Transitway Corridor Feasibility Study

High Capacity Transit Corridor Work Group
January 19, 2012

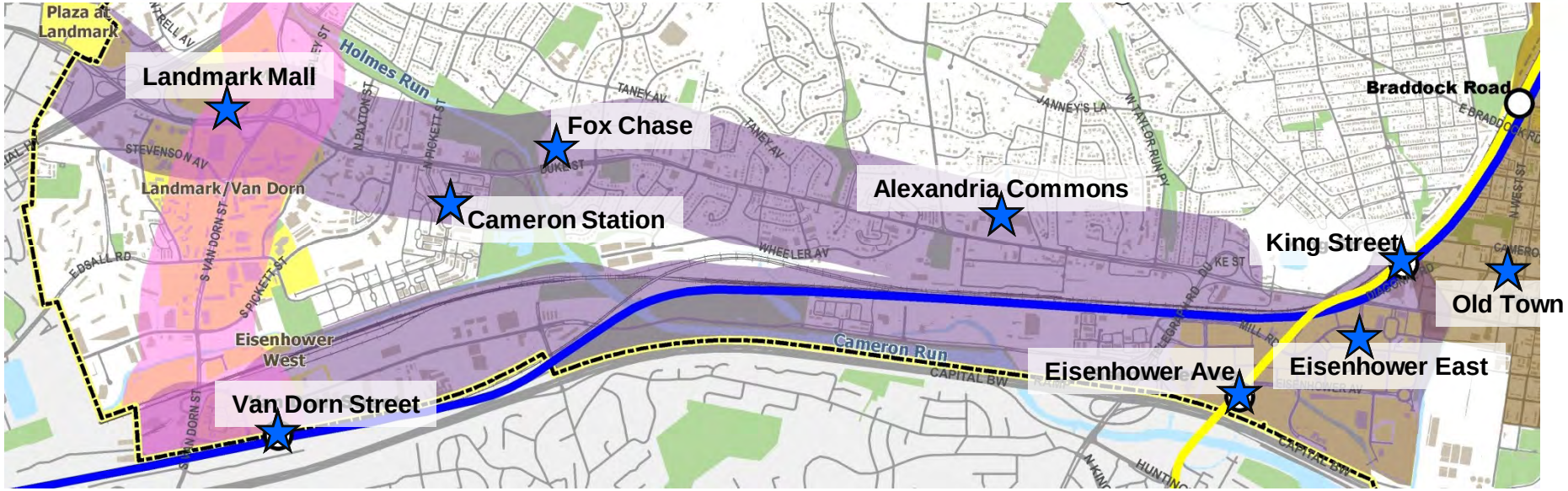
Corridor B - Alternatives Evaluation Summary

T&ES

Kimley-Horn and Associates, Inc.

Meeting Agenda

- Introduction and Background
- Corridor B Discussion
  - Recap of Preliminary Alternatives
  - Alternatives for Secondary Screening
  - Criteria
  - Secondary Screening Summary
- CWG & Public Comment
- Next Steps



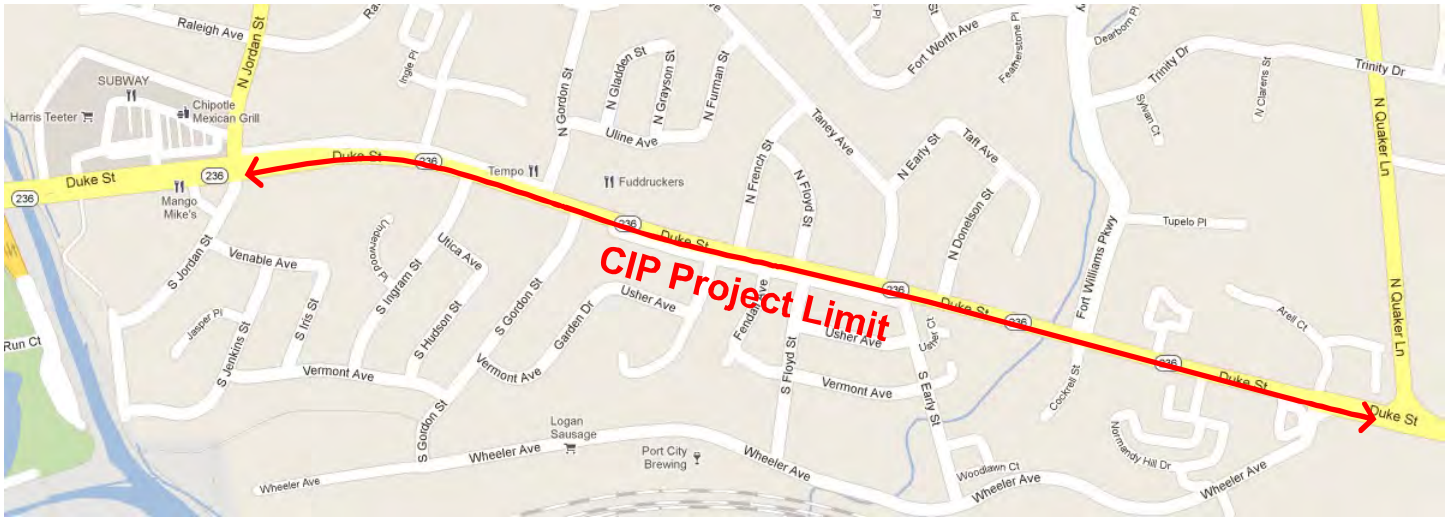
Corridor B: Duke/Eisenhower

- Major destinations
  - Eisenhower East
  - Landmark Mall Area
  - Cameron Station
  - Fox Chase
  - Alexandria Commons
  - Old Town
  - Van Dorn Metro
  - King Street Metro
  - Eisenhower Avenue Metro

Planned Capital Improvement Project

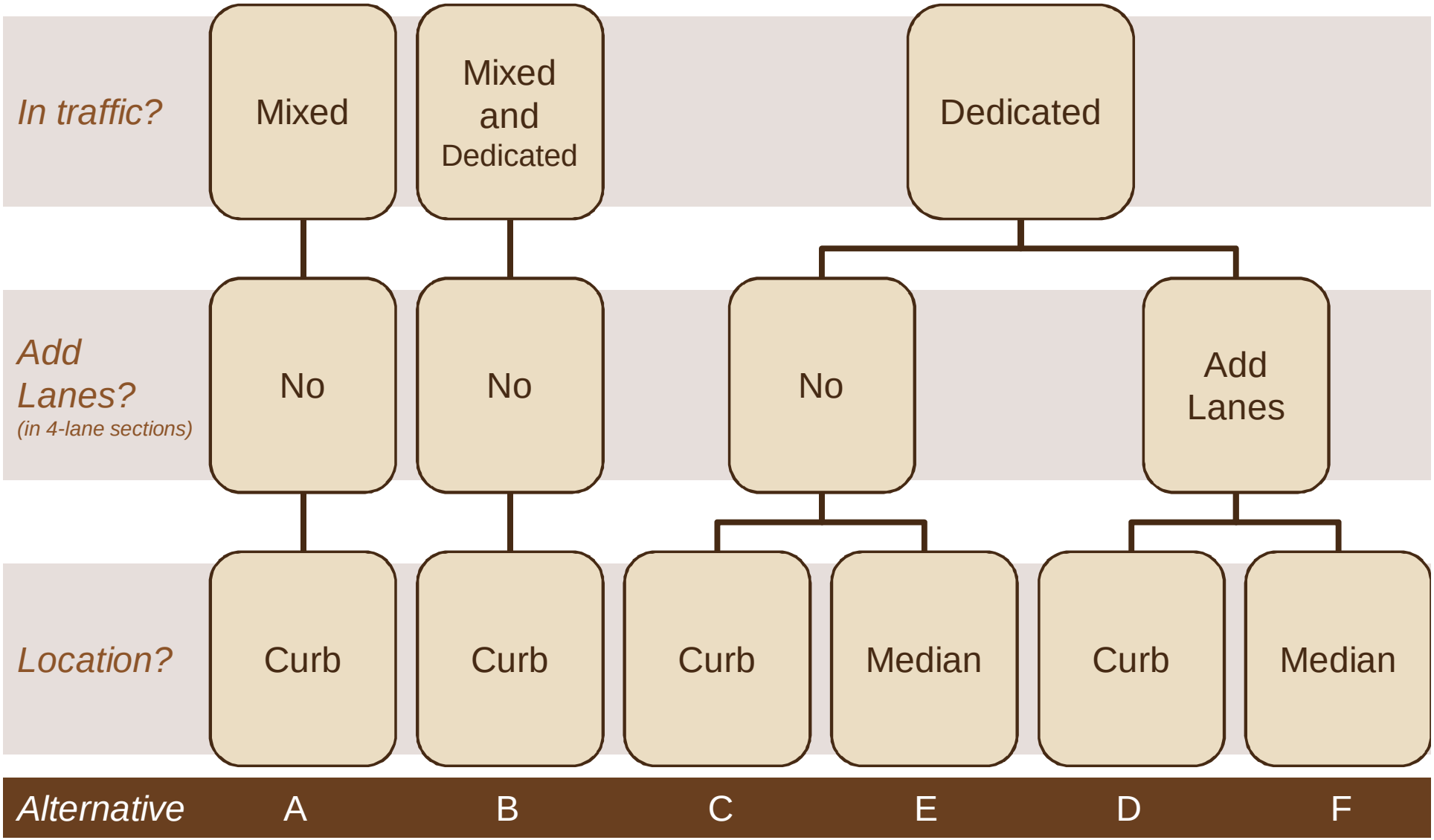
Duke Street Modification Project

- Includes the construction of a fifth lane (center turn lane) along Duke Street
- Project extends from Jordan Street to Wheeler Avenue
- Fifth lane will accommodate left turn movements
- Raised medians at various locations to protect left turning vehicles and provide pedestrian refuges
- Project funding: $2.31 million

