



# Braddock Road Multimodal Study

County of Fairfax, Virginia

# Task Force Meeting Materials



Date: May 6, 2015



**May 6, 2015**  
**Braddock Road Multimodal Study**  
**Fairfax County, Virginia**

**Task Force Meeting**

- I. Introduction ..... Kevin Morse, Chairman
- II. Progress Since Last Task Force Meeting (5 minutes)..... Tad Borkowski/Michael Guarino
- III. Discussion Items..... Tad Borkowski/John McDowell
  - a. Commuter Attitude Survey (20 minutes)..... John McDowell
  - b. Prep for June 9, 2015 Community Meeting (20 minutes) .. Tad Borkowski/John McDowell
  - c. Transit Center Sites (20 minutes)..... John McDowell
  - d. Travel Demand Modeling (15 minutes) ..... Feng Liu
  - e. Measures of Effectiveness Discussion (30 minutes) ..... Tad Borkowski/John McDowell
    - i. Review of comments
    - ii. Development of MOE ratings and scales
- IV. Following Month’s Activities (10 minutes) ..... Tad Borkowski/John McDowell
  - a. Update Transit Center Layouts
  - b. Parking Demand Summary
  - c. Continue Microsimulation Effort
  - d. Community Meeting Preparations
- V. Adjourn Meeting ..... Kevin Morse, Chairman



**April 1, 2015**  
**Braddock Road Multimodal Study**  
**Fairfax County, Virginia**

**Task Force Meeting Minutes**

**Action Items**

**Task Force Members**

- Advise community members about the Commuter Attitude Survey and that it will be available until the end of April 2015.
- Review MOEs and provide input to FCDOT and RK&K.

**FCDOT**

- Send notice of closing of Commuter Attitude Survey on April 30, 2015.
- Begin preparations for June 9, 2015 Community Meeting.
- Arrange meeting with Transit Group to discuss transit center options.

**RK&K**

- Provide Word document of MOEs for distribution to Task Force.
- Provide map showing O-D- count locations and traffic count locations and travel data.
- Assist FCDOT in preparation for June 9, 2015 Community Meeting.

**Discussion**

**General**

- Traffic data collection is completed
- Commuter Attitude Survey will continue into April and will be concluded at the end of April. A reminder will be sent out about the survey. Task Force members requested to advise their communities about the closing of the survey.
- Community Meeting has been set for June 9, 2015 and will be held at the Lake Braddock Secondary School from 7:00 PM to 9:00 PM.
- Work progressed during the previous month on the following:
  - Updated MOEs
  - Transit center layouts
- Group discussed length of meeting and agreed to increase time to 2 hours, beginning at 7:00 PM for the May and June meetings.

**Transit Center Layouts**

- Parking survey will be utilized in planning for parking at transit sites
- Site 2 is where current Supervisor's office/Library is located. This option considers redeveloping site with building incorporated into parking garage. Concern was raised over proximity to residential properties. It was also noted that this site could be controversial because there had been past opposition to a proposed parking lot expansion at this location.

- Question raised whether one or more than one site was being planned. It was stated that one site is being considered, but that additional sites might be considered if considered beneficial.
- Question was raised as to why sites further west were not considered if the goal is to get traffic off of Braddock Road.
- It was noted that Site 5 is on Fairfax County Park Authority (FCPA) property, and that FCDOT will be coordinating with FCPA for their input.
- A question was asked whether a transit center further west on Burke Lake Road should be considered, since the O-D study showed this as a significant movement.

### **Origin-Destination Study**

- It was noted that the traffic from Port Royal Road was unexpected. This will be investigated.
- A pdf map showing data collection points will be provided to the Task Force members
- Anecdotal data shows that Rolling Road is a significant contributor to traffic along Braddock Road.
- Task Force members questioned the numbers and asked to see the data.
- Volumes create entrapment of traffic on side streets.
- The modeling will utilize the traffic data collected and will be field verified.
- Maps presented in the handout show predominant travel patterns. There is no significance to the different colors. These are indicative of major travel patterns.
- A question was raised as to how the O-D data would be incorporated into the traffic analysis and modeling. It was explained that the patterns will be utilized along with the traffic information to determine major travel trends.

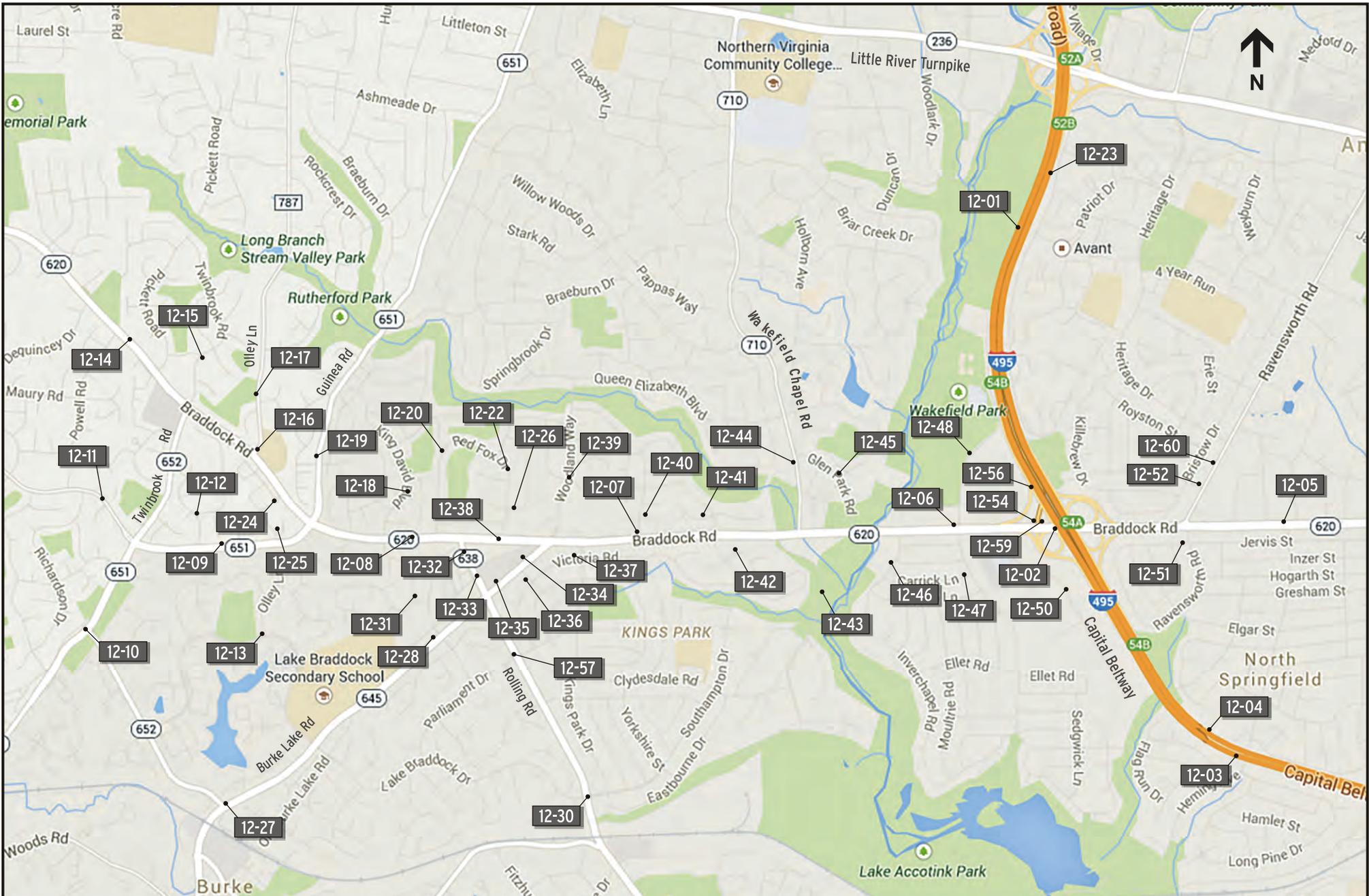
### **Measures of Effectiveness**

- Examples of MOEs and how they are used were presented in the handout.
- A question was raised over whether an additional set of MOEs would be developed for pedestrian safety. This will be taken into consideration and will consider modifying the non-motorized elements of the MOEs.
- Task Force was asked to review the MOE's before next meeting and comment on what may be missing and what they think are of value to the project.

