

**MD 355 South Corridor Advisory Committees (CAC) Meeting #3 Summary**  
**June 4, 2015 | 6:30 PM – 8:45 PM**  
**Bethesda Chevy Chase Services Center**  
**4805 Edgemoor Ln, Bethesda, Maryland**

**Attendees:**

| <b>Members</b>                        |   |
|---------------------------------------|---|
| Nancy Abeles                          | Tony Kouneski                             |
| Josh Arcurio                          | Richard O. Levine                         |
| Peter Benjamin                        | Todd Lewers                               |
| Francoise M. Carrier                  | Damon C. Luciano                          |
| Elizabeth Crane                       | Patty Mason                               |
| Barbara Moir Condos                   | Deborah Michaels                          |
| Kristi Cruzat                         | Philip Neuberg                            |
| Ryan Emery                            | Sasha Page                                |
| Miti Figueredo                        | Todd Pearson                              |
| Greg Ford                             | Chad Salganik                             |
| Roger Fox                             | Ralph Schofer                             |
| Debbie Friese                         | Ana Milena Sobalvarro                     |
| Jerry Garson                          | Gerard Stack                              |
| Victoria (Tori) Hall                  | Emily Vaias                               |
| Celesta Jurkovich                     | Jon Weintraub                             |
| Peter Katz                            | Jan White                                 |
| Eleanor Kott                          | Steven P. Wilcox                          |
| <b>Apologies</b>                      |   |
| Bill Carey                            | David Sears                               |
| Jay Corbalis                          | Eric Siegel                               |
| Ronit Dancis                          | John Alex Staffier                        |
| Jeremy Martin                         | Francine Waters                           |
| Andy Palanisamy                       | Max Wilson                                |
| <b>Project Team</b>                   |   |
| <b>Facilitator</b> – Yolanda Takesian | <b>Facilitation Team</b> – Mary Raulerson |
| <b>Study Team</b> – Alvaro Sifuentes  | Leo Swada                                 |
| Andrew Bing                           |   |
| <b>Staff</b>                          |   |
| Gary Erenrich, Montgomery County DOT  | Tom Pogue, Montgomery County DOT          |
| Barry Kiedrowski, SHA                 | Joe Harrison, SHA                         |
| Kenya Lucas, SHA                      | Kyle Nembhard, MTA                        |
| Rafael Olarte, Montgomery County DOT  | Darcy Buckley, MCDOT, CEx                 |
| Mike Garcia, MNCPPC                   | Scott Holcomb, SHA Gannet Flemming        |
|                                       | Chris Bell, AECOM                         |

| Public            |   |
|-------------------|---|
| Dan Gao           | Sal [inaccurate: sign in illegible] Ruwan |
| Jack Fensterslade | Mike Glynn                                |

## Handouts

Handouts provided to CAC Members included:

- Summary from CAC Meeting #2/Purpose and Need
- Agenda for CAC Meeting # 3
- Presentation for CAC Meeting #3

Meeting materials will be posted on the project website: [www.montgomerycountymd.gov/rts](http://www.montgomerycountymd.gov/rts).

## Introductions and Updates

Yolanda Takesian began the meeting with an overview of the agenda indicating that the meeting is meant to build a foundation of knowledge for work to be done in subsequent meetings. Presentations by Chris Bell and Scott Holcomb will provide the results of existing and modeled future transit and traffic conditions. Alvaro Sifuentes will discuss the draft initial Purpose and Needs for the transit project and show the various Bus Rapid Transit operating configurations to be applied along MD 355 to create a set of alternatives to be tested during the study phase. Given the type of information being presented members were advised to ask clarifying questions along the way and each presentation would include time for comment and questions on what had been presented. She also said that in response to some of the questions by members a CAC meeting sometime this summer will focus on technical issues for members who wanted to delve more deeply into the data.

