Fairfax Campus

GEORGE MASON UNIVERSITY

Transportation Master Plan

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version 14a

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Executive Summary

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George Mason University has experienced tremendous growth throughout its history and in recent years. While this growth is a key element of the excitement and energy at George Mason University, it also presents many unique challenges and opportunities for all aspects of the institution. Transportation to, from, and within the University and surrounding community is no exception. Serving the mobility needs of future students, faculty, staff, visitors, and event patrons in ways that promote the environmental, social, and financial sustainability of the University has not historically been a component of individual building projects or program expansions. This transportation plan has been developed to establish a framework for the orderly improvement of transportation systems on the campus to respond to the growth that has taken place over the past years and to set a course as the University continues to grow.

This transportation master plan identifies policies, programs, and projects intended to improve facilities and services that balance the needs of the various populations and user groups. The plan defines a transportation strategy and outlines a transportation improvement program to guide implementation of the plan in an organized and consistent way. The plan also explores partnerships with surrounding governments and agencies where the interests of the University overlap with the interests of these organizations. Additionally, the plan explores options for establishing a transportation improvement fund to support implementation of the plan recommendations.

Planning Process

In order to develop a transportation master plan that equitably serves the needs of the entire campus community, an inclusive, collaborative planning framework was established.

The Transportation Master Plan was developed through a collaborative process, engaging representatives of the surrounding community and specific interests within the University community. The project was managed by a joint team of Facilities Administration and Parking and Transportation. This management team provided guidance and direction to the planning process which was also informed by a broad stakeholder group. Decision making within the plan was informed by input from the University's Executive leadership.

The planning process included phases of information gathering; data analysis and system review; identification of needs and potential projects; and development of an improvement plan, priority list, and potential implementation program. The phases and steps of the process are outlined below.

1. Information Gathering
   a. Identification of Strengths , Weaknesses, Opportunities, and Threats (SWOT)
   b. Collection of existing programmatic and infrastructure data
2. Data Analysis/System Review
   a. Review of Pedestrian and Bicycle Facilities
   b. Analysis of Transit and Shuttle Systems
   c. Roadway Capacity Analysis
   d. Analysis of Parking Demand and Supply

3. Definition of Transportation Needs
   a. System Requirements
   b. Project Goals
4. Identification of Potential Improvement Projects
   a. Preliminary Review
   b. Concept Development
5. Development of Transportation Improvement Plan
   a. Project Groupings
   b. Aggregation by System
6. Project Prioritization
   a. Prioritization Rationale
   b. Priority Groupings
7. Transportation Improvement Program
   a. Implementation Mechanisms
   b. Funding Scenarios

Guiding Principles

Early in the planning process, a set of guiding principles was developed to balance the need for transportation improvements with the financial, economic, and social requirements of the University community. These principles are intended to provide a framework for setting transportation priorities, evaluating potential improvement projects, and balancing competing interests.

1. Mobility Choices
   a. Reinforce transportation options through infrastructure investment to support pedestrians, bicyclists, and transit while continuing to accommodate automobile traffic and parking need in a reasonable way.
   b. Reinforce transportation options through programs and policies that support sustainability and alternative transportation using pricing incentives, marketing, and cooperation with the surrounding communities as tools.
2. Land Use Decisions
   a. Coordinate campus land use and transportation decision-making to minimize the need for extensive infrastructure improvements and to minimize conflicts between transportation operations and university life.
3. Parking
   a. Design facilities consistent with campus master plan safety, ecological, and aesthetic goals.
   b. Use innovative parking management and policies to reduce demand and improve operations.

4. Environmental Sustainability
   a. Support campus sustainability initiatives through low-impact development, alternative transportation, and clean fuel initiatives.
   b. Manage campus access, travel demand and parking to avoid exacerbating traffic congestion on campus and in surroundings areas.
5. Financial Sustainability
   a. Use cost to help inform decisions on transportation investment, particularly when considering investments that continue reliance on automobiles and those that reinforce the use of alternative modes.

Project Goals

In order to translate the guiding principles into specific recommendations for individual transportation improvement projects, a set of project goals was developed for each transportation system.

1. Pedestrian Network
   a. Connectivity: make walking a viable means of travel on and around campus
   b. Safety: reduce hazards and threats including conflicts with vehicular traffic
   c. Legibility and Consistency: create identifiable, understandable walkways
   d. Hierarchy: develop facilities scaled and designed to reflect corridor significance
2. Bicycle Network
   a. Connectivity: establish routes to meet demand
   b. Context: provide options for commuting and recreation
   c. Compatibility: minimize conflicts with pedestrians and motorized vehicles
3. Shuttles and Transit
   a. Connectivity: provide service to desired destinations
   b. Convenience and Availability: provide useful stops and a reasonable schedule
   c. Information: provide tools to empower informed transportation decisions
   d. Perception: make service "feel" safe, reliable, and convenient
4. Roadway Network
   a. Mobility: maintain a connected network, with congestion minimized to the extent possible
   b. Compatibility: avoid overbuilding campus roadways and maintain an appropriate scale for the campus context
   c. Balance: provide campus streets that meet the needs of all users including transit pedestrians and bicycles
   d. Orientation: provide clarity for visitors through road design and wayfinding

