Greater RVA Transit Vision Plan:
Near-Term Strategic Technical Analysis

Implementation Feasibility Evaluation

Steering Committee Meeting #3

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Agenda

- Study Purpose and Methodology Overview
- Initial Screening and Detailed Analysis Recap
- Service Plan and O&M Cost Assumptions
- Capital Cost Assumptions
- Discussion of Corridor Benefits with Service Plan, O&M Cost, and Capital Cost Options
- Corridor Service Plan, O&M Costs, and Capital Costs Options
- Implementation Steps to Consider
- Next Steps

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Study Purpose & Methodology Overview

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Study Purpose

- Build upon the Greater RVA Transit Vision Plan (2017) and recent transit improvements in the Richmond Region

- Identify recommendations for high-frequency routes that can be implemented in the near-term to advance toward the long-term vision

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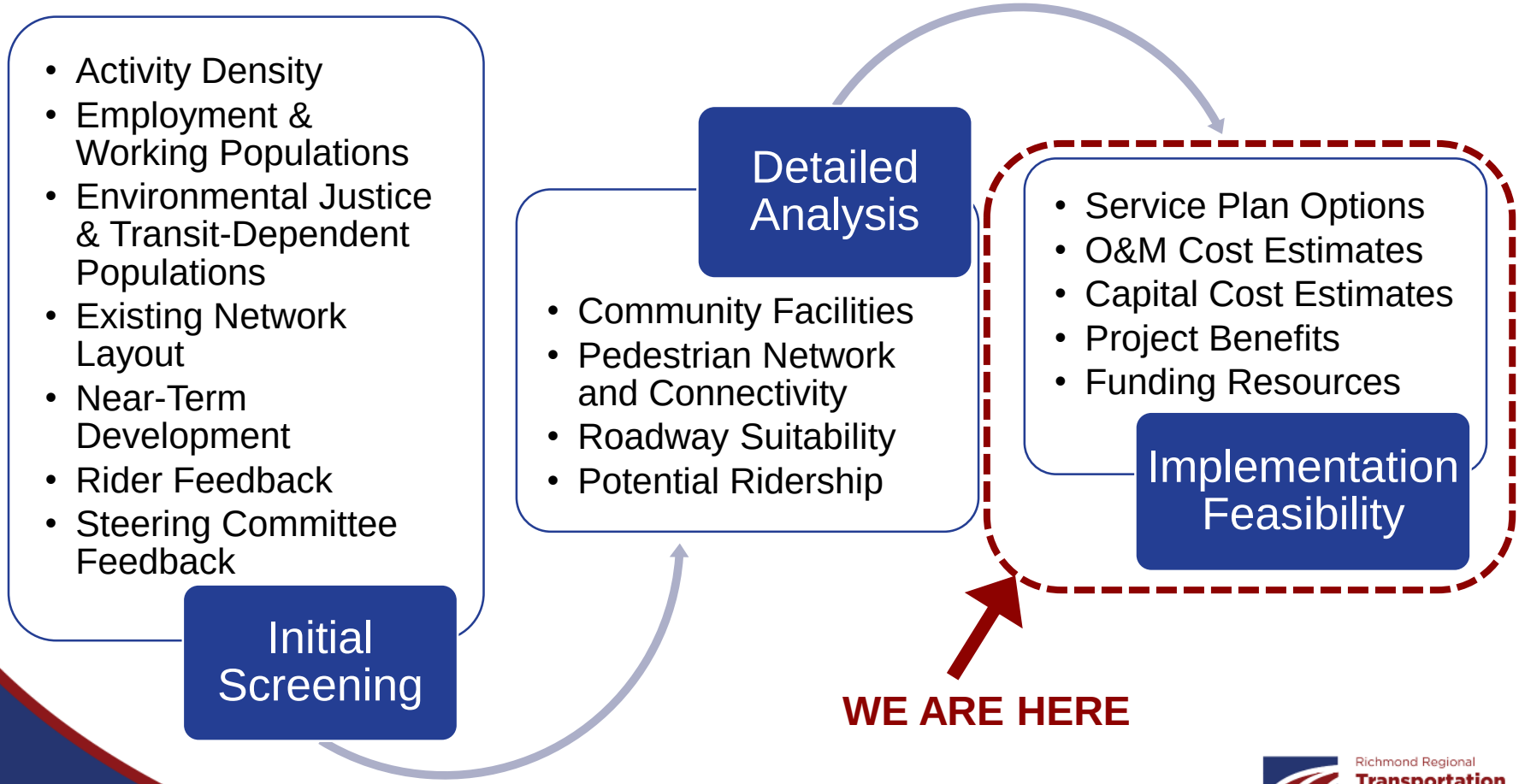
Analysis Methodology



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Initial Screening and Detailed Analysis Recap

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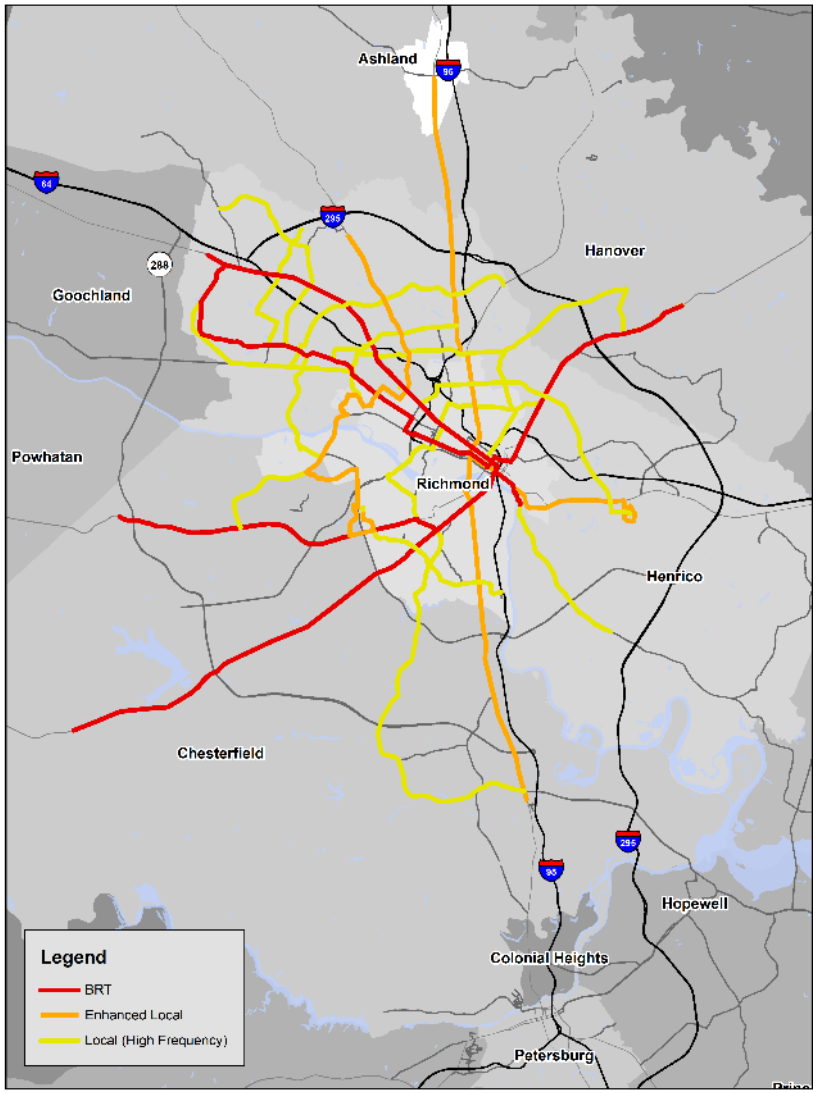
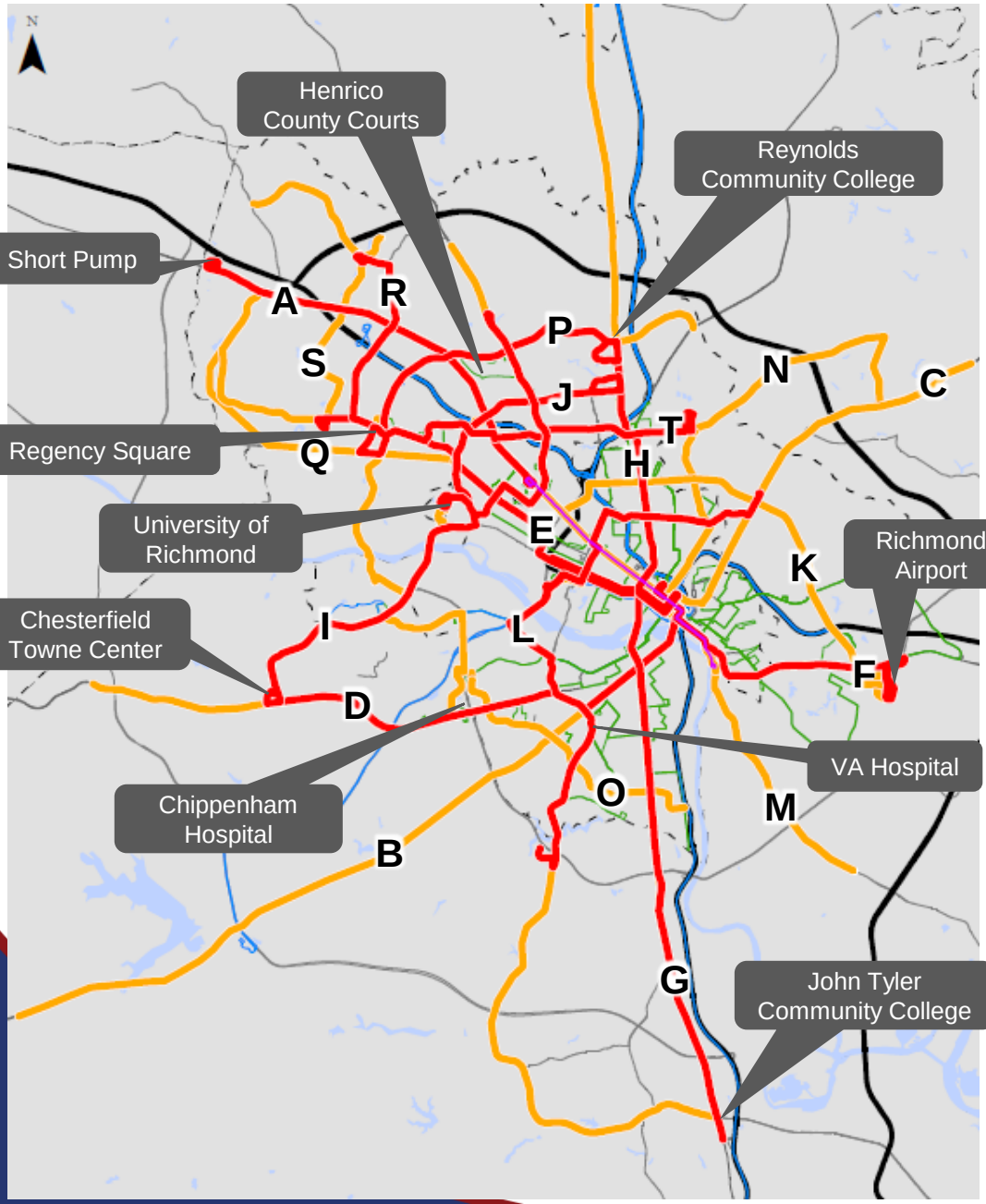
Initial Screening Analysis

- Evaluated 20 high-frequency routes identified in Greater RVA Transit Vision Plan
- Purpose was to determine viability of high frequency service for near-term implementation
- Evaluation considered:
  - Activity density
  - Employment and working populations
  - Environmental justice and transit-dependent populations
  - Existing GRTC network layout
  - Potential near-term transit supportive development
  - Steering committee feedback



Corridors Selected for Detailed Analysis



Legend

- Detailed Analysis Corridors
- Initial Screening Corridors

Existing GRTC Service

- Local
- Express
- Pulse BRT

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Detailed Analysis

- Further evaluation of corridors identified in the initial screening phase
- Detailed analysis evaluated:
  - Access to community facilities
  - Walkability
  - Pedestrian network and connectivity
  - Roadway suitability
  - Ridership potential

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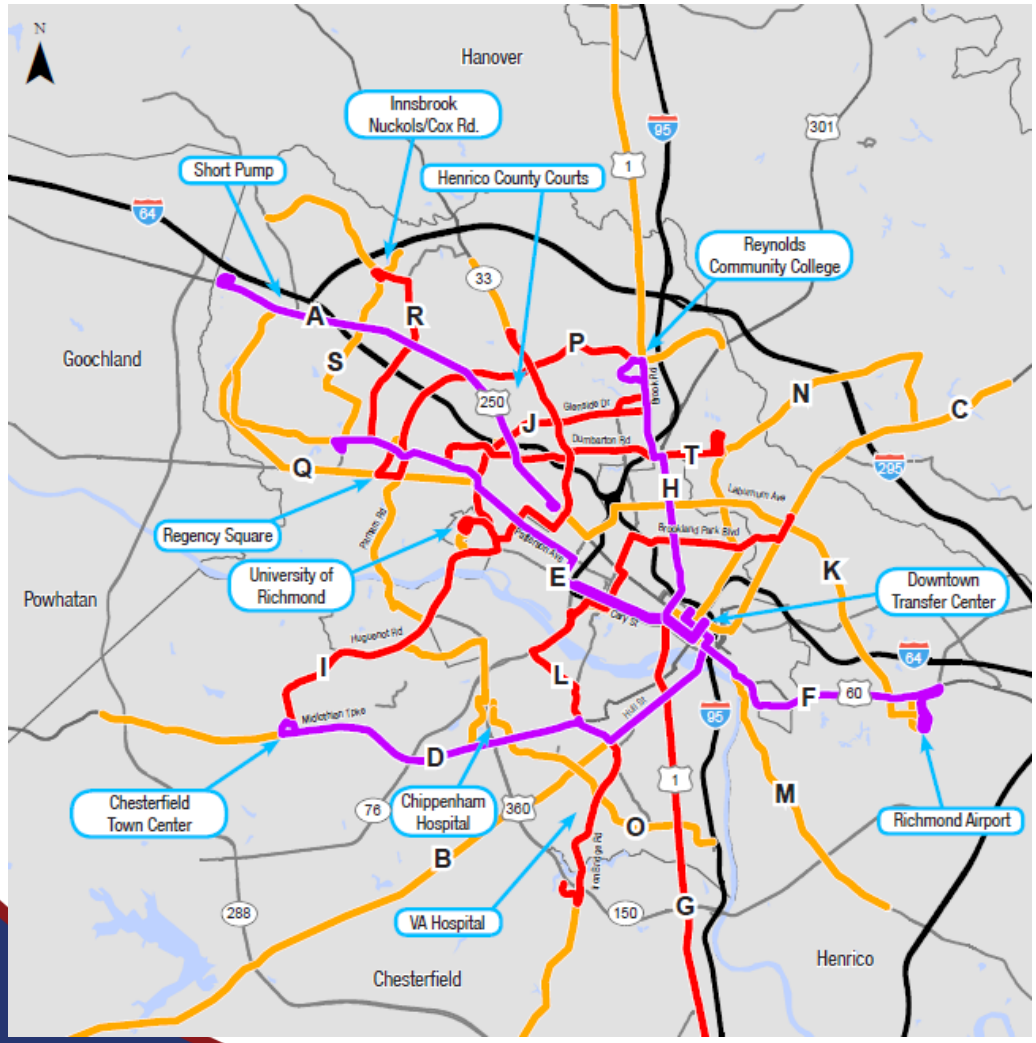
Corridors Selected for Implementation Feasibility



