



Fairfax Connector Route Optimization: Reston - Herndon and Franconia - Springfield

Board Transportation Committee Meeting
October 22, 2019

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Fairfax County Department of Transportation

The Reasons Why



While ridership trends have shown some improvement, overall ridership is still below prior year levels.



Shifting demographics and employment have resulted in changing travel patterns and needs.



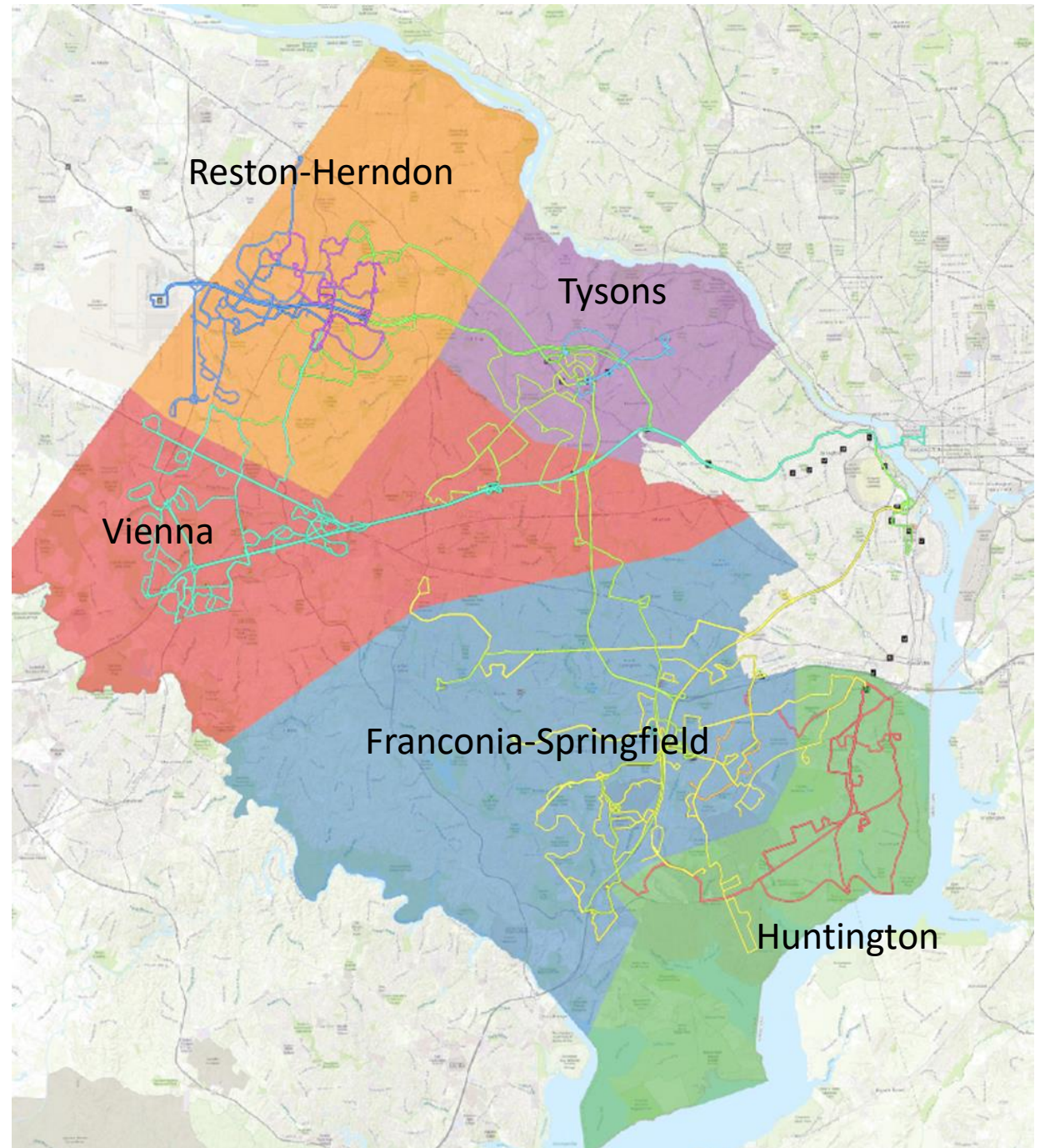
Travel patterns have been impacted by many factors.



Understanding the changing travel environment and adapting the Connector system.

Addressing Trends and Challenges: Transit Development Plan / Route Optimization (5-year cycle)

1. Franconia - Springfield (2018 / 2023)
2. Reston - Herndon (Silver Line Phase 2) (2019 / 2024)
3. Vienna (2020 / 2025)
4. Tysons (2021 / 2026)
5. Huntington (2022 / 2027)



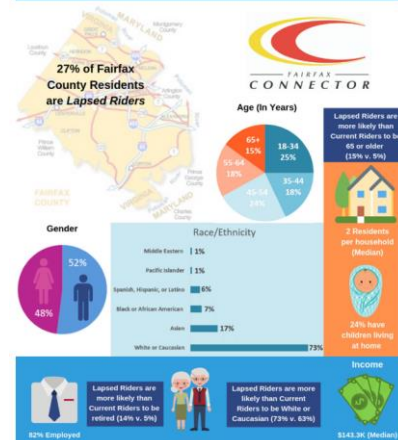
Outreach

Marketing Survey

- Fall 2018: 2,600 responses
- Gathered data on why residents do not ride buses
- Used to determine what measures could be used to attract non-riders and reconnect with lapsed riders



Lapsed Rider Demographics



Onboard Survey

- Spring - Summer 2019: 2,550 responses
- Collected information on passengers' origins, destinations, preferences, and demographic characteristics
- Used for future planning purposes to increase ridership and improve the customer experience

Marketing Survey Finding

Categories of Needs:

- Fast way to travel
- Available when needed
- Goes to desired places
- Gets people to their destinations on time
- Fits into people's lifestyle

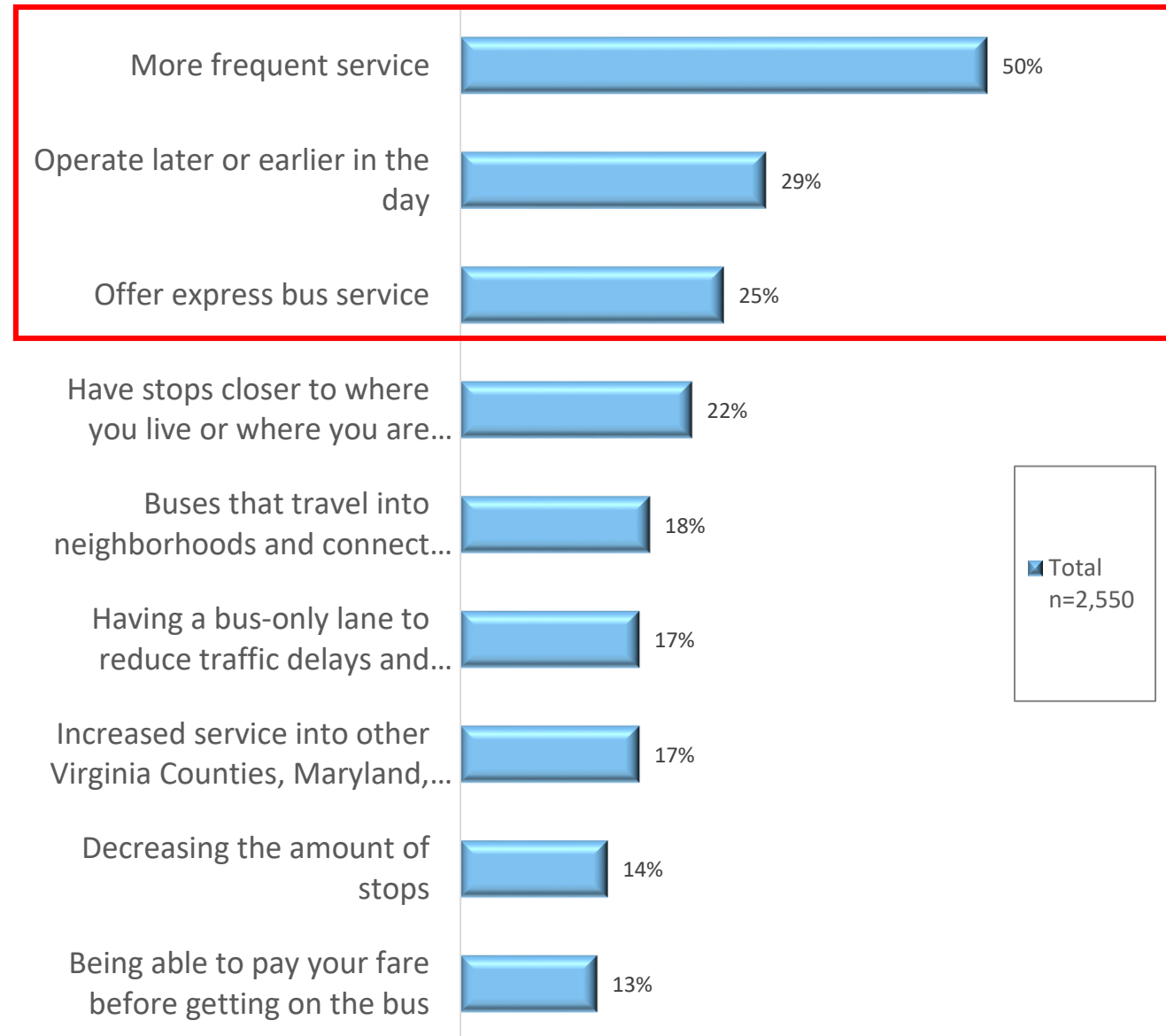


Onboard Survey

Categories of Needs:

- Fast way to travel
- Available when needed
- Goes to desired places
- Gets people to their destinations on time
- Fits into people's lifestyle

Type of Service That Would encourage You Ride the Bus More





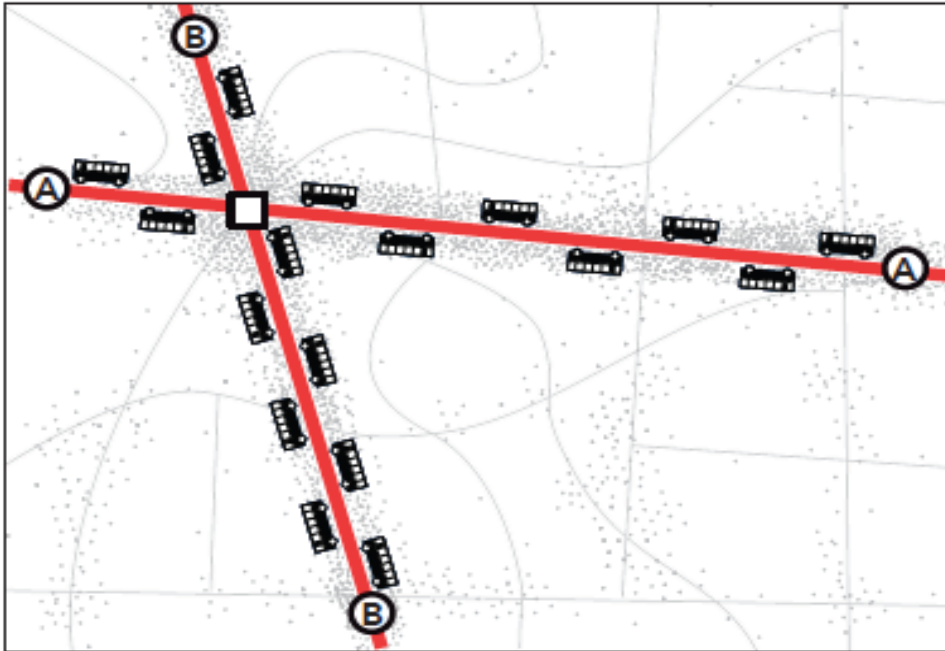
Existing Service Breakdown

- Key transit service elements
 - Coverage
 - Frequency
 - Span of service
 - Travel time
- Public input on key transit elements
 - More frequent service
 - Faster travel times
 - Improved span of service

Existing Conditions	Franconia – Springfield	Reston – Herndon
Transit Propensity Population (higher is better)	82,400	76,000
Frequency Factor (max 2.5; higher is better)	0.69	0.99
Span of Service Factor (max 2.5; higher is better)	1.63	1.90
Travel Time (in minutes; lower is better)	53	66
Key Locations (higher is better)	63	57

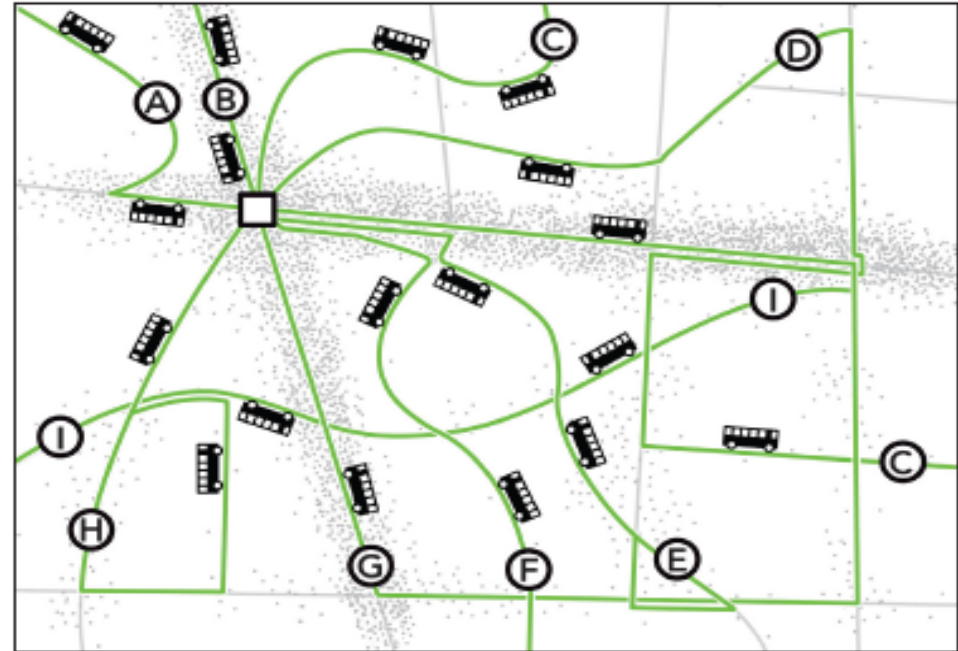
Service Network Options

Streamline Concept

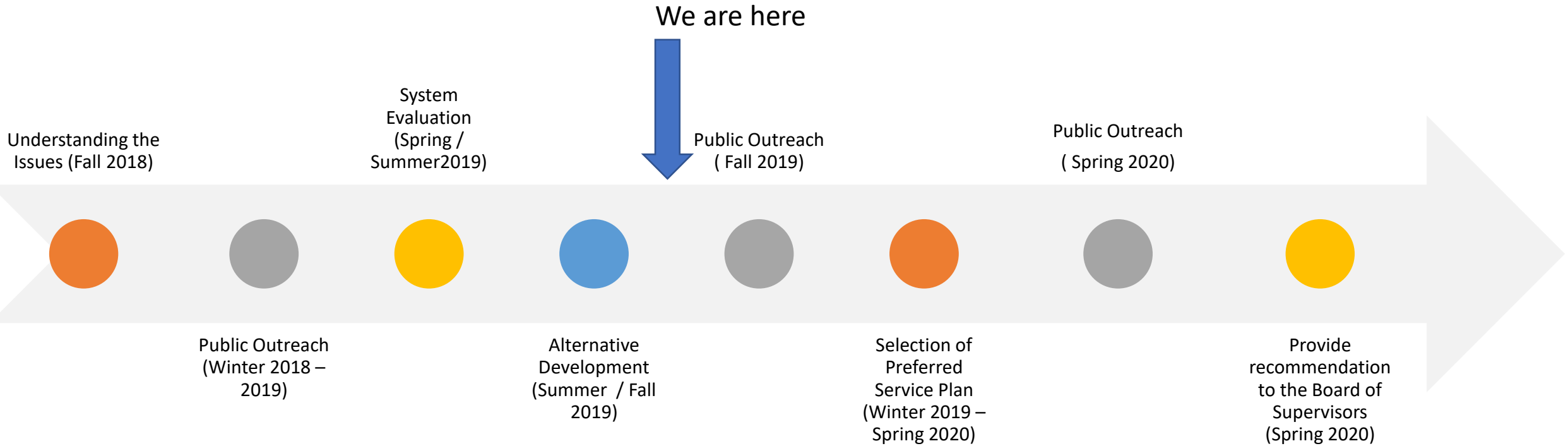


OR

Maximum Coverage



Planning Process



Service Alternatives



Three service alternatives are being studied:

Alternative 1 – Incremental changes to Transit Development Plan recommendations

Alternative 2 – Major adjustments to existing routes

Alternative 3 – Transformation



All alternatives would be developed budget neutral, with no increase (+/-2%) in total revenue hours.