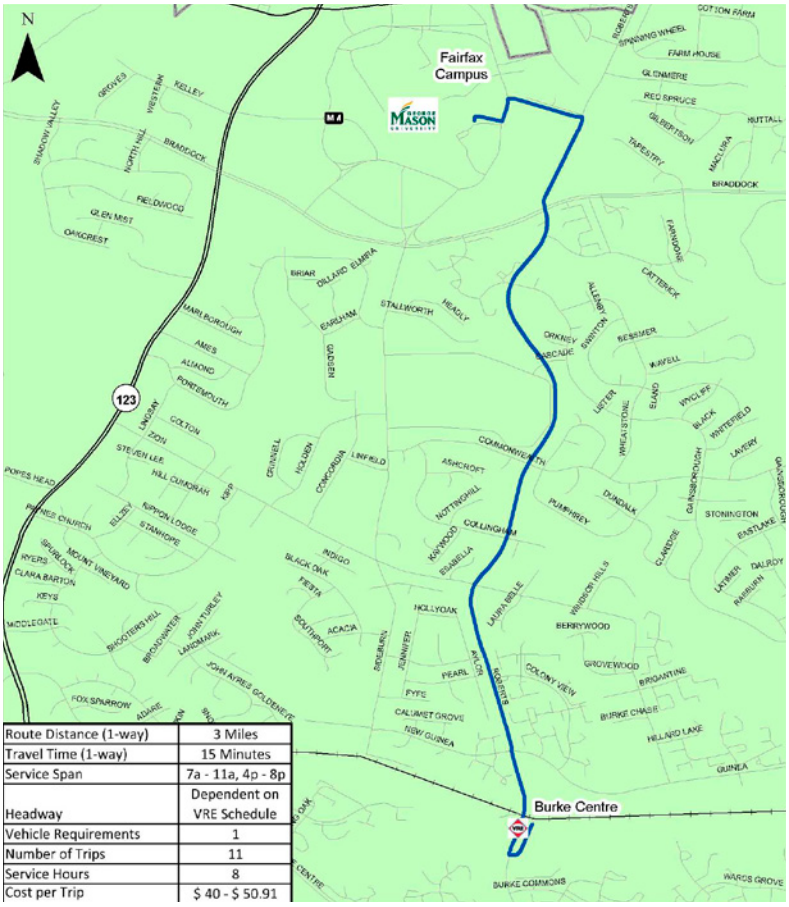
5. Parking System
   a. Sustainability: minimize land, financial, and environmental impacts of new parking facilities
   b. Flexibility and Efficiency: serve many users on a given day through aggressive parking management measures

Improvement projects or policy changes meeting one or more of these project goals were advanced through conceptual design and analysis.

Improvement Priorities

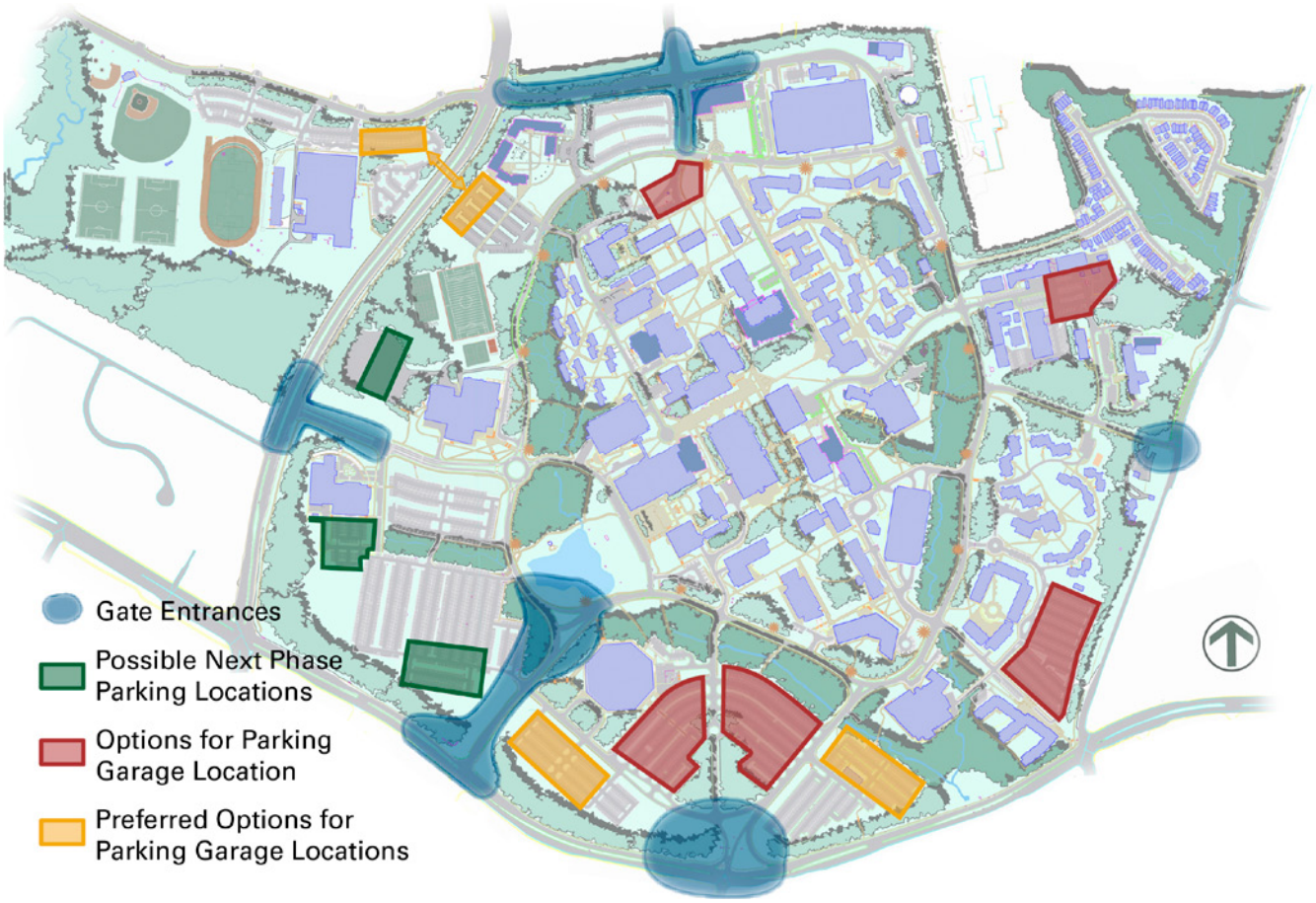
The stakeholders, project team leadership, and an executive committee were consulted on priorities for transportation improvements and transportation system-based prioritization scheme was selected. The systems were then rank-ordered by priority.

