

# GetOnBoardBRT

BUS RAPID TRANSIT IN MONTGOMERY COUNTY

## US 29 Bus Rapid Transit Briefing to Montgomery County Council Transportation & Environment Committee

March 30, 2017

# Project Goals

- Improve the quality of transit service
- Improve mobility opportunities and choices
- Enhance quality of life
- Support master planned development
- Provide sustainable and cost-effective transit alternatives

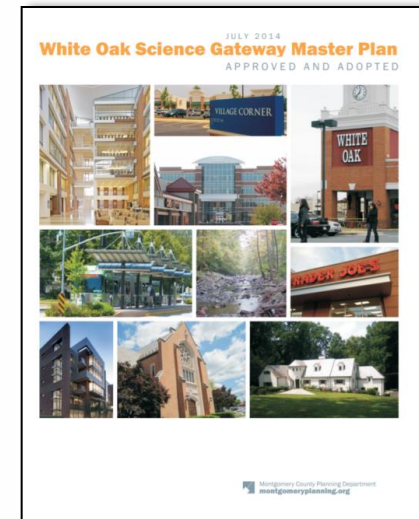


# A Snapshot of the US 29 Corridor

- One of busiest transit corridor in Maryland with over **11,000 daily bus trips**
- Bus trips on the corridor average **20 percent** longer than auto trips; up to **60 percent** longer during peak periods
- Highly diverse
  - 65% of residents minority; 32% foreign born
  - 31% of population speaks a language other than English at home
  - 30% of households earn less than half of the area median income
  - 12% have no access to a car; 38% have access to only one vehicle
  - Home to over 9,000 senior citizens and 11,000 people with disabilities

# A Snapshot of the US 29 Corridor

- Major job and education centers
  - Food and Drug Administration (FDA)
  - National Oceanic and Atmospheric Administration (NOAA)
  - Discovery Communications Headquarters
- 61,000 jobs along corridor in 2010; projected to over 80,000 in 2040
- Major Planned Development
  - White Oak Science Gateway
  - Downtown Silver Spring
  - Burtonsville





# Corridor Planning Study Transportation and Environment Committee

## Montgomery County **RAPID TRANSIT**

US 29

March 30, 2017



Maryland Department  
of Transportation

**MCDOT**  
Montgomery County Department of Transportation

# Conceptual Alternatives

## ■ **Alternative A:**

- Intermittent Curbside Business Access Transit Lanes (BAT)\* in South
- Median Shoulder BRT Lanes in North

## ■ **Alternative B:**

- Intermittent Curbside Managed Lanes (HOV2+ /BAT)\*\* in South
- Bus on Outside Shoulder in North

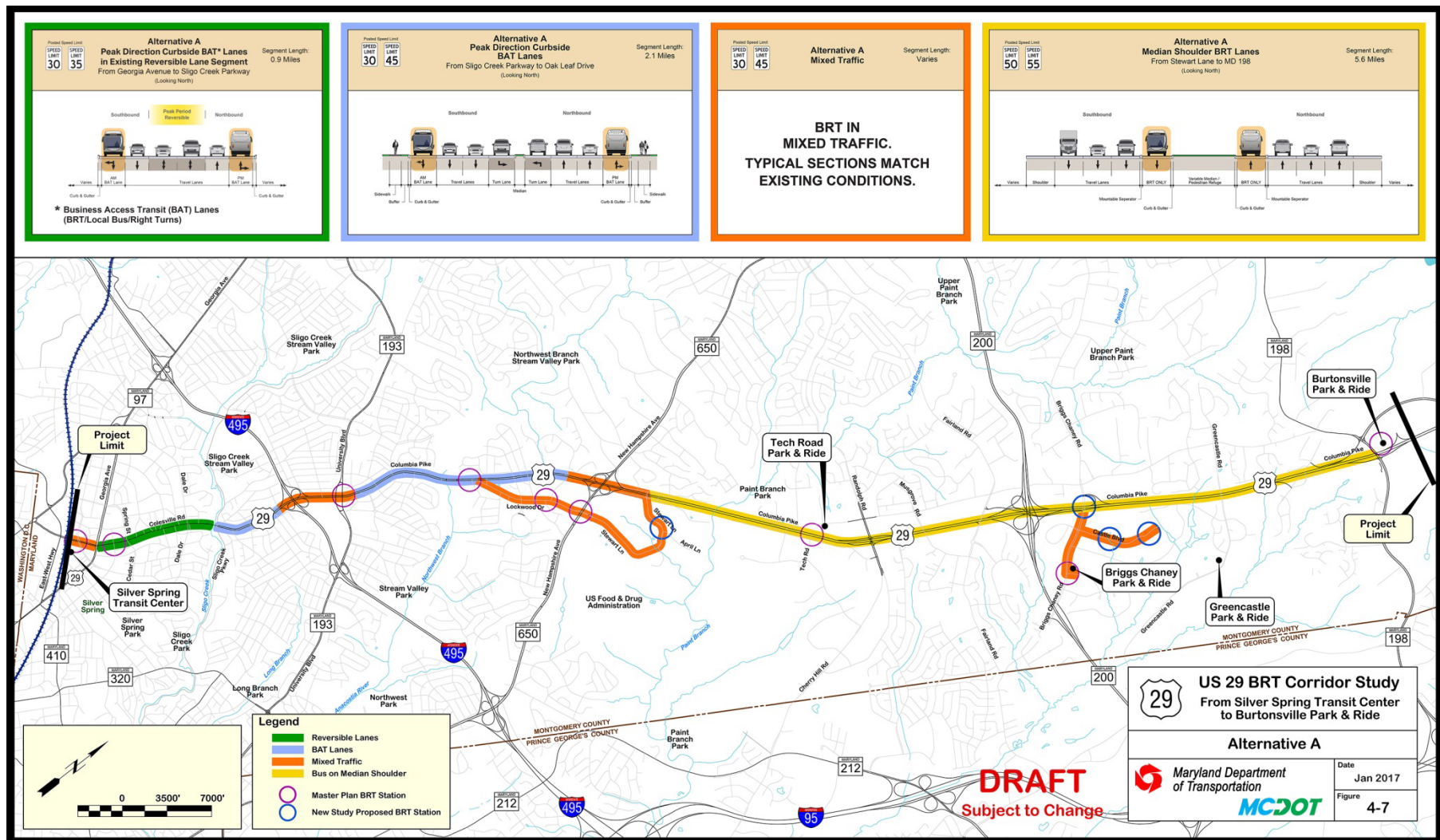
## • **Alternative B Modified:**

- Intermittent Curbside Managed Lanes (HOV2+ /BAT)\*\* in South
- Median Shoulder BRT Lanes in North

