

TRANSITWAY CORRIDOR FEASIBILITY STUDY



High Capacity Transit Corridor Work Group
Background Information for October 21, 2010 Workshop
(Project Overview and Transit Technology Review)



T&ES



Kimley-Horn
and Associates, Inc.

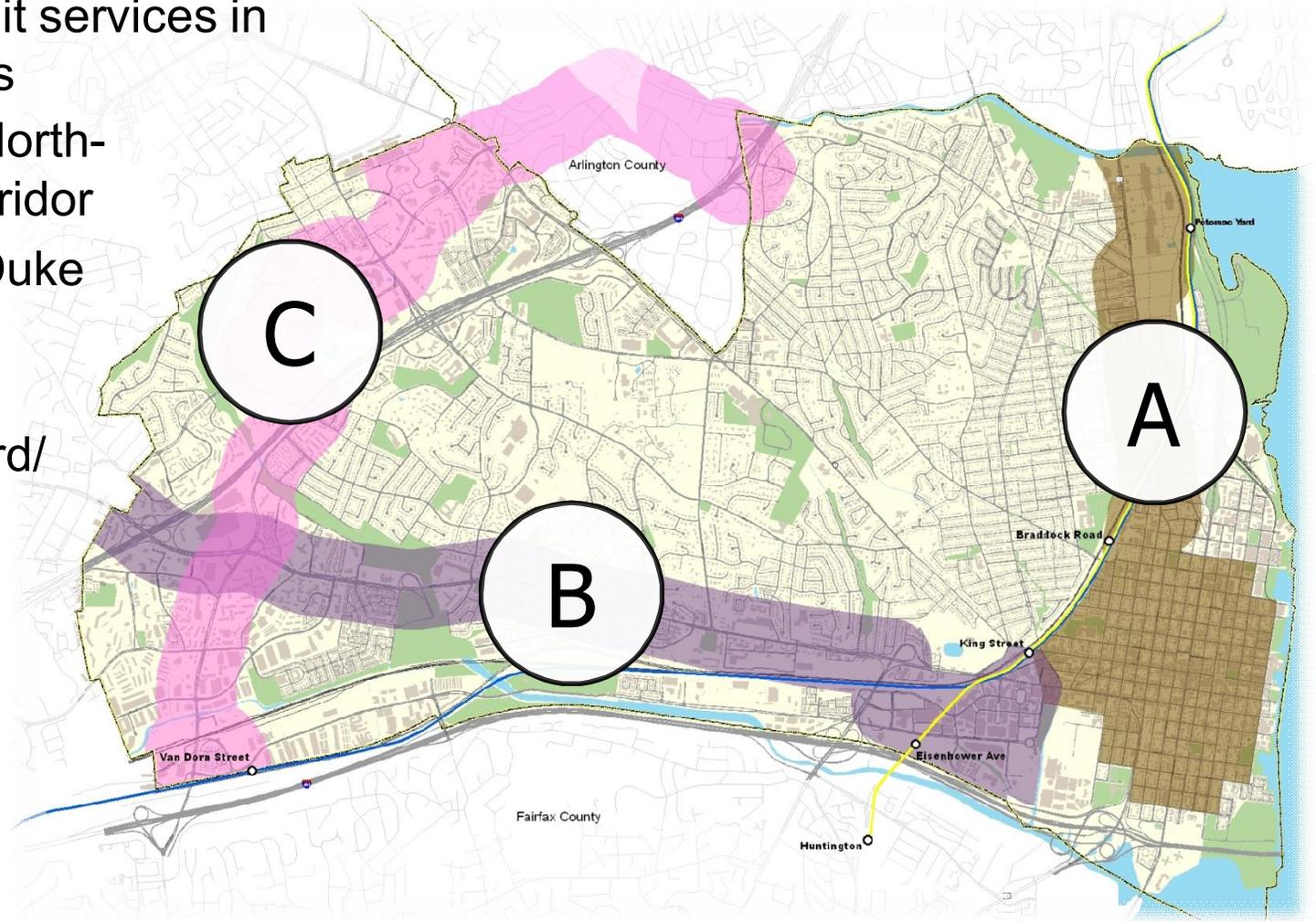
Project Overview - City Transitway Initiatives