Gary Erenrich provided the group with an update on County transit initiatives. He discussed Montgomery County's TIGER Round 7 application to fund the introduction of a new service between Lake Forest Transit Center and Grosvenor Metrorail Station, proposed to be called "Ride On Plus". The County has participated in a previous \$58 million regional TIGER application that funded the Langley Park Transit Center and regional bus network improvements but this will be the first County-sponsored application. Similar to Metrobus Priority Corridor Network service (K-9 service in Montgomery County), Ride On Plus service will focus on corridors with high transit demand and high bus ridership. The length of the route would run along MD 355 from Lake Forest Mall in Gaithersburg to the Grosvenor Metro station in North Bethesda. It stops north of the Beltway to provide a service that would not get caught up in NIH and Bethesda traffic and could begin to better integrate the corridor. It will provide a route that does not exist today using 14 all-electric buses and 3 induction charging stations. It is proposed to run with 10 minute frequencies during peak travel periods and 15 minute frequencies off-peak, 7 days a week. The proposal also includes improved transit flow with priority treatments at 31 signalized intersections. There is also a proposal to extend bikeshare beyond Bethesda with 17 additional bikeshare stations in the Twinbrook and Grosvenor station areas with private sector support. The City of Rockville is supporting up to 3 stations. The County is asking for \$17 million in federal funds for a total \$21 million project. While the application has all the components needed for success with broad support including from the Planning Board, federal delegation, and local officials, the program is extremely competitive. If the grant does not go through, the County is committed to find a way to move the service forward, potentially with CNG buses.

The County has also been working with several CAC Members on a regional Transportation Land Use Connection grant for \$50,000 to provide wayfinding signage to the Bethesda Metrorail Station.

Question (Q). *Will the Ride On Plus service take people to Metro?*

Response (R). Yes, but as will be discussed tonight, there is demand for intra-corridor trips between stations that can be supported by this service.

Q. *Are you planning on-board fare collection?*

R. SmartTrip cards would be used and the hope is to work with the manufacturer to get buses with back door payment locations that would facilitate multiple entry points to speed up service.

Q. *Can we get a copy of the grant application?*

R. Yes, we can put this on the website.

### **Project Update – Corridor Planning Study**

Barry Kiedrowski began the presentation with a quick re-cap on what will be accomplished as part of this study. This is the very beginning of a lengthy process to study possible BRT concepts along MD 355. By the summer, 2016 staff will be recommending alternatives that will be studied in more detail. This more detailed work will include additional engineering, environmental, traffic and ridership analysis on those alternatives. This is not a National Environmental Protection Act (NEPA) or Maryland Environmental Protection Act (MEPA) study; however a NEPA or MEPA study will need to be completed for the MD 355 BRT project in the future. We are currently using the Planning and Environmental Linkages (PEL) approach that will lay the foundation to move into NEPA or MEPA. FHWA recommends this approach so communities are more thoughtful about environmental, community, and economic goals early in the process. Many of the products developed during PEL will guide the subsequent recommendations for further evaluation during environmental review processes.

### **Project Update – Informational Open House**

As discussed during the last CAC meeting, Mr. Kiedrowski noted staff were planning to hold an Informational Open House with the general public in the spring of 2015. We decided that this meeting would be postponed until the fall of this year. The main reason to postpone the public meeting was to allow for greater coordination and input from the CAC members. In addition the Cities of Rockville and Gaithersburg have ongoing BRT studies and we wanted to have that extra time to evaluate or incorporate any preliminary findings of their studies if possible. Once the new dates have been identified we will inform the CAC members. In addition the public will be informed through a series of outreach efforts.

Q. *Please explain what we are really doing?*

R. We are conducting a study looking at the feasibility of different types of BRT, trying to gain an understanding of the potential need for a BRT system based on today's traffic and transit activity, and trends and projections into the future as far as 2040. If the BRT is needed, staff wants to evaluate what are the possible ways it could be accomplished.

