



County of Fairfax, Virginia



# Richmond Highway Bus Rapid Transit

Executive Committee Meeting #14

January 21, 2022



The Richmond Highway  
BRT project is funded in  
part by the Northern Virginia  
Transportation Authority.





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# Agenda

- National Environmental Policy Act (NEPA)
- Updated Cost Estimate
- Request to Enter New Starts Engineering
- Right-of-Way Acquisition
- Public Involvement
- Turn Lane Analysis
- Station Design
  - Community Charm elements
  - Cladding material options
- 12-Month Outlook





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# NEPA Status

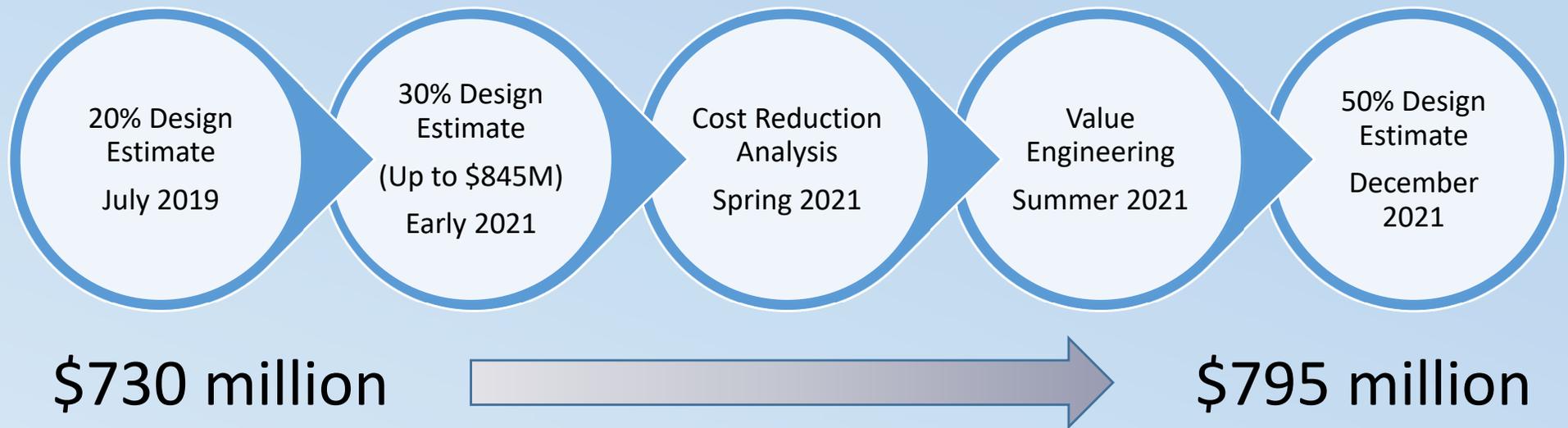
- FTA signed the Categorical Exclusion on January 7
- Key accomplishment of New Starts project development phase
- Allows right-of-way acquisition to commence
- Allows Ft. Belvoir to develop Record of Environmental Consideration (REC)
- Future re-evaluations expected to accommodate battery electric bus charging facilities and other design changes





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# Capital Cost Estimate Update Process





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## Key Causes of Increase

- Escalation due to schedule extension to accommodate VDOT widening project, right-of-way acquisition & utility relocation
  - 20% estimate YOE → 2025-27
  - 50% estimate YOE → 2030
- Active real estate market
- Switch to battery electric buses & charging equipment\*
- Global construction materials markets\*\*

Note: \*Full evaluation still under investigation  
\*\*Impact of prevailing wages to be determined



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# Request to Enter New Starts Engineering

- Request submitted January 14, 2022
- Request includes:
  - Completed environmental document
  - Design plans
  - Project Management Plan
  - Cost estimate
  - Progress on third party agreements
  - Financial plan
  - Preliminary project rating
- Regular meetings with FTA & Program Management Oversight Consultant (PMOC) are on-going
  - KKCS World has been assigned as the PMOC
  - PMOC makes recommendation to FTA on “readiness” for engineering
- **Entry expected fall 2022**



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# Right-of-Way Status

- Process to begin Spring 2022
- Permission of Access letters to be sent to the property owners
- Whole Parcel Acquisitions are first due to complexity, relocation needs & schedule risk
  - Meeting held in October 2021 to discuss process.
  - Information can be found on BRT website
  - Additional meetings can be scheduled to assist property owners during the process





