

Update on Staff Recommendations  
February 21, 2013

COUNTYWIDE TRANSIT  
CORRIDORS FUNCTIONAL  
MASTER PLAN

# Montgomery County Demographic and Travel Forecast Summary based on the 2012 CLRP

	2013	2040	Difference	Percent Difference
<b>Population</b>	998k	1.2M	206k	21%
<b>Employment</b>	529k	737k	208k	39%
<b>VMT</b>	22.0m	26.8m	4.8m	22%
<b>Lane Miles*</b>	2,592	2,721	129	5%
<b>Lane Miles of Congestion</b>	376	639	263	70%

Note: Modeled lane miles include freeways, arterials, and many collectors, but few local roads

# Purpose of the Countywide Transit Corridor Network

- enhance mobility and accessibility
- support economic development
- improve the environment
- provide an efficient transportation system

# Master Plan Phasing for the Countywide Transit Corridor Network

- **Phase 1**: Recommend rights-of-way and treatments:
  - using 2040 as the forecast year for modeling purposes
  - considering build out of planned land use
- **Phase 2**: Recommend future consideration of higher levels of treatment:
  - when the desired treatment cannot be accommodated without significant impacts to existing development
  - where more transit-oriented development would be needed to justify a higher level of treatment

# Modeling Efforts

## Initial modeling runs

- Summer thru Fall 2012 - Ridership forecasting for a 152-mile network is completed for three scenarios:
  - No-Build; all median busways (Build 1); and median busways plus curb lanes on selected corridor segments (Build 2)

## Preliminary staff recommendations

- November 2012 – Staff publishes preliminary recommendations and holds public information meetings

## Final modeling run

- Winter 2013 – Ridership forecasting for an 87-mile network of mixed treatments is completed (Build 2A)

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# Transportation Modeling

- **Modeling Focus**: Determine the maximum feasible BRT network
- **Functional Plan Focus**: Determine where rights-of-way should be reserved for transit corridors
  - BRT-only facilities
  - Bus lanes shared by BRT and local buses



# Transportation Modeling

Three modeling runs in addition to no-build\* for the 2040 forecast year:

Treatment	Build 1	Build 2	Build 2A
<b>Two Way Median</b>	152	140	29
<b>Curb Lanes</b>		12	41
<b>Mixed Traffic</b>			17
<b>Total (miles)</b>	152	152	87

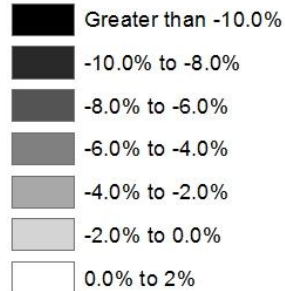
\*Corridor Cities Transitway was included in all model runs including the no-build.

# Changes in Vehicle Hours Traveled: No-Build to Build 1

Countywide VHT change  
in peak period : -6.5%

## % Change in VHT

### No Build to Build 1

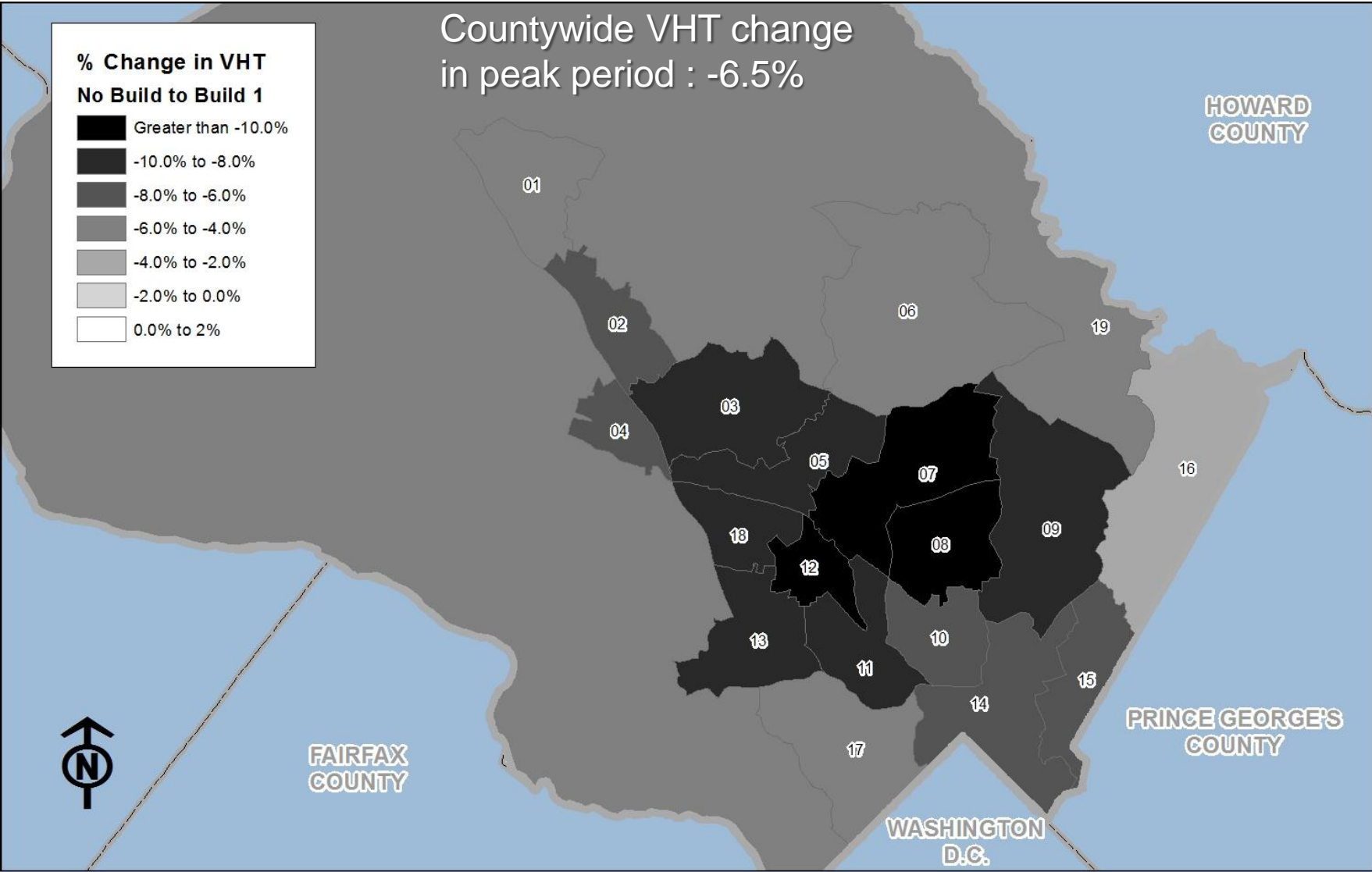


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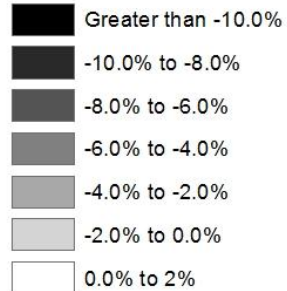


