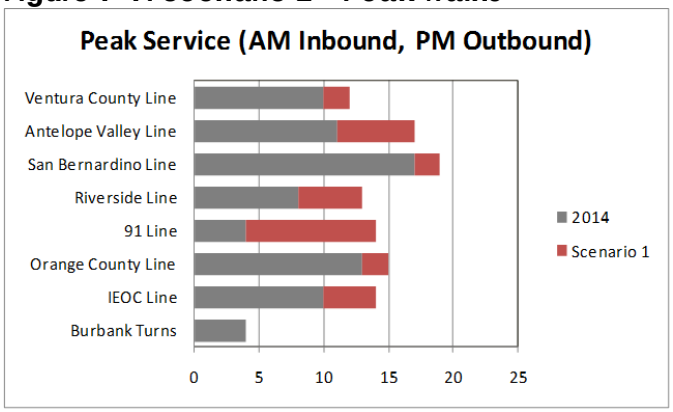



**Figure 7–9: Scenario 1 – Peak Trains**

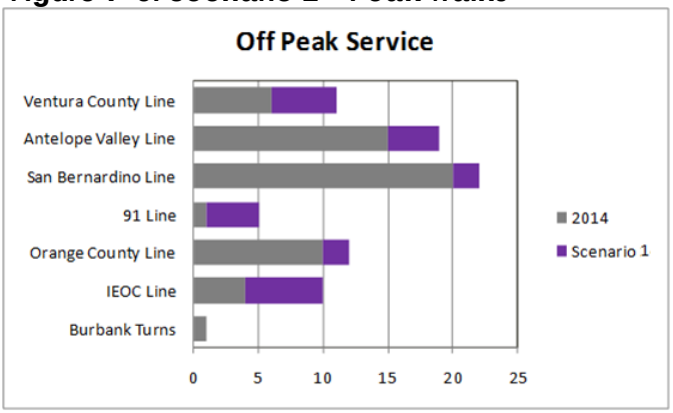



**Figure 7–8: Scenario 1 – Reverse-Peak Trains**

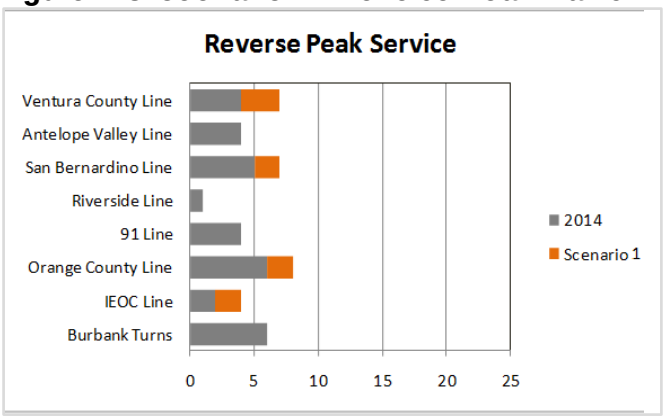



**Figure 7–10: Scenario 1 – Total Daily Trains**

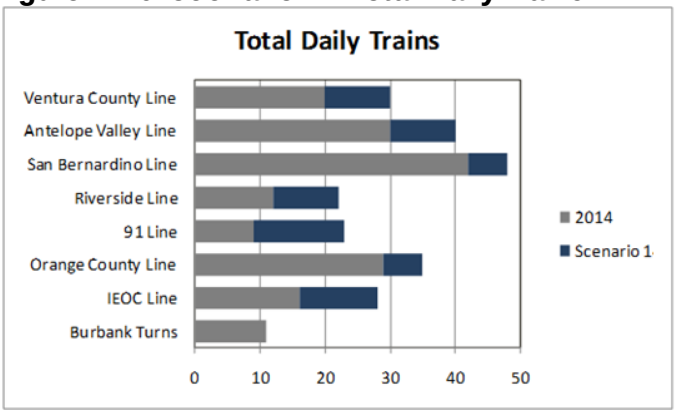



Table 7–5 summarizes the weekday service specification for Scenario 1, indicating the number of trains in each direction, by time of day, operating on each of the Metrolink branch lines. This service specification was used to develop the hypothetical timetables for Scenario 1.

**Table 7–5: Scenario 1 – Weekday Service Assumptions (2025)**

| Line | TOTAL | INBOUND AM Peak | INBOUND Midday | INBOUND PM Peak | INBOUND Evening | INBOUND Night | OUTBOUND AM Peak | OUTBOUND Midday | OUTBOUND PM Peak | OUTBOUND Evening | OUTBOUND Night |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ventura County (Burbank Turns) | 41 | 8 | 4 | 6 | 1 | 1 | 7 | 3 | 8 | 1 | 2 |
| Antelope Valley | 40 | 8 | 7 | 2 | 2 | 1 | 2 | 6 | 9 | 2 | 1 |
| San Bernardino | 48 | 9 | 6 | 4 | 2 | 3 | 3 | 6 | 10 | 2 | 3 |
| Riverside | 22 | 6 | 2 | 1 | 0 | 2 | 0 | 2 | 7 | 1 | 1 |
| Orange County | 35 | 7 | 3 | 5 | 0 | 3 | 3 | 2 | 8 | 2 | 2 |
| 91 / Perris Valley | 23 | 7 | 0 | 2 | 1 | 1 | 2 | 1 | 7 | 1 | 1 |
| Inland Empire-Orange County | 28 | 2 | 4 | 7 | 1 | 0 | 7 | 4 | 2 | 0 | 1 |

### 7.2.3 Weekend Service Growth

Weekend service is assumed to increase proportionally with the growth in weekday service, so that the number of weekend trains remains at approximately 30 percent of the number of daily trains on a typical weekday. A typical weekend day in this scenario would include the operation of 62-68 trains on six branch lines, as shown in Table 7–6.

**Table 7–6: Scenario 1 – Weekend Service Assumptions (2025)**

| Line | No Service Growth | Scenario 1: Enhancement of Existing Network |
|---|---|---|
| Ventura County | -- | -- |
| Antelope Valley | 12 | 16 |
| San Bernardino (Saturday) | 20 | 26 |
| San Bernardino (Sunday) | 14 | 20 |
| Riverside | -- | -- |
| Orange County | 8 | 10 |
| 91 / Perris Valley | 4 | 8 |
| Inland Empire-Orange County | 4 | 8 |
| New Services | -- | -- |
| TOTAL | 42-48 | 62-68 |
| % Growth Over No Service | -- | 42-48% |

### 7.2.4 Estimated Parking Needs by Station

For Scenario 1, parking requirements increase by a total 2,230 spaces over the requirements of the No Service Growth scenario. The total projected spaces required under Scenario 1 for 2025 are 25,986, which is 5,091 spaces less than available systemwide. Table 7–7 shows parking requirements by county for Scenario 1. Growth in parking demand is heaviest in Los Angeles, Orange, and Riverside counties. Table 7–8 shows parking demand and growth by station for Scenario 1.

### Table 7–7: Scenario 1 – Parking Demand and Growth by County

| County | Existing Spaces Available (2015) | Scenario 1: Enhancement of Existing Network | (Deficit) / Surplus |
|---|---|---|---|
| **Los Angeles** | 10,486 | 9,108 | 1,378 |
| **Orange** | 8,304 | 8,138 | 166 |
| **Riverside*** | 6,055 | 4,376 | 4,376 |
| **San Bernardino** | 4,826 | 3,591 | 1,235 |
| **Ventura** | 1,406 | 773 | 633 |
| **TOTAL** | **31,077** | **25,986** | **5,091** |

**Includes Perris Valley Line Stations, which come online December 2015*

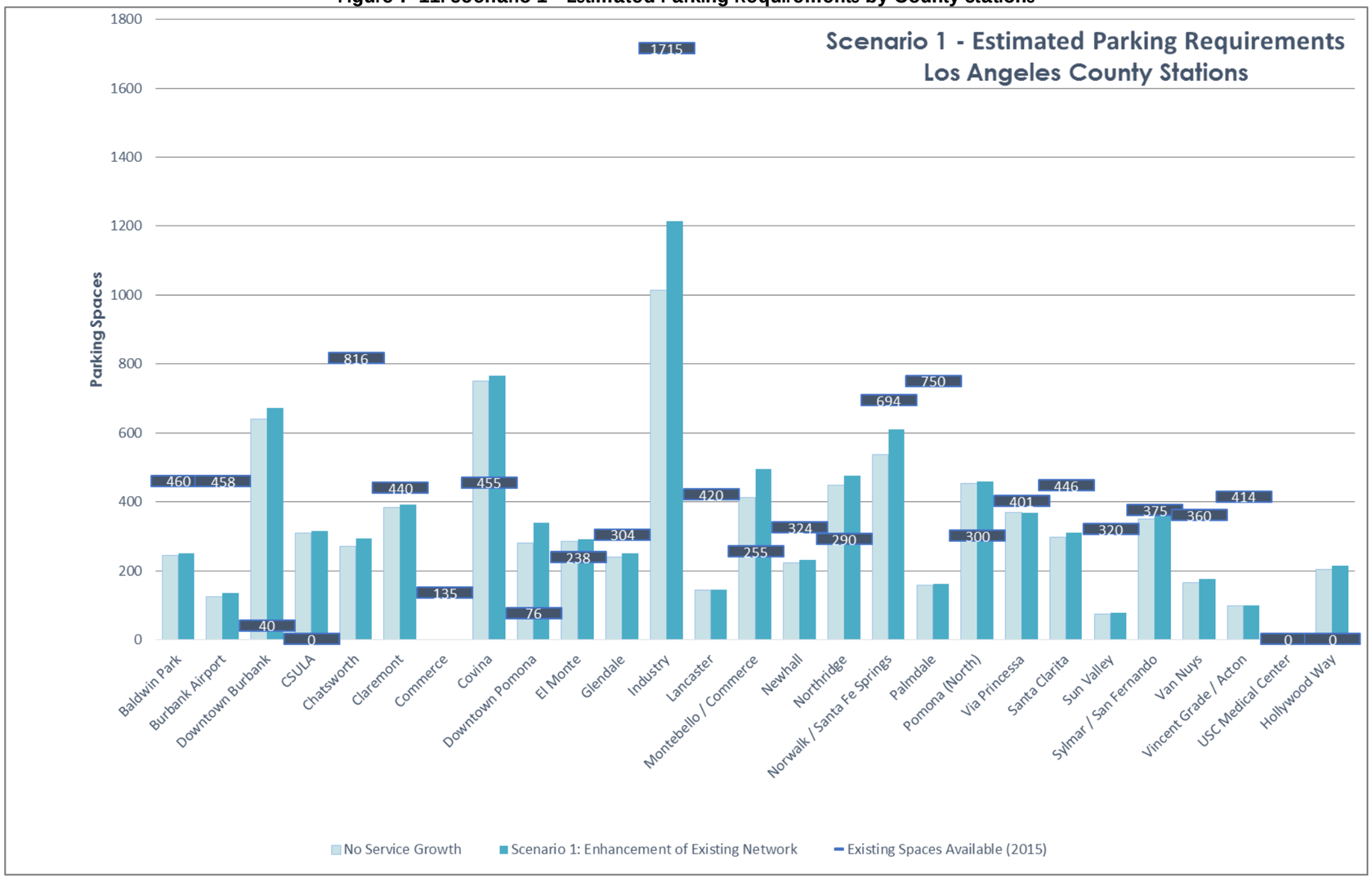
### Table 7–8: Scenario 1 – Parking Demand and Growth by Station

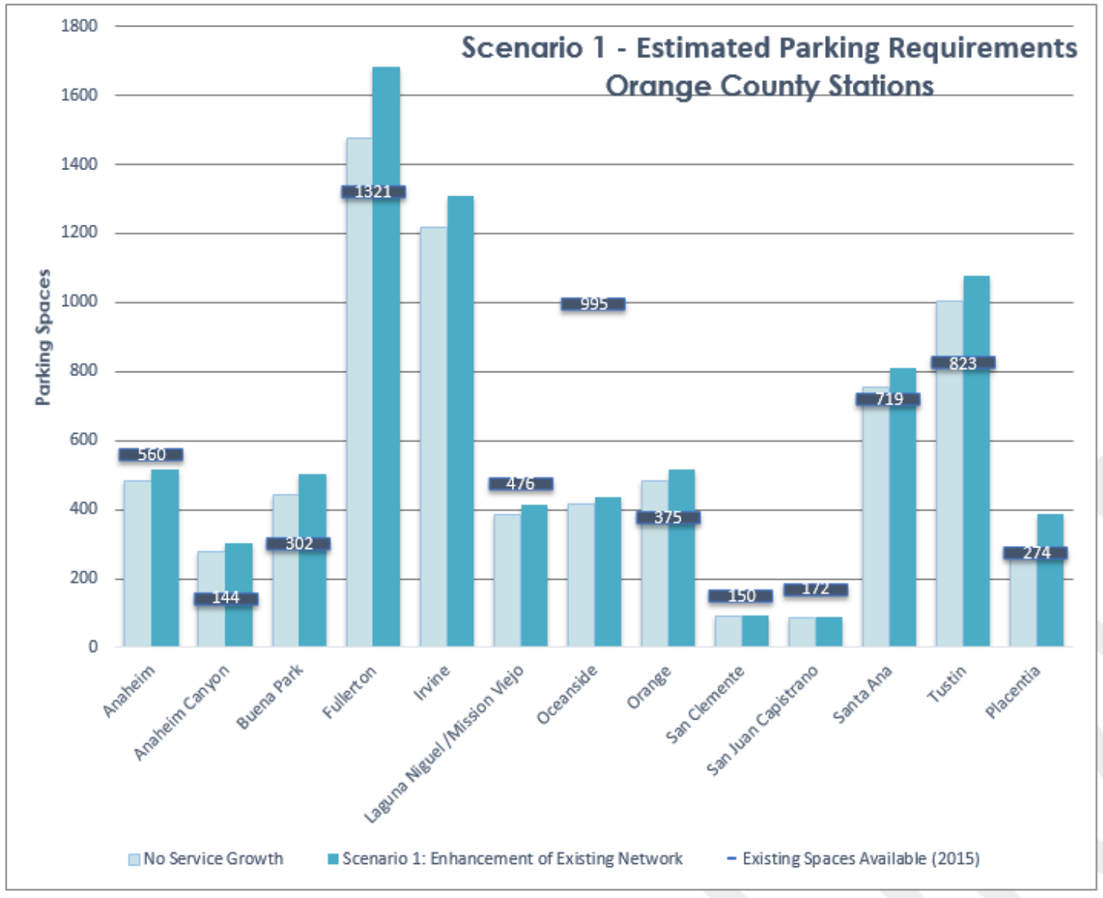
| Station | County | Existing Spaces Available (2015) | Scenario 1: Enhancement of Existing Network | (Deficit) / Surplus |
|---|---|---|---|---|
| **Anaheim** | Orange | 560 | 518 | 42 |
| **Anaheim Canyon** | Orange | 144 | 303 | -159 |
| **Baldwin Park** | Los Angeles | 460 | 250 | 210 |
| **Buena Park** | Orange | 302 | 505 | -203 |
| **Burbank Airport** | Los Angeles | 458 | 135 | 323 |
| **Camarillo** | Ventura | 406 | 99 | 307 |
| **Chatsworth** | Los Angeles | 816 | 293 | 523 |
| **Claremont** | Los Angeles | 440 | 391 | 49 |
| **Commerce** | Los Angeles | 135 | 0 | 135 |
| **Covina** | Los Angeles | 455 | 765 | -310 |
| **Downtown Burbank** | Los Angeles | 40 | 672 | -632 |
| **Downtown Pomona** | Los Angeles | 76 | 338 | -262 |
| **East Ontario** | San Bernardino | 656 | 507 | 149 |
| **East Ventura** | Ventura | 60 | 38 | 22 |
| **El Monte** | Los Angeles | 238 | 290 | -52 |
| **Fontana** | San Bernardino | 309 | 276 | 33 |
| **Fullerton** | Orange | 1,321 | 1,682 | -361 |
| **Glendale** | Los Angeles | 304 | 250 | 54 |
| **Hunter Park/Palmyrita Ave** | Riverside | 368 | 50 | 318 |
| **Industry** | Los Angeles | 1715 | 1,215 | 500 |
| **Irvine** | Orange | 1,993 | 1,307 | 686 |
| **Laguna Niguel /Mission Viejo** | Orange | 476 | 416 | 60 |
| **Lancaster** | Los Angeles | 420 | 145 | 275 |
| **Montclair** | San Bernardino | 1836 | 324 | 1,512 |

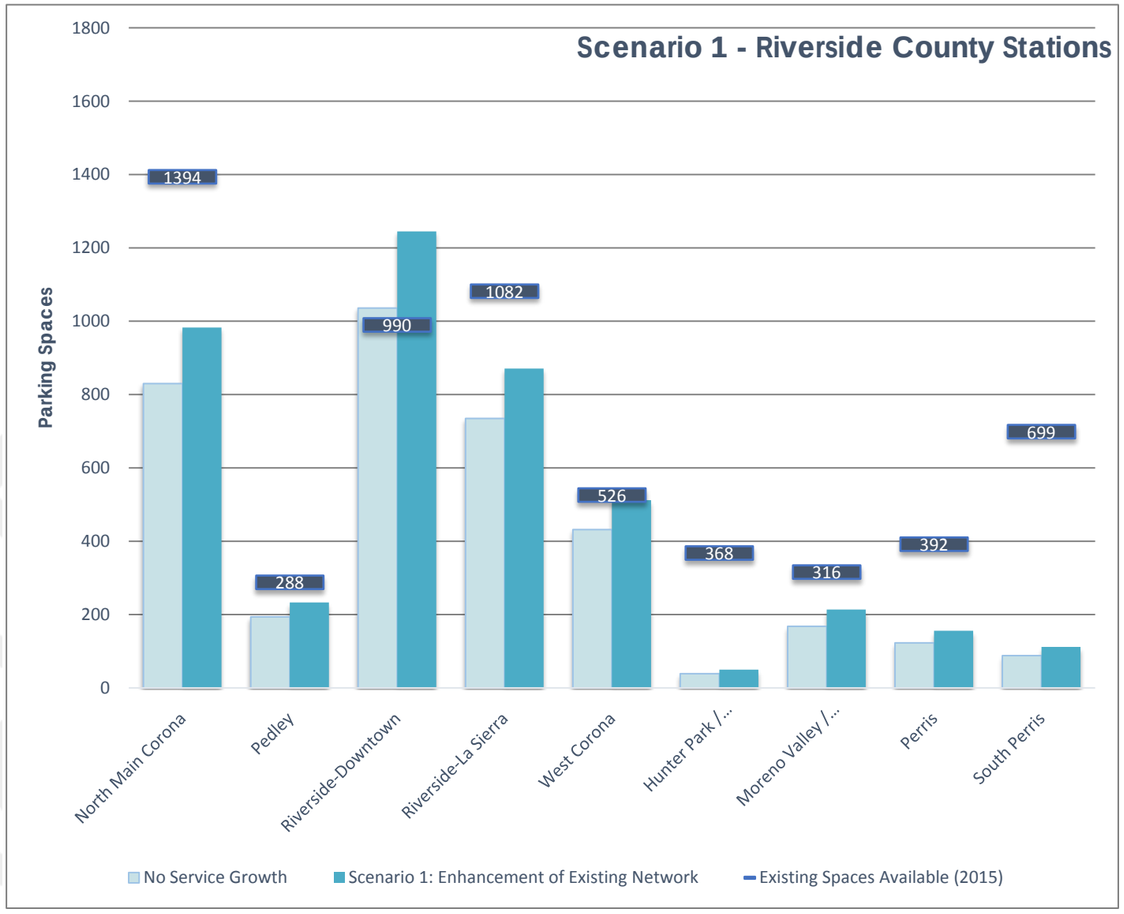
| Station | County | Existing Spaces Available (2015) | Scenario 1: Enhancement of Existing Network | (Deficit) / Surplus |
|---|---|---|---|---|
| **Montebello / Commerce** | Los Angeles | 255 | 494 | -239 |
| **Moorpark** | Ventura | 270 | 193 | 77 |
| **Moreno Valley/March Air Reserve Base** | Riverside | 316 | 214 | 102 |
| **Newhall** | Los Angeles | 324 | 232 | 92 |
| **North Main Corona** | Riverside | 1394 | 983 | 411 |
| **Northridge** | Los Angeles | 290 | 476 | -186 |
| **Norwalk / Santa Fe Springs** | Los Angeles | 694 | 610 | 84 |
| **Oceanside** | Orange | 995 | 434 | 561 |
| **Orange** | Orange | 375 | 517 | -142 |
| **Oxnard** | Ventura | 110 | 77 | 33 |
| **Palmdale** | Los Angeles | 750 | 162 | 588 |
| **Pedley** | Riverside | 288 | 233 | 55 |
| **Perris** | Riverside | 392 | 156 | 236 |
| **Placentia** | Orange | 274 | 385 | -111 |
| **Pomona (North)** | Los Angeles | 300 | 460 | -160 |
| **Rancho Cucamonga** | San Bernardino | 350 | 815 | -465 |
| **Rialto** | San Bernardino | 208 | 202 | 6 |
| **Riverside-Downtown** | Riverside | 990 | 1,245 | -255 |
| **Riverside-La Sierra** | Riverside | 1082 | 871 | 211 |
| **San Bernardino** | San Bernardino | 777 | 578 | 199 |
| **San Bernardino Transit Center** | San Bernardino | 396 | 444 | -48 |
| **San Clemente** | Orange | 150 | 94 | 56 |
| **San Juan Capistrano** | Orange | 172 | 87 | 85 |
| **Santa Ana** | Orange | 719 | 811 | -92 |
| **Santa Clarita** | Los Angeles | 446 | 311 | 135 |
| **Simi Valley** | Ventura | 560 | 366 | 194 |
| **South Perris** | Riverside | 699 | 112 | 587 |
| **Sun Valley** | Los Angeles | 320 | 78 | 242 |
| **Sylmar / San Fernando** | Los Angeles | 375 | 368 | 7 |
| **Tustin** | Orange | 823 | 1,079 | -256 |
| **Upland** | San Bernardino | 294 | 445 | -151 |
| **Van Nuys** | Los Angeles | 360 | 175 | 185 |
| **Via Princessa** | Los Angeles | 401 | 369 | 32 |
| **Vincent Grade / Acton** | Los Angeles | 414 | 100 | 314 |