Q. *Why is the data that is available not being given to the CAC? It seems that traffic volumes are going down, more people are working from home, and the real estate market along Rockville Pike seems to be dying. Some data doesn't make sense. Can we look at data for closer in dates (5 – 10 years) and look at recent data to see if past projections have been correct?*

R. All of these are possible, but let's be sure we don't have any more questions on process.

Comments on the process continued:

- *Another member indicated frustration that CAC members are not really being listened to, that conversations are overly guided by a presupposed purpose and need and that approach doesn't allow thinking outside the box. The previous meeting offered a very good exercise but the time permitted to discuss and deliberate was cut short inhibiting the group from making more meaningful contributions. Members very much want to be involved in a productive process that uses and exchanges the considerable knowledge of the group and makes good use of member time.*
- *One member spoke of being channeled into a narrow box of issues and that the door is not open to talk about what members want to discuss. This group provides an opportunity not only for people to learn interesting things about BRT, but to become ambassadors and champions of the project that will be necessary to carry any of the concepts forward. There should be opportunities to bring up and engage members to discuss the things they are passionate about.*
- *We understand that we have a truncated timeline, we know that there is a concern about cost effectiveness. We don't really have a technical road map as to when and how we can influence the decisions that need to be made.*
- *The process is being executed competently but it does not yet feel like it is doing anything more than meeting a technical requirement.*
- *We are watching while some have found a shoe that is looking for a foot that fits.*

R. We have asked for your time and take this feedback seriously. We will reflect upon your comments and explore ways to better structure our time together to be sure it gives us all the greatest value. That said there is a lot of information to present and discuss with you tonight and there will be many other opportunities to engage your knowledge, experience and commitment during this study.

## Transit Ridership

Chris Bell led the transit ridership presentation. Mr. Bell began the presentation by explaining that the presentation was focused on providing some context and understanding of potential transit markets within the study corridor.

The presentation began with a general description of the study corridor and high-level information about growth in households, residents, and jobs within corridor between today and 2040, the project horizon year. This data was presented for the corridor as a whole as well as by individual districts within the corridor. Of greatest interest from this portion of the presentation is that the forecasted center of economic activity within the study corridor will shift from the southernmost portion of the corridor (Bethesda area) to the White Flint area, which is slated for significant growth and densification in the County's long-range plans.

In response to questions from CAC members, Mr. Bell emphasized that the data presented for the corridor was only a small subset of the data that would be utilized during the ridership forecasting process. Specific questions and responses are as follows:

Q. Please explain 8.3.

R. Round 8.3 is the version of the population and employment forecast in the MWCOG Travel Demand Model. The information that goes into the model is not created by the team but is developed by the County based on zoning and demographic forecasts.

Q. Does the Origin/Destination model count person trips?

R. It counts a person trip from one origin to one destination; a person can make more than one trip.

Q. Is this only for trips with both ends in the corridor?

R. Yes, for the purposes of understanding the corridor travel market we are looking tonight only at intra-corridor trips with both ends in the corridor. We have data for the entire region that we will be working with.

Q. Do you have information about what percentage of total travel in the region has a trip end in the corridor? Is it small percent of the total corridor trips? We need that data.

R: Yes, we have the data and can show this at the technical meeting.

Q. Is the transfer mode captured in the OD?

R. Yes, the mode shift that includes driving to Metro and using Metro is captured as a single trip.

Mr. Bell also explained to CAC members that the five districts shown in different colors within the study corridor were developed for use in explaining and presenting demographic characteristics but that a more detailed geography (Transportation Analysis Zones) will be used in the actual ridership forecasting.

The next element of the presentation focused on travel patterns within the study area, with existing travel patterns discussed first and forecasted travel patterns in 2040 discussed next (the data presented was for all daily trips, all trip purposes). The two key points from the existing travel patterns discussion are:

- Commute trips within the study corridor are a relatively small portion of total trips within the corridor (about 13% of total trips).
- The highest trip flows actually occur within districts within the study area, meaning a large majority of trips within the corridor are short-distance trips.

