Welcome.

Please enjoy the music. We will begin shortly.

Can you hear the music? Make sure your audio is working. If your computer doesn't have a mic or you are having trouble with the audio, you can also call in on your phone using the information in your registration confirmation or this number: 301-715-8592 Meeting ID: 825 5492 1581 Passcode: 711416

Springfield to Quantico Enhanced Public Transportation Feasibility Study



drpt.virginia.gov/transit/springfield-to-quantico/

Bienvenidos.

Start Video

Si usted solo habla español, tenemos un intérprete disponible. Utilice el chat para decirnos su nombre y el idioma que necesita.

0&A



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Springfield to Quantico Enhanced Public Transportation Feasibility Study

Public Meetings September 2021



What you can expect during this meeting

- Zoom meeting with breakout room portion
- Please remain muted during the large group portion of the meeting
- Breakout rooms will be an opportunity for you to unmute and ask questions in a smaller group setting
- Please raise your hand if you want to speak during the breakout room portion
- Breakout rooms will be active for approximately 20 minutes
- There will be a notetaker in each breakout room to capture the discussion
- You are always welcome to use the chat feature

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Participant

a1

Q&A

Chat





Record

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Charles Groups

Introductions

- DRPT:
 - Jennifer DeBruhl, Chief of Transit
 - Todd Horsley, Director of Northern Virginia Transit Programs
 - Tim Roseboom, NoVA Senior Program Manager, Major Capital Investments
 - Ciara Williams, NoVA Transit Planning Manager
- Consultant Team:
 - Diana Barreto, PRR
 - Tom Harrington, Cambridge Systematics
 - Dalia Leven, Cambridge Systematics
 - Sue Knapp, KFH Group
 - Aditya Inamdar, Kittelson & Associates



Meeting Agenda

- Introductions / Study Overview
- Transit Alternatives Evaluated
- Summary of Evaluation Results
- Sensitivity Tests
- Land Use Assessment
- Other Considerations and Next Steps
- Q&A
- Breakout Discussions
- Wrap-up



Study Outcomes

Comprehensive, objective evaluation of a range of potential future enhanced transit alternatives that compares the cost, benefits, and impacts of each option to inform recommendations about future investment in the corridor.





Study Technical Approach





Study Schedule





Transit Alternatives Evaluated



Enhanced Public Transit is Needed Because...

Existing transit does not	
serve all trips well	

Transit services may need enhancements to support **future development**

Transit can improve **equity** by connecting low-income and minority populations to opportunities Transit connections to key regional activity centers, such as Fort Belvoir and Quantico bases, are limited

Traffic congestion is severe and continuing to get worse

Access to Transit Services is reliant on park & ride or long walks to the bus



Transit Alternatives Evaluated in the Study





Potential Blue Alternative





Potential Yellow Line Alternative





Potential BRT Alternative





Potential VRE Alternative





Express Bus Alternative



Miles



Summary of Evaluation Results



How are we evaluating feasibility?

Goals for Enhanced Transit					
Ridership Potential	Congestion Mitigation	Equity			
Increase transit usage in the study corridor	Reduce the amount of traffic congestion in the study corridor	Provide a fair distribution of costs and benefits across different population groups			
Regional Accessibility/ Connectivity	Cost-effectiveness	Development Potential			
•					
Increase access to regional activity centers and meet identified service gaps	Ensure that resources are used efficiently	Create opportunities for development around stations or stops			







Increase transit usage in the study corridor

Total Transit Boardings

BRT Alternative has the highest number of transit boardings in the Study Corridor.

Total Transit Boardings in the Study Corridor



A 'boarding' is counted every time someone gets on a new transit vehicle

Includes only rail stations in the Study Corridor (Note: VRE alternative does not include new stations.)



Projected BRT Daily Boardings



· DRPT·

Projected Blue Line Daily Boardings



· DRPT·

Projected Yellow Line Daily Boardings







New Transit Trips

The Yellow Line Alternative creates the most new transit trips to and from the Study Corridor compared with the No-Build.

New Transit Trips in the Study Corridor



Unlike boardings, transit trips are only counted once end to end, regardless of how many routes are used.



