GRTC PULSE - BUS RAPID TRANSIT

PUBLIC INFORMATIONAL MEETINGS:
JANUARY 19, 20 & 23, 2016

ARRIVING 2017

OFF PEAK EVERY 15 MIN.

PEAK EVERY 10 MIN.

I ♥ RICHMOND

I ♥ HENRICO

GRTC PULSE
BUS RAPID TRANSIT

U.S. Department of Transportation
VDOT Virginia Department of Transportation
DRPT
GRTC TRANSIT SYSTEM
RICHMOND VIRGINIA
COUNTY OF HENRICO VIRGINIA
Purpose of the Project

• Improve the mobility of transit users
• Develop a more efficient transit system
• Support existing transit-oriented land use
• Support plans to generate new transit-oriented development
• Provide an attractive alternative for east-west travel
Project Description

The Bus Rapid Transit Project, sponsored by GRTC Transit System, utilizes a guideway of dedicated median and curbside bus lanes and also mixed-flow traffic. The route runs from Henrico County at Willow Lawn through the City of Richmond to the eastern terminus at Rocketts Landing.
Corridor Description

• Route length: 7.6 miles on Broad St., 14th St. & Main St.

• Dedicated Bus Only Lanes: 3.2 Miles (Thompson to Foushee and 4th St. to 14th St.)

• 14 Station Locations: 5 median and 9 curbside
Pulse Service

- Minimum Hours of Operation:
  - Weekdays: 5:30 AM – 11:30 PM
  - Weekends: 6:00 AM – 11:30 PM

- Service Frequency:
  - Every 10 Minutes On-Peak (7:00 AM – 9:00 AM and 4:00 PM – 6:00 PM)
  - Every 15 Minutes Off-Peak

- Projected Line Travel Time: 29 to 31 Minutes

- Fare: Same As Local Fare (Currently $1.50)

- Estimated Daily Ridership: 3,500
Project Funding $49.8 Million
(Additional $4 Million Was Used During Preliminary Engineering Phase)
Where We Are Now

• Semi-Final Design Phase Complete
• VDOT Is Project Manager
  – Administers project on behalf of GRTC & partners
  – Completed semi-final design & will oversee final design
  – Manages construction process: Design-Build
    • Develops & awards contracts
    • Efficient process
    • Provides cost-savings for the project
  – Procurement happening now
Construction Timeline

• Early Construction Activities Begin: Spring 2016
• Construction Complete: August 2017
• Pulse Operations Begin: October 2017
Interior View

Track Up-lighting
40-Foot BRT Plus CNG
Website Guide

Click Here!

Click Here For Service Changes Effective October 18, 2015.
The next GRTC Pulse Public Meetings are October 26 & 27, 2015.
Public Meetings:
- Flyers, Display Boards, PowerPoint Presentation

Documents & Reports:
- Technical Reports, UDC & PC Documents
ARRIVING OCTOBER 2017!
Goal

- Implement an efficiently integrated multimodal transit system
- Reduce travel times from east to west and west to east for all riders and preserve connections
- Improve the overall transit experience for the everyday rider
- Insure multiple access points to BRT in the East
- Reduce eastbound bus volumes on Broad in downtown
Analysis

- 23 Local Routes Travel on Broad Street Downtown
- 11 Express Routes Travel on Broad Street Downtown
- 7 Local Routes Cross Over Broad Street Downtown
- 2 Local Routes Travel on Main Street Downtown
Analysis

• Current connections in the downtown area and preservation (N, S, E, W)
• Who will use the BRT going from East to West based on current travel patterns
• Connection efficiency for all riders and travel time efficiency on the corridor
• East End (Church Hill and Fulton) BRT connection options
Preserving Connections and Serve BRT Riders

Who Could Benefit from BRT?

<table>
<thead>
<tr>
<th>Origin Direction</th>
<th>Connection Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>West</td>
</tr>
<tr>
<td>West</td>
<td>17%</td>
</tr>
<tr>
<td>East</td>
<td>37%</td>
</tr>
<tr>
<td>North</td>
<td>33%</td>
</tr>
<tr>
<td>South</td>
<td>17%</td>
</tr>
</tbody>
</table>

*Downtown Broad Street is the Reference Point for Direction (Transfer Plaza)*

- 100% of current riders from the West could benefit from BRT
- 100% of riders from the East could benefit from BRT
- 56% of riders from the North could benefit from BRT
- 31% of riders from the South could benefit from BRT

Goal: Provide connections to BRT and preserve connections in other directions
Who are the BRT Riders?
BRT Riders