# Changes in Vehicle Hours Traveled: No-Build to Build 2

Countywide VHT change  
in peak period : -5.5%

## % Change in VHT

### No Build to Build 2

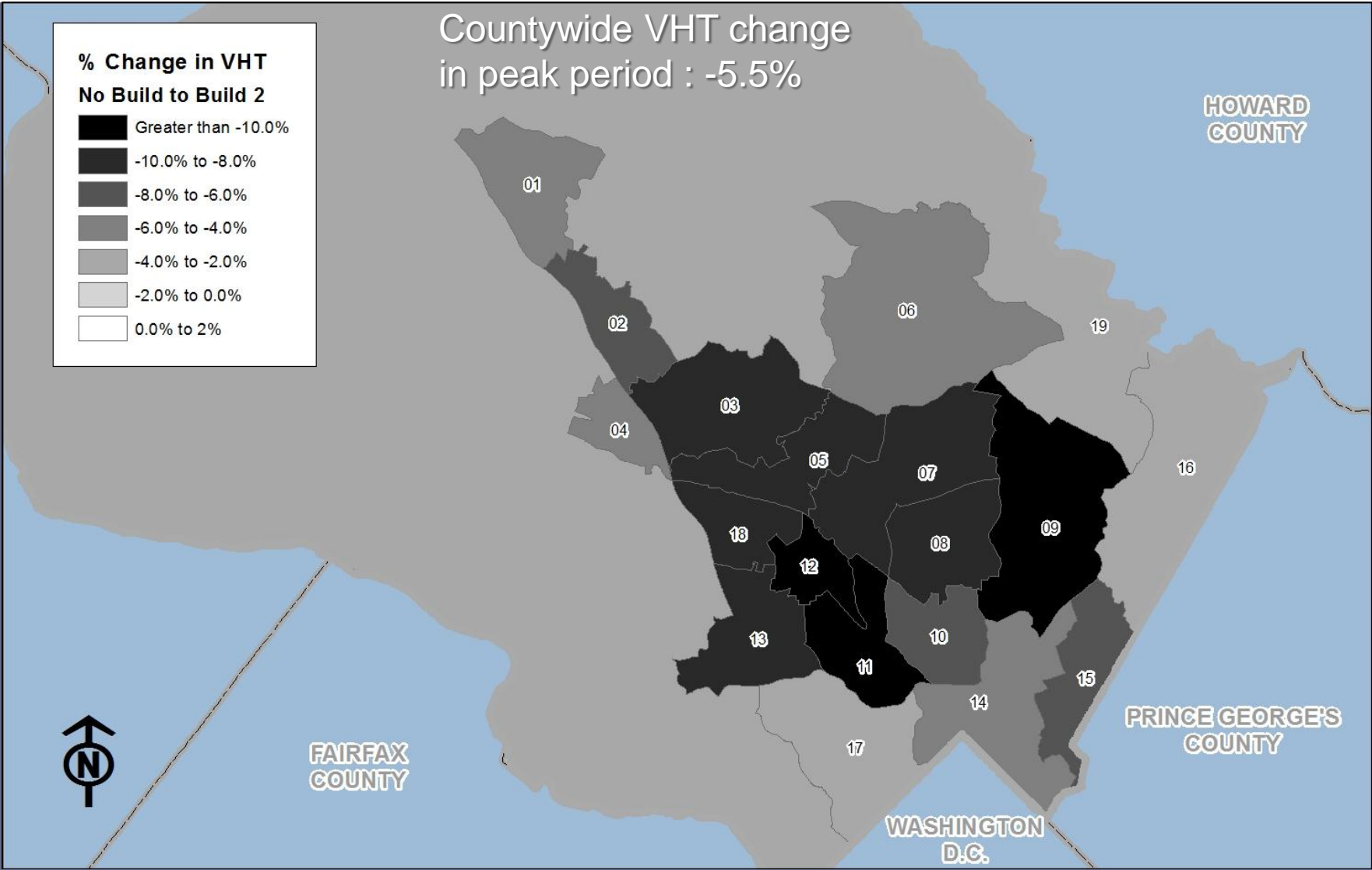


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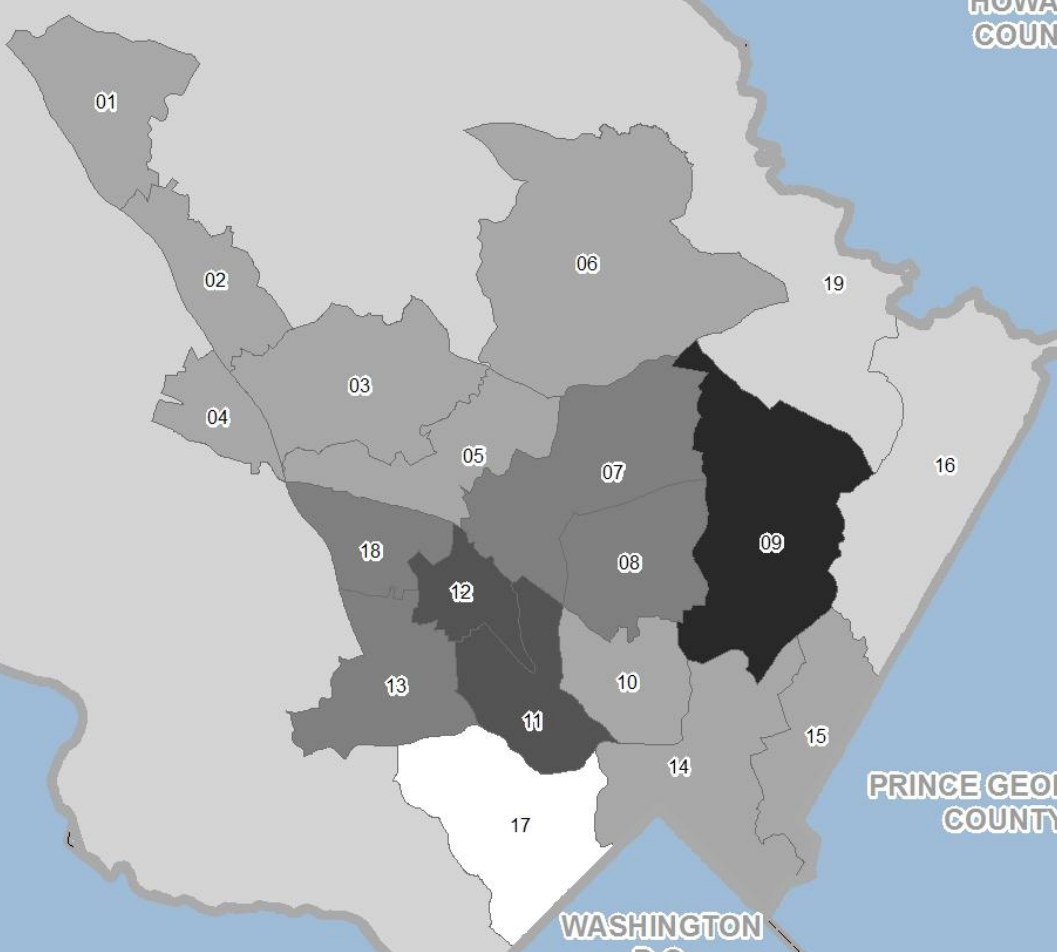
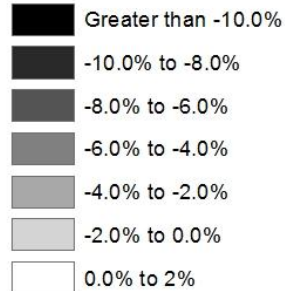
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# Changes in Vehicle Hours Traveled: No-Build to Build 2A

Countywide VHT change  
in peak period : -2.7%

## % Change in VHT No Build to Build 2A



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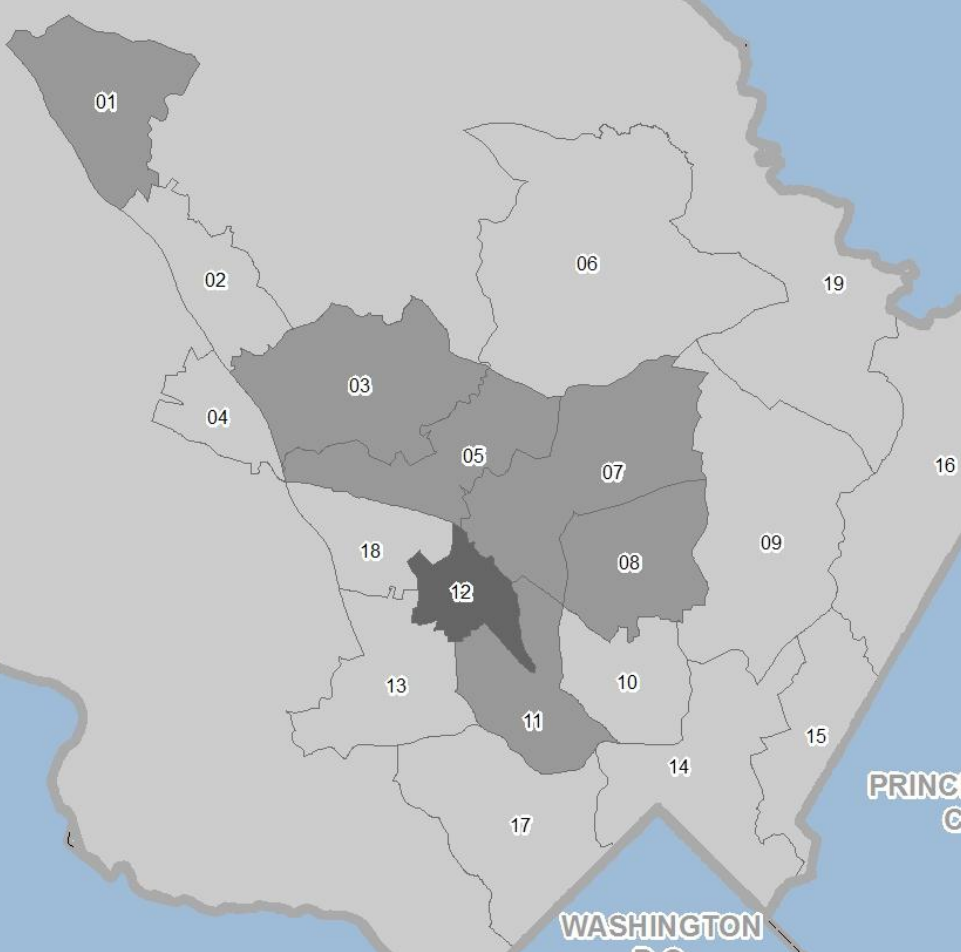


