Tasks and Steps Completed

- Identify Performance and Business Requirements
- Determine State of Industry
- Evaluate Feasible Options
- Evaluate Options
- Present Options
Performance & Business Criteria

• Reliability
• Maintainability
• Fare Evasion Reduction
• Improved Throughput
• Provide more Modern Appearance
• Off-the-Shelf Technology
• Implementation Schedule
State of Industry: Highlights

• New Fare Gates Provide
  • Existence of Multiple Potential Vendors
  • Reliability – Potentially Equal to or better than existing
  • Maintainability – Comparable to existing electrical ADA gates/Not as good as existing pneumatic
  • Improved fare evasion protection
    • Jumping - Yes
    • Pushing Through - Potentially
    • Tailgating – Potentially
  • Provide more modern appearance
  • Off-the-shelf technology may require one time customization to integrate with Clipper/BART systems
Option 1: Modification to Existing Fare Gate

- Provided by Cubic Transportation Systems and installed in 2002-2003
- Mid-life refresh 2016-2017, to extend useful life by 15 years
- Accept Clipper Cards, BART-only Smart Cards, and magnetic strip tickets
- Integrated with BART’s Data Acquisition System (DAS) back office
- 98% Availability
- Low maintenance
Option 1: Modification to Existing Fare Gate

Pros & Cons

- Reliability – Equal to existing
- Maintainability – Equal to existing
- Fare Evasion Reduction
  - Jumping - Yes
  - Pushing Through - Yes
  - Tailgating - limited
- Throughput – 30 PPM
- Modern appearance – can be improved by using decorative leaves
- No new interface to Clipper/BART required

Stacked and Cinched Pop-up Barrier
Option 2: New Swing Style Gate

**Pros & Cons**

- Reliability – With customization maybe Comparable to existing
- Maintainability – Comparable to existing electrical ADA gates
- Effective against fare evasion
  - Jumping – Yes
  - Pushing Through – Yes
  - Tailgating – No
- Throughput – 30-PPM
- Modern Appearance - Yes
- Off-the-shelf gate technology – depending on vendor could require modification to integrate with Clipper/BART systems
Option 3: New Retractable Barrier

**Pros & Cons**

- **Reliability** – Slightly less than existing electrical ADA gates
- **Maintainability** – Comparable to existing electrical ADA gates
- **Effective against fare evasion**
  - Jumping – Yes
  - Pushing Through – Yes
  - Tailgating – Potentially limited
- **Throughput** – 30 PPM
- **Modern look & feel**
- **Off-the-shelf gate technology** – will require modification to integrate with Clipper and BART systems
Option 4: High Entry/Exit Gate

Pros and Cons

- Reliability – Very high
- Maintainability – Excellent
- Effective against fare evasion
  - Jumping – Yes
  - Pushing Through – Yes
  - Tailgating – Yes
- Throughput – 15 PPM
- Provides a retro look
- Off the shelf gate technology – depending on vendor could require modification to integrate with Clipper and BART systems
- No ADA gate option
Rough Order of Magnitude Costs

- Modifying existing fare gates - $15-$25M
  - Ongoing Maintenance - $1.5-$3M
- Installed new fare gates - $115-$135 M
  - Ongoing Maintenance – $3-$4 M per year
<table>
<thead>
<tr>
<th>Category</th>
<th>Modified Gate</th>
<th>Swing Barrier</th>
<th>Retractable Barrier</th>
<th>High Entry/Exit (HEET)</th>
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<td>Reliability</td>
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<td>Maintainability</td>
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<td>Less than existing</td>
<td>Less than existing</td>
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<td>2 of 3</td>
<td>2 of 3</td>
<td>3 of 3 (no ADA)</td>
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<td>Improved Throughput</td>
<td>No Change</td>
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<td>Reduced by 50%</td>
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<td>Implementation Schedule</td>
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<td>6-7 years</td>
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Moving Forward

Modification to the existing gate system:
- Cinch Modification
- ADA gate conversion from electric to pneumatic
- Stacked/Pop-up barrier (based on the pilots)

Desired feedback for Board:
- Identify the preferred option to be developed

Next steps:
- Identify funding
- Initiate Engineering Design