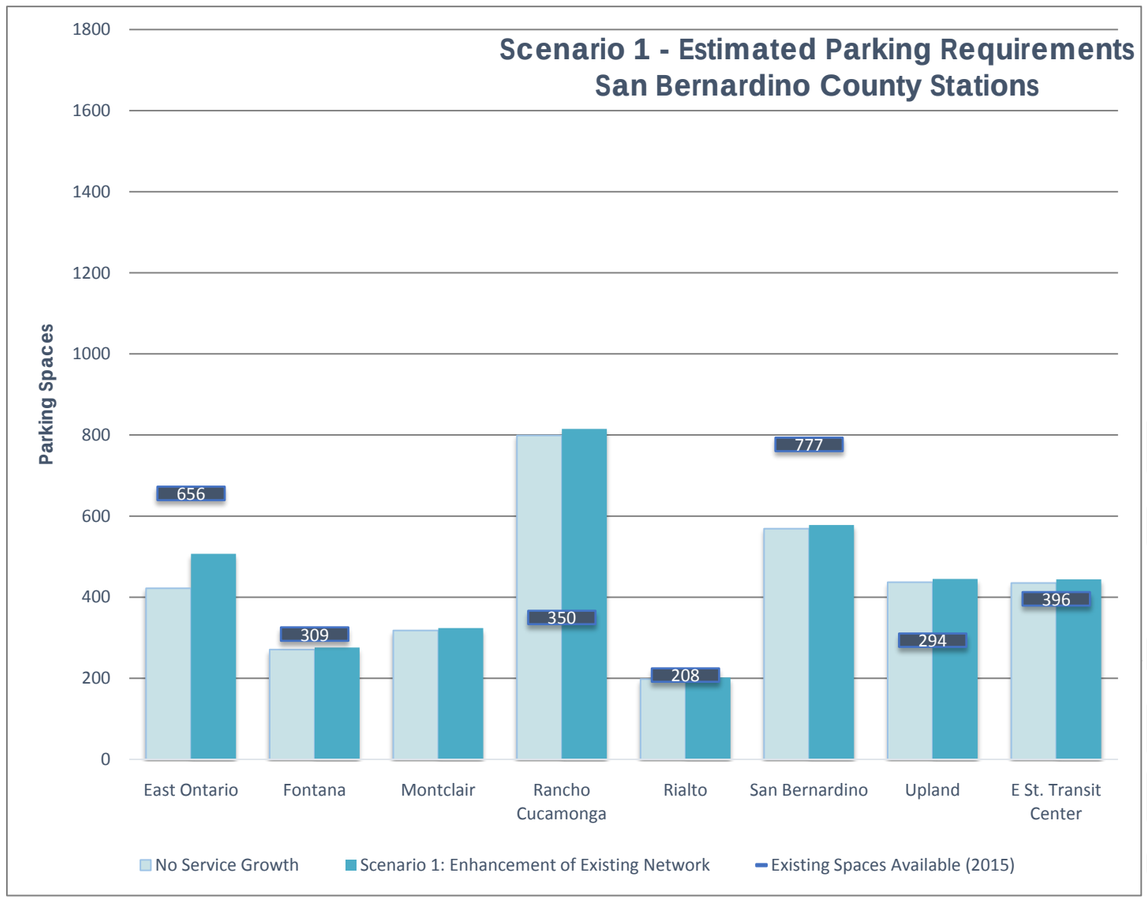
| Station | County | Existing Spaces Available (2015) | Scenario 1: Enhancement of Existing Network | (Deficit) / Surplus |
|---|---|---|---|---|
| **West Corona** | Riverside | 526 | 512 | 14 |
| **New Stations** | | | | |
| **CSULA** | Los Angeles | 0 | 315 | -315 |
| **Hollywood Way** | Los Angeles | 0 | 214 | -214 |
| **New York Street** | San Bernardino | 0 | 0 | 0 |
| **Ontario Airport** | San Bernardino | 0 | 0 | 0 |
| **Redlands** | San Bernardino | 0 | 0 | 0 |
| **University** | San Bernardino | 0 | 0 | 0 |
| **USC Medical Center** | Los Angeles | 0 | 0 | 0 |
| **Total** | | **31,077** | **25,985** | **5,091** |

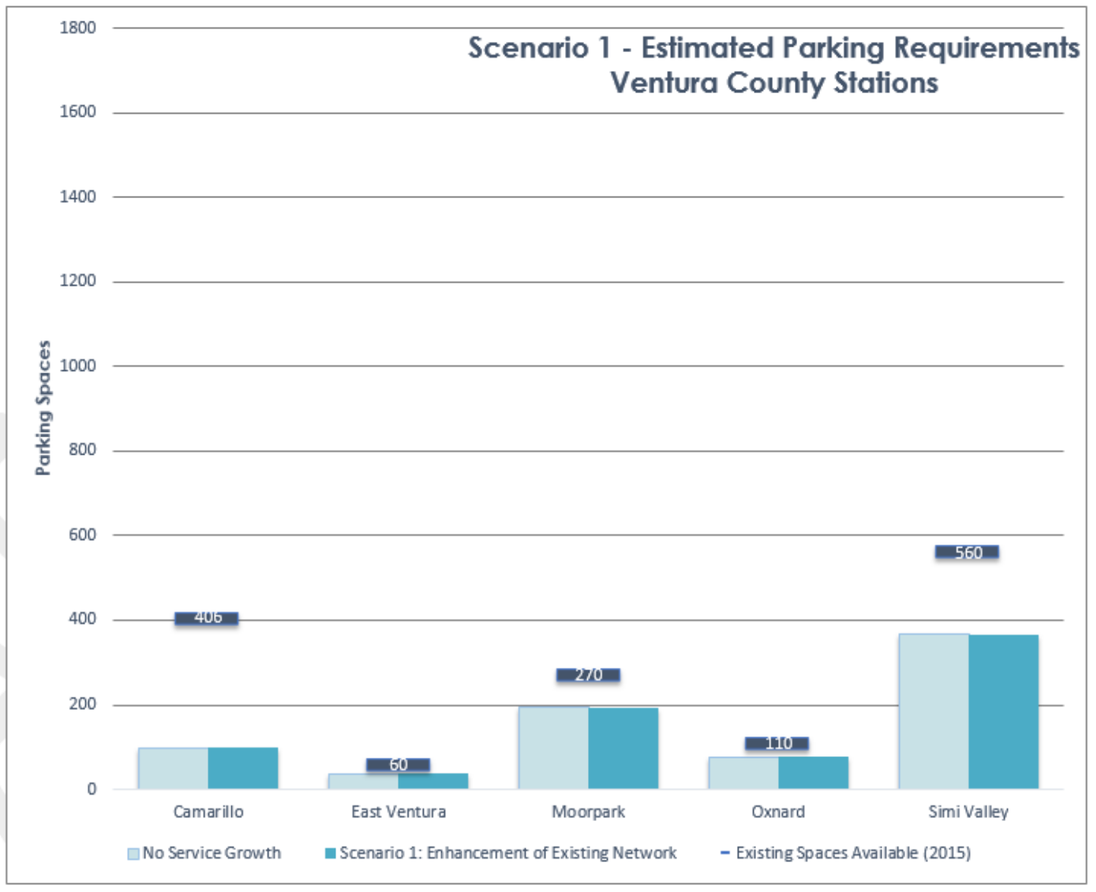
**Figure 7–11: Scenario 1 – Estimated Parking Requirements by County Stations**




Scenario 1 - Estimated Parking Requirements
Orange County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
560
144
302
1321
995
476
375
150
172
719
823
274
Anaheim
Anaheim Canyon
Buena Park
Fullerton
Irvine
Laguna Niguel /Mission Viejo
Oceanside
Orange
San Clemente
San Juan Capistrano
Santa Ana
Tustin
Placentia
No Service Growth
Scenario 1: Enhancement of Existing Network
Existing Spaces Available (2015)


Scenario 1 - Riverside County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
1394
288
990
1082
526
368
316
392
699
North Main Corona
Pedley
Riverside-Downtown
Riverside-La Sierra
West Corona
Hunter Park /...
Moreno Valley /...
Perris
South Perris
No Service Growth
Scenario 1: Enhancement of Existing Network
Existing Spaces Available (2015)


Scenario 1 - Estimated Parking Requirements
San Bernardino County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
656
309
350
208
777
294
396
East Ontario
Fontana
Montclair
Rancho Cucamonga
Rialto
San Bernardino
Upland
E St. Transit Center
No Service Growth
Scenario 1: Enhancement of Existing Network
Existing Spaces Available (2015)


Scenario 1 - Estimated Parking Requirements
Ventura County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
406
60
270
110
560
Camarillo
East Ventura
Moorpark
Oxnard
Simi Valley
No Service Growth
Scenario 1: Enhancement of Existing Network
Existing Spaces Available (2015)

### 7.2.5 Operating Cost Estimates

Table 7–9 to Table 7–11 shows Scenario 1 by line expenditure, net subsidies, and train miles. When evaluating these figures, the cost per train mile for Scenario 1 shows a 26 percent reduction in cost per train mile at $83.25 compared to the No Service Growth Scenario. The subsidy per train mile decreases as well by 31 percent at $44.50 per train mile.

**Table 7–9: Scenario 1 – Total Estimated Operating Expenditure***

| Line | No Service Growth | Scenario 1: Enhancement of Existing Network |
|---|---|---|
| **Ventura County Line (including BBA)** | $31,782,000 | $29,632,000 |
| **Antelope Valley Line** | $64,486,000 | $59,260,000 |
| **San Bernardino Line** | $74,877,000 | $69,303,000 |
| **Riverside Line** | $20,634,000 | $28,097,000 |
| **Orange County Line (including MSEP)** | $55,987,000 | $57,198,000 |
| **91 Line** | $18,776,000 | $44,722,000 |
| **IEOC Line** | $36,549,000 | $46,834,000 |
| **TOTAL** | $303,091,000 | $335,046,000 |

** Calculated as train mile share*

**Table 7–10: Scenario 1 – Estimated Member Agency Net Subsidy***

| Agency | No Service Growth | Scenario 1: Enhancement of Existing Network |
|---|---|---|
| **LACMTA** | $94,509,000 | $88,244,000 |
| **OCTA**** | $41,518,000 | $44,543,000 |
| **RCTC** | $12,679,000 | $22,889,000 |
| **SANBAG** | $20,619,000 | $19,594,000 |
| **VCTC***** | $5,561,000 | $3,833,000 |
| **TOTAL** | **$174,886,000** | **$179,103,000** |

** Calculated as train miles by county*
*No assumptions made as to negotiated costs associated with commuter trains running over UP north of EVC to NGO, Alhambra sub from El Monte to LA, and LA sub above current 12 agreement moves*
*No assumptions made about costs associated with getting from Rancho Cucamonga to Ontario airport*
*** San Diego County train miles attributed to OCTA*
**** Santa Barbara (EVC to NGO) attributed to VCTC*

**Table 7–11: Scenario 1 – Growth by Train Mile**

| Line | No Service Growth | Scenario 1: Enhancement of Existing Network |
|---|---|---|
| Ventura County Line (including BBA) | 283,566 | 355,956 |
| Antelope Valley Line | 575,352 | 711,866 |
| San Bernardino Line | 668,070 | 832,510 |
| Riverside Line | 184,099 | 337,515 |
| Orange County Line (including MSEP) | 499,524 | 687,105 |
| 91 Line | 167,524 | 537,232 |
| IEOC Line | 326,096 | 562,606 |
| TOTAL | 2,704,231 | 4,024,790 |

### 7.2.6 Equipment and Infrastructure Needs

The overall size of the Metrolink rolling stock fleet will increase by approximately one-third over today's level. As currently assumed, the proposed service plan to support Scenario 1 will require 49 trainsets. With an allowance of 10 percent for spare equipment to support scheduled and non-scheduled maintenance needs, 57 locomotives will be required, along with 276 passenger cars, comprising 57 cab cars and 219 trailer coaches. This assumes an average train length of four cars per train, based on projected ridership levels. Table 7–12 summarizes the fleet requirements.

**Table 7–12: Scenario 1 – Fleet Requirements**

| | Existing (2015) | Scenario 1: Enhancement of Existing Network (2025) | % Change |
|---|---|---|---|
| No. of Locomotives | 55 | 57 | +4% |
| No. of Cab Cars | 57 | 57 | 0% |
| No. of Coaches | 201 | 219 | +9% |
| Total No. of Revenue Trainsets | 39 | 49 | +26% |

Train storage and maintenance capacity at existing yards and new service endpoints will need to be expanded to meet the needs of the increased fleet size. This scenario incorporates the build out of the Eastern Maintenance Facility (EMF) at Colton and assumes an expanded layover facility in Lancaster and Riverside-Downtown.

The increased volume of bi-directional train movements in this scenario, including the introduction of a significant volume of reverse-peak service on lines that now operate predominantly or exclusively in the peak direction of travel, generates an increase in the number of train meets.

Where these meets occur in territory that currently has only a single main track, the addition of passing sidings, lengthening of existing sidings, or double-tracking of the line are required to enable these meets to occur while maintaining the smooth operation of the railroad.

The map in Figure 7–12 shows the locations where mainline track infrastructure investments are required to support the Enhancement scenario. Most of these improvements entail double-tracking

of portions of existing single-track lines or extension of passing sidings. Generally, the locations of these additional tracks correspond to potential improvement projects that have been previously identified. Not all of the projects are necessary in order to deliver the enhanced service levels. Service patterns were developed that minimize the need for sidings and additional main tracks, by scheduling "meets" of trains running in opposite directions at the same locations and at regularly occurring time intervals wherever possible. The required rail infrastructure capital improvements for the Enhancement scenario are summarized in Table 7–13.

**Figure 7–12: Scenario 1 – Required Rail Infrastructure Improvements**

### Table 7–13: Scenario 1 – Required Rail Infrastructure Improvements

| Line | Project Name | Priority | Project Description |
|---|---|---|---|
| **Ventura County Line** | CP Raymer to CP Bernson Double Track | Priority 1 | 6.4 miles of double track, including bridge and grade crossing improvements, plus a second side platform and pedestrian underpass at the Northridge station. This project is needed to enable multiple train meets, to support bi-directional service in this territory. At the time of this Strategic Plan, this project is undergoing final design with construction scheduled prior to 2020. |
| **Ventura County Line** | Van Nuys Station | Priority 1 | Addition of second platform |
| **Antelope Valley Line** | CP Brighton to CP Roxford Double Track | Priority 1 | Addition of a second main track adjacent to the high-speed rail initial operating segment. This project is needed to support reverse peak service. At the time of this Strategic Plan, this project is undergoing preliminary engineering and environmental clearance with construction scheduled prior to 2020. |
| **Antelope Valley Line** | Santa Clarita to Newhall Double Track | Priority 1 | Double tracking of the line, including grade crossing improvements and Santa Clarita station platform improvements. This project is needed to support frequent bi-directional service south of Newhall. Scheduled meets occur hourly throughout the day and half-hourly during peak periods. |
| **Antelope Valley Line** | Via Princessa to Vincent Grade Double Track | Priority 2 | Double tracking of portions of the line through the canyon, including extension of the Soledad to Ravena and Kocian-Ravena double-track sections. The Humphreys to Lang section is not used for meets in this scenario, but would provide additional reliability. |
| **San Bernardino Line** | CP Central to CP Archibald Double Track** | Priority 1 | 5.5 miles of double track on San Gabriel Subdivision |
| **San Bernardino Line** | CP Beech to CP Locust Double Track | Priority 1 | 3 miles of double track on San Gabriel Subdivision |
| **San Bernardino Line** | CP Rochester to CP Nolan Double Track | Priority 1 | Double tracking of existing line |
| **San Bernardino Line** | CP Amar to CP Irwin Double Track | Priority 2 | Double tracking of existing line (used for limited number of meets during the peak periods) |
| **San Bernardino Line** | CP Barranca to CP White Double Track** | Priority 2 | Double tracking of existing line (used for limited number of meets during the peak periods) |
| **San Bernardino Line** | CP Lilac to CP Rancho Double Track** | Priority 3 | Three mile double track on the San Gabriel Subdivision from CP Lilac to CP Rancho |
| **Orange County Line** | Laguna Niguel to San Juan Passing Siding | Priority 1 | 1.8 miles of new passing siding track. Required for bi-directional service. Project undergoing final design and scheduled to be constructed by 2020. |
| **Orange County Line** | CP San Onofre to CP Pulgas Double Track (Stage 2) | Priority 1 | 1.6 miles of additional track. Required for bi-directional service. [SANDAG Project] |
| **Orange County Line** | CP Eastbrook to CP Shell Double Track | Priority 2 | Second main track and replacement of San Luis Rey River bridge. Provides reliability and scheduling flexibility, given long single track at San Clemente. [SANDAG Project]. |
| **91 Line** | CP Eastridge to CP Nuevo Double Track | Priority 2 | Double track. Needed to support single PM reverse peak train and Riverside mid-day train |
| **91 Line** | CP Highgrove to CP Riverside Fourth Track (BNSF)* | Priority 2 | Double track. |

* To be constructed by the BNSF Railway should OTP for Perris Valley Line trains fall below 95% as stated in the Perris Valley Line Agreement between the BNSF Railway and RCTC dated November 2, 2012.
** Project priority is subject to change depending on the service plan proposed and level of express service assumed in the service plan
NOTE: Capacity improvement priorities are also subject to funding availability and Member Agency input

Further refinement of schedules and service patterns may enable some of these infrastructure investments to be avoided or deferred.