# Changes in Vehicle Miles Traveled: No-Build to Build 1

Countywide VMT change  
in peak period : -1.6%

## % Change in VMT

### No Build to Build 1



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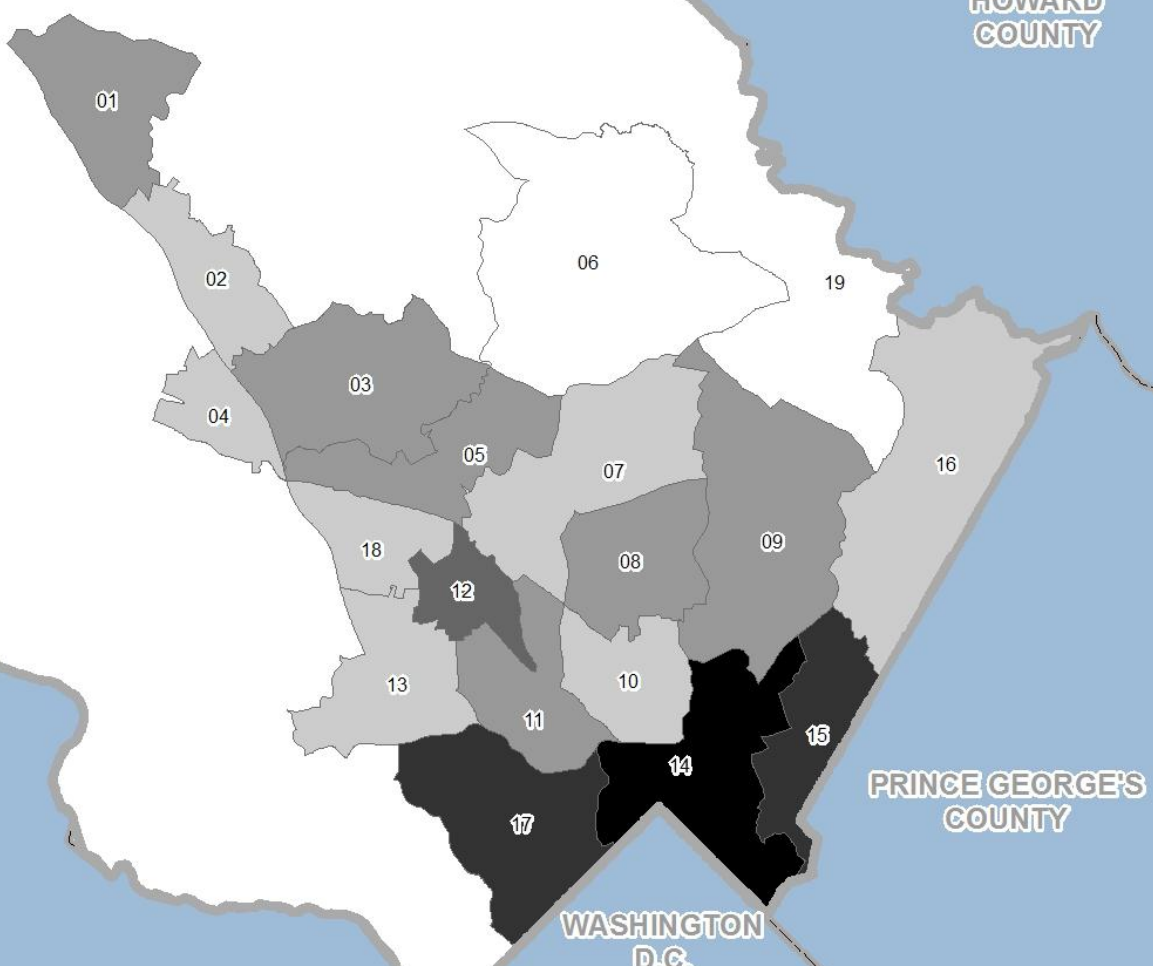
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# Changes in Vehicle Miles Traveled: No-Build to Build 2

Countywide VMT change  
in peak period : -1.9%

## % Change in VMT

### No Build to Build 2



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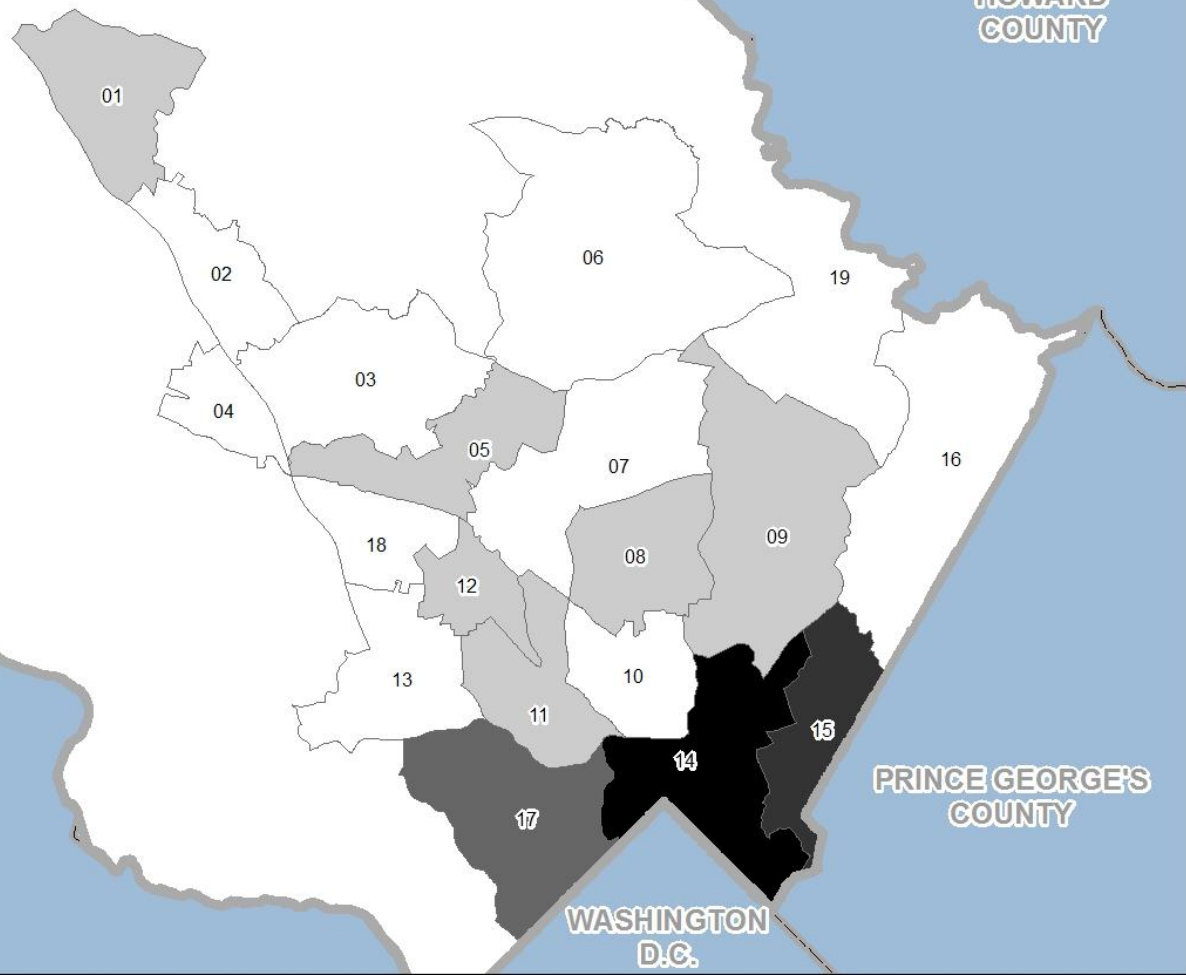


