

# Mount Cross Road Corridor Analysis



May 26, 2017  
Amended June 18, 2018

---

# Mount Cross Road Corridor Analysis

## Date

May 26, 2017

Amended June 18, 2018

## Prepared For

West Piedmont Planning District Commission

City of Danville, Virginia

Danville-Pittsylvania MPO

Virginia Department of Transportation

Federal Highway Administration

## Prepared By

The logo for EPRPC features the letters 'EPR' in a large, bold, blue serif font, followed by 'PC' in a smaller, grey serif font.

EPR, P.C. "ENGINEERING & PLANNING RESOURCES"

637 BERKMAR CIRCLE, CHARLOTTESVILLE, VA 22901

# Table of Contents

<b>Introduction.....</b>	<b>4</b>
Problem Statement.....	4
Purpose and Scope.....	4
Background Studies and Plans.....	5
Concept Development Process.....	5
<b>Concept Development Process Summarized.....</b>	<b>6</b>
Existing Conditions Assessment.....	6
Approach to Forecasting.....	7
Future Conditions Assessment.....	7
<b>Multimodal Recommendations.....</b>	<b>8</b>
Roundabout – General Information.....	9
Roundabout Recommendation.....	10
Lowes Drive Recommendation.....	11
Transit Recommendations.....	12
Other Considerations.....	13
<b>Public Meeting Summary.....</b>	<b>14</b>
<b>Funding Opportunities.....</b>	<b>15</b>

## List of Figures

Figure 1- Mount Cross Road Study Area (Now and Then).....	4
Figure 2 – Existing Traffic Volumes.....	6
Figure 3- Longest Queue in Feet (Existing).....	6
Figure 4 – Future Regular Traffic Volumes.....	7
Figure 5 – Future More Intense Traffic Volumes.....	8
Figure 6- Roundabout Characteristics.....	9
Figure 7- Roundabout Conflict Points.....	9
Figure 8- Roundabout Multimodal Features.....	9
Figure 9- Roundabout Concept Recommendation.....	10
Figure 10- Existing Lowes Drive Intersection Configuration.....	11
Figure 11- Proposed Lowes Drive Intersection Configuration.....	11
Figure 12- Lowes Drive Right Turn Alternatives.....	11
Figure 13- Existing Transit Routes.....	12
Figure 14- Proposed Transit Routes.....	12
Figure 15- Multi-Use Trail Extensions.....	13
Figure 16- Lack of Sidewalks.....	13

## List of Tables

Table 1- Existing Intersection Level of Service.....	6
Table 2- Future Intersection Level of Service.....	8
Table 3- Roundabout Cost Estimates.....	10
Table 4- Smart Scale Funding.....	15
Table 5- Highway Safety Improvement Funding.....	15
Table 6- Transportation Alternatives Funding.....	15
Table 7- Revenue Share Funding.....	16
Table 8- Maintenance Funding.....	16
Table 9- Proffer Funding.....	16
Table 10- TIGER Funding.....	16

# Introduction

Mount Cross Road in the City of Danville is an important commercial corridor, providing access to very large developments including Danville Mall, Lowes, Walmart, and many restaurants and other commercial interests. The road is classified as a minor arterial, per the Virginia Departments of Transportation's (VDOT) statewide functional classification system. At Piedmont Drive, Mount Cross Road has a four-lane typical cross section with dedicated turn lanes and a vegetative median. Moving north, Mount Cross Road narrows to a two-lane roadway with a two-way-turn-lane between Old Mount Cross Road and Dimon Drive. The posted speed limit throughout the corridor is 35 miles per hour.

## Problem Statement

This corridor has been the focus of numerous corridor planning studies over the last 15 years due to its growth potential, importance as an economic corridor, and its importance as a regional commuter corridor. Averett University has located an Athletic Complex with a 1,200 car parking lot on Dimon Drive, just north of the major commercial district served by Mount Cross Road. This new "development" consists of major sporting facilities and venues for the University, which result in increased daily traffic volumes and special event traffic during the week and weekends. Demand for walking and bicycling in the area has also increased. Thus, a traffic impact assessment is needed to help identify necessary physical and operational improvements that may be needed because of increased traffic and multimodal demand.

## Purpose and Scope

This report summarizes the methods and results of a corridor assessment and intersection analysis under existing and future conditions. Traffic demand, roadway lane deficiencies, geometric/turn lane shortages and the multimodal network were assessed. Specific recommendations have been provided to accommodate future and event related traffic, meet the multimodal access needs of developments, and provide documentation to support funding applications and the implementation process.

The scope of this study was defined as Mount Cross Road between the intersections of Dimon Drive and Piedmont Drive, approximately 2/3 mile in length. The following intersections have been included in the assessment:

- Mount Cross Road / Dimon Drive (unsignalized)
- Mount Cross Road / Lowes Drive (signalized)
- Mount Cross Road / Piedmont Drive (signalized)

**Figure 1** illustrates the study area. Also, included as part of Figure 1, is an image of the study area from 1994.

Figure 1- Mount Cross Road Study Area (Now and Then)



## Background Studies and Plans

Mount Cross Road has undergone several important studies recently and currently is planned for widening from Old Mount Cross Road, north through Dimon Drive. The following previously completed studies and plans were reviewed for the purposes of this assessment:

- Mount Cross Road Improvement Study (2012)
- Danville-Pittsylvania Area Long-Range Transportation Plan: Year 2040
- Danville 2020 & 2030 Comprehensive Plan
- West Piedmont Regional Bicycle Plan
- Danville Transit Development Plan
- Mount Cross Widening Construction Plans

Collectively, these studies and plans offer a range of issues and opportunities that should be considered moving forward, from widening to multimodal enhancements that reflect the access needs of the Averett University Athletic Complex, and the City's interest in congestion management and providing a safe inviting multimodal environment. As traffic patterns and demand tend to change over time, this assessment will note if results from existing conditions deviate substantially from previous efforts.

Furthermore, while this corridor assessment is an independent study, it is being completed concurrently with the plans to widen Mount Cross Road. The planned configuration will include a five-lane cross section that includes a two-way-turn lane and four travel lanes (two in each direction). The results of this study will compliment – and expand upon – the results of that effort.

## Concept Development Process

The Mount Cross concept development process consisted of a multifaceted approach that included the following tasks, generally completed in sequential order:

1) Existing Conditions Assessment

2) Forecasting Approach

3) Future Conditions Analysis

4) Multimodal Recommendations

5) Public Feedback

6) Summary of Funding Opportunities

Three (3) technical memorandums have been developed that provide further detail on this development process. They include the following documents:

**Existing Conditions Analysis:** Details efforts related to traffic data collection, assemblage of background data, development of the traffic model, performance measures, detailed assessment of traffic operations, and review of multimodal conditions under existing conditions.

**Forecasting Methodology:** Details the methodology used to develop a traffic growth rate, including sources and future traffic projections to 2040.

**Future Conditions Analysis:** Details the results of the corridor assessment and intersection analysis under future (2040) conditions using the future traffic projections. Recommendations were developed and compared against 2040 No Build conditions (No Build refers to future travel demand under the existing lane configuration, plus approved projects). Traffic demand, roadway lane deficiencies, geometric/turn lane shortages and multimodal connectivity were addressed.

The following section summarizes the concept development process.

# Concept Development Process Summarized

## Existing Conditions Assessment

A traffic assessment was completed under existing (2016) conditions to better understand traffic demand, roadway lane deficiencies, and geometric/turn lane shortages. The multimodal network was also assessed for the purposes of this study.

Data collection consisted of weekday PM intersection traffic counts, special event traffic counts obtained before and after a Saturday football game, detailed field observations, and a meeting with representatives from Averett University, the Danville Metropolitan Planning Organization, and City staff. According to VDOT's annual count program, Mount Cross Road serves 9,200 vehicles per day (vpd).