1. Transportation Programs and Policies: to minimize transportation demand, provide options for use of transit, walking and bicycling. These include an aggressive transportation program including a substantial marketing campaign and increased incentives for transit use and carpooling. Transit and shuttle expenses are also a part of this program. One shuttle service showing promise is a connection to the Burke VRE station as shown in the following exhibit



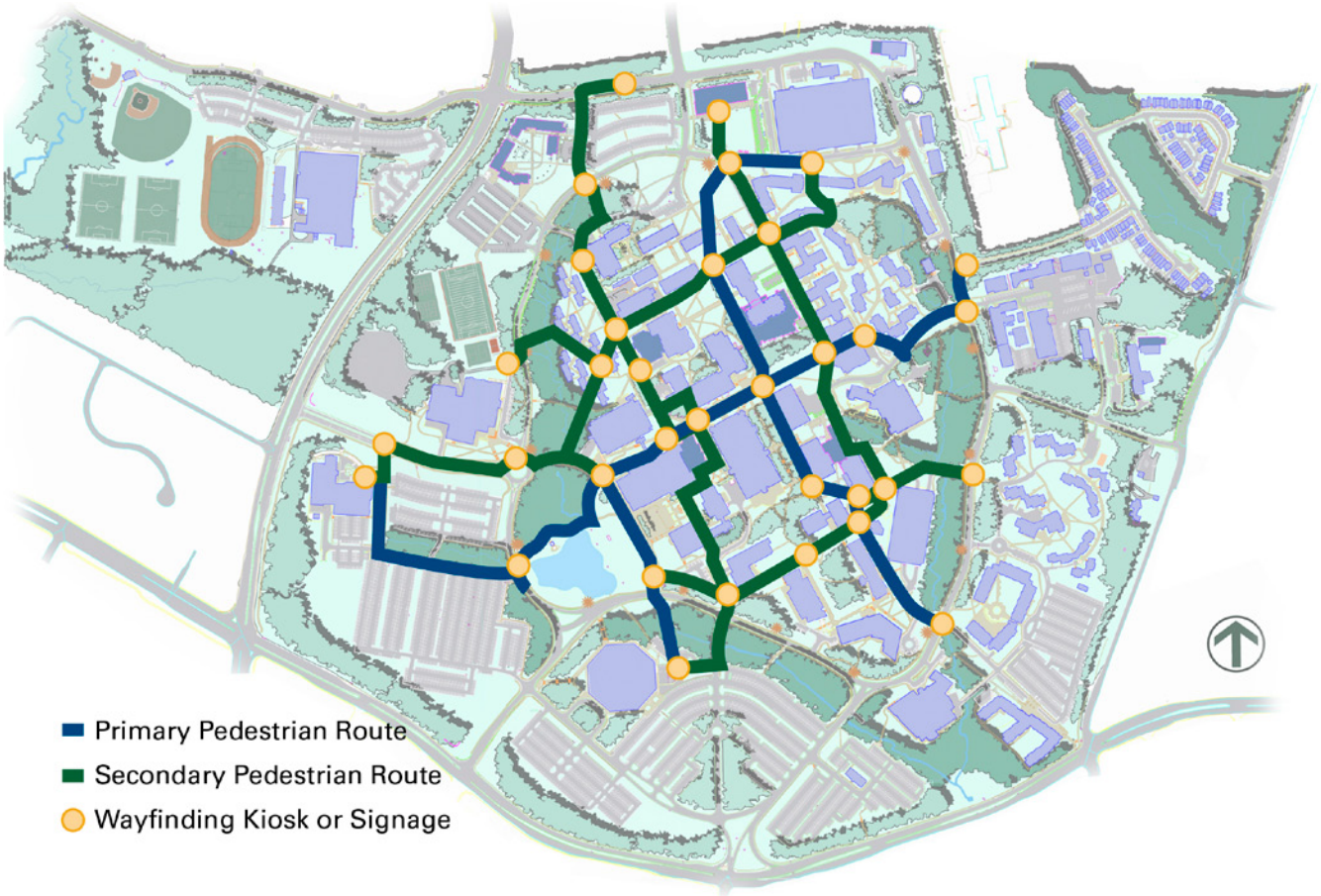
Potential Burke VRE Shuttle Route

2. Campus Entrance Improvements: to improve traffic function, pedestrian safety, aesthetics, and wayfinding.



Campus Entrance Improvements

3. Pedestrian System Improvements: to improve orientation on the campus, improve accessibility, address conflicts with other modes (cars, service vehicles, and bicycles), and connect campus neighborhoods with transit services and parking facilities.