Develop Preferred Service Plan

May include elements of all alternatives

Micro-transit options (Alternative Transit Study)

Transit Development Plan

Alternatives Evaluation Process



Route Analysis

- Ridership
- On-time performance



Access and Mobility Assessment

- Connection to key locations
- Transit propensity
- Origin-destination analysis
- Transit modeling



Qualitative Assessment

- Public input
- Customer / community impacts
- Service preferences
- Board member input

Reston – Herndon Route Optimization

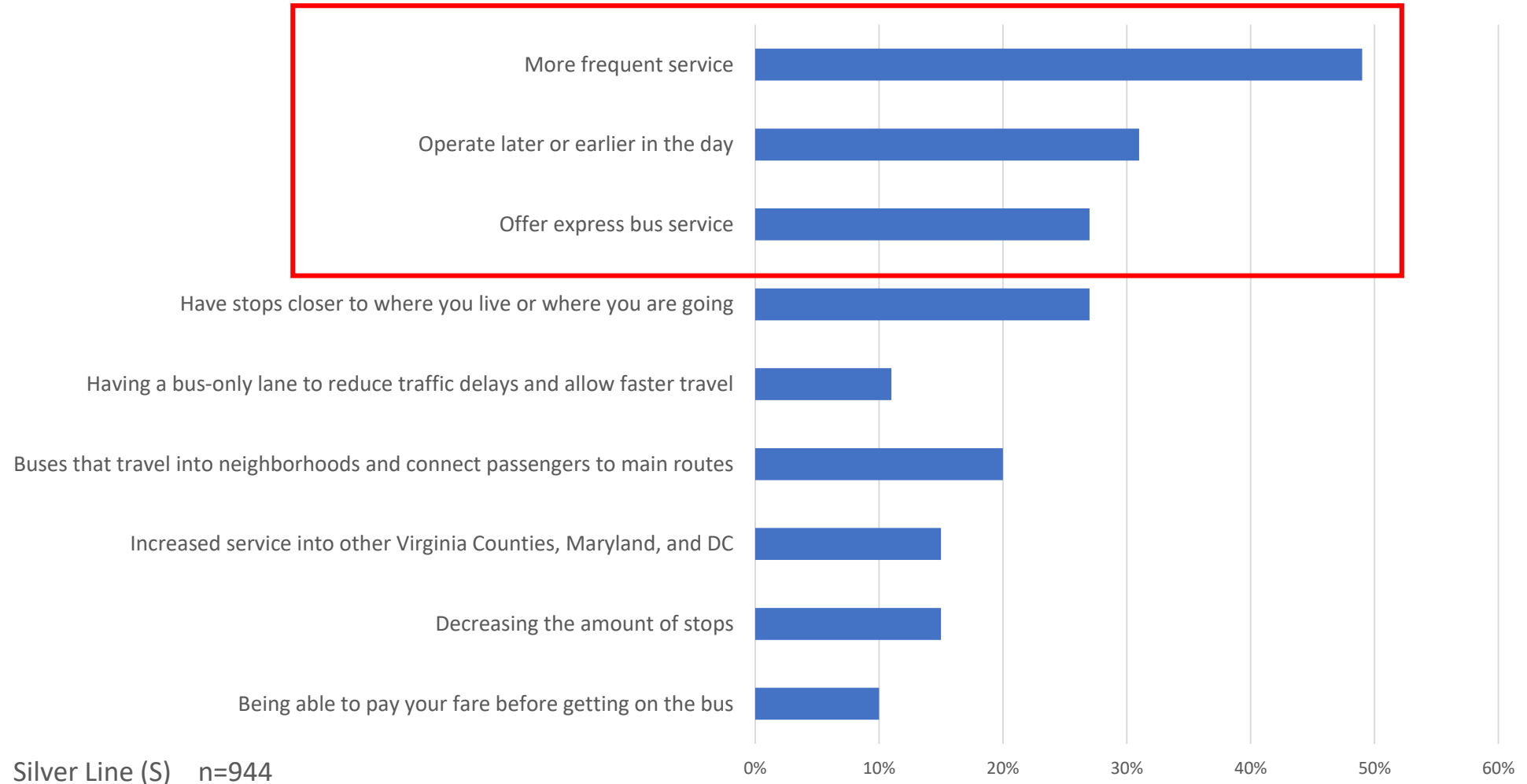


Onboard Survey

What would encourage you use the bus more?

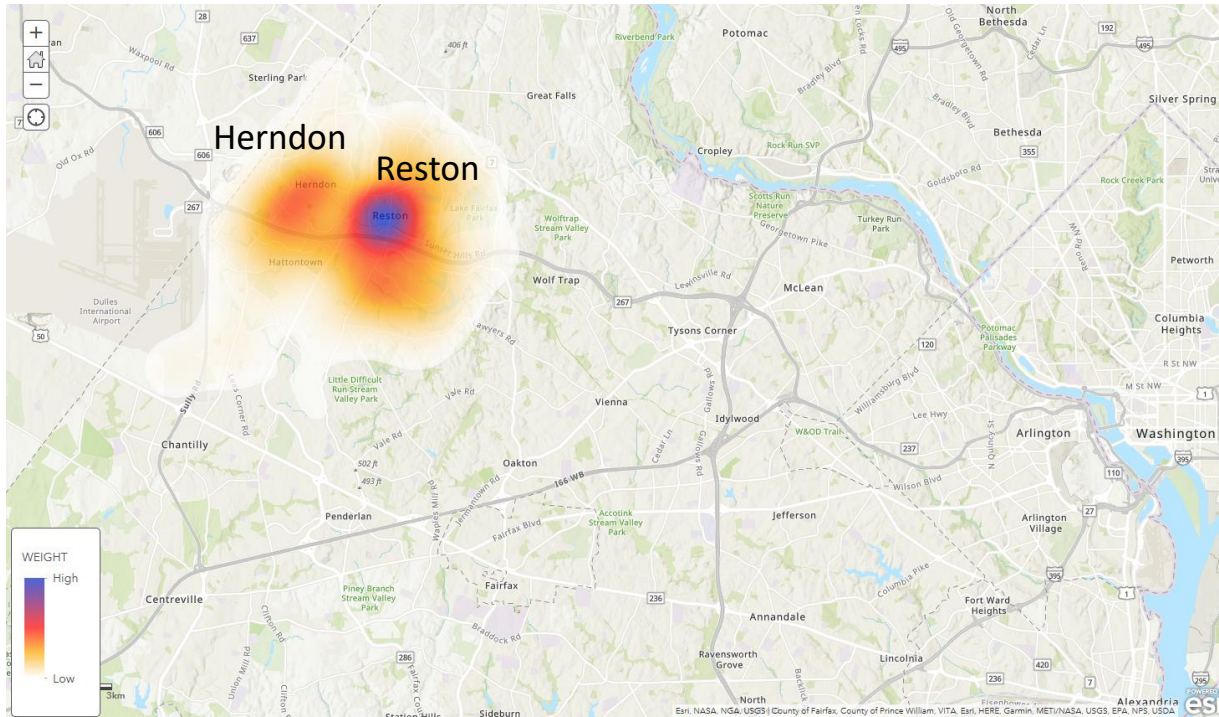
Similar finding as both on-line and County wide marketing survey.

Type of Service That Would Make You Ride the Bus More: Reston - Herndon

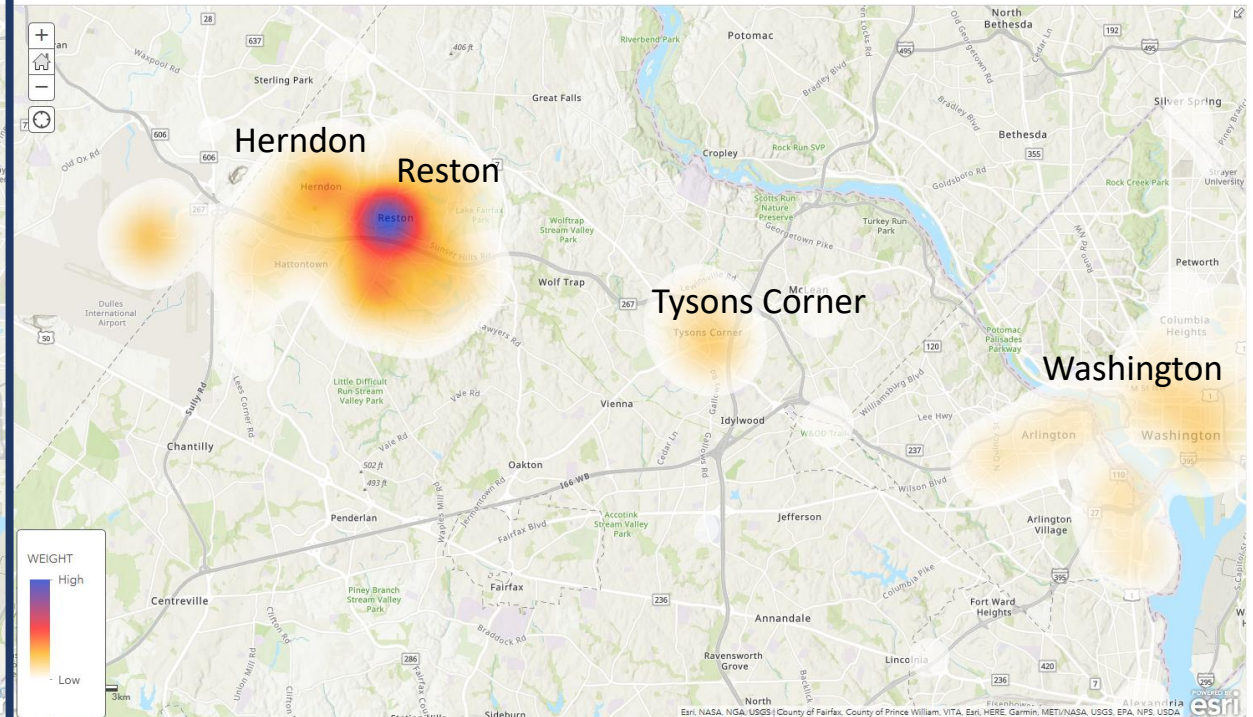


Onboard Survey Respondents

Origin



Destination



Reston – Herndon Alternative 1: Minor Changes to Transit Development Plan

❑ Transit Development Plan is adjusted as budget neutral

High benefit:

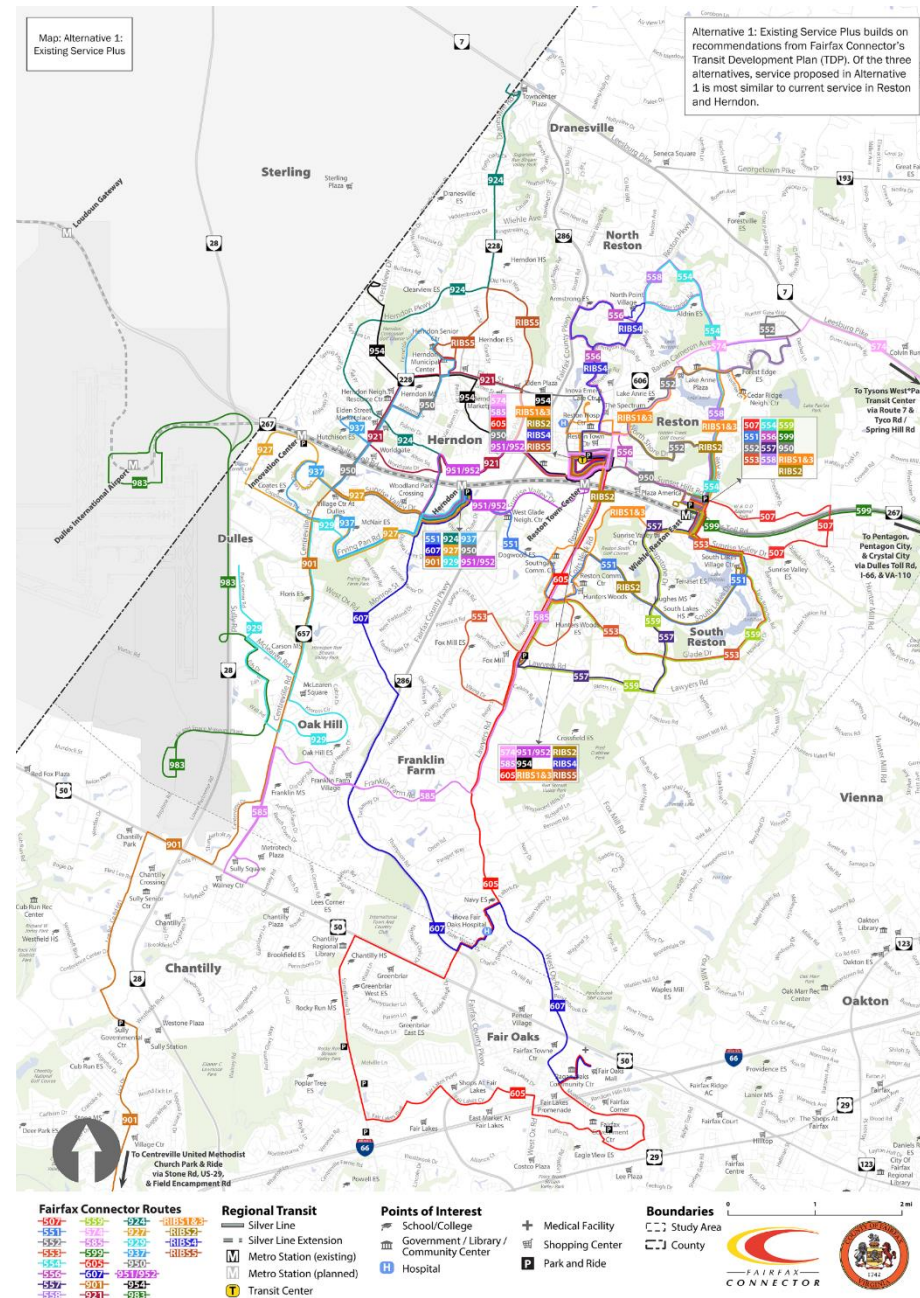
- Increased service to transit propensity areas
- Improved access to key locations
- Base on existing routes structure

Medium benefit:

- Minor increase in frequency
- Minor improvement in travel time

Limitation:

- Decreased span of service



Reston – Herndon Alternative 2: Streamline

☐ Streamlines the existing service to simplify bus routes and improve all day service

High benefits:

- Increased span of service
- Improved access to key locations

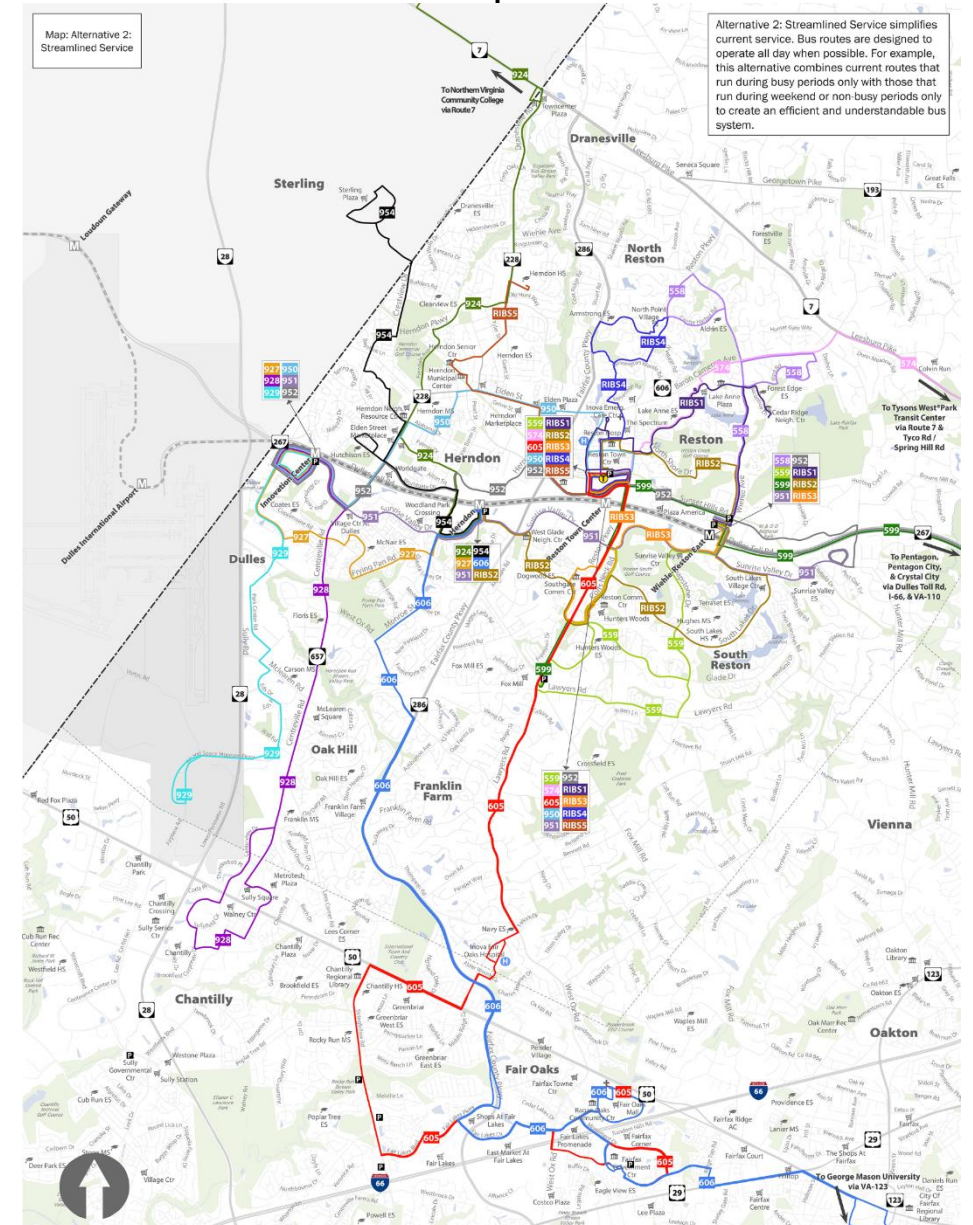
Medium benefits:

- Minor increase in service to transit propensity areas
- Minor improvement in travel time
- Similar to the existing route structure

Limitations:

- Decreased frequency and coverage

Map B



Alternative 2: Streamlined Service simplifies current service. Bus routes are designed to operate all day when possible. For example, this alternative combines current routes that run during busy periods only with those that run during weekend or non-busy periods only to create an efficient and understandable bus system.