- Development of a plan for high-capacity transit services in three corridors

Corridor A: North-South Corridor

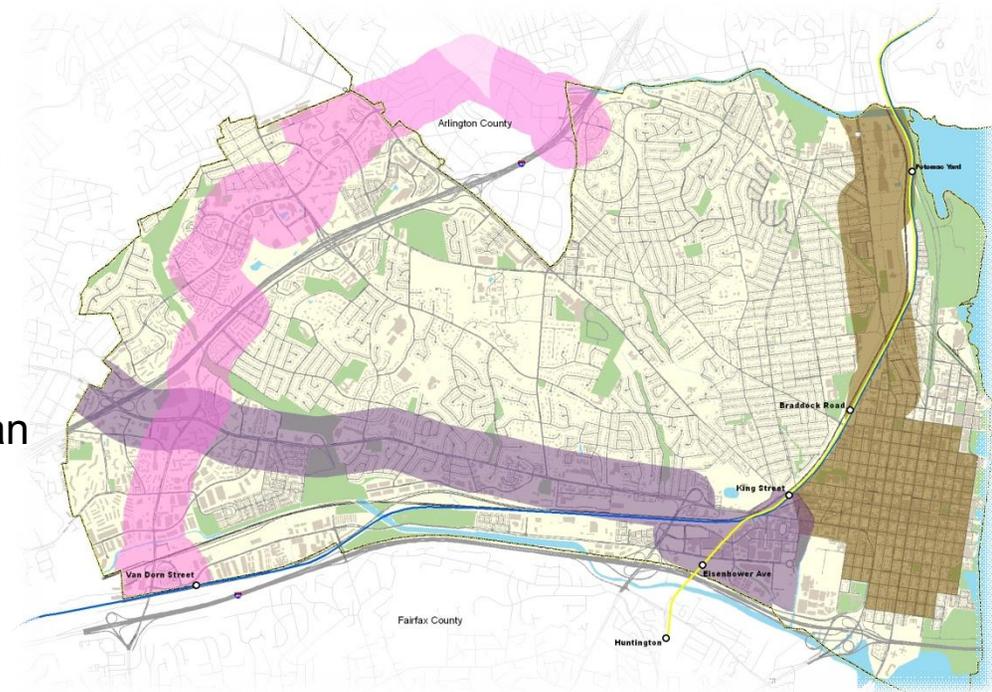
Corridor B: Duke Street

Corridor C: Beauregard/Van Dorn



General Study Goals

- Refine corridors identified in Transportation Master Plan
- Define the location and configuration of the transitway in each corridor
- Identify the preferred transit mode technology for each corridor - bus, BRT, streetcar, other
- Develop plans for operations - median running, side running, dedicated lanes, mixed traffic lanes
- Identify potential station locations
- Develop action plan for implementation - environmental documentation, funding levels/request, design, operations, governance, etc.



Transit Today in Alexandria

- WMATA Compact signed in 1967 (Metrorail stations later built — Braddock Road, King Street, Van Dorn Street, Eisenhower Avenue)
- Virginia Railway Express (VRE) commuter rail service begins in 1992 – King Street Station (also Amtrak service)
- Metrobus
- DASH bus system
- King Street Trolley
- DOT (paratransit)
- Metro Access (paratransit)
- Fairfax Connector



Alexandria's Vision for Transit

- Reliable and convenient
- Integrated with surrounding land uses and existing transportation connections
- Offers travel time savings and an enjoyable transit experience for its riders
- Features advanced technology and passenger amenities
- Connectivity with the broader regional transitway network



TRANSITWAY CORRIDOR FEASIBILITY STUDY

Born from Local Plans and Policy Directions

- City's Transportation Master Plan
- Beauregard/Mark Center Study
- Landmark/Van Dorn Study
- Area Planning for Potomac Yard
- City's efforts to create complete streets
- Context-sensitive design
- Compact mixed-use development and linkage with transit
- Council Strategic Plan Objectives
 - Design and Build Crystal City/Potomac Yard Transitway
 - Design Beauregard/Van Dorn transitway



Consistent with Regional Mobility Policy Directions

- Regional increase in investment for bus and rail transit
- Substantial increase in high-quality/capacity local transit services
- Regional network of BRT, LRT, and streetcars
- Transit expansion with I-395 HOT Lanes
- Wilson Bridge transit provision to Maryland
- Arlington's transit expansion plans (Crystal City and Columbia Pike)