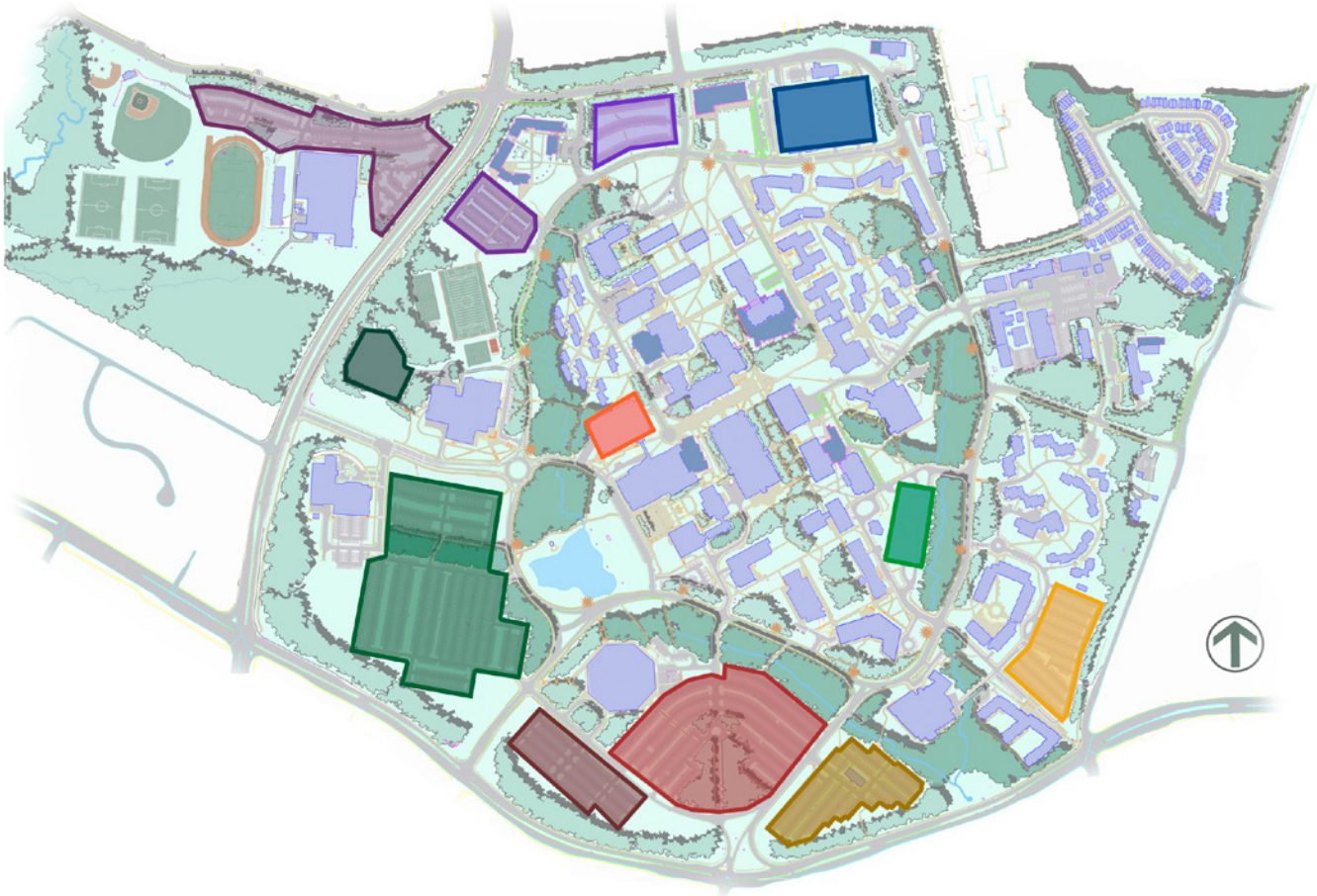


Proposed Pedestrian Network Hierarchy

4. Bicycle System Improvements: to provide a network of bicycle routes on the campus, support facilities such as secure storage and shower facilities, and create connections to surrounding bicycle facilities.

Bicycle Facility Improvements

5. Roadway and Parking Improvements: to address traffic congestion, minimize conflicts with pedestrian routes, provide event management flexibility, and manage parking so that major investments in future parking facilities can be deferred as long as possible.



Potential Parking Permit Zones

Potential Roadway/Parking Improvements

Aquia Creek Lane Schematic

Transportation Investment Needs

Not counting transportation investments implemented by partner agencies such as Fairfax County, VDOT, and the City of Fairfax, the plan identified approximately $116,000,000 of transportation infrastructure and program investments to be implemented over a period of time. These investments include several large-scale projects that will require their own, independent financing plans. These large projects include new parking structures estimated at approximately $70,000,000, West Campus Roadway improvements estimated at approximately $20,000,000, new roadways in the Southwest Sector of campus estimated at $5,000,000, Academic VII roadway improvements estimated at $1,300,000 and transit center improvements estimated at $1,800,000. The plan also includes approximately $18,000,000 of smaller-scale projects to be incrementally implemented over time. These projects include intersection modifications, parking management programs, transportation demand management programs, pedestrian and bicycle system improvements and new transit operations.

Some of these programs also result in potential cost savings and the generation of new revenue streams

Transportation Improvement Program Summary

Implementation of the improvement projects and policies can be accomplished through a variety of mechanisms. As an example, improvements can continue to be associated with capital facility improvements (i.e. buildings). Alternatively, a distinct set of funding strategies could contribute to a transportation improvement fund used to execute a multiyear investment program. Three improvement programs were developed based on the improvement priorities and assumptions about a low, baseline, and high level of funding. With a low level of funding ($750,000 per year), the majority of the program can be completed in about 17 years, with the baseline funding program, ($1,000,000 per year), the program takes 11 years to complete, and with a high level of funding, ($2,000,000 per year) the program is completed in less than 5 years. In all of these scenarios, additional revenues generated from the program and/or cost savings resulting from the program are reinvested into the program to accelerate completion of the projects. In any scenario, these investments need to be considered in the context of the University's regular parking and transportation and facility investment and management budgets. This is particularly the case as the projects that require independent financing (parking decks and major road improvements) are implemented, since those financing plans may affect the same revenue sources.

Alternatively, the University could consider a debt financed implementation of the transportation improvements. While such an approach would accelerate completion of the identified projects, it should be considered in combination with a long-term investment program so that future needs can be met in an organized way.

Planning Framework

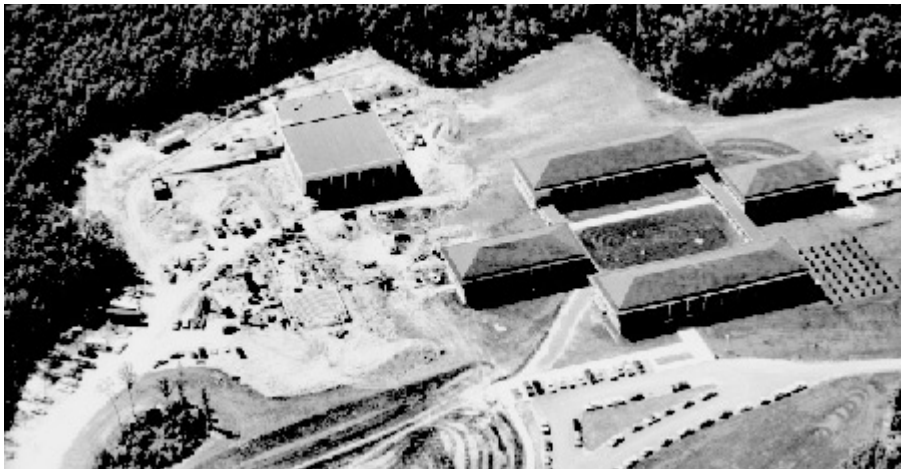
2

George Mason University is a dynamic higher education institution with three primary campuses, in Prince William County, Fairfax County, and Arlington County. Much like the region it serves, the University has grown rapidly over its history. While the academic program and physical infrastructure has expanded, planning and implementation of transportation facilities has lagged behind. This chapter of the Transportation Master Plan provides context for the transportation policy, program infrastructure and operation of the transportation system serving the Fairfax Campus.

Growth of George Mason University

Establishment and History

During its relatively brief history, George Mason University has experienced tremendous growth. From 1957 to 1972 it operated as the George Mason College of the University of Virginia. The first four buildings on the Fairfax Campus were completed in 1964, with an enrollment of 356 students, up from 17 students the first year.