### **Planned Activities for April 2015**

- O-D data will continue to be developed, including future traffic and split for HOV/HOT options.
- Transit center layouts will continue to be developed, including circulation studies. These will be initial layouts and will go through several iterations before final ones are adopted for evaluation.
- Will begin preparations for June 9, 2015 Community Meeting.

Should any revisions to these meeting minutes be required, please advise Tad Borkowski at [tad.borkowski@fairfaxcounty.gov](mailto:tad.borkowski@fairfaxcounty.gov) or John McDowell, PE at [jmcdowell@rkk.com](mailto:jmcdowell@rkk.com).



County of Fairfax,  
Virginia



Braddock Road Multimodal Study

Origin & Destination Survey

Figure 1



# EXHIBIT A

## BRADDOCK ROAD MULTIMODAL STUDY

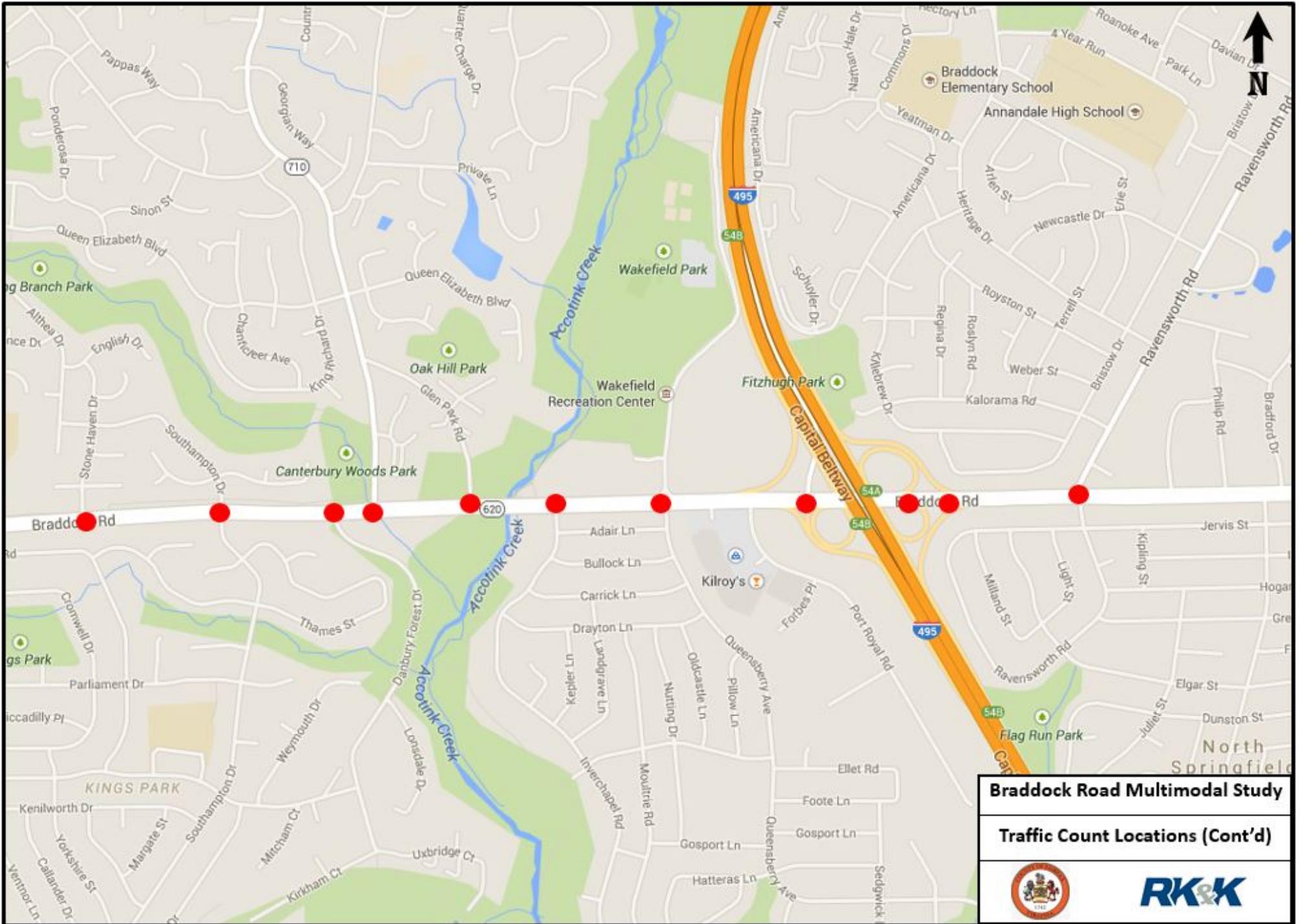
November 9, 2014

### List of Intersections to be Counted

1. Braddock Road at Ravensworth Road
2. Braddock Road at I-495 Ramps (Multiple Ramps, including HOT connection) – Intersection 1
3. Braddock Road at I-495 Ramps (Multiple Ramps, including HOT connection) – Intersection 2
4. Braddock Road at I-495 Ramps (Multiple Ramps, including HOT connection) – Intersection 3
5. Braddock Road at Queensberry Avenue/Wakefield Park
6. Braddock Road at Inverchapel Road
7. Braddock Road at Glen Park Road
8. Braddock Road at Wakefield Chapel Road
9. Braddock Road at Danbury Forest Drive
10. Braddock Road at Southampton Drive
11. Braddock Road at Stone Haven Drive
12. Braddock Road at Kings Park Drive
13. Braddock Road at Woodland Way/Burke Lake Road
14. Braddock Road at Red Fox Drive (East)
15. Braddock Road at Red Fox Drive (West)
16. Braddock Road at Rolling Road
17. Braddock Road at King David Boulevard/Dunleigh Drive
18. Braddock Road at Bradfield Drive
19. Braddock Road at Guinea Road
20. Guinea Road at Burke Road
21. Burke Lake Road at Rolling Road
22. Burke Lake Road at Grantham Street
23. Rolling Road at Cotswold Drive
24. Rolling Road at Fern Park Drive
25. Rolling Road at Lyngate Court
26. Guinea Road at Bronte Drive
27. Braddock Road at Twinbrook Road
28. Guinea Road at Twinbrook Road
29. Guinea Road at Braeburn Drive
30. Guinea Road at Olley Lane
31. Braddock Road at Burke Station Road

