

# **Southern California Regional Rail Authority**

## **Board of Directors Workshop**



**March 25, 2016  
Los Angeles, CA**





**METROLINK**

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

**BOARD OF DIRECTORS**

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**M A R C H 2 5 , 2 0 1 6**

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Los Angeles County Metropolitan Transportation Authority

Orange County Transportation Authority

Riverside County Transportation Commission

San Bernardino Associated Governments

Ventura County Transportation Commission

**A G E N D A**





SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

**BOARD ROSTER  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY**

<u>County</u>	<u>Member</u>	<u>Alternate</u>
<b>Orange:</b> 2 votes	Shawn Nelson ( <i>Chair</i> ) Supervisor, 4 <sup>th</sup> District County of Orange, Chairman OCTA Board	Jeffrey Lalloway* Mayor Pro Tem, City of Irvine OCTA Board, Chair
	Gregory T. Winterbottom Public Member OCTA Board	Todd Spitzer* Supervisor, 3 <sup>rd</sup> District County of Orange OCTA Board
<b>Riverside:</b> 2 votes	Daryl Busch ( <i>Vice-Chair</i> ) Mayor City of Perris RCTC Board	Debbie Franklin* Mayor City of Banning RCTC Board
	Karen Spiegel Council Member City of Corona RCTC Board	Frank Johnston* Council Member City of Jurupa Valley RCTC Board
<b>Ventura:</b> 1 vote	Keith Millhouse ( <i>2<sup>nd</sup> Vice-Chair</i> ) Councilmember City of Moorpark VCTC Board	Brian Humphrey Citizen Representative VCTC Board
<b>Los Angeles:</b> 4 votes	Michael Antonovich Supervisor, 5 <sup>th</sup> District County of Los Angeles Metro Board	Roxana Martinez Councilmember City of Palmdale Metro Appointee
	Hilda Solis Supervisor, 1st District County of Los Angeles, Chair Metro Board	Joseph J. Gonzales Councilmember City of South El Monte Metro Appointee
	Paul Krekorian Councilmember, 2 <sup>nd</sup> District Metro Board	Borja Leon Metro Appointee
	Ara Najarian Council Member City of Glendale Metro Board	Walter Allen, III Council Member City of Covina Metro Appointee

**San Bernardino:**

2 votes

Larry McCallon  
Mayor  
City of Highland  
SANBAG Board

Paul Eaton  
Mayor  
City of Montclair  
SANBAG Board

James Ramos\*  
Supervisor, 3<sup>rd</sup> District  
County of San Bernardino, Chair  
SANBAG Board

Alan D. Wapner\*  
Council Member  
City of Ontario  
SANBAG Board

**EX-OFFICIO MEMBERS**

**San Diego Association of Governments:**

[CURRENTLY AWAITING APPOINTMENT]

Contact:  
Linda Culp  
Principal Planner – Rail

**Southern California Association of Governments:**

Art Brown  
Mayor, City of Buena Park

**State of California:**

Ryan Chamberlain  
Director, Caltrans District 12

Alternate:  
[CURRENTLY AWAITING APPOINTMENT]



**METROLINK**

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

## **BOARD OF DIRECTORS MEETING**

**FRIDAY, MARCH 25, 2016 – 9:00 A.M.  
LOS ANGELES COUNTY  
METROPOLITAN TRANSPORTATION  
AUTHORITY (METRO)  
BOARD ROOM  
ONE GATEWAY PLAZA, 3RD FLOOR  
LOS ANGELES, CALIFORNIA 90012**

### **AGENDA DESCRIPTIONS**

The agenda descriptions are intended to give notice to members of the public of a brief general description of items of business to be transacted or discussed. The posting of the recommended actions does not indicate what action will be taken. The Authority may take any action that it deems to be appropriate on the agenda item and is not limited in any way by the notice of the recommended action.

A person with a disability may contact the Board Secretary's office at (213) 452-0255 or via email [holmank@scrra.net](mailto:holmank@scrra.net) at least 72-hours before the scheduled meeting to request receipt of an agenda in an alternative format or to request disability-related accommodations, including auxiliary aids or services, in order to participate in the public meeting. Later requests will be accommodated to the extent feasible.

### **SUPPORTING DOCUMENTATION**

The agenda, staff reports and supporting documentation are available from the Board Secretary, located at One Gateway Plaza, 12<sup>th</sup> Floor, Los Angeles, CA 90012, and on the Metrolink website at [www.metrolinktrains.com](http://www.metrolinktrains.com) under the Meetings & Agendas link.

### **PUBLIC COMMENTS ON AGENDA ITEMS**

Members of the public wishing to address the Board of Directors regarding any item appearing on the agenda may do so by completing a Speaker's Form and submitting it to the Board Secretary. Speakers will be recognized by the Chairman at the time the agenda item is to be considered. When addressing the Board, please state your name for the record. Please address the Board as a whole through the Chair. Please note comments to individual Board members or staff are not permitted when addressing the Board. A speaker's comments shall be limited to three (3) minutes.

### **PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA**

Members of the public wishing to address the Board of Directors regarding any item not on the agenda, but within the subject matter jurisdiction of the Board, will be taken under Item 4 (Public Comment), and will be subject to the same guidelines as noted above.

- 1. Call to Order**
- 2. Pledge of Allegiance**

**3. Safety Briefing**

**4. Public Comment**

**REGULAR CALENDAR**

**5. Workshop – Welcome Remarks**

**SESSION I – Governance**

6. This session will provide a status update on the 2009 Safety Peer Review report and discussion on the December 2014 Governance Ad Hoc report. A discussion on the roles of the member agencies Board of Directors, Chief Executive Officers (CEOs), Chief Financial Officers (CFOs) and Technical Advisory Committee (TAC) members will be held.

**SESSION II – Funding Formulas**

7. Session II will update the Board on the current funding sources/formulas received from the five member agencies as well as other funding opportunities available to the Authority.

**SESSION III – Capital Programs**

8. Session III will provide an update on a recent successful capital program – Tier 4 Locomotives and lead a discussion on other funding strategies and advocacy efforts available to the Authority.

**SESSION IV – Regional Collaboration**

9. This session will highlight system connectivity with various existing transit options as well as future projects such as High Speed Rail. It will also include a presentation on possible legislative proposals that create tax incentives to encourage business development near Metrolink train stations.

**SESSION V – Fare Policy**

10. Session V will review the current fare policy and address any need for fare restructuring.

**SESSION VI – Ticket Vending Machine Strategy / Mobile Ticketing**

11. This session will allow for discussion on possible strategies for a new ticket vending machine structure. Staff will also provide an update on the Mobile Ticketing project.

**SESSION VII – Authority Outlook and Future Goals**

12. The Chief Executive Officer will provide an update on the Authority's outlook for the next few years, accomplishments, and future goals.
13. **Adjournment**



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# **Welcome Remarks**

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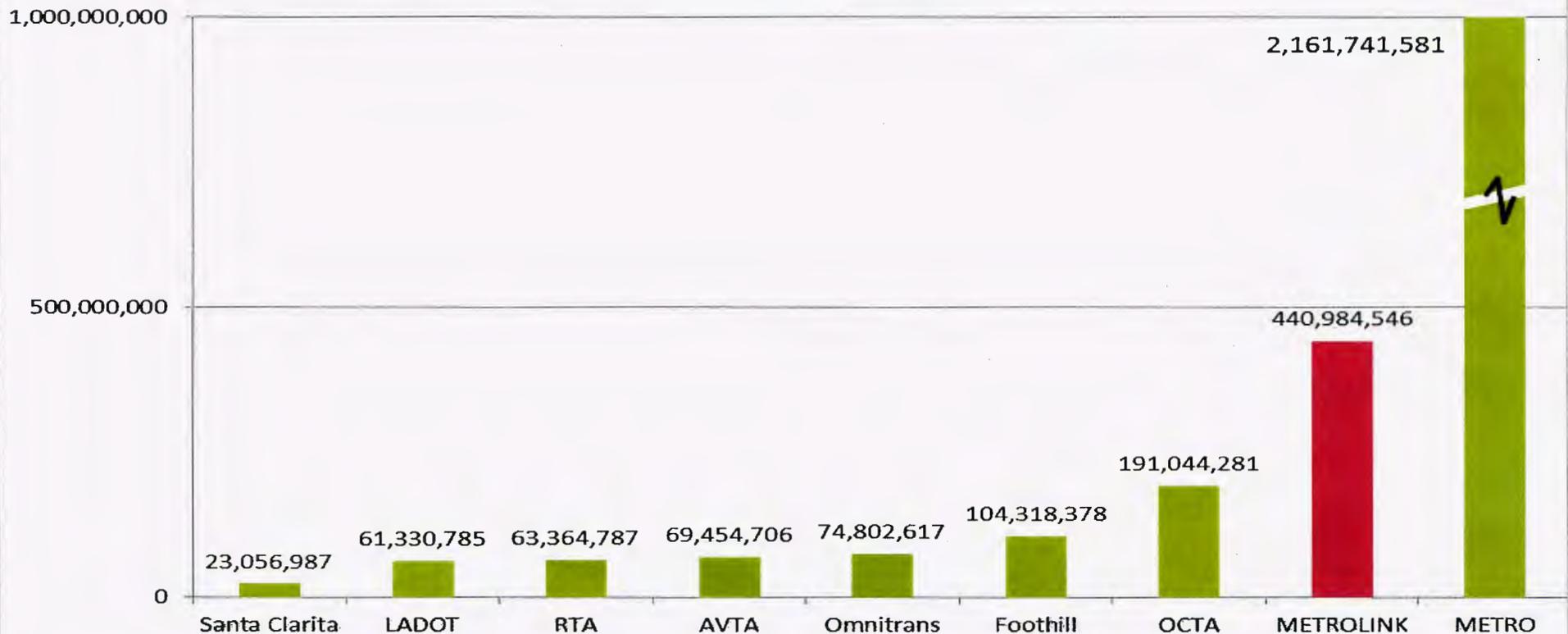
# **The Value of Metrolink in Relieving Peak-Hour Freeway Congestion**

**METROLINK®**



# Metrolink carries the second highest number of passenger miles in Southern California

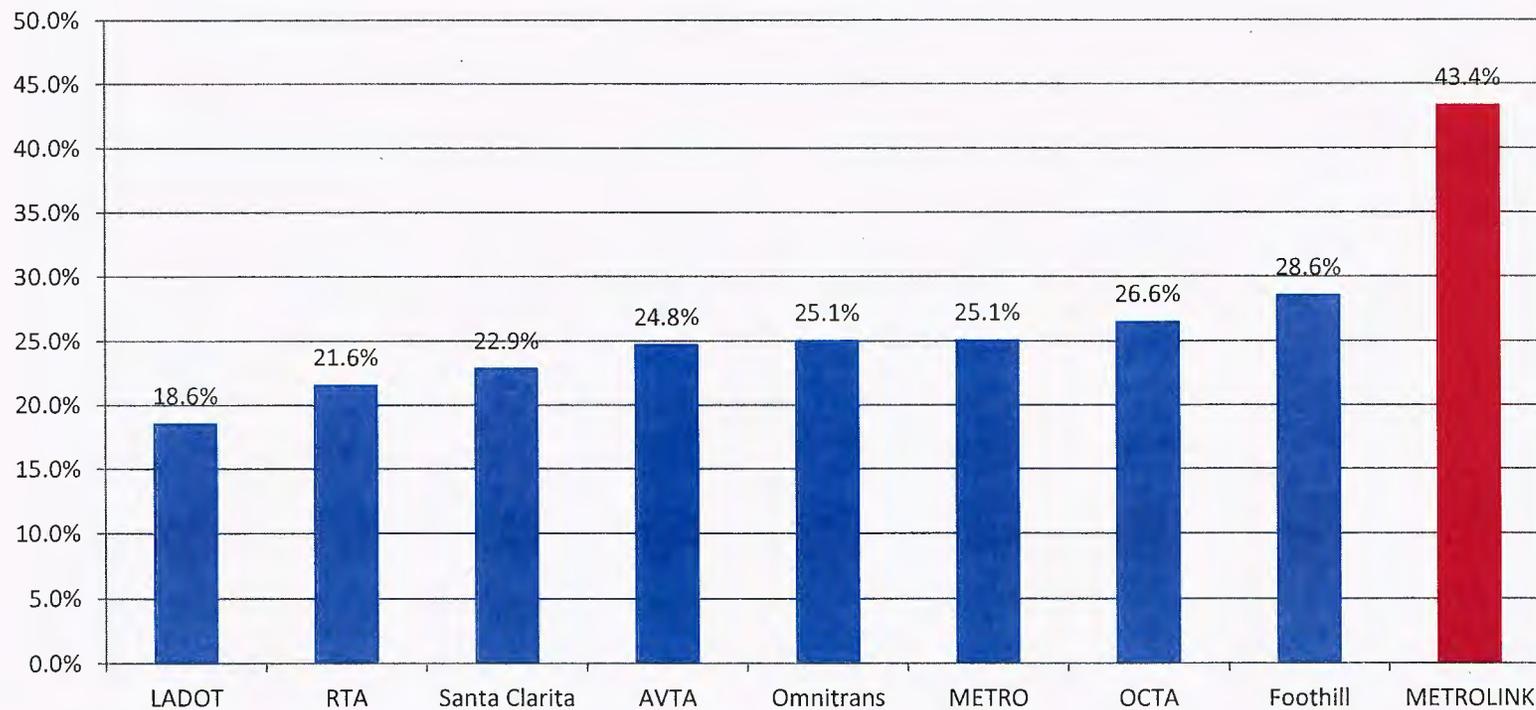
## Passenger Miles





# Metrolink has the highest farebox recovery among major transit operators in Southern California

Farebox Recovery Ratio

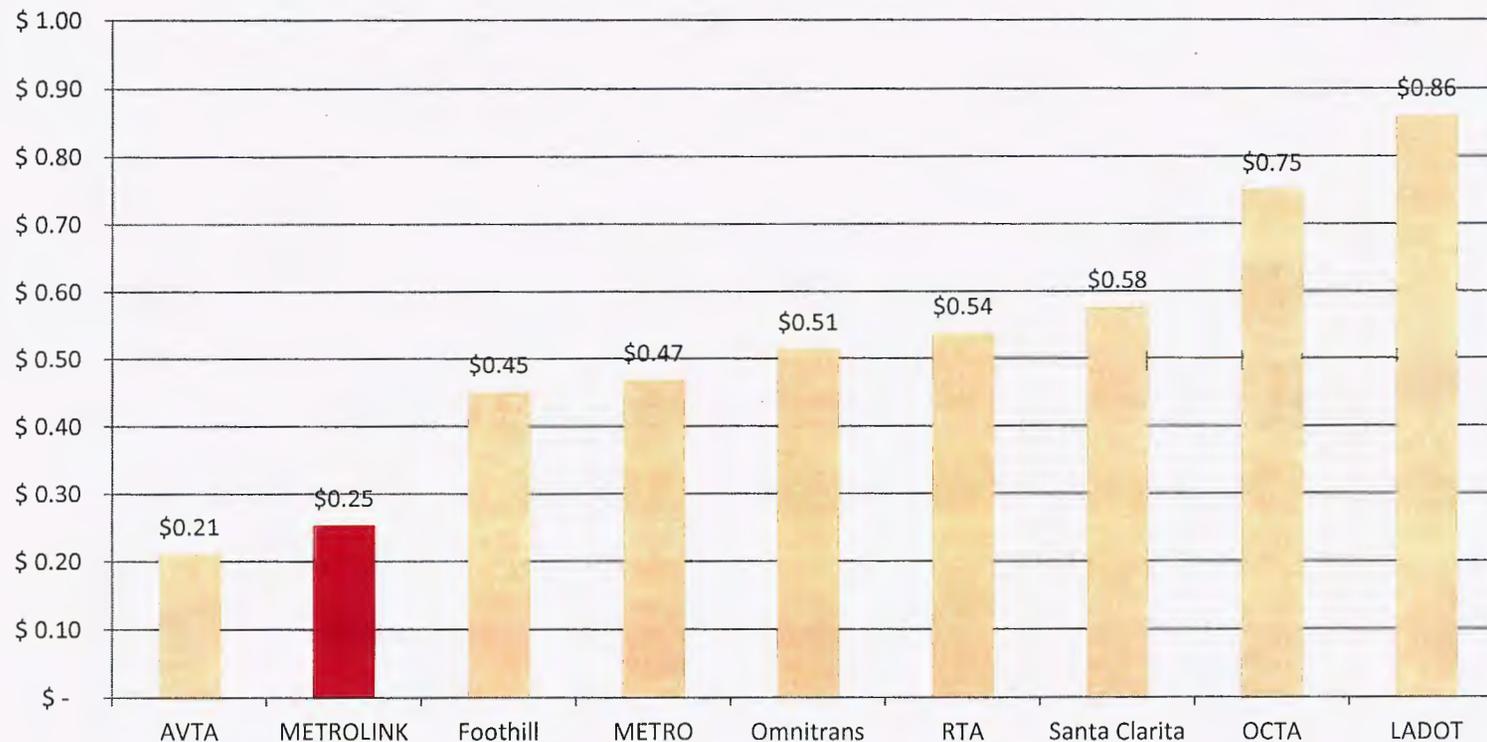


Source: FY14 National Transit Database



# Metrolink has the second lowest subsidy per passenger mile among major Southern California operators

Operating Subsidy/Passenger Mile





## With higher average household income, each Metrolink ride has higher impact on reducing traffic congestion

Median Income of Passengers	
Local Transit	
Metro (Los Angeles County)	\$15,918 (median)
Omnitrans (San Bernardino County)	\$31,250 (mean)
RTA (Riverside County)	\$15,000 to \$24,999 (median)
Metrolink (weekday)	\$78,033 (median)

- Almost every Metrolink trip is equivalent to a car taken off the freeway







Southern California Regional Rail Authority

### SCRRA Board of Directors Annual Workshop

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**FRIDAY, March 25, 2016**

			<u>Location</u>
<b>8:00 – 9:00 am</b>	<b><i>Breakfast</i></b>		<b><i>Board Conference Room</i></b>
9:00 – 9:15 am	Call to Order	Chair Nelson <i>Chair, Board of Directors</i>	Board Room
	Pledge of Allegiance	Chair Nelson	
	Safety Briefing	Fred Jackson <i>Director, System Safety and Security</i>	
	Welcome Remarks	Chair Nelson and <i>Art Leahy, Chief Executive Officer</i>	

#### **Session I – Governance**

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9:15 – 10:00 am	Safety Peer Review Report	Fred Jackson, <i>Director, System Safety and Security</i>
	Governance Ad Hoc Report	Keith Millhouse, <i>2<sup>nd</sup> Vice-Chair, Board of Directors</i>
	Roles: CEOs / CFOs / TAC	Art Leahy, <i>Chief Executive Officer</i>

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**SESSION II – Funding Formulas**

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10:00 – 10:45 am	Overview of Funding Opportunities	Roderick Diaz, <i>Director, Planning and Development</i> and Anne Louise Rice, <i>Assistant Director, Grants</i>
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**SESSION III – Capital Programs Strategy and Advocacy Efforts**

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10:45 – 11:30 am	Overview of Capital Programs	Roderick Diaz
	Tier 4 Locomotive Update	Rick Tripoli, <i>Director, Maintenance of Equipment</i> and Sherita Coffelt, <i>Director, Public Affairs</i>
	Capital Programs Strategies	Roderick Diaz
	Overview of Legislative Delegation	Peter Muller, <i>Government and Regulatory Affairs Manager</i>

<b>11:30 – 12:00 pm</b>	<b>Lunch</b>	<b>Board Conference Room</b>
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**SESSION IV – Regional Collaboration**

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12:00 – 12:30 pm	Overview of Current and On-going Regional Collaboration	Roderick Diaz
	Legislative Proposals	Whitney Englander, <i>Government Relations Administrator</i>

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**SESSION V – Fare Policy**

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12:30 – 1:30 pm	Fare Policy Cost and Benefits of Potential Reduced Fares	Henning Eichler, <i>Planning Manager (Planning &amp; System Performance Analysis)</i>
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**SESSION VI – Ticket Vending Machine Strategy / Mobile Ticketing**

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1:30 – 2:30 pm	Ticket Vending Machine Strategy	Amanda Alton, <i>Interim Manager, Fare Collections and Accenture [Consultants]</i>
	Mobile Ticketing Update	Mark Waier, <i>Manager, Sales and Marketing</i>

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**SESSION VII – Authority Outlook and Future Goals**

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2:30 – 3:00 pm	Organizational Development	Patty Francisco, <i>Director, Human Resources</i>
	Accomplishments / Goals	Art Leahy

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**Adjournment**

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3:00pm	Closing Remarks / Adjournment	Chair Nelson / Art Leahy
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## Summary of Alternative Financing Mechanisms from Sperry Report

Alternative Financing Source	Potential Amount Over 10 Year Period (2016-2026)
Public Private Partnerships	\$225 million
EB-5 Lending	\$175 million
TIFIA	\$175 million
RRIF	\$ 72 million
California Infrastructure State Revolving Fund Program	\$ 23 million
California Transit Finance Corporation Program	TBD



# Summary of Alternative Funding Sources from Sperry Report

Alternative Funding Source	Potential Amount Over 10 Year Period – 2016-2025
New Multi-County Sales Tax Measure Revenue	\$1.8 billion
Enhanced Infrastructure Financing District	\$775 million
California HSR Investment*	\$744 million
Toll and Express Lane Revenues	TBD
Cap and Trade Revenue	TBD

\* CA HSR Draft 2016 Report estimates an investment of \$4 billion in the region

**ATTENDEES**

**BOARD OF DIRECTORS:**

Shawn Nelson	<b>Chair</b> , SCRRA Board of Directors Member, Orange County Transportation Authority (OCTA) Board of Directors Orange County Supervisor, 4 <sup>th</sup> District
Daryl Busch	<b>Vice-Chair</b> , SCRRA Board of Directors Member, SCRRA Board of Directors Commissioner, Riverside County Transportation Commission (RCTC) Mayor, City of Perris
Keith Millhouse	<b>2<sup>nd</sup> Vice-Chair</b> , SCRRA Board of Directors Commissioner, Ventura County Transportation Commission (VCTC) Council Member, City of Moorpark
Michael Antonovich	Member, SCRRA Board of Directors Member, Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors Los Angeles County Supervisor, 5 <sup>th</sup> District
Paul Eaton	Member, SCRRA Board of Directors Member, San Bernardino Associated Governments (SANBAG) Board of Directors Mayor, City of Montclair
Paul Krekorian	Member, SCRRA Board of Directors Member, Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors Councilmember, 2 <sup>nd</sup> District, City of Los Angeles
Larry McCallon	Member, SCRRA Board of Directors Member, San Bernardino Associated Governments (SANBAG) Board of Directors Mayor, City of Highland
Ara Najarian	Member, SCRRA Board of Directors Member, Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors Mayor, City of Glendale
Karen Spiegel	Member, SCRRA Board of Directors Commissioner, Riverside County Transportation Commission (RCTC) Council Member, City of Corona

**BOARD OF DIRECTORS WORKSHOP  
MARCH 25, 2016**

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Gregory Winterbottom	Member, SCRRA Board of Directors Member, Orange County Transportation Authority (OCTA) Board of Directors
Walter Allen, III	Alternate, SCRRA Board of Directors Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors Appointee Council Member, City of Covina
Debbie Franklin	Alternate, SCRRA Board of Directors Member, Riverside County Transportation Commission (RCTC) Council Member, City of Banning
Joseph Gonzales	Alternate, SCRRA Board of Directors Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors Appointee Councilmember, City of South El Monte
Brian Humphrey	Alternate, SCRRA Board of Directors Citizen Representative, Ventura County Transportation Commission (VCTC)
Frank Johnston	Alternate, SCRRA Board of Directors Member, Riverside County Transportation Commission (RCTC) Council Member, City of Jurupa Valley
Borja Leon	Alternate, SCRRA Board of Directors Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors Appointee City of Los Angeles, Director of Transportation
Roxana Martinez	Alternate, SCRRA Board of Directors Los Angeles County Metropolitan Transportation Authority (Metro) Board of Directors Appointee Councilmember, City of Palmdale

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**MEMBER AGENCY CEOs:**

Darren Kettle	Executive Director, VCTC
John Standiford	Deputy Executive Director, RCTC
Dr. Raymond Wolfe	Executive Director, SANBAG

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**MEMBER AGENCY CFOs:**

Andy Oftelie	Chief Financial Officer, OCTA
Drew Philips	Director, Budget, Metro

**MEMBER AGENCY STAFF:**

Martin Erickson	Transit Director, VCTC
Justin Fornelli	Technical Advisory Committee (TAC) Member, SANBAG
Jay Fuhrman	Technical Advisory Committee (TAC) Member, METRO
Lance Larson	Executive Director of Government Relations, OCTA
Megan LeMaster	Technical Advisory Committee (TAC) Member, OCTA
Monica Morales	Technical Advisory Committee (TAC) Member, SANBAG
Brenda Ramirez	Technical Advisory Committee (TAC) Member, RCTC
Yvette Reeves	Technical Advisory Committee (TAC) Member, METRO
Carrie Schindler	Director of Transit and Rail, SANBAG
Don Sepulveda	Executive Officer of Regional Rail, METRO
Ellen Talbo	Technical Advisory Committee (TAC) Member, VCTC

**SCRRA STAFF:**

Arthur T. Leahy	Chief Executive Officer
Elissa K. Konove	Deputy Chief Executive Officer
Amanda Alton	Interim Manager, Fare Collections
Araceli Barajas	Executive Secretary to the Board Secretary
Patricia Torres Bruno	Chief Administrative Officer
Sherita Coffelt	Director, Public Affairs
Don Del Rio	General Counsel
Roderick Diaz	Director, Planning and Development
Henning Eichler	Planning Manager (Planning & System Performance Analysis)
Whitney Englander	Government Relations Administrator
Patty Francisco	Director, Human Resources
Kari Holman	Assistant to the CEO / Board Secretary
Fred Jackson	Director, System Safety and Security
Gary Lettengarver	Chief Operating Officer
Peter Muller	Government and Regulatory Affairs Manager
Anne Louise Rice	Assistant Director, Grants
Rick Tripoli	Director, Maintenance of Equipment
Bob Turnauckas	Chief Administrative Officer
Mark Waier	Manager, Sales and Marketing

**OTHER ATTENDEES:**

Jennifer Brogin

Deputy to Supervisor Antonovich, 5<sup>th</sup> District [Los Angeles]

Javier Hernandez

Deputy to Supervisor Solis, 1<sup>st</sup> District [Los Angeles]

Mark Lopez

Deputy to Supervisor Nelson, 4<sup>th</sup> District [Orange]

Doug Mensman

Deputy to Councilman Krekorian





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# **Session I**

# **Governance**

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# **Commuter Rail Safety Peer Review**



## **Executive Summary Peer Review**

- September 26, 2008 Board approved a motion authorizing its Chairman to appoint an Ad Hoc Subcommittee to establish an independent Commuter Rail Safety Peer Review Panel.
- Peer Review Panel asked to review the Metrolink system and make recommendation to increase safety and reduce risk.
- Panel made up of HNTB, CEOs of various Commuter operations and industry experts conducted review with assistance from staff.
- Specific tasks were outlined, ranging from review of safety culture, major service contracts and Authority's oversight of contractor performance, to safety plans and protocols, organizational structure review and staffing levels.

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# **Peer Review Findings / Recommendations**



## **Peer Review – Sections 1 & 2**

### **1. Safety Culture**

- Develop a stronger and more unified safety culture at SCRRRA
- Develop a vision for safety that describes the desired future state for appropriate level of the organization, including a clear list of safety behaviors
- Define long –term measureable objectives for safety
- Revise the SSPP to reflect strategic role, vision and goals
- Form a Strategic Safety Leadership Team led by CEO

### **2. SCRRRA Organizational Structure**

- Organization keep pace with critical operations oversight
- Perform Organizational Analysis
- Implement Immediate Organization Change
- Clarify Roles and Responsibilities



## Peer Review – Sections 3 & 4

3. System Safety Program Plan (SSPP)
  - Redraft the SSPP based on Organizational Analysis
  - Develop an organization-wide risk assessment process and incorporate into SSPP
4. Safety Performance Measurements
  - Enhance the Operations Testing Efficiency Test System (ETS)
  - Define the Responsibility for Efficiency Test (ET), analyze test to ensure that safety critical rules are being observed
  - Acquire an Electronic ETS to manage data collection and analysis of data
  - Increase ET for all Engineers and Conductors and other safety critical employees
  - Review safety critical employee training, ensure compliance with rules establish process to update training
  - Assess impact of operating contract's litigation damages provisions for rules violation to determine real perceive conflicts
  - Establish goals for observations and analysis and report results to Board



## Peer Review – Sections 5 & 6

### 5. Infrastructure Maintenance and Upgrade

- Maintenance of Way (MOW)
- Vehicle Equipment Maintenance
- Infrastructure Safety Improvements

### 6. Metrolink Short Term Safety Projects

- Investigate, specify and procure inward looking video technology in operating cabs of SCRRRA passenger equipment.
- Accelerate the implementation of PTC over the entire Metrolink system.
- Implement short-term actions of Panel's Enhanced Safety Action Plan.
- Expedite plans to transition from the Digicon system and develop action plan for maintenance and other emergencies in the interim.
- Implement medical evaluations prior to placement of contractor employees in safety sensitive positions.
- Participate in Hours of Service issue with FRS's Rail Safety Advisory Committee process.
- Conduct a review of SCRRRA's contractor's Hours of Service Split Shift schedules to determine any risk factors.



## **Peer Review – Sections 7 & 8**

### **7. Strategic Plan**

- Update Strategic Plan to include Operational and safety issues
- Seek buy in at multiple levels on funding commitments, flexible budgeting processes, rigorous project evaluation and prioritization
- Explore new technologies, wider markets and more effective operational safety strategies during the strategic planning process

### **8. Governance**

- Conduct a self-assessment of the Board's performance with particular emphasis on safety and operational oversight
- Develop Board and Board responsibilities and actions

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# **Governance Ad Hoc Report**



**METROLINK  
COMMUTER RAIL  
SAFETY PEER  
REVIEW PANEL**

**FINAL REPORT**

**JANUARY 5, 2008**

**Prepared for:  
SOUTHERN CALIFORNIA  
REGIONAL RAIL  
AUTHORITY**



**METROLINK COMMUTER RAIL SAFETY PEER REVIEW PANEL**

**Final Report**

January 5, 2009

Prepared for:  
Southern California Regional Rail Authority

Prepared by:  
HNTB Corporation

In collaboration with the  
Metrolink Commuter Rail Safety Peer Review Panel Members

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## EXECUTIVE SUMMARY

**Board Meeting Motion and Ad Hoc Subcommittee:** At its Board meeting on September 26, 2008, the Southern California Regional Rail Authority (SCRRA) Board of Directors approved a motion authorizing its Chairman to appoint an Ad Hoc Subcommittee to establish an independent Commuter Rail Safety Peer Review Panel to review the Metrolink system and make recommendations to increase safety and reduce risk. Board Chairman Ron Roberts appointed Board Vice-Chair Keith Millhouse and Director Richard Katz to be the ad hoc subcommittee to select the independent Panel members and to later transmit its recommendations to the Board.

**Panel Member Selection:** Panel members were selected by the Ad Hoc Subcommittee members, based on industry knowledge, specialized expertise in a given field, and overall railroad safety experience. In addition, the Panel was staffed with members from diverse backgrounds including public agencies, private companies, and members of academia.

**Panel Focus:** The Panel utilized a holistic approach to safety during the course of the review. It was noted that:

1. Further safety improvements should reduce accidents and their consequences
2. Even with a vigorous, proactive safety program in place, inherent vulnerabilities still exist that require constant focus on operational safety.

The Panel focused on two areas during the course of this study:

1. Metrolink's operating system, including Operating Contract Service Providers (OCSPs); and
2. SCRRA's organization structure and staffing levels.

The Panel conducted interviews of Metrolink staff, including senior management, and its primary contractors. In addition, a technical team consisting of experts in their given field interviewed operations staff to ascertain the process by which Metrolink conducts the operation and maintenance of its railroad. The Panel also reviewed the contracts of the four OCSPs, the System Safety Program Plan (SSPP) and other documents relative to the overall operations of the Metrolink system. In addition the Panel did a comparison to best practices within the industry.

### SCRRA Organizational Structure

The Panel reviewed SCRRA's organizational structure and staffing levels. The Panel also evaluated the level of skills overseeing all aspects of this operating railroad to ensure compliance with federal and state rules and regulations, contractual requirements and industry standards.

The Metrolink model utilizes OCSPs to provide the following services:

- **Maintenance of Way (MOW):** Right-of-way and railroad facility inspection and maintenance;
- **Train Operations:** Supply and train engineers and conductors for Metrolink Trains;
- **Maintenance of Communications and Signals:** Railroad signal facility inspection and maintenance; and
- **Maintenance of Equipment (MOE or rail vehicle maintenance):** Inspection and maintenance of Metrolink passenger service vehicles.

These OCSPs provide maintenance and oversight over their employees and their respective segment of Metrolink operations.

***Metrolink Enhanced Safety Action Plan:*** Upon completion of the safety review process, the Panel developed an Enhanced Safety Action Plan with recommendations on eight key issues identified by the Panel. In addition, short-term (six months), intermediate-term (18 months), and long-term (up to four years) milestones for each of the recommended actions to increase safety were developed. These recommendations can be seen in Charts 1 and 2. The eight specific areas are:

### **1. Safety Culture:**

While the SCRRA and contractor staff have a respect for safety and are aware of their impact on safety, the overall safety culture of the Agency should be enhanced. By 'safety culture' the Panel means an organizational culture that actively promotes and supports safety. The shared values, beliefs and assumptions result in behavioral norms that help prevent accidents.

### **2. SCRRA Organizational Structure**

SCRRA's organizational structure plays a role in how safety functions are performed. The roles and responsibilities of some safety-related operational functions at Metrolink are not as defined as they should be. The Panel recommends that SCRRA operations oversight staffing level needs to keep pace with the Metrolink service growth and provide additional contractor oversight.

The Panel recommended that an Organizational Analysis be performed for the entire SCRRA organization and across all departments. This analysis should be used to determine needed staff positions, the need for reorganization and reassignment of staffing positions and the clarification of the functions of the various SCRRA departments

### **3. System Safety Program Plan (SSPP)**

The Panel observed that SCRRA operations and safety staff do oversee the essential aspects of operations safety. This oversight is accomplished through their experience, knowledge, continuity of working relationships with contractor staff and continuous prioritization and reprioritization of needs and tasks. However, this oversight could be enhanced.

The SSPP should be redrafted to reflect the recommendations in this report, specifically the organizational recommendations, and should reflect the results of the Organizational Analysis.

### **4. Safety Performance Measurements**

The key to safety performance measurements is conducting quality observations of safety critical employees and measuring performance and effectiveness of the Observation and Testing Program. The Panel has presented observations and recommendations in three key areas related to safety performance measurements:

1. Operational Testing Plans;
2. Responsibilities for Efficiency Testing; and
3. Observation and Testing Program Data Process.

It was noted that SCRRA does not have an electronic data system; such a system would make the tabulation and evaluation of the results of Efficiency Testing much easier. New FRA regulations coming into effect in 2009 will require close monitoring of testing, including the development of testing plans to address deficiencies. It is

therefore recommended that SCRRA acquire an Electronic Efficiency Testing System to manage data collection and analyze observation and testing data.

## 5. Infrastructure and Maintenance

The Panel and technical team interviewed contractor staff and SCRRA oversight staff regarding the maintenance of way and equipment maintenance functions. These have been divided into segments addressing the main issues.

### Maintenance of Way (MOW)

The MOW function oversees the maintenance of SCRRA right-of-way, track and structures. The contractor performing this service is responsible for maintenance and inspection. This department should implement an electronic right-of-way asset management system. Such a system will allow the agency to review maintenance and inspection data and utilize this data for trends and to enhance the long term capital maintenance program.

### Maintenance of Equipment

The equipment maintenance function oversees the maintenance and inspection of Metrolink passenger rail vehicles. This group is responsible for maintenance of SCRRA facilities, vehicles (including passenger rail vehicles and other maintenance equipment) and inventory. It was noted that the oversight of the Central Maintenance Facility should be more clearly defined in order to improve the assignment of responsibilities.

### Infrastructure Upgrades

SCRRA has several programs addressing the safety enhancement of the infrastructure. These should continue or be expanded as necessary. Specific programs include:

1. Grade Crossing Safety
2. Crash Energy Management
3. Grade Separations
4. SCRRA "Sealed Corridor" Program
5. SCRRA Double Tracking Program

## 6. Analysis of Metrolink Short Term Safety Projects

The Board asked the Panel to review Metrolink's Short Term Safety Projects. These projects were either accelerated or initiated after the Chatsworth Incident. These items include:

- a. In-Cab Video Recording: The Panel recommends the investigation, procurement and installation of inward facing video technology, with real time capabilities, in the operating cabs of Metrolink passenger equipment
- b. Positive Train Control (PTC): The Panel recommends that SCRRA accelerate the implementation of PTC and work with the BNSF, UPRR, Amtrak and the FRA on cost-effective design and deployment. SCRRA is proceeding with the installation of ATS at speed sensitive locations on an interim basis while the PTC system is being developed. The Panel recommends that any efforts to install this ATS system not preclude or take resources away from the implementation of PTC.
- c. Second Set of Eyes: The Board required that a "second set of eyes" specifically another engineer or conductor be stationed within the cab at critical locations in the SCRRA system, including single track territories. The Panel believes that if the short term safety improvements in the recommended Metrolink

Enhanced Safety Action Plan are implemented, then those improvements will replace the “second set of eyes”.

- d. DigiCon Dispatch Issue: The Panel recommends that SCRRA expedite plans to transition from the DigiCon system and develop an action plan for maintenance and other emergencies in the interim.
- e. Annual Medical Evaluations: Implement medical evaluations prior to placement of contractor employees in a safety covered position and at least every three years.
- f. Hours of Service/Split Shift Issue: Since SCRRA’s Transportation Contractor uses split shift assignments in its train and engine crew schedules, it is the Panel’s recommendation that SCRRA participate actively on the Hours of Service issue as part of the Federal Railroad Administration (FRA) Rail Safety Advisory Committee (RSAC) process.
- g. Hours of Service Study: The Panel also recommends that SCRRA, in cooperation with its operating contractor, conduct a review of its contractor’s Hours of Service Split Shift schedules for their train and engine crews and determine if fatigue is a factor in the use of Split Shifts. In addition, SCRRA should evaluate whether any relevant rules and their particular application require any short term measures pending the results of the FRA RSAC process regarding Hours of Service.

## 7. Strategic Plan

Metrolink’s current strategic plan centers primarily on its capital improvement programs and to a lesser degree on its SSPP. Review of the current SCRRA strategic plan reveals the agency’s process of prioritizing capital improvements, the funding of these projects, and the documentation of improvement benefits.

The Panel has observed that Metrolink staff sees the strategic plan as a forecast of capital improvements to be undertaken within the specific areas of each of the Member Agencies. As a result, the plan is looked upon as a summary of project plans developed by the Member Agencies rather than a regionally-oriented plan for the Metrolink system.

It is recommended that SCRRA develop a comprehensive strategic plan that identifies goals, the desired safety culture, capital improvement plans and the overall agency mission. This document should be dynamic, visited regularly and be developed by a team consisting of members from all levels and departments within SCRRA and the Board.

## 8. Governance

Governance means the Board’s role in promoting safe and secure commuter rail operations, fostering a top-to-bottom safety culture, and exercising appropriate oversight of safety and operational performance.

The Panel recommends that the Board conduct a self-assessment of its performance with particular emphasis on safety and operational oversight. This assessment should lead to a more explicit definition of Board and Board member responsibilities and actions. The Panel lists several actions for the Board.

***Enhanced Safety Action Plan and Milestones***: The Panel developed a milestone action plan organized by the eight major issues. Specific recommendations for improvement in each area were provided, and categorized as to their implementation timeframe: short-term (six months), intermediate-term (18 months), or long-term (up to four years). This plan is presented as Chart 1 on the following pages.

**Chart 1 - Metrolink Enhanced Safety Action Plan Milestones**

Metrolink Enhanced Safety Action Plan	Short-Term Actions January '09 - July '09 (6 months)	Intermediate-Term Actions January '09 - July '10 (18 months)	Long-Term Actions January '09 - December '12 (4 years)
<b>1. Safety Culture</b>			
a. Develop a stronger and more unified safety culture at SCRRA and its contractors			
b. Develop a vision for safety that describes the desired future state for each appropriate level of the organization, including a clear list of safety behaviors			
c. Define long-term measureable objectives for safety			
d. Revise the SSSP to reflect the strategic role, vision, and goals			
e. Form a Strategic Safety Leadership Team led by the CEO with participation from all SCRRA Senior Managers and input from SCRRA's major contractors			
<b>2. SCRRA Organizational Structure</b>			
a. The SCRRA organization should keep pace with critical operations oversight as its contracting complexity and the volume of trains have increased			
i. Compare the historical growth in trains with the trends in SCRRA oversight personnel			
ii. Require increased contract oversight and SCRRA staff when there are increases in train service, fleet size and infrastructure			
iii. Undertake an analysis of SCRRA's current business and organizational model to determine if it still meets the needs of its mission			
b. Perform an Organizational Analysis that identifies all responsibilities and tasks associated with system safety			
c. Implement Immediate Organizational Changes			
i. Enhance interdepartmental communication to prevent the "silo effect"			
ii. Examine near term infrastructure and facilities, fleet, and service enhancements for oversight staffing needs			
iii. Re-assign the Safety and Security department from the SCRRA AEO, Operating Services, to the SCRRA CEO			
iv. Establish an Operating Rules Department reporting to the AEO, Operating Services			
v. Enhance the contractors' Field Testing Programs consistent with SCRRA's restructured Operating Rules Program			
vi. Define the overall responsibility for field operations management			
vii. Strengthen the role of the Qualified Mechanical Person (OMP) function			
viii. Fill key positions in the SCRRA Operations Department: Director of Operations and Manager of Operations			
d. Clarify Roles and Responsibilities			
<b>3. System Safety Program Plan (SSPP)</b>			
a. Redraft the SSPP based on the Organizational Analysis			
b. Develop an organization-wide risk assessment process and incorporate into the updated SSPP			

Metrolink Enhanced Safety Action Plan	Short-Term Actions January '09 - July '09 (6 months)	Intermediate-Term Actions January '09 - July '10 (18 months)	Long-Term Actions January '09 - December '12 (4 years)
<b>4. Safety Performance Measurements</b>			
a. Enhance the Operations Testing Plan			
i. Produce an Efficiency Testing Plan			
ii. Perform a signal hazard analysis			
iii. Require a quarterly review of efficiency testing results for every safety critical position			
iv. Adopt Amtrak's event review program			
v. Require crews to record safety briefing information on a daily basis or before each trip			
b. Define the responsibility for Efficiency Testing, analyze tests to ensure that safety critical rules are being observed			
c. Acquire an Electronic Efficiency Testing System to manage data collection and analysis of observation and testing data			
d. Increase observations of all Engineers, Conductors, and other safety critical employees with focus on safety critical operating rules			
e. Review safety critical employee training to ensure compliance with safety critical operating rules and establish process to update training			
f. Assess impact of operating contract's liquidated damages provisions for rules violations to determine any real or perceived conflicts of interest			
g. Establish goals for observations and analysis and report results quarterly to the SCRRR Board			
<b>5. Infrastructure Maintenance</b>			
<u>Maintenance of Way (MOW)</u>			
a. Implement an electronic right-of-way asset management system that identifies trends and assists in hazard analysis			
b. Evaluate the adequacy of qualifications testing			
<u>Vehicle Equipment Maintenance</u>			
a. Designate a site manager with clear responsibility over all aspects of operations within the CMF			
b. Perform a staffing analysis and hire additional personnel as needed			
c. Establish a Qualified Maintenance Person for the dispatching center			
d. Fully integrate the Mechanical department into the system-wide risk management analysis effort			
e. Conduct a staffing analysis of the impact of increasing the fleet prior to its introduction			
f. Conduct training for train operators on equipment troubleshooting			
g. Improve inter-departmental coordination			
h. Strengthen the contractor's document control policies			
<u>Infrastructure Safety Improvements</u>			
a. Grade Crossing Safety: Continue to work with local and state stakeholders to implement grade crossing safety education and enforcement, and reduction of grade crossings			
b. Crash Energy Management (CEM): Continue to upgrade the vehicles fleet, including CEM technology			
c. Grade Separations: Reevaluate intermediate and long range goals to construct further grade separations			
d. Sealed Corridor: Continue and expand SCRRR's "Sealed Corridor Program" to enhance overall corridor safety and security			
e. Double Tracking Program: Double track to improve operations and increase commuter/freight capacity and reduce train conflicts			

Metrolink Enhanced Safety Action Plan	Short-Term Actions January '09 - July '09 (6 months)	Intermediate-Term Actions January '09 - July '10 (18 months)	Long-Term Actions January '09 - December '12 (4 years)
<b>6. Analysis of Metrolink Short Term Safety Projects</b>			
a. Investigate, specify, procure, and install inward looking video technology in the operating cabs of SCRRRA passenger equipment			
b. Accelerate the implementation of PTC over the entire Metrolink System and work with BNSF, UPRR, Amtrak, FRA on cost-effective design and deployment			
i. The implementation of ATS should not be a priority over or take resources away from the implementation of a PTC system			
c. Implement short-term actions of Panel's Metrolink Enhanced Safety Action Plan, which can replace the Second Set of Eyes program			
d. Expedite plans to transition from the DigiCon system and develop action plan for maintenance and other emergencies in the interim			
e. Implement medical evaluations prior to placement of contractor employees in a safety covered position and at least every three years			
f. Participate in the Hours of Service issue with FRA's Rail Safety Advisory Committee process			
g. In cooperation with its operating contractor, conduct a review of SCRRRA's contractor's Hours of Service Split Shift schedules to determine any risk factors			
<b>7. Strategic Plan</b>			
a. Update Strategic Plan to include strategic operational and safety issues			
b. Seek buy-in at multiple levels on funding commitments, flexible budgeting processes, and rigorous project evaluation and prioritization			
c. Explore new technologies, wider markets and more effective operational safety strategies during the strategic planning process			
<b>8. Governance</b>			
a. Conduct a self-assessment of the Board's performance with particular emphasis on safety and operational oversight			
b. Develop Board and Board responsibilities and actions, including:			
i. More rigorous briefing sessions for new Board members			
ii. Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole			
iii. Establishment of subcommittees on operations and safety oversight & a subcommittee to assess Board performance			
iv. Board-adopted safety and operational performance measures			
v. Guidelines for the addition of safety and operational staff positions as new services are introduced			
vi. Revised, more comprehensive strategic plan for the agency that addresses safety and operational issues			
vii. Direct board involvement in developing/updating the Enhanced Safety Action Plan and monitoring its implementation			

## A. INTRODUCTION

### 1. Summary

The Southern California Regional Rail Authority's (SCRRA) Chairman appointed an Ad Hoc Subcommittee to establish an independent Metrolink Commuter Rail Safety Peer Review Panel (Panel) that was tasked with analyzing the Metrolink operating function through interviews and data analysis. This report summarizes the observations and recommendations of the Panel, and includes recommendations for short, medium, and long term safety and operating enhancements to the Metrolink system. The goal of this report and the basis of observations and recommendations are: 1) increasing safety through redundancy; 2) increasing safety of train operations; and 3) reducing the risk and severity of accidents.



In 1991, SCRRA, an independent Joint Powers Authority (JPA), consisting of the Los Angeles County Metropolitan Transportation Authority (Metro), the Orange County Transportation Authority (OCTA), the Riverside County Transportation Commission (RCTC), San Bernardino Associated Governments (SANBAG) and the Ventura County Transportation Commission (VCTC), was formed to develop a regional transit service to reduce the congestion on highways and improve mobility throughout the Southern California region. These agencies are collectively referred to as the Member Agencies.

Metrolink is regarded as a vital public asset in its service region, improving both mobility and air quality (through lower emissions per passenger-mile).

Now in its 16th year of operation, Metrolink consists of seven lines, 56 stations and 45,000 daily passengers. There are 155 existing commuter coaches and 38 locomotives. Future plans for fleet and rail service expansion will result in a fleet of 304 commuter coaches and 53 locomotives, a 96% and 39% increase respectively.

Metrolink operates and maintains its facilities based on funding provided by its Member Agencies. These agencies supply funding based on a formula developed during the inception of service. In addition, the Member Agencies own the right-of-way over which Metrolink operates. As a result, there may be differences in the maintenance of the right-of-way based on funding constraints or supplemental contracting. Funding for capital improvements is obtained through the Member Agencies and other state and federal funding sources.

The Metrolink model utilizes Operating Contract Service Providers (OCSP) to provide the following services:

- **Maintenance of Way (MOW):** Right-of-way and railroad facility inspection and maintenance;
- **Train Operations:** Supply and train engineers and conductors for Metrolink Trains;
- **Signal Maintenance:** Railroad signal facility inspection and maintenance; and
- **Maintenance of Equipment (MOE or rail vehicle maintenance):** Inspection and maintenance of Metrolink rail vehicles.

Metrolink also employs other contractors and consultants to perform engineering, program management, flagging protection, and construction management. The Member Agencies periodically hire contractors to

perform supplemental maintenance services for their respective rights-of-way. These contractors are coordinated with and/or overseen by SCRRA staff and/or the OCSP.

In addition to providing basic service associated with their contract, the OCSPs contractually are responsible for inspections and compliance with rules and regulations required for the operation of a commuter railroad.

## **2. Review of Safety Issues**

The Panel focused on two areas during the course of this study: the Metrolink operating system and the SCRRA organizational structure.

### **Metrolink Operating System**

The Panel conducted a review and analysis of SCRRA and its OCSPs, including:

- Review of contract requirements regarding the delivery of services and division of responsibility.
- Review of the procedures and timetables of the rail corridor owners, (Burlington Northern Santa Fe and Union Pacific Railroad) including procedures for these carriers operating over Metrolink controlled territory.
- Review of OCSPs' operating practices and procedures and their consistency with the Federal Railroad Administration (FRA) rules and regulations, State of California regulations, the General Orders of California Public Utilities Commission (CPUC), Code of Operating Rules (GCOR), SCRRA's System Safety Program Plan (SSPP) and SCRRA's Operating Timetable.
- Inquiry into organizational dynamics and structure that provide indicators of the organizational culture and the degree to which the culture supports safety, including perceived roles and responsibilities for safety, accountability and vertical and horizontal communication.

This review was conducted through a series of interviews with all levels of SCRRA staff responsible for OCSP oversight, SCRRA safety personnel or coordination and through the review of contracts, organization charts and other documents provided by Metrolink and its contractors. The review also included interviews with key OCSP field staff.

### **SCRRA Organizational Structure**

The Panel reviewed SCRRA's organizational structure and staffing levels. The Panel also evaluated the level of skills overseeing all aspects of this operating railroad to ensure compliance with federal and state rules and regulations, contractual requirements and industry standards.

The Panel did a cursory review of the "Big Four" Contracts (Operations, Maintenance of Way, Maintenance of Equipment and Signal Maintenance), the Standard Operating Procedures (SOP's) and the SSPP and conducted interviews to determine SCRRA's management oversight of the operations. As a result of this review, the Panel made specific recommendations about staffing needs in Operations, and recommends a detailed organizational assessment. The Panel kept in mind the organizational segregation between SCRRA and the contractor and its employees. Specific areas reviewed include:

- Operation of trains (Transportation Functions);
- Track and track structure maintenance and inspection;
- Signal system maintenance and inspection;

- Rail Vehicles maintenance and inspection;
- SCRRA contractual requirements for OCSP hiring and training policies and guidelines for safety sensitive positions;
- Employee Observation and Testing Programs for safety sensitive positions administered by the OCSP and/or Metrolink staff;
- OCSP management and oversight of their employees responsible for providing the services;
- SCRRA's management and oversight of the OCSP, focusing on contractors' operations and maintenance of the railroad to ensure compliance with the SSPP, requirements of the contracts, and underlying laws and regulations;
- SCRRA's management and oversight of train operations and vehicle inspection and safety procedures; and,
- Operating contracts for each of the primary OCSPs.

The Panel recommends that the organizational model be reevaluated. The Panel also recommends it review its business model regarding contracting services out.

### **3. SCRRA Motion**

On September 26, 2008, at the SCRRA Board meeting, a motion from Director Richard Katz and his Alternate Director Jaime de la Vega was considered and accepted. As a result of the discussion, an adopted motion led to the Chairman's appointment of an Ad Hoc Subcommittee of Vice-Chair Millhouse and Director Katz to establish an independent 'Commuter Rail Safety Peer Review Panel' consisting of experts in applicable fields to review the Metrolink system and recommend both immediate and longer term improvements to increase safety, reduce the risk of a catastrophic event, and focus on creating redundancy in Metrolink's operating procedures, vehicles and facilities, and systems.

The Panel was asked to emphasize short, medium and long term safety enhancements and conduct a review of the SCRRA organizational structure. In addition, the Panel was asked to look at several immediate concerns of the Board and provide an interim report back to the Board on these items. The Panel was not asked to review the September 12, 2008 Chatsworth incident or any other specific incidents. Those investigations are being performed by the National Transportation Safety Board.

### **4. Overview of Panel and Technical Team**

Panel members were selected by the Ad Hoc Subcommittee members. Selection was based on industry knowledge, specialized expertise in a given field, and overall railroad safety experience. In addition, the Panel was staffed with members from diverse backgrounds including, public agencies, private companies, and members of academia. Furthermore, a Technical Team of specialists in specific aspects of railroad operation and maintenance was selected by the Panel Facilitator, Linda Bohlinger and Co-Leads Don Sepulveda and Peter Cannito. The Panel and Technical Team are presented below.

#### **Panel Facilitator:**

**Linda Bohlinger**

Vice President, National Director of Management Consulting, HNTB Corporation

*Expertise:* Transportation Agency Management, Including Commuter Rail, Contract Systems and Contracts Oversight

**Panel Co-Leads:**

**Don Sepulveda**

Senior Project Manager, HNTB Corporation

*Expertise:* Track, Signals and Vehicles Inspection and Maintenance (Grade Crossing, Corridor Safety Specialist)

**Peter A. Cannito, Sr.**

Independent Consultant

*Expertise:* Intercity, Commuter and Freight Railroad Management, Operations, and Maintenance including recent position as President of the Metro North Railroad in New York City.

**Other Panel Members:**

**Gerald R. Hanas**

General Manager, Northern Indiana Commuter Transportation District Railroad

*Expertise:* Operations and Systems Safety

**Bill Parsons**

Director of Operating Rules, Metro North Commuter Railroad

*Expertise:* Railroad Operations and Railroad Rules and Regulations

**Robert E. Skinner**

Executive Director, Transportation Research Board, The National Academy of Sciences

*Expertise:* Contract Systems and Contracts Oversight; Public Transportation Policy

**Robert E. Gallamore**

Retired railroad executive and academician; Chair, TRB Committee for Review of the Federal Railroad Administration Research and Development Program

*Expertise:* Systems Safety

**Kristen Bell**

Vice President, Research and Development, Behavioral Science Technology, Inc.

*Expertise:* Systems Safety (Human Factors)

**Bart Reed**

Executive Director, The Transit Coalition

*Expertise:* Passenger Rail Advocate

**Anne Herzenberg**

Transit Consultant

*Expertise:* Operations Planning and Management, Contract Systems and Contracts Oversight

**Anna M. Barry**

Director of Subway Operations, Massachusetts Bay Transportation Authority

*Expertise:* Systems Safety and Railroad Operations, Contract Systems and Contracts Oversight

Technical Team Members:

**Jeffrey Sisson**

HNTB Corporation

*Expertise:* Vehicles

**Mike McInnis**

HNTB Corporation

*Expertise:* Maintenance of Way

**Doug Brown**

HNTB Corporation

*Expertise:* Signals and Communication

**James Michel**

HNTB Corporation

*Expertise:* System Safety

**Sam Mansour**

J.L. Patterson & Associates

*Expertise:* Historic and Current Metrolink Engineering Issues

**Morteza Ghandehari**

J.L. Patterson & Associates

*Expertise:* Historic and Current Metrolink Engineering Issues

**5. Scope of Work**

The Panel was engaged to conduct an independent review and evaluation of the SCRRA operating environment, policies, procedures, contracts, and management as they relate to the safety of SCRRA's Metrolink commuter rail operations. The review and evaluation focused on all functional aspects of the service operation including train operations, track and structure inspection and maintenance, signal inspection and maintenance, and rail vehicle inspection and maintenance. These functions are provided by SCRRA staff and the various OCSPs, including train operations, rail vehicle maintenance, track and structure maintenance and communication and signal systems.

The results of the Peer Review have been presented in oral presentations to the ad hoc subcommittee. Also, the Panel members presented a PowerPoint presentation summarizing its recommendations to the SCRRA Board of Directors at their December 12, 2008 meeting. In addition, this report includes observations in each of the areas studied, with recommendations for further action or enhancement of existing activities. The recommendations primarily focus on those improvements that will increase safety through functional redundancy, increase safety of train operations, and/or reduce the risk and severity of accidents. Recommendations are broken into the following timeframes for implementation: Short Term (six months); Intermediate Term (18 months) and Long Term (up to four years).

**6. Review Process**

Observations and recommendations are based on selective data analysis. The Panel and Technical Team interviewed SCRRA staff at various levels of the organization. These interviews were conducted with and without senior management present.

The Panel also conducted a survey of existing commuter rail properties to ascertain if they contract services and if so, how they manage these contracts. Recommendations are based on the expertise of the Panel and Technical Team members, and on comparisons to best practices implemented elsewhere in the United States.

The review process consisted of a variety of meetings, conference calls, and interviews, as summarized in the table below.

<b>Interview/ Meeting Type</b>	<b>Interviews/Meetings</b>
Initial Interviews	<ul style="list-style-type: none"> <li>• Maintenance of Way, signal maintenance, operations, vehicle maintenance</li> </ul>
Pre-Meetings	<ul style="list-style-type: none"> <li>• Initial briefing of Panel</li> </ul>
Technical Team Meetings	<ul style="list-style-type: none"> <li>• HNTB and JLP</li> </ul>
Panel Meetings and Conference Calls	<ul style="list-style-type: none"> <li>• Panel Briefing by HNTB and JLP Technical Team (Panel members only)</li> <li>• Panel breakout meetings                             <ul style="list-style-type: none"> <li>– Operations</li> <li>– System Safety</li> <li>– Maintenance and Inspection</li> <li>– SCRRRA Organization</li> </ul> </li> <li>• Panel members prepare for Ad Hoc Subcommittee meeting</li> </ul>
Panel Meetings with SCRRRA and contractor and Member Agency staff	<ul style="list-style-type: none"> <li>• Rail Vehicle Maintenance</li> <li>• Signals</li> <li>• Maintenance of Way</li> <li>• System Safety</li> <li>• SCRRRA Contracts and Human Factors</li> <li>• Right of Way</li> <li>• Rail Equipment</li> <li>• SCRRRA Presentation - System Safety</li> <li>• Metrolink Train Ride to San Juan Capistrano and back with SCRRRA guide</li> <li>• Meeting with SCRRRA Member Agencies to discuss safety improvements and inter-county coordination (OCTA, METRO, RCTC, SANBAG, VCTC)</li> <li>• SCRRRA Management Staff</li> </ul>
Panel Meetings and Conference Calls with SCRRRA ad hoc subcommittee	<ul style="list-style-type: none"> <li>• Panel meeting with Ad Hoc Subcommittee meeting</li> <li>• Panel facilitator and co-leads and an additional Panel member with ad hoc subcommittee</li> <li>• Panel meeting with Ad Hoc Subcommittee meeting</li> </ul>
SCRRRA Board Meeting	<ul style="list-style-type: none"> <li>• Panel Recommendations Presentation to SCRRRA Board</li> </ul>

## B. SAFETY OVERVIEW

The Panel sought to address the issue of safety holistically. This approach emphasizes that safety is best achieved as a comprehensive, enterprise-wide endeavor – one in which the fundamental organizational objective is to maintain a *culture of safety*. In such a regime, every employee is mindful of the obligation – as in the Hippocratic Oath – to “first do no harm.” When safety remains uppermost in the minds of managers and line operators, accidents and their consequences will decline substantially. Most experts believe “safety is good business” and that agencies like Metrolink will improve their cost-effectiveness as they improve their safety performance. The holistic approach requires involvement at all levels of the organization, starting with the Board; it includes long-term vision, day-to-day operations, and everything in between.