The original four buildings, the library and Lecture Hall under construction.

In 1966, George Mason became a four-year college, conferring its first undergraduate degrees in 1968. When Mason became an independent University in 1972, student enrollment had grown to 4,166.

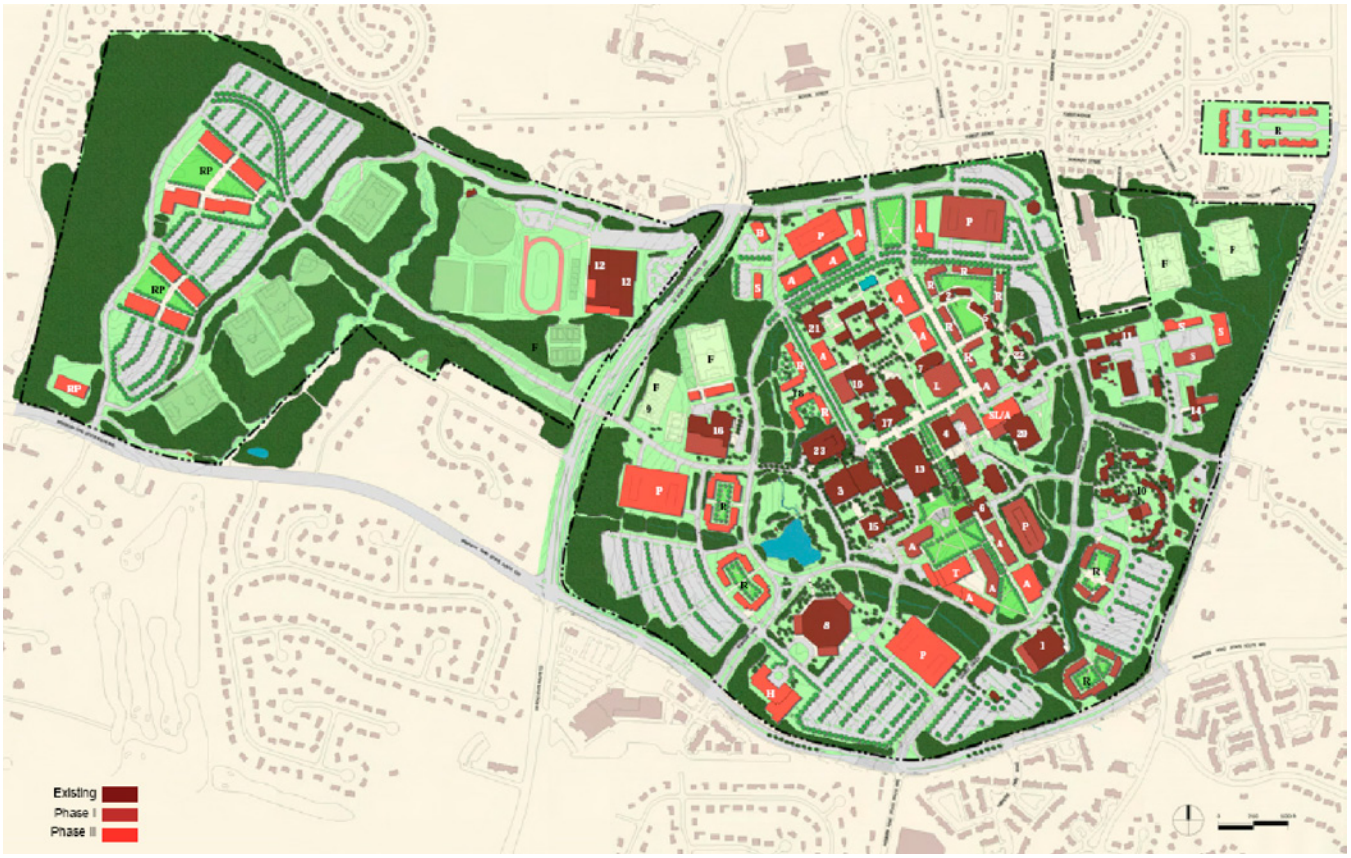
As a branch of the University of Virginia, George Mason naturally served as a commuter-oriented school. Through its conversion to a four-year University and early expansion, GMU remained focused on commuter students. While student housing was constructed in 1977, and more was added in 1981, the majority of students continued to live off-campus.

In 1979, the University expanded with the Law School campus in Arlington, and in 1995 started work on the Prince William Campus.

By 2004, enrollment at the Fairfax Campus had reached 22,328 students. For the fall semester of 2010, total full-time enrollment for all campuses topped 32,000 students. Of these, nearly 5,400 students lived on the Fairfax Campus.

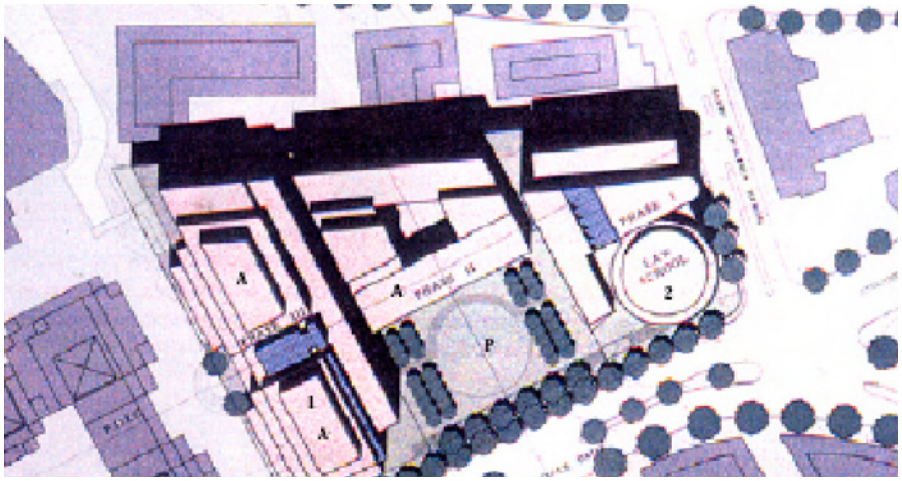
Future Growth

George Mason University has positioned itself as a world-class institution and rapid growth in programs and enrollment is anticipated to continue. A Space Needs Analysis prepared for the University in 2009 projects enrollment on the Fairfax Campus to grow by approximately two percent per year through 2020. The Space Needs Assessment projects a 2020 Fairfax Campus enrollment of 29,925 students, an increase of more than 5,000 students over current conditions.