Legend

- Corridors Selected for Implementation Feasibility
- Detailed Analysis Corridors
- Initial Screening Corridors

A. Broad Street – Short Pump
(Willow Lawn to Bon Secours Short Pump)

D. Midlothian Turnpike
(Downtown Richmond to Huguenot Road)

E. West End South
(Downtown Richmond to Regency Square)

F. Airport via Route 60
(Downtown Richmond to Richmond Airport)

H. Route 1 to Ashland
(Downtown Richmond to Parham Road)

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Service Plan and O&M Cost Assumptions

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Corridor Service Plan and O&M Cost Assumptions

- Two scenarios defined for each corridor:
  - **"Option 1"** that typically assumes 15-minute service on the inner portion of the alignment and 30-minute service on the outer portion of the alignment (exceptions with Corridors A and F)
  - **"Option 2"** that assumes 15-minute service (peak and midday) on the entire alignment
- Seven day a week service with late evening service assumed for all corridors
- Modifications to existing GRTC routes to accommodate proposed corridor routes into the current network and to isolate operating needs specific to the recommended corridors alone
- Modifications to existing GRTC routes do not represent ultimate recommended service changes, which would need to be addressed prior to implementation of corridor service improvements
- Annual O&M costs estimated with a rate of $7.627 per total bus-mile (rate provided by GRTC)

Example - Corridor H: Route 1 North

Existing

Route 1A

- Chamberlayne/Wilmer – Spring Rock Green
- 30-minute daytime service, hourly service in evenings
- Hourly Sunday service

Route 1B

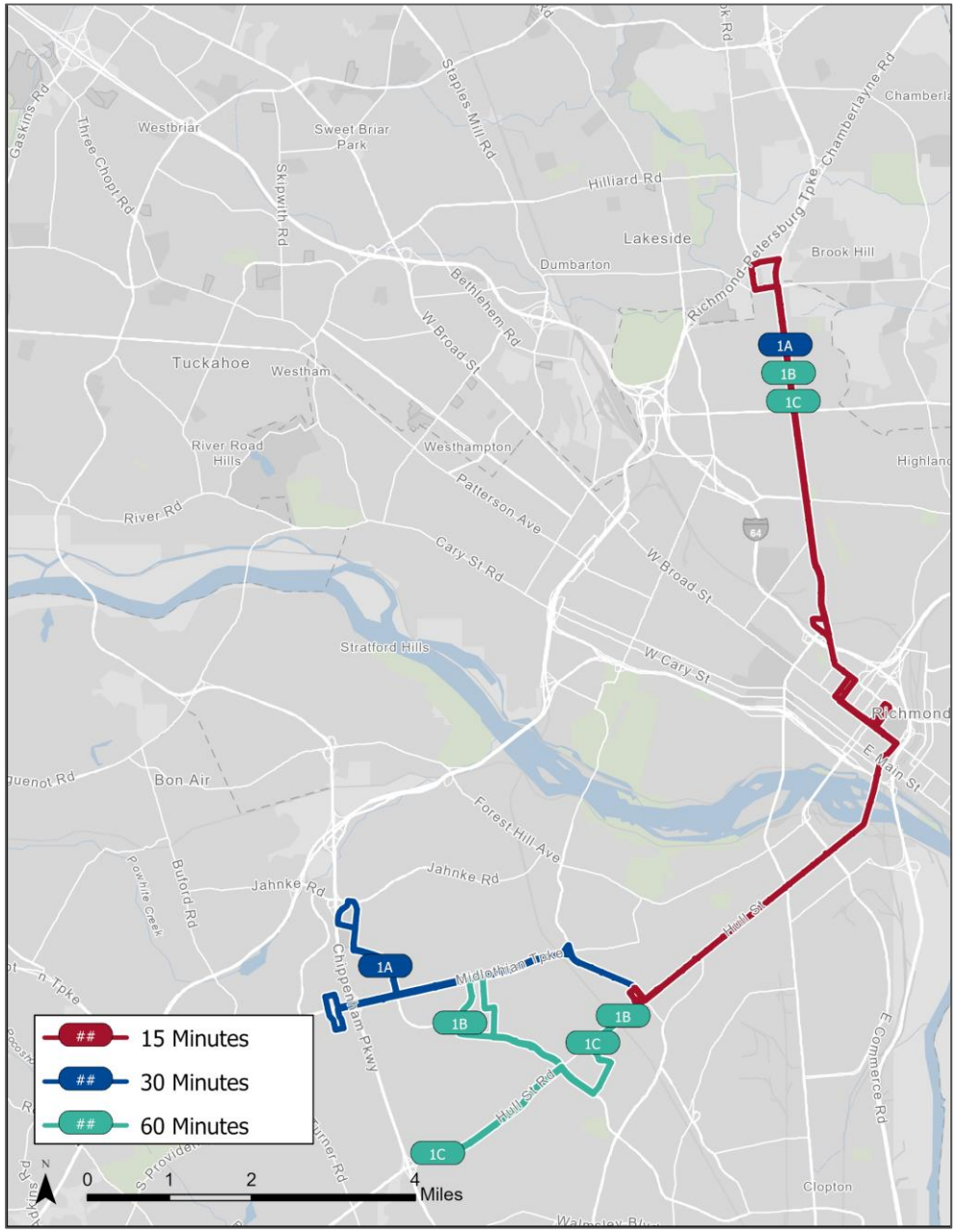
- Chamberlayne/Wilmer – Warwick
- Hourly daytime service during weekdays and Saturdays
- No evening/Sunday service

Route 1C

- Chamberlayne/Wilmer - Chippenham Mall
- Hourly service, seven days a week

Trunk (north of Southside Plaza)

- 15-minute daytime service from Southside Plaza to Chamberlayne/Wilmer
- 30-minute evening and Sunday service



Example - Corridor H: Route 1 North

Option 1

Corridor H Route

- 15-minute service daytime and evening between Downtown – Chamberlayne/Wilmer during weekdays and Saturdays
- 30-minute service daytime and evening between Chamberlayne/Wilmer– Parham during weekdays and Saturdays (every other bus) and on Sunday
- 30-minute frequencies for full corridor during Sunday service

Route 1A

- Downtown – Spring Rock Green
- 30-minute daytime service, hourly service in evenings
- Hourly Sunday service

Route 1B

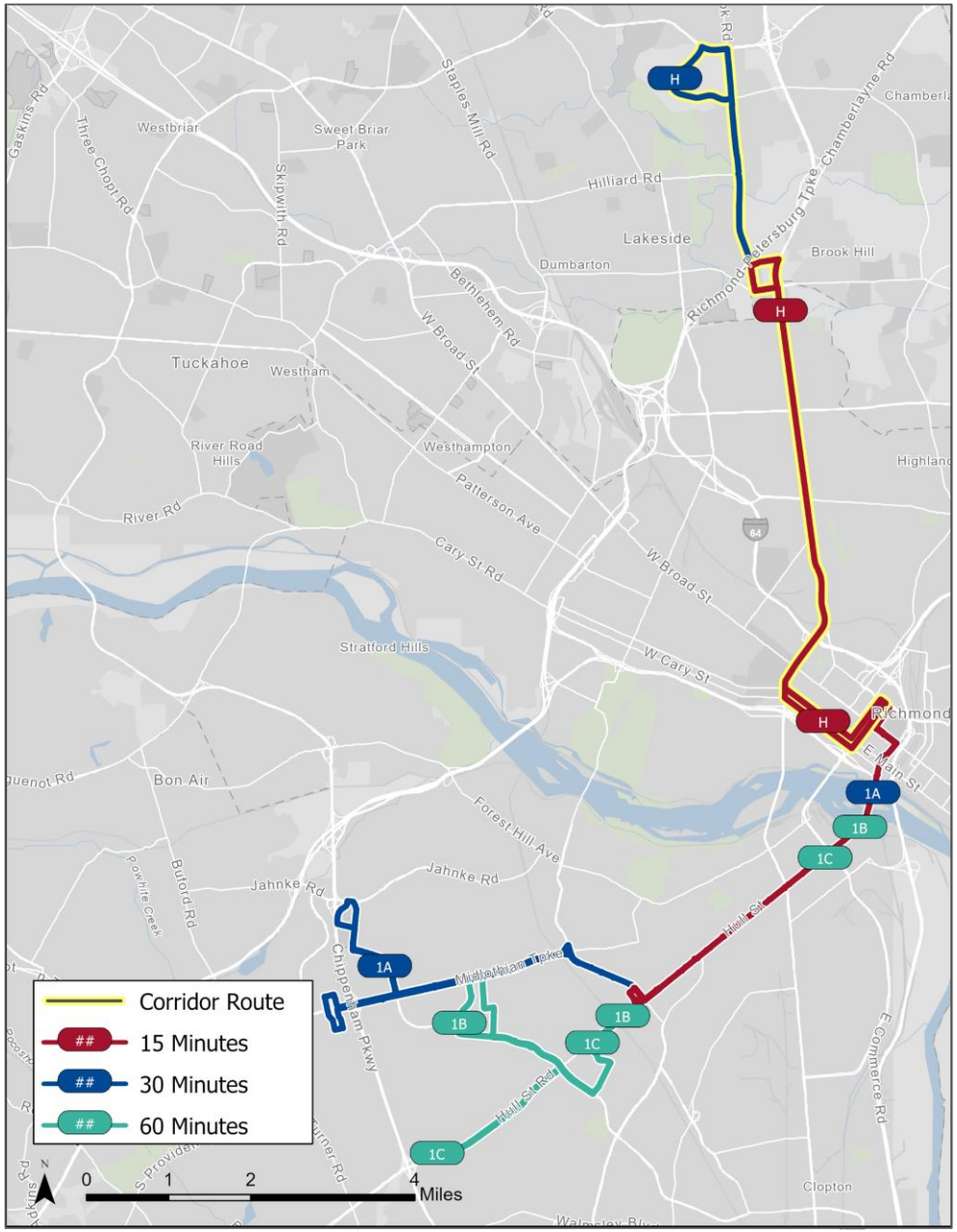
- Downtown – Warwick
- Hourly daytime service during weekdays and Saturdays
- No evening/Sunday service

Route 1C

- Downtown – Chippenham Mall
- Hourly service, seven days a week

Trunk (north of Southside Plaza)

- 15-minute daytime service from Southside Plaza to Downtown
- 30-minute evening and Sunday service



Example - Corridor H: Route 1 North

Option 2

Corridor H Route

- 15-minute service daytime and evening during weekdays and Saturdays
- 30-minute frequencies during Sunday service

Route 1A

- Downtown – Spring Rock Green
- 30-minute daytime service, hourly service in evenings
- Hourly Sunday service

Route 1B

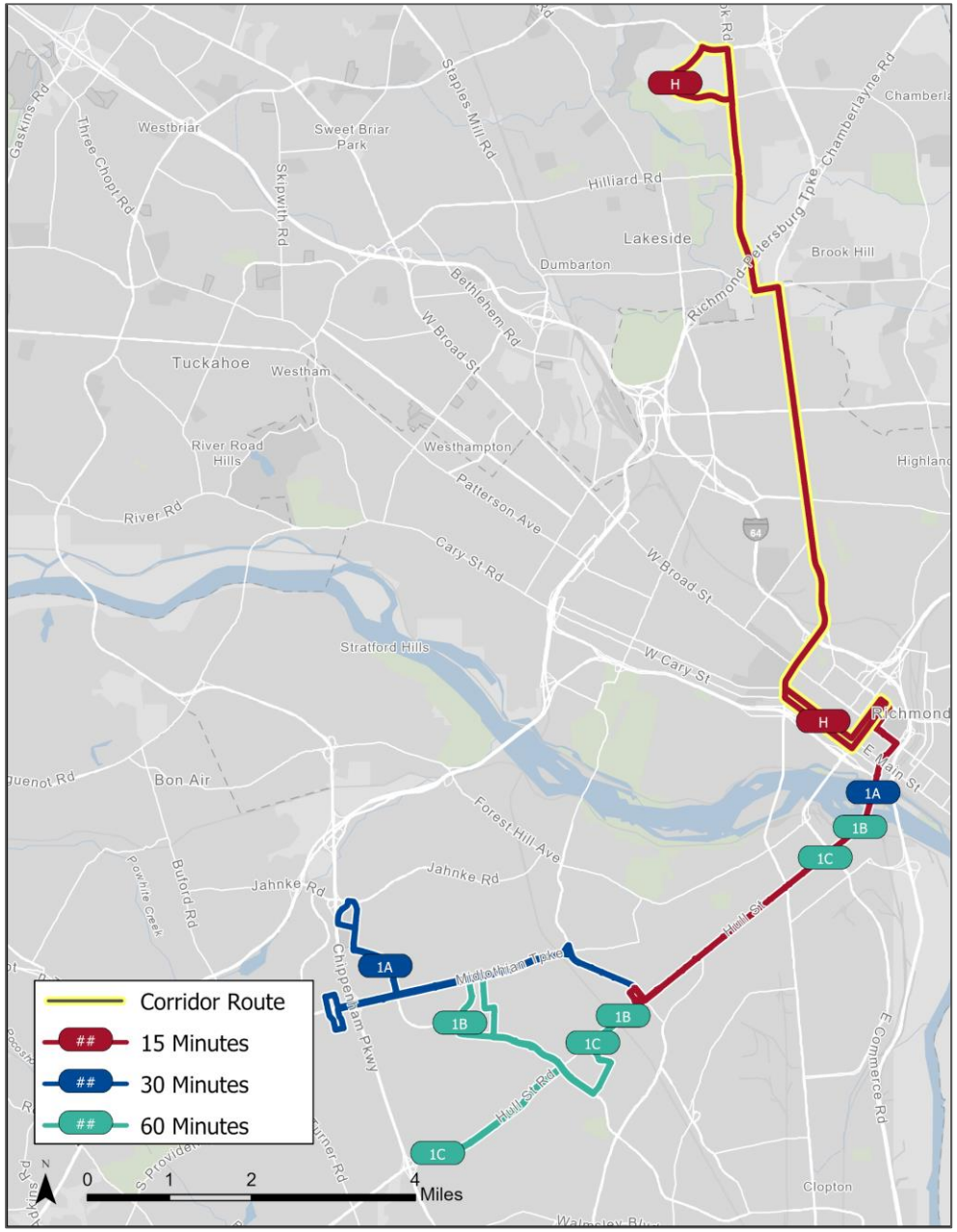
- Downtown – Warwick
- Hourly daytime service during weekdays and Saturdays
- No evening/Sunday service

Route 1C

- Downtown – Chippenham Mall
- Hourly service, seven days a week

Trunk (north of Southside Plaza)

- 15-minute daytime service from Southside Plaza to Downtown
- 30-minute evening and Sunday service



Capital Cost Assumptions

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Corridor Capital Cost Assumptions