The Panel observed that Metrolink is operated in accordance with similarly complex/sized commuter rail organizations. The Panel did not observe any imminent risks. However, the complexity of SCRRRA’s organizational structure allows ambiguities to arise with respect to duties and responsibilities between SCRRRA management and OCSP management.

The Panel has made recommendations in eight areas that are highlighted in the next section. These recommendations recognize that SCRRRA:

- Is a complex organization with four major contracts with outside parties to manage;
- Could benefit from a renewed focus on system safety and incorporation of this system safety into its strategic plan and safety culture;
- Could benefit from an enhanced oversight of the Metrolink operating contractor and could benefit from filling vacant transportation and equipment management positions;
- Could benefit from an increase its qualified personnel in operating rules and locomotive engineering oversight;
- Could benefit from an Operating Rules function reporting to the Assistant Executive Director, Operating Services;
- Could benefit from elevating the Systems Safety Department to report to the CEO; and finally;
- Could benefit from a focus on Board roles and responsibilities for enhancing Metrolink’s system safety performance.

Operations and safety are inseparable. However, one needs to recognize that inherent vulnerabilities still exist even if a vigorous, proactive safety program is in place. With organizational restructuring, development of a few key professionals to add management capacity and a renewed focus on strategic planning and a safety culture, overall safety should be enhanced.

**C. METROLINK'S ENHANCED SAFETY ACTION PLAN AND MILESTONES**

Upon completion of the safety review process, the Panel developed a Metrolink Enhanced Safety Action Plan, as illustrated in Charts 1 and 2. Chart 1, found on pages 5-7, lists the short-term (six months), intermediate-term (18 months), and long-term (up to four years) milestones for each of the recommended actions to increase safety. Chart 2 lists the recommended actions for each of the eight key issues identified by the Panel.

**Chart 2 - Metrolink Enhanced Safety Action Plan**

<b>Issue</b>	<b>Summary of Recommendations - Metrolink Enhanced Safety Action Plan</b>
<p><b>1. Safety Culture</b></p>	<ul style="list-style-type: none"> <li>a. Develop a strong and more unified safety culture at SCRRA (including its contractors) leading to operational excellence, increased ridership and revenues, lower operating costs, stronger employee and public relations, and fewer accidents.</li> <li>b. Develop a vision for safety that describes the desired future state for each appropriate level of the organization, including a clear list of safety behaviors.</li> <li>c. Define long-term, measurable objectives for safety. Progress toward meeting these objectives should be part SCRRA's management process for annual budgeting and performance evaluation.</li> <li>d. Revise Metrolink's System Safety Program Plan (SSPP) to reflect the output of the work on the strategic role, vision, and goals.</li> <li>e. Form a Strategic Safety Leadership Team. This team will lead the culture development effort, provide leadership for SCRRA, and be accountable for the effective execution and integration of the SSPP. The Strategic Safety Leadership Team should be led by the CEO and include the participation of all SCRRA Senior Managers with input from SCRRA's major contractors.</li> </ul>
<p><b>2. SCRRA Organizational Structure</b></p>	<ul style="list-style-type: none"> <li>a. The SCRRA organization should keep pace with critical operations oversight as the complexity of the Metrolink contracting environment and the volume of train operations have increased.                             <ul style="list-style-type: none"> <li>i. Compare the historical growth in the volume of train operations with the trends in the numbers and skills of oversight personnel at SCRRA and make adjustments to maintain critical operations oversight.</li> <li>ii. Require increased contract oversight and SCRRA staff when there are increases in train service, fleet size and infrastructure.</li> <li>iii. Undertake an analysis of SCRRA's current business and organizational model to determine if it still meets the needs of its mission.</li> </ul> </li> <li>b. Perform a detailed Organizational Analysis that identifies all responsibilities and tasks associated with system safety. Then determine, in priority order, any omissions in the current structure and whether the responsibilities are sited appropriately.                             <ul style="list-style-type: none"> <li>i. Emphasize SCRRA's operations organization and contractor oversight.</li> <li>ii. Require increased contract oversight and SCRRA staff when there are increases in train service, fleet size and infrastructure.</li> <li>iii. Review the distribution of resources for all operational functions and determine whether staffing levels appropriately cover necessary duties to implement necessary safety programs.</li> <li>iv. Empower the Assistant Executive Officer, Operating Services to transfer resources from one area to another within his or her span of control in order</li> </ul> </li> </ul>

Issue	Summary of Recommendations - MetroLink Enhanced Safety Action Plan
	<p>to address the most safety critical positions and trends.</p> <ul style="list-style-type: none"> <li>v. Consider the annual budget process an opportunity to reallocate staff among functions on a routine basis to determine if the staffing levels and skills are sufficient to manage an operating commuter railroad.</li> </ul> <p>c. Implement Immediate Organizational Changes:</p> <ul style="list-style-type: none"> <li>i. Enhance interdepartmental communication to prevent the "silo effect".</li> <li>ii. Examine near term infrastructure and facilities, fleet, and service enhancements for oversight staffing needs.</li> <li>iii. Re-assign the Safety and Security Department from the SCRRRA Assistant Executive Officer, Operating Services to the SCRRRA Chief Executive Officer (CEO).</li> <li>iv. Establish an Operating Rules Department reporting to the Assistant Executive Officer, Operating Services.</li> <li>v. Enhance the contractors' Field Testing Programs consistent with SCRRRA's restructured Operating Rules Program.</li> <li>vi. Define the overall responsibility for field operations management.</li> <li>vii. Strengthen the Qualified Mechanical Person (QMP) function whether in the MetroLink Operations Center (MOC) or elsewhere to better manage and respond to real time locomotive and rail car failures.</li> <li>viii. Fill key positions in the SCRRRA Operations Department, specifically:             <ul style="list-style-type: none"> <li>(a) Director of Operations; and</li> <li>(b) Manager of Operations.</li> </ul> </li> </ul> <p>d. Clarify Roles and Responsibilities</p> <ul style="list-style-type: none"> <li>i. Review the operating rules, standard operating procedures and contracts to identify provisions affecting or affected by observations of the organizational analysis.</li> <li>ii. Direct the Transportation contractor to:             <ul style="list-style-type: none"> <li>(a) Perform all required operational testing in compliance with the SCRRRA approved operational testing plan.</li> <li>(b) Establish a schedule of tests and training to meet all required criteria.</li> <li>(c) Report regularly on actual versus scheduled training and testing. Identify failures and act promptly to correct such deficiencies.</li> </ul> </li> <li>iii. Direct the SCRRRA Operations staff to audit contractor testing programs as the primary oversight function.</li> <li>iv. Provide training for en-route vehicle troubleshooting for train and engine crews.</li> </ul>
<p><b>3. System Safety Program Plan (SSPP)</b></p>	<ul style="list-style-type: none"> <li>a. Redraft the SSPP based on the conclusions of the Organizational Analysis, with particular attention to:             <ul style="list-style-type: none"> <li>i. The oversight functions for in-house and contractor operations.</li> <li>ii. All essential components and the Agency's functions, which must be accountable in the System Safety Program from the Board of Directors through the CEO to all departments.</li> <li>iii. Contracts and SCRRRA policies and procedures, which must be conformed to</li> </ul> </li> </ul>

Issue	Summary of Recommendations - Metrolink Enhanced Safety Action Plan
	<p>the updated SSPP and related Standard Operating Procedures.</p> <ul style="list-style-type: none"> <li>iv. Continued conformance with APTA standards and maintained as a control document.</li> <li>b. Develop a broadened organization-wide hazard assessment process and incorporate that process into the updated SSPP.</li> </ul>
<p><b>4. Safety Performance Measurements</b></p>	<ul style="list-style-type: none"> <li>a. Enhance the Operations Testing Plan                             <ul style="list-style-type: none"> <li>i. Produce an Efficiency Testing Plan</li> <li>ii. Perform a signal hazard analysis:</li> <li>iii. Require a quarterly review of efficiency testing results for every safety critical position;</li> <li>iv. Adopt Amtrak's event review program; and</li> <li>v. Require crews to record safety briefing information on a daily basis or before each trip.</li> </ul> </li> <li>b. Define responsibility for Efficiency Tests.                             <ul style="list-style-type: none"> <li>i. Analyze tests to ensure that safety critical rules are being observed</li> <li>ii. Ensure testing program is consistent with SCRRRA's operations.</li> </ul> </li> <li>c. Increase observations of all Engineers, Conductors, and other safety critical employees with primary focus on safety critical operating rules.</li> <li>d. Review safety critical employee training and establish a process to update training.</li> <li>e. Assess impact of operating contract's liquidated damages provisions for rules violations to determine any real or perceived conflicts of interest.</li> <li>f. Acquire an Electronic Efficiency Testing System to manage data collection and analysis of observation and testing data.</li> <li>g. Establish goals for observations and analysis and report results quarterly to the SCRRRA Board.</li> </ul>
<p><b>5. Infrastructure and Maintenance</b></p>	<p><u>Maintenance of Way (MOW)</u></p> <ul style="list-style-type: none"> <li>a. Implement an electronic right-of-way asset management system that identifies trends and assists in hazard analysis</li> <li>b. Require joint inspections by Metrolink staff and the contractor, which act as a check and balance in the system.</li> <li>c. Evaluate the adequacy of qualifications testing.</li> </ul> <p><u>Rail Vehicle Equipment Maintenance</u></p> <ul style="list-style-type: none"> <li>a. Designate a site manager with clear responsibility over all aspects of operations within the CMF.</li> <li>b. Perform a staffing analysis and hire additional personnel as needed.</li> <li>c. Establish a QMP for the dispatching center.</li> <li>d. Fully integrate the Mechanical Department into the system-wide risk management analysis effort.</li> <li>e. Conduct a staffing analysis of the impact of increasing the fleet prior to its introduction.</li> <li>f. Conduct training for train operators on equipment troubleshooting.</li> </ul>

Issue	Summary of Recommendations - Metrolink Enhanced Safety Action Plan
	<p>g. Improve inter-departmental coordination.</p> <p>h. Strengthen the contractor's document control policies.</p> <p><u>Infrastructure Safety Improvements</u></p> <p>a. <u>Grade Crossing Safety</u>: Continue to work with local and state stakeholders to implement grade crossing safety education and enforcement, and reduce grade crossings.</p> <p>b. <u>Crash Energy Management (CEM)</u>: Continue to upgrade the vehicles fleet, including CEM technology.</p> <p>c. <u>Grade Separations</u>: Reevaluate intermediate and long range goals to construct further grade separations.</p> <p>d. <u>Sealed Corridor</u>: Continue with and expand SCRRRA's "Sealed Corridor Program" to enhance overall corridor safety and security.</p> <p>e. <u>Double Tracking Program</u>: Double track to improve operations and increase commuter/freight capacity and reduce train conflicts.</p>
<p><b>6. Analysis of Metrolink Short Term Safety Projects</b></p> <p>a. In-cab video recording</p> <p>b. ATS/PTC</p> <p>c. Second set of eyes</p> <p>d. DigiCon Dispatch Issue</p> <p>e. Annual Medical &amp; Psychological Evaluations</p> <p>f. &amp; g, Railroad Industry Hours of Service/Split Shift Issue</p>	<p>a. Investigate, specify, procure, and install inward looking video technology in the operating cabs of SCRRRA passenger equipment. Technology should include a software application for facilitating real time observations.</p> <p>b. Accelerate the implementation of Positive Train Control (PTC) over the entire Metrolink System and work with BNSF, UPRR, Amtrak, and FRA on cost-effective design and deployment.</p> <p>i. The implementation of ATS should not be a priority over or take resources away from the implementation of a PTC system.</p> <p>c. If the short term safety improvements in the Panel's recommended Metrolink Enhanced Safety Action Plan are implemented, then those improvements will replace the "Second set of eyes". Those actions include:</p> <p>i. Strategic Safety Leadership Team;</p> <p>ii. Organizational Re-structuring;</p> <p>iii. Enhanced Operations Testing Plan;</p> <p>iv. Increased observations of safety critical employees; and</p> <p>v. Installation of in-cab video technology.</p> <p>It is also recommend that SCRRRA perform a Hazard Analysis under its SSPP including research and analysis of accident data where there has been a second set of eyes to better inform its decision on this issue.</p> <p>d. Expedite plans to transition from the DigiCon system and develop action plan for maintenance and other emergencies in the interim.</p> <p>e. Implement medical evaluations prior to placement of contractor employees in a safety covered position and at least every three years. This recommendation is consistent with the preliminary studies by the FRA Railroad Safety Advisory Committee (RSAC).</p> <p>The Panel did not find any evidence that psychological evaluations for train crews would reduce exposure to risk for Metrolink. However the Panel does recommend that SCRRRA perform research in this area to determine if psychological exams would increase safety on its Metrolink system.</p> <p>f. Since SCRRRA's Transportation contractor uses split shift assignments in its train and engine crew schedules, it is the Panel's recommendation that SCRRRA participate actively on the Hours of Service issue as part of the FRA RSAC</p>

<b>Issue</b>	<b>Summary of Recommendations – Metrolink Enhanced Safety Action Plan</b>
	<p>process.</p> <p>g. The Panel also recommends that SCRRA, in cooperation with its operating contractor, conduct a review of its contractor's Hours of Service Split Shift schedules for their train and engine crews and determine if fatigue is a factor in the use of Split Shifts. In addition, SCRRA should evaluate whether any relevant rules and their particular application require any short term measures pending the results of the FRA RSAC process regarding Hours of Service.</p>
<b>7. Strategic Plan</b>	<p>a. Update the strategic plan to include strategic operational and safety issues.</p> <p>b. Seek buy-in at multiple levels (staff, board, Member Agencies), including funding commitments, more flexible budgeting processes, and more rigorous project evaluation and prioritization.</p> <p>c. Maintain through the strategic planning process a continuous exploration and evaluation of new technologies, wider markets, and more effective operational safety strategies during the strategic planning process.</p>
<b>8. Governance</b>	<p>a. Conduct a self-assessment of Board performance with particular emphasis on safety and operational oversight.</p> <p>b. Develop a more explicit definition of Board and Board member responsibilities and actions that might include:</p> <ul style="list-style-type: none"> <li>i. More rigorous briefing sessions for new Board members;</li> <li>ii. Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole;</li> <li>iii. Establishment of new or rechartered standing subcommittees with added focus on operations and safety oversight and possibly, a subcommittee devoted to assessing Board performance;</li> <li>iv. Board-adopted performance safety and operational performance measures, and guidelines for the addition of safety and operational staff positions as new services are introduced;</li> <li>v. Revised, more comprehensive strategic plan for the agency that addresses safety and operational issues; and</li> <li>vi. Direct board involvement in developing/updating the Panel's recommended Enhanced Safety Action Plan and monitoring its implementation.</li> </ul>

## D. ISSUE PAPERS

Upon completion of the safety review process, the Panel narrowed the observations and recommendations to eight key issues. The list of recommendations and the milestones for the Panel's recommendations are presented in Section C. Detailed observations, recommendations, and background information for each of the eight issues listed below are presented in separate issue papers beginning on the following page.

- Issue Paper #1: Safety Culture
- Issue Paper #2: SCRRRA Organizational Structure
- Issue Paper #3: System Safety Program Plan
- Issue Paper #4: Safety Performance Measures
- Issue Paper #5: Infrastructure and Maintenance
- Issue Paper #6: Analysis of Metrolink Short Term Safety Projects
- Issue Paper #7: Strategic Plan
- Issue Paper #8: Governance

Overall system safety is a culture for which all Agency departments and contractors are responsible. Because of this fact, many of the items discussed within the separate issue papers will contain information that is applicable in several aspects of the organization and across several issues.

## Issue Paper #1: Safety Culture

Culture consists of the shared values, beliefs and assumptions within an organization. It is commonly described as “the way we do things around here.” By ‘safety culture’, we mean an organizational culture that actively promotes and supports safety. These shared values, beliefs and assumptions result in behavioral norms that help to prevent accidents.

### *Observations*

The Panel observed that there is a clear appreciation for the existing importance of safety at SCRRA. Employees at all staffing levels expressed interest in doing the right thing.

It appears that accountability for safety has been defined at the operating level and those roles and responsibilities for safety are generally understood at the operating level. Furthermore, the Panel observed that every department and employee has the potential to affect the safety of the organization positively or adversely. Every individual in SCRRA should have the opportunity to contribute constructively to the explicit safety goals and tactical opportunities discussed throughout this report. Equally as important, staff can provide oversight and leadership for safety.

Part of enhancing a safety culture is Behavior Based Safety (BBS) training. Several commuter rail agencies, including the Metro North Railroad in New York, have implemented Behavior Based Safety training. This training requires a process of observation of the employees, correction of their behavior and re-review of the statistical information associated with the employees' safety performance. Spotlighting on workgroups in fixed settings was demonstrated to be the most effective at behavior change and injury reduction according to the literature.

Although similar to Efficiency Testing<sup>1</sup>, in which employees are observed for adherence to operating rules and regulations, one of the differences in BBS training is the focus on changing any at risk safety behavior with positive feedback behavioral techniques.

SCRRA's organizational structure could be enhanced by a focus on safety culture and BBS training. The Panel observed through discussions with SCRRA staff and review of previous SCRRA and contractor employee surveys and safety assessments that neither SCRRA nor its contractors have conducted any training specifically focused on safety culture.

One of the difficulties of SCRRA conducting this type of program is that SCRRA does not have direct control of its contractors' employees. The Panel believes that safety culture training can be conducted while maintaining the SCRRA vs. contractor employee relationships. SCRRA would be responsible for its own employees and the contractors for their own employees regarding safety culture training.

SCRRA should require its contractors to perform safety culture training. One option is to require safety culture training as a requirement of its contractors through an amendment of SCRRA's System Safety Program Plan (SSPP). The Panel recognizes that any changes to the contractors' employees work duties and/or training requirements may require changes to the contractors' collective bargaining agreements with their employees'

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<sup>1</sup> Efficiency Testing is mandated by Federal Railroad Administration (FRA) law 49 CFR 217. Testing is conducted on safety critical positions to confirm compliance to operating rules and federal regulations

representatives.

Through these observations, the Panel believes that SCRRA can help reduce the probability of a significant accident occurring by enhancing its safety culture.

### Recommendations

Culture enhancement requires a significant, sustained effort stemming from the top of the organization. The Panel recommends that the board and executive team working together:

- a. Develop a strong and more unified safety culture at SCRRA (including its contractors) leading to operational excellence, increased ridership and revenues, lower operating costs, stronger employee and public relations, and fewer incidents.
- b. Develop a vision for safety that describes the desired future state for each appropriate level of the organization, including a clear list of safety behaviors.
- c. Define long-term, measurable objectives for safety. Progress toward meeting these objectives should be part of SCRRA's management process for annual budgeting and performance evaluation
- d. Revise the SSPP to reflect the output of the work on the strategic role, vision, and goals.
- e. Form a Strategic Safety Leadership Team. This team will lead the culture development effort, provide leadership for SCRRA, and be accountable for the effective execution and integration of the SSPP. The Strategic Safety Leadership Team should be led by the CEO and include the participation of all SCRRA Senior Managers with input from SCRRA's major contractors.

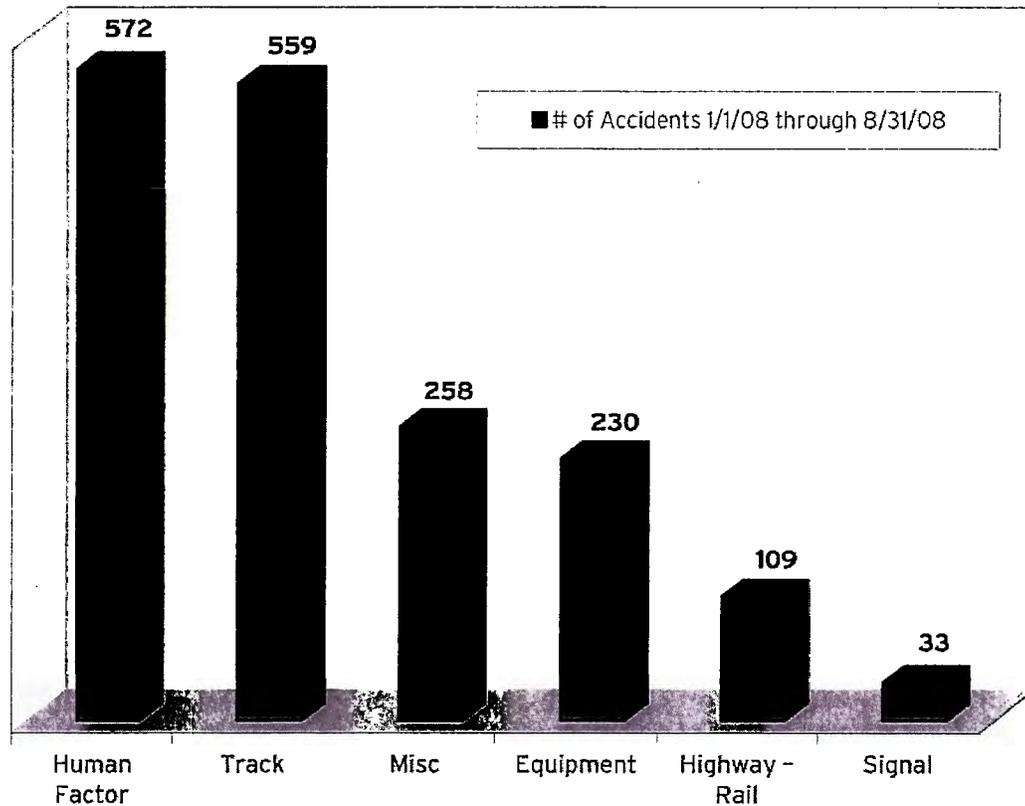
These recommendations related to creating a more unified, sustainable safety culture are critical because safety leadership emanating from the top of an organization is extremely powerful and can lead to dramatic improvements in performance in a short period of time.

Once the Strategic Safety Leadership Team (Team) is established, this team will develop and work from a detailed, data-driven assessment of the current state of SCRRA's culture. The Team then will identify the best opportunities for enhancing safety culture and organizational functioning within SCRRA. Based on that, the Team can develop a path forward to help SCRRA achieve its strategic safety goals.

Background

According to FRA data, human factors constitute the largest category of train accident causes<sup>2</sup>.

**Chart 3 - Major Causes of Train Accidents**



Source: www.fra.dot.gov

Reducing human factors-related risk is difficult, since it involves influencing a wide range of behavior at every level and function of the organization. One of the most powerful influences on behavior is culture, since culture governs the choices people make.

Culture consists of the values and beliefs people have, and the assumptions that people make that influence “the way we do things around here.” Culture influences every decision, action and communication in an organization from the Board’s decisions about what gets funded, to management’s allocation of resources, to how people are held accountable, to what people do when nobody else is looking. Research confirms the links between culture, operational excellence, and safety performance<sup>3</sup>.

<sup>2</sup> www.fra.dot.gov

<sup>3</sup> Hofmann, D. A. & Morgeson, F. P. (1998). “Safety-related behavior as a social exchange: The role of perceived organizational support and leader-member exchange.” *Journal of Applied Psychology*, 84, 286-296.

Hofmann, D.A., Morgeson, F.P. & Gerras, S.J. (2003). “Climate as a moderator of the relationship between leader-member exchange and content specific citizenship: Safety climate as an exemplar.” *Journal of Applied Psychology*, 88(1), 170-178.

Rhoades, L. & Eisenberger, R. (2002). “Perceived organizational support: A review of the literature.” *Journal of Applied Psychology*, 87(4), 698-714.

Williams, S. (1999). “The effects of distributive and procedural justice on performance.” *The Journal of Psychology*, 133(2), 183-193.

A culture that supports safety comes from an alignment of organizational structure, policies, systems, processes, communications, and behavior. This alignment begins at the Board and filters through every level of the organization and even to the customer. Creating a more unified culture that supports safety can be a significant organizational development effort in any organization, and SCRRA is no exception.

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Skarlicki, D.P. & Latham, G.P. (1997). "Leadership training in organizational justice to increase citizenship behavior within a labor union: A replication." *Personnel Psychology*, 50(3), 617-633.

## Issue Paper #2: SCRRA Organizational Structure

The roles and responsibilities of some safety-related operational functions at Metrolink are not as defined as they could be. SCRRA's organizational structure plays a role in how safety functions are performed.

### Observations

Observations focus on: 1) SCRRA and contractor responsibility overlap, 2) allocation of resources and 3) organizational structure and vacancies.

- The definitions of SCRRA's and the contractor's responsibilities for some tasks could and should be sharpened. In some cases it is not clear where responsibilities lie. Examples include: incident response; vehicle-troubleshooting training, and rules testing.
- The process of allocating resources within SCRRA and between SCRRA and its contractors could improve so that safety-critical functions receive priority. Key operations management positions at SCRRA are vacant and key oversight staffing and skills positions could be created. While such resources may have been in place at Metrolink's inception, it appears that it has not kept good pace with the growth in Metrolink's service and the growth in the number of contracts the Agency oversees.

SCRRA managers responsible for overseeing the several operating and maintenance contracts have independent processes for overseeing the contractors' rules-testing programs. This issue is discussed in Issue Paper #4: "Safety Performance Measurement."

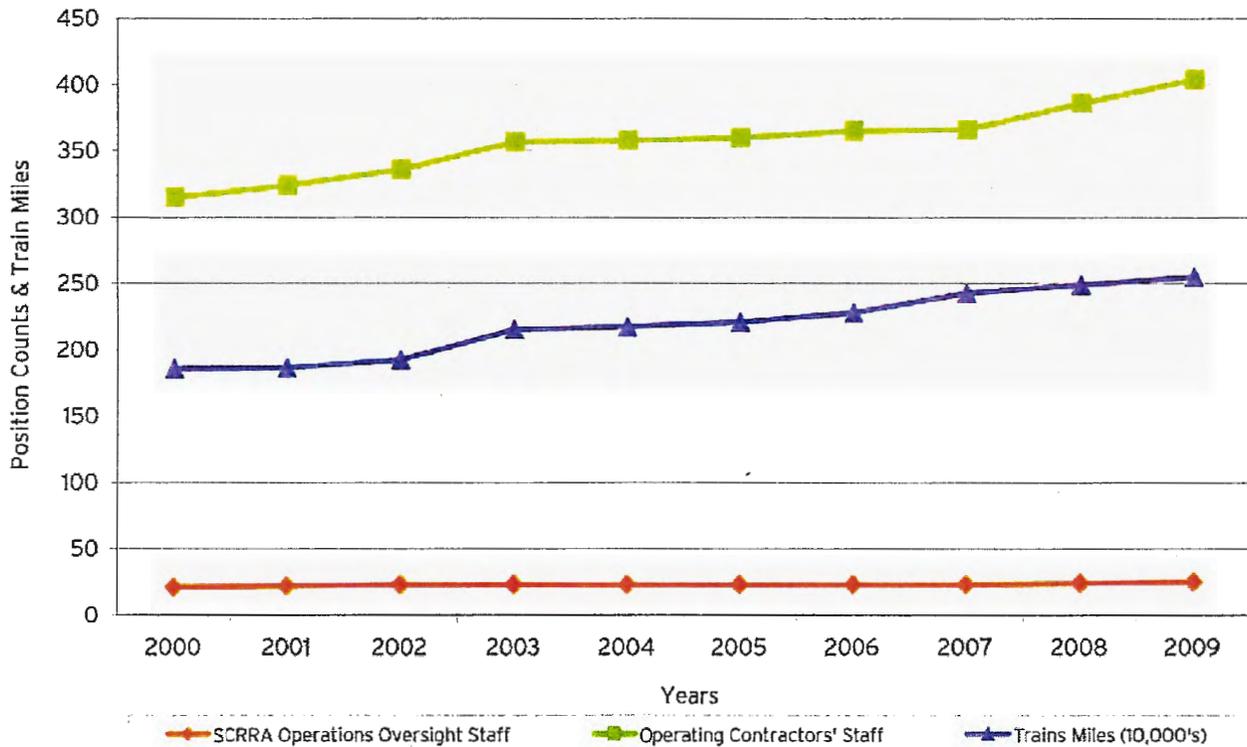
In the headcount allocation process, it appears that the filling of key operational positions is being influenced by the Human Resources Group and budget constraints. This may not be the best way to establish staffing priorities for operations. There may be an opportunity to increase the focus on safety by adjusting the roles that Human Resources and Operations Management play in determining which positions to establish and which to fill.

- Contract oversight resources need to keep better pace with Metrolink's growth in service and number of contracts, especially in the last few years. Chart 4 illustrates that the operations oversight resources need to keep better pace with growth of service, changes in the contractual environment and the growing sophistication of the regulatory and system safety requirements.

Over the past nine (9) years between 2000 and 2008 there has been a slow growth of operational oversight positions. During this nine year period the SCRRA operational oversight staff has increased by three positions or 14% (21 positions to 24 positions). During this same period of time, the Contractors personnel has increased by 22.5% and the number of train miles operated increased by 34%. This trend continues in the Operating Budget projected for 2009.

- The top safety manager at SCRRA reports to the Assistant Executive Officer, Operating Services. Instead, the Panel recommends an Agency-wide safety oversight function. This issue is discussed in Issue Paper #3: Systems Safety Program Plan.
- Key operations management positions at SCRRA are vacant and key oversight staffing and skills positions could be created, such as Operating Rules Specialists and Road Foreman-equivalent skills positions, to oversee contractor programs and employees.
- Communications among departments could be enhanced to minimize the "silo effect".

**Chart 4 - SCRRRA Operations Oversight vs. Contract Operators Staff vs. Train Miles Trends**



**Recommendations**

Recommendations fit into these categories: 1) Perform an Organizational Analysis of SCRRRA; 2) Re-structure organizational reporting or create new roles; and 3) Clarify roles and responsibilities.

- a. The SCRRRA organization should keep pace with critical operations oversight as the complexity of the Metrolink contracting environment and the volume of train operations have increased.
  - i. Compare the historical growth in the volume of train operations with the trends in the numbers and skills of oversight personnel at SCRRRA and make adjustments to maintain critical operations oversight.
  - ii. Require increased contract oversight and SCRRRA staff when there are increases in train service, fleet size and infrastructure.
  - iii. Undertake an analysis of SCRRRA’s current business and organizational model to determine if it still meets the needs of its mission.
- b. Perform a detailed Organizational Analysis that identifies all responsibilities and tasks associated with system safety. Then determine, in priority order, any omissions in the current structure and whether the responsibilities are sited appropriately.
  - i. Emphasize SCRRRA’s operations organization and contractor oversight.
  - ii. Require increased contract oversight and SCRRRA staff when there are increases in train service, fleet size and infrastructure.

- iii. Review the distribution of resources for all operational functions and determine whether staffing levels appropriately cover necessary duties to implement necessary safety programs.
  - iv. Empower the Assistant Executive Officer, Operating Services to transfer resources from one area to another within his or her span of control in order to address the most safety critical positions and trends.
  - v. Consider the annual budget process an opportunity to reallocate staff among functions on a routine basis to determine if the staffing levels and skills are sufficient to manage an operating commuter railroad.
- c. Implement Immediate Organizational Changes:
- i. Enhance interdepartmental communication to prevent the “silo effect”.
  - ii. Examine near term infrastructure and facilities, fleet, and service enhancements for oversight staffing needs.
  - iii. Re-assign the reporting of the Safety and Security Department from the Assistant Executive Officer, Operating Services, to the SCRRA Chief Executive Officer (CEO).
  - iv. Establish an Operating Rules Department reporting to the Assistant Executive Officer, Operating Services.
  - v. Enhance the contractors’ Field Testing Programs consistent with SCRRA’s restructured Operating Rules Program.
  - vi. Define the overall responsibility for field operations management.
  - vii. Strengthen the role of the QMP function whether in the Metrolink Operations Center (MOC) or elsewhere to better manage and respond to real time locomotive and rail car failures.
  - viii. Fill key positions in the SCRRA Operations Department, specifically:
    - (a) Director of Operations; and
    - (b) Manager of Operations.
- d. Clarify Roles and Responsibilities
- i. Review the SSPP, operating rules, Standard Operating Procedures and contracts to identify provisions affecting or affected by observations of the Organizational Analysis.
  - ii. Direct the Transportation contractor to:
    - (a) Perform all required operational testing in compliance with SCRRA approved operational testing plan.
    - (b) Establish a schedule of tests and training to meet all required criteria.
    - (c) Report regularly on actual versus scheduled training and testing. Identify exceptions and act promptly to correct such deficiencies.
  - iii. Direct the SCRRA Operations staff to audit contractor testing programs to ensure compliance with approved operational testing plan as the primary oversight function. Conducting operational tests of contractors’ personnel is a secondary function. Note: SCRRA’s dispatchers must be involved in some efficiency tests. SCRRA Operating Rules staff must develop quality assurance/quality control measures for the contractors programs and methods that may require some joint field activity.

- iv. Provide training for en-route vehicle troubleshooting for train and engine crews. This may be done by the mechanical contractor or by the transportation contractor's properly trained staff or subcontractor. At a minimum this training must include recognition of and procedures to follow when encountering en-route running gear defects.

### Background

When Metrolink service began, there was a single contractor with comprehensive responsibility for dispatching, operations, maintenance of way and vehicle maintenance. That contractor dispatched and operated the trains, provided customer service and maintained the vehicles, track, right of way and systems. The contractor was also responsible for coordinating these activities and responding to incidents. Metrolink's role was confined to contract oversight.

Over time, SCRRA has divided up the work within the scope of the original contract, taking dispatching and customer service in-house and executing separate contracts for transportation, vehicle maintenance, maintenance of way and signal maintenance. A side effect of "unbundling" the scope of work appears to have made the responsibility for coordinating some activities and for managing interdisciplinary tasks more difficult.

In interviews with SCRRA operations managers, the Panel learned that oversight of rules compliance has been executed in different manners between operational departments. In some cases, SCRRA personnel perform efficiency tests directly. This task may detract from the main function of oversight to ensure contractor compliance with approved operational testing plans. Conducting efficiency tests on contractor employees is a secondary function and should be structured as an evaluation of the quality of the contractors program.

### **Interdisciplinary Tasks**

The Panel identified examples of areas in which the definition of responsibility for inter-disciplinary tasks could and should be sharpened. These were: testing; incident response and vehicle-troubleshooting training.

**Testing:** It is essential to test whether employees are complying with the operating rules and are proficient in applying the rules. This process is referred to as Efficiency Testing. SCRRA must test its own dispatchers while the operations and maintenance contractors should have complete responsibility for testing their employees and for analyzing the results.

SCRRA's role in testing contractors' personnel should be limited to oversight and auditing to make sure the testing is taking place by qualified testing officers, the testing is performed properly, and that appropriate corrective action is taking place. The distinction between testing, oversight testing and auditing is not currently clear in SCRRA's procedures. Representative examples of this lack of clarity within the Standard Operating Procedures (SOPs) include:

- **SOP # 8 – Mechanical** – SCRRA's FRA-based Efficiency Testing Program assigns the Maintenance Contractor and Metrolink joint responsibility "to ensure that SCRRA and Maintenance Contractor are verifying that the equipment operators are following safe operating practices involving blue flag, radio rules, and observing the speed limit in the yards." This task properly belongs to the contractor alone. The contractor should be performing the tests, analyzing the results, identifying deficiencies and correcting them. SCRRA's job should be simply to oversee the process. The oversight may include field checks, but SCRRA field work should in no way relieve the contractor of its responsibility to implement a comprehensive testing program.

- **SOP #15 – Engineering** – Operating & Flagging Rules give SCRRA’s Rules and Training coordinator the responsibility “to ensure that employees act in accordance with the General Code of Operating Rules (GCOR) for Maintenance of Way (MOW).” It is the contractor’s responsibility to test its own employees, review the data and trends, and take action to correct any deficiencies either through retraining, reassignment or removal; SCRRA should simply oversee the process to make sure it is being carried out effectively.

**Incident Response:** When there was a single contractor for Operations and Maintenance, the contractor was responsible for responding to incidents such as vehicle failures in service, accidents and emergencies. Today, the responsibilities for responding to incidents, providing incident command, and directing service restoration after an incident belong to no one officially. As a matter of habit, the contractors’ Trainmasters (some of whom worked for the single-contractor operating Metrolink service at its inception) usually fill these roles; however, the transportation contract does not compel them to do so. Furthermore, the contractors’ staff may not be large enough to ensure a reasonably quick response to any incident. SCRRA should review these issues, clearly assign the responsibilities for incident response and make sure that there are adequate resources to fulfill the responsibilities. Contractual changes may be needed and/or changes in SCRRA staffing.

**Vehicle Troubleshooting:** The train and engine crews are relatively unskilled in troubleshooting vehicle faults. Minor equipment problems can develop into unnecessary service interruptions while maintenance employees are dispatched to correct on-line failures. The mechanical contractor’s personnel could be effective in training the train and engine crews, but, because the contractor for transportation is not the same as the contractor for vehicle maintenance, this type of interdisciplinary support is uncommon. Metrolink service could be improved if the train and engine crews were more familiar with basic troubleshooting procedures. SCRRA may consider a mechanism for this type of inter-functional cooperation, perhaps through a well-defined QMP position.

### **Resource Allocation**

The Panel noted that SCRRA recently addressed a key operational need by creating the position of Assistant Executive Officer, Operating Services. This senior manager should be responsible for allocating resources within Operations while the CEO, or his designee, should focus on allocating resources among non-operating positions and between operating and non-operating positions. It appears, however, that while the Assistant Executive Officer, Operating Services, has assumed broad responsibility for overseeing the day-to-day operation, the process of balancing the operating resources to reflect operational and safety priorities can be improved.

The Panel observed that there is a need to have the organizational flexibility to reallocate SCRRA staffing resources to address safety critical positions. For example, the Operating Department could reduce the Field Service Representatives’ positions and add Trainmasters. SCRRA could merge the responsibilities of both classifications under the contractor. As part of this review, SCRRA should determine the responsibility for management of Field Operations and Incident Response. This responsibility is currently shared with the Transportation contractor, yet this responsibility is not part of the Transportation contractor’s contractual scope of work.

In addition, SCRRA should consider the annual budget process as an opportunity to reallocate staff among functions on an ongoing basis. The budget process should not be limited to asking for more resources to address specific new needs. It should be a routine opportunity to reallocate resources to meet the Agency’s top objectives. As part of the Organizational Analysis, SCRRA should perform an internal staffing review to determine if the staffing levels and skills are sufficient to manage as an operating commuter railroad.

### **Immediate Organizational Changes**

The Panel reviewed the current SCRRA Organizational chart, and after interviews with contractors and staff, the Panel recommended a series of organizational recommendations. The following charts show the existing organization and the proposed organization.

Chart 5 shows the current organization chart, limited to the operational portion of the railroad for clarity. As can be seen in this chart, two key positions in the Operations Department are vacant and duties are being performed by a single person. This person manages the Operations Department and has oversight over the transportation contractor in areas such as compliance, contract management and operational oversight.

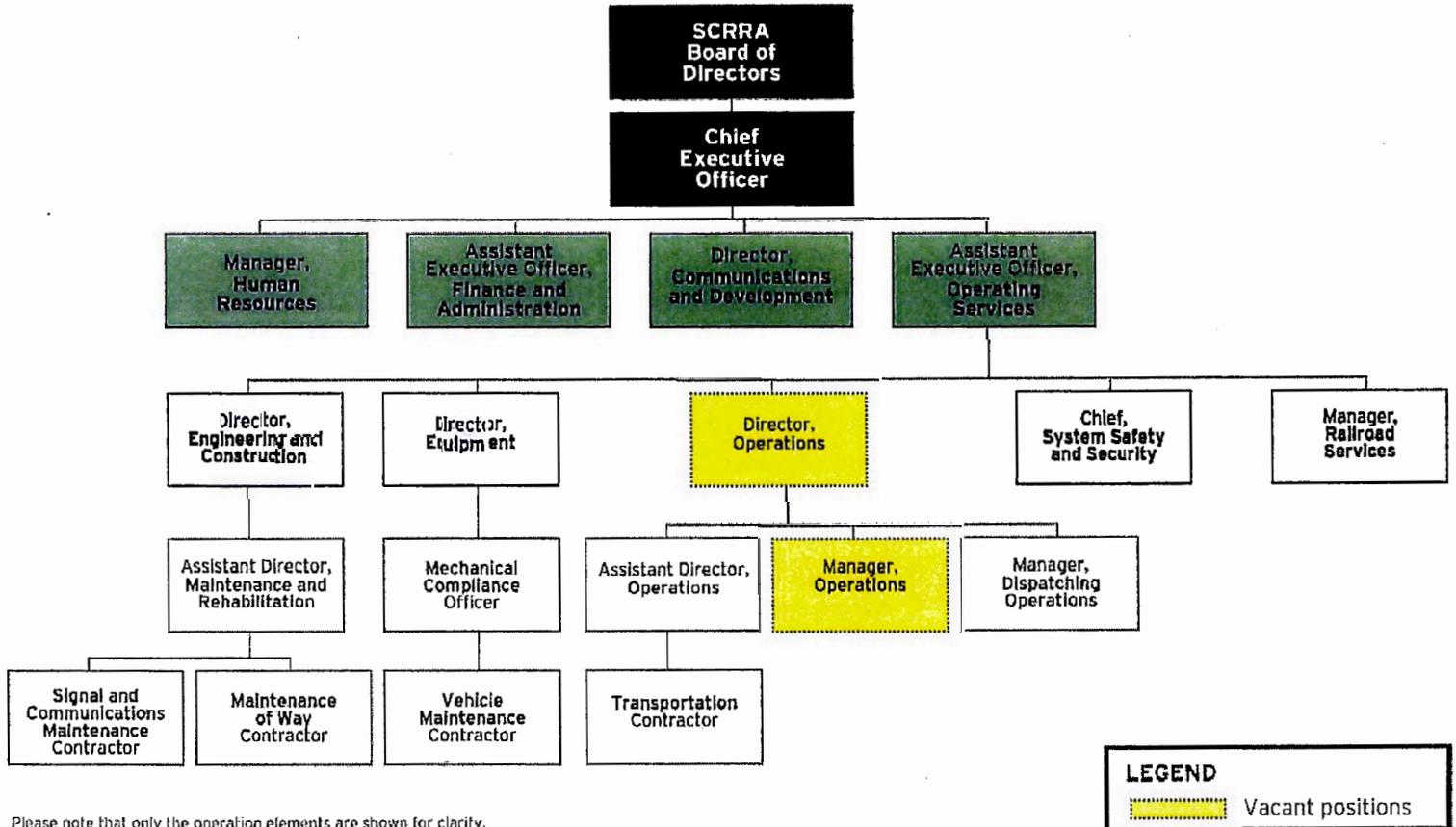
Within the Maintenance of Way department, oversight of the contractors is being done by staff assigned to that purpose. However, this is constrained by the lack of an Operating Rules position noted previously.

The Mechanical Department has a single person responsible for compliance of the vehicle maintenance contractor. In addition, this person appears to have responsibility over the Central Maintenance Facility, although that responsibility is not clear.

Chart 6 shows the organization changes recommended by the Panel. The System Safety Department has been moved to report to the CEO. Additional positions have also been recommended within the Operating department. For example, the Panel recommends that an Operating Rules Officer be created and report to the Assistant Executive Officer, Operating Services. This function would be responsible for rules and code of federal regulation compliance throughout all operating departments within the organization. Two other positions are recommended: A Field Operations Manager reporting to the Operating Department and a Qualified Maintenance Person reporting to the Equipment Department.

Chart 5 - Southern California Regional Rail Authority Existing Organization

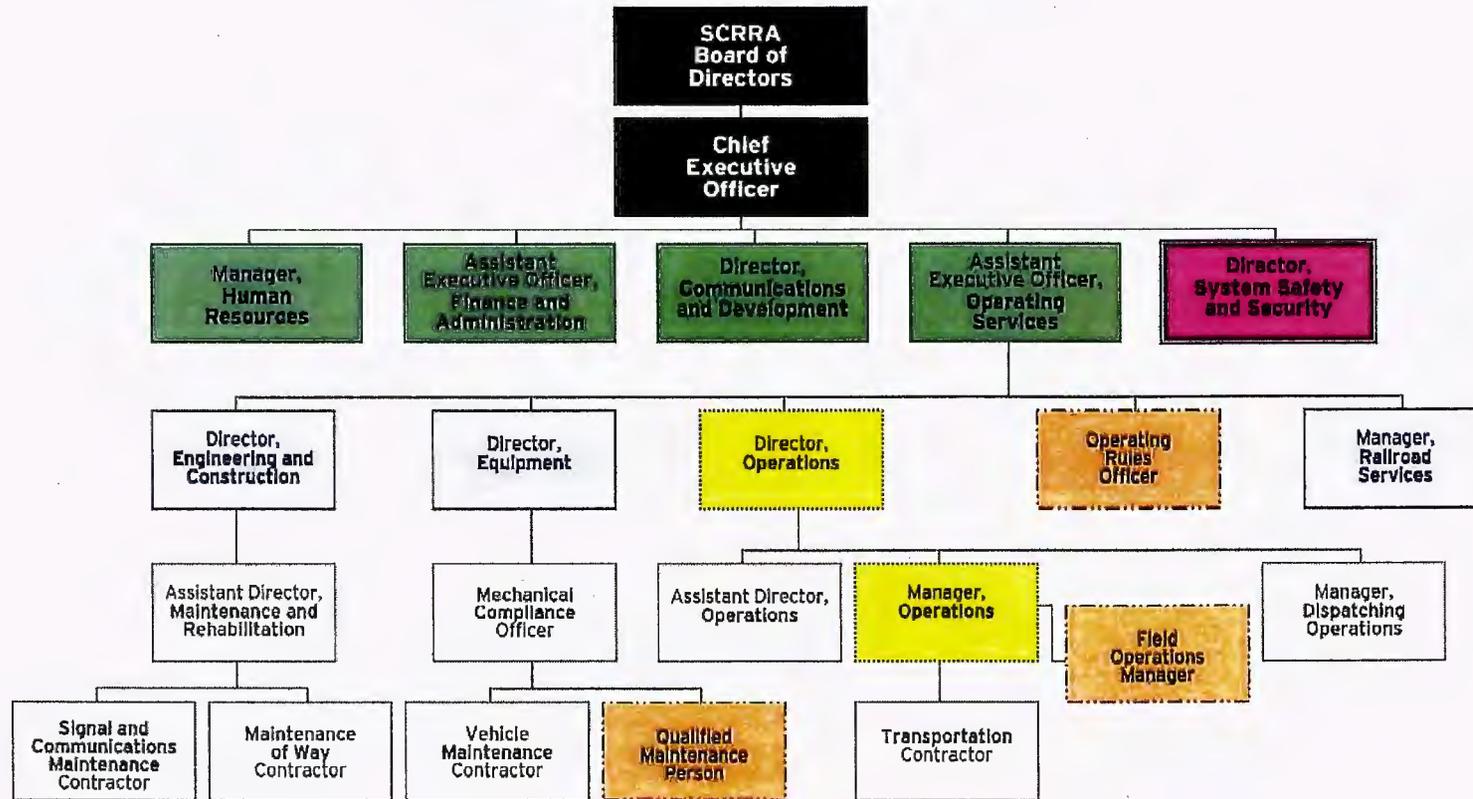
## Southern California Regional Rail Authority METROLINK COMMUTER RAIL SAFETY PEER REVIEW PANEL EXISTING ORGANIZATION



Please note that only the operation elements are shown for clarity.

Chart 6 - Southern California Regional Rail Authority Proposed Organization

Southern California Regional Rail Authority  
 METROLINK COMMUTER RAIL SAFETY PEER REVIEW PANEL  
**PROPOSED ORGANIZATION**



**LEGEND**

Vacant positions    
  New positions    
  Relocated positions

Please note that only the operation elements are shown for clarity.

### Issue Paper #3: System Safety Program Plan

#### Observations

**SCRRA Operations and Safety Staff:** The Panel observed that SCRRA operations and safety staff do oversee the essential aspects of operations safety. This oversight is accomplished through their experience, knowledge, continuity of working relationships with contractor staff and continuous prioritization and reprioritization of needs and tasks. However, this oversight can be more comprehensive, systematic, documented and effective.

Oversight of field observations and, in particular, incident management is one area that illustrates the potential for a problem. The Panel recommends a contracted or in-house designated management function to coordinate the daily field operations/activities. It appears that through longstanding practice, the transportation contractor (supplemented where needed by SCRRA operations staff) largely performs these functions currently. The system is working, but can be improved.

In addition to the need for enhanced incident management, the Panel observed that a Risk Assessment Function should be established, which would develop a broadened organization-wide risk assessment process and incorporate that process into the updated SSPP.

Under the current SCRRA organization, the safety function reports to the Assistant Executive Director, Operating Services. System safety responsibilities therefore appear to exist primarily within the operating department level. Every department and employee of SCRRA has a role to perform in system safety that must be included in the SSPP and measured appropriately. All staff support departments that have a direct or indirect impact on the performance of system safety must explicitly address the safety components of their function. The oversight of operational safety requires management dedicated to rules compliance with authority *over all rules compliance functions in all operating divisions*. In most railroads, this position reports directly to the chief operating officer.

**Board of Directors and Member Agencies:** The Panel observed that the roles of the Board of Directors and the Member Agencies in the creation of system safety have not been addressed in the SSPP. The Board and Member Agencies have a critical responsibility for system safety. They must work with management to foster and build a culture of transparency at all levels within SCRRA that demonstrates a willingness to hear and encourage full disclosure, performance of requisite due diligence about system safety, and to set system safety policy.

#### Recommendations

- a. Redraft the SSPP based on the conclusions of the Organizational Analysis, with particular attention to:
  - i. The oversight functions for in-house and contractor operations.
  - ii. All essential components and the agency's functions, which must be accountable in the System Safety Program from the Board of Directors through the CEO to all departments.
  - iii. Contracts and SCRRA policies and procedures, which must be conformed to the updated SSPP and related Standard Operating Procedures.
  - iv. Continued conformance with American Public Transportation Association (APTA) standards and maintain as a control document.

- b. Develop a broadened organization-wide hazard assessment process and incorporate that process into the updated SSPP.

### Background

In 1996, after two significant accidents, the commuter rail industry committed itself to a self-regulatory scheme rather than being subject to additional Federal regulations through the FRA. Through APTA's Commuter Rail Committee, led by its chief executive officers, the industry mandated on its commuter rail member agencies a requirement for a System Safety Program documented in a System Safety Program Plan (SSPP). Initially, the SSPP followed a federal regulation (MIL-SRD-882B, Department of Defense, March 30, 1984) with 28 prescribed elements. An updated Commuter Rail System Safety Plan Manual was issued in 2006 and incorporates more options for program standards. The Commuter Rail Safety Management Program also includes periodic audits of Program compliance by APTA staff and contractors of Program compliance. The FRA currently is taking steps to incorporate the SSPP requirements into federal regulations.

In concept, the SSPP documents the role of each department and key employees within the agency in the implementation of safety in the Agency's missions. The SSPP should address every level of the organization from the Member Agencies through the Board of Directors through the CEO through every internal division including the administrative staff. System safety planning is not limited to the Operations staff. Among the SSPP's many features is a description of the roles played by external agents and the management of those relationships and interactions in relation to system safety. Contractors and other business partners are required to follow their own SSPPs, which must be coordinated with and address the SSPP adopted by the Agency.

Safe operations are increased when everyone in the agency and contractors' workforces complies with the requirements imposed by the SSPP. Examples include:

- The Board and Member Agencies ensure that proper safety goals, organizational structures and funding are in place to achieve the required safety performance.
- The CEO implements the Board policies and goals through specific management structures and policies.
- Administrative departments hire, purchase, etc. consistent with their safety goals.
- Each operations employee -- such as the track inspector, the locomotive maintainer, the locomotive engineer, and all of their direct supervisors and the area Agency managers -- must follow prescribed rules and procedures applicable to the position.

In the railroad environment, the most critical and immediate focus of System Safety is the daily operation of trains and maintenance of the operating infrastructure. On the typical railroad, these functions and their oversight fall within the main operating departments or their equivalents: Transportation, Maintenance of Equipment (vehicles) and Engineering and Maintenance (fixed infrastructure). Technology aside, operating safety is achieved and maintained through:

- The establishment of operations (including maintenance) rules, procedures, standards and practices;
- Training and education in the operations, methods and standards, etc.;
- Supervision and oversight of operations as well as safety compliance.

Compliance is enforced through FRA and other rules compliance observations. As to employees, enforcement involves the training, testing and retesting process. FRA operational rules compliance testing programs are known

as “Efficiency Testing.” Despite the misleading name, this activity is a rules compliance improvement program for rules that are fundamental to operational safety.

In the case of a contract operation, the agency also is subject to FRA and public scrutiny. The contractor also may be subject to corporate fines, penalties and/or liquidated damages.

The potential for discipline and agency/corporate liability is a key incentive for rules compliance by individuals, contractors and the agency. Once the requisite training and education have been performed (and continued and renewed as needed), enforcement has been the main means of achieving safety in operations. The concept is similar to the law enforcement strategy of limited enforcement to achieve overall voluntary compliance. It is critical in an operation that is supported by employees who largely work in an unsupervised environment.

The concept of rules compliance and enforcement and Efficiency Testing and other testing regimens may be unfamiliar to many non-transportation observers. But it is critical to a full understanding of railroad operations safety. It is worth noting that enforcement of high standards of quality in operations also supports safety compliance and overall safety of operations.

When one or more of these (and other) key functions are performed by one or more contractors or other business associates (e.g. other railroads under operating agreements), the contracting agency has the obligation to ensure that all the necessary operations (and other missions) functions are performed, managed and overseen.

## Issue Paper #4: Safety Performance Measurements

The key to safety performance measurements is conducting quality observations of safety critical employees and measuring performance and effectiveness of the Observation and Testing Program.

The Panel has presented observations and recommendations in four key areas related to safety performance measurements:

1. Operational Testing Plans
2. Responsibilities for Efficiency Testing
3. Liquidated Damages Provision
4. Testing and Observation Data Process

### Observations

#### **1. Operational Testing Plans**

During interviews with Metrolink and contractor staff it was determined that the efficiency testing program and Operational Testing Plans could benefit from enhancement of the following disciplines:

- Dispatchers
- Mechanical Department employees
- Train and Engine service
- Contractor Testing Officers

While the engineering and construction operational testing plan is comprehensive and contains all the key elements of a model plan, it appears that there is an inconsistency in the application of the plan across the system. During observations and interviews with key staff it was determined that many of the tests were being performed, yet did not have the consistency of regular and systematic reporting. This was evidenced by two different reports of the same efficiency tests by two different SCRRA departments with the same data.

#### **2. Responsibilities for Efficiency Testing**

There may be ambiguity with regard to efficiency testing responsibilities, which may be affecting proper oversight. Metrolink supervisors conduct efficiency tests on contractor employees while apparently other contractor employees are only tested by their supervisors. The engineering operational testing plan allows efficiency tests on contractor employees to be performed by Metrolink supervisors.

#### **3. Liquidated Damages Provisions**

SCRRA's contract with its operating service provider includes a liquidated damage provision for rules compliance violations, in addition to other application for other issues. In recent contracts, SCRRA has extended this practice to other contracts and increased the magnitude of these liquidated damages to very significant levels. SCRRA should assess the impact of the operating contract's liquidated damages provisions for rules violations to determine if they are achieving the desired results. The Panel's concern is that this type of provision may act as a disincentive to the contractor to perform observations and testing in safety critical areas that may result in violations. The liquidated damage provision should focus on the contractor's compliance with the requirement to have an Operation Testing Plan in place and its Plan implementation.

**4. Testing and Observation Data Process**

The Panel recommends a systematic way to develop trend analysis and other studies to determine areas of concern. The SCRRA Testing and Observation Program reporting and analysis process requires review. The report process needs to be enhanced and accurate analyses of testing results are necessary.

Recommendations

**1. Operational Testing Plans**

- a. Enhance the Operations Testing Plan. The following activities should be performed by SCRRA and its contractors.

Observation Testing Plans	Dispatchers	Mechanical Department	Train and Engine Service	Contractor Testing Officers
Compose operational testing plans for measuring compliance of Metrolink dispatchers and contractor testing officers.	X			X
Review contractor's Operational Testing Plan for Mechanical Department employees utilizing Blue Signal Protection (yard signaling).		X		
Review contractors' Operational Testing Plan for train and engine service employees			X	
Review all plans to determine if they are compliant with the new requirements to part 217.	X	X	X	X
Select a reviewing officer for each Metrolink plan	X			X
Have contractors notify SCRRA of identification of their review officers		X	X	
Review records to ascertain if all testing officers are qualified as required by the regulation	X	X	X	X

Specific actions that could be implemented to enhance efficiency testing include:

- Produce an Efficiency Testing Plan:
  - Identify all Metrolink and Contractor testing officers qualified to conduct efficiency tests on safety critical positions.
  - Produce a schedule to observe each safety critical position within an acceptable timeframe.
  - Create a template to be used by the testing officers for consistent application of observations of pertinent safety critical rules.

- Require immediate submission of observation results.
- Identify review officers to analyze the data and ensure compliance with the plan.
- The plan must contain specific information with a schedule for banner testing<sup>4</sup> with radar. Identification of locations of exposure would prioritize locations to conduct banner testing with radar.
- Perform a signal hazard analysis:
  - Conduct a focused hazard analysis on signal violations. Compared to the broader-based Hazard Analysis for the SSPP, this analysis is focused on signal violations that should be conducted immediately;
  - Form a committee of Metrolink and contractor subject matter experts to conduct the analysis. Committee members must be fully qualified on Metrolink operating conditions (Operating Rules, Physical Characteristics etc.);
  - The committee will report back and identify specific hazards, which will include locations of exposure with recommended mitigations for consideration.
- Require a quarterly review of efficiency testing results for every safety critical position.
- Adopt Amtrak's event review program<sup>5</sup> and incorporate this into daily safety briefings. Increase supervisor involvement in daily safety briefings. For a universal application as well as ensuring the quality of interaction, develop a model safety briefing form to be utilized by the supervisor (track this by required supervisor submissions);
- Require crews to record safety briefing information on a daily basis or before each trip. Require completion of a record for each instance when a conductor repeats a signal name over the radio.

## 2. Responsibilities for Efficiency Testing

- b. Define the responsibility for Efficiency Testing:
  - i. Analyze tests to ensure that safety critical rules are being observed.
  - ii. Ensure testing program is consistent with SCRRA's operations.

Supervisory operating personnel job descriptions require clear definition of responsibility for efficiency tests. Furthermore, required and suggested goals should be established for the number of tests and observations each manager should perform. In addition, the observations and tests performed should be analyzed to ensure that safety critical rules are being observed and tested and that the testing program reflects the risks associated with SCRRA's operations. An acceptable ratio of testing officers for each employee group to be tested should be determined.

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<sup>4</sup> Banner testing is a process by which a qualified supervisor sets up a main line or yard test to determine engineer compliance with stop signal and restricted speed. Set up may require shunting by signal department employees and coordination with the OCC. The banner test should incorporate radar to check for speed restriction compliance as well.

<sup>5</sup> Amtrak's Event Review Program is a program that Amtrak has instituted to do a review of an event that includes all aspects of the event. This program also includes follow-up on changes that are necessitated by the event.

- c. Increase observations of all engineers, conductors, and other safety critical employees with primary focus on safety critical operating rules.
- d. Review all safety critical employee training to ensure compliance with safety critical operating rules and establish process to update training.

SCRRA should ensure that new and refresher-training programs have an emphasis on compliance with safety critical operating rules. SCRRA should enhance its review process regarding updating training programs based on information collected from the observation program on an annual basis and in accordance with FRA regulations.

### ***3. Liquidated Damages Provision***

- e. Assess impact of operating contract's liquidated damages provisions for rules violations to determine any real or perceived conflicts of interest

SCRRA should assess impact of the operating contract's liquidated damages provision for rules violations to determine if the provision that currently exists creates the potential for a disincentive to perform safety critical observations testing. The assessment of liquidated damages may be better served when assessed as a result of the Contractor's failure to properly implement the SCRRA approved Observation and Testing Program or for failure to report a violation.

### ***4. Testing and Observation Data Process***

- f. Acquire an Electronic Efficiency Testing System to manage data collection and analysis of observation and testing data.

Metrolink should acquire an Electronic Efficiency Testing System to manage the data collection and analysis of observations and allow for compliance within the timeframe determined by FRA regulations. This system must prevent unauthorized access for data modification. In addition, this system should be capable of making an automatic review to determine if each testing officer is compliant with the plan.