Figure 2 – Existing Traffic Volumes

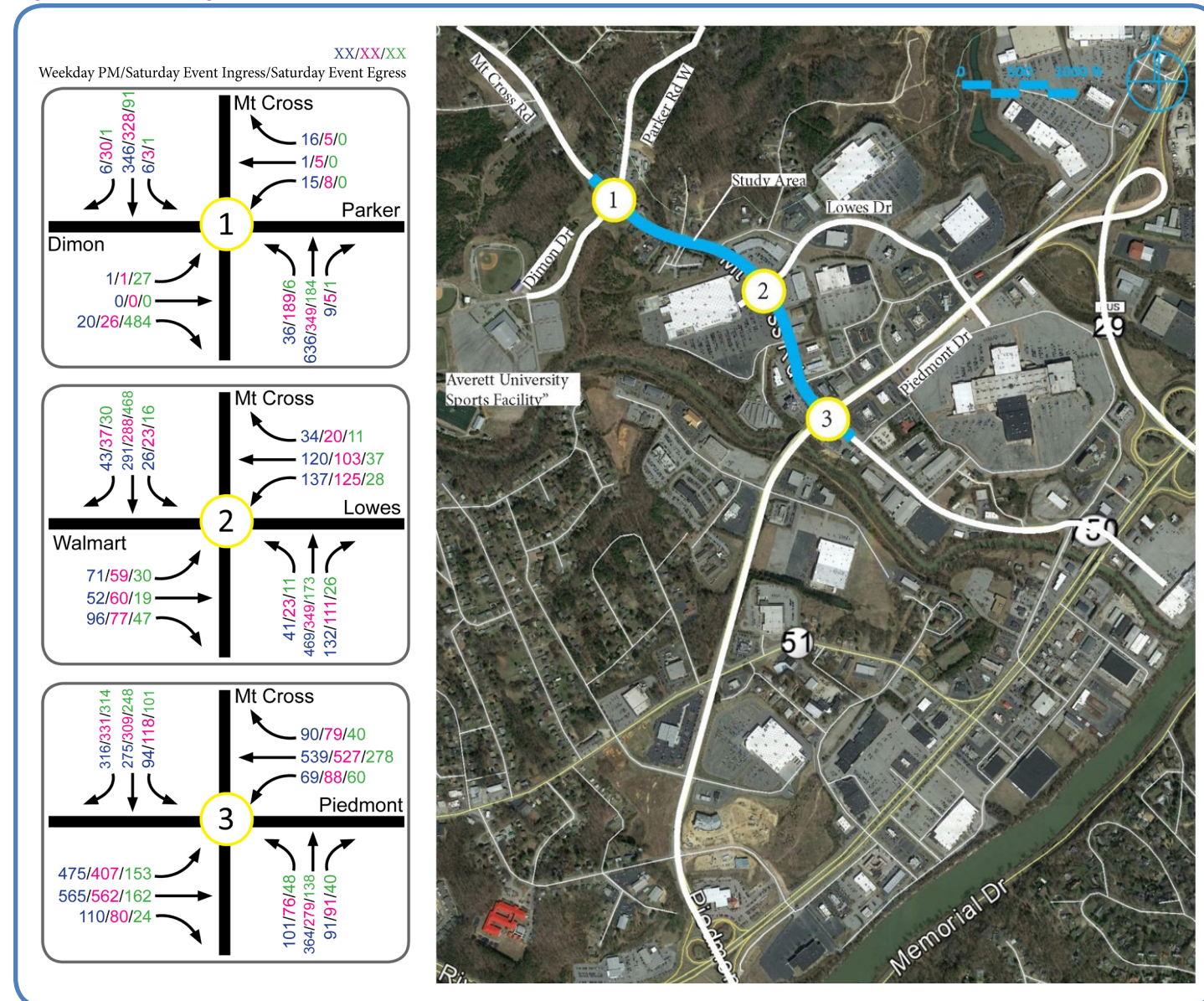
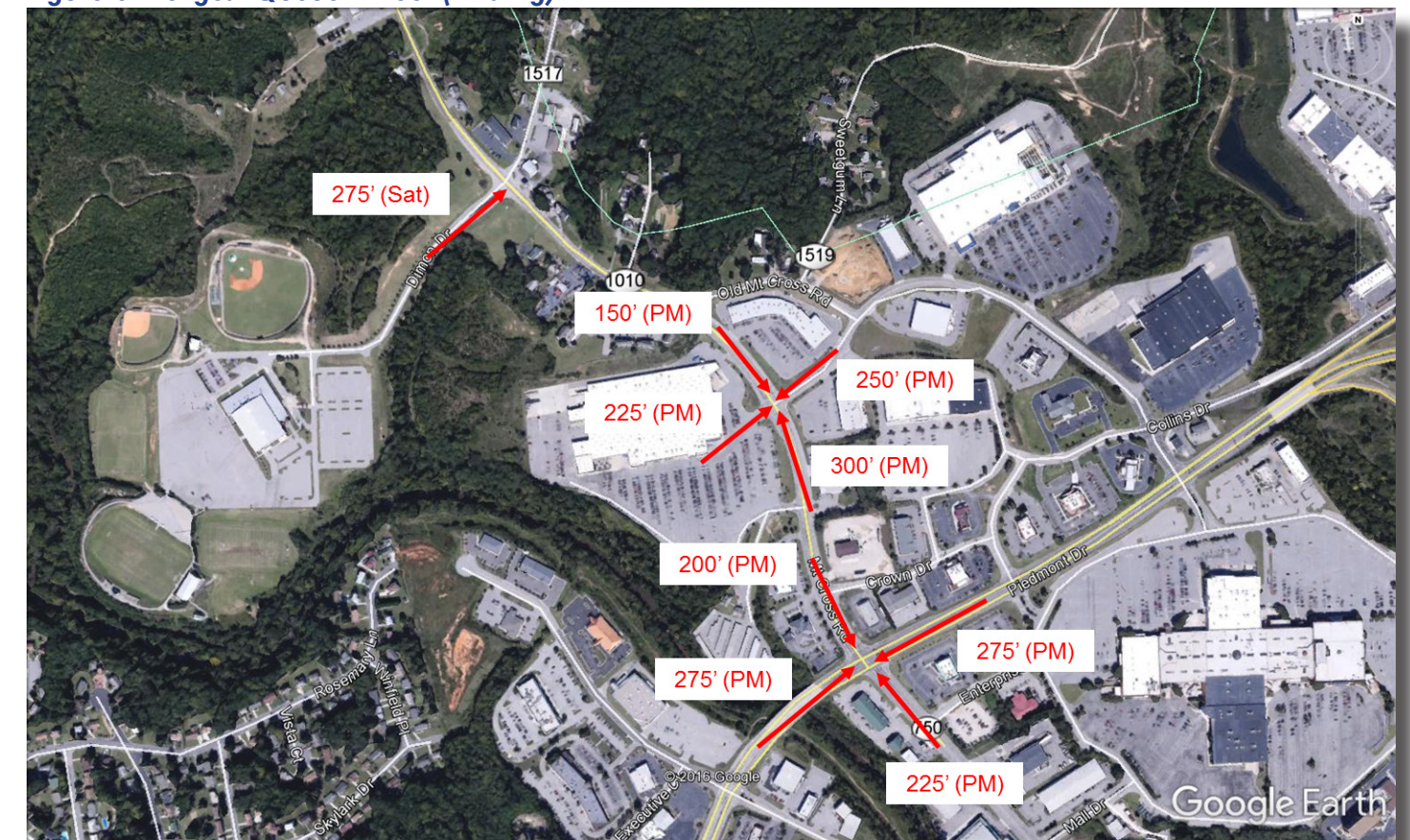


Table 1- Existing Intersection Level of Service (LOS)

Scenario	Existing Conditions (2016)			
	Piedmont Drive	Lowes Drive	Dimon Drive	
	Overall Delay (LOS)	Overall Delay (LOS)	EB Delay (LOS)	WB Delay (LOS)
Weekday PM Peak Hour	32.9 C	25.9 C	11.5 B	23.3 C
Saturday Ingress Peak Hour	29.2 C	21.4 C	11.2 B	25.4 D
Saturday Egress Peak Hour	23.2 C	14.3 B	20.1 C	0.0 A

LOS A – C: Low to moderate delays (considered acceptable performance)  
 LOS D – E: Moderate delays (borderline acceptable to unacceptable performance)  
 LOS F: High delays (unacceptable performance)

Figure 3- Longest Queue in Feet (Existing)



See the Existing Conditions Analysis technical memorandum for more on the methodology and approach.

## Existing Conditions Assessment Summary

- While heavy traffic demand is generated during special events, higher overall traffic demand still occurs during the weekday PM peak hour, with the exception of traffic on Dimon Drive during special events.
- Intersections and individual movements operate reasonably well; however, there are pockets of congestion that experience high delays and queuing.
- At Lowes Drive, eastbound and westbound turning queues consistently extend beyond the available storage capacity.
- While multimodal demand has been increasing throughout the city, few to no bicycle and pedestrian accommodations exist in the study area, including sidewalks and bus stop amenities.

## Approach to Forecasting

The *Forecasting Methodology* technical memorandum details the methodology used to develop a traffic growth rate for Mount Cross Road. In summary and based on:

- 1) parcel redevelopment potential near the study area (approximately 72,000 square feet),
- 2) local and regional growth anticipated through the Statewide Planning System (SPS) database (0.5% annual),
- 3) expansion of Averett University and non-special event uses of the Sports Complex, and
- 4) growth anticipated by several long-range plans and recent traffic studies (2.0% annual),

a **1.0% annual compounding growth rate** was recommended through 2040 (design year). The growth rate was applied to the existing traffic counts collected in the study area to develop projections for use in the analysis of future conditions. When applied to the 2015 count of 9,200 vpd, a future volume of 11,800 vpd is estimated for the corridor. See the *Forecasting Methodology* technical memorandum for more information on this approach.

## Future Conditions Assessment

It's recognized there could be other special events that generate higher demand not captured with the counts collected for the purposes of this study. Therefore, the future conditions assessment considered the following three scenarios:

- **Weekday PM:** applied the 1.0% growth rate to all traffic counts. No event traffic.
- **Saturday Regular Scenario:** applied the 1.0% growth rate to all non-related event traffic, and then applied event traffic, as counted.
- **Saturday More Intense Scenario:** doubled the event traffic that is distributed through the network. The purpose of this approach is to provide a “worst case” scenario from an unusually large event.

See the *Future Conditions* technical memorandum for more on the methodology and approach.