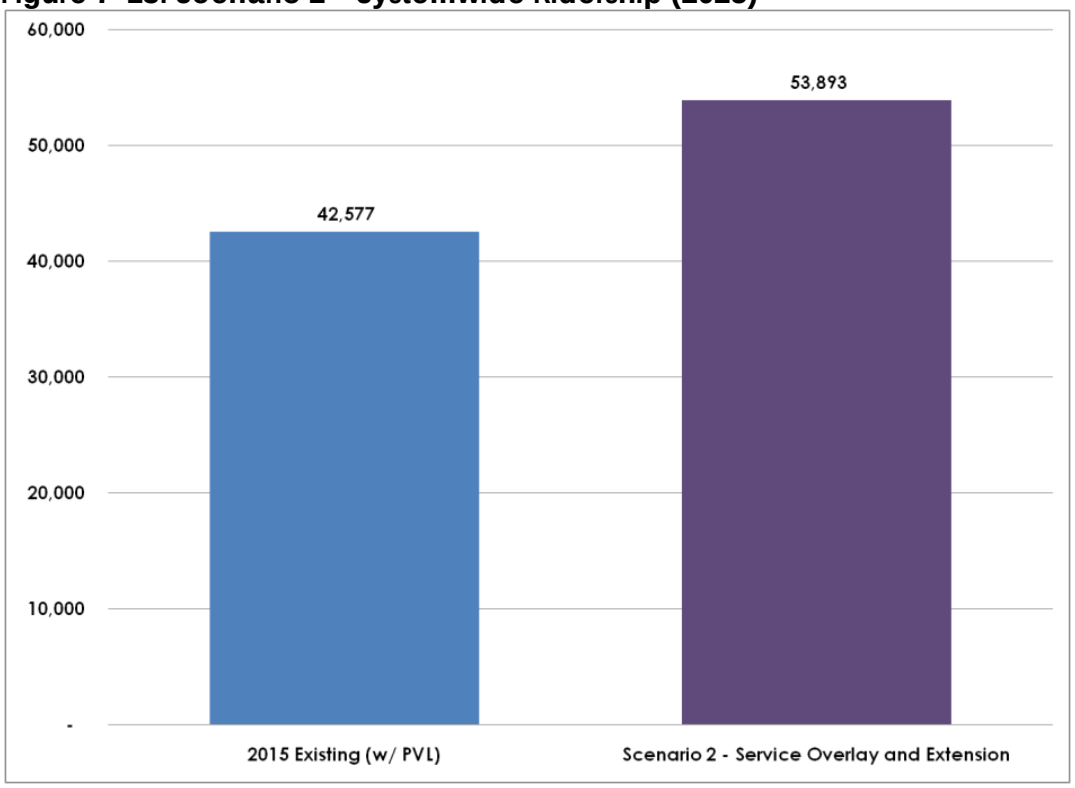
## 7.3 SCENARIO 2: OVERLAY OF ADDITIONAL SERVICE PATTERNS

This scenario builds upon the improvements in service identified for Scenario 1. Scenario 2 is the combination of two sets of service improvements that were analyzed separately as a single, integrated scenario. The first set of services provides increased frequency of service in both directions of travel on segments of core Metrolink lines (e.g. Los Angeles to Chatsworth, additional express on the San Bernardino Line, etc.). The second set of services entail physical extensions of the Metrolink network, expanding its geographic reach within the greater Southern California region.

### 7.3.1 Projected Ridership

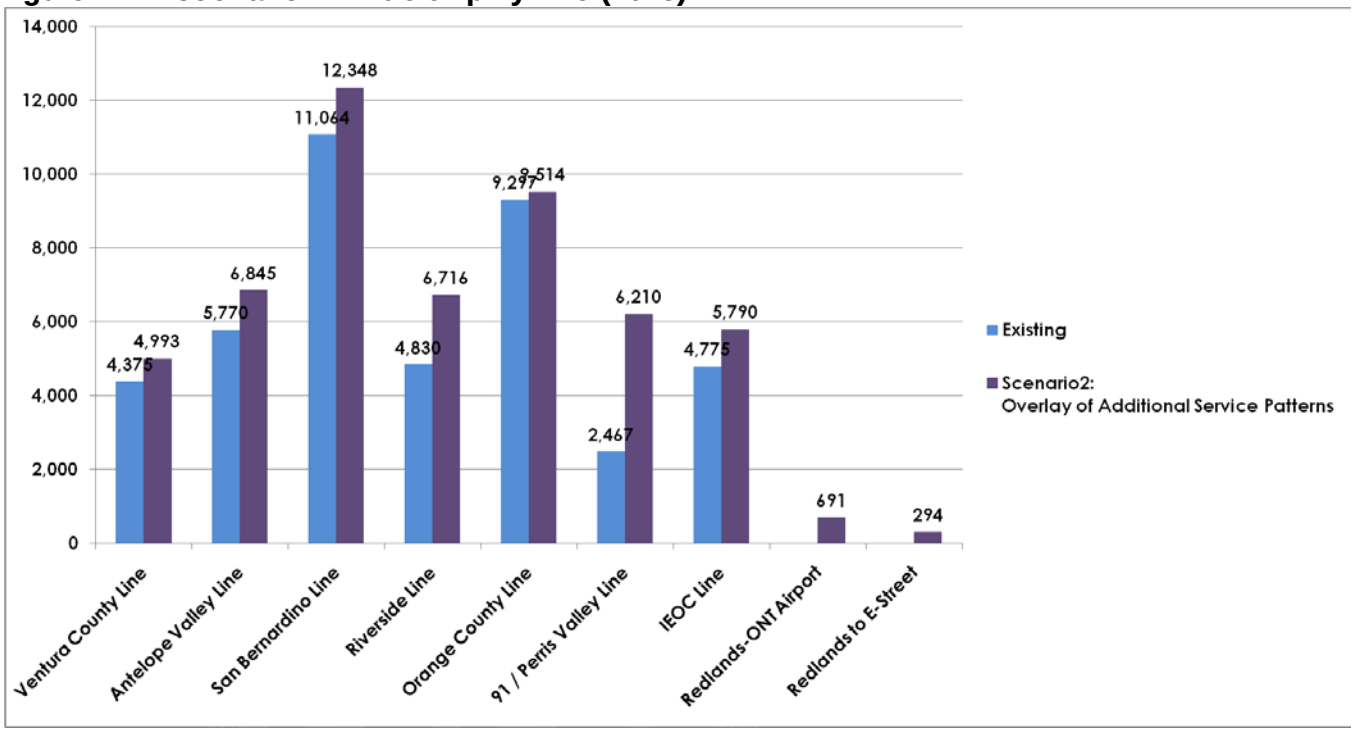
The results of the ridership analysis, as shown in Figure 7–13, reflects a more robust systemwide growth projection assuming 26.6 percent growth in ridership from the existing 2015 daily boardings over the next 10 years.

**Figure 7–13: Scenario 2 – Systemwide Ridership (2025)**




Broken down by Line, as shown in Figure 7–14, the 91/ Perris Valley Line shows the largest growth at 152 percent compared to existing ridership. The San Bernardino Line shows a slight decrease in ridership under Scenario 2 compared to the ridership growth under Scenario 1. This decrease is off-set by the overlay of additional service showing ridership in Scenario 2 along the Redlands to E-Street and Redlands to Ontario Airport.

**Figure 7–14: Scenario 2 – Ridership By Line (2025)**




Both Scenarios 1 and 2 reflect service patterns that cater to the projected market changes and shifts in travel demand, suggesting additional factors may be at play that restricts the ability for Metrolink to attract ridership at a greater rate. As identified in the SWOT analysis, one such factor that was not tested as part of this ridership analysis is fare prices. Another factor that needs to be considered is competing transit services (e.g. parallel express bus services or Metro Rail lines). Further, more detailed evaluation of these potential factors is recommended.

### 7.3.2 Weekday Service Growth

The map in Figure 7–15 depicts the relative density of service on segments of the Metrolink network in the Overlay scenario (Scenario 2). The core network operating at peak headways of 15 minutes or less expands to include the territory from Burbank through Los Angeles and Fullerton to Laguna Niguel and Riverside, and between Ontario Airport and San Bernardino. The map also indicates several extensions of Metrolink service that are included in this scenario, including from Ventura to North Goleta, from San Bernardino to Redlands, from South Perris to Temecula and San Jacinto, from Oceanside to San Diego on the LOSSAN corridor, and from the San Bernardino Line to Ontario Airport.

The level of weekday service by time period and by branch line is illustrated in Figure 7–16 through Figure 7–19, which compares 2025 service levels for Scenario 2 with the existing level of service. The graphs also distinguish between the services that comprise the overlay on the existing Metrolink lines (shown with bolder colored bars) and those new services that are provided on the extensions to the Metrolink network (shown with lighter colored bars). The number of trains providing peak period service in the peak direction of travel (towards LAUS in the morning and away from LAUS in

the afternoon and evening) increases significantly on all of the existing Metrolink lines. All lines with the exception of the Riverside line become fully bi-directional, with regular reverse-peak service and expanded mid-day and evening/nighttime off-peak service. The Riverside Line continues to provide predominantly peak direction service during rush hours, and provides an improved but still limited off-peak service. Five of the existing core lines provide upwards of 40 daily trains: The Ventura County, Antelope Valley, San Bernardino, and Orange County Lines, plus the 91-Line.

On the San Bernardino line, the total volume of trains is similar in Scenario 2 to Scenario 1. The major difference is the operation of many more limited-stop express trains in Scenario 2. There are 8 peak-direction express trains, plus 1 reverse-peak train, in both the morning and evening weekday peak periods in Scenario 2. Eight of 11 peak trains in Scenario 2 are expresses, whereas only two of nine peak trains in Scenario 1 are expresses. The additional express service is possible in Scenario 2 because the express trains are assumed to operate over the Alhambra Subdivision as these trains approach or leave Los Angeles Union Station, which enables express trains to overtake slower local trains in this section without the need for additional main line tracks or passing sidings.

The greatest increase in service is shown on the 91 Line, with the combination of increased regular service between LAUS and Riverside/South Perris, augmented by a substantial number of additional trains that serve the two route extensions beyond South Perris – to Temecula and San Jacinto. The Redlands to Ontario Airport service operates like a transit service, with trains running at regular headways back and forth between the endpoints, adding up to over 50 daily trains. The South Perris to E Street new service operates in a similar fashion, but at lesser frequencies, with 22 daily trains. The train counts for the service extensions to North Goleta on the Ventura County Line and to San Diego on the Orange County Line are incorporated into the overall service levels shown for these two lines.

Table 7–14 presents the service plan specification for Scenario 2 weekday service, showing train operations by direction of travel and time of day for each Metrolink branch line, as well as for the new extended services.

**Figure 7–15: Scenario 2 – Weekday Service Levels (2025)**


**Figure 7–16: Scenario 2 - Overlay Peak Trains**

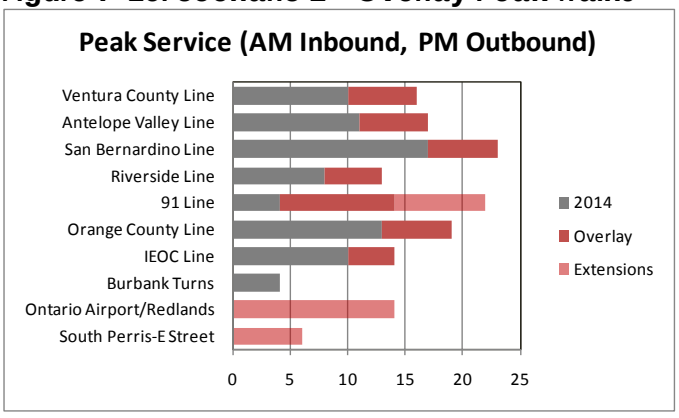



**Figure 7–17: Scenario 2 – Off-Peak Trains**

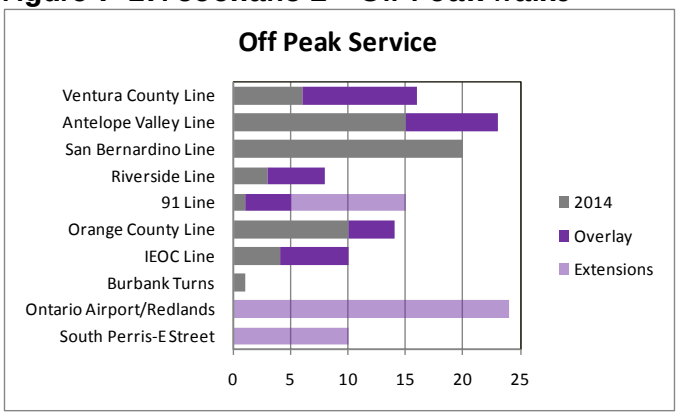


**Figure 7–18: Scenario 2 – Reverse-Peak Trains**

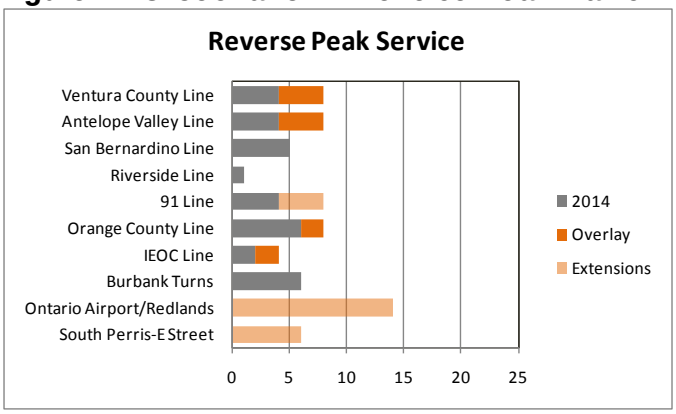



**Figure 7–19: Scenario 2 – Total Weekday Trains**

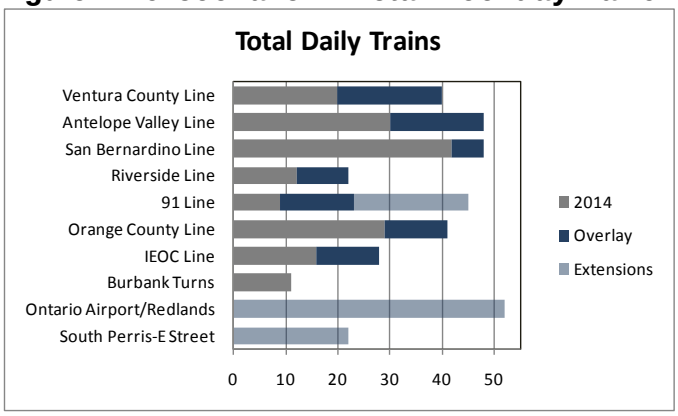



**Table 7–14: Scenario 2 – Weekday Service Assumptions (2025)**

| Line | TOTAL | INBOUND AM Peak | INBOUND Midday | INBOUND PM Peak | INBOUND Evening | INBOUND Night | OUTBOUND AM Peak | OUTBOUND Midday | OUTBOUND PM Peak | OUTBOUND Evening | OUTBOUND Night |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ventura County (Burbank Turns)** | 51 | 9 | 6 | 7 | 2 | 1 | 7 | 4 | 11 | 2 | 2 |
| **Ventura County (New Services EVC-NGO)** | 8 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 0 |
| **Antelope Valley** | 48 | 8 | 8 | 4 | 3 | 1 | 4 | 7 | 9 | 3 | 1 |
| **San Bernardino** | 48 | 11 | 6 | 3 | 2 | 2 | 2 | 6 | 12 | 2 | 2 |
| **San Bernardino (New Services Ontario Airport Connection)** | 52 | 6 | 6 | 8 | 4 | 2 | 6 | 6 | 8 | 4 | 2 |
| **Riverside** | 22 | 6 | 2 | 1 | 0 | 2 | 0 | 2 | 7 | 1 | 1 |
| **Orange County** | 41 | 9 | 3 | 5 | 1 | 3 | 3 | 3 | 10 | 2 | 2 |
| **91 / Perris Valley** | 23 | 7 | 0 | 2 | 1 | 1 | 2 | 1 | 7 | 1 | 1 |
| **Inland Empire-Orange County** | 28 | 2 | 4 | 7 | 1 | 0 | 7 | 4 | 2 | 0 | 1 |

### 7.3.3 Weekend Service Growth

As in the Scenario 1, weekend service is assumed to increase in proportion to the growth in weekday service, as shown in Table 7–15. The total number of trains on a typical weekend day increases from the current levels of 48 trains on Saturday and 42 trains on Sunday to 88 trains on Saturday and 82 trains on Sunday in 2025. This includes 68 trains operating service on the existing Metrolink lines and 20 trains operating the new services west of South Perris, between South Perris and San Bernardino, and between Redlands and Ontario Airport.

**Table 7–15: Scenario 2 – Weekend Service Assumptions (2025)**

| Line | No Service Growth | Scenario 2: Overlay of Additional Service Patterns |
|---|---|---|
| **Ventura County** | -- | -- |
| **Antelope Valley** | 12 | 16 |
| **San Bernardino (Saturday)** | 20 | 26 |
| **San Bernardino (Sunday)** | 14 | 20 |
| **Riverside** | -- | -- |
| **Orange County** | 8 | 10 |
| **91 / Perris Valley** | 4 | 8 |
| **Inland Empire-Orange County** | 4 | 8 |
| **New Services** | -- | 20 |
| **TOTAL** | 42-48 | 82-88 |
| **% Growth Over No Service** | -- | 83-95% |

### 7.3.4 Estimate in Parking Needs by Station

In Scenario 2, parking requirements increase by a total 1,551 spaces over Scenario 1 and 3,781 over the No Service Growth scenario. The total projected spaces required under Scenario 2 for 2025 are 27,537, which is 3,540 spaces less than is available systemwide. Table 7–16 shows parking requirements by county for the Overlay Scenario. Growth in parking demand is heaviest in Los Angeles, Orange, and Riverside counties.

**Table 7–16: Scenario 2 – Parking Demand and Growth by County**

| County | Existing Spaces Available (2015) | Scenario 2: Service Overlay and Expansion | Growth: (Deficit) / Surplus |
|---|---|---|---|
| **Los Angeles** | 10,486 | 9,434 | 1,052 |
| **Orange** | 8,304 | 8,411 | (107) |
| **Riverside** | 5,024 | 5,828 | (804) |
| **San Bernardino** | 4,826 | 4,216 | 610 |
| **Ventura** | 1,406 | 773 | 633 |
| **TOTAL** | **31,077** | **27,537** | **3,147** |

**Includes Perris Valley Line Stations, which come online December 2015*

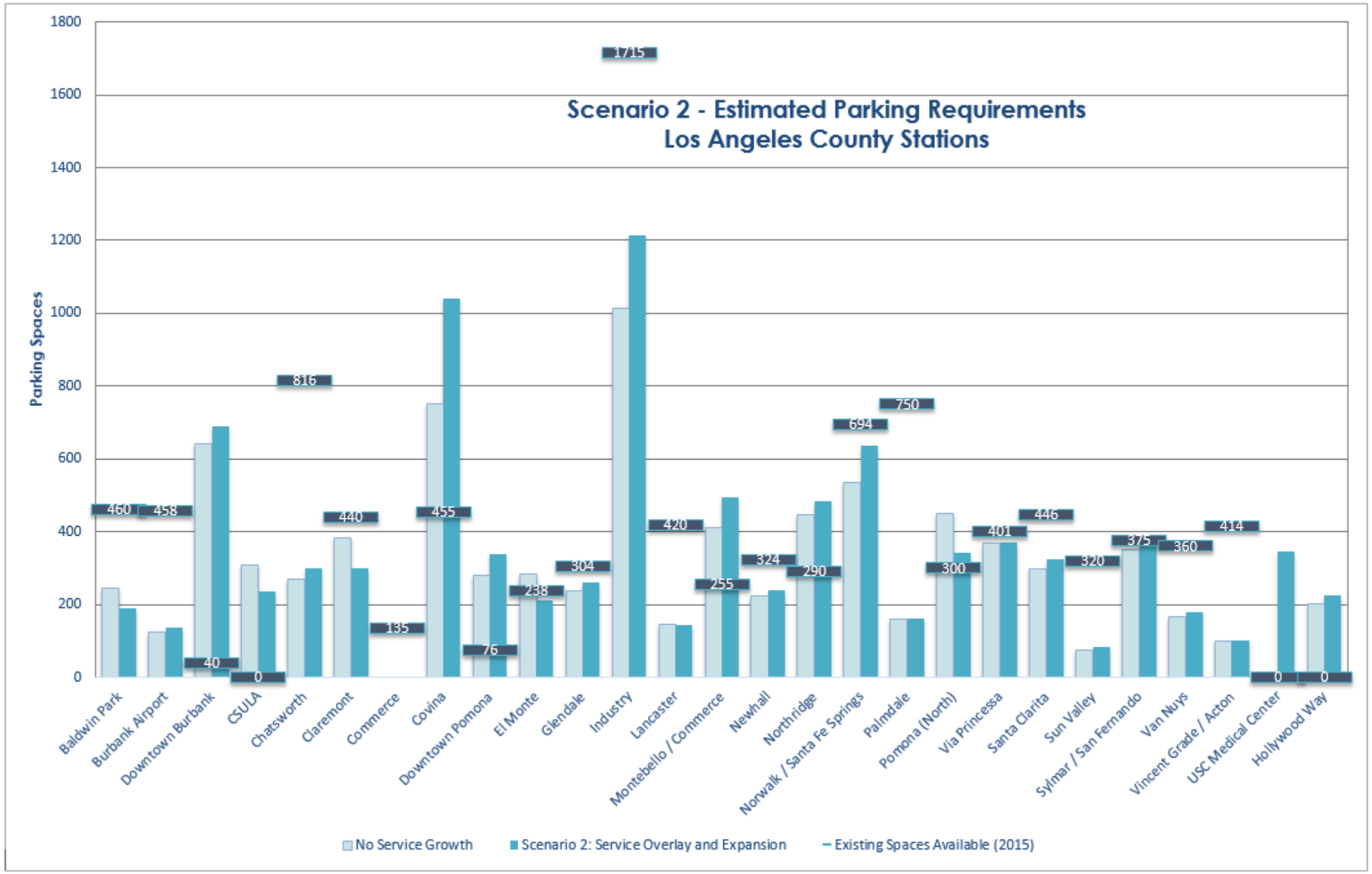
Table 7–17 shows parking demand by station compared to available parking capacity. Several stations on the San Bernardino Line in Los Angeles and San Bernardino Counties show a deficit in parking capacity in this scenario. This is a result of increased Express Service in the service plan. Express stations on this line - Rancho Cucamonga, Covina, and the new station at USC Medical Center - show large increases in demand.