Reston – Herndon Alternative 3: Transformation

☐ Transforms the existing service to improve access and mobility by creating a modified grid system

High benefits:

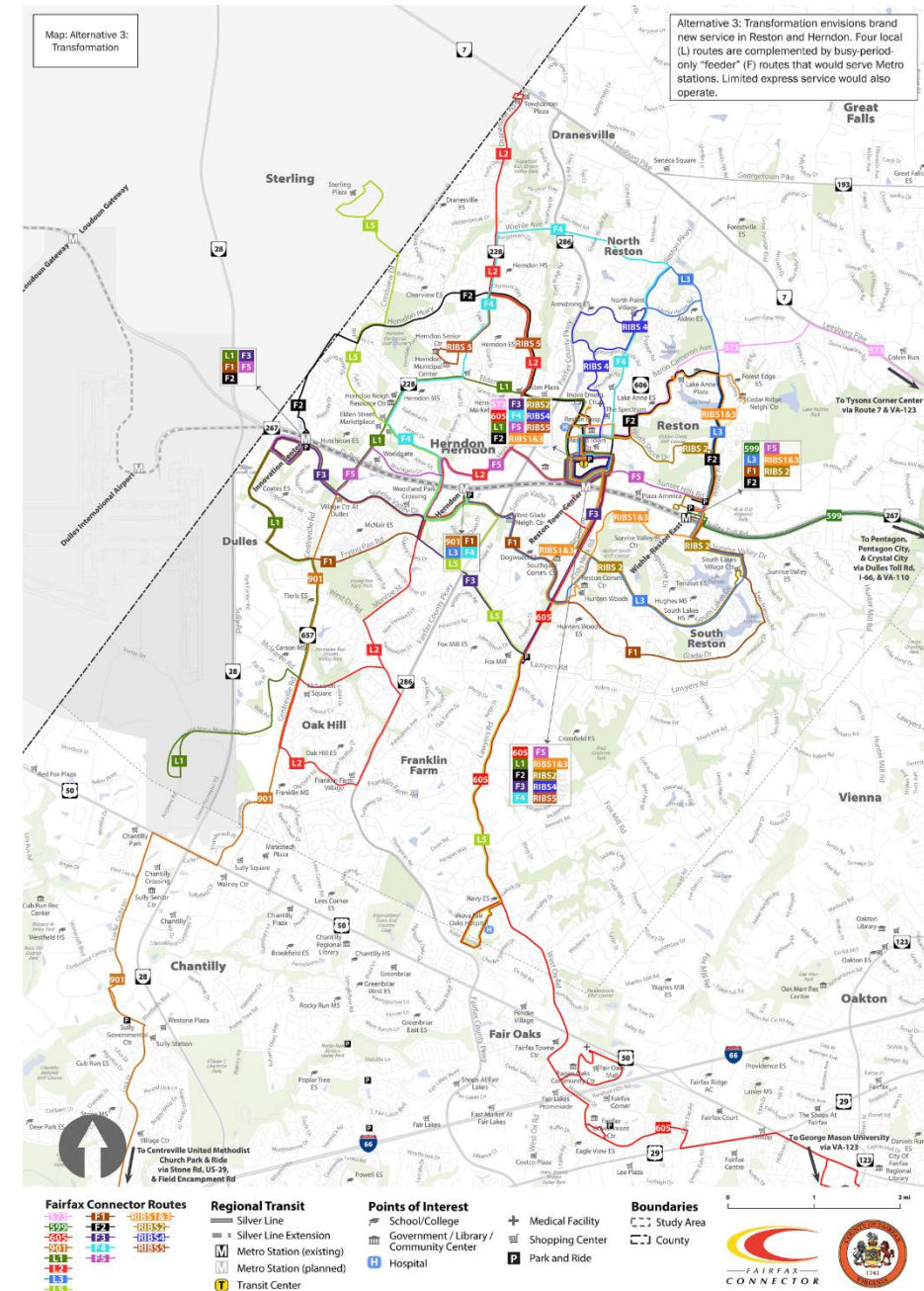
- Increased service to transit propensity areas
- Significant increase in frequency
- Significant improvement in travel time

Medium benefit:

- Improved access to key locations

Limitations:

- Decreased span of service and coverage
- Significantly different route structure

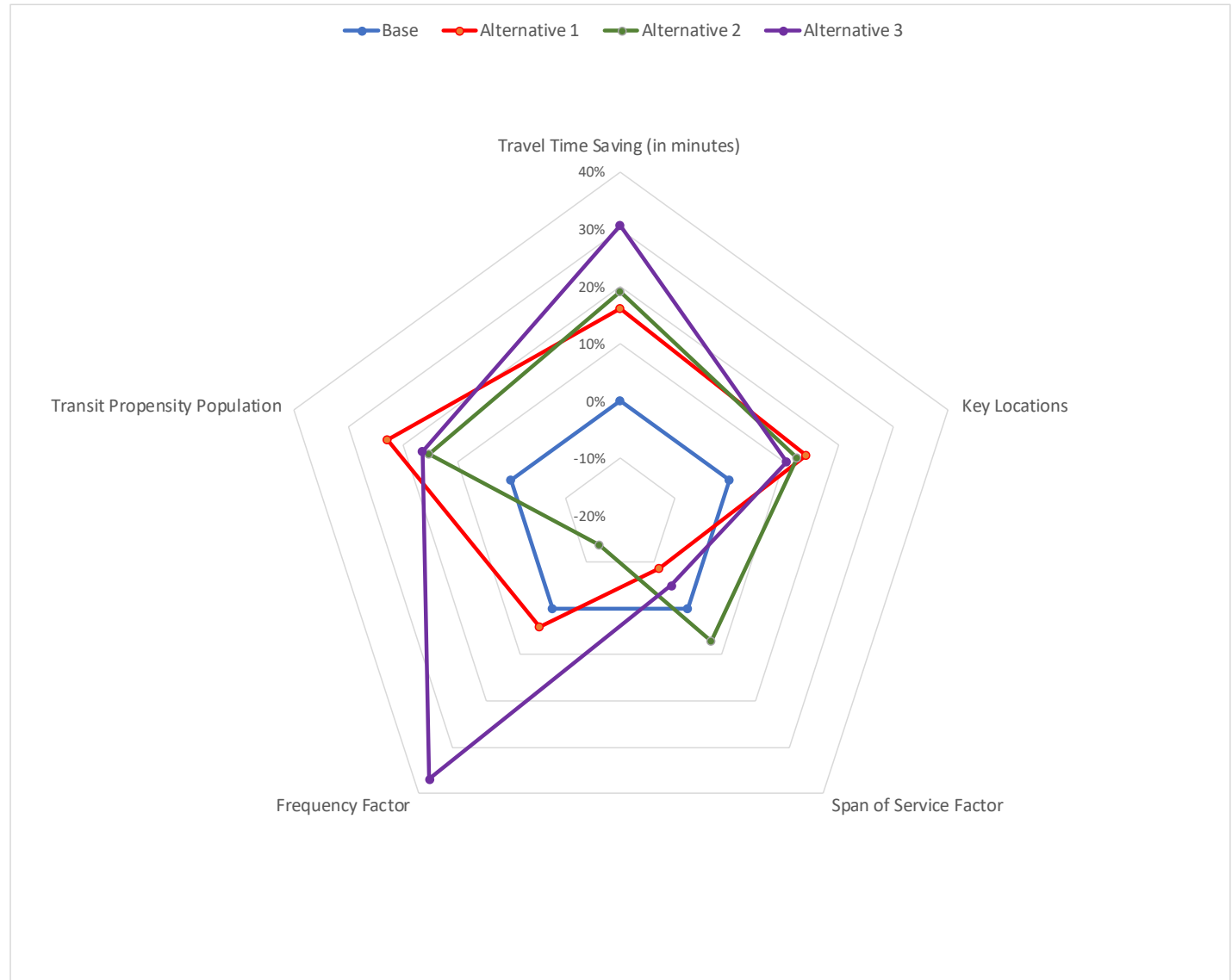


Alternative Comparison: Reston – Herndon






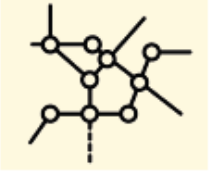









Criteria	Existing	Alternative 1	Alternative 2	Alternative 3
Transit Propensity Population (higher is better)	76,000	93,200	87,500	88,400
Frequency Factor (2.5 max; higher is better)	0.99	1.03	0.86	1.35
Span of Service Factor (2.5 max; higher is better)	1.87	1.71	2.00	1.78
Travel Time (in minutes; lower is better)	66	56	54	46
Key Locations (higher is better)	57	65	64	63