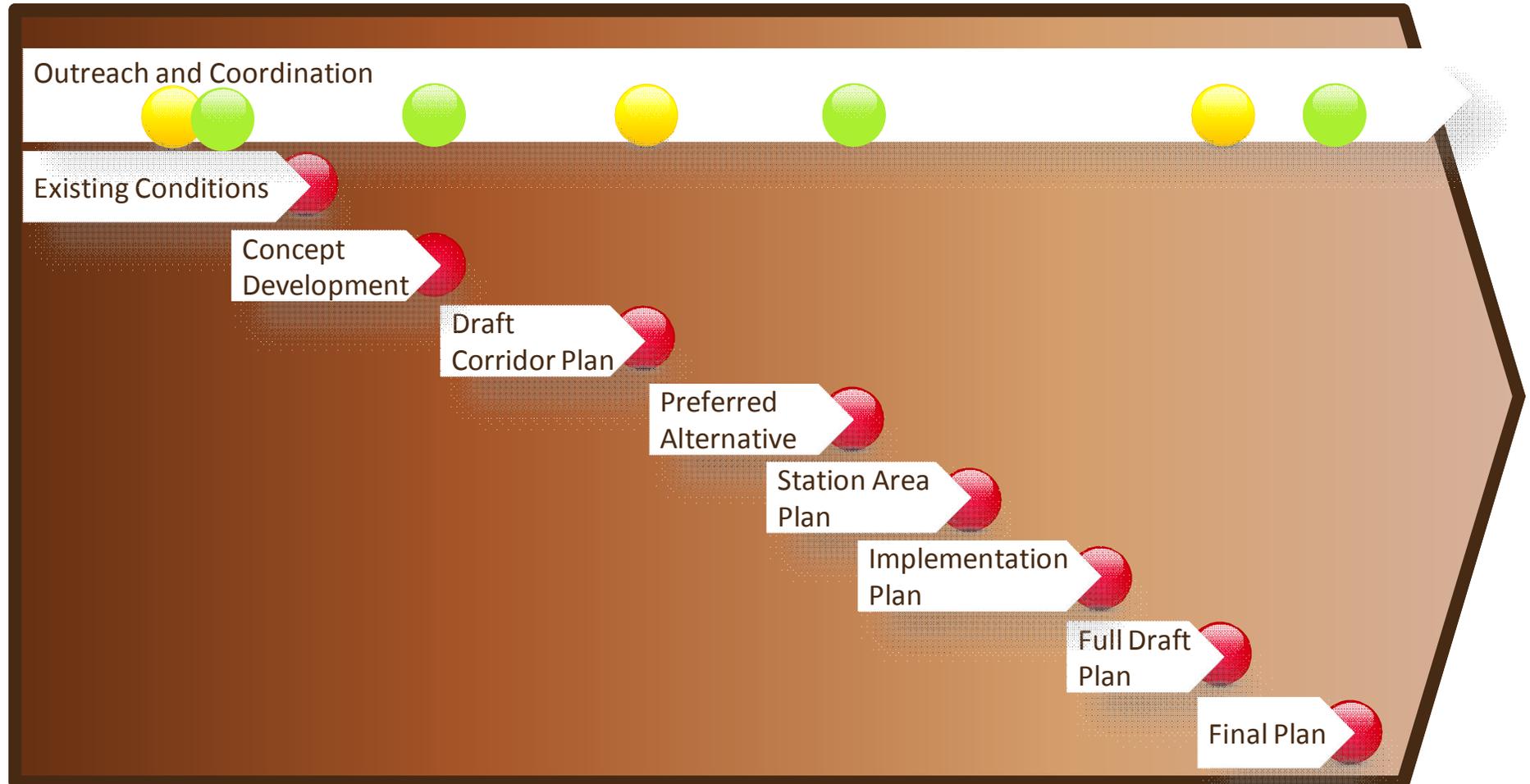
Anticipated Technical Process

- Outreach and Public Involvement
 - Public information sessions
 - High Capacity Transit Corridor Work Group
- Inventory, Review, and Analysis
- Concept Development and Refinement
 - Routes/corridors
 - Operational strategies
 - Transit modes
 - Stop and station locations
- Land Use and Development Coordination
- Implementation and Action Plan
 - Cost, revenues, phasing, and funding
 - Permitting and environmental documentation
 - Governance, operations, and maintenance
 - Next steps – action plan

Public Input



Anticipated General Corridor Planning Process



Legend:



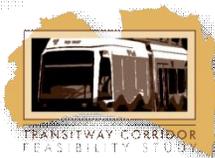
High Capacity Transit Corridor Work Group



Public Meeting

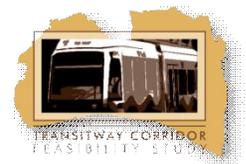


Deliverable



Project Status

- Initiating outreach and coordination
- Collecting information and conducting preliminary evaluations
- Coordinating with Arlington and Fairfax Counties
- Coordinating with Mark Center/Beauregard planning efforts
- Beginning concept studies for Beauregard/Van Dorn corridor