*Braddock Road at Olley Road counted by VDOT*







May 1, 2015  
 Braddock Road Multimodal Study  
 Fairfax County, Virginia

**Braddock Road Commuter Attitude Survey**

**SURVEY RESULTS**

**(1,265 Respondents through April 30, 2015)**

**1. Please indicate the closest intersection to your home**

- 48 (3.9%) Braddock Road at Ravensworth Road
- 64 (5.2%) Braddock Road at Queensbury Avenue
- 118 (9.5%) Braddock Road at Wakefield Chapel Road/  
Danbury Forest Drive
- 73 (5.9%) Braddock Road at Southampton Drive
- 198 (16%) Braddock Road at Burke Lake Road
- 161 (13%) Braddock Road at Rolling Road
- 405 (32.6%) Braddock Road at Guinea Road
- 174 (14%) Outside of Study Area - indicate direction:

North	South	East	West
16 (8%)	34 (18%)	14 (7%)	128 (67%)

**2. How many vehicles are kept at your home?**

- 2 (.2%) No vehicle
- 150 (12%) 1 vehicle
- 738 (58.6%) 2 vehicles
- 370 (29.4%) 3 or more vehicles

**3. What best describes your commute mode on the previous workday? (Check all that apply)**

- 970 (77.3%) Single Occupant Vehicle
- 77 (6.1%) Carpooling vehicle
- 25 (2%) Bike
- 14 (1.1%) Walk
- 10 (.8%) Fairfax Connector
- 95 (7.6%) Metrobus
- 190 (15.1%) No commute

**4. Which best describes the destination of your commute on the previous workday?**

- 100 (13.8%) Pentagon/Crystal City
- 113 (15.5%) Alexandria
- 95 (13.1%) Arlington
- 123 (16.9%) Tysons Corner
- 207 (28.5%) District of Columbia
- 89 (12.2%) George Mason University
- \_\_\_ Other (Please specify: \_\_\_\_\_)

**5. What time(s) did you drive along Braddock Road on the previous workday? (check all that apply)**

- 804 (68.1%) AM peak hour (6:00 AM to 9:00 AM)
- 348 (29.5%) Mid-day (9:00 AM to 3:00 PM)
- 661 (56.0%) PM peak hour (3:00 PM to 7:00 PM)
- 155 (13.1%) Evening (7:00 PM to 11:00 PM)
- 34 (2.9%) Night (11:00 PM to 6:00 AM)

**6. How do you view your travel time along the Braddock Road corridor?**

- 309 (25.3%) Acceptable
- 642 (52.5%) Marginally acceptable
- 272 (22.2%) Not acceptable

**7. What improvements do you feel are needed along the corridor?**

- 132 (11.4%) No improvements are needed
- 712 (61.5%) Spot improvements at congestion points
- 480 (41.5%) One additional traffic lane per direction

**8. If you selected an additional traffic lane, how should this additional lane operate?**

- 636 (83.9%) General use lanes
- 79 (10.42%) HOV lane
- 43 (5.7%) HOT lane

**9. Would you be more likely to carpool if HOV/HOT lanes were installed on Braddock Road?**

- 19 (1.7%) Very likely (number of times per week: \_\_\_)
- 37 (3.3%) Likely (number of times per week: \_\_\_)
- 919 (80.8%) No change
- 162 (14.3%) Less likely

**10. Would you be willing to pay a reasonable toll if HOT lanes were installed on Braddock Road and if your travel time were reduced?**

- 43 (3.8%) Very likely (number of times per week: \_\_\_)
- 110 (9.6%) Likely (number of times per week: \_\_\_)
- 402 (35.1%) No change
- 591 (51.6%) Less likely

*Continued on next page*

**11. How would you rate your experiences with public transit in the area?** (both from Metrobus and Fairfax Connector)?

- 555 (47.7%) Have no experience with public transit
- 102 (8.8%) Very good
- 215 (18.5%) Good
- 173 (14.9%) Fair
- 119 (10.2%) Poor

**12. What factors might encourage you to use public transit more often?** (check one or more)

- 357 (37.7%) More frequent service on current routes
- 498 (52.6%) More route options
- 314 (33.2%) Faster service, such as dedicated bus lanes
- 300 (31.7%) Safer/more convenient pedestrian access

**13. Would you be more likely to use public transit if additional facilities (i.e. park-and-ride lots) were provided along Braddock Road?** (please check one)

- 56 (4.9%) Very likely (number of times per week: \_\_\_)
- 194 (17%) Likely (number of times per week: \_\_\_)
- 765 (66.9%) No change
- 128 (11.2%) Less likely

**14. What additional facilities would make transit ridership more appealing to you?** (Check all that apply)

- 391 (37.3%) More Sidewalks
- 241 (23%) More Transit shelters
- 299 (28.5%) More Pedestrian crossing signals
- 320 (30.5%) Median refuge islands (for crossing Braddock Road)
- 458 (43.7%) None

**15. Do you bicycle in this area?** (check all that apply)

- 443 (38.1%) For pleasure
- 58 (5%) To commute
- 43 (3.7%) For shopping
- 717 (61.6%) I do not bicycle

**16. What would create conditions favorable for you to bicycle in this area?**

- 416 (48.9%) Separated bike paths along Braddock Road
- 248 (29.2%) More neighborhood bicycle connections
- 186 (21.9%) More convenient access to work, shops, schools, etc.

**17. Do you walk in this area?**

- 729 (62.5%) For pleasure
- 64 (5.5%) To commute
- 147 (12.6%) For shopping
- 409 (35.1%) I do not walk in the area

**18. What would create conditions more favorable for you to walk in this area?**

- 550 (55.4%) Safe walking paths along Braddock Road
- 256 (25.8%) Neighborhood walking connections
- 186 (18.8%) Convenient access to work, shops, schools, etc.

**19. What best describes your age range?**

- 62 (5.4%) 18-25
- 101 (8.9%) 25-35
- 331 (29.1%) 35-50
- 407 (35.7%) 50-65
- 238 (20.9%) 65+

**20. How many people live in your household?**

- 83 (7.4%) 1
- 419 (37.2%) 2
- 245 (21.8%) 3
- 245 (21.8%) 4
- 101 (21.8%) 5
- 26 (2.3%) 6
- 3 (.3%) 7
- 1(.1%) 8
- 1 (.2%) 9

**21. What best describes your employment status?**

- 737 (64.5%) Work full time
- 114 (10%) Work part time
- 56 (4.9%) Self-employed
- 42 (3.7%) Student
- 194 (17%) Not in job market (retired / homemaker / unemployed)

**April 30, 2015**

**Braddock Road Multimodal Study  
Fairfax County, Virginia**

**Community Meeting No. 1 Planning**

**Meeting Date:** June 9, 2015 7:00 PM – 9:00 PM

**Location:** Lake Braddock Secondary School  
9200 Burke Lake Road, Burke, Virginia 22015

**Format:**

7:00 – 7:30	Workshop Open, Sign-in
7:30 – 8:15:	Presentation and Q&A
8:15 – 9:00	Displays Open

**Tables and Stations**

Plan to have one or two people at each station to answer questions and assist attendees. Approximately 14 boards to be prepared. Set up to be determined after visit to meeting site...will include eight stations and a presentation area. Projector and screen needed for presentation area; seating for 250 people; two tables (Sign In and Survey tables)

Sign-In Table – at door

- Handout provided

Station No. 1: Study Goals and Timeline

- Corridor Study Area Board
- Study Goals
- Bar Graph Timeline Board with an indication of where we are today

Station No. 2: Regional Projects

- Board of large area showing upcoming projects such as road improvements, bike/ped improvements, transit centers, park-n-ride lots
- *Activity: Do you know of any other projects that we should be accounting for within the region?*