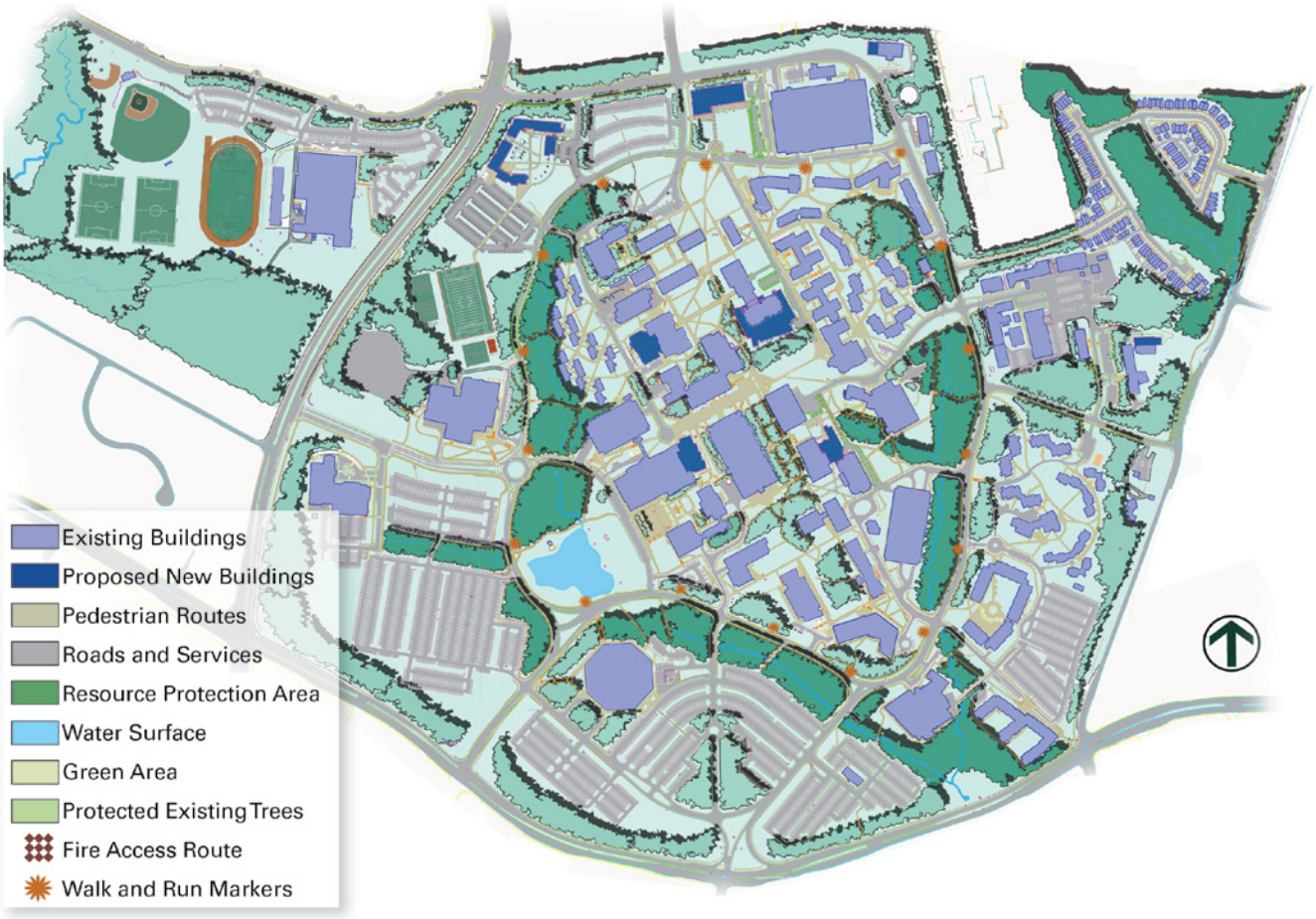


Fairfax Campus Plan – 2002 University Master Plan, Sasaki Associates

Prince William Campus Plan: 2002 University Master Plan, Sasaki Associates



Arlington Campus Plan: 2002 University Master Plan, Sasaki Associates



5-10 Year Building Projections – 2009

The University Master Plan, updated in 2002 by Sasaki Associates, is intended to guide the future growth of George Mason. In addition to concepts of expanded facilities on the Fairfax Campus, master plans of the Arlington and Prince William Campuses are included. Further detailed study and design of areas pending development/redevelopment is conducted through precinct plans. Sector plans of the northeast, southwest, and north sectors have been prepared since the 2002 Master Plan. In contrast to the precinct planning process, this Transportation Master Plan is a system plan, not a geographic-focused plan.

Regional Transportation Context

Roadways

The Fairfax Campus of George Mason University is located primarily in Fairfax County along the north side of Braddock Road. Ox Road (Route 123) passes through the campus. The campus is immediately adjacent to the City of Fairfax, and the area is served by a mature network of major roadways, including U.S. Route 50, U.S. Route 29, the Fairfax County Parkway, and Route 236. Route 123 connects with Interstate 66, approximately 2.5 miles to the north. Braddock Road provides a major east-west connection between Centreville and Annandale and connects with the Capital Beltway (I-495) approximately 5.0 miles to the east.