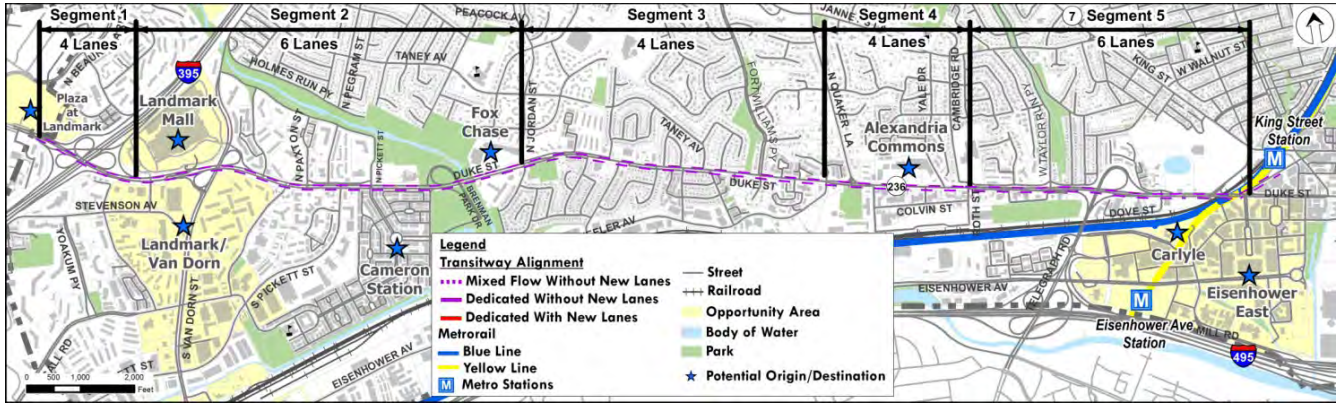


PRELIMINARY ALTERNATIVES

Options

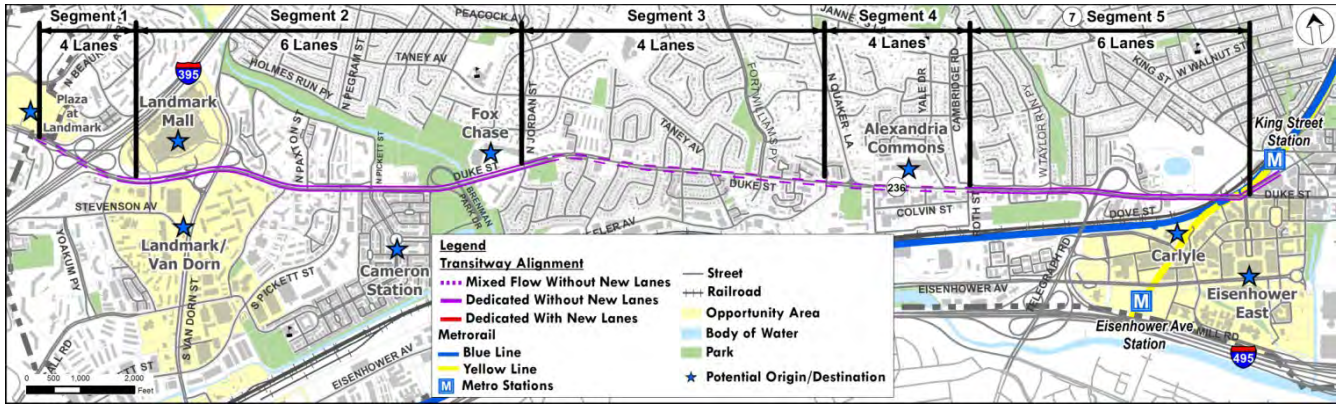

In traffic?
Add Lanes?
(in 4-lane sections)
Location?
Mixed
Mixed and Dedicated
Dedicated
No
No
No
Add Lanes
Curb
Curb
Curb
Median
Curb
Median
Alternative
A
B
C
E
D
F

Alternative A: Curb Running in Mixed Flow



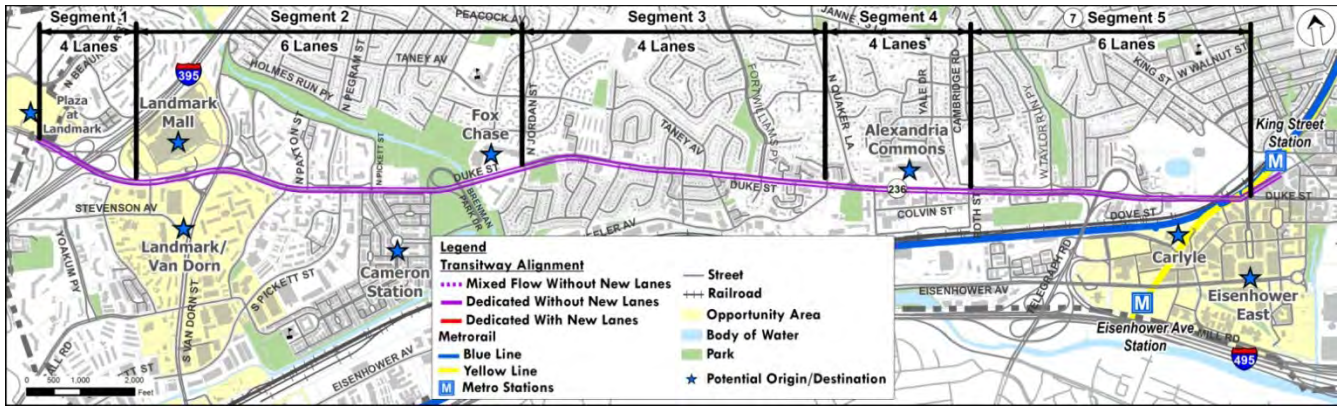
- Uses queue jumps and TSP
- Some impacts to property and service roads to accommodate queue jumps

Alternative B: Curb Running in Mixed Flow and Dedicated Lanes



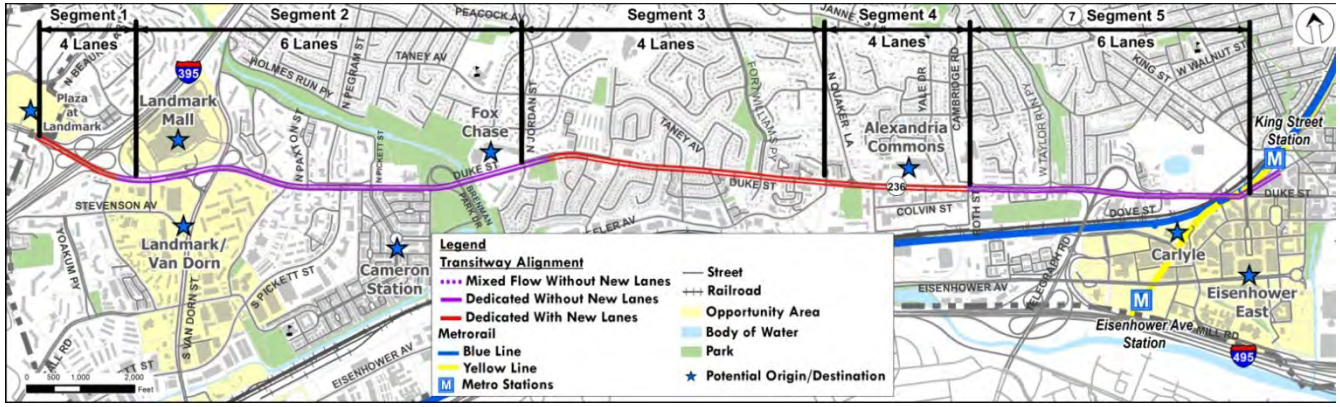
- Uses queue jumps and TSP
- Some impacts to property and service roads to accommodate queue jumps

Alternative C: Curb Running in Dedicated Lanes without New Lanes



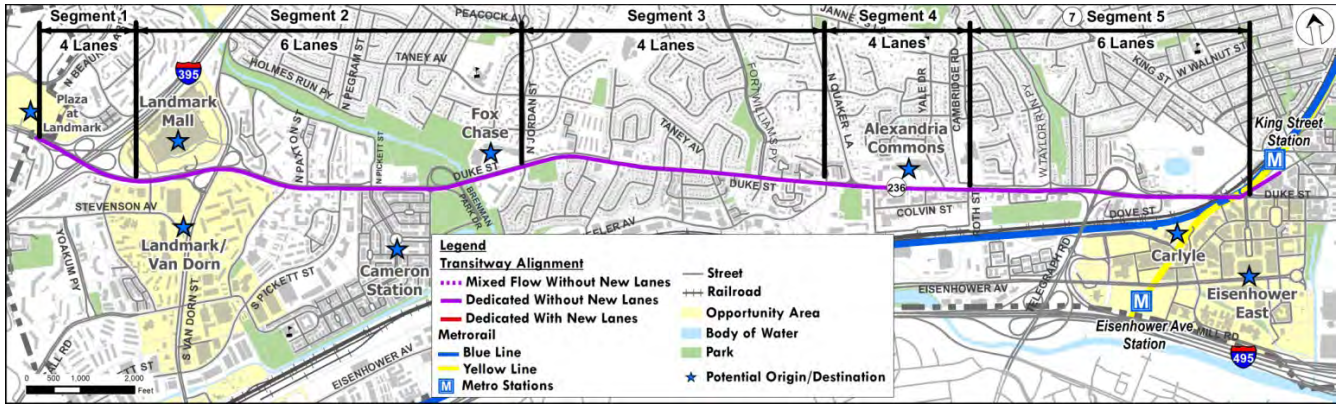
- Reduces Duke Street to one lane per direction in 4-lane segments (2 miles total)
- Minimal impacts to property and service roads