Station No. 3: Commuter Attitude Survey

- Board showing statistics and key findings from survey, including graphs

## Station No. 4: Existing Conditions

- Synchro Simulation
- Corridor Board, including traffic data, O-D data
- Collage of photos (congestion, missing sidewalks, people dodging traffic)
- *Activity: Are we missing any issues? Please indicate them on a stickie and place them on the photo board.*

## Station No. 5: Bicycle/Pedestrian Accommodations

- Board of area showing sidewalks, trails, facilities and bus stops both inside and outside of study area
- *Activity: On the map provided (11x17 of the study area), please indicate where you live and the potential routes you would take for biking and walking in this area.*

## Station No. 6: Transit Center

- Candidate Sites map
- Individual site layouts
- Bus routes
- Ad-hoc and commuter parking
- *Activity: Please indicate, with a "dot" the site layouts that you prefer at this time.*

## Station No. 7: Study Options/Tool Box

- Examples of Corridors, transit centers, bike/ped facilities around the country
- Sample typical sections showing general use lanes, HOV/HOT alternatives, Bike/ped facilities
- *Activity: Please place a "dot" on those examples of facilities from around the country that you prefer.*

## Station No. 8: Comment Station/Survey

- Handout of 3-4 questions and room for comments

# TRANSIT CENTER LAYOUT - LOCATION 1A

**DRAFT**

## BRADDOCK ROAD - FAIRFAX COUNTY, VA

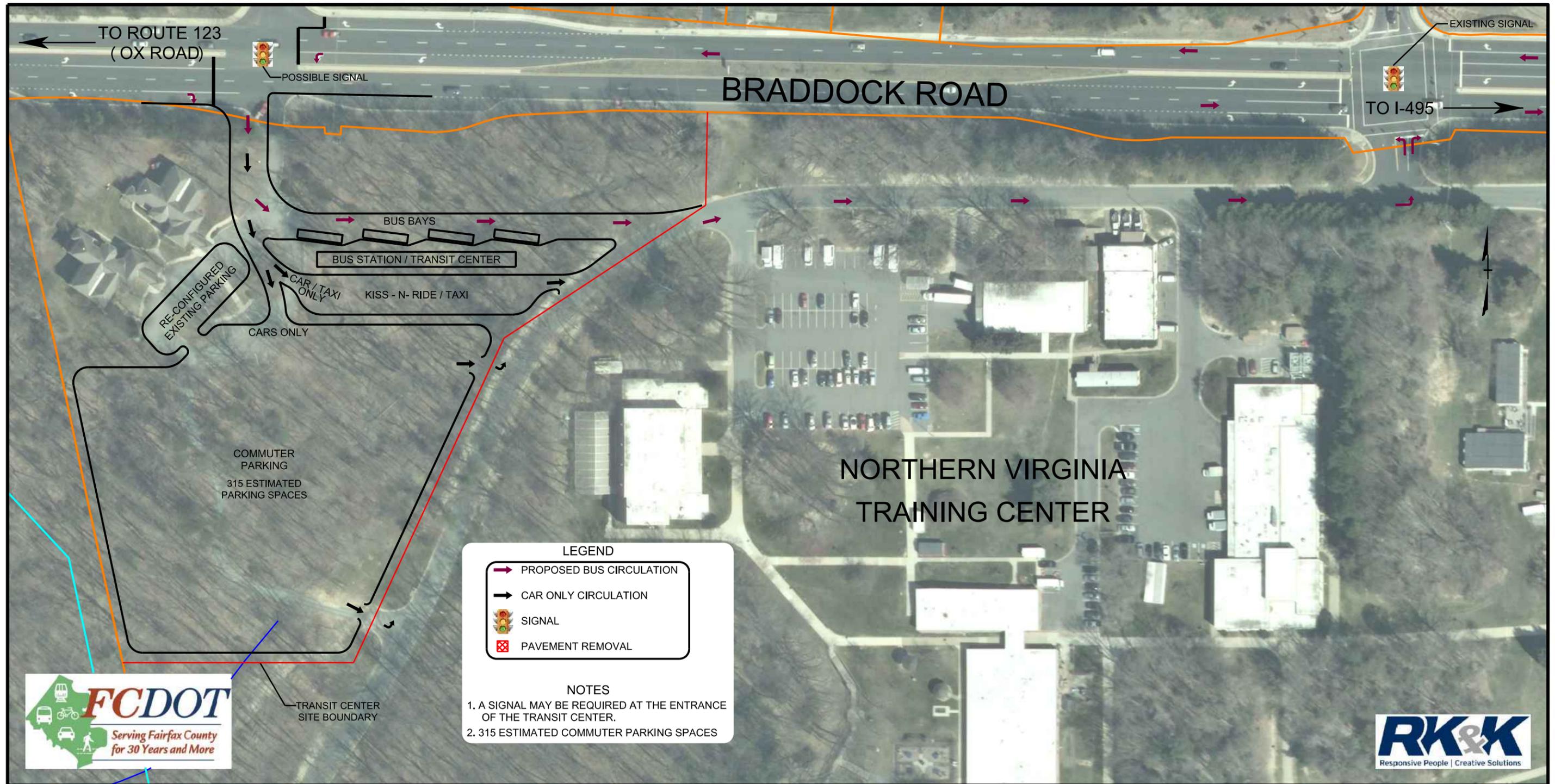


IMAGE FROM USGS  
MAY 5, 2015

# TRANSIT CENTER LAYOUT - LOCATION 1B

**DRAFT**

## BRADDOCK ROAD - FAIRFAX COUNTY, VA

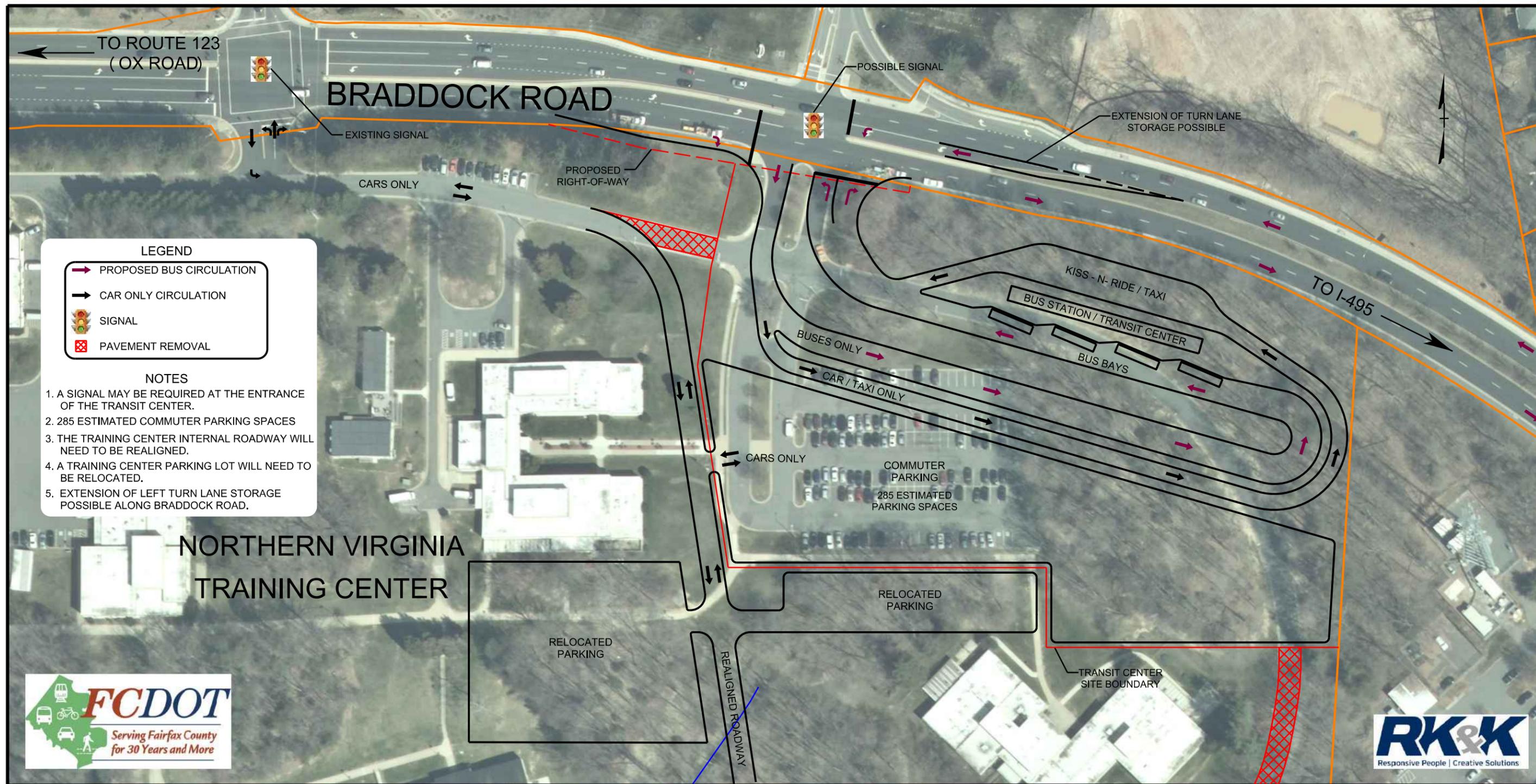
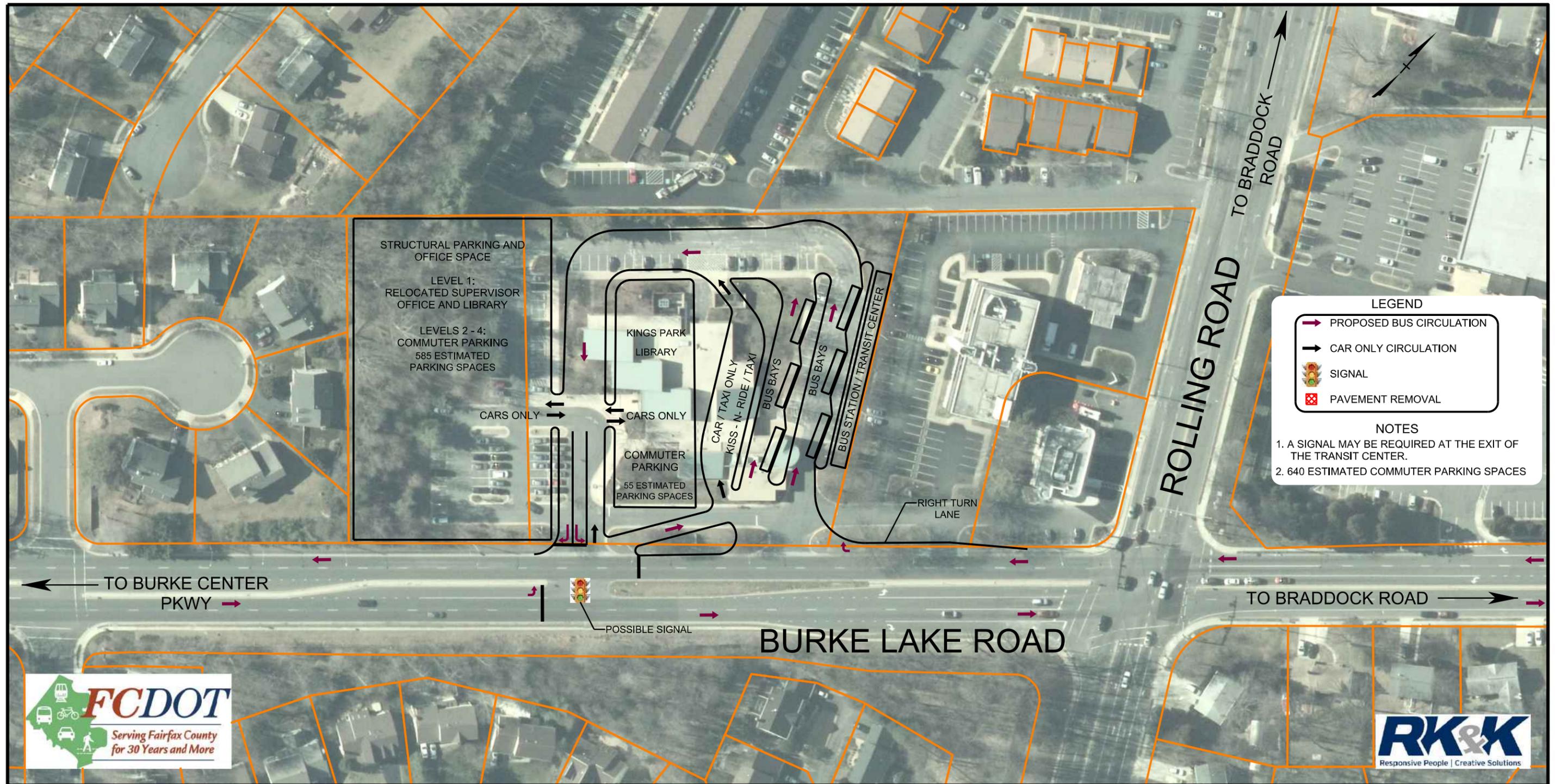