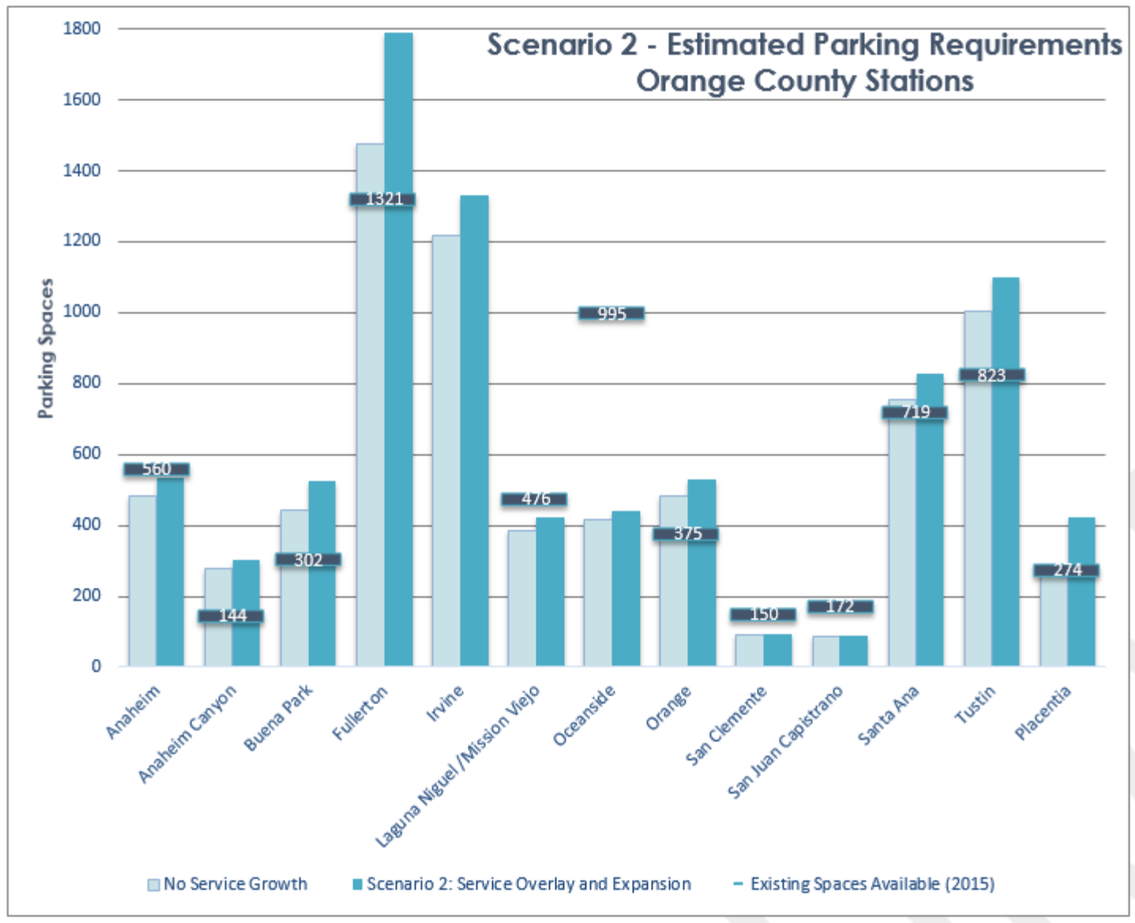
**Table 7–17: Scenario 2 – Parking Demand by Station**

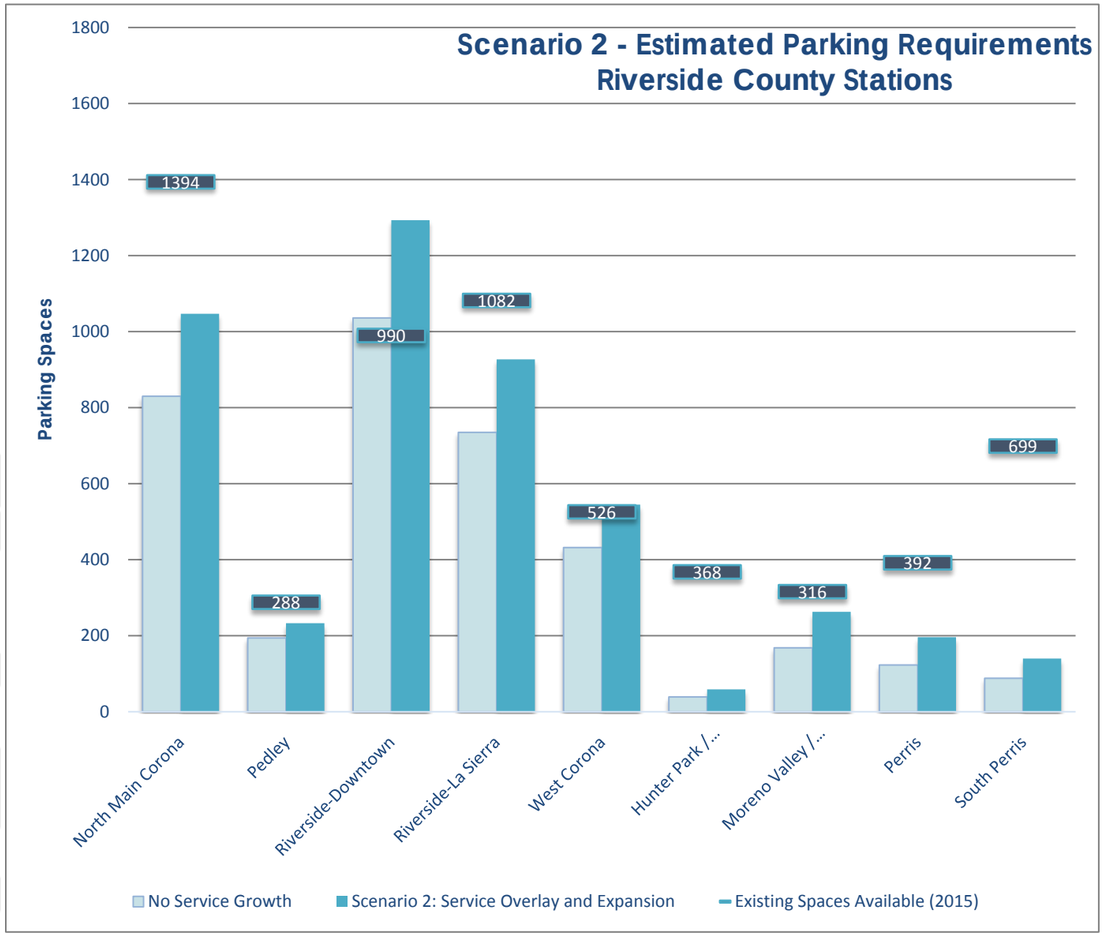
| Station | County | Existing Spaces Available (2015) | Scenario 2: Service Overlay and Expansion | (Deficit) / Surplus |
|---|---|---|---|---|
| **Anaheim** | Orange | 560 | 534 | 26 |
| **Anaheim Canyon** | Orange | 144 | 303 | -159 |
| **Baldwin Park** | Los Angeles | 460 | 189 | 271 |
| **Buena Park** | Orange | 302 | 526 | -224 |
| **Burbank Airport** | Los Angeles | 458 | 138 | 320 |
| **Camarillo** | Ventura | 406 | 100 | 306 |
| **Chatsworth** | Los Angeles | 816 | 299 | 517 |
| **Claremont** | Los Angeles | 440 | 300 | 140 |
| **Commerce** | Los Angeles | 135 | 0 | 135 |
| **Covina** | Los Angeles | 455 | 1,041 | -586 |
| **Downtown Burbank** | Los Angeles | 40 | 689 | -649 |
| **Downtown Pomona** | Los Angeles | 76 | 338 | -262 |
| **East Ontario** | San Bernardino | 656 | 506 | 150 |
| **East Ventura** | Ventura | 60 | 38 | 22 |
| **El Monte** | Los Angeles | 238 | 212 | 26 |
| **Fontana** | San Bernardino | 309 | 242 | 67 |
| **Fullerton** | Orange | 1,321 | 1,789 | -468 |
| **Glendale** | Los Angeles | 304 | 259 | 45 |
| **Hunter Park/Palmyrita Ave** | Riverside | 368 | 59 | 309 |
| **Industry** | Los Angeles | 1715 | 1,215 | 500 |
| **Irvine** | Orange | 1,993 | 1,333 | 660 |
| **Laguna Niguel /Mission Viejo** | Orange | 476 | 424 | 52 |
| **Lancaster** | Los Angeles | 420 | 145 | 275 |
| **Montclair** | San Bernardino | 1836 | 244 | 1,592 |
| **Montebello / Commerce** | Los Angeles | 255 | 494 | -239 |
| **Moorpark** | Ventura | 270 | 193 | 77 |
| **Moreno Valley/March Air Reserve Base** | Riverside | 316 | 263 | 53 |
| **Newhall** | Los Angeles | 324 | 239 | 85 |
| **North Main Corona** | Riverside | 1394 | 1,047 | 347 |
| **Northridge** | Los Angeles | 290 | 485 | -195 |
| **Norwalk / Santa Fe Springs** | Los Angeles | 694 | 637 | 57 |
| **Oceanside** | Orange | 995 | 439 | 556 |
| **Orange** | Orange | 375 | 530 | -155 |

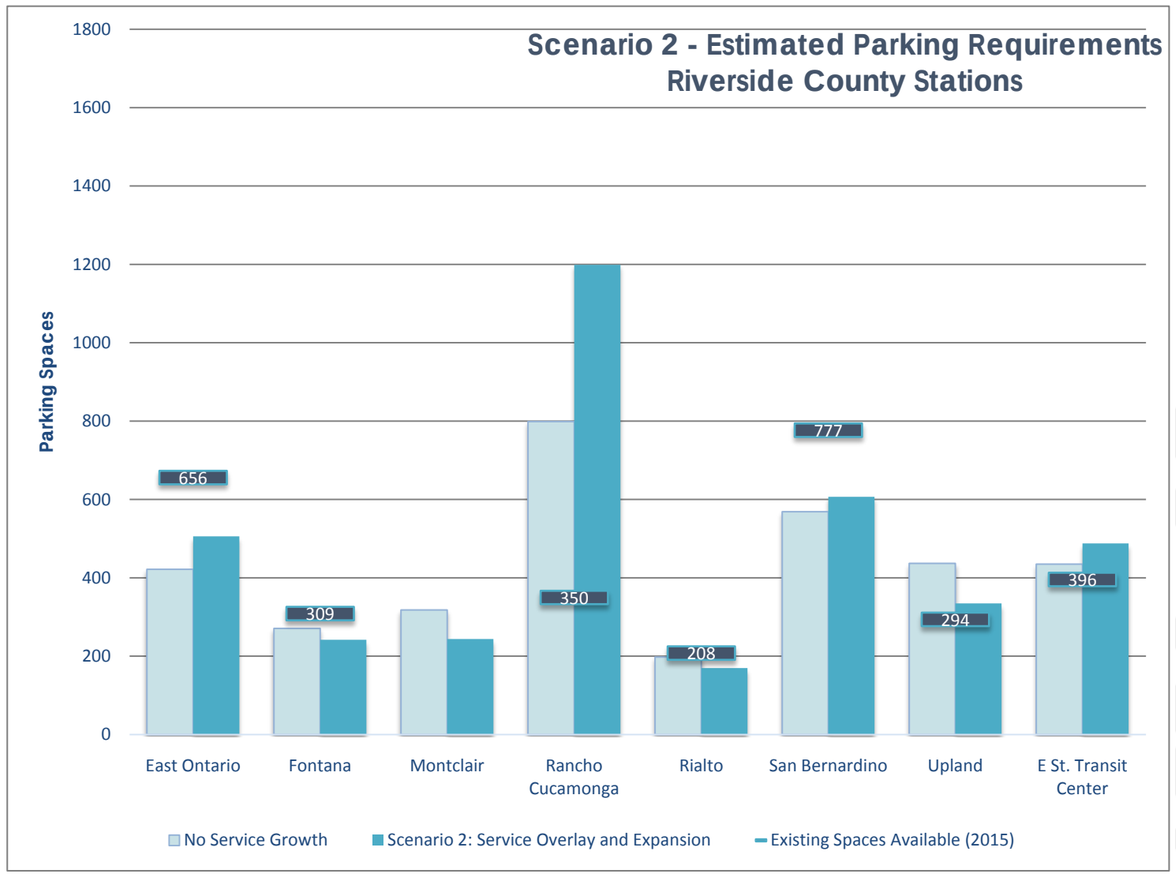
| Station | County | Existing Spaces Available (2015) | Scenario 2: Service Overlay and Expansion | (Deficit) / Surplus |
|---|---|---|---|---|
| **Oxnard** | Ventura | 110 | 76 | 34 |
| **Palmdale** | Los Angeles | 750 | 162 | 588 |
| **Pedley** | Riverside | 288 | 233 | 55 |
| **Perris** | Riverside | 392 | 196 | 196 |
| **Placentia** | Orange | 274 | 423 | -149 |
| **Pomona (North)** | Los Angeles | 300 | 344 | -44 |
| **Rancho Cucamonga** | San Bernardino | 350 | 1,199 | -849 |
| **Rialto** | San Bernardino | 208 | 170 | 38 |
| **Riverside-Downtown** | Riverside | 990 | 1,293 | -303 |
| **Riverside-La Sierra** | Riverside | 1082 | 927 | 155 |
| **San Bernardino** | San Bernardino | 777 | 607 | 170 |
| **San Bernardino Transit Center** | San Bernardino | 396 | 488 | -92 |
| **San Clemente** | Orange | 150 | 95 | 55 |
| **San Juan Capistrano** | Orange | 172 | 88 | 84 |
| **Santa Ana** | Orange | 719 | 827 | -108 |
| **Santa Clarita** | Los Angeles | 446 | 324 | 122 |
| **Simi Valley** | Ventura | 560 | 366 | 194 |
| **South Perris** | Riverside | 699 | 140 | 559 |
| **Sun Valley** | Los Angeles | 320 | 82 | 238 |
| **Sylmar / San Fernando** | Los Angeles | 375 | 383 | -8 |
| **Tustin** | Orange | 823 | 1,100 | -277 |
| **Upland** | San Bernardino | 294 | 335 | -41 |
| **Van Nuys** | Los Angeles | 360 | 179 | 181 |
| **Via Princessa** | Los Angeles | 401 | 369 | 32 |
| **Vincent Grade / Acton** | Los Angeles | 414 | 101 | 313 |
| **West Corona** | Riverside | 526 | 545 | -19 |
| **New Stations** | | | | |
| **CSULA** | Los Angeles | 0 | 237 | -237 |
| **Hollywood Way** | Los Angeles | 0 | 227 | -227 |
| **New York Street** | San Bernardino | 0 | 105 | -105 |
| **Ontario Airport** | San Bernardino | 0 | 126 | -126 |
| **Redlands** | San Bernardino | 0 | 114 | -114 |
| **University** | San Bernardino | 0 | 80 | -80 |
| **USC Medical Center** | Los Angeles | 0 | 346 | -346 |
| **Total** | | **31,077** | **27,537** | **3,147** |

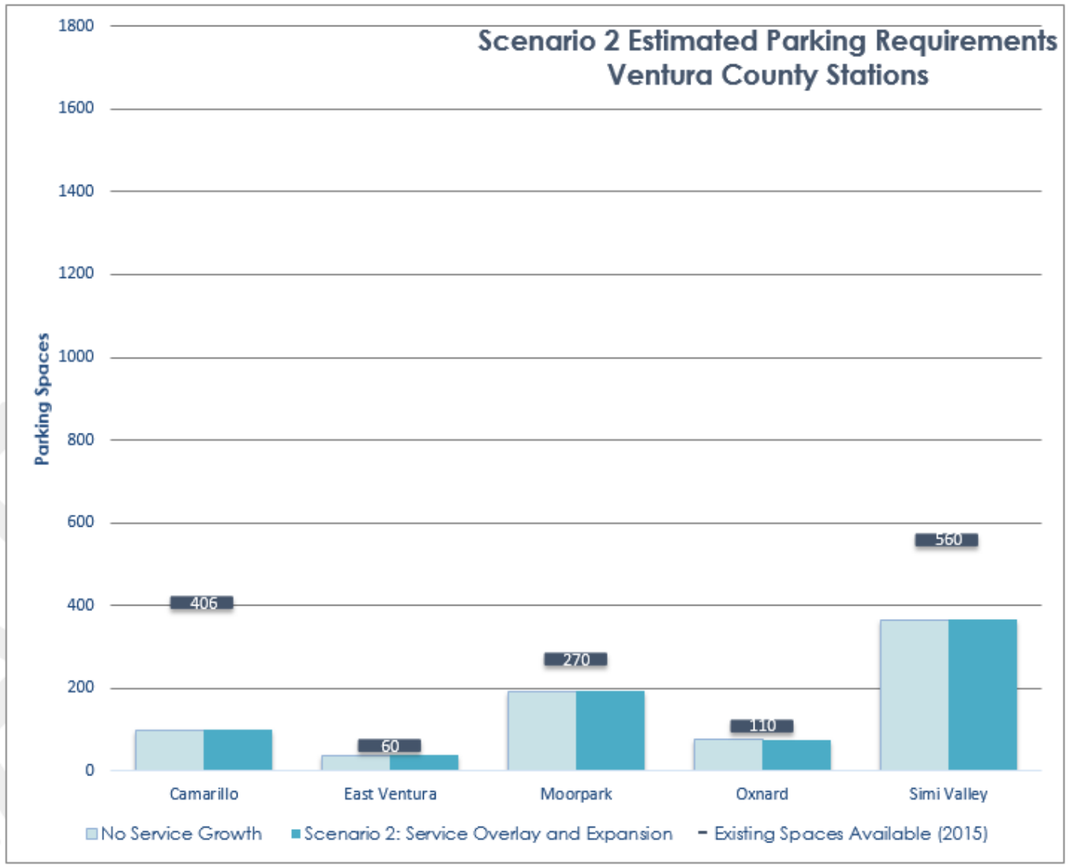
**Figure 7–20: Scenario 2 - Parking Estimated Parking Requirements by Station**




Scenario 2 - Estimated Parking Requirements
Orange County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
560
144
302
1321
995
476
375
150
172
719
823
274
Anaheim
Anaheim Canyon
Buena Park
Fullerton
Irvine
Laguna Niguel /Mission Viejo
Oceanside
Orange
San Clemente
San Juan Capistrano
Santa Ana
Tustin
Placentia
No Service Growth
Scenario 2: Service Overlay and Expansion
Existing Spaces Available (2015)


Scenario 2 - Estimated Parking Requirements
Riverside County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
1394
288
990
1082
526
368
316
392
699
North Main Corona
Pedley
Riverside-Downtown
Riverside-La Sierra
West Corona
Hunter Park /...
Moreno Valley /...
Perris
South Perris
No Service Growth
Scenario 2: Service Overlay and Expansion
Existing Spaces Available (2015)


Scenario 2 - Estimated Parking Requirements
Riverside County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
656
309
350
208
777
294
396
East Ontario
Fontana
Montclair
Rancho Cucamonga
Rialto
San Bernardino
Upland
E St. Transit Center
No Service Growth
Scenario 2: Service Overlay and Expansion
Existing Spaces Available (2015)


Scenario 2 Estimated Parking Requirements
Ventura County Stations
Parking Spaces
1800
1600
1400
1200
1000
800
600
400
200
0
406
60
270
110
560
Camarillo
East Ventura
Moorpark
Oxnard
Simi Valley
No Service Growth
Scenario 2: Service Overlay and Expansion
Existing Spaces Available (2015)

### 7.3.5 Operating Cost Estimates

Table 7–18 to Table 7–20 shows Scenario 2 by line expenditure, net subsidies, and train miles. When evaluating these figures, the cost per train mile shows a significant reduction under each Scenario 2 at 34 percent lower than the No Service Growth Scenario with a cost of $74.16. The subsidy per train mile decreases as well by 38 percent with $39.93 per train mile.