# Changes in Vehicle Miles Traveled: No-Build to Build 2A

Countywide VMT change  
in peak period : -1.2%

## % Change in VMT

### No Build to Build 2A



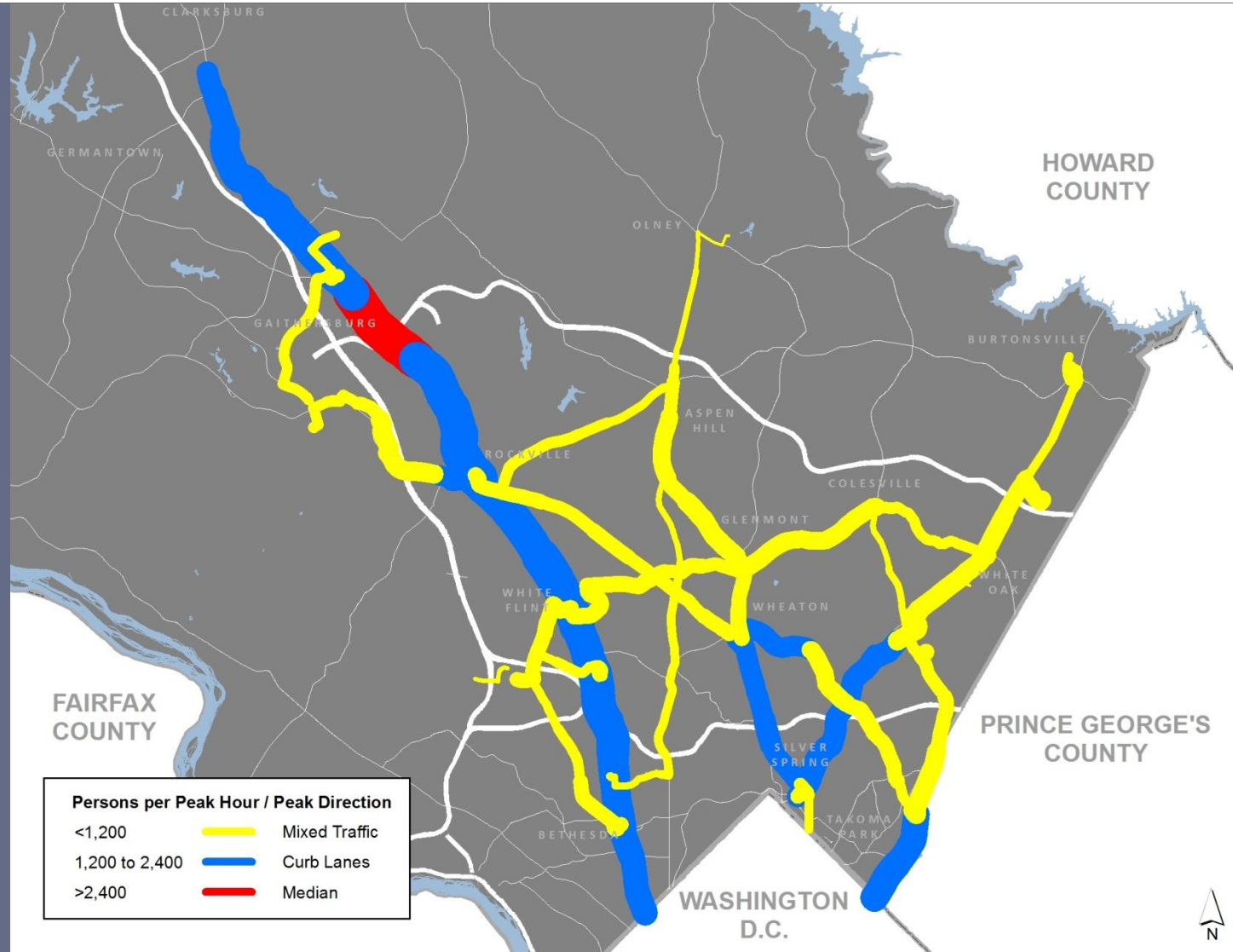
# Determining BRT Treatment

- Standard thresholds per Transit Capacity and Quality of Service Manual (TCQSM)
  - ▣ Median Busway: 2,400 people in the peak hour in the peak direction (pphpd)
  - ▣ Curb Bus Lanes: 1,200 pphpd



# Standard Thresholds per TCQSM

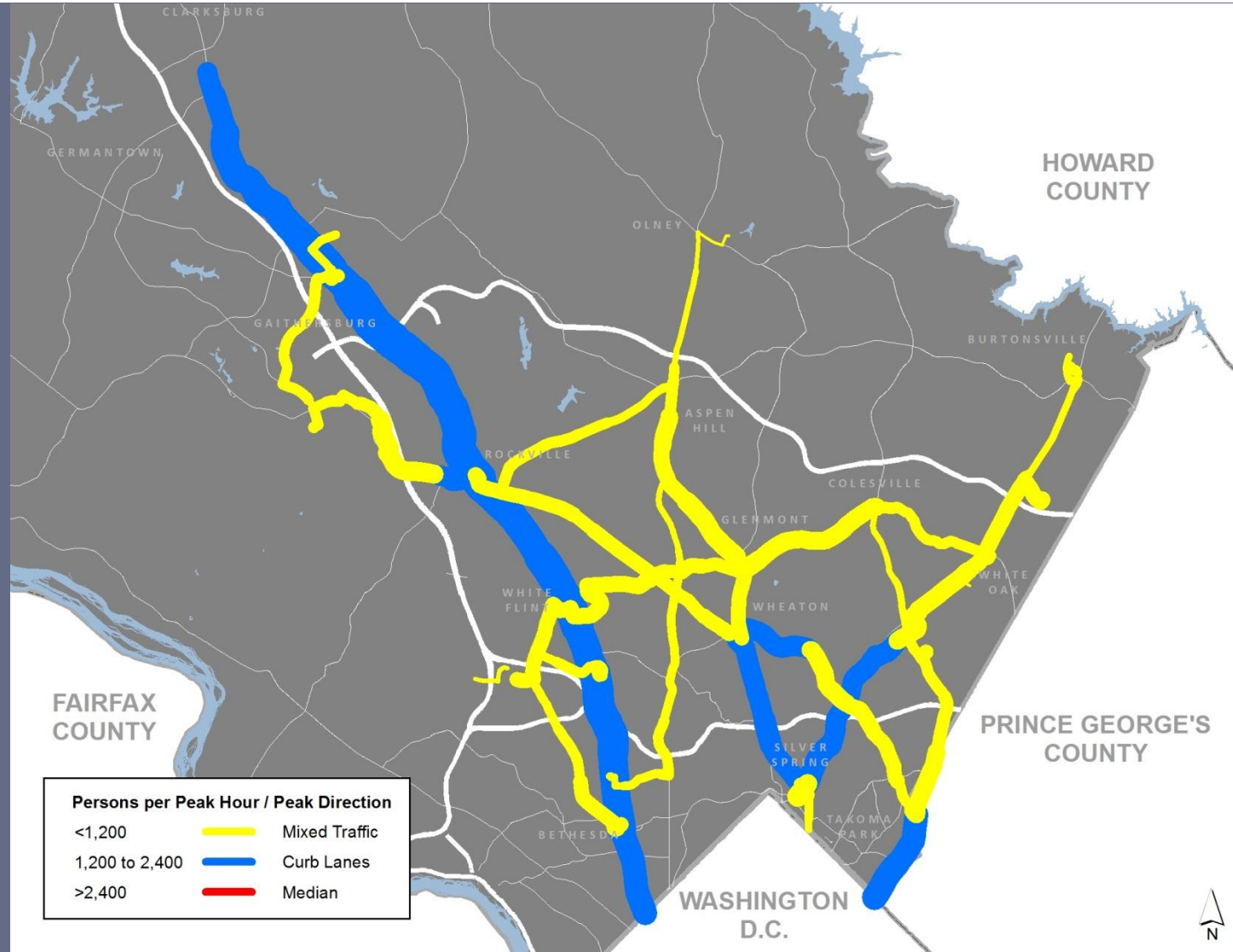
## Build 1



Only one segment of MD355 warrants a median busway.

# Standard Thresholds per TCQSM

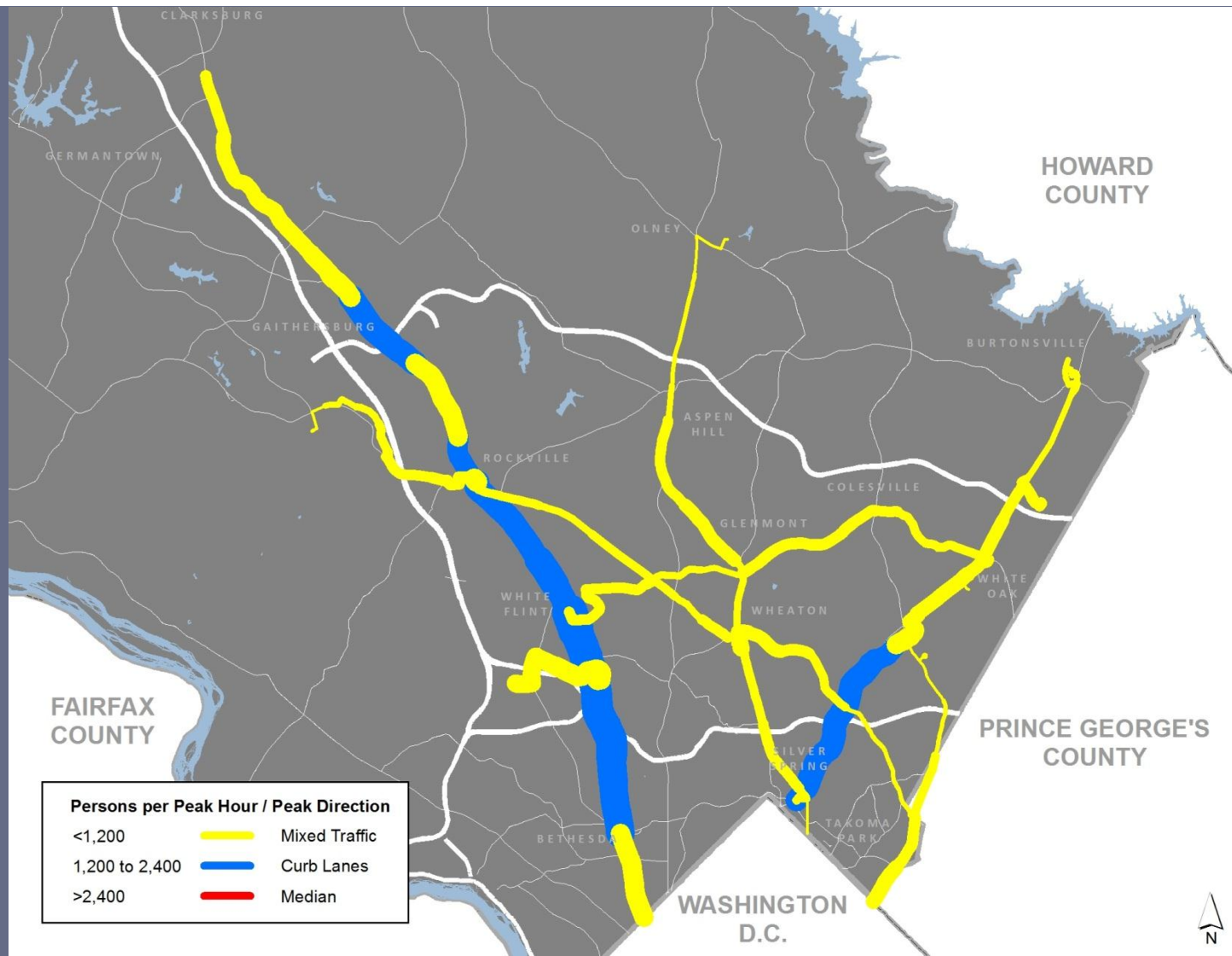
## Build 2



No median  
busway  
warranted.