IMAGE FROM USGS  
MAY 5, 2015

# TRANSIT CENTER LAYOUT - LOCATION 2

**DRAFT**

## BRADDOCK ROAD - FAIRFAX COUNTY, VA



**LEGEND**

- ➔ PROPOSED BUS CIRCULATION
- ➔ CAR ONLY CIRCULATION
- 🚦 SIGNAL
- 🔴 PAVEMENT REMOVAL

**NOTES**

1. A SIGNAL MAY BE REQUIRED AT THE EXIT OF THE TRANSIT CENTER.
2. 640 ESTIMATED COMMUTER PARKING SPACES

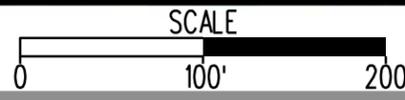
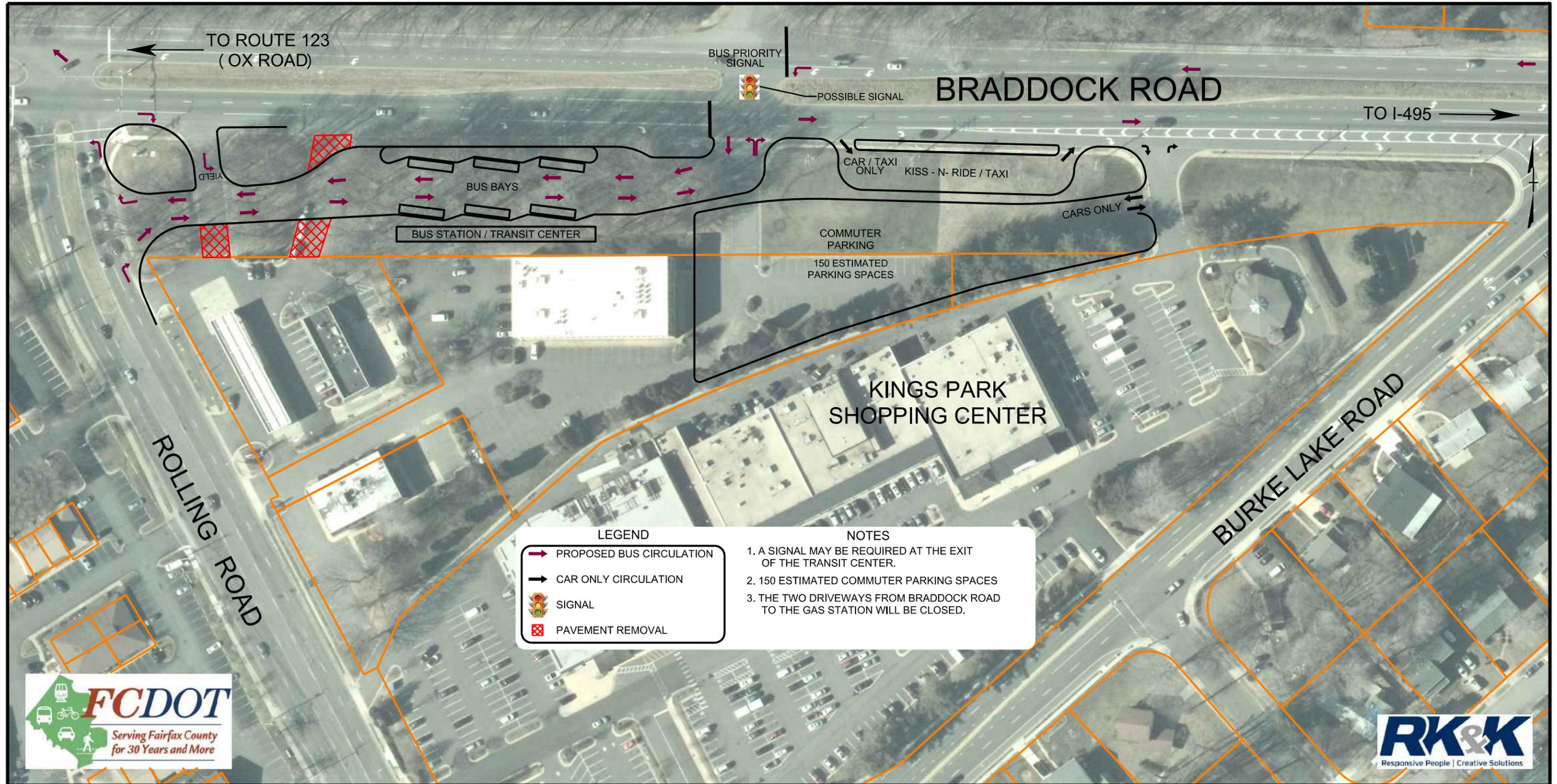


IMAGE FROM USGS  
MAY 5, 2015

# TRANSIT CENTER LAYOUT - LOCATION 3A

**DRAFT**

## BRADDOCK ROAD - FAIRFAX COUNTY, VA



LEGEND	NOTES
PROPOSED BUS CIRCULATION	1. A SIGNAL MAY BE REQUIRED AT THE EXIT OF THE TRANSIT CENTER.
CAR ONLY CIRCULATION	2. 150 ESTIMATED COMMUTER PARKING SPACES
SIGNAL	3. THE TWO DRIVEWAYS FROM BRADDOCK ROAD TO THE GAS STATION WILL BE CLOSED.
PAVEMENT REMOVAL	



IMAGE FROM USGS  
MAY 5, 2015

# TRANSIT CENTER LAYOUT - LOCATION 3B

# DRAFT

## BRADDOCK ROAD - FAIRFAX COUNTY, VA

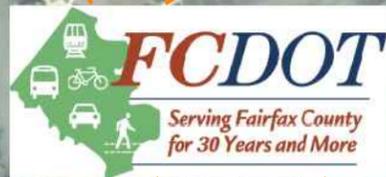
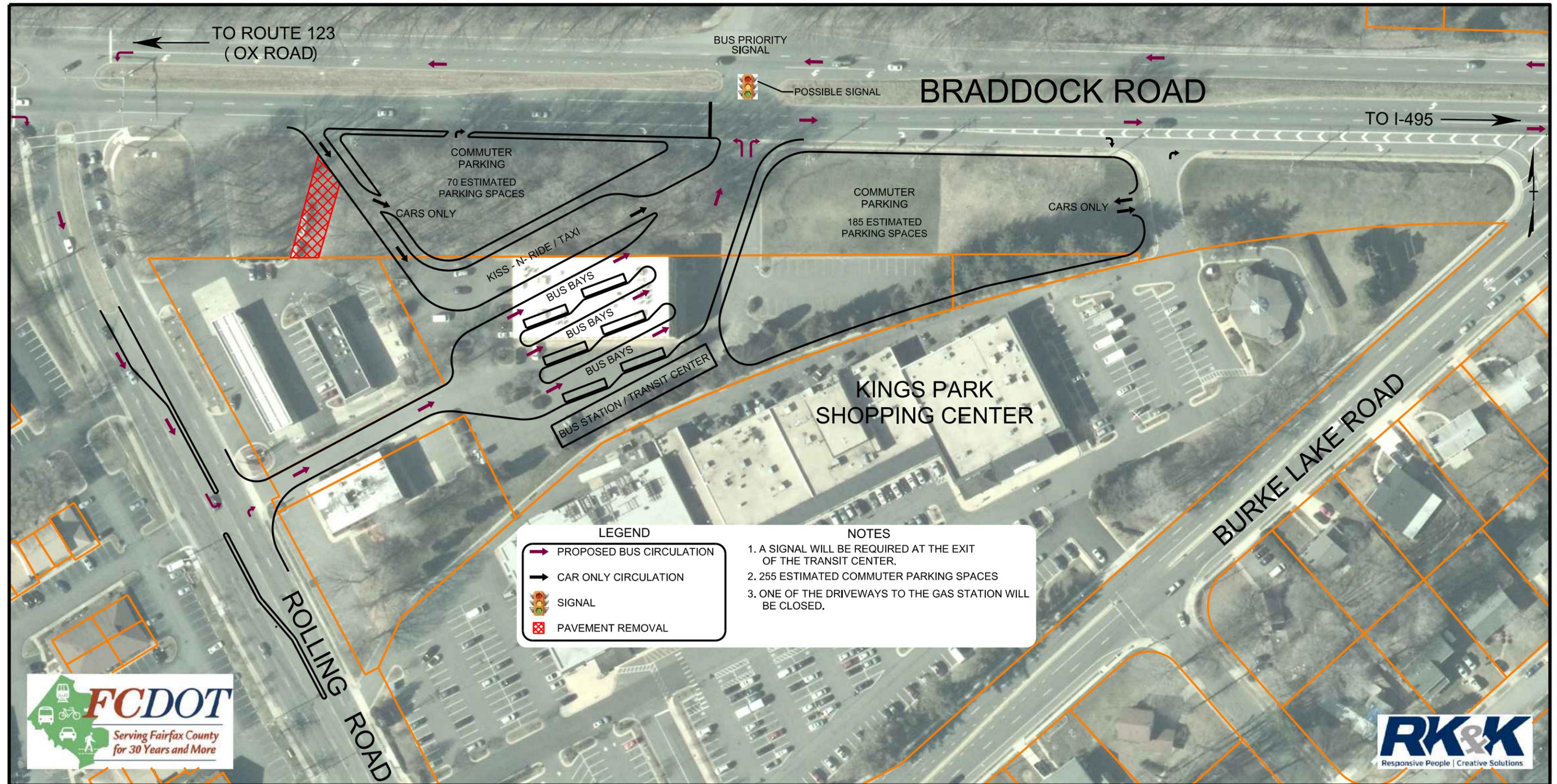