Forecasted 2040 travel patterns follow the same patterns as existing patterns, though with a higher number of trips (the estimated growth of trips within the corridor between current base line and 2040 is 27%).

The third element of the presentation was related to the current transit service within the corridor. There are three Ride On routes within the corridor; Route 75, Route 55, and Route 46. Route 55, which runs between Germantown and Rockville, is the heaviest ridership route in the Ride On system and carries nearly 8,000 riders per day. Ridership on the three routes shows that there already is a very strong transit market within the corridor, which forms a strong base for the proposed BRT service. Metrorail Red Line ridership north of White Flint anticipates 58% growth, 27% south of Grosvenor.

Q. Is 40% projected growth just for Ride On bus or all transit?

R. Ride On is projected to increase by 40%

Q. *What is the transit ridership map showing? Buses only? Need better labels on maps.*

R. Map is showing all growth including Metrorail.

Q. *Are you assuming all travel occurs on MD 355? Districts are too big.*

R. No, we are not assuming all travel on 355. We have data at the TAZ level that can be shared at the technical meeting.

The final presentation element was a discussion of transit accessibility. Accessibility is measured as the number of jobs that are accessible by transit within a certain amount of time. Not surprisingly, the highest accessibility measures occur around Metro stations within the corridor. Of note, however, was the potential for the BRT service to improve accessibility in the areas between Metro stations as well as in the northern portion of the county, where the transit network is not as well developed as in the south portion of the county.

Q. *Why is there no employment growth east of I-270, there is a lot of growth west of I-270. What area is that referring to?*

R. White Flint and Twinbrook are showing significant growth. Crowne Farm and Great Seneca Science Corridor are shown with high growth. Mapping could show greater geographic detail and what kind of employment is expected for the technical meeting discussions. Data comes from the planning director of Montgomery County working with the region's other planning directors to project growth in 5-year increments based on master plans in each of the TAZs.

Q. *You can't show land use growth without the transportation network that is assumed. These are iterative relationships that must be shown together.*

R. The report that shows these details can be made available. It includes improvements in the region's Long Range Transportation Plan like the Purple Line and the CCT.

Q. *As someone who really appreciates modeling processes can you provide links to conceptual modeling implementation, data and validation methods.*

R. Will do.

Q. *What we are talking about is cost effectiveness and staging so this information is important for scenario development. There is good evidence that there will be growth in the Seneca Science Center; the movement from MD 355 corridor to that area is not on the map.*

R. Population and employment is rigorously tracked and forecasts are updated on a regular basis.

## Traffic Conditions and Forecasts

Scott Holcomb presented Existing and Forecasted year 2040 traffic volumes for the MD 355 corridor. These volumes will be used as a base to begin evaluations of the various BRT options that will be analyzed in this study. Traffic operations are important in this project as the nature of BRT systems requires the close interaction of transit vehicles and roadway traffic.

Existing and 2040 Average Daily Traffic (ADT) volumes for MD 355 were discussed first. ADT volumes represent the average total amount of vehicles that passes a point on a roadway over a 24 hour period. Existing traffic volumes were developed primarily through the use of traffic counts taken in late 2014. Based on a

request from a CAC member, the volumes developed for this project will be checked versus data found online on SHA's website to assure consistency in data sets. The traffic counts used to develop the existing traffic volumes were taken mid-week (Tuesday through Thursday) so that the worst of the weekday rush hours is captured as people tend to use Mondays and Fridays for telecommuting and flexing work schedules. The volumes shown for each roadway section represent the range of ADT values found between the two endpoints of the section. For example, for the section between I-495 and MD 410 in Bethesda, ADT's range from 28,800 to 67,800 vehicles per day, with the lower value found down near the MD 410 intersection and the higher value found further north near the Beltway interchange. Generally, MD 355 traffic volumes increase as one moves closer to the Capital Beltway from both the north and south ends of the corridor.