# Standard Thresholds per TCQSM

## Build 2A



No median  
busway  
warranted.

# Determining BRT Treatment

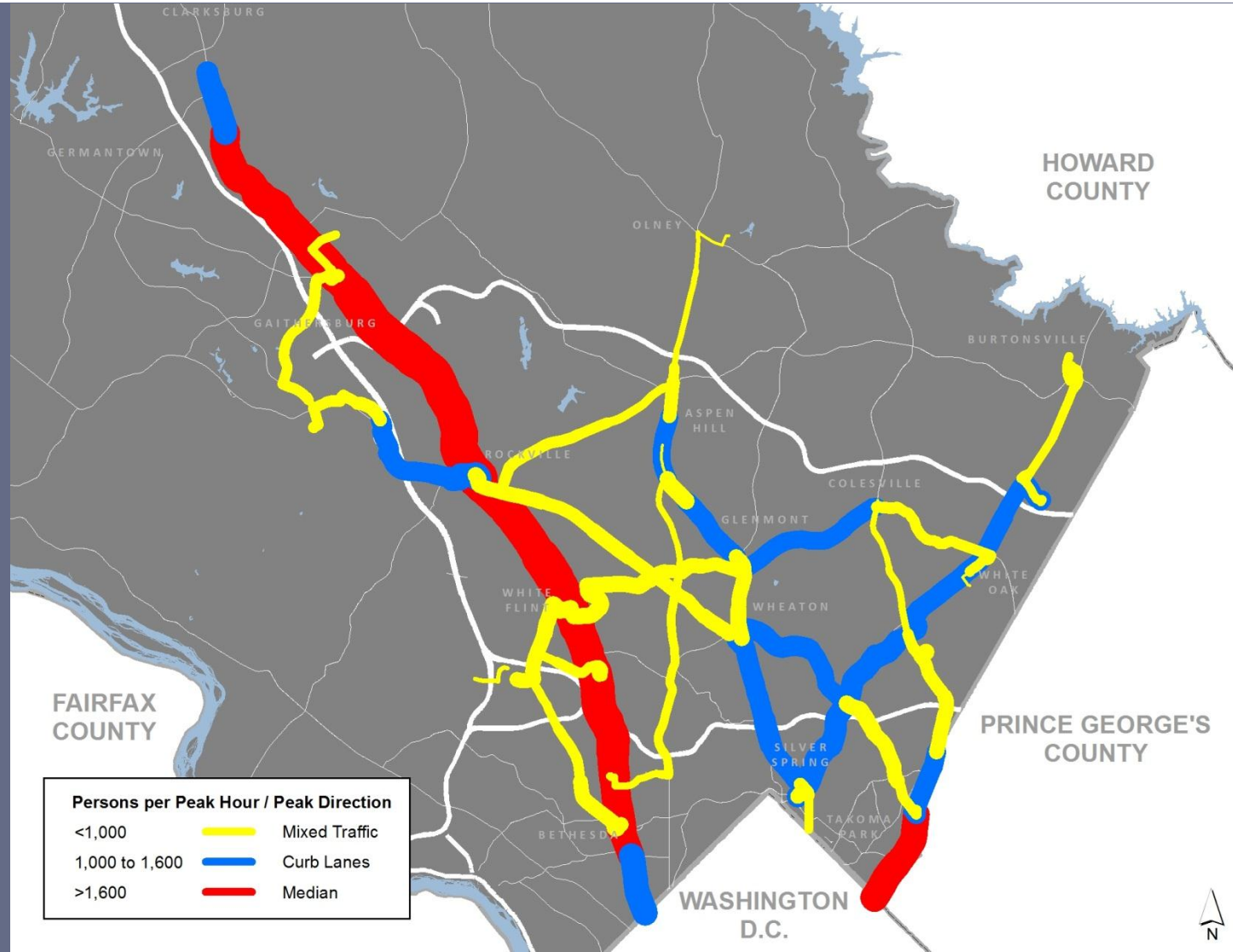
- Modified thresholds for evaluation
  - ▣ Median Busway: 1,600 people in the peak hour in the peak direction (pphpd)
  - ▣ Curb Bus Lanes: 1,000 pphpd

These lower treatment thresholds have been used by other jurisdictions and are appropriate to account for:

- ▣ high-level of analysis
- ▣ long time frame (beyond 30 years)
- ▣ hard-to-measure model attributes that could increase ridership

# Modified Thresholds

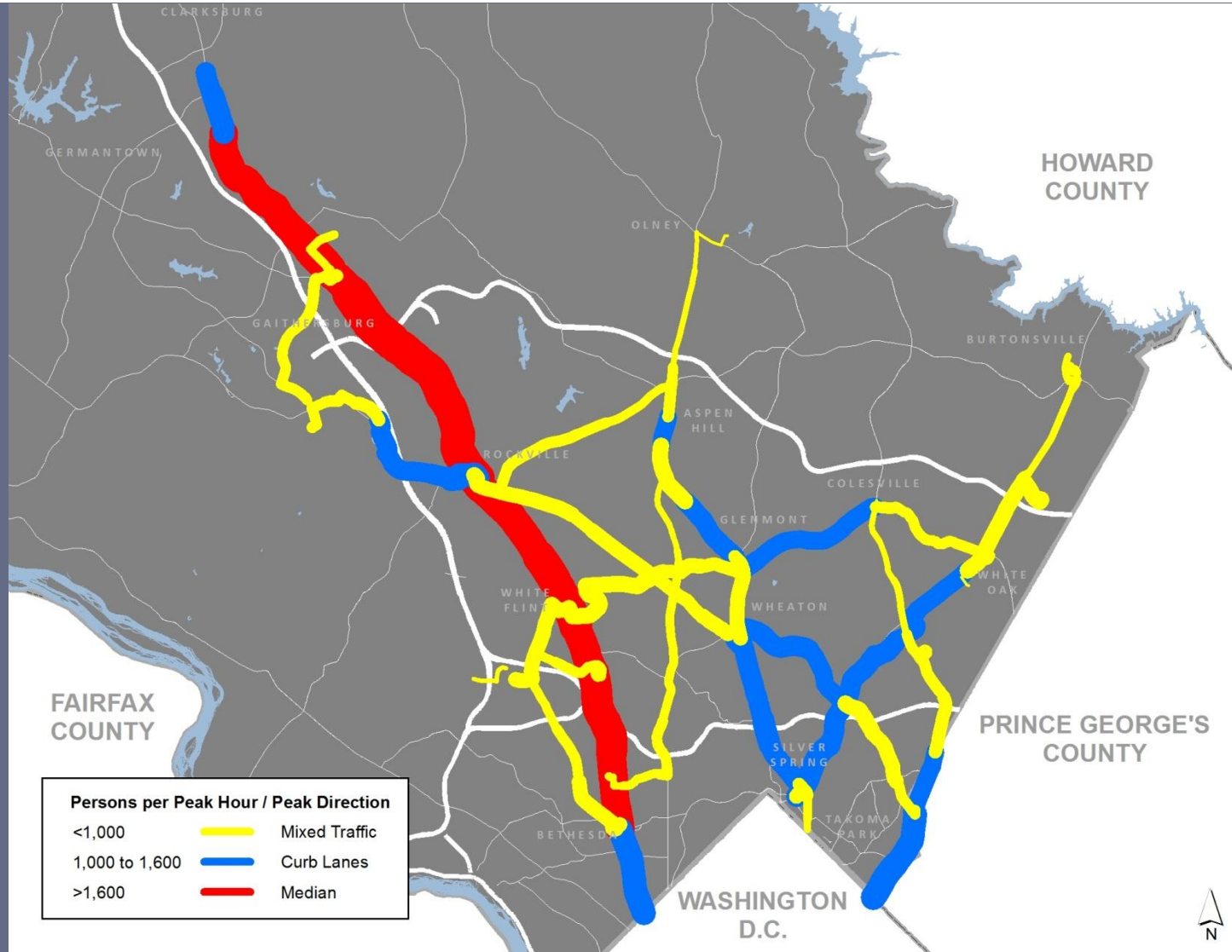
## Build 1



Median busway warranted on MD355 and MD650.

