Review of RTSP Phase I

January 19, 2012

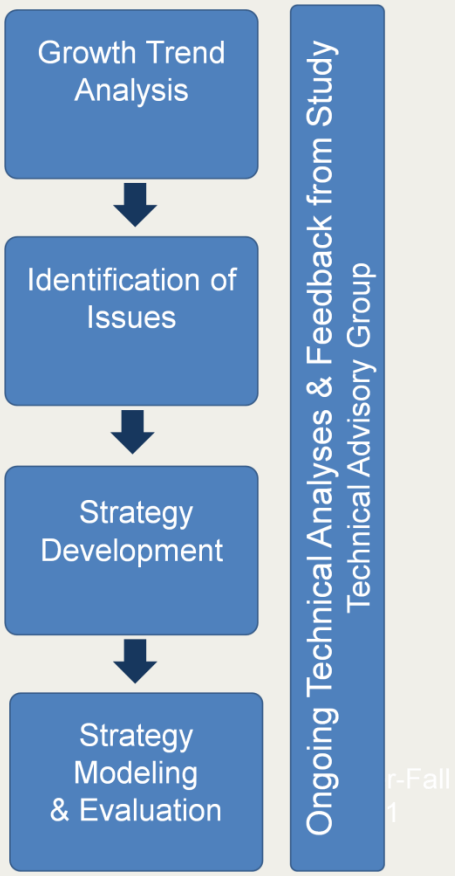
Regional Transit System Plan

RTSP Purpose and Need

- Develop a 30+ year vision for a sustainable, integrated, multimodal, regional transit network that:
  - Serves projected regional growth
  - Increases regional transit mode share
  - Resolves capacity constraints in the core
  - Improves connections between underserved or unserved regional activity centers

Phase I Accomplishments

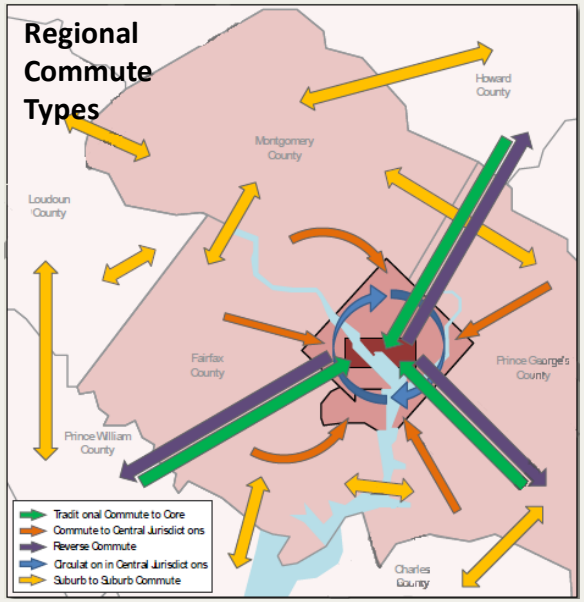
- Assess regional growth trends and travel demand
- Identify key long range issues to address
- Identify long list of possible operator neutral transit improvements
- Model and test a wide range of transit capacity improvements and expansion segments



Regional Growth Trends

- 2010 to 2040 Regional Growth: 31% Population, 35% Household, 39% Employment
- Growth projected throughout region but especially in outer suburbs
- Other growth will be more dispersed or occur in emerging activity nodes

Markets	2008 to 2040 Growth in Weekday Home-Based Work Trips	Percent
Traditional Commute to Core	86,000	12%
Commute to Central Juris.	153,000	41%
Reverse Commute	62,000	35%
Central Circulation	76,000	39%
Suburb-Suburb	1,236,000	45%

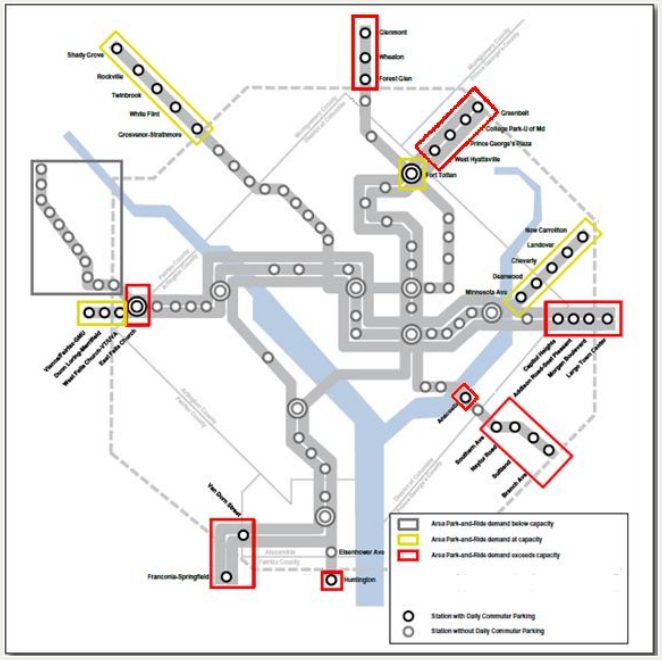


- Increased dispersion of travel patterns
- Moderate growth in commutes to Core
- Increased travel within Central jurisdictions
- Highest growth in travel to suburban destinations