**\*BAT Lane = BRT buses, local buses, right turning traffic**

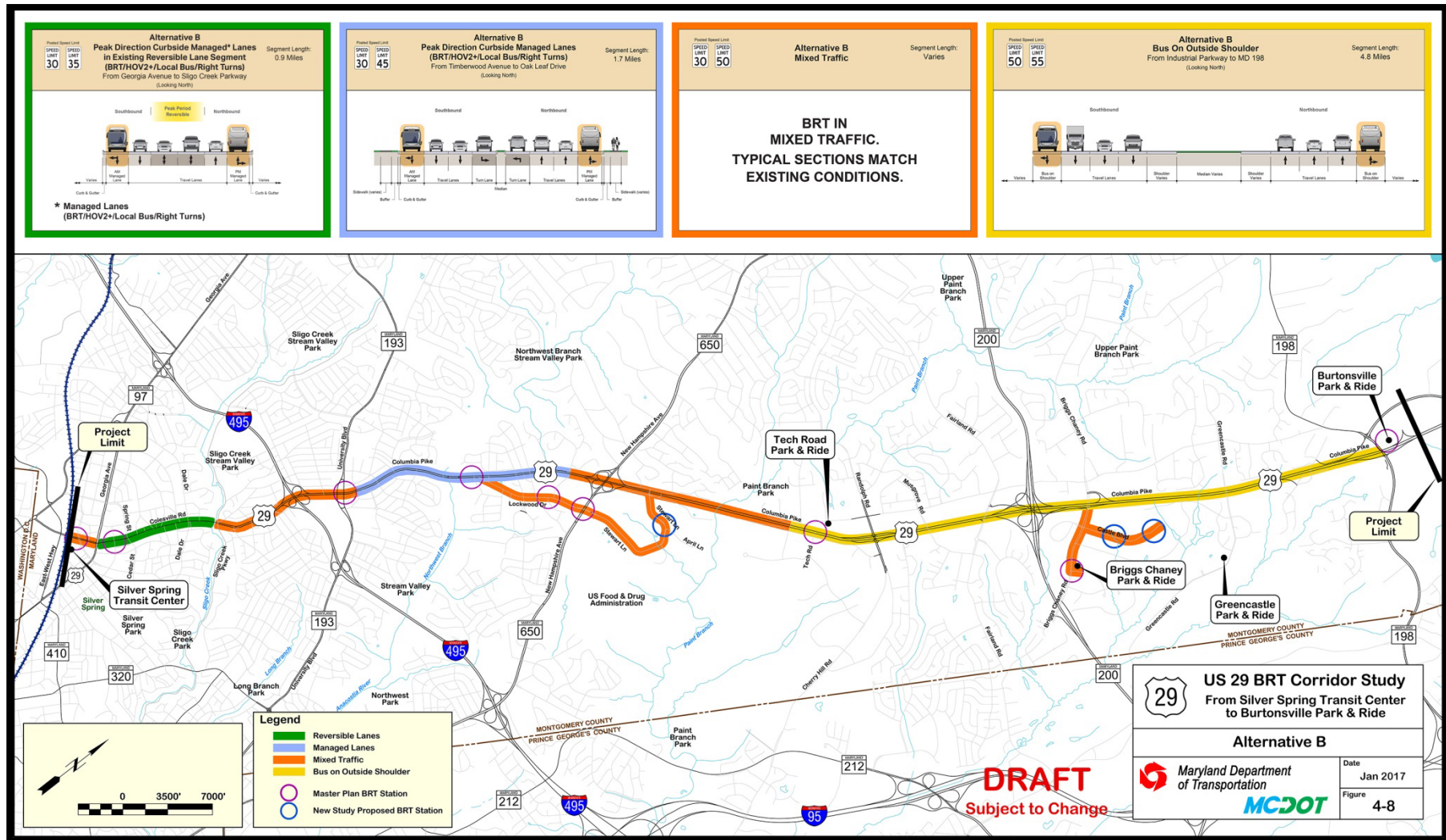
**\*\*HOV2+ /BAT Lane = Vehicles with 2 or more persons, BRT buses, local buses, right turning traffic**