TRANSITWAY CORRIDOR FEASIBILITY STUDY

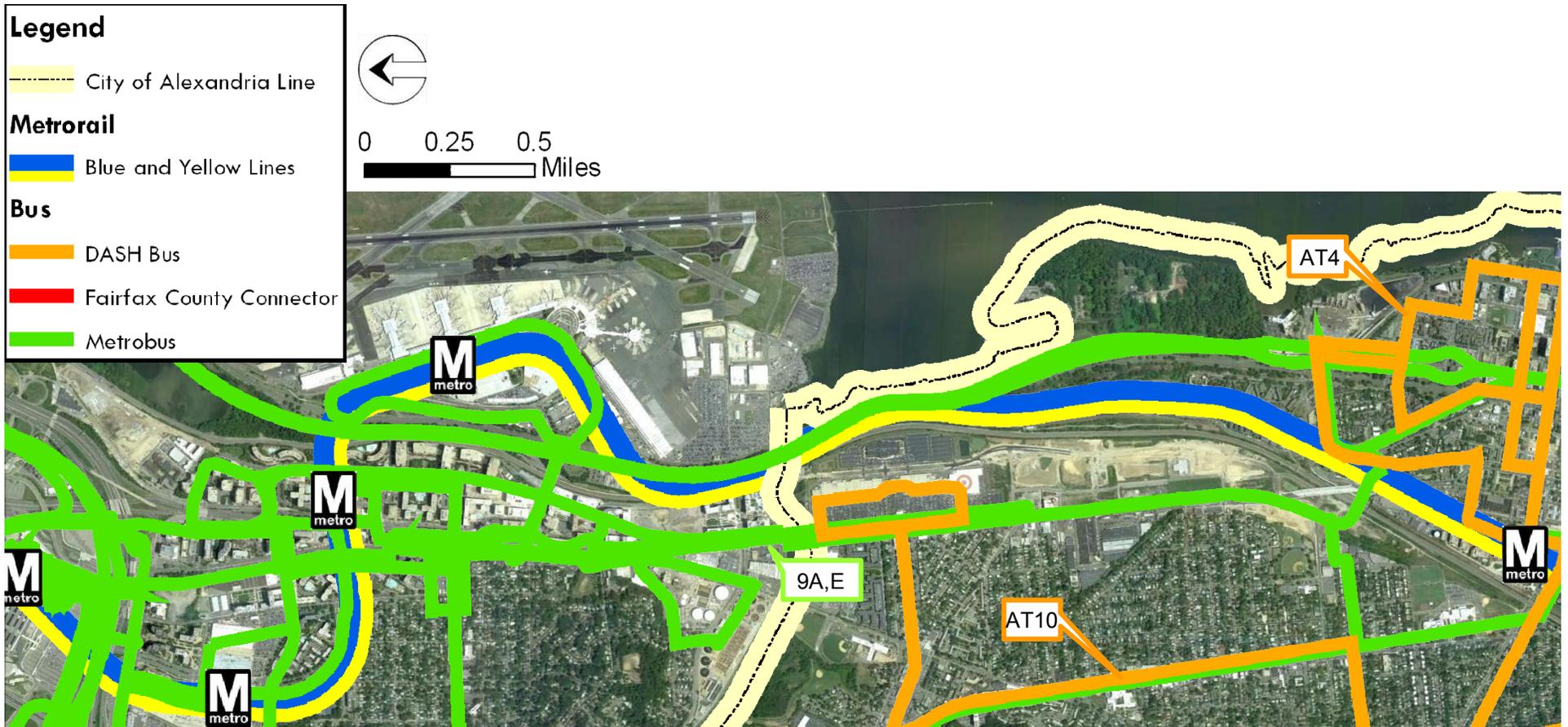
North-South Corridor

- Connects to Regional Centers of Activity
- Major destinations
 - Old Town
 - Potomac Yard
 - Pentagon
 - Crystal City
 - King Street and Braddock Road Metro



