Next Generation Fare Gates Update
We’re Back

Board Presentations

1st Accessible Fare Gate installed @ Richmond

1st Regular Fare Gate Installed @ Fruitvale

5 Elevator Enclosures Completed

Request for Expression of Interest Evaluation

Today
Today

- On Schedule
- On Budget
- Secured Funding on Target
- Enhancements to original Design
- Evaluated the Request for Expression of Interest (RFEI) Responses
- Adopted the Hybrid Approach
  - BART Design +
  - RFP for Manufacturing +
  - RFP for Vendor of Off the Shelf Gates
  - *All Gates Installed by BART Forces*
Hybrid Approach – Parallel Paths

BART Designed Gate Path

AFG Pilot/Data Analysis ➔ Finalize Design ➔ Develop RFP to Manufacture Components ➔ Build Gates By BART Forces ➔ Deploy Install

RFG Pilot/Data Analysis

Array Pilot/Data Analysis

Vendor Supplied Off the Shelf Gate Path

Develop Best Value RFP for Off the Shelf Gate ➔ Evaluate Submittals
1. Deter Fare Evasion
2. Maintainability
3. Aesthetics ➔ Procure Off the Shelf Gates ➔ Deploy/Install

Hybrid Approach – Parallel Paths
BART Designed Gate Update
Fare Gate Project

Goals

- Deter Fare Evasion
- Reduce Maintenance Costs
- Aesthetics

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<tr>
<th></th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>1</td>
<td>JUMP OVER</td>
<td>CRAWL UNDER</td>
<td>CLIMB OVER</td>
<td>FORCE THROUGH</td>
<td>TAIL GATING/PIGGY BACKING</td>
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</table>
Prior Efforts

Existing Gates - Air Cinch Modification
- Once Gate Closes - 80 lbs. of Pressure Applied to the Leaf
- 29 Stations Converted
Swing Barrier Accessible Gate v 1.0
Swing Barrier v 1.0

Benefits:
- Favorable Customer Response
- Reduced Maintenance

Challenges Post Implementation:
- Leaf Alignment
- Wear of Bolt Lock
- Flat Surfaces Still easy to use for Climbing
Swing Barrier Enhancements Post Field Test
Electrical Innovations

Off-The-Shelf Fare Gate Controller Board - Pneumatic Control Assembly

Benefits:
- Reduced Implementation Costs
- Reduced Maintenance Costs
- Easy to Troubleshoot for Maintenance
Design Improvements:
- Improved Bolt Mechanism
- Steel Alloy Bolt
- Leaf Hardening – Aluminum Bars & Supports
- Reduce Crawl Space under Leaves to 8”

Benefits:
- Reduced Wear on Parts
- Reduced Maintenance Tickets

![Force Displacement](image)

Without Bars & Supports
Reduce Flex With Bars & Supports
Software Improvements

Smart Gate

Benefits:

• Leaves Respond to Customer Interaction
• Softer Landing when Opening
• Reduced Wear on Parts
• Automated Barrier Speed Adjustments to reduce Maintenance tuning requirements
Design Iterations and Enhancements
Design Iterations and Enhancements

Enhance Design

Identified Opportunity for Improvement

Data Analysis
Design
Iterations and
Enhancements

Identified Opportunity for Improvement

Data Analysis
Design Iterations and Enhancements

Identified Opportunity for Improvement

Data Analysis

GATE 1

Enhance Design

GATE 2

Enhance Design

GATE 3

Enhance Design

GATE 4
Upcoming Swing Barrier Enhancements
Rockridge Single Leaf Array

Aug ’21

- Swing Barrier Design v 2.0
- No Magnetic Stripe Ticket
- Overhead Barrier
Single Barrier - Leaf Locking

Benefits:
- Will Prevent all Leaf Force Through
- Decreased Maintenance Costs
Funding
# Project and Funding Needs Timeline – Dec ‘20

## Project Timeline

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<tbody>
<tr>
<td>2020</td>
<td>Develop/Publish RFEI</td>
<td>Staff Review/Decision RFEI Responses</td>
<td>Publish RFP</td>
<td>Staff Review/Decision RFP Responses</td>
<td>Install Gates at Stations</td>
<td>Design/Build Prototype</td>
<td>Install/Field Test</td>
<td>Field Test - Richmond</td>
<td>Continue Installation at High Priority Stations</td>
<td>Install Gates</td>
<td>Award / Install Gates System Wide</td>
<td></td>
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## Funding Timeline