# Alternative A



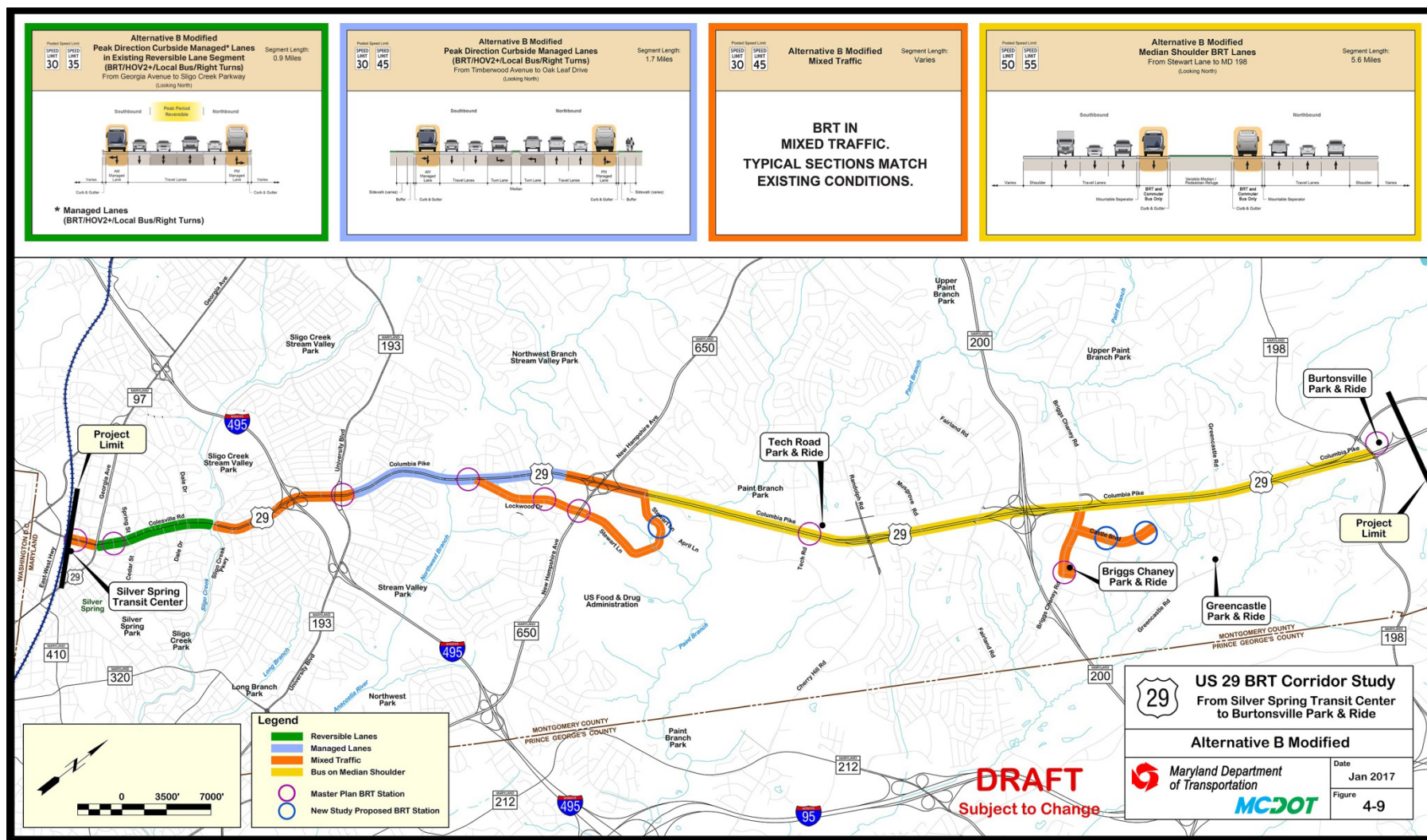


# Alternative B



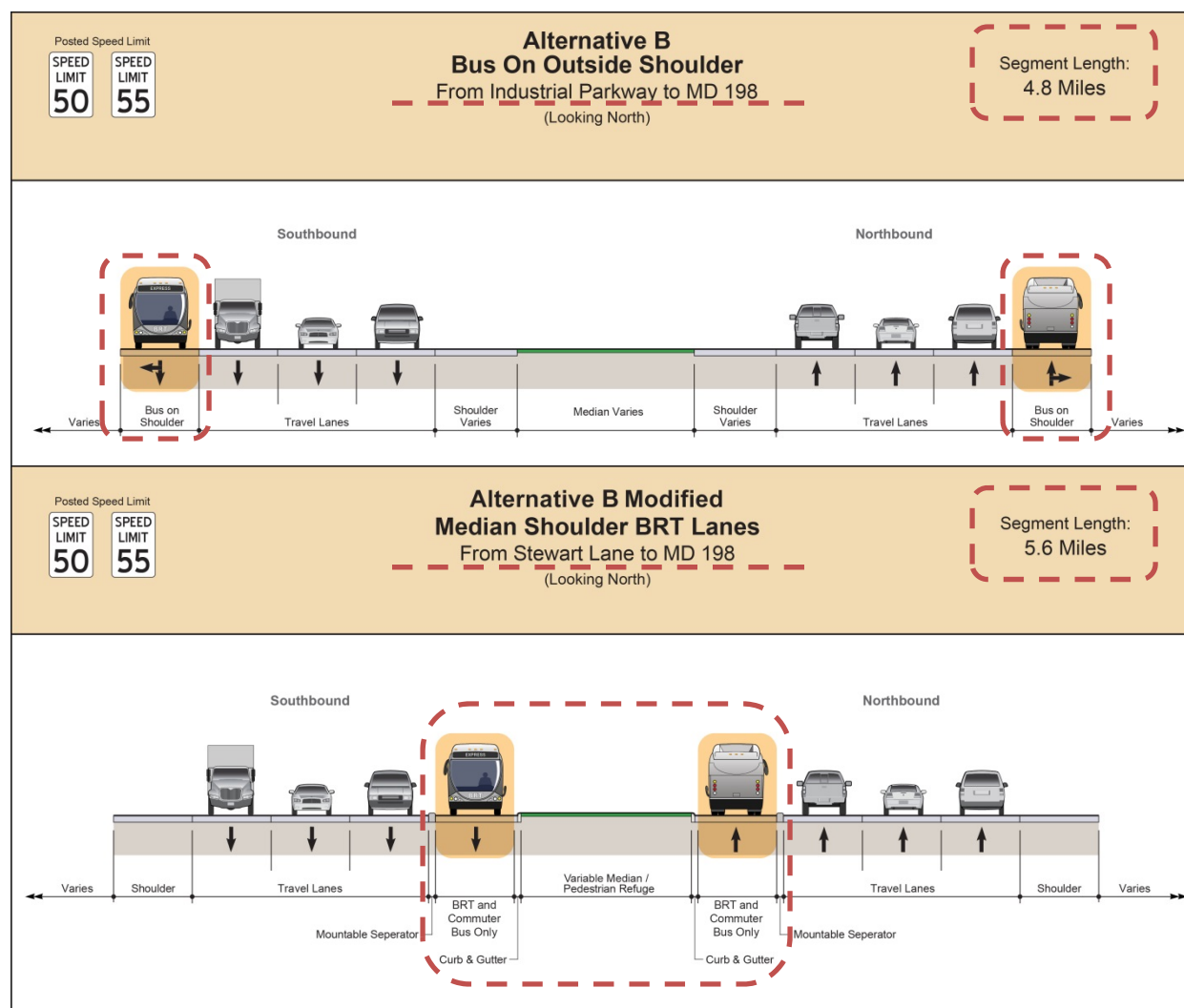


# Alternative B Modified



# Alternative B and B Modified

A  
Comparison  
of Subtle  
Differences



# 2040 Total Daily Boardings and Travel Demand

Total Daily Transit Boardings				Total Daily BRT Boardings			
No-Build	Alt A	Alt B	Alt B Mod	No-Build	Alt A	Alt B	Alt B Mod
28,500	34,900	33,700	34,400	-	18,100	16,400	17,300