Summary of Evaluation Results

	Additional Express Bus	BRT Extension	Additional VRE Service*	Metrorail Blue	Metrorail Yellow
Ridership Potential	**	***	**	***	***
Congestion Mitigation	*	**	*	***	***
Regional Accessibility	**	***	**	***	***
Equity	*	$\star\star$	$\star\star$	$\star\star\star$	$\star\star\star$
Cost- Effectiveness	***	**	*	*	*

* Additional Service Above Transforming Rail in Virginia Improvements Included in Baseline



Sensitivity Tests

- Can we make the alternatives more cost efficient by shortening the alignment?
- Uncertainty in long-range planning What might happen to ridership forecasts if people keep teleworking?
- How would significant changes in land use change ridership forecasts?



Shorter Alignments

- Tested shorter versions of the Blue Line, Yellow Line, and BRT alternatives
- Remember: Initial model results showed very low ridership for BRT and Metrorail stations south of Potomac Town Center and low cost-efficiency





Shorter Alignments

Can we make the alternatives more cost efficient by shortening the alignment?

Key Sensitivity Results

Change as compared to Full Alignments

	BRT	Metrorail Blue	Metrorail Yellow
Total Corridor Transit Boardings	-4%		
New Transit Trips in Study Corridor	-32%	-10%	-6%
Cost per Rider	+2%	-16%	-18%

Metrorail ridership is forecast to be less impacted by a shortened alignment than BRT. The shorter alignment results in improved cost-effectiveness for the two Metrorail alternatives.



Telework Sensitivity Tests

Uncertainty in long-range planning - What might happen to ridership forecasts if people keep teleworking?

Base telework conditions – (MWCOG SOC Survey 2019)

- In 2019, 35% of regional workers teleworked regularly or occasionally vs 19% in 2007
- 33% of Fairfax/Prince William workers teleworked 1.1 days/week, a similar frequency to other regional workers

Telework increased substantially during the pandemic – estimated that 60-65% of regional workers worked at home





Telework Sensitivity Tests

Uncertainty in long-range planning - What might happen to ridership forecasts if people keep teleworking?

Key Sensitivity Results

Change as compared to Initial Results

	Future Telework Assumption	BRT Alternative Ridership Impact	Metrorail Alternatives Ridership Impact
Low Telework	45% telework an average 1.1 davs/wk	-8%	-12%
High Telework	55% telework an average 1.5 days/wk	-17%	-26%

As shown above, Metrorail would be impacted more significantly by changing telework because of the higher percentage of office-based work trips, as compared with BRT.



Land Use Assessment

How would significant changes in land use change ridership forecasts?

- All of our initial model results used MWCOG Cooperative Land Use Forecasts for 2045.
- This sensitivity analysis looked at two different land use scenarios that added transit-oriented development (TOD) by increasing densities around the station areas:
 - Metrorail-focused TOD
 - BRT-focused TOD



Land Use Impacts on Ridership

How would significant changes in land use change ridership forecasts?

Key Sensitivity Results

Change as compared to Initial Results

	Residents Added to Station Areas	Jobs Added to Station Areas	Ridership Increase
Blue Line Alternative	162,000 (+96%)	59,000 (70%)	+66%
Yellow Line Alternative	118,000 (+76%)	56,000 (+102%)	+32%
BRT Alternative	134,000 (+80%)	45,000 (+53%)	+29%



Transit-Supportive Land Use



Activity Centers





Station Areas Considered for Additional Density

Potential Metro Stations



35



Transit Oriented Development (TOD)



TOD at Different Scales & Context Along a Transit Corridor



Access & Connectivity



Community Identity & Placemaking





Case Study of Transit Readiness: Dunn Loring-Merrifield + Mosaic District



Source: Northern Virginia Magazine

Key Takeaways:

- Transformed multiplex theatre to compact, walkable, mixed-use development.
- Plan to covert auto-oriented arterial corridors to multi-modal corridors.
- Reduced impervious surface and added green
 infrastructure.
- Implemented TIF to finance new infrastructure through public-private partnerships.