**Table 7–18: Scenario 2 – Total Estimated Operating Expenditure***

| Line | No Service Growth | Scenario 2: Overlay of Additional Service Patterns |
|---|---|---|
| **Ventura County Line (including BBA)** | $31,782,000 | $50,317,000 |
| **Antelope Valley Line** | $64,486,000 | $59,543,000 |
| **San Bernardino Line** | $74,877,000 | $80,448,000 |
| **Riverside Line** | $20,634,000 | $25,030,000 |
| **Orange County Line (including MSEP)** | $55,987,000 | $58,765,000 |
| **91 Line** | $18,776,000 | $41,214,000 |
| **IEOC Line** | $36,549,000 | $40,406,000 |
| **TOTAL** | $303,091,000 | $355,723,000 |

** Calculated as train mile share*

**Table 7–19: Scenario 2 – Estimated Member Agency Net Subsidy***

| Agency | No Service Growth | Scenario 2: Overlay of Additional Service Patterns |
|---|---|---|
| **LACMTA** | $94,509,000 | $89,646,000 |
| **OCTA**** | $41,518,000 | $42,975,000 |
| **RCTC** | $12,679,000 | $20,990,000 |
| **SANBAG** | $20,619,000 | $27,137,000 |
| **VCTC***** | $5,561,000 | $10,763,000 |
| **TOTAL** | **$174,886,000** | **$191,511,000** |

** Calculated as train miles by county*
*No assumptions made as to negotiated costs associated with commuter trains running over UP north of EVC to NGO, Alhambra sub from El Monte to LA, and LA sub above current 12 agreement moves*
*No assumptions made about costs associated with getting from Rancho Cucamonga to Ontario airport*
*** San Diego County train miles attributed to OCTA*
**** Santa Barbara (EVC to NGO) attributed to VCTC*

**Table 7–20: Scenario 2 – Growth by Train Mile**

| Line | No Service Growth | Scenario 2: Overlay of Additional Service Patterns |
|---|---|---|
| **Ventura County Line (including BBA)** | 283,566 | 678,494 |
| **Antelope Valley Line** | 575,352 | 802,899 |
| **San Bernardino Line** | 668,070 | 1,084,782 |
| **Riverside Line** | 184,099 | 337,515 |
| **Orange County Line (including MSEP)** | 499,524 | 792,414 |
| **91 Line** | 167,524 | 555,749 |
| **IEOC Line** | 326,096 | 544,852 |
| **TOTAL** | **2,704,231** | **4,796,705** |

### 7.3.6 Equipment and Infrastructure Needs

The increased volume of bi-directional train movements in this scenario, plus the increase in peak service frequency, generates an increase in the overall size of the Metrolink fleet, as shown in Table 7–21. The overlay of additional service on the existing Metrolink lines requires 62 revenue trainsets; a level of growth similar to what would be required to support the Enhancement scenario (Scenario 1).

The two potential Metrolink service extensions that were also analyzed as part of this scenario would require an additional nine revenue trainsets. Three additional trainsets would be needed to extend the Ventura County Line to North Goleta. The proposed new service from Redlands to Ontario Airport via San Bernardino would require six new trainsets. The fleet for these service extensions are assumed, for the purposes of cost, to comprise traditional push-pull equipment with diesel locomotives and coaches. Certain services, particularly those that do not operate all the way to downtown Los Angeles (such as the Redlands-Ontario Airport service), could be operated with other types of equipment such as diesel multiple unit (DMU) trainsets.

**Table 7–21: Scenario 2 – Fleet Requirements**

| | Existing (2015) | Scenario 2: Service Overlay and Expansion (2025) | % Change |
|---|---|---|---|
| **No. of Locomotives** | 55 | 72 | +31% |
| **No. of Cab Cars** | 57 | 72 | +26% |
| **No. of Coaches** | 201 | 257 | +28% |
| **Total No. of Revenue Trainsets** | 39 | 62 | +59% |

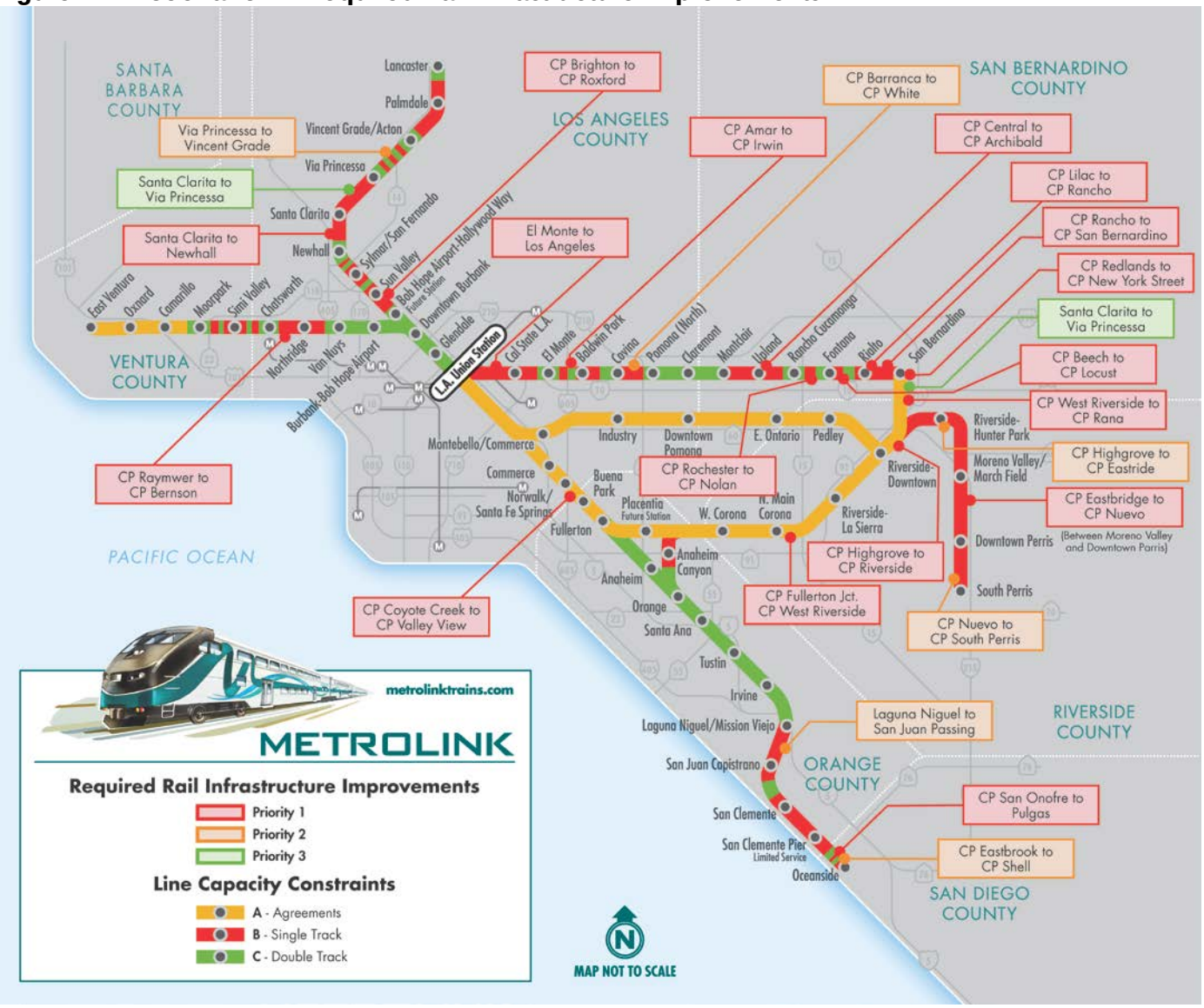
Train storage maintenance capacity at existing yards and new service endpoints will need to be expanded to meet the needs of the increased fleet size.

The increased volume of bi-directional train movements in this scenario, including the introduction of a significant volume of reverse-peak service on lines that now operate predominantly or

exclusively in the peak direction of travel, generates an increase in the number of train meets. Where these meets occur in territory that currently has only a single main track, the addition of passing sidings, lengthening of existing sidings, or double-tracking of the line are required to enable these meets to occur while maintaining the smooth operation of the railroad.

The map in Figure 7–21 shows the locations where mainline track infrastructure investments are required to support the Overlay scenario. Most of these improvements entail double-tracking of portions of existing single-track lines or extension of passing sidings. Generally, the locations of these additional tracks correspond to potential improvement projects that have been previously identified. Not all of the projects are necessary in order to deliver Scenario 2. Service patterns were developed that minimize the need for sidings and additional main tracks, by scheduling "meets" of trains running in opposite directions at the same locations and at regularly occurring time intervals wherever possible. The required rail infrastructure capital improvements for Scenario 2 are summarized in Table 7–22.

**Figure 7–21: Scenario 2 – Required Rail Infrastructure Improvements**



## Table 7–22: Scenario 2 – Required Rail Infrastructure Improvements

| Line | Project Name | Priority | Project Description |
|---|---|---|---|
| **Ventura County Line** | CP Raymer to CP Bernson Double Track | Priority 1 | 6.4 miles of double track, including bridge and grade crossing improvements, plus a second side platform and pedestrian underpass at the Northridge station. This project is needed to enable multiple train meets, to support bi-directional service in this territory. At the time of this Strategic Plan, this project is undergoing final design with construction scheduled prior to 2020. |
| **Antelope Valley Line** | CP Brighton to CP Roxford Double Track | Priority 1 | Addition of a second main track adjacent to the high-speed rail initial operating segment. This project is needed to support reverse peak service. At the time of this Strategic Plan, this project is undergoing preliminary engineering and environmental clearance with construction scheduled prior to 2020. |
| **Antelope Valley Line** | Santa Clarita to Newhall Double Track | Priority 1 | Double tracking of the line, including grade crossing improvements and Santa Clarita station platform improvements. This project is needed to support frequent bi-directional service south of Newhall. Scheduled meets occur hourly throughout the day and half-hourly during peak periods. |
| **Antelope Valley Line** | Via Princessa to Vincent Grade Double Track | Priority 2 | Double tracking of portions of the line through the canyon, including extension of the Soledad to Ravena and Kocian-Ravena double-track sections. The Humphreys to Lang section is not used for meets in this scenario, but would provide additional reliability. |
| **San Bernardino Line** | CP Central to CP Archibald Double Track** | Priority 1 | 5.5 miles of double track on San Gabriel Subdivision |
| **San Bernardino Line** | CP Beech to CP Locust Double Track | Priority 1 | 3 mile double track on San Gabriel Subdivision from CP Beech to CP Locust |
| **San Bernardino Line** | CP Rochester to CP Nolan Double Track | Priority 1 | Double tracking of existing line |
| **San Bernardino Line** | CP Lilac to CP Rancho Double Track** | Priority 1 | Double tracking of existing line |
| **San Bernardino Line** | CP Amar to CP Irwin Double Track | Priority 1 | Double tracking of existing line (used for limited number of meets during the peak periods) |
| **San Bernardino Line** | CP Barranca to CP White Double Track** | Priority 2 | Double tracking of existing line (used for limited number of meets during the peak periods) |
| **San Bernardino Line** | Redlands to New York Street Double Track | Priority 1 | Double Track Between Downtown Redlands and New York Street |
| **Orange County Line** | CP San Onofre to CP Pulgas Double Track (Stage 2) | Priority 1 | 1.6 miles of additional track. Required for bi-directional service. [SANDAG Project] |
| **Orange County Line** | Laguna Niguel to San Juan Passing Siding | Priority 2 | 1.8 miles of new passing siding track. Required for bi-directional service. Project undergoing final design and scheduled to be constructed by 2020. |
| **Orange County Line** | CP Eastbrook to CP Shell Double Track | Priority 2 | Second main track and replacement of San Luis Rey River bridge. Provides reliability and scheduling flexibility, given long single track at San Clemente. [SANDAG Project] |
| **91 Line** | CP Eastridge to CP Nuevo Double Track | Priority 1 | Double track. Needed to support single PM reverse peak train and Riverside mid-day train |
| **91 Line** | CP Highgrove to CP Riverside Fourth Track (BNSF)* | Priority 1 | Double track. |
| **91 Line** | CP Highgrove to CP Eastridge Double Track | Priority 2 | Double Track |
| **91 Line** | CP Nuevo to South Perris Double Track | Priority 2 | Double Track |

** To be constructed by the BNSF Railway should OTP for Perris Valley Line trains fall below 95% as stated in the Perris Valley Line Agreement between the BNSF Railway and RCTC dated November 2, 2012.*
*** Project priority is subject to change depending on the service plan proposed and level of express service assumed in the service plan*
*NOTE: Capacity improvement priorities are also subject to funding availability and Member Agency input*

## 7.4 SCENARIO 3: HIGH-SPEED RAIL SERVICE INTEGRATION

This scenario is aimed at maximizing the potential of the Metrolink network to feed and distribute trips to and from the California High-Speed Rail (HSR) system upon its completion from the Central Valley and Bay Area to its interim terminus in the San Fernando Valley at Burbank. It builds off of Scenario 1 and does not include the line extensions considered in Scenario 2, except for the extension of Orange County service from Oceanside to San Diego. Direct service is provided from Newhall through Burbank and Union Station to the Metrolink lines to the southeast of downtown Los Angeles, including the Riverside, Orange County and 91 Lines.

This scenario is based on the projected service patterns proposed for the California High-Speed Rail Authority's (CHSRA) Initial Operating Segment (IOS). The IOS is planned to begin revenue service in Southern California in 2022, with a connection to the Metrolink system in Burbank. Scenario 3 evaluates the enhancements to the Metrolink system that would be necessary to support the service integration with HSR.

### 7.4.1 Weekday Service Growth

The most significant service changes in this scenario are on the inner portion of the Antelope Valley Line, which provides connecting rail service at the proposed interim terminal of HSR line at Burbank. On the other Metrolink branches, the growth in service to 2025 approximates what is included in the Enhancement scenario (Scenario 1), with increases in the frequency of peak service as well as increased bi-directional service throughout the day on most lines.

The service assumptions for the HSR connecting service are based on assumptions about the scheduling of HSR trains. HSR timetables have not yet been finalized, but hypothetical schedules for the high-speed network have been developed to support HSR system planning. Given the characteristics of the HSR system, it is possible to make reasonable assumptions about the patterns of train service at the Los Angeles end of the network. The basic service planning assumption is that both high-speed and connecting Metrolink trains will run at regular intervals throughout the day, and that the basic schedule patterns will repeat every 30 minutes. Additional assumptions driving the Metrolink service plan for this scenario include:

- Regular clockface schedules, with standard train arrival and departure times repeating every hour throughout the day
- Additional high-speed and connecting Metrolink service is operated during the morning and afternoon business travel peak periods on weekdays
- The assumed pattern of southbound rail traffic at Burbank would be as follows, repeating at 30-minute intervals throughout the day:
    - High-speed "local" train from the Central Valley and Bay Area would arrive at the Burbank terminus
    - High-speed "express" train from the Bay Area would arrive at Burbank a few minutes after the local train

  - Southbound Metrolink Antelope Valley Line train would depart from Burbank 7-10 minutes after the express train arrival, allowing HSR passengers sufficient time to transfer from the HSR terminal to the southbound Metrolink platform. This Metrolink train would operate to LAUS and then continue southward via the Orange County Line to Oceanside, with selected trains continuing all the way to San Diego, offering a convenient one-transfer trip by rail from the Bay Area and Central Valley to the entire LOSSAN Corridor.

- The assumed pattern of regular northbound traffic at Burbank would be the opposite of the southbound pattern

  - Northbound Orange County train from either Oceanside or San Diego would operate directly via LAUS and arrive at Burbank. HSR passengers would disembark and transfer from the Metrolink platform to the HSR concourse. The Metrolink train would then proceed northwards to Newhall or further north on the Antelope Valley Line.

  - Departure of the northbound HSR express train to the Bay Area would be timed to permit a convenient passenger transfer at Burbank, departing approximately 10 minutes after the arrival of the connecting Metrolink train.

  - The northbound "local" high-speed train to the Central Valley and Bay Area would depart a few minutes after the express train.

San Bernardino and 91-Line train departures from LAUS would be timed to provide convenient transfers from the Antelope Valley-Orange County run-through trains at LAUS.

Additional Metrolink trains between LAUS and Newhall would be operated during the business travel peak hours in the morning and afternoon, to connect with additional HSR trains at Burbank. Some of these trains could be extended directly to the 91-Line to provide some direct service between Riverside and the HSR terminal at Burbank.

The resulting density of Metrolink rail service is indicated in Figure 7–22. The core portion of the network between Burbank and Fullerton, including run-through operations at LAUS, will have trains running every 10-12 minutes during peak periods, and every 20-30 minutes during off-peak periods. Service densities elsewhere are similar to those in Scenario 1.

The numbers of trains operating in the peak, reverse-peak, and off-peak periods, by branch line, are shown in Figure 7–23 through Figure 7–26, and the total number of weekday revenue train movements by line is shown in Figure 7–25. The full service specification for Scenario 3 is provided in Table 7–23. Scenario 3 provides more total service – 284 daily trains – than Scenario 1 (237 daily trains) or Scenario 2 with just the service overlay on existing lines and not the service extensions (261 daily trains). This is due to the additional service frequencies provided to offer regular scheduled connecting service to the interim HSR terminus at Burbank.

**Figure 7–22: Scenario 3 – Weekday Service Levels (2025)**

**Figure 7–23: Scenario 3 – Peak Trains**

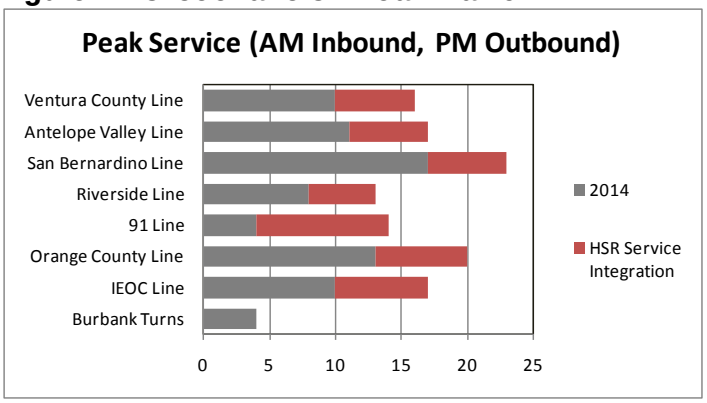



**Figure 7–24: Scenario 3 – Off-Peak Trains**

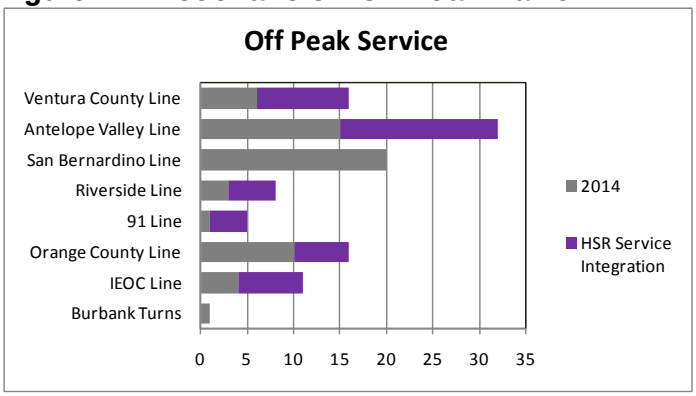



**Figure 7–25: Scenario 3 – Total Daily Trains**

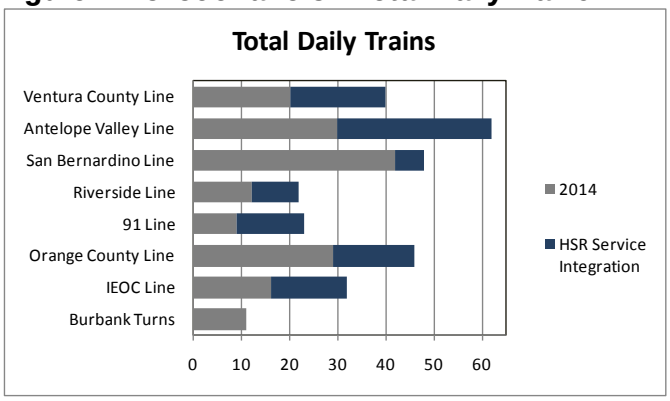



**Figure 7–26: Scenario 3 – Reverse-Peak Trains**

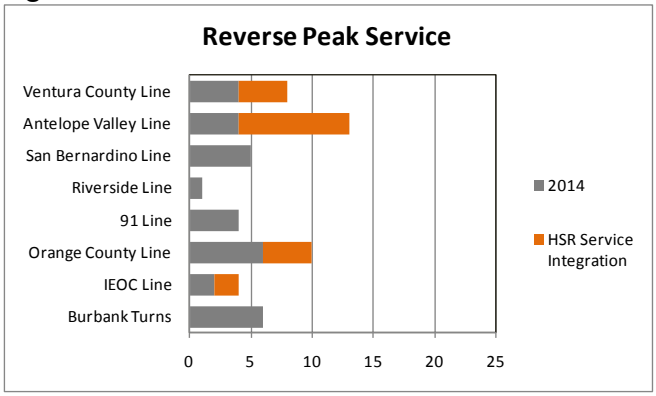



**Table 7–23: Scenario 3 – Weekday Service Assumptions (2025)**

| Line | TOTAL | INBOUND AM Peak | INBOUND Midday | INBOUND PM Peak | INBOUND Evening | INBOUND Night | OUTBOUND AM Peak | OUTBOUND Midday | OUTBOUND PM Peak | OUTBOUND Evening | OUTBOUND Night |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ventura County (Burbank Turns)** | 51 | 9 | 6 | 7 | 2 | 1 | 7 | 4 | 11 | 2 | 2 |
| **Antelope Valley** | 62 | 8 | 8 | 7 | 4 | 4 | 6 | 7 | 9 | 5 | 4 |
| **San Bernardino** | 48 | 11 | 6 | 3 | 2 | 2 | 2 | 6 | 12 | 2 | 2 |
| **Riverside** | 22 | 6 | 2 | 1 | 0 | 2 | 0 | 2 | 7 | 1 | 1 |
| **Orange County** | 46 | 10 | 3 | 6 | 2 | 3 | 4 | 3 | 10 | 3 | 2 |
| **91 / Perris Valley** | 23 | 7 | 0 | 2 | 1 | 1 | 2 | 1 | 7 | 1 | 1 |
| **Inland Empire-Orange County** | 32 | 2 | 4 | 8 | 2 | 0 | 9 | 4 | 2 | 0 | 1 |

### 7.4.2 Weekend Service Growth

Weekend service is estimated to grow proportionally with the increase in overall weekday service, so that the number of weekend trains remains at the level of approximately 30 percent of total weekday service. In this scenario, weekend service approximately doubles compared with existing service, from an average of 45 trains per weekend day in 2015 to 74-80 daily trains in 2025. California HSR service will operate on weekends, and this scenario assumes that regular connecting Metrolink service will continue to be provided on the Antelope Valley line between Newhall and LAUS, running through to serve the Orange County Line. The base regular service at 30-minute intervals is assumed to be provided on weekend days as well as weekdays.