# Public Involvement

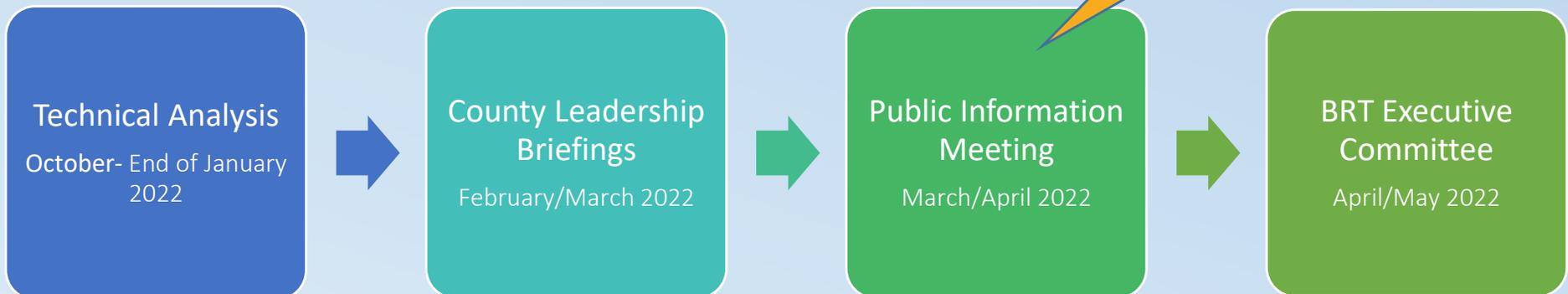
- **Right-of-Way public meeting held October 25, 2021**
  - Acquisition process
  - Relocation benefits
  - Schedule
- **Branding Reveal – February/March 2022**
- **Community Charm Conversations – Starting Spring 2022**
- **Turn Lane Analysis – Spring 2022**
- **Community pop-ups -- On-going**





# Turn Lane Analysis

- Board of Supervisors Design Endorsement included direction to review certain intersections for opportunities to reduce left and right turn lanes
- Analysis of turn lanes underway to determine if left/right turn lanes can be reduced
- Turn lane analysis will include:
  - Impacts to BRT & traffic operations
  - Opportunities to improve pedestrians/bike safety
  - VDOT coordination





# Community Charm



Reflect the history, identity and character of the neighborhoods surrounding each station area



Implement community representation by incorporating artwork from local high school students and/or artists



Integrate artwork in each station that meets design parameters for an overall unified experience





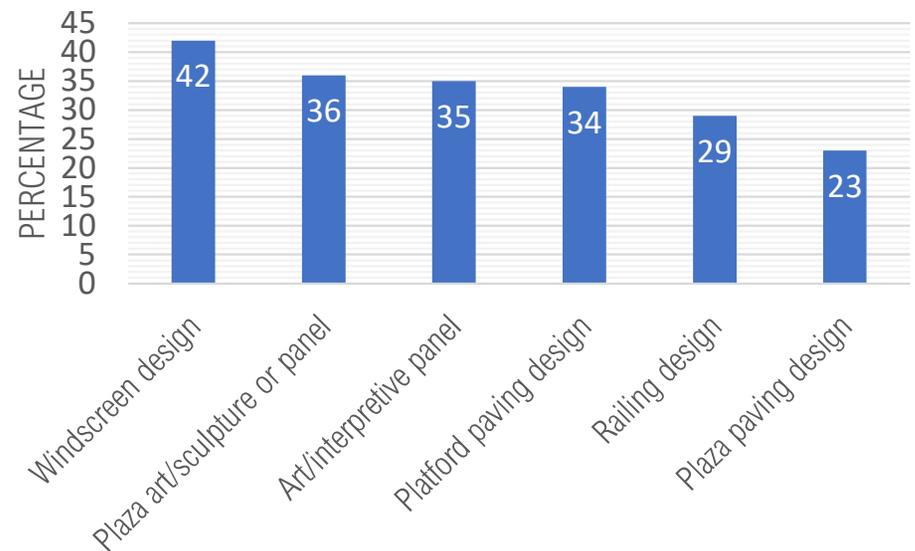
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# Background (Survey Results)

- **Survey conducted in two segments from November 2020 to March 2021**
  - Where should neighborhood identity elements be included at or near the station?
  - What neighborhood features do you think should be highlighted for each station area?
- **Windscreen design (42%) was the most chosen station component to display community charm**
  - Sculpture or panel (36%) came second
- **Direction from BRT Executive Committee (04/16/21) was to focus on windscreen and plaza/art panel**
  - Agreed on overall topics for stations (shown on next slide)

Which types of station components do you like best in terms of showcasing neighborhood "charm" or characteristics unique to each neighborhood?