- Provide a variety of potential infrastructure improvements that could be implemented in each corridor
- Align with service options
- Account for vehicle, bus stop, shelter, sidewalk, intersection, and transit technology costs
- Based on current local capital costs and cost estimates from GRTC, Chesterfield County, Henrico County, City of Richmond, and VDOT
- Costs are in present year dollars

Component Assumptions

Vehicles

- Based on GRTC-contracted price for 40-foot Gillig CNG Low-Floor
- Only accounts for additional vehicles needed, as described in O&M cost estimate
- Unit Cost: $467,000 per bus

Bus Stops

- Only new bus stops in portions of the corridor not currently served
- New bus stops are spaced every ¼ mile on both sides of the road, no specific locations identified
- Include bench, sign, trash can, and waiting area pad
- Based on estimates for bus stops for Route 1 in Chesterfield, GRTC-contracted costs, and bid costs for projects in Richmond, Henrico, and Chesterfield
- Unit Cost: $9,000 per bus stop

Component Assumptions

Shelters

- Only in portions of the corridor with activity density to support BRT/Express Bus service, as defined by DRPT's Multimodal Design Guidelines (>25 people and jobs per acre)
- New shelters are spaced every 1 mile on both sides of the road, no specific locations identified
- Based on GRTC-contracted costs for large shelters and installation
- Unit Cost: $23,000 per shelter

Sidewalks

- Only in portions of the corridor without any existing sidewalks
- Low cost based on per mile cost in Virginia Concrete Construction Company estimates for Route 1 improvements in Chesterfield and estimate for John Rolfe Parkway project in Henrico
- High cost based on per mile cost in VDOT TMPD planning level cost estimates and Wistar Road project in Henrico
- Unit Costs:
  - Low: $510,000 per mile
  - High: $1,012,000 per mile

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Component Assumptions

Intersection Improvements

- Includes pedestrian signal heads, push buttons, marked crosswalks, and ADA ramps
- Assumed only signalized intersections outside of Richmond city limits
- Based costs on a variety of projects in Richmond, Henrico, and Chesterfield
- Unit cost: $48,000 per signalized intersection

Transit Signal Priority

- Includes hardware for total buses operating on corridor and each signalized intersection in the corridor
- Based on cost estimate used for proposed TSP project for Hampton Roads Transit
- Unit costs:
  - $9,000 per signalized intersection
  - $7,000 per bus

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Example - Route 1 North (H) Capital Cost by Component

	Option 1	Option 2
Vehicles	$1,870,000	$2,340,000
Bus Stop Amenities	$320,000	
Shelters	$180,000	
Sidewalk	$6,020,000 (Low)	
	$11,960,000 (High)	
Intersection Improvements	$430,000	
Transit Signal Priority (TSP)	$680,000	$690,000

Discussion of Corridor Benefits with Service Plan, O&M Cost, and Capital Cost Options

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Comparison of Corridor Benefits

Low — High

Initial Screening

	Activity Density	Transit-Supportive Jobs	Working Populations	Environmental Justice Populations	Transit Dependent Populations
A					
D					
E					
F					
H					

Detailed Analysis

	Ridership (daily riders)	Boardings per Mile	Boardings per Trip	Boardings per Hour	Community Facilities (# w/in 0.5 mi)	Connected Ped Areas (% ped facility coverage)	Walkability (average score)
A							
D							
E							
F							
H							

Corridor A: Broad Street - Short Pump

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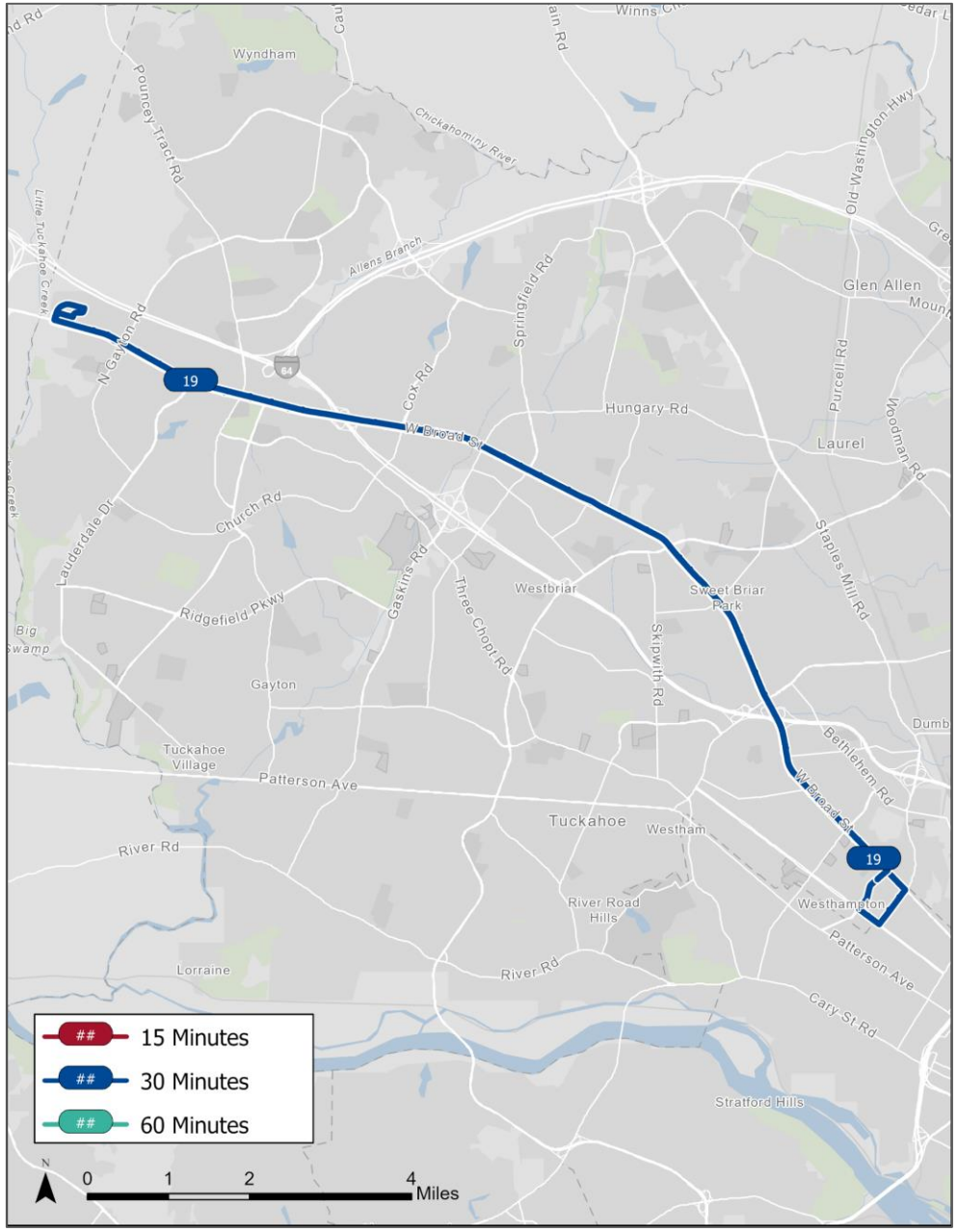
Corridor A: Broad Street – Short Pump

Existing

Route 19

- 30-minute frequencies
- Seven day a week service
- Sunday service starts at 10 AM

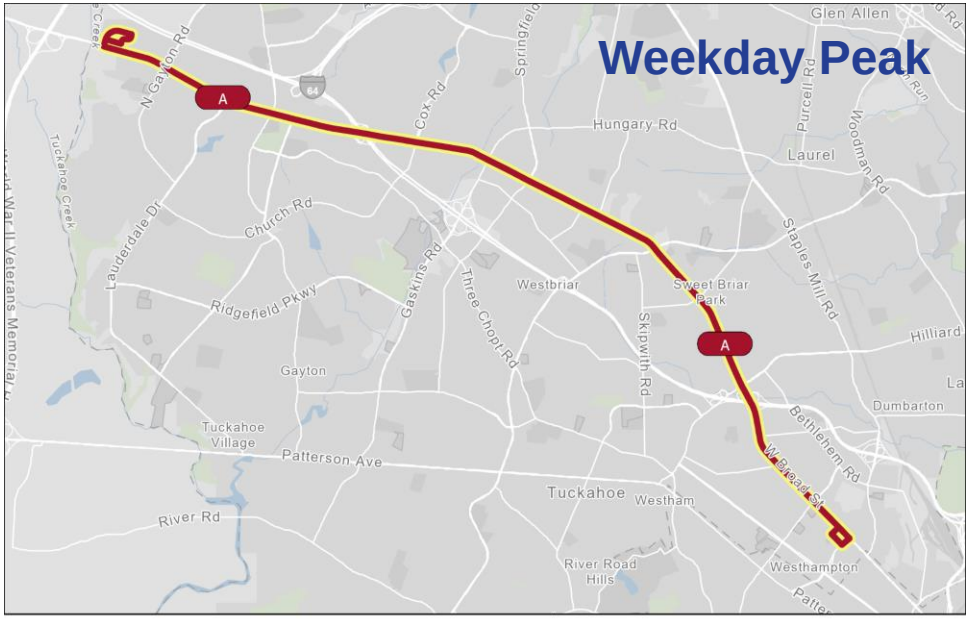


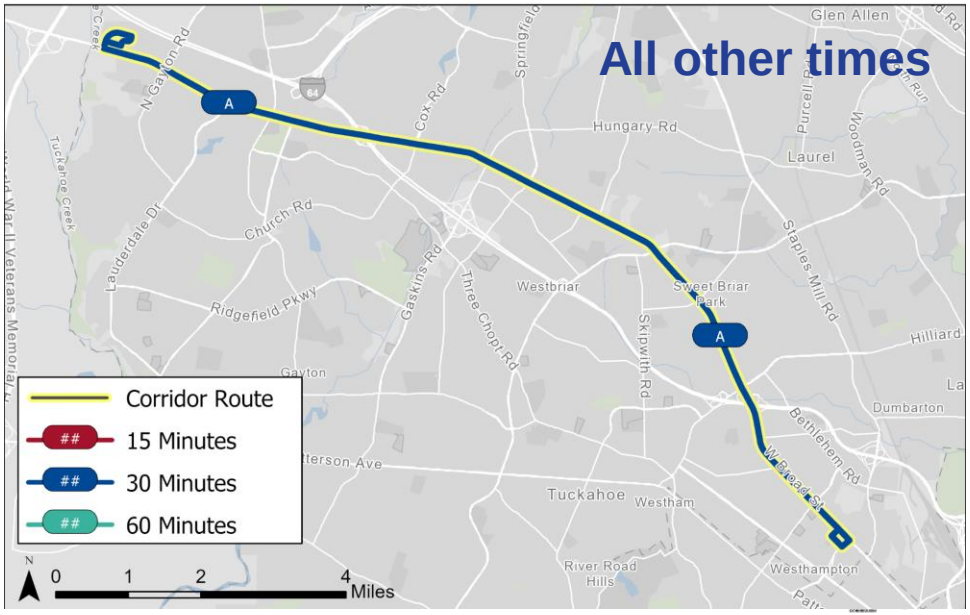
Corridor A: Broad Street – Short Pump

Option 1

Corridor A Route

- 15-minute frequencies during weekday AM and PM peak period
- 30-minute frequencies during off-peak and weekend
- Seven day a week service
- Sunday service starts at 10 AM



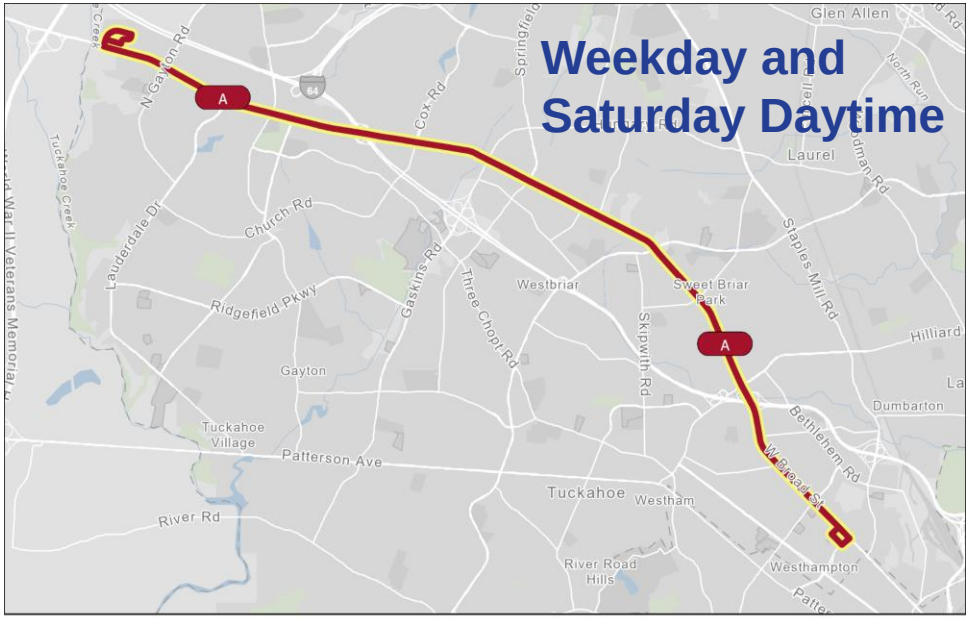


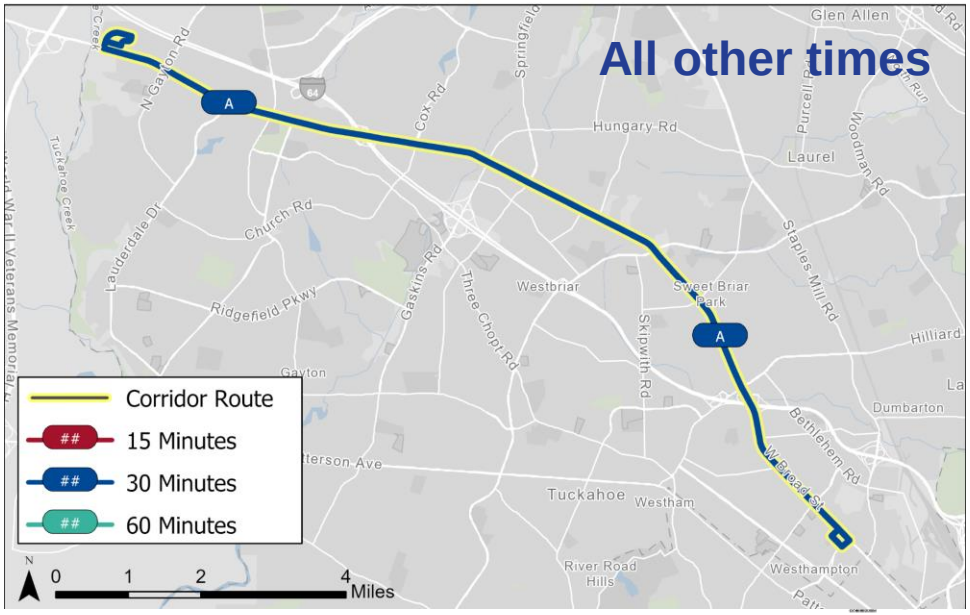
Corridor A: Broad Street – Short Pump

Option 2

Corridor A Route

- 15-minute frequencies during daytime weekdays and Saturday
- 30-minute frequencies during evenings and Sundays
- Seven day a week service
- Sunday service starts at 7 AM