- g. Establish goals for observations and analysis and report results quarterly to the SCRRA Board

### **Background**

Federal regulations require a written program of operational tests and inspections. Each craft or covered service employee class should have its own plan. Dispatchers, for example, comply with different GCOR operating rules and have different requirements for their responsibilities in responding to an emergency event.

On February 13, 2008, FRA final rules [49CFR217] introduced the following new requirements:

- Each railroad testing officer shall be qualified on Operating Rules, Operational Testing Plans and receive appropriate field training as necessary. Written records documenting these qualifications must be maintained and available for FRA inspection.
- Conduct operational tests in compliance with the plan.

- A railroad officer must be identified and conduct a review every 6 months. This process must include a review of :
  - Efficiency Test failures
  - Accident/Incident data
  - Testing officers' compliance to the plan - Testing officers must test on operating rules that are likely to cause the most accidents or incidents.
  - Review of efficiency testing every six months and revisions to the Operational Testing Plan and refocused testing.

Although not required by the regulations, the Panel recommends that Metrolink develop an Operational Testing Plan to ensure that each contractor testing officer is compliant with their plan.

As defined within the Operational Testing Plan, Metrolink Testing Officers would observe and document that the contractor's Testing Officer has conducted proper efficiency tests on its employees. The Metrolink Officer would record these observations to ensure the contractor officer is compliant with the relevant plan, SCRRRA's policies, and the regulations, a failure is recorded as such; the Testing Officer reviews the results with the employee being tested and appropriate actions are implemented. This Testing Officer provides a consistent means of reporting of efficiency testing within the Metrolink staff. By utilizing this officer, Metrolink establishes a consistent oversight of efficiency testing by the individual contractor. The consistent reporting arising from this process will enable Metrolink to establish a clear trend analysis and take appropriate measures with the contractor should the need arise.

Federal regulations require efficiency testing on mechanical department employees who perform tasks governed by operating rules. This would include Blue Signal Protection as well as Radio Communication Rules.

There have been a number of analyses performed that have shown a direct relationship between the risks associated with rules violations and the number of observations performed. New Jersey Transit recently conducted an analysis that demonstrates that a low testing officer to employee ratio will increase the probability of a violation. With an acceptable ratio, the testing officers must conduct a minimum number of tests with all affected employees for that group in order to maximize efficiency. If an employee is not compliant, the testing officer must re-train the employee in that particular aspect or take other measures to ensure compliance.

Long Island Railroad conducted a study that demonstrated that an employee's failure to comply with any rule, even if not safety critical, indicates that the same employee may fail to comply with a safety critical rule that may lead to an event. Proper efficiency testing and analyses of the results allows a railroad to identify failures and trends, and utilize that information to take a proactive approach to safety by re-focusing efficiency testing, changing a rule, focusing safety briefings, increased testing on deficient employees, or making modifications of training programs to address an issue before it leads to an event.

Each operating group within Metrolink conducts or oversees efficiency tests using a paper tabulation process that is then entered into its database within that department. This paper tabulation process can lead to inconsistencies in reporting.

The existing paper tabulation process used by Metrolink will make compliance with Federal requirements difficult. Federal requirements mandate that the results of efficiency testing be reviewed for trends and overall compliance every six months. In addition, the regulation requires this review to be completed, along with the

revisions to the Operational Testing Plan and re-focused testing, within 30 days. Under the current system, Metrolink will have difficulty tabulating the results, conducting the review, revising the plan, and delivering this information to SCRRA's testing officers within the required timeframe.

It was observed that SCRRA contracts carry significant liquidated damages to the contractor should the contractor not be in compliance with the operating rules of the system. These damages are based on the results of efficiency testing that is performed by either the contractor or SCRRA. This could create a conflict of interest for the tester when one considers that it is a natural tendency to minimize a result when significant potential liquidated damages are involved.

In recent contracts, SCRRA has increased the level of these liquidated damages significantly. This could result in a higher tendency for a conflict of interest and, as a result, inaccurate reporting of efficiency testing and rules violations. This system should be reviewed to minimize the opportunities for a conflict of interest to ensure that accurate reporting and analysis of efficiency testing is performed. The liquidated damages should be re-directed to when a contractor is found out of compliance with the SCRRA approved operational testing plans.

Note: No actual evidence of this potential conflict was evident.

## Issue Paper #5: Infrastructure and Maintenance

### *a. Maintenance of Way (MOW)*

#### Observations

The contractors at the primary level of performing track maintenance are experienced and have qualified senior staff managing the various tasks for their assigned responsibilities. In addition, the contractors appear to have sufficient staffing levels to accomplish the work duties assumed in the contract. The engineering standards that are applied in the contract documents are appropriate and compliant with FRA regulations.

A few limited physical inspections were conducted, but given the time constraints of this review it was not possible for the Panel to inspect Metrolink's approximately five hundred mile rail network. Rather, the Panel relied on a review of reports to determine if there was evidence of chronic rail problems that compromised system safety. Such defects could include track geometry, track strength, supporting structures, substructure and drainage. No chronic defects were evident that would pose an immediate safety concern.

Metrolink maintenance is tied to funding sources from six separate entities, a situation complicating planning and scheduling of maintenance for given segments within the system. The Panel also noted concerns that specific segments of the system do not have assured funding to maintain the current and anticipated level of operations into the future.

#### Recommendations

- a. Implement an electronic right-of-way asset management system that identifies trends and assists in hazard analysis.
- b. Require joint inspections by Metrolink staff and the contractor, which act as a check and balance in the system.
- c. Evaluate the adequacy of qualifications testing.

#### Background

Panel members, along with the Technical Team, interviewed senior staff from Metrolink and its various contractors in the MOW and signal department. Metrolink's passenger service requires Class 4 define track but the agency maintains to a higher Class 5 standard. The Panel reviewed numerous documents that involve engineering track standards and regulatory compliance for the Class 5 standard. In addition, the team reviewed staff levels and management processes required to realize a safe, effective and compliant MOW function.

In and of itself, the MOW function is complex on any major railroad -- especially those involving higher speed (79 mph to 90 mph) passenger services. Metrolink has chosen to implement this function employing several independent contractors. This implementation model adds a burden for contract specification development and contractor oversight. An internal audit process is recommended to determine contractor performance and assess safety performance frequently.

The MOW department is required to adhere to a very large set of regulations and personnel qualifications promulgated by the FRA to ensure safety. All contractors functioning in this department must have a shared communication forum that allows for system wide risk assessment. Both the contractor and SCRRRA staff could

accomplish this through periodic joint inspections. The Panel recommends that Metrolink and its contractors conduct joint periodic inspections of track and signal facilities. This is evident in Appendix Q – Schedule of Reporting Requirements - contained in the MOW contract - which does not require the Metrolink MOW District Manager to have joint inspections with the contractor. Joint inspections, if structured properly, can be a useful quality control mechanism.

Metrolink should make use of a systematic approach to trend analysis and inspection analysis. Inspections are being performed regularly, yet there is no system to tabulate the data and establish a baseline trend that would address engineering related maintenance issues. The relationship of maintenance expenditures to track condition (as revealed by inspections) is currently maintained by the individual's familiarity with a given part of the system. This can create problems when there are changes in Metrolink management or contractor staff. In order to ensure that the infrastructure is efficiently maintained, a comprehensive data collection and storage system should be incorporated. This system will allow a more sophisticated trend analysis in support of capital maintenance programs and further strategic program management.

Metrolink currently has five locomotives running equipment to determine ride quality issues on a given segment of track. This has been effective in determining maintenance issues and possible defects. While this equipment is only on the five locomotives, it is assumed that these locomotives travel over the entire Metrolink system within a week's time and accurate and timely information is provided to the MOW team. It was noted that these locomotives are generally not specifically dispatched over designated segments of the Metrolink system, but that these locomotives tend to cover all operating territory in a given time period.

## *b. Vehicle Equipment Maintenance*

### Observations

SCRRA has contracted out the maintenance of the rolling stock. The contractor is an experienced firm in the industry and has qualified staff assigned to the program. Both Metrolink and the contractor have recognized and incorporated the necessary engineering standards and FRA regulatory standards into the Mechanical department function.

- Metrolink assumes a large oversight function and must staff accordingly. The Metrolink mechanical department senior management staff (two positions) is not located at the Central Maintenance Facility (CMF).
- The vehicle operators may not be receiving the necessary equipment training to accurately identify “in service” equipment failures to a QMP.
- It was not clear to the Panel how rolling stock equipment failures are tracked and analyzed. It appears that the data exists but that the comprehensive analysis of trends may be done in isolated fragments.
- The document control process incorporated by the contractor needs review. The Panel recommends that a document control procedure be implemented, and that the vehicle number and date of inspection/maintenance be entered on all pages of the document. In addition, it is recommended that all documents be placed into electronic format (PDF or other) and archived.
- The Panel observed concerns that a key position (Manager – Central Maintenance Facility) will not be filled. The Panel’s concern is that the position is currently occupied by one of the Maintenance Coordinators, reducing the oversight over the maintenance contractor. In addition, this maintenance coordinator is managing the CMF and is also involved in the oversight of the new locomotive program. We believe that a staffing assessment of the SCRRA Mechanical Department is necessary to ensure that adequate staffing and skills are available to manage all of the responsibilities under its span of control.

The Manager who was responsible for the oversight and management of CMF operations has been reassigned to 700 S. Flower St. and the responsibility has been reassigned to one of only two Maintenance Compliance Officers who is also overseeing the new locomotive program.

### Recommendations

#### Rail Vehicle Equipment Maintenance

- a. Designate a site manager with clear responsibility over all aspects of operations within the CMF.
- b. Perform a staffing analysis and hire additional personnel as needed. This be done in a timely fashion as the size of the Metrolink fleet will increase dramatically as the new car and locomotive orders are delivered and the opening of the Eastern Maintenance Facility will place further stress on current staff.
- c. Establish a Qualified Maintenance Person for the dispatching center.
- d. Fully integrate the Mechanical department into the system-wide risk management analysis effort.
- e. Conduct a staffing analysis of the impact of increasing the fleet prior to its introduction.

- f. Conduct training for train operators on equipment troubleshooting.
- g. Improve inter-departmental coordination.
- h. Strengthen the contractor's document control policies.

### Background

A major duty of the Metrolink maintenance staff is to oversee the activities of the vehicle maintenance contractor. In this capacity, the staff oversees compliance with FRA observations by reviewing testing procedures, analyzing the results, and performing vehicle inspections for confirmation of compliance with the contract.

Additional responsibilities of the equipment department include:

- Maintenance of Metrolink facilities,
- Locomotive fueling, and
- Non-revenue equipment maintenance.

Facility maintenance includes the

- Central maintenance facility (CMF)
- Union station platforms
- The SCRRA main offices (except for electrical)
- The outlying vehicle maintenance facilities
- The Metrolink Operations Center
- The MOW facility
- The signal warehouse.

Non-revenue equipment maintenance involves the fleet of 135 road vehicles used by transportation, maintenance of way, and other departments.

In addition to facility and non-revenue fleet maintenance and the oversight of the vehicle maintenance contractor, the equipment department staff is administering a new car procurement program; managing 18 current capital programs and determining consists of individual trains based on equipment availability and on the ridership numbers provided by the Communications and Development department.

The Metrolink operation includes 155 commuter rail cars, including 16 leased from other commuter railroads, and 38 locomotives. There is a procurement of 117 new commuter cars, with an option for 20 additional cars, and 15 new locomotives underway. SCRRA is also going to lease 14 rail cars from New Jersey Transit and 10 from Utah Transit. The 12 cars currently leased from Sound Transit will be returned. With new equipment and locomotives, and with options exercised, the fleet would include 304 commuter coaches and 53 locomotives, a 96% and 39% increase respectively.

Each staff member assigned to the equipment department appears to have specific duties as defined within the organization chart. However, there is no overall site manager at the CMF. This task is currently performed by one of the two maintenance compliance officers assigned to oversee the performance of the rail vehicle contractor. In addition, the individual who is assuming these responsibilities is also responsible for contractor compliance. The individual previously responsible for management of the CMF was transferred to the SCRRA main office and a replacement has yet to be designated. The Panel recommends that this position be filled.

There is a need for the staff to spend more time overseeing turnaround maintenance at the six to seven outlying points where layover maintenance, cleaning, toilet dumping, etc. is performed. Currently this oversight is provided by one of the compliance officers at CMF. These facilities are located at:

- Lancaster - end of Antelope Valley Line
- Montalvo - end of Ventura Line
- Moorpark - on Ventura Line
- San Bernardino - end of San Bernardino Line
- Riverside, North Side
- Riverside, South Side
- Oceanside - This facility is in San Diego and is operated by Coaster (North County Transit District).

The contractor assigns the senior technician at each of these sites to general supervision. A senior supervisor rotates among the different sites to conduct employee oversight.

In order to oversee performance of the maintenance contractor properly with the current fleet of equipment, at least three or four compliance officers are needed. Currently there are two compliance officers. Of those, one has additional responsibilities, and is also training the second. As the fleet expands, additional compliance officers will be needed.

The equipment department has developed equipment training programs and guides for training the operating personnel on the rail equipment and how to handle on-line problems (such as cutting out a door engine or a traction motor, and determining if the correct one has been cut out -- all in accordance with CFR Title 49, Part 238), but these have not generally been used. We encountered among the equipment staff an observation that transportation staff (i.e., train engineers) does not know how to use the equipment optimally; correspondingly, when there is an on-line failure; the train crew often does not know how to physically isolate the problem under guidance from the dispatcher.

At present, it appears that there is not a fully defined and effective QMP position established at the dispatching center or elsewhere that can be contacted in case of on-line failures or malfunctions. In some cases, a decision needs to be made regarding the equipment failure and the safe operation or recall of the equipment. The FRA identifies the QMP as the person who makes safety critical decisions as to how, or if, equipment may continue in revenue service with running gear defects. Without the proper identification of operating components that may not be working properly, properly, safety decisions about the continued movement of that equipment are hampered.

Regarding document control, while the active files appear to contain maintenance records for the past four years; it is not known how the older documents are handled. Certainly all documents should be scanned and placed into PDF, or archived in some other electronic format, shortly after being generated and archived.

### *c. Infrastructure Safety Improvements*

#### Observations

The Metrolink system currently has 464 grade crossings. This does not include those crossings that Metrolink utilizes that are owned by other railroads, specifically the Union Pacific and the Burlington Northern Santa Fe.

Increased service expansion throughout the Metrolink system, in addition to higher vehicular traffic on roadways, has created additional risks at these grade crossings and other locations where the general public interacts with trains. Current programs and system safety enhancements that would reduce potential conflicts are as follows:

- Grade separations at railroad-highway crossings where the inherent risk of collision exists, eliminating Train/Motorist/Pedestrian/bicyclist conflicts;
- Double Tracking to increase the overall efficiency of the railroad and, consequently, reduce the risk of freight train and passenger train conflicts;
- Grade crossing safety enhancements to reduce hazards associated with these crossings, Crash Energy Management (CEM) on vehicles to reduce collision forces on passengers.

#### Recommendations

Because Metrolink operates through highly urbanized areas in Southern California, the Panel recommends that SCRRA continue evaluating systems safety in the following areas:

##### Infrastructure Safety Improvements

- a. Grade Crossing Safety. Continue to work with local and state stakeholders to implement grade crossing safety education and enforcement, and reduction of grade crossings.
- b. Crash Energy Management (CEM): Continue to upgrade the vehicles fleet, including CEM technology.
- c. Grade Separations: Reevaluate intermediate and long range goals to construct further grade separations.
- d. Sealed Corridor: Continue with and expand SCRRA's "Sealed Corridor Program" to enhance overall corridor safety and security.
- e. Double Tracking Program: Double track to improve operations and increase commuter/freight capacity and reduce train conflicts.

#### Background

Current Metrolink intermediate and long term system safety plans include grade separations, double tracking, grade crossings safety enhancement programs, and the Crash Energy Management program. These programs were put in place due to the operating environment of higher train and vehicle traffic.

- **Grade Separations** – Currently there are over 340 grade separated crossings along the Metrolink routes and there are several grade separation projects in progress. The cost of each grade separation is approximately \$30 million. There are constraints to the universal application of grade separations due to lack of sufficient local, state and federal funding. In addition, there may be community and geographical constraints to grade separations. Through the Section 190 program designed to eliminate grade crossing hazards, the State of California funds \$15 million each year statewide with a maximum of \$5 million per project for grade separations utilizing a prioritization formula that addresses the risks associated with a given crossing. Grade

separating the entire Metrolink system would cost several billion dollars and, in some cases, may not be easily accomplished due to political, geographical and stakeholder issues.

In addition, there is an opportunity for Metrolink to partner with the California High Speed Train system and combine operations within a single grade separated corridor, operating over separate tracks.

**Double Tracking** – Over 50% of the Metrolink system is over single track. As the system grows, additional double tracking may improve the efficiency of the system. Double track improves efficiency and may reduce movement conflicts. Current Metrolink intermediate and long term double tracking projects include:

- BNSF mainline triple track between Fullerton and Riverside
  - UP mainline double tracking between Los Angeles and West Riverside
  - Double tracking and signal improvements are underway in Orange County as part of the Orange County service expansion program
  - BNSF 4th main in distant future
  - California High Speed Rail Authority evaluation of adding additional tracks within the high speed rail corridor that overlaps with the Metrolink system.
- **Grade Crossings Safety Enhancement** - Currently Metrolink has over 460 at-grade crossings. SCRRA staff has recently finalized the grade crossing safety standards. Funded by OCTA, the current Orange County grade crossings safety enhancement program includes 55 grade crossings on the Orange and Olive subdivision. This safety enhancement program includes quad gates, median islands, additional warning devices, pedestrian gates, railroad signal upgrades, traffic signal preemption, pre-signals and other warning measures to reduce train/motorists/pedestrian/bicyclist conflicts.
  - **Crash Energy Management (CEM)** – SCRRA has developed a plan to improve safety by means of Crash Energy Management (CEM), which enhances the crashworthiness of the rail vehicles. Enhancing the cab car crush zone will reduce stress on the cab car and trailer cars. The vehicle CEM system includes energy absorber couplers and flexible table design, which reduces forces during a potential collision.

## Issue Paper #6: Analysis of Metrolink Short Term Safety Projects

The SCRRA ad hoc subcommittee asked that the Panel review the following short-term safety projects that were being considered by the SCRRA Board. The Panel has reviewed and recommended actions for each of the following issues:

- a. In-cab video recording
- b. ATS/PTC
- c. Second set of eyes
- d. DigiCon Dispatch Issue
- e. Annual Health and Psychiatric Evaluations
- f. Railroad Industry Hours of Service/Split Shift Issue

### *a. In-Cab Video Surveillance*

#### Observations

Whether the Panel recommends or discourages in-cab video cameras depends on the specific reason for installing them and SCRRA's ability to resolve successfully the practical, legal and cultural issues that the cameras present.

#### Recommendations

- a. Investigate, specify, procure, and install video monitoring system technology in the operating cabs of SCRRA Passenger Rail Equipment. The Federal Aviation Administration has performed research in this area and their findings, technology and protocols should be reviewed as part of this process.
- b. Technology should include a software application for facilitating the analysis of video observations and provide for real time observations.

#### Background

The following are the various existing video surveillance applications and available technologies:

- ***Real-time Monitoring of the Engineer's Well-being, Alertness, and the Absence of Distractions.*** Aided by "smart technology" that analyzes streaming video for specific concerns (such as cell-phone use, extra people in the cab, and eye-closures/fatigue), one could monitor multiple trains in real-time from the dispatch center. Adding a camera to focus outside the locomotive, this setup could also provide a distraction-free second set of eyes.
- ***Monitoring Fatigue.*** The trucking industry uses special video cameras to monitor driver fatigue by measuring the frequency and duration of eye-blinks.
- ***Incident Investigation.*** Focusing inside and outside the cab, video cameras could be used to record activity outside the train for a specified amount of time before, during, and after an event is triggered (e.g., hard break application, accident, or a crossing violation). This application would not require real-time monitoring; tapes could be stored and reviewed by investigative teams.

- **Deterrence.** The mere presence of a camera in the cab discourages willful rule violations. This effect would be short-lived unless engineers continue to expect consequences when violations occur, which means someone would need to review a sample of the recorded trips and act on issues that are seen. While potentially a very effective deterrent, this application also risks creating a “gotcha” culture that might undermine trust between contractor employees and SCRRA. A great deal of research exists showing that mistrust and resentment reduce organizational and safety performance.

The following is a discussion of the relationship of video surveillance and Efficiency Testing and what factors should be considered in the implementation of this technology.

**Efficiency Testing.** Some would say that the above application for deterrence is a viable form of efficiency-testing. The Panel disagrees on the basis that efficiency testing should be more than a retrospective data-collection and discipline process: To be effective at improving safety, Efficiency Testing should be used as a real-time coaching tool aimed at reinforcing desired practices and increasing competence. We are not recommending substituting video cameras for Efficiency Testing.

**Implementation Considerations:** Depending on the specific goal of using the video technology, there are a number of questions that need to be answered, including, but not limited to:

- How will individuals’ rights to privacy be protected?
- How will co-management issues be avoided?
- Who will review the video? When and where will this occur?
- What will the monitor be looking for and how will they recognize it?
- What will be done with the information gathered?
- What will be communicated to employees? What steps will be taken to prevent negative impacts on the organizational culture?
- Will the FRA consider the video-equipment safety apparatus that must be operable at all times while the locomotive is in operation?
- What will be done to prevent vandalism?

*b. Automatic Train Stop (ATS) and Positive Train Control (PTC) Technologies to Prevent Collisions*

**Observations**

Shortly after the tragic incident at Chatsworth on September 12, 2008, the SCRRA Board received a proposal to install an ATS system throughout the Metrolink territory. The Panel examined SCRRA's interest in installing ATS in key areas of its Metrolink system in advance of installing PTC, which is a more advanced technology. The Panel did not look at locations where ATS and PTC should be installed, only the issue of whether or not ATS should be installed as a temporary measure while the PTC technology is being pursued.

Congress has mandated implementation of PTC by 2015 in the recently signed Rail Safety Improvement Act of 2008; large amounts of funding have been authorized as part of this legislation, and significant appropriations are likely to be made. The goal for implementation, however, is 2012.

PTC has long been in a state of becoming rather than being. This has been due to the varied operational requirements of shared use corridors and trackage combined with the poor interoperability of the various railroad systems. However, the current outlook for PTC technology development and deployment has never been better.

**Recommendations**

The Panel recommends that:

- a. SCRRA accelerate the implementation of PTC over the entire Metrolink System and work with BNSF, UPRR, Amtrak, and FRA on cost-effective design and deployment.
  - i. The implementation of ATS should not be a priority over or take resources away from the implementation of a PTC system.

**Background**

The Panel recommends that SCRRA accelerate the implementation of PTC. The Panel also recommends that SCRRA review its procurement regulations to allow SCRRA to enter into a partnership with either UP or BNSF or both for the design, acquisition, and implementation of PTC and replacement of the dispatching system for the Los Angeles region. In addition, the procurement process should be reviewed to allow for the procurement of specialized technology, such as PTC, as the need arises.

The Panel can not make a statement that ATS will not enhance the safety of Metrolink train operations. Under certain circumstances and conditions, ATS can potentially prevent an accident or reduce the impact of the accident. Because those circumstances and conditions are limited, the installation of ATS should not be seen as a remedy for all circumstances that may result in a collision. The Panel does agree that SCRRA's plan to limit the expansion of ATS to those areas of the infrastructure that have the greatest potential of reducing risk has merit, provided that the resources necessary to implement ATS do not impede the implementation of PTC on the SCRRA right-of-way.

The Panel does believe that PTC will have a much greater impact on preventing accidents or reducing their severity and therefore recommends that SCRRA pursue an accelerated program for the system-wide implementation of PTC by the end of 2012.

Most collisions of two trains occur when one or both trains violate the basic principle of safe operation – only one train is permitted to occupy a section of track at a time; deliberate coupling at slow speed is an exception.

The violation immediately preceding a collision can result from one or more of several failures:

- A movement authority may have been issued in error (by miscommunication or misunderstanding of train orders);
- A train operator may have missed a wayside signal set at a stop, or mistakenly acknowledged an ATS warning without taking the action required for safety;
- The operator may have exceeded authorized train speed by inattention or improper handling of the train;
- A mechanical failure of the signal or mechanical failure of the vehicle braking system may have occurred, or train lading may have become unsecured resulting in a side-swipe;
- Track integrity may be lost such as by a broken rail, misaligned track, a wash-out, or heavy obstruction.

Of the failures causing train collisions, the largest group is human error – predominantly “signal passed at danger” (SPAD) and overspeed incidents. Failures of properly installed signal equipment, by comparison, are quite rare (See Chart 3).

There is a long history of train wrecks on railroads around the world, many of them catastrophic. Federal Railroad safety regulations are aimed at reducing the frequency and consequences of train wrecks, with measurable effect. ATS, for example, dates back to the 1920s. Railroads and their suppliers have worked for the last two decades to develop more advanced communications-based positive train separation systems. These systems would be designed to prevent train collisions such as the ones at Hinkley, Alberta in 1986, which killed 23, Kensington, Maryland in 1996 (11 lives lost), and many others. The National Transportation Safety Board has had development of advanced positive train separation systems on its “Ten Most Wanted” list since its inception in 1990.

### ***Automatic Train Stop (ATS)***

Automatic Train Stop is a control technology dating back to the 1920’s. It works by making an electrical interconnection between a controlled track segment, the signal system governing train movement, a train occupancy detector (such as induction coils in the track) and the train’s air brakes. With an “active” ATS system tied into wayside signals, if a signal indication were set at restricted speed but a train passed over a detector in that segment, the system would issue a warning (typically through an alerter installed in the locomotive cab); if the locomotive engineer fails to acknowledge the restriction within a pre-set period of time, the train’s emergency brakes would be set. ATS transponders are typically installed at Control Points and at risky locations based on track speed and signal visibility conditions.

There are several problems with an ATS system of this kind. The design is reactive; Signal Passed at Danger (SPAD) cannot be anticipated – the locomotive can only be controlled after the fact. An ATS system does not protect against a reflexive acknowledgement by the engineer. With ATS, once the engineer acknowledges a change in signal indication, he or she can continue to operate the train without restriction. It neither assures a positive stop before the end of movement authority or at the signal location nor requires the engineer to reduce train speed with a restricted signal indication greater than a stop.

ATS protects for following moves but does not protect for meets or conflicting movements. Enforcement of an unacknowledged warning occurs only after a delay, and then with an emergency brake application that in a freight train can itself cause a derailment – rather than a more graceful service braking application to bring the train to a

safe stop. Use of cab signals is usually indicated, in two particular circumstances – cab signals or the equivalent is required for operation above 79 mph and may be deployed where fog frequently obscures wayside signals.

ATS might be considered to cost less than other solutions, but only if the circumstances fit its limited functionality; every train using the line must be equipped, but not every collision can be prevented. Passive (or “inert”) transponders cost about \$20 thousand each, but the more effective active transponders (only active when the signal system indicates restrictive speed) run about \$160 thousand per location. ATS technology is dated, and ATS equipment (even active transponders) can not be deemed as a precursor to PTC. The ATS equipment would be discarded as part of the PTC installation.

SCRRA has applied to the FRA for a waiver to expand ATS beyond its current ATS territory. Currently the Metrolink system uses a passive/inert ATS on the Orange County Line south of Anaheim, which is the same system used on the San Diego Coaster commuter rail system. This ATS system uses passive/inert inductors which are not tied to the signal system. SCRRA plans to expand the use of ATS outside the Orange Line territory by installing 43 passive/inert inductors at spots where there is a 20mph or greater speed restriction.

As noted above, ATS will only prevent or reduce the potential impact of accidents. Therefore, the expansion of the ATS technology on the Metrolink system should be limited to those areas of the right-of-way that provide the greatest potential for reducing the risk of accidents. In summary,

- ATS technology is dated, and ATS equipment (even active transponders) does not migrate efficiently to the more advanced Positive Train Control technology. ATS will have to be discarded when implementing PTC;
- ATS is a reactive system and doesn't positively stop a train; the locomotive can only be controlled after the fact;
- An ATS system does not protect against a reflexive acknowledgement of a signal by the engineer; in that case, the engineer could continue to proceed at speed past a signal or restriction and potentially collide with an oncoming train; and
- The expansion of ATS on the Metrolink System could divert both financial and engineering resources that could be better spent on installing PTC.

### ***Positive Train Control (PTC)***

PTC is the most widely used name for advanced communications-based train control systems designed to prevent train-to-train collisions, overspeed derailments by controlling speeds at designated civil restricted track locations, and provide protection for track maintenance forces working in their assigned track location. (Track forces can only be protected from a moving train if they, like a train, have a unique authority for track occupancy within specified work limits, and if the principle of ensuring only one occupant per track segment at a time is strictly observed.)

PTC designs are integrated systems using various components to determine precisely where the train is located, what track occupancy and movement authority it has been given, how the engineer is handling the train's operation with respect to that authority, and (if the train's authority is likely to be violated) how to bring it to a safe stop. These functions could perhaps be refined to the point where, out on the main line, no operator would be needed at all (auto pilot). Railroad managers do not propose to extend PTC that far; the preferred concept of operation is to guide and remind the engineer, leave safe operation in his/her hands, and intervene only to prevent imminent violations of movement authority and speed limits.

To summarize, PTC systems are based on:

- Accurate position determination
- Receipt and enforcement of unique movement authorities (requiring integration/coordination with dispatching and MOW functions)
- Availability of accurate and complete data for effective train braking and rules enforcement.

Although not mandated by Congress in recent legislation, additional business benefits can be realized in PTC systems if they are designed to support managerial functions such as increased capacity and fuel optimization. In the not-too-distant-future, advanced PTC systems will be able to operate with “virtual” or “moving” or “dynamic” blocks. Conventional fixed wayside signal systems employ signal posts based on typical train stopping distance for the fastest/heaviest train, together with the signal light’s color aspects (red, flashing yellow, yellow, green) to control train spacing and speed. By contrast, moving block technology will enable a wide range of instructions to operators – allowing trains to close up spacing when safe to do so, to glide into sidings at fuel-saving speeds rather than “hurry up and wait,” and to recover more logically from schedule disruptions. With advanced PTC installed in previously non-signaled territory, “virtual” signals will avoid large investments in wiring and maintaining wayside signal posts and lamps.

#### ***The Interoperability Imperative and Critical Barriers to Implementation***

To achieve the goal of cost-effective PTC implementation, new installations must be interoperable among all users. Interoperability lowers costs (through economies of scale in design, implementation, operation, and training), but interoperability also improves safety. Every train operator on every user railroad will know what to do and how the equipment will behave; every maintainer will know how to fix or replace equipment from every supplier. Every train, regardless of ownership, will interact properly with installed equipment, dispatch and signal systems, and special company rules.

Three barriers need to be overcome in advanced PTC implementation. First, greatly improved braking algorithms and a high degree of data integrity to support them are needed for efficient management of train operations (avoiding unnecessary service disruptions), and expansion of line capacity. Second, traditional direct current (DC) track circuits provide significant protection against broken rails; “virtual” signal systems will need to find a substitute, perhaps longer-range track circuits, or systems using ultrasound or other new technologies to detect broken rail. Third, advanced PTC demands intensive use of digital data messaging, and the old analog railroad communications systems designed for voice communications will need to be upgraded. Work on high-throughput digital data systems at newly licensed radio frequencies is well underway by the Class I railroads, and other rail operators using Class I lines (including SCRRRA) will need to adapt to these requirements.

### *c. Second Set of Eyes*

The SCRRA Board has passed a motion to mandate that each Metrolink train have a second set of eyes within the cab.

#### Observations

The Metrolink system of observation and verification of signals on the system utilizes the engineer and the conductor working together. In this case, one crew member calls the signal while the other verifies the status of the signal. In this operation, the second set of eyes is the conductor who is stationed at any point within the train.

#### Recommendation

- a. The Panel does not believe that the implementation of the Second Set of Eyes program would result in improved safety of train operations. There is concern that a second person in the cab of the locomotive or cab car could become a distraction to the engineer.
- b. The Panel understands that the Second Set of Eyes program was initiated to instill public confidence in Metrolink's service and believes that when the recommendations outlined below, which are included in the Panel's recommended Enhanced Safety Action Plan, are implemented they can replace the Second Set of Eyes program:
  - i. Strategic Safety Leadership Team;
  - ii. Organizational re-structuring;
  - iii. Enhanced Operations Testing Plan;
  - iv. Increased observations of safety critical employees (Efficiency Testing); and
  - v. Installation of in-cab video technology.
- c. Recommend that SCRRA perform a Hazard Analysis under its SSPP including research and analysis of accident data where there has been a second set of eyes to better inform its decision on this issue.

#### Background

There is a perception that a second set of eyes may prevent incidents where signals or other system control devices are inadvertently missed or not seen. The idea is that one person is in the cab calling signals and the second person visually and orally verifies the signal. The observation/verification process is currently performed by Metrolink engineers and conductors within the train, not necessarily with both members of the crew in the cab. The freight railroads utilize a second crewmember in the cab for signal verification. This has had mixed results in preventing incidents related to missed signals passed at danger (SPAD).

Some Metrolink observers are speculating that human errors can be reduced by assigning two employees rather than a single engineer to the front of each train. However, transportation officials, in various modes of transportation have felt that a second crew member in the cab can be a distraction. This distraction is normally due to conversation occurring in the cab between crew members. The Federal Aviation Administration, realizing the distraction, requires mandatory silence during critical flight phases. In addition, transit agencies operating light rail and subway systems have created rules that mandate silence within the driver operating environment.

The case for "a second set of eyes" assumes that if the lead engineer misses a signal, the second employee is likely to point out the error and avert an incident. Many accidents have occurred however, where two sets of eyes have

been in the cab. These situations have occurred, presumably, because of distractions related to conversations between crew members, other communications occurring within the cab of the locomotive or possibly simultaneous inattention by both crew members. In fact, there is no quantitative evidence that a second set of eyes within the cab provides an added safety benefit.

The Panel has not done a quantitative analysis of this issue, but would recommend that SCRRA perform a Hazard Analysis under its SSPP including research and analysis of accident data where there has been a second set of eyes to better inform its decision on this issue. NTSB, for example, has specific information on all accidents and SCRRA could ask for 10 years-worth of properly sorted data.

*d. DigiCon Dispatch*

DigiCon train dispatching system will no longer be supported by DigiCon effective December 31, 2008.

**Observation**

The Panel believes that after December 31, 2008, SCRRA, through their signal engineering consultants, will be able to maintain and modify the software specific to the Metrolink controlled and dispatched system.

Regarding the basic underlying DigiCon system, SCRRA may have enough spare parts to maintain the system hardware until another system is in place. However, the system software will not have technical support and a failure of the basic operating system is a concern. While SCRRA has redundancies built into the system, including software backups, should a failure occur, the system would be obsolete and not supported with readily available parts and services important to such a system.

**Recommendation**

The Panel recommends that plans to transition from the DigiCon system should move forward as soon as possible. In addition, a written action plan should be in place for the period from January 1, 2009 until a new dispatching platform is in place for maintenance and other emergencies specific to the non-supported portion of the system.

**Background**

As of December 31, 2008, DigiCon will no longer provide technical support for the Digital Traffic Control operating system currently used by Metrolink to dispatch and control trains within its operating territory. As a result, Metrolink will no longer receive the support for the basic software that is the observation for this system. The overall system combines the DigiCon operating system as an observation with a separate program that contains the signal and operational logic specific to the Metrolink system. SCRRA does not own the source code that is the fundamental operating environment for the system, but does own its Metrolink -specific dispatching software application. DigiCon has offered to sell a copy of the source code for the system. The asking price began at approximately \$60 million and has now dropped to \$10 million.

There is concern within the SCRRA operations group about the ability of Metrolink to maintain the DigiCon system adequately after December 31, 2008. This concern is based on the fact, again, that SCRRA does not own the source code for the dispatching system and that this will create a serious dispatching issue if the system fails. In addition, the operations group does not appear to have a complete understanding on how the dispatching system will be updated with the advent of the enhanced Orange County Metrolink service as well as the numerous other projects currently underway.

The Panel held a subsequent discussion with SCRRA's Manager, Communication and Signal Engineering (C&S), regarding this issue. The SCRRA engineering group has actions in place to transition to a different dispatching system platform. The current plans are to transition to a new platform with the change to PTC. This group is in the process of developing a Request for Proposals for such a system.

The software concern is primarily regarding the basic platform. Metrolink incorporates within the DigiCon environment separate software containing the logic and operational map of the Metrolink system. As upgrades are made to the system, the C&S group, through its signal engineering consultants, updates the logic sequence

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within the system-specific software. The system logic is then thoroughly tested for compatibility with the DigiCon system and adjusted, if necessary, prior to full service.

Metrolink signal engineers have been trained to maintain the hardware of the DigiCon system, and have been trained on the diagnostics and trouble shooting of the system. In addition, SCRRA maintains an inventory of spare parts. A redundant system is in place should the software fail and there is an ability to resurrect the system through backups. These measures suggest that, while the solution regarding Digicon is not ideal, Metrolink has taken effective steps to guard against dispatching system failure in the near to mid-term.

*e. Annual Medical and Psychological Evaluations for Train Crews*

**Observations**

SCRRA Board of Directors, in a motion on October 10, 2008, requested information regarding SCRRA's authority to require train crews to undergo annual health and psychological evaluations.

The Panel reviewed the FRA's 2005 Final Report on Medical Standards for Railroad Workers, the Railroad Safety Advisory Committee (RSAC) website, and information related to the RSAC Task No 06-03: Medical Standards for Safety-Critical Personnel. The Panel also conducted a high-level review of related academic literature in the ABI/Inform Global database.

**Recommendation**

- a. The Panel recommends that SCRRA implement medical evaluations prior to placement of contractor employees in safety critical positions and at a minimum of every three years, with more frequent evaluation in specific circumstances. This recommendation is consistent with the preliminary studies by the FRA RSAC.
- b. The Panel did not find any evidence that psychological<sup>6</sup> evaluations for train crews would reduce exposure to risk for Metrolink. However the Panel does recommend that SCRRA perform research in this area to determine if psychological exams would increase safety on its Metrolink system.

**Background**

This issue of annual medical and psychological evaluations for train crews raises two questions:

1. Does SCRRA have the authority to require them of contractors; and
2. Would such a requirement improve safety at Metrolink?

SCRRA has the right to negotiate changes to its contractors' provisions; however, depending on the requested contractual change, it may create potential labor issues with the contractor and the contractor's employees. SCRRA can also change its SSPP and create a safety requirement of medical and psychological evaluation of train crews. It's also important to consider that in contemplating changes to the contract or the SSPP, that the changes reflect the need for contractors, not Metrolink, to maintain a direct relationship with the contractor's own employees, so that an independent contractor relationship is maintained.

The Panel considered the efficacy of annual medical evaluations separately from annual psychological evaluations. Regarding medical evaluations, the FRA's 2005 Final Report on Medical Standards for Railroad Workers clearly establishes the medical condition of crew members as an exposure to fatal and non-fatal accidents. The FRA has tasked the RSAC with developing recommendations for medical standards for safety-critical personnel. The RSAC is currently engaged in a collaborative study of the efficacy, feasibility, and the myriad legal issues surrounding medical evaluations for railroad workers.

Although the RSAC recommendations have not been published, the Panel has not seen any indication that they will include annual evaluations. Much more likely are recommendations to require medical evaluations prior to

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<sup>6</sup> By psychological evaluation, it refers to psychological or psychiatric screening that could result in a diagnosis from the American Psychological Association's Diagnostic and Statistical Manual (DSM-IV-TR).

placement in a covered position and at least every three years, with more frequent evaluation in specific circumstances.

Regarding psychological evaluations, evidence of the efficacy and feasibility and a thorough understanding of the implementation considerations of psychological evaluations are needed before further action is taken. Even if the legal and human rights complications of implementing psychological evaluations could be overcome, the Panel did not find any evidence that psychological<sup>7</sup> evaluations for train crews would reduce exposure to risk for Metrolink; there is a paucity of research on the subject.

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<sup>7</sup> Ibid.

*f. Railroad Industry Hour of Service/Split Shift Issue*

**Observations**

Following the Panel presentation to the SCRRA Board on December 12, 2008, the issue came up regarding the impact of Split Shifts on Metrolink train service. The Panel did not study this issue in detail but has presented below some observations and recommendations.

The current statutory provisions that govern the hours of service of railroad train and engine crews, dispatchers, and signal maintainers were first enacted in 1907. The FRA has proposed to revise and update these hours of service laws based on scientific information addressing fatigue-induced performance. As part of this FRA review, the current practice of split shift assignments used by many commuter railroads would be addressed.

The Panel observed that SCRRA has not done an Hours of Service or Split Shift study. Some of the difficulties of SCRRA conducting this type of study are that SCRRA does not have direct control of the contractors' employees, since they are employed by SCRRA's contractors and those employees' rates of pay, rules and working conditions are governed through collective bargaining agreements. Additional difficulties are that SCRRA does not currently have supervisors in the field where the work is being done and SCRRA staff has not developed statistical measures for this type of review.

The Panel believes that these difficulties can be overcome by conducting an independent study in cooperation with SCRRA's contractors. For example, regarding a survey of the contractors' employees, the independent study consultant could provide the survey instrument and the survey could be conducted by the contractors themselves. The analysis of that survey plus any additional analysis of Metrolink's schedules and other data sources would be done by the independent consultant.

**Recommendation**

- a. Since SCRRA's Transportation contractor uses split shift assignments in its train and engine crew schedules, it is the Panel's recommendation that SCRRA participate actively on the Hours of Service issue as part of the FRA Rail Safety Advisory Committee (RSAC) process.
- b. The Panel also recommends that SCRRA, in cooperation with its operating contractor, conduct a review of its contractor's Hours of Service Split Shift schedules for their train and engine crews and determine if fatigue is a factor in the use of Split Shifts. In addition, SCRRA should evaluate whether any relevant rules and their particular application require any short term measures pending the results of the FRA RSAC process regarding Hours of Service.

**Background**

Human factors, in particular, fatigue, are the subjects of increasing study and rulemaking in much of the regulated transportation sector. One operating practice, split shifts, falls under the study's purview since it can lengthen a workday beyond the traditional "straight eight" However, the practice of split shift assignments in the commuter rail industry is both common and cost effective because of the service patterns necessary to support the peak markets of commuter operations. Generally there is a high frequency of train service between 5:00 AM and 9:00 AM to service the demand into major business centers in the morning and between 4:00 PM and 8:00 PM to return customers to their homes in the evening.

The split shift assignments allow commuter agencies to establish crew assignments to cover both peak periods of service thereby maximizing their utilization. In the interim period between the morning and evening assignments, crews are placed on rest for a minimum of four (4) hours. It is the most efficient way to cover the service pattern

and without this practice, the crewing costs could rise dramatically in the industry since an additional set of crews would be required for one of the peak periods.

The concern of the FRA and the industry is: What are the employees doing during their rest period and are they in fact resting during their off -hours? Is the way the split shifts are set up contributing to fatigue by upsetting an employee's circadian sleep patterns?

Currently there is insufficient data to show that the split shift assignments are a contributing cause in human factor accidents. The FRA and industry professionals do not believe they have enough information to make a determination on the effect of split shift assignments on fatigue.

Congress has an alternate allowance as part of the railway act (HR 2095) to defer the compliance of the commuter rail industry to new Hours of Service requirements through an RSAC process, in deference to the very different operating conditions of most commuter train and engine crews.. The new Hours of Service<sup>8</sup> requirements will be applied to the freight industry in July 2009. In addition, railway labor has indicated that they may not support the change in Hours of Service including elimination of split shift assignments.

Currently FRA plans to address this issue as part of its 2009 Docket for the RSAC. FRA will submit a task statement of work in April 2009 for acceptance by the RSAC. That will start an 18 months clock for coming up with any alternative Hours of Service regulations for commuter rail and intercity passenger rail.

FRA also has demonstration projects underway that, similar to aviation programs, attempt to develop data on near miss occurrences as a means of developing better data on root causes of incidents. Such data development and root cause analysis are critical to developing truly effective accident prevention strategies.

Many factors enter into human factors analysis. For example, SCRRA and other railroads provide rest facilities for employees' use between-shift respites. The use of these facilities by employees with split shift assignments should be periodically reviewed. SCRRA's general work environment is similar to other commuter rail agencies in the United States located in urban areas: high cost real estate in major metropolitan areas of Los Angeles, New York, Washington DC, Boston, and others means that employee travel time to and from work assignments can be substantial. Also, seniority plays a major role in where employees can hold job assignments; low seniority employees, for example, have little or no choice in their work assignment locations.

The Panel recommends that SCRRA participate in the FRA RSAC process regarding this practice. The Panel also recommends that SCRRA conduct a short term review of its major human factors conditions that may improve or increase risk, including fatigue, and the impact of Hours of Service and Split Shifts and other rules whose application may require short term changes, in addition to complying with the current and pending FRA rules and regulations. To the extent that the review of major human factors conditions requires cooperation of SCRRA's contractors because they are the direct employers of the individual employees subject to the study, the Panel recommends that SCRRA take all steps available to it to require those contractors to cooperate with the study.

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<sup>8</sup> Commuter Rail and intercity passenger rail has to comply with the current Hours of Service regulations in law 49 CFR 228.

## Issue Paper #7: Strategic Plan

### Observations

Metrolink's current strategic plan centers primarily on its capital improvement programs and to a lesser degree its SSPP. Review of the current SCRRRA strategic plan reveals the Agency's process of prioritizing capital improvements, the funding of these projects, and documentation of improvement benefits.

The Panel has discovered that there is a separation between what has been developed within the strategic plan and what is perceived by staff. Metrolink staff sees the strategic plan as a forecast of capital improvements to be undertaken within the specific areas of each of the Member Agencies. As a result, the plan is looked upon as a summary of project plans developed by the Member Agencies, loosely incorporated into the Metrolink system.

The Member Agencies focus on the service enhancement capital improvements they have submitted for their respective counties; the information from the other Member Agencies does not concern them. As a result, there appears not to be a widespread acceptance of the strategic plan.

Because of this county-by-county project focus and the funding constraints by the Member Agencies, the strategic plan it is not an integrated plan optimizing the Metrolink System as a whole.

The strategic plan refers to the SSPP as part of the roadmap for system safety. The strategic plan, however, does not appear to supplement the understanding of how an enhanced overall safety culture might be created within the plan. In cases where system safety improvements are part of the strategic plan, it appears to be in relation to a capital improvement process. While safety aspects of each capital project included in the strategic plan may be part of its justification for being there, overall safety goals and objectives are not documented in the strategic plan.

### Recommendations

- a. Update the strategic plan to include strategic operational and safety issues.
- b. Seek buy-in at multiple levels (staff, board, Member Agencies), including funding commitments, more flexible budgeting processes, and more rigorous project evaluation and prioritization.
- c. Explore new technologies, wider markets, and more effective operational safety strategies during the strategic planning process.

### Background

Effective strategic planning provides the guidance that moves an agency forward in relation to operations/safety, capital investments, organization, services, financing, and public/stakeholder participation. In addition, effective strategic plans are dynamic, universal, and have input from a team consisting of members from throughout the Agency.

During interviews with Metrolink staff it was apparent that there is an individual responsible for strategic planning and that the plan is kept current with the operational goals of the Agency. The current SCRRRA Strategic Assessment was developed in January 2007. This plan was developed by a consultant with input from the Member Agencies regarding proposed service expansion and other capital improvements within their Agency boundaries.

SCRRA's Strategic Plan should be an integrated plan developed under the leadership of SCRRA senior management and include input of board members, member agencies and other interested parties. Furthermore, this plan should be developed with the use of a facilitator that will lead the discussions and the overall plan development.

The SCRRA Board plays a major role in the operation of Metrolink and the overall strategy that the Agency uses for program development and Agency culture. It is very important that the Board have a role in the development and maintenance of the strategic plan and become partners within the plan. By including members of the Agency at all levels, the plan becomes accepted by all levels of the Agency. Not only do the individual team members take ownership, but also staff and other associated Agency personnel take a keener interest in the document.

The scope of strategic planning should include strategic operational and safety issues in addition to capital projects. The overall safety culture of the Agency is not only defined in its response to incidents, but to the manner in which day to day operations are conducted. It is important that safety goals are established within the strategic plan that will set the tone for the Agency. The inclusion of team members from all levels of the staff propagates the safety culture and places it on everyone's mind.

The use of a strategic planning team/committee allows the development of a mutual understanding among Member Agencies, board members, and Agency staff of Metrolink challenges and opportunities. This overall approach allows the Member Agencies to move their capital programs forward while allowing staff to provide input on the operational needs of such an improvement. The results will be a strategy that will be all inclusive and well-rounded. In this way, the strategic planning process becomes a team building exercise and an important ingredient in development of the Agency's safety culture.

## Issue Paper #8: Governance

Governance means the Board's role in promoting safe and secure commuter rail operations, fostering a top-to-bottom safety culture, and exercising appropriate oversight of safety and operational performance.

The Panel's observations and recommendations concerning SCRRRA governance are based on interviews with SCRRRA staff, selected board members, and Member Agency staff who manage the Member Agency-SCRRRA relationships; guidebooks and other published material concerning board governance at public transportation agencies; and the collective experience of the Panel.

### Observations

The members of the SCRRRA Board must represent the interests and concerns of the jurisdictions they represent. At the same time, they also must fulfill their fiduciary duties to SCRRRA, which requires representing the interests of the organization, the overall system it operates, and all of the passengers and communities it serves throughout the region. With respect to the latter, the Board has concentrated on high-level policies of the Agency, particularly with respect to budget and financing and the extent and scope of existing and future services. These are important topics that must be addressed by the Board.

Although the Board strongly supports the goal of accident-free operations, it has devoted relatively little attention to oversight of safety and operations. For example, Metrolink's strategic plan focuses exclusively on capital projects and does not specifically address safety or operational issues, and the Board has not been proactively involved in the development of, and regular monitoring of, system safety and performance measures.

### Recommendations

- a. With staff and perhaps professional consulting assistance, the Board should conduct a self-assessment of its performance with particular emphasis on safety and operational oversight.
- b. This assessment should lead a more explicit definition of Board and Board member responsibilities and actions that might include:
  - i. More rigorous briefing sessions for new Board members;
  - ii. Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole;
  - iii. Establishment of new or rechartered standing subcommittees with added focus on operations and safety oversight and, possibly, a subcommittee devoted to assessing Board performance;
  - iv. Board-adopted safety and operational performance measures;
  - v. Guidelines for the addition of safety and operational staff positions as new services are introduced;
  - vi. Revised, more comprehensive strategic plan that addresses safety and operational issues; and
  - vii. Direct board involvement in developing and updating the Enhanced Safety Action Plan and monitoring its implementation.

### Background

The public officials selected to serve on the governing boards of public transportation agencies are busy people with a variety of obligations and demands on their time, particularly if they are elected officials. Although they are accomplished people, typically with many talents and experiences, they generally come to these positions with little experience in public transportation. If they do have prior experience with public transportation, it would be very unusual if that experience involved commuter rail operations.

As a result, new board members need clear guidance with respect to their duties as individual board members and collective duties as a Board and assistance in understanding the Agency, the services it provides, and the organizational, financial, and fiscal infrastructure required. Treating safety with the seriousness it deserves, for example, is not straightforward and requires an understanding of how procedures and standards, staffing and skill levels, training, lines of authority, maintenance, and other elements interactively influence the level of safety an Agency delivers.

Although the staff and especially the Agency CEO can provide considerable assistance to helping a board formalize its duties and understand the Agency it directs, the impetus for these activities must come from the board. If the Board does not believe that reexamining and formalizing its responsibilities is important, then it will not happen. Likewise, if the Board does not believe a top-to-bottom safety culture is important and that it has a critical role to play in fostering that culture, it will not happen.

If the Board decides to address these challenges, there are resources available that can help it get started. Although limited, literature is available that is specifically intended to assist public transportation boards with governance. The Transit Cooperative Research Program (TCRP) has published two reports on the topic: TCRP Report 85, Public Transit Board Governance Guidebook, and TCRP Report 104, Public Transportation Board Effectiveness: A Self-Assessment Handbook. In addition, Doug Eadie has published a series of helpful columns of transit board governance in the American Public Transportation Association's (APTA) Passenger Transport magazine.

Finally, with the SCRRRA Board workshop planned for late January 2009, the Panel recommends that these governance issues, in addition to the other safety recommendations in this report, be added to the agenda.

## **F. NEXT STEPS**

Upon the release of this report to the SCRRA Ad Hoc Subcommittee, SCRRA Board and staff and the public, the following actions will take place:

- a. SCRRA CEO Review of and Report on Panel's Recommendations;
- b. Board Workshop in late January 2009 where they will discuss the Panel Recommendations and plan to take action on Panel's recommended Metrolink Enhanced Safety Action Plan;
- c. SCRRA Staff Implementation of Board-Approved Actions;
- d. 6-month follow-up report card by Panel.

## APPENDIX A: PANEL MEMBERS BIOGRAPHIES

The following is a list of the Southern California Regional Rail Authority Metrolink Commuter Rail Safety Peer Review Panel.

### Panel Facilitator

#### **Linda Bohlinger**

Vice President, National Director of Management Consulting  
HNTB Corporation

*Transportation Agency Management, Including Commuter Rail; Contract Systems and Contracts Oversight*

Linda has over 30 years experience in the transportation industry. As Vice President of HNTB, she is responsible for leading HNTB's national Management Consulting practice.

Her previous public sector experience was as the Executive Director of South Florida's Tri-County Commuter Rail Authority (Tri-Rail), now named the South Florida Regional Transportation Authority (Tri-Rail). Tri-Rail is a 71-mile commuter rail system that runs from Miami to Ft. Lauderdale to Palm Beach. Similar to Metrolink, Tri-Rail contracts out its operations and maintenance and has multiple freight and Amtrak users on its rail corridor.

Previous to running the Tri-Rail system, Linda had fifteen-year tenure with the Los Angeles County Metropolitan Transportation Authority (Metro), where she held positions of CEO, Deputy CEO and planning executive officer. She also served as Deputy Director for the California Transportation Commission in Sacramento, CA.

Linda helped start up Metrolink in the early '90's when she worked for Metro. She helped purchase the railroad right-of-way, negotiated all the funding agreements with the five counties and secured the initial grants.

Linda has a Master of Public Administration from the University of Southern California. Linda is active in the transportation industry and is currently the Vice Chair for Research and Technology for the American Public Transportation Association (APTA) and serves on the APTA Executive Committee.

### Lead Panel Members

#### **Don Sepulveda**

Senior Project Manager  
HNTB Corporation

*Track, Signals and Vehicles Inspection and Maintenance (Grade Crossing, Corridor Safety Specialist)*

Don has had extensive experience in railroad safety issues, specifically the application of advanced technologies to railroad applications, the analysis, design, and permitting of highway-rail grade crossings and grade separations. He has worked with local agencies on grade crossing improvements and improvement strategies for the enhancement of rail corridors – in particular, the Alameda Corridor project.

In addition, Don has developed comprehensive standards and procedures for the design, permitting, and construction of highway-railroad grade crossing in addition to many presentations to the engineering community on the diagnostic analysis, design, and construction of highway-railroad grade crossings. He has analyzed railroad safety practices for several railroads in the development of the products for which he has been responsible.

Don is active in the industry and is currently President of the American Society of Civil Engineers (ASCE), Los Angeles Chapter. He is a registered professional engineer.

**Peter A. Cannito, Sr.**

Transportation Consultant

*Railroad and Transit Management Professional, with experience managing all aspects of Railroad Operations, Maintenance, and Engineering.*

Peter just retired as President of Metro North Railroad, lengthy background in the railroad industry, including freight. At Metro North, Peter was responsible for the management of one of the largest commuter rail systems in the United States. He managed annual operating budget of approximately \$1.2 Billion and an annual Capital Program of \$320 Million. He also had a long tenure with Amtrak as Vice President of Engineering.

Peter recently retired as President of Metro North Railroad,. He has a lengthy background in the railroad industry, including freight, intercity, and commuter railroading. At Metro North, Peter was responsible for the management of one of the largest commuter rail systems in the United States. He managed annual operating budget of \$1.2 billion and an annual Capital Program of \$320 million. He also had a long tenure with Amtrak, where he was directly responsible for Amtrak's Northeast Corridor and National Operations as well as its Engineering and Maintenance function for infrastructure and vehicle fleet maintenance and acquisition. He spent 7 years with Penn Central Railroad in field operating positions prior to joining Amtrak.

**Other Panel Members**

**Gerald R. Hanas**

General Manager

Northern Indiana Commuter Transportation District

*Railroad Operations and Systems Safety*

Jerry has a broad range of technical and operating experience with the Commuter rail industry. He is familiar with NTSB and FRA accident investigation procedures. He is active in APTA and has chaired the Commuter Rail CEO committee. He has served as General Manager for the District since 1982. Since that time he has managed the District's activities in refurbishing the passenger assets of the former Chicago South Shore and South Bend Railroad. Those activities include managing a Capital budget of over \$380 million.

The District also directly operates the passenger rail service between South Bend, Indiana and Chicago, Illinois. The services provide forty-one (41) weekday trains carrying approximately 14,000 passengers a day and special event ridership topping 20,000 passengers a day. The District employs 340 people in a variety of disciplines.

**Bill Parsons**

Director of Operating Rules  
Metro North Commuter Railroad  
*Railroad Operations*

Bill is the Director of Operating Rules for Metro North Commuter Railroad and is the former chair of the Operating Rules Association of North America, the industry organization for all railroads, including freights. He is active on the FRA RSAC (Rail Safety Advisory Council) operating committees. He represents Metro-North and APTA on the Railroad Safety Advisory Committees. Bill has participated on the NORAC Safety Committee. He also participated on an APTA peer review for Washington Metropolitan Area Transit Authority. He interfaces with the American Association of Railroads (AAR) and APTA on regulatory issues.

**Robert E. Skinner, Executive Director**

Transportation Research Board  
The National Academy of Sciences  
*Contract Systems and Contracts Oversight*

Bob Skinner represents a policy, research and technology perspective for all transportation modes for the Panel. As head of TRB, Bob sits on several Panels, including the recent Boston Big Dig peer review Panel. Mr. Skinner joined the Transportation Research Board as a Senior Program Officer in 1983, and was named Director of the Studies and Information Services Division in 1986 before becoming Executive Director in 1994.

Prior to joining the board, Mr. Skinner was the Vice President of Alan M. Voorhees and Associates in McLean, Virginia, a transportation consulting firm specializing in services to local, state, and federal transportation agencies.

Mr. Skinner holds a Bachelor of Science degree in civil engineering from the University of Virginia and a Master's degree in civil engineering/transportation systems from the Massachusetts Institute of Technology. He is a registered professional engineer.

**Robert E. Gallamore**

Chair, Committee for Review of the Federal Railroad Administration Research and Development Program  
*Systems Safety*

Robert represents an academic perspective for the Panel, with a freight railroad background.

Robert E. Gallamore is the former Director of The Transportation Center and Professor of Managerial Economics and Decision Sciences in the Kellogg School of Management at Northwestern University, Evanston, IL.

Prior to joining Northwestern University in August 2001, Gallamore was on executive loan from Union Pacific Railroad to the Transportation Technology Center, Inc., in Pueblo, Colorado. There he was Assistant Vice President, Communications Technologies and General Manager of the North American Joint Positive Train Control Program. This partnership of the Association of American Railroads, the

Federal Railroad Administration, and the State of Illinois DOT is establishing railroad industry interoperability standards and deploying an operational positive train control system enabling rail passenger train speeds of up to 110 mph between Chicago and St. Louis. Before the industry assignment, Gallamore was General Director, Strategic Analysis for the Union Pacific Railroad in Omaha and an executive with UP Corporation in New York City.

Gallamore has also served in several positions with the federal government. As Deputy Federal Railroad Administrator under President Jimmy Carter, he led the Executive Branch development of recommendations for railroad deregulation and revitalization. In this capacity President Carter awarded him one of the first Senior Executive Service Awards. Earlier, Gallamore was Associate Administrator for Planning of the Urban Mass Transportation Administration and System Plan Coordinator with the United States Railway Association (which established Conrail out of the facilities of the bankrupt Northeast railroads).

After 9/11, Gallamore served on a National Academy of Sciences Panel, "Science and Technology for Countering Terrorism: Transportation and Distribution Systems," whose report is included in *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. Subsequently, Gallamore chaired the National Research Council / Transportation Research Board Committee on Freight Transportation Information Systems Security, which addressed issues, threats, and research priorities in this difficult area. He subsequently chaired other NAS / TRB Panels on hazardous materials transportation and on railroad research priorities. He was made a Lifetime Affiliate of the National Academies in 2004.