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- Location: Merrifield, Fairfax County, VA
- Transit Stop: Dunn Loring-Merrifield
 (Orange)
- Redevelopment Area: 31 acres
- Previous Use: Industrial, Parking, Movie
 Theatre
- Distance to Downtown DC: 10 miles

Key street connections and mixed-use redevelopment support walkable community investment



Source: Google Earth





Source: Google Earth

Other Considerations & Next Steps



Other Considerations for Metrorail Extensions

- Metrorail extension would be a significant addition to the Metro system
- Core capacity needs must be addressed first
- Legal / governance implications of adding Prince William County to the WMATA compact jurisdictions
- Annual capital and operating budget subsidy contributions for Prince William County (and an increase for Fairfax County)



L'Enfant Plaza to Triangle Track Length = 46 Miles (Blue) Track Length = 37 Miles (Yellow)



Corridor Feasibility Study is the 1st Step in Multi-Step Project Development Process*

Feasibility Study Additional Detailed Analysis & Refinement of Alternatives

Project Development Environmental Review (NEPA) Process Selection of Locally Preferred Alternative

Adoption in the Regional Constrained Long-Range Plan

FTA Evaluation, Rating, and Approval

Complete Sufficient Engineering & Design Local Agreement on Funding Approach / Financial Plan Implement Governance/Operating Structure Begin Implementing Land Use Changes (Zoning & Incentives)

FTA Evaluation, Rating, and Approval

Federal Full Funding Grant Agreement & Construction



* For projects seeking federal New Starts capital funding



Type your clarification questions into the chat box.





Breakout Rooms

Breakout rooms are scheduled for 20 minutes.

After the breakout rooms, breakout room leads will report discussion highlights back to the full group in the public meeting.



Welcome to the breakout room!

- Please raise your hand if you want to speak
- Please remain muted if you have not been called on to ask a question
- Breakout rooms will be active for approximately 20 minutes
- There is a notetaker in each breakout room to capture the discussion
- You are always welcome to use the chat feature to ask questions







Wrap-Up

- Draft report will be completed in October
- Final report submitted to General Assembly by December 1, 2021



Thank you for your participation!

Springfield to Quantico Enhanced Public Transportation Feasibility Study

Project Information:

http://www.drpt.virginia.gov/transit/springfield-to-quantico/



Extra Slides – for backup only







Congestion in the Study Corridor

Includes "severe congestion" and "congestion" – so lower is better



Regional Accessibility/ Connectivity

Increase access to regional

activity centers and meet

identified service gaps

Walk Access to Transit

By 2045, the Yellow Line and BRT Alternatives will provide high quality transit to the most residents. The Blue Line Alternative will have the most jobs within a half-mile of transit Jobs and Population near Transit



Within a half-mile of transit stops with new/improved service

Includes only rail stations in the Study Corridor. (Note: BRT alternative only includes the extension south of Ft. Belvoir.)

DRAFT RESULTS – SUBJECT TO CHANGE

Regional Accessibility/ Connectivity

Increase access to regional activity centers and meet

identified service gaps

Percent of new

jobs accessible to residents of

Corridor within

compared to the

the Study

60 mins by

transit as

No-Build.

Access to Jobs

The Yellow Line Metrorail Alternative provides the biggest increase in accessibility to jobs by transit for Study Corridor residents.

New Jobs Accessible within 60 mins by Transit (Peak)





Equity

Equity Emphasis Areas

Provide a fair distribution of costs and benefits across different population groups

Developed by MWCOG/TPB based on concentrations of:

- Low-income residents .
- Minority residents .





Provide a fair distribution of costs and benefits across different population

groups

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Equity Transit Trips

- Across all Alternatives, new transit trips from EEAs grow more than from the overall Study Corridor.
- The Yellow Line Alternative includes the most new transit trips made by EEA residents

New EEA Transit Trips from the Study Corridor



New transit trips from EEAs in the Study Corridor as compared to the No-Build.





Provide a fair distribution of costs and benefits across different population groups •

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Job Accessibility for EEAs

- Across all Alternatives, job accessibility for EEAs grow more than for the overall Study Corridor.
- The Yellow Line Alternative shows the biggest increase in accessibility for EEA residents

New Jobs Accessibilbe withing 60 mins by Transit (Peak)









Provide a fair distribution of costs and benefits across different population groups

EEA Residents at Transit Stations

Residents near the BRT Alternatives are more than 45% residents of EEAs and most likely to be low-income and/or minority.