Figure 4 – Future Regular Traffic Volumes

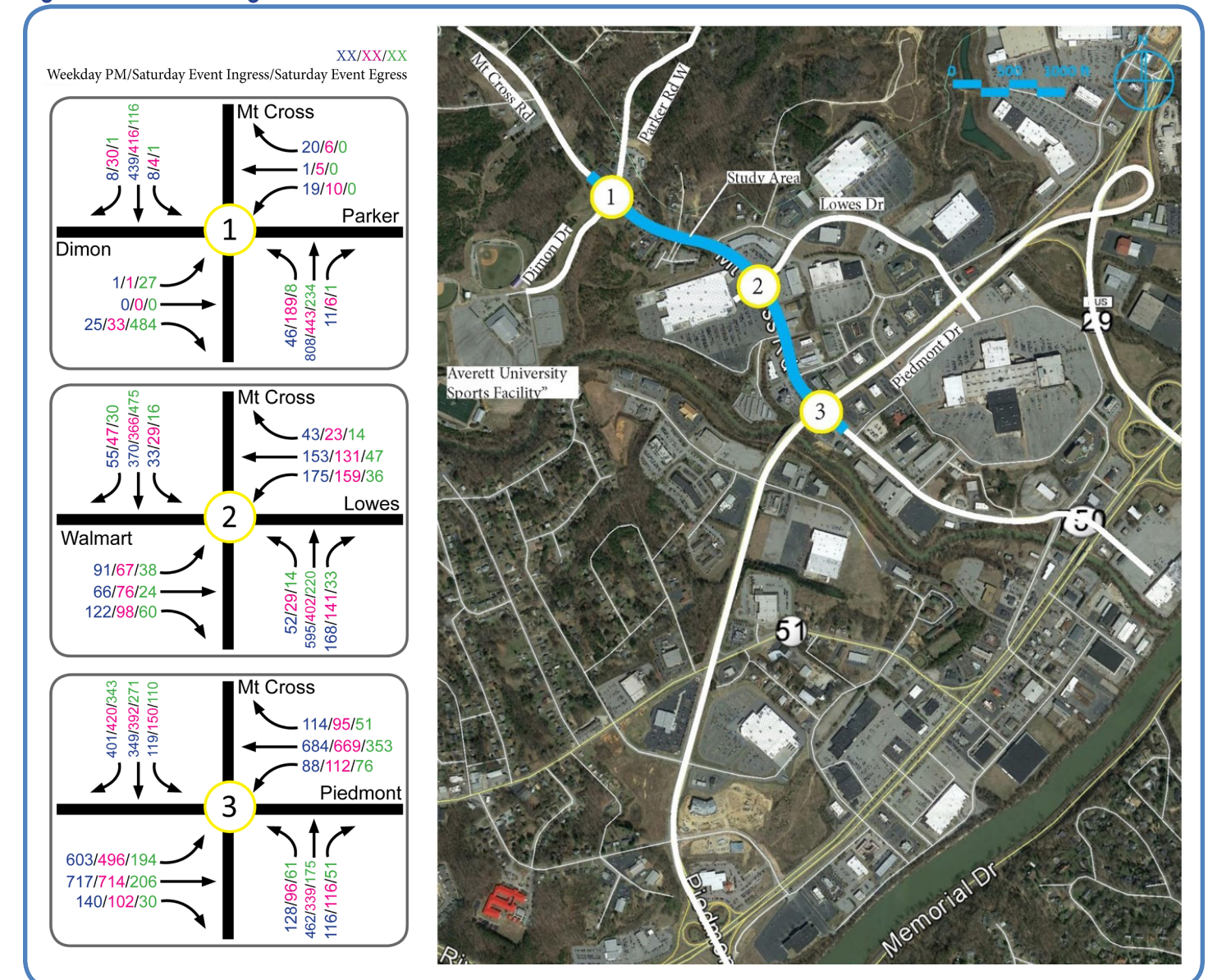
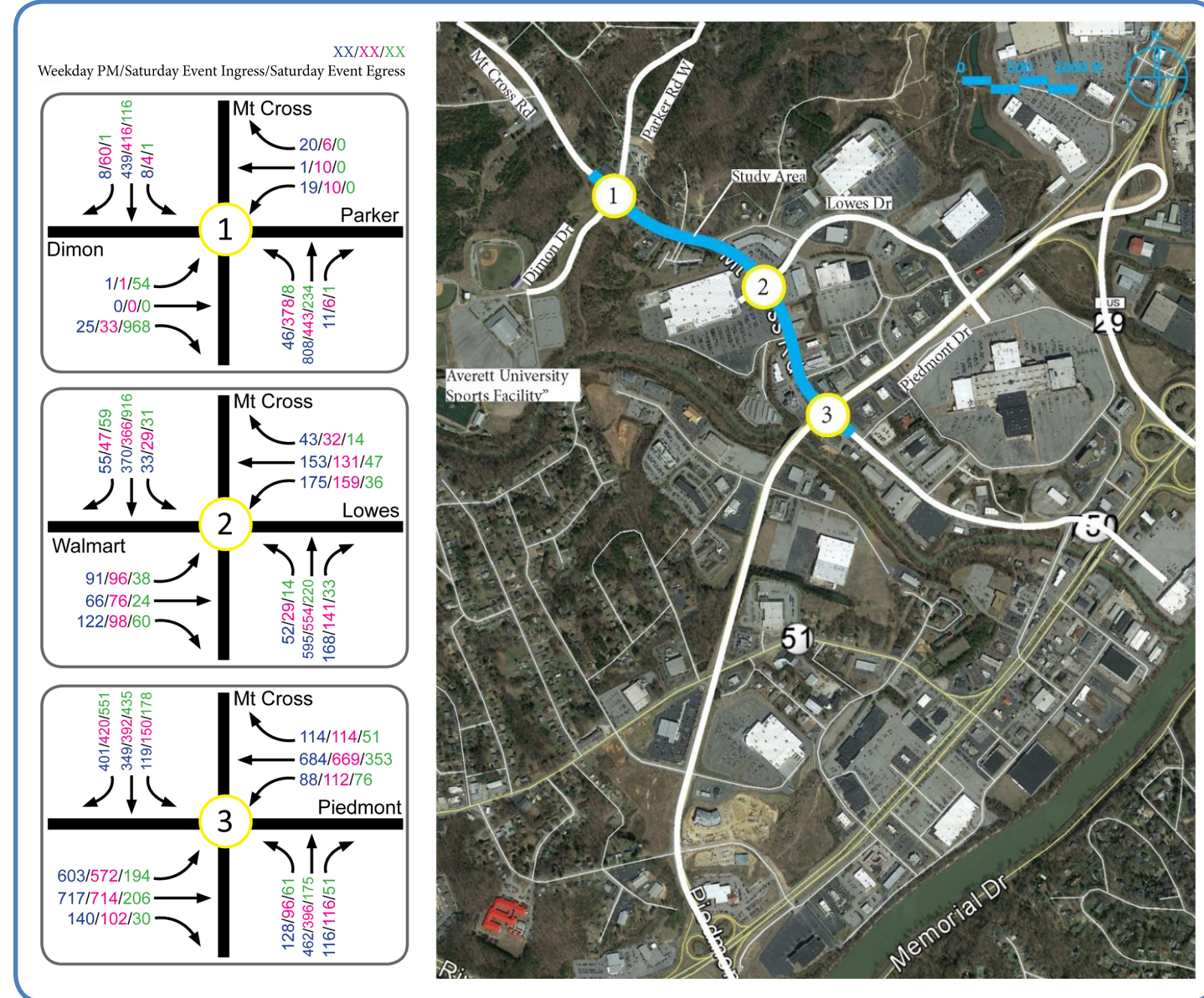


Figure 5 – Future More Intense Traffic Volumes



### Future Conditions Assessment Summary

- The future conditions assessment included the planned widening of Mount Cross Road.
- Congestion levels and queuing will only worsen through 2040.
- Pockets of congestion experience high delays and queuing (LOS E).
- At Lowes Drive, eastbound and westbound turning queues will continue to extend well beyond the available storage capacity.
- Multimodal accessibility will remain limited throughout the study area, with the exception of the multi-use path that will extend from Dimon Drive to Walmart.

## Multimodal Recommendations

Results of the existing and future conditions assessments were used to inform the identification of potential recommendations along Mount Cross Road. Clearly, bicycle and pedestrian accommodations are limited in the study area; therefore, local and regional multimodal connectivity options have also been considered. The following recommendations have been summarized within this section:

- Installation of a roundabout at Dimon Drive / Parker Road W
- Intersection phase changes at Lowes Drive
- Transit recommendations
- Other considerations

Table 2- Future Intersection Level of Service

Scenario	Future No Build Conditions (2040)			
	Piedmont Drive	Lowes Drive	Dimon Drive	
	Overall Delay (LOS)	Overall Delay (LOS)	EB Delay (LOS)	WB Delay (LOS)
<b>Weekday PM Peak Hour</b>	40.9 D	36.0 D	12.7 B	39.0 E
<b>Saturday Ingress Peak Hour (Regular)</b>	36.3 D	25.7 C	12.0 B	34.1 D
<b>Saturday Ingress Peak Hour (Intense)</b>	38.4 D	28.6 C	13.7 B	99.2 F
<b>Saturday Egress Peak Hour (Regular)</b>	23.9 C	15.8 B	18.5 C	0.0 A
<b>Saturday Egress Peak Hour (Intense)</b>	26.5 C	16.1 B	71.8 F	0.0 A

LOS A – C: Low to moderate delays (considered acceptable performance)  
 LOS D – E: Moderate delays (borderline acceptable to unacceptable performance)  
 LOS F: High delays (unacceptable performance)



# Roundabout – General Information

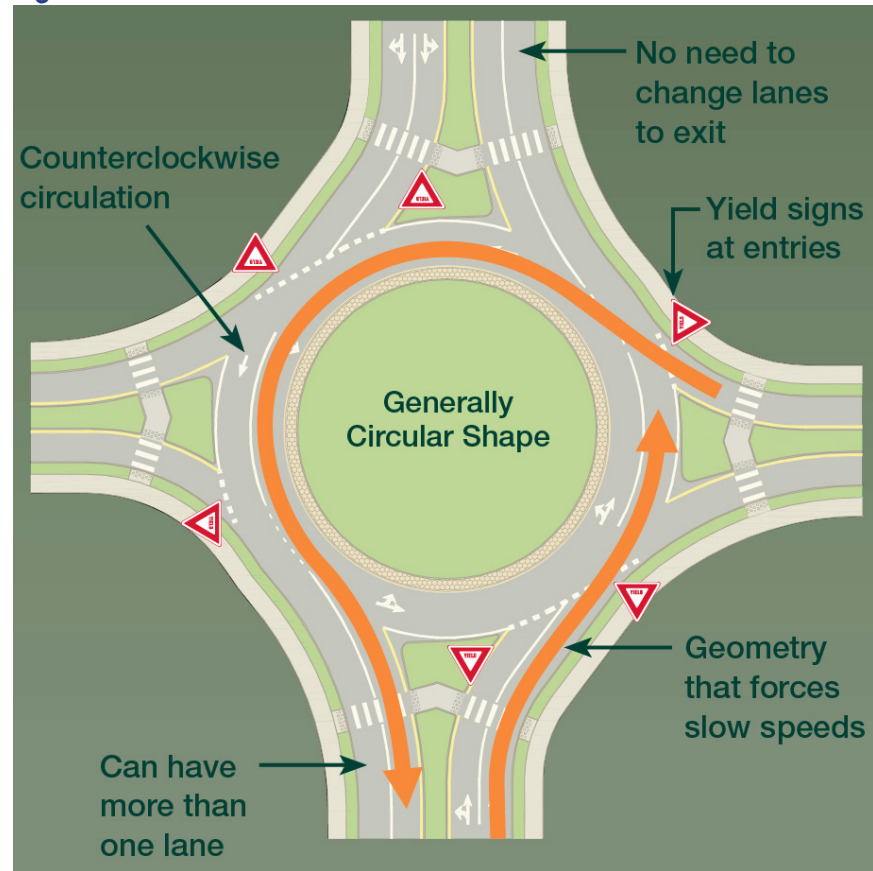
## What is a roundabout?