<table>
<thead>
<tr>
<th>Year</th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
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<tbody>
<tr>
<td>Total Funding Need</td>
<td>$19M</td>
<td>$23M</td>
<td>$39M</td>
<td>$9M</td>
</tr>
<tr>
<td>BART, $1M</td>
<td>RR, $7M</td>
<td>BART, $6M</td>
<td>BART, $3M</td>
<td></td>
</tr>
<tr>
<td>5307, $8M</td>
<td>Counties, $16M</td>
<td>Counties, $33M</td>
<td>Counties, $6M</td>
<td></td>
</tr>
<tr>
<td>% of $90m, by year</td>
<td>21%</td>
<td>26%</td>
<td>43%</td>
<td>10%</td>
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</table>

Phased installation based on availability of funding.
## Target Funding Plan

### Next Generation Fare Gates Systemwide = $90M

<table>
<thead>
<tr>
<th>County/Segment</th>
<th>Total # of Fare Gates</th>
<th>% of Total</th>
<th>Total Cost ($M)</th>
<th>Estimated County Contribution ($M)</th>
<th>Estimated BART Contribution ($M)</th>
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<tbody>
<tr>
<td>Alameda (ex. 580 Corr.)</td>
<td>243</td>
<td>34%</td>
<td>$30.6</td>
<td>$15.3</td>
<td>$15.3</td>
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<tr>
<td>580 Corridor</td>
<td>34</td>
<td>5%</td>
<td>4.3</td>
<td>4.3</td>
<td>-</td>
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<tr>
<td>Contra Costa</td>
<td>117</td>
<td>16%</td>
<td>14.7</td>
<td>7.4</td>
<td>7.4</td>
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<tr>
<td>San Francisco (incl. SFO)</td>
<td>199</td>
<td>28%</td>
<td>25.0</td>
<td>12.5</td>
<td>12.5</td>
</tr>
<tr>
<td>San Mateo (excl. SFO)</td>
<td>82</td>
<td>11%</td>
<td>10.3</td>
<td>10.3</td>
<td>-</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>40</td>
<td>6%</td>
<td>5.0</td>
<td>5.0</td>
<td>-</td>
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<tr>
<td>Total</td>
<td>715</td>
<td></td>
<td>$90.0</td>
<td>$54.8</td>
<td>$35.2</td>
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## Secured Funding – $40.66 million

### BART

<table>
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<tr>
<th>Source</th>
<th>Amount ($M)</th>
<th>Notes</th>
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<tbody>
<tr>
<td>FTA Section 5307/5337 (New funding)</td>
<td>7.00</td>
<td>MTC - administered TCP Program</td>
</tr>
<tr>
<td>FTA Section 5307/5337 (Prior Year)</td>
<td>11.00</td>
<td>Part of overall M&amp;E Project Reprioritization Process</td>
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<tr>
<td>Measure RR</td>
<td>10.00</td>
<td>Access Program Funds</td>
</tr>
<tr>
<td>Capital Allocations/Other Grants</td>
<td>7.18</td>
<td>Future Year Funds</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>35.18</strong></td>
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### County

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount ($M)</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Subregional Transportation Mitigation Program (STMP)</td>
<td>0.45</td>
<td>WCCTAC Administered Program</td>
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<tr>
<td>Santa Clara VTA</td>
<td>5.03</td>
<td>O&amp;M Agreement</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5.48</strong></td>
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- Ahead of schedule – previously forecast to secure $19M in FY21
- M&E reprioritizing, shifting funds from deferred capital projects
- Awarded $750K WCCTAC STMP grant (including $450K for NGFG)
- VTA’s contribution covered under SVRT O&M Agreement
Pending Funding – $41.2M

Pending - Notice of Award/Approval Pending

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount ($M)</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Affordable Housing and Sustainable Communities</td>
<td>6.20</td>
<td>Sub-applicant of 6 affordable housing projects</td>
</tr>
<tr>
<td>FY22 Appropriations Bill</td>
<td>5.00</td>
<td>Member Request Senator Feinstein</td>
</tr>
<tr>
<td>FY22 State Budget Bill</td>
<td>30.00</td>
<td>Budget Request State Senator Skinner</td>
</tr>
<tr>
<td>Total</td>
<td>41.20</td>
<td></td>
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</tbody>
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- Submitted NGFG for additional funding opportunities, including:
  - Requested >$6M in AHSC funding across six applications (pending - award notification expected in October 2021)
  - Submitted $5M request to Senator Feinstein to be included as a Member Project (earmark) in FY22 Appropriations bill (pending)
  - Submitted $30M request to State Senator Skinner to be included as a budget request in FY22 State Budget bill (pending)
- Will continue to pursue funding opportunities as they arise
Planned & Identified Sources – $52.48M