- **Transit:** Total daily transit boardings increase between 18 percent and 22 percent over No-Build conditions.
- Vehicle Miles Traveled are reduced under all three conceptual build alternatives.
- Person Miles Traveled are increased under all three conceptual build alternatives.
- **Vehicles:** A 60 percent or greater increase in HOVs and a decrease in SOVs are projected during the peak hours with Alternatives B and B Modified.



## 2040 Estimated Project Costs

	Right-of-Way (\$M)	Bus Procurement (\$M)	Construction (\$M)	Annual Operating (\$M)
Alternative A	\$2 to \$3	\$21	\$80 to \$112	\$9 to \$10
Alternative B	\$2 to \$5	\$17	\$60 to \$108	\$8 to \$9
Alternative B Modified	\$2 to \$3	\$19	\$77 to \$106	\$9 to \$10

- Costs are approximate and based on 2015/2016 dollars.
- Right-of-Way costs in Alternative B are higher due to additional storm water management costs.
- Forecasted ridership levels for Alternative B indicate that fewer buses and reduced operating times are required; therefore, operations costs are lower compared to Alternatives A and B Modified.

# 2040 Traffic Operations Performance Measures

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The traffic operations analysis covered the following key performance measures, among others:

- Corridor Travel Time
- Person Throughput at Select Locations
- Miles of Level of Service (LOS) at 'E' or 'F'
- Intersections Operating at LOS 'E' or 'F'

## 2040 Corridor Travel Time

- Mixed results between the build alternatives and No Build; Alternative A had the slowest travel times.
- Alternative A had the slowest AM Peak travel time for cars and trucks as well as for BRT, even slower than No Build.
- Alternative B and Alternative B Modified offered the fastest BRT and local bus AM peak travel times; B Modified had the fastest PM time for buses.
- Alternative B and Alternative B Modified offered the fastest HOV PM peak travel times.
- AM Weighted Person Travel Time was fastest with No Build; slowest with Alternative A.



## 2040 Person Throughput

- AM person throughput is higher with Alternatives B and B Modified than for Alternative A or the No Build
- PM person throughput is higher for No Build at southern end of corridor than for the other alternatives
- PM person throughput is higher for all three build alternatives at the north end of corridor than the No Build

# 2040 Traffic Performance

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- Alternative B Modified improvements to LOS in the PM Peak may be attributed to fewer vehicles accessing the corridor in the north.
- Latent demand for the three build alternatives increases due to fewer vehicles accessing the network.

# 2040 Traffic Analysis Results Overview

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**Overall the analysis shows the following:**

- Improved Transit Travel Time
- Improved Person Throughput
- Potential Increase in Delays for Cars and Trucks
- Potential Increase in Latent Demand

**Additional analysis to improve traffic performance:**

- Adjustments to the Limits and Transitions of the BAT lane or Managed lane
- Operating the BRT in Mixed-traffic
- Alternative Bus Routings
- Roadway Capacity Improvements



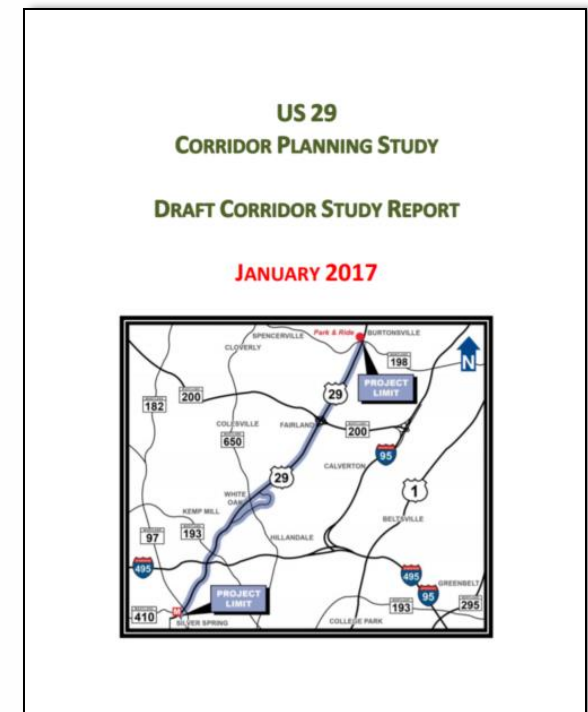
## What About MetroExtra Service?

- WMATA service – addresses transit system demand by adding more buses, modifying routes, changing service frequencies; no infrastructure improvements
- Not funded by County; WMATA decision to implement
- Significant difference in expected ridership
  - US 29 MetroExtra: ~1,100 daily peak boardings\*
  - US 29 BRT: ~7,000 daily peak boardings
- US 29 BRT ~20% lower estimated annual operating cost
  - US 29 MetroExtra: \$9.6 million annual operating cost\*
  - US 29 BRT: \$7.5 million annual operating cost