CAC members asked Mr. Holcomb to clarify points made regarding average daily traffic:

*Q. These volumes do not correspond to SHA on line traffic volumes. Can we get detailed data?*

R. These volumes are based on actual counts conducted in fall, 2014. The data available on line is based on single point location counts taken during different periods. We will compare the SHA published volumes with study counts and report on the differences at the technical meeting.

2040 ADT volumes were developed using the same MWCOG travel demand model with Round 8.3 Socio-Economic input data as described in the Transit presentation. Traffic volumes are expected to grow between now and 2040 with the forecasted growth in households and employment in the study area and region. Volumes were shown to grow between 13-23% along the corridor depending on expected development levels as well as changes to the transportation network. In areas such as White Flint where denser development is planned, traffic growth is expected to grow over 20% over the 25 year study period. The area inside the Beltway shows lower growth as it is already largely built out and the roadway system is saturated. It should be noted that the 2040 volumes represent No-Build conditions in that no changes to the transportation system (including the building of BRT service) are assumed beyond those included in the region's Fiscally Constrained Long Range Plan (CLRP). The proposed development growth that is an input into the model (Round 8.3) is developed for MWCOG by the County, and is determined by demographers based on zoning, development trends, etc.

Mr. Holcomb described how transportation professionals use a grading system from A to F to characterize traffic operations during specific hours, such as the morning and evening rush hours. These grades are referred to as Levels of Service (LOS). Mr. Holcomb shared with the group a display of the general characteristics of each LOS grade for intersections and roadways. LOS A is defined as operations with highly stable/free-flow conditions with little delay and uninterrupted vehicle movement. On the other end of the spectrum is LOS F which frequently has stop and go conditions and high delays for users. The group noted that LOS F can cover a wide range of failing operations as the grading system does not go beyond F.

For this project, the LOS for the morning and evening peak period hours has been developed for Existing traffic and Forecasted 2040 No-Build traffic. The presentation showed the calculated LOS for 14 of the larger intersections in the corridor, along with the average delay (in seconds) experienced by vehicle occupants that pass through the intersection. Many of these 14 locations currently operate at LOS D, E or F during one or both peak period hours today. The chart presented shows the overall LOS for the intersection for all traffic passing through it, including those traveling in the non-peak direction. The LOS for specific movements can be shown as well.

With the expected increases in traffic volumes by 2040, intersection LOS is expected to get worse as is the average driver delay. The exception to this is the Cedar Lane intersection where the LOS is shown to improve due to ongoing construction of improvements at that location to support the BRAC growth at the Walter Reed medical facility. This specific LOS will be checked with the County and SHA to assure that it matches with their expectations of the intersection improvement project. The LOS operational analysis was accomplished for this presentation using Synchro traffic software with the Highway Capacity Manual (HCM) methodology. In a later stage of the project, the analyses will also be done using VISSIM software, which allows for more sensitive analyses of transit vehicle operations and pedestrian impacts.

*Q. How is a bottleneck differentiated from regular traffic when measured using LOS?*

R. Areas with high congestion are E/F level of service. Usually this means waiting through more than one signal cycle.

*Q. So delay is measured at the intersection? Is this for all day? Is it the delay only for MD 355 drivers?*

R. Yes, it represents the average number of seconds a vehicle must wait to get through the intersection, only during the peak travel hours (morning and evening) and is the average for all vehicles waiting including side streets.

*Q. What software model was used? Why not Vissim or SimTraffic?*

R. Synchro was used for LOS, SimTraffic was used for travel time, and Vissim may be used to test alternatives because it provides more analysis of interactions between transit vehicles and general traffic.