**Table 7–24: Scenario 3 – Weekend Service Assumptions (2025)**

| Line | No Service Growth | Scenario 3: High Speed Rail Service Integration |
|---|---|---|
| **Ventura County** | -- | -- |
| **Antelope Valley** | 12 | 26 |
| **San Bernardino (Saturday)** | 20 | 26 |
| **San Bernardino (Sunday)** | 14 | 20 |
| **Riverside** | -- | -- |
| **Orange County** | 8 | 12 |
| **91 / Perris Valley** | 4 | 8 |
| **Inland Empire-Orange County** | 4 | 8 |
| **New Services** | -- | -- |
| **TOTAL** | 42-48 | 74-80 |
| **% Growth Over No Service** | -- | 67-76% |

### 7.4.3 Operating Cost Estimates

Table 7–25 to Table 7–27 shows Scenario 3 by line expenditure, net subsidies, and train miles. When evaluating these figures, Scenario 3 shows a 31 percent decrease in cost per train mile at $77.30 compared to the No Service Growth Scenario. The subsidy per train mile shows a decrease of 36 percent at $41.60 per train mile.

**Table 7–25: Scenario 3 – Total Estimated Operating Expenditure***

| Line | No Service Growth | Scenario 3: High-Speed Rail Service Integration |
|---|---|---|
| **Ventura County Line (including BBA)** | $31,782,000 | $33,112,000 |
| **Antelope Valley Line** | $64,486,000 | $62,066,000 |
| **San Bernardino Line** | $74,877,000 | $64,355,000 |
| **Riverside Line** | $20,634,000 | $26,091,000 |
| **Orange County Line (including MSEP)** | $55,987,000 | $73,341,000 |
| **91 Line** | $18,776,000 | $42,961,000 |
| **IEOC Line** | $36,549,000 | $52,439,000 |
| **TOTAL** | $303,091,000 | $354,365,000 |

** Calculated as train mile share*

**Table 7–26: Scenario 3 – Estimated Member Agency Net Subsidy***

| Agency | No Service Growth | Scenario 3: High-Speed Rail Service Integration |
|---|---|---|
| LACMTA | $94,509,000 | $91,743,000 |
| OCTA** | $41,518,000 | $54,825,000 |
| RCTC | $12,679,000 | $22,750,000 |
| SANBAG | $20,619,000 | $17,792,000 |
| VCTC*** | $5,561,000 | $3,585,000 |
| TOTAL | $174,886,000 | $190,695,000 |

** Calculated as train miles by county*
*No assumptions made as to negotiated costs associated with commuter trains running over UP north of EVC to NGO, Alhambra sub from El Monte to LA, and LA sub above current 12 agreement moves*
*No assumptions made about costs associated with getting from Rancho Cucamonga to Ontario airport*
*** San Diego County train miles attributed to OCTA*
**** Santa Barbara (EVC to NGO) attributed to VCTC*

**Table 7–27: Scenario 3 – Growth by Train Mile**

| Line | No Service Growth | Scenario 3: High-Speed Rail Service Integration |
|---|---|---|
| Ventura County Line (including BBA) | 283,566 | 428,346 |
| Antelope Valley Line | 575,352 | 802,899 |
| San Bernardino Line | 668,070 | 832,510 |
| Riverside Line | 184,099 | 337,512 |
| Orange County Line (including MSEP) | 499,524 | 948,751 |
| 91 Line | 167,524 | 555,749 |
| IEOC Line | 326,096 | 678,355 |
| TOTAL | 2,704,231 | 4,584,122 |

### 7.4.4 Equipment and Infrastructure Needs

Table 7–28 summarizes the systemwide fleet requirement for Scenario 3. The integration scenario requires 56 revenue trainsets, an increase of just over 44 percent over and above the 39 trainsets that provide the current Metrolink service.

**Table 7–28: Scenario 3 – Fleet Requirements**

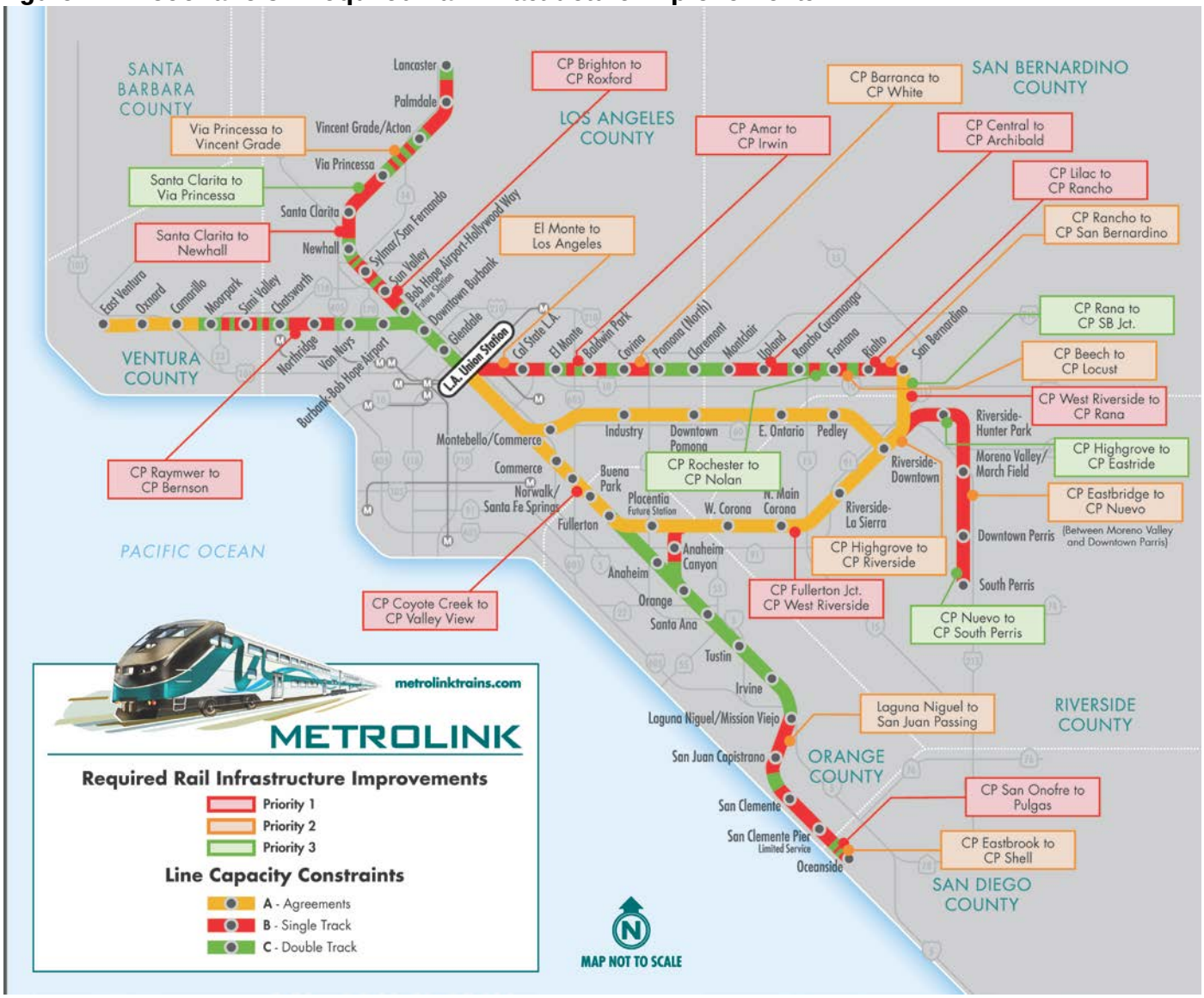
| | Existing (2015) | Scenario 3: High-Speed Rail Service Integration (2025) | % Change |
|---|---|---|---|
| No. of Locomotives | 55 | 65 | +18% |
| No. of Cab Cars | 57 | 65 | +14% |
| No. of Coaches | 201 | n/a | |
| Total No. of Revenue Trainsets | 39 | 56 | +44% |

As in the other scenarios, train storage maintenance capacity at existing yards and new service endpoints will need to be expanded to meet the needs of the increased fleet size. The station at Newhall will need to be configured to enable some Antelope Valley Line trains to turn at this location while others continue to operate through the station serving stations on the line between Newhall and Lancaster.

The required rail infrastructure projects in the HSR Integration Scenario are similar to those required in Scenarios 1 and 2. Most of these improvements entail double-tracking of portions of existing single-track lines or extension of passing sidings. The map in Figure 7–27 shows the locations where mainline track infrastructure investments are required to support Scenario 3.

Generally, the locations of these additional tracks correspond to potential improvement projects that have been previously identified. Not all of the projects are necessary in order to deliver Scenario 3. Service patterns were developed that minimize the need for sidings and additional main tracks, by scheduling "meets" of trains running in opposite directions at the same locations and at regularly occurring time intervals wherever possible. The required rail infrastructure capital improvements for Scenario 3 include:

**Figure 7–27: Scenario 3 – Required Rail Infrastructure Improvements**



## Table 7–29: Scenario 3 – Required Rail Infrastructure Improvements

| Line | Project Name | Priority | Project Description |
|---|---|---|---|
| **Ventura County Line** | CP Raymer to CP Bernson Double Track | Priority 1 | 6.4 miles of double track, including bridge and grade crossing improvements, plus a second side platform and pedestrian underpass at the Northridge station. This project is needed to enable multiple train meets, to support bi-directional service in this territory. At the time of this Strategic Plan, this project is undergoing final design with construction scheduled prior to 2020. |
| **Antelope Valley Line** | CP Brighton to CP Roxford Double Track | Priority 1 | Addition of a second main track adjacent to the high-speed rail initial operating segment. This project is needed to support reverse peak service. At the time of this Strategic Plan, this project is undergoing preliminary engineering and environmental clearance with construction scheduled prior to 2020. |
| **Antelope Valley Line** | Santa Clarita to Newhall Double Track | Priority 1 | Double tracking of the line, including grade crossing improvements and Santa Clarita station platform improvements. This project is needed to support frequent bi-directional service south of Newhall. Scheduled meets occur hourly throughout the day and half-hourly during peak periods. |
| **Antelope Valley Line** | Via Princessa to Vincent Grade Double Track | Priority 2 | Double tracking of portions of the line through the canyon, including extension of the Soledad to Ravena and Kocian-Ravena double-track sections. The Humphreys to Lang section is not used for meets in this scenario, but would provide additional reliability. |
| **San Bernardino Line** | CP Central to CP Archibald Double Track* | Priority 1 | 5.5 miles of double track on San Gabriel Subdivision |
| **San Bernardino Line** | CP Lilac to CP Rancho Double Track* | Priority 1 | Double tracking of existing line |
| **San Bernardino Line** | CP Amar to CP Irwin | Priority 1 | Double tracking of existing line (used for limited number of meets during the peak periods) |
| **San Bernardino Line** | CP Barranca to CP White Double Track* | Priority 2 | Double tracking of existing line (used for limited number of meets during the peak periods) |
| **San Bernardino Line** | CP Beech to CP Locust Double Track | Priority 2 | 3 mile double track on San Gabriel Subdivision from CP Beech to CP Locust |
| **Orange County Line** | CP San Onofre to CP Pulgas Double Track(Stage 2) | Priority 1 | 1.6 miles of additional track. Required for bi-directional service. [SANDAG Project] |
| **Orange County Line** | Laguna Niguel to San Juan Passing Siding | Priority 2 | 1.8 miles of new passing siding track. Required for bi-directional service. Project undergoing final design and scheduled to be constructed by 2020. |
| **Orange County Line** | CP Eastbrook to CP Shell Double Track | Priority 2 | Second main track and replacement of San Luis Rey River bridge. Provides reliability and scheduling flexibility, given long single track at San Clemente. [SANDAG Project] |
| **91 Line** | CP Eastridge to CP Nuevo Double Track | Priority 2 | Double track. Needed to support single PM reverse peak train and Riverside mid-day train |
| **91 Line** | CP Highgrove to CP Riverside Fourth Track **(BNSF)** | Priority 2 | Double track. |

* Project priority is subject to change depending on the service plan proposed and level of express service assumed in the service plan
NOTE: Capacity improvement priorities are also subject to funding availability and Member Agency input

## 8.0 SUMMARY MATRIX OF CAPITAL PROJECTS AND COST ESTIMATES

A number of additional safety or facility projects were also identified systemwide to support operations independent of the growth scenarios defined in this Strategic Plan. These projects, in addition to the capacity projects identified in the Plan, are summarized in the following matrix by category, subdivision, and County.

# Southern California Regional Rail Projects List Summary

## (Metrolink, NCTD, BNSF, Union Pacific)

**Project Summary**

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | **Bring 1 grade crossing to new SCRRA Standards (including active warning devices and civil improvements) 5 xings/yr * 5 years * $2M per xing = $50M Systemwide*** | SYSTEMWIDE | SCAX | Regional | CROSSING IMPROVEMENT | Bring 1 grade crossing to new SCRRA Standards (including active warning devices and civil improvements) 5 xings/yr * 5 years * $2M per xing = $50M Systemwide* | $5,875,000 | | Short Term | N | |
| 39 | **Cameras at Grade Crossings** | SYSTEMWIDE | SCAX | Regional | CROSSING IMPROVEMENT | Install cameras at grade crossings | $35,000 | | Short Term | N | |
| 86 | **Grade crossing improvements** | SYSTEMWIDE | SCAX | Regional | CROSSING IMPROVEMENT | Bring 1 grade crossing to new SCRRA Standards (including active warning devices and civil improvements) 5 xings/yr * 5 years * $2M per xing = $50M Systemwide* | $5,875,000 | | Short Term | N | |
| 87 | **Grade crossing improvements** | VENTURA | SCAX | Regional | CROSSING IMPROVEMENT | This project will modify 3 crossing per year. The crossing will be improved to make them safer and to meet revised SCRRA standards. (3 xings * $2.5M ea for 5 years) | $37,500,000 | | Short Term | N | |
| 112 | **Locomotives (for 30 min. service Expansion)** | SYSTEMWIDE | SCAX | Regional | CAPACITY | To get to a 30 minute headway, 26 additional locomotives will be needed. The cost of rail cars is assumed to be $7 M/unit. For the "base case" (i.e. non 30 min. service), another 26 locomotives would be needed. The costs for the base case are shown separately. | $45,500,000 | | Short Term | N | |
| 113 | **Locomotives (for base case growth of locomotives and cars** | SYSTEMWIDE | SCAX | Regional | CAPACITY | This is the amount needed for the "organic" growth (irrespective of 30 min. service) and is not counted as part of the 30 min. growth scenario | $26,838,000 | | Short Term | N | |
| 157 | **Rail Cars (for 30 min. service expansion)** | SYSTEMWIDE | SCAX | Regional | CAPACITY | To get to a 30 min. headway, 90 additional rail cars will be needed. The cost of passenger car is assumed to be #3M/unit. For the "base case" (i.e. non 30 min. service), another 90 passenger cars would be needed. The costs for the base case are shown separately. | $67,125,000 | | Short Term | N | |
| 164 | **Rehab - Expansion (for 30 min. service on all Metrolink lines)** | SYSTEMWIDE | SCAX | Regional | REHABILITATION | Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars) | $169,400,000 | | Long Term | P | |
| 165 | **Rehab -Long Term** | SYSTEMWIDE | SCAX | Regional | REHABILITATION | Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars) | $151,500,000 | | Long Term | P | |
| 166 | **Rehab -Mid Term** | SYSTEMWIDE | SCAX | Regional | REHABILITATION | Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars) | $180,325,000 | | Mid Term | P | |
| 167 | **Rehab -Short Term** | SYSTEMWIDE | SCAX | Regional | REHABILITATION | Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars) | $136,125,000 | | Short Term | N | |

**Notes:**

SYSTEMWIDE projects costs are split between the four regions.