IMAGE FROM USGS  
MAY 5, 2015

# TRANSIT CENTER LAYOUT - LOCATION 4

# DRAFT

## BRADDOCK ROAD - FAIRFAX COUNTY, VA

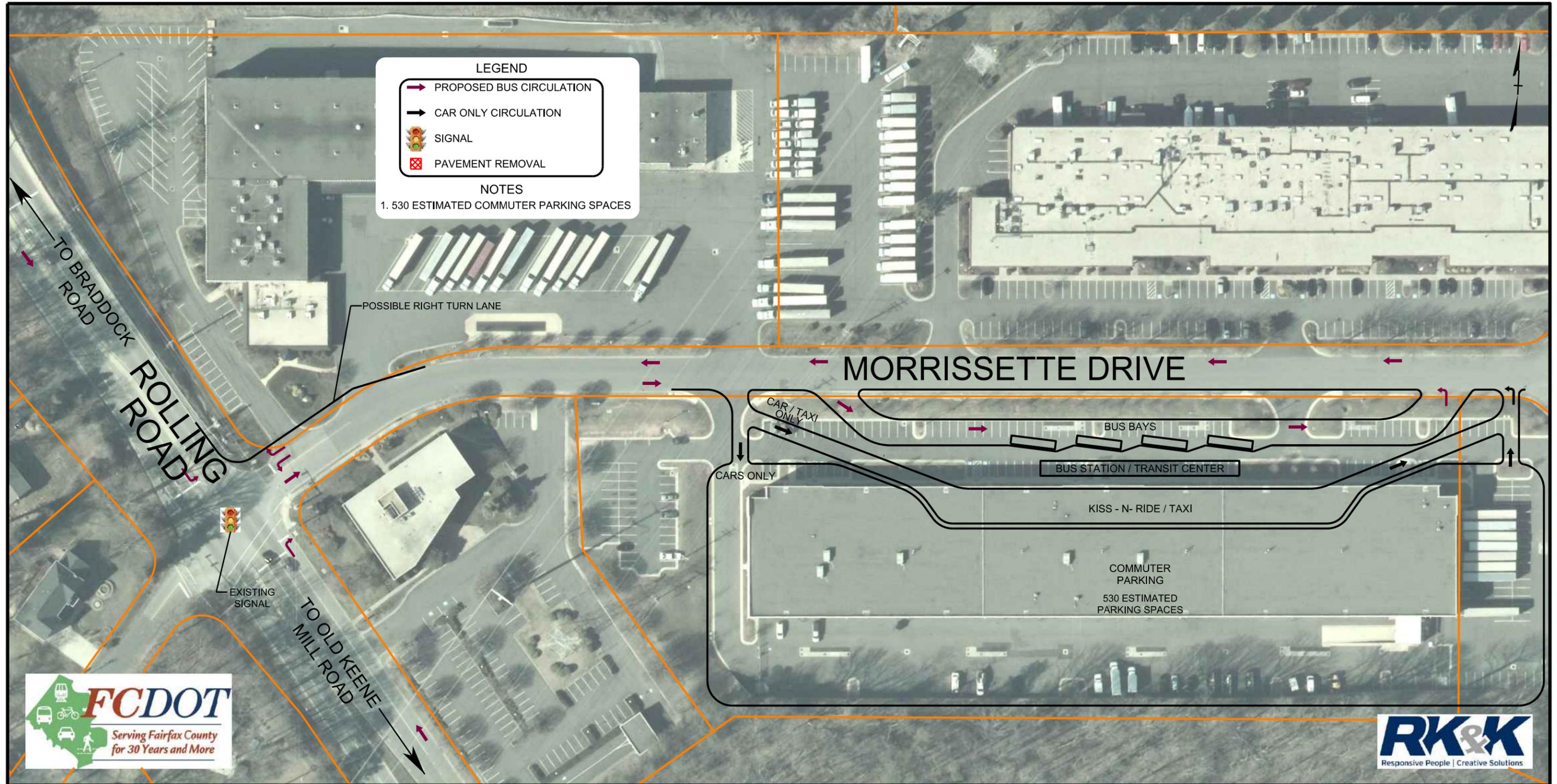


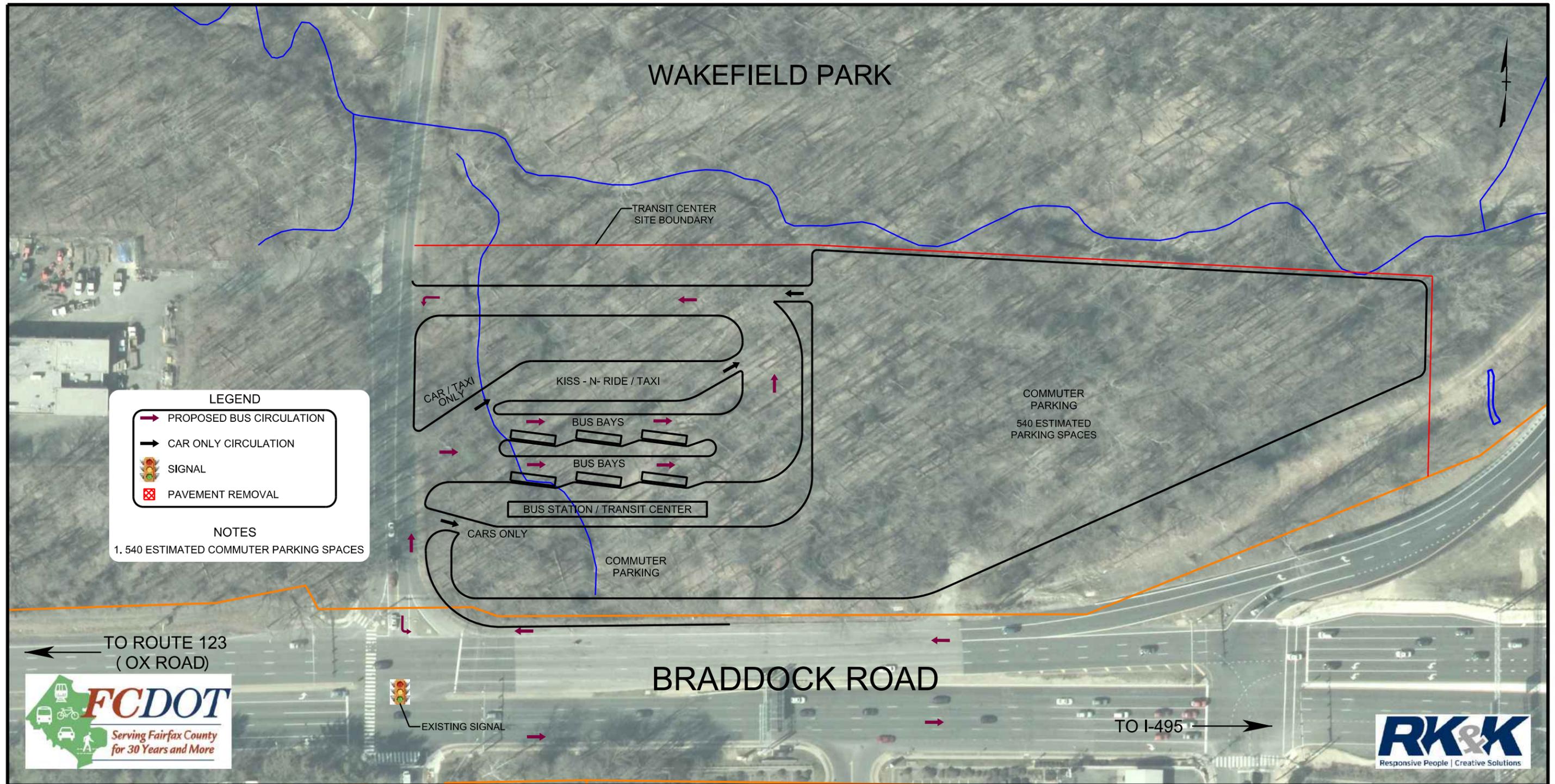
IMAGE FROM USGS  
MAY 5, 2015

# TRANSIT CENTER LAYOUT - LOCATION 5

# DRAFT

## BRADDOCK ROAD - FAIRFAX COUNTY, VA

WAKEFIELD PARK



**LEGEND**

- ➔ PROPOSED BUS CIRCULATION
- ➔ CAR ONLY CIRCULATION
- 🚦 SIGNAL
- ☒ PAVEMENT REMOVAL

**NOTES**

1,540 ESTIMATED COMMUTER PARKING SPACES

TO ROUTE 123  
(OX ROAD)

FCDOT  
Serving Fairfax County  
for 30 Years and More

BRADDOCK ROAD

TO I-495

RK&K  
Responsive People | Creative Solutions

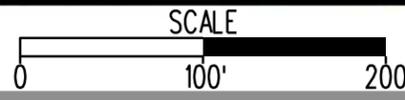


IMAGE FROM USGS  
MAY 5, 2015

# Travel Demand Modeling and Forecasting

*Braddock Road Multimodal Study*

presented to

**Braddock Road Multimodal Study Task Force**

presented by

**Cambridge Systematics, Inc.**

Feng Liu, Ph.D.

Jay Evans, P.E., AICP

May 6, 2015



**CAMBRIDGE**  
SYSTEMATICS

## Roles of Travel Demand Forecasting

**In Support of Transportation Planning**



## Transportation Planning Board (TPB) Regional Travel Demand Model

- Long Range Transportation Planning
- Air Quality Conformity Determination
- Transportation Improvement Program (TIP)
- Corridor and Subarea Studies
- Ridership Forecasting and New Starts/Small Starts Applications

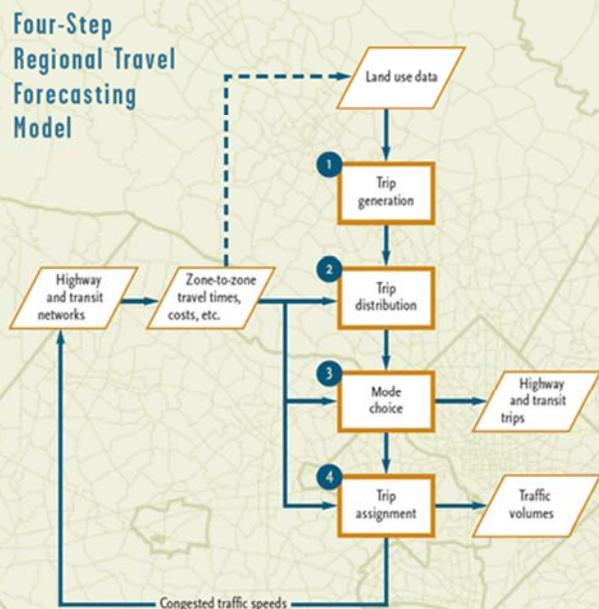
Source: MWCOG

3



## TPB Travel Demand Model

- Trip generation - How many trips are generated?
- Trip distribution - Where do the trips go?
- Mode choice - What travel mode is used for each trip?
- Trip Assignment - What is the route of each trip?



Source: MWCOG

4







## Braddock Road Multimodal Study Roadway Alternatives Evaluation Criteria Stakeholder Input



Criterion		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Measurements</b>	Travel Time (minutes)						
	Intersection delay (seconds/vehicle)	These parameters will be provided by the Study Team					
	Intersection Queue Length (feet)						
	Person Trips Processed (each)						
	Total Distance Traveled - Vehicle Miles (VMT)						
	Fuel Consumption (kg)						
	Latent Demand / Denied Entry (veh)						
	Public Transit Waiting Time						
	Air Quality						
	CO2 Emissions (kg)						
	NOx Emissions (kg)						
	Right-of-Way Impacted (acres)						
	Construction Cost (dollars)						
	<b>Weight</b>						
<b>Qualitative</b>	Aesthetics	2					
	Community cohesion	4					
	Ease of local access	5					
	Non-motorized mobility/Pedestrian Safety	4					
	Commuter Safety	3					
	Noise	3					
	Crashes/Year	4					