Broad Street – Short Pump (A) Capital Cost by Component

	Option 1	Option 2
Vehicles	$1,870,000	
Bus Stop Amenities	-	
Shelters	$180,000	
Sidewalk	$9,940,000 (Low)	
	$19,730,000 (High)	
Intersection Improvements	$2,020,000	
Transit Signal Priority (TSP)	$450,000	

Broad Street – Short Pump (A)

Annual Net O&M Costs of Service Options

Service Option	Net O&M Cost
Option 1	$ 581,000
Option 2	$ 1,581,000

Capital Costs of Service Options

	Option 1 Capital Cost	Option 2 Capital Cost
Low	$ 1,870,000	
High	$ 24,250,000	

	Option 1 Capital Cost per Mile	Option 2 Capital Cost per Mile
Low	$ 163,000	
High	$ 2,108,000	

Corridor Ridership Potential:
1,000 – 1,700 daily passengers*
*Ridership Potential is inclusive of existing corridor ridership

Activity Density	Transit-Supportive Jobs	Working Populations	Environmental Justice Populations	Transit Dependent Populations	Ridership (daily riders)	Boardings per Mile	Boardings per Trip	Boardings per Hour	Community Facilities	Connected Ped Areas	Walkability

Corridor D: Midlothian Turnpike

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Corridor D: Midlothian Turnpike

Existing

Route 1A

- Chamberlayne/Wilmer – Spring Rock Green
- 30-minute daytime service, hourly service in evenings
- Hourly Sunday service

Route 1B

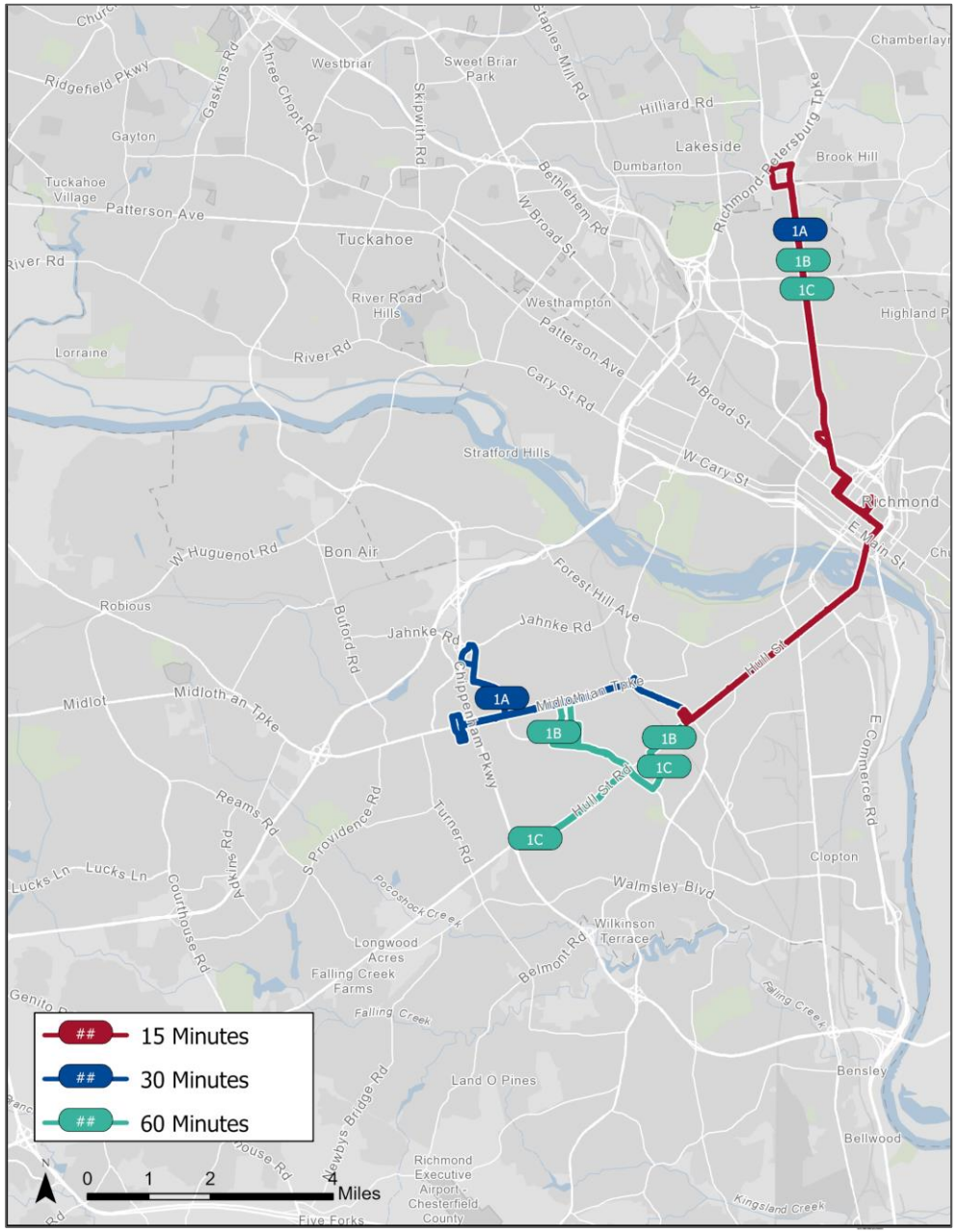
- Chamberlayne/Wilmer – Warwick
- Hourly service
- No evening/Sunday service

Route 1C

- Chamberlayne/Wilmer - Chippenham Mall
- Hourly service

Trunk (north of Southside Plaza)

- 15-minute peak/midday service from Southside Plaza to Chamberlayne/Wilmer
- 30-minute evening and Sunday service



Corridor D: Midlothian Turnpike

Option 1

Corridor D Route

- 15-minute service daytime and evening between Downtown – Spring Rock Green during weekdays and Saturdays
- 30-minute service daytime and evening between Spring Rock Green – Chesterfield Towne Center during weekdays and Saturdays and on Sunday (served by every other bus)
- 30-minute frequencies for full corridor during Sunday service

Route 1 North

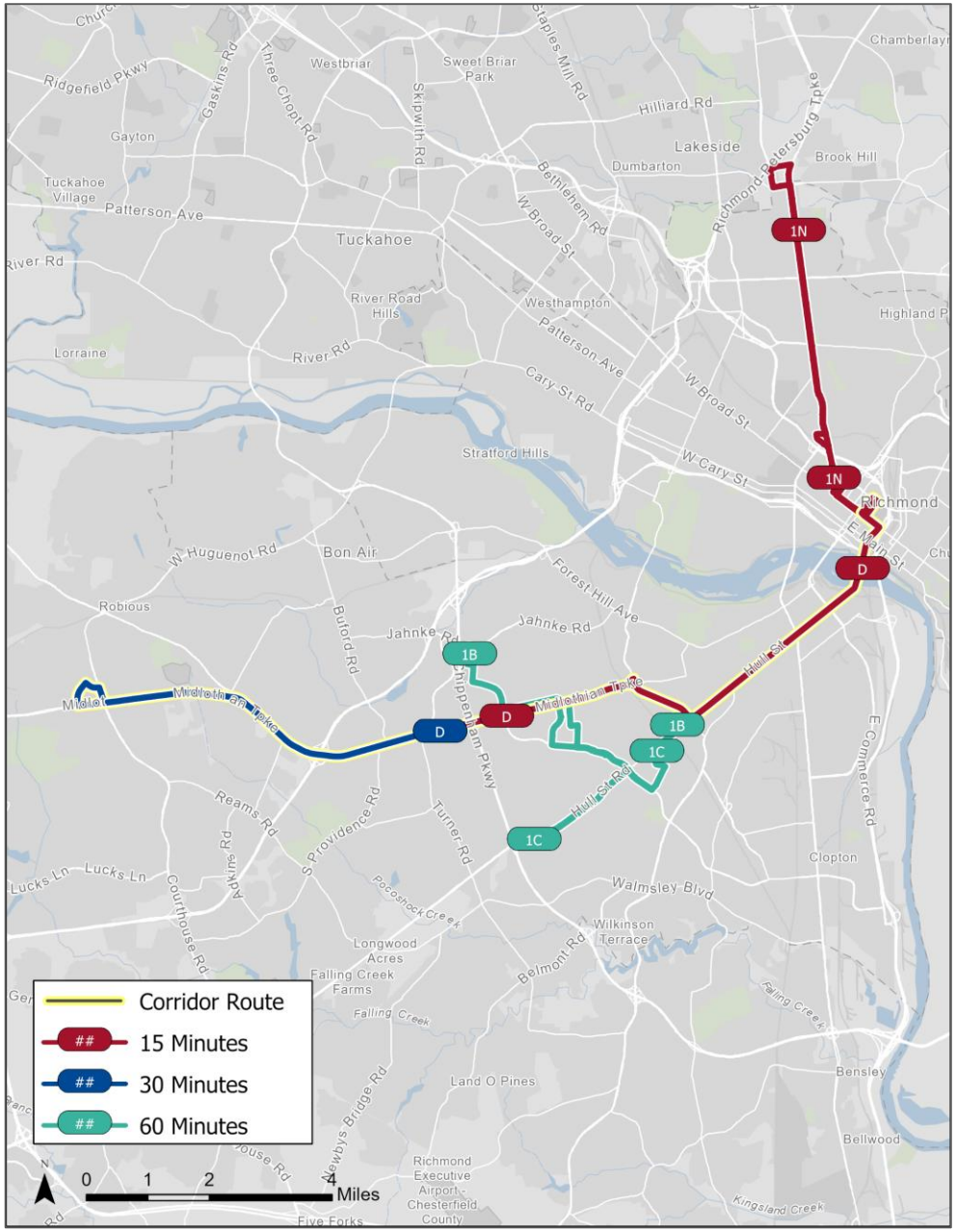
- Chamberlayne/Wilmer – Downtown
- Maintain current service levels
- 15-minute peak/midday service
- 30-minute evening and Sunday service

Route 1B

- Southside Plaza – Chippenham Hospital circulator
- No longer one-seat ride to Downtown
- Hourly service, seven day a week service

Route 1C

- Southside Plaza - Chippenham Mall circulator
- No longer one-seat ride to Downtown
- Hourly service, seven day a week service



Corridor D: Midlothian Turnpike

Option 2

Corridor D Route

- 15-minute service daytime and evening between Downtown – Chesterfield Towne Center during weekdays and Saturdays
- 30-minute frequencies for full corridor during Sunday service

Route 1 North

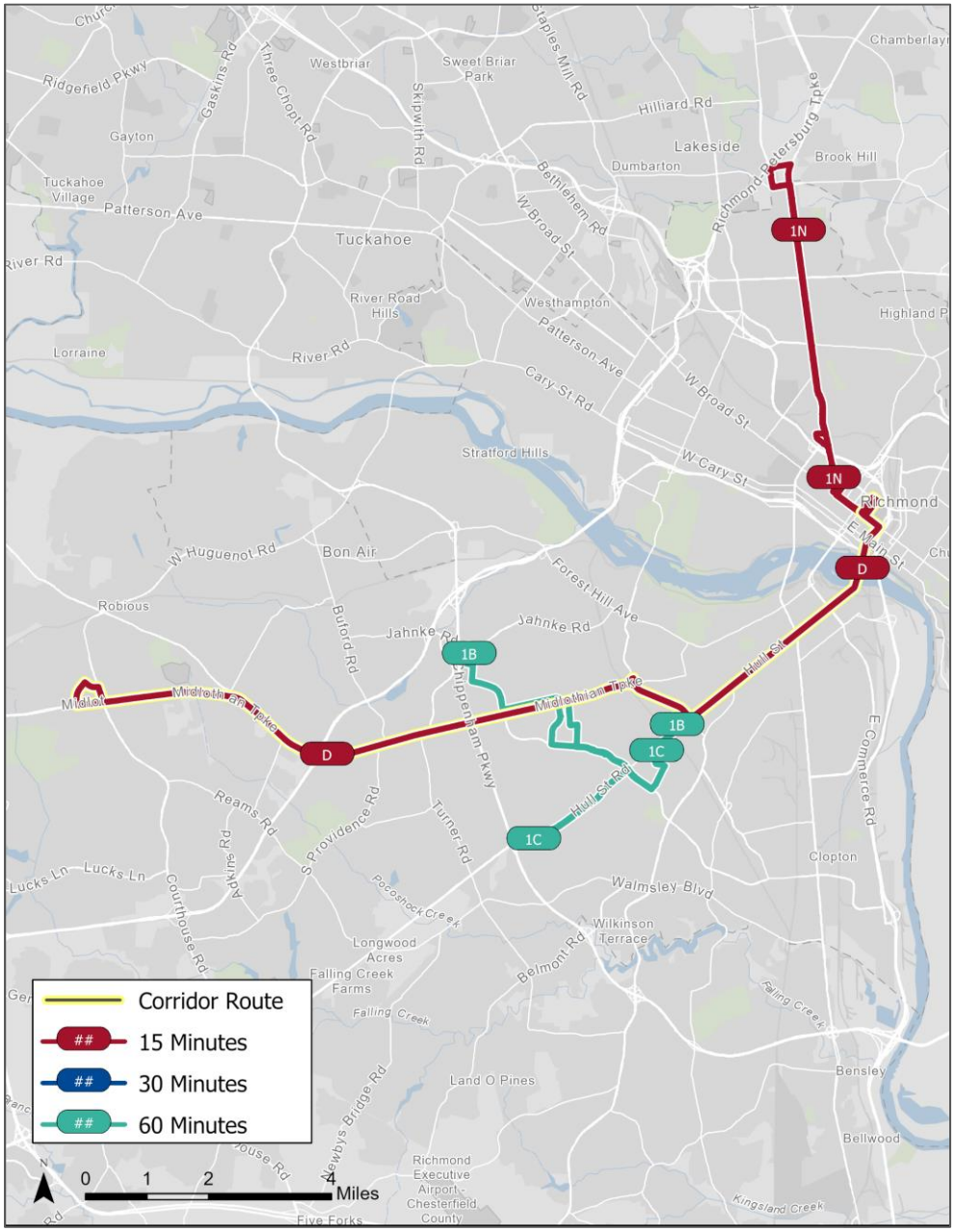
- Chamberlayne/Wilmer – Downtown
- Maintain current service levels
- 15-minute peak/midday service
- 30-minute evening and Sunday service

Route 1B

- Southside Plaza – Chippenham Hospital circulator
- No longer one-seat ride to Downtown
- Hourly service, seven day a week service

Route 1C

- Southside Plaza - Chippenham Mall circulator
- No longer one-seat ride to Downtown
- Hourly service, seven day a week service



Midlothian Turnpike (D) Capital Cost by Component

	Option 1	Option 2
Vehicles	$2,340,000	$2,800,000
Bus Stop Amenities	$410,000	
Shelters	$230,000	
Sidewalk	$17,730,000 (Low)	
	$35,200,000 (High)	
Intersection Improvements	$1,110,000	
Transit Signal Priority (TSP)	$760,000	

Midlothian Turnpike (D)

Annual Net O&M Costs of Service Options

Service Option	Net O&M Cost
Option 1	$ 2,274,000
Option 2	$ 2,872,000

Capital Costs of Service Options

	Option 1 Capital Cost	Option 2 Capital Cost
Low	$ 2,740,000	$ 3,210,000
High	$ 40,050,000	$ 40,510,000