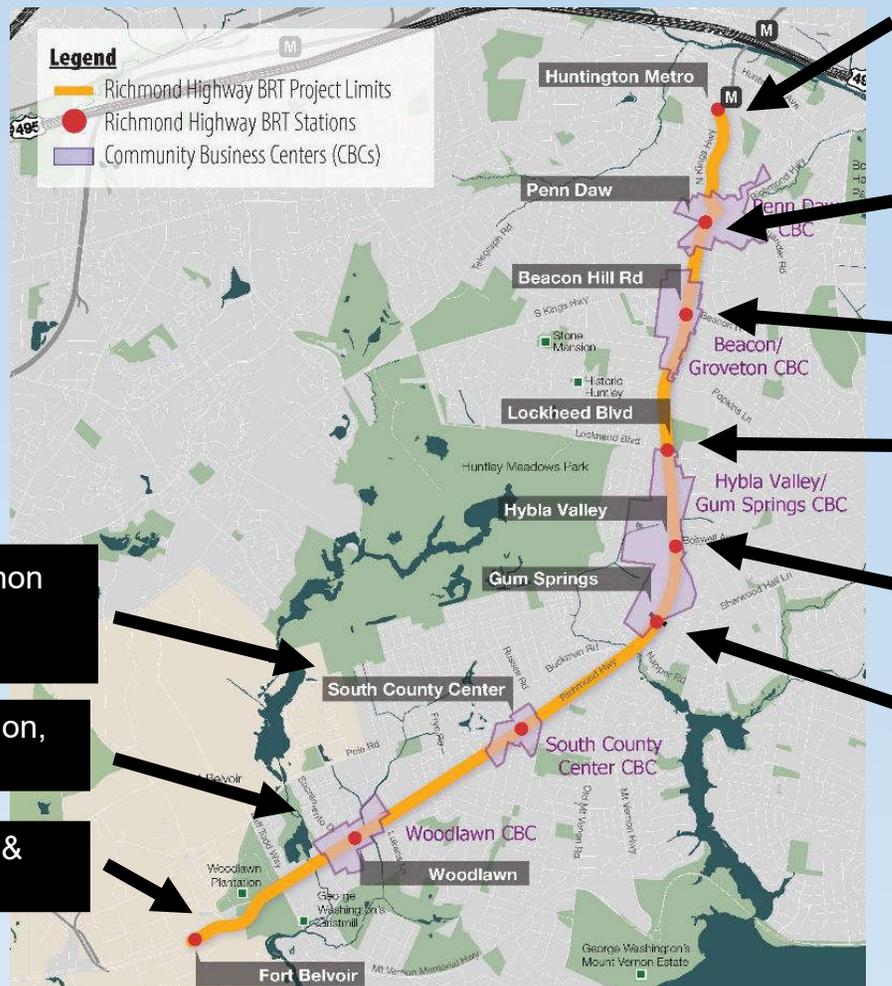




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# Survey Results for Station Focus Areas



Original Mt. Vernon HS, County government

History (Mt. Vernon, Woodlawn)

Military culture & history

History of Richmond Highway, diverse culture, gateway to FFX and Old Town Alexandria, nature, Metro