Alternative D: Curb Running in Dedicated Lanes with New Lanes



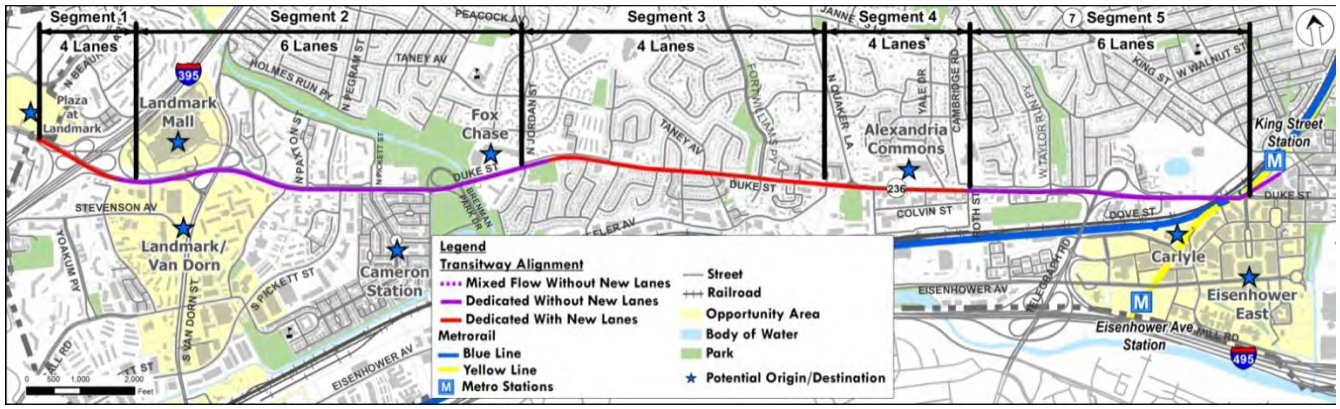
- Requires widening in 4-lane segments (2 miles total)
- Impacts to property and service roads

Alternative E: Median Running in Dedicated Lanes without New Lanes



- Reduces Duke Street to one lane per direction in 4-lane segments (2 miles total)
- Minimal impacts to property and service roads

Alternative F: Median Running in Dedicated Lanes with New Lanes



- Requires widening in 4-lane segments (2 miles total)
- Impacts to property and service roads

Evaluation Criteria

General Evaluation Criteria Grouping	Criteria Sub-Group	Evaluation Criteria	Preliminary Screening	Measurement Method
Effectiveness - Addresses stated transportation issues in the corridor	Coverage	Transit Connectivity	✓	Access to other transit services (existing and planned)
	Operations	Avoidance of Congestion	*	Number and locations of LOS E/F intersections avoided
		Transit Travel Time	*	Transit travel time
		Intersection Priority	✓	Percent of intersections where TSP is needed and can be implemented successfully - notation of where it cannot be implemented successfully
	Alignment	Runningway Status	O	Percent of corridor to be located on new or realigned roadway
	Phasing	Phasing	✓	Identification of ability to phase operations and implementation
Impacts - Extent to which economics, environment, community, transportation are affected	Natural Environmental	Natural Environment	O	Summary of key environmental conditions affected (wetlands, floodplains, T&E, streams, and similar)
	Neighborhood and Community	Property	✓	Number, use type, and quantity of properties impacted with anticipated level of impact (ROW only, partial take, total take)
		Streetscapes	*	Impact to existing streetscapes
		Noise and Vibration	O	Summarize relative noise and vibration impacts of different mode types and corridor configurations
	Transportation	Traffic Flow Impact	*	Effect of transit implementation on vehicular capacity of corridor
		Multimodal Accommodation	✓	Impacts to, and ability to accommodate bicycles and pedestrians
		Parking	✓	Impacts to parking
Cost Effectiveness - Extent to which the costs are commensurate with their benefits	Cost	Capital cost	✓	Order of magnitude capital cost for corridor (stations, runningway, etc.)
		Operating cost	✓	Order of magnitude operating cost
		Cost Per Rider	✓	Order of magnitude operating cost per rider
Financial Feasibility - Extent of funding is driven by cost	Funding	Funding	✓	Availability to specific funding sources

Screening Criteria Legend:	*	Highest Importance	✓	Normal Importance	O	Lesser Importance

General Traffic Evaluation Summary

- Level of service and queuing evaluation together is best representation of potential future operations
- Existing six-lane section have the potential to be reduced to four-lanes with left-turn lanes and operate acceptably (D or better)
- Benefit to increased capacity on Duke Street in vicinity of Quaker Lane and Telegraph Road
- Four general purpose through lanes are needed on Duke Street between Quaker Lane and Telegraph Road
- Widening to accommodate transit would have some benefit in specific locations along Duke Street
- For dedicated lane transitway implementation, some compromise between widening four-lane sections and not widening four-lane sections of Duke Street seems logical as a “best fit” option

Preliminary Evaluation Summary

Preliminary Screening Criteria	Alternative					
	A	B	C	D	E	F
In traffic?	Mixed	Both	Dedicated	Dedicated	Dedicated	Dedicated
Add lanes?	No	No	No	Add a lane	No	Add a lane
Location?	Curb	Curb	Curb	Curb	Median	Median
Transit Connectivity	◑	◑	◑	◑	◑	◑
Avoidance of Congestion	○	◑	●	●	●	●
Transit Travel Times	○	◑	●	●	●	●
Intersection Priority	○	◑	●	●	●	●
Runningway Status (Percent already in place)	◑	◑	●	○	●	○
Runningway Configuration (Percent dedicated)	○	◑	●	●	●	●
Phasing	●	●	◑	○	◑	○
Natural Environment Impacts	◑	◑	●	○	●	○
Property Impacts	◑	◑	●	○	●	○
Impacts to Existing Streetscape	◑	◑	●	○	●	○
Noise and Vibration	◑	◑	◑	○	●	●
Traffic Flow Impact	◑	◑	○	●	○	●
Pedestrian Accommodation	●	●	●	●	◑	◑
Bicycle Accommodation	○	○	◑	◑	●	●
Parking Impacts	◑	◑	●	○	●	○
Capital Cost	◑	◑	●	○	◑	○
Operating Cost	○	○	●	●	●	●
Funding	◑	◑	●	○	◑	○

NOTE: Data to evaluate Cost Per Rider is not available at this time.

Rating:	●	Best	◑	Fair	○	Poor

Summary of CWG and Public Comments

Public Comments

- Transitway along Duke Street will disrupt quality of life for adjacent residents
- Poor pedestrian and bicycle conditions along Duke Street
- There is limited non-peak and weekend bus service along Duke Street
- Need to protect neighborhood streets
- Show bicycle facilities on alternatives
- Traffic model underestimates potential transit ridership
- Service roads between Jordan Street and Quaker Lane should not be impacted
- Traffic congestion east of Quaker Lane
- Minimize roadway widening, use narrower lanes
- Use median for transit and prohibit left turns
- Consider only constructing a turn lane between Quaker Lane and Jordan Street
- Southbound left-turn lane from Quaker onto Duke Street too short
- Median lanes compromise safety

Summary of CWG and Public Comments

CWG Member Comments

- Use redevelopment at the Landmark Mall for additional right-of-way
- Right-in/right-out on westbound Duke Street near Taylor Run Parkway; restrict left turns onto Duke Street
- Impacts to emergency services (two fire stations) on Duke Street corridor
- Congestion could create a division between east and west Alexandria
- Consider needs of bicyclists without compromising needs of pedestrians
- From the Transportation Master Plan, the City does not cater to through traffic
- Existing lanes should be dedicated, with curbside transit in shared lanes between Jordan and Roth Streets

Alternatives Preferred for Further Evaluation

Alternative B: Curb Running in Mixed Flow and Dedicated Lanes

- Preferred by CWG
- Base alternative for implementation within existing footprint
- Consider modified Alternative B with dedicated lanes at narrowest segment utilizing service road right-of-way

Alternative C: Curb Running in Dedicated Lanes without New Lanes

- Fewer impacts to property and environment, but adverse impact on traffic
- Should be modified to consider reversible lane configuration in order to use auto lane in off-peak direction (combo with D)

Alternative D: Curb Running in Dedicated Lanes with New Lanes

- Viewed as efficient and effective
- Would reduce traffic, but would result in greater impacts to property and environment
- Should be modified to consider reversible lane configuration in order to use auto lane in off-peak direction (combo with C)

Alternative F: Median Running in Dedicated Lanes with New Lanes

- Viewed as a worst-case scenario from property and environment impact perspective

ALTERNATIVES FOR SECONDARY SCREENING

Preliminary Alternatives

Alternative A – Curb Running in Mixed Flow

Alternative B – Curb Running in Mixed Flow and Dedicated Lanes

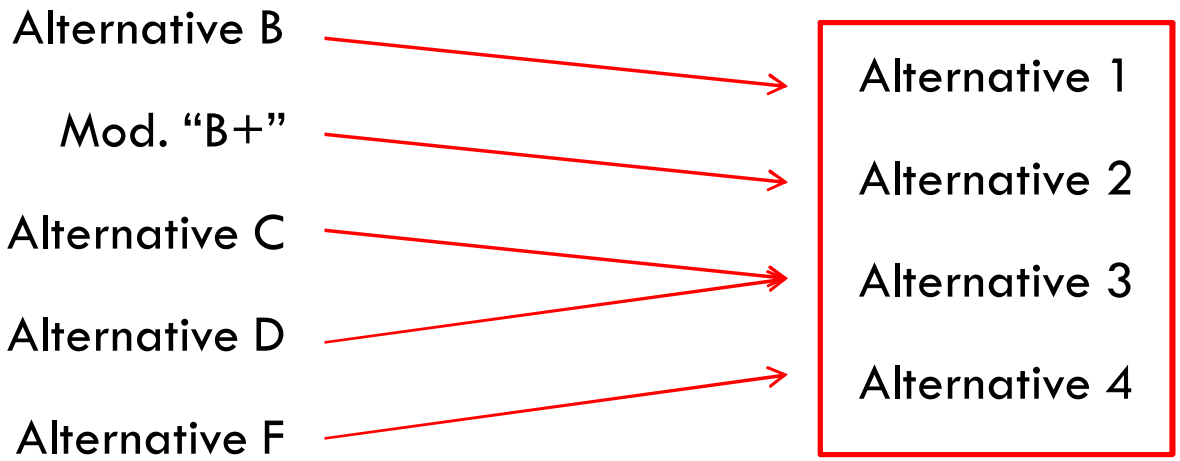
Alternative C – Curb Running in Dedicated Lanes without New Lanes