	Option 1 Capital Cost per Mile	Option 2 Capital Cost per Mile
Low	$ 192,0000	$ 224,000
High	$ 2,800,000	$ 2,833,000

Corridor Ridership Potential:
2,300 – 3,900 daily passengers*
*Ridership Potential is inclusive of existing corridor ridership

Activity Density	Transit-Supportive Jobs	Working Populations	Environmental Justice Populations	Transit Dependent Populations	Ridership (daily riders)	Boardings per Mile	Boardings per Trip	Boardings per Hour	Community Facilities	Connected Ped Areas	Walkability

Corridor E: West End South

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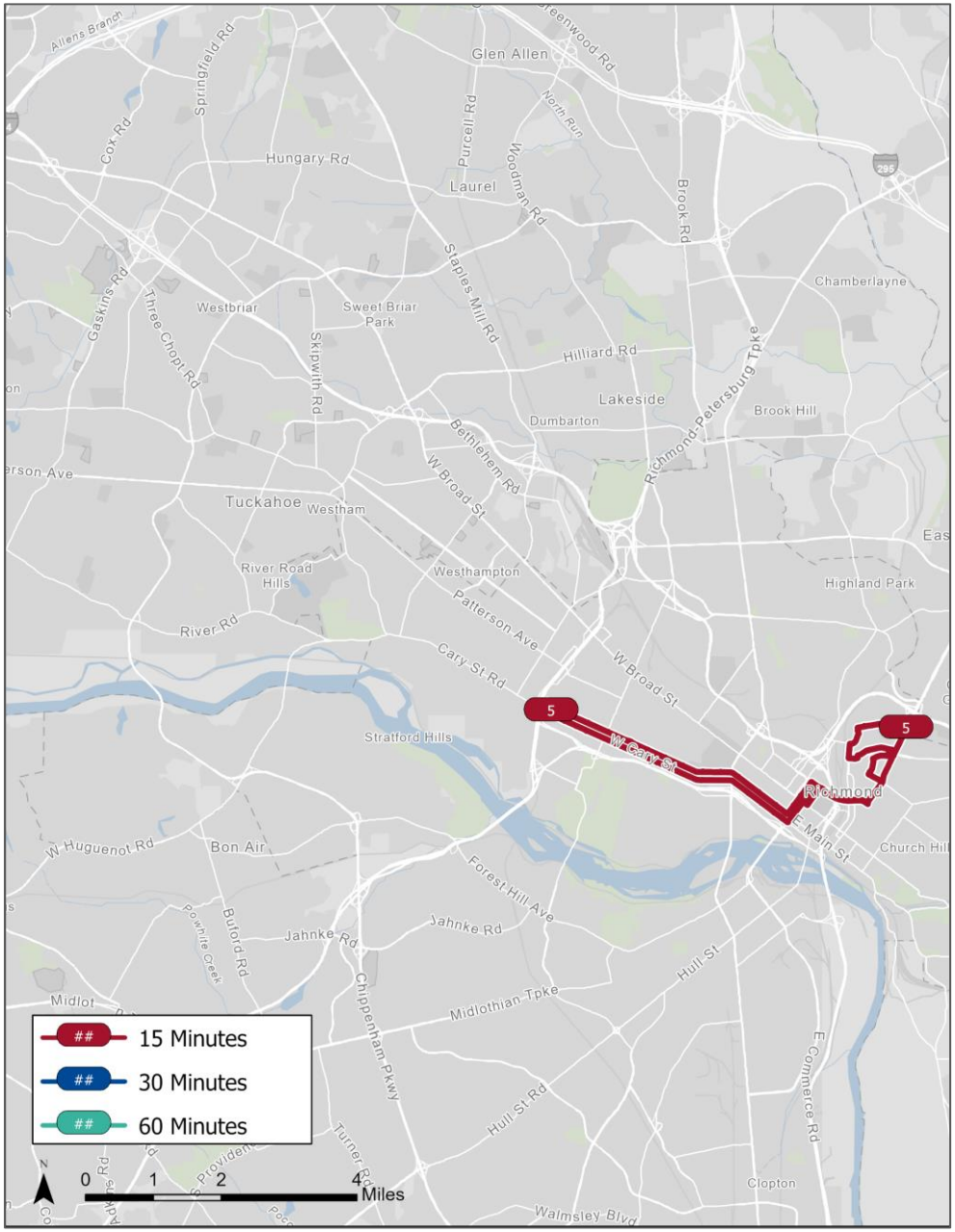
Corridor E: West End South

Existing

Route 5

- 15-minute frequencies during daytime on weekdays and Saturdays
- 30-minute frequencies during evenings and Sunday service



Corridor E: West End South

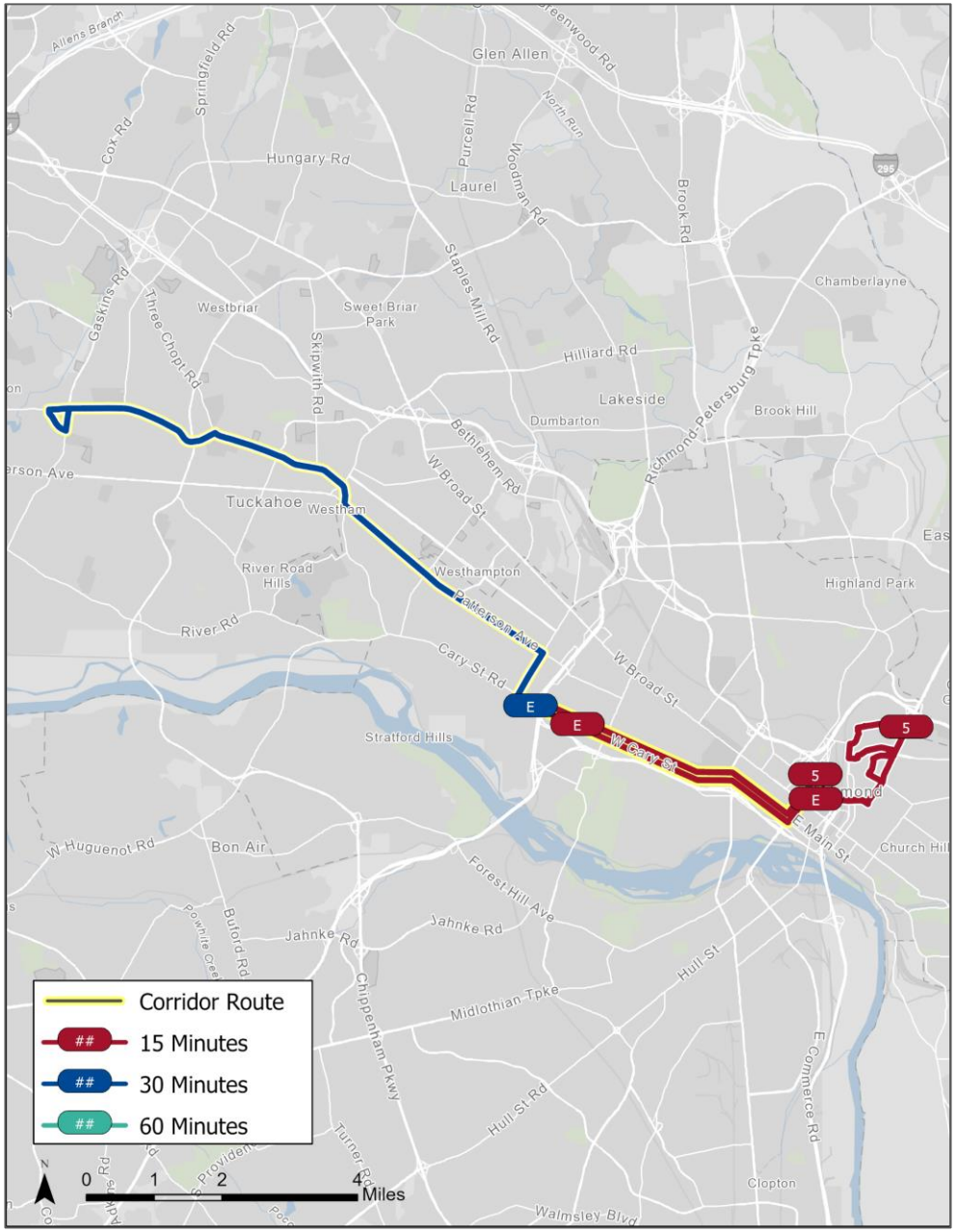
Option 1

Corridor E Route

- 15-minute frequencies between Downtown – Nansemond during daytime and evenings on weekdays and Saturdays
- 30-minute frequencies between Nansemond – Gayton during daytime and evenings on weekdays and Saturdays (served by every other bus)
- 30-minute frequencies for whole corridor during late nights and Sunday

Route 5 East

- 15-minute frequencies between Downtown – Whitcomb during daytime on weekdays and Saturdays
- 30-minute frequencies between Downtown – Whitcomb during evenings and Sundays



Corridor E: West End South

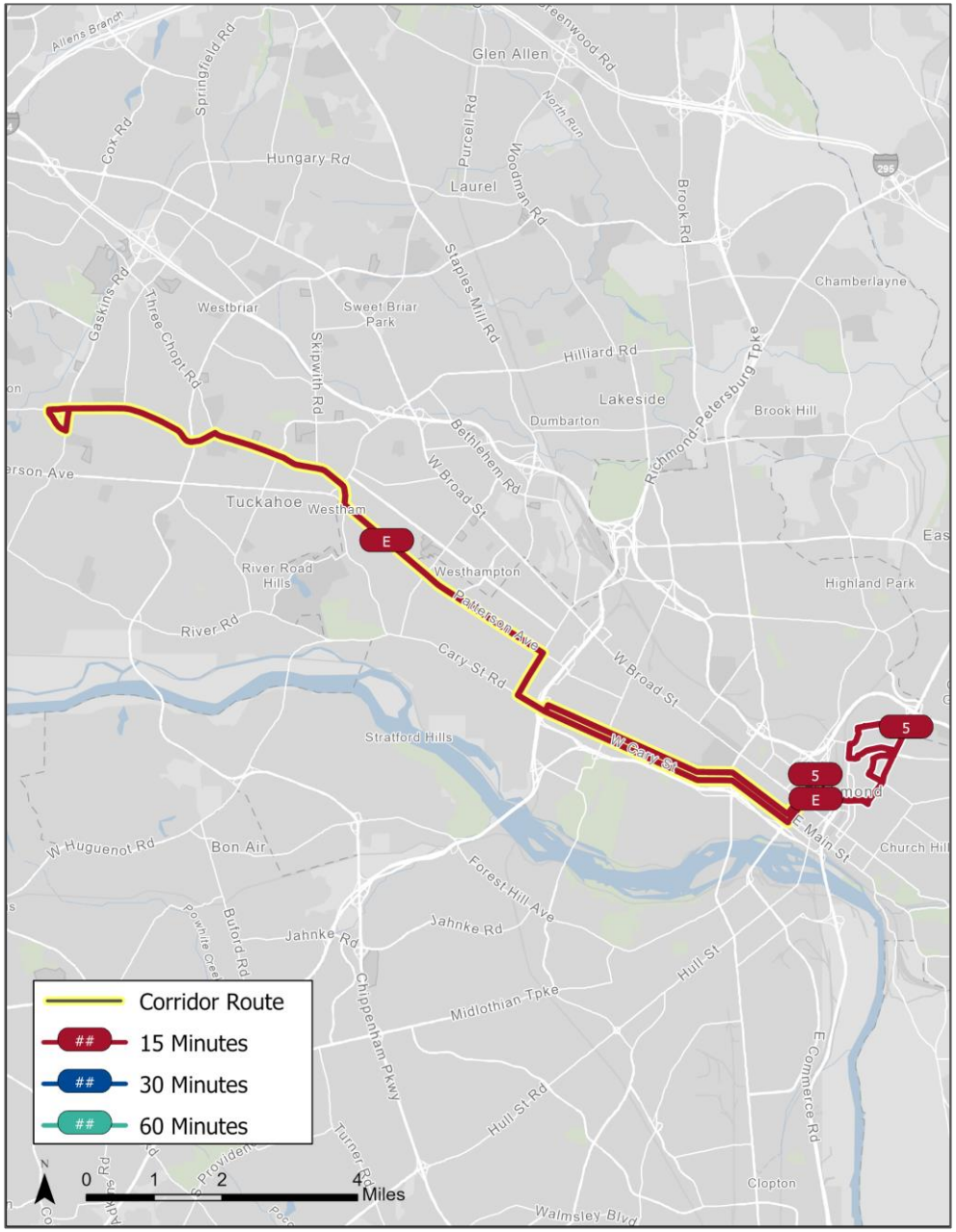
Option 2

Corridor E Route

- 15-minute frequencies between Downtown – Gayton during daytime and evenings on weekdays and Saturdays
- 30-minute frequencies for whole corridor during late nights and Sunday

Route 5 East

- 15-minute frequencies between Downtown – Whitcomb during daytime on weekdays and Saturdays
- 30-minute frequencies between Downtown – Whitcomb during evenings and Sundays



West End South (E)
Capital Cost by Component

	Option 1	Option 2
Vehicles	$1,870,000	$2,800,000
Bus Stop Amenities	$50,000	
Shelters	$550,000	
Sidewalk	$4,310,000 (Low)	
	$8,550,000 (High)	
Intersection Improvements	$580,000	
Transit Signal Priority (TSP)	$850,000	$870,000

West End South (E)

Annual Net O&M Costs of Service Options

Service Option	Net O&M Cost
Option 1	$ 2,229,000
Option 2	$ 3,103,000

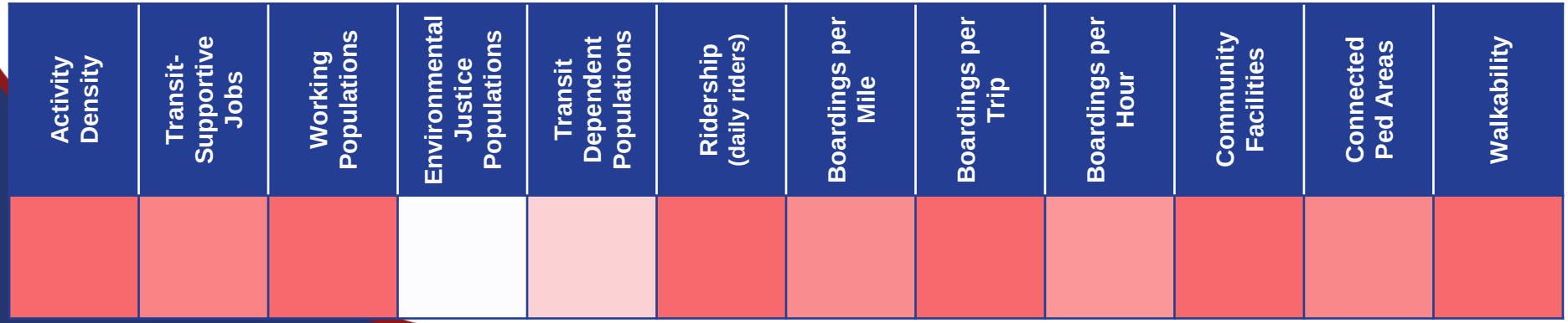
Capital Costs of Service Options

	Option 1 Capital Cost	Option 2 Capital Cost
Low	$ 1,920,000	$ 2,860,000
High	$ 12,450,000	$ 13,400,000