History & culture, nature, community crossroads

Historic airport, view

History & culture, Huntley Meadows Park

History & culture, nature, Huntley Meadows Park

Gum Springs/African American history



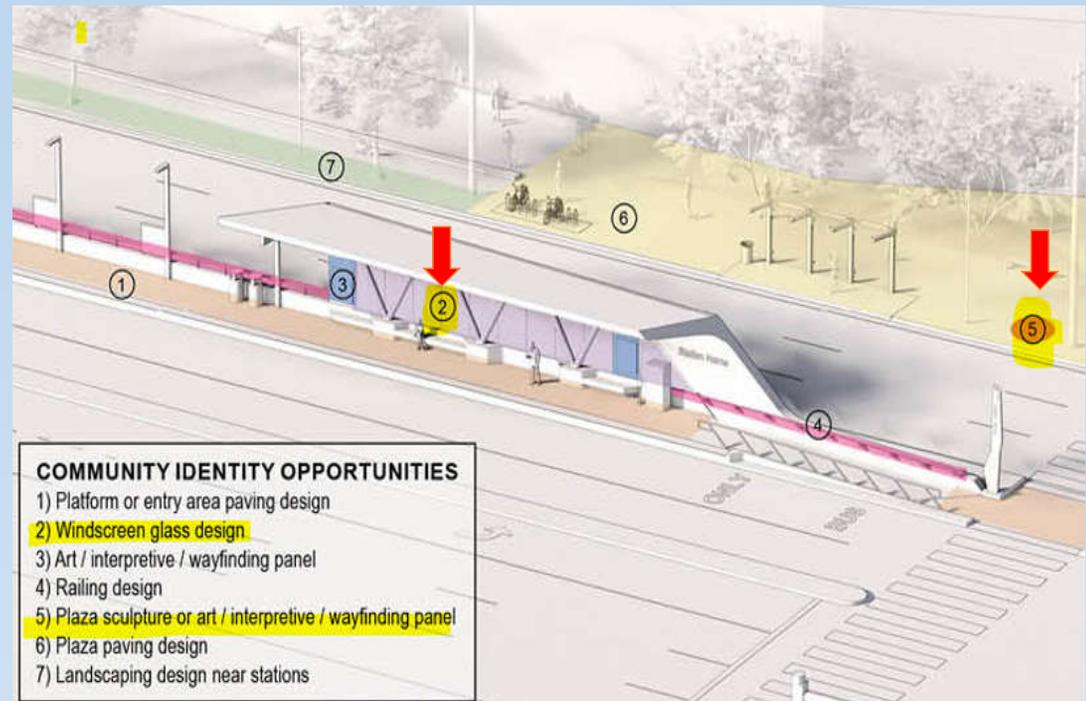


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# Recommendation for Windscreen

- Staff recommendation is to implement community ‘charm’ features in each station’s windscreen/backscreen and incorporated as part of the project
- Benefits of using windscreen for community charm
  - Maintenance
  - Part of structure (funding)
- Project team has identified space for commissioned sculptures in the plaza that can be added in the future, by interested parties





# Recommendation on Topics

Station Area	Top Chosen Theme	Breakdown of Some Topics Given
<b>Huntington Metro</b>	History and Culture	Gateway/Richmond Highway, local neighborhoods, historical figures
<b>Penn Daw</b>	History and Culture	Local businesses and motels, African and Latino cultures
<b>Beacon Hill</b>	Airport	Aviation history, vintage airplanes
<b>Lockheed</b>	Nature	Huntley Meadows park
<b>Hybla Valley</b>	History and Culture	Civil rights, local neighborhoods and businesses
<b>Gum Springs</b>	History and Culture	African-American history in Fairfax County, historical figures
<b>South County Center</b>	History and Culture	Original Mt Vernon HS, Latino community
<b>Woodlawn</b>	History and Culture	Quaker community, architecture, anti-slavery activism, historical figures
<b>Fort Belvoir</b>	Military/Army	Fort Belvoir





# Proposed Community Charm Program (Outreach)

Hold two rounds of public meetings\* with community members in a pop-up and informal environment

**Round 1:**  
Present the survey results, introduce windscreens as the design element and collect more specific input on the themes

Coordinate with DPD and the History Commission on the topic for each station. Will also collaborate with ArtsFairfax at appropriate time.

Collaborate with the art department of local high schools West Potomac, Edison, Mount Vernon and Bryant for artwork in the windscreens

