Future of VTA Light Rail

SPUR Presentation 11/12/2014
Light Rail System: Guadalupe & Almaden

**Guadalupe**
19.6 miles
29 stations

**Almaden**
Opening: 1991
1.1 miles
2 stations
Light Rail System: Tasman West

- **Tasman West**
- Opening: 1999
- 8.1 miles
- 16 stations
Tasman East/Capitol
Opening: 2001, 2004
8.1 miles
11 stations
Light Rail System: Vasona

Vasona
Opening: 2005
5.3 miles
8 stations
Light Rail System Facts
Average Daily Riders: 35,000
Boardings per revenue hour: 78.8
On-Time Performance: 84.5%
Track Miles: 79.6
Stations: 62
Park and Ride Lots: 21
Parking Spaces: 6,469
Vehicles: 100
VTA Light Rail Ridership Standard (310 Daily Boardings)
Peer Comparison – Boardings and Route Miles

Average Weekday Boardings
LRT Route Miles

<table>
<thead>
<tr>
<th>City</th>
<th>Average Weekday Boardings</th>
<th>LRT Route Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTA</td>
<td></td>
<td>1,650</td>
</tr>
<tr>
<td>Salt Lake City</td>
<td></td>
<td>1,420</td>
</tr>
<tr>
<td>Sacramento</td>
<td></td>
<td>800</td>
</tr>
<tr>
<td>Denver</td>
<td></td>
<td>1,010</td>
</tr>
<tr>
<td>Portland</td>
<td></td>
<td>1,160</td>
</tr>
</tbody>
</table>

Boardings per Mile: 460, 1,420, 800, 1,010, 1,160

Source: NTD 2010
Peer Comparison – Farebox Recovery Ratio

National Comparison of Light Rail and Heavy Rail systems

Source: NTD 2010
## VTA Light Rail Facts

<table>
<thead>
<tr>
<th>Light Rail</th>
<th>Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Driver for up to <strong>500</strong> people (one 3-car train)</td>
<td>1 Driver for up to <strong>90</strong> people (one full articulated Bus)</td>
</tr>
<tr>
<td><strong>368,000</strong> mile between chargeable accidents</td>
<td><strong>73,000</strong> miles between chargeable accidents</td>
</tr>
<tr>
<td><strong>$5.95</strong> Cost per passenger Trip</td>
<td><strong>$6.75</strong> Cost per passenger Trip</td>
</tr>
<tr>
<td><strong>53</strong> passenger trips per revenue hour</td>
<td><strong>27</strong> passenger trips per revenue hour</td>
</tr>
<tr>
<td><strong>85%</strong> on-time performance</td>
<td><strong>86%</strong> on-time performance</td>
</tr>
<tr>
<td><strong>4.3</strong> passenger concerns per 100,000 boardings</td>
<td><strong>20.2</strong> passenger concerns per 100,000 boardings</td>
</tr>
<tr>
<td>Onboard Bike Storage</td>
<td>Offboard Bike Storage</td>
</tr>
<tr>
<td>Onboard wifi</td>
<td>Wifi on limited Express routes</td>
</tr>
</tbody>
</table>
Transit Competitive Factor

Source: Comprehensive Operations Analysis, land use data 2005
Light Rail System: Constraints

- Single Track Segments
- At-grade Intersections
- Merge Points
- Future Transit Connections
- Downtown Transit Mall
- Existing Transit Connections
2010 Light Rail Systems Analysis
Project Background

- Project began in September 2008
- Light Rail Comprehensive Operations Analysis. Comprehensive evaluation of the existing light rail system -- focus on making the system as effective and efficient as possible
- Operations and capital improvements analyzed and tested
- Evaluation of the Light Rail system to handle projected passenger growth to the year 2018 and 2035
2010 Study Goals

• Increase Ridership
  • Calculate changes in ridership vs. No Build

• Speed up the System
  • Compute differences in average operating speed

• Spend Money Wisely
  • Check whether proposed scenarios lead to improved farebox recovery ratio

• Be More Relevant to the Needs of the Valley
  • Review how specific ridership gains compare to Market Analysis opportunities
## Capital Improvements

<table>
<thead>
<tr>
<th>Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Separation of North First Street at Montague Expressway</td>
</tr>
<tr>
<td>Fencing on North First Street ROW</td>
</tr>
<tr>
<td>Pocket Track at Ohlone/Chynoweth</td>
</tr>
<tr>
<td>Hostetter Turnback Tracks</td>
</tr>
<tr>
<td>New Great America Station</td>
</tr>
<tr>
<td>SJSU Extension to 11th Street</td>
</tr>
<tr>
<td>Install ATP/S Guadalupe Hwy</td>
</tr>
<tr>
<td>Almaden Branch Double Track</td>
</tr>
<tr>
<td>Mountain View Double Track</td>
</tr>
<tr>
<td>Vasona Double Track – Diridon to Fruitdale</td>
</tr>
<tr>
<td>Vasona Double Track – Bascom to Campbell</td>
</tr>
</tbody>
</table>
Recommended Operating Plan

Proposed VTA Light Rail System (2017)

- Red Line
- Red Line Express – Peak hours only
- Green Line
- Blue Line
- Blue Line Express – Daily until 7:00 pm
- Purple Line

Stations with Park & Ride Lots
Transfer Stations
Levi's Stadium – August 2014
BART Extension to Silicon Valley – 2017
### Travel Times with LRT Efficiency Projects