	Option 1 Capital Cost per Mile	Option 2 Capital Cost per Mile
Low	$ 121,000	$ 180,000
High	$ 783,000	$ 843,000

Corridor Ridership Potential:
2,400 – 4,100 daily passengers*

*Ridership Potential is inclusive of existing corridor ridership



Corridor F: Airport via Route 60

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Corridor F: Airport via Route 60

Existing

Route 4A

- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

Route 4B

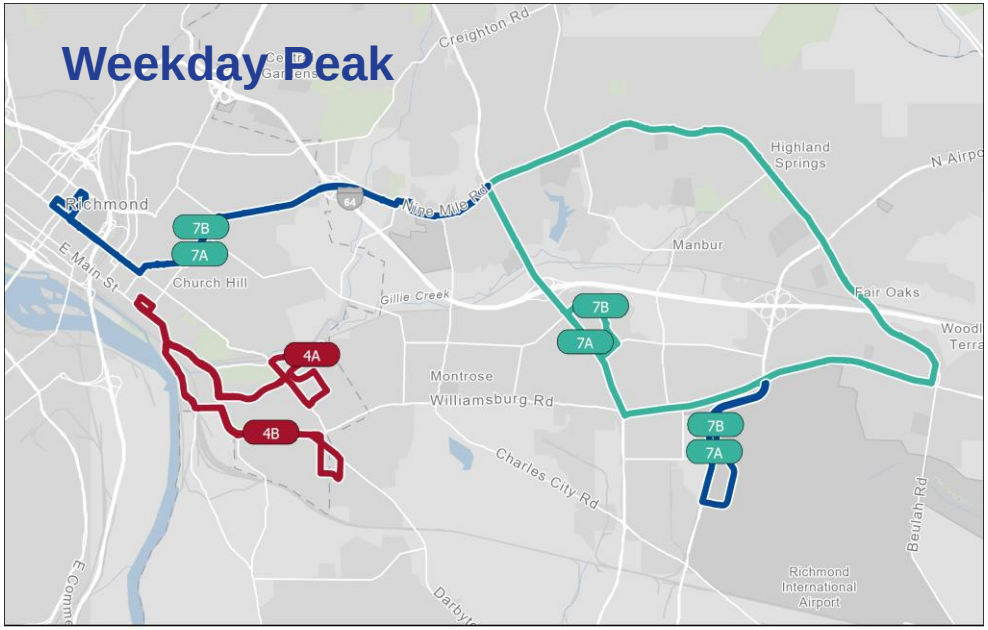
- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

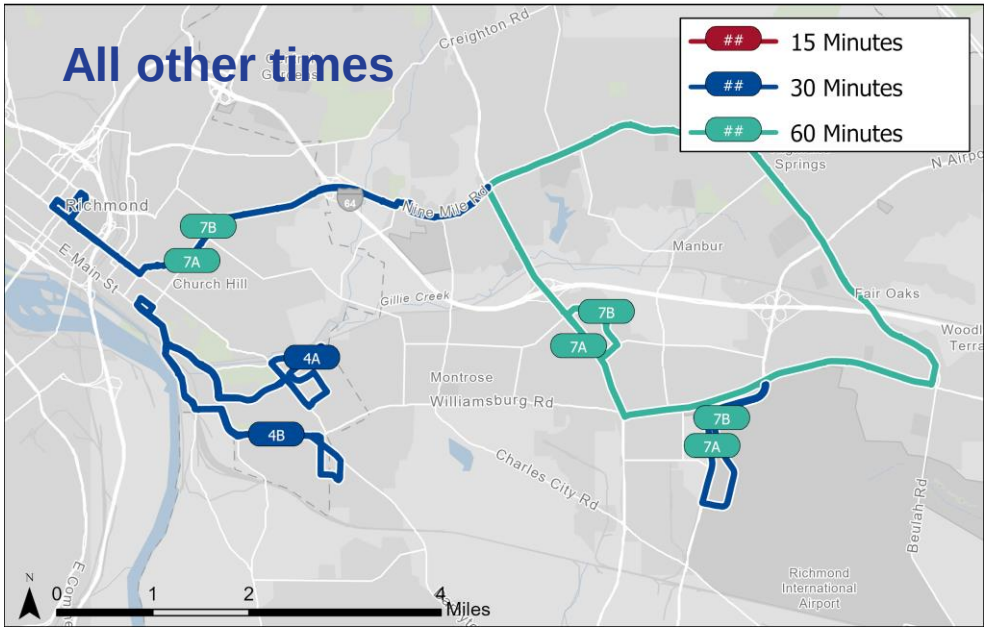
Route 7A

- Hourly service daily, seven days a week
- Combined service on trunk segments is 30-minute service

Route 7B

- Hourly service daily, seven days a week
- Combined service on trunk segments is 30-minute service





Corridor F: Airport via Route 60

Option 1

Corridor F Route

- 30-minute frequencies daily, seven days a week

Route 4A

- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

Route 4B

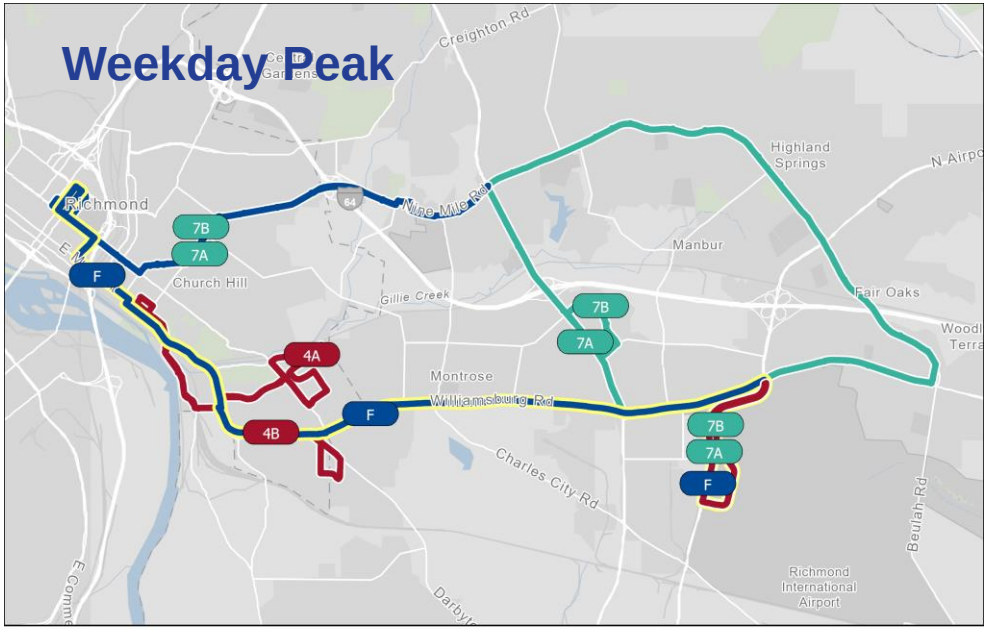
- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

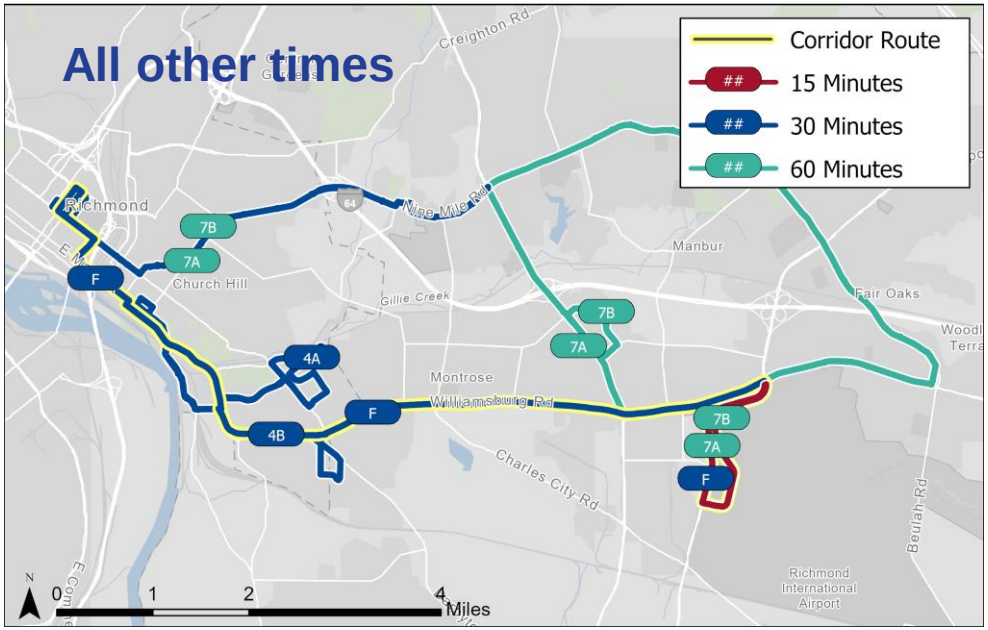
Route 7A

- Hourly service daily, seven days a week
- Combined service on trunk segments is 30-minute service

Route 7B

- Hourly service daily, seven days a week
- Combined service on trunk segments is 30-minute service





Corridor F: Airport via Route 60

Option 2

Corridor F Route

- 15-minute frequencies daily, seven days a week

Route 4A

- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

Route 4B

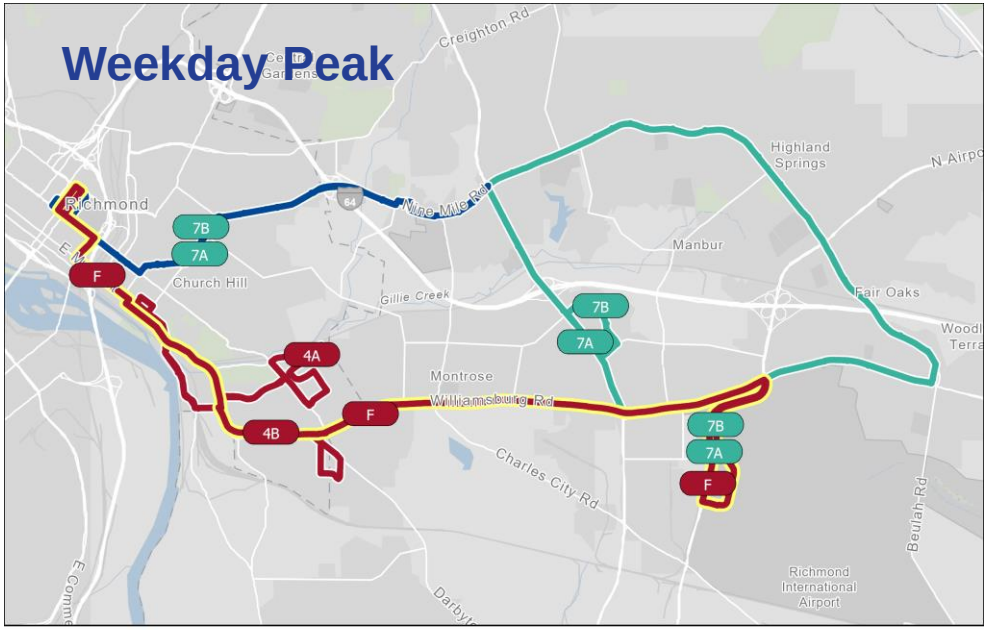
- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

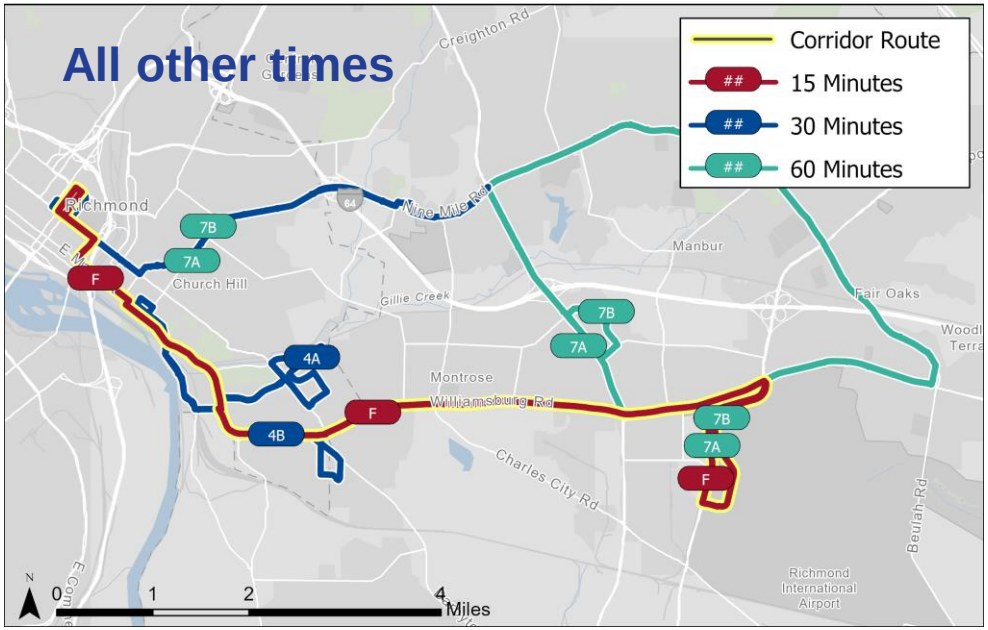
Route 7A

- Hourly service daily, seven days a week
- Combined service on trunk segments is 30-minute service

Route 7B

- Hourly service daily, seven days a week
- Combined service on trunk segments is 30-minute service





Corridor F: Airport via Route 60

Option 3

Route 4A

- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

Route 4B

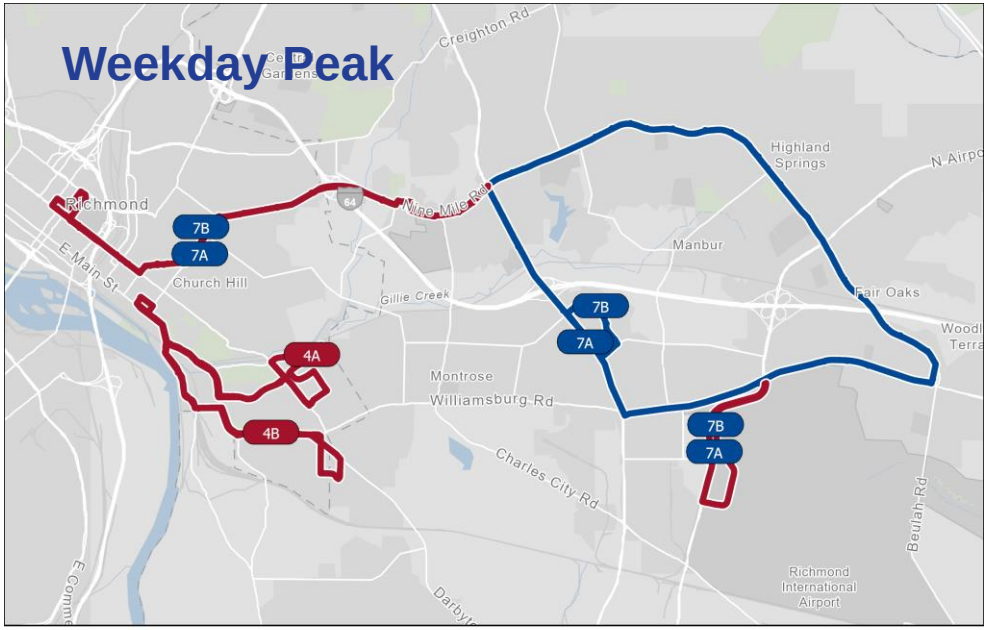
- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