Dr. Gallamore received his A.B. from Wesleyan University with high honors. He earned an M.A. in Public Administration and a Ph.D. in Political Economy and Government from Harvard University. His dissertation on railroad mergers remains a standard reference. Among Gallamore's numerous publications is a chapter on railroad innovation and regulation in *Essays in Transportation Economics and Policy: a Handbook in Honor of John R. Meyer*, published by the Brookings Institution (1999).

### **Kristen Bell**

Vice President, Research and Development  
Behavioral Science Technology, Inc.  
*Systems Safety (Human Factors)*

Kristen Bell heads the Research & Development group at BST and has been instrumental in BST's growth in safety leadership development, safety culture enhancement, and occupational injury and illnesses prevention. Over the last 9 years, Kristen has consulted on a number of projects in the railroad industry including evaluation of the impact of a rulebook consolidation on employee behavior at Amtrak; design, oversight, and evaluation of a behavior-based safety process for both Amtrak and Union Pacific and consultation to the Federal Railroad Administration on the application of behavior-based methods to safety and culture improvement in the railroad industry.

She holds Master's degrees in both Psychology and Business Management. She is a professional member of the International Society for Performance Improvement, the American Psychological Association, and the Academy of Management.

**Bart Reed**

Executive Director  
The Transit Coalition  
*Passenger Rail Advocate*

Bart Reed is the Executive Director of The Transit Coalition, a Sylmar, CA based nonprofit. In this capacity, he is a nationwide advocate for effective transportation systems and solutions. Reed addresses citizen and community groups about public transportation issues, including autos, rail, bus, bicycles, roads, toll lanes, ADA, goods movement and rail / pedestrian safety.

Reed frequently travels to Washington, DC and Sacramento to educate elected representatives on rail and bus transportation issues. He produces and conducts outreach programs and meetings to demonstrate support for public transit initiatives and investment. Reed developed and manages a transit e-mail list with 5,000+ transportation contacts and edits and publishes a weekly e-newsletter and a monthly print newsletter Moving Southern California.

Reed maintains an extensive community presence with involvement in organizations including: Valley Vote, Friends4Expo, Friends of the Green Line, Friends of the Red Line, Sylmar Neighborhood Council, Sierra Club Transportation Committee, Pacoima Community Coordinating Council and TUG-NET: the computer users group.

**Anne Herzenberg**

Transit Consultant  
*Contract Systems and Contracts Oversight*

Anne is a transit consultant who has recently performed organizational reviews and other transit consulting work for the Tren Urbano rail line in San Juan, Puerto Rico, the Regional Transportation Commission of Southern Nevada (RTC), the Dallas Area Rapid Transit District (DART), the Bay Area Rapid Transit District (BART) and the New Orleans Regional Transit Authority.

Anne was the Massachusetts Bay Transportation Authority (MBTA) Chief Operating Officer for several years. She was head of two of MBTA's subway lines and of the mechanical back shop before becoming deputy Chief Operating Officer (COO) and COO. She is familiar with commuter rail. Like the SCRRA, the MBTA contracts out their entire commuter rail service.

She graduated from Yale University and has a Master of Science in transportation from MIT.

**Anna M. Barry**

Director of Subway Operations  
Massachusetts Bay Transportation Authority  
*Systems Safety*

Anna is the Director of Subway Operations for the MBTA, the fourth largest transit agency in the United States. She oversees the operation of about 2500 trains each weekday, with an annual budget of \$150 million, employing 2,000 persons and using more than 500 pieces of revenue rolling stock. She brings to

this position over 30 years of experience in the transportation field, including more than 25 years in railroad and transit operations.

Prior to assuming responsibility for the MBTA Subway system in October of 2005, Anna was the first woman appointed as Director of Railroad Operations, a position she held for eight years. In that capacity, she had responsibility for the management of the sixth largest commuter rail system in the country, and the largest contract operation, with an annual operating budget of more than \$200 million. She managed the system through a complex series of operating agreements, trackage rights agreements and other contractual and deeded arrangements with multiple railroads and contractors.

As Director of Railroad Operations, Anna served as Project Manager for the \$1.1 billion procurement of the commuter rail services contract, the largest in North America and the largest single contract in the history of the Authority. At the same time, she led negotiations of a 30-year trackage rights agreement with Amtrak providing dispatching and maintenance services at no cost to the MBTA. She also oversaw successful opening and operation of 70 mile New Old Colony Railroad, 8 mile Newburyport Extension and transition to new state of the art \$200 million Commuter Rail Maintenance Facility.

During 20 years with the Authority, she also has been Chief of Operations Support, responsible for the management of the entire Authority's buildings, structures and power systems. She worked in subway vehicle maintenance for nine years as Assistant Superintendent and Superintendent on the Red and Orange lines.

Anna also worked at the Boston and Maine Railroad, in both freight and passenger services.

She holds an A.B. from Boston College and a Juris Doctor from Suffolk University. She is admitted to the Bar of Massachusetts and is an active, founding member of the Boston Chapter of the Women's Transportation Seminar. She currently is a member of the WTS Boston Board of Directors. She was the Boston Chapter's Woman of the Year for 2005. She is active in APTA, COMTO, Transportation Research Board, and is a past President of the New England Railroad Club.

## APPENDIX B: THE RAIL SAFETY IMPROVEMENT ACT OF 2008

### Section 104 – Implementation of Positive Train Control

- a. Requires all Class I railroad carriers and each entity providing regularly scheduled intercity or commuter rail passenger service to develop and submit a plan, no later than 18 months after the date of enactment, to the Secretary of Transportation for implementing a Positive Train Control System by December 31, 2015.
- b. Positive Train Control is to be implemented on main lines with intercity rail passenger transportation or commuter rail passenger transportation, on main lines over which poison or toxic-by-inhalation hazardous materials, and other such tracks as prescribed by the Secretary by regulation or order.
- c. The plan shall describe how it will provide for interoperability of the system with movements of trains of other railroad carriers.
- d. Secretary has 90 days to review and approve or disapprove after receipt of plan. If the plan is disapproved, the carriers have 30 days to correct the deficiencies and resubmit the plan. Upon approval of the plan, the Secretary is to conduct annual reviews to ensure the railroads are complying with the plan.
- e. No later than December 31, 2012, the Secretary is to submit a report to the Committee on Transportation and Infrastructure of the House and the Commerce, Science, and Transportation Committee of the Senate a progress report of the railroads implementation of PTC systems.
- f. Secretary of Transportation is authorized to impose civil penalties for failure to submit or comply with a plan for implementing PTC.
- g. Secretary must certify the PTC system and components prior to revenue service.
- h. Main line means a segment or route of railroad track over which 5 M or more gross ton-miles of traffic is transported, operates intercity and commuter passenger trains, or designated by the Secretary.
- i. Positive Train Control System is defined as a system designed to prevent train-to-train collisions (positive stop enforcement), over-speed derailment (control of civil speed restrictions), incursions into established work zone limits, and movement of trains through a switch left in the wrong position.

The Legislation does not specify a design for the PTC System. The legislation only requires interoperability and the type of incidents the PTC system is to protect against. FRA's report to Congress dated August 17, 2004 described two variations, called PTC "A" and PTC "B". PTC "A" is a non-vital overlay system similar to Amtrak's ACSES. This is an overlay system that supplements the existing signal systems. PTC "B" is stand-alone system and embodies current vital systems in the design. FRA placed a lower effectiveness rate (85%) on PTC "A" than on PTC "B" 98% because for an overlay system to be effective in preventing accidents it must be available when the signal system fails. FRA believes that with an overlay system there is a greater probability that they will fail at the same time and therefore would not be available when needed the most. The legislation does not preclude one or the other but this may surface as part of the plan review and approval process.

Section 105 – Railroad Safety Technology Grants

- a. Secretary of Transportation shall establish a grant program of the deployment of train control technologies that meet the requirements of section 104.
- b. Passenger and freight carriers, railroad suppliers, and State and Local governments are eligible for grant funds.
- c. Federal funds may not exceed 80% of the total cost of projects.
- d. The Act provides authorizations of appropriations \$50 M per year for fiscal years 2009 through 2013 for implementation of PTC.

## **APPENDIX C: LIST OF ACRONYMS**

<b>APTA</b>	American Public Transportation Association
<b>ASCE</b>	American Society of Civil Engineers
<b>ATS</b>	Automatic Train Stop
<b>BART</b>	Bay Area Rapid Transit District
<b>BNSF</b>	Burlington Northern Santa Fe
<b>C&amp;S</b>	Communication and Signal Engineering
<b>CEO</b>	Chief Executive Officer
<b>CMF</b>	Central Maintenance Facility
<b>COO</b>	Chief Operating Officer
<b>CPUC</b>	California Public Utilities Commission
<b>DART</b>	Denver Area Rapid Transit District
<b>FRA</b>	Federal Railroad Administration
<b>GCOR</b>	General Code of Operating Rules
<b>JPA</b>	Joint Powers Authority
<b>MBTA</b>	Massachusetts Bay Transportation Authority
<b>Metro</b>	Los Angeles County Metropolitan Transportation Authority
<b>MOC</b>	Metrolink Operations Center
<b>MOE</b>	Maintenance of Equipment
<b>MOW</b>	Maintenance of Way
<b>OCSP</b>	Operating Contract Service Providers
<b>OCTA</b>	Orange County Transportation Authority
<b>PTC</b>	Positive Train Control
<b>QMP</b>	Qualified Mechanical Person
<b>RCTC</b>	Riverside County Transportation Commission
<b>RSAC</b>	Railroad Safety Advisory Committee
<b>RTC</b>	Regional Transportation Commission of Southern Nevada
<b>SANBAG</b>	San Bernardino Associated Governments
<b>SCRRA</b>	Southern California Regional Rail Authority
<b>SOP</b>	Standard Operating Procedures
<b>SSPP</b>	System Safety Program Plan
<b>TCRP</b>	Transit Cooperative Research Program
<b>Tri-Rail</b>	South Florida Regional Transportation Authority, which operates the Tri-County Commuter Railroad (Tri-Rail)
<b>UPRR</b>	Union Pacific Railroad
<b>VCTC</b>	Ventura County Transportation Commission

## **APPENDIX D: DEFINITION OF TERMS**

<b>Ad Hoc Subcommittee</b>	A subcommittee created by the SCRRA Board of Directors to conduct the Metrolink Safety Peer Review in response to the September 12, 2008 Chatsworth incident.
<b>American Public Transportation Association (APTA)</b>	APTA is a nonprofit international association of more than 1,500 member organizations including public transportation systems; planning, design, construction and finance firms; product and service providers; academic institutions; and state associations and departments of transportation. APTA is a data collection/dissemination resource, a Standards Development Organization and an education and advocacy organization for the public transportation industry. APTA members serve more than 90 percent of persons using public transportation in the United States and Canada.
<b>Amtrak's Event Review Program</b>	A program that Amtrak has instituted to do a review of an event that includes all aspects of the event. This program also includes follow-up on changes that are necessitated by the event.
<b>Automatic Train Stop (ATS)</b>	Technology that works by making an electrical interconnection between the signal system governing train movement, a train occupancy detector and the train's air brakes to stop the train in the instance of a missed signal.
<b>Banner Testing</b>	The process by which a qualified supervisor sets up a main line or yard test to determine engineer compliance with stop signal and restricted speed. Set up may require shunting by signal department employees and coordination with the OCC.
<b>Behavior Based Safety (BBS) Training</b>	Although similar to Efficiency Testing <sup>9</sup> , in which employees are observed for adherence to operating rules and regulations, one of the differences in BBS training is the focus on changing any at risk safety behavior with positive feedback behavioral techniques.
<b>Big Four Contractors</b>	The collective term referring to SCRRA's major operating contractors including; Maintenance of Way, Signal and Communications, Vehicle Maintenance, and Transportation.
<b>California Public Utilities Commission (CPUC)</b>	The CPUC is the government agency within the state of California that regulates the operating railroads and transit agencies. The CPUC functions as safety oversight for grade crossings, grade separations, operating safety plans and other safety issues related to railroad/transit operations.
<b>Centralized Traffic Control (CTC)</b>	The railroad signaling system consisting of centralized train dispatchers that control the switches in the operating railroad territory and the signals that railroad engineers must obey for the safe operations of the railroad.

<sup>9</sup> Efficiency Testing is mandated by Federal Railroad Administration (FRA) law 49 CFR 217. Testing is conducted on safety critical positions to confirm compliance to operating rules and federal regulations

**Class 1 Railroad** A Class I railroad in the United States is defined as "having annual carrier operating revenues of \$250 million or more" after adjusting for inflation using a Railroad Freight Price Index.

**Commuter Rail Safety Management Program** Commuter Rail Safety Management Program provides practical guidance on how to implement a System Safety Program Plan, including effective practices and an evaluation of the effectiveness of their system safety programs by using an external audit process. The APTA Safety Management Program is a triennial safety assessment that answers the following questions:

1. Does the railroad system have a System Safety Program Plan that conforms with the APTA *Manual for the Development of System Safety Program Plans for Commuter Railroads*?
2. Has the respective railroad's SSPP been fully implemented?
3. Does the respective railroad have an internal safety and security compliance assessment program to identify, monitor, and resolve program deficiencies?

Source [www.APTA.com](http://www.APTA.com)

**Commuter Rail System Safety Plan Manual** The APTA Commuter Rail Safety Management Program incorporates three distinct functions designed to support commuter railroads with attaining the highest degree of safety and security practicable, given constraints on time, resources, and operational effectiveness. This manual was developed to serve the following purposes:

- to provide a primer for both new-start and established commuter railroad systems with regard to the definition of the elements recommended for inclusion in a commuter railroad System Safety Program Plan;
- to establish a recommended format for a System Safety Program Plan;
- to assist commuter railroad systems with established System Safety Program Plans in the continuing development and definition of their respective programs;
- and to provide tangible evidence to passengers, public, and governmental oversight agencies that the commuter railroad industry possesses the means and expertise required to develop sound, effective, pro-active safety programs designed to reduce accident potential and increase the efficiency of commuter railroad operations.

Source [www.APTA.com](http://www.APTA.com)

**Contractor** An outside party supplying services to SCRRA. In the context of this document, Contractor refers to those supplying operating and maintenance services for the day to operations of the Metrolink system. This contractors are Transportation Contractor, Vehicle Maintenance Contractor, Signal Maintenance Contractor, Maintenance of Way Contractor.

<b>Crash Energy Management (CEM)</b>	Crash Energy Management technology is utilized to disperse the affects of the crash away from the occupants of the vehicle. This technology utilized energy absorption methods to minimize the affects of a crash.
<b>DigiCon Dispatching System</b>	A system consisting of hardware and operating software that forms the basis for the railroad operating system. The DigiCon software is an operating system that works in conjunction with a separate "logic layer" program that contains the railroad signal logic that dictates the operating system.
<b>Efficiency Testing</b>	Testing mandated by the Federal Railroad Administration (49 CFR 217) on safety critical positions to confirm compliance to operating rules and federal regulations.
<b>Efficiency Testing Plan</b>	The Plan that outlines how the agency performs Efficiency Testing.
<b>Electronic Efficiency Testing System</b>	An electronic data base system that allows an agency to enter Efficiency Testing data electronically. This electronic system allows an agency to more easily analyze data and produce reports than using a manual data entry system.
<b>Equipment Department</b>	The SCRRA organizational department that includes oversight and operations of the mechanical group, facilities maintenance, inventory, oversight of the Vehicle Maintenance Contractor and oversight of rubber tire and other maintenance of way vehicles.
<b>Federal Railroad Association (FRA)</b>	Federal agency for oversight of the operating commuter, freight and passenger railroads.
<b>General Code of Operating Rules</b>	Operating rules established by the FRA that apply to railroads operating in the general railroad system.
<b>Grade Crossing</b>	A highway-rail crossing where the railroad tracks cross the roadway at grade creating the potential for vehicle-train collisions.
<b>Grade Separation</b>	A railroad crossing where the roadway goes underneath or over the railroad corridor eliminating the potential for vehicle-train collisions.
<b>Hazard Analysis</b>	An analysis of the hazards associated with a given task or procedure.
<b>Liquidated Damages</b>	Contractual clauses that establish a predetermined sum that must be paid if a party fails to perform as promised.
<b>Maintenance of Way Contractor</b>	The company under contract with SCRRA to provide inspection and maintenance services of the SCRRA maintained track and right-of-way.

<b>Member Agencies</b>	Any county transportation agency whose property is directly affected by the project. The SCRRA member agencies are the Los Angeles County Metropolitan Transportation Authority (Metro), the Orange County Transportation Authority (OCTA), the Riverside County Transportation Commission (RCTC), the San Bernardino Associated Governments (SANBAG), and the Ventura County Transportation Commission (VCTC).
<b>Operating Contract Service Providers (OCSP)</b>	Contractors for SCRRA that are under the SCRRA Operating Department that perform the day-to-day operations function of the commuter railroad. This consists of the Vehicle Maintenance Contractor, Maintenance of Way Contractor, Signal and Communications Contractor and Transportation Contractor.
<b>Operating Department</b>	The staff of SCRRA organization under the Assistant Director, Operations. This includes the engineering group, maintenance of way group, transportation group, equipment maintenance group, and safety group.
<b>Operational Testing Plan</b>	The testing plan for operations which includes Efficiency Testing and other testing procedures and programs.
<b>Organizational Analysis</b>	An analysis of the staffing and operational needs of an organization. This organizational analysis is used to determine areas where staffing needs to be adjusted to meet the mission and needs of the agency.
<b>Positive Train Control (PTC)</b>	PTC is a communication-based train control system that is designed to prevent train-to-train collisions, overspeed derailments, and violations of track forces work limits, other incidents by enforcing train obedience to ruling movement authorities -- via a penalty application of the train brakes and controlling the speeds of the trains at specific track locations.
<b>Qualified Mechanical Person (QMP)</b>	The on-duty person that is uniquely qualified to determine the actions regarding an on-line failure of a locomotive or coach. This person determines the actions that the train will take to get to the closest repair station.
<b>Safety Critical Positions</b>	Positions in the operations department, including contractors, that have a direct affect on the overall safety of the railroad operations. Some of these positions include; conductors, train engineers, and dispatchers.
<b>SCRRA Right-of-way</b>	The right-of-way owned by the Member Agencies that is operated and maintained by SCRRA.
<b>SCRRA Staff</b>	All employees of the Southern California Regional Rail Authority
<b>Sealed Corridor</b>	The SCRRA Sealed Corridor Program is a comprehensive strategy to reduce the

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<b>Program</b>	hazards at highway-rail crossings and the associated railroad corridor. Through the Sealed Corridor Program the safety of trains, passengers, motorists, pedestrians, and adjacent communities within and along a railroad corridor is enhanced, using proper treatments to methodically reduce the opportunity for accidents at highway-rail crossings or elsewhere within the corridor.
<b>Signal and Communications Contractor</b>	The company under contract with SCRRA to provide inspection and maintenance services of the Metrolink communications and signal system.
<b>System Safety Program Plan (SSPP)</b>	The comprehensive plan and strategy for system safety for the transportation agency. This plan defines all aspects of safety and is prepared in accordance with the APTA Commuter Rail System Safety Plan Manual
<b>Technical Team</b>	The team of technical experts that worked with the Panel to evaluate the various aspects of Metrolink operations pertaining to the study. This included interviews with contractors and staff.
<b>Transportation Contractor</b>	The company under contract with SCRRA to provide transportation operations including; train engineers, conductors, and management of transportation services.
<b>Transportation Group</b>	The organization under the Assistant Director, Operations that oversee the Operations of the system, dispatching, and the transportation contractor.
<b>Vehicle Maintenance Contractor</b>	The company under contract to SCRRA to provide maintenance of the revenue service vehicles.



**METROLINK SAFETY PEER REVIEW PANEL**  
**4-Year Update**

ON THE SCRRA'S PROGRESS ON THE  
PANEL'S RECOMMENDED  
METROLINK ENHANCED SAFETY ACTION PLAN

Final Report  
February 28, 2013

Prepared for the:  
Southern California Regional Rail Authority

Prepared by the:  
Metrolink Safety Peer Review Panel



# Metrolink Safety Peer Review - 4-Year Update February 2013

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# Metrolink Safety Peer Review - 4-Year Update

## February 2013

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### ISSUE

This report is a 4-Year status update by the Metrolink Safety Peer Review Panel on the recommendations of the eight safety issues in the Panel's "Metrolink Enhanced Safety Action Plan".

### BACKGROUND

At its Board meeting on September 26, 2008, the Southern California Regional Rail Authority ("SCRRA" or "Metrolink") Board of Directors approved a motion authorizing its Chairman to appoint an ad hoc subcommittee to establish an independent Commuter Rail Safety Peer Review Panel to review the Metrolink system and make recommendations to increase safety and reduce risk. Board Chairman Ron Roberts appointed Board Vice-Chair Keith Millhouse and Director Richard Katz to be the Ad Hoc Subcommittee to select the independent panel members and to later transmit its recommendations to the Board.

The Peer Review Panel was comprised of 11 members and was led by Linda Bohlinger and co-chaired by Peter Cannito. The Peer Review Panel (the Panel) presented its observations and recommendations in an Enhanced Safety Action Plan to the SCRRA Board on December 12, 2008 and published its "Metrolink Commuter Rail Safety Peer Review Panel Final Report", on January 5, 2009 (see Appendix E).

The Ad Hoc Subcommittee then recommended that the Panel conduct a follow-up evaluation or "report card" in six months to determine the progress the SCRRA had made in implementing the recommendations in the Panel's Metrolink Enhanced Safety Action Plan. The Panel completed that report, dated December 31, 2009 (see Appendix D).

The newly appointed SCRRA Chief Executive Officer (CEO) has asked the Panel to prepare another "report card" which would be a four-year update of the progress the SCRRA has made in implementing the recommendations in the Panel's recommended Metrolink Enhanced Safety Action Plan. This effort will report through the SCRRA CEO, with reports made to the SCRRA Board by SCRRA management and the Peer Review Panel.

### 4-YEAR PEER REVIEW UPDATE REPORT

As with the six-month "report card", the four-year "update" is not a pass/fail analysis of SCRRA's progress; rather this update is an analysis of the progress made by the SCRRA in meeting the short, medium and long term recommendations in the Panel's Metrolink Enhanced Safety Action Plan. For example, some items, particularly the ones with a longer term development time, will be an assessment of interim steps.

The Metrolink 4-Year Peer Review was completed by former Panel leads Linda Bohlinger and Pete Cannito, with assistance from four transportation professionals with FRA and railroad operating rules, planning and system safety expertise. A listing of the Panel members and their bios are included in Appendix A.

The panel interviewed SCRRA Board Members, SCRRA Transportation Advisory Committee (TAC) Members, the current CEO, former Chief Operating Officer (COO) and current staff from the following departments: Engineering and Construction, Maintenance and Equipment, System Safety, Consumer Engagement, Operations, Metrolink Contractors; as well as other stakeholders in November and December 2012.

The Peer Review Panel did not conduct a full comprehensive assessment of Metrolink's safety performance. Rather, the review focused on the original eight safety issues and SCRRA's completion of the Panel's recommendations as identified by the original Peer Review Panel.

The eight safety issues include:

1. Safety Culture
2. SCRRA Organizational Structure
3. System Safety Program Plan
4. Safety Performance Measurements
5. Infrastructure Maintenance
6. Analysis of Metrolink Short Term Safety Projects
7. Strategic Plan
8. Governance

Based on the panel's observations and interviews, a 4-Year Status report is provided, and in certain instances additional recommendations have been developed. The report includes an update to the Panel's recommendations for short, medium, and long term system safety and operating enhancements identified in the Metrolink Enhanced Safety Action Plan. Those timeframes were categorized as:

- Short-term – within six months (February 2009 – July 2009);
- Intermediate-term - within 18 months (February 2009 – August 2010); or
- Long-term - within four years (February 2009 – January 2013).

The most current Metrolink Enhanced Safety Action Plan Matrix is included in Appendix B and has been updated to include the results of the 4-Year status assessment. Appendix C includes the Panel's March 8, 2013 presentation to the SCRRA Board on SCRRA's 4-year progress in accomplishing the Metrolink Enhanced Safety Action Plan. Appendices D and E include the Panel's 6-month report card report and original reports, respectively.

## 1. Safety Culture

Panel Recommendations	6-Month Status	4-Year Status	Timeframe
a. Develop stronger and more unified safety culture	In progress	In progress; and stronger than prior review	Ongoing
b. Develop a vision for safety	In progress	In progress	Intermediate-term
i. SCRRA should develop a one page "vision for safety"			
c. Develop long-term, measurable objectives for safety	In progress	In progress; component of strategic plan	Intermediate-term
i. SCRRA should establish a goal setting process to establish aspirational, multi-year targets for key safety metrics.			
d. Form a Strategic Safety Leadership Team	Completed	Reinstate original SSLT	Short-term

### 4-Year Status

The Safety Culture has improved since the initial evaluation four years ago. However, the Panel recognized opportunities for Metrolink to improve the organizational focus on safety. Organizations are dynamic entities and continual reinforcement of an organization's chosen cultural norms is very important, particularly when organizations grow or changes in management, stakeholders or key staff take place.

Based on the Panel's discussions with various Board Members, staff, and stakeholders, it is clear that Metrolink has begun to develop a strong emphasis on safety that starts with the leadership of the organization. However, staff also suggested that greater emphasis needs to be placed on stressing the importance of safety and Metrolink's culture of safety through all levels and departments within the organization. The emphasis on the importance of safety and Metrolink's culture of safety institutionalizes and engrains the safety culture throughout the organization.

#### a. Develop a stronger and more unified safety culture among SCRRA and its contractors

We observed many characteristics of a healthy safety culture within the Metrolink organization:

1. Safety is prominent in the organization's mission and values. The Mission and Vision statements have been improved and focus on safety as a core value—stating that "safety is foundational".
2. A Safety and Operating Committee has been added as part of the Board structure and the Chief Safety Officer presents a monthly safety report to the Committee and the Board at the Metrolink Board meetings.

3. The Chief Safety Officer reports directly to the CEO and chairs the System Safety Action Team, which includes senior level members from the key operating functions and Metrolink contractors.
4. There is a higher level of safety awareness. Safety information is widely disseminated – safety posters and other data were found throughout the facilities. Safety performance is discussed as part of the weekly Chief Operating Officer meetings with contractors and at the monthly Board Safety and Operations Committee.
5. Contractors are required to report their safety performance and activities. Safety is a major topic of discussion at the weekly meetings that includes an open and frank discussion between Metrolink staff and contractors. The previous problem of differing safety statistics between Metrolink staff and contractors, which was identified during the initial peer review, has been corrected.
6. There is an increased focus by SCRRA's on reporting rules violations and other safety issues as part of SCRRA's regular reviews. This is discussed in greater detail later in Issues 3 and 4 as part of the Risk Assessment Program.
7. In addition, all new projects and initiatives under development include a safety review to ensure that valuable Metrolink resources are properly identified and allocated.

**b. Develop a vision for safety**

Safety is one of five core values identified in the SCRRA Values Statement. It is explicitly stated in a single phrase, "Safety is Foundational". A "Safety Statement" that explains and expands on this phrase would be a powerful tool to guide the actions of staff within the Metrolink organization. We recommend that a senior management team develop a one page "vision for safety". The collaborative development of a vision for safety statement would be an opportunity for key staff from all departments to move the safety culture and vision forward. In addition, the development and adoption of a vision for safety statement would provide the Board with an occasion to ratify and support the organization's safety commitment.

Metrolink has hosted a series of programs that involved Metrolink staff, contractor personnel and Board members including:

1. A Safety Summit in July 2011 that was hosted jointly by Metrolink and the USC Viterbi School of Engineering
2. An Employee Engagement for Safety Program with the theme "We are Building a Culture at Metrolink where Safety is Foundational"
3. Three Safety Tool Kits and videos that were geared towards employees:
  - Tool Kit 1: Organizational silos and tragedies caused by silos.
  - Tool Kit 2: How to conduct more effective Job Briefings.
  - Tool Kit 3: Employee Engagement.

In addition, SCRRA has a commitment and on-going effort to complete the Metrolink Positive Train Control (PTC) project by the 4<sup>th</sup> Quarter of 2013. This system will significantly improve safety. Although the anticipated completion date is later than originally scheduled, it is well in advance of the federal mandate for completion by December 31, 2015. The Metrolink PTC team and their partners at the Union Pacific and the Burlington Northern Santa Fe Railroads have shown collaborative and effective leadership and direction in the development and installation of this new technology.

**c. Define long-term measurable objectives for safety**

With the recent change in leadership, the SCRRA is at a critical moment in the ongoing process of building a strong safety culture. It is important that there is a clear message throughout the organization that safety is Metrolink's top priority.

The organization should develop long term targets for its safety metrics. Currently, safety metrics are compared to historical trends. While this perspective is valuable it does not create the same incentive for change and improvement as working to meet aggressive goals. A goal setting process should be developed that uses stakeholder input to establish aspirational, multi-year targets for key safety metrics. These safety metrics should be developed as part of the long term Strategic Plan and as part of the annual budget process.

**d. Form a Strategic Safety Leadership Team**

The Strategic Safety Leadership Team (SSLT) should be re-established and should lead the effort to develop and sustain Metrolink's safety culture. This was an initial recommendation of the Safety Peer Review Team four years ago. The original recommendation of the Panel to form the SSLT was based on the principal that safety is a fundamental responsibility of the entire organization; the message must begin at the top of the organization that all employees contribute to safe operations. This Team can provide strategic direction, executive level oversight and critical organizational support to the overall safety effort.

Once re-established, the SSLT should review the functions of other safety committees in the organization to ensure that they have charters with clearly defined roles in support of the SCRRA safety culture. In addition, the relationships between the safety committees and the line organization need to be defined to ensure that primary accountability for safety remains with the line staff.

## 2. SCRRA Organizational Structure

Panel Recommendations	6-Month Status	4-Year Status	Timeframe
a. Keep pace with critical operations oversight	In progress	In progress Part of Strategic Plan Process	Long Term
b. Perform an Organizational Analysis	Yet to be started	Yet to be started Part of Strategic Plan Process	Long Term
c. Implement immediate organizational changes	Completed	Completed	Short-term
d. Clarify roles and responsibilities	Completed	Completed	Intermediate-term

### *4-Year Status*

The 6-Month initial Peer Review recommended a series of both short term and long term recommendations regarding Organizational Structure and staffing.

In the short term, the Panel recommended:

- Filling the key Operations Department positions of Director of Operations and Manager of Operations
- Hiring an experience Railroad Operating Rules Specialist
- Elevating the reporting of the Safety and Security Department to the Chief Executive Officer
- Establishing of a Qualified Maintenance Person (QMP) position in the Metrolink Operations Center (MOC)
- Relocate the Mechanical Department Facility Manager to the Central Vehicle Maintenance Facility

All of these actions were completed shortly after the initial peer review and were successful changes within the organization. Considering the recent personnel changes within the Operating Department, a continued focus on Metrolink train operations and the management of contractors will continue to be an important activity. The Hiring of an experienced and qualified Chief Operating Officer is critical and a management search firm has been retained to assist in this effort.

Long-term recommendations from the initial Peer Review findings regarding Organizational Structure that should be addressed include:

- SCRRA's organizational structure and departmental staff resource allocations, particularly as they relate to its ability to manage and oversee railroad operations, maintenance, and service enhancements and expansions; and
- A review and validation of Metrolink's current contracting model for the provision of Metrolink services.

The following is the status of each recommendation.

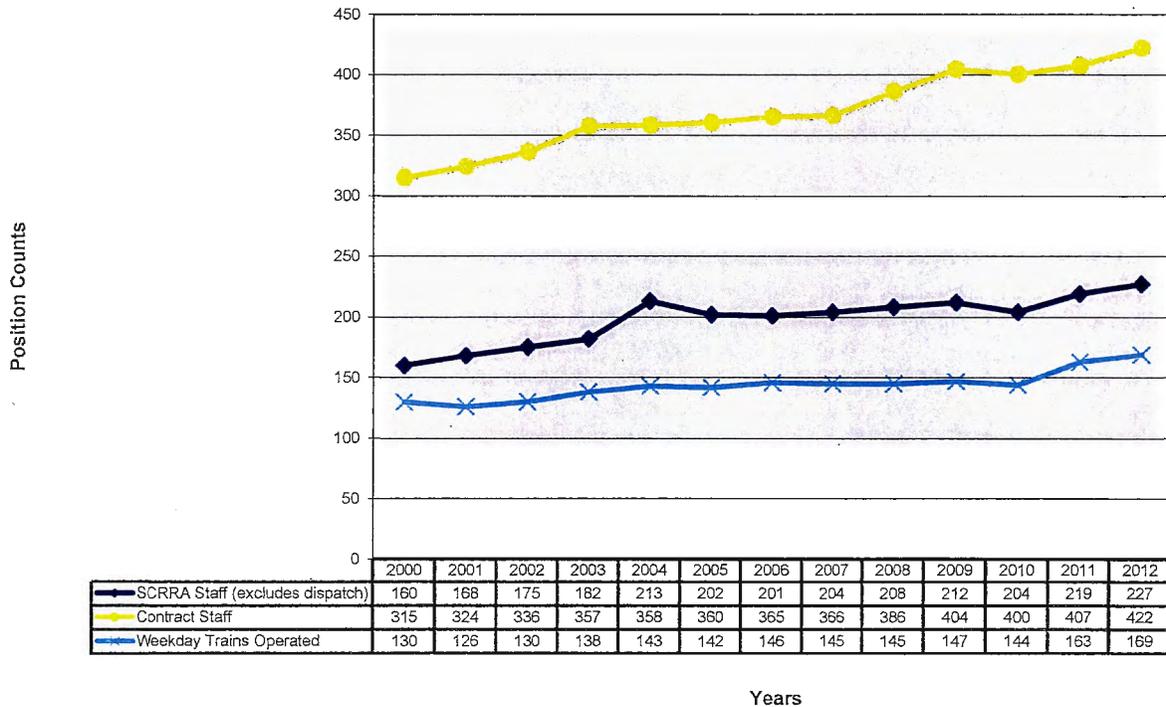
**a. Keep Pace with Critical Operations Oversight**

The Panel noted their concern that, over time, Metrolink's contracting model had changed and as such, the roles and responsibilities of the various parties changed over this time as well. In particular, Metrolink has assumed greater direct responsibility for the integration and coordination of the railroad operating and maintenance functions and for train dispatching and oversight of infrastructure and vehicle capital betterment and expansion programs. In addition, the regulatory oversight process increased significantly during this period of time and Metrolink, as the "Railroad of Record" assumed greater responsibility for the management and oversight of Railroad Operations. The Panel recommended the need for the SCRRA organization to keep pace with critical operations oversight as both the contracting complexity and the volume of trains increased.

Four years later, this concern still exists. The Panel updated its trends analysis as shown in Figure 1, below, which tracks the number of SCRRA staff verses contract staff and compares that to the number of weekday trains in service. Although we cannot draw any conclusions at this time from the ratio of SCRRA staff vs. contract staff vs. the number of trains, we do suggest that a review and analysis of SCRRA's organizational and contracting model be completed to determine the correct amount of SCRRA oversight needed for the current level of contract staff and train service.

We continue to recommend that SCRRA periodically review the extent and effectiveness of both contractor performed and in-house safety oversight to ensure that the combined effort is sufficient to control operational risk.

**Figure 1 - SCRRRA vs. Contractor Staffing Positions vs. Trains Trends<sup>1</sup>**



**b. Perform an Organizational Analysis**

The Panel’s earlier recommendation for SCRRRA to perform a formal Organizational Analysis is ongoing but remains to be completed. The Organizational Analysis will identify where organizational re-structuring is necessary due to changes in priorities and strategic directions, identify gaps in responsibility and functionality between SCRRRA and its Contractors, and will clarify roles and responsibilities within the organization.

The Panel recommends that SCRRRA undertake a formal Organizational Analysis to address the above noted issues as part of the Strategic Plan development process. The Panel does not have a recommendation regarding the organizational structure, as this should be developed by and specific to SCRRRA, but the process to determine the organizational structure needs to involve SCRRRA’s senior management and key stakeholders.

As described in the original Panel report, the following is the process that the SCRRRA may want to follow in developing its Organizational Assessment:

1. Document the history of ridership, service levels, and the size, age and condition of the rolling stock fleet and the changes in the contracting structure over the course of Metrolink’s history and a projection of the future.
2. Identify all functions that will be required to operate Metrolink administrative, financial, operations and oversight functions

<sup>1</sup> Trains Operated includes weekday only. Contractor staffing between 2011 and 2012 has increase mainly due to Metrolink weekend trains increasing by 24 trains (from 52 to 76 trains).

3. Identify the resources and responsibilities dedicated to each function, both within SCRRA and through its contracts, over Metrolink's history.
4. Identify alternative operating and contracting models for determining which best fits SCRRA's strategy going forward.
5. Determine optimal resource and staffing levels for each model, broken down by function.
6. Evaluate the alternatives in terms of safety, reliability, cost, and responsiveness to stakeholders.
7. Conduct a process involving the Board to select the preferred alternative.
8. Develop a program to implement the preferred alternative.

This analysis should address the following specific Panel observations related to safety and operations.

1. Periodically review the extent and effectiveness of both contractor-performed and in-house safety oversight to ensure that the combined efforts are sufficient and efficient to control operational risk, as recommended in Issue 3, Systems Safety Program Plan.
2. Evaluate the sufficiency of Metrolink's field operational oversight personnel.

This recommendation is to evaluate the sufficiency of field operational oversight personnel. The Panel is concerned that, currently, SCRRA has very limited field operations oversight capability. Metrolink is dependent on its contractors to ensure coordination and oversight of events that occur along the railroad.

Field oversight by SCRRA needs to be enhanced with better integration amongst the various SCRRA departments with oversight responsibility. Either SCRRA could expand the role of some of its Field Customer Service Representatives or revise one of its contractors to perform the oversight integration responsibility. The organizational assessment will determine which the best oversight integration function is for Metrolink.

As background, the current SCRRA Manager of Field Operations and his staff serve the function of Operating Rules Specialist and Operations Compliance Officers overseeing Metrolink and Contractor Observation and Efficiency Testing programs. The title, however, implies that this position is responsible for all field operations oversight including incident response, customer service, train operations and contractor field monitoring. However, customer service is in SCRRA's Administrative Department, not the Operations Department.

There are Field Customer Service Representatives assigned throughout the Metrolink system, but they are assigned primarily to provide customer communications and assistance during service disruptions ensure current customer information at stations, and that ticket vending equipment is functional. Recently their duties have been expanded to include riding trains and assisting the conductors when appropriate.

At the time of the initial peer review, the Field Customer Service Representatives reported to the Operations Department and there was discussion about expanding the roles and responsibilities of these positions to provide Metrolink's oversight and integration of field operations. Currently these positions report to the Chief Administrative Officer.

The Panel recommends that senior management revisit the decision to move this group from the Operations Department and reassess the duties and responsibilities of the Field Service Representatives. These resources, with the proper training, experience, and skill development could expand SCRRA's ability to oversee field operating and maintenance activities and to manage, and oversee Metrolink's response to incidents and events that occur during the normal course of operations.

3. Develop a Recruitment and Retention Plan.

During the recent Board Strategic Planning Workshop, there was discussion about leadership and a succession plan. A recruitment and retention plan should also be developed to include incentives to retain current staff and recruit new staff to SCRRA. The recommendation is that as part of the strategic planning process, SCRRA needs to include a management training and development process for succession planning and for staff development. The industry has a critical skill shortage at all levels of management, creating the risk that SCRRA may have difficulty filling vacancies.

In summary, the analysis of SCRRA's business and organizational model is on-going. The organization has realigned some staffing duties, roles, and reporting responsibilities to meet its need. Staff retirements and departures now provide an opportunity to meet the organizational needs via new hires and new assignments. SCRRA plans to start the strategic planning development process in the spring of 2013.

**c. Implement Immediate Organizational Changes**

As reported in the 6-Month review, the short term organizational items were completed successfully. The Qualified Maintenance Person was relocated to the Dispatcher's Office and both the Chief Mechanical Officer and Chief Transportation officer were very positive about the change, stating that the relocation of the QMP was extremely successful and has resulted in better communication and coordination between the two departments. The QMP reporting change has resulted in better equipment failure reporting, better equipment performance, better training of train crews, and improved on-time train performance, due to improved failure response.

Within the Operations Department, Metrolink has made significant progress in reducing the impact of the "silo effect" that was observed in the original peer review. The consolidation of all rail operating functions under the Chief Operating Officer has helped to breakdown the "silo effect" within Operations. The scheduled weekly Metrolink and contractor meetings, which are led by the COO, have helped ensure the coordination and communication of all operating and maintenance issues.

In addition, the Mechanical and Transportation departments have worked together to develop and compile an Operations Troubleshooting Guide, utilizing information from the QMP Program and the engineers. The Operations Troubleshooting Guide is also used as a training tool.

The Safety Action Committee, under the joint direction of the COO and Director, System Safety and with representation from all Metrolink operating entities, has contributed to a reduction in the silo effect in safety related issues and activities. Metrolink's effort to reduce the "silo effect" is an on-going effort. The Panel completed very limited interviews with the managers outside the Operations Department and is not able to assess the cooperation and coordination between the Operations and Non-Operations departments.

Within the area of safety, the Panel believes that there needs to be good cooperation and communications between all departments to ensure that potential decisions and actions do not have a negative impact on system safety. Communication of the safety and other agency functions with the operations department has improved. The re-establishment of the Strategic Safety Leadership Team (SSLT) can enhance communication and expedite decision making on issues that may affect safety and provide a forum to build a strong safety culture within Metrolink – sending the “Safety is Foundational” message throughout the entire organization.

**d. Clarify Roles and Responsibilities**

SCRRRA has addressed this recommendation as part of the Transportation contractor change.

### 3. System Safety Program Plan

Panel Recommendations	6-Month Status	4-Year Status	Timeframe
<b>a. Redraft the SSPP</b>			Intermediate-term
i. The oversight functions for in-house and contractor operations	In progress	In progress	
ii. All essential components and the agency's functions must be accountable in the SSPP	In progress	In progress	
iii. Contracts and SCRRA policies and procedures must be conformed to the updated SSPP and SOPs	In progress	Completed	
iv. Conform to APTA Standards	In progress	Completed	
<b>b. Develop organization-wide risk assessment process</b>	In progress	In progress	Intermediate-term
<b><u>Additional Recommendations</u></b>			
<b>a. Redraft the SSPP</b>			
v. Revise the SSPP to delineate all of the contractor oversight currently performed by SCRRA.			
vi. Revise the SSPP to accurately describe the safety related roles and responsibilities of the board and its current level of involvement in creating a culture of safety at Metrolink.			
vii. Define the direct and supporting safety responsibilities of the administrative departments.			
viii. Revise the SSPP to describe in more detail the safety accountabilities of the major Operating functions and to include all safety critical functions such as Field Operations (Operations Testing) and Operating Rules.			
<b>b. Develop an organization-wide risk assessment process</b>			
i. Coordinate with the General Counsel to develop a strategy for implementing a more proactive risk assessment consistent with the direction of the FRA System Safety NPRM.			
<b>c. Review the in-house training function to ensure that it is appropriately staffed and technically capable of supporting the technical and safety training needs of the operation.</b>			
<b>d. Review the Safety Department staffing to determine if it is adequate to carry out its safety oversight duties and also administer its programs</b>			
<b>e. Support and resource the initiative to develop a Metrolink Safety Management System,</b>			
<b>f. Implement Industry Safe Software Application.</b>			

#### ***4-Year Status***

##### **a. Redraft the SSPP based on the organizational analysis with particular attention to:**

##### **i. The oversight functions for in-house and contractor operations.**

Oversight of both in-house and contractor operations have improved significantly since the last review. The Panel observed numerous enhancements including:

- SCRRA Contract Managers and Operations Managers routinely and directly monitor contractor performance through established processes. For example, contractors participate in daily morning calls with key SCRRA Operations staff. The calls focus on contractor accountability and improved planning and coordination.
- In addition, contractors meet weekly with the Chief Operating Officer (COO) and senior Operations staff. In these meetings contractors review all aspects of their performance including key safety metrics and safety improvement activities. Since performance data is routinely and transparently shared, the meeting discussions were substantive and constructive without counter-productive disputes over metrics.
- Overall, the Panel observed open communication and a shared value for safety among all parties during these interactions.

The Panel noted other practices indicative of effective safety oversight including:

- Contractors and in-house staff report critical safety incidents in real time as required by SCRRA. These reports are immediately disseminated to SCRRA staff for any necessary follow-up and oversight. If warranted, a root cause analysis is performed and documented.
- Contractors are required to use an SCRRA process to identify and manage employees with performance issues such as a pattern of safety rule violations. This is accomplished using a software tool called Biotracker that analyzes employee performance data and flags individuals that need attention. In two instances the Panel observed frank and constructive dialogue between SCRRA staff and contractors concerning the management of individuals with performance problems identified through this process. The panel believes that the use of Biotracker is a best practice.
- Contractors track and report safety critical rules violations. There is a structured and documented process overseen by SCRRA staff to follow up on these violations.

Based on discussions with contractor and SCRRA personnel and a review of the Metrolink System Safety Program Plan (SSPP)<sup>2</sup>, the Panel believes that SCRRA does more extensive contractor oversight than is described in the SSPP. The Panel recommends that SCRRA revise the SSPP to delineate all of the oversight activities currently performed by SCRRA.

It is important to note that even though SCRRA contractor oversight has improved, contractor personnel are responsible for virtually all field and shop floor level operational oversight. Therefore the Panel believes it would be prudent for SCRRA to periodically

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<sup>2</sup> For the purposes of this report, references to the Metrolink/SCRRA SSPP are to the October 2012 Draft SSPP.

review the extent and effectiveness of both contractor-performed and in-house safety oversight to ensure that the combined efforts are sufficient and efficient to control operational risk, as recommended in Issue 2, Organizational Assessment.

The number of contractors and the variety of their safety programs is a challenge to effective SCRRA oversight. The diversity of approaches that multiple contractors take to activities like safety observations, safety meetings, safety training, job safety analysis and incident investigation and reporting can hinder effective oversight and limit opportunities for cross-functional initiatives. The Panel recommends that as a long term goal SCRRA move to establish a uniform core of safety management methods that will be used by all contractors. More uniformity would have a number of advantages including:

- Enabling SCRRA staff to develop additional expertise in the application of the programs.
- Facilitate the development of effective methods of overseeing contractor implementation of the programs.
- Provide cost savings through efficiencies of scale for training, application development and other program support costs.

Adding to its best in-house practices, SCRRA can adopt successful practices from its contractors and from external sources to build an SCRRA-specific safety management approach that will serve as a proven and consistent core of programs for all stakeholders.

**ii. All the essential components and the agency's functions must be accountable in the system safety program from the Board of Directors through the CEO to all departments.**

The Panel found that knowledge of system safety and accountability for system safety responsibilities have improved since the six-month review. This was particularly evident in two key areas -- the Board of Directors and the Operations Department.

The panel observed that SCRRA Operations staff consistently demonstrated awareness and competent execution of system safety responsibilities. While the Operations Department's safety responsibilities are more fully described in the SSPP than those of other SCRRA departments, the panel recommends that the SSPP be revised to describe in more detail the safety accountabilities of the major operating functions and to include all safety critical functions such as Field Operations (Operations Testing) and Operating Rules.

Positive developments at the Board level include the formation of a Board Safety and Operations subcommittee with an improved focus on safety oversight. The Director of Safety and Security now reports to the Safety and Operations subcommittee on a monthly basis. In addition, the Board participated in System Safety education.

In light of these observations, the Panel believes the Metrolink SSPP should be revised to accurately describe the safety related roles and responsibilities of the board and the current level of Board involvement in creating a culture of safety at Metrolink.

The SSPP does not address the system safety accountabilities of the SCRRA administrative departments. While non-operating functions may not have direct operational safety duties, they nonetheless are accountable for the safety of their staffs and for business processes that can have a significant impact on system safety. For example, the procurement function can minimize employee exposure to hazards through careful screening of the materials and chemicals introduced into the workplace. The panel recommends that the SSPP more explicitly define these direct and supporting safety responsibilities of the administrative departments.

Clear statements of system safety roles and responsibilities make it easier for employees and departments to fulfill their system safety duties and support a strong safety culture. Having all stakeholders represented in the SSPP reinforces Metrolink's value that safety is everyone's responsibility.

**iii. Contracts and SCRRA policies and procedures must be conformed to the updated SSPP and SOPs**

Completed.

**iv. Continued conformance with APTA Standards and maintained as a control document.**

The Metrolink SSPP is consistent with the APTA SSPP standard. The FRA has recently issued a Notice of Proposed Rulemaking (NPRM) for System Safety Programs (49 CFR 270) that will soon supersede the APTA standard. SCRRA is developing the SSPP in a manner that is consistent with the FRA NPRM so that once the FRA rule is finalized there should be a straightforward transition to a fully compliant plan. SCRRA's Safety staff is informed about the status and requirements of the proposed rule and is monitoring its development closely.

**b. Develop a broadened organization wide hazard assessment process.**

As described in the SSPP – Hazard Identification and Resolution, SCRRA has put in place many of the elements of an effective hazard assessment process. These include appropriately structured SCRRA staff committees to implement and oversee the process as well as associated SOP's. Based on conversations with SCRRA staff and a review of related documents, the process as described in the SSPP is functioning acceptably.

The review committee recommends that the hazard assessment process be further developed. The current process emphasizes a bottom up identification of issues from employees and local safety committees. While these are valuable sources of information, SCRRA would benefit from a complementary process that identifies broader, higher level systemic issues for assessment. This is a prudent risk reduction strategy that is also consistent with the intent of the FRA System Safety rule. SCRRA now has a Senior Counsel, Risk Manager on SCRRA staff. The Panel recommends that Safety staff coordinate with this Senior Counsel and the SCRRA General Counsel to develop a strategy for implementing a more proactive risk assessment that is consistent with the direction of the FRA NPRM and protected by the "section 109"<sup>3</sup> provisions therein.

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<sup>3</sup> In Section 109 of the Rail Safety Improvement Act of 2008 (RSIA) Congress authorized the FRA to issue a regulation protecting from discovery and admissibility into evidence in litigation documents generated for the purpose of developing, implementing, or evaluating a System Safety Plan. The FRA's proposed System Safety rule, 49 CFR 270, would implement section 109 with respect to passenger railroads.

### Additional Recommendations

Going beyond the recommendations of the original and six month peer reviews, the Panel suggests that SCRRA consider these additional items:

- a. **Redraft the SSPP** (additional recommendations)
  - v. Revise the SSPP to delineate all of the contractor oversight currently performed by SCRRA.
  - vi. Revise the SSPP to accurately describe the safety related roles and responsibilities of the board and the current level of Board involvement in creating a culture of safety at Metrolink.
  - vii. Define the direct and supporting safety responsibilities of the administrative departments.
  - viii. Revise the SSPP to describe in more detail the safety accountabilities of the major Operating functions and to include all safety critical functions such as Field Operations (Operations Testing) and Operating Rules
- b. **Develop an organization-wide risk assessment process** (additional recommendation)
  - i. Coordinate with the General Counsel to develop a strategy for implementing a more proactive risk assessment that is consistent with the direction of the FRA System Safety Notice of Proposed Rule Making (NPRM).
- c. **Review the in-house training function to ensure that it is appropriately staffed and technically capable of supporting the technical and safety training needs of the operation.** Training's role as a safety support function was not directly addressed in this review. In discussions with SCRRA staff a concern was raised that Training may not have a suitable focus and sufficient resources to support future operational safety initiatives. The panel recommends that SCRRA review the in-house training function to ensure that it is appropriately staffed and technically capable of supporting the technical and safety training needs of the operation.
- d. **Review the Safety Department staffing to determine if it is adequate to carry out its safety oversight duties and also administer the programs for which they are solely responsible.** As a component of the review recommended in Issue 2, Safety Department staffing should be reviewed to determine if it is adequate to carry out its safety oversight duties and also administer the programs for which they are solely responsible. These include compliance with 49 CFR 225 – Railroad Accident and Incident Reporting, 49 CFR 239 – Passenger Train Emergency Preparedness and 49 CFR 219 – Control of Alcohol and Drug Use, Operation Lifesaver, first responder training, emergency preparedness drills, configuration management and environmental oversight.
- e. **Support and resource the initiative to develop a Metrolink Safety Management System, which includes the establishment of a uniform core of safety management methods for use by all contractors as a long term goal.** SCRRA Safety has begun to adopt a "safety management system" (SMS) approach to their program. This is a commendable effort with the potential for a significant positive impact on safety at Metrolink. The Panel recommends that SCRRA support and resource this initiative. Safety should continue the development of the SMS by clearly identifying the elements of an effective safety management system and then mapping the key Metrolink safety systems, programs and procedures to these elements. Completion of the SMS will:

- Help identify gaps in the system safety effort.
  - Make it easier for non-safety professionals, employees, contractors and other stakeholders to grasp the concept of “system” safety and understand how it is implemented at Metrolink.
  - Be the basis for a uniform and systematic approach to safety management that could eventually be adopted by SCRRRA contractors (see item a i.).
  - Provide the roadmap for in-house safety efforts in all functions at all levels.
  - Provide an approach that remains consistent over time thereby allowing staff and contractors to develop the competencies necessary to effectively implement the program.
  - Create the framework for evolutionary continuous improvement of the program rather than sporadic changes in direction that can confuse and demoralize staff.
  - Establish a holistic approach to safety that can be “branded” as the “Metrolink Way”. This can then be leveraged to increase the visibility of Metrolink’s safety efforts through a consistent, recognizable safety communication plan.
  - Increase employee ownership of the program by making it Metrolink centric, easily understood, highly visible and consistent over time.
- f. **Implement Industry Safe Software Application.** Safety staff identified Industry Safe, a software application that supports various aspects of the safety program including more integrated accident/incident reporting, as well as tracking of hazards and associated corrective actions. This would benefit the overall safety effort and support compliance with the forthcoming FRA System Safety rule.

#### 4. Safety Performance Measurements

<b>Panel Recommendations</b>	<b>6-Month Status</b>	<b>4-Year Status</b>	<b>Timeframe</b>
<b>a. Enhance Operations Testing Plan</b>	In progress	Completed	Short-term
i. Produce an Efficiency Testing Plan	Completed	Completed	Short-term
ii. Perform a signal hazard analysis	In progress	Completed	Short-term
iii. Require a quarterly review of efficiency testing results for every safety critical position	In progress	Completed	Short-term
iv. Adopt an event review program	In progress	Completed	Short-term
v. Require crews to record safety briefing information on a daily basis or before each trip	In progress	Completed	Short-term
<b>b. Define responsibility and analyze Efficiency Testing</b>	In progress	Completed	Short-term
i. Define responsibility for Efficiency Testing	Completed	Completed	Short-term
ii. Analyze tests to ensure safety critical rules are being tested	In progress	Completed	Short-term
<b>c. Acquire an Electronic Efficiency Testing System</b>	In progress	Completed	Short-term
<b>d. Increase observations of engineers, conductors, others</b>	Completed	Completed	Short-term
<b>e. Review safety critical employee training</b>	Completed	Completed	Short-term
<b>f. Assess impact of operating contract's liquidated damages provisions</b>	In progress	Completed	Intermediate-term
<b>g. Establish goals for observations/ analysis</b>	In progress	Completed	Intermediate-term
<b><u>Additional Recommendations</u></b>			
<b>h. Improve SCRRRA oversight of contractor testing officer performance</b>			
<b>i. Acquire an electronic device (tablet, PDA) to conduct efficiency testing in the field.</b>			
<b>j. Conduct an in-house statistical analysis to determine if a sufficient number of tests are conducted</b>			
<b>k. Utilize the Federal Railroad Administration (FRA) Reports</b>			

#### **4-Year Status**

##### **a. Enhance Operational Testing Plan**

Enhancing Operational Testing Plans is an on-going process. The Code of Federal Regulations (49CFR 217) requires passenger railroads to conduct a review of their operational testing plans every six months. Depending on the results of the review, modifications (enhancements) may be made to the plan.

Since the last peer review, Metrolink has made vast improvements to the operational testing programs. Some of the key improvements include:

- Responsibility for program oversight as well as responsibility for periodic review of operational testing plans has been clearly established.
- SCRRA operations managers are conducting joint operational tests with contractor testing officers, attending joint training programs, and meeting weekly with contractor representatives to review the results of tests and inspections. SCRRA personnel have established an excellent working relationship with contractors that fosters communication and a partnership in overseeing the proper application of operating rules.
- Metrolink has installed inward facing cameras in the operating cabs of the entire fleet. Monthly tapes are randomly selected for review to determine engineer compliance with operating rules. Metrolink Field Operation Managers jointly conduct the review with an Amtrak Testing Officer. The results of the review are entered into the efficiency testing database.

Metrolink's System Program Administrator (SCRRA's Field Operations Officer) oversees compliance with the CFR required six month review for all contractors as well as for in house testing plans. Metrolink's program administrator evaluates the review with each contractor, testing-review officer, to determine if modifications to the testing plans are required to enhance safety.

Metrolink has gone beyond the requirements of the CFR by completing the following:

1. A monthly pro-active review of operational tests and inspections rather than every six months (as required by FRA regulations).

SCRRA staff meets weekly with contractor representatives to conduct this analysis. The team adjusts plans to address any deficiencies or issues on a monthly rather than a six month time frame.

2. Provisions in each contract that require immediate notification of appropriate SCRRA personnel when a contractor testing officer encounters a failure on a safety critical rule when conducting a test.

This is a "as it happens approach" on top of the monthly review as outlined previously.

3. Requiring a root cause analysis of any safety critical rule violation.

SCRRA's contractors, SCRRA testing officers and SCRRA Safety Department personnel meet to evaluate the safety critical rule violation. A set agenda and procedure are followed with an established report form that includes identification and tracking of action items. A 30 day follow up is a required step in this process. The Panel believes that SCRRA's root cause analysis process is a model for other agencies to follow.

Regarding Efficiency Testing on safety critical rules, SCRRA has set a standard and developed an oversight process to ensure that their prescribed number of tests is conducted on safety critical rules and that it meets federal regulations. The Panel recommends that SCRRA conduct an analysis to validate their standard.

Safety Critical Rules are defined as operating rules that may result in an accident or serious incident if they are not followed. Metrolink personnel have identified safety critical rules for Metrolink's system and operations and have produced a document identifying safety critical rules that is provided to all testing officers. The testing officers are required to conduct a minimum number of tests on the identified safety critical rules, per month, per the departmental Operational Testing Plan.

1. All operational testing plans include a requirement for each testing officer to conduct a minimum number of tests on safety critical rules each month.
2. Metrolink utilizes their electronic efficiency testing database to conduct a monthly analysis to determine if each testing officer is conducting the required number of tests on safety critical rules. If a testing officer is out of compliance, a notification letter is provided to the testing officer as well as to his supervisor.

Metrolink has also fully implemented the use of an electronic efficiency testing database. The data-base is fully compliant with the requirements of federal regulations for an electronic record keeping system. Metrolink requires that all contractor testing officers enter test data results into the SCRRA efficiency testing database, with the exception of Amtrak. Amtrak utilizes its own electronic data-base and provides a monthly report to the SCRRA System Program Administrator.

As noted in previous peer reviews, SCRRA has established monthly testing requirements for SCRRA and Contractor testing officers as part of Operational testing plans.

- As reviewed above in b. ii, Metrolink staff conducts a monthly review to determine if SCRRA and contractor testing officers are compliant with the testing requirements of operational testing plans.
- SCRRA and contractor testing officers consistently exceed the minimum number of operational tests required per month, as highlighted in Table 1, below.

**Table 1**  
**SCRRA Oversight Statistics for the Year 2012<sup>4</sup>**

Contractor	Number of employees subject to testing	Number of Testing Officers	Minimum # of safety critical tests per month, per plan	Actual # of tests per month on Safety Critical Rules in 2012 (average)	Number of SCRRA testing officers per contractor	Minimum # of "oversight" tests required per contractor per month	Actual # of "oversight" tests per month in 2012 (average)	Number of SCRRA Field Operations Managers per contractor	Minimum # of "oversight" tests required for Operations Managers per month
Amtrak	136	11	415	1100	3	10	15	3	10
Bombardier	117	11	15	370	4	3	6	1	3
VTMI	70	5	5	250	3	13	6	1	3
Mass Electric	49	9	5	275	0	13	3	0	0

### **Additional Recommendations**

As a result of the 4-Year review, the Panel recommends the following additional recommendations h – k:

#### **h. Improve SCRRA oversight of contractor testing officer performance**

- Develop a Metrolink "Oversight" Operational Testing Plan
- Develop a SCRRA Testing Officer standard operating procedure (SOP), to provide guidance for oversight testing
- Develop a training module for both the Oversight Operational Testing Plan and the Oversight Testing SOP. Incorporate these training modules into the training program for SCRRA testing officer qualifications.
- Add the Metrolink Operational Oversight Testing Plan as well as the oversight testing SOP to the lesson plans for contractor testing officer training programs. Sharing this with the contractor testing officers will set expectations for operational testing.
- Revise the electronic testing system database to record oversight tests on contractor testing officer evaluations.
- Provide contractors with a periodic report of the results of the oversight testing
- Revise all Operational Testing Plans to require oversight testing on safety critical rules.