TRANSITWAY CORRIDOR FEASIBILITY STUDY

North-South Corridor Existing Transit Service

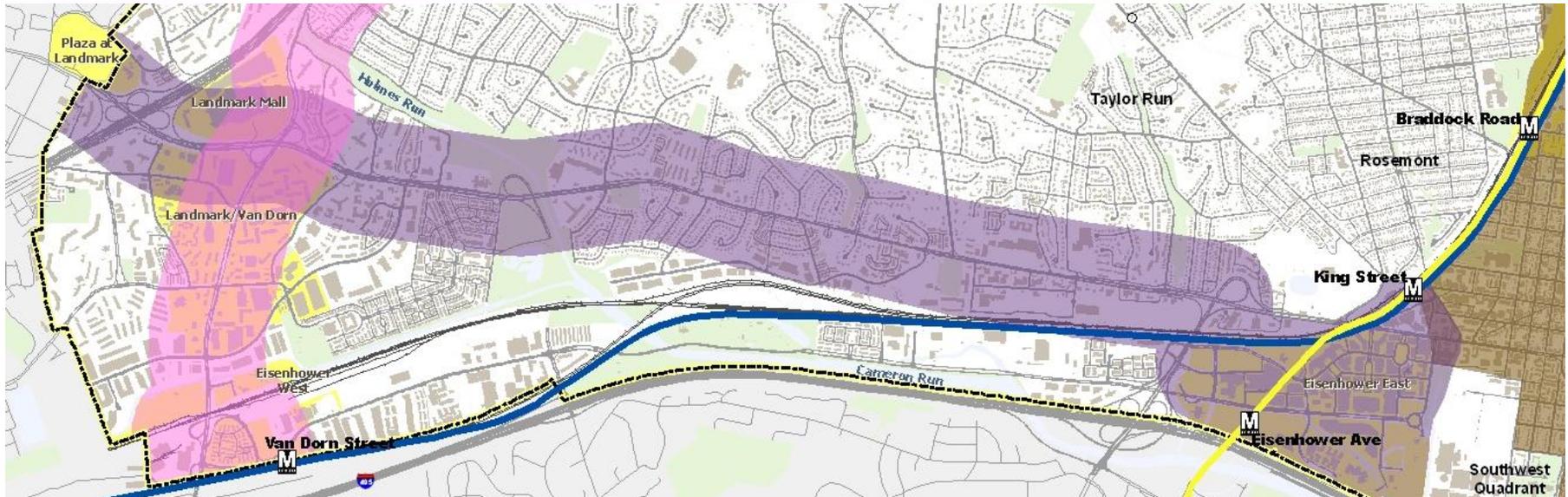


Existing corridor transit ridership

Average Weekday Bus Ridership Routes AT4, AT10, 9A,E: 6,800

Average Weekday Rail Ridership: 58,400

TRANSITWAY CORRIDOR FEASIBILITY STUDY

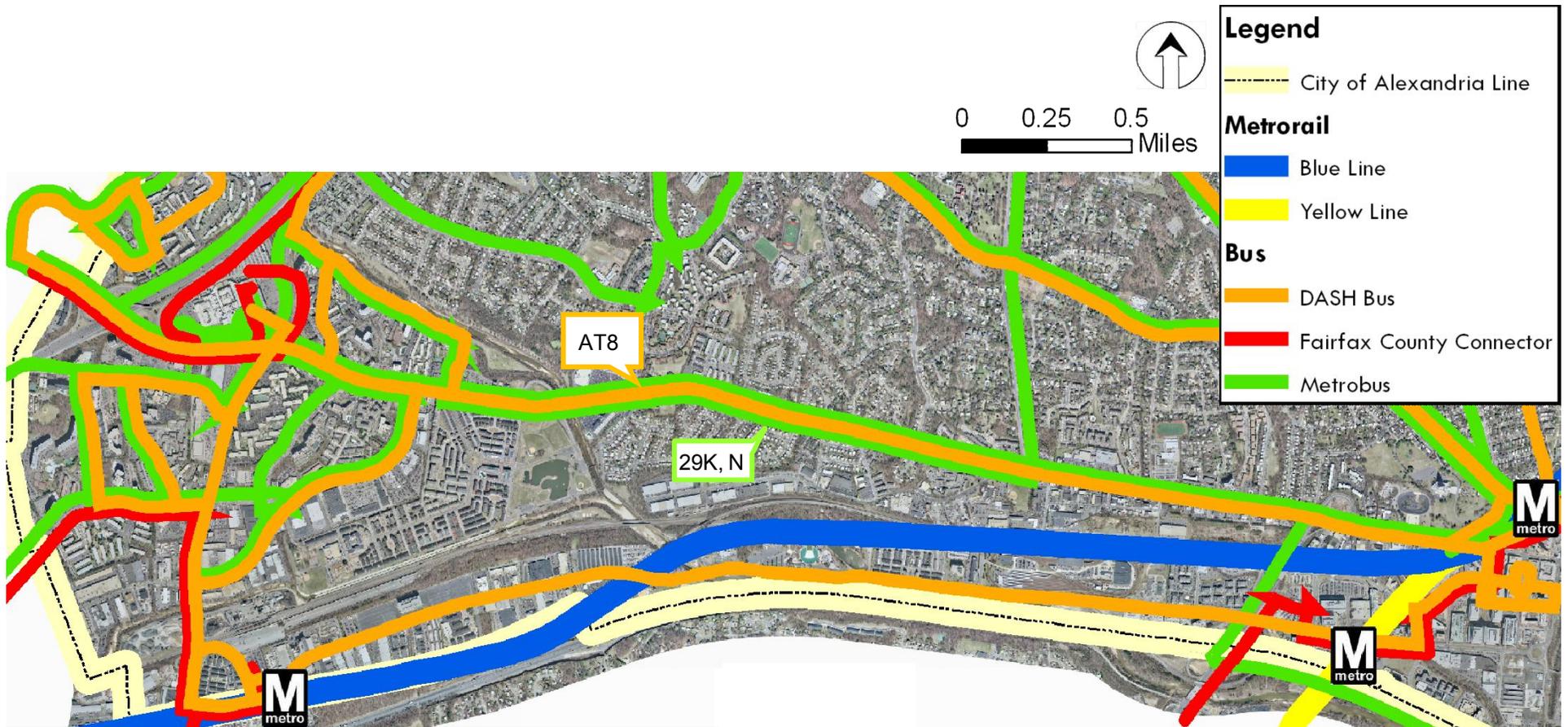


Duke Street Corridor

- Connects King Street Metro area to Fairfax County along Duke Street
- Major destinations
 - Carlyle area
 - Landmark Mall/Van Dorn
 - Cameron Station
 - Old Town
 - King Street Metro
 - Eisenhower Avenue Metro