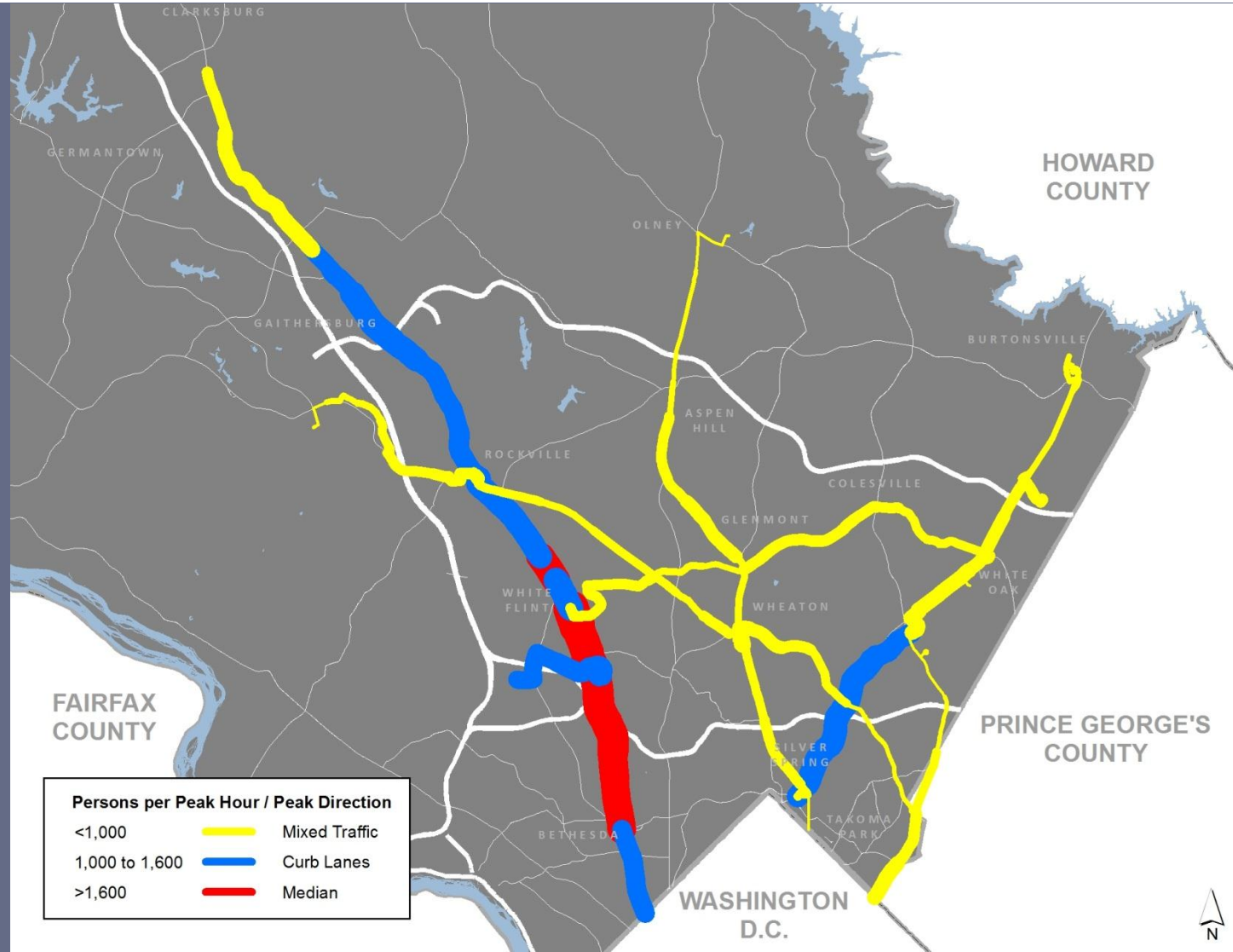
# Modified Thresholds

## Build 2



Median busway warranted on MD355.

# Modified Thresholds Build 2A



Median busway  
warranted on  
MD355.

# 2040 Forecast Daily BRT Ridership

Corridor	Build 1	Build 2	Build 2A
MD 355 South	49k	46k	44k
MD 355 North	34k	32k	22k
Veirs Mill Rd & University Blvd	27k	27k	18k
Georgia Avenue (North & South)	24k	24k	12k
New Hampshire Avenue	22k	21k	10k
US 29	18k	16k	16k
Randolph Road	16k	16k	11k
Rockville-LSC	14k	14k	7k
Old Georgetown Road South	11k	11k	
Old Georgetown Road North	8k	8k	
Muddy Branch Road	8k	8k	
Connecticut Avenue	6k	7k	
ICC	6k	6k	
Norbeck Road	6k	5k	
North Bethesda Transitway	4k	4k	10k
University Blvd-Grosvenor	2k	2k	
<b>Total</b>	<b>254k</b>	<b>247k</b>	<b>150k</b>



# 5 corridors that can stand alone

- **MD 355 South** – very high ridership
- **MD 355 North** – very high ridership
- **US 29** – high ridership
- **North Bethesda Transitway** – moderate ridership
- **Georgia Ave North** – low ridership

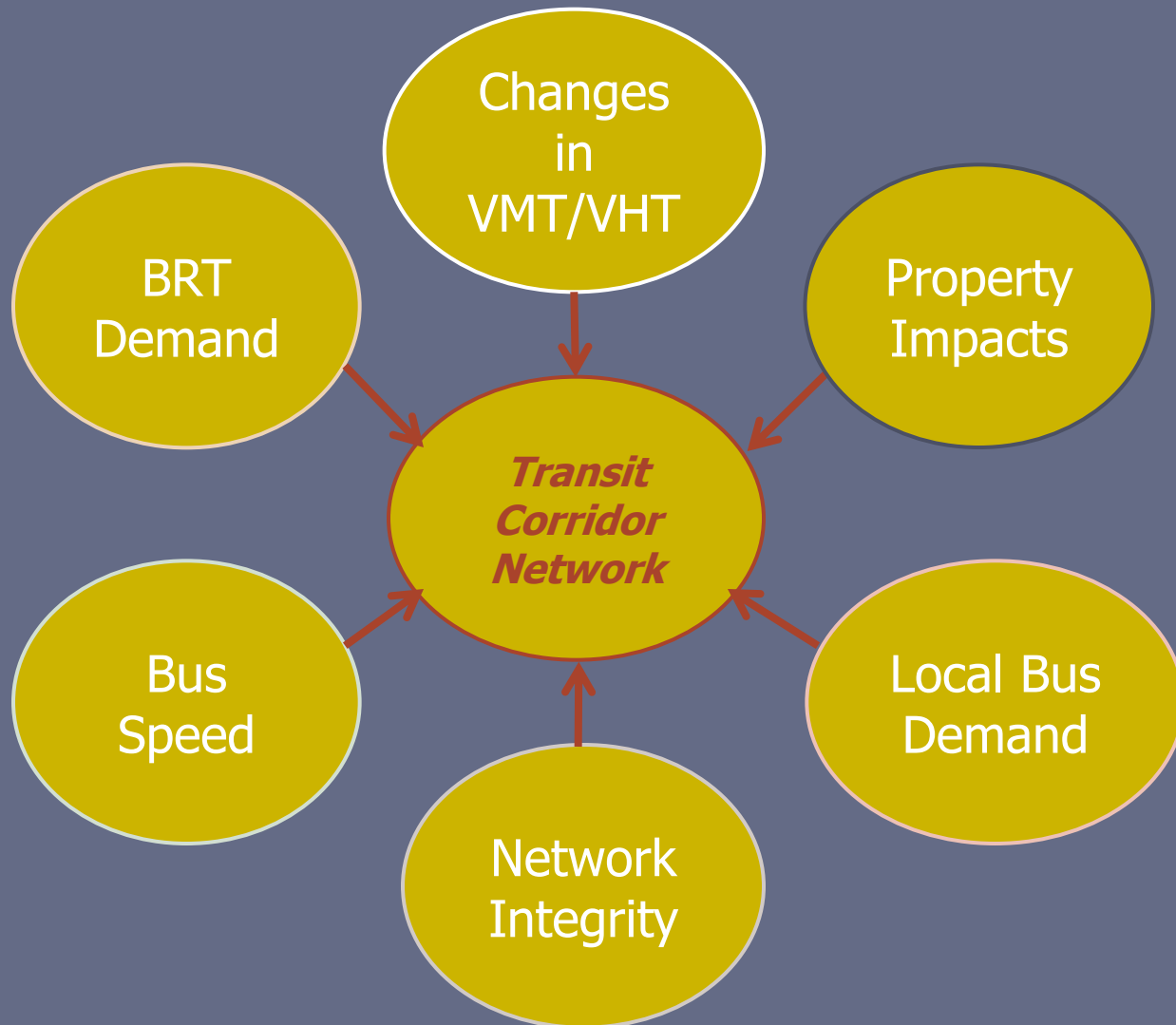
# 5 less independent corridors

- **New Hampshire Ave**
- **Georgia Ave South**
- **Veirs Mill Rd**
- **Randolph Rd**
- **University Blvd**

# Master Plan Phasing to Accommodate the Maximum Feasible BRT Network

- **Phase 1**: Recommend rights-of-way and treatments for transit corridors:
  - ▣ using 2040 for modeling purposes as the forecast year
  - ▣ considering build out of planned land use
  
- **Phase 2**: Recommend future consideration of higher levels of treatment for corridor segments:
  - ▣ when the desired treatment cannot be accommodated without significant impacts to existing development
  - ▣ where more transit-oriented development would be needed to justify a higher level of treatment