#### **i. Consider acquiring an electronic device (tablet, PDA) to conduct efficiency testing in the field.** Use of an electronic device would have the following advantages:

- Enforces the requirement that all pertinent rules are tested per task
- Automatic fill in of required CFR data to more easily capture data and minimize errors due to data entry from paper to the electronic system.

<sup>4</sup> The data in this chart was provided by SCRRA

- Streamlines the process which allows for an increase in the number of efficiency tests conducted, via automated fill-in and reduced data entry.
  - Automatic notification to the testing officer of the specifics of previous failures of employees being tested
- j. Conduct an in-house analysis to determine if the SCRRA prescribed standard for the required number of tests conducted is sufficient**
- Based on the number of employees subject to testing and the number of testing officers, the Panel recommends that SCRRA conduct an in-house statistical analysis to determine if a sufficient number of tests are conducted to ascertain employee compliance with operating rules.
  - The Panel also recommends that the SCRRA conduct a similar analysis as above, to determine if SCRRA is conducting a sufficient number of oversight tests to ascertain if contractor testing officers perform accurate, quality efficiency tests.
- k. Utilize the Federal Railroad Administration (FRA) Reports**
- Revise contracts to require that all contractors provide a copy of the following to SCRRA (Note: This would only apply to inspections conducted on Metrolink property and audits on programs applying to Metrolink.):
    - FRA Inspection Reports
    - FRA notification letter of an impending audit
    - FRA preliminary and final reports of the results of the audit
  - Require that Metrolink representatives be invited to FRA audit kick off meetings as well as the preliminary audit results report meetings.

## 5. Infrastructure Maintenance

Panel Recommendations	6-Month Status	4-Year Status	Timeframe
<b>MAINTENANCE OF WAY</b>			
a. Implement an electronic asset mgmt. system	In progress	In Progress But needs to be made a priority	Intermediate-term
b. Evaluate adequacy of quals testing	Completed	Completed	Intermediate-term
<b>VEHICLE EQUIPMENT MAINTENANCE</b>			
a. Designate a site manager at CMF	Completed	Completed	Short-term
b. Perform staffing analysis and hire, as needed	Completed	Completed Should be revised as major projects, such as the Tier 4 Locomotive purchase, are planned and approved.	Intermediate-term
c. Establish a Qualified Maintenance Person at MOC	In progress	Completed	Short-term
d. Fully integrate the Mechanical Dept. into system-wide Risk Management analysis	In progress	Completed	Intermediate-term
e. Conduct a staffing analysis on increasing fleet	In progress	In progress See b. above	Short-term
f. Conduct training for train operators on equipment troubleshooting	In progress	Completed	Short-term
g. Improve inter-departmental coordination	In progress	In progress	Short-term
h. Strengthen the contractor's document control policies	Completed	Completed	Intermediate-term
<b>INFRASTRUCTURE SAFETY IMPROVEMENTS</b>			
a. Continue to work with local and state stakeholders to implement grade crossing safety education and enforcement	In progress	In progress	Long-term
b. Continue to upgrade the vehicle fleet, including CEM technology	In progress	In progress	Long-term
c. Re-evaluate intermediate and long-range goals to construct further grade separations	In progress	In progress	Long-term
d. Continue and expand SCRRRA's "Sealed Corridor Program" to enhance overall safety and security	In progress	In progress	Long-term
e. Double track to improve operations and increase	In progress	In progress	Long-term

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commuter/ freight capacity and reduce train conflicts

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**Additional Recommendations**

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- a. Establish a Task Force to explore the full capabilities of Maximus as an asset mgt. tool

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- b. Implement a Signal Engineering program of joint inspections with the MEC signal inspectors and maintainers on a more frequent basis than the joint inspections performed by the FRA or CPUC

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- c. Have the Mechanical Department review the staffing needs to support the Tier 4 Locomotive purchase.

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***4-Year Status***

**a. Implement an electronic asset management system**

In discussions with the Mechanical Department staff and Bombardier, it became apparent that there is limited information on the performance of vehicle components, sub-systems, and systems. There is mechanical reliability data regarding mechanical (locomotive and passenger car) causes of delay but very little data on the specific components, subsystems, or systems that caused the failure, and needed to be replaced prior to reaching its useful life. Currently what limited information is available is done manually.

The Mechanical Department has the latest available version of Maximus which is an asset management and failure tracking system. The Panel recommends that the Mechanical Department, Bombardier, and SCRRA's IT group establish a Task Force to explore the full capabilities of Maximus and develop a plan for identifying changes or interfaces that may be necessary to the system to expand the current use. The Panel also recommends that the Maintenance of Way (MOW) department participate in the initial review, to determine whether Maximus is capable of supporting MOW's asset management and failure tracking needs.

Therefore, an electronic asset management system to support infrastructure and systems asset management and maintenance is still needed. Metrolink has explored, initiated and tested a number of asset management system but has yet to select and implement a system. Initially Metrolink explored the installation of MOWIS (M of W Information System) by Hartsco (ZetaTec). The system was determined to be too difficult to implement and required a number of changes. The decision was made not to proceed with the implementation.

SCRRA then explored the use of Maximus, which was owned by Metrolink and had limited use in the Mechanical Department in support of vehicle maintenance. Maximus was satisfactory for inventory management, but did not support their other requirements. Currently they are reviewing other products, and revisiting the use of MOWIS. The Panel encourages their continued efforts and recommends that they survey other rail systems to assist in their research.

The Panel was given a presentation on the track inspection and track analysis tool, TQI, which is being implemented by Metrolink. The project is worthwhile to progress and brings a systematic approach to track inspection and measurement. TQI enhances the track inspection process and assists the staff in the prioritization and scheduling of track maintenance.

**b. Joint inspections by SCRRA and contractors**

SCRRA has increased and enhanced their joint inspections with their contractors as follows.

- SCRRA has retained J.L. Patterson & Associates to audit bridge inspections performed by VTMI and to accompany VTMI inspectors and review inspection records.
- SCRRA has two track supervisors who review track inspection records and maintenance work performed by VTMI. The Panel recommends that the SCRRA expand the review of the two track supervisors to oversee the VTMI inspections, include several independent inspections to validate the VTMI measurements and inspections and follow up to determine if deficiencies found by VTMI have been corrected.
- SCRRA has a Compliance Manager on staff that reviews Mass Electric's compliance with maintenance signal drawings and mandated FRA signal inspection requirements. This manager also assures that mandated FRA signal inspections are current. The Compliance Officer is performing ten random audits per month of various signal and grade crossing locations. The Compliance Officer focuses on compliance with SCRRA Signal Engineering Standards, signal circuit plans and Maintenance Manual test and inspection procedures. Signal Engineering is participating in joint inspections conducted by both the FRA and the CPUC regulatory agencies. MEC, the signal maintenance contractor participates in these joint inspections.
- The Panel recommends that SCRRA Signal Engineering implement a program of joint inspections with the MEC signal inspectors and maintainers on a more frequent basis than the joint inspections performed by the FRA or CPUC.

**c. Evaluate the adequacy of qualifications testing**

All Contractor training programs are reviewed and approved by SCRRA staff prior to implementation. They have also reviewed and approved Contractor training and qualification testing procedures.

**Vehicle Equipment Maintenance****a. Designate a site manager at Metrolink Central Maintenance Facility (CMF)**

SCRRA Operations management located the Site Manager position at the CMF. This recommendation was complete at the time of the 6-month review. Currently SCRRA's Chief Mechanical Officer and his staff are located at CMF.

**b. Perform a staffing analysis and hire people as needed**

The recommended personnel changes have been addressed. This recommendation is complete. The Rotem car and MotivePower locomotive orders are completed.

The Panel recommends that the Mechanical Department review the staffing needs to support the Tier 4 Locomotive purchase and any other analysis of staff needs as part of Issue 2, Organizational Assessment and Issue 7, Strategic Plan.

**c. Establish a Qualified Maintenance Person (QMP) at Metrolink Operations Center (MOC)**

The Qualified Maintenance Person (QMP) process has been completed and has been strengthened with the location of the person in Metrolink Dispatch Office. It is a very successful program that has facilitated the response to over the road vehicle failures and has improved the

coordination between the Transportation and Mechanical departments. This recommendation is complete.

**d. Fully integrate the Mechanical Department into system-wide risk management analysis**

This action item is in progress.

**e. Conduct a staffing analysis on increasing fleet**

Any analysis of staff should be completed as part of Issue 2, Organizational Assessment and Issue 7, Strategic Plan.

**f. Training for engineers on equipment troubleshooting**

Metrolink has developed the "Operators Trouble Shooting Guide" for Engineers and Conductors, to guide them in identifying and correcting on-board equipment problems. The guide is also being used as a training tool for new employees. The QMP, who is located in the dispatch office, has the ability to communicate directly with the engineer and get better information regarding the event. This effort is ongoing and should be re-evaluated periodically to ensure that current needs are being met.

**g. Improve inter-departmental coordination**

This coordination has been improved. As noted above, the relocation of the QMP to the Dispatch Office has contributed significantly to improving communications and coordination between the Transportation and Mechanical Departments.

**h. Strengthen contractor's document control policies**

SCRRA has worked with Bombardier to revise the document control policies. The policies have been strengthened consistent with the recommendations of the Panel. This recommendation is complete.

**Infrastructure Safety Improvements**

A number of infrastructure safety improvements were identified for completion by Metrolink as part of the 2009 Safety Peer Review and 6-Month Review. The infrastructure safety improvements were classified into the following categories:

- Grade crossing safety education and reduction in grade crossings
- Crash Energy Management
- Sealed Corridor (including Grade Crossings)
- Double Tracking

Over the past 4 years, Metrolink has made significant progress towards completing a variety of projects in the categories listed above. A total of 35 safety related capital projects have been completed or initiated by Metrolink since the beginning of 2009, as well as a variety of safety related rehabilitation projects – an investment of nearly \$545 million. Metrolink's progress on each of the identified categories is discussed below and presented in Table 2.

**a. Grade Crossing Safety Education; Reduction in Grade Crossings**

A total of 15 "safety focus" projects have been completed by Metrolink since 2009, with one project that is still active. A total of \$40 million has completed a variety of infrastructure projects,

such as Keller Yard improvements, signals, and swing gates, passenger-oriented station and communication improvements, and operational improvements, such as cameras and intrusion detection.

A total of 5 grade crossing improvement projects have been completed by Metrolink since 2009 and the Orange County grade crossing program is an on-going program. A total of nearly \$86 million in Metrolink funding has been expended on these important safety measures.

**b. Crash Energy Management**

SCRRA has purchased 137 Crash Energy Management Rotem vehicles. The Rotem vehicles provide passengers with state-of-the-art safety vehicles on all rail lines. The total investment for the CEM vehicles by SCRRA was approximately \$230 million.

**c. Sealed Corridor (including Grade Crossings).**

The Ventura Line was successfully sealed in 2010 with approximately \$740,000 contributing to this important safety project.

Metrolink is an active participant in the various phases of the grade separation and grade crossing projects, including involvement in the alternatives analysis, environmental review, design, and construction activities. Metrolink's member agency cities take the lead on grade separation projects within their cities. Metrolink has contributed nearly \$12 million to date to their member agencies' grade separation projects.

**d. Double Tracking**

A total of 7 double tracking projects are currently underway, and one has been completed in the four year timeframe. These double tracking projects represent a total investment of nearly \$90 million in both safety and operational improvements.

**Safety Rehabilitation**

Lastly, Metrolink has undertaken many safety rehabilitation projects over the last four years. These projects include communication equipment, facilities, maintenance of way projects, signage, signals, ancillary structures, track replacement projects, and the design associated with noted safety rehabilitation projects. Over the past four years, Metrolink has completed \$87 million in safety rehabilitation projects.

**Table 2**  
**Metrolink Infrastructure Safety Projects Completed FYs 2009 – 2012<sup>5</sup>**  
**(\$dollars)**

Project Name	Project Cost
<b>General Safety Projects</b>	
Pomona Station Improvements	10,805,989
Keller Yard	13,762,713
Cameras at High Priority Locations	180,509
San Gabriel - Swing Gates & Fencing	866,923
Tunnel 25 Lighting and Intrusion Detection	4,973,769
Swing Gates & Fencing	1,458,423
Intrusion Detection at Tunnels 18 and 19	169,048
Tunnel 26, 27, and 28 Fencing and Access Control	14,024
Tunnel 18,19,25,26,27,28 Directional Signage	95,712
CMF Vehicle Entrance and Storage Improvements	865,568
Passenger Emergency Communications Interface	478,231
Forward Cameras	371,907
Inward Cameras	356,539
Intrusion Detection at Tunnels 26 and 27	528,229
Systemwide Improvements: New & Respaced Signals	5,104,081
<b>Subtotal, General Safety Projects</b>	<b>\$ 40,031,666</b>
<b>Grade Crossing Improvement Projects</b>	
OCTA Grade Crossing Event Analyzers	118,374
Flower Street Grade Crossing Improvements (City of Glendale)	2,400,610
Coldwater Grade Crossing	3,340,757
Caltrans - Balboa Blvd	351,051
OC Grade Crossing Program	79,431,399
<b>Subtotal, Grade Crossing Improvements</b>	<b>\$ 85,642,192</b>
<b>Grade Separation Projects</b>	
Rancho Cucamonga Pedestrian Underpass	6,556,388
Jeffrey Road Grade Separation	2,877,980
Haven Avenue Grade Separation (Underpass)	2,036,288
Fairmont Ave OH - City of Glendale	253,037
Newport Ave OH - City of Tustin	131,913
<b>Subtotal, Grade Separations</b>	<b>\$ 11,855,606</b>
<b>Crash Energy Management Vehicles</b>	
Crash Energy Mgt Rotem vehicle purchase - 137 Cars (57 Cabs, 80 Trailers)	229,461,678
<b>Subtotal, Crash Energy Management Vehicles</b>	<b>\$ 229,461,678</b>
<b>Sealed Corridor Projects</b>	
SCRRA Sealed Corridor (Design Phase)	725,095
Sealed Corridor - Ventura County Line	11,798
<b>Subtotal, Sealed Corridor Projects</b>	<b>\$ 736,893</b>

<sup>5</sup> Project information provided by SCRRA staff

**Table 2 (continued)**  
**Metrolink Infrastructure Safety Projects Completed FYs 2009 – 2012**  
**(\$dollars)**

Project Name	Project Cost
<b>Double Tracking Projects</b>	
El Toro Relief Siding	259,678
MSEP Systemwide	14,415,312
Fullerton Turnback Facility	18,705,711
Laguna Niguel Turnback Facility	23,520,849
Anaheim Layover Facility	7,725,118
New Control Points at CP Lincoln and CP College	6,363,096
Orange Relief Siding	6,693,908
<b>Subtotal, Double Tracking</b>	<b>\$ 88,963,771</b>
<b>Safety Rehabilitation Projects</b>	
Projects include communication equipment, facilities, maintenance of way, signage, signals, structures, track replacement and design	<b>87,000,000</b>
<b>Subtotal, Double Tracking</b>	<b>\$ 87,000,000</b>
<b>GRAND TOTAL - ALL SAFETY PROJECTS</b>	<b>\$ 543,691,806</b>

### **Additional Recommendations**

The Panel recommends the following additional recommendations:

- a. Establish a Task Force to explore the full capabilities of Maximus as an asset management tool.
- b. Implement a Signal Engineering program of joint inspections with the MEC signal inspectors and maintainers on a more frequent basis than the joint inspections performed by the FRA or CPUC.
- c. Have the Mechanical Department review the staffing needs to support the Tier 4 Locomotive purchase.

## 6. Analysis of Metrolink Short Term Safety Projects

Panel Recommendations	6-Month Status	4-Year Status	Timeframe
a. Investigate, specify, procure and install inward-looking video technology in the operating cabs	Completed	Completed	Short-term
b. Accelerate the implementation of PTC over the entire Metrolink system and work with BNSF, UPRR, Amtrak, FRA on cost-effective design & deployment	In progress	Acceleration Completed. PTC to be completed in 2013	Long-term
c. Implement short-term actions of Panel's Metrolink Enhanced Safety Action Plan, which can replace the Second Set of Eyes program.	Completed	Completed	Short-term
d. Expedite plans to transition from the Digicon system and implement action plan for maintenance and other emergencies in the interim	Completed	Completed	Short-term
e. Implement medical evaluations prior to placement of contractor employees in a safety covered position at least every three years	In progress	Withdrawn	Intermediate-term
f. Participate in the Hours of Service issue with FRA's Rail Safety Advisory Committee process	In progress	Completed	Intermediate-term
g. In cooperation with its operating contractor, conduct a review of SCRRA operator's Hours of Service Split Shift schedules to determine any risk factors	In progress	Completed	Intermediate-term

### 4-Year Status

#### a. Forward and inward-facing video cameras

Metrolink has completed and activated the inward and forward-facing cameras on all its existing locomotives and cab cars. They have also incorporated the review of a sampling of 30 videos per month as part of Metrolink's Efficiency Testing Program.

#### b. PTC and replacement of dispatch software system

SCRRA is proceeding expeditiously on the implementation of Positive Train Control (PTC) and its dispatch software system. PTC is scheduled to be completed and operational over the Metrolink system by fall 2013. This is more than two years prior to the mandate and will significantly enhance the safety of Train Operations.

#### c. Implement short-term actions of Panel's Metrolink Enhanced Safety Action Plan which can replace the Metrolink "Second Set of Eyes" program.

This was completed as an interim measure until the inward facing cameras were completed. The program is no longer in place.

**d. Expedite plans to transition from the Digicon system and implement action plan for maintenance and other emergencies in the interim**

SCRRA has completed the plans to transition from the Digicon system. The new ARINC system is schedule to be installed and in operation in March 2013. The Digicon system will be operated in “shadow” mode until June 2013.

**e. Triennial medical evaluations for safety covered positions – refer to FRA RSAC process**

The Federal Railroad Administration (FRA) Railroad Safety Advisory Committee (RSAC) on medical standards has been suspended. No future regulation on medical standards is expected at this time.

**f. FRA Hours of Service (HOS) RSAC and APTA HOS Study**

The FRA Commuter Rail and intercity Passenger Hours of Service(HOS) Rail Safety Advisory Committee (RSAC) has concluded with the results of new HOS requirements for passenger railroad Train and Engine Service employees. The new regulations require an ongoing analysis of schedules to identify and mitigate any schedules that have an unacceptable level of risk for fatigue. Amtrak is responsible for compliance with the new requirements of FRA HOS service regulations.

The American Public Transportation (APTA) working group has also concluded the study on analysis of passenger railroad schedules to ascertain the potential for fatigue for Train and Engine service employees. The APTA study demonstrated that existing commuter railroad split shift assignments are not assignments that are at risk for fatigue.

**g. Review contractor's Hours of Service Split Shift schedules**

The Panel completed an Hours of Service Study in April 2012. This study showed that Metrolink operators are within acceptable standards of commuter rail systems and that for scheduled assignments, fatigue is not an issue with Metrolink. This report is available upon request from the SCRRA.

## 7. Strategic Plan

Panel Recommendations	6-Month Status	4-Year Status	Timeframe
a. Update Strategic Plan to include strategic operational and safety issues	Yet to be started	In progress	Intermediate to long-term for initial process; on-going thereafter
b. Seek buy-in at multiple levels on funding commitments, flexible budgeting processes, and rigorous project evaluation and prioritization	Yet to be started	In progress	Intermediate-term
c. Explore new technologies, wider markets and more effective operational safety strategies during the strategic planning process	Yet to be started	In progress	Intermediate-term

### 4-Year Status

The Panel continues to recommend that SCRRA complete a comprehensive strategic planning process that builds on the Strategic Assessment completed in 2007. The Strategic Plan should include elements from the Strategic Assessment with a focus on goals, objectives, processes, procedures and systems required to achieve the goals and objectives identified and adopted by SCRRA as part of the Strategic Plan.

#### a. Update Strategic Plan, with added emphasis on safety, flexible budgeting processes, and new technologies

In 2007, the SCRRA completed a comprehensive Strategic Assessment of the Metrolink organization. The assessment included information and analysis on the following agency and operational elements:

- Current System and Baseline Capacity
- Metrolink System Safety Program
- Communications
- Demographics Ridership Profiles
- Growth Elements (connections/extensions, station access and development)
- Future Service Scenarios & Ridership Forecasts
- Operating Costs and Allocation
- Rehabilitation and Renovation Costs (infrastructure, rolling stock, other equipment)
- Capital Costs
- Future Scenario Evaluation
- Implementation Challenges

The Strategic Assessment also included a discussion of SCRRA's strengths, weaknesses, opportunities, threats and unknowns. This analysis was completed in order to emphasize and build-on SCRRA's strengths, capitalize on available opportunities and minimize risks associated with weaknesses, threats and unknowns. An outcome of this effort was the determination by SCRRA management "that the Metrolink Strategic Assessment should focus on Metrolink's strength as a safe and growing commuter rail operator. Specifically, the effort was to determine how best to ramp up service levels, including off-peak and weekend trains, over the next 24 years."

In 2008, an update of the Strategic Assessment provided information on both weekday and weekend service changes and identified new projects added to the 2010 capital projects listing. A total of 5 weekday trips were added and 22 weekend trips were added between 2005 and July of 2008. A total of 19 capital projects were identified and included the following: 4 sealed corridor/safety/security projects; 8 capacity or service expansion projects; 1 good movement project; and 6 station access projects.

While the 2007 Strategic Assessment and 2008 Update were important activities to realistically and thoroughly assess the Metrolink system and capacity, they did not include efforts to develop an implementation plan to reach the preferred long-range service levels; and ultimately, did not provide the high-level guidance, vision, mission and partner agency commitment that should be included as part of the development and adoption of a Strategic Plan.

At the November 2012 SCRRA Board Workshop, the Board identified strategic planning as a priority. The Panel again recommends that SCRRA complete a comprehensive strategic planning process that builds on the Strategic Assessment completed in 2007 to complete a comprehensive Strategic Plan. The strategic plan should include many of the same elements as the Strategic Assessment, but should include the development of goals and objectives and identify the processes, procedures and systems that are required to reach the goals and objectives identified within the Strategic Plan.

The Strategic Plan should revisit, augment and refine the earlier efforts and either address or include the following elements:

1. Mission and Vision Statement
2. Goals and Objectives
3. Risks and Opportunities Assessment
4. Performance Measurements, such as safety, cost savings, operational benefits, customer service
5. Member Agency and Stakeholder Relationship Plan and Approach Governance
6. Organizational Structure and Resource Plan
7. Business Model
8. Financial and Business Systems Plan
9. System Safety Program Plan
10. Security and Emergency Preparedness Plan
11. Communications Plan (Internal and External)
12. Customer Service Plan Operating Plan
13. Infrastructure and Service Development, Prioritization and Phasing Plan
14. Ridership and Revenue Plan
15. Operations Plan
16. Capital Plan
17. Funding Plan for both Operating and Capital funding necessary to support planned service levels, vehicle and infrastructure state-of-good-repair, improvements, betterments and expansion.

**b. Seek buy-in at multiple levels on funding commitments, flexible budgeting processes, and rigorous project evaluation and prioritization**

SCRRA leadership continues to work with its member agencies and other stakeholders regarding passenger and commuter rail service within the Metrolink service area. Member agencies and other stakeholders should be actively engaged in the Strategic Planning process to foster buy-in to Metrolink's existing and future safety, service, capital and operations plans. Achieving a higher level of agreement and buy-in to Metrolink's adopted mission, vision, goals and objectives will improve Metrolink's ability to obtain member agency commitments to both implement and fund identified service expansion and capital projects.

The emerging interest and emphasis on opportunities in Southern California by the California High Speed Rail Authority (CHSRA) and current and future intercity rail service provides opportunities and challenges for Metrolink service plans where joint operations are being considered. SCRRA should take a proactive stance and provide leadership through its Strategic Plan pertaining to the planning and development of the high speed rail and intercity rail services in Southern California. In addition, Metrolink should seek to partner with other service carriers, such as Amtrak (long-distance and intercity service), the potential new managing agency for the San Luis Obispo to San Diego (LOSSAN) corridor service, as well as freight operators BNSF and UPRR.

Once the Strategic Plan has been developed, SCRRA should monitor its progress towards meeting the goals, objectives and performance measures. Results of the progress on performance measures should be reported to the Board on an annual basis, prior to the development of the Capital and Operating budgets. The performance analysis and results can then be used by the Metrolink management and Board to not only assess performance toward the overall goals, but also to reassess, refine and realign the mid-term and long-term capital and operating plans to reflect new developments in service and capital needs, and funding and revenue streams.

**c. Explore new technologies, wider markets and more effective operational safety strategies during the strategic planning process**

SCRRA is exploring and implementing new technologies such as their purchase and use of the Rotem crash energy management cars, the implementation of Positive Train Control (PTC) throughout their system, and the use of new electronic track analysis tools.

The exploration of new technologies, capital projects and operational safety strategies should be an ongoing effort by SCRRA and Metrolink personnel as new technologies and strategies are identified and deemed appropriate for the Metrolink system. Furthermore, the Panel recommends that the Strategic Plan emphasize system safety in coordination with the SSPP (see Issue 3).

## 8. Governance

Panel Recommendations	6-Month Status	4-Year Status	Timeframe
a. Conduct a self-assessment of the Board's performance with particular emphasis on safety and operational oversight	Yet to be started	Yet to be started	Intermediate-term
<b>b. Develop Board and Board responsibilities and actions</b>	Yet to be started	In Progress	Intermediate-term
i. More rigorous briefing sessions for new Board members	Yet to be started	In Progress	Intermediate-term
ii. Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole	Yet to be started	Yet to be started	Intermediate-term
iii. Establishment of a subcommittee on operations and safety oversight	Yet to be started	Completed	Intermediate-term
iv. Board-adopted safety and operations performance measures	Yet to be started	In Progress	Intermediate-term
v. Guidelines for the addition of safety and operational staff positions as new services are introduced	Yet to be started	Yet to be started	Intermediate-term
vi. Revised, more comprehensive strategic plan for the agency that addresses safety and operational issues	Yet to be started	In Progress	Intermediate-term
vii. Direct board involvement in developing/updating the Enhanced Safety Plan and monitoring its implementation	Yet to be started	In Progress	Intermediate-term

### 4-Year Status

In its original 2009 report, the Panel suggested that the Board take a look at its role in governing the SCRRA and how its role interplays with the safety culture of the organization. The Panel recommended that the Board develop Board responsibilities and actions in the following areas:

- More rigorous briefing sessions for new Board members;
- Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole;
- Board-adopted performance safety and operational performance measures;
- Guidelines for the addition of safety and operational staff positions as new services are introduced;
- Revised, more comprehensive strategic plan that addresses safety and operational issues; and
- Direct board involvement in developing and updating the Enhanced Safety Action Plan and monitoring its implementation.

The status of each of the Panel's governance recommendations is discussed below.

**a. Conduct a self-assessment of the Board's performance with particular emphasis on safety and operational oversight**

The Panel still recommends that SCRRA conduct a self-assessment of its performance with emphasis on safety and operational oversight. The Panel recommends that the Board consider the broader issue of governance which includes:

- Developing and implementing long term strategies and goals oriented towards enhancing Metrolink's safety performance; and
- Providing the financial resources necessary to implement the agreed upon strategies and goals.

**b. Develop Board and Board responsibilities and actions, including:**

**i. More rigorous briefing sessions for new Board members**

SCRRA has initiated briefing sessions for Board members over the last four years. Increased participation is encouraged to maintain constructive briefings and consistent messaging amongst the representative Board and TAC members. The Panel recommends that SCRRA staff continue to provide more frequent and regular opportunities to brief and educate board members on SCRRA operations and projects

The Panel is aware of some suggestions for Board briefings sessions, which we think is a good start. New and existing Board members should have an understanding of the operations of the organization, the role that they play as Board members in the development and promotion of a safety culture within the organization, and a working understanding of the SCRRA. Both new and existing board members, if they have not done so already, should be strongly encouraged to participate in the following educational events:

- a) Within a certain amount of time after becoming a Board member (no more than two months), new members should participate in an educational briefing about the SCRRA, including, but not limited to, how the agency operates, key safety initiatives and measures, key personnel, contractors and their relationship with the agency, key contracts the agency has with outside providers and other items believed to be critical to effective Board governance.

The orientation/educational briefing should be at least one half day in length, with a curriculum to be developed by the staff and reviewed and approved by the Board, or its subcommittee.

- b) Within a four-month period of assuming Board membership, each Director should arrange to visit the Metrolink Operations Center for a briefing on its operation and role within the organization.
- c) Within the same four-month period, each new Director should also visit the Central Maintenance Facility (or upon its opening, the new Eastern Maintenance Facility), to see how the trains are serviced and maintained.
- d) Finally, within a six-month timeframe, each new Director should be required to complete a high-rail tour of a portion of its rail line, as determined by maintenance staff, to bring to their attention any unique or other operating areas.

The Panel believes that these are good initial steps to have the Board Members familiarized with Metrolink, its service, and its facilities.

However, the recommendations do not address the longer term issue of governance; and that is the Board responsibility in supporting and requiring management to develop longer term strategic plans, goals and measurements to both guide management and to hold them accountable for their performance. This is particularly important when there is the potential for conflict between SCRRA staff and the staffs of the member agencies that the Board Members represent.

**ii. Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole**

Board committee responsibilities and assignments and Bylaws have been developed, approved and documented.

The Panel continues to recommend that there would be value in developing and approving board member duties and responsibilities. This step is crucial in measuring performance. These duties and responsibilities should be part of a comprehensive Board Briefing Book which would guide new and continuing Board members.

**iii. Establishment of a subcommittee on operations and safety oversight**

The board has created a Board Safety and Operations Committee.

**iv. Board-adopted safety and operations performance measures**

SCRRA has established a Board Safety and Operations Committee and safety and operations metrics are presented to this committee on a monthly basis.

The Panel continues to recommend that the Board adopt safety and operations performance measures in order to track and monitor performance and progress. These metrics should be developed as part of the Strategic Plan with agreed upon annual goals and objectives.

**v. Guidelines for the addition of safety and operational staff positions as new services are introduced**

This is a critical issue to be determined in the Strategic Plan.

**vi. Revised, more comprehensive strategic plan for the agency that addresses safety and operational issues**

This continues to be a need and is discussed in more detail in Issue 7, Strategic Plan. Board members should be directly involved in this effort.

**vii. Direct board involvement in developing/updating the Enhanced Safety Plan and monitoring its implementation**

SCRRA staff brief Board members on the Safety and Operations Committee on a monthly basis. The Panel recommends that the full Board also receive updates on the Panel's Metrolink Enhanced Safety Plan and its eight issue areas and sub areas on a quarterly or semi-annual basis.

## **9. Summary of 4-Year Panel Recommendations**

The Panel commends the SCRRA for completing and having in progress many of the short term actions in the Panel's recommended Metrolink Enhanced Safety Action Plan. The Panel would now like to see SCRRA focus on the intermediate and longer term actions where the agency has not yet started. These include setting long term, measurable safety goals, performing an organizational assessment, updating the Strategic Plan and improving Board governance.

The Panel recommends that the SCRRA take the following actions, consistent with the Panel's original recommendations:

1. Re-instate original Strategic Safety Leadership Team (Issue 1)
2. Develop Long-Term, Measureable Safety Goals (Issue 1)
3. Perform an Organizational Assessment (Issue 2)
4. Develop an SCRRA Strategic Plan (Issue 7)
5. Implement Panel's Board Governance Recommendations (Issue 8)

In addition, the Panel recommends two additional areas of improvement for safety with the following recommended actions:

6. Enhance SCRRA's System Safety Program Plan (Issue 3 – Additional Recommendations)
7. Enhance Operations Testing Programs and acquire an electronic device to conduct efficiency testing in the field (Issue 4).

## **Appendices**

Appendix A: Panel Member Biographies

Appendix B: The Updated 4-Year Metrolink Enhanced Safety Action Plan Matrix

Appendix C: The Panel's March 8, 2013 presentation to the SCRRA Board on SCRRA's 4-year progress in accomplishing the Metrolink Enhanced Safety Action Plan.

Appendix D: *Metrolink Safety Peer Review 6- Month Report Card Report*, December 2009

Appendix E: *Metrolink Safety Peer Review Report*, January 2009

**APPENDIX A**  
**4-Year Update**

**Metrolink Commuter Rail Safety Peer Review  
Panel Member Bios**

## Metrolink Commuter Rail Safety Peer Review Panel Member Bios

### **Linda Bohlinger**

#### **Vice President, National Director of Management Consulting HNTB Corporation**

*Metrolink Safety Peer Review Lead; Transportation Agency Management, Including Commuter Rail; Contract Systems and Contracts Oversight*

Linda served as the lead on the original and 6-months Metrolink Safety Peer Review Panel.

Linda has over 35 years' experience in the transportation industry. As Vice President of HNTB, she is responsible for leading HNTB's national Management Consulting practice.

Her previous public sector experience was as the Executive Director of South Florida's Tri-County Commuter Rail Authority (Tri-Rail), now named the South Florida Regional Transportation Authority. Tri-Rail is a 71-mile commuter rail system that runs from Miami to Ft. Lauderdale to Palm Beach. Similar to Metrolink, Tri-Rail contracts out its operations and maintenance activities and shares its rail corridor with multiple freight and Amtrak users.

Linda also has had fifteen-year tenure with the Los Angeles County Metropolitan Transportation Authority (Metro), where she held positions of CEO, Deputy CEO and Planning Executive Officer. She also served as Deputy Director for the California Transportation Commission in Sacramento, CA.

She helped start up Metrolink in the early 1990's when she worked for Metro. She helped purchase the railroad right-of-way, negotiated all the funding agreements with the five counties and secured the initial grants. She is currently working on the LOSSAN Corridor Strategic Implementation Plan and governance issues.

Linda is active in the transportation industry and is currently the Chair of the North American Transit Services Association (NATSA), affiliated with the American Public Transportation Association (APTA), which oversees the standards development and research arm of APTA. She is also the former Chair of the American Public Transportation Foundation and former member of the APTA Executive Committee. Linda has a Master of Public Administration from the University of Southern California.

### **Peter A. Cannito, Sr.**

#### **LPC and Associates, Inc.**

Transportation Consultant

*Metrolink Safety Peer Review Co-Lead; Railroad and Transit Management Professional, with experience managing all aspects of Railroad Operations, Maintenance, and Engineering.*

Pete served as co-chair of the original and 6-months Metrolink Safety Peer Review Panel.

Peter retired as President of Metro North Railroad. He has a lengthy background in the railroad industry, including freight, intercity, and commuter railroading. At Metro North, Peter was responsible for the management of one of the largest commuter rail systems in the United States. He managed annual operating budget of \$1.2 billion and an annual Capital Program of \$320 million. He also had a long tenure with Amtrak, where he was directly responsible for Amtrak's Northeast Corridor and National Operations as well as its Engineering and Maintenance function for infrastructure and vehicle fleet maintenance and acquisition. He spent 7 years with Penn Central Railroad in field operating positions prior to joining Amtrak.

Since Mr. Cannito's retirement he has stayed active in the industry participating in various industry organizations and providing consulting service on Railroad Operations, Maintenance, Engineering, and Rail Safety and Security matters to various clients. Projects and clients he has provided consulting service to are: FRA HSR Program, MTA MARC, SCRRA, Caltrain, NJ Transit, MBTA, and Abu Dhabi DOT. He is also been providing consulting service to the Denver Eagle P3 Team (Denver Transit Partners); a multi-billion dollar Public-Private Partnership to design, construct, operate, and finance a new commuter rail system serving downtown Denver, Denver International Airport, and the surrounding community.

**Bill Parsons**  
**Independent Consultant**

Retired, Director of Regulatory Oversight  
Metro North Commuter Railroad  
*Railroad Operations*

Bill served on the original and 6-months Metrolink Safety Peer Review Panel.

Bill recently retired from the position of Director of Regulatory Oversight for Metro North Commuter Railroad and is the former chair of the Operating Rules Association of North America, the industry organization for all railroads, including freights. He is active on the FRA RSAC (Rail Safety Advisory Council) operating committees. He formerly represented Metro-North and APTA on the Railroad Safety Advisory Committees. Bill has participated on the NORAC Safety Committee. He also participated on an APTA peer review for Washington Metropolitan Area Transit Authority. He interfaces with the American Association of Railroads (AAR) and APTA on regulatory issues.

**Mark Campbell**  
**Independent Consultant**

Retired, Chief Safety and Security Officer  
Metro North Commuter Railroad  
*Safety Training and Safety Systems Program Plan*

Mark is an independent consultant with forty years of diverse experience in commuter rail management specializing in railroad safety, security and training. Mark began his career in Maintenance of Way with Penn Central and then Conrail. He held several positions including six years as the Supervisor and Engineer of Track for Grand Central Terminal and three years with system-wide track maintenance responsibility during a period of extensive system rehabilitation.

For twelve years Mark was the Chief Training Officer for Metro-North Railroad, one of the largest commuter rail systems in the U.S. He was responsible for all technical and regulatory training requirements for its 5500 employees. This included new-hire and in-service training for multiple railroad crafts such as locomotive engineer, conductor, track worker, track foreman, car electrician and car cleaner. In addition, he instituted a comprehensive management development curriculum and designed and implemented a corporate succession planning and leadership development process.

For twelve years prior to his retirement in 2010, Mark was the Chief Safety and Security Officer for Metro-North. In that capacity he led a multi-year effort to design and institute a comprehensive safety management system that reduced employee on-duty injuries by over 60%. As the senior civilian official responsible for system security, he led the development and implementation of a multi-million dollar capital security program to detect and deter potential terrorist threats, harden critical infrastructure and improve system survivability. This included a

pioneering collaboration with DHS to deploy chemical and biological detection systems in Grand Central Terminal, one of the highest profile transit facilities in the world.

Mark participated in numerous industry initiatives including the FRA Passenger Safety RSAC, the FRA System Safety Working Group and the APTA Security Standards Steering Committee. He holds a B.A. in Philosophy and Mathematics from Union College.

**Liz Young****HNTB Corporation**

Associate Vice President and Principal Transportation Planner  
*Strategic Planning, Rail Planning*

Liz Young is an Associate Vice President and Principal Transportation Planner for HNTB – a national infrastructure engineering, architecture and planning company. Liz has a Bachelor of Arts in Geography and a Master of Science in Transportation Planning from the University of Washington. Liz is professionally registered by the American Institute of Certified Planners and is a member of the American Planning Association, the American Road and Transportation Builders Association, and the Women's Transportation Seminar. She is a graduate of Leadership Tomorrow and of the ARTBA Young Executives Development Program.

Liz has 16 years' experience in the infrastructure industry, three in the public sector and 13 in the private sector, including a year in Brisbane Australia. As a transportation planner, Liz works with clients to understand their transportation related issues and needs and helps them define solutions to both short term and long-range transportation challenges. Liz has worked on a variety of projects from traditional planning efforts to design-build projects. She has successfully managed projects with multiple stakeholders that have differing, and many times conflicting, transportation objectives and needs.

Liz has worked on a variety of rail transit projects including the following: California High Speed Rail Project – Los Angeles to San Diego Segment, California; LOSSAN Corridor Strategic Implementation Plan; Sepulveda Pass Corridor Systems Planning Study, Los Angeles, California; SANDAG, Urban Area Transit Strategy, San Diego; Sound Transit Phase 2 Planning, Puget Sound Region, Washington; Seattle Center City Streetcar Analysis, Seattle, Washington; and Intermediate Capacity Transit (ICT) Study, Seattle, Washington.

**Avygail Sanchez****HNTB Corporation**

Planner  
*Governance, Planning*

Avygail Sanchez brings over 10 years of experience in facilitating leadership development programs and project coordination in the areas of government and community relations, multi-agency involvement, and community planning. Her experience also includes AB939 annual reporting, solid waste management, and CEQA document preparation. Ms. Sanchez is a former Council Aide for the City of Los Angeles and is well adept with the city, state, and federal agencies and functions. She is a former instructor of leadership studies at Mount St. Mary's College in Los Angeles and has a Master of Arts degree from the UCLA School of Public Affairs.

**APPENDIX B**  
**4-Year Update**

**Metrolink Enhanced Safety Action Plan Matrix**  
**4-Year Update**

**February 2013**

# Metrolink Enhanced Safety Action Plan

4-Year Update  
February 2009 -  
January 2013

## 1. SAFETY CULTURE

<b>A.</b> Develop a stronger and more unified safety culture at SCRRA and its contractors	<b>IN PROGRESS</b>
<b>B.</b> Develop a vision for safety - SCRRA should develop a one page "vision for safety"	<b>IN PROGRESS</b>
<b>C.</b> Define long-term measurable objectives for safety	<b>IN PROGRESS</b>
<b>D.</b> Revise the SSSP to reflect the strategic role, vision, and goals	<b>IN PROGRESS</b>
<b>E.</b> Form a Strategic Safety Leadership Team led by the CEO	<b>REINSTATE</b>

## 2. SCRRA ORGANIZATIONAL STRUCTURE

<b>A.</b> The SCRRA organization should keep pace with critical operations oversight	<b>IN PROGRESS</b>
<b>I.</b> Compare the historical growth in trains with the trends in SCRRA oversight personnel	<b>IN PROGRESS</b>
<b>II.</b> Require increased contract oversight and SCRRA staff when there are increases in train service, fleet size and infrastructure	<b>IN PROGRESS</b>
<b>III.</b> Undertake an analysis of SCRRA's current business and organizational model to determine if it still meets the needs of its mission	<b>IN PROGRESS</b>
<b>B.</b> Perform an Organizational Analysis	<b>YET TO BE STARTED</b>
<b>C.</b> Implement Immediate Organizational Changes	<b>COMPLETED</b>
<b>I.</b> Enhance interdepartmental communication to prevent the "silo effect"	<b>COMPLETED</b>
<b>II.</b> Examine near term infrastructure and facilities, fleet, and service enhancements for oversight staffing needs	<b>COMPLETED</b>
<b>III.</b> Re-assign the Safety and Security department from the SCRRA AEO, Operating Services, to the SCRRA CEO	<b>COMPLETED</b>
<b>IV.</b> Establish an Operating Rules Department reporting to the AEO, Operating Services	<b>COMPLETED</b>
<b>V.</b> Enhance the contractors' Field Testing Programs consistent with SCRRA's restructured Operating Rules Program	<b>COMPLETED</b>
<b>VI.</b> Define the overall responsibility for field operations management	<b>COMPLETED</b>
<b>VII.</b> Strengthen the role of the Qualified Mechanical Person (QMP) function	<b>COMPLETED</b>
<b>VIII.</b> Fill key positions in the SCRRA Operations Department: Director of Operations and Manager of Operations	<b>COMPLETED</b>
<b>D.</b> Clarify Roles and Responsibilities	<b>COMPLETED</b>

# Metrolink Enhanced Safety Action Plan

4-Year Update  
February 2009 -  
January 2013

## 3. SYSTEM SAFETY PROGRAM PLAN (SSPP)

<b>A.</b> Redraft the SSPP based on the Organizational Analysis	
<b>I.</b> The oversight functions for in-house and contractor operations	IN PROGRESS
<b>II.</b> All essential components and the agency's functions must be accountable in the SSPP	IN PROGRESS
<b>III.</b> Contracts and SCRRRA policies and procedures must be conformed to the updated SSPP and SOPs	COMPLETED
<b>IV.</b> Conform to APTA Standards	COMPLETED
<b>B.</b> Develop an organization-wide risk assessment process and incorporate into the updated SSPP	IN PROGRESS
<b>A.</b> Redraft the SSPP (additional recommendations)	NEW
<b>I.</b> Revise the SSPP to delineate all of the contractor oversight currently performed by SCRRRA.	NEW
<b>II.</b> Revise the SSPP to accurately describe safety related roles and responsibilities	NEW
<b>III.</b> Define the direct and supporting safety responsibilities of the administrative departments.	NEW
<b>IV.</b> Revise the SSPP to describe safety accountabilities of major Operating functions	NEW
<b>B.</b> Develop organization-wide risk assessment process (additional recommendation)	NEW
<b>I.</b> Coordinate with the General Counsel to develop a more proactive risk assessment	NEW
<b>C.</b> Review the in-house training function to ensure that it is appropriately staffed and technically capable	NEW
<b>D.</b> Review the Safety Department staffing to determine if it is adequate to carry out its safety oversight duties	NEW
<b>E.</b> Support and resource a Metrolink Safety Management System	NEW
<b>F.</b> Implement Industry Safe Software Application.	NEW

## 4. SAFETY PERFORMANCE MEASUREMENTS

<b>A.</b> Enhance the Operations Testing Plan	COMPLETED
<b>I.</b> Produce an Efficiency Testing Plan	COMPLETED

# Metrolink Enhanced Safety Action Plan

4-Year Update  
February 2009 -  
January 2013

II. Perform a signal hazard analysis	COMPLETED
III. Require a quarterly review of efficiency testing results for every safety critical position	COMPLETED
IV. Adopt Amtrak's event review program	COMPLETED
V. Require crews to record safety briefing information on a daily basis or before each trip	COMPLETED
B. Define the responsibility for Efficiency Testing, analyze tests to ensure that safety critical rules are being observed	COMPLETED
C. Acquire an Electronic Efficiency Testing System to manage data collection and analysis of observation and testing data	COMPLETED
D. Increase observations of all Engineers, Conductors, and other safety critical employees with focus on safety critical operating rules	COMPLETED
E. Review safety critical employee training to ensure compliance with safety critical operating rules and establish process to update training	COMPLETED
F. Assess impact of operating contract's liquidated damages provisions for rules violations to determine any conflicts of interest	COMPLETED
G. Establish goals for observations and analysis and report results quarterly to the SCRRA Board	COMPLETED
H. Improve SCRRA oversight of contractor testing officer performance	NEW
I. Acquire an electronic device (tablet, PDA) to conduct efficiency testing in the field.	NEW
J. Conduct an in-house statistical analysis to determine if a sufficient number of tests are conducted	NEW
K. Utilize the Federal Railroad Administration (FRA) Reports	NEW
<b>5. INFRASTRUCTURE MAINTENANCE</b>	
A. Implement an electronic right-of-way asset management system that identifies trends and assists in hazard analysis	IN PROGRESS
B. Evaluate the adequacy of qualifications testing	COMPLETED
A. Designate a site manager with clear responsibility over all aspects of operations within the CMF	COMPLETED
B. Perform a staffing analysis and hire additional personnel as needed	COMPLETED

# Metrolink Enhanced Safety Action Plan

4-Year Update  
February 2009 -  
January 2013

<b>C.</b> Establish a Qualified Maintenance Person for the dispatching center	<b>COMPLETED</b>
<b>D.</b> Fully integrate the Mechanical department into the system-wide risk management analysis effort	<b>COMPLETED</b>
<b>E.</b> Conduct a staffing analysis of the impact of increasing the fleet prior to its introduction	<b>IN PROGRESS</b>
<b>F.</b> Conduct training for train operators on equipment troubleshooting	<b>COMPLETED</b>
<b>G.</b> Improve inter-departmental coordination	<b>IN PROGRESS</b>
<b>H.</b> Strengthen the contractor's document control policies	<b>COMPLETED</b>
<b>A.</b> Grade Crossing Safety Education	<b>IN PROGRESS</b>
<b>B.</b> Crash Energy Management (CEM): Continue to upgrade the vehicles fleet, including CEM technology	<b>IN PROGRESS</b>
<b>C.</b> Grade Separations: Reevaluate intermediate and long range goals to construct further grade separations	<b>IN PROGRESS</b>
<b>D.</b> Sealed Corridor: Continue and expand SCRRRA's "Sealed Corridor Program" to enhance overall corridor safety and security	<b>IN PROGRESS</b>
<b>E.</b> Double Tracking Program: Double track to improve operations and increase commuter/freight capacity and reduce train conflicts	<b>IN PROGRESS</b>
<b>A.</b> Establish a Task Force to explore the full capabilities of Maximus as an asset management tool	<b>NEW</b>
<b>B.</b> Implement a Joint Inspections Program for signals and track	<b>NEW</b>
<b>C.</b> Have the Mechanical Department review the staffing needs to support the Tier 4 Locomotive purchase.	<b>NEW</b>
<b>6. ANALYSIS OF METROLINK SHORT TERM SAFETY PROJECTS</b>	
<b>A.</b> Investigate, specify, procure, and install inward looking video technology in the operating cabs of SCRRRA passenger equipment	<b>COMPLETED</b>
<b>B.</b> Accelerate the implementation of PTC	<b>ACCELERATION COMPLETED</b>
<b>I.</b> The implementation of ATS should not be a priority over or take resources away from the implementation of a PTC system	<b>COMPLETED</b>
<b>C.</b> Implement short-term actions of Panel's Metrolink Enhanced Safety Action Plan, which can replace the Second Set of Eyes program	<b>COMPLETED</b>
<b>D.</b> Expedite plans to transition from the DigiCon system and develop action plan for maintenance and other emergencies in the interim	<b>COMPLETED</b>

# Metrolink Enhanced Safety Action Plan

4-Year Update  
February 2009 -  
January 2013

<b>E.</b> Implement medical evaluations prior to placement of contractor employees in a safety covered position and at least every three years	<b>WITHDRAWN</b>
<b>F.</b> Participate in the Hours of Service issue with FRA's Rail Safety Advisory Committee process	<b>COMPLETED</b>
<b>G.</b> Conduct a review of SCRRRA's contractor's Hours of Service Split Shift schedules to determine any risk factors	<b>COMPLETED</b>
<b>7. STRATEGIC PLAN</b>	
<b>A.</b> Update Strategic Plan to include strategic operational and safety issues	<b>IN PROGRESS</b>
<b>B.</b> Seek buy-in at multiple levels on funding commitments, flexible budgeting processes, and rigorous project evaluation and prioritization	<b>IN PROGRESS</b>
<b>C.</b> Explore new technologies, wider markets and more effective operational safety strategies during the strategic planning process	<b>IN PROGRESS</b>
<b>8. GOVERNANCE</b>	
<b>A.</b> Conduct a self-assessment of the Board's performance with particular emphasis on safety and operational oversight	<b>YET TO BE STARTED</b>
<b>B.</b> Develop Board and Board responsibilities and actions, including:	<b>IN PROGRESS</b>
<b>I.</b> More rigorous briefing sessions for new Board members	<b>IN PROGRESS</b>
<b>II.</b> Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole	<b>YET TO BE STARTED</b>
<b>III.</b> Establishment of subcommittees on operations and safety oversight & a subcommittee to assess Board performance	<b>COMPLETED</b>
<b>IV.</b> Board-adopted safety and operational performance measures	<b>IN PROGRESS</b>
<b>V.</b> Guidelines for the addition of safety and operational staff positions as new services are introduced	<b>YET TO BE STARTED</b>
<b>VI.</b> Revised, more comprehensive strategic plan for the agency that addresses safety and operational issues	<b>IN PROGRESS</b>
<b>VII.</b> Direct board involvement in developing/updating the Enhanced Safety Action Plan and monitoring its implementation	<b>IN PROGRESS</b>

**APPENDIX C**  
**4-Year Update**

**Panel's presentation to the SCRRA Board**  
**"SCRRA's 4-year progress in accomplishing the**  
**Metrolink Enhanced Safety Action Plan"**

**March 8, 2013**



**METROLINK®**



# Metrolink Safety Peer Review Panel 4 -Year Update Metrolink Enhanced Safety Action Plan

Presented to:  
Southern California Regional Rail Authority  
Board of Directors

Presented by:  
Metrolink Safety Peer Review Panel

Gateway Center Board Room, Los Angeles, California  
March 8, 2013



# Outline

- A. Introduction**
- B. Summary of SCRRRA Progress and Panel Recommendations**
- C. Metrolink Enhanced Safety Action Plan 4-Year Status**
  - 1. Safety Culture
  - 2. SCRRRA Organizational Structure
  - 3. System Safety Program Plan (SSPP)
  - 4. Safety Performance Measurements
  - 5. Infrastructure Maintenance and Upgrade
  - 6. Metrolink Short Term Safety Projects
  - 7. Strategic Plan
  - 8. Governance
- D. Next Steps**



## A. Introduction

- 4-Year Update to Metrolink Enhanced Safety Action Plan
- Builds on 2008 original report and 2009 6-month update
- Metrolink Commuter Rail Safety Peer Review Panel
  - Led by Linda Bohlinger, HNTB and Peter Cannito, LPC & Assoc. Inc
- Scope of Work
  - Panel interviewed SCRRA Board, TAC, Staff leadership team, and other stakeholders November-December 2012
  - Panel reviewed and updated recommendations for short/medium/long term actions
  - Panel prepared Draft 4-Year Update Report



## B. Metrolink Enhanced Safety Action Plan 4-Year Update - Progress

- Made a significant improvement in the safety culture – both within SCRRA and with its contractors
- Implemented short term organizational changes and added experienced personnel
- Redrafted the System Safety Program Plan (SSPP)
- Defined responsibility and enhanced the efficiency testing program
- Accelerated Positive Train Control implementation
- Made a significant investment of \$543 million in safety-related infrastructure projects, including the crash energy management Rotem vehicles.



## B. Metrolink Enhanced Safety Action Plan 4-Year Update – Recommendations

- Panel recommends SCRRA take the following actions, consistent with original Panel's recommendations:
  1. Re-instate original Strategic Safety Leadership Team (Issue 1)
  2. Develop Long-Term, Measureable Safety Goals (Issue 1)
  3. Perform an Organizational Assessment (Issue 2)
  4. Develop an SCRRA Strategic Plan (Issue 7)
  5. Implement Panel's Board Governance Recommendations (Issue 8)



Continued

## B. Metrolink Enhanced Safety Action Plan 4-Year Update – Recommendations

- Panel recommends two additional areas of improvement to enhance Metrolink safety:
  6. Enhance SCRRRA's System Safety Program Plan (Issue 3)
  7. Improve Operations Testing Programs and acquire an electronic device to conduct efficiency testing in the field (Issue 4)



## **C. Metrolink Enhanced Safety Action Plan 4-Year Status**



## Issue 1. Safety Culture-Observations

- Safety Culture has improved since the initial evaluation four years ago.
- SCRRA demonstrates characteristics of a healthy Safety Culture:
  - Safety prominent in organization's mission and vision
  - Board Safety and Operations Committee created and receives regular reports from the Chief Safety Officer
  - Chief Safety Officer reports directly to CEO and chairs the Safety Action Team



## Issue 1. Safety Culture- Observations

- There is a higher level of safety awareness throughout the organization
- SCRRA staff and contractors meet weekly on safety performance and activities
- Contractor's have an increased focus on reporting rules violations and other safety issues as part of SCRRA regular reviews



# Issue 1. Safety Culture- Recommendations

1. SCRRRA should develop a one page “vision for safety”
2. SCRRRA should establish a goal setting process to establish aspirational, multi-year targets for key safety metrics.
3. Strategic Safety Leadership Team (SSLT) should be re-established



## Issue 2. SCRRRA Organizational Structure- Observations

- SCRRRA has completed the short-term panel recommendations
- Key Executive and Operational positions have been further realigned and staffed with qualified and experienced personnel
- A search for a Chief Operating Officer is critical
  - A management search firm has been retained to assist in this effort



Continued

## Issue 2. SCRRA Organizational Structure- Observations

- Within the Operations Department, SCRRA has made significant progress in reducing the “silo effect”
- Mechanical and Transportation Departments together developed an Operations and Troubleshooting Guide
- QMP relocation to Metrolink Operations Center (MOC) has improved dispatcher communications



## Issue 2. SCRRA Organizational Structure- Recommendations

1. SCRRA should perform a formal organizational analysis tied to strategic objectives
2. SCRRA should keep pace with critical operations oversight as the contracting complexity and volume of trains increases
3. SCRRA should create a staff recruitment, development and retention plan as part of a leadership and succession plan
4. SCRRA should review the combined efforts and effectiveness of contractor and in-house safety oversight



## Issue 3. System Safety Program Plan (SSPP)-Observations

- Oversight of in-house and contractor operations have improved significantly since the last review:
  - SCRRA Contract Managers and Operations Managers routinely and directly monitor contractor performance
  - Contractors meet weekly with the COO and senior Operations staff to review performance
  - Open communication and shared value for safety among staff and contractors



## Issue 3. System Safety Program Plan (SSPP)- Observations Continued

- Contractors and in-house staff report critical safety incidents in real time as required by SCRRRA
- SCRRRA does more extensive contractor oversight than is described in the SSPP
- Knowledge of system safety and accountability for system safety responsibilities have improved since the 6-month review
- SCRRRA has put in place many of the elements of an effective hazard assessment process



## Issue 3. System Safety Program Plan (SSPP)- Recommendations

1. Revise SSPP to reflect all of the oversight activities SCRRA performs
2. Coordinate with General Counsel to develop a more proactive risk assessment plan
3. Review in-house training and staffing to ensure technical capabilities support safety training needs
4. Review Safety Department resources to ensure adequate safety oversight staffing
5. Provide resources for the initiative to develop Metrolink Safety Management System
6. Implement Industry Safe Software Application



## Issue 4. Safety Performance Measurements- Observations

- Metrolink has made improvements to the operational testing programs.
- Metrolink installed inward facing cameras in the operating cabs for the entire fleet.
- SCRRA's root cause analysis process is a model for other agencies to follow.
- SCRRA has implemented the use of an electronic efficiency testing database.



## Issue 4. Safety Performance Measurements- Observations

- Metrolink has exceeded the FRA semi-annual review requirements by implementing a monthly proactive review of operational tests and inspections
- SCRRA has modified each contract to require immediate notification of SCRRA personnel when a contractor testing officer encounters failure on a safety critical rule
- SCRRA and contractors perform a root cause analysis if any safety critical rule violation occurs



Continued

## Issue 4. Safety Performance Measurements- Observations

- SCRRA has established monthly testing requirements for SCRRA and Contractor testing officers as part of Operational testing plans.
- SCRRA and contractors exceed the planned minimum number of Safety Critical test per month
  - Tests required per plan in 2012: 440
  - Actual number of tests in 2012: 1,995



## Issue 4. Safety Performance Measurements- Recommendations

1. Enhance SCRRRA oversight of contractor testing officer performance
2. Consider acquiring an electronic device, such as a PDA, to conduct efficiency testing in the field
3. Conduct an analysis to determine whether SCRRRA testing standards are sufficient
4. Request contractors' to provide SCRRRA their Federal Railroad Administration (FRA) inspection reports, notifications and audits



## Issue 5. Infrastructure Maintenance and Upgrades- Observations

### Maintenance of Way (MOW)

- Implementation of an electronic asset management system is ongoing and needs to be a priority
- SCRRA has increased and enhanced joint inspections with contractors in infrastructure and systems maintenance
- All Contractor training programs are reviewed and approved by SCRRA prior to implementation



# Issue 5. Infrastructure Maintenance and Upgrades- Observations

## Vehicle Equipment Maintenance

- Previously recommended personnel changes have been addressed
- The Qualified Maintenance Person (QMP) process has been completed
- Integration of the Mechanical Department into system-wide risk management analysis is in progress
- Inter-departmental coordination has improved
- SCRRA has worked with Bombardier to revise the document control policies



# Issue 5. Infrastructure Maintenance and Upgrades- Observations

## Infrastructure Safety Improvements

- Since 2009, SCRRRA has made significant progress in completing 35 safety related capital projects and rehabilitation projects valued at \$543 million in the following categories:
  - Reduction in grade crossings
  - Crash Energy Management– Rotem Cars
  - Sealed Corridor (including Grade Crossings)
  - Double Tracking



## Issue 5. Infrastructure Maintenance and Upgrades- Recommendations

1. Establish a Task Force to explore full capabilities of Maximus software as an asset management tool to support vehicle and infrastructure maintenance
2. Implement an SCRRA engineering joint inspection and oversight program of the contractors for track and signals
3. Have the Mechanical Department review the staffing needs to support Tier 4 Locomotive purchase



## Issue 6. Analysis of Metrolink Short Term Safety Projects- Observations

- All short-term safety projects have been completed.
- Inward-facing cameras on all existing fleet has been completed
- Positive Train Control (PTC) has been accelerated and will completed by end of 2013
- SCRRRA has completed the plans to transition from Digicon system– ARNIC system is scheduled for installation in March 2013.