Alternative D – Curb Running in Dedicated Lanes with New Lanes

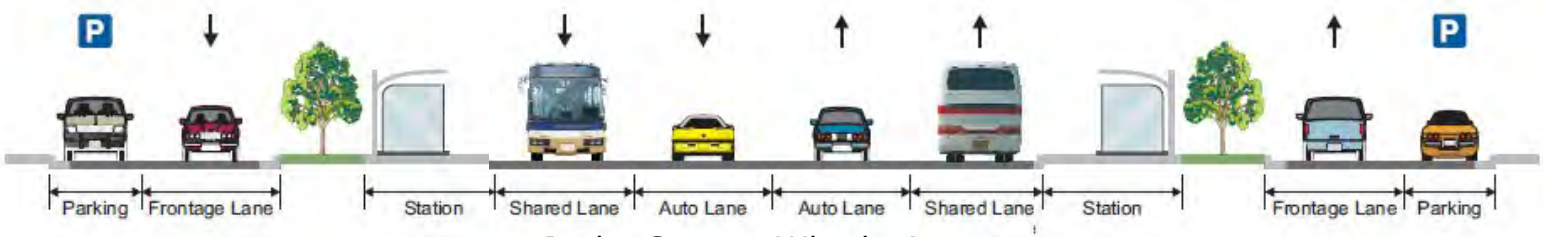
Alternative E – Median Running in Dedicated Lanes without New Lanes

Alternative F – Median Running in Dedicated Lanes with New Lanes

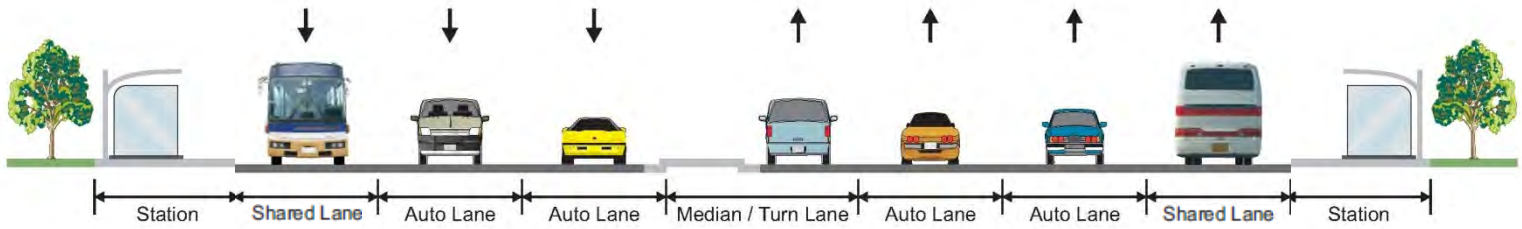
Alternatives for Further Evaluation



Existing Conditions



Jordan Street to Wheeler Avenue

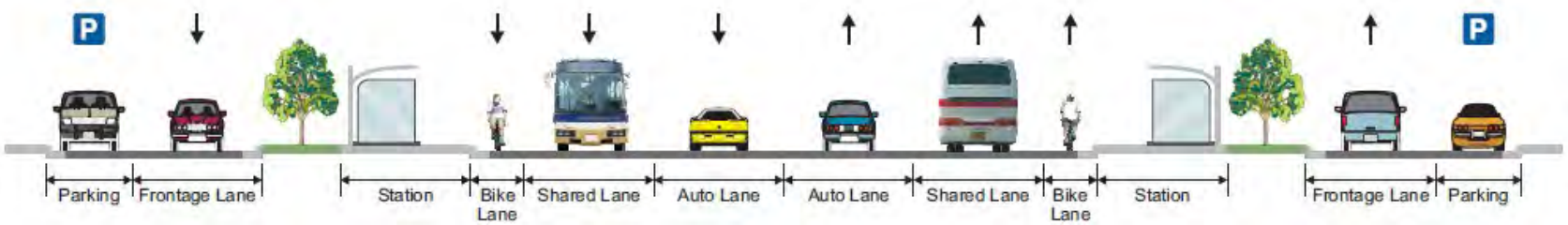


Landmark Mall to Jordan Street / Roth Street to King Street Metro

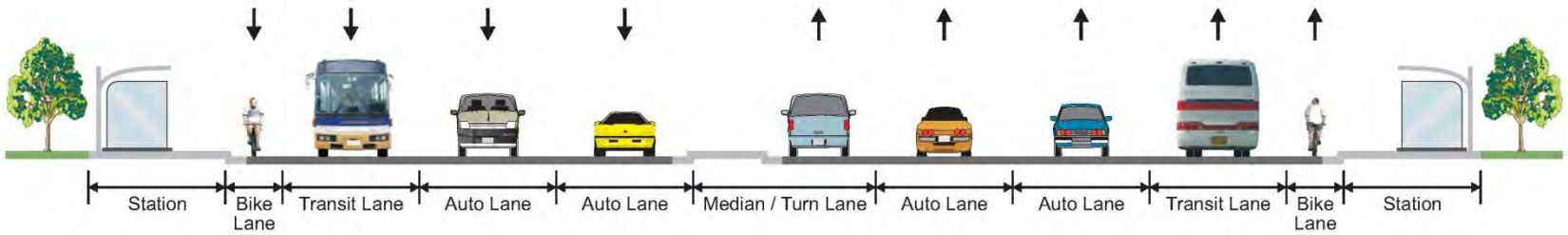
Description

- DASH and WMATA bus service run along curb
- 4.5 miles total - 4-lane segments for 2 miles total 6-lane segments for 2.5 miles total
- ROW width varies and is not centered on Duke Street travel lanes
- Service roads between Jordan Street and Wheeler Avenue accommodate individual property driveways

Alternative 1 – Existing Configuration



Jordan Street to Wheeler Avenue

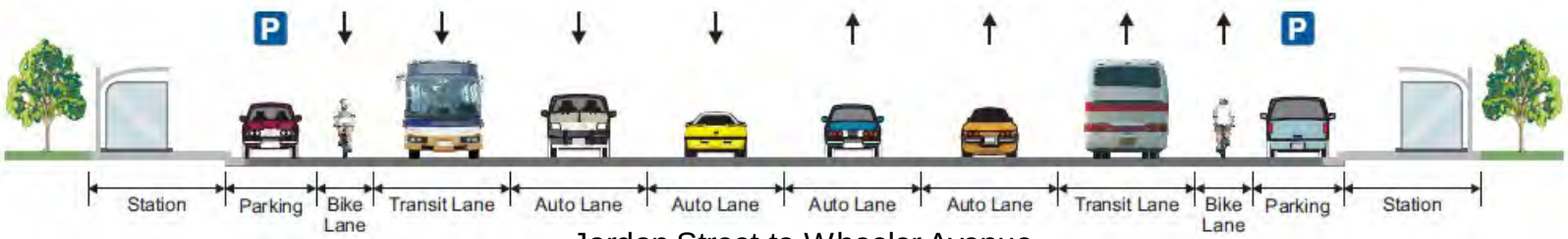


Landmark Mall to Jordan Street / Wheeler Avenue to King Street Metro

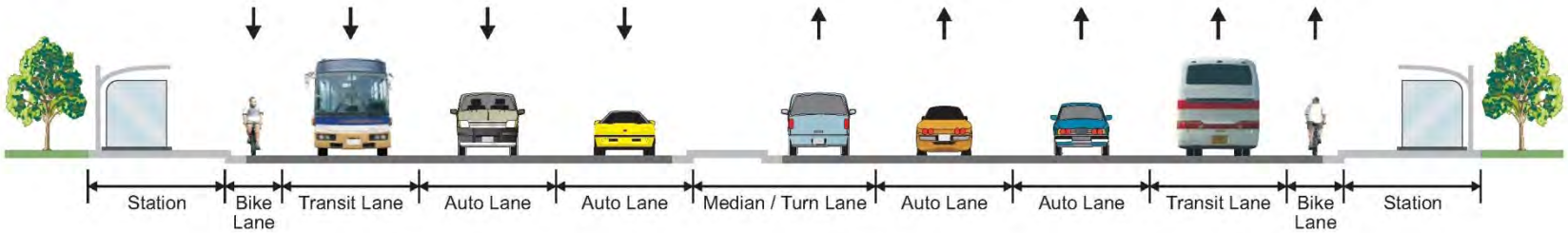
Description

- Transit running along curb
- Transit in mixed flow on 4-lane segments (2 miles total) and in dedicated lanes on 6-lane segments (2.5 miles total)
- Uses existing lanes for transit and widens the road to accommodate bicycle facilities
- Uses queue jumps where there are not dedicated lanes
- Impacts to property and service roads to accommodate queue jumps and bike lanes