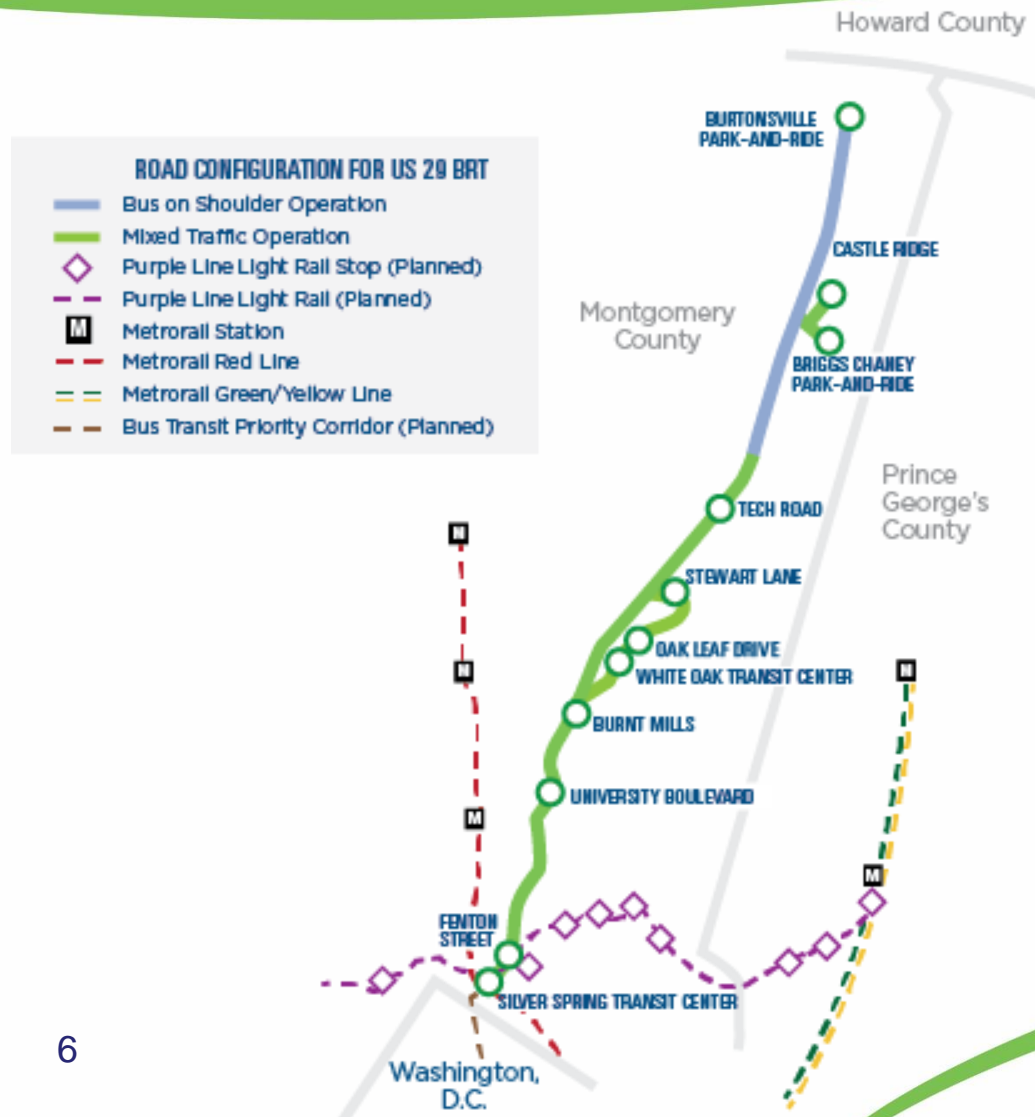
*\*Estimated by WMATA, March 3, 2017*

# MDOT Study Process Findings (2040 Analysis)

- Station Locations
- Service Plans
- Property and Environmental Impacts
- HOV mode share
- Impacts of new pavement in north
- Traffic Analysis
- Total capital cost : \$80-140 million



# MCDOT US 29 Project



Approximately  
40% of the  
alignment along  
US 29 is in  
dedicated Bus on  
Shoulder lanes



# Elements of MCDOT US 29 Project

- Frequent all-day service
  - 7 days/week
  - Same hours as Metrorail
  - 7.5 minutes peak; 15 minutes off-peak
- Uniquely branded vehicles and stations
- Transit Signal Priority (TSP)
- Bike/pedestrian improvements to facilitate station access, including 10 new bikeshare stations
- Ongoing coordination with Howard County



# Elements of BRT

BRT Element		US 29 BRT Details
Runningway	✓	40% in dedicated Bus on Shoulder
Stations	✓	11 level-boarding BRT stations with improved amenities such as real-time info and off-board fare collection
Vehicles	✓	Sleek, articulated BRT vehicles with multiple-door level boarding and interior bike accommodation
Fare Collection	✓	Off-board fare collection
ITS (Technology)	✓	Transit Signal Priority at 15 intersections; real-time arrival info
Service and Operations	✓	Frequent, headway-based service with longer span; integration with local services
Branding	✓	Uniquely branded service, stations, vehicles

*Source: National BRT Institute*

“Most BRT projects operate in mixed traffic – primarily arterials streets – for 50 percent or more of their routes.”

- GAO Report, 2012

# US 29 BRT Project Benefits – Ridership and Transit Reliability

- Projected BRT Ridership

- 2020: 13,000 daily boardings (3,950 *new*)
- 2040: 20,000 daily boardings (5,700 *new*)