Alternative Comparison

- Five criteria were used to assess the alternatives
- Three comparison analysis criteria:
 - Transit propensity
 - Travel time
 - Key locations
- Two key criteria:
 - Frequency
 - Span of service



Alternative Comparison: Reston – Herndon

	Existing Service	Alternative 1: Existing Service Plus	Alternative 2: Streamlined Service	Alternative 3: Transformation
Key Locations 	 Rank: 4 of 4	 Rank: 3 of 4	 Rank: 2 of 4	 Rank: 1 of 4
Travel Time 	 Rank: 4 of 4	 Rank: 3 of 4	 Rank: 2 of 4	 Rank: 1 of 4
Transit Propensity 	 Rank: 4 of 4	 Rank: 2 of 4	 Rank: 3 of 4	 Rank: 1 of 4

Next Steps

1

Public outreach –
Introduce the service
alternatives

2

Develop preferred
service plan
Based on evaluation
and public input

3

Board Member Input
Public outreach –
service
recommendations

Franconia – Springfield Route Optimization

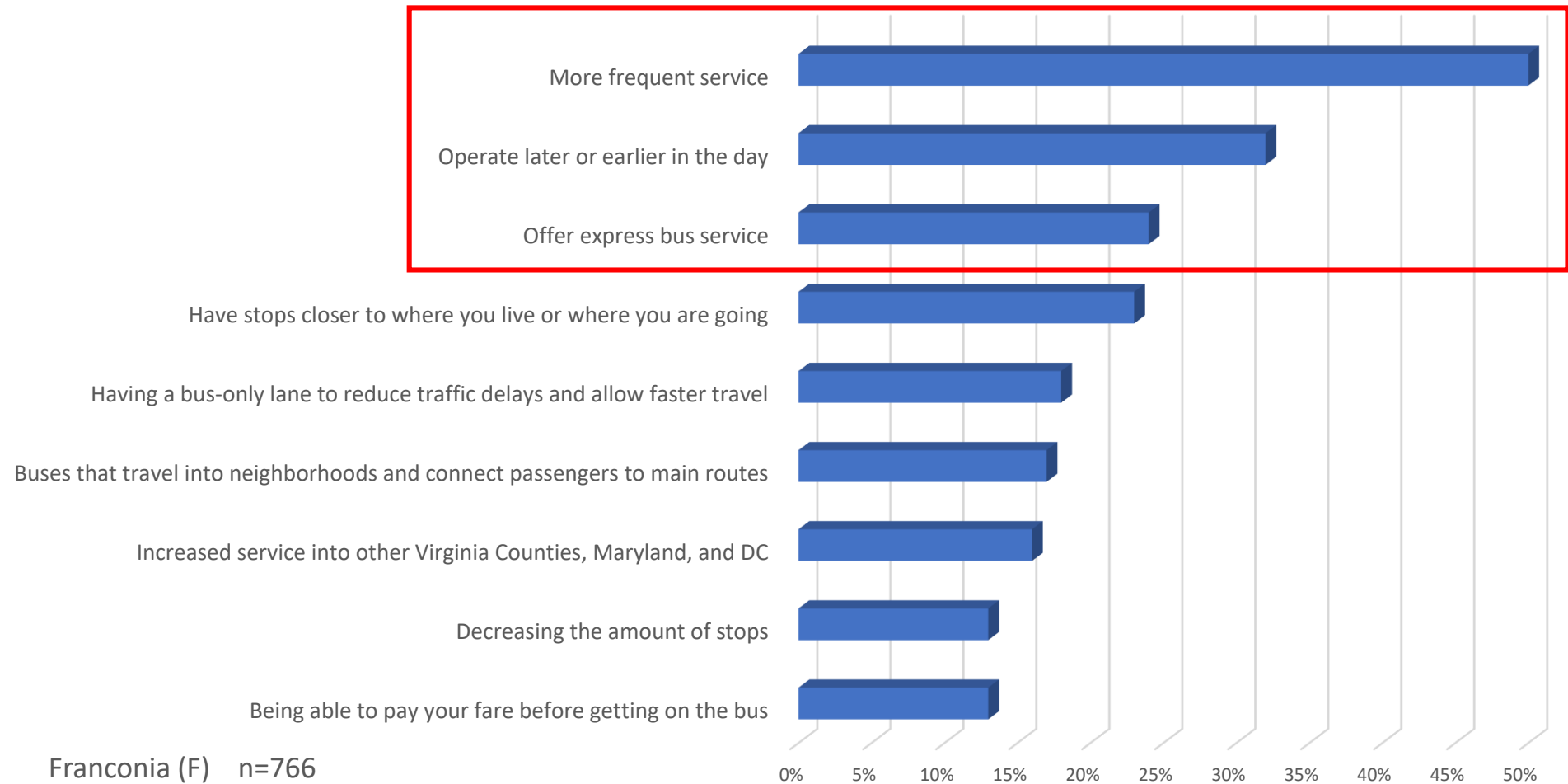


Onboard Survey

What would make you use the bus more?

Similar finding as both on-line and county wide marketing survey.

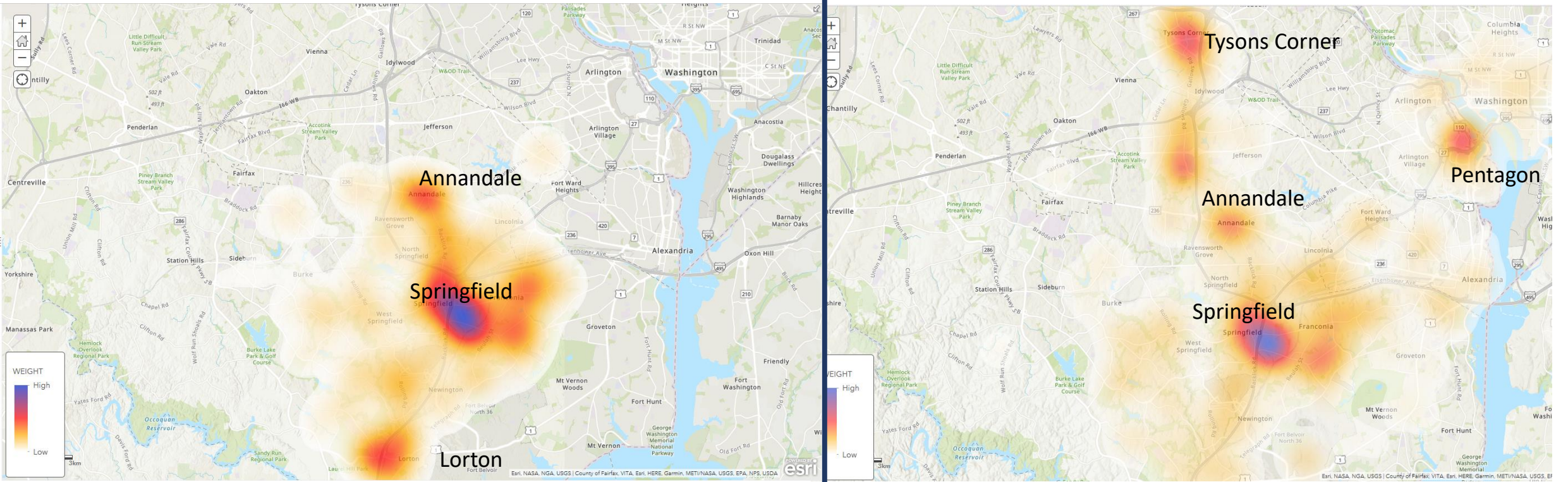
Type of Service That Would Make You Ride the Bus More: Franconia-Springfield