An important measure for users of the transportation system is speed and travel time. Mr. Holcomb presented the Existing and Forecasted 2040 No-Build average traffic speeds and travel times for segments along the MD 355 corridor for both the southbound and northbound directions. The travel speeds and times shown in the presentation include the delays experienced sitting at traffic signals, so the speeds are below posted/signed speeds that vehicles are travelling between intersections. For both directions on MD 355, speeds are generally slower in the peak direction of traffic flow (southbound in the morning rush hour and northbound in the evening). In 2015, the data show that to travel the entire corridor from one end to the other, it would take a little over an hour in both peaks on southbound MD 355, with that increasing to close to 90 minutes by 2040. In the northbound direction in the evening peak the travel time is shown to increase from 1 hour and 15 minutes in 2015 to a forecast of almost 2 hours in 2040. Average speeds are expected to drop by about 5 mph for travelling the entire length of the corridor between 2015 and 2040. It was noted that few people travel the entire length of MD 355 in one trip, but the showing the results for the entire length of the corridor gives a good overall picture of corridor operations. Travel times and speeds can be provided for other trip lengths, such as between transit stations.

*Q. So you are showing us baseline without the presets for pedestrian crossing time? LOS also doesn't measure pedestrian LOS. Do you have other metrics that would tell us about level of service for pedestrians?*

R. We can apply multimodal level of service measures to analysis.

*Q. Your model shows an improved level of service at Cedar Lane. SHA and NIH reports show that traffic will continue to be congested even after BRAC improvements.*

R. We can investigate this.

Q. While I did drive the entire corridor, no one does this today.

R. Future travel times can be shown for key origin and destination pairs or between stations.

Q. MD 355 is an alternate to I 270, improvements to I-270 could help. What is frustrating is not knowing what is assumed for the future network.

R. One of the challenges is to understand the network that is assumed in 2040. The constrained long range plan shows \$3.5 billion improvements to I-270, a completed Montrose Parkway, the Purple Line and the CCT. The detailed network will be provided and reviewed during the upcoming technical meeting.

Mr. Holcomb then presented to the group a summary of crash data that has been recorded along the corridor. Approximately 1,900 police reported crashes occurred along MD 355 between the beginning of 2011 and end of 2013 between the project endpoints in Clarksburg and Bethesda. The crash data displayed the data according to major corridor segments with crashes per mile for those segments, and crash types most prevalent in those segments. Many of the segments show a high number of Rear End, Left Turn, and Angle collisions. These types of collisions are fairly typical for congested roads with many access points and high levels of turning vehicles. It was noted that several sections had a relatively large number of crashes involving pedestrians. As BRT options are reviewed, it will be important to identify safety issues.

### Draft Purpose and Need Language

Mr. Sifuentes presented the Draft Purpose and Need Language for the project. Over the past couple of months the team has been analyzing existing conditions information related to existing bus service and traffic along MD 355. In addition, information gathered from the CAC's on strengths and weaknesses of the corridor and the values and concerns that they have were used to develop this draft language. Many CAC members have already sent us very valuable and useful comments on the draft purpose and need language. We wanted to present this language as draft to be able to receive feedback from the CAC members and then show it to the general public at the Informational Open House. Mr. Sifuentes asked members to continue to submit comments in writing on the draft language that was presented. The group was asked to provide comments by the end of the following week

The following comments were provided from CAC members:

- Include cost effectiveness language in the purpose.
- Include night time service to accommodate millennial users.
- The Functional Master Plan bullet seems out of place – aren't the previous plans just vehicles for bringing the project to this point?

Q. Why should the findings in the Functional Master Plan be taken as a given?

Comment provided by another CAC member: *There were a series of reports to bring about what is in the Functional Master Plan. There was an extensive deliberative process to create the adopted Functional Master Plan. The Master Plan sets the basis of the system, what was left was how the routes would specifically be located and operated so they could move into implementation.*

Q. What will be the process for this study's analysis? It is frustrating not being told when the details will come and how it's all going to work, and what metrics will be used.