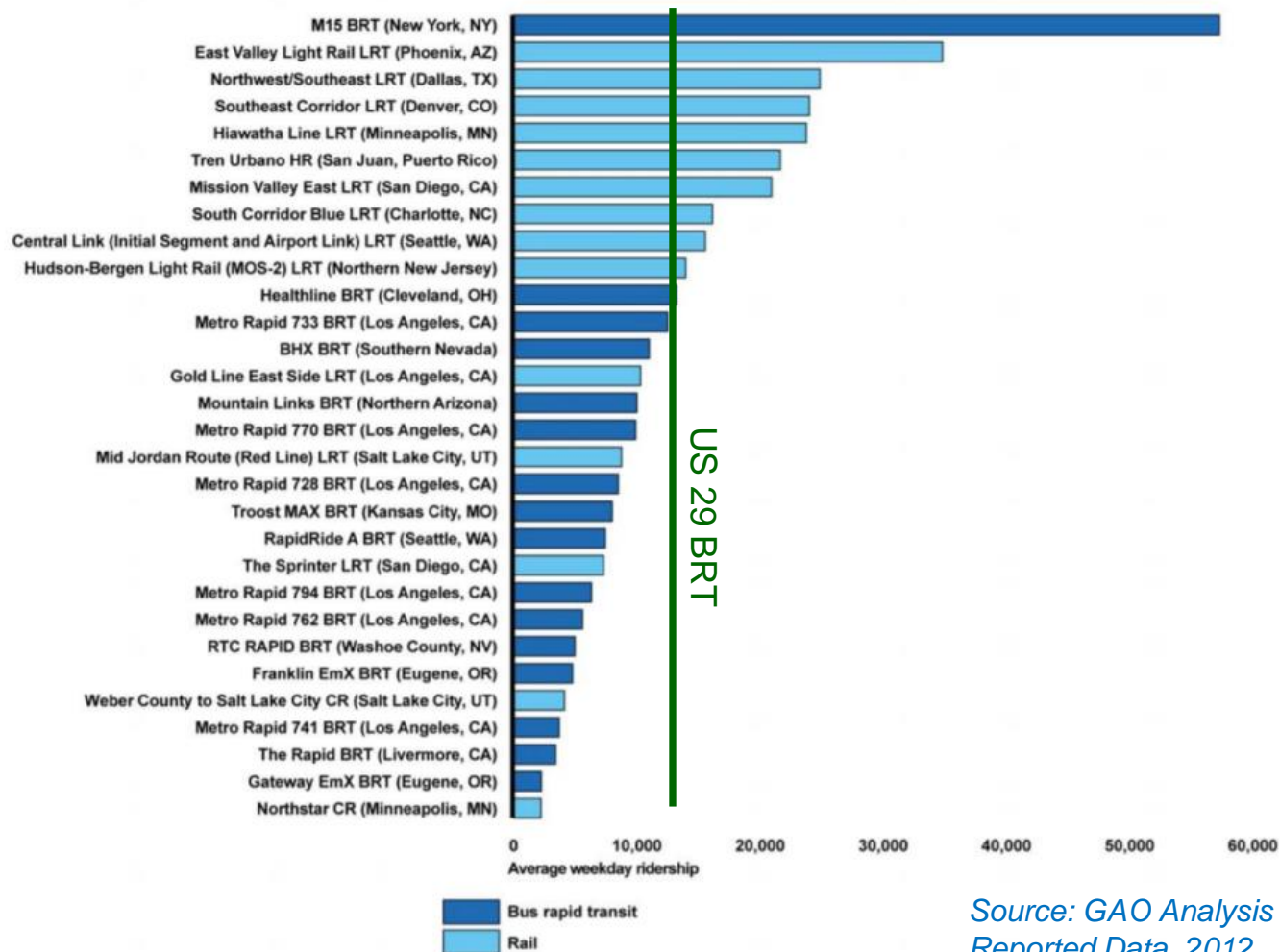
The Benefit-Cost Analysis for the US 29 BRT project shows that benefits outweigh costs by a factor of **four**.

- Improved **transit reliability**

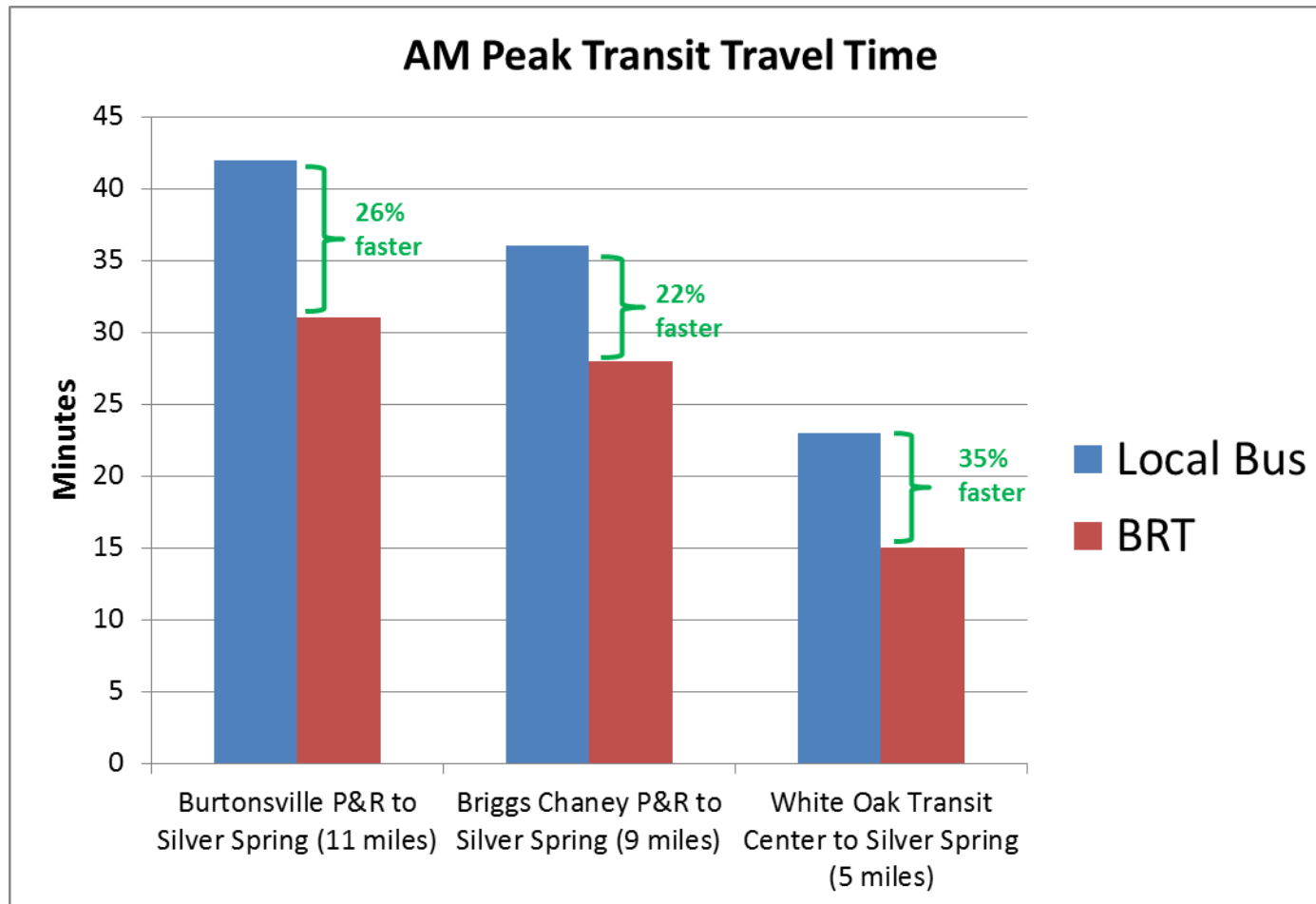
- Current on time performance for local corridor transit services averages **45-77%\***
- US 29 BRT will improve reliability through:
  - Bus on Shoulder
  - Transit Signal Priority
  - More efficient operations (level multiple-door vehicle boarding, limited stops, off-board fare collection)