Onboard Survey Respondents

Origin

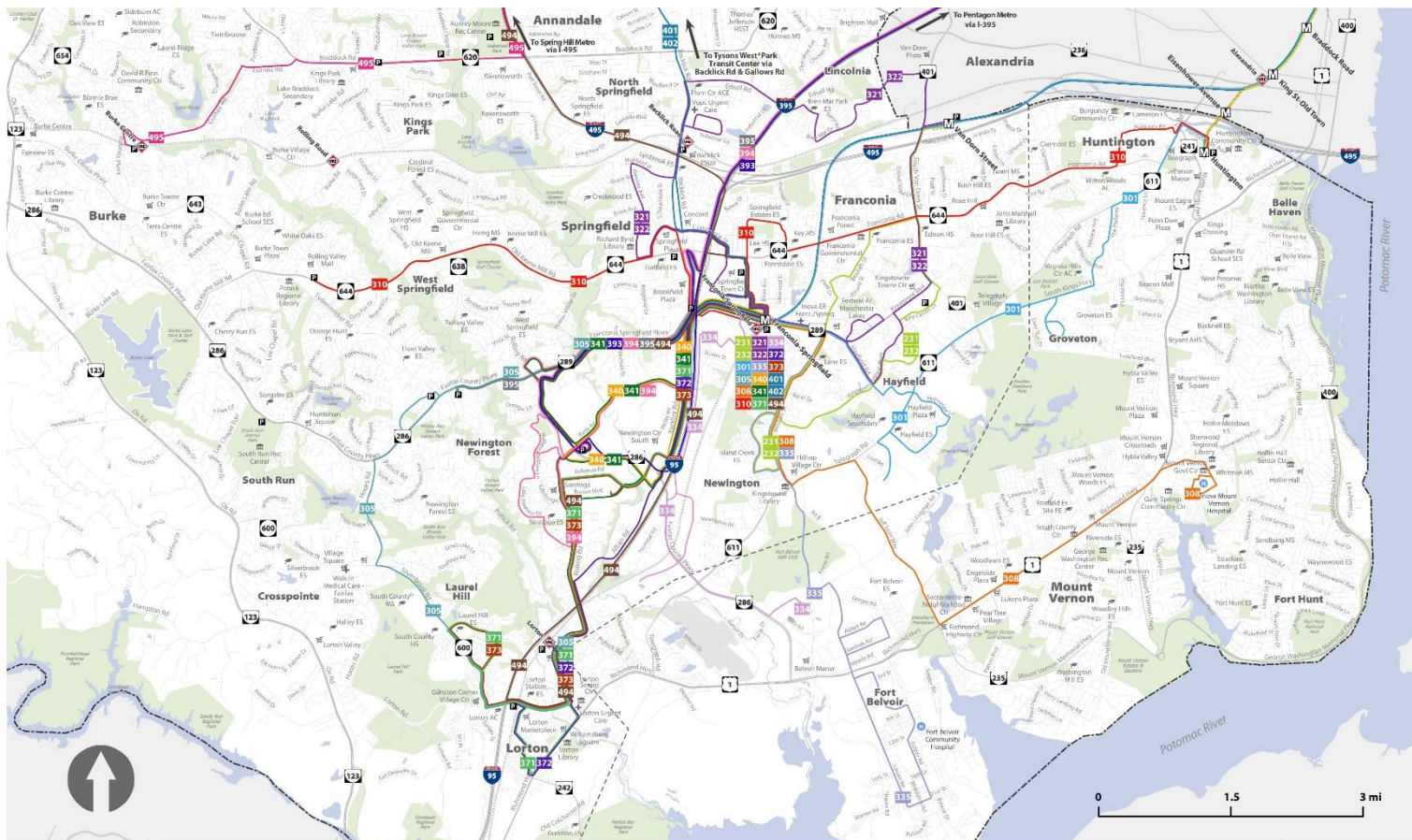
Destination



Franconia – Springfield

Alternative 1: Transit Development Plan with Minor Changes

Map D



Fairfax Connector Routes

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Regional Transit

- Blue Line
- Yellow Line
- Metrorail Station

Virginia Railway Express (VRE)

- VRE Line
- VRE Station

Points of Interest

- Park and Ride
- School/College
- Government / Library / Community Center
- Shopping Center
- Hospital
- Other Medical Facility

Boundaries

- Study Area
- County



☐ Transit Development Plan is adjusted as budget neutral
High benefits:

- Increased service to transit propensity areas
- Increased frequency
- Improved access to key locations
- Base on existing route structure

Medium benefit:

- Minor improvement in travel time

Limitation:

- Decreased span of service

Franconia – Springfield Alternative 2: Streamline

Map E

- Streamlines the existing service to simplify bus routes

High benefits:

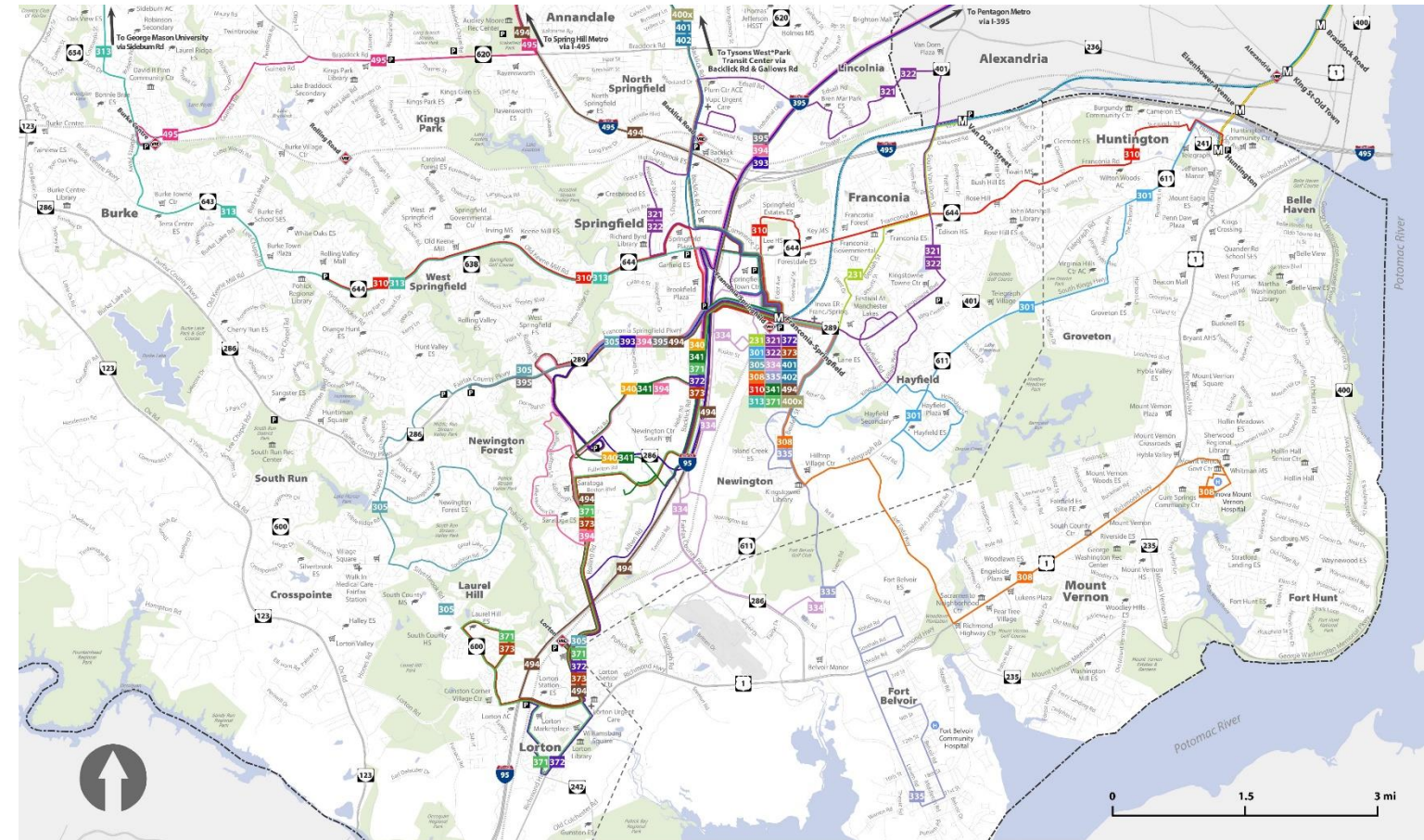
- Significant increase in service to transit propensity areas
- Increased frequency
- Significant improvement in travel time
- Improved access to key locations

Medium benefit:

- Similar to existing route structure

Limitation:

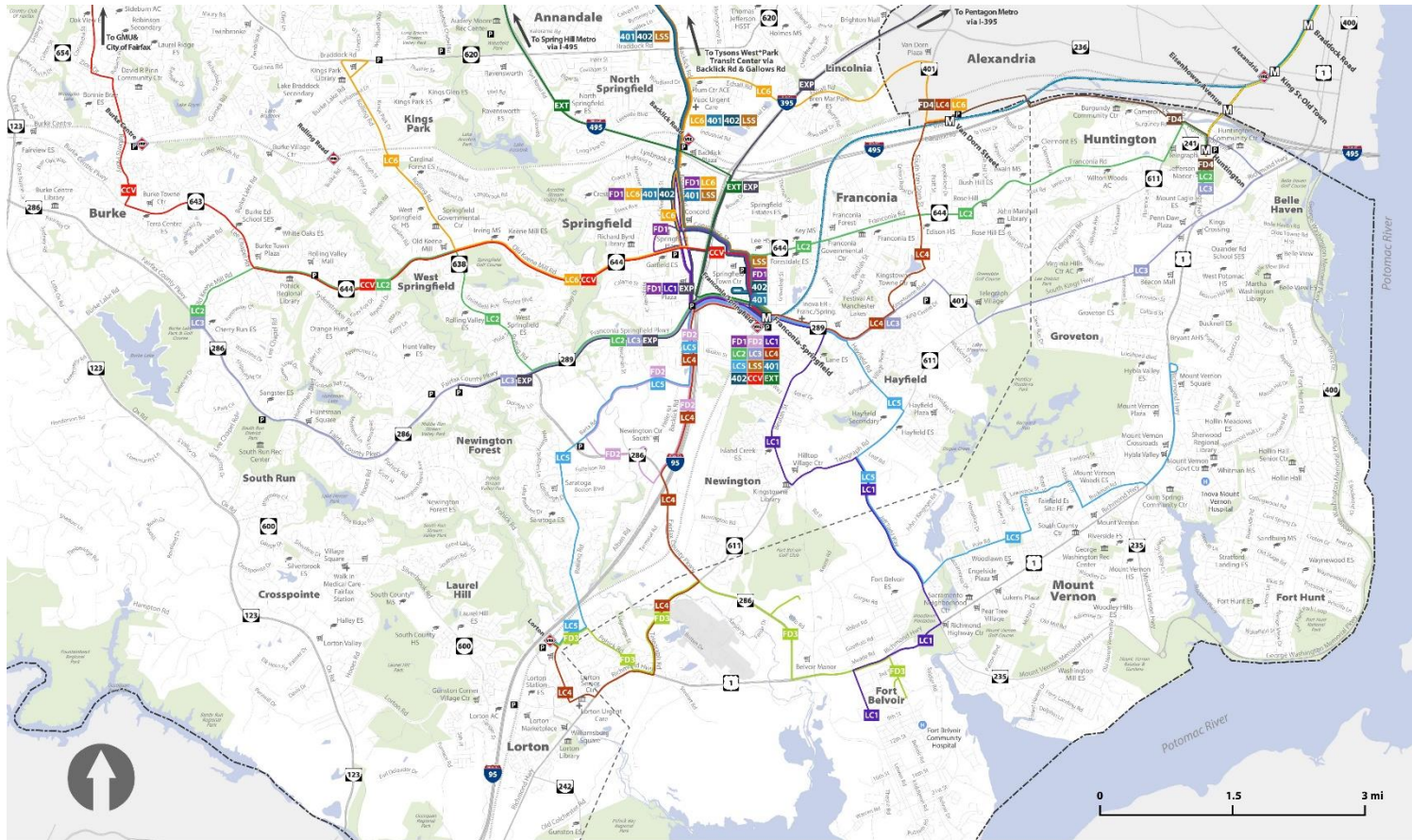
- No improvement in span of service



Fairfax Connector Routes 	Regional Transit 	Virginia Railway Express (VRE) 	Points of Interest 	Boundaries
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Franconia – Springfield Alternative 3: Transformation

Map F



Fairfax Connector Routes



Regional Transit



Virginia Railway Express (VRE)
VRE Line
VRE Station

Points of Interest



Boundaries



- ☐ Transforms the existing service to improve access and mobility by creating an interconnecting system

High benefits:

- Increased service to transit propensity areas
- Significant increase in frequency
- Increased span of service
- Improved travel time
- Improved access to key locations

Limitations:

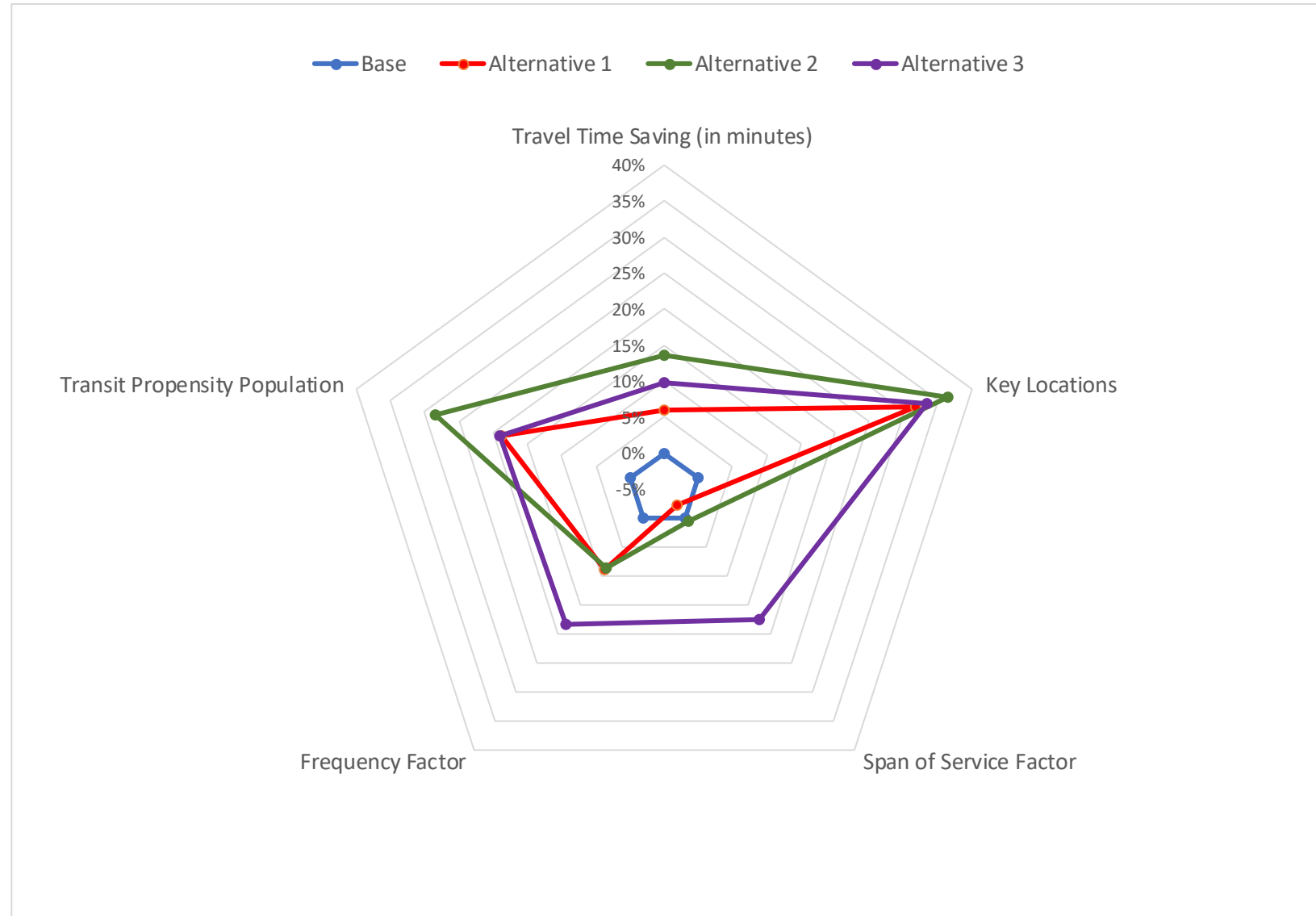
- Area coverage for low production
- Significant different route structure

Alternative Comparison: Franconia – Springfield






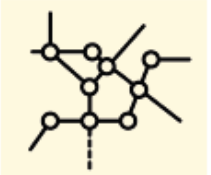









Criteria	Existing	Alternative 1	Alternative 2	Alternative 3
Transit Propensity Population (higher is better)	82,500	98,000	105,900	98,150
Frequency Factor (2.5 max; higher is better)	0.69	1.31	1.28	1.95
Span of Service Factor (2.5 max; higher is better)	1.63	1.59	1.64	1.91
Travel Time (in minutes; lower is better)	53	50	46	48
Key Locations (higher is better)	63	83	86	84

Alternative Comparison

- Five criteria were used to assess the alternatives
- Three comparison analysis criteria:
 - Transit propensity
 - Travel time
 - Key locations
- Two key criteria:
 - Frequency
 - Span of service



Alternative Comparison: Franconia – Springfield

	Existing Service	Alternative 1	Alternative 2	Alternative 3
Key Locations 	 Rank: 4 of 4	 Rank: 3 of 4	 Rank: 2 of 4	 Rank: 1 of 4
Travel Time 	 Rank: 4 of 4	 Rank: 3 of 4	 Rank: 1 of 4	 Rank: 2 of 4
Transit Propensity 	 Rank: 4 of 4	 Rank: 3 of 4	 Rank: 2 of 4	 Rank: 1 of 4

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Discussion