<b>Quantitative</b>	Travel Time	3					
	Intersection delay	3					
	Intersection Queue Length	1					
	Person Trips Processed	4					
	Total Distance Traveled - Vehicle Miles	1					
	Fuel Consumption	3					
	Latent Demand / Denied Entry	4					
	Public Transit Waiting Time	4					
	Air Quality						
	CO2 Emissions	2					
	NOx Emissions	2					
Right-of-Way Impacted	4						
Environmental Impacts	3						
Construction Cost	3						
<b>Overall Ranking</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Key: Least Desirable 1 – 5 Most Desirable

<sup>1</sup> Note



**Braddock Road Multimodal Study  
Transit Center Alternatives Evaluation Criteria  
Stakeholder Input**



Criterion		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Measurements</b>	Site Area (acres)	These parameters will be provided by the Study Team					
	Number of bus bays provided						
	Number of parking spaces provided						
	Property Costs (land/right-of-way/utility relocations)						
	Construction Cost						
	Off-site improvement costs (turn lanes/median modifications/signals)						
	Cost per parking space provided						
	Travel time to/from I-495						
	Average patron travel time						
	Local trip via SOV						
	Local trip via walking/cycling						
	Commuter trips (originating outside of study area)						
	Diverted trips from SOV						
	Local users						
	Commuter users						
	Trip cost						
	<b>Weight</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4</b>	<b>Alternative 5</b>	<b>Alternative 6</b>
<b>Qualitative</b>	Proximity to local trip sources	3					
	Accessibility for non-local commuters	3					
	Compatibility with adjacent land uses	5					
	Environmental Impacts	3					
	Noise	3					
	Safety of accessing site	5					
	Safety of pedestrian access to site	5					
<b>Quantitative</b>	Site Area (acres)	2					
	Number of bus bays provided	3					
	Number of parking spaces provided	3					
	Property Costs	3					
	Construction Cost	3					
	Off-site improvement costs	3					
	Cost per parking space provided	2					
	Travel time to/from I-495	3					
	Average patron travel time						
	Local trip via SOV	3					
	Local trip via walking/cycling	4					
	Commuter trips (originating outside of study area)	3					
	Diverted trips from SOV						
Local users	2						
Commuter users	4						
Trip cost	3						
<b>Overall Ranking</b>		<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Key: Least Desirable 1 – 5 Most Desirable

<sup>1</sup> Note



## County of Fairfax, Virginia



12600 Fair Lakes Circle  
Suite 300  
Fairfax, VA 22033

[www.rkk.com](http://www.rkk.com)