## Issue 6. Analysis of Metrolink Short Term Safety Projects- Recommendations

1. The panel does not have additional recommendations at this time.



## Issue 7. Strategic Plan- Observations

- Development of a comprehensive Strategic Plan is planned for spring of 2013
- SCRRA is exploring and implementing new technologies, such as, Rotem crash energy management cars, PTC, and new electronic track analysis tools



## Issue 7. Strategic Plan- Recommendations

1. A more comprehensive strategic planning process should begin and build on the Strategic Assessment of 2007 (and updated assessment in 2008)
2. SCRRA should seek buy-in at multiple levels on funding commitments, flexible budgeting processes, and rigorous project evaluation and prioritization
3. SCRRA should continue to take a proactive stance as current and future intercity rail and High Speed Rail service interests emerge.



## Issue 8. Governance- Observations

- Self-assessment of the Board's performance with an emphasis on safety and operational oversight is pending and still recommended
- Board member briefing sessions are ongoing and attended by Board and TAC members
- Board committee responsibilities and assignments and Bylaws have been developed, approved, and documented
- The Board created a Board Safety and Operations Committee
- Safety and operations metrics are presented to the Board's Operations and Safety Committee on a monthly basis



## Issue 8. Governance- Recommendations

1. Develop and approve Board member duties and responsibilities to measure performance
2. Provide more frequent and regular opportunities to brief and educate Board members including development of a Board briefing book
4. Address safety and operational issues in the Strategic Plan
5. Adopt longer term safety and operations performance measures
6. Develop guidelines for the addition of safety and operational staff positions as new services are introduced
7. Have direct Board involvement in updating the Metrolink Enhanced Safety Action Plan and monitoring its continued implementation

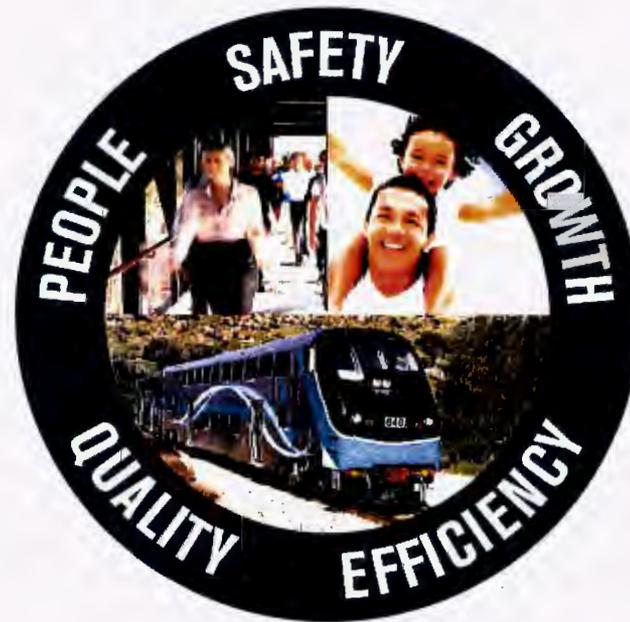


Continued

## D. Next Steps

1. Present report to the SCRRA Board on March 8, 2013
2. Finalize and publish the Metrolink Safety Peer Review 4-Year Update Report

# METROLINK®



## The Metrolink Mission Statement

To provide an outstanding passenger experience on every ride  
with safe, clean, dependable and on-time operations.

# **Governance Ad Hoc Report**



# Metrolink Enhanced Safety Action Plan

7-Year Update  
March 2016

## 1. Safety Culture

- |  |                            |
|--|----------------------------|
| a. Develop a stronger and more unified safety culture at SCRRA and its contractors   | Ongoing                    |
| b. Develop a vision for safety - SCRRA should develop a one page "vision for safety" | In SSPP Revised 2016       |
| c. Define long-term measurable objectives for safety                                 | In Progress Strategic Plan |
| d. Revise the SSSP to reflect the strategic role, vision, and goals                  | Updated Revision 2016      |
| e. Form a Strategic Safety Leadership Team led by the CEO                            | Reinstated 2013 now ELT    |

## 2. SCRRA Organizational Structure

- |   |                   |
|---|-------------------|
| a. The SCRRA organization should keep pace with critical operations oversight   | Ongoing           |
| i. Compare the historical growth in trains with the trends in SCRRA oversight personnel   | Ongoing           |
| ii. Require increased contract oversight and SCRRA staff when there are increases in train service, fleet size and infrastructure       | Ongoing           |
| iii. Undertake an analysis of SCRRA's current business and organizational model to determine if it still meets the needs of its mission | Ongoing           |
| b. Perform an Organizational Analysis   | Yet to be Started |
| c. Implement Immediate Organizational Changes   | Ongoing           |
| i. Enhance interdepartmental communication to prevent the "silo effect"   | Ongoing           |
| ii. Examine near term infrastructure and facilities, fleet, and service enhancements for oversight staffing needs                       | Ongoing           |
| iii. Re-assign the Safety and Security department from the SCRRA AEO, Operating Services, to the SCRRA CEO                              | Completed         |
| iv. Establish an Operating Rules Department reporting to the AEO, Operating Services  | Completed         |
| v. Enhance the contractors' Field Testing Programs consistent with SCRRA's restructured Operating Rules Program                         | Completed         |
| vi. Define the overall responsibility for field operations management   | Completed         |
| vii. Strengthen the role of the Qualified Mechanical Person (QMP) function  | Completed         |
| viii. Fill key positions in the SCRRA Operations Department: Director of Operations and Manager of Operations                           | Ongoing           |
| d. Clarify Roles and Responsibilities   | Ongoing           |

## 3. System Safety Program Plan (SSPP)

- |   |                        |
|---|------------------------|
| a. Redraft the SSPP based on the Organizational Analysis  | Ongoing                |
| i. The oversight functions for in-house and contractor operations                               | Revising SSPP 3/2016   |
| ii. All essential components and the agency's functions must be accountable in the SSPP         | Revising SSPP 3/2016   |
| iii. Contracts and SCRRA policies and procedures must be conformed to the updated SSPP and SOPs | Revising SSPP/SOP 2016 |
| iv. Conform to APTA Standards   | Ongoing                |
| b. Develop an organization-wide risk assessment process and incorporate into the updated SSPP   | In SSPP                |

### Additional Recommendations

- |  |                        |
|--|------------------------|
| a. Redraft the SSPP (additional recommendations)   | Revising SSPP 2016     |
| i. Revise the SSPP to delineate all of the contractor oversight currently performed by SCRRA.                    | Revising 2016          |
| ii. Revise the SSPP to accurately describe safety related roles and responsibilities                             | Revising 2016          |
| iii. Define the direct and supporting safety responsibilities of the administrative departments.                 | Revising 2016          |
| iv. Revise the SSPP to describe safety accountabilities of major Operating functions                             | Revised in SSPP        |
| b. Develop organization-wide risk assessment process (additional recommendation)                                 | Risk Chart in SSPP     |
| i. Coordinate with the General Counsel to develop a more proactive risk assessment                               | Ongoing                |
| c. Review the in-house training function to ensure that it is appropriately staffed and technically capable      | Pending CFR 243        |
| d. Review the Safety Department staffing to determine if it is adequate to carry out its safety oversight duties | Ongoing                |
| e. Support and resource a Metrolink Safety Management System   | Under Review by Safety |
| f. Implement Industry Safe Software Application.   | Completed              |

## 4. Safety Performance Measurements

- |  |                         |
|--|-------------------------|
| a. Enhance the Operations Testing Plan   | Revised 2016            |
| i. Produce an Efficiency Testing Plan  | Revised 2016            |
| ii. Perform a signal hazard analysis   | Completed 2010          |
| iii. Require a quarterly review of efficiency testing results for every safety critical position   | Six Month Reviews       |
| iv. Adopt an event review program  | Completed 2010          |
| v. Require crews to record safety briefing information on a daily basis or before each trip  | Completed 2010          |
| b. Define the responsibility for Efficiency Testing, analyze tests to ensure that safety critical rules are being observed                     | Revised 2016            |
| c. Acquire an Electronic Efficiency Testing System to manage data collection and analysis of observation and testing data                      | Completed 2011          |
| d. Increase observations of all Engineers, Conductors, and other safety critical employees with focus on safety critical operating rules       | Ongoing 2016            |
| e. Review safety critical employee training to ensure compliance with safety critical operating rules and establish process to update training | Under Review Compliance |
| f. Assess impact of operating contract's liquidated damages provisions for rules violations to determine any conflicts of interest             | Completed               |
| g. Establish goals for observations and analysis and report results quarterly to the SCRRA Board   | Needs Update SP         |

### Additional Recommendations

- |  |                      |
|--|----------------------|
| h. Improve SCRRA oversight of contractor testing officer performance                                   | Ongoing              |
| i. Acquire an electronic device (tablet, PDA) to conduct efficiency testing in the field.              | Conducted Pilot 2012 |
| j. Conduct an in-house statistical analysis to determine if a sufficient number of tests are conducted | Ongoing Monthly      |
| k. Utilize the Federal Railroad Administration (FRA) Reports   | Completed            |

## 5. Infrastructure Maintenance

### Maintenance of Way (MOW)



# Metrolink Enhanced Safety Action Plan

7-Year Update  
March 2016

a. Implement an electronic right-of-way asset management system that identifies trends and assists in hazard analysis	Ongoing
b. Evaluate the adequacy of qualifications testing	Completed
<u>Vehicle Equipment Maintenance</u>	
a. Designate a site manager with clear responsibility over all aspects of operations within the CMF	Completed
b. Perform a staffing analysis and hire additional personnel as needed	Completed
c. Establish a Qualified Maintenance Person for the dispatching center	Completed
d. Fully integrate the Mechanical department into the system-wide risk management analysis effort	Completed
e. Conduct a staffing analysis of the impact of increasing the fleet prior to its introduction	Ongoing
f. Conduct training for train operators on equipment troubleshooting	Completed
g. Improve inter-departmental coordination	Ongoing
h. Strengthen the contractor's document control policies	Completed
<u>Infrastructure Safety Improvements</u>	
a. Grade Crossing Safety Education	Ongoing
b. Crash Energy Management (CEM): Continue to upgrade the vehicles fleet, including CEM technology	Completed
c. Grade Separations: Reevaluate intermediate and long range goals to construct further grade separations	In Progress
d. Sealed Corridor: Continue and expand SCRRRA's "Sealed Corridor Program" to enhance overall corridor safety and security	Ongoing
e. Double Tracking Program: Double track to improve operations and increase commuter/freight capacity and reduce train conflicts	In Progress
<b>Additional Recommendations</b>	
a. Establish a Task Force to explore the full capabilities of Maximus as an asset mgt. tool	Ongoing
b. Implement a Joint Inspections Program for signals and track	Ongoing
c. Have the Mechanical Department review the staffing needs to support the Tier 4 Locomotive purchase.	Ongoing
<b>6. Analysis of Metrolink Short Term Safety Projects</b>	
a. Investigate, specify, procure, and install inward looking video technology in the operating cabs of SCRRRA passenger equipment	Completed
b. Accelerate the implementation of PTC	Completed
i. The implementation of ATS should not be a priority over or take resources away from the implementation of a PTC system	Completed
c. Implement short-term actions of Panel's Metrolink Enhanced Safety Action Plan, which can replace the Second Set of Eyes program	Completed
d. Expedite plans to transition from the DigiCon system and develop action plan for maintenance and other emergencies in the interim	Completed
e. Implement medical evaluations prior to placement of contractor employees in a safety covered position and at least every three years	Withdrawn
f. Participate in the Hours of Service issue with FRA's Rail Safety Advisory Committee process	Completed
g. Conduct a review of SCRRRA's contractor's Hours of Service Split Shift schedules to determine any risk factors	Completed
<b>7. Strategic Plan</b>	
a. Update Strategic Plan to include strategic operational and safety issues	In Progress
b. Seek buy-in at multiple levels on funding commitments, flexible budgeting processes, and rigorous project evaluation and prioritization	In Progress
c. Explore new technologies, wider markets and more effective operational safety strategies during the strategic planning process	In Progress
<b>8. Governance</b>	
a. Conduct a self-assessment of the Board's performance with particular emphasis on safety and operational oversight	Yet to be started
b. Develop Board and Board responsibilities and actions, including:	In Progress
i. More rigorous briefing sessions for new Board members	In Progress
ii. Board-adopted statement of duties and responsibilities for Board members and for the Board as a whole	Yet to be started
iii. Establishment of subcommittees on operations and safety oversight & a subcommittee to assess Board performance	Completed
iv. Board-adopted safety and operational performance measures	In Progress
v. Guidelines for the addition of safety and operational staff positions as new services are introduced	Onboarding Process
vi. Revised, more comprehensive strategic plan for the agency that addresses safety and operational issues	In Progress
vii. Direct board involvement in developing and updating the Enhanced Safety Action Plan and monitoring its implementation	In Progress





SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

**TRANSMITTAL DATE:** December 5, 2014  
**MEETING DATE:** December 12, 2014 **ITEM 16**  
**TO:** Board of Directors  
**FROM:** Governance Ad Hoc Committee  
**SUBJECT:** Governance Options Report

**Issue**

At the July 11, 2014 Board Strategic Plan Workshop, a Governance Ad Hoc Committee was appointed to consider options for improving the governance of the Authority and report back to the Board regarding those options.

**Recommendation**

The Governance Ad Hoc Committee recommends the Board discuss and give direction regarding the governance options presented.

**Alternatives**

There are three major categories and seven options with various alternatives. They include:

**A. Institutional Issues**

1. Governance Options
2. Board Member Requirements
3. Technical Advisory Committee (TAC) Role
4. Board Reports Improvements

**B. Long Term Operating and Capital Commitments**

5. Long Term Operating And Capital Commitments

**C. Funding Issues**

6. New Funding/Grants Reporting
7. Funding Formula Update / Change

These options are summarized below and detailed in the attached matrix.

The attached matrix lists each option, discusses the pros and cons of each option, identifies the implementation requirements and, finally, identifies the Ad Hoc Committee's ranking of each option (high, medium and low – see Attachment B).

## Background

At the July 11, 2014 Board Workshop, staff and consultants presented the strengths and weaknesses of the Authority. One of the areas analyzed and discussed was governance issues. Based on board, staff and stakeholder interviews as well as quantitative analysis, the analysis focused on:

- Board Communication and Governance - Strengths
  - Improved structure through reorganization of senior management:
  - Goal-oriented staff
- Board Communication and Governance - Weaknesses
  - Sub-optimal information-sharing procedures:
  - Internal cultural challenges:
  - Communication and responsibility gaps with Board and member agencies
  - Conflicts between regional responsibility and local needs.
- Potential Threats by not Addressing Weaknesses
  - Loss of institutional knowledge and talent:
  - Reduced coordination and transparency between the SCRRA and member agencies
  - Increase in stress, demands and time constraints of Board members and senior staff
- Metrolink can improve relationship with member agencies in several areas related to transparency
  - Transparency and Engagement with Member Agencies
  - Clear Budgeting
  - Accountability
  - Stakeholder engagement
  - Increased oversight

In response to these strengths and weaknesses, three topics were presented at the Workshop that, once resolved, would improve the governance of the Authority and Metrolink service (see Attachment A - chart presented at the Workshop):

1. Institutional structure of Board
2. Dedicated regional funding source for Metrolink
3. Long-term commitments by member agencies to capital and operating expenses, including state of good repair and growth of system

As an action item resulting from the Workshop, Chair McCallon created a Governance Ad Hoc Committee to address these three topics and return to the Board with options for consideration.

The Governance Ad Hoc Committee has been meeting since August 2014 and is composed of the following members representing the five member agencies:

Keith Millhouse	Ventura County Transportation Commission (VCTC)	Board member
Carolyn Cavecche	Orange County Transportation Authority (OCTA)	Board member
Don Sepulveda	Los Angeles County Metropolitan Transportation Authority (Metro)	Technical Advisory Committee (TAC) member
Justin Fornelli	San Bernardino Associated Governments (SANBAG)	TAC member
Sheldon Peterson	Riverside County Transportation Commission (RCTC)	TAC member
Roderick Diaz	Southern California Regional Rail Authority (SCRRA)	Authority staff member
Linda Bohlinger	Parsons Brinckerhoff	Facilitator

The Ad Hoc Committee believes it is important to outline the issue(s) identified with each option and how the option solves that issue. The issues and solutions for each option are listed below.

### 1. Governance Options

Issue: Based on the analysis done for the Metrolink Strategic Plan Workshop on July 11, 2014, the current JPA Board and Metrolink staff organization has had difficulties in operating, maintaining and administering the Metrolink service and coordinating with member agencies, in part due to governance and management issues, size and complexity of the commuter rail system.

Solution: The highest ranked options to potentially increase the effectiveness of Metrolink include contracting out portions of Metrolink administration, such as finance or procurement; or contract with a member agency to be a managing agency of the Metrolink organization. In either case, the JPA Board would continue to exist.

### 2. Board Member Requirements

Issue: The Board deals with highly technical issues spread over a large track of land (500 miles); 22 board members casting the 11 votes results in an exponentially large combination of voting variations; and there are Board member attendance issues.

Solution: Our goal is to have an engaged board that understands the Metrolink issues before them and expects excellence from staff. Solutions include changing the voting requirements and/or number of alternates and requiring Board member training regarding the Metrolink system.

### **3. Technical Advisory Committee (TAC) Role**

Issue: Board members are not fully briefed on issues. Issues not fully vetted through a technical review prior to Board action.

Solution: Issues would be vetted through the TAC, which is composed of members who understand Metrolink technical and policy issues. TAC can inform the Board of their comments.

### **4. Board Reports Improvements**

Issue: The current Board reports often lack the appropriate amount of detail and financial information to make an informed decision.

Solution: The recommended format should allow the Board to be aware of TAC's review and recommendations, consistency with Strategic Plan and Short Range Transit Plan (SRTP) and the specific financial implications of each item.

### **5. Long Term Operating And Capital Commitments**

Issue: SCRRA does not have multiyear commitments to plan their service improvements. SCRRA does not provide enough information on operating, maintenance and rehabilitation and capital needs.

Solution: Options would stabilize funding and create a multiyear program of specific operation, maintenance and rehabilitation and capital expenses as well as enhancements to the MOUs.

### **6. New Funding / Grants Reporting**

Issue: Metrolink lacks a long term, dedicated funding source and therefore has difficulty in making long-term commitments.

Solution: These funding options would provide either a dedicated funding source at the state and/or regional level or provide added funds each year through discretionary grants.

### **7. SCRRA Funding Formula Update / Change**

Issue: There is a lack of knowledge of how the formula works and it is too complicated. In addition, the current formula does not reflect the current metrics of the system so some counties may not be paying their fair share. Because of the formulaic nature of the budget it is difficult for the Authority to move funds around and that consolidating some of the items helps with that.

Solution: The formula changes would simplify the formula and bring all the metrics up-to-date, thereby ensuring that all member agencies were paying their fair share. These ideas would be directed to TAC for analysis and recommendations to the Board.

**Budget Impact**

Depending on which options are chosen by the Board, their budget impact will be determined in follow-up actions and reported back to the Board before implementation.

Prepared by: Linda Bohlinger, Parsons Brinckerhoff, Facilitator  
Governance Ad Hoc Committee

Attachments: Attachment A - Strategic Plan Workshop Governance Issues Chart  
Attachment B - Governance Ad Hoc Committee Options Matrix

  
MICHAEL P. DePALLO  
Chief Executive Officer

# Institutional Structure

Attachment A



## Dedicated Funding Source



## Long Term Capital & Operating Commitments



SCRRA AD HOC GOVERNANCE COMMITTEE OPTIONS - DETAILS

Draft - December 4, 2014

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
<b>1. GOVERNANCE OPTIONS</b>				
<b>Current Governance Structure:</b> 5 member JPA with separate Metrolink agency				
<p>a. Contract portions of management of Metrolink to member agency (ies).</p>	<p>Metrolink could take advantage of a member agency and/or consultant/contractor performing components of the organization, such as accounting, finance, etc., and focus the Metrolink staff on operations. This is an incremental approach to efficiencies.</p>	<p>Contracting out additional components of Metrolink could make it more difficult to coordinate all aspects of Metrolink, given the size and complexity of the system.</p>	<p>Requires SCRRA board approval to contract out components of Metrolink</p> <p>Would require a contract with each member agency providing a portion of the Metrolink duties.</p> <p>Although the JPA would not need to be amended, it may also be advisable to amend the JPA to make it consistent with this additional contracting approach and update some of the JPA provisions.</p>	<p>Medium</p>
<p>b. Create a Managing Agency within an existing Member Agency. Retain a Metrolink JPA Board. (LOSSAN Managing Agency within OCTA and Capitol Corridor Managing Agency within BART models)</p>	<p>Metrolink could benefit from the efficiencies of a larger transit organization.</p> <p>Managing agency would bring additional experience and stability to the Metrolink organization.</p> <p>Retaining the Board would ensure representation for all counties in the Metrolink</p>	<p>Costs and expenses would need to be segregated from the managing agency.</p> <p>There would have to be a major shift in Metrolink employees to the new "host" agency, with changes in compensation ranges and benefits.</p> <p>Additional work and responsibilities by the</p>	<p>Requires Board to take action and implement a contract with the "managing agency".</p> <p>Would require a separate Managing Agency contract with details on operations, administration, funding and budget, liability provisions and performance measurements.</p>	<p>Medium</p>

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
	service area.	managing agency.	<p>Although the JPA would not need to be amended, it may also be advisable to amend the JPA to make it consistent with a management agency approach and update some of the JPA provisions.</p> <p>Recipient member agency ("managing agency") board would have to approve taking on the Metrolink service responsibility.</p>	
c. Create a Transit District or Authority	<p>A transit district would allow state and federal transit federal funds to flow to Metrolink.</p> <p>Establishment of regional tax.</p>	<p>This option would dilute the state and federal formula funding shares for other transit districts in the state.</p> <p>Regional tax unlikely to be passed due to competition with member agencies seeking their own sales tax renewals/expansions.</p>	<p>Requires state legislation.</p> <p>May require a vote to dissolve the JPA (Requires a majority vote of the member agencies (3 member agencies must approve)</p>	Low
d. Merge with another Transit Agency Metrolink would be a department within another member agency, <u>without a Metrolink JPA Board</u>	Metrolink could benefit from the efficiencies of a larger transit organization	<p>Without a Board, the counties outside the merger agency county may not have their issues and priorities addressed.</p> <p>There would have to be a major shift in Metrolink</p>	<p>Requires a majority vote of the member agencies (3 member agencies must approve) to dissolve the JPA.</p> <p>Recipient transit agency would have to approve</p>	Low

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
		<p>employees to the new "host" agency, with changes in compensation ranges and benefits. Without a JPA, the merged agency would not receive funding from the other counties, as Metrolink does now under the JPA.</p>	<p>taking on the Metrolink service responsibility.  Metrolink employees would become employees of the merged member agency with compensation and benefits changes.</p>	
<p>e. Contract out the management of Metrolink. The management firm would provide the CEO and senior staff. All other staff would be transferred to the management firm. (P3 management firm model)</p>		<p>The transit management firm would provide the CEO and senior staff. Other employees may be required to join the management firm.  There could be efficiencies with an experienced management firm.  If the JPA changes the management firm, then all the employees have to change as well.</p>	<p>Requires SCRRA board approval to contract out management.</p>	<p>Low</p>
<p><b>2. BOARD MEMBER REQUIREMENTS</b></p>				
<p><b>Current JPA:</b> All must be voting members of their own agency. JPA states that "Members shall be selected from members of the governing boards of the Member Agencies or alternates appointed by the governing board of each Member Agency."</p>				
<p>a. Ensure that the appointing authority policies of each</p>	<p>Needed for consistency of any</p>	<p>None</p>	<p>Board policy direction and</p>	<p>High</p>

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
Member Agency board are consistent with option chosen.	board member changes		member agency policy change, if any.	
b. Board Member appointments and voting				
i. At least one must be a voting member of their own agency	More flexibility	Fewer ties to member agency	Change in JPA, by unanimous agreement of the voting member agencies	Medium
ii. None have to be voting members of their own agency. Could they be staff members?	The most flexibility with board members that may have more time to attend SCRRA meetings	Could result in no direct ties to member agency and board members who may not represent a public constituency	Change in JPA, by unanimous agreement of the voting member agencies	Low
iii. Have only five members on Board with each member able to vote for all votes for that county. iv. The current JPA states that "Each Member Agency shall have the ability to cast up to the number of votes allocated to it and shall determine who and how many will represent it."	Reducing the number of votes could help with consistency of voting	May make it more difficult to form a quorum.	Change in JPA, by unanimous agreement of the voting member agencies, to reduce board size	Low
v. One person one vote (existing vote allocation per county would remain)	Encourage attendance and consistency of voting.	Lack of quorum.	Change in JPA, by unanimous agreement of the voting member agencies	High
c. Alternate appointments and voting				
i. No alternates	Would encourage board member attendance and	Would reduce flexibility	Change in JPA, by unanimous agreement of	Low

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
	consistency of voting		the voting member agencies to eliminate alternates	
ii. Each county has one alternate and that alternate could vote for all votes for that county	Would make it easier for a quorum and more consolidated, consistent voting positions by county	Would reduce flexibility and a variation of voting positions within each county	Change in JPA, by unanimous agreement of the voting member agencies to reduce the number of alternates	Medium
iii. Each Board member has a designated alternate	Consistent representation	Reduced flexibility	Change in JPA, by unanimous agreement of the voting member agencies	Medium
d. Board Member orientation training, including riding the train, self-assessment test, other safety peer review requirements. For example:	Would encourage a more informed and engaged board	There would be an initial time commitment on the part of each board member	Board Direction Staff development of training program Board member participation	
i. More rigorous briefing sessions for new Board members and existing board members who have not yet taken the briefing sessions, e.g.;  1) Within a certain amount of time after becoming a Board member (no more than 2 months), new members should participate in an educational briefing about the SCRRA, including, but not limited to, how the agency operates, key safety initiatives and measures, key personnel, contractors and their relationship with the agency, key contracts the agency has with outside	“	“	“	

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
<p>providers and other items believed to be critical to effective Board governance.</p> <p>2) The orientation/educational briefing should be at least one half day in length, with a curriculum to be developed by the staff and reviewed and approved by the Board, or its subcommittee.</p> <p>3) Within a four-month period of assuming Board membership, each Director should arrange to visit the Metrolink Operations Center for a briefing on its operation and role within the organization.</p> <p>4) Within the same four-month period, each new Director should also visit the Central Maintenance Facility (or upon its opening, the new Eastern Maintenance Facility), to see how the trains are serviced and maintained.</p> <p>5) Finally, within a six-month timeframe, each new Director is recommended to complete a high-rail tour of a portion of its rail line, as determined by maintenance staff, to bring to their attention any unique or other operating area.</p>				
<p>ii. Board-adopted statement of duties and responsibilities for each Board member and for the Board as a whole;</p>	<p style="text-align: center;">“</p>	<p style="text-align: center;">“</p>	<p style="text-align: center;">“</p>	
<p>iii. Board-adopted performance safety and operational performance measures;</p>	<p style="text-align: center;">“</p>	<p style="text-align: center;">“</p>	<p style="text-align: center;">“</p>	
<p>iv. Direct board involvement in developing and updating the Enhanced Safety Action Plan and Strategic Plan</p>	<p style="text-align: center;">“</p>	<p style="text-align: center;">“</p>	<p style="text-align: center;">“</p>	

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
and monitoring their implementation.				
<b>3. TECHNICAL ADVISORY COMMITTEE (TAC) ROLE</b>				
<b>Current:</b> TAC is an advisory committee to the Board				
a. All Board items must go to TAC first for review and comment. The actual board report and/or a presentation would be required for each issue.	These recommendations would more effectively involve TAC and take advantage of its members' technical expertise for each Board item and issue.	These recommendations would take more time and effort on the part of the SCRRA and Member Agency staff	Board direction CEO Implementation	High
b. The Board must be informed of the TAC's position on each item.	“	“	“	High
c. SCRRA staff may advance an item to the Board regardless of TAC's position, but staff must state TAC's position and/or concerns in the Board report on that item.	“	“	“	High
d. SCRRA's CEO and/or executive staff should meet with TAC on at least a quarterly basis	“	“	“	High
e. SCRRA staff should prepare a 90-day look ahead could be shared with Board and others to ensure a heads-up on upcoming issues	“	“	“	High
f. TAC representatives should be part of Board member briefings, at each Board member's discretion, either in person or by conference call	“	“	“	High

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
<b>4. BOARD REPORTS IMPROVEMENTS</b>				
a. Board reports should follow the format suggested in <b>Attachment 1</b> , which offers more details for each Board item. New items include: <ul style="list-style-type: none"> <li>i. TAC's review and comments;</li> <li>ii. Consistency with Strategic Plan and SRTP; and</li> <li>iii. Specific financial implications of each item.</li> </ul>	These recommendations would increase the information needed for the Board decision-making on Metrolink issues.	none	CEO direction	High
b. All Board presentations shall have a Board report associated with that item. Even a PowerPoint presentation must have a short Board report that follows the format suggested in Attachment 1	“	“	“	High
c. SCRRA staff shall prepare a 90-day look ahead that will be shared with the Board to ensure a heads-up on upcoming issues.	“	“	“	High
<b>5. LONG TERM OPERATING AND CAPITAL COMMITMENTS</b>				
a. Develop a set of principles for project and cost sharing commitments	The recommendations would result in better document of Metrolink operating and capital needs and better collaboration amongst member agencies to support Metrolink's long term needs.	Developing the documentation and better MOUs would require additional time and effort	Board direction Member agency and TAC participation CEO implementation	High
b). Define five year operating and capital needs through the Short Range Transit Plan (SRTP) and 20 year needs	“	“	“	High

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
through the Strategic Plan.				
c. Develop cost sharing formulas for different types of capital projects, such as vehicles, signals, station upgrades, etc.	“	“	“	High
d. Develop Memorandums of Understanding (MOUs) that have the following like components: i. A multiyear (2-5 years) programming commitment with the first year as the budgeted year and the out years as a programming commitment, based on SRTP needs ii. SCRRA performance requirements iii. SCRRA reporting requirements with variations based on type of grant and source of funds.	“	“	“	High
e. Develop a strategy with the Member Agencies on seeking federal dollars and use of federal dollars that keeps projects going.	“	“	“	High
f. Stabilize operating costs through techniques such as: i. Fuel hedging ii. Control of contractual costs, such as better negotiation of the operating contracts when they require renewal.	“	“	“	High
g. Better definition of Rehabilitation vs. Maintenance and develop a comprehensive Maintenance and Rehabilitation program which includes both system-wide and Member Agency needs on the corridor.	“	“	“	High

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
h. Better project management techniques, including project manager controls on budget and schedule.	“	“	“	High
<b>6. NEW FUNDING / GRANTS REPORTING</b>				
a. Develop/join a state-wide coalition with other commuter rail agencies in California with the goal of securing stable state funding for commuter rail systems.	Could result in commuter rail agencies receiving state funding in the future, as the intercity rail agencies do now	Would take effort to initiate/join a state-wide coalition	Creation of a state-wide coalition to seek state funding	High
b. Funding Options to consider as part of SCRRRA's strategy:	Would result in increased funding for Metrolink	Grant funds come with a variety of “strings” or restrictions on use, compared to local funds.	Board Policy Member agency collaboration SCRRRA staff development of grants	
i. Federal 1) Tiger Grants 2) TIFIA Loans 3) Preventative Maintenance Funds 4) Capital Funding				High
ii. State 1) Cap and Trade Funding 2) Proposition 1A High Speed Rail Funding 3) Other funding from the State Mass Transit Account				Low

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
iii. Regional Funding				
1) Dedicated new sales tax measure for Metrolink and other regional improvements				Low
iv. Local Funding				
1) Dedicated multiyear funding from Member Agencies				High
2) Value Capture funding along the corridor and at station sites through cities/Member Agencies				Low
v. Encourage a nexus between highway and toll projects and parallel Metrolink service.				Medium
c. Report to the Board on a quarterly basis regarding the status of SCRRA grants and member agency commuter rail programs and initiatives.	New funding would accelerate capital and service improvements	Would take extra effort and focus to track and secure grant funds	CEO Implementation	High
<b>7. SCRRA FUNDING FORMULA UPDATE / CHANGE</b>				
a. Create a base formula using the 2014 Budget and freeze it for five years. The base formula would create a percentage share for each Member Agency. Use the existing operating formula for years six and beyond budgets. Rehabilitation and capital projects formulas would be treated separately.	Would stabilize the funding shares by county	Would not reflect current statistics and may be difficult to add to this base	Board policy approval	Medium
b. Simplify operating formula and use current statistics. The formula would be simplified by:	Simplifying the formula would help with understanding and implementing the member	There would be "winners" and "losers" for the first year of the change	Refer to TAC for analysis and recommendations to Board for action	High

OPTIONS	PROS	CONS	IMPLEMENTATION	COMMITTEE RATING
<ul style="list-style-type: none"> <li>i. Remove lag-train miles; just use current train miles</li> <li>ii. Consolidate categories</li> <li>iii. Remove residual tiers from past formulas</li> </ul>	agency shares and would simplify budget amendments. Using current statistics (as opposed to 2-year old "lagged" data) for train miles and ridership would reflect the true cost shares of the system		CEO Implementation	
c. Update All-Share formula for system-wide projects to current statistics. All-Share formula includes the following factors, which would use the current statistics at the time of the start of the project. The current formula uses the following categories (Route Miles, Un-duplicated stations, and Ridership and has not been updated since 1998.	Using current statistics would reflect the true member agency fair shares	There would be "winners" and "losers" for the first year of the change	Refer to TAC for analysis and recommendations to Board for action  CEO Implementation	High
d. Change the way revenue credits are determined: <ul style="list-style-type: none"> <li>i. Current calculation by stations, by lines, by line segments, by county (miles)</li> <li>ii. Change to origin/destination ticket pairs and either split 50%/50% if county lines crossed or prorate by mileage by county on that line.</li> </ul>	“	“	“	Low

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# **Governance Options Report**

**December 12, 2014**  
**Board of Directors Meeting**

**188**



## **Issue and Recommendation**

- At the July 11, 2014 Board Strategic Plan Workshop, a Governance Ad Hoc Committee was appointed to consider options for improving the governance of the SCRRA and report back to the Board regarding those options.
- Recommend that the Board discuss and give direction regarding the governance options presented by the Governance Ad Hoc Committee.



## Governance Ad Hoc Committee Members

Keith Millhouse	Ventura County Transportation Commission (VCTC)	Board member
Carolyn Cavecche	Orange County Transportation Authority (OCTA)	Board member
Don Sepulveda	Los Angeles County Metropolitan Transportation Authority (Metro)	Technical Advisory Committee (TAC) member
Justin Fornelli	San Bernardino Associated Governments (SANBAG)	TAC member
Sheldon Peterson	Riverside County Transportation Commission (RCTC)	TAC member
Roderick Diaz	Southern California Regional Rail Authority (SCRRA)	Authority staff member
Linda Bohlinger	Parsons Brinckerhoff	Facilitator



## **Options Summary**

- **Institutional Issues**
  1. Governance Options
  2. Board Member Requirements
  3. Technical Advisory Committee (TAC) Role
  4. Board Reports Improvements
  
- **Long Term Operating and Capital Commitments**
  5. Long Term Operating And Capital Commitments
  
- **Funding Issues**
  6. New Funding / Grants Reporting
  7. SCRRA Funding Formula Update / Change



# **1. Governance Options – Issue**

Based on the analysis done for the Authority's Workshop on July 11, 2014, the current JPA Board and Metrolink staff organization has had difficulties in operating, maintaining and administering the Metrolink service and coordinating with member agencies, in part due to governance and management issues.



# 1. Governance Options – Solutions

The highest ranked options to potentially increase the effectiveness of Metrolink include contracting out portions of Metrolink administration, such as finance or procurement; or contract with a member agency to be a managing agency of the Metrolink organization. The JPA would continue to exist.

- a. Contract portions of management of Metrolink to member agency(ies).
- b. Create a Managing Agency within an existing Member Agency. Retain a Metrolink JPA Board.
- c. Create a Transit District or Authority.
- d. Contract out the management of Metrolink. The management firm would provide the CEO and senior staff. All other staff would be transferred to the management firm. (P3 management firm model).



# 1. Governance Options – Implementation

For contracting out options, requires Board to take action and implement a contract with the host member agency(ies).

- Would require a separate contract with details, depending on option, on operations, administration, funding and budget, liability provisions and performance measurements.
- Although the JPA would not need to be amended, it may also be advisable to amend the JPA to make it consistent with an approach to contract out, in whole or in part, the Metrolink function and update some of the JPA provisions.
- Recipient member agency board would have to approve taking on the Metrolink service responsibility.
- State legislation would be required to form a transit authority/district.



## **2. Board Member Requirements – Issue**

The Board deals with highly technical issues spread over a large track of land (500 miles); 22 board members casting the 11 votes results in an exponentially large combination of voting variations; and there are Board member attendance issues.



## **2. Board Member Requirements – Solutions**

The goal is to have an engaged board that understands the Metrolink issues before them and expects excellence from staff. Solutions include changing the voting requirements and/or number of alternates and requiring Board member training regarding the Metrolink system.

- a. Ensure that the appointing authority policies of each Member Agency board are consistent with option chosen
- b. Board Member appointments and voting
- c. Alternate appointments and voting
- d. Board Member orientation training, including riding the train, self-assessment test, other safety peer review requirements.



## **2. Board Member Requirements – Implementation**

- Most options would require a change in JPA, by unanimous agreement of the voting member agencies
- Board member training would be Board directed and staff implemented



### **3. Technical Advisory Committee Role – Issue**

Board members are not fully briefed on issues. Issues not fully vetted through a technical review prior to Board action.



### **3. Technical Advisory Committee Role – Solutions**

- Issues would be vetted through the Technical Advisory Committee (TAC), which is composed of members who understand Metrolink technical and policy issues. TAC will inform the Board of their comments/concerns
- All Board items would be required to go through TAC for review before going to the Board



### **3. Technical Advisory Committee Role – Implementation**

- Requires Board direction and Metrolink CEO Implementation



## **4. Board Reports Improvements – Issue**

The current Board reports often lack the appropriate amount of detail and financial information to make an informed decision.



## **4. Board Reports Improvements – Solutions**

- The recommended format should allow the Board to be aware of TAC's review and comments, consistency with Strategic Plan and Short Range Transit Plan (SRTP) and the specific financial implications of each item.
- All Board presentations shall have a Board report associated with that item.
- Authority staff shall prepare a 90-day look ahead regarding upcoming issues/board items.



## **4. Board Reports Improvements – Implementation**

- Metrolink CEO direction



## **5. Long Term Operating and Capital Commitments – Issue**

The Authority does not have multi-year commitments to plan their service improvements.

The Authority does not provide enough information on operating, maintenance and rehabilitation and capital needs.



## **5. Long Term Operating and Capital Commitments – Solutions**

- Options would stabilize funding and create a multi-year program of specific operation, maintenance and rehabilitation and capital expenses.
- Develop a set of principles for project and cost sharing commitments
- Define five year operating and capital needs through the Short Range Transit Plan (SRTP) and 20 year needs through the Strategic Plan.
- Develop Memorandums of Understanding (MOUs) that have long term commitments (year one budget commitment and out year programming commitments).



## **5. Long Term Operating and Capital Commitments – Implementation**

- Board direction
- Member agency and TAC participation
- Metrolink CEO implementation



## **6. New Funding / Grants Reporting – Issue**

Metrolink lacks a long term, dedicated funding source and therefore has difficulty in making long-term commitments.



## **6. New Funding / Grants Reporting – Solutions**

- Develop/join a state-wide coalition with other commuter rail agencies in California with the goal of securing stable state funding for commuter rail systems.
- Develop a strategy with the Member Agencies on seeking federal dollars and use of federal dollars that keeps projects going.
- The funding options would provide either a dedicated funding source at the state and/or regional level or provide added funds each year through discretionary grants. See matrix for federal, state, regional and local funding opportunities. Each option is ranked.
- Report to the Board on a quarterly basis regarding the status of Authority grants and member agency commuter rail programs and initiatives.



## **6. New Funding / Grants Reporting – Implementation**

- Board Policy
- Member agency collaboration
- Authority staff development of grants and reporting



## **7. SCRRRA Funding Formula Update/ Change – Issue**

There is a lack of knowledge of how the formula works and it is too complicated. In addition, the current formula does not reflect the current metrics of the system so some counties may not be paying their fair share.



## **7. SCRRRA Funding Formula Update/ Change – Solutions**

The formula changes would simplify the formula and bring all the metrics up-to-date, thereby ensuring that all member agencies were paying their fair share. Because of the formulaic nature of the budget it is difficult for the Authority to move funds around and that consolidating some of the items helps with that.

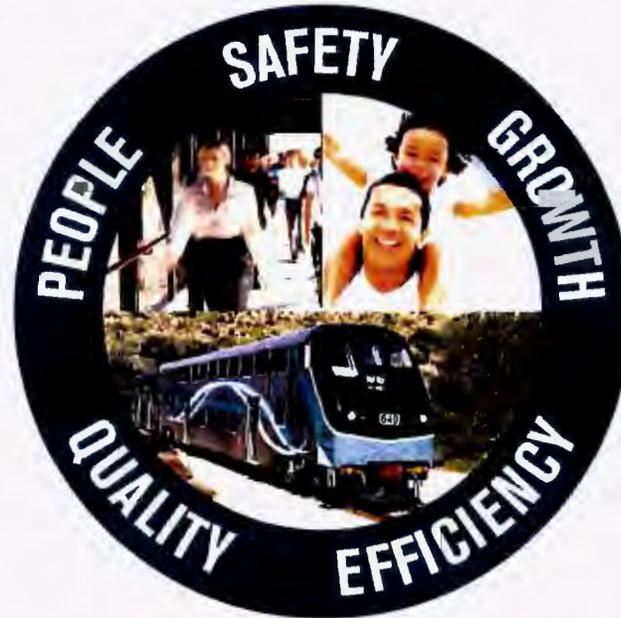
- Remove lag-train miles; just use current train miles
- Consolidate categories
- Remove residual tiers from past formulas



## **7. SCRRA Funding Formula Update/ Change – Implementation**

- Refer to TAC for analysis and recommendations to Board for action
- Metrolink CEO Implementation

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## **The Metrolink Mission Statement**

To provide an outstanding passenger experience on every ride  
with safe, clean, dependable and on-time operations.

## 16. Governance Options Report

Chair McCallon commented that as part of the Authority's development of the Strategic Plan, a thorough review of the governance and funding methods needed to be included. An Ad Hoc Committee was formed to consider these issues and report back to the Board providing options for consideration.

Linda Bohlinger, Facilitator, Parsons Brinckerhoff, delivered a presentation and provided a brief background on this item as detailed in the staff report. She recapped the issues considered by the Committee which included three main areas and subtopics as noted:

- Institutional Structure
- Long Term Capital and Operating Commitments
- Funding Sources

She noted that the Ad Hoc Committee had been meeting since August to discuss options as noted in Attachment B of the report. A total of seven (7) subtopics were created under the three main areas.

Under the category of *Institutional Structure* the following topics were discussed.

*Board Member Requirements* – Director Cavecche spearheaded this section and commented that the committee strongly recommended the Board to consider the following:

- ✓ Ensure the appointing authority policies of each Member Agency board were consistent with option chosen
- ✓ Improve the knowledge base of the Board by a more thorough Board member orientation, which would include riding the train, self-assessment test, other safety peer review requirements.
- ✓ Streamline voting rules – it was noted that a board member should be able to cast only 1 vote, and should an alternate system continue then an alternate would also only cast 1 vote for the person they would be filling in for.
- ✓ Importance of Board member attendance was stressed.

Implementation on most of the options would require a change to the Joint Powers Agreement (JPA). Board member training would be Board directed and staff to implement.

*Technical Advisory Committee (TAC) Role* – to ensure that Board members are fully briefed on issues especially from the benefit of a technical review the following was recommended:

- ✓ All issues would be vetted through the TAC which is comprised of members who understand the Metrolink system and represent each member agency.

Implementation would require Board direction and staff to implement.

*Board Reports* – to ensure appropriate level of detail is provided in Board reports, the following was suggested to be included:

- ✓ Identify any TAC concerns, issues, or comments on the Board report.
- ✓ Identify if the item is consistent with the strategic plan or Short Range Transit Plan (SRTP) once these plans are adopted by the Board.
- ✓ Include specific financial implications and the funding account being used. (Sample included in the agenda item)
- ✓ All items including presentations include a written staff report.
- ✓ Staff to prepare a 90-day look ahead.

Implementation would only require staff to implement.

Under the category of *Long Term Operating and Capital Commitments* the following topics were discussed.

*Multi-Year Funding Commitments* – The Authority did not provide advance and long range information. Options were provided for solutions to possibly stabilize Authority funding:

- ✓ Multi-year program of projects, capital, operating, maintenance, rehabilitation – SRTP currently under development.
- ✓ Develop a set of principles for project and cost sharing – TAC currently in development.
- ✓ Define five year operating and capital needs through the SRTP and 20 year needs through the strategic plan
- ✓ Develop Memorandums of Understanding (MOUs) that have long term commitments (One year budget commitments and out year programming commitments).

Implementation would require Board direction, member agency and TAC involvement and staff to implement.

Under the category of *Funding Sources* the following topics were discussed.

*New Funding / Grants Reporting* – Since the Authority did not have a dedicated long term funding source the following options were discussed:

- ✓ Develop/Join a state-wide coalition with other commuter rail agencies in California with the goal of securing stable state funding for commuter rail systems.
- ✓ Develop a strategy with the Member Agencies on seeking federal dollars and use of federal dollars that keeps projects going.
- ✓ Funding options would provide either a dedicated funding source at the state and/or regional level or provide added funds each year through discretionary grants. (reference Attachment B for rankings)
- ✓ Staff to provide a quarterly report to the Board on the status of all Authority grants and/or initiative.

Implementation would require Board policy, formation of a Board policy group, member agencies collaboration, and staff to diligently report on grant status.

*Authority Formula* – The formula has remained unchanged since 1998. Due to the complexity of the formula the Ad Hoc Committee requested to refer that discussion to the TAC for a detailed analysis. Of particular note on the formula did not include current metrics on mileage and stations, revenue, etc., which made it difficult to know true costs for current year. The following options were presented:

- ✓ Removal of lag train miles.
- ✓ Consolidation of categories. Currently there are 63 different formula categories.
- ✓ Removal of residual tiers from past formulas.

Implementation would require the TAC to review the formula, if a change was recommended; it would require Board adoption and staff to implement.

Director Millhouse discussed under the category of *Institutional Structure* the following topic:

*Governance* – in an effort to increase the effectiveness of the Authority the following options were reviewed:

- ✓ Contract portions of management to member agency(ies)
- ✓ Create a Managing Agency within an existing Member Agency. Retain a Metrolink JPA Board.
- ✓ Create a Transit District or Authority
- ✓ Contract out the management of Metrolink. The management firm would provide the Chief Executive Officer (CEO) and senior staff. All other staff would be transferred to the management firm. (PE Management firm model).

Director Millhouse remarked that these options could potentially transform the Authority and stressed the import to reassure the employees that no decisions had been made as to the future of the Authority. He commented on the dedication and value the staff provides and personally cared about job security throughout what may come. He commented that the main issue was to evaluate whether the current structure was what was best for the Authority moving forward. He noted that if the Board decided to pursue any of the options noted, additional detailed information was necessary.

Chair McCallon stated that he felt a review of the formula by the TAC should be conducted.

Director Nelson expressed the concerns of the Orange County Transportation Authority (OCTA) Board and noted that during his tenure on the board significant challenges were presented with minimal progress seen. He mentioned the report of the Financial Ad Hoc Committee from 2013 and the financial issues which had the OCTA Board hesitant to continue as a member of the JPA. He stressed the need for change, to fix the management structure, and accountability to the members of

the public who should have a level of confidence as to how sales tax measure monies are being accounted for. He stated that perhaps the Los Angeles County Metropolitan Transportation Authority (Metro) would consider providing various administrative duties. He reiterated that if things stayed as status quo, then the OCTA would provide notice to be eliminated from the JPA.

Director Spiegel agreed that change was needed and that as a Board, they carried responsibility for the Authority and as a whole would need to see that changes occurred.

Director Millhouse commented that several options would need to be explored including: 1) Potential composition of contracting out portions of the administration; 2) Possible agencies interested; 3) Costs for these service(s). He reiterated the value the employees provide and the need to remain focused. He recounted some of the key accomplishments the Authority had achieved including Inward/Outward facing cameras and Positive Train Control (PTC) implementation. Director Millhouse again stated that the goal was to make improvements to the Authority and move forward in its strides. He suggested that this item be brought back to the Board for additional discussion after there had been sufficient time for the Board to review.

Director Najarian stated that although there might be disagreements amongst Board members as to the direction of the Authority, it did not mean that there was dysfunction. He reiterated that there were many challenges that were overcome and still others to resolve. He agreed that Metro was a larger organization that would be able to take over many of the administrative functions, and if the Metro Chief Executive Officer expressed interest, it would require that the Metro Board agree to any of the options discussed today. He added that the Metrolink system was a critical part of the entire regional transportation system and the success of the Authority was a key component. He noted that the Metro Board would need to have a thorough discussion and return to the Board with additional details as to their potential role in one or more of these options.

Vice-Chair Hennessey agreed that a solution needed to be found and the need for better management was essential.

Director Katz remarked while he served as Chair, he appointed the Finance Ad Hoc Committee comprised of Directors Cavecche and de la Vega which did uncover financial issues which the Authority has worked diligently to resolve. He expressed frustration over the length of time to have Oracle fully operational and implemented. He also commented that Linda Bohlinger had served on the Safety Peer Review panel following the Chatsworth incident and noted that out of approximately 160 punch list items; all but the Governance issue had been completed which after 4 years the Board is still discussing. He too reiterated some of the accomplishments of the Authority over the past several years and added crash energy management cars to the list already stated by Director Millhouse earlier in the discussion. He noted that these achievements were phenomenal and thanked staff for their

dedication. Director Katz commented that perhaps a committee needed to be formed to look at how rail interacts with the member agencies, a scheduling group of sorts that would review connectivity which is a critical function of the Authority's operations in providing passengers with first/last mile connections in an effort to function more as a regional transportation agency. He closed by stating that he appreciated the Governance Ad Hoc Committee's effort.

Chair McCallon also thanked the work that was performed by the Governance Ad Hoc Committee and appreciated the information that was presented and stated that as a Board in conjunction with the member agencies there was a lot to consider and discuss which would occur. Linda Bohlinger noted that the Committee members were dedicated to this effort.

Director Kotyuk questioned if these options presented suggested a permanent direction or only as a means to help stabilize the Authority for a specific period of time. Director Millhouse responded that this Ad Hoc addressed various options to make the necessary changes and respond to some of the concerns that have been expressed. The Board could direct additional exploration of any, all or none of the options. He noted that Metro, for example, would need to consider what they would be willing to do, what they could do, how it would be staffed, how to transition, and what costs would be. Once that information was communicated to the Board, then appropriate action could be given in the format that pleased the Board. Linda Bohlinger added that some of the options provided could be reversible in theory which would require changes to the JPA which was out of date and should be reviewed regardless of what outcome the Board sought.

Director Cavecche stated that the Ad Hoc Committee provided several suggestions and suggested that the CEOs of the member agencies meet to review these options and return to the Board no later than early February to provide more solid direction.

Director Nelson commented that in his opinion there were only two viable agencies that could manage the Authority, but it was important to preliminarily be informed if an agency was interested in providing all or part of the services, costs associated with the options prior to any decisions being made.

Director Millhouse stated that he felt it would be advantageous to have a small group that included Board members from Ventura County Transportation Commission (VCTC), OCTA and Riverside County Transportation Commission (RCTC) and include the CEO from San Bernardino Associated Governments (SANBAG) and to discuss and return to the Board with information following discussions with Metro and/or other agencies that express any interest. The Board engaged in discussion on the composition of the group.

Director Katz motioned that Dr. Wolfe, Executive Director, SANBAG represent the CEOs and expressed the importance of having Board member representation from the other member agencies. Director Nelson agreed and seconded the motion

adding that the member agencies could appoint whomever they wished, but that only 1 member from each county be represented. Director Katz made a substitute motion to restate prior recommendation from Chair McCallon, that Dr. Wolfe represent the CEOs and a Board representative from VCTC, OCTA and RCTC be included.

Upon a motion by Director Katz and seconded by Director Wapner the Board **amended** staff's recommendation as listed below. The Board Secretary conducted a roll call vote. Aye votes were cast by Chair McCallon, 2<sup>nd</sup> Vice-Chair Busch, Directors Eaton, Krekorian, Najarian and Katz. No votes were cast by Vice-Chair Hennessey, Directors Nelson, Spiegel, Millhouse, and Antonovich. The motion passed with a vote of 6-5.

A copy of the presentation is available upon request from the Board Secretary.

**ACTION:** The Board approved the appointment of an Ad Hoc Committee consisting of Dr. Wolfe to represent the CEOs, and an OCTA, VCTC, and RCTC Board representative to inquire if Metro or any other member agency would be interested in providing some or all of the services of the Authority. The Ad Hoc would then report back to the Board with any results at which time the Board would further discuss pursuance of the information presented.





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# Session II

# Funding Formulas

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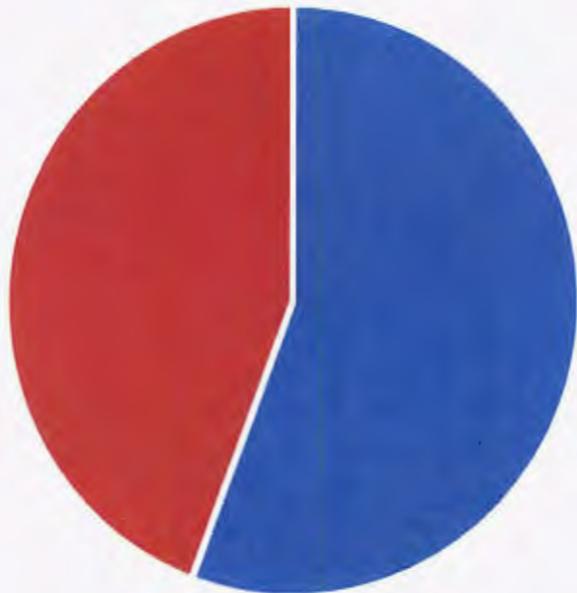
# **Funding Formulas – Member Agencies**



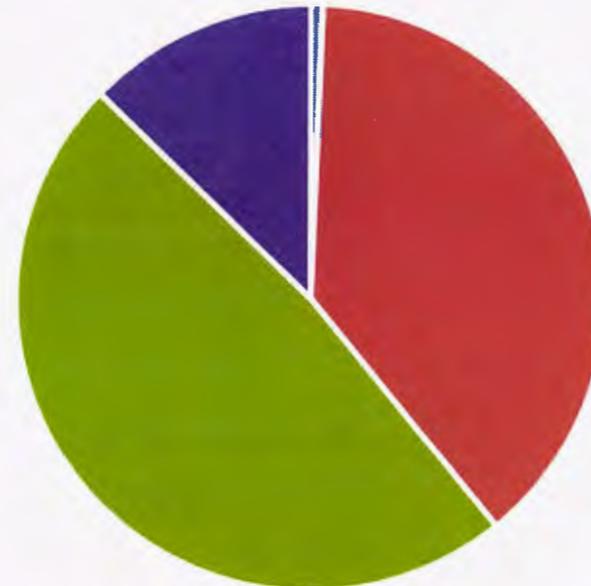
## Sources of Revenue and Funding

FY16 Operating \$229M

FY16 Capital \$348M



Member Agency	Other Revenues
Member Agency:	\$128M
Farebox:	\$ 84M
Dispatching:	\$ 3M
MOW:	\$ 14M

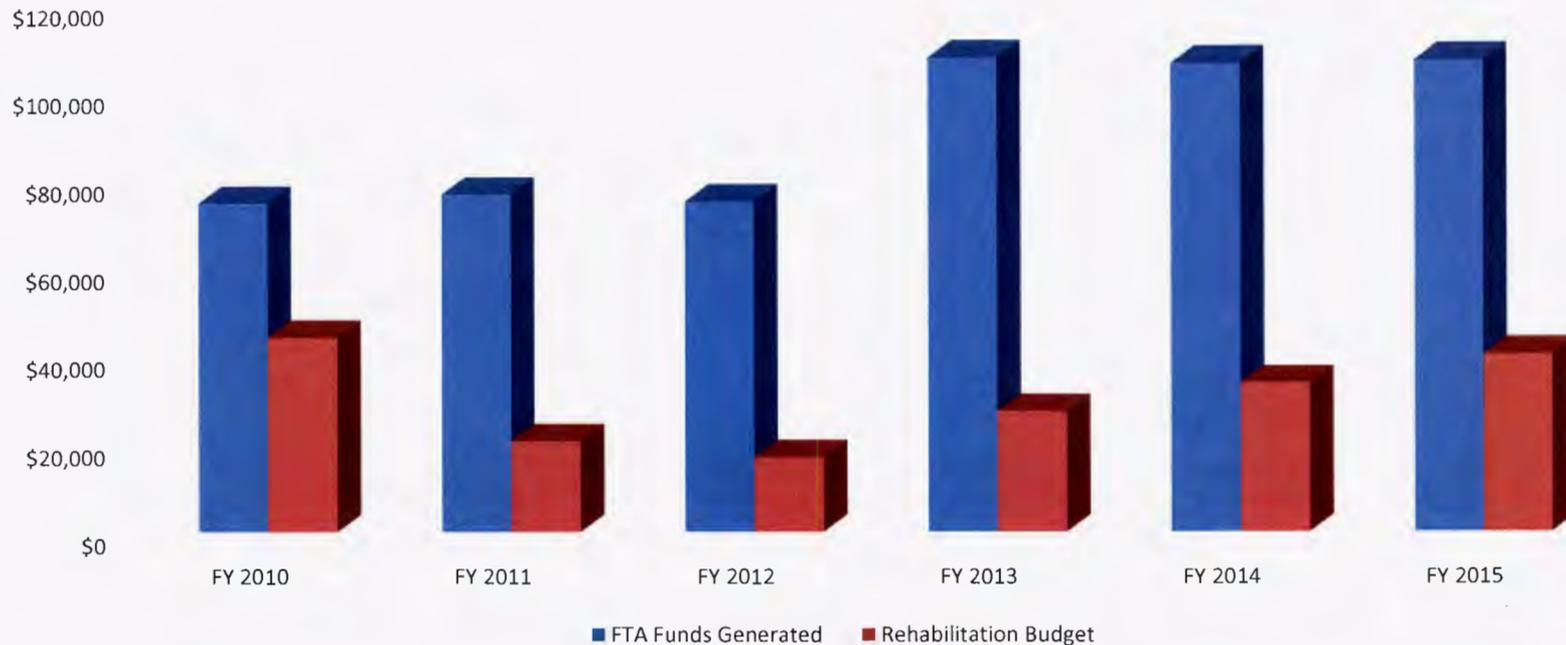


Federal	State	Member Agency Local Funds	Other Local
Federal:	\$ 2M		
State:	\$134M		
Member:	\$168M		
Other Local:	\$ 44M		



# Metrolink Generates Federal Funds for the Counties

FTA Funds Generated vs Funds Returned for Metrolink Rehabilitation Program  
From FY 2010 to 2015 (\$000)

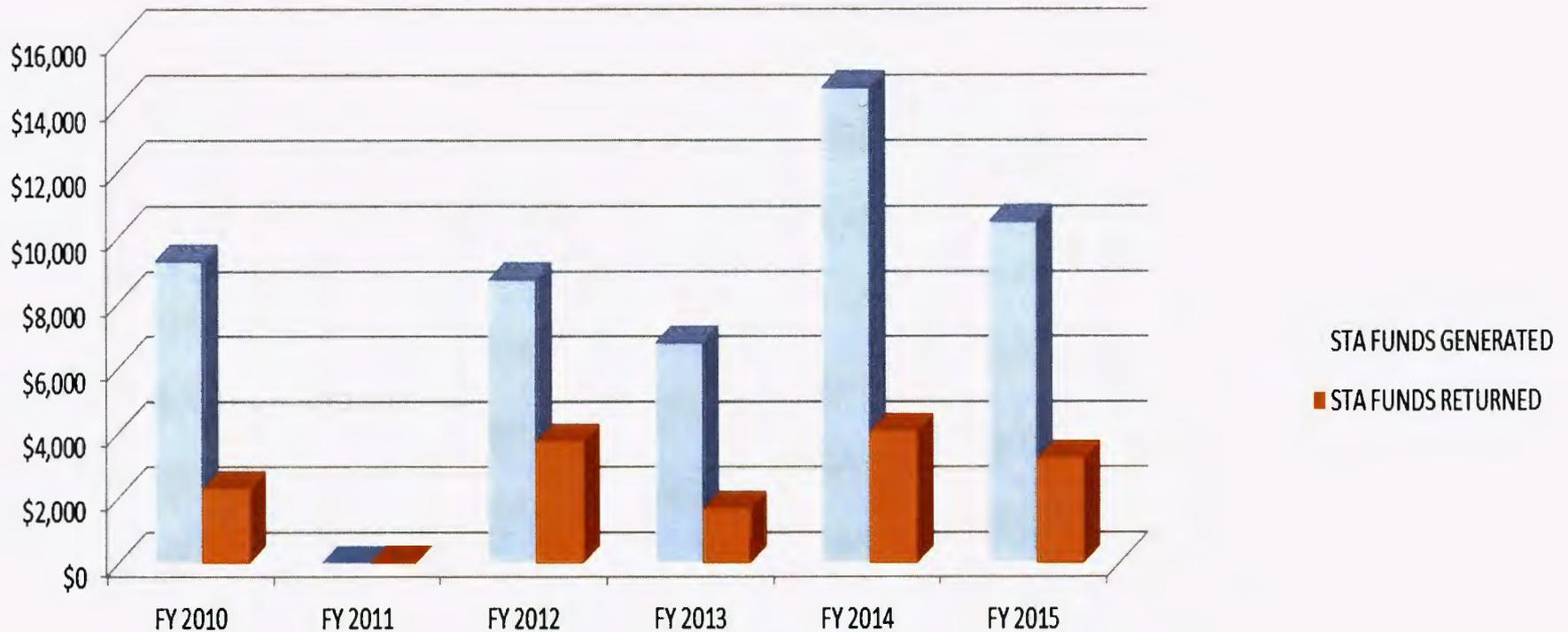


Note: In FY 2013, MAP-21 authorized a formula change that resulted in higher allocations to Metrolink for State of Good Repair projects. While Metro does not provide FTA 5307/5309/5337 funds, they provide local funds as backfill. They are included here. The only members that have provided FTA 5307 funds are VCTC and RCTC.