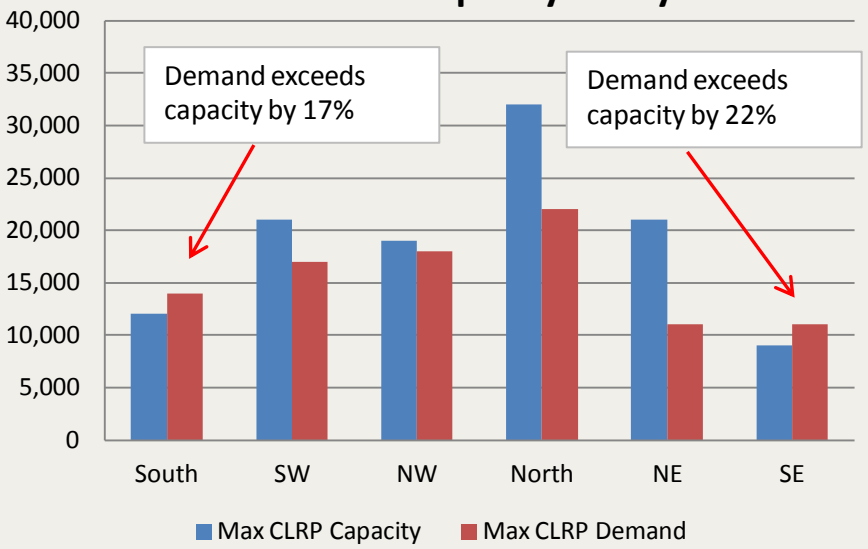
Implications for Transit

- Additional pressure on Metrorail core capacity
- Increased demand on station Park-and-Rides

2040 Parking Utilization



2040 Core Capacity Analysis



- Need to serve suburb-to-suburb travel
- Higher demand for circulation within central jurisdictions

Long-Term Regional Transit Issues

- **Core Capacity:** Increase transit capacity to serve the region's employment core
- **Access:** Improve multimodal access to high-quality transit
- **Surface Transit Corridors:** Provide priority for surface transit corridors
- **New and Emerging Markets:** Connect and improve transit access to and between regional activity centers

Phase I Strategies Evaluated

20 different strategies modeled

Core Capacity Strategies	Access Strategies	Surface Transit Strategies	New Connections Strategies
New rail lines through the core	In-fill stations & pedestrian connections	Enhanced bus priority corridors	Metrorail extensions to activity centers
Rail inter-lining	Improved pedestrian networks	Enhanced commuter rail service	Commuter rail extensions
Enhanced bus priority corridors	PNR lots with shuttles to rail	Enhanced BRT network	BRT/LRT/Streetcar extensions

2040 Base Case Network and Conditions

2040 Base Network:

- Adopted 2009 CLRP (see appendix)
- 100% 8-car trains
- Maximum train frequencies supported by infrastructure and balanced to meet demand

Base Case Peak Hour Passenger Loads

2040 Conditions:

Weekday Linked Transit Person Trips by 4 Districts: Growth from 2008 to 2040

		Attraction Location				
		Core	Central Jurisdictions Outside Core	Inner Suburbs	Outer Suburbs	Total
Production Location	Core (DC/Arl CBD)	12,000	11,000	4,000	<500	27,000
	Central Jurisdictions Outside Core	56,000	54,000	19,000	<500	129,000
	Inner Suburbs	35,000	33,000	80,000	1,000	149,000
	Outer Suburbs	21,000	16,000	14,000	2,000	53,000
	Total	124,000	114,000	117,000	3,000	**358,000**

- Regional program of projects maintains transit share (4%)
- Regional transit trip making expected to grow by more than 30%

Regional Transit System Plan

Measures of Effectiveness

Alternative	Measures of Effectiveness										
	Core Capacity			Access				Mobility		Efficiency	Auto Travel
	Sufficient Capacity to Serve Demand	Reserve Capacity/ Redundancy	Station Capacity	Transit System Coverage	Service to Major Activity Centers	Metrorail Parking Sufficiency	Reduce Dependence on Automobile to Access Metrorail	Region-wide Transit Share	Transit Access to Jobs	Passenger Miles Per Route Mile	Auto VMT and Trips
Base											
Existing Conditions in 2008	Poor	Poor	Poor	Neutral	Very Poor	Poor	Neutral	Neutral	Neutral	Neutral	Poor
2040 Constrained Long Range Plan	Very Poor	Very Poor	Very Poor	Poor	Poor	Very Poor	Neutral	Neutral	Poor	Good	Very Poor

- All strategies are compared to 2040 base case & evaluated by a set of measures

Key	
Very Poor	
Poor	
Neutral	
Good	
Excellent	

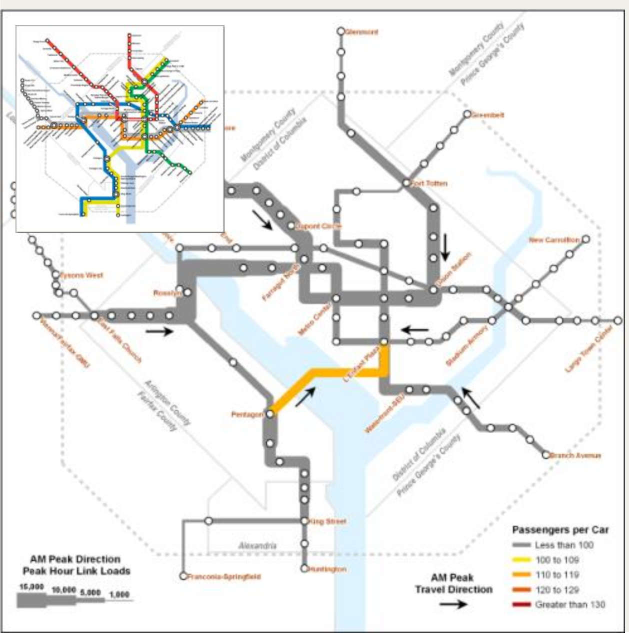
New Rail Lines Through the Core: Key Findings