A roundabout is a type of circular intersection with yield control of entering traffic, islands on the approaches, and appropriate roadway curvature to reduce vehicle speeds.

Modern roundabouts are different from rotaries and other traffic circles. For example, roundabouts are typically smaller than the large, high-speed rotaries still in use in some parts of the country. In addition, roundabouts are typically larger than neighborhood traffic circles used to calm traffic.

A roundabout has these characteristics:

Figure 6- Roundabout Characteristics



## Why consider a roundabout?

Compared to other types of intersections, roundabouts have demonstrated safety and other benefits. Roundabouts:

### Improve safety

- More than 90% reduction in fatalities\*
- 76% reduction in injuries\*\*
- 36% reduction in all crashes\*\*
- Slower speeds are generally safer for pedestrians

### Reduce congestion

- Efficient during both peak hours and other times, including special events
- Typically less delay

### Reduce pollution and fuel use

- Fewer stops and hard accelerations, less time idling

### Save money

- Often no signal equipment to install, power, and maintain
- Often less pavement needed

### Complement other common community values

- Quieter operation
- Functionally and aesthetically pleasing

Figure 7- Roundabout Conflict Points

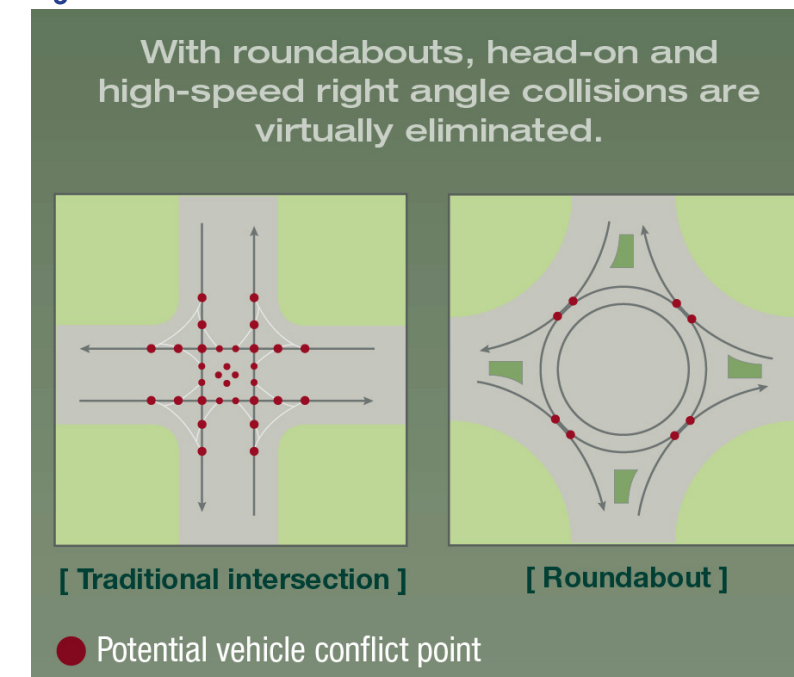


Figure 8- Roundabout Multimodal Features



\* "Safety Effect of Roundabout Conversions in the United States: Empirical Bayes Observational Before-After Study." Transportation Research Record 1751, Transportation Research Board (TRB), National Academy of Sciences (NAS), Washington DC, 2001.

\*\* NCHRP Report 572: Roundabouts in the United States. National Cooperative Highway Research Program, TRB, NAS, Washington DC 2007

Sources:

Roundabouts: An Informational Guide. Federal Highway Administration, Washington DC, latest version, except as noted.

"Roundabouts: A Safer Choice." Informational Brochure, Federal Highway Administration, Washington DC

## Roundabout Recommendation

The planned widening project at the intersection of Dimon Drive consists of a five-lane cross section that includes a two-way-turn-lane and four travel lanes (two in each direction). Dedicated turn lanes will be provided at Dimon Drive and Parker Road. The additional northbound travel lane on Mount Cross Road will end as the right turn lane to Parker Road. The additional southbound travel lane on Mount Cross Road will begin at Dimon Drive. A roundabout could be installed that compliments the five-lane cross section and will operate more efficiently than the side-street stop configuration that is currently planned, with the following benefits:

- Operate at LOS C, or better, for all movements under all scenarios.
- Safely and more efficiently accommodate eastbound and westbound left turns.
- Provide a traffic calming measure along Mount Cross Road.
- Potentially reduce the occurrences of 90-degree angle collisions.
- May remove the need for an officer managing event traffic.
- Transit stops, if considered, could be installed on Mount Cross Road just south of Dimon Drive. A transit vehicle would be accommodated without the need to make a left on to Dimon Drive (utilize the roundabout to travel north, then back south).
- Provide an entry feature for the University.

To note, a traffic signal at this intersection would not be warranted because the eastbound and westbound left turns across Mount Cross Road (a critical movement when considering a signal) are not high enough. Typically, these turning volumes should exceed 100 vehicles during the peak hour by movement. The highest left turning volume under all scenarios is 54 vehicles (eastbound left under Saturday egress).

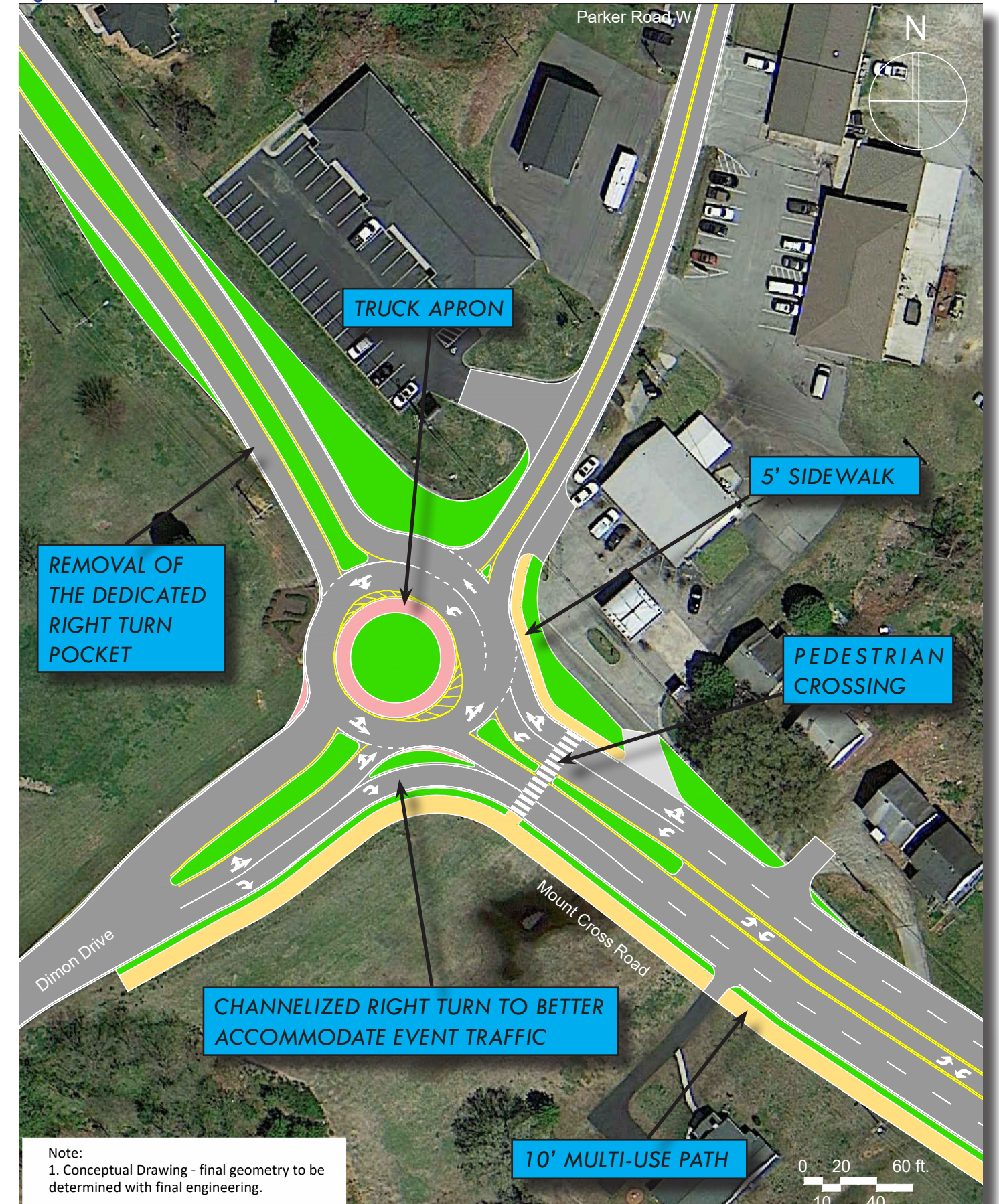
## Cost Estimates

Cost estimates for the roundabout have been developed using the latest VDOT unit costs. To note, the cost estimates do not include potential right-of-way (row) that could be needed. The roundabout may require slightly more row when compared to the planned intersection (side-street stop control). The detailed cost allocations are available upon request.