Portion of Residents near Transit that live in EEAs

EEA percentage of the people who live within halfmile of transit



Cost-effectiveness



Ensure that resources are used efficiently

Total Cost per Transit Boarding

The Bus Alternatives are significantly more cost effective than the rail alternatives.

Total Cost per Transit Boarding

Estimated cost per transit boarding in the Study Corridor – lower is better. Note that the VRE ridership gains due to Transforming Rail in Virginia are in the No Build and are not reflected here.



Summary of Evaluation Results

		Additional				Metrorail
		Express Bus	BRT	Additional	Metrorail Blue	Yellow
Goal	Measure	Service	Extension	VRE Service*	Extension	Extension
	Total Transit Boardings	71,000	80,600	69,900	77,900	76,900
Ridership	New Transit Boardings	1,100	10,700	-	8,000	7,000
Potential	New Transit Trips	953	4,696	256	10,592	15,034
	Change in Transit PMT	50,674	103,952	19,831	408,917	462,541
Congestion						
Mitigation	Change in Congested VMT	(25,617)	(45,094)	(18,607)	(131,780)	(180,391)
	Walk Access to Population	31,796	62,038	18,014	37,288	72,486
Regional	Walk Access to Jobs	20,431	37,555	12,051	41,827	34,285
Accessibility	Change in Regional Job Accessi	0.0%	1.2%	0.4%	6.8%	7.2%
	Change in Access to Job Center	0.5%	5.4%	0.4%	12.0%	20.6%
Fauity	New EEA Transit Trips	520	2,599	153	4,346	9,122
Equity	Change in EEA Job Accessibility	0.0%	2.2%	1.0%	7.1%	9.9%
Cost-	Cost per Rider	\$ 4.58	\$ 40.19	\$ 342.87	\$ 159.50	\$ 103.69
Effectivness	Cost per Transit PMT	\$ 0.13	\$ 1.89	\$ 7.09	\$ 5.24	\$ 4.74

* Additional Service Above Transforming Rail in Virginia Improvements Included in Baseline



Land Use Intensity Thresholds

Inputs for Urban Footprint Scenario Modelling

Place Type & Transect Zone Description	Net floor area ratio (FAR)	Gross residential density (du/ac)	Gross population density (pop/ac)	Gross employment density (emp/ac)	Gross Activity Density (pop+emp per ac)	Gross parking density (spcs/1000 sq ft)
T-1						
Very low intensity	0.02	0.10	0.22	0.40	0.62	2.24
T-2						
Low intensity	0.12	1.18	2.14	1.67	3.81	1.97
T-3						
Moderate intensity	0.28	4.69	8.11	4.64	12.75	1.7
T-3.5						
Moderate intensity	0.59	12.20	21.01	8.23	29.24	2.07
T-4						
Moderate intensity	0.91	17.96	30.92	12.47	43.39	1.67
T-4.5						
Moderate-to-high						
intensity	1.36	32.03	54.55	22.52	77.07	1.78
T-5						
High intensity	1.75	42.79	72.88	29.52	102.40	1.66
T-5.5						
High intensity	2.21	54.43	92.69	37.04	129.73	1.52
T-6						
High intensity	3.15	76.59	129.84	59.98	189.82	1.27

Place type T-4.5 (or higher) achieves the Metro guideline of > 50 activity density.



WMATA Ridership Thresholds: Suburban Metrorail

Cuitoria	Nachrie	Thresholds			
Cinteria	Metric	Low	Medium	High	
	Population Density (People per Acre)	< 31.7	31.7 – 47.5	> 47.5	
Density	Employment Density (Jobs per Acre)	< 19	19 – 26	> 26	
	Activity Density (People + Jobs)	< 50.7	50.7 – 73.5	> 73.5	
Ridership	Ridership per Mile	< 3,500	3,500 – 7,000	> 7,000	

Source: Transit Corridor Expansion Guidelines (2015)