Blue Line Via M St./New Jersey Avenue:

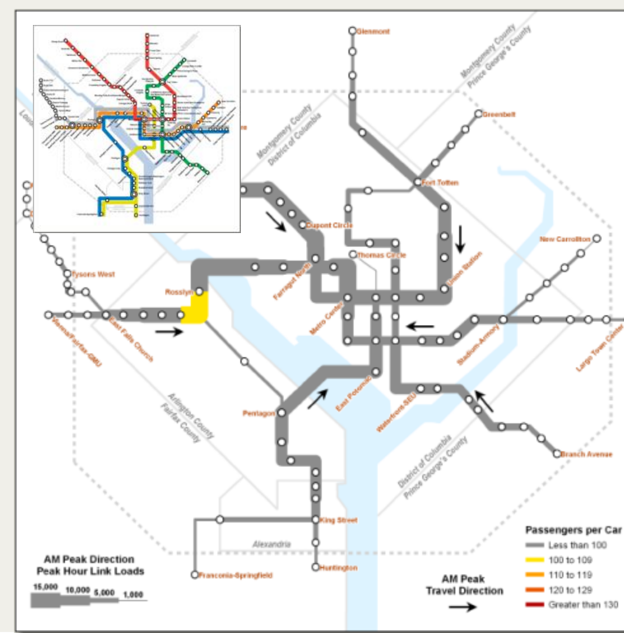
- Allows more Orange, Blue and Silver trains through Core
- Reduces crowding on several lines and in Core stations, not much at L'Enfant
- Increases system coverage to areas with moderately high demand
- Weekday ridership: 215,000

Yellow 10th St SW/NW:

- Allows more Yellow and Green trains through Core
- Reduces crowding on Green trains and in Core stations, not much at Rosslyn
- Does not extend Metro coverage to un-served areas
- Weekday ridership: 129,000



Base Case



New Rail Lines Through the Core: Key Findings

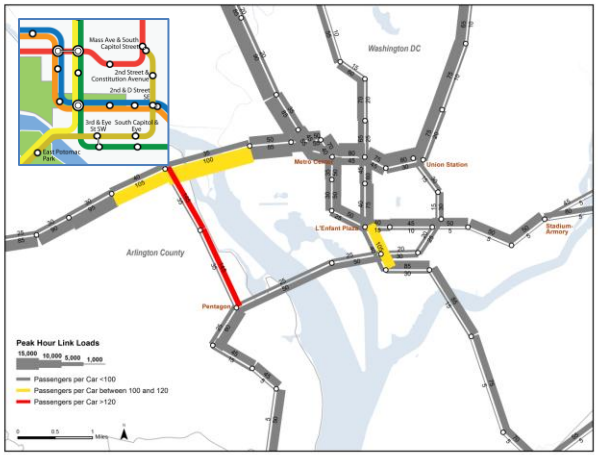
Yellow Line Via 2nd Street SE/NE :

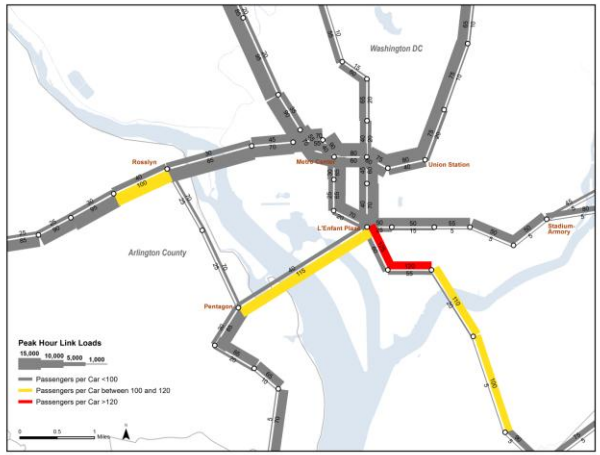
- Provides broader Metrorail service to SE/NE, but discontinues direct service to high demand locations in Core
- Results in greater congestion on Blue line through Rosslyn
- Reduces crowding on Yellow and Green lines, but offers no relief for Courthouse to Rosslyn link
- Weekday ridership: 105,000

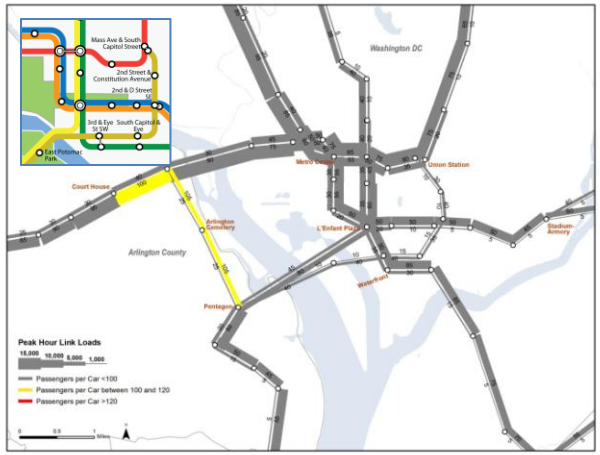
Yellow Line Split:

- Provides Metrorail service to SE/NE, and continues direct service to high demand locations in Core
- New tunnel is underutilized (10 trains per hour during peak)
- Reduces crowding on Yellow and Green lines, but offers no relief for Courthouse to Rosslyn link
- Weekday ridership: 50,000

Base Case







Rail inter-lining: Key Findings

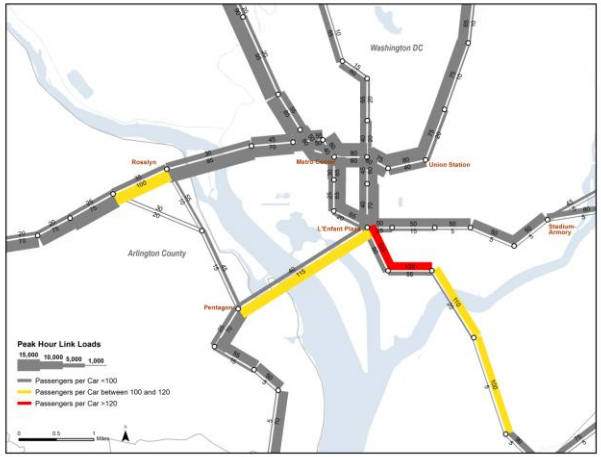
Rosslyn Interline:

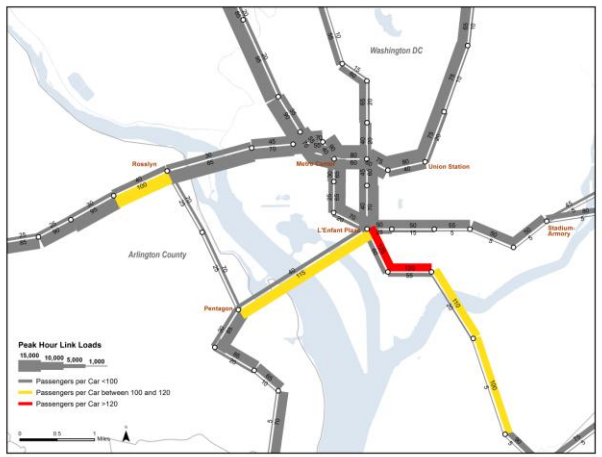
- Some Core capacity relief at Metro Center and Rosslyn "Y", but continued bottlenecks at L'Enfant Plaza and Pentagon
- Offers intra-Virginia service with Dulles to Reagan National Airport connection
- Weekday ridership:
  - Rosslyn Bypass link flows = 19,700

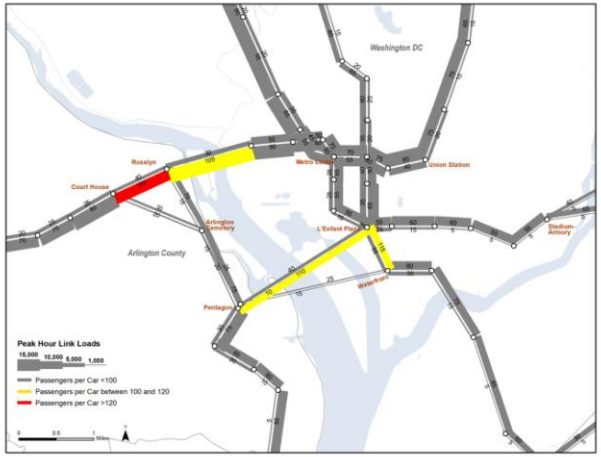
Four Interlines:

- Worsens Courthouse/Foggy Bottom crowding
- Relieves some crowding in SE DC
- Allows flexibility in system operation
- Weekday ridership:
  - West Fall Church Bypass link flows = 5,000
  - Rosslyn Bypass link flows = 45,400
  - Pentagon Bypass link flows = 27,500
  - L'Enfant Bypass link flows = 17,600