**Table 3- Roundabout Cost Estimates**

Description	Total
Sub-Total	\$2,500,000
Engineering and CEI (10%)	\$250,000
Contingency (20%)	\$550,000
<b>Grand Total</b>	<b>\$2.8 - \$3.3 Million</b>

**Figure 9- Roundabout Concept Recommendation**



## Lowes Drive Recommendation

The eastbound and westbound movements at Lowes Drive and Walmart experience high delays and lengthy queues (each movement operates at LOS E and experiences approximately 275' of queuing) under future conditions. The intersection currently operates with split phases for these movements; meaning, each phase moves independently with no shared movements.

If the eastbound and westbound movements were modified to accommodate dedicated left turns and shared through/right movements, operations would be improved and overall queuing reduced.

This recommendation would require that representatives from Wal-Mart and the City of Danville discuss potential impacts and opportunities before proceeding.

Figure 10- Existing Lowes Drive Intersection Configuration

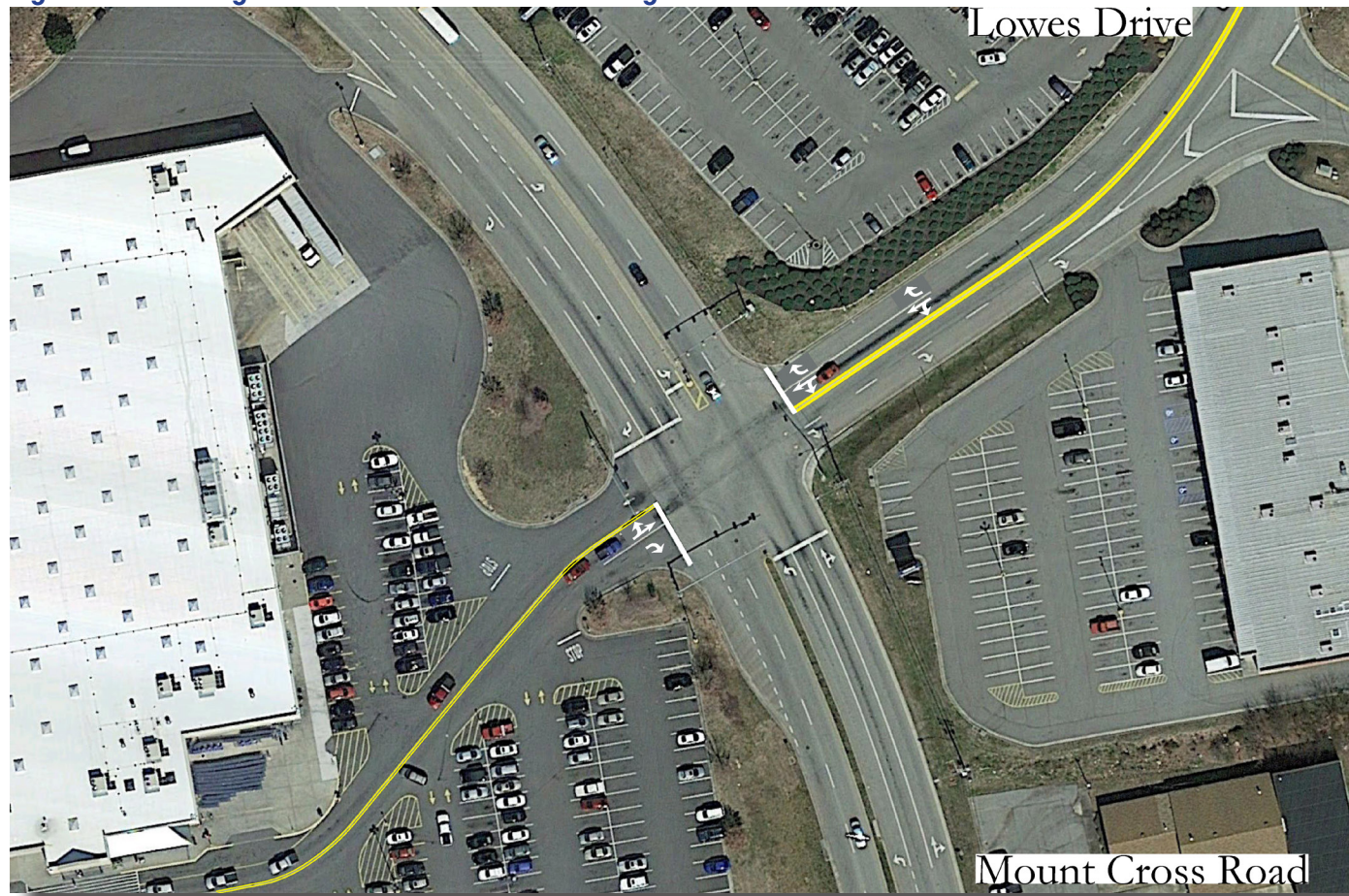


Figure 11- Proposed Lowes Drive Intersection Configuration

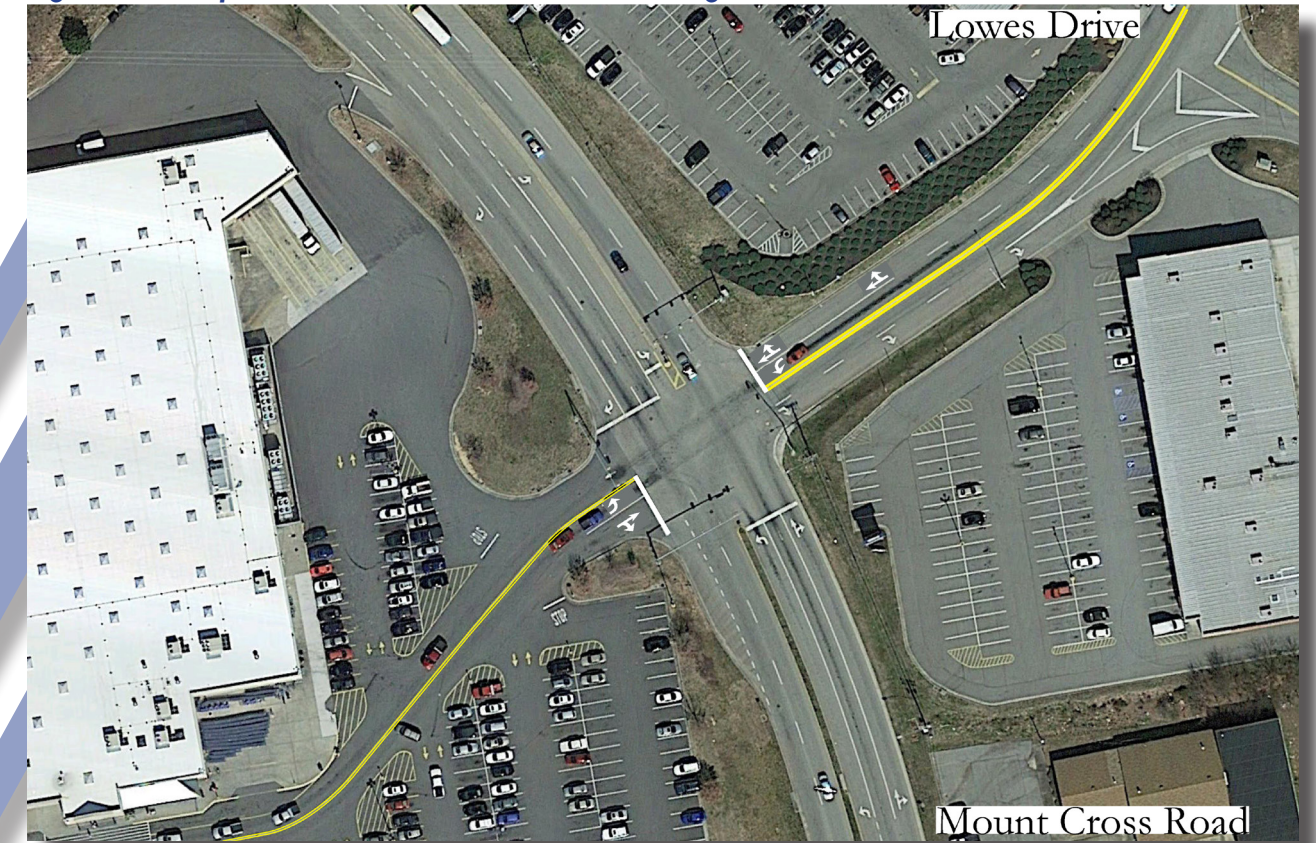
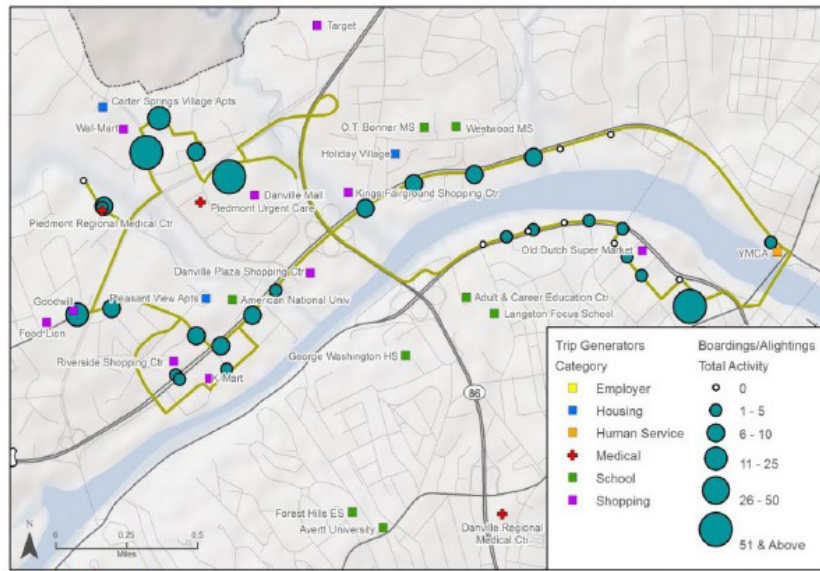