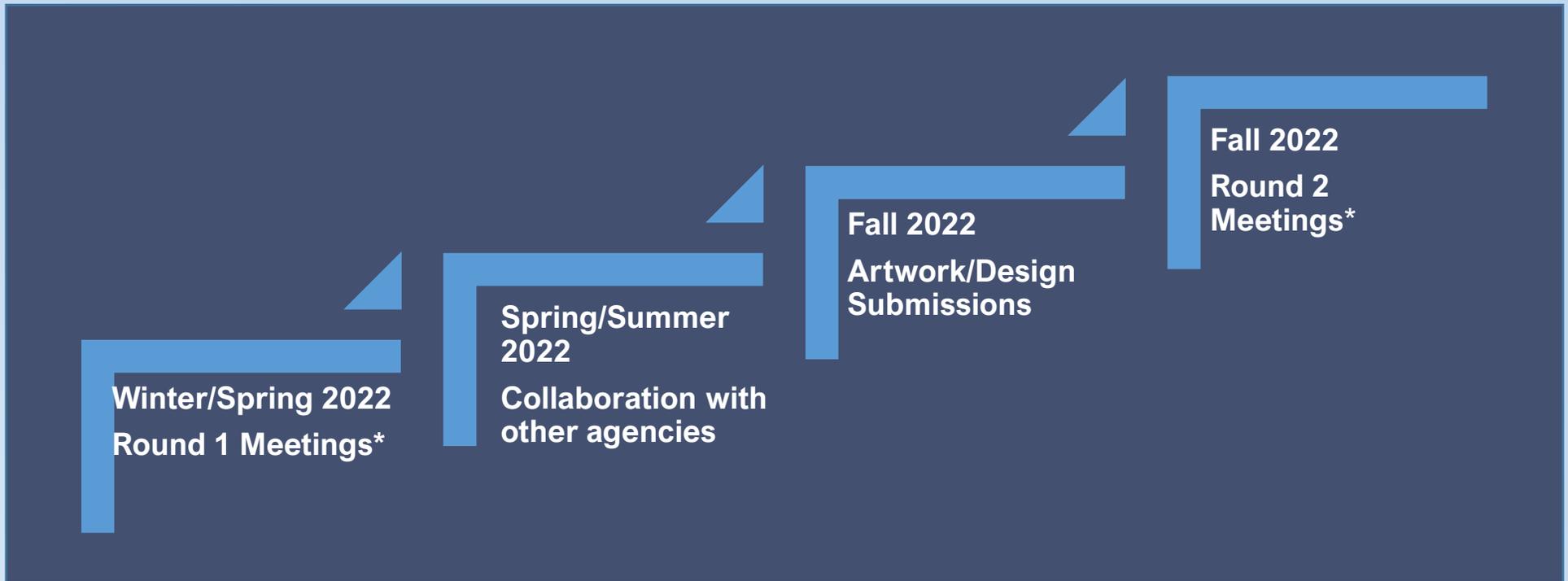
**Round 2:**  
Present one design from each high school for each of the nine stations and gather comments on which fits best with the community visioning for the stations

\*In-person depending on public health conditions and guidance





# Proposed Outreach Schedule



\*In-person depending on public health conditions and guidance





# Windscreen Design Parameters

Vertical windscreen/  
backscreen

Planar (not sculptural)

Laminated in between  
glass and transparent

Feasible per  
engineering and ADA  
design standards

Design does not take  
up entire windscreen  
to allow natural light

May be incorporated  
with other designs (i.e.  
map)

Abstract vs traditional  
artwork design





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# Windscreens Design Precedents