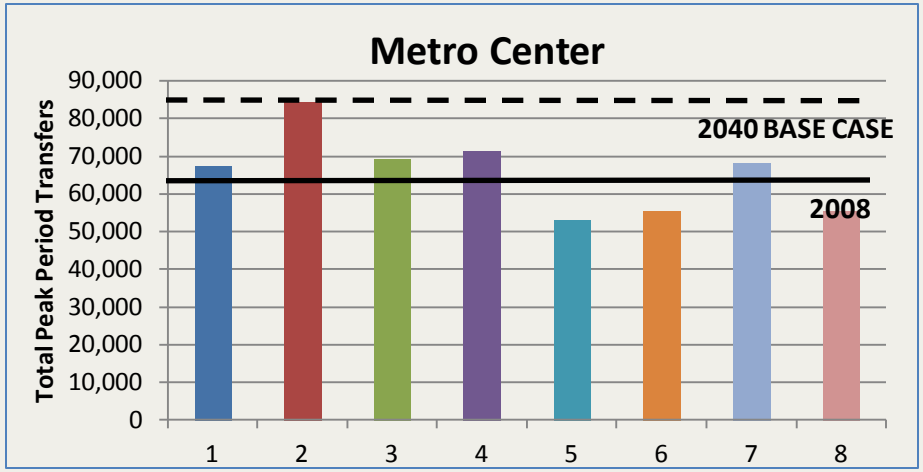
Base Case

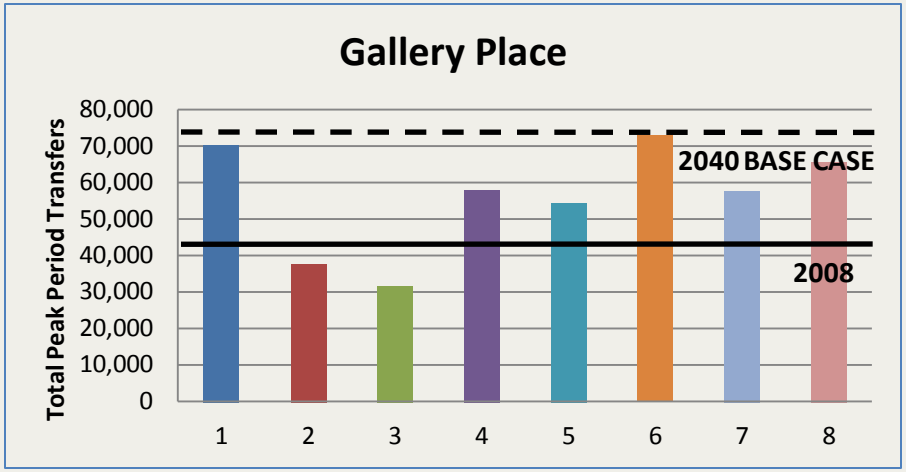


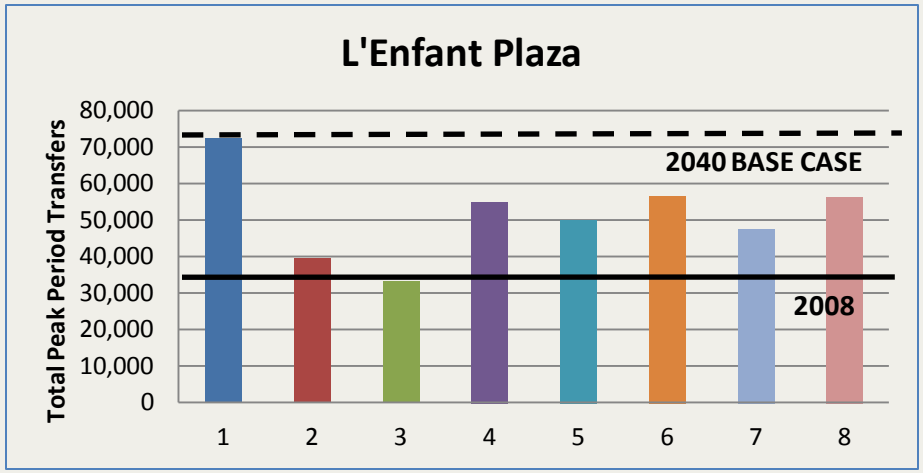


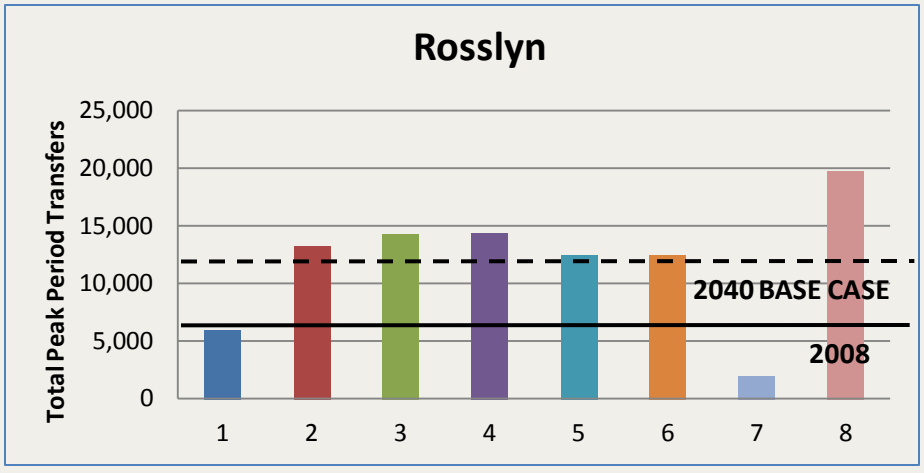


Transfer Activity at Key Stations in Core



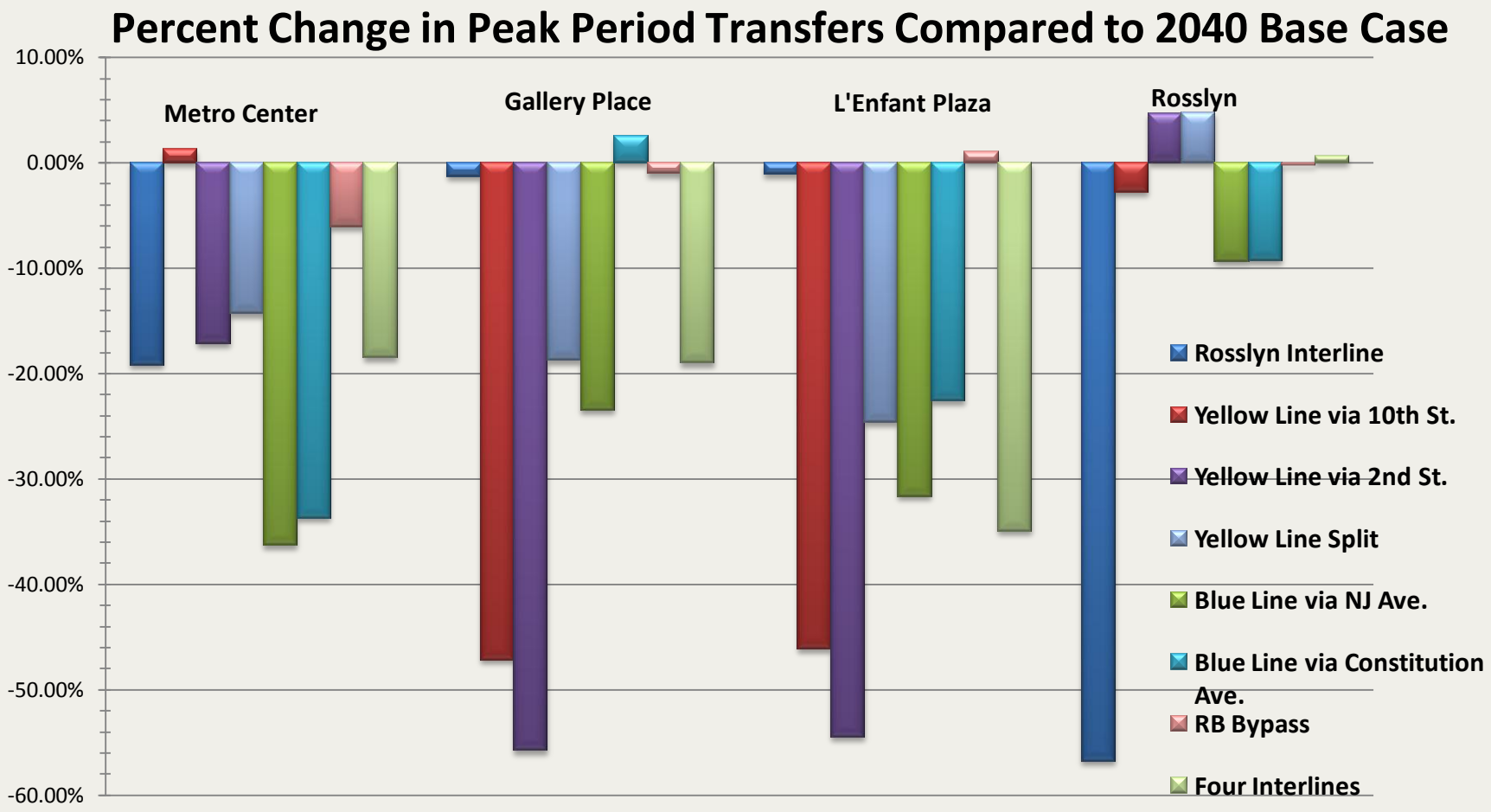






1 Rosslyn Interline
2 Yellow Line via 10th St.