Duke Street Corridor Existing Transit Service

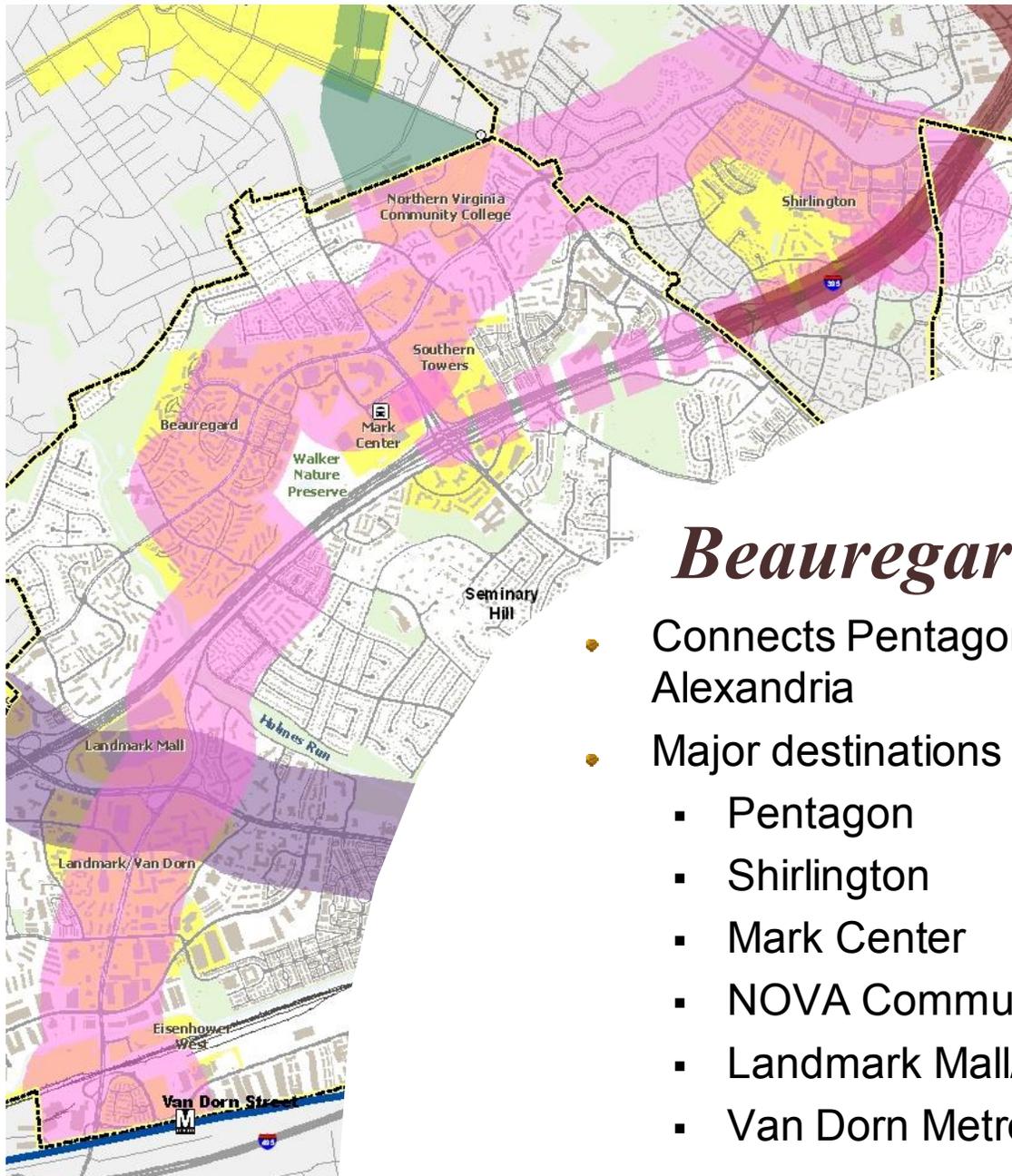


Existing Corridor Transit Ridership

Average Weekday DASH Ridership Route AT8: 2,804

Average Weekday WMATA Ridership Route 29K,N: 2,272

TRANSITWAY CORRIDOR FEASIBILITY STUDY



Beauregard/Van Dorn Corridor

- Connects Pentagon/Columbia Pike to western Alexandria
- Major destinations
 - Pentagon
 - Shirlington
 - Mark Center
 - NOVA Community College
 - Landmark Mall/Van Dorn
 - Van Dorn Metro



Beauregard/Van Dorn Corridor

- Pike Transit Initiative with Van Dorn/Beauregard corridor
 - Terminus options at NVCC/Skyline
 - Facilities options at NVCC/Skyline
 - Long-term and short-term alignments of Beauregard corridor



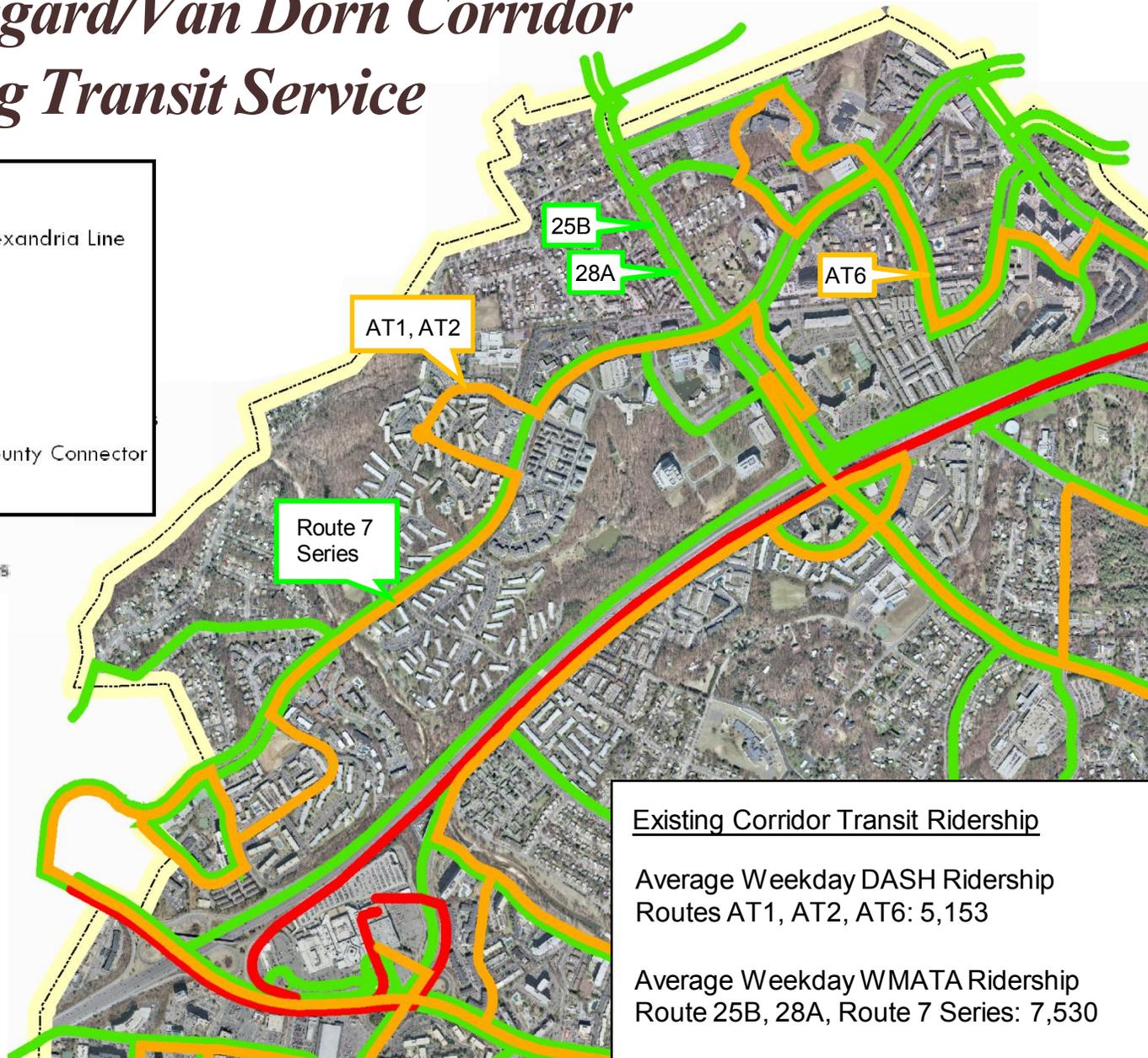
TRANSITWAY CORRIDOR FEASIBILITY STUDY

Beauregard/Van Dorn Corridor *Existing Transit Service*

Legend

- City of Alexandria Line
- Metrorail**
- Blue Line
- Bus**
- DASH Bus
- Fairfax County Connector
- Metrobus