Key Routes – Highest Transfer Volumes To/From the Route 6

<table>
<thead>
<tr>
<th>Ridership</th>
<th>62-63</th>
<th>37</th>
<th>32</th>
<th>43-44</th>
<th>70-71</th>
<th>34</th>
<th>72-73</th>
<th>7</th>
<th>52-53</th>
<th>45</th>
<th>74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ridership</td>
<td>3,666</td>
<td>2,279</td>
<td>2,083</td>
<td>2,013</td>
<td>1,669</td>
<td>1,449</td>
<td>1,315</td>
<td>1,214</td>
<td>1,033</td>
<td>975</td>
<td>909</td>
</tr>
<tr>
<td>Ranking</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
</tbody>
</table>

*Besides the Route 6, the key transfer connections for the East End routes are Routes: 43-44, 37, 7, 3-4, 32, 52-53, 45*
BRT Connection Analysis

Options for Providing Access to the BRT

• **Consolidated Stops:** A local bus stop and BRT station are considered consolidated when the two facilities are located on the same block or around the corner from each other, and little or no street crossings are required.

• **Route Modifications:** Tweaking routes to increase efficiency for a quicker travel time to the BRT as well as other route connections.

• **Neighborhood Shuttles:** A shuttle that provides a direct connection to a BRT station from a neighborhood.

• **Neighborhood Circulators:** A new route that provides circuitous neighborhood coverage and connects to the BRT.

• **Bay Reassignments:** Reassigning bus bays at the transfer plaza to decrease the walking distance for ease of access for routes with riders frequently traveling west or east.
East End Analysis – Route Network

GRTC Current Local Bus Service with Proposed BRT Route

Richmond East End (Church Hill/Fulton areas)

Legend
- GRTC Current Local Routes
- GRTC Bus Stops
- Proposed BRT Route
- Proposed BRT Stations
Existing East End Connections
East End Analysis - Boardings

GRTC Current Local Bus Service with Proposed BRT Route
Average Weekly Boardings by Stop
Richmond East End (Church Hill/Fulton areas)

Legend
- GRTC Current Local Routes
- GRTC Bus Stops
- Proposed BRT Route
- Proposed BRT Stations

Avg. Weekly Boardings by Stop
July-October 2016
- 50 or fewer boardings per week
- 50 to 100 boardings per week
- 100 to 200 boardings per week
- 200 to 500 boardings per week
- More than 500 boardings per week

East End Route Info

<table>
<thead>
<tr>
<th>Route</th>
<th>Avg. Headway/Trips per Wkday</th>
<th>FY16 Ridership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rt 41</td>
<td>40 min/28 trips</td>
<td>104,304</td>
</tr>
<tr>
<td>Rt 51</td>
<td>45 min/13 trips</td>
<td>65,682</td>
</tr>
<tr>
<td>Rt 43</td>
<td>30 min/37 trips</td>
<td>334,447</td>
</tr>
<tr>
<td>Rt 44</td>
<td>30 min/36 trips</td>
<td>240,862</td>
</tr>
<tr>
<td>Rt 46</td>
<td>31 min/36 trips</td>
<td>270,596</td>
</tr>
<tr>
<td>Rt 52</td>
<td>45 min/24 trips</td>
<td>150,712</td>
</tr>
<tr>
<td>Rt 53</td>
<td>45 min/24 trips</td>
<td>147,562</td>
</tr>
<tr>
<td>Rt 7</td>
<td>32 min/37 trips</td>
<td>318,559</td>
</tr>
</tbody>
</table>
East End Analysis - Alightings

GRTC Current Local Bus Service with Proposed BRT Route

Average Weekly Alightings by Stop

Richmond East End
(Church Hill/Fulton areas)

Legend
- GRTC Current Local Routes
- GRTC Bus Stops
- Proposed BRT Route
- Proposed BRT Stations

Avg. Weekly Alightings by Stop
July-October 2015
- 50 or fewer alightings per week
- 50 to 100 alightings per week
- 100 to 200 alightings per week
- 200 to 500 alightings per week
- More than 500 alightings per week
East End Analysis

Route 7, 43, 44 Changes with Weekday Peak Passenger Activity

Circle size indicates total boarding activity (ONs)

- **Ons**: Green
- **Rt 7 Modified**: Orange
- **Rt 43 Modified**: Purple
- **Rt 44 Modified**: Yellow
- **Shuttle Option 3**: Blue
- **Shuttle Option 3 Modified**: Cyan

**BRT Proposed Station Location**

- **Curb**: Cyan circle
- **Median**: Yellow circle
- **Mixed Traffic**: Red circle
- **BRT Route Alternative**: Green line
- **GRTC Local Routes**: Black line