## ABSTRACT

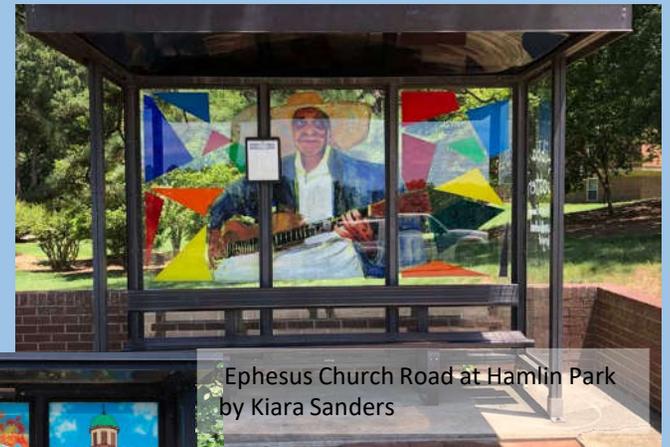


South Columbia St. at UNC Health Sciences Library by Ingrid Erickson



Harris Teeter in Meadowmont by Gabriela Amaya-Baron

## TRADITIONAL



Ephesus Church Road at Hamlin Park by Kiara Sanders



Martin Luther King Jr. Blvd & Stateside Dr. Tarish Pipkins

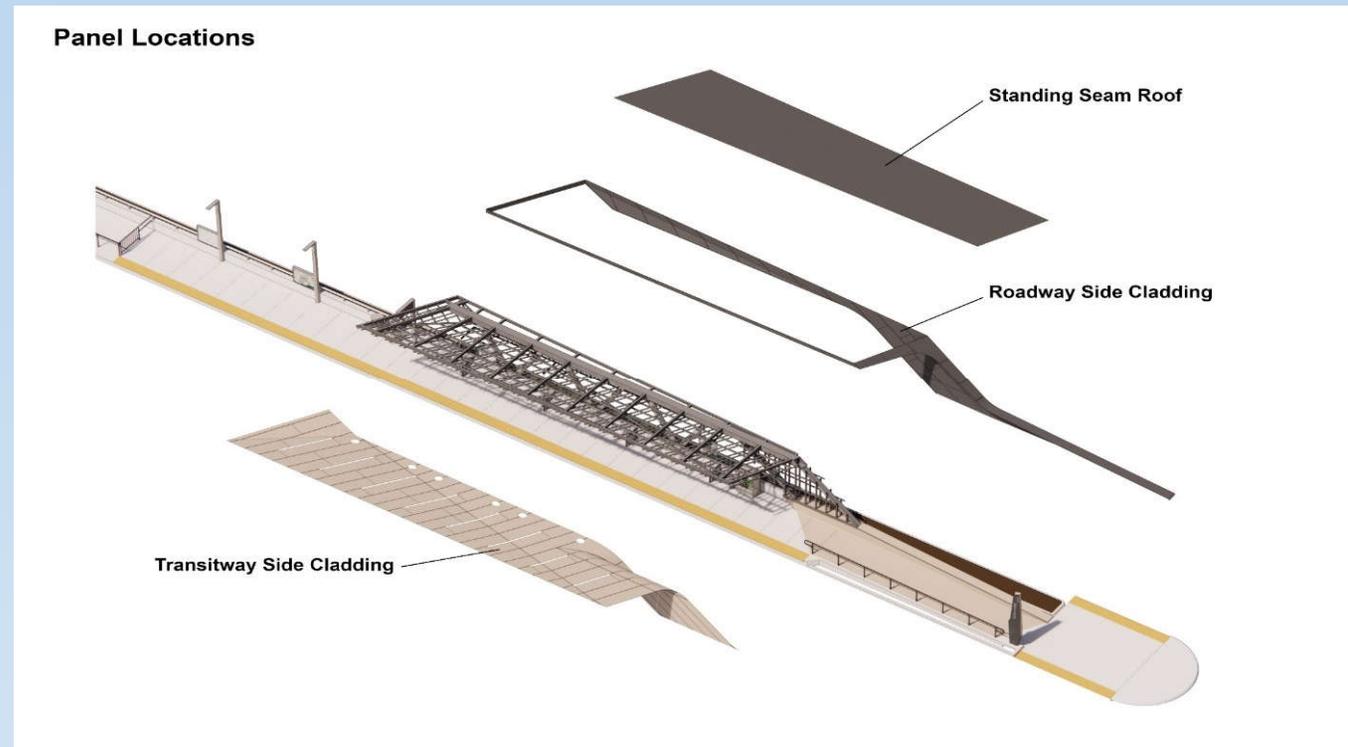






# BRT Station Cladding Materials

- Design Criteria
  - Low Maintenance
  - Durability
  - Long life-cycle
  - Appearance requirements front and rear: color and finish
  - Constructability





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# Options Evaluation

## Comparative Matrix

Material Properties		Aluminum Composite Material	High Density Fiber Cement	Glass Fiber Reinforced Concrete
<b>Description</b>		A rigid sheet made of two sheets of pre-finished aluminum, bonded to a polyethylene core.	A sheet product made of a combination of fine sand, cement, polymer, water, and cellulose fibers.	A cast product, combination of fine sand, cement, polymer, water, other admixtures and glass fibers.
<b>Finish Option</b>	<b>Solid Color</b>	Simulated Wood and Dark Grey-Blue	Warm Wood Tones and Dark Grey-Blue	Warm Wood Tones and Dark Grey-Blue
	<b>Wood Grain</b>	Simulated Wood	Texture	Texture
	<b>Metalic</b>	Navy Blue, Dark Grey	No, Flat only	No
<b>Durability</b>	<b>Scratch Resistance</b>	3/5	5/5	5/5
	<b>Anti Graffiti</b>	5/5 Coating Needed	5/5 1 intial coating only	5/5 Coating Needed
	<b>Dent Proof</b>	3.5/5	5/5	5/5
<b>Maintenance</b>		4.5/5 Annual Cleaning	4.5/5 Annual Cleaning	4/5 Coating Re-apply every 3-5 Year
<b>Warranty</b>		Std: finish - 20 yr, Panel -10 yr (can be ext'd)	10-15y (can be ext'd)	10-15y
<b>Curve Surface</b>		2D, Rolled, bent	No, Flat only	3D, Flexible
<b>Cost+Installation</b>		50-60/sf	45-55/sf Expose Fastener 75/sf concealed	70-80/sf
<b>Pros</b>		<ul style="list-style-type: none"> <li>•Multiple color and finish choice.</li> <li>•Light weight.</li> <li>•Large panel size.</li> </ul>	<ul style="list-style-type: none"> <li>•Cost is relatively low.</li> <li>•Lighter weight than GFRC.</li> <li>•High durability.</li> </ul>	<ul style="list-style-type: none"> <li>•Very High durability.</li> <li>•Less maintenance cost,</li> <li>•Flexible form.</li> </ul>
<b>Cons</b>		Finish easy to me scratched. Curve panel and joint will be less controled.	Limited to Flat Areas. Only Matt and Satin finish	Higher intial cost. Heavier weight. Only Matt finish