Alternative 2 – Uses Service Road Right-of-Way



Jordan Street to Wheeler Avenue

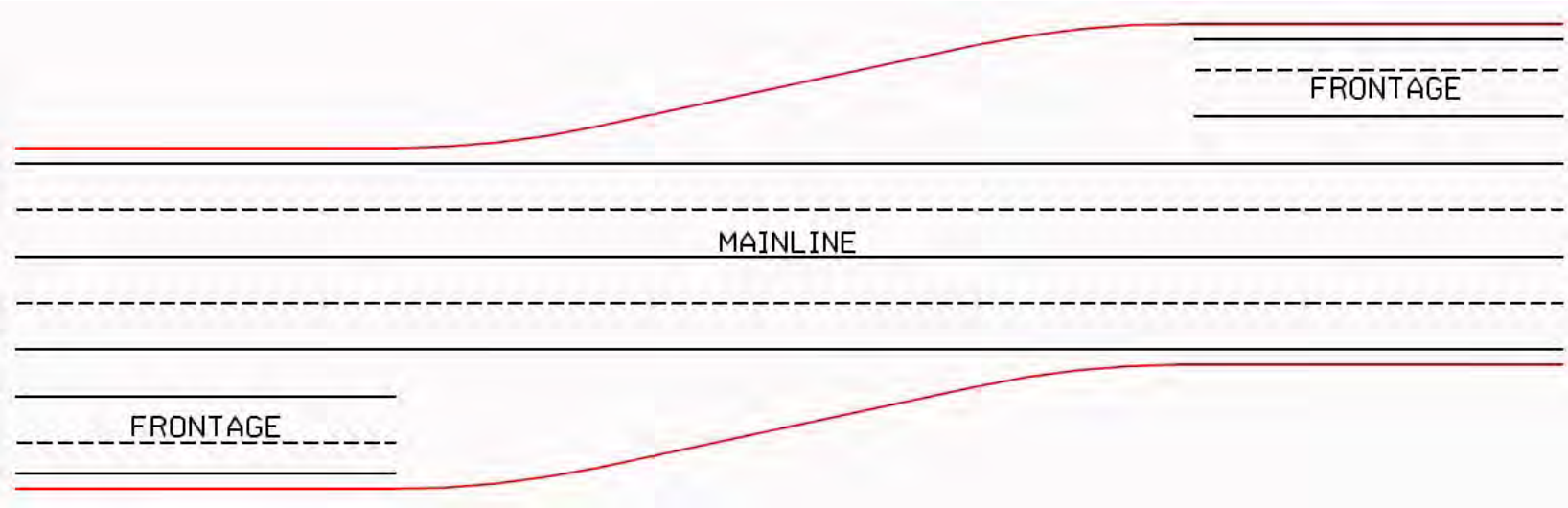


Landmark Mall to Jordan Street / Wheeler Avenue to King Street Metro

Description

- Transit running along curb
- Transit in dedicated lanes for full corridor length
- Adds one lane per direction in 4-lane segments (2 miles total)
- Reduces impacts to property by shifting roadway centerline to make use of service roads (described on following slide)
- On-street parking in some locations
- Bike lanes or shared outside lane
- Could accommodate CIP project at major intersections with additional widening

Alternative 2 – Alignment Shift

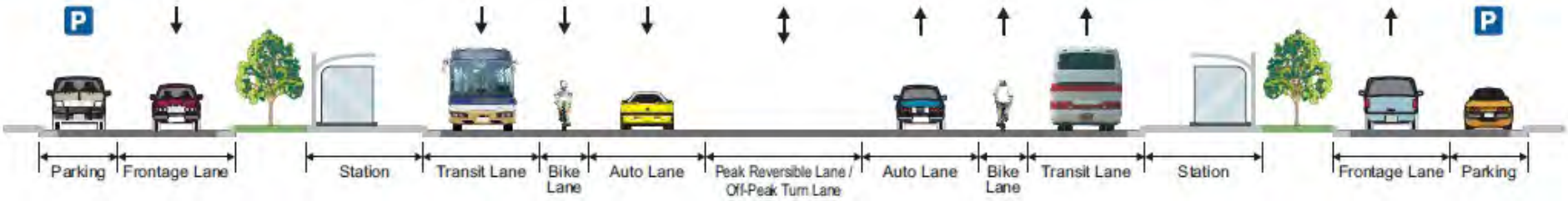


LEGEND

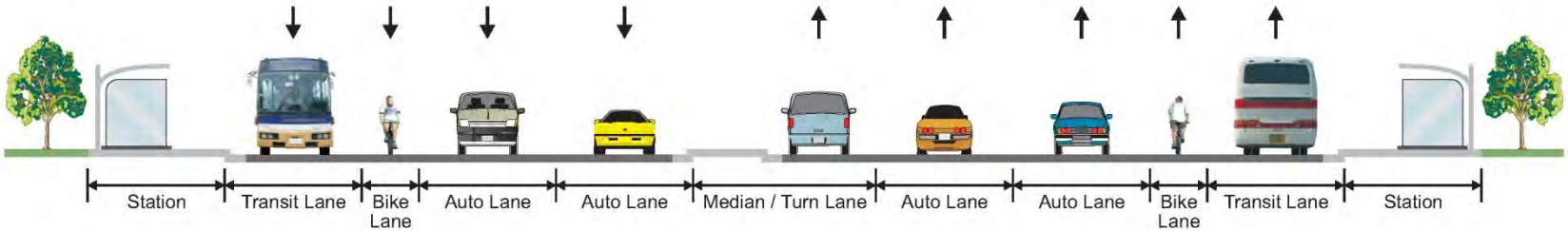
= Existing Edge of Pavement

= Proposed Edge of Pavement

Alternative 3 – Reversible Lane



Jordan Street to Wheeler Avenue

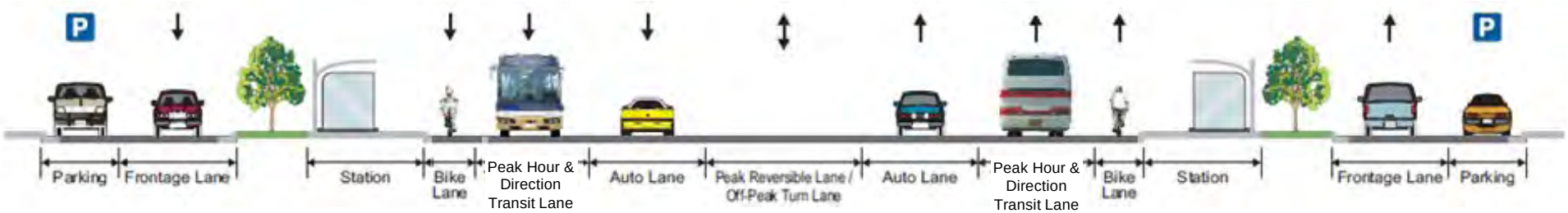


Landmark Mall to Jordan Street / Wheeler Avenue to King Street Metro

Description

- Transit running along curb
- Transit in dedicated lanes for full corridor length
- Adds ½ lane in each direction in 4-lane segments (2 miles total)
- Center lane would function as reversible lane for traffic
- Reversible lane would transition at Jordan Street and Wheeler Avenue
- Impact to property and existing streetscape
- Service roads would be maintained
- Bike lanes or shared outside lane
- Incorporates CIP project during off-peak

Alternative 3 *Variation*



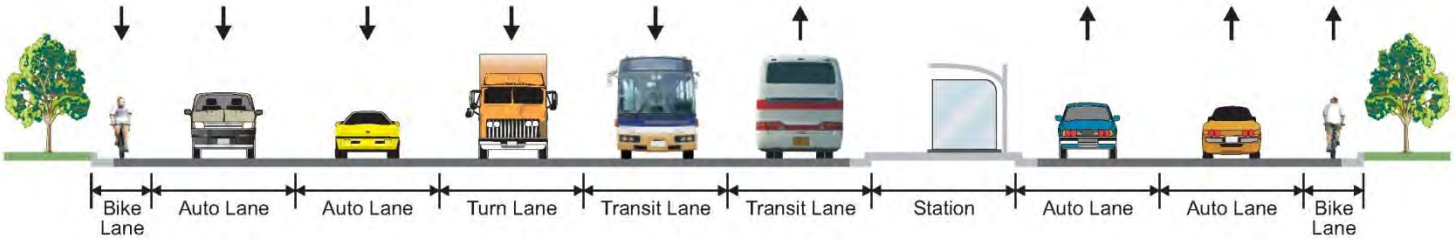
Jordan Street to Roth Street

Description

- Same as Alternative 3 between Landmark Mall and Jordan Street & Roth Street and King Street Metro
- Peak direction and period dedicated transit lane between Jordan Street and Roth Street
- Off-peak direction, during peak period, transit operates in mixed flow between Jordan Street and Roth Street
- Off-peak period, both directions, transit operates in mixed flow
- Adds ½ lane in each direction in 4-lane segments (2 miles total)
- Reversible lane transitions at Roth Street and Jordan Street
- Less property impact between Jordan Street and Roth Street
- Service roads would be maintained
- Bike lanes or shared outside lane
- Incorporates CIP project

Alternative 4 – Median Running

Jordan Street to Wheeler Avenue



Landmark Mall to Jordan Street / Wheeler Avenue to King Street Metro

Description

- Transit running in median
- Transit in dedicated lanes for full corridor length
- Adds 2 lanes in each direction in 4-lane segments (2 miles total)
- Significant impacts to property
- Service roads would be removed and driveways would be accessed directly from Duke Street
- Bike lanes or shared outside lane
- Incorporates currently programmed CIP project

SECONDARY SCREENING EVALUATION

Secondary Screening Evaluation Criteria

General Evaluation Criteria Grouping	Criteria Sub-Group	Evaluation Criteria	For Use in Preliminary Screening of Concepts	For Use in Comparative Evaluation of Concepts	Measurement Method
Effectiveness - Addresses stated transportation issues in the corridor	Coverage	Service to Regional Destinations		✓	Notation of regional destinations directly served
		Service to Population, Employment, and Other Destinations		✓	Tabulate population, employment, key destinations, and similar, served by option
		Transit Connectivity	✓	✓	Access to other transit services (existing and planned)
	Operations	Running-way Configuration(s)		✓	Quantify amount of runningway that is dedicated and amount that is mixed flow
		Corridor Length		✓	Measured length of the corridor (mi or feet)
		Capacity		✓	Potential corridor capacity (hourly) based on mode technology, headways, and other conditions
		Interoperability		✓	Identification of whether the chosen runningway configuration and transit mode technology are compatible with regionally planned systems
		Avoidance of Congestion	*	✓	Number and locations of LOS E/F intersections avoided
		Transit Travel Time	*	✓	Transit travel time
		Intersection Priority	✓	✓	Percent of intersections where TSP is needed and can be implemented successfully - notation of where it cannot be implemented successfully
		Ridership		✓	Forecast number of riders
	Alignment	Geometrics		✓	Geometric quality of alignment
		Runningway Status	O	✓	Percent of corridor to be located on new or realigned roadway
	Phasing	Phasing	✓	✓	Identification of ability to phase operations and implementation

