Electric Railway Association
2022 Annual Convention
San Diego, CA

July 9, 2022

Wayne Terry, MTS Chief Operating Officer
1888 - National City Sweetwater Bridge
1895 - El Cajon - Westbound
1904 - Coronado Tent City
1920 - Carriso Gorge
1923 - 15th Street Barn - Pacific Beach
1924 - Coronado Line to Bay Ferry
1924 - Broadway Looking East
1934 - Rosecrans / Point Loma
1936 - La Jolla / Bird Rock Area
1940 - Mission Bay Bridge
1948 Santa Fe Depot / Tower Bowl
1954 New Bus Fleet / Last Streetcar Trip
SD&AE Railway/San Diego Trolley, Inc.
Original Line Segment

- First SDTI Line Constructed with Minimal Capital Investment
- Used Existing (1919) Infrastructure with Modest Upgrades
- 90LBS Rail Set on Wooden Ties (Some Dating to the 1930s) with Sub-Standard Ballast
- Stations at Grade with Minimal Passenger Amenities
SAN DIEGO TROLLEY
JULY 19, 1981
Light Rail Renaissance
Growth of the Trolley System

Start Up: 1981
Euclid Extension: 1986
El Cajon Extension: 1989
Bayside Extension: 1990
County Center Little Italy: 1992
Santee Extension: 1995
Old Town Extension: 1996
Mission Valley West: 1997
Mission Valley East: 2005
Vintage Silver Line: 2011
Green Line Extension: 2012
Mid-Coast Corridor - UCSD 2021
San Ysidro Station - 25K-27K Daily Boardings
Euclid Avenue Transit Center
SDSU Station (First Subway)
Petco Park - Opened 2004
Qualcomm Stadium - This was a Typical Post-Charger Game Crowd
Another Overwhelming View
Convention Center Station - Comic Con
## System Rehabilitation - Budget

<table>
<thead>
<tr>
<th>Project</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Floor Vehicles</td>
<td>$233M</td>
</tr>
<tr>
<td>Blue Line Infrastructure Replacement</td>
<td>$107M</td>
</tr>
<tr>
<td>Blue Line Stations</td>
<td>$64M</td>
</tr>
<tr>
<td>Green Line &amp; Orange Line Stations</td>
<td>$44M</td>
</tr>
<tr>
<td>Program &amp; Construction Management</td>
<td>$23M</td>
</tr>
<tr>
<td>Freight Improvements</td>
<td>$148M</td>
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<tr>
<td><strong>Total Cost</strong></td>
<td><strong>$619M</strong></td>
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</tbody>
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System Rehabilitation Funding Sources:

- TransNet II: $179M
- Proposition 1B: $288M
- Federal Stimulus: $53M
- Proposition 1A: $59M
- Other Federal including NAFTA: $40M

Total: $619M
Blue Line - Aging Infrastructure

90# rail

115# rail
8th Street Station National City - Before
Track, Ties and Ballast Replacement
Blue Line - State-of-Good-Repair

First Stage was Complete Catenary Replacement and Reconfiguration
27-Weekend Closures
Significant Community Outreach
Aggressive Bus and Trolley Shuttle Service
Existing Blue Line Crossovers

- Five interlocked crossover locations
- Four used to accommodate freight train operation

**Legend:**

- Existing Manual Crossover
- Existing Interlocked Crossover
Blue Line: Interlocked Crossover Installations
Blue Line Crossovers

Installed or Modified 8 new Interlocked crossovers

LEGEND:
- Existing Manual Crossover
- Existing Power Crossover
- Upgrade Existing Manual Crossover
- New Power Crossover
- Relocate Existing Power Crossover
Enhanced TPSS to Support Operation of the new Siemens S/70 LRVs
New Signal System with Reverse Run Capability
System-Wide Low-Floor Operations was Desperately Needed

14,000+ Wheelchair Lift Activations per Month
Schedule Adherence Severely Impacted by Multiple Boardings per Trip
Typical C Street Block

U-2  S-70  SD-100  S-70

20’  38’  244’  360’  38’  20’

SD100 (3-cars = 244 feet)  S70 (3-cars = 272 feet)
4000 Series S/70 LRV Center Seating
# MTS Light Rail Vehicles