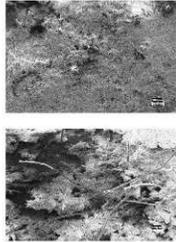


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# High Density Fiber Cement

## High Density Fiber Cement



Fiber cement is a composite material made of cement reinforced with cellulose fibers.

**FINISH:** Glossy to not glossy



**WEIGHT:** 3lbs/sf, Panel+frame - 7 bs/sf

**DURABILITY:** Good, Impact and scratch resistant (Comp-10,000 psi, Ten:1,600psi)

**MAINTENANCE:** Minimal maintenance needed

**LONGEVITY:** Color, finish and panel long term stability

**WARRANTY:** 10-15 year + Extension

**COST:** Material fabrication and Installation - \$45-\$55 (exposed), \$75 (concealed)

**PROS:** High durability / longevity  
Resistant finish and color  
Low cost  
Light weight  
No requirement for Anti-graffiti sealer

**CONS:** Flat panel only.  
Matt to satin finish only



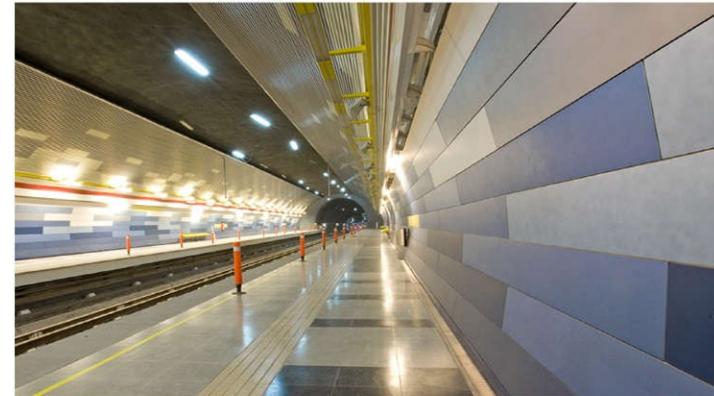
Linda Ridge  
Montalba Architects  
Pasadena, CA, USA



Lakeside Diamond House  
MOA Martin Oberascher  
Austria



Airport Extension  
Lukas Burgauer  
Bolzano, Italy



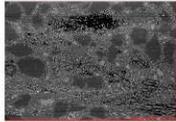
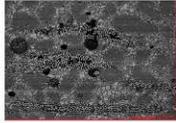
Metro Station  
Burmeister Arquitectos Consultores S.A  
Santiago, Chile



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# Glass Fiber Reinforced Concrete

## GFRC (Glass Fiber Reinforced Concrete)



GFRC is a combination of a mixture of fine sand, cement, polymer (usually an acrylic polymer), water, other admixtures and alkali-resistant (AR) glass fibers. GFRC is known for its capability to do complicated forms, and for its high strength weight ratio.

**FINISH:** Matt



**WEIGHT:** 7-8 lbs/sf, Panel+frame-9-13 lbs/sf

**DURABILITY:** Very Good, Impact and scratch resistant (Comp-10,000 psi, Ten:1,500psi)

**LONGEVITY:** Color, finish and panel long term stability

**MAINTENANCE:** For graffiti resistance- 3 to 5 year application of sealer

**WARRANTY:** 1 year + Extension

**COST:** Material \$35-45/sf, Material+Installation \$70-80/sf

**PROS:** High durability / longevity  
Can form to radius  
Resistant finish and color

**CONS:** Higher initial cost  
Higher weight  
Matt finish only



Rockville Metro Station  
WMATA  
Rockville, MD



Crossrail Station  
Atkins Architects  
London, UK.