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount ($M)</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Alameda County</td>
<td></td>
<td></td>
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<tr>
<td>Measure BB</td>
<td></td>
<td>Subject to ACTC Approval</td>
</tr>
<tr>
<td>RM2</td>
<td></td>
<td>Forecast savings from WSX; subject to MTC Approval</td>
</tr>
<tr>
<td>Measure B</td>
<td></td>
<td>Forecast savings from WSX; subject to ACTC Approval</td>
</tr>
<tr>
<td>Total - Alameda County</td>
<td>10.32</td>
<td></td>
</tr>
<tr>
<td>State Transportation Improvement Program</td>
<td>6.91</td>
<td>Subject to support by RTPCs, CCTA, MTC; and CTC Approval</td>
</tr>
<tr>
<td>Measure J</td>
<td>3.15</td>
<td>Station Modernization; subject to CCTA Approval</td>
</tr>
<tr>
<td>Future Sales Tax Measure</td>
<td>3.15</td>
<td>Reauthorization of Measure J, timing TBD</td>
</tr>
<tr>
<td>Total - Contra Costa County</td>
<td>6.91</td>
<td></td>
</tr>
<tr>
<td>San Francisco County</td>
<td>3.15</td>
<td>Subject to voter approval of Prop K Reauthorization and SFCTA Approval</td>
</tr>
<tr>
<td>Total - San Francisco County</td>
<td>12.52</td>
<td></td>
</tr>
<tr>
<td>Total - Three BART District Counties</td>
<td>39.01</td>
<td></td>
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<tr>
<td>Non-BART District Counties</td>
<td></td>
<td></td>
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<tr>
<td>San Mateo County - Measure W</td>
<td>10.32</td>
<td>First Call for Project in FY22; extremely competitive Program</td>
</tr>
<tr>
<td>SFO Airport Funds</td>
<td>3.15</td>
<td>Potential to leverage SFO Funds</td>
</tr>
<tr>
<td>Total Non-BART District Counties</td>
<td>13.47</td>
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- In active discussions with three BART county CTAs regarding balance of funding for county share
Request for Expression of Interest (RFEI) Updates
Next Gen Fare Gates RFEI

Obtain Feedback and Input on Industry Fare Gate Solutions
- Designs
- Fare Evasion Solutions
- Fare Gate Dimensions
- Implementation Approaches
RFEI Responses Received
Results

- No Off the Shelf Pneumatic Options
- Varying Lead Times
- Fit Options Included:
  - Three Options had Slimmer Consoles
  - Overhead Gantry for Cabling
  - Customized Baseplates Over Existing Footprint
  - 2 Options had Wider Than Bart’s Standard
- Maintenance / Fare Deterrence Data Pending
Innovation in Fare Evasion Prevention

- 3-D overhead sensors detection
- Hidden photocells tracking passenger movement
- Real-time reporting and trend analysis
- Communication with control center and ability to trigger alarms
Next Steps

- Gather Maintenance Data on Gate Performance
- Proceed with Best Value RFP
  - BART’s Facilities Standards (BFS)
  - BART’s Technical Requirements
- Continue Hybrid Deployment with BART Designed Fare Gates
Project 2 Year Look Ahead

<table>
<thead>
<tr>
<th>BART Designed Gates</th>
<th>Vendor Off the Shelf Gates</th>
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<tbody>
<tr>
<td>FY 2021 7/1/20</td>
<td>FY 2022 7/1/21</td>
</tr>
<tr>
<td>FY 2022 7/1/22</td>
<td>FY 2023 7/1/22</td>
</tr>
<tr>
<td>FY 2023 7/1/21</td>
<td>FY 2024 7/1/23</td>
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<tr>
<td>FY 2024 7/1/20</td>
<td>1/1/21</td>
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<tr>
<td>FY 2025 7/1/21</td>
<td>1/1/22</td>
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<tr>
<td>FY 2026 7/1/22</td>
<td>1/1/23</td>
</tr>
<tr>
<td>FY 2027 7/1/21</td>
<td>1/1/24</td>
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**BART Designed Gates**
- Design/Data Analysis/Enhancements
- Site Surveys
- Procure Parts

**Elevator Enclosures**
- Coliseum
- Concord
- Montgomery
- Baer, Park
- Embarcadero
- El Cerrito Plaza
- Walnut Creek
- North Berkeley
- Civic Center
- Rockridge
- Broadway
- Powell

**Stations Deployment**
- Publish RFP
- Procure Components/Build Gates/Deploy

**Vendor Off the Shelf Gates**
- Develop RFP for Off the Shelf
- Award Project / Receive Off the Shelf Gates / Install
Station Deployment Strategy

2 Year Plan

✓ Smaller Arrays
✓ Distributed Across the District
✓ Diverse Fare Evasion Challenges
✓ Potential Initial Stations *:
  • 16th St
  • Balboa
  • Fruitvale
  • Hayward
  • North Berkeley
  • Pittsburg Center
  • Pleasant Hill
  • South Hayward
  • West Oakland

* Pending Site Surveys
Thank you!