R. Mr. Erenrich indicated that the County will be presenting the proposed evaluation measures to be used to choose between alternatives so the movement from a series of alternatives to recommendations is transparent.

## Running Way

Mr. Sifuentes described that as discussed at the kickoff meeting a BRT system is made up of various elements creating a menu of options for running ways, service plans, stations, vehicles and technologies. Today we will be discussing the running way options available for this project. The running way describes the physical location of the BRT and the way that it operates in relationship to vehicular traffic. A total of six options have been identified for consideration. At the last meeting we described the existing roadway characteristics and how much they differ along the corridor: from urban to rural, from eight lanes to two lanes. Given the varying nature of the corridor, the proposed six options will be mixed and matched along different segments of the corridor to best fit within the surrounding area. For example, what works in Germantown may not work in Bethesda. The typical sections presented are general in nature and are being used to describe the running way and interaction between general traffic and the BRT vehicle. They are not showing specifically where these typical sections will be applied. **NOT EVERY OPTION IS APPROPRIATE FOR EVERY SEGMENT OF THE MD 355 CORRIDOR**, he cautioned.

### Option 1 – BRT in Mixed Traffic

BRT under this option would operate in mixed traffic with all traffic on the road operating within the existing roadway footprint. The BRT would be subject to the same delay and congestion experienced on the roadway. This BRT option could include enhanced transit features such as fewer stops and minor operating improvements like transit signal priority (TSP). TSP allows a BRT vehicle to communicate with the approaching signal to either extend the green cycle for a few seconds or make the red cycle shorter if the overall signal timing cycle can accommodate it.

### Option 2 – BRT Queue Jump Lanes

BRT under this option would also operate in mixed traffic with all other vehicles on the road within the existing roadway footprint. This option would however include BRT queue jump lanes at intersections where feasible. The BRT queue jump lane would allow the BRT to get in the front of the queue and through a protected phase get ahead of all other vehicles still waiting at the signal. This BRT option could also include enhanced transit with limited stops and minor facility improvements such as transit signal priority (TSP).

### Option 3 – One Way, Reversible, Dedicated BRT Lane

This option would provide a lane dedicated to the BRT. Directionality of the dedicated BRT lane would be determined by peak hour demand. Peak direction BRT buses in the one-way reversible lane would stop at new BRT stations, while off-peak direction BRT buses will operate in mixed traffic and could use existing bus stops retrofitted for BRT. The dedicated lanes can be achieved via an additional lane or repurposing of an existing travel lane.

Under the first scenario an additional lane would be added to the existing typical section and would be dedicated to the BRT buses. Under the second scenario, an existing travel lane in the off peak direction would be repurposed and dedicated to the BRT. When the peak directionality changes, the BRT lane would switch. An example was shown for the AM peak with a strong southbound peak direction. In the AM peak a northbound lane would be repurposed and dedicated to a southbound BRT. In the PM peak a southbound lane would be repurposed and dedicated to a northbound BRT. This operation would be similar to the existing conditions on US 29 inside the beltway, where an additional lane is given to the peak direction. However instead of giving this lane to general purpose traffic, the lane would be dedicated to the BRT.

#### Option 4 – Bi-directional, Dedicated BRT Lane

Similar to Option 3, this option would provide a dedicated BRT lane. However instead of only allowing peak direction BRT buses on the dedicated lane, buses travelling in both directions will be allowed to use the lane. BRT buses traveling in both directions share a single lane that will have passing zones to maintain operations. The dedicated lanes can be achieved via an additional lane or repurposing of an existing travel lane. Under the first scenario an additional lane would be added to the existing typical section and would be dedicated to the BRT buses. Under the second scenario, an existing travel lane in the off peak direction would be repurposed and dedicated to the bi-directional BRT. When the peak directionality changes the BRT lane would switch. An example was shown for the AM Peak with a strong southbound peak direction. In the AM peak a northbound lane would be repurposed and dedicated to the bi-directional BRT. In the PM peak a southbound lane would be repurposed and dedicated to the bi-directional BRT. This operation would be similar to the existing conditions on US 29 inside the beltway, where an additional lane is given to the peak direction of traffic. However instead of giving this lane to general purpose traffic, the lane would be dedicated to the BRT. Some pictures of an existing bi-directional BRT system were shown to the group. Eugene, OR was shown as an example of the dedicated bi-directional BRT with passing zones.