The Johnson Controls Headquarters Asia Pacific  
Gensler  
Shanghai, China





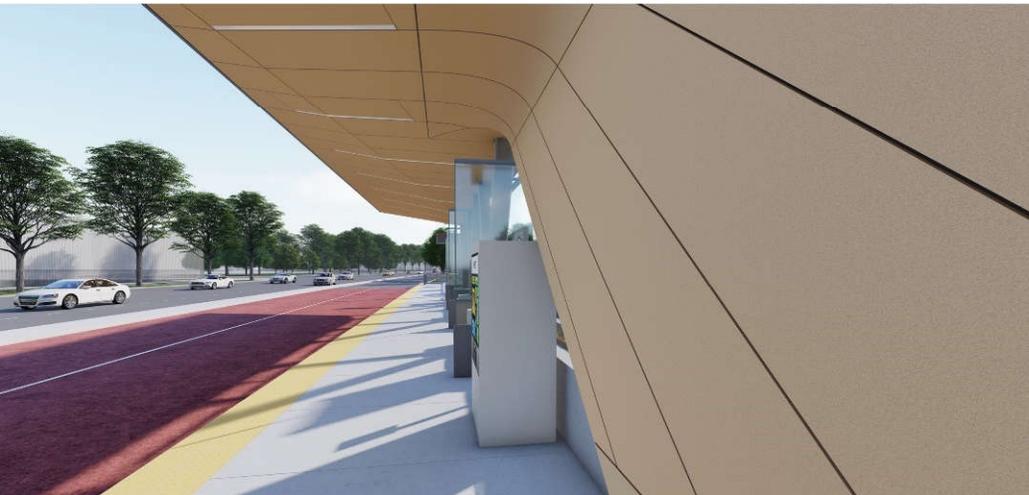
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# Station Renderings

Preferred Alternative: Fiber Cement and GFRC

Taking advantage of Fiber Cement's durability, longevity and extensive range of finishes and colors, and competitive cost, we are proposing the use of fiber cement panels for all cladding with the exception of the radius wall facing the busway. In this location, GFRC, being a cast product will provide a clean – and extremely durable surface exposed to wear, scratches, graffiti, and potential impact by users.

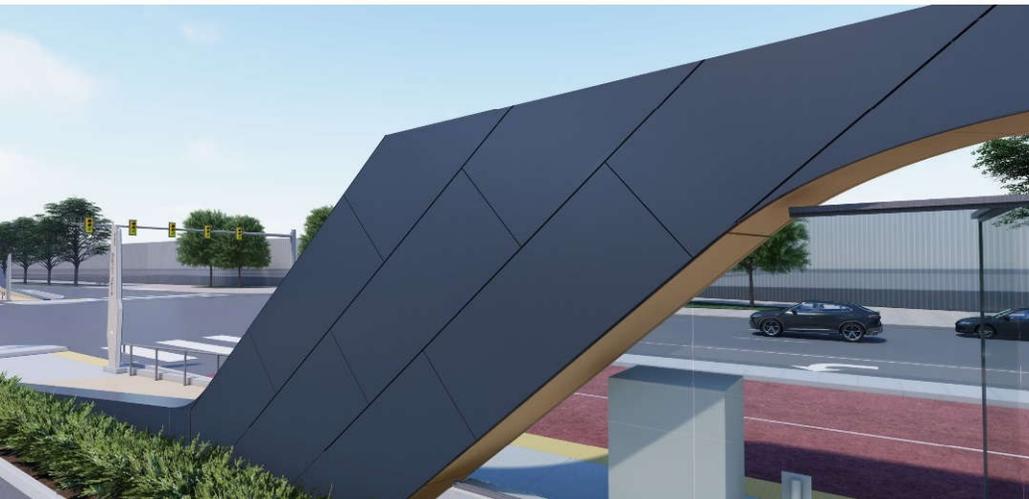




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# Station Renderings

Perspectives from Roadway





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# 12-Month Outlook

- Branding rollout (Winter 2022)
- Bus propulsion technology review (Winter 2022)
- Complete 60% roadway & station design (Spring 2022)
- Approval to Enter FTA Engineering (Fall 2022)
- Right-of-way acquisition/demolition (Ongoing)
- Third Party coordination (Ongoing)
- Utility coordination (Ongoing)