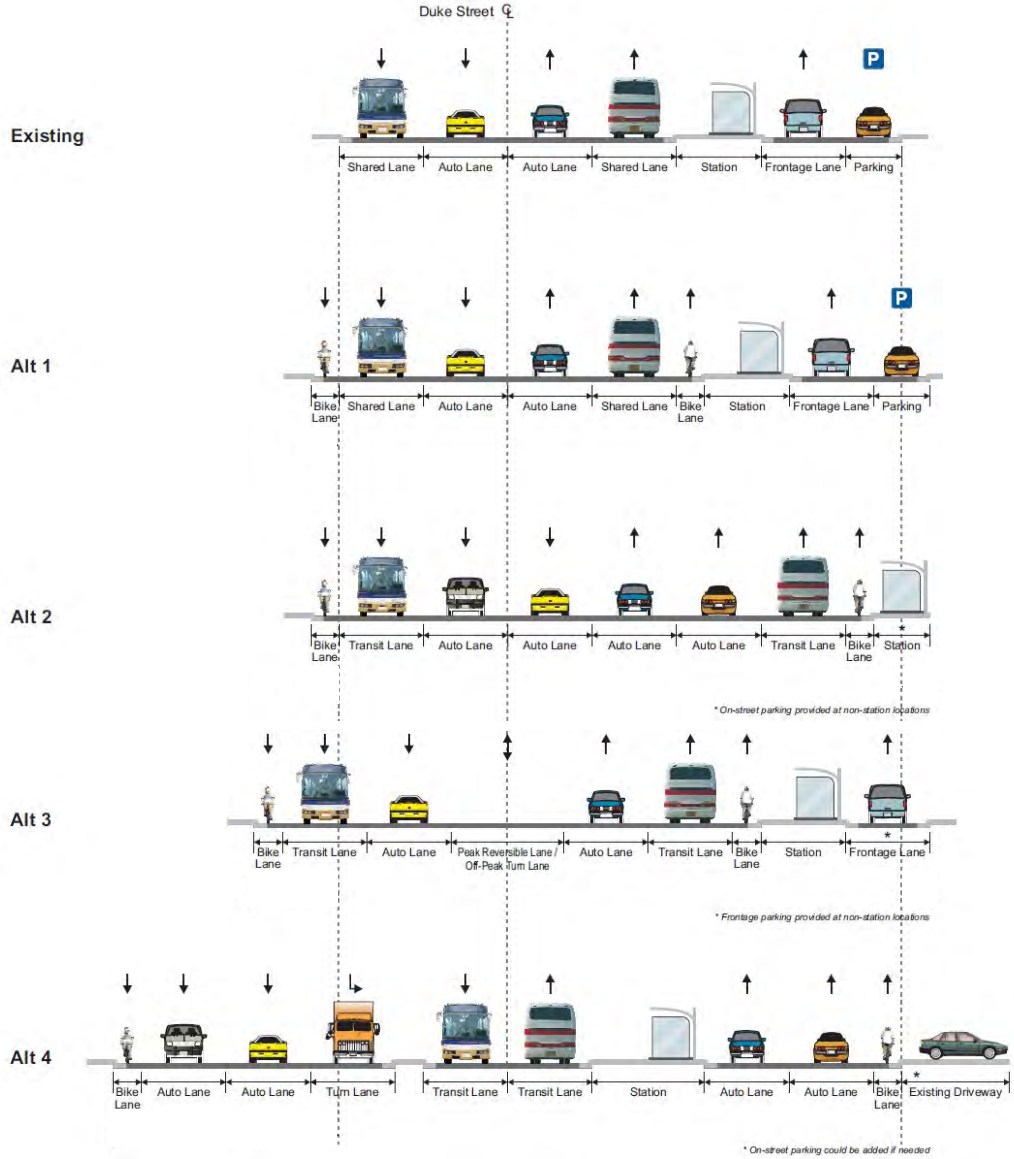
Screening Criteria Legend:	*	Highest Importance	✓	Normal Importance	O	Lesser Importance

Secondary Evaluation - Effectiveness

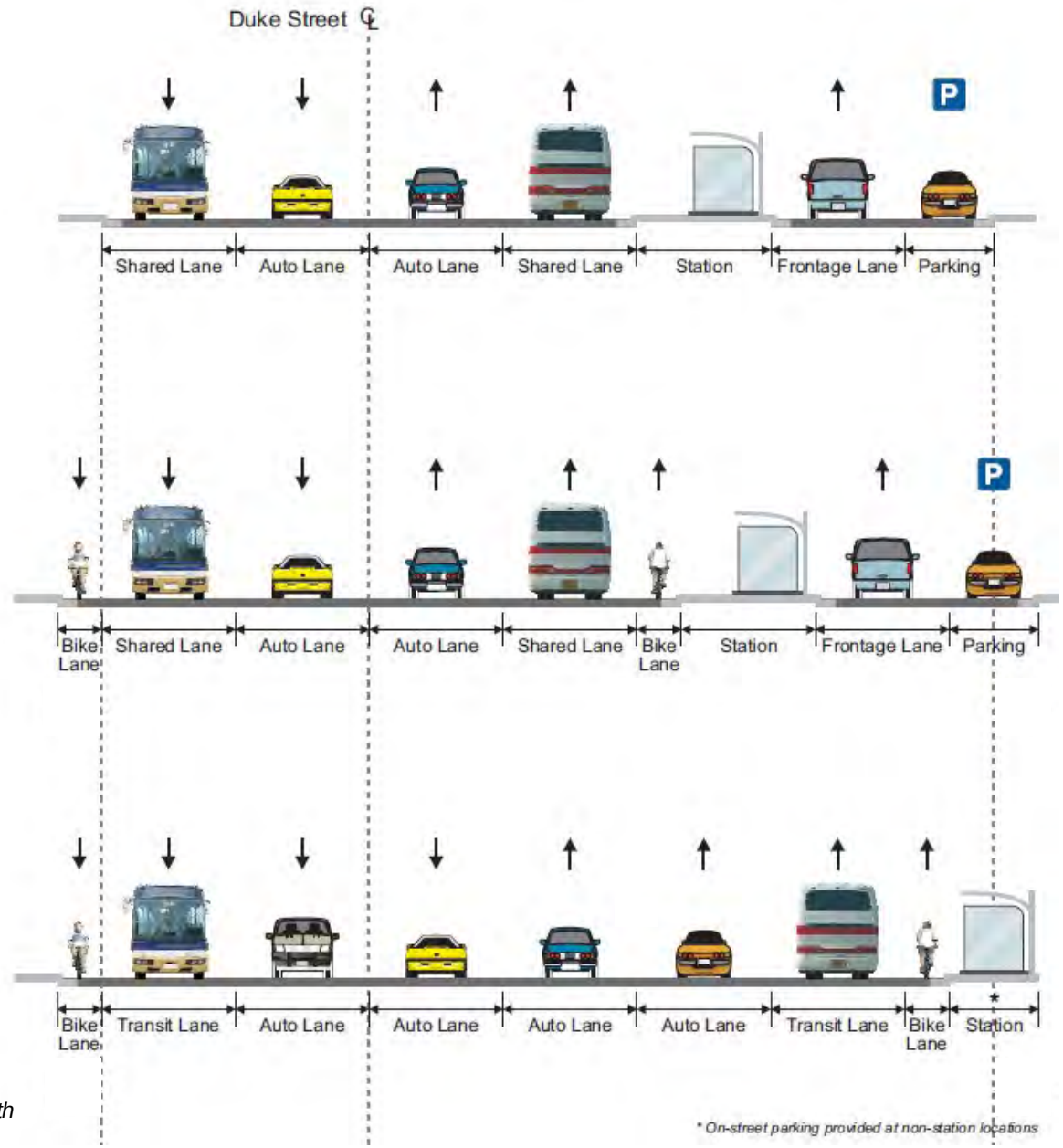
Evaluation Criteria		Alternative			
		1	2	3	4
	Description	Existing Configuration	Uses Service Road ROW	Reversible Lane	Median Running
Coverage	Service to Regional Destinations	◑	◑	◑	◑
	Service to Population, Employment, & Retail in the Corridor	●	●	●	●
	Transit Connectivity	●	●	●	◑
Operations	Running-way Configuration(s)	◑	●	●	●
	Corridor Length	●	●	●	●
	Capacity	●	●	●	●
	Interoperability	●	●	●	●
	Avoidance of Congestion	○	◑	◑	●
	Transit Travel Times	○	◑	◑	●
	Ridership	○	◑	◑	●
	Intersection Priority	◑	●	●	●
Alignment	Alignment Quality	●	◑	●	●
	Runningway Status	●	◑	◑	○
	Phasing	●	◑	◑	○

Rating:	●	Best	◑	Fair	○	Poor

Cross-section Comparison



Note: Illustrations show a general comparison of cross-sectional width. Actual service road location varies depending upon whether service roads are located north or south of Duke Street