HSR: HIGH-SPEED RAIL

N: NO FUNDING

P: PARTIALLY FUNDED

F: FULLY FUNDED

F*: HIGH-SPEED RAIL FULLY FUNDED

SHORT TERM: 2015-2024

MID TERM: 2025-2034

LONG TERM: 2035-2044

# Southern California Regional Rail Projects List Summary

## (Metrolink, NCTD, BNSF, Union Pacific)

**Project Summary**

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **13th Street Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; relocate existing facilities to north and install new track on north side of crossing, install exit gate on Northwest quadrant with raised median placed between crossing and intersection, extend east median to 100 ft length, Pine St. becomes right-in-right-out movement | $3,000,000 | | Short Term | N | |
| 2 | **Aliso Canyon Road Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install 100 ft median channelization to both approaches of the crossing | $3,000,000 | | Short Term | N | |
| 3 | **Alondra Boulevard - Crossing Improvements** | SAN BERNARDINO | BNSF | Los Angeles | CROSSING IMPROVEMENT | Four quad gates. Grade separate for HSR development. | $5,000,000 | | | | |
| 4 | **Alondra Boulevard Grade Separation (HSR)** | SAN BERNARDINO | BNSF | Los Angeles | GRADE SEPARATION | Grade separation for HSR development | $60,000,000 | | Mid Term | F* | |
| 5 | **Amar Road Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 6 | **Another CMF level facility for heavy maintenance (for 30 min. service expansion)** | SYSTEMWIDE | SCAX | Los Angeles | FACILITY | Need 100% size of CMF in approximately 2017. Will include the administrative offices from existing CMF, a run-through progressive car and loco shop, S&I, storage tracks, fuel system, train wash, shop machinery, and expanded warehouse capacity | $87,500,000 | | Short Term | N | |
| 7 | **Arrow Hwy Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 8 | **Arvilla Avenue - Closure** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Road crossing closure | $2,000,000 | | Mid Term | N | |
| 9 | **Arvilla Avenue Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school); relocate existing facilities to north and install new track on north side of crossing. Install exit gate on both sides of crossing (4 quad) and 9 ft. wide raised medians to both sides of crossing. Install or re-calculate preemption of signals on both sides of crossing. | $1,110,000 | | Short Term | N | |
| 10 | **Avenue J Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 11 | **Avenue K Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 12 | **Avenue R Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 13 | **Avenue S Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (review for sight distance and crossing time, potentially upgrade treatment); Install additional track through crossing, relocate existing facilities to accommodate new track | $5,000,000 | | Long Term | N | |
| 14 | **Avenue S Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade Separation | $60,000,000 | | Long Term | F* | |
| 15 | **Azusa Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 16 | **Azusa Canyon Road Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 18 | **Barranca Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 19 | **Barranca to Lone Hill Double Track** | SAN GABRIEL | SCAX | Los Angeles | CAPACITY | Construct 3.98 miles of main track, signal upgrade, grade crossing enhancements, bridge work, etc | $85,000,000 | | Mid Term | N | |
| 20 | **Barrel Springs Road Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install 100 ft median channelization to both approaches of the crossing | $3,000,000 | | Short Term | N | |
| 23 | **Bellaire Avenue Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 24 | **Bledsoe Street - Closure** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Road crossing closure (HSR) | $2,000,000 | HST PE/Environmental | Mid Term | F* | |
| 25 | **Bledsoe Street Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; relocate existing facilities to north and install new track on north side of crossing. Install new gates on both sides of crossing (4 quad) | $1,300,000 | | Short Term | N | |
| 26 | **Bonnie Cove Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 27 | **Brand Blvd Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 28 | **Brand Boulevard - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school); relocate existing facilities to north and install new track on north side of crossing; 4 quad gates | $5,000,000 | | Short Term | N | |
| 29 | **Branford Street - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Four quad gates. Grade separate for HSR development. | $45,000,000 | | | | |
| 30 | **Brighton to Roxford** | VALLEY | SCAX | Los Angeles | CAPACITY | Double track and including crossing improvements<br>Adding a second track to the AVL line segment where the IOS will be located. | $120,000,000 | Environmental | Short Term | P | |
| 33 | **Buena Vista Grade Separation (HSR)** | VENTURA | SCAX | Los Angeles | GRADE SEPARATION | Grade Separation | $60,000,000 | | Mid Term | F* | |
| 34 | **Buena Vista Street Crossing Improvements** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; relocate existing facilities to north and install new track on north side of crossing. Install raised median on south from edge of crossing to intersection shaped to match existing striping. Install exit gate for right turn only movement. Recalculate signal preemption; 4 quad gates | $5,000,000 | | Short Term | N | |
| 35 | **Burbank Junction Track Realignment** | VENTURA | SCAX | Los Angeles | CAPACITY | Realignment and hi-speed switches at junction used by Metrolink, Surfliner, and Amtrak long-distance trains | $9,000,000 | | Short Term | N | |
| 36 | **Burbank Station Platform Extension** | VALLEY | SCAX | Los Angeles | STATION | Extend platform to allow for operation of 8-car trains and improve station design | $4,000,000 | | Short Term | N | |
| 37 | **Burbank-Bob Hope Airport Station Expansion** | VENTURA | SCAX | Los Angeles | STATION | Expansion will supplement and expand connectivity between train and plane. | $15,000,000 | Construction | Short Term | N | |
| 40 | **Canyon Park Blvd Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install exit gates on Northwest quadrant | $3,000,000 | | Short Term | N | |
| 42 | **Carmenita Road - Crossing Improvements** | SAN BERNARDINO | BNSF | Los Angeles | CROSSING IMPROVEMENT | Four quad gates. | $5,000,000 | | | | |
| 43 | **Widening of Carmenita Road Grade Separation (HSR)** | SAN BERNARDINO | BNSF | Los Angeles | GRADE SEPARATION | Grade separation for HSR development | $60,000,000 | | Mid Term | F* | |
| 44 | **Cataract Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 46 | **Chatsworth Station Pedestrian Grade Separation and Station Improvements** | VENTURA | SCAX | Los Angeles | STATION | Grade Separate pedestrians from railroad tracks; add storage track; lengthen platforms | $20,000,000 | | Long Term | N | |
| 47 | **Chatsworth Street Crossing Improvements** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 48 | **Chevy Chase - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; channelization medians, 60' on both approaches, S. Alger St. would be right turn only; 4 quad gates | $5,000,000 | | Short Term | N | |
| 49 | **Chevy Chase Dr. Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 50 | **Citrus Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 51 | **Claremont Blvd Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 52 | **Claremont Station Pedestrian Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 53 | **Clybourne Avenue Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |

## Project Summary

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 54 | **Cogswell Road Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 55 | **College Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 56 | **Columbia Way (formerly Avenue M) Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 57 | **Covina Blvd Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 58 | **CP Amar to CP Irwin Double Track** | SAN GABRIEL | SCAX | Los Angeles | CAPACITY | | $91,650,000 | Planning | | | |
| 59 | **CP Barranca to CP White Double Track** | SAN GABRIEL | SCAX | Los Angeles | CAPACITY | | $70,000,000 | Engineering/ Environmental | | | |
| 60 | **CP Barranca to CP White Double Track** | SAN GABRIEL | SCAX | Los Angeles | CAPACITY | | $110,300,000 | Planning | | | |
| 63 | **Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Install signage at 11 stations and ped gates and platform at Burbank Airport station on the Ventura line | $3,160,000 | | Short Term | N | |
| 65 | **Crown Valley Road Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install 100 ft median channelization to both approaches of the crossing | $3,000,000 | | Short Term | N | |
| 66 | **Cypress St/Banna Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 67 | **Devonshire Street Crossing Improvements** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 68 | **Doran Street** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation of the roadway from the railroad right-of-way. | $40,000,000 | Environmental | | | Also listed in LA County San Fernando region with $90,000,000 |
| 69 | **Drayton Street Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install 100 ft median to east, drive accesses within 100 ft shall receive right turn only restrictive medians, install exit gate in Northwest quadrant with raised median extending from intersection to crossing | $3,000,000 | | Short Term | N | |
| 70 | **Durfee Grade Separation** | SAN GABRIEL | SCAX | Los Angeles | GRADE SEPARATION | Separate roadway and railroad tracks on Durfee Avenue by constructing a roadway underpass on Durfee Avenue between Beverly Road and Whittier Boulevard under the Union Pacific railroad tracks with retaining walls and a new railroad bridge. | $78,400,000 | Engineering | Long Term | N | Also listed in LA County San Gabriel Region with $60,000,000 |
| 75 | **Expanded layover facility in Chatsworth** | VENTURA | SCAX | Los Angeles | CAPACITY | Build out is 5 tracks, fuel, lighting, sewer connections and potable water. This facility would probably mean the last 4 trains on the line would have to end at Chatsworth | $25,000,000 | | Short Term | N | |
| 76 | **Expanded layover facility in Palmdale (30 min Expansion)** | VALLEY | SCAX | Los Angeles | CAPACITY | Build out is 5 tracks, fuel, lighting, sewer connections and potable water. | $25,000,000 | | Mid Term | N | |
| 77 | **Fairplex Drive Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 78 | **Flower Street Crossing Improvements** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | 4 quad gates | $5,000,000 | | Short Term | N | |
| 79 | **Francisquito Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 80 | **Fulton Road Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 81 | **Glendale Slide Relocation** | VALLEY | SCAX | Los Angeles | CAPACITY | Relocate existing UPRR storage. Independent utility if the existing track is relocated. There is a significant cost difference. | $3,300,000 | HST PE/Environmental | | | |
| 82 | **Glendale Station Platform Extension** | VALLEY | SCAX | Los Angeles | STATION | Extend platform to allow for operation of 8-car trains and improve station design | $2,400,000 | | Long Term | N | |
| 83 | **Glendale Station Redesign** | VALLEY | SCAX | Los Angeles | STATION | Coincides with Glendale Slide Relocation. Relocate existing UPRR storage. Independent utility if the existing track is relocated. There is a significant cost difference. | $20,000,000 | HST PE/Environmental | | | |
| 84 | **Glendora Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 85 | **Golden Oak Road Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install exit gates on both sides of crossing (4 quad), with median channelization, consider improving dedicated right turn movement lanes approaching crossing to level shown in standard drawings 4006 | $3,000,000 | | Short Term | N | |
| 88 | **Grand Ave Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 89 | **Grandview Avenue - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping pending review of sight distance; extend channelization median on southwest approach to 100 ft; 4 quad gates | $5,000,000 | | Short Term | N | |
| 90 | **Grandview Avenue Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 91 | **Hamburger Lane (Virginia) Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 92 | **High Desert Connection to HSR** | HIGH DESERT CORRIDOR | N/A | Los Angeles | N/A | Construction of a new multi-modal link between SR-14 in LA County and SR-18 in San Bernardino County. | $500,000,000 | Environmental | | | |
| 93 | **Hollenbeck Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 94 | **Hubbard Avenue - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install new track on north side of crossing, relocate existing facilities to north to accommodate new track, extend median channelization to 100 ft on north approach of crossing, install right turn only restrictive medians on drive accesses within 100 ft of crossing; 4 quad gates | $5,000,000 | | Short Term | N | |
| 95 | **Hubbard Avenue Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 96 | **Indian Hill Blvd Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 97 | **Indian Hill Blvd Grade Separation** | SAN GABRIEL | SCAX | Los Angeles | GRADE SEPARATION | Grade separation | $60,000,000 | | Long Term | N | |
| 99 | **Irwin / Amar Double Track** | SAN GABRIEL | SCAX | Los Angeles | CAPACITY | Construct 19,800 ft of maintrack, signal upgrade, 8 grade crossings, 3 private crossings 2 bridges, I-10 fwy box/bridge (Double track and 1 DBL crossover = $32,100) | $107,000,000 | | Mid Term | N | |
| 100 | **Irwindale Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 101 | **Jessie Street - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school); relocate existing facilities to north and install new track on north side of crossing. Install exit gate on Northeast quadrant. Extend median channelization to intersect on north approach, and 100 ft on the south approach; 4 quad gates | $5,000,000 | | Short Term | N | |
| 102 | **Jessie/Wolfskill Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 106 | **Lakeland Avenue Grade Separation** | SAN BERNARDINO | BNSF | Los Angeles | GRADE SEPARATION | New Grade Separation | $60,000,000 | | Mid Term | N | |
| 107 | **Lancaster Blvd Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 108 | **Lang Station Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install lights, gates, 100 ft median channelization on both approaches | $3,000,000 | | Short Term | N | |
| 109 | **Lark Ellen Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 110 | **LAUS to Claremont Improvements (for 30 min expansion)** | SAN GABRIEL | SCAX | Los Angeles | CAPACITY | Track work, increased signal spacing, additional crossover capability and improvements at certain stations. The unit cost for track and signals is $6000/foot | $64,000,000 | | Mid Term | N | |
| 114 | **Lone Hill Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 115 | **Lone Hill to White Double Track** | SAN GABRIEL | SCAX | Los Angeles | CAPACITY | Construct 3.1 miles of main track, signal upgrade, grade crossing enhancements, bridge work, etc | $71,000,000 | | Short Term | N | |

## Project Summary

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 117 | **MacDevitt Street Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 118 | **Maclay Avenue - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school); install new track on north side of crossing, relocate existing facilities to north to accommodate new track, extend median channelization to 100 ft on both approaches, install right turn only restrictive medians on drive accesses within 100 ft of crossing; 4 quad gates | $5,000,000 | | Short Term | N | |
| 119 | **Maclay Street Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 120 | **Market Street Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (review sight distance and upgrade treatments if necessary); recommend drive access closure or relocation in Northeast quadrant, extend east median to 60 ft minimum. Pine St. becomes right-in right- out movement | $3,000,000 | | Short Term | N | |
| 122 | **Merced Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 123 | **N. Garey Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 124 | **N. Garey Avenue Grade Separation** | SAN GABRIEL | SCAX | Los Angeles | GRADE SEPARATION | Grade separation | $60,000,000 | | Long Term | N | |
| 125 | **N. Towne Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 127 | **Newhall Station Platform Extension** | VALLEY | SCAX | Los Angeles | STATION | Extend platform to allow for operation of 8-car trains and improve station design | $2,400,000,000 | | Long Term | N | |
| 128 | **North Buena Vista Street - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Four quad gates. Grade separate for HSR development. | $45,000,000 | | | | |
| 129 | **North Main Street Crossing Improvements** | RIVER | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school), possibly install 3rd active gate to NW quad, possible RT turn restriction for business parking in NW quad due to geometry, sight distance and lack of active protection; 4 quad gates | $5,000,000 | | Short Term | N | |
| 130 | **North Main Street Grade Separation** | RIVER | SCAX | Los Angeles | CROSSING IMPROVEMENT | Grade separation at MP 139.6 on the River Corridor | $91,280,000 | | Short Term | N | |
| 131 | **Norwalk Blvd / Los Nietos Rd - Grade Separation** | SAN BERNARDINO | BNSF | Los Angeles | GRADE SEPARATION | New Grade Separation | $60,000,000 | Designed | Short Term | N | |
| 132 | **Oak Ridge Drive Crossing Improvement** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install exit gate in Northwest quadrant | $3,000,000 | | Mid Term | N | |
| 133 | **Oak Ridge Drive to Santa Clarita Station Double Track** | VALLEY | SCAX | Los Angeles | CAPACITY | MP 31.3 - MP 31.4: 1240 TF shift includes connection with old line. Construct 120 TF and 1 EA #10 turnout, 1 EA #20 crossover<br>MP 31.4 - MP 34.7: Construct 9370 TF, 2400 FT tunnel, 360 TF shift including connection with Tier 1 line,<br>MP 34.7-MP 37.4: Also construct 320 TF and 1 EA #10 turnout, 1 EA #20 crossover between MP 34.7 to MP 37.4 | $108,700,000 | | Long Term | N | |
| 135 | **Osborne Street - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Widen Osborne St between Foothill Blvd and San Fernando Rd for pedestrian safety and improved traffic capacity.<br>Signage and striping; install exit gates on both sides of crossing (4 quad), relocate existing facilities to north and install new track on north side of crossing, adjust signaling preemption on both sides to accommodate track changes; 4 quad gates | $5,000,000 | | Short Term | N | |
| 136 | **Osborne Street Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation for HSR development | $60,000,000 | | Mid Term | F* | |
| 137 | **Pacific Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 138 | **Palmdale Blvd Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 139 | **Palmdale Blvd Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation | $60,000,000 | | Short Term | F* | |
| 140 | **Palmdale Siding Installation** | VALLEY | SCAX | Los Angeles | CAPACITY | Construct 2,000 foot passing siding at Palmdale Station | $7,000,000 | HST PE/Environmental | | | |
| 141 | **Palmdale Station (platform extension)** | VALLEY | SCAX | Los Angeles | STATION | Extend platform to allow for operation of 8-car trains and improve station design | $1,200,000 | | Long Term | N | |
| 142 | **Downtown Pomona Station: Parking spaces expansion** | LOS ANGELES | UPRR | Los Angeles | STATION | Work with station city to expand parking spaces at lot nearing capacity. Downtown Pomona >80% full. | $3,600,000 | | Short Term | N | |
| 143 | **Paxton Street - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school); Relocate existing facilities to north and install new track on north side of crossing. Install exit gate on Northwest quadrant. Install non-mountable median curb on both approaches of crossing. Adjust traffic signal preemption as necessary. Consider relocating SB Paxton traffic signal to north side of crossing; 4 quad gates1 | $5,000,000 | | Short Term | N | |
| 144 | **Paxton Street Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 145 | **Penrose Street - Closure** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Road crossing closure | $4,000,000 | Environmental | Mid Term | F* | |
| 146 | **Penrose Street Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install exit gates on both sides of crossing (4 quad) and 9 ft wide raised medians to both sides of crossing, review potentially adopting dedicated right turn lanes on both sides of crossing per METROLINK standard drawing 4006 | $1,100,000 | | Short Term | N | |
| 147 | **Pierce Street - Closure** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | Road crossing closure | $2,000,000 | HST PE/Environmental | | | |
| 148 | **Pierce Street Crossing Improvements** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school); relocate existing facilities to north and install new track on north side of crossing; install exit gate on Northwest quadrant, install 100 ft of channelizing median on north approach of crossing, add small median island on south approach of crossing to intersection, adjust signal preemption | $1,700,000 | | Short Term | N | |
| 149 | **Pierce Street Grade Separation (HSR)** | VENTURA | SCAX | Los Angeles | GRADE SEPARATION | Closure | $2,000,000 | | Mid Term | F* | |
| 150 | **Pioneer Boulevard - Crossing Improvements** | SAN BERNARDINO | BNSF | Los Angeles | CROSSING IMPROVEMENT | 3 quad gates to improve speed and safety. Grade separation for HSR development | $5,000,000 | | Mid Term | N | |
| 151 | **Pioneer Boulevard - Grade Separation (HSR)** | SAN BERNARDINO | BNSF | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 152 | **Platform Extension at Industry & Montebello Stations** | LOS ANGELES | UPRR | Los Angeles | STATION | Extend platforms at Industry & Montebello stations to allow for operation of 8- car trains and improve station design. | $650,000 | | Short Term | N | |
| 153 | **Platform Extensions (Claremont, Covina & Baldwin Park Stations)** | SAN GABRIEL | SCAX | Los Angeles | STATION | Extend platforms at Claremont, Covina & Baldwin Park stations to allow for operation of 8-car trains and improve station design. | $5,100,000 | | Long Term | N | |
| 155 | **Polk Street - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install new track on north side of crossing; relocate existing utilities to north to accommodate new track, install exit gates on both sides of crossing (4 quad); 4 quad gates | $5,000,000 | | Short Term | N | |
| 156 | **Polk Street Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |

