LRT Between Car Barriers Briefing

Operations, Safety, & Security Committee
January 14, 2020

Darryl E. Spencer, P.E.
Sr. Assistant Vice President, Engineering
Recommendation

• Approval of a resolution authorizing the President / Executive Director, or his designee, to award a contract to Impact Recovery Systems, Inc. for the purchase of Light Rail Vehicle (LRV) Between Car Barrier System Components for a total authorized amount not to exceed $933,340.
Purpose: FTA Regulations

FTA Requirement:
• FTA Audit Deficiency - ADA 10-3: DART has not implemented between-car barriers as required by 49 CFR 38.63(a).
• Language used on FTA’s website, § 38.85, simply requires “devices or systems” be “provided.”
• DART proposes “platform-based” between-car barriers.
• Material Solution: Bollards installed in the platform edge where they align with the gap between cars (precise positioning of the train).

Objective:
1) To **prevent, deter or warn** individuals from inadvertently stepping off the platform between (coupled) cars.
2) Stop an individual from **mistaking the gap between cars for an open vehicle door and then stepping off the platform**.
Two Options—

1. **Platform-based** [*Candlesticks/Bollards*]

   **Platform-based**
   Installation of “candlesticks/bollards” of sufficient height and spacing –assume 36 inches high and 12 inches on center max—to be effective and cane detectable. Installation of three candlesticks at two locations x two sides at 64 stations equals 768 elements to install and maintain across the service area. The advantage is implementation should be technically simple and easy to maintain.

2. **Vehicle-based** [*Fender Extenders/Elastic Straps/Chains*]

   **Vehicle-based**
   Installation of “fenders extenders/elastic straps/chains” would be required on 163 vehicles two sides x 2 ends equal 652 elements to install and maintain at central locations. The challenge is finding and maintaining an element with enough rigidity to meet objective and enough flexibility to survive the operation through DART LRT tight curves and operationally efficient.
Vehicle Based Solutions
Vehicle-based BCB System “not” practical on light rail vehicles or passenger cars --coupled to-- vehicles.
Cons for the Retracta-belt Between Car Barriers

- Barrier belts breaking loose can cause injury to passengers and or employees.
- Barriers ability to withstand LRV and TRE high speeds and car wash.
- Connecting barrier belts during pull-out or swapping LRV’s on the mainline would cause many logistical issues.
- Retracta-belt box may have a clearance issue at some DART rail stations.
- Connecting and Disconnecting barriers in the right-of-way.
- Customers could tamper or vandalize the units.
- Foreseen to be a high maintenance item.
Platform Based Solutions
Charlotte Transit

Sound Transit (Seattle)

Minneapolis Metro

Between-car barriers

Allegheny station (PAAC)
Exhibit 11 – Los Angeles installation

St. Louis installation

Pittsburgh installation
Sentinel BCB - Between Car Barriers

Rail Platform Between Car Barrier System
DART Platform Demonstration
Demonstration of platform-based barrier at Deep Ellum Station
Invited feedback from DART’s PAAG members
Platform-based barrier configurations considered by Engineering / PAAG
Staff Recommendation/Final PAAG Approval
Project Requirements

- Units to install: 256 for the entire rail line
  - 64 stations
  - 4 units per station

- Cost per unit: $3,828

- FTA deadline: July 31, 2020
Requested Action

• Approve a resolution authorizing the President / Executive Director, or his designee, to award a contract to Impact Recovery Systems, Inc. for the purchase of Light Rail Vehicle (LRV) Between Car Barrier System Components for a total authorized amount not to exceed $933,340.
Questions?
Between Car Barriers Materials
Sample Utilize is made up of the following components (Total Length: 10’-4”)

- 1 – 4” Rail End Cap
- 3 – 36” Rail w/4 Barrier Slots
- 1 – 12” Rail End Cap w/1 Barrier Slot

<table>
<thead>
<tr>
<th>#</th>
<th>Part No. - Description</th>
<th>Qty</th>
<th>Unit Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BCBR - SENTINEL BCB RAIL, 36”, 4 SLOTS, W/ TR HW</td>
<td>768</td>
<td>220.00</td>
</tr>
<tr>
<td>2</td>
<td>BCBE12 - SENTINEL BCB RAIL END CAP, 12”, ONE SLOT, W/ TR HW</td>
<td>512</td>
<td>90.00</td>
</tr>
<tr>
<td>3</td>
<td>BCBP-36 - SENTINEL BCB POST, 36”, W/ TR HW</td>
<td>3.584</td>
<td>200.00</td>
</tr>
</tbody>
</table>