Map details:
- Streets: E Broad St, Q St, N 25th St, N 36th St, E 16th St, S 4th St, S 9th St, N 9th St, E Leigh St, E Main St, E Cary St, N 8th St, S 8th St, Oliver Hill Way, St. Carington St, N 5th St, S 5th St, W. Cary St, W. Leigh St.
- Stations: Main St Station EB, Main St Station WB, 12th EB, 14th WB, 24th EB, 24th WB, Stone Brewing Company EB, Rockett's Landing EB/WB, Williamsburg Ave, Story Run Road, Government Road.
East End BRT Connection Analysis

- **Route 52-53 Connection to Rockett’s Landing**

  - Adds 5 minutes to Rte 52 running time
  - No change to Rte 53
  - Serves Fulton
  - Connects BRT - Rockett’s Landing 52-53
East End BRT Connection Analysis

- Neighborhood Shuttle – Option 1

Running Time
11 minutes one way
22 minutes round trip

Serves
Fulton

Connects
BRT - Rockett’s Landing
52-53
56
East End BRT Connection Analysis

- Neighborhood Shuttle – Option 1A

Running Time
9.5 minutes one way
19 minutes round trip

Serves
Fulton

Connects
BRT - Rockett’s Landing
52-53
56

Neighborhood Shuttle – Option 1A
- Running Time: 9.5 minutes one way, 19 minutes round trip
- Serves: Fulton
- Connects: BRT - Rockett’s Landing, 52-53, 56
East End BRT Connection Analysis

- Neighborhood Shuttle – Option 2

Running Time
5.5 minutes one way
11 minutes round trip

Serves
Church Hill
25th Street

Connects
BRT - 24th Street
7
41-51
44
45
52-53
56
**East End BRT Connection Analysis**

- **Neighborhood Shuttle – Option 2A**

  - **Running Time**
    - 6.5 minutes one way
    - 13 minutes round trip

  - **Serves**
    - Church Hill
    - 25th Street

  - **Connects**
    - BRT - 24th Street
    - 7
    - 41-51
    - 44
    - 45
    - 52-53
    - 56
East End BRT Connection Analysis
• Neighborhood Shuttle – Option 3

Running Time
14.5 minutes one way
29 minutes round trip

Serves
Church Hill 21st & Mosby

Connects
BRT – Main St Station
7 41-51 43 44 45 52-53 56
East End BRT Connection Analysis

- Neighborhood Shuttle – Option 3A

  Running Time
  14.5 minutes one way
  29 minutes round trip

  Serves
  Church Hill
  21st & Mosby

  Connects
  BRT – Main St Station
  7
  41-51
  43
  44
  45
  52-53
  56
East End BRT Connection Analysis

- Neighborhood Shuttle – Options 1, 1A, 2, 2A, 3, and 3A
East End BRT Connection Analysis

- Fulton Area Shuttle Option 1 with Existing Routes
East End BRT Connection Analysis

- **Neighborhood Circulator – Option 1**

Loop Running Time = 1 hour

Church Hill/ N Church Hill round trip travel time to RL = 38 minutes. About 20 minutes one way and 10-15 minutes to 25th Street.

Fulton round trip travel time to RL = 22 minutes. About 10 minutes one way to RL.

Connects to all East End routes.
East End BRT Connection Analysis

• Neighborhood Circulator – Option 2

Loop Running Time = 40 min.

Church Hill and North Church Hill round trip travel time is 40 minutes to Rockett’s Landing. About 20 minutes one way and 10-15 minutes to 25th Street.

Fulton connects via Route(s) 52-53, 56

Church Hill connects to 7, 41-51, 44, 45
East End BRT Connection Analysis

- Neighborhood Circulator – Option 3

Running Time = 1 hour

Church Hill not served.

Fulton Hill to RL, 24th, Main Street Station, transfer center.

Competes with the BRT.