3 Yellow Line via 2nd St.
4 Yellow Line Split
5 Blue Line via NJ Ave.
6 Blue Line via Constitution Ave.
7 Four Interlines
8 RB Bypass

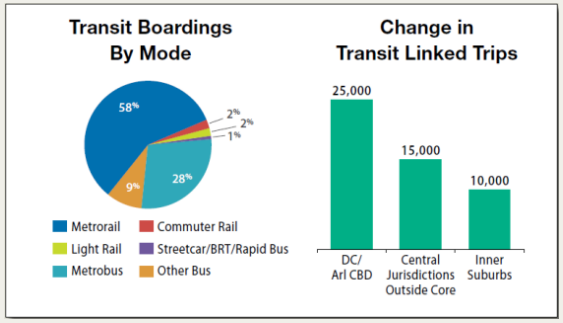
Transfer Activity at Key Stations in Core



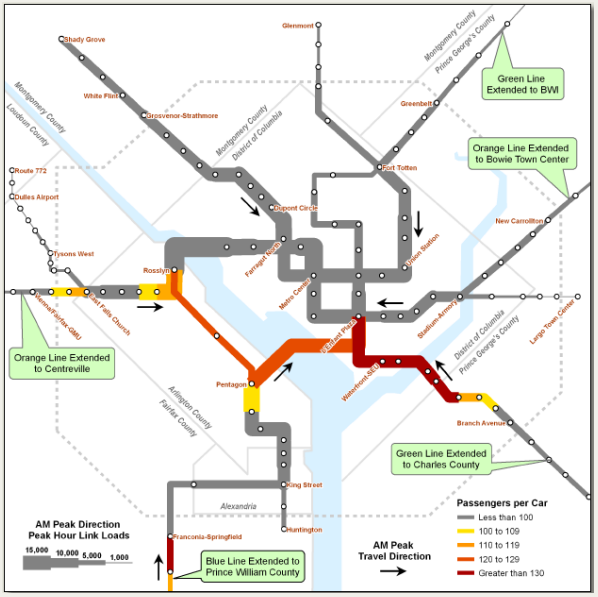
Rail Extensions: Key Findings

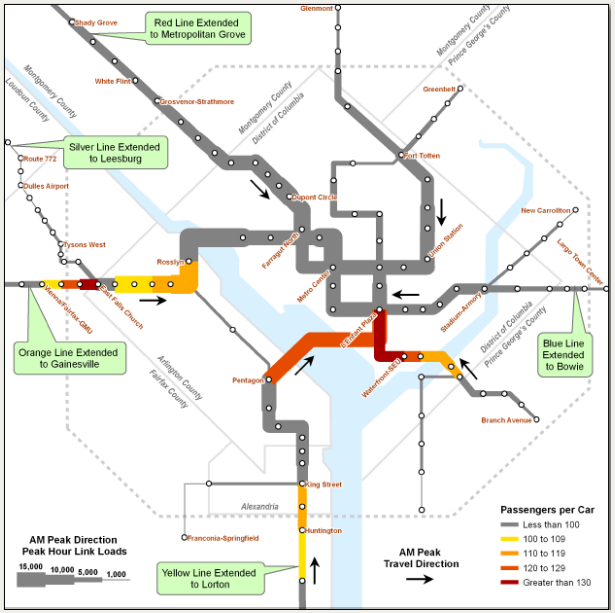
Option A:

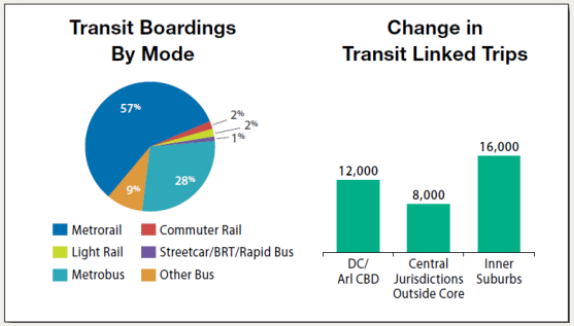
- Worsens crowding in core
- Relieves many existing park-and-ride lots
- Additional weekday ridership: 73,000



Extension Option A







Extension Option B

Option B:

- Worsens crowding in core
- Relieves many existing park-and-ride lots
- Additional weekday ridership: 44,000

Regional Transit System Plan

Metrorail Extension Analysis

Extensions	Miles	Stations	Number of New Regional Activity Centers Served by Metrorail	New Transit Weekday Linked Trips	New Linked Trips/Mile
Red Line to Metropolitan Grove	3.5	2	1	6700	1914
Blue Line from Franconia/Springfield to Prince William County	11	4	4	12700	1155
Green Line from Branch Avenue to Charles County	18	6	1	17600	978
Orange Line from New Carrollton to Bowie	8.3	3	0	7600	916
Orange Line to Gainesville	19	5	5	16300	858
Orange Line from Vienna/Fairfax-GMU to Centreville	9.6	3	2	8100	844
Yellow Line to Lorton	11.5	8	0	7000	609
Green Line Spur to National Harbor	6	5	1	3600	600
Silver Line to Leesburg	7.6	3	1	3300	434
Green Line from Greenbelt to BWI	18	6	1	5600	311
Blue Line to Bowie	7	5	0	1000	143

Surface Transit: Key Findings

Enhanced Priority Corridors:

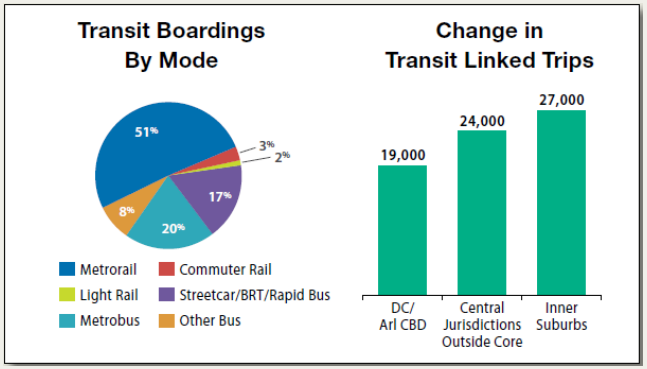
- Improves overall transit mode share by improving access to regional activity centers
- 18% increase in commuter rail ridership
- Weekday ridership: 390,000

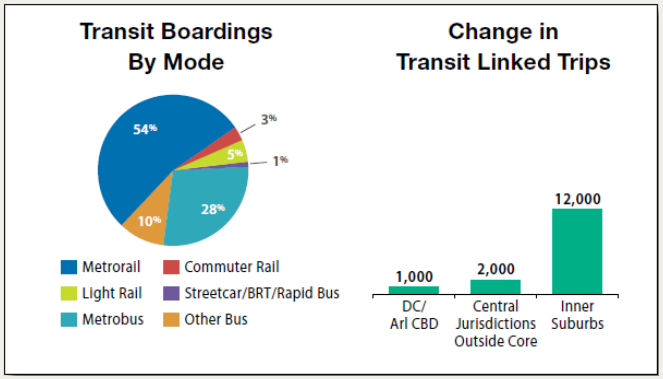
Light Rail Expansions:

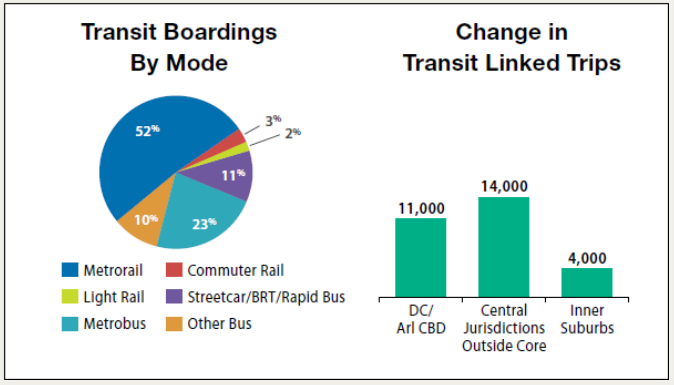
- Decreased crowding on Green line but increases it on Yellow line
- Relieves parking demand at Shady Grove, Branch Ave, and Largo Town Center
- Weekday ridership: 54,000