Figure 12- Lowes Drive Right Turn Alternatives

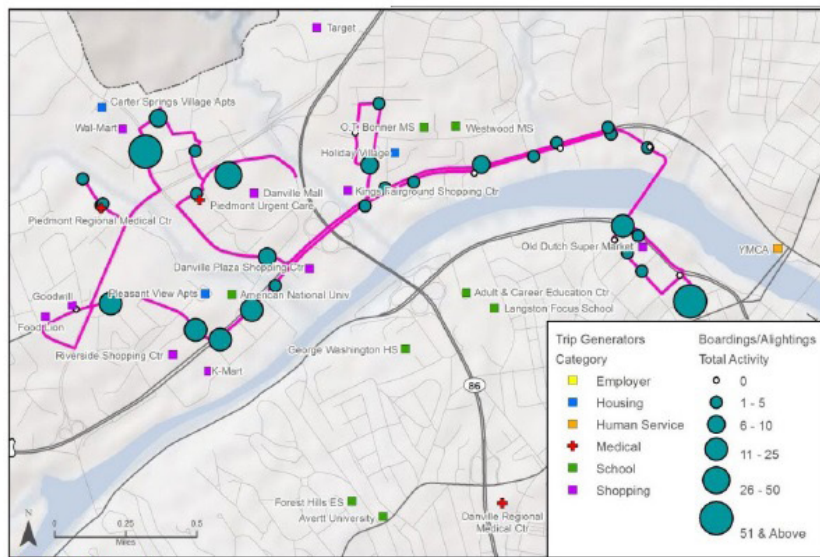


To note, because the proposed configuration would combine the through and right movements, there will be occurrences where right turning vehicles must wait for green time to make the turn, if behind a vehicle waiting to travel through the intersection. For Walmart, there is a separate access point to Mount Cross Road 400' south of the intersection where vehicles can make a right without being delayed by a through vehicle. Similarly, drivers on Lowes Drive could use Old Mount Cross Road, 500' to the north.

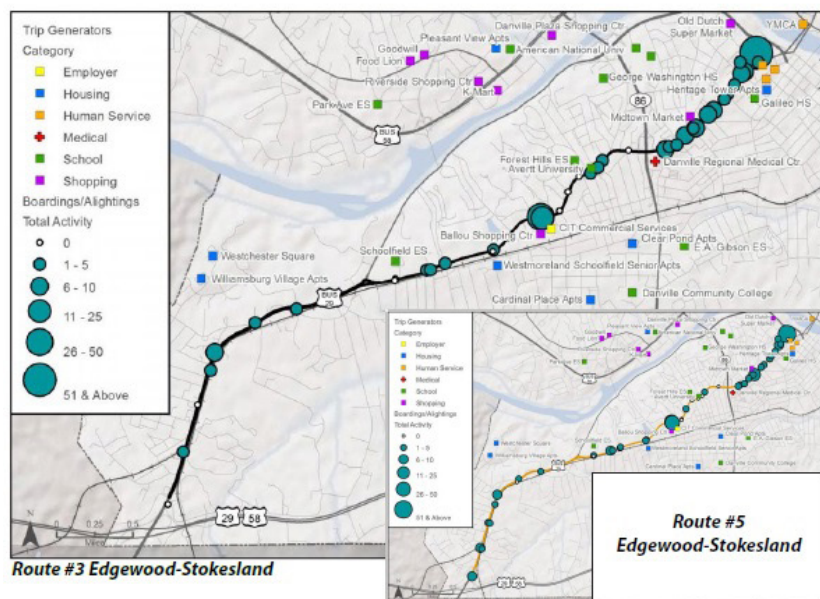
Figure 13- Existing Transit Routes



Route #2 Riverside



Route #5 Riverside



Route #3 Edgewood-Stokesland

Route #5 Edgewood-Stokesland

## Transit Recommendations

### Expanded Transit Service

- Mount Cross Road is currently served by two (2) transit routes, Route #2 and #5 Riverside.
- The stop located in front of Wal-Mart is among the highest activity-generating stops on each route.
- If the routes were extended to Dimon Drive, it would only add approximately 1.25 miles (round trip) to each current route.

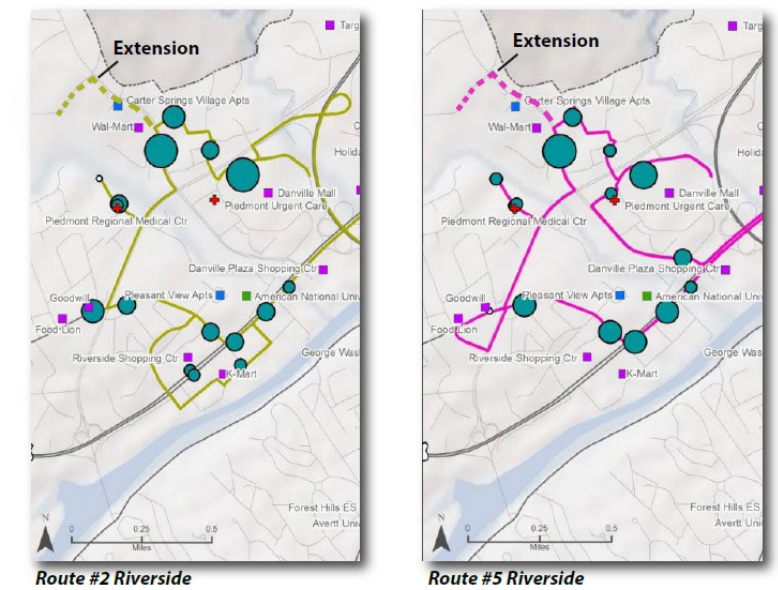
### New Transit Service

- Most users of the Athletic Complex are, presumably, students and staff of Averett University.
- Even if Routes #2 and #5 were extended to serve the Athletic Complex, students would be required to ride the bus to downtown and transfer onto another line in order to reach the main campus, resulting in delays and reduced ridership levels.
- Consider creating a new line that directly connects the three major Averett University facilities in the city: The Athletic Complex, The Main Campus, and the downtown Graduate and Professional Studies Center.

### Partial Re-Route

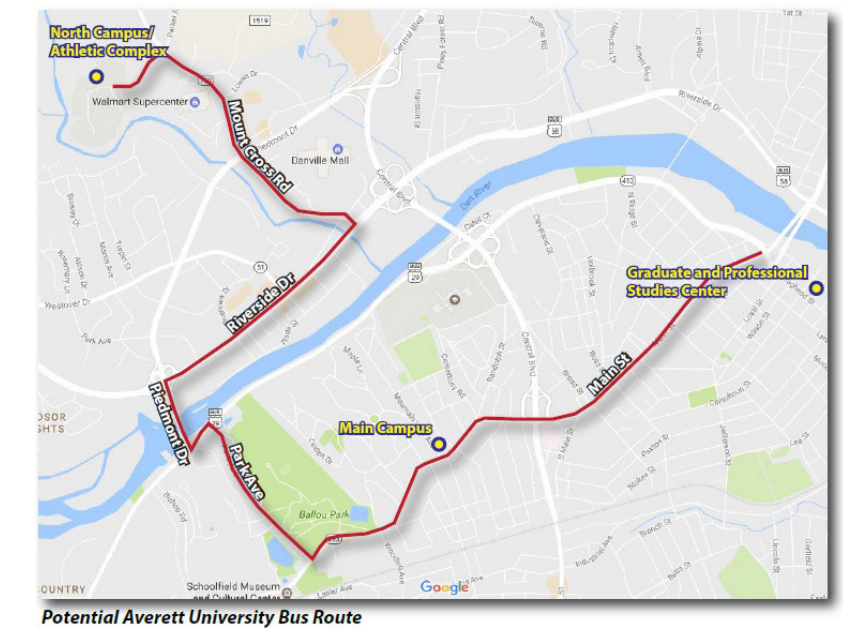
- Route #3 Edgewood-Stokesland runs along Main Street between downtown and the Main Campus, and then continues along West Main Street.
- This exact route is served by another bus line (Route #5 Edgewood-Stokesland).
- The majority of ridership on Route #3 occurs between Park Avenue and downtown Danville.
- Consider partially rerouting Route #3 Edgewood-Stokesland onto Park Ave after the Ballou Shopping Center.