Connects to East End routes 52-53, 56.
East End BRT Connection Analysis

- Neighborhood Circulator – Options 1, 2, and 3
East End BRT Connection Analysis

- Recommended Service Improvements
East End BRT Connection Analysis

• Recommended Service Improvements (Route 43-Peak)
East End BRT Connection Analysis

- Recommended Service Improvements (Route 43-Off-Peak)

**Route 43 Existing (Off-Peak)**
- 25 minutes: Downtown to Whitcomb
- 25 minutes: Downtown to Rt 43
- 65 minutes: Transfer Plaza to Willow Lawn
- 75 minutes: Willow Lawn to Whitcomb

**Route 43 Proposed (Off-Peak)**
- 18 minutes: Downtown to Whitcomb
- 18 minutes: Downtown to Rt 43
- 40 minutes: Rt 43 to Willow Lawn
- 43 minutes: Willow Lawn to Whitcomb
East End BRT Connection Analysis

- Recommended Service Improvements (Shuttle 2A and 3A)

### Shuttle 2A Proposed
- **17 minutes**
  - Church Hill North
  - 7 min. on Shuttle 2A
  - 24th St BRT Station
  - 5 min. wait
  - 5 min. on BRT
  - Downtown

### Shuttle 3A Proposed
- **37 minutes**
  - Church Hill North
  - 7 min. on Shuttle 2A
  - 24th St BRT Station
  - 5 min. wait
  - 25 min. on BRT
  - Willow Lawn

### Shuttle 2A Proposed
- **23 minutes**
  - Fairfield
  - 15 min. on Shuttle 3A
  - Main St BRT Station
  - 5 min. wait
  - 3 min. on BRT
  - Downtown

### Shuttle 3A Proposed
- **41 minutes**
  - Fairfield
  - 15 min. on Shuttle 3A
  - Main St BRT Station
  - 5 min. wait
  - 21 min. on BRT
  - Willow Lawn
## East End BRT Connection Analysis

- **Recommended Service Improvements (Costs)**

<table>
<thead>
<tr>
<th>Annualized Costs of Preferred Recommendations</th>
<th>Net Annual</th>
<th>Net Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>Costs</td>
</tr>
<tr>
<td>Modify routes 43, 44, 7 to run on Leigh St Viaduct bidirectional</td>
<td>(7,038)</td>
<td>-$645,000</td>
</tr>
<tr>
<td>Add Shuttle 2A with headways</td>
<td>at 10/15</td>
<td>7,812</td>
</tr>
<tr>
<td>Add Shuttle 3M with headways</td>
<td>at 10/15</td>
<td>14,329</td>
</tr>
<tr>
<td>Add Shuttle 1A with headways</td>
<td>at 10/15</td>
<td>11,179</td>
</tr>
<tr>
<td>Modify route 52 to serve Rocketts Landing</td>
<td>-</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Net Total Impacts</strong></td>
<td>26,283</td>
<td>$2,407,000</td>
</tr>
</tbody>
</table>
### East End BRT Connection Analysis

- **Bus Bay Reassignments**

<table>
<thead>
<tr>
<th>Route</th>
<th>62-63</th>
<th>37</th>
<th>32</th>
<th>43-44</th>
<th>70-71</th>
<th>34</th>
<th>72-73</th>
<th>7</th>
<th>52-53</th>
<th>45</th>
<th>74</th>
<th>41-51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection at Transit Center</td>
<td>C</td>
<td>A</td>
<td>B</td>
<td>H</td>
<td>L</td>
<td>D</td>
<td>I</td>
<td>D</td>
<td>K</td>
<td>I</td>
<td>I</td>
<td>K</td>
</tr>
<tr>
<td>Walk distance to BRT (blocks)</td>
<td>1.9</td>
<td>1.5</td>
<td>1.7</td>
<td>2.9</td>
<td>3.72</td>
<td>2.1</td>
<td>3.1</td>
<td>Broad</td>
<td>2.1</td>
<td>3.5</td>
<td>3.1</td>
<td>3.5</td>
</tr>
<tr>
<td>Bay Reassignment</td>
<td>F</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>L</td>
<td>D</td>
<td>K</td>
<td>D</td>
<td>E</td>
<td>K</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Walk distance to BRT (blocks)</td>
<td>2.5</td>
<td>1.5</td>
<td>1.7</td>
<td>1.9</td>
<td>3.7</td>
<td>2.1</td>
<td>3.5</td>
<td>Broad</td>
<td>2.1</td>
<td>2.3</td>
<td>3.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Bus bay reassignments prioritize high volume transfers to BRT. East End routes are noted. Provides connections to/from BRT within 2.5 blocks.
Next Steps for East End

- Collect & consider comments on route options
- Address need for local circulation
- Address need for connection to BRT
- Develop refined East End routing options to serve BRT and improve local mobility
- Develop operating requirements and costs
- Present draft recommendations for review
- Develop final recommendations report
Discussion

• East End Mobility Needs
  ▪ Localized travel
  ▪ Crosstown travel
  ▪ Travel choices

• Routing Options Identified
  ▪ Neighborhood shuttles
  ▪ Route modifications

• Other Recommendations
Questions
Or
Comments

Please fill out a comment form or
email: Planningcomment@ridegrtc.com