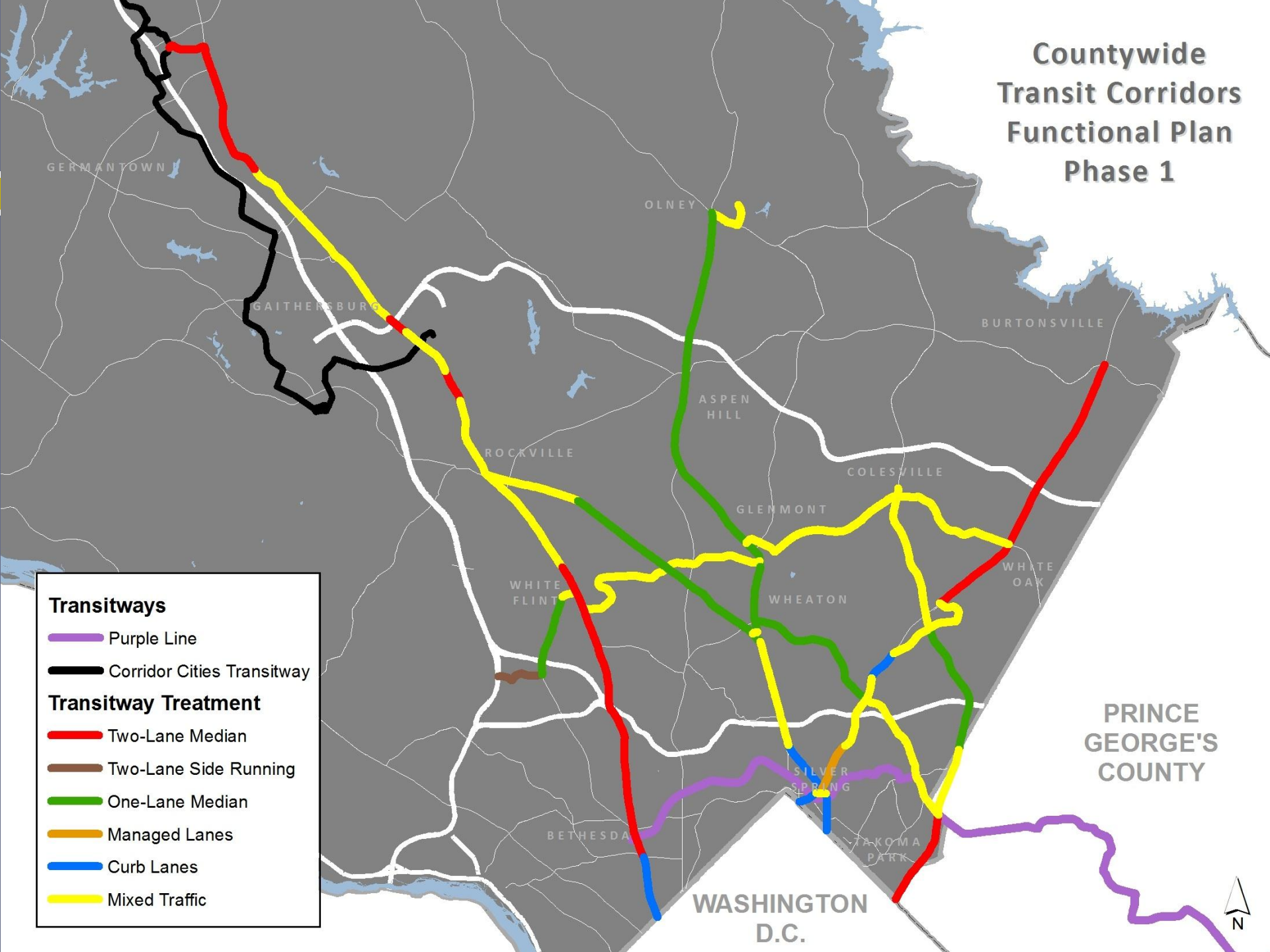
# Network & Treatment Considerations



# Recommended Phase 1 BRT Network

<b>Treatment</b>	<b>Build 1</b>	<b>Build 2</b>	<b>Build 2A</b>	<b>Staff Draft</b>
<b>Two Lane Median</b>	152	140	29	<b>19</b>
<b>Two Lane Side Busway</b>				<b>1</b>
<b>One Lane Median</b>				<b>20</b>
<b>Curb Lanes</b>		12	41	<b>4</b>
<b>Managed Lanes</b>				<b>1</b>
<b>Mixed Traffic</b>			17	<b>34</b>
<b>Total</b>	152	152	87	<b>79</b>

# Countywide Transit Corridors Functional Plan Phase 1



## Transitways

- Purple Line
- Corridor Cities Transitway

## Transitway Treatment

- Two-Lane Median
- Two-Lane Side Running
- One-Lane Median
- Managed Lanes
- Curb Lanes
- Mixed Traffic

# Countywide Transit Corridors Functional Plan Phase 1

Annotated with Area-Specific Mode Share Goals

30%\*  
\*per draft Plan

25%

30%

50%

30%

50%

37%

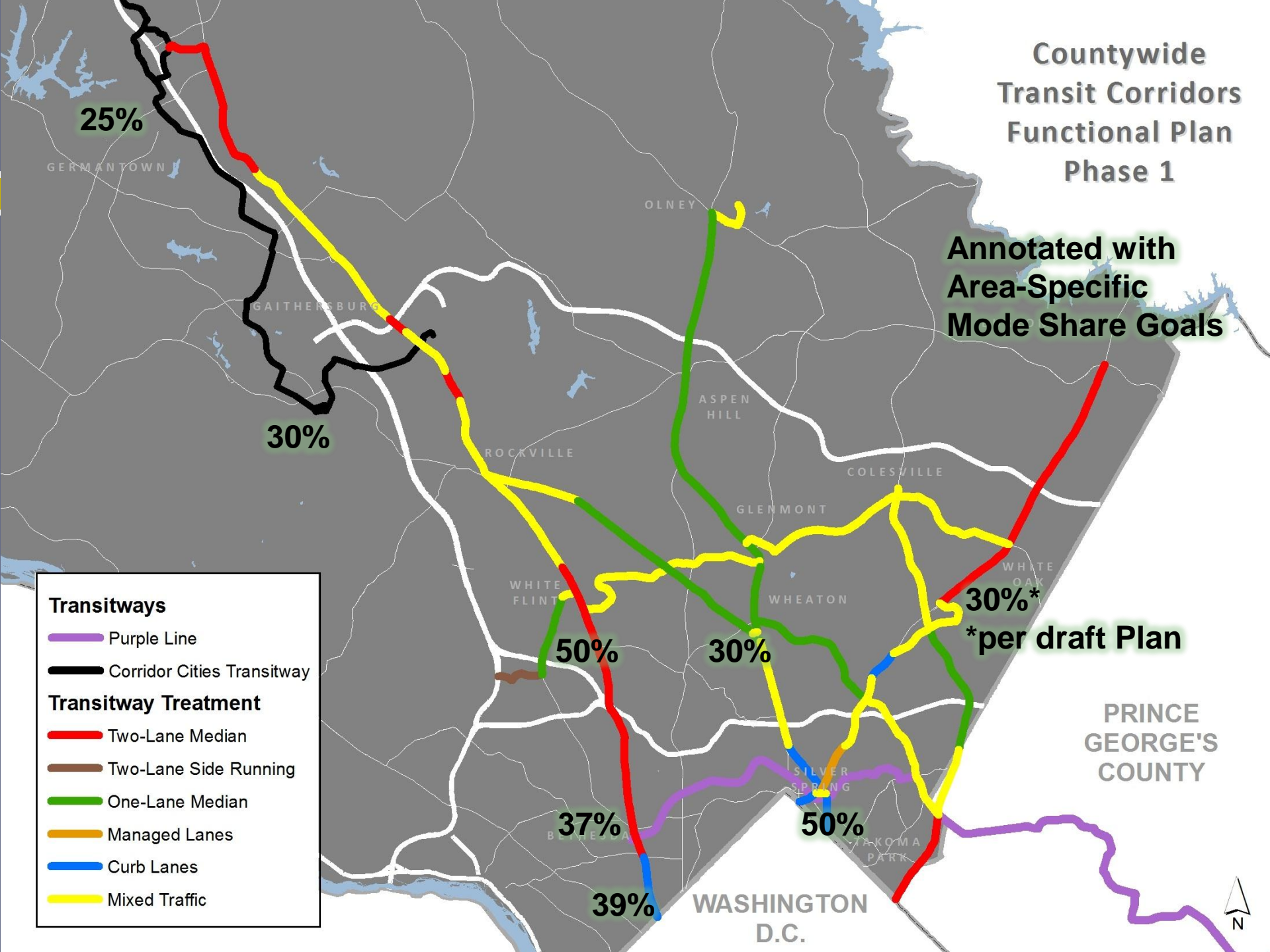
39%

**Transitways**

- Purple Line
- Corridor Cities Transitway

**Transitway Treatment**

- Two-Lane Median
- Two-Lane Side Running
- One-Lane Median
- Managed Lanes
- Curb Lanes
- Mixed Traffic



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# Recommended Phase 2 BRT Network

<b>Treatment</b>	<b>Build 1</b>	<b>Build 2</b>	<b>Build 2A</b>	<b>Staff Draft</b>
<b>Two Lane Median</b>	152	140	29	<b>31</b>
<b>Two Lane Side Busway</b>				<b>1</b>
<b>One Lane Median</b>				<b>31</b>
<b>Curb Lanes</b>		12	41	<b>5</b>
<b>Managed Lanes</b>				<b>1</b>
<b>Mixed Traffic</b>			17	<b>10</b>
<b>Total</b>	152	152	87	<b>79</b>