Figure 14- Proposed Transit Routes

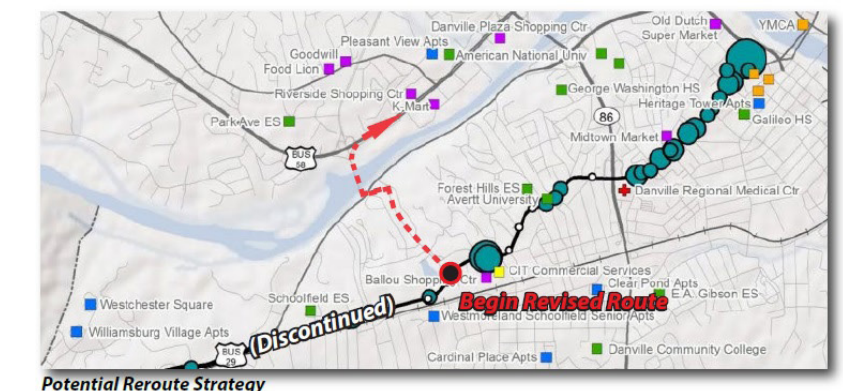


Route #2 Riverside

Route #5 Riverside



Potential Averett University Bus Route



Potential Reroute Strategy

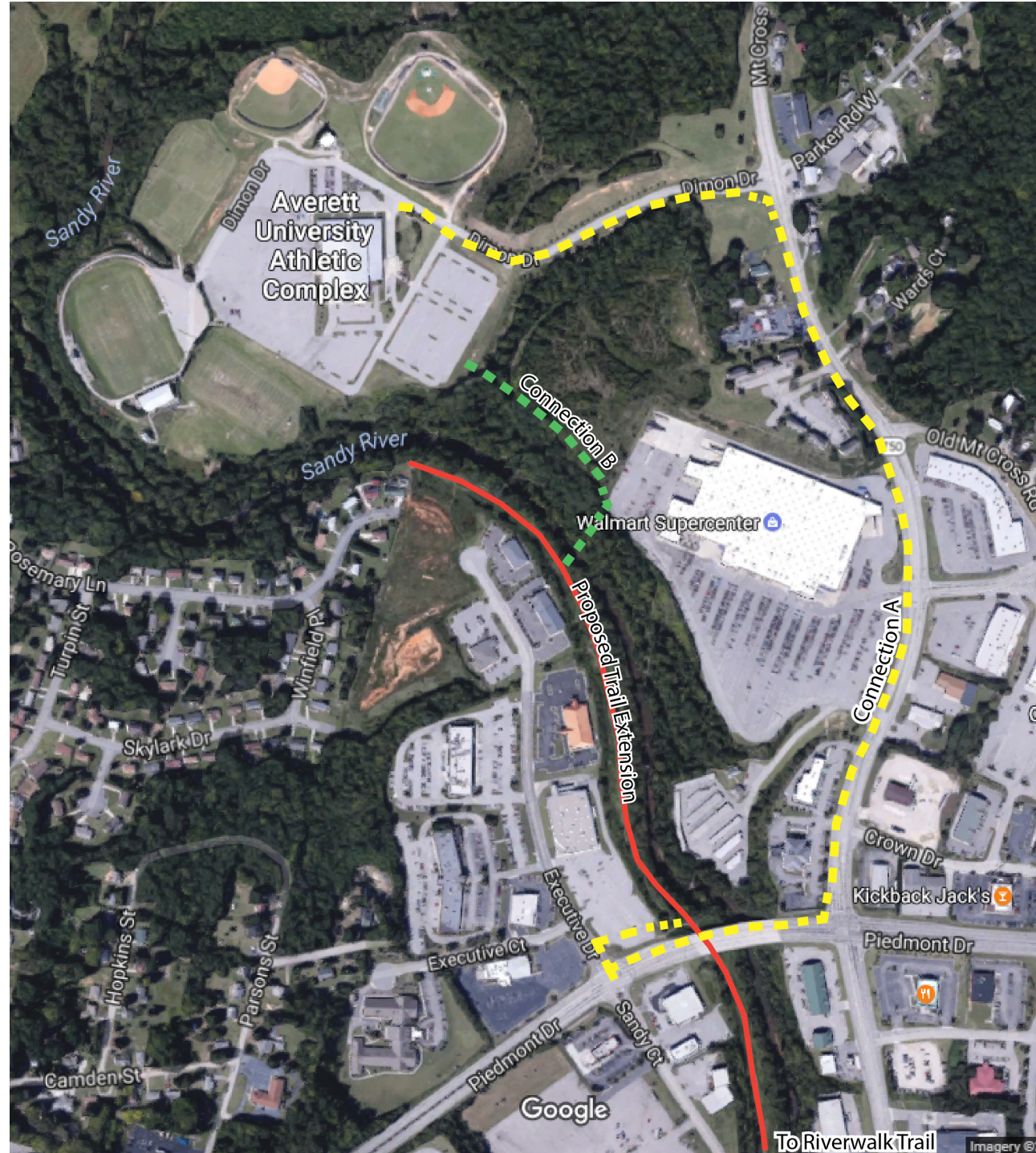
## Other Considerations

### Multi-Use Trail Extension (Long Term)

The City's future trail plans include a proposed trail on the west side of the Sandy River, along an existing dirt road. If built, this trail could potentially tie into the City's Riverwalk Trail network and provide uninterrupted trail access to destinations along the Dan River, including the City's downtown River District.

There are two (2) potential locations to connect this trail with the study area and sports complex – labeled as Connections A and B in Figure 15 below. To note, each connection would be designed as a multi-use path and would require significant investment in a parallel pedestrian bridge.

Figure 15- Multi-Use Trail Extensions



## Special Event Management Techniques

- Deploy variable message signs during events to help channelize traffic along Mount Cross Road to and from Piedmont Drive. Currently, some attendees utilize Lowes Drive and Old Mount Cross Road where less roadway and turn-lane capacity is available.
- Expand the existing bus routes to serve the Athletic Complex, and formalize park-n-ride locations.
- Installation of a roundabout could potentially self-regulate event traffic.
- Develop signal timing plans for events that would provide longer green times for the traffic traveling to/from the University.



## Area-Wide Pedestrian Assessment

- Intersections in the study area lack pedestrian crossing features and no additional sidewalks are planned.
- Pedestrian features are important; however, they should be complemented with sidewalks.
- A comprehensive area-wide study should be considered to assess the feasibility of installing sidewalks within and around the study area.

Figure 16- Lack of Sidewalks



# Public Meeting Summary

A public meeting for the Mount Cross Road Corridor Analysis was held on Wednesday, April 19, 2017 at the Averett University Athletic Complex in Danville, Virginia. The meeting was organized as an open-house format and was open to the general public from 3:30 – 6:30 pm.

The goal of this meeting was for the public to 1) learn about the study, 2) review preliminary ideas and concepts, and 3) share their improvement ideas. Attendees were encouraged to provide feedback that would either affirm the proposed strategies or offer suggested changes that would enable the strategies to be more effective. Representatives from VDOT, the Danville Metropolitan Planning Organization (MPO), and project consultants were available to explain materials, answer questions, and record feedback. Information boards were set up in the meeting space that presented the following subjects:

**COMMUNITY MEETING**  
Mount Cross Road Corridor Study - Danville, VA

**Project Description**  
Mount Cross Road, between Piedmont Drive and Dimon Drive, is an important commercial corridor providing access to Averett University's Sports Complex, Lowes, Walmart, and many restaurants and other commercial interests. Daily and special event traffic during the week and weekends has increased, in addition to walking and bicycling. This Corridor Study will compliment ongoing planning efforts and identify improvements for better access to sporting events associated with the Sports Complex, as well as balance transportation needs of local residents and businesses, and regional traffic through the City of Danville.

Are you comfortable driving, walking, and biking along Mount Cross Road?  
Are you a transit user?  
What are your transportation priorities?

**Please Join Us!**  
Wednesday, April 19, 2017  
3:30 - 6:30 PM  
Averett University North Campus (Athletic Complex)- Grant Center  
707 Mount Cross Road, Danville, VA  
Open house starts at 3:30 PM. Format will include presentation boards and interactive workshops.

**Your views are important!**  
You're Invited!  
Learn about the study.  
Review preliminary ideas and concepts.  
Share improvement ideas.

Sponsored by the Danville-Pittsylvania MPO/West Piedmont Planning District Commission, City of Danville, Virginia Department of Transportation (VDOT), and the Federal Highway Administration (FHWA)

- Information about the study
- Summary of existing and future conditions
- General information on roundabouts (what they are, how they operate, how they are safer)
- Roundabout concept recommendation
- Lowes Drive intersection recommendation
- Transit recommendations
- Other considerations

Table-top maps, comment sheets and a video created by VDOT were also available for participants. The meeting was attended by approximately 15 people, including residents and staff from the City of Danville and Averett University. There were also several local news organizations that covered the meeting.

As expected, most of the attention focused on the proposed roundabout at Dimon Drive / Parker Road West. Overall, feedback was very positive; however, a couple residents who live along Parker Road West expressed concerns over the ability of drivers to understand how to properly use a roundabout. Other comments were directed towards how to make the roundabout more effective from an access and circulation perspective. It was further suggested the City undergo extensive outreach and provide educational materials on roundabouts, prior to implementation.

## Public Comments

The following public comments were written on comment sheets that were provided at the meeting, written on one of the boards, or emailed during the approximate two (2) week comment period:

*I think the issues is one that most definitely needs addressing. I have to both football games and graduation ceremonies at Averett and parking traffic is always a concern – especially before and after the events. I think the roundabout is a great option. However, I would suggest police presence at events to be sure people follow the pattern,*

*obey signs and reflective stickers would be appreciated. Possibly, a stop light with turning lane as an option? Possibly a second entrance/exit?*

*Excellent data and very informative. More training on the roundabout.*

*I think the roundabout is ok. Would need signs to help older people – hard to break old habits.*

*Looking forward to this happening. I've see and been through quite a few roundabouts and I'm a big fan. Hopefully more these will happen in the City soon.*

*I think the idea of a roundabout is great. There will be some initial confusion here by some, but they will adjust. In Italy, they have them everywhere! It slows traffic but keeps it moving. As Averett grows, more traffic will be in that area and this will be much better than a traffic light because it will keep the traffic moving. I will encourage others who feel the same to contact you. Thank you for the opportunity to comment.*

*Not comfortable with a roundabout. Feel like it would be more difficult to get out of Park Road West. Would prefer a traffic signal.*

*Design roundabout to consider truck parking at the gas station. Truck access and circulation at gas station is a concern.*

*I attended the event yesterday afternoon at Averett University North Campus to learn about the most recent plans for widening this corridor. I am writing today to let you know that I have been a fan of roundabouts for a very long time. They are safer than other traffic control devices, save time, fuel and, in this particular application, when Averett has a large event, traffic ingress and egress will be self-regulating. This proposal also solves the alignment issues with Dimon Dr and Parker Rd West. I understand that there is some citizen opposition to the proposal, but I feel that this is due to a lack of knowledge in general, and experience in particular with roundabouts. They are opinions that will certainly change within a few days of actual use. From the drawings, it appears that the plans may still need some tweaking. Large vehicles coming from the north may not be able to drive on to that property (gas station) without some modification or alteration to curbing or driveways, however, that seems a minor thing that should be able to be overcome without burdensome expense while still maintaining the integrity of the design and promoting maximum safety. I want you to know that I have been not only impressed, but encouraged throughout all of the design phase hearings because property owner and end user input has been considered and changes made to plan and design based on that input.*

*Good idea. I lived in Kuala Lumpur for 5 years. KL used roundabouts extensively. They do keep traffic flowing and are easy to use if one thinks of a clock face, i.e. in at 6/out at 9 (for a left turn), etc. I know of only one traffic circle in Danville now - in Forest Hills. From my observations, no one entering yields to traffic already in the circle which is contrary to the law I believe (to my knowledge there are no "yield to traffic in the circle" signs). Maybe not so bad after all considering Danville created the "Danville Merge". Good luck on your efforts. I truly hope it works out with signage and education.*