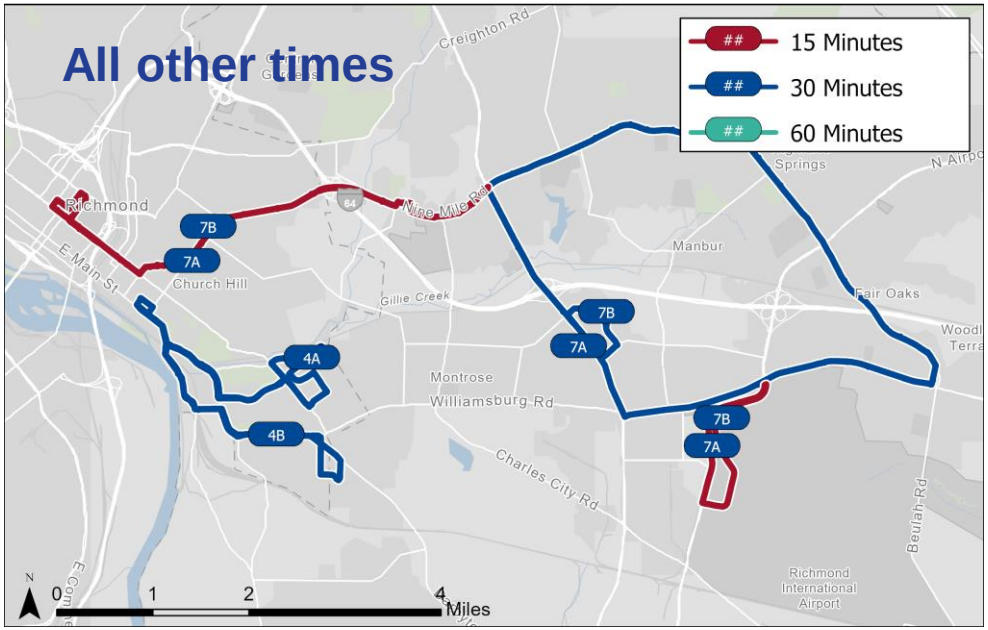
Route 7A

- 30-minute frequencies daily, seven days a week
- Combined service on trunk segments is 15-minute service

Route 7B

- 30-minute frequencies daily, seven days a week
- Combined service on trunk segments is 15-minute service





Corridor F: Airport via Route 60

Option 4
(Option 1 + Option 3)

Corridor F Route

- 30-minute frequencies daily, seven days a week

Route 4A

- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

Route 4B

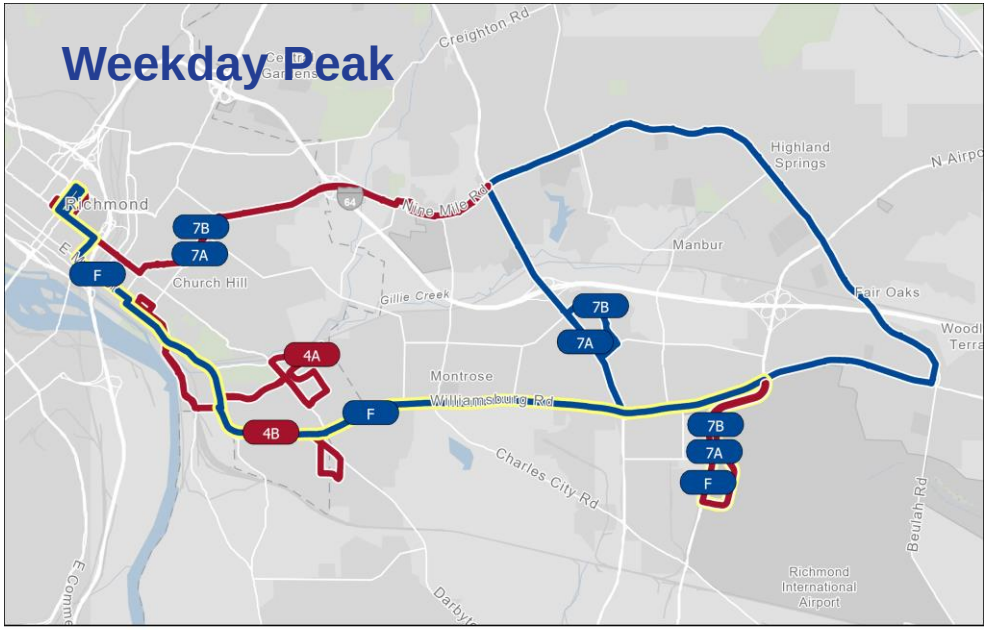
- 15-minute frequencies during peak service on weekdays
- 30-minute frequencies during midday and evenings on weekdays, and during Saturday and Sunday service

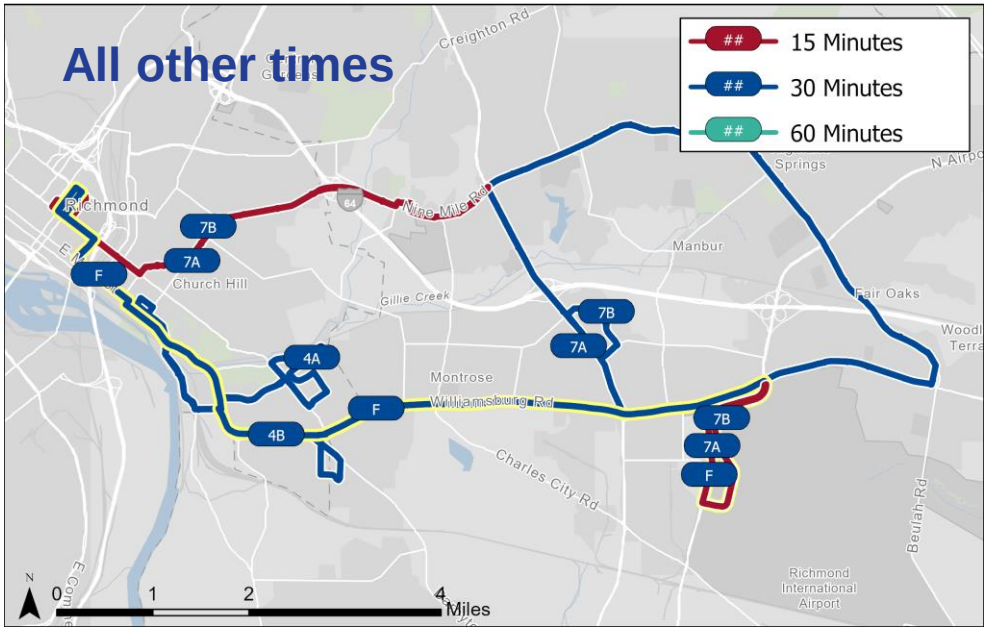
Route 7A

- 30-minute frequencies daily, seven days a week
- Combined service on trunk segments is 15-minute service

Route 7B

- 30-minute frequencies daily, seven days a week
- Combined service on trunk segments is 15-minute service





Airport via Route 60 (F)
Capital Cost by Component

	Option 1	Option 2
Vehicles	$1,870,000	$2,800,000
Bus Stop Amenities	-	
Shelters	$140,000	
Sidewalk	$10,270,000 (Low)	
	$20,380,000 (High)	
Intersection Improvements	$340,000	
Transit Signal Priority (TSP)	$420,000	$430,000

Airport via Route 60 (F)
Capital Cost by Component

	Option 3		Option 4	
Vehicles	$2,340,000		$3,740,000	
Bus Stop Amenities	-			
Shelters	$140,000			
Sidewalk	$15,380,000	$30,530,000	$19,450,000	$38,620,000
Intersection Improvements	$1,110,000		$1,250,000	
Transit Signal Priority (TSP)	$510,000		$815,500	

Airport via Route 60 (F)

Annual Net O&M Costs of Service Options

Service Option	Net O&M Cost
Option 1	**$ 2,068,000**
Option 2	**$ 3,811,000**
Option 3	$ 2,736,000
Option 4	$ 4,804,000

Corridor Ridership Potential:
1,500 – 2,500 daily passengers*
*Ridership Potential is inclusive of existing corridor ridership

Capital Costs of Service Options

	Option 1 Capital Cost	Option 2 Capital Cost
Low	$ 1,870,000	$ 2,800,000
High	$ 23,150,000	$ 24,090,000

	Option 1 Capital Cost per Mile	Option 2 Capital Cost per Mile
Low	$ 178,000	$ 267,000
High	$ 2,205,000	$ 2,294,000

Activity Density	Transit-Supportive Jobs	Working Populations	Environmental Justice Populations	Transit Dependent Populations	Ridership (daily riders)	Boardings per Mile	Boardings per Trip	Boardings per Hour	Community Facilities	Connected Ped Areas	Walkability

Airport via Route 60 (F)

Annual Net O&M Costs of Service Options

Service Option	Net O&M Cost
Option 1	$ 2,068,000
Option 2	$ 3,811,000
Option 3	**$ 2,736,000**
Option 4	**$ 4,804,000**

Corridor Ridership Potential:
1,500 – 2,500 daily passengers*
*Ridership Potential is inclusive of existing corridor ridership

Capital Costs of Service Options

	Option 3 Capital Cost	Option 4 Capital Cost
Low	$ 2,340,000	$ 3,740,000
High	$ 34,630,000	$ 44,570,000

	Option 3 Capital Cost per Mile	Option 4 Capital Cost per Mile
Low	$ 100,000	$ 111,000
High	$ 1,474,000	$ 1,318,639

Corridor H: Route 1 North

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Corridor H: Route 1 North

Existing

Route 1A

- Chamberlayne/Wilmer – Spring Rock Green
- 30-minute daytime service, hourly service in evenings
- Hourly Sunday service

Route 1B

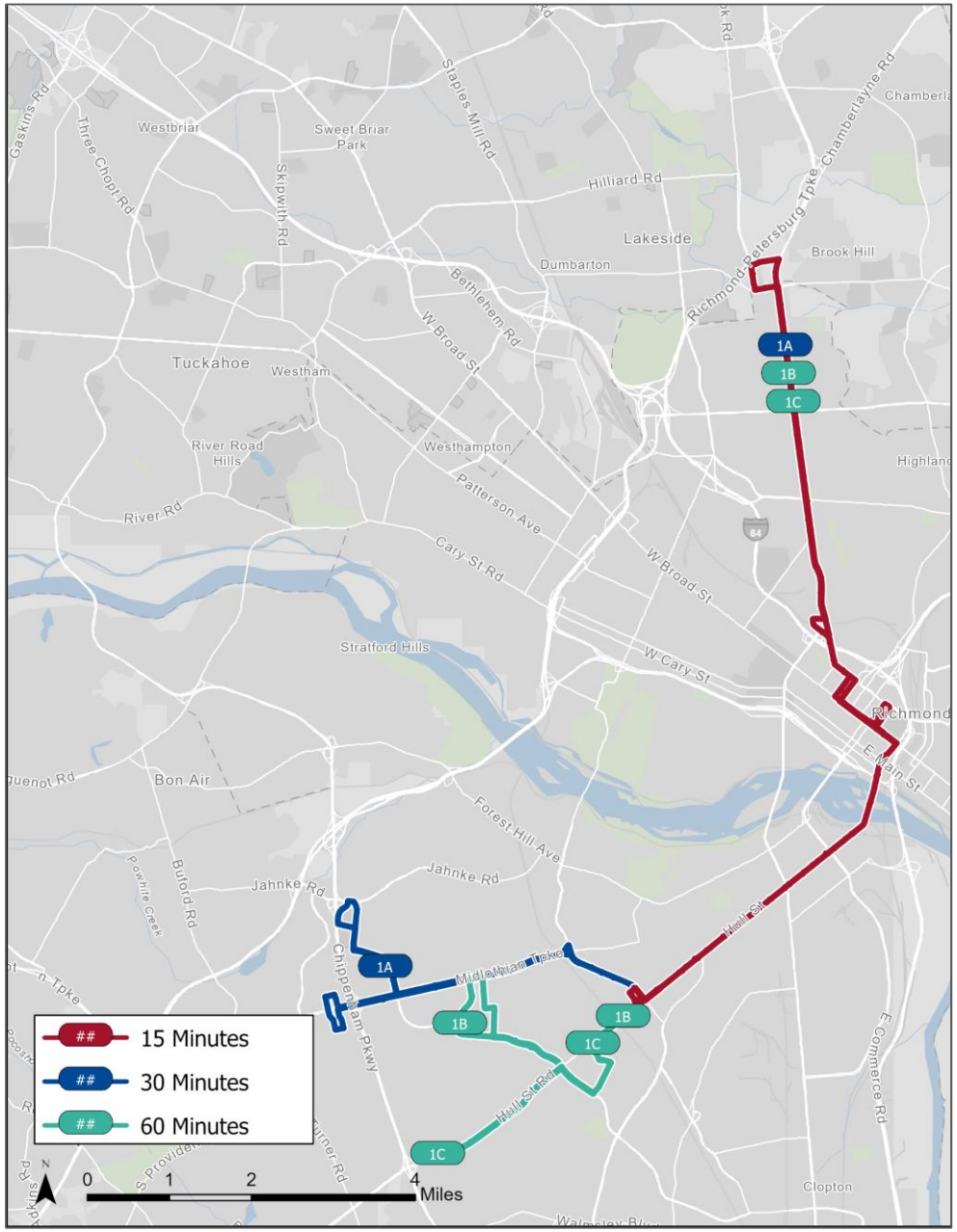
- Chamberlayne/Wilmer – Warwick
- Hourly daytime service during weekdays and Saturdays
- No evening/Sunday service

Route 1C

- Chamberlayne/Wilmer - Chippenham Mall
- Hourly service, seven days a week

Trunk (north of Southside Plaza)

- 15-minute daytime service from Southside Plaza to Chamberlayne/Wilmer
- 30-minute evening and Sunday service



Corridor H: Route 1 North

Option 1

Corridor H Route

- 15-minute service daytime and evening between Downtown – Chamberlayne/Wilmer during weekdays and Saturdays
- 30-minute service daytime and evening between Chamberlayne/Wilmer– Parham during weekdays and Saturdays (every other bus) and on Sunday
- 30-minute frequencies for full corridor during Sunday service

Route 1A

- Downtown – Spring Rock Green
- 30-minute daytime service, hourly service in evenings
- Hourly Sunday service