# Metrolink Generates State Funds for the Counties

STA FUNDS GENERATED vs STA FUNDS RETURNED FROM FY 2010 to 2015 (\$000)



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# **Alternative Financing and Funding Mechanisms**



## Other Funding Sources for Capital Needs

- **Federal:** Core Capacity; FASTLANE; TIGER; PTC; Public Transit Innovation; additional formula funds
- **State:** STIP; residual bond funds (TCIF, HRCSA); additional STA formula funds
- **Regional:** SCAQMD Carl Moyer Program
- **Local:** Additional local measure funds



FTA FORMULA FUNDING GENERATED BY METROLINK vs ANNUAL REHABILITATION BUDGETS (\$000)								
						MAP-21		
County		2010	2011	2012	2013	2014	2015	6-Year Total
LA	FTA Apport	\$37,189	\$38,398	\$37,734	\$52,885	\$51,452	\$51,181	\$268,839
	Rehab Budget	\$15,840	\$8,000	\$7,892	\$11,612	\$16,007	\$16,375	\$67,100
OCTA	FTA Apport	\$16,397	\$16,085	\$15,503	\$19,491	\$19,436	\$20,370	\$107,282
	Rehab Budget	\$17,500	\$4,968	\$3,841	\$9,581	\$8,976	\$12,982	\$31,346
RCTC	FTA Apport	\$7,932	\$7,891	\$7,749	\$11,589	\$11,647	\$11,837	\$58,644
	Rehab Budget	\$3,067	\$1,225	\$1,256	\$1,591	\$1,729	\$3,421	\$9,288
SANBAG	FTA Apport	\$8,918	\$8,860	\$8,773	\$13,407	\$13,468	\$13,370	\$66,797
	Rehab Budget	\$5,788	\$4,950	\$2,480	\$3,151	\$3,636	\$4,447	\$12,919
VCTC	FTA Apport	\$4,243	\$5,418	\$5,252	\$10,151	\$10,260	\$10,162	\$45,486
	Rehab Budget	\$2,060	\$1,500	\$1,500	\$1,500	\$3,484	\$3,182	\$7,732
TOTAL	FTA Apport	\$74,679	\$76,653	\$75,012	\$107,522	\$106,262	\$106,919	\$547,048
	Rehab Budget	\$44,255	\$20,643	\$16,968	\$27,435	\$33,832	\$40,408	\$128,385
	Other funds	\$2,474	\$1,243	\$986	\$400	\$453	\$2,882	\$8,438
	Tot Rehab Bgt	\$46,729	\$21,886	\$17,954	\$27,835	\$34,285	\$43,290	\$136,823
<b>Notes:</b>								
Apportionment data for the LA/LB and RVS/SNB Urbanized Areas are from SCAG intercounty allocations.								
Apportionment data for other Urbanized Areas were estimated using FTA unit values for Directional Route Miles (DRMs), Vehicle Revenue Miles (VRMs), and Passenger Miles.								
OCTA's numbers exclude HOV FG allocations. OCTA at one time provided HOV funds to Metrolink - no longer the case.								
Annual Rehab budgets exclude repayments, Rotem settlements, fund swaps, and other non-member funds.								

**Session II: Background on State Formula Funds**

**STA FORMULA FUNDING GENERATED BY METROLINK vs FUNDS RETURNED TO METROLINK (\$000)**

County		2010	2011	2012	2013	2014	2015	6-Year Total
<b>LA</b>	STA Apport	\$4,942	\$0	\$4,638	\$3,590	\$7,606	\$5,338	\$26,114
	STA Returned	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>OCTA</b>	STA Apport	\$1,996	\$0	\$1,898	\$1,469	\$3,466	\$2,622	\$11,451
	STA Returned	\$1,996	\$0	\$1,898	\$1,469	\$3,466	\$2,622	\$11,451
<b>RCTC</b>	STA Apport	\$716	\$0	\$641	\$496	\$1,003	\$793	\$3,649
	STA Returned	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>SANBAG</b>	STA Apport	\$1,324	\$0	\$1,270	\$983	\$2,048	\$1,408	\$7,033
	STA Returned	\$0	\$0	\$1,577	\$0	\$147	\$267	\$1,991
<b>VCTC</b>	STA Apport	\$295	\$0	\$267	\$206	\$444	\$321	\$1,533
	STA Returned	\$295	\$0	\$267	\$206	\$444	\$321	\$1,533
<b>TOTAL</b>	STA Apport	\$9,273	\$0	\$8,714	\$6,744	\$14,567	\$10,482	\$49,780
	STA Returned	\$2,291	\$0	\$3,742	\$1,675	\$4,057	\$3,210	\$14,975
<b>Notes:</b>								
Sources are State Controller's Office and email responses from member agencies about what they provided to SCRRRA for rehab and new capital								
An increment of funding from FY13 was paid by the State Controller to members in FY14 and is recognized in the FY14 amounts shown here								
SANBAG amount of \$1.57M in FY12 includes other funds.								



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# Metrolink Alternative Funding and Financing Mechanisms

**Sperry Capital Inc.**

January 22, 2016



**Executive Summary:** Over the next ten years, Metrolink has identified the need to fund nearly \$2 billion in track capacity expansion projects, \$1.5 billion in system-wide capital improvement projects (passenger cars, maintenance facilities, grade separation projects, etc.), and \$1.5 billion in ongoing maintenance and state of good repair program requirements. Since it is unlikely that operating revenues, current levels of Member Agency (MA) contributions or the traditional pipeline of formula and discretionary grants from federal, state, regional and local sources will meet these needs, it is imperative that Metrolink pursue other funding. This report outlines a variety of alternative funding sources and financing mechanisms that may be pursued in order to meet Core Capacity grant matching requirement and provide funds for the state of good repair program and capital project needs. Based on our high-level analysis, we have identified some alternative funding sources and financing mechanisms that have strong potential to contribute materially to Metrolink’s needs (See Table 1).

Table 1: Summary of Potentially Viable Alternative Funding and Financing Sources (in Millions)

County	Project Description	Estimated Cost	Potential Source of Funding	Potential Amount of Funding	% of Funding Needed	Associated Annual Debt Service	Notes
Los Angeles	Santa Clarita to via Princessa Double Track	\$12.0	MOU/EIFD	\$12.0	100%		1
Los Angeles	Santa Clarita to Newhall Double Track	\$40.2	MOU/EIFD	\$40.2	100%		1
Los Angeles	CP Barranca to CP White Double Track	\$110.0	EIFD	\$55.0	50%		2
Los Angeles	Via Princessa to Vincent Grade Double Track	\$1,086.1	MOU/EIFD	\$1,086.1	100%		1
Los Angeles	CP Amar to CP Irwin Double Track	\$91.7	EIFD	\$45.8	50%		2
San Bernardino	CP Central to CP Archibald Double Track	\$97.3	EB-5/TIFIA	\$32.1	33%	\$2.0	3
San Bernardino	CP Jordan to CP Fremont Double Track	\$95.0	EB-5/TIFIA	\$31.4	33%	\$1.9	3
San Bernardino	CP Beech to CP Locus Double Track	\$55.0	EB-5/TIFIA	\$18.2	33%	\$1.1	3
San Bernardino	CP Rochester to CP Nolan Double Track	\$22.8	EB-5/TIFIA	\$7.5	33%	\$0.5	3
San Bernardino	CP Rancho to CP San Bernardino Junction	\$31.9	EB-5/TIFIA	\$10.5	33%	\$0.6	3
San Bernardino	CP Lilac to CP Rancho Double Track	\$60.5	EB-5/TIFIA	\$20.0	33%	\$1.2	3
San Bernardino	CP Rana to CP SB Jct Double Track	\$22.8	EB-5/TIFIA	\$7.5	33%	\$0.5	3
Orange	Laguna Niguel to San Juan Passing Siding	\$22.8	I-Bank	\$22.8	100%	\$1.4	4
Riverside	CP Eastridge to CP Nuevo Double Track	\$28.9	EB-5/TIFIA	\$9.5	33%	\$0.6	3
Riverside	CP Highgrove to CP Eastridge Double Track	\$65.5	EB-5/TIFIA	\$21.6	33%	\$1.3	3
Riverside	CP Nuevo to CP South Perris Double Track	\$51.4	EB-5/TIFIA	\$17.0	33%	\$1.0	3
<b>Sub-total Capacity Expansion Projects</b>		<b>\$1,893.7</b>		<b>\$1,437.1</b>	<b>76%</b>	<b>\$12.2</b>	
Systemwide	20 Passenger Cars	\$72.0	RRIF	\$72.0	100%	\$4.2	5
Systemwide	Expanded Maintenance Facility	\$75.0	P3	\$75.0	100%	\$7.5	6
Systemwide	New Maintenance Facility	\$150.0	P3	\$150.0	100%	\$15.0	6
Los Angeles	Grade Xing Improvement Program	\$210.0	EIFD	\$105.0	50%		2
Systemwide	SCRIP Run Through Tracks at LAUS	\$350.0	MOU	\$175.0	50%		1
<b>Sub-total Capital Improvement Projects</b>		<b>\$857.0</b>		<b>\$577.0</b>	<b>67%</b>	<b>\$26.7</b>	
Systemwide	Track, Signal, Facilities, Rolling Stock R&R	\$1,500.0	Sales Tax	\$1,803.0	120%		7
<b>Sub-total State of Good Repair Program</b>		<b>\$1,500.0</b>		<b>\$1,803.0</b>	<b>120%</b>		
<b>Total</b>		<b>\$4,250.7</b>		<b>\$3,817.1</b>	<b>90%</b>	<b>\$38.9</b>	

Notes:

1. Assumes CHSRA pays 50% of MOU projects	6. Assumes 30-year concession with AP of 10% of project cost
2. Assumes fee of .007% of APV in LA County	7. Five years of estimated 0.125% sales tax revenues from all member counties
3. TIFIA 4.56% interest with 30-year term, consider EB-5 for short-term option	8. Dollar amounts are in current (2015) dollars
4. Assumes 4.5% interest with 30-year term	9. Toll and managed price lane revenues may be a possible source of funding
5. Assumes 4.56% interest with 35-year term	

Based on our preliminary analysis, the greatest potential source of funding would be from a new 0.125% sales tax measure in all five Member Agency (MA) counties. Also, an Enhanced Infrastructure Financing District (EIFD) special assessment levied against property owners in Los Angeles County could provide material funding for track capacity and grade crossing improvements. Although implementation of a sales tax measure or EIFD would be extremely challenging and require strong political support, successfully establishing a sales tax measure or EIFD would provide stable, long-term, robust revenues to support current and future funding needs. Following new tax funding sources, TIFIA, RRIF, and I-Bank lending could allow for low cost financing of capital projects.

Working with member agencies to direct surplus revenues from tolling and managed lane pricing to Metrolink based on routes it parallels may prove to be a fruitful new source of funding. Some of these revenues are already dedicated to transit and more toll and managed pricing lanes are planned for the region. Also, aggressively pursuing funding from the California High Speed Rail Authority (CHSRA) is critical for funding track capacity projects on the Antelope Valley Line. While there are opportunities for increased revenues from advertising, this funding source does not seem significant relative to the large need. Because Metrolink does not own significant property or Right of Way parcels (ROW), commercial development and ROW leasing do not appear to be viable funding sources. Finally, a Public-Private Partnership (P3) approach may be a viable option for delivery of the new and expanded maintenance facilities.

Next Steps Focused on Board Discussion and Direction: As a first step, Metrolink staff should present this menu of alternatives to its board for discussion and direction. For each alternative, the board elects to pursue for further consideration, Metrolink staff should engage in developing business cases, which will provide more detail than what is presented here. The business case should include a determination of legal viability under the JPA. This will help provide a basis for discussion with the MAs. The MAs have experience and expertise in many of the funding/financing options discussed in this memo and **may** be willing to support further analysis.

#### **Potential Alternative Funding Mechanisms - Generating New Revenues from Assets or Services**

**Special Assessment Districts – Property Owners Agree to Pay Increased Taxes:** In special assessment districts (SADs), property owners agree to pay an additional assessment to fund specific improvements or services within that district. The purpose of the district must be determined prior to its creation and the amount that each property owner pays must be directly proportional to the benefit the property will receive from the proposed improvement. Assessment districts are established by a vote of the property owners and require a simple majority (50% plus 1). California has dozens of statutes defining different special assessment district tools for distinct types of improvements and services, including everything from business improvement districts to lighting and landscaping, sewer, utility, parking, and community benefit districts. Although California law varies depending on the type of assessment district, most types of districts can issue tax-exempt bonds.

An estimate of how much might be available to SCRRA is beyond the scope of this report.

#### **Mello-Roos: Typically Used for Improvements Associate with Real Estate Development**

Mello-Roos community facilities districts (CFDs) are a type of special tax district formed when property owners within a geographic area agree to impose a tax on property in order to fund

infrastructure improvements or services. These fees can then be used either for pay-as-you-go funding or to pay off tax-exempt bonds issued against the anticipated revenue from the CFD. CFDs are flexible in both the basis and application of tax; direct proportionality of benefit is not required, as with special assessment districts. Mello-Roos districts are typically used with greenfield real estate development projects where the existing property owners can approve the tax and then pass along the requirement to new purchasers of property after the land is developed.

An estimate of how much might be available to SCRRA is beyond the scope of this report.

### **Enhanced Infrastructure Financing Districts: Requires Public Vote to Increase Property Taxes**

Following the dissolution of redevelopment agencies, legislation authorizing the creation of Enhanced Infrastructure Financing Districts (EIFDs) was signed into law by Governor Brown on September 29, 2014. EIFDs provide local governments with a new tool to replace funding sources lost with the elimination of redevelopment agencies. Envisioned to support economic redevelopment, EIFDs are empowered to provide financing for a broad array of public capital infrastructure and other specified projects that provide significant benefits to the district and/or the surrounding community. EIFDs are primarily financed through tax increment generated from the growth in property taxes collected within the district.

Once formed, EIFDs may use a public finance authority to initiate proceedings to issue tax increment bonds by adopting a resolution of intention describing the proposed bond issuance and by providing public notice. Tax increment bonds to finance EIFD projects can be issued with the approval of 55% of voters living within EIFD boundaries. This reduced voter approval requirement (as opposed to a two-thirds requirement for traditional Infrastructure Financing Districts) confers a significant advantage to EIFDs. EIFDs also allow for a longer term of 45 years, and can be set up in previous redevelopment agency districts.

While some EIFD formation efforts are currently underway, an EIFD has yet to be established in California. This may be partly due to a challenging and somewhat onerous EIFD formation process that requires: several procedural steps; cooperation from participating taxing agencies; a clear vision of the infrastructure/projects to be financed and their associated benefits; and the ability to reasonably estimate in advance the growth in property values attributable to financed projects and/or growth that is likely to occur over time. The following steps are sequentially required to form an EIFD:

- 1) Establish a public finance authority with a specified membership comprising both public members and members from the legislative body of participating taxing entities (e.g., City and County).
- 2) Adoption of a Resolution of Intention to form an EIFD. The resolution must: state a time and place for a public hearing on the proposal; delineate the proposed district's boundaries; define the types of infrastructure and/or projects to be financed; and state that incremental property tax revenues may be used to finance contemplated EIFD activities.
- 3) Develop a comprehensive infrastructure financing plan (IFP). This task requires professional financial analysis to reasonably estimate both project timing/costs and the timing/amount of future property tax increment.

- 4) Hold the noticed public hearing. At the end of the hearing, Metrolink may abandon the proceedings, or may adopt a resolution to adopt the IFP and form the EIFD.

Given the reduced voter approval requirement, ability for long-term financing, and lack of conflict with re-development agency districts, EIFDs appear to provide one of the best opportunities for funding large portions of Metrolink’s capital program. Using a percentage tax on assessed property values as a proxy for calculating percentage benefits to property owners, we have calculated the required assessment for each county based on capital projects needs in that county. Assuming that 50% of project costs will be funded by the FTA Core Capacity grant, or other sources, the remaining 50% of costs requires relatively insignificant increases in property taxes (see table below).

Because of the following three factors: 1) San Bernardino County already has a relatively high property tax percentage; 2) the funding needs in Riverside and Orange counties are relatively low; and 3) the increase for Los Angeles County would be less than half a percent, we have only assumed EIFD funding for Los Angeles County projects. Also, we have not included other potential funding sources in the calculation of need, so other sources such as MOU funding may reduce the increase in property tax rate required. However, these are very rough calculations, and Metrolink should retain experts to provide detailed analysis.

Table 2: Multi-County Tax Assessment Summary Using an Enhanced Infrastructure Financing District Approach for Generating Revenues for Metrolink

County	Total Assessed Value (BN)	50% of Capex Needs per Year	Additional % Tax on Assessed Value	Current Rate	New Rate	% Increase
San Bernardino	\$173.7	\$19,257,500	0.0111%	1.38%	1.3911%	0.80%
Los Angeles	\$1,098.8	\$77,495,400	0.0071%	1.29%	1.2971%	0.55%
Riverside	\$242.7	\$7,290,500	0.0030%	1.21%	1.2130%	0.25%
Orange	\$498.9	\$1,140,000	0.0022%	1.21%	1.2122%	0.02%

The boundaries of the EIFD would need to be constructed with several considerations including receptivity of stakeholders (i.e. voters – residents vs. landowners), receptivity of other taxing bodies, maximization of revenue potential, and timing of capital projects. The boundaries do not need to be contiguous, and the capital projects do not need to be within the district, but the benefit of the projects to the district needs to be clearly supported. Research would need to be conducted to determine voter support of Metrolink versus other mass transit or highway funding. Also, as mentioned earlier, any ballot measure would need to be carefully considered in relation to timing and amount of competing tax measures from other transportation agencies (specifically member agencies such as Metro). Metrolink should also consider retaining a public outreach consultant to advise Metrolink on the political challenges and time involved in implementing TIF, SADs, and EIFDs.

Estimated to generate \$775 million over 10 years.

Table 3: Enhanced Infrastructure Financing District Pros and Cons Summary

Pros	Cons
Potential for significant funding stream	Dependent on public vote
Long-term revenue stream	Difficult procedural requirements
Low interest cost for financing	Competes with sales tax measures

**Sales Tax Measure Revenues: A large Source of Revenues Requiring Strong Political Support**

Many local transportation issuers around the state finance transportation improvements by issuing bonds backed by sales tax revenues in their jurisdictions. Typically, the bonds fund specific projects, and debt service associated with those bonds are senior in the sales tax revenue flow of funds relative to other projects not identified in the expenditure plan. When the sales tax is earmarked for a specific use such as transportation improvements, a two-thirds supermajority vote is required for approval and often include an expiration date. Also, sales tax measures are typically passed for a set number of years.

Local districts (cities, counties, authorities, etc.) can only raise sales taxes up to 2.00% above the State minimum sales tax of 7.50%. Raising sales tax rates above 9.50% requires a waiver of state legislation (Revenue and Tax Code Section 7251-7253). Four of the five-member agency counties are “self-help” counties that already have county transportation sales tax measures. Los Angeles County also has a permanent 1% tax in addition to the temporary tax, and may be pursuing an extension of the current temporary tax in 2016. Currently, the Metrolink member agency counties have the following sales tax rates:

Table 4: Current Taxing Levels in Metrolink’s Member Agency Counties

County	State Sales Tax	Transportation Sales Tax	End of Transportation Sales Tax	Total Sales Tax
Los Angeles	7.50%	0.50%/1.00%	2039/Perpetual	9.00%
San Bernardino	7.50%	0.50%	2040	8.00%
Riverside	7.50%	0.50%	2039	8.00%
Orange	7.50%	0.50%	2041	8.00%
Ventura	7.50%	0.00%	N/A	7.50%

Given the existing sales tax rate in Los Angeles County is already relatively high, we have assumed that only a modest sales tax increase of one eighth of a cent would be approved by a two-thirds supermajority vote in any county. Since LA Metro is expected to pursue their own extension of the Measure R sales tax in 2016 and other member counties may do the same, it is likely that a Metrolink sponsored measure would not be supported by the member agencies until 2018. However, delaying the sales tax ballot measure until 2020 may improve the chances of passage due to higher voter turnout for presidential elections; so for this analysis we have assumed sales tax revenues would start in 2021. Similar to a potential EIFD, Metrolink should engage a public outreach consultant to advise on the political challenges and time involved in passage of a sales tax ballot measure in multiple counties.

Assuming that Metrolink had the legal authority, member agency support and voter approval of a new sales tax increase of 0.125% in each of the member agency counties, the revenues would be

substantial. Per the Caltrans Economic Analysis Branch, 2015 estimates for county transportation sales tax measure revenues from a 0.125% tax would yield the following:

Table 5: Estimated Revenues Generated by a 0.125% Tax for Metrolink in Each Member County

County	Estimated 2015 Revenues of a 0.125% Sales Tax(millions)	Total Estimated Revenues 2021 through 2025 (millions)
San Bernardino	\$43.8	\$218.8
Los Angeles	\$192.3	\$961.3
Riverside	\$43	\$215
Orange	\$81.5	\$407.5
Ventura	\$0.14	\$0.70
Total	\$360.7	\$1,803.3

If Metrolink were able to pass a 0.125% sales tax measure in each member agency counties, then approximately \$1.8 billion could be generated over five years (2021 through 2025). These funds could be used for pay-go of ongoing maintenance, or could be securitized with sales tax revenue bonds to fund near-term capital projects. Given the need for \$1.5 billion in system wide refurbishment and replacement (R&R), and potentially viable alternative sources for capital expenditures, we have assumed, for the purposes of this report, that all sales tax revenues would be programmed for R&R. There are other taxing vehicles, including potentially property taxes, however, sales tax is the most common approach for increasing transportation revenues in California. While worthy of research, other sources are outside the scope of this report

Estimated to generate \$1.8 billion over 5 years.

Table 6: Sales Tax Revenue Pros and Cons Summary

Pros	Cons
Large potential revenue amounts	Dependent on public vote
Long-term revenue stream	Likely competition with MA measures; potential MA resistance
Can be used for Repair and Replacement	Legal authority to levy sales tax is unclear
Vote may succeed in Los Angeles and/or San Bernardino MAs with greatest capital needs	Successful vote in all counties unlikely

### Transit Oriented Commercial Property Development/Joint Development: Limited Potential

Joint development refers to a real estate development project that involves a cooperative financial arrangement between a private sector entity and a public entity like a city, county, redevelopment agency, or transit agency. Joint development arrangements can take a number of forms, including the sale or lease of publicly owned land, air rights for specific types of development, joint construction of a transit or other public facility. Depending on the particular arrangement, the public and private partners can share costs, revenues, and/or financial risk. Joint development is only applicable where the public sector owns land.

Depending on the location of the new maintenance facility, there is potential for joint development of commercial real estate. Possible locations for the new maintenance locations include Lancaster or Irwindale. A quick survey of rental rates for industrial business parks in Lancaster showed an average of \$7.55/square foot/year. Irwindale industrial commercial rental rates were slightly higher with an average of \$9.84/square foot/year. Assuming that land leases are worth approximately 10% of the built rental rate, Metrolink could charge approximately \$2500/acre/month. Assuming 10 acres of land, Metrolink could generate \$300,000 in annual lease income. However, it is unclear whether or not Metrolink owns enough land to facilitate this type of development, so these revenues have not been considered in our overall analysis.

An estimate of how much might be available to SCRRA is beyond the scope of this report.

Table 7: Joint Development Pros and Cons Summary

Pros	Cons
Capture value from unused parcels and other mechanisms	Lose access for Metrolink use and Competition from other transit services

**Toll and Managed Pricing Lanes Revenues: Growing Opportunity with Member Agencies**

Metrolink provides a direct substitute for long-distance regional trips with an average passenger trip length of 37 miles. Since more than 80% of Metrolink passengers have an automobile as an alternate mode available, each Metrolink trip can be thought of as removing 0.8 car trips from the highway system. There is thus a strong nexus between Metrolink and the highway system such that the Metrolink and parallel highways can be considered as an interdependent system. The growth of toll facilities either in the form of toll highways, and high-occupancy/toll (HOT) lanes in the middle of general purpose highways provides a potential for generating revenue that can be returned to transportation system management, including funding operations and capital development along Metrolink lines.

The opportunity for toll and managed pricing lane revenue is growing. Several Metrolink lines directly parallel toll facilities, such as the 91-Line (parallel to the 91 Express Lanes between SR-55 and the Riverside County Line) and the San Bernardino Line (parallel to in the middle of the I-10 ExpressLanes facilities in Los Angeles County). These toll lanes already have provisions to use surplus revenue for transit. Furthermore, more toll or HOT lane facilities are proposed to be considered in the future. As more facilities are developed, relationships can be explored to improve service and potentially to even improve infrastructure capacity along parallel Metrolink lines. The Southern California Association of Governments (SCAG) estimates in its current Regional Transportation Plan that toll and managed pricing lanes will generate \$11.2 billion over a 30-year period. If even a fraction of these funds were directed to Metrolink, the members would find their local measure funds potentially heavily leveraged with these new revenues.

An estimate of how much might be available to SCRRA is beyond the scope of this report.

Table 8: Toll Facilities / Lanes Pros and Cons Summary

Pros	Cons
Builds off the interdependent relationship between toll facilities and parallel Metrolink lines	Competing uses for toll lane revenue

**Cap-and-Trade: Opportunity to Fund Projects that Reduce Emissions**

California’s cap-and-trade program is expected to raise billions of dollars in auction revenues from 2012 through 2020. The actual amount of revenue that will be raised is difficult to predict, particularly because of the uncertainty about future allowance prices. Per the Legislative Analyst’s Office (LAO) report on the 2014-15 budget, using the California Air Resources Board (CARB) floor and ceiling prices for allowances, and assuming that CARB provides 60 percent of all allowances for free, the total cap-and-trade revenues from all auctions through 2020 could range from \$12 billion to \$45 billion. According to the LAO report, several economists who have evaluated California’s cap-and-trade program have estimated that, over the life of the program, average allowance price may be in the \$15 to \$20 range. If this were to occur, the LAO report estimates that total revenue for the program through 2020 could be roughly \$15 billion. The above revenue estimates could be higher, based on a number of factors, including maintenance or reduction in the number of free allowances.

While cap and trade revenues are distributed as part of a traditional grant program, it is worth noting that these funds can provide a potentially large source of funding for Metrolink. Currently, cap-and-trade auction proceeds are set for continuous appropriation on an annual basis according a percentage breakdown established by legislation through 2020 (new legislation would likely be required to extend the program past 2020 if the proposed Greenhouse Gas reductions are met). However, SB 9 (Beall), if enacted, would allow for transportation agencies to submit a 5-year program of projects and receive a multi-year funding commitment from the California Transportation Commission (CTC). This would allow for Metrolink to borrow against the multi-year funding agreement and accelerate large projects (over \$100 million) that meet the Cap-and-Trade policy objectives. A multi-year funding agreement may help support a possible FTA Core Capacity grant application. This funding source could also be pursued independently.

An estimate of how much might be available to SCRRA is beyond the scope of this report.

Table 9: Cap and Trade Funding Summary of Pros and Cons

Pros	Cons
Large potential for annual allocation	Majority of funding is competitive
Possible multi-year funding commitment	Programmed; Based on availability
Can be used for R&R if emission reductions can be demonstrated	Dependent on continuing legislation

**California High Speed Rail Integration Projects: A Strong Opportunity If Funds Are Available**

In order to advance statewide rail modernization and integration with the high-speed rail system, the California High Speed Rail Authority (CHSRA) is collaborating with state and regional partners to begin implementing critically important projects that will provide early benefits before they

are eventually integrated with high-speed rail. The CHSRA has entered into Memoranda of Understandings (MOUs) with local partners in Northern and Southern California in order to start investment in modernization of rail systems on the bookends that will eventually connect to the high-speed rail system. However, the MOU's are not binding, and do not constitute a commitment of funds. SB 1029 appropriated \$2 billion for these bookend and connectivity projects, but that funding and other revenue sources will need to be leveraged through financing in order to complete all projects. The key MOU Metrolink projects are on the Antelope Valley (AV) Line. Given the uncertain nature of MOU funding, we have assumed that only 50% of the total costs of MOU projects will be funded by CHSRA.

Estimated \$744 million in funding over 10 years. Table 10: Capacity Expansion Projects with High Speed Rail Memorandums of Understanding

Project	Line	Estimated Cost	Potential HSR MOU Funding
Santa Clarita to Newhall Double Track	AV	\$40,200,000	\$20,100,000
Via Princessa to Vincent Grade Double Track	AV	\$1,086,058,000	\$543,029,000
Santa Clarita to via Princessa Double Track	AV	\$12,000,000	\$6,000,000
SCRIP Run Thru Tracks at Union Station	All	\$350,000,000	\$175,000,000

Table 11: High Speed Rail Project Memorandum of Understanding Summary of Pros and Cons

Pros	Cons
Alignment with high priority projects	Dependent on CHSRA financing
Focus on large projects	Dependent of CHSRA timing
CHSRA support of project delivery	Cannot be used for R&R

### Right-of-Way Leasing: No Opportunity

Leasing of Metrolink owned right-of-way (ROW) parcels to third parties such as data carriers for use as cell tower sites can generate a minor amount of revenue. Per the SCRRA Radio and Fiber Optic Network Map, Metrolink has 28 base stations and backhaul sites on located on Metrolink ROW. A review of monthly lease rates for a 100'x100' site with a 200' tower across the country shows a range between \$500 and \$1,200 per month depending on the surrounding population density. Given the above average density for most of these site, we assume \$1,000 per month in lease income per month per site. This yields potential annual revenue of \$336,000 for ROW leasing. Typically, these lease agreements are for long-term (up to 50 years), with inflation clauses set a specific amounts or increases tied to an index such as CPI. However, in conversation with Metrolink staff, there are virtually no ROW assets owned by Metrolink that would be available for lease. In fact, Metrolink pays third parties to lease some parcels for base stations, and Metrolink fiber-optic is primarily run through member agency owned conduit which could not be sub-leased. Given this lack of Metrolink owned assets, we have not included any ROW lease revenues in our analysis.

### **Branding, Sponsorship, and Naming Rights: No Opportunity**

Based on information provided by Metrolink, advertising revenues have potential to reach \$600,000/year. Per Metrolink staff, this is a conservative estimate given the difficult to predict future revenues without any history of an advertising program. At current Metrolink rates for full train car wraps of \$10,000/month, only 5 train cars are needed to meet this goal, so there is potential for much higher revenues. In addition to full train car wraps, Metrolink offers a variety of advertising opportunities including tickets, station posters, on-board banners and posters, and station sampling. Given that the stations are owned by member agencies, there is not really opportunity for naming rights of high profile buildings.

### **Alternative Financing Mechanisms: Borrowing Against Revenue Streams Or Future Funds Design, Build, Finance Operate & Maintain (DBFOM) Public-Private Partnerships (P3s): Complex Arrangement That Can Accelerate Delivery and Shift Risk to Private Parties**

Generally speaking, P3s are contractual agreements formed between a public agency and a private sector entity that allow for greater private sector participation in the delivery and/or financing of transportation projects. The primary candidates for a DBFOM P3 are the planned expansion to the Central Maintenance Facility and the new maintenance facility. A DBFOM P3 for these facilities would most likely take the form of an availability payment (AP) structure similar to the Long Beach Courthouse P3 where the P3 developer finances the development of the project in exchange for long-term performance based payments from the public agency. The payments are dependent on the P3 developer maintaining the facilities to certain standards that make the facility "available" for beneficial use (hence the term "availability payments"). To facilitate the use of P3, the 2015 FAST Act makes agency P3 development costs and stipends paid to developers eligible for block grants. The FAST Act also creates a National Surface Transportation and Innovative Finance Bureau to "promote best practices for innovative financing and public-private partnerships".

The size of the availability payments are dependent on numerous factors, but theoretically, the Net Present Value of the availability payments is less than the cost for the public agency to develop and maintain the facilities on their own. This is primarily due to private sector innovation in design/construction and efficiencies in O&M, along with the associated risk transfer to the developer. By developing a maintenance facility through a P3, Metrolink could leverage future operating revenues, or member agency contributions, to accelerate construction and shift non-core operational risk to a private partner. Also, if the expansion of the Central Maintenance Facility is located at Union Station, there may be opportunity for a P3 developer to take advantage of Historic Tax Credits, reducing the required availability payment. Similarly, if the new Maintenance facility is located in an economically depressed area, the P3 developer or joint developer could take advantage of New Markets Tax Credits. For this analysis, we have assumed availability payments of 10% of the Metrolink estimated capital after reducing those costs by 10% to account for private sector efficiencies. At this level of AP, and assuming Metrolink facilities maintenance costs of 2.5%, the P3 would provide some savings.

The P3 screening process requires that the project sponsor assess whether a P3 delivery method achieves the project-specific objectives better than compared to traditional delivery methods. This assessment involves comparison of the various delivery alternatives including P3 and traditional DBB or DB. A comprehensive financial analysis and business case need to be prepared evaluating

quantitative and qualitative factors to determine financial feasibility and comparison of reasonable delivery options. The business case should include a value for money analysis with completion of a reference case or public sector comparator.

Estimated \$225 million in long-term financing.

Table 12: Public-Private Partnership Summary of Pros and Cons

Pros	Cons
Private Sector Innovation	Political Opposition
Accelerated delivery	Best suited for large complex projects
Risk Transfer	Complex commercial negotiations

**EB-5 Lending: Low Cost Loans with Political and Regulatory Risk**

While Metrolink does not have the dedicated revenue stream required for traditional tax-exempt bonds, the existing revenue sources (fare box, MOW, etc.) may allow for mezzanine (less secured and/or short-term) financing such as EB-5 lending. Governed by the U.S. Citizenship and Immigration Services (USCIS), the EB-5 program allows a foreign investor to make investments in US projects that meet certain job creation requirements in exchange for a green card. Typically, the foreign investors are aggregated through USCIS regulated Regional Centers that then lend the investments to the project sponsors. To obtain the Green Card, a \$500,000 investment per individual investor is required in Target Employment Area (“TEA”) for a qualifying project.

A TEA is a set of contiguous census tracts in a specific political or geographical subdivision(s) with an average unemployment rate of at least 150% of the national unemployment rate. Given that many of the Metrolink lines run through “low-income” areas, it is likely that most capital projects in Los Angeles, San Bernardino and Riverside counties would impact TEA’s. Also, since the standard multiplier for infrastructure is 30 jobs created per \$1 million of investment (2009 APTA study), it is possible that many capital projects discussed here would meet the 20 jobs per million requirement in TEAs. However, detailed economic studies complying with USCIS regulations would need to be conducted to verify this assumption.

Since the primary motivator of investors is obtaining their green cards, EB-5 investors are typically willing to accept lower market returns for their investment, which makes EB-5 lending competitive with traditional muni financing. EB-5 interest rates vary widely depending on the intended use and transaction fees, but recent quotes from Regional Centers operating in California range from 1.5% to 5% fixed annual interest. These loans are typically 5 – 6-year interest only, with loan amounts up to \$200 million. Typically, the loan payments are interest only on funds distributed with full principal repayment at the end of the term. Another key aspect of EB-5 lending is that EB-5 loans do not require collateral or pledged revenue, only a promissory note from Metrolink. Given the other available funding options for Los Angeles County projects, EB-5 lending seems well suited for capital projects in San Bernardino and Riverside Counties. For this analysis, we have assumed that EB-5 would be used as a short-term financing option in San Bernardino and Riverside Counties in combination with TIFIA long-term lending (see discussion of TIFIA below).

Estimated \$175 million in short-term financing.

Table 13: Immigrant Investor EB-5 Program Lending Summary of Pros and Cons:

Pros	Cons
Low interest rates/borrowing costs	Implementation risk, long process
Unsecured	Short-term loan leads to refinance risk
No credit rating required	Potential negative press

**Transportation Infrastructure Finance and Innovation Act (TIFIA): Low Cost Loan From U.S. Department of Transportation**

The TIFIA program provides credit assistance for qualified projects of regional and national significance. The 2015 FAST Act extended the TIFIA program through 2020 with annual average allocations of credit assistance of \$287 million. Many large-scale, surface transportation projects - highway, transit, railroad, intermodal freight, and port access - are eligible for assistance. Eligible applicants include state and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities. The TIFIA credit program is designed to fill market gaps and leverage substantial private co-investment by providing supplemental and subordinate capital. Major requirements of TIFIA loans include:

- Large surface transportation projects (\$50 million generally, \$15M for intelligent transportation systems (ITS), \$25 million for rural infrastructure projects)
- TIFIA loan amounts have historically been less than 33 percent of eligible costs and DOT requests that applicants provide a rationale for TIFIA loan requests of up to 49 percent of costs (permitted by statute)
- Senior debt must be rated at investment grade level by two rating agencies, unless project cost is less than \$75 million
- Dedicated revenues for repayment
- Applicable federal requirements, including but not limited to Civil Rights, NEPA, Uniform Relocation, Titles 23 and 49
- Public or private highway, transit, rail and port projects are eligible to apply for TIFIA assistance

TIFIA allows borrowers the flexibility to request a TIFIA loan disbursement at any time during construction or wait and submit requests up until one year after the Substantial Completion Date of the project. This flexibility in disbursement timing provides borrowers with an inherent option for take-out of short-term financing at the fixed TIFIA rate. Borrowers can use short-term debt (commercial paper, bank loans, EB-5 loan, etc.) to eventually be refinanced with the TIFIA loan, following substantial completion. At today's short-term interest rates, and with guaranteed long-term TIFIA Loan refinancing of a short-term debt option, a short-term financing strategy may save borrowers significant interest costs.

Applicants must submit detailed letters of interest so DOT can evaluate creditworthiness and other eligibility requirements and, after invitation from the TIFIA Joint Program Office (JPO), a formal application. Given TIFIA's limit on loan amounts, credit rating requirements, and springing lien

structure (subordinate unless event of default), TIFIA lending is best suited for use in combination with other financing structures that will receive investment grade ratings such as sales tax revenues or SAD's. As mentioned above, TIFIA can also be used in combination with mezzanine financing such as EB-5.

Given the lack of potential funding from an EIFD for projects in San Bernardino and Riverside Counties, TIFIA may be a good option for financing these projects by leveraging existing operating revenues. As mentioned above, the projects in San Bernardino and Riverside Counties are also good candidates for short-term financing products such as EB-5 lending. The combination of short-term EB-5 lending with a long-term TIFIA loan take out may provide a low cost financing option for Metrolink for these projects by taking advantage of TIFIA deferral options and the lower short-term EB-5 rates.

For the TIFIA loan, assuming the FHWA published rate of 3.06% (as of 9/16/15) plus a buffer of 150 bps to account for potential interest rate increases, and a loan amount equal to 33% of the combined San Bernardino and Riverside projects (\$530 million), the annual debt service would be in the range of \$11 million. Assuming Metrolink can pledge gross operating revenues of approximately \$130 million as security, with a 2.5x global debt service coverage ratio, Metrolink would potentially be able to service the TIFIA loan in addition to P3 payments (see summary).

Estimated \$175 million in long-term financing.

Table 14: TIFIA Lending Summary of Pros and Cons

Pros	Cons
Patient lender (subordinate lien; delayed payments can be accrued)	Investment grade rating required
Low interest costs	Loan amount up to 33% of eligible costs
Deferred draws and payments	Application expenses (\$1-2 million) and possible wait time

**Railroad Rehabilitation & Improvement Financing (RRIF): Low Cost Loan from the U.S. Federal Railroad Administration (FRA)**

Under the RRIF credit program, the FRA Administrator is authorized to provide direct loans and loan guarantees up to \$35.0 billion to finance development of railroad infrastructure such as:

- Acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops;
- Refinance outstanding debt incurred for the purposes listed above; or,
- Develop or establish new intermodal or railroad facilities
- Transit Oriented Development (TOD) projects (added by 2015 FAST Act)

Direct loans can fund up to 100% of a project with repayment periods of up to 35 years (including potential to defer payments of principal and interest of up to six years after substantial completion of construction) and interest rates equal to the cost of borrowing to the government. Eligible RRIF borrowers include railroads, state and local governments, government-sponsored

authorities and corporations, joint ventures that include at least one railroad, and limited option freight shippers who intend to construct a new rail connection.

While no collateral is required, the FRA determines a credit risk premium for each borrower that offsets the potential cost of default. The credit risk premium is based on the applicant's creditworthiness and evaluation by the FRA's Independent Financial Advisor. The credit risk premium can be reduced by pledging collateral such as purchased equipment (trainsets).

Given the credit risk premium and collateral requirements of RRIF lending, it is best suited for projects with clear collateral assets that can be used to reduce the CRP. A RRIF loan would be an ideal tool for Metrolink to use in financing the purchase of new passenger cars (assuming they are made in the USA and not subject to any other senior lien). Debt service on a \$72 million loan (using a theoretical 20 new cars, presented for discussion purposes only) would be in the range of \$4.2 million, given the following assumptions:

- 35-year loan (2016-2050)
- 3.06% interest rate (same as TIFIA borrowing rate as of 9/16/15), plus 150bps buffer
- 0.5% cost of issuance: \$360,000
- Credit risk premium at 5% of total loan amount: \$3.24 million
- All RRIF financed assets are pledged as collateral (trainsets)

RRIF loan applications require detailed information regarding the project the loan proceeds are to be used for in order to determine eligibility. In addition to meeting RRIF qualitative goals, a project must have detailed cost information and must have completed environmental review, or have a categorical exemption. Also, any project using RRIF proceeds must conform to Buy America requirements, however it is possible to request a waiver. Also, there may be potential for making a "pooled" application with other rail agencies (such as CHSRA) that would pledge combined collateral and revenue streams, thereby strengthening the credit of the application, and reducing transaction costs.

Estimated \$72 million in long-term financing.

Table 15: RRIF Lending Summary of Pros and Cons

Pros	Cons
Can be used for Capital, R&R, and acquisition	Tedious and lengthy application process
Can fund up to 100% of project costs	Application fee required
Long-term with interest holidays	CRP and/or collateral required
Low borrowing costs	Buy America requirements

### California Transit Finance Corporation (CTFC) Certificates of Participation Program: Small, Short-term Lending

The CTFC was established in 1990 for members of the California Transit Association to finance capital purchases through a Certificate of Participation (COP) which avoids the burden of long-term

debt. This is typically used for vehicles and it is the Corporation itself that purchases the capital asset and then leases it back to the transit agency. It issues debt with the same duration as the lease. Not all asset types can benefit from this mechanism and the loan size tends to be in the very low millions. Further analysis of this alternative is outside the scope of this report, however, Metrolink staff should research this source.

An estimate of how much might be available to SCRRA is beyond the scope of this report.

**California Infrastructure State Revolving Fund Program (I-Bank): Small Loans/Easy Application**

The I-Bank Program provides financing to public agencies and non-profit corporations for a wide variety of infrastructure and economic development projects. I-Bank Program financing is available in amounts ranging from \$50,000 to \$25,000,000, with loan terms of up to 30 years. Financing applications are continuously accepted. Loan fees are 1% of the loan amount for loans over \$250,000; and there is an annual loan servicing fee of 0.30% of the outstanding balance.

Eligible applicants include, but are not limited to, any subdivision of a local government, including cities, counties, special districts, assessment districts, joint powers authorities and non-profit corporations (as deemed eligible). Eligible project categories include, but are not limited to, city streets, county highways, state highways, drainage, water supply and flood control, educational facilities, environmental mitigation measures, parks and recreational facilities, port facilities, public transit, sewage collection and treatment, solid waste collection and disposal, water treatment and distribution, defense conversion, public safety facilities, and power and communications facilities.

The I-Bank evaluates the quality of the security pledge to determine the interest rate by selecting the appropriate proxy Municipal Market Data<sup>1</sup> (MMD) scale applicable to the borrower. The I-Bank also offers subsidies on the interest rate depending on factors such as median household income (MHI) and unemployment rate for the borrower’s service area. Assuming an “AAA” MMD GO base rate of 3% and a spread of 150 basis points (bps) (including subsidy), the Metrolink rate would be approximately 4.5% for a 30-year loan. Assuming the maximum loan amount of \$25 million, use of the I-Bank loan would be ideal for the Laguna Niguel to San Juan Creek passing tracks project in Orange County (\$22.8 million). This would yield annual debt service of approximately \$1.4 million.

Estimated \$23 million in long-term financing.

Table 16: Infrastructure Bank Lending Summary of Pros and Cons

Pros	Cons
Interest rate subsidies for low-income areas	Projects must be completed in 2 years
No credit rating required	Limited I-Bank lending capacity
State level approval only	Low loan amounts

<sup>1</sup> Thomson Reuters Municipal Market Data (MMD) AAA Curve is a proprietary yield curve that provides the offer-side of “AAA” rated state general obligation bonds, as determined by the MMD analyst team.

## Summary

A preliminary review of alternative funding and financing mechanisms for Metrolink reveals that meeting the need for capacity expansion projects, capital improvement projects and State of Good Repair spending will be a major challenge, but is not insurmountable. The highest potential source of funding is from a new 0.125% sales tax measure in all five MA counties. Also in addition, an EIFD special assessment levied against property owners in Los Angeles County could provide material funding for track capacity and grade crossing improvements. Although implementation of a sales tax measure or EIFD would be extremely challenging and require strong MA support, successfully establishing a sales tax measure or EIFD would provide Metrolink with stable, long-term, and robust revenues streams to support current and future funding needs.

Besides alternative funding sources, we evaluated alternative financing methods such as TIFIA, RRIF, P3 and EB-5. While these mechanisms provide low-cost methods for accelerating projects by borrowing against future revenues, they do not solve the need for additional revenues. Any of these financing mechanisms will require approval by member agencies to take on debt obligations with operating, or potentially non-operating, revenues and any tax revenues as security. Given current operating revenues of \$130 million annually, and a debt service coverage ratio of 2.5x on a pledge of gross revenues (assuming a lender would allow a pledge of gross revenues instead of net revenues), Metrolink could theoretically secure TIFIA, RRIF and I-Bank loans simultaneously to finance \$270 million in capacity expansion and capital project costs. This would result in with debt service payments of approximately \$16.5 million annually; in addition to making availability payments on a P3 for development of the new and expanded maintenance facilities. However, the lien structure and potential requirement of additional MA contributions would need to be examined further.

With assumptions for financing capacity across the various loan types, the aggregate potential funding and financing amounts to approximately 90% of the total \$4.25 billion in need associated with projects that have viable alternative funding/financing sources. A combination of CHSRA MOU funding, EIFD revenues, EB-5 lending, TIFIA lending and I-Bank lending could potentially provide up to approximately 76% of Capacity Expansion project needs. Capital Improvement projects, excluding grade crossing projects outside of Los Angeles County, could achieve approximately 67% of needs over ten years through a combination of RRIF lending, P3 agreements, EIFD revenues and CHSRA MOU funding. Meeting the State of Good Repair program needs of \$1.5 billion is dependent on the passage of a dedicated Metrolink sales tax measure or material increase in sales tax measure allocations from MAs, but achieving either of these funding sources could potentially cover the \$1.5 billion need.

## Next Steps

Next Steps Focused on Building the Business Case Following Board Direction on Alternatives to Pursue for Further Consideration: Developing a business case that provides greater detail for each option identified by the Board is a requisite step to deeper analysis. The business case should determine legal viability under the JPA and potential for MA support. The business case should then further develop detailed estimates regarding potential revenues/proceeds, use of funds, debt capacity, transaction costs, and impacts on current Metrolink finances. The business case should outline the process and timeline of each option and estimate internal resources required to advance through key milestones. The business case should also identify key risks such as interest rate risk, execution risk,

and political risk; and describe mitigation measures that can be employed by Metrolink. After development of the internal business case and sanctions from the Board and MAs, each selected mechanism will need to be implemented based on its unique legal, regulatory, and political procedures as summarized below.

#### Sales Tax Measure

- Determine legal authority under JPA
- Engage political consultant
- Identify expenditure plan
- Generate business case
- Poll voters
- Board considers ballot initiative
- Community outreach workshops
- Board approval of ballot measure initiative four months prior to vote

#### EIFD

- Identify projects and project area
- Reach out to stakeholders
- Identify district members
- Establish Public Financing Authority (PFA)
- Adopt resolution of intention to create EIFD
- Draft Infrastructure Financing Plan (IFP)
- Hold Public Hearing
- Adopt IFP and resolution to form EIFD

#### TIFIA

- Identify project and borrowing needs
- Identify security for loan (pledged revenues) and senior debt if applicable
- Preliminary Rating Opinion Letter from Rating Agency
- Submit letter of interest (LOI) and \$100k fee
- Oral Presentation to TIFIA JPO
- Submit complete application

#### RRIF

- Identify eligible projects and potential collateral
- Information session with FRA
- Complete financial, environmental, engineering and safety documents
- Draft application submittal
- Draft application review meeting
- Final application submittal
- FRA review and determination of Credit Risk Premium

#### P3

- Screening and ranking of potential projects
- Value for Money analysis
- Business case development
- CTC review of business case
- Industry outreach
- RFQ/RFP- Evaluation and selection
- Public comment
- CTC and legislative review
- Execute P3 agreement

#### Toll/Managed Lane Revenues

- Work with owners of existing toll facilities on marketing partnerships
- Explore investments in transit (Metrolink) capacity with owners of toll facilities
- Pursue legislation to authorize use of revenue from new toll facilities on parallel regional rail facilities



## Session II: Background on Non-Funded New Capital Projects in FY17

Project Type	Subdivision	Project Name	Total Cost Estimate	Candidate Funding Sources
Business Systems	All	Project Studies	\$1,300	Member Agencies
Communications	All	On-board Wireless Communications Network	\$10,164	Member Agencies
Track	Valley	Palmdale Passing Siding	\$11,580	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/HSR/Member Agency
Stations	Ventura - LA County	Chatsworth Station Pedestrian Grade Separation	\$10,950	State ITIP, State Active Transportation Program/Member Agency
Business Systems	All	Central Maintenance Facility West Entrance	\$11,699	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/Member Agencies
Track	Valley	Second Main Track Between CP Humphreys and CP Lang	\$17,400	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/HSR/Member Agency
Structures	Ventura - VC County	Arroyo Simi 1st Crossing Scour Protection with Concrete Pile Collar and Debris Removal	\$1,120	Federal FASTLANE/State Bonds/Member Agencies
Facilities	SB Shortway	Eastern Area Maintenance Facility Locomotive and Car Shop, Wheel Truer Machine, storage and S&I Tracks	\$60,181	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/Member Agency
Track	Valley	Brighton Siding Replacement	\$9,488	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/HSR/Member Agencies
Structures	Valley	Verdugo Wash (8.12) Bridge Deck Replacement	\$1,485	Federal FASTLANE/State Bonds/Member Agencies

## Session II: Background on Non-Funded New Capital Projects in FY17

Project Type	Subdivision	Project Name	Total Cost Estimate	Candidate Funding Sources
Business Systems	All	Arroyo Seco (480.82) Bridge Replacement	\$10,462	Federal FASTLANE/State Bonds/Member Agencies
PTC Systems	All	Interoperable Positive Train Control Rung II Non-Vital to Vital System Upgrade	\$10,500	Federal FASTLANE/State Bonds/Member Agencies
Structures	Valley	CP Canyon Safe Access	\$215	Federal FASTLANE/State Bonds/Member Agencies
Facilities	All	Purchase Hy-Rail Bucket Truck	\$198	Member Agencies
Track	San Gabriel - LA County	CP Barranca to Lone Hill-Second Main Track-PSR and Environmental Clearance	\$1,101	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/Member Agency
Track	San Gabriel - SB County	CP Rochester to CP Nolan-Second Main Track-PSR and Environmental Clearance	\$1,101	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/Member Agency
Track	San Gabriel - LA County	CP Beech to CP Locust-Second Main Track-PSR and Environmental Clearance	\$1,690	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/Member Agency
Track	San Gabriel - LA County	CP Amar to CP Irvin-Second Main Track-PSR and Environmental Clearance	\$1,690	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/Member Agency
Facilities	Orange	Irvine Maintenance Facility Phase I	\$50,100	Federal Core Capacity/State Cap and Trade Transit & Intercity Rail Program/HSR/Member Agencies
Business Systems	All	Automated Wheel and Brake Inspection Equipment	\$3,082	Member Agencies
Business Systems	All	Automatic Passenger Counters	TBD	State ITIP, State Active Transportation Program/Member Agency
<b>TOTAL</b>			<b>\$215,504</b>	





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## **Session III**

# **Capital Programs**

*Strategy and Advocacy Efforts*

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# **Tier 4 Locomotive Production Status Update**



## **Validation Test Sequence**

### **Unit #1**

- Emissions and Validation testing in April in LaGrange
- Pueblo Validation testing - May through October
- Ship to Los Angeles late October

### **Unit #2**

- Pueblo Validation testing - May through September
- Ship to Los Angeles early October

### **Unit #3**

- Complete assembly, production test and paint by 4/30/2016
- Ship to Los Angeles on 5/4/2016, delivery on 5/25/2016
- Training, Fleet testing, PTC testing - June through August
- Conditional acceptance and revenue service late August



## **Production Status**

### **Locomotive Prototype #1**

- ✓ Assembly complete
- ✓ Production testing complete
- ✓ Unit in LaGrange for Validation and Emissions testing
- ✓ Additional Validation testing in Pueblo from May through October





## Production Status

### Locomotive Prototype #2

- ✓ Assembly will be complete by the end of March. Production testing in April. Validation testing will begin in Pueblo in May.

### Locomotive Prototype #3

- ✓ Assembly will complete in March. Production testing in April. Ship to Los Angeles on 5/4/2016.





# 2016 Production and Delivery Schedule

Unit #	Ship	Delivery	Conditional Acceptance
1	10/24/2016	11/03/2016	11/15/2016
2	10/05/2016	10/11/2016	10/26/2016
3	05/04/2016	05/24/2016	08/26/2016
4	10/29/2016	11/07/2016	11/22/2016
5	06/30/2016	07/27/2016	08/26/2016
6	07/18/2016	08/13/2016	08/31/2016
7	07/27/2016	08/25/2016	09/14/2016
8	08/13/2016	09/14/2016	10/03/2016
9	08/29/2016	09/28/2016	10/17/2016
10	09/12/2016	10/12/2016	10/27/2016
11	09/26/2016	10/26/2016	11/14/2016
12	10/11/2016	11/09/2016	11/30/2016
13	10/24/2016	11/23/2016	12/14/2016
14	11/03/2016	12/08/2016	01/03/2017
15	11/16/2016	12/21/2016	01/12/2017
16	11/30/2016	01/06/2017	01/23/2017
17	12/13/2016	01/17/2017	02/02/2017
18	12/28/2016	01/26/2017	02/15/2017



## **Tier 4 Events**

- Staff is coordinating with Member Agencies to plan various events to publicize the new Tier 4 locomotives with the many stakeholder groups:
  - GPS Tracking on Social Media
  - Internal dedication event for employees and past/present board members
  - Media event at Union Station
  - Whistle-stop tour across the system
- Staff will be reaching out to Board Members, Member Agencies and other agencies to confirm scheduling/participation in events

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# **Capital Programs – Pursuit of Funding**



# **New Capital Investments May be Sequenced Based on Need & Grant Opportunities**

Busiest line segments have the greatest need

- San Bernardino Line
  - ✓ Most heavily patronized line with over 25% of all ridership
- LOSSAN Corridor (Burbank-Downtown to Laguna Niguel segment)
  - ✓ Serving VC, AV, OC, 91/PVL, and IEOC Lines

FTA Core Capacity Grant Program

- Part of Capital Investment Grant (CIG) Program
- Invests in capacity-increasing programs on existing transit systems

Transit and Intercity Rail Capital Program (TIRCP)

- State of California Cap and Trade proceeds
- Growing revenues

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Phase	Program	Potential Grant Sources		
		FTA Core Capacity State Cap and Trade (TIRCP)	Member Agency Contributions / Sales Tax	Other
I	San Bernardino Line, Phase I (Double Tracking on 8 segments, rolling stock, maintenance facility expansion)	✓	✓	
II	San Bernardino Line, Phase II (Double tracking between LAUS and El Monte, rolling stock, SCRIP connections, station improvements)	✓	✓	
	LOSSAN Corridor[(Burbank to Laguna Niguel segment)] (Double tracking, maintenance facility expansion, layover facilities, rolling stock)	✓	✓	<ul style="list-style-type: none"> <li>• High-Speed Rail Burbank to Anaheim Early Investments</li> <li>• TCIF</li> </ul>
III	AV Line North [Burbank to Lancaster] (Double tracking, maintenance facility expansion, layover facilities, rolling stock)	✓	✓	<ul style="list-style-type: none"> <li>• High-Speed Rail Burbank to Lancaster Investments</li> <li>• TCIF</li> </ul>
	VC Line [west of Burbank], OC Line South, Riverside Line, 91/PVL (similar improvements as above)	✓	✓	<ul style="list-style-type: none"> <li>• TCIF</li> </ul>



## **Other Supplemental Sources Can Round Out the Capital Funding Plan**

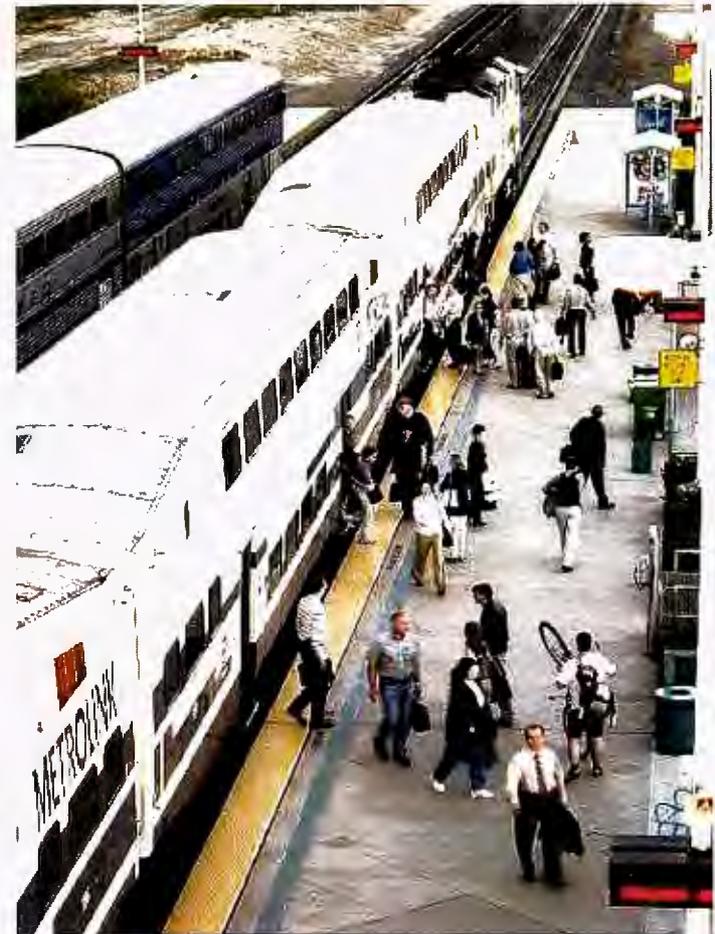
- Potential Sources Include:
  - Member Agency Sales Tax Revenues
  - Toll/Managed Lane Revenues
  - RRIF Loan
  - TIFIA Loan
  - California Infrastructure State Revolving Fund Program (I-Bank) Loan
  - Enhanced Infrastructure Financing District Revenues
  - Transit District Revenues
  - Public-Private Partnerships



## The Authority's Legislative Delegation

Metrolink's rail network is large, diverse and traverses 6 counties. Our legislative delegation is similar:

- 30 Members of the United States House of Representatives
- 2 Members of the United States Senate
- 42 Members of the California Assembly
- 24 Members of the California Senate





## **Outreach Strategies**

- Building a presence - Staff conducts regular meetings with legislators and staff in Washington, Sacramento, and district offices to build Metrolink's brand and bring awareness of our issues.
- Building champions - Through these outreach efforts, staff begins to build champions for Metrolink's legislative and funding priorities.
- When Metrolink has a state, federal local funding request, staff seeks bi-partisan support to generate letters and phone calls in support of the application.