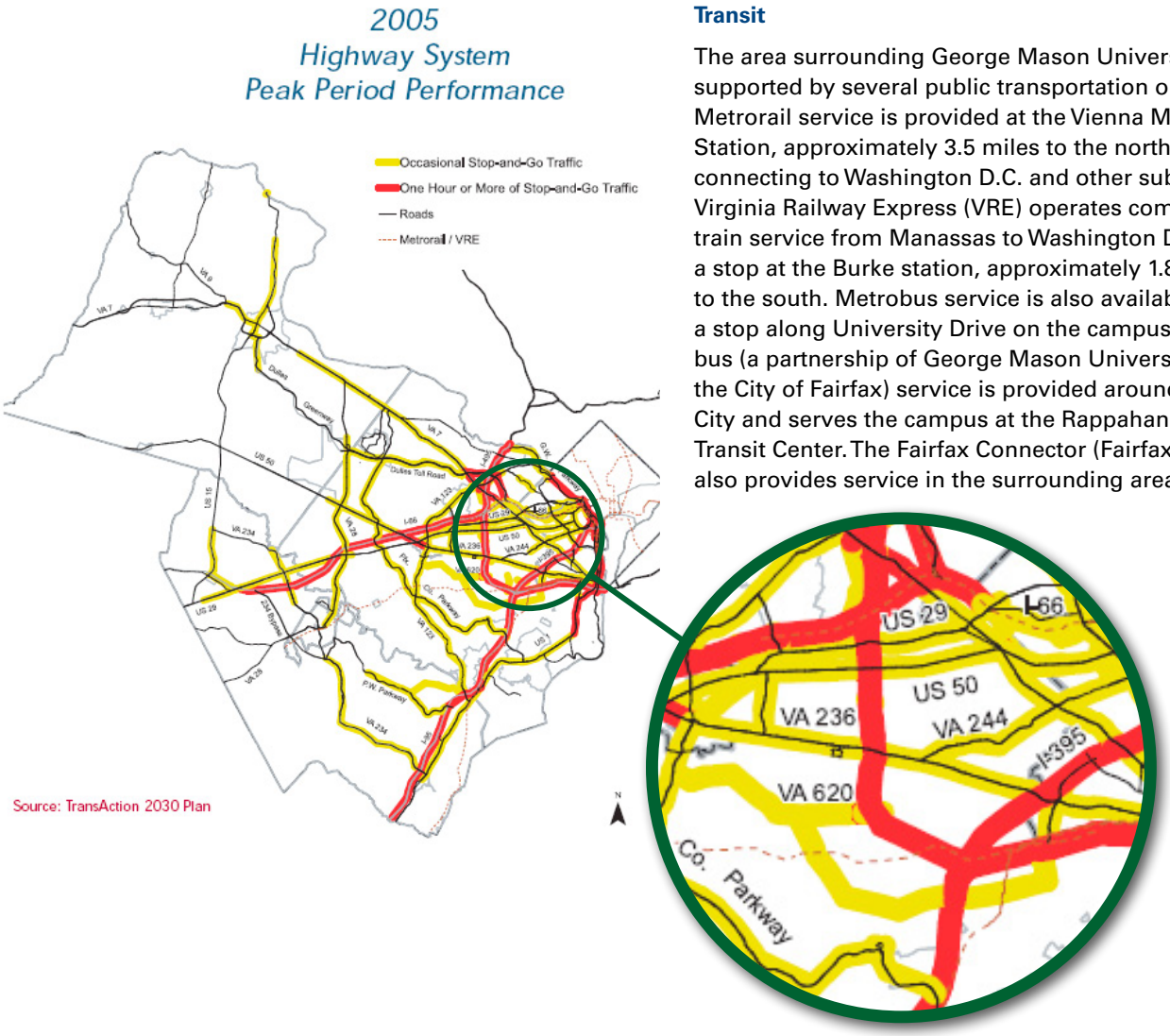
Traffic congestion in the Washington metropolitan area is among the worst in the nation, with the area currently ranking fourth in the country for time lost to congestion. The majority of the major roadways in Northern Virginia experience peak hour travel delays, including Route 123 and Braddock Road. The intersection of Route 123 with Braddock Road is among the most congested in Fairfax County, and a grade-separated interchange for this location is included in the County's Comprehensive Plan. Initial planning for the interchange is currently underway.

With these regional characteristics, access to the Fairfax Campus by automobile is the most prevalent form of transportation connection for commuting travel and for access to shopping and other community amenities.

However, despite the number of lane-miles of major roadways surrounding the campus, mobility is restricted during peak commute times, making access to the campus by car difficult.

This situation is unlikely to improve. The region continues to grow at a faster pace than the rest of the nation and investment in the transportation network is unlikely to keep pace with this growth.

In addition to the accessibility limitation imposed on the University, this traffic congestion has a negative impact on the quality of life for nearby residents



Source: TransAction 2030 Plan

Transit

The area surrounding George Mason University is supported by several public transportation options. Metrorail service is provided at the Vienna Metro Station, approximately 3.5 miles to the north, connecting to Washington D.C. and other suburbs. Virginia Railway Express (VRE) operates commuter train service from Manassas to Washington D.C., with a stop at the Burke station, approximately 1.8 miles to the south. Metrobus service is also available, with a stop along University Drive on the campus. CUE bus (a partnership of George Mason University and the City of Fairfax) service is provided around the City and serves the campus at the Rappahannock Transit Center. The Fairfax Connector (Fairfax County) also provides service in the surrounding areas.

CUE bus service consists of four routes: two Gold and two Green. The Gold Routes serve the Vienna Metro Station, Fairfax Boulevard, the Kamp Washington area, the Fairfax Judicial Center, George Mason University, and Old Lee Highway. The Green Routes serve the Vienna Metro Station, Nutley Street, Fairfax Circle, Pickett Road, Main Street, George Mason University, Route 123, and Fairfax Boulevard. As a feeder bus system, CUE buses accept Mason ID and Metro SmarTrip Cards, as well as prepaid CUE fare tickets.

To augment these public transportation options and serve areas frequented by students, Mason operates the Mason Shuttles program. The Mason-to-Metro shuttle operates between the campus and the Vienna Metro Station, which is also served by CUE service. The Gunston Go-Bus provides shuttle service to area shopping attractions. The Campus Circulator operates along Patriot Circle and the West Campus Shuttle travels between the Sandy Creek Transit Center, the Field House and west campus parking lots. The Fairfax/Prince William Shuttle stops at Manassas Mall, as well as on the two campuses.

Despite with the availability of a number of public transportation options of varying scales, large sections of Northern Virginia and the region are not accessible by transit service. Transfers between two or more modes or operators are often required to reach those destinations that are served by transit.