# US 29 BRT Compared to Other BRTs – *Ridership*

## Average Daily Ridership One Year After Opening



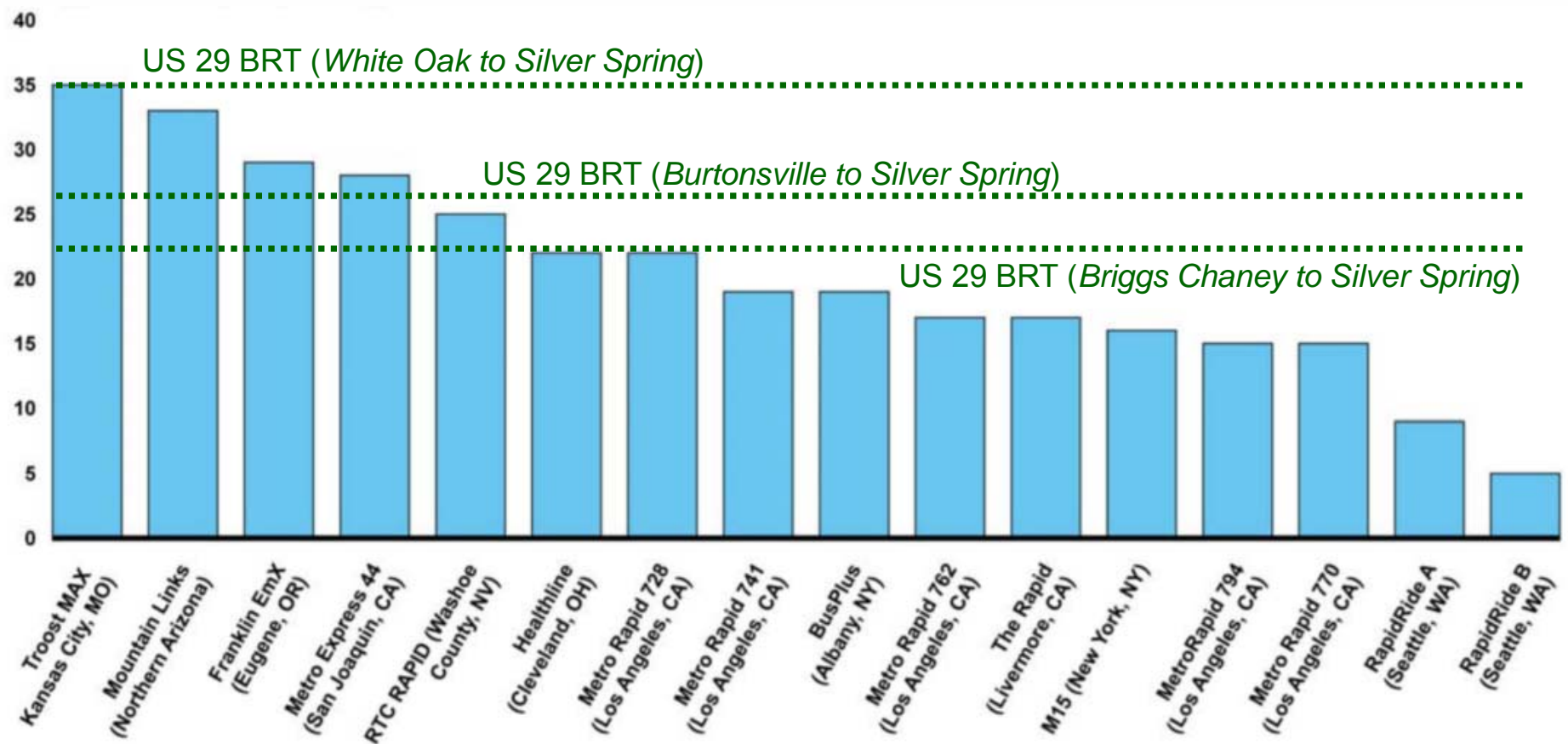
# US 29 BRT Project Benefits – Improved Transit Travel Time





# US 29 BRT Compared to Other BRTs – *Travel Time Savings*

Change in travel time (as a percentage) over previous bus service



# US 29 BRT Project Benefits – Economic Impact

- Development of the White Oak Science Gateway depends heavily upon the presence of US 29 BRT and its capacity to enhance mobility.
  - 7 million square feet of commercial space
  - > 20,000 jobs
  - 5,300 additional dwelling units
- Project estimated to result in ***\$269-520 million net benefit***
- Estimated Operational Phase Impacts
  - 85 permanent jobs in Montgomery County
  - \$6.5 million annual labor income
  - \$13.4 million additional annual business sales

*Source: MCDOT TIGER grant application,  
Economic Impact Analysis, Sage Policy Group*

# US 29 BRT Project Benefits – Accessibility

- Increases regional connections and access to a fast-growing jobs corridor
- US 29 BRT will improve transit access and provide upward mobility for transit-dependent populations
  - Currently minimal off-peak transit service on the corridor
  - BRT will significantly increase span and frequency of service
  - Local routes will be integrated and improved

# US 29 BRT Project Benefits – Route Efficiency and Coverage

- Existing local service will be evaluated to interface with BRT and potentially provide **improved frequency and/or coverage into neighborhoods**
- Potential strategies:
  - Adjust frequency
  - Adjust span of service
  - Relocate stops
  - Change alignments
  - Extend routes
  - Limited stop overlay
  - Neighborhood circulators