#### Option 5 – Dedicated Median BRT Lanes

Under this option BRT buses would operate in dedicated lanes located in the median. This option would provide the highest level of service compared with other BRT options since the BRT would operate in the median with minimal conflicts with existing traffic. However by being in the median, left turn movements would only occur at signalized intersection or under a protected movement. Many of the existing mid-block crossing along MD 355 would need to be closed and the movements relocated to the nearest signalized intersection. Traffic analysis would need to be conducted to determine how much longer the left turn storage will need to be. The dedicated lanes can be achieved via additional lanes or repurposing of existing travel lanes. Under the first scenario two additional lanes would be added to the existing typical section and would be dedicated to BRT buses. Under the second scenario, two existing inside travel lanes would be repurposed and dedicated to BRT buses. An example was shown from Alexandria, VA.

*Q. Bicycle lanes are also included in each of the proposed sections?*

R. Yes, the functional master plan shows bicycle accommodation on the corridor.

*Q. Would this require consolidating all turns at major intersections? This would cause longer cycle phases that are already quite long today.*

R. Yes, uncontrolled turns would be eliminated; this would make signal cycles longer.

#### Option 6 – Dedicated Curb BRT Lanes

Under this option BRT buses would operate in dedicated lanes located curbside. Since the dedicated lanes are on the outside near to the curb, these lanes would have to be shared with local buses and all right turn movements to and from MD 355. This reduces the efficiency of the BRT travel times. The dedicated lanes can be achieved via additional lanes or repurposing of existing travel lanes. Under the first scenario two additional lanes would be added to the existing typical section and would be dedicated to BRT buses. Under the second scenario, two existing outside travel lanes would be repurposed and dedicated to BRT buses.

*Q. With so many options, how do you want input?*

A. This presentation has been designed to help everyone understand the various options that are being considered. They will be applied to the corridor with different operating types fitting in different segments in a

series of alternatives. At that point we will need CAC knowledge of the corridor to help to review impacts and discuss preferences.

*Q. Do queue jumps need a dedicated lane? How do you protect pedestrians and allow room for buses, turns, etc.*

A. Intersections would be analyzed location by location for appropriateness for queue jumps. Viers Mill Road and University Boulevard is an example of where a queue jump is operating today.

*Q. What is the name of the physical barrier used to provide dedicated BRT space?*

R. Curb Separator.

*Q. Are we considering vehicles with doors on both sides even though you have fewer seats?*

R. Yes, like the CCT, which will be purchasing vehicles that can load and off load passengers at curb or center stations.

*Q. How would transitions work so you have both curbside and center running service?*

R. These would be investigated during design.

*Q. Could we take a field trip to look at these?*

R. Alexandria has the only operation BRT in the region. It's a great idea to get out and see how it is working.

## Next Steps

Ms. Takesian asked CAC members about their level of interest in the technical meeting proposed. About half of those present indicated a strong interest in this meeting.

People that want to have options considered in addition to those shown can mark up one of those in the presentation, scan or take a picture of the image and send it on.

Members should stay tuned for upcoming meetings that will be scheduled specifically including:

- Technical Meeting to delve into the details and assumptions underlying the travel demand forecasting presented and discussed during tonight's meeting; this could be in the form of a regular CAC meeting, but with the focus being a technical discussion of the above.
- The next CAC meeting to be held to review and discuss information to be presented at the fall public open house; and,
- The Public Open Houses to be held in two locations, one in the North and a second in the South. The same information will be shown at both meetings.