0 0.125 0.25 Miles



Existing Corridor Transit Ridership

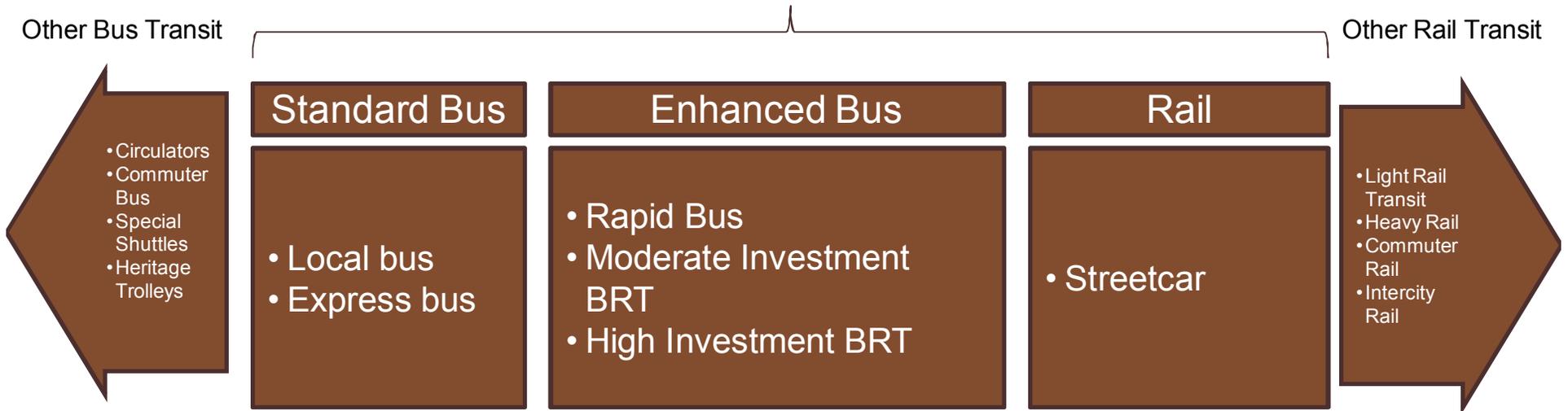
Average Weekday DASH Ridership
Routes AT1, AT2, AT6: 5,153

Average Weekday WMATA Ridership
Route 25B, 28A, Route 7 Series: 7,530

TRANSITWAY CORRIDOR FEASIBILITY STUDY

Transit Modes

Study Transit Modes



Examples

- King Street Trolley
- Loudoun County Transit
- Employer shuttles

- DASH
- Arlington Transit (ART)
- Metrobus
- Fairfax Connector

- REX (Fairfax/Alexandria)
- Eugene Emerald Express
- HealthLine (Cleveland)
- Quickline (Houston)
- MBTA Silver Line (Boston)

- Toronto Streetcar
- Portland Streetcar

- Baltimore LRT
- Houston LRT
- Metrorail
- VRE
- MARC
- Amtrak

Local Bus

- Highly flexible
- Operates in mixed traffic
- Infrequent priority treatment at intersections
- On-board fare collection
- Wide range of headways
- Relatively low initial infrastructure cost
- Minimal facilities at most stops
- System-level branding



TRANSITWAY CORRIDOR FEASIBILITY STUDY

Enhanced Bus



Characteristic	Rapid Bus	Moderate Investment BRT	High Investment BRT
Runningway	Mixed traffic, some queue jump lanes	↔	Dedicated lanes
Fare Collection	On-board vehicle	↔	Off-board
Priority Treatment	Coordination and TSP	↔	TSP and/or Preemption
Arrivals Information	Limited	↔	Extensive
Boarding	Lift, stair, and some level	↔	Level
Cost	Moderate	↔	High
Branding	Limited	↔	Route and Service-Specific
Development Incentive	Some	↔	Considerable
Construction Timeline	Short to moderate	↔	Long

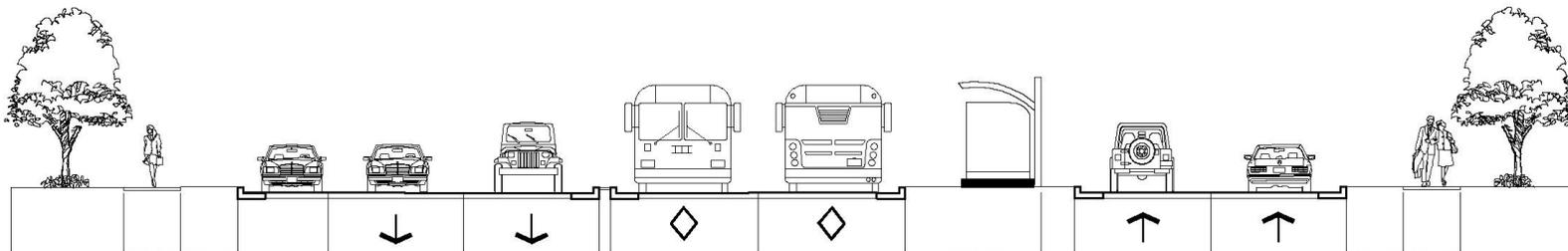


Streetcar and Light Rail Transit (LRT)