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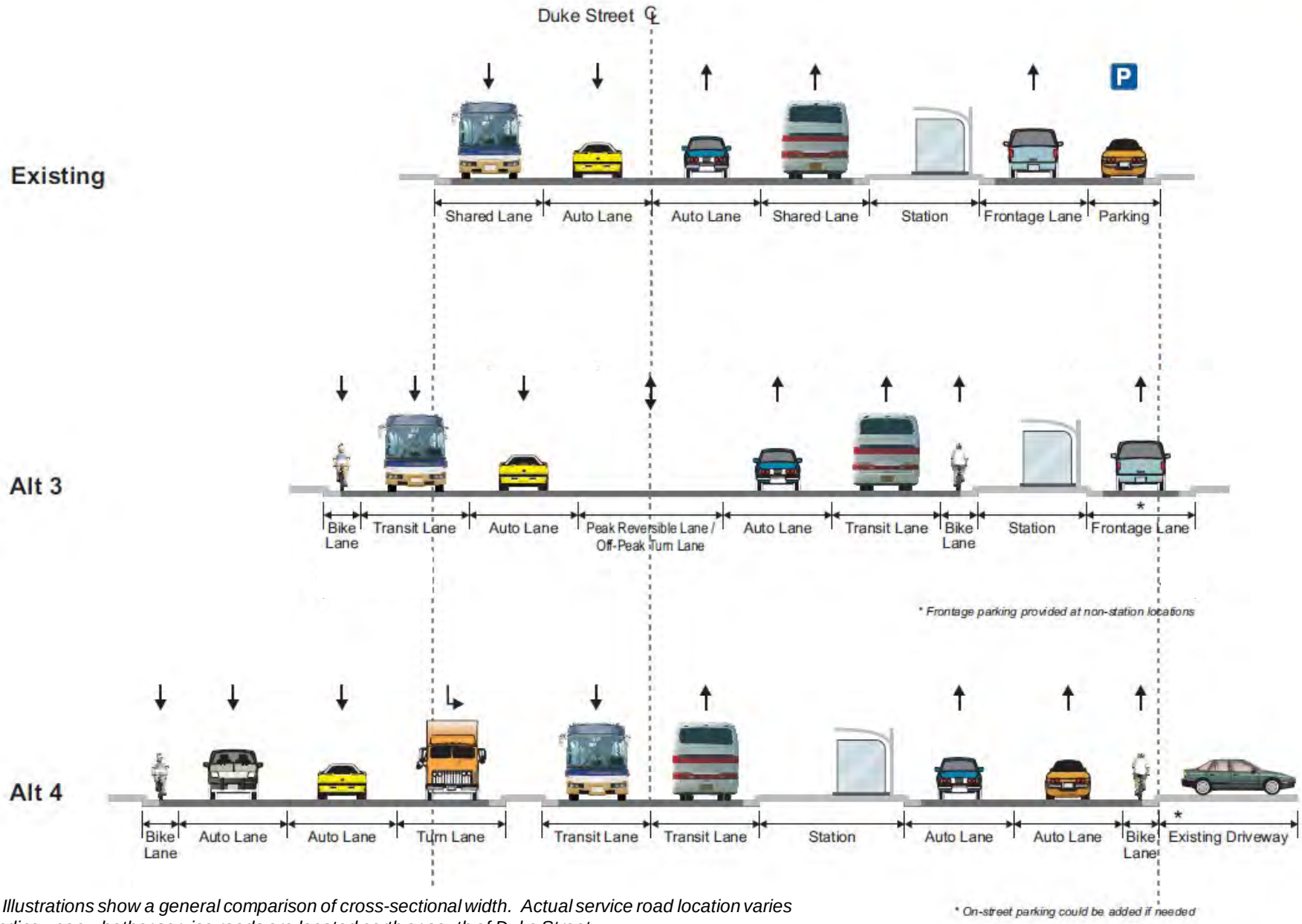


Note: Illustrations show a general comparison of cross-sectional width. Actual service road location varies depending upon whether service roads are located north or south of Duke Street

Secondary Screening Evaluation Criteria (continued)

General Evaluation Criteria Grouping	Criteria Sub-Group	Evaluation Criteria	For Use in Preliminary Screening of Concepts	For Use in Comparative Evaluation of Concepts	Measurement Method
Impacts - Extent to which economics, environment, community, transportation are affected	Economic	Development Incentive		✓	Perceived value of transit mode technologies with regard to development potential
	Natural Environmental	Natural Environment	O	✓	Summary of key environmental conditions affected (wetlands, floodplains, T&E, streams, and similar)
		Parks and Open Space		✓	Summary of parks and/or open spaces affected
	Neighborhood and Community	Property	✓	✓	Number, use type, and quantity of properties impacted with anticipated level of impact (ROW only, partial take, total take)
		Streetscapes	*	✓	Impact to existing streetscapes
		Community Resources		✓	Identify number and location of historical, cultural, community, archaeological resources affected
		Demographics		✓	Identification of impacts to special populations
		Noise and Vibration	O	✓	Summarize relative noise and vibration impacts of different mode types and corridor configurations
	Transportation	Traffic Flow Impact	*	✓	Effect of transit implementation on vehicular capacity of corridor
		Traffic Signals		✓	Number of existing signalized intersections affected by transit, identification of need for new signal phases, and number/location of new traffic signals needed to accommodate transit
		Multimodal Accommodation	✓	✓	Impacts to, and ability to accommodate bicycles and pedestrians
		Parking	✓	✓	Impacts to parking
Cost Effectiveness - Extent to which the costs are commensurate with their benefits	Cost	Capital cost	✓	✓	Order of magnitude capital cost for corridor (stations, runningway, etc.)
		Operating cost	✓	✓	Order of magnitude operating cost
		Cost Per Rider	✓	✓	Order of magnitude operating cost per rider
Financial Feasibility - Cost of system/concept is in alignment with available funding	Funding	Funding	✓	✓	Availability to specific funding sources
		Private Capital Incentive		✓	Judgment as to whether the concept has the potential to attract private capital investment and innovative procurement

Screening Criteria Legend:	*	Highest Importance	✓	Normal Importance	O	Lesser Importance

Preliminary Impacts

	Alternative			
	1	2	3	4
Description:	Existing Configuration	Uses Service Road ROW	Reversible Lane	Median Running
Park Impact	< 0.25 acres	< 0.25 acres	< 0.25 acres	< 0.5 acres
Water Impact	< 0.1 acres	< 0.1 acres	< 0.1 acres	< 0.1 acres
Property Impact	1.75 acres	3.5 acres	4 acres	7 acres

Secondary Evaluation - Impacts

Evaluation Criteria			Alternative			
			1	2	3	4
		Description:	Existing Configuration	Uses Service Road ROW	Reversible Lane	Median Running
Economic	Development Incentive		●	●	●	●
Natural Environment	Natural Environment		●	◑	◑	○
	Parks and Open Space		●	◑	◑	○
Neighborhood and Community	Property		●	●	◑	○
	Existing Streetscapes		●	○	◑	○
	Community Resources		●	◑	◑	○
	Demographics		●	◑	◑	○
	Noise and Vibration		◑	○	○	●
Transportation	Traffic Flow Impact		◑	●	○	●
	Traffic Signals		○	◑	◑	○
	Multimodal Accommodation	Pedestrian	●	●	●	◑
		Bike	◑	◑	◑	●
	Parking		●	◑	●	○

Rating:	●	Best	◑	Fair	○	Poor

Assumed Transit Hours of Operations and Headways

Day of Week		Headway	Duration	Total Duration of Operation
Weekdays	Peak	7.5 min	8 hours	18 hours
	Off-Peak	15 min	10 hours	
Saturdays		15 min	18 hours	18 hours
Sundays/ Holidays		20 min	12 hours	12 hours

- All alternatives assume the same duration of service and headways
- Hours of operation are complementary of Metrorail services

Planning-Level Ridership Projections

	Alternative			
	1	2	3	4
Assumed Transit Mode:	BRT	BRT	BRT	BRT
Description:	Existing Configuration	Uses Service Road ROW	Reversible Lane	Median Running
Year 2035 Daily Weekday Ridership	6,000 to 9,000 riders/day	8,000 to 12,000 riders/day	9,000 to 13,000 riders/day	12,000 to 16,000 riders/day

- Alternative 4 has highest ridership potential
- Alternative 1 has lowest ridership potential

Planning-Level Operating Cost Estimate

	Alternative			
	1	2	3	4
Assumed Transit Mode:	BRT	BRT	BRT	BRT
Description:	Existing Configuration	Uses Service Road ROW	Reversible Lane	Median Running
Annual Operating Cost	$3.9 M	$3.5 M	$3.5 M	$2.7 M
25-year Operating Cost[1]	$67 M	$60 M	$60 M	$47 M
Average Operating Cost/Rider	$4.00	$2.70	$2.50	$1.50

- Alternative 1 has highest operating cost due to anticipated transit travel speeds and numbers of vehicles required
- Alternative 4 has the potential for the most cost-efficient operation

Notes
1. Operating costs assume an annual 3% inflation rate

Planning-Level Cost Estimates

	Alternative			
	1	2	3	4
Assumed Transit Mode:	BRT	BRT	BRT	BRT
Description:	Existing Configuration	Uses Service Road ROW	Reversible Lane	Median Running
Capital Cost Estimate[1] (exclusive of vehicles, based on cost per-mile within the City)	$22 M	$27 M	$26 M	$37 M
25-year Fleet Cost Estimate[2]	$20 M	$16 M	$16 M	$13 M
Right-of-Way Cost Estimate	$5 M	$21 M	$22 M	$33 M
25-year Operating Cost	$67 M	$60 M	$60 M	$47 M
Planning-Level Cost Estimate[1]	**$114 M**	**$124 M**	**$124 M**	**$130 M**

Notes

1. *Planning level cost estimates are shown in year 2012 dollars and do not include additional contingency or escalation to a future year mid-point of construction. Totals listed do not include costs for major utility relocations/new service, or the capital costs for roadway/streetscape improvements that may be implemented concurrently, but are not required for the transit project.*

Secondary Evaluation – Costs

Evaluation Criteria		Alternative			
		1	2	3	4
	Description:	Existing Configuration	Uses Service Road ROW	Reversible Lane	Median Running
Cost Effectiveness	Capital Cost	●	◑	◑	○
	Right-of-Way Cost	●	◑	◑	○
	Operating Cost	○	◑	◑	●
	Order of Magnitude Cost Per Rider	○	◑	◑	●

Rating:	●	Best	◑	Fair	○	Poor

Notes

1. *Planning level cost estimates are shown in year 2012 dollars and do not include additional contingency or escalation to a future year mid-point of construction. Totals listed do not include costs for major utility relocations/new service, or the capital costs for roadway/streetscape improvements that may be implemented concurrently, but are not required for the transit project.*

New Starts/Small Starts Summary

- Small Starts
  - Typical Range of FTA funding participation (based on 2012 awards by FTA)
    - 35% to 80% federal funding
    - Maximum participation (Small Starts, 80% or $75 million, whichever is less)