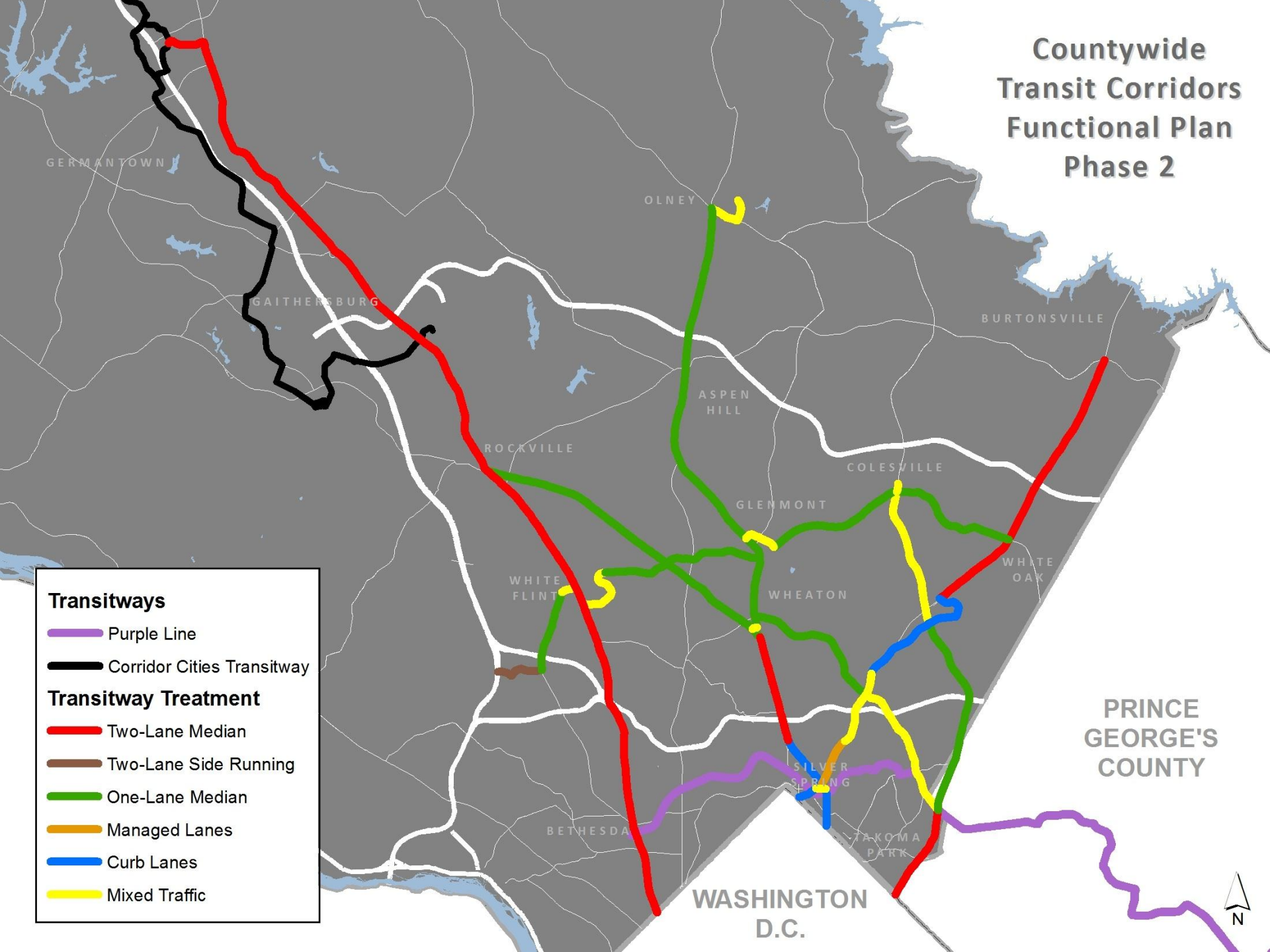
# Countywide Transit Corridors Functional Plan Phase 2

**Transitways**

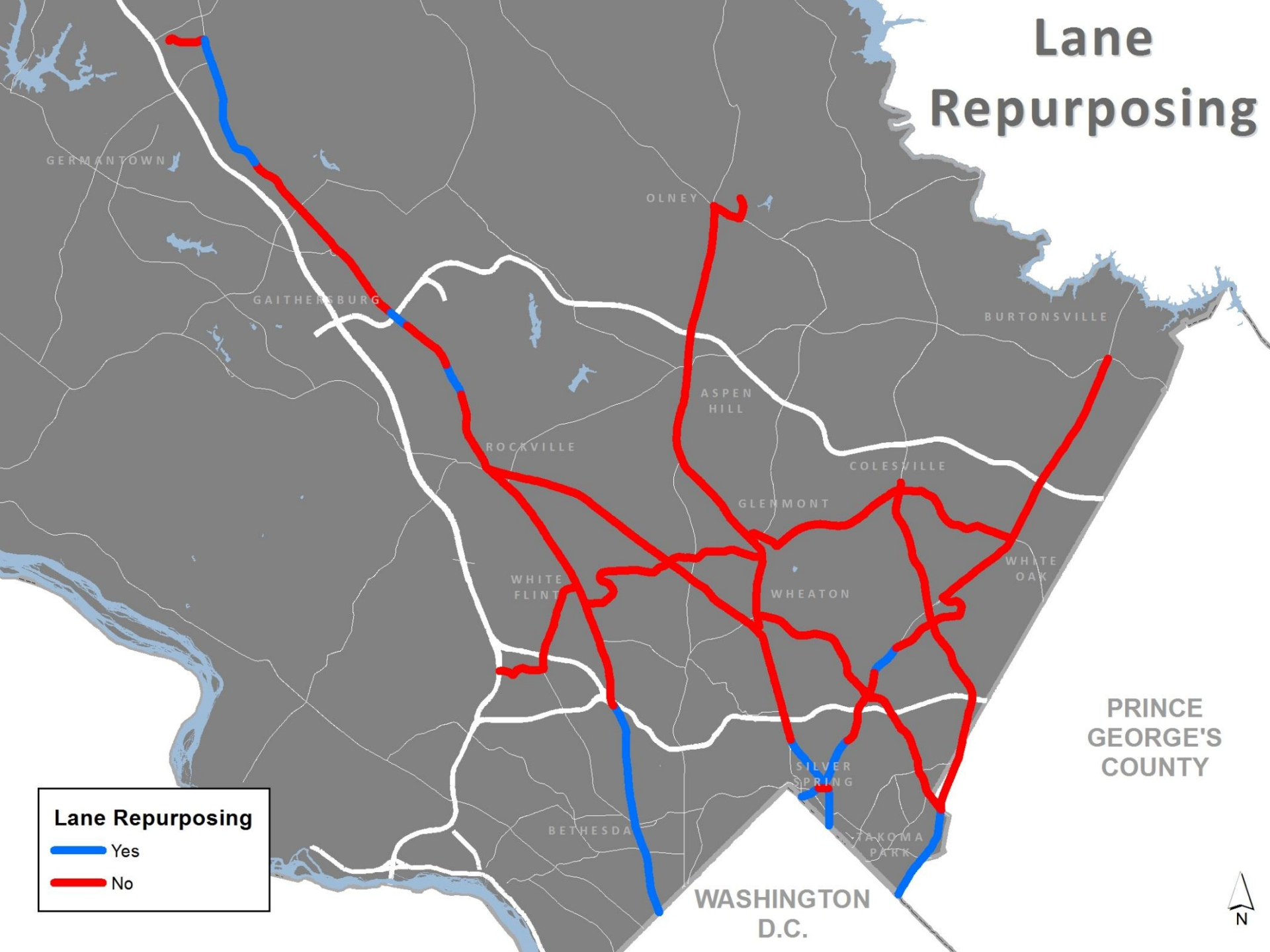
- Purple Line
- Corridor Cities Transitway

**Transitway Treatment**

- Two-Lane Median
- Two-Lane Side Running
- One-Lane Median
- Managed Lanes
- Curb Lanes
- Mixed Traffic



# Lane Repurposing



# Summary

- Initial modeling included:
  - ▣ all median busways treated the same as Light Rail Transit (LRT) to determine maximum ridership
- Lower treatment thresholds to account for:
  - ▣ high-level of analysis
  - ▣ long time frame
  - ▣ hard-to-measure model attributes that could increase ridership
- Increased treatments on several segments to maintain network integrity

# Priorities for Initial Implementation



## **MD355 & US29**

They have high existing and/or forecast ridership that is relatively independent of other corridors.

# Schedule

- March 11, 2013 – posting of Staff Draft

Staff Draft

- March 18, 2013 – Planning Board approves publication of Public Hearing Draft; 30-day review period begins

Public  
Hearing Draft

# Schedule

Public  
Hearing

- May 2, 2013 – Planning Board holds public hearing

Worksessions

- May thru July 2013 – Planning Board holds worksessions on the Functional Plan

Planning  
Board Draft

- July 25, 2013 – Planning Board delivers Planning Board Draft to County Council and County Executive; 60-day review period begins

# Schedule

Final Master  
Plan approval

- Fall-Winter 2013 – County Council approves the Master Plan

Final Master  
Plan adoption

- Fall-Winter 2013 – Maryland-National Capital Park and Planning Commission adopts the approved Master Plan

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