## Project Summary

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 158 | **Rainbow Glen Drive** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (crossing within 2100 ft of school); install additional track through crossing, relocate existing facilities to accommodate new track, install exit gate on Northeast quadrant with median from intersection to crossing, install median on south approach (60 ft minimum) | $3,000,000 | | Short Term | N | |
| 159 | **Ramona Boulevard Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 160 | **Rancho Vista Blvd (formerly Avenue P) Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 161 | **Rancho Vista Blvd (formerly Avenue P) Grade Separation** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation | $60,000,000 | | Long Term | N | |
| 162 | **Raymer to Bernson Double Track** | VENTURA | SCAX | Los Angeles | CAPACITY | Construct 6.4 miles of mainline track, install safety improvements to nine roadway at-grade crossings, construct a double-track bridge over Bull Creek and a second single-track bridge over Limekiln Creek, and construct a second side platform and a pedestrian underpass at the Northridge station. | $88,000,000 | Engineering | | | |
| 163 | **Reconfiguration of existing CMF (for 30 min service expansion)** | SYSTEMWIDE | SCAX | Los Angeles | FACILITY | Relocate admin office to new CMF location and improve capacity by building a run-through progressive car and loco shop at existing CMF | $18,750,000 | | Mid Term | N | |
| 168 | **Reuther Road Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install exit gates on both sides of crossing (4 quad), recommend possible grade separation (ideal, recalculate signaling preemption, possibly realign Golden Triangle Road (minimum) | $3,000,000 | | Long Term | N | |
| 169 | **Rosecrans Ave / Marquardt Ave Grade Separation** | SAN BERNARDINO | BNSF | Los Angeles | GRADE SEPARATION | Elevate Rosecrans Avenue above BNSF tracks, provide two through lanes overhead and ramps on Marquardt Avenue to meet Rosecrans Avenue roadway overhead, and provide pedestrian crossings. | $120,000,000 | Designed | | | |
| 170 | **Roxford Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; install exit gate on south side of crossing, install 100 ft median channelization on north approach, install right turn only restrictive median to drive accesses within 100 ft | $3,000,000 | | Short Term | N | |
| 171 | **Roxford Street - Grade Separation** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation for HSR development | $60,000,000 | HST PE/Environmental | Mid Term | F* | |
| 173 | **San Dimas Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 174 | **San Dimas Canyon Road Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 176 | **San Fernando Road (Newhall) Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; propose closure of Pine St. Access in Northeast quadrant, extend medians to East 100 ft. | $3,000,000 | | Short Term | N | |
| 179 | **Santa Clarita - Acton Double Track (30 min expansion)** | VALLEY | SCAX | Los Angeles | CAPACITY | Track work, increased signal spacing, additional crossover capability and improvements at certain stations. The unit cost for track and signals is $6000/foot | $1,086,058,000 | | Mid Term | | |
| 180 | **Santa Clarita Station Platform Extension** | VALLEY | SCAX | Los Angeles | STATION | Extend platform to allow for operation of 8-car trains and improve station design | $700,000 | | Long Term | N | |
| 181 | **Santa Clarita to Newhall Double Track** | VALLEY | SCAX | Los Angeles | CAPACITY | Includes four grade crossings and Santa Clarita platform<br>Construct 16,600 ft of main track, signal upgrade, 4 grade crossings, 1 private crossing, 2 bridges, add 2nd platform @ Santa Clarita Station; add 2 EA #20 crossovers; 1 EA 60' bridge | $40,200,000 | Planning | | | |
| 182 | **Santa Clarita to Via Princessa** | VALLEY | SCAX | Los Angeles | CAPACITY | Double track of the segment of the AVL. | $12,000,000 | Planning | | | |
| 183 | **SCRIP** | RIVER | SCAX | Los Angeles | CAPACITY | Takes four LAUS yard tracks across SR-101 and connects them to the main tracks. | $350,000,000 | Planning | | | Also listed in LA County CENTRAL Region |
| 185 | **Sheldon Street - Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation for HSR development | $60,000,000 | HST PE/Environmental | Short Term | F* | |
| 186 | **Sheldon street Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping(Crossing within 2100 ft of school and hospital); install exit gates on both sides of crossing (4 quad) and 9 ft wide raised medians to both sides of crossing. Will require north track realignment. Relocate facilities on north side of track to accommodate alignment adjustments. Potentially install signalized intersection on north side of crossing | $2,300,000 | | Short Term | N | |
| 187 | **Sierra Highway Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; relocate existing facilities to north and install new track on north side of crossing, install 100 ft median channelization on both approaches | $5,000,000 | | Short Term | N | |
| 188 | **Sierra Highway Grade separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation | $60,000,000 | | Short Term | F* | |
| 189 | **Soledad Cyn Crossing to Robbins Nest Crossing Double Track** | VALLEY | SCAX | Los Angeles | CAPACITY | MP 47.1 - MP 48.3: Construct 2400 TF, 1500 TF shift, 1 EA 10', 3 EA 8', and I EA 6' bridge<br>MP 48.3 - 50.5: Construct 9050 TF, 1800 TF shift, 2 EA 6' bridges<br>MP 50.5 - MP 50.9: 1500 TF shift, 2 EA 8' bridges | $16,800,000 | | Long Term | N | |
| 190 | **Sonora Avenue - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping; extend channelization median to 100 ft on Northeast approach. Install restrictive exit median on drive access in Northeast quadrant to limit to right-in-right-out movements; 4 quad gates | $5,000,000 | | Mid Term | F* | |
| 191 | **Sonora Avenue Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separate for HSR development. | $60,000,000 | | Mid Term | F* | |
| 192 | **Sonora Avenue/ Air Way SCRRA Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Grade crossing improvements | $3,700,000 | | Short Term | N | |
| 196 | **Station Parking Lot Expansion** | VALLEY | SCAX | Los Angeles | STATION | Work with station cities to expand parking spaces at lots nearing capacity. VPR, SYL/SF >80% full. | $8,040,000 | | Mid Term | N | |
| 197 | **Station Parking Lot Expansion** | VALLEY | SCAX | Los Angeles | STATION | Work with station cities to expand parking spaces at lots nearing capacity. BUR >80% full. | $3,960,000 | | Mid Term | N | |
| 198 | **Station Parking Lot Expansion** | SAN GABRIEL | SCAX | Los Angeles | STATION | Work with station cities to expand parking spaces at lots nearing capacity. COV, CMT and BWP >80% full. | $12,000,000 | | Mid Term | N | |
| 199 | **Station Parking Lot Expansion** | VENTURA | SCAX | Los Angeles | STATION | Work with station cities to expand parking spaces at lots nearing capacity. CWT, BBA & BUR >80% full. | $12,000,000 | | Mid Term | N | |

## Project Summary

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 200 | **Station Signage and Crossing improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Install signage at and ped gates at Newhall, Burbank and Glendale stations on the Valley line | $3,850,000 | | Short Term | N | |
| 201 | **Station Signage and Ped Gates** | SAN GABRIEL | SCAX | Los Angeles | STATION | Install signage at Covina & El Monte stations on the SAN GABRIAL line | $4,860,000 | | Short Term | N | |
| 202 | **Sunflower Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 203 | **Sunland Boulevard - Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Signage and striping (Crossing within 2100 ft of school); Relocate existing facilities to north and install new track on north side of crossing. Replace temporary mountable medians with permanent non-mountable. Review preemption for both intersections; 4 quad gates | $5,000,000 | | Short Term | N | |
| 204 | **Sunland Boulevard Grade Separation (HSR)** | VALLEY | SCAX | Los Angeles | GRADE SEPARATION | Grade separation for HSR development | $60,000,000 | | Mid Term | F* | |
| 206 | **Sylmar Station Platform Extension** | VALLEY | SCAX | Los Angeles | STATION | Extend platform to allow for operation of 8-car trains and improve station design | $1,200,000 | | Short Term | N | |
| 208 | **Temple Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 209 | **Temple Avenue Grade Separation** | SAN GABRIEL | SCAX | Los Angeles | GRADE SEPARATION | Grade separation | $60,000,000 | | Long Term | N | |
| 210 | **Thousand Trails Road Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Install additional track through crossing, relocate existing facilities to accommodate new track, potentially install exit gate in Northwest quadrant with raised median extending from intersection to crossing, install right turn only restrictive median on drive access in Southeast quadrant | $3,000,000 | | Short Term | N | |
| 211 | **Thousand Trails Road to CP Harold Track Construction and Improvements** | VALLEY | SCAX | Los Angeles | CAPACITY | MP 54.3- MP 54.6: 1200 TF shift<br>MP 54.6- MP 55.4: 280 TF shift, Construct 1200 TF MP 55.4-MP 55.9: Construct 2020 TF<br>MP 55.9-MP 57.4: 250 TF shift<br>MP 57.4-MP 60.0: 4000 TF shift, construct 4300 TF, 400 FT concrete wall<br>MP 60 - MP 61.2: 400 TF shift, construct 1500 TF, shift 1 EA turnout<br>MP 61,2-MP 62.2: 2000 TF shift, construct 7100 TF, shift 1 EA turnout<br>MP 62.2-MP 64.7: Construct 11660 TF, 1 EA 190' bridge * 5580' MSE Wall<br>MP 64.7-MP 66.3: Construct 2930 TF MP 66.3-MP 67.4: Construct 3490 TF | $60,300,000 | | Mid Term | N | |
| 212 | **Track and Signal Improvements for Service to South Bay (LAUS to Torrance)** | HARBOR | SCAX | Los Angeles | CAPACITY | Track improvements from L.A. River sub to the South Bay | $2,000,000,000 | | Mid Term | N | |
| 213 | **Track Modifications (Tunnels 18 & 19)** | VALLEY | SCAX | Los Angeles | REHABILITATION | MP 45.9 - 46.9: 1750 TF shift<br>MP 46.9 - 47.1: 1000 TF shift | $719,900,000 | | Long Term | N | |
| 214 | **Tujunga Avenue Crossing Improvements** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 215 | **Tyler Street Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 216 | **Upgrade to Existing Structures - Burbank to Chatsworth (expansion for 30 min. service)** | VENTURA | SCAX | Los Angeles | CAPACITY | Track work, increased signal spacing, additional crossover capability and improvements at certain stations. The unit cost for track and signals is $6000/foot | $90,000,000 | | Mid Term | N | |
| 217 | **Upgrade to Existing Structures - Burbank to Sylmar (expansion for 30 min. service)** | VALLEY | SCAX | Los Angeles | CAPACITY | Track work, increased signal spacing, additional crossover capability and improvements at certain stations. The unit cost for track and signals is $6000/foot | $79,834,000 | | Mid Term | N | |
| 218 | **Upgrade to Existing Structures - LAUS to Burbank (for 30 min. expansion)** | VALLEY | SCAX | Los Angeles | CAPACITY | Track work, increased signal spacing, additional crossover capability and improvements at certain stations. The unit cost for track and signals is $6000/foot | $174,778,000 | | Mid Term | N | |
| 219 | **Valley Center Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 220 | **Van Nuys Station Platform** | VENTURA | SCAX | Los Angeles | STATION | Add a center platform to meet increasing rail traffic demands and provide safe pedestrian access through a grade separated pedestrian crossing. | $35,500,000 | Engineering | | | |
| 221 | **Van Nuys Boulevard Grade Separation** | VENTURA | SCAX | Los Angeles | GRADE SEPARATION | Signage and striping; install new track on north side of crossing, relocate existing facilities to north to accommodate new track, install exit gate in Northwest quadrant, adjust signal preemption as necessary for addition of track, remove sigh restrictive billboards from corridor | $5,000,000 | HST PE/Environmental | Short Term | N | |
| 222 | **Van Nuys Boulevard grade separation (HSR)** | VENTURA | SCAX | Los Angeles | GRADE SEPARATION | Grade separation for HSR development | $60,000,000 | | Mid Term | F* | |
| 223 | **Vanowen Street/Buena Vista Street Crossing Improvements** | VENTURA | SCAX | Los Angeles | CROSSING IMPROVEMENT | Grade crossing enhancements | $3,210,000 | | Short Term | N | |
| 225 | **Via Princessa to Vincent Grade** | VALLEY | SCAX | Los Angeles | CAPACITY | Double track the portion of the AVL through the canyon. | $0 | Planning | | | |
| 226 | **Vincent Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 227 | **Vincent Siding Extension and Vincent Grade/Acton Station Second Platform** | VALLEY | SCAX | Los Angeles | CAPACITY | Lengthen the existing siding in the vicinity of the Vincent Grade/Acton Station by 4,000 feet to create over two miles of continuous double track. | $16,800,000 | Environmental/Engineering | Short Term | F | |
| 228 | **Vincent Station Platform Extension** | VALLEY | SCAX | Los Angeles | STATION | Extend platform to allow for operation of 8-car trains and improve station design | $1,200,000 | | Long Term | N | |
| 229 | **Vineland Avenue Crossing Improvements** | VALLEY | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 230 | **Walnut Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 231 | **Wheeler Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |
| 232 | **White Avenue Crossing Improvements** | SAN GABRIEL | SCAX | Los Angeles | CROSSING IMPROVEMENT | Enhance at-grade crossing | $5,000,000 | | Short Term | N | |

**Notes:**

SYSTEMWIDE projects costs are split between the four regions.

HSR: HIGH-SPEED RAIL

N: NO FUNDING

P: PARTIALLY FUNDED

F: FULLY FUNDED

F*: HIGH-SPEED RAIL FULLY FUNDED

SHORT TERM: 2015-2024

MID TERM: 2025-2034

LONG TERM: 2035-2044

# Southern California Regional Rail Projects List Summary

## (Metrolink, NCTD, BNSF, Union Pacific)

**Project Summary**

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | **Ball Rd** | ORANGE | SCAX | Orange | GRADE SEPARATION | Construct Grade Separation at Ball Road Crossing with LOSSAN Corridor, Anaheim, CA | $95,435,163 | Planning | | | |
| 32 | **Broadway - Crossing Improvements** | ORANGE | SCAX | Orange | CROSSING IMPROVEMENT | Four quad gates. Grade separate for HSR development. | $5,000,000 | | | | |
| 98 | **Irvine 3rd Main Track** | ORANGE | SCAX | Orange | CAPACITY | The proposed project is addition of a third track along the LOSSAN corridor, from just west of Red Hill Avenue to just west of Alton Parkway, a distance of about 7.25 miles. | $68,462,000 | Planning | | | |
| 105 | **Laguna Niguel to San Juan** | ORANGE | SCAX | Orange | CAPACITY | The project is the addition of 1.8 miles of new passing siding track. | $25,835,495 | Engineering | | | |
| 134 | **Orangethorpe Ave** | ORANGE | SCAX | Orange | GRADE SEPARATION | Construct Grade Sep at Orangethorpe Avenue Crossing w/LOSSAN Corridor, Anaheim, CA | $105,599,493 | Planning | | | |
| 178 | **Santa Ana - Closure** | ORANGE | SCAX | Orange | CROSSING IMPROVEMENT | Road crossing closure | $2,000,000 | | | | |
| 194 | **South St. - Crossing Improvements** | ORANGE | SCAX | Orange | CROSSING IMPROVEMENT | Four quad gates. Grade separate for HSR development. | $5,000,000 | | | | |
| 195 | **State College** | ORANGE | SCAX | Orange | GRADE SEPARATION | Construct Grade Sep at State College Blvd Crossing with LOSSAN Corridor, Anaheim, CA | $92,000,000 | Engineering | | | |
| 205 | **Sycamore - Closure** | ORANGE | SCAX | Orange | CROSSING IMPROVEMENT | Road crossing closure | $2,000,000 | | | | |
| 224 | **Vermont - Crossing Improvements** | ORANGE | SCAX | Orange | CROSSING IMPROVEMENT | Four quad gates. Grade separate for HSR development. | $5,000,000 | | | | |

**Notes:**

SYSTEMWIDE projects costs are split between the four regions.
HSR: HIGH-SPEED RAIL
N: NO FUNDING
P: PARTIALLY FUNDED
F: FULLY FUNDED
F*: HIGH-SPEED RAIL FULLY FUNDED
SHORT TERM: 2015-2024
MID TERM: 2025-2034
LONG TERM: 2035-2044

# Southern California Regional Rail Projects List Summary

## (Metrolink, NCTD, BNSF, Union Pacific)

**Project Summary**

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 103 | **Jurupa Road** | LOS ANGELES | UPRR | Riverside | GRADE SEPARATION | Construct an overpass over UPRR mainline and the adjacent lead track | $74,300,000 | Planning | | | |
| 121 | **McKinley Street** | SAN BERNARDINO | BNSF | Riverside | GRADE SEPARATION | Construct a grade separation over the BNSF tracks | $41,810,000 | Planning | | | |

**Notes:**

SYSTEMWIDE projects costs are split between the four regions.

HSR: HIGH-SPEED RAIL

N: NO FUNDING

P: PARTIALLY FUNDED

F: FULLY FUNDED

F*: HIGH-SPEED RAIL FULLY FUNDED

SHORT TERM: 2015-2024

MID TERM: 2025-2034

LONG TERM: 2035-2044

# Southern California Regional Rail Projects List Summary

## (Metrolink, NCTD, BNSF, Union Pacific)

**Project Summary**

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | **Beech to Locust** | SAN GABRIEL | SCAX | San Bernardino | CAPACITY | 3 mile double track on SAN GABRIAL Subdivision from CP Beech to CP Locust | $55,000,000 | Planning | | | |
| 38 | **Cambridge Avenue Crossing Improvements** | SAN GABRIEL | SCAX | San Bernardino | CROSSING IMPROVEMENT | Enhance at-grade crossing | $3,000,000 | | Short Term | N | |
| 45 | **Central to Archibald** | SAN GABRIEL | SCAX | San Bernardino | CAPACITY | 5.5 mile double track on SAN GABRIAL Subdivision from CP Central to CP Archibald | $97,300,000 | Planning | | | |
| 61 | **CP Rana to CP SB Jct. Double Track Shortway** | SAN GABRIEL | SCAX | San Bernardino | CAPACITY | San Bernardino Line feeder to HST system | $22,750,000 | Planning | | | |
| 62 | **CP Rochester to CP Nolan Double Track** | SAN GABRIEL | SCAX | San Bernardino | CAPACITY | San Bernardino Line feeder to HST system | $22,750,000 | Planning | | | |
| 73 | **EMF Additional Storage Tracks** | SYSTEMWIDE | SCAX | San Bernardino | FACILITY | Increase storage capacity at EMF by extending the length of the existing storage tracks and adding a middle crossover. | $470,000 | | Short Term | N | |
| 74 | **EMF S&I Tracks** | SYSTEMWIDE | SCAX | San Bernardino | FACILITY | Add 2 S&I tracks at EMF. Install dump stations and potable water. | $705,000 | | Short Term | N | |
| 111 | **Lilac to Rancho** | SAN GABRIEL | SCAX | San Bernardino | CAPACITY | Three mile double track on the SAN GABRIAL Subdivision from CP Lilac to CP Rancho. | $60,500,000 | Planning | | | |
| 126 | **New EMF (30 min service)** | SYSTEMWIDE | SCAX | San Bernardino | FACILITY | Located in San Bernardino County on property owned by SANBAG | $90,000,000 | | Mid Term | N | |
| 154 | **Platform Extensions (Rancho Cucamonga)** | SAN GABRIEL | SCAX | San Bernardino | STATION | Extend platforms at Rancho Cucamonga station to allow for operation of 8-car trains and improve station design. | | | | | |
| 184 | **Second Fly-over at San Bernardino, CP Rancho to SB Jct.** | SAN GABRIEL | SCAX | San Bernardino | CAPACITY | San Bernardino Line feeder to HST system | $31,850,000 | Planning | | | |

**Notes:**

SYSTEMWIDE projects costs are split between the four regions.
HSR: HIGH-SPEED RAIL
N: NO FUNDING
P: PARTIALLY FUNDED
F: FULLY FUNDED
F*: HIGH-SPEED RAIL FULLY FUNDED
SHORT TERM: 2015-2024
MID TERM: 2025-2034
LONG TERM: 2035-2044

# Southern California Regional Rail Projects List Summary

**(Metrolink, NCTD, BNSF, Union Pacific)**

**Project Summary**

| Project Number | Project Name | Subdivision | Operator / Maintainer | County | Project Type | Description | | Stage of Development | Time Frame | Funded? Y/N | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | **Batiquitos Lagoon Bridge Replacement** | SAN DIEGO | SDNR | San Diego | CAPACITY | Replace Batiquitos Lagoon Bridge and extend by 282 feet (from 219 feet). | $20,000,000 | Planning | | | |
| 41 | **Carlsbad Village Double Track** | SAN DIEGO | SDNR | San Diego | CAPACITY | Add 1.1 miles of second main railroad track from southern Oceanside to Carlsbad Village | $45,000,000 | Environmental/Engineering | | | |
| 64 | **Crossing Improvements** | SAN DIEGO | SDNR | San Diego | CROSSING IMPROVEMENT | | $66,000,000 | Planning | | | |
| 71 | **Eastbrook to Shell** | SAN DIEGO | SDNR | San Diego | CAPACITY | Second Main track and Replacement of the San Luis River bridge | $60,000,000 | Engineering | | | |
| 72 | **Elvira to Morena** | SAN DIEGO | SDNR | San Diego | CAPACITY | Two miles of second main track, signals, switches and control point | $87,000,000 | Environmental | | | |
| 104 | **Lagoon Bridge Replacements** | SAN DIEGO | SDNR | San Diego | CAPACITY | Four quad gates. Grade separate for HSR development. | $20,000,000 | Planning | | | |
| 116 | **Los Penasquitos Bridge Replacement** | SAN DIEGO | SDNR | San Diego | CAPACITY | Replace four aging wooden trestle railway bridges that cross the Los Penasquitos Lagoon with modern concrete bridges. | $25,000,000 | Construction | | | |
| 172 | **San Dieguito Bridge Replacement/Double Track** | SAN DIEGO | SDNR | San Diego | CAPACITY | Replace 96 year old trestle and add 1.1 mile of second mainline trail track south of Solana Beach, and add a special events platform at the Del Mar Fairgrounds for NCTD COASTER and Amtrak Pacific Surfliner trains. | $142,000,000 | Environmental | | | |
| 175 | **San Elijo Lagoon Double Track** | SAN DIEGO | SDNR | San Diego | CAPACITY | Add 1.5 miles of second main track from Cardiff-by-the Sea to the southern border of the San Elijo Lagoon and replace the more than 60-year-old wooden trestle San Elijo rail bridge with a modern, double-track, concrete bridge. | $76,700,000 | Engineering | | | |
| 177 | **San Onofre to Pulgas** | SAN DIEGO | SDNR | San Diego | CAPACITY | Stage 2 of this project include the construction of a 1.6 mile segment of track | $36,000,000 | Engineering | | | |
| 193 | **Sorrento to Miramar Ph 2** | SAN DIEGO | SDNR | San Diego | CAPACITY | Add two miles of second track and straighten the sharp curves that slow passenger and freight trains as they climb Miramar Hill. | $99,000,000 | Environmental | | | |
| 207 | **Tecolte to Friar** | SAN DIEGO | SDNR | San Diego | CAPACITY | Add .9 miles of second main track and replace the SD River bridge with double track | $67,000,000 | Environmental | | | |

**Notes:**

SYSTEMWIDE projects costs are split between the four regions.

HSR: HIGH-SPEED RAIL

N: NO FUNDING

P: PARTIALLY FUNDED

F: FULLY FUNDED

F*: HIGH-SPEED RAIL FULLY FUNDED

SHORT TERM: 2015-2024

MID TERM: 2025-2034

LONG TERM: 2035-2044