<table>
<thead>
<tr>
<th>Trip</th>
<th>Key Improvements</th>
<th>Existing Travel Time</th>
<th>With LRT Efficiency Project</th>
<th>Travel Time Savings</th>
<th>Estimated drive time 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ohlone/ Chynoweth to Convention Center</td>
<td>All Day Express Service</td>
<td>13 min</td>
<td>9 min</td>
<td>30% travel time reduction</td>
<td>13 min</td>
</tr>
<tr>
<td>Almaden to Santa Clara</td>
<td>No transfer required at Ohlone/Chynoweth</td>
<td>26 min</td>
<td>20 min</td>
<td>23% travel time reduction</td>
<td>26 min</td>
</tr>
<tr>
<td>Milpitas (BART) to Great America (49ers Stadium)</td>
<td>New direct connection, No transfer required at Tasman, Signal Timing improvements</td>
<td>23 min</td>
<td>16 min</td>
<td>30% Travel time Reduction</td>
<td>17 min</td>
</tr>
</tbody>
</table>
Post Study Progress

Express

- Opened Oct 4\textsuperscript{th} 2010
- Increased Ridership (490 per weekday)
- Wifi a big attractor
- Operates 13 minutes after local
- Travel time savings – 4 minutes
- No capital costs
- +$560,000 annual op. costs
• 52% say availability of Wi-Fi is very/somewhat important in their decision to use the Express service

• 93% say the faster trip/schedule is very/somewhat important in their decision to use the Express Service

• 16% started riding VTA light rail because express service was added

• 42% changed from using the regular service to only using the express

• In Summer 2011 VTA added Wifi to all trains
Santa Clara Pocket Track

Pocket Track is operationally complete
Mountain View Double Track

Construction to be completed before the end of 2015
Levi’s Stadium Service

• Average 8,000-9,000 Boardings on each game day
Future of Light Rail
Near-Term Focus: it is all about speed

- VTA has established "increasing ridership" as one of its top five 2014 priorities
- Land use density continues to intensify along the light rail corridors
- VTA is becoming an urban light rail system where demand will increase along with traffic congestion levels along the light rail corridor
- In the future light rail will play a greater role in meeting the changing needs of Santa Clara Valley
- The system needs more flexibility to respond to different ridership demands
- Timing is a critical component when it comes to the potential success of capital improvements
Grade separate N. First St. and Montague

Intersections on North First Street

Double Track Vasona

Downtown San Jose
At-Grade Intersections

- Lawrence Expy - 20 seconds
- Central Expy - 20 seconds
- Montague Expy - 44 seconds

**Average Stop Length**
- under 5 seconds
- 5 - 10 seconds
- 10 - 30 seconds
- 30 - 45 seconds
- 45 - 60 seconds
North First Street Improvements

Current maximum speed – 35 mph

Maximum Speed after improvements – 45 mph
• Improvements include fencing and gates at select intersections
• Required by CPUC General Order 143-B
• VTA will conduct an intersection-by-intersection analysis
Montague Grade Separation

N. 1st and Montague

- 32% of all trains delayed
- Average Delay of 44 seconds
- High automobile traffic volumes

<table>
<thead>
<tr>
<th></th>
<th>Delay (Sec/Veh)</th>
<th>PM LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>94.4</td>
<td>F</td>
</tr>
<tr>
<td>2040</td>
<td>215.7</td>
<td>F</td>
</tr>
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</table>

Example: Great Mall Parkway and Montague
Downtown San Jose Transit Mall

- Maximum Speed 10mph (slowest system wide, see string chart below)
- Embedded track, hard to distinguish from sidewalk
- Multiple intersections and junctions

Downtown San Jose

[Map of Downtown San Jose]

[String Chart]

Distance vs. Time

Transportation Decision Systems, Inc.
Bollards can be used to create separation between tracks and sidewalk

Bollard Examples
Edmonton and Minnesota
Downtown San Jose

- Separation can also be created with Curbs or other types of treatment
- Applications of New Technology
Vasona Corridor

Vasona Corridor Improvements
- Vasona Corridor has two single tracked segments which contribute to delays systemwide
- VTA tracks are adjacent to Freight Rail tracks throughout corridor
- Platforms only allow for two-car trains (rest of the system can accommodate three-car trains)
## Near-Term Future Considerations

### Near-Term Projects
*(To be completed before BART to Berryessa opening)*

<table>
<thead>
<tr>
<th>Project</th>
<th>Details</th>
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<tr>
<td>Complete Mountain View Double tracking</td>
<td>(currently on track to be completed before the end of 2015)</td>
</tr>
<tr>
<td>Update Transit Signal Priority throughout system</td>
<td>(Scheduled to begin construction by mid 2015)</td>
</tr>
<tr>
<td>Implement a new service plan</td>
<td>(to happen in conjunction with the Milpitas BART station opening)</td>
</tr>
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### Mid-Term Projects
*(VTA would like to start these soon, but no specific timeframe)*

<table>
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<tr>
<th>Project</th>
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<tr>
<td>Fencing on North First street to increase maximum speeds</td>
<td>Speed improvements in Downtown San Jose</td>
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</table>

### Long-Term Projects
*(The projects will take a significant amount of planning and engineering)*

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<th>Project</th>
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<tr>
<td>Grade separate Montague Expressway and North 1&lt;sup&gt;st&lt;/sup&gt; Street</td>
<td>Double Track the Vasona Line</td>
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</table>
What’s In The Far Horizon?

- Superbowl 50 at Levi’s Stadium early 2016
- BART to Berryessa Opening in 2017
- Being responsive to Santa Clara Valley job and population growth and the expanding needs of light rail passengers
- Improving service to meet the needs of future transit connections
  - BART to Downtown San Jose
  - High Speed Rail
Questions & Answers