## **Successful Advocacy Efforts for Grant Funding**

- 2012 application for Tier 4 locomotive funding from AQMD's Carl Moyer Grant Program.
- 2015 application for Tier 4 locomotive funding from AQMD's Carl Moyer Grant Program.
- 2015 application to Caltrans for Transit and Intercity Rail Capital Program (TIRCP) funding for Tier 4 locomotives.
- 2016 application for Caltrans Sustainable Transportation Planning Grant (pending).

\*This is not an exhaustive list.





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## **Session IV**

# **Regional Collaboration**



## Regional Collaboration – Light Rail / Fixed Guideway Connections

Station	Light Rail and Fixed Guideway Connections	Coordinating Agency	Status
Union Station	Red Line/Purple Line; Gold Line Regional Connector	Metro	Existing – Gold Line now extended to Azusa Under Construction
Chatsworth	Orange Line BRT	Metro	Existing
Van Nuys, Sylmar/San Fernando	East San Fernando Valley Corridor	Metro	Admin Draft EIS/EIR complete, potential funding with sales tax extension
Norwalk / Santa Fe Springs	Metro Green Line Eastern Extension	Metro	Potential funding with sales tax extension
Santa Ana	OC Streetcar	OCTA	In Design and Engineering, Actively Pursuing Funding
Anaheim	Anaheim Streetcar	OCTA	Planning under review

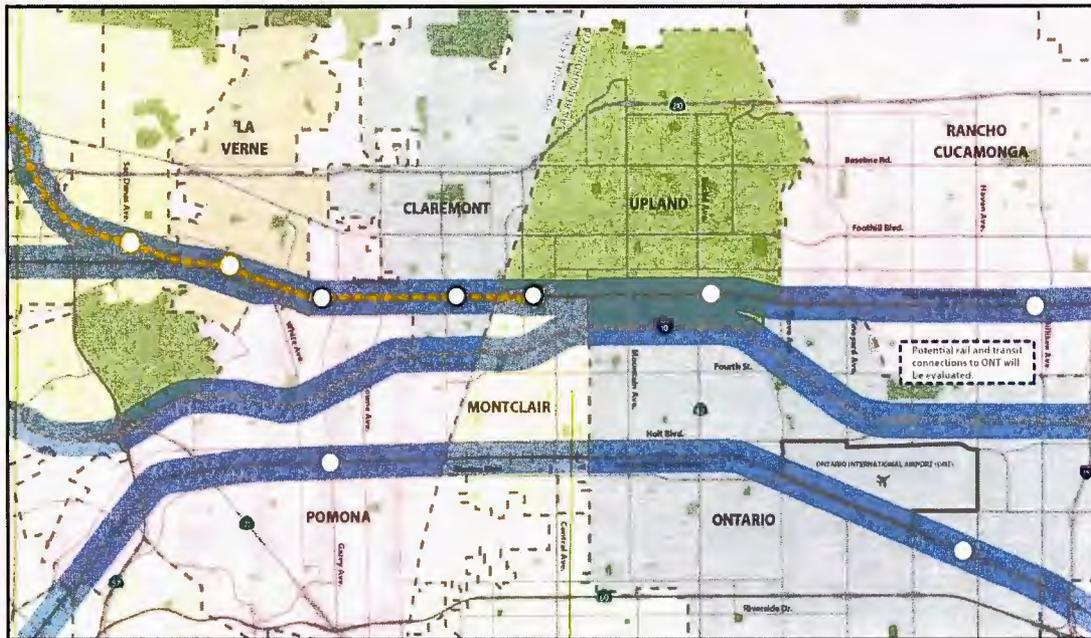


## Regional Collaboration – Light Rail / Fixed Guideway Connections

Station	Light Rail and Fixed Guideway Connections	Coordinating Agency	Status
San Bernardino Downtown	E-Street BRT	SanBAG	Redlands – First Mile Extension under development to extend to E Street
Pomona – Downtown, Rancho Cucamonga, Fontana	West Valley Connector BRT	SanBAG, Omnitrans	Planning
Pomona – North, Claremont, Montclair (potential)	Gold Line Foothill Extension Phase 2B	Foothill Gold Line Authority	In Planning; under consideration potential funding with sales tax extension



## Regional Collaboration – East / West Corridor Study



Study Transportation Corridors

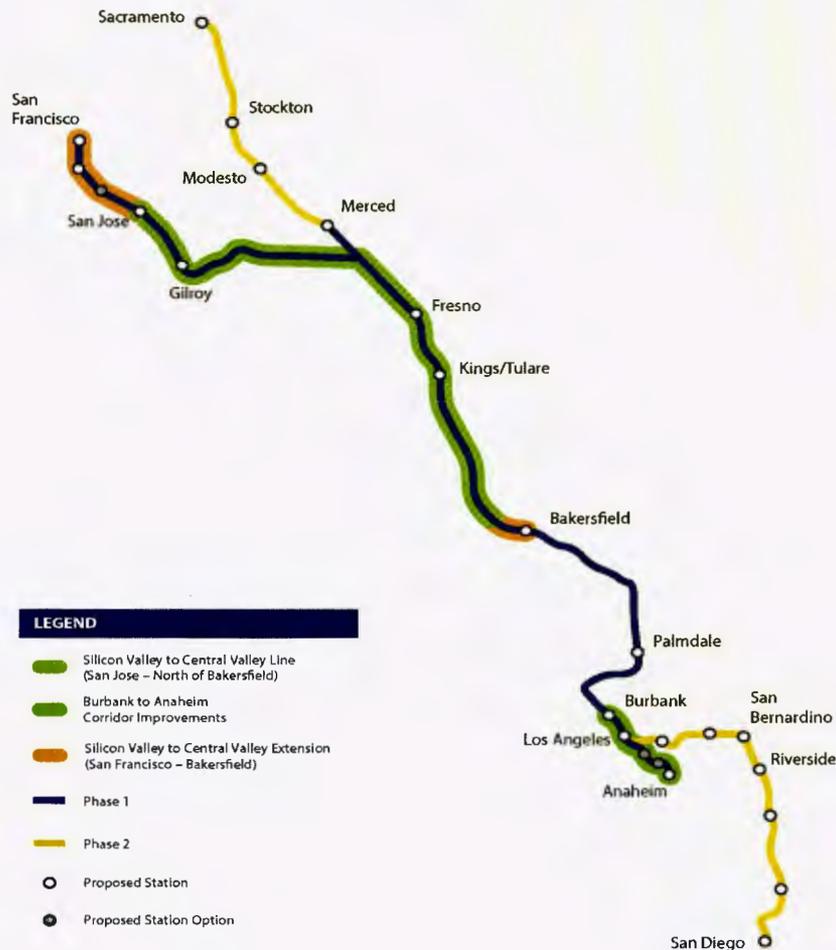
- City Boundary
- Proposed Metro Gold Line Foothill Extension Phase 2B / Station
- Existing MetroLink Line / Station
- Existing MetroLink / Proposed Gold Line Station
- Study Transportation Corridors

- Led by SCAG
- To resolve East-West Corridors between Los Angeles and San Bernardino Counties





## Regional Collaboration – HSR Status



- Draft 2016 Business Plan Released for Comment
  - Need to develop consensus on investments of at least \$2B in Burbank – Anaheim Corridor
- Coordinating on Designs / Planning for HSR Project-Level EIRs
- Coordinating with Metro and HSR on development of SCRIP (Union Station Run-Through)



## Regional Collaboration – LOSSAN



- Angels Express
- Robust Scheduling



# **Encouraging Business Development Near Transit Stations**

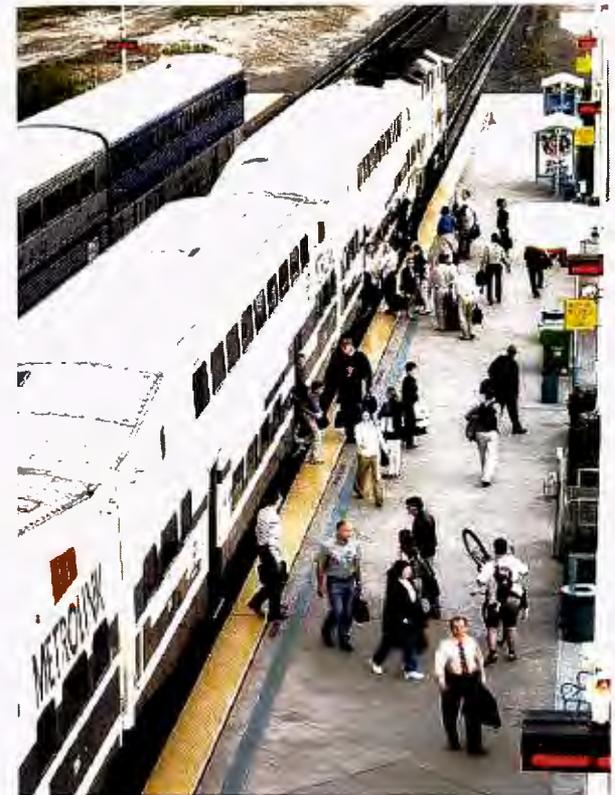
## ***LEGISLATIVE PROPOSALS***

- Transit ridership is closely linked to the proximity of stations to concentrated employment centers.
- To increase transit ridership and reduce roadway congestion, commercial development close to transit stations should be elevated as a state and local policy priority.
- This proposal explores options to incentivize commercial development near major transit centers with the goal of enabling more people to commute via public transportation.
- These options were developed in consultation with city planners, legislative staff, chambers of commerce, transit authorities, developers and others.



## Potential State Strategy #1: Property Tax Reassessment Freeze

- **Exempt new office development projects within ½ mile of major transit site from reassessed property tax increases for a set period of time.**
  - **Option #1:** Property will be assessed at Certificate of Occupancy. Implementation of the tax is deferred.
  - **Option #2:** After the exemption period has ended, the property owner will not be subject to more than a 4% increase per year. If the property is later sold, the property will be reassessed at 1% of the sale price and the 2% yearly cap will be applicable to future years.





## Potential State Strategy #2: Government Property Lease Excise Tax (GPLET)

- Replace real property tax with excise tax for development meeting specified criteria within  $\frac{1}{2}$  mile of a major transit stop.
  - **Option #1:** Allow a city to assume rights to a piece of land and lease it back to the developer at a significantly reduced excise tax rate in lieu of normal property tax.
  - **Option #2:** Allow for, in addition to *Option #1*, an abatement of the excise tax for a set number of years.
  - Upon completion of the agreement, the property rights are returned to the owner.





## Potential State Strategy #3: Enhanced Infrastructure Financing Districts

- **Allow tax increment financing to pay for commercial projects.**
  - Enhanced Infrastructure Financing District's (EIFD's) are permitted to use property tax increments to help finance the construction or rehabilitation of public infrastructure and private facilities.
  - **Option #1:** Clarify and strengthen eligibility for tax increment financing to support not only infrastructure and public improvements, but also commercial development.





## Potential State Strategy #4: Strengthened CEQA Exemption

- **Clarify and expand exemption eligibility for development within ½ mile of transit.**
  - CEQA is consistently cited by city planners and developers as a leading impediment to development.
  - Development projects near major transit sites qualify for an exemption from CEQA but the law require cities and counties to develop complicated mitigation strategies that are difficult to meet.
  - **Option #1:** Ensure a streamlined and clear exemption from CEQA for commercial development near transit centers.





## **Potential Municipal Strategies**

- **Redirect Sales Tax for commercial projects within ½ mile of major transit stop:**
  - Allow city's portion of sales tax to go back into commercial project with increased tax revenue offsetting redirected portion.
  
- **Cut red tape for commercial projects within ½ mile of major transit stop:**
  - Lower/eliminate parking requirements
  - Increase Floor Area Ratio
  - Increase/eliminate height restrictions



## **Next Steps**

- Continue to work with our member agencies and other partners such as South Coast Air Quality Management District and Southern California Associated Governments.
- Present the Board with legislative recommendations.
- Work with our regional partners and legislative advocates to advance the board approved legislative proposals.
- Question and Answer



## Encouraging Business Development Near Transit Stations LEGISLATIVE PROPOSALS

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To increase transit ridership and reduce roadway congestion, various financial incentives can be promulgated to attract commercial development close to transit stations. The last half century has witnessed a significant sprawl of job concentration from urban downtowns to suburban communities, proving to be a central cause of roadway congestion that costs billions in fuel and lost productivity. Studies demonstrate that transit ridership is more closely linked to concentrated employment centers rather than dense housing developments, and should therefore be elevated as a primary priority: "Transit-oriented development planning has generally been more focused on the origin side of the trip, conceived as dense residential neighborhoods and mixed-use development featuring housing built over retail," explained Dena Belzer, president of Strategic Economics. "However, with employment uses more closely associated to transit ridership than dense residential uses, it is clear job centers must be a key component of the Transit-Oriented Development (TOD) equation." This proposal will explore options to streamline regulation and incentivize commercial development as key strategies to increase ridership, promote job growth, and ease roadway congestion.

*Please note that the below information is for discussion purposes only and is subject to change pending further research.*

### Potential State Strategies

#### 1) **Property Tax Reassessment Freeze**

Exempt new office development projects within ½ mile of major transit site from reassessed property tax increases for a set period of time.

Currently, new office development projects are subject to a higher effective tax rate given that existing properties are typically assessed below market value, while new improvements would be assessed at full market value. This higher effective tax rate acts as a disincentive for commercial improvements. To allow for an exemption from property tax reassessment for a number of years if the property is developed within ½ mile of a major transit site, as well as to recalibrate the reassessed value once the abatement period has ended, a Constitutional Amendment would be required. Both options below require a 2/3rds vote in the legislature and then a 2/3rds vote by the electorate to stay compliant with Article XIII A of the California Constitution (Proposition 13).

**Option #1:** Property will be assessed at Certificate of Occupancy. Implementation of the tax is deferred for the set period of time.

**Option #2:** After the exemption period has ended, the property owner will not be subject to more than a 4% increase per year. If the property is later sold, the property will be reassessed at 1% of the sale price and a 2% yearly cap will be applicable to future years.

**2) Government Property Lease Excise Tax (GPLET)**

Replaces real property tax with excise tax for development meeting specified criteria within ½ mile of a major transit stop.

The Government Property Lease Excise Tax (GPLET) is a tool to initiate development by reducing a project's operating costs by replacing the real property tax with an excise tax. GPLET allows the city to take over the rights to a piece of land and lease it back to the developer at a significantly reduced rate that replaces the normal property tax. Unlike normal property taxes, which are based on the land's value, GPLET rates are based on the size of a property and the buildings on it. This significantly reduces the property's tax burden and brings stability and predictability to the project. As part of the agreement, the excise tax can be abated for a set number of years if the development is located near a major transit site. Upon completion of the agreement, the property rights are returned to the owner. Arizona has implemented this model with striking growth results. Legislation would be required to amend the California Revenue and Tax Code, including statute that governs taxable possessory interest.

**3) Reform Enhanced Infrastructure Financing Districts**

Allow tax increment financing to pay for commercial project

SB 628 authorized the creation of a new governmental entity called an Enhanced Infrastructure Financing District (EIFD). One or more of these districts may be created within a city or county and used to finance the construction or rehabilitation of a wide variety of public infrastructure and private facilities. An EIFD may fund these facilities and development with the property tax increment of those taxing agencies. Proposed changes include clarifying and strengthening eligibility for tax increment financing to support not only infrastructure and public improvements, but also commercial development.

**4) California Environmental Quality Act (CEQA) Exemption**

Clarify and expand exemption eligibility for development within ½ mile of transit

SB 743 provides a CEQA exemption for major transit sites, however, statute requires cities and counties to develop complicated mitigation strategies and places burdensome requirements that are difficult to meet. Our research with both city planners and developers consistently ranked CEQA as a leading impediment to development. Transit sites are often closely situated near major freeways which are major polluters. Given the multitude of positive environmental and public health impacts, ensuring a streamlined and clear exemption for transit should be prioritized.

**Potential Municipal Strategies:**

**1) Redirect Sales Tax**

Allow city's portion of sales tax to go back into commercial project if within ½ - ¼ mile of transit. Increased tax revenue offsets redirected portion.

**2) Cut Red Tape**

If developed within ½ mile of major transit stop:

- I- Lower/eliminate parking requirements
- II- Increase Floor Area Ratio

III- Increase/eliminate height restrictions

**National Examples**

- 1) Illinois offers a 10% tax credit to businesses as part of their Economic Development for a Growing Economy (EDGE) program, provided businesses choose locations within one mile of transportation (or affordable housing).
  
- 2) New Jersey provides a tax credit to developers that employ at least 250 people and provide at least \$50 million in capital investment in close proximity to heavy rail stations.

**Next Steps**

Staff will continue to work with the member agencies and other partners, such as South Couth Air Quality Management District (SCAQMD) and Southern California Associated Governments (SCAG), to refine the presented proposals and present to the Board of Directors legislative recommendations. Staff will leverage the support of its regional partners and legislative advocates to advance any board approved legislative proposals.







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## **Session V**

# **Fare Policy: Cost / Benefit of Reduced Fares**



## **Time Line**

February 2015: Board requests options for fare reductions

May 2015: Fare Study launched

July 2015: Antelope Valley Line Fare Reduction Pilot,  
Student/Youth Discount implemented

January 2016: Systemwide launch of \$3 Station Fare



## **Fare Study Findings to Date**

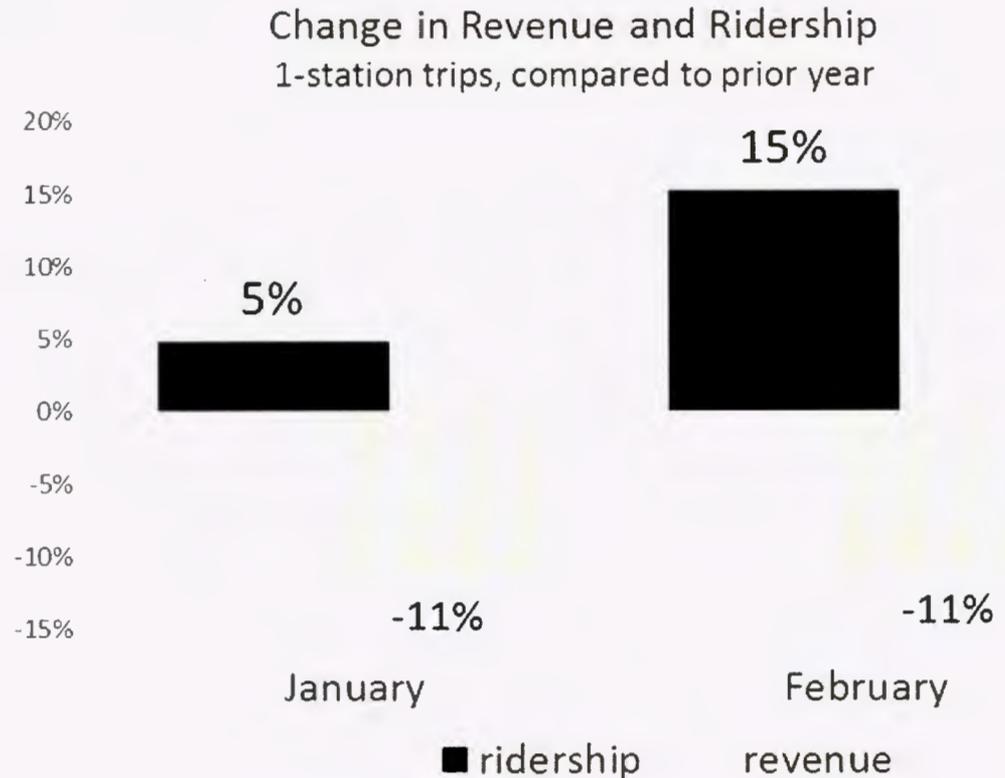
- Most fare reduction alternatives tested resulted in large revenue loss
- Reductions to short distance fares appear most promising
- Metrolink fares for short distance trips are higher than for many other commuter rail agencies
- Short distance riders are more price sensitive than long distance riders



# Station Fare Pilot: Preliminary Results

## 1. Riders have responded to lower fares for short distance trips:

- Ridership growth is accelerating
- Revenue from new riders does not yet compensate for lower fare.
- Revenue from new riders is off-set by declining pass sales.



Not including stations subject to Antelope Valley Line Fare Reduction.



# Station Fare Pilot: Preliminary Results

## 2. Revenue Loss traced to existing riders trading down:

- Existing riders switch to lower priced station fare (i.e. Monthly Pass riders trading down to One-Way Tickets).
- 68% of Station Fare Tickets are purchased by existing riders.
- Revenue loss at key stations, Example: Industry

**Change in Revenue**  
(Two-Month Evaluation)



**Change in Revenue and Ridership**

Example: Industry - LAUS

Fare Type	Revenue	Ridership
Passes	(\$14,713)	-3,768
OWRT	\$5,028	2,660



## **Station Fare Pilot: Preliminary Results**

### **3. Station fares not well targeted to short-distance trips:**

- Station Fares are not tied to distance traveled. Example:
  - \$3 station fare applies to trips 1 - 24 miles
  - \$6 station fare applies to trips 3 - 32 miles
- Some stations charge higher fares for same distance than other stations.



## **Fare Strategy**

### Challenge:

- Reduce fares for short distance trips (i.e. station fares)
- Avoid negative effects (revenue loss, equity impacts, burden for long distance trips)

### Approach:

- Consultant tested various modifications to Metrolink's distance-based fares
- Goal: balance fare reduction for short trips with increases for long trips: find "sweet spot" between revenue and ridership change.



## Distance Models

Distance Fee Scenario	Ridership	%	Fare Revenue	%	Grow Ridership	Grow Revenue	Impact on Short Distance	Impact on Long Distance
<b>Baseline:</b> \$4.63 fixed fee, \$0.147 per mile	10,597,300	0.0%	\$82,334,600	0.0%				
<b>Scenario A:</b> \$1.50 fixed fee, \$0.30 per mile, \$0.15 over 30 miles	-353,500	-3.3%	\$3,477,200	4.2%				
<b>Scenario B-7:</b> \$1.74 fee for the first mile, with mileage fees of \$0.34 per mile for miles 2-10, \$0.30 per mile for miles 11-15, \$0.25 per mile for miles 16-20, \$0.20 per mile for miles 21-25, \$0.12 per mile for miles 26-35, \$0.16 per mile for miles 36-45, and \$0.15 per mile for mileage over 45 miles.	25,800	0.2%	(\$54,200)	-0.1%				
<b>Scenario C:</b> \$3.00 flat fare up to 5 miles, then \$0.30 per mile, \$0.15 over 30 miles	-695,800	-6.6%	\$5,935,600	7.2%				
<b>Scenario D:</b> \$3.00 flat fare up to 5 miles, then \$0.30 per mile, \$0.15 over 25 miles	-434,100	-4.1%	\$3,708,800	4.5%				
<b>Scenario E:</b> \$3.00 flat fare up to 10 miles, then \$0.35 per mile, \$0.15 over 30 miles	-894,300	-8.4%	\$7,331,800	8.9%				

Negative impact  
 Neutral  
 Positive impact



## Model B-7 (Fares by distance)

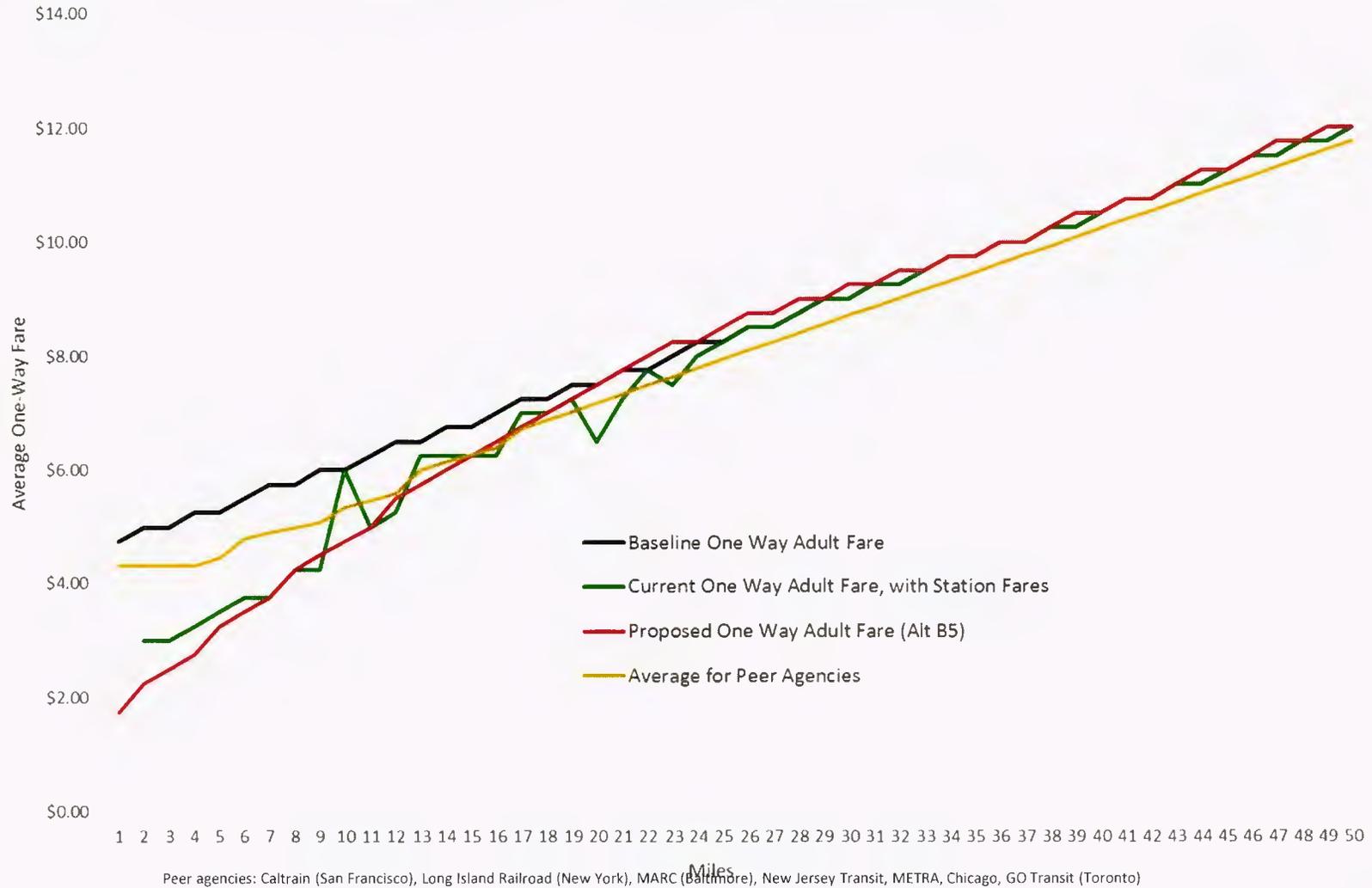
- Low short distance fares
- Internal consistency across all fare types
- Equitable for all stations
- Protects against revenue loss from existing riders
- Minimizes impact on long-distance fares

Distance Segment	Average One-Way Fares		
	Regular Fares (Baseline)	Station Fares	Proposed Fares (Alt. B-7)
0-5 miles	\$ 5.05	\$ 3.18	\$ 2.40
6-15 miles	\$ 6.18	\$ 5.11	\$ 4.90
16-25 miles	\$ 7.65	\$ 7.28	\$ 7.58
26-35 miles	\$ 9.13	\$ 9.04	\$ 9.25
36-45 miles	\$ 10.58	\$ 10.58	\$ 10.63
46-55 miles	\$ 12.08	\$ 12.08	\$ 12.18
56-65 miles	\$ 13.53	\$ 13.53	\$ 13.68
66-75 miles	\$ 15.00	\$ 15.00	\$ 15.18
76-85 miles	\$ 16.48	\$ 16.48	\$ 16.68
86+ miles	\$ 22.34	\$ 22.34	\$ 22.68

Figures represent the average of all fares for a given distance segment



## Average Fares by Distance





## **Potential Fare Restructuring Timeline**

- March 25: Board Workshop Presentation
- April 8: Approval to Initiate Public Outreach and Start Title VI Analysis
- May 13: Public Hearing. Adopt Fare Restructuring  
Start TVM programming
- July 1: Implement new fares







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## **Session VI**

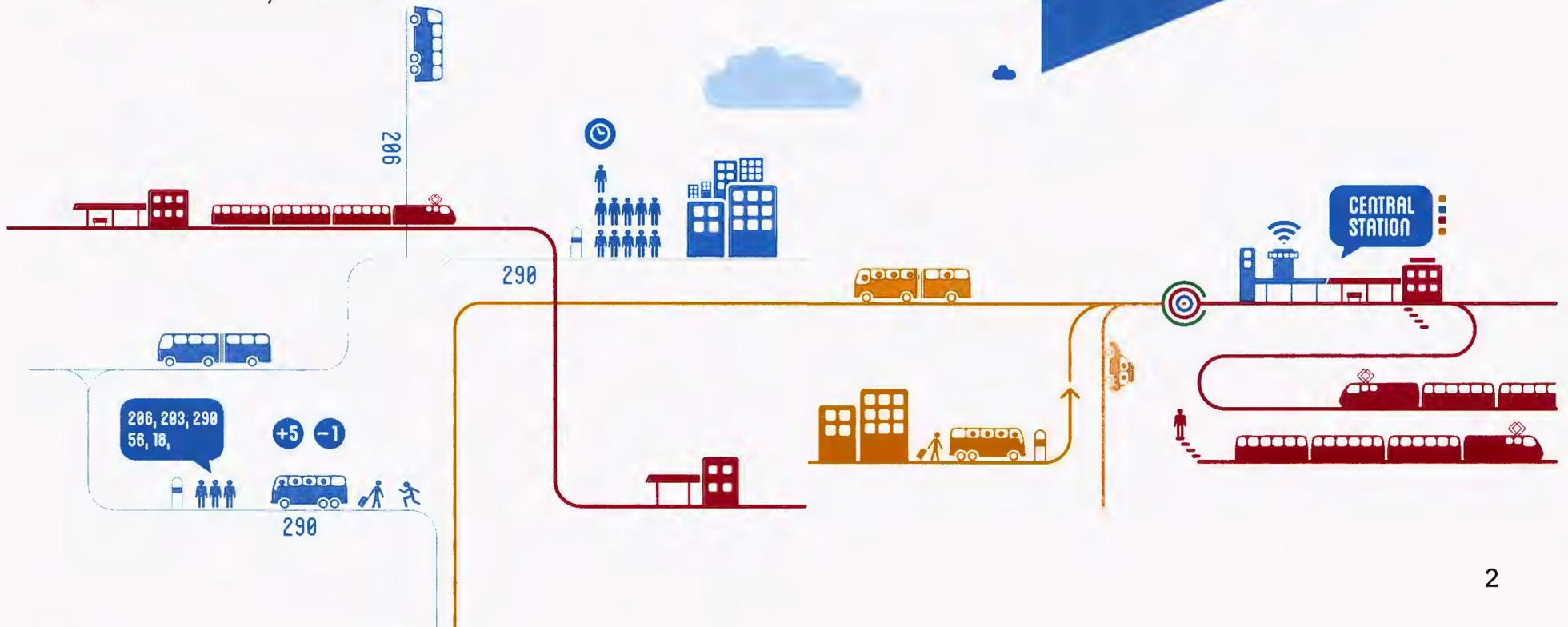
# **Ticket Vending Machine Approach / Mobile Ticketing**

Metrolink Ticketing Kiosk and Retail Sales Network Strategy Project

Board Workshop

March 25, 2016

High performance. Delivered.



# TVM Strategy Goals and Objectives

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The TVM strategy project focused on recommending a solution plan and roadmap for Metrolink's next generation fare collection system by reviewing existing data, applying industry leading practices, and performing stakeholder interviews.

- ▶ Reduce capital costs and ongoing operations costs associated with fare collection
- ▶ Improve the customer experience and configurability of the station ticketing device
- ▶ Quickly replace old and malfunctioning TVMs
- ▶ Build a system that is future-proof and interoperable with regional agencies' evolving systems
- ▶ Develop a station device plan that integrates with the transition to mobile ticketing

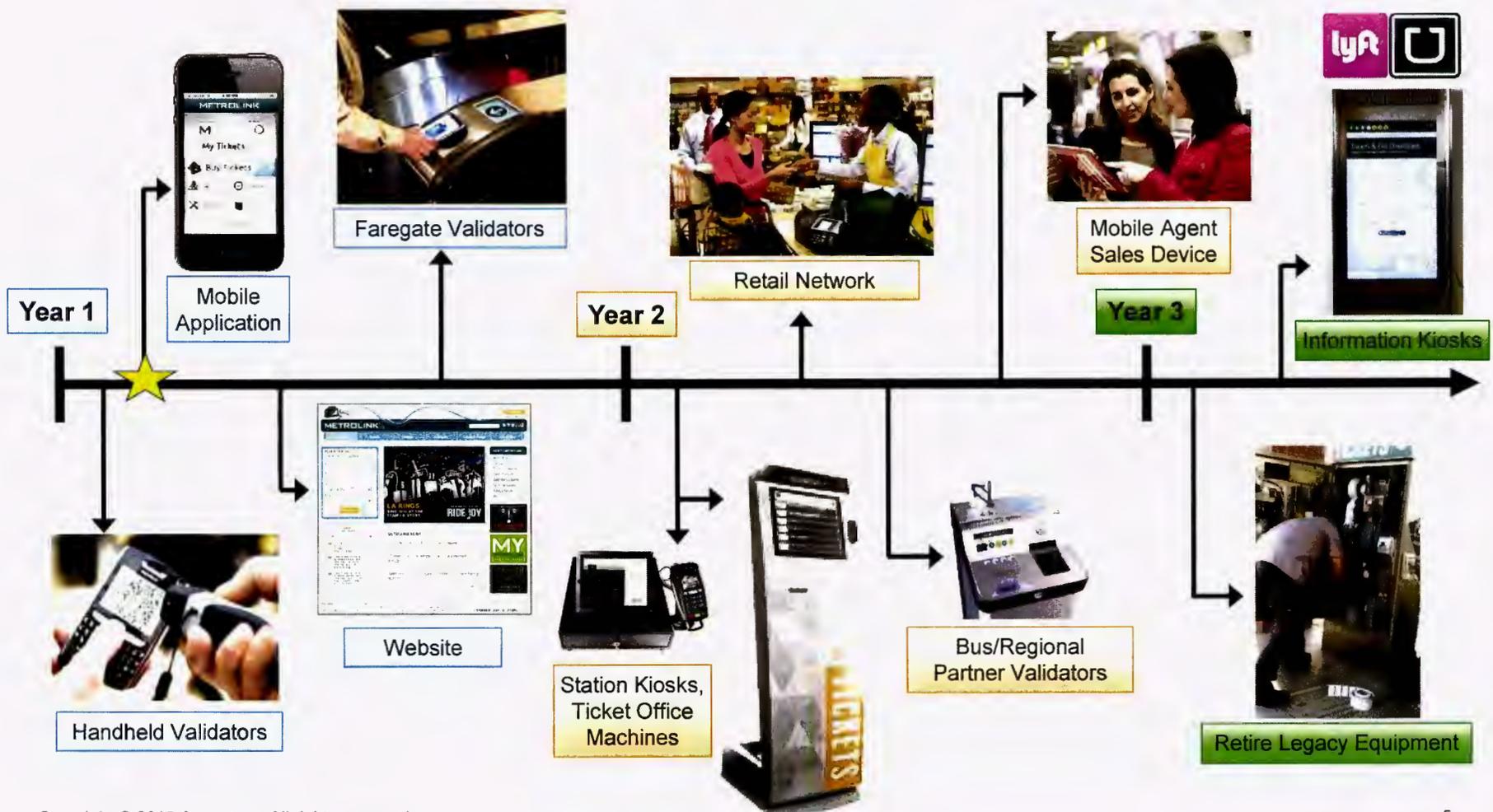
# Metrolink's Next-Generation Fare System

The recommended system is designed to optimize the customer experience, reduce costs, and ease interoperability.



# Roadmap to a Better Customer Experience

Transition to the next generation system began with mobile and will continue for the next 1 to 2 years as new system elements are deployed.



# A Business Case for Lower Costs

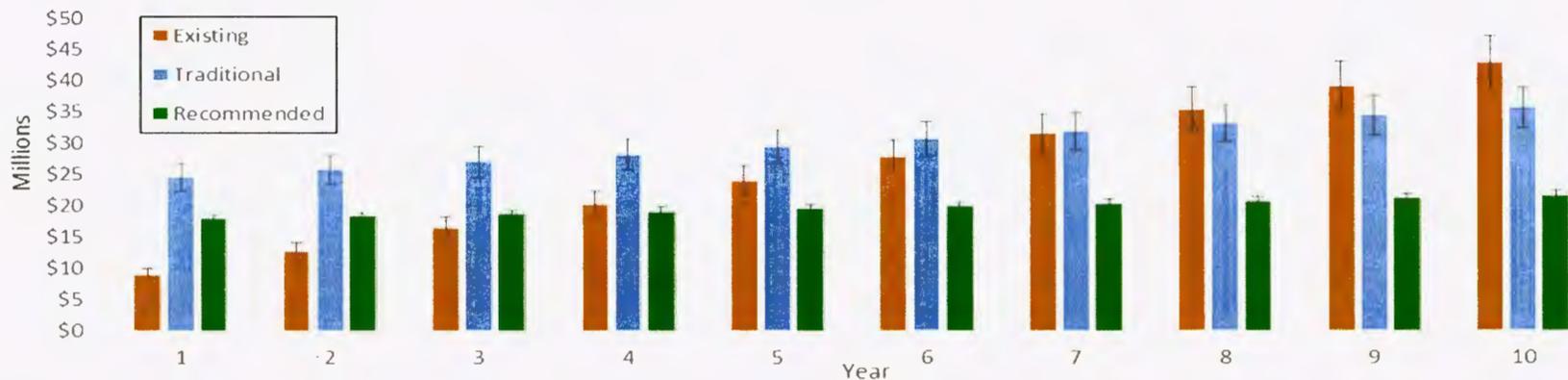
Costs for the recommended kiosk system were evaluated against maintaining the existing system or deploying a traditional TVM system. **Over 10 years, the recommended solution saves \$10-15 million with 50% more devices than a traditional TVM deployment.**

Scenario	Total 10-Year Cost (\$M)	
	Low	High
Existing System	\$40.8	\$44.7
Traditional TVMs	\$30.8	\$40.2
<b>Recommendation</b>	<b>\$20.3</b>	<b>\$22.6</b>

### Included Features:

- Station devices (Existing / Trad = 153; Recom = 210)
- Ticket office machines (4) and mobile agent devices (10)
- Fare device software and back office
- System integration (Metrolink, Amtrak, LA Metro, etc)
- Legacy transition costs and program management
- Operations and maintenance costs (10 years)

Total Cost - Comparison



\*\*\*Costs are indicative of industry averages or current Metrolink expenses and not a reflection of costs proposed in current TVM RFP\*\*\*

# TVM Strategy Next Steps

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Upcoming key items regarding the Metrolink TVM Strategy include:

- 1. Adopt strategy roadmap at April 22 board meeting**
- 2. Determine TVM Approach, Procurement**
- 3. Develop system transition plan**
  - Evaluate impact of mobile adoption on platform device purchases
  - Finalize direction on cash and transit payment cards on the platform
  - Refine strategy and timetable to retire existing equipment
- 4. Study and review options for retail network, branded cards, and mobile agent sales devices**

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# **Mobile and Online Ticketing Project Update**



## Where we are today:

- Launched Metrolink App on March 1, 2016
- 4,984 app downloads to date
  - Android platform: 1,876
  - Apple platform: 3,108
- As of March 18, 8% saturation on the IE-OC line
- 82.5% of our riders have compatible devices
- Most popular station pair: Corona-North Main to Tustin
- Second most popular: Irvine to Corona-North Main



## Where we are today:

### Headline Figures

▲ 52.9%	▲ 76.6%	▲ 324300.0%
<b>214</b>	<b>1,891</b>	<b>3,244</b>
Today	Last 7 days	Last 4 Weeks

▲ 19.4%	▲ 49.8%	▲ 16015.1%
<b>\$2,228</b>	<b>\$23,122</b>	<b>\$42,705</b>
Today	Last 7 days	Last 4 Weeks

▲ 41.1%	▲ 71.6%	▲ 6242.4%
<b>151</b>	<b>1,186</b>	<b>2,093</b>
Today	Last 7 days	Last 4 Weeks

**Activations**

 **2,638**  
All time

**Revenues**

 **\$42,970**  
All time

**Transactions**

 **2,126**  
All time

Metrolink App data as of 3/18/2016



## **Future Enhancements**

- Uber/Lyft integration: May 2016
- Amtrak scanning for R2R: July – September 2016
- Apple Pay integration: July – September 2016
- Website integration: October – December 2016
- E-newsletter subscription integration: Early 2017
- Corporate Quick Card: Early 2017
- On-board sales: TBD



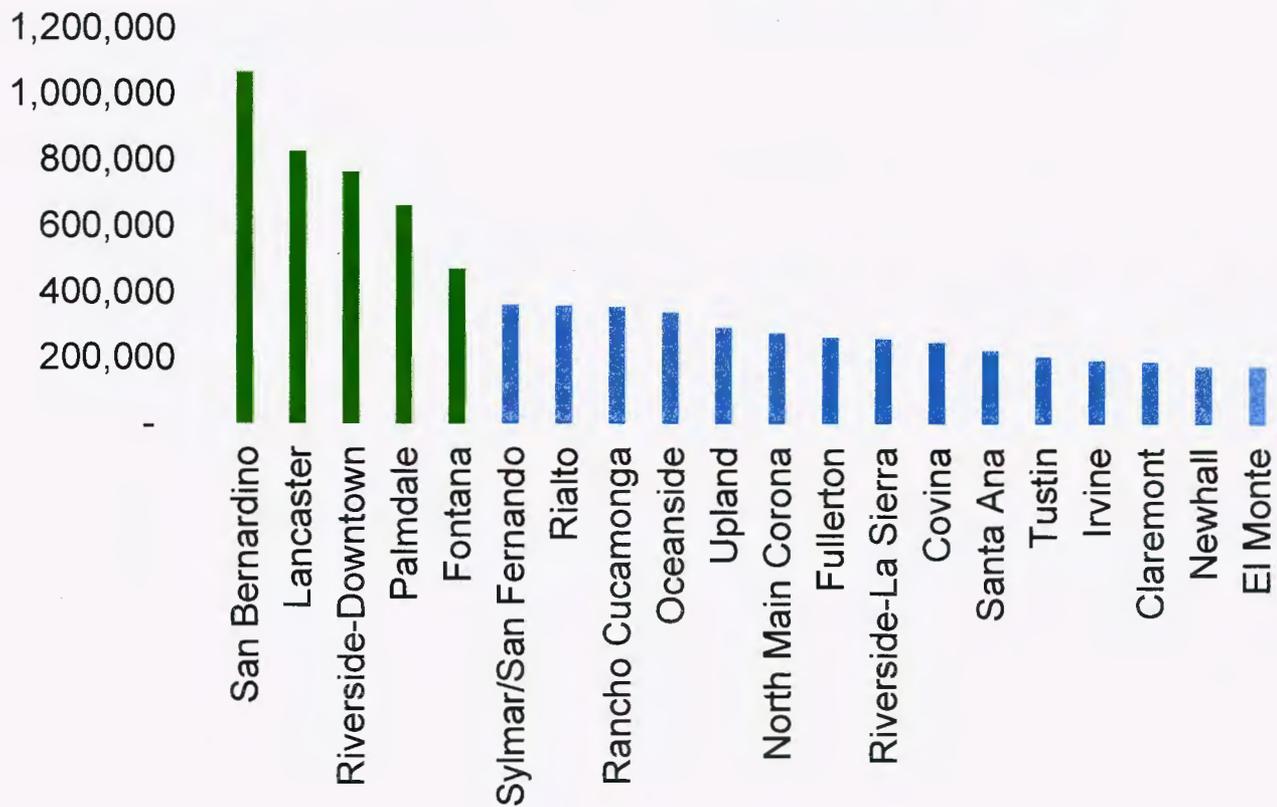
## **Phase 3: Metro Rail Gate Integration**

- Engineering and design for production of optic readers is underway
- Meetings with four parties: Metro, Cubic, Metrolink, Masabi



# TVM Cash Sales Statistics

Top Grossing 2015 TVM Cash Sales by Origin



Rank	Origin Station	Cash Sales	% of Total Sales
1	San Bernardino	1,069,367	34%
2	Lancaster	830,890	57%
3	Riverside-Downtown	767,646	19%
4	Palmdale	666,054	48%
5	Fontana	476,163	34%
6	Sylmar/San Fernando	366,114	35%
7	Rialto	363,507	37%
8	Rancho Cucamonga	359,844	12%
9	Oceanside	343,406	17%
10	Upland	297,911	18%
11	North Main Corona	280,431	9%
12	Fullerton	267,676	7%
13	Riverside-La Sierra	263,160	11%
14	Covina	251,768	10%
15	Santa Ana	226,434	17%
16	Tustin	208,246	10%
17	Irvine	196,848	7%
18	Claremont	192,745	15%
19	Newhall	178,651	23%
20	El Monte	178,226	33%



Session VII  
Authority Outlook & Future Goals



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## **Session VII**

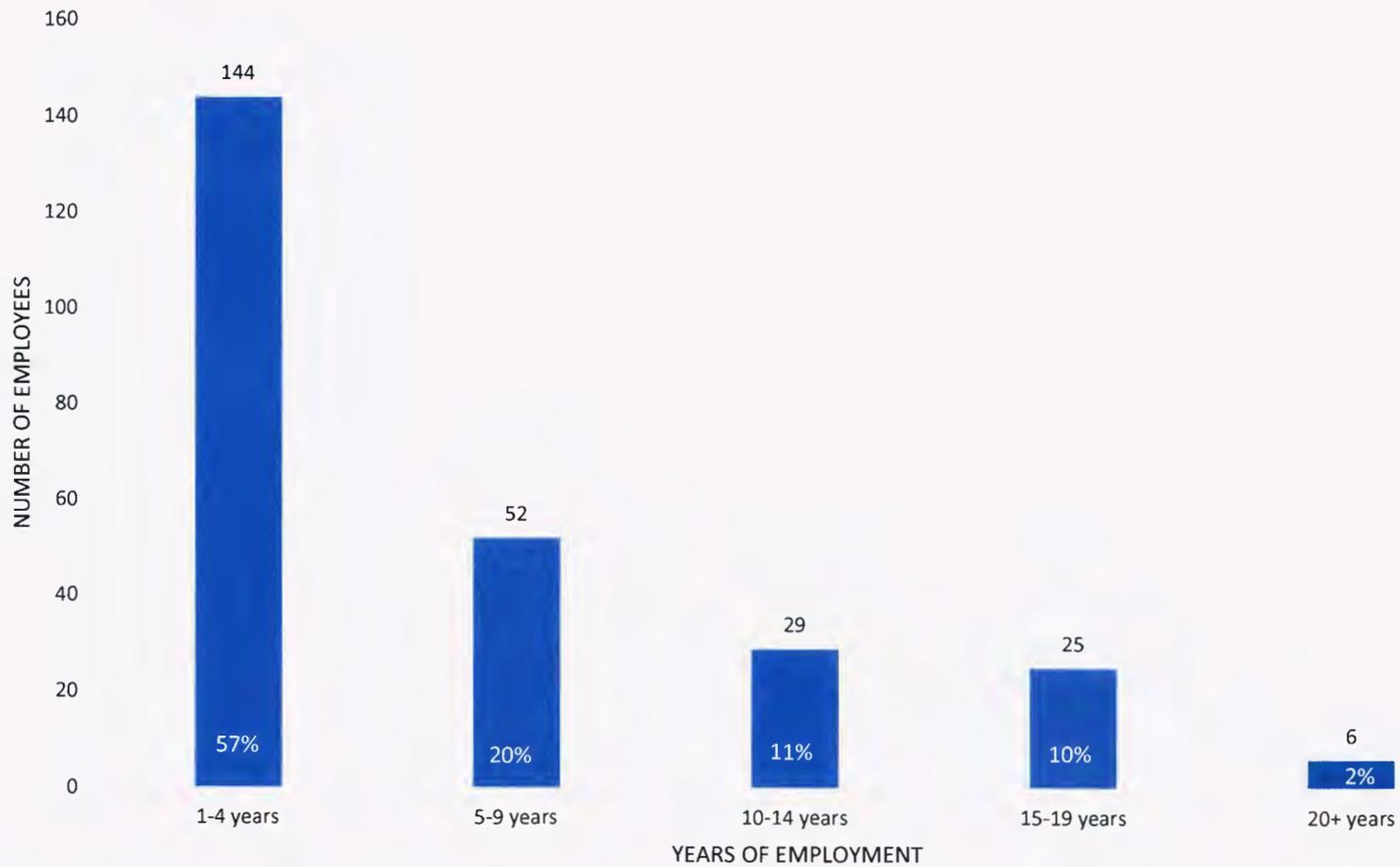
# **Organizational Development**





## SCRRRA EMPLOYEES BY YEARS OF SERVICE

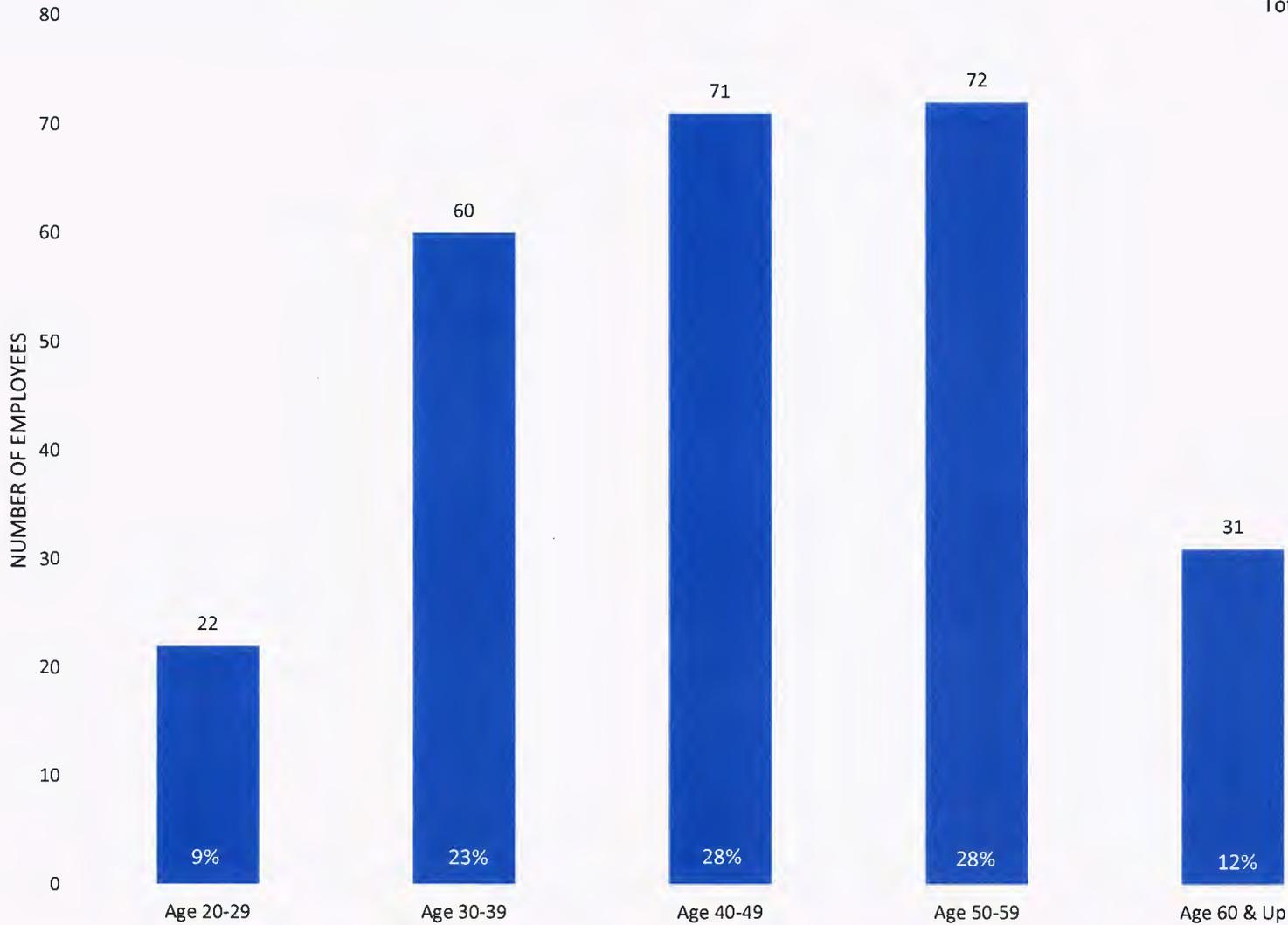
Total Employees: 256





## SCRRA EMPLOYEES BY AGE

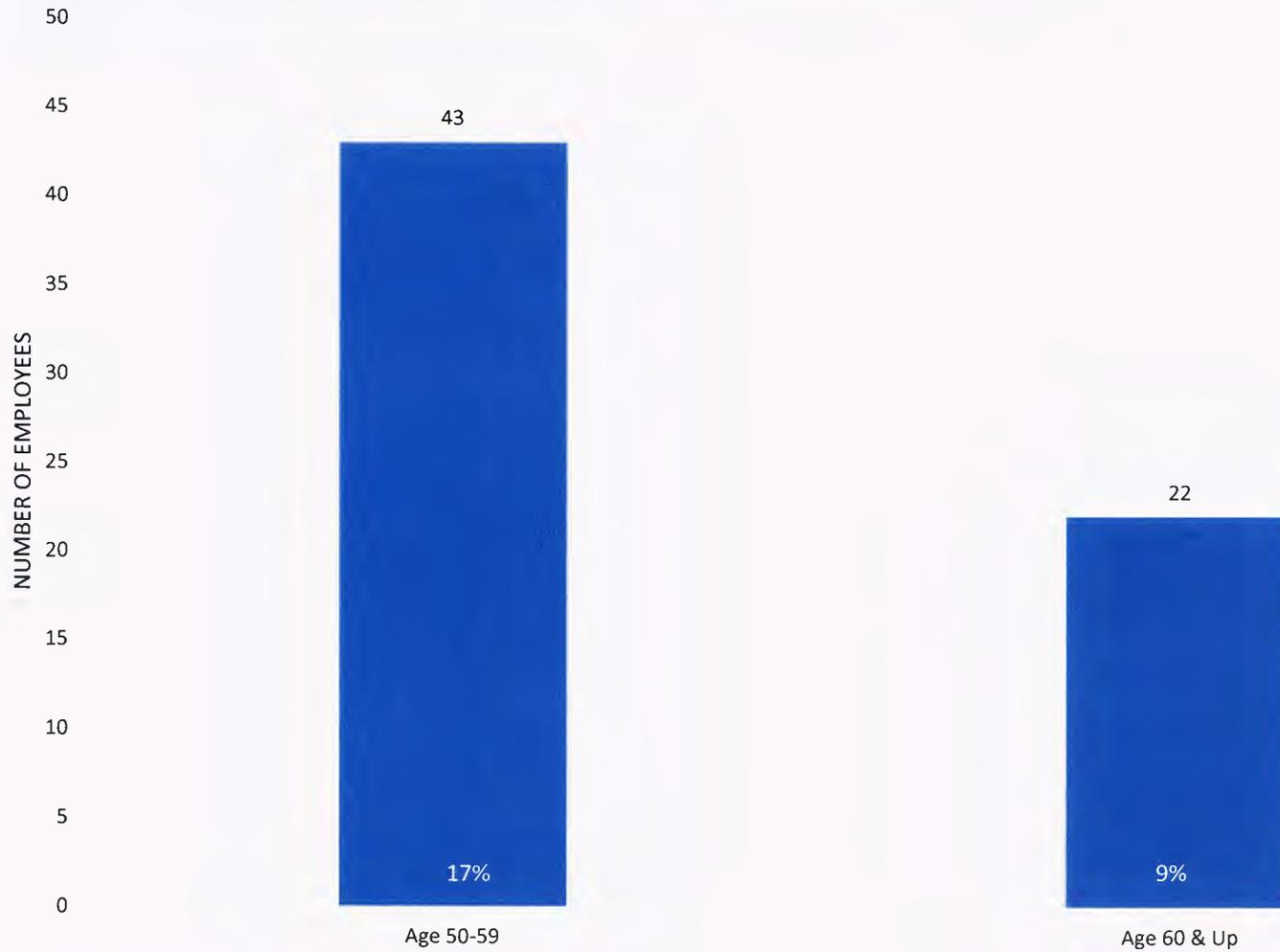
Total Employees: 256





## SCRAA EMPLOYEES ELIGIBLE TO RETIRE\*

Total Employees: 256



\* At least five years of experience at SCRAA



## SCRRA EMPLOYEE -TURNOVER RATE For Period January 1, 2010 – March 18, 2016

SCRRA EMPLOYEE TURNOVER RATE



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## Commitment to being ***Employer of Choice***

- Implement robust retention strategies
  - Competitive salary and benefits
    - Utilizing comprehensive Classification & Compensation Study
  - Extensive Learning & Development Programs
    - Establish Metrolink Academy

5

### LEADERSHIP AND MANAGEMENT

- Communication Skills (DiSC)
- Conflict Management
- Emotional Intelligence
- Influencing Others
- The Essentials of Management & Supervision
- Negotiation
- Strengthsfinder Assessment
- GO Team for Leaders
- Teamwork

4

### BUDGETING AND FINANCIALS

- Financials
- Budgeting
- Oracle Reporting
- Accounts Payable
- Grants Management

1

### OPERATIONS

- General Code of Operating Rules (GCOR)
- Roadway Worker Protection
- System Safety and Security
- Dispatch
- Engineering and Construction
- Rehabilitation and Maintenance
- Positive Train Control (PTC)
- Service Delivery of Train Operations

3

### THE BUSINESS OF METROLINK

- Contracts, Administration, and Procurement
- Revenue and Fare Collections
- Marketing and Customer Engagement
- Project Management

2

### EFFECTIVE BUSINESS PRACTICES

- Customer Service
- Business Writing
- Board Relations
- Legal & Audit
- Government Relations & Affairs
- Records Management
- Human Resources
- Regulatory Compliance:
  - \*Preventing Workplace Harassment
- Business Ethics

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## Commitment to being ***Employer of Choice***

- Leadership and Mentorship Programs
  - ✓ Internship Program
  - ✓ Grads on Career Track
- Enhanced and collaborative Employee Engagement Programs

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## **Next Steps.....**

- Identify key positions and critical core competencies
- Select high performers and potential successors
- Mentor, train, and develop next generation leaders