Streetcar Network:

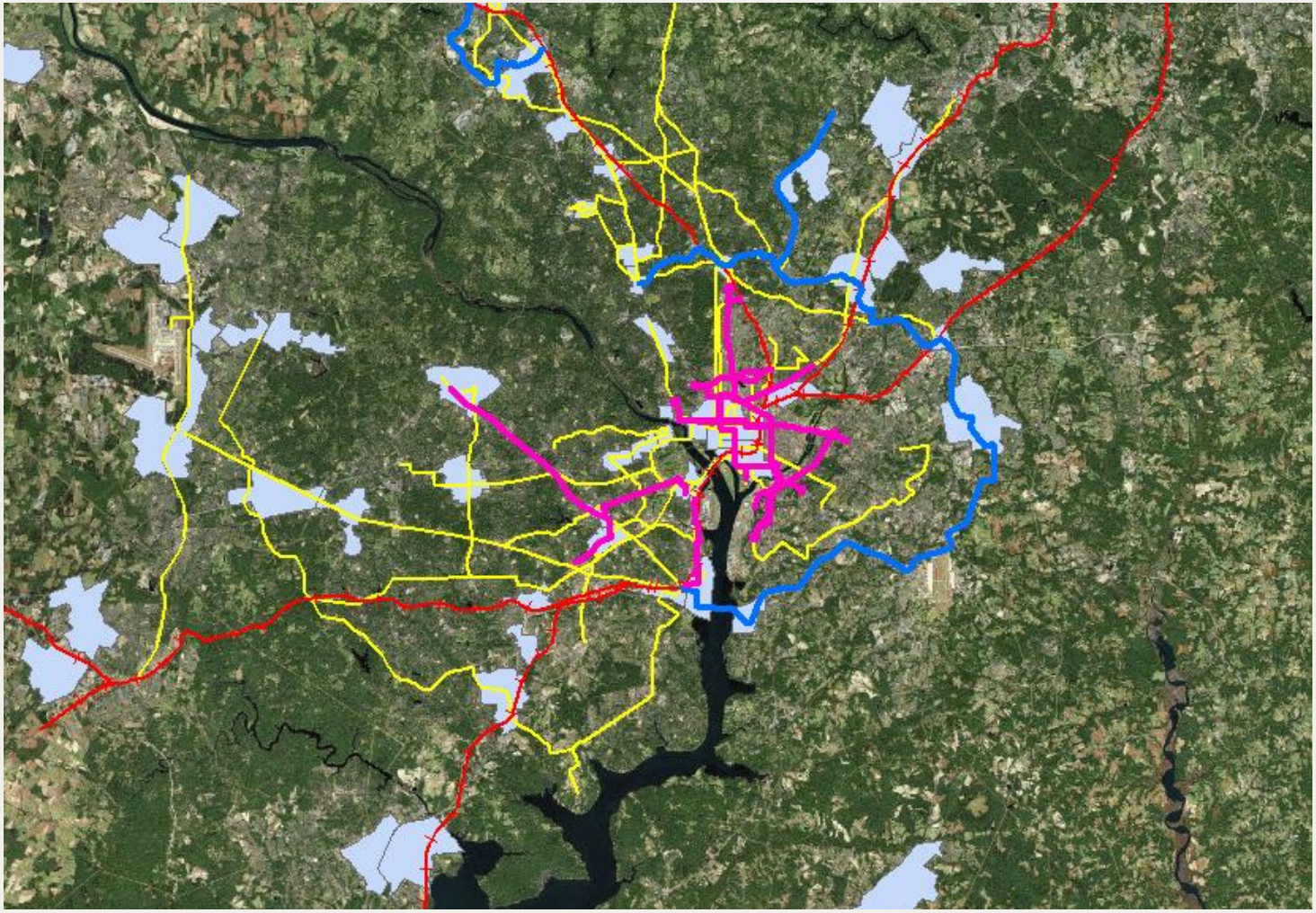
- Modest relief of Metrorail Core capacity
- Requires integration of networks
- Weekday ridership: 205,000







Surface Transit Connections to RAC's



RAC | Commuter Rail Enhancements | Enhanced Priority Corridors | Streetcar Network | Light Rail w/ Extensions

Improved Walk Access Strategy: Key Findings

Summary of Weekday Transit Linked Trips:2040			
		2040 Base (CLRP)	Improved Walkability
Attraction Location	Core (DC/Arl CBD)	754,000	766,000
	Central Jurisdictions Outside Core	322,000	361,000
	Inner Suburbs	277,000	360,000
	Outer Suburbs	4,000	4,000
	Region-wide	1,357,000	1,491,000
	Percent growth vs. 2040 Max CLRP	-----	9.9%

Improved Walkability:

- Total transit trips increase by 9.9% vs. Base Case
- Reduces parking overflow by reducing short drive access to rail trips
- Increased utilization of reverse peak direction Metrorail capacity
- Higher peak loads on Metrorail due to improved transit access

In-Fill Stations: Key Findings

Infill Station Location	Strategy Results	
	Potential Ridership	Factors
St. Elizabeth's Campus	High	Significant planned redevelopment in vicinity
Kansas Ave.	Medium to High	Existing development and planned redevelopment in vicinity
Oklahoma Ave.	Medium	Depends on accessibility to Benning Road corridor
Eisenhower Ave. Valley	Low	Physical barriers limit access
Montgomery College	Low	Low-density land uses in vicinity

Questions?