# US 29 BRT Estimated Infrastructure Cost

Project Element	Estimated Cost
BRT Stations and Stops	\$13,000,000
Transit Signal Priority	\$1,000,000
Vehicles	\$14,000,000
Bicycle & Pedestrian Improvements	\$2,000,000
Overhead & Grant Administration	\$1,500,000
<b>TOTAL</b>	<b>\$31,500,000</b>
<b>Federal TIGER Funds</b>	<b>\$10,000,000</b>
<b>County Contribution</b>	<b>\$21,500,000</b>

MCDOT anticipates that the majority of TIGER funding will be used towards station and pedestrian improvement construction

*Note: County's FY17-22 budget already included \$6.5 million for US 29 BRT planning and design*



# TIGER Grant

- USDOT Program – **T**ransportation **I**nvestment **G**enerating **E**conomic **R**ecovery
- \$500 million made available nationwide in FY16
- **Highly** competitive (3-5% of grant requests awarded)
- \$10 million Federal grant awarded for US 29 BRT
  - Award based on demonstrated benefits of project with respect to grant criteria (*economic competitiveness, quality of life, environmental sustainability*)
  - Tremendous opportunity for federal investment in East County
  - Provides national visibility to Montgomery County's BRT program

The logo for the TIGER Grant, featuring the word "TIGER" in a bold, sans-serif font. The letters are black with orange and white diagonal stripes, giving it a tiger-like appearance.

# Status of TIGER grant

- Developing positive relationship with FTA
- Grant agreement by June 2017
- Elements required to secure grant
  - Final scope of work (*in progress*)
  - Inclusion of project in STIP/CLRP (*March 2017*)
  - All local funding approved in CIP (*May 2017*)
  - NEPA complete (*June 2017*)

# US 29 Project Schedule



# Public Engagement

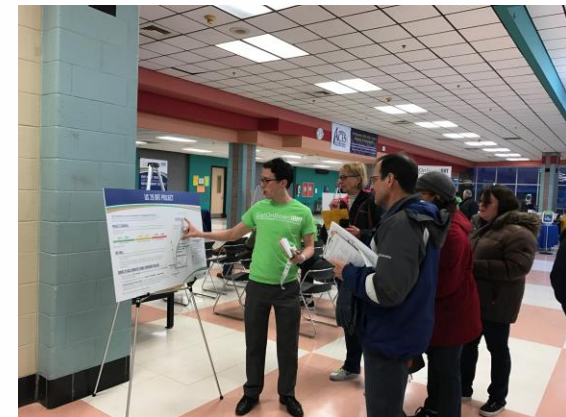
- **Corridor Advisory Committees (CACs)**
  - 19 meetings held since February 2015
  - CACs will continue to meet to provide input on project



Upcoming Meetings	Meeting Topics
Week of April 3	<ul style="list-style-type: none"><li>• Public Outreach and CAC Plans</li><li>• Project Schedule and Update</li></ul>
Weeks of May 15/May 22	<ul style="list-style-type: none"><li>• Station Siting</li><li>• Station Architecture</li><li>• Service Planning Overview</li></ul>
Week of June 12	<ul style="list-style-type: none"><li>• Bike/Ped Accommodations</li><li>• Transit Signal Priority</li><li>• Environmental Documentation</li></ul>
Week of August 28	<ul style="list-style-type: none"><li>• BRT Operations Plan / Local Bus Service Plan Overview</li><li>• Stormwater Management / Low Impact Development</li><li>• Review of Property Impacts</li></ul>
Week of September 5	<ul style="list-style-type: none"><li>• Other topics of interest to CAC members</li></ul>

# Public Engagement

- **Three Public Open Houses (Spring); Fall Public Open Houses to complete preliminary design**
- **Documents made available for public review include:**
  - Purpose and Need Document
  - Corridor Study Report (includes property and environmental impacts)
  - Project Overview
  - Benefit-Cost Analysis
  - Economic Impact Analysis
  - Transit travel time and reliability technical memo
  - Public Involvement and CAC Plans
  - Presentation/video of Planning Board Briefing





# Public Engagement

- **Robust Public Involvement Plan**
  - Corridor Advisory Committees
  - Public Open Houses (*including “virtual” Open House*)
  - Community meetings
  - Outreach to schools, umbrella civic groups, large residential communities, religious institutions, etc.
  - Employee / employer focus groups
  - Written communications (e-mail/newsletters)
  - Social media
  - Pop-Up events at community locations
  - Community events/festivals
  - Advertising (bus shelters/parking garages)

## BUS RAPID TRANSIT ON US 29 OPEN HOUSE

### RECAP

During the month of March, MCDOT held three interactive open houses at locations along the US 29 corridor, and received an extraordinary level of community involvement.

Participants provided valuable feedback, completing nearly 100 comment cards with your insights and ideas for the project; learned about the GetOnBoard BRT educational outreach program; explored informational boards with details of the US 29 BRT project; and helped direct the vision of BRT station design details. If you missed the open house, we invite you to explore the US 29 project [virtual open house](#) online.

There are a number of ways to provide your input and stay involved with this project. Look for updates on our website at [www.GetOnBoardBRT.com](http://www.GetOnBoardBRT.com), follow us on [Facebook](#) and [Twitter](#), volunteer to help us get the word out, or request a community meeting or employee focus group in your area.

Thank you for your interest in this project. We are excited to become the home of the first BRT project in the state of Maryland – and to have YOU involved in the process.

Sincerely,

**Joana Conklin**  
Rapid Transit System Development Manager  
Montgomery County Department of Transportation

**MCDOT**  
Montgomery County Department of Transportation

For more information on the US 29 BRT project, to download the [US 29 Bus Rapid Transit Project Summary](#), or to schedule a meeting/presentation, please visit [GetOnBoardBRT.com](http://GetOnBoardBRT.com) or email [info@getonboardbort.com](mailto:info@getonboardbort.com).

**BRT is a comfortable, reliable, NEW transit option for Montgomery County.**

**GetOnBoardBRT**  
BUS RAPID TRANSIT IN MONTGOMERY COUNTY

# Questions