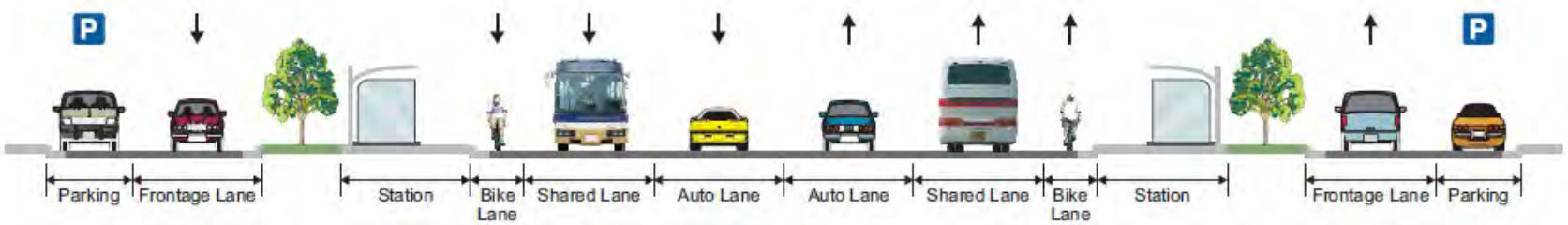
- Rail Transit Projects (generally FTA New Starts)
  - Range of project capital costs: $200 million to more than a billion dollars
  - Range of FTA funding participation
    - 40% to 60% federal funding
    - Maximum participation – varies, generally in 50% to 60% range

Corridor B - Conceptual Project Funding Scenario

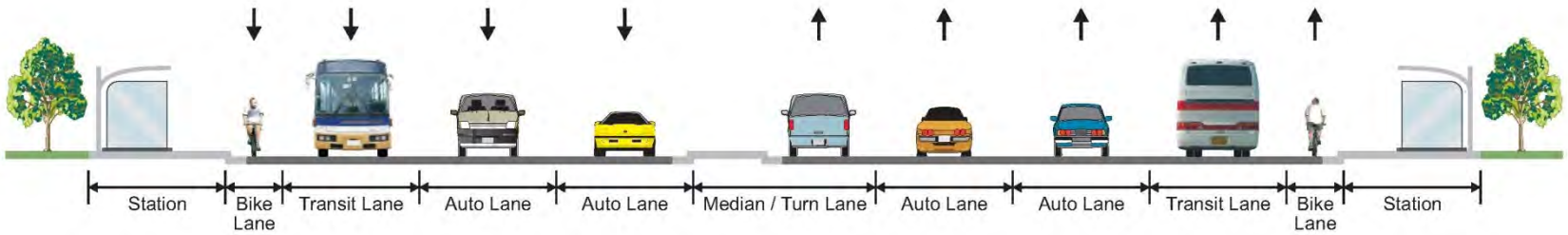
Project	Assumed Transit Mode	Total Capital Cost (millions)	Federal Share (millions)	Local Share (millions)	Federal Percent	Section 5309 Project Type
Alternative 1 Existing Configuration	BRT	$36 M	$29 M	$7 M	80%	Small Starts
Alternative 2 Uses Service Road ROW	BRT	$56 M	$44 M	$11 M	80%	Small Starts
Alternative 3 Reversible Lane	BRT	$55 M	$44 M	$11 M	80%	Small Starts
Alternative 4 Median Running	BRT	$76 M	$61 M	$15 M	80%	Small Starts

BRIEF SUMMARY OF ADVANTAGES & DISADVANTAGES

Alternative 1



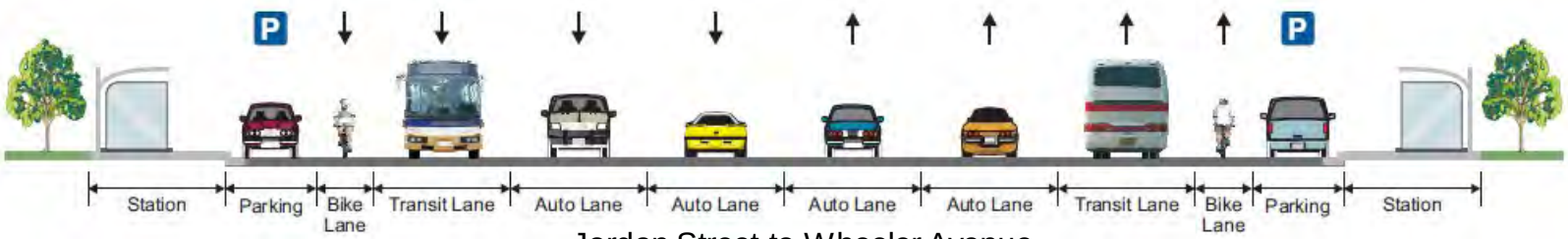
Jordan Street to Wheeler Avenue



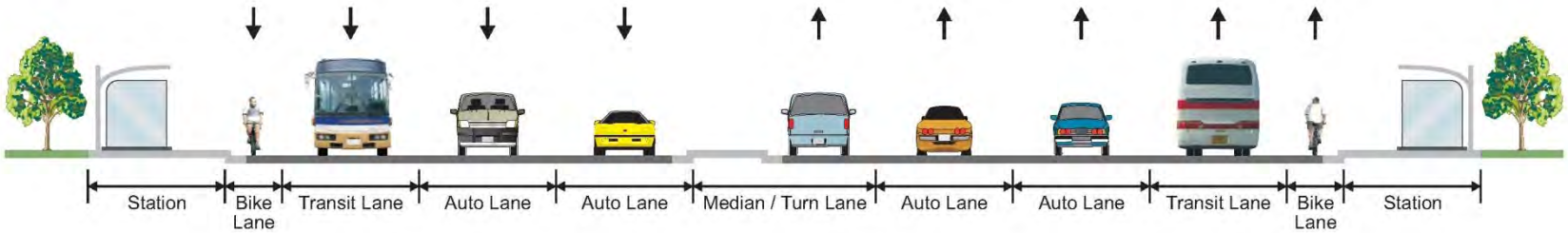
Landmark Mall to Jordan Street / Roth Street to King Street Metro

	Advantages	Disadvantages
Alternative 1 – Existing Configuration	•Fewest negative impacts (including property) •Maintains service roads •Lowest capital cost •Easy to phase	•Worst transit operation due to shared lanes •Highest operating cost •Highest fleet cost •May be impacted by congestion on Duke Street •Longest transit travel time •Lowest ridership potential

Alternative 2



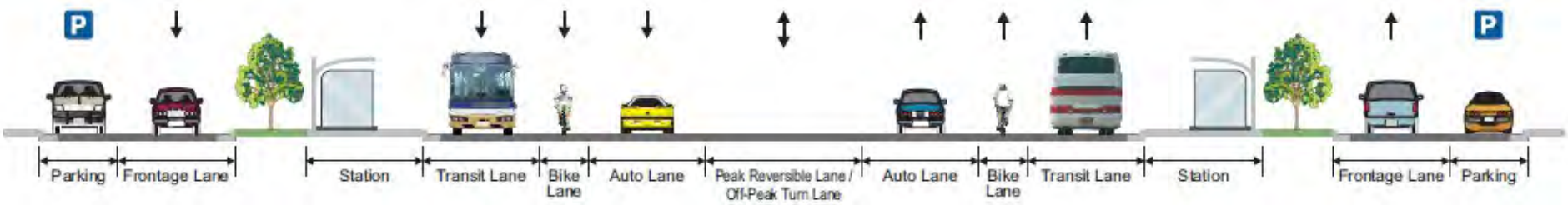
Jordan Street to Wheeler Avenue



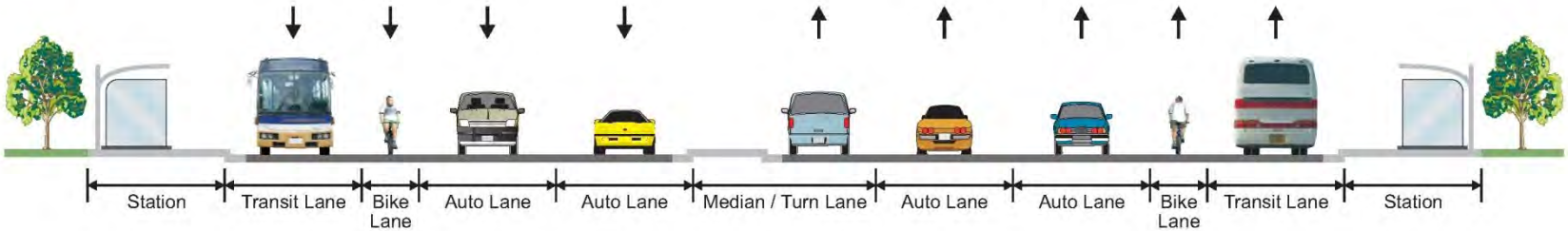
Landmark Mall to Jordan Street / Roth Street to King Street Metro

	Advantages	Disadvantages
Alternative 2 – Uses Service Road ROW	•Minimal impact to traffic flow •High-quality transit operation •Moderate capital, fleet, and operating cost •Some avoidance of congestion for transit	•Curvilinear alignment •On-street parking could disrupt transit operations •Impacts service roads and streetscape as a result

Alternative 3



Jordan Street to Wheeler Avenue



Landmark Mall to Jordan Street / Roth Street to King Street Metro

	Advantages	Disadvantages
Alternative 3 – Reversible Lane	•High-quality transit operation •Maintains most service roads •Moderate capital, operating, and fleet cost •Provides turn lanes at some new locations to help traffic flow	•Off-peak direction traffic impact OR off-peak direction transit impact •Property impacts •Would require overhead gantries to control reversible condition •May be confusing to drivers
Alternative 3 - Variation	•Maintains most service roads •Less property impact than Alternative 3 •Provides peak direction, peak period transit lane •Lower capital cost than Alternative 3	•No dedicated lanes off-peak time and direction •Would require overhead gantries to control reversible condition •Could be very confusing to drivers due to changing lane use condition

Alternative 4

Jordan Street to Wheeler Avenue

Landmark Mall to Jordan Street / Roth Street to King Street Metro

	Advantages	Disadvantages
Alternative 4 – Median Running	•Best transit operation due to elimination of conflicts with driveways and traffic •Lowest fleet and operating cost •Avoids impacts from traffic congestion •Highest ridership potential	•Largest property impact •Eliminates service roads and parking (in front of 28 homes) •Highest capital cost •Highest right-of-way cost and impacts

DISCUSSION & COMMENTS

Thank you for your attention!

For access to the information that was presented tonight, as well as other study information, please visit the project website at:

- http://alexandriava.gov/HighCapacityTransit

Once there, follow the link for the "High Capacity Transit Corridor Work Group"