Ridership per Mile = Total Number of Daily Entries/Number of Miles of Extension

Existing (and Planned) Density at Potential Stations in Study Area

No.	Station	Location	Population Density (1 Mile Radius) (People/Acre)	Employment Density (1 Mile Radius) (People/Acre)	Activity Density (1 Mile Radius) (People + Jobs/Acre)	Place Type
1	Beacon Hill Road**	Fairfax County, VA	10.6	1.8	12.4	P4
2	Hybla Valley**	Fairfax County, VA	12.4	2.1	14.5	P4
3	Fort Belvoir	Fairfax County, VA	2.4	0.7	3.1	P-MB
4	Fort Belvoir North	Fairfax County, VA	4.0	2.4	6.4	P-MB
5	Newington	Fairfax County, VA	3.9	5.7	9.6	P4
6	Lorton**	Fairfax County, VA	6.8	1.5	8.3	Р3
7	North Woodbridge**	Prince William County, VA	6.0	1.3	7.3 (26.7 – 40.0)**	P4
8	The Landing at Prince William**	Prince William County, VA	7.1	2.5	9.6 (11.0 – 23.0)**	P4
9	Potomac Mills	Prince William County, VA	4.4	5.9	10.3	P4
10	Potomac Town Center	Prince William County, VA	6.8	4.0	10.8	Р3
11	Southbridge	Prince William County, VA	4.2	0.9	5.1	Р3
12	Triangle**	Prince William County, VA	2.6	0.5	3.1 (6.7 – 18.0)**	Р3

** Higher Density proposed in Small Area Plans



Land Use Assumptions - BRT Scenario





Multimodal Centers and TOD



TOD Node Walksheds

Multimodal District and Multimodal Centers



Multimodal Centers & Multimodal Corridors Source: DRPT Multimodal System Design Guidelines



Density Assumptions and Place Type

For each station area, identified current and planned (MWCOG Forecasts) place types based on activity density



MULTIMODAL CENTER INTENSITY							
Center Type	Activity Density (Jobs + people/acre)	Gross Development FAR (residential + non-residential)	Net Development FAR (residential + non-residential)				
P-6 Urban Core	70.0 or more	1.0 or more	1.6 or more				
P-5 Urban Center	33.75 to 70.0	0.5 to 1.0	0.8 to 1.6				
P-4 Large Town or Suburban Center	13.75 to 33.75	0.21 to 0.5	0.3 to 0.8				
P-3 Medium Town or Suburban Center	6.63 to 13.75	0.10 to 0.21	0.15 to 0.3				
P-2 Small Town or Suburban Center	2.13 to 6.63	0.03 to 0.10	0.05 to 0.15				
P-1 Rural or Village Center	2.13 or less	0.03 or less	0.05 or less				
SP Special Purpose Center	Varies	Varies	Varies				



Source: DRPT Multimodal System Design Guidelines (2020)

Land Use Assumptions - Metrorail Scenario



To develop the land use scenarios, more intense place types were assumed within 1 mile of station areas.

llage		Me	Metro Scenario Place Types			
Kopp Andenial the Woods Belfair Crossroads		No. Station Name	Place Type			
			Quarter Mile	Quarter to Half Mile	Half to One Mile	
airipoi neights	Cherr 1	Newington	T-4.5	T-4	T-4	
Joplin	2	Lorton	T-5	T-4	T-3	
Graham Park Shores	3	North Woodbridge	T-5	T-4.5	T-4	
	4	The Landing at Prince William	T-4	T-4	T-4	
Cardinal Heights	5	Potomac Mills	T-5	T-4	T-4	
CAMBRIDGE Lyman Park SYSTEMATICS	6	Potomac Town Center	T-5	T-4	T-4	
	7	Southbridge	T-4	T-3.5	T-3	
	8	Triangle	T-4	T-3	T-3	



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Metrorail Scenario by Station

Station Name	Increase in Population	% Population Increase	Increase in Jobs	% Jobs Increase	Activity Density (pop+emp / acres)
Newington	43,900	346%	2,600	9%	14.3
Lorton	11,600	63%	2,900	48%	20.6
North Woodbridge	18,900	67%	12,400	218%	27
The Landing at Prince William	25,500	97%	11,800	118%	28.6
Potomac Mills	22,500	146%	6,700	45%	28
Potomac Town Center	29,100	105%	12,700	120%	25.7
Southbridge	8,000	28%	5,600	88%	12.2
Triangle	2,200	19%	3,700	285%	8.8
Yellow Total	117,800	76%	55,800	102%	
Blue Total	161,700	96%	58,400	70%	