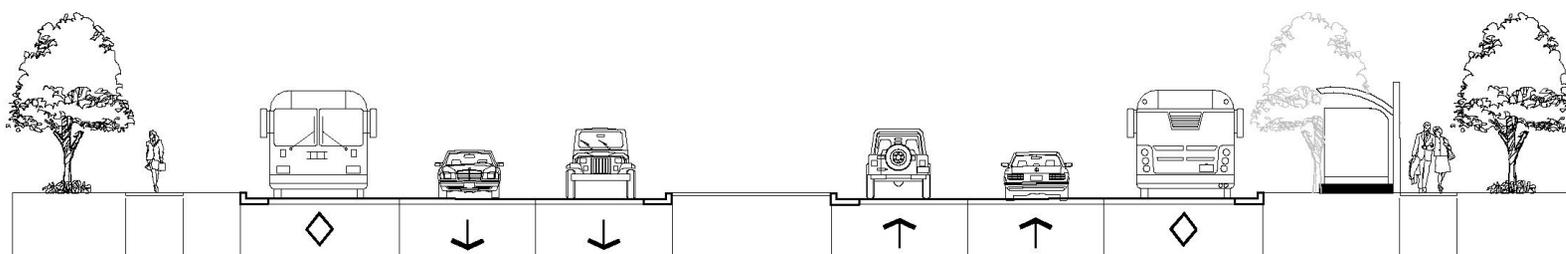


Characteristic	Streetcar	Light Rail Transit
Runningway	Mixed traffic or dedicated	Primarily dedicated, limited mixed traffic
Fare Collection	Off-board	Off-board
Priority Treatment	Coordination and TSP	TSP and Preemption
Arrivals Information	Extensive	Extensive
Boarding	Mixture	Mixture
Speed	Low	Medium
Cost	High	Very High
Branding	Route and Service-Specific	Route and Service-Specific
Development Incentive	Considerable	Considerable
Construction Timeline	Long	Long

Operational Configurations



Median Running



Curb Running



Median vs. Side Running

Lane Type	Advantages	Disadvantages
Side Running	Can't co-locate BRT stations with local bus stops	On-street parking creates conflicts
	Can use right-side boarding buses	BRT is interrupted by right-turn lanes
	Patrons may feel safer waiting at the side of the road near pedestrians and businesses	Requires two separate stations at each stop
	Lane is shared with local bus services	Lane is shared with local bus services
Median Running	More efficient use of space at stations if center platform	Requires contra-flow configuration to use center platform configuration with right hand boarding buses
	Easier to implement completely dedicated transit lanes	May affect existing landscaped medians
	Lower station costs if center platform	Requires all patrons to make a street crossing to reach the station/stop
	Double, right side, platforms can use right hand boarding buses	If no double right side stations, left-boarding buses required
	May be more acceptable to have stations in the median for the business community	Median transit lane may affect existing left-turn lane provision or location

Mixed vs. Dedicated

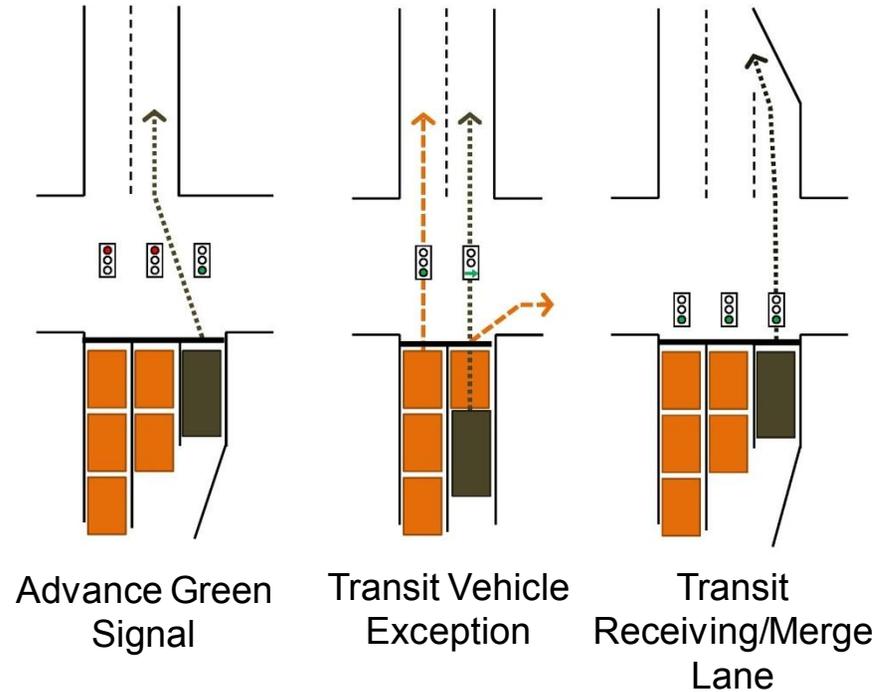
Characteristic	Mixed Traffic	Dedicated Lanes
Transit Vehicle Speeds	Lower	Higher
Travel Time	Longer	Shorter
Service Reliability	Lower	Higher
Impact on General Traffic	Minimal (if buses stop in bays)	Significant (if dedicated lane removes travel lane)
	Significant (if buses block traffic)	Minimal (if roads are widened)
Right-of-Way Impact	Minimal	Considerable
Transit Vehicle Bunching	More likely	Less likely
Cost	Low	High
Time to Implement	Short	Moderate



Priority Treatment Techniques

Study Techniques

- Traffic signal coordination
- Transit signal priority
- Queue jump lanes
- Dedicated lanes
- Signal preemption
- Uninterrupted runningway



Queue Jump Configurations