*I am a citizen of Danville and would like to tell you how much I hope the roundabout goes through. That is the perfect option for this, or any other location, for that matter. We have more than enough signal lights now, and I have used them in Lynchburg and Durham, they're great. I hope everyone stands their ground and not listen to the whiners, as they are probably the same people that still DON'T KNOW HOW TO MERGE. I also hope one is put at Tunstall high rd. and Mt. cross, I saw where it may be proposed.*

# Funding Opportunities

**Table 4- Smart Scale Funding**

Smart Scale	
Purpose	SMART SCALE is a statewide program that intends to distribute funding based on a standard and objective evaluation of projects that will determine to how effectively they help the state achieve its transportation goals.
Funding	There are two main pathways to funding within the SMART SCALE process—the construction District Grant Program (DGP) and the High Priority Projects Program (HPPP). A project applying to funds from the DGP is prioritized with projects from the same construction district. A project applying for funds from the HPPP is prioritized with projects statewide. The CTB then makes a final decision on which projects to fund.
Eligible Projects	Projects must address improvements to a Corridor of Statewide Significance, Regional Network, or Urban Development Area (UDA). Project types can include highway improvements such as widening, operational improvements, access management, and intelligent transportation systems, transit and rail capacity expansion, and transportation demand management including park and ride facilities.
Eligible Applicants	Projects may be submitted by regional entities including MPOS and PDCs, along with public transit agencies, counties, cities, and towns that maintain their own infrastructure. Projects pertaining to UDAs can only be submitted by localities.
Evaluation Criteria	There are five factors evaluated for all projects: Safety, Congestion Mitigation, Accessibility, Environmental Quality, and Economic Development. MPOs with a population greater than 200,000 are also evaluated by land use policy consistency.
Website	<a href="http://www.vasmartscale.org/">http://www.vasmartscale.org/</a>

**Table 5- Highway Safety Improvement Funding**

Highway Safety Improvement Program (HSIP)	
Purpose	Established by the federal transportation legislation MAP-21, this program is structured and funded to make significant progress in reducing highway fatalities and injuries on all public roads.
Funding	The Federal share for highway safety improvements is 90%, with certain types of projects (including, as relevant to this study, maintaining retro-reflectivity of pavement markings and the installation of traffic signs) eligible to be funded at 100%. If project cost is higher than what was originally submitted, the project manager and sponsor will be responsible for identifying sources for funding those estimates.
Eligible Projects	Projects involve the identification of high-crash spots or corridor segments, an analysis of crash trends and existing conditions, and the prioritization and scheduling of improvement projects.
Eligible Applicants	Local governments, VDOT District and Regional Staff.
Evaluation Criteria	<ul style="list-style-type: none"> <li>• Evaluated on a statewide basis rather than on a local or district basis.</li> <li>• Locations or corridors where a known “substantive safety” problem exists as indicated by location-specific data on severe crashes, and where it is determined that the specific project action can with confidence produce a measurable and significant reduction in the number and/or consequences of severe crashes.</li> <li>• To achieve the maximum benefit, the focus of the program is on cost- effective use of funds allocated for safety improvements.</li> <li>• Priority will be given to projects having higher total number of deaths and serious injuries.</li> </ul>
Website	<a href="http://www.virginia-dot.org/business/ted_app_pro.asp">http://www.virginia-dot.org/business/ted_app_pro.asp</a>

**Table 6- Transportation Alternatives Funding**

Transportation Alternatives Program (TAP)	
Purpose	This program is intended to help local sponsors fund community based projects that expand non-motorized travel choices and enhance the transportation experience by improving the cultural, historical, and environmental aspects of transportation infrastructure. It focuses on providing pedestrian and bicycle facilities and other community improvements.
Funding	TAP is not a traditional grant program and funds are only available on a reimbursement basis. It is therefore important to have the necessary funding available to pay for services and materials until appropriate documentation can be submitted and processed for reimbursement. The program will allow a maximum federal reimbursement of 80% of the eligible project costs and requires a 20% local match.
Eligible Projects	<ul style="list-style-type: none"> <li>• Pedestrian and bicycle facilities such as sidewalks, bike lanes, and shared use paths</li> <li>• Pedestrian and bicycle safety and educational activities such as classroom projects, safety handouts and directional signage for trails (Safe Routes to School)</li> <li>• Preservation of abandoned railway corridors such as the development of a rails-to-trails facility</li> </ul>
Eligible Applicants	Any local governments, regional transportation authorities, transit agencies, natural resource or public land agencies, school districts, local educational agencies, or school, tribal government, and any other local or regional government entity with responsibility for oversight of transportation or recreation trails.
Evaluation Criteria	<ul style="list-style-type: none"> <li>• Number of federal enhancement categories</li> <li>• Inclusion in a state, regional, or local plan</li> <li>• Public/private venture-cooperation (multi-jurisdictional)</li> <li>• Total cost and matching funds in excess of minimum</li> <li>• Demonstrable need, community improvement</li> <li>• Community support and public accessibility</li> <li>• Compatibility with adjacent land use</li> <li>• Environmental and ecological benefits</li> <li>• Historic criteria met, significant aesthetic value to be achieved and visibility from a public right of way</li> <li>• Economic impact and effect on tourism</li> </ul>
Website	<a href="http://www.virginia-dot.org/business/prehancegrants.asp">http://www.virginia-dot.org/business/prehancegrants.asp</a>

**Table 7- Revenue Share Funding**

VDOT Revenue Share Program	
Purpose	This program provides additional funding for use by a county, city, or town to construct, reconstruct, improve, or maintain the highway systems within such county, city, or town and for eligible rural additions in certain counties of the Commonwealth. Locality funds are matched, dollar for dollar, with state funds, with statutory limitations on the amount of state funds authorized per locality.
Funding	Application for program funding must be made by resolution of the governing body of the jurisdiction requesting funds. Project funding is allocated by resolution of the CTB. Project costs are divided equally between the Revenue Share Fund and locality funding.
Eligible Projects	<ul style="list-style-type: none"> <li>• Supplemental funding for projects listed in the adopted in the six-year plan</li> <li>• Construction, reconstruction, or improvement projects not including in the adopted six-year plan</li> <li>• Improvements necessary for the specific subdivision streets otherwise eligible for acceptance into the secondary system for maintenance (rural additions)</li> <li>• Maintenance projects consistent with the department’s operating policies</li> <li>• New hardsurfacing (paving)</li> <li>• New roadway</li> <li>• Deficits on completed construction, reconstruction, or improvement projects</li> </ul>
Eligible Applicants	Any county, city, or town in the Commonwealth
Evaluation Criteria	<ul style="list-style-type: none"> <li>• Priority 1: Construction projects that have previously received Revenue Sharing funding</li> <li>• Priority 2: Construction projects that meet a transportation need</li> <li>• Priority 3: Projects that address deficient pavement resurfacing and bridge rehabilitation</li> <li>• Priority 4: All other projects</li> </ul>
Website	<a href="http://www.virginiadot.org/business/local-assistance-access-programs.asp#Revenue_Sharing">http://www.virginiadot.org/business/local-assistance-access-programs.asp#Revenue_Sharing</a>

**Table 8- Maintenance Funding**

VDOT Road Maintenance	
<p>The VDOT Road Maintenance category of funding covers a wide variety of maintenance and operations activities. Road maintenance funds comprise the majority of VDOT’s scheduled funding (versus new construction). Road maintenance funding addresses needs having to do with pavement management, signals, pavement markings, signs, stripes, guardrails, and ITS (Intelligent Transportation Systems) assets that are considered to be of critical safety and operational importance. Maintenance funding also addresses operation services comprising ordinary and preventative maintenance work such as cleaning ditches, washing bridge decks, patching pot-holes, debris removal, snow and ice removal, emergency response, incident management, mowing, and equipment management.</p>	

**Table 9- Proffer Funding**

Development Proffer	
Purpose	Developer contributions, known as proffers, provide one source of funding for capital facilities. Proffers are typically cash amounts, dedicated land, and/or in-kind services that are voluntarily granted to the locality to partially offset future capital facility costs associated with specific land developments. Recent legislation has limited the ability of local governments to receive proffers, but through the rezoning process developers may still consider providing infrastructure improvements
Funding	The cost of the program can be financed with developer contributions.
Eligible Projects	<ul style="list-style-type: none"> <li>• Rezoning requests that permit residential and/or commercial uses in accordance with this policy</li> <li>• Limited to offsetting impacts that are directly attributable to new development</li> <li>• To "require" a proffer, a county must have completed an exhaustive study to document the real project costs</li> </ul>
Eligible Applicants	Any land developers seeking a rezoning

**Table 10- TIGER Funding**

Transportation Investment Generating Economic Recovery (TIGER)	
Purpose	The TIGER Discretionary Grant program provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve national objectives.
Funding	Since 2009, Congress has dedicated nearly \$4.6 billion for annual rounds of TIGER to fund projects that have a significant impact on the Nation, a region or a metropolitan area. The last year (2016) totaled nearly \$500 million made available for transportation projects across the country in the eighth round of the highly successful and competitive grant.
Eligible Projects	Innovative projects, including multi-modal and multi-jurisdictional projects, which are difficult to fund through traditional federal programs.
Eligible Applicants	TIGER can provide capital funding directly to any public entity, including municipalities, counties, port authorities, tribal governments, MPOs, or others in contrast to traditional Federal programs which provide funding to very specific groups of applicants (mostly State DOTs and transit agencies).
Evaluation Criteria	Applicants must detail the benefits their project would deliver for five long-term outcomes: safety, economic competitiveness, state of good repair, quality of life and environmental sustainability. DOT also evaluates projects on innovation, partnerships, project readiness, benefit cost analysis, and cost share.
Website	<a href="https://www.transportation.gov/tiger">https://www.transportation.gov/tiger</a>