Route 1B

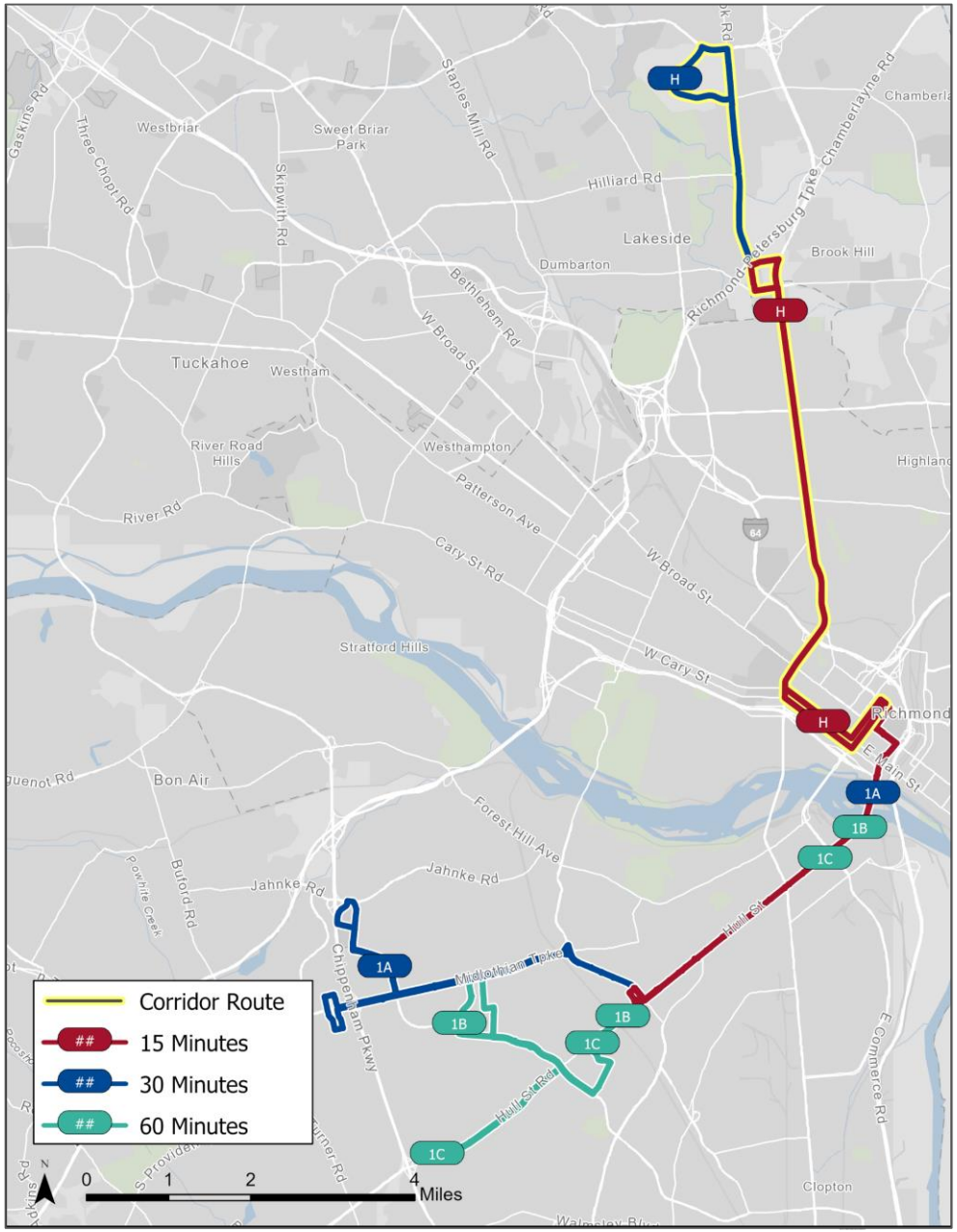
- Downtown – Warwick
- Hourly daytime service during weekdays and Saturdays
- No evening/Sunday service

Route 1C

- Downtown – Chippenham Mall
- Hourly service, seven days a week

Trunk (north of Southside Plaza)

- 15-minute daytime service from Southside Plaza to Downtown
- 30-minute evening and Sunday service



Corridor H: Route 1 North

Option 2

Corridor H Route

- 15-minute service daytime and evening during weekdays and Saturdays
- 30-minute frequencies during Sunday service

Route 1A

- Downtown – Spring Rock Green
- 30-minute daytime service, hourly service in evenings
- Hourly Sunday service

Route 1B

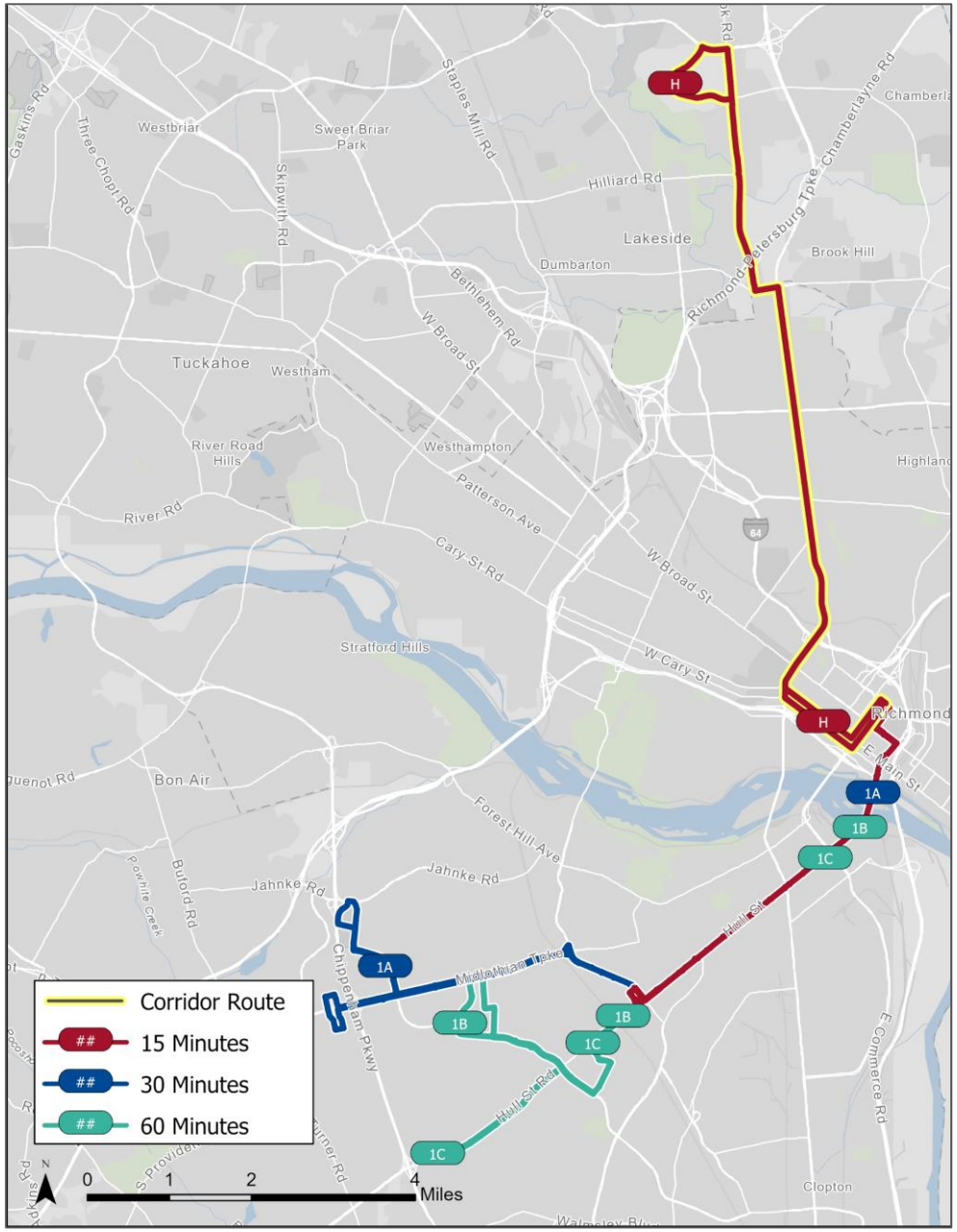
- Downtown – Warwick
- Hourly daytime service during weekdays and Saturdays
- No evening/Sunday service

Route 1C

- Downtown – Chippenham Mall
- Hourly service, seven days a week

Trunk (north of Southside Plaza)

- 15-minute daytime service from Southside Plaza to Downtown
- 30-minute evening and Sunday service



Route 1 North (H)
Capital Cost by Component

	Option 1	Option 2
Vehicles	$1,870,000	$2,340,000
Bus Stop Amenities	$320,000	
Shelters	$180,000	
Sidewalk	$6,020,000 (Low)	
	$11,960,000 (High)	
Intersection Improvements	$430,000	
Transit Signal Priority (TSP)	$680,000	$690,000

Route 1 North (H)

Annual Net O&M Costs of Service Options

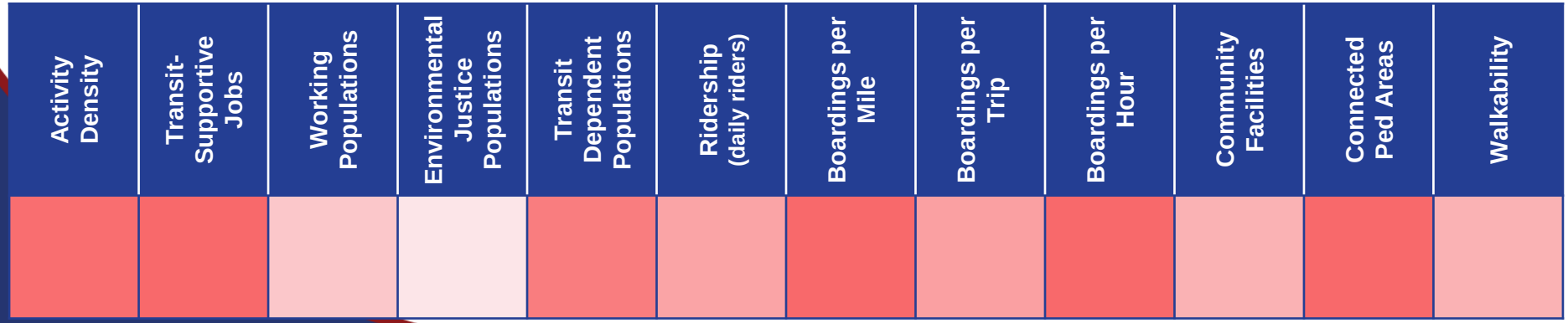
Service Option	Net O&M Cost
Option 1	$ 854,000
Option 2	$ 1,213,000

Capital Costs of Service Options

	Option 1 Capital Cost	Option 2 Capital Cost
Low	$ 2,190,000	$ 2,650,000
High	$ 15,440,000	$ 15,910,000

	Option 1 Capital Cost per Mile	Option 2 Capital Cost per Mile
Low	$ 203,000	$ 245,000
High	$ 1,430,000	$ 1,473,000

Corridor Ridership Potential:
1,900 – 3,100 daily passengers*
*Ridership Potential is inclusive of existing corridor ridership



Discussion of Corridor Service Plan, O&M Cost, and Capital Cost Options

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Summary of Operating Statistics and O&M Costs

Scenario		Peak Veh.	Fleet Veh.	Ann. Rev. Hrs.	Ann. Rev. Miles	Total Miles (Est.)	Annual O&M Cost
A	Option 1	3	4	4,600	68,600	76,200	$581,000
	Option 2	3	4	12,500	186,600	207,300	$1,581,000
D	Option 1	4	5	26,600	268,400	298,200	$2,274,000
	Option 2	5	6	32,400	338,900	376,500	$2,872,000
E	Option 1	3	4	18,200	263,000	292,200	$2,229,000
	Option 2	5	6	27,400	366,200	406,800	$3,103,000
F	Option 1	3	4	20,800	244,100	271,200	$2,068,000
	Option 2	5	6	32,500	449,800	499,700	$3,811,000
	Option 3	4	5	28,200	322,900	358,700	$2,736,000
	Option 4	7	9	49,000	567,000	629,900	$4,804,000
H	Option 1	3	4	17,000	100,800	112,000	$854,000
	Option 2	4	5	21,500	143,200	159,100	$1,213,000

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Capital Cost Ranges by Corridor

Low Capital Cost

	Corridor	Option 1	Option 2
A	Broad Street - Short Pump	$ 1,870,000	
D	Midlothian Turnpike	$ 2,740,000	$ 3,210,000
E	West End South	$ 1,920,000	$ 2,860,000
F	Airport via Route 60	$ 1,870,000	$ 2,800,000
		[3] $ 2,340,000	[4] $ 3,740,000
H	Route 1 North	$ 2,190,000	$ 2,650,000

High Capital Cost

	Corridor	Option 1	Option 2
A	Broad Street - Short Pump	$ 24,250,000	
D	Midlothian Turnpike	$ 40,050,000	$ 40,510,000
E	West End South	$ 12,450,000	$ 13,400,000
F	Airport via Route 60	$ 23,150,000	$ 24,090,000
		[3] $ 34,630,000	[4] $ 44,570,000
H	Route 1 North	$ 15,440,000	$ 15,910,000

Mileage-Normalized Capital Cost Ranges by Corridor

Low Capital Cost per Mile

	Corridor	O&M Option 1	O&M Option 2
A	Broad Street - Short Pump	$ 163,000	
D	Midlothian Turnpike	$ 192,000	$ 224,000
E	West End South	$ 121,000	$ 180,000
F	Airport via Route 60	$ 178,000	$ 267,000
		[3] $ 100,000	[4] $ 111,000
H	Route 1 North	$ 203,000	$ 245,000

High Capital Cost per Mile

	Corridor	O&M Option 1	O&M Option 2
A	Broad Street - Short Pump	$ 2,108,000	
D	Midlothian Turnpike	$ 2,800,000	$ 2,833,000
E	West End South	$ 783,000	$ 843,000
F	Airport via Route 60	$ 2,205,000	$ 2,294,000
		[3] $ 1,474,000	[4] $ 1,318,639
H	Route 1 North	$ 1,430,000	$ 1,473,000

Implementation Steps to Consider

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Implementation Activities

- Secure Funding
  - Planning/design funds
  - Capital funds
  - O&M funds
- Corridor Planning
  - Identification of bus stop locations
  - Prioritization of sidewalk and intersection improvements
  - Identification of technology improvements
  - Refinement of service schedule
  - Coordination of service between proposed corridors and existing routes
- Procure Vehicles
- Design and Construct Improvements

Improvements throughout corridor will need to be coordinated across jurisdictions

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Federal Funding Sources

- Federal
  - Regional Surface Transportation Block Grant (RSTBG) Program
  - Congestion Mitigation and Air Quality (CMAQ) Improvement Program
  - Better Utilizing Investments to Leverage Development (BUILD)
  - Transportation Alternatives (TA) Set-Aside
  - FTA 5303 Metropolitan Planning

State & Local Funding Sources

- State
  - SMART SCALE
  - DRPT Capital Assistance
  - DRPT Operating Assistance
  - DRPT Demonstration Project Assistance
  - DRPT Technical Assistance Program
  - Funding formula changes under Omnibus Bill (*pending legislation*)
- Local
  - Transportation Service Districts
  - Proffers
  - Local General Funds
  - Central Virginia Transportation Authority (*pending legislation*)

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Next Steps

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Next Steps

- Brief RRTPO Technical Advisory Committee and Policy Board and GRTC Board
- Summarize cost options, corridor benefits, funding sources, and near-term implementation recommendations in Tech Memo #2
- Distribute Tech Memo #2 to Steering Committee for review
- Finalize report documenting near-term implementation recommendations

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