Fully Compatible

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>Length</th>
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<tr>
<td>Siemens S70</td>
<td>90.7’</td>
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<tr>
<td>Seated: 64</td>
<td></td>
</tr>
<tr>
<td>Max Load: 220</td>
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<tr>
<td>Siemens S70 US</td>
<td>81.4’</td>
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<tr>
<td>Seated: 60</td>
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</tr>
<tr>
<td>Max Load: 200</td>
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</tr>
<tr>
<td>Siemens SD-100</td>
<td>81.6’</td>
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<tr>
<td>Seated: 64</td>
<td></td>
</tr>
<tr>
<td>Max Load: 188</td>
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</table>
6-Inch Station Platforms Receive a 2-Inch Tile Overlay
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STATION SHELTER DESIGN FOR BUS/TROLLEY BERTHING

Double Barrel: View One

Double Barrel: View Two
8th Street Station National City

AFTER
Low-Floor Service on the Blue Line - Fall 2014
45 5000 Series S/700 (36 for Mid-Coast)
5000 Series S/700 LRV Center Seating Modification
Siemens S70 & S700 Series LRVs
Mid-Coast Extension Opens 11/21/2021
Mid-Coast Extension - Aerial View
Mid-Coast Extension Opening Ceremony 11/20/2021
The Siemens U2 LRV fleet disposition:

- **Mendoza, Argentina** - 18 LRVs Still in service
- **Homeland Security** - 2 cars used for explosives training
- **Railway Museums** - 6 cars to various museums
- **Consulting Group** - 18 cars Knoxville/Memphis?
- **Karl Strauss Brewery** - 1 local brewery use
- **Heritage fleet** - 1001 restored for use on Silver Line
- **Scrap** - 25 LRVs scrapped on site
The Siemens U-2 LRVs Receive a Second Chance at Life in Mendoza, Argentina
The Siemens U2 LRV’s Arriving Mendoza, ARG
At 2M Miles + 18 Siemens U-2 LRVs are Currently Providing Service in Mendoza
U2 in the snow for the first time
Department of Homeland Security - San Antonio, TX
Karl Strauss Red Trolley Ale
Memphis Area Transit Authority - Current testing ongoing evaluation of vehicles for future use there.

7/13/22
52 Siemens SD100 LRVs

- 13 LRVs have been recycled (Cost $10K per unit)
- Currently receiving replacement Siemens S700
- 39 SD100 LRVs will see future service in Mendoza, Argentina, along with the former U2 fleet.
SD100 LRV Donation Ceremony - Mendoza, ARG
First 3 SD100 LRV Rebranded and in Service
In 2005 San Diego Vintage Trolley was created. A non-Profit Subsidiary of MTS
From a Scrap Yard in Lake Tahoe, CA
The project was championed by MTS Board Chairman Harry Mathis who grew up in San Francisco riding the PCC cars and dreamt of bringing PCC streetcars back to San Diego.
The car body and structure was given a complete restoration.
On August 27, 2011 with a bit of historic fanfare, 529 was placed into service on the San Diego Silver Line
San Diego MTS Silver Line

Vintage Trolley Heritage Fleet
Eastbound Silver Line PCC meets a Westbound Green Line Train on the Bayside Corridor
Following the successful launch of PCC 529 funding was allocated to restore a 2nd PCC car. Former NJ Transit 10 would soon become MTS PCC 530. This would provide a “Spare” vehicle for service when needed.
Qualification testing was done after revenue service hours by MTS personnel under the oversight of the California Public Utilities Commission.
MTS PCC 530 was placed into revenue service in April 2015.
In 2019 MTS completed full restoration of U2 LRV 1001 and returned it to revenue service as part of the MTS Silver Line fleet.
IMPERIAL TERMINAL DOUBLE TRACK BLUE TO GREEN LINE CONNECTION
EL CAJON TRANSIT CENTER - 3rd TRACK/SANTEE SHUTTLE
Airport Connection: Underground Trolley Alignment, Between Laurel and Grape Streets, looking North
Green color represents cut-and-cover. Purple color represents bored tunnels.
Preliminary cut-and-cover alignment along Hawthorn St and bored tunnel along Harbor Drive