Bicycling

Bicycling is a viable option for accessing the campus from surrounding neighborhoods. Although bicycling along the major road corridors in the surrounding areas is unpleasant there are several off-road paths and more hospitable bicycle routes providing access to the campus. Some examples of these include off-road paths on Braddock Road, Route 123, and George Mason Boulevard. Additionally the University has recently collaborated with Fairfax County and VDOT to construct a bicycle trail on Roberts Road along the east edge of campus. These connections provide links to shopping and dinning opportunities in Old Town Fairfax and to surrounding residential communities.

Walking

Walking is also a viable option for accessing campus from the immediately adjacent neighborhoods. Pedestrian connections are possible into the Masonvale, Fairfax Villas, Chancery Park, Green Acres, Crestmont, Sideburn Road, Kelley Drive, and Roberts Road neighborhoods. These connections are strongest to the neighborhoods in Fairfax City on the north side of the campus.

Stakeholder Process

Project Leadership

The planning effort was jointly led by the Campus Planning Group of the University Facilities Administration and the Parking and Transportation group. This leadership group was supported by an Executive Committee that included senior University leadership and a broadly-defined stakeholder group.

Stakeholders

In order to support an inclusive, collaborative transportation planning effort, representatives of key groups within the University community and from the surrounding communities and agencies were involved in the process. These stakeholders were identified and consulted during the initial phases of information gathering efforts. They were involved throughout the process via a series of progress meetings and input sessions.

Representatives of various University departments, as well as students, were included in outreach efforts:

- Facilities Administration
- Athletics
- Public Safety
- Administration and Finance
- Events Management
- Faculty Senate
- Staff Senate
- Student Government
- Patriot Center
- Parking and Transportation
- Center for the Arts

External stakeholders consisted of governmental representatives of surrounding communities:

- City of Fairfax
- Fairfax County
- Virginia Department of Transportation

SWOT Analysis

Once the stakeholder groups had been established, initial outreach efforts began with interviews to identify the Strengths, Weaknesses, Opportunities, and Threats related to transportation to and around campus. A series of conversations with small groups of stakeholders was conducted in the month of January. These conversations involved the planning team and three to four individual stakeholders. The discussion was facilitated through a discussion guide aimed toward covering a range of topics with each group.

This SWOT analysis formed the starting point for determining transportation challenges, needs, interactions and potential solutions. Each component of the SWOT analysis was defined for the various transportation modes (pedestrian, bicycle, transit, roadways, and parking). The results of the SWOT analysis for each transportation system are presented in the detailed discussions in Chapters 3 and 4.

Meetings

Throughout the process of data gathering, analysis, project identification and refinement, and plan preparation, the stakeholders were updated regularly through meetings. Progress updates were provided, with specific

focus on new work efforts, and input was elicited from the attendees. Beyond the initial meeting and SWOT interviews in January and February 2010, progress was reviewed at four distinct points in the planning process. Typically, stakeholder meetings were held on two successive days to permit maximum participation and be as inclusive as possible.

Stakeholder meetings during the development of the Parking and Transportation Master Plan were held on the following days:

- January 27, 2010
- February 3 and 9, 2010
- March 24, 2010
- May 4 and 5, 2010
- June 15 and 16, 2010
- August 3 and 4, 2010

An additional meeting to review the draft PTMP with stakeholders prior to finalizing the document was held on December 14, 2010.

The involvement of the stakeholders in the collaborative PTMP process was invaluable. Stakeholder input provided significant background information, access to a depth of experience, verification or elimination of potential improvement projects, and insights on varying (and sometimes conflicting) priorities

Data Collection

As a part of the information gathering phase of the planning process, a large-scale data collection effort was conducted. Traffic counts, bus operation and usage data, parking counts, building and program data, and future space needs were collected or assembled.

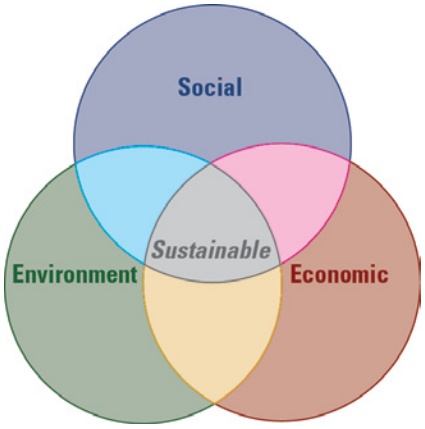
Counts of vehicular, pedestrian, and bicycle traffic were conducted at 24 intersections around and serving Patriot Circle between 7:30 a.m. and 10:30 p.m. Similar counts were performed at 10 major intersections around the perimeter of campus during the same time period. Additionally, counts of pedestrians were conducted at 13 other non-intersection locations. Finally, vehicular traffic only was counted over a 24-hour period at the main entrances to campus.

Parking occupancy data was collected for the 10 major surface parking lots and all three parking garages on campus between 7:30 a.m. and 8:00 p.m. Additionally, overnight parking counts were conducted at several key locations. The parking supply in each facility was verified by user group (i.e., general permit, handicap, etc.).

Transit observations were performed on every Mason Shuttles route between 8:00 a.m. and 6:00 p.m. Arrival and departure times, adherence to schedules, passenger loads, and environmental factors were noted.

Information on building sizes, academic and support space utilization, and future space needs was also obtained from the University for review and use in the analysis.

Financial and Environmental Sustainability



Sustainable Development Scheme (based on an image by Johann Dréo, March 9, 2006)

Sustainability efforts have received increasing attention in recent years, particularly those related to the environment. A significant focus of those efforts has been the reduction of greenhouse gas emissions.

However, sustainability involves more than environmental resources. Sustainable development must successfully meet environmental, social, and economic needs. Decisions on meeting one of the needs impact the ability to continue to satisfy other demands

Financial Sustainability

In recent years, public universities have struggled with significant declines in state funding support. Academic programs, faculty and staff levels, and extracurricular activities have been cut while tuition rates have increased. In this fiscal environment, maintaining programs that are financially sustainable is critical.

In the past, George Mason University was more commuter-oriented and served a large number of working students. This focus resulted in the popularity of late afternoon and evening classes and the construction of large surface parking lots. With increasing enrollment, provision of cheap parking for every student is not financially sustainable. Surface parking lots for over 30,000 students, plus faculty and staff, would occupy a large proportion of the campus land area and require subsidies at the expense of other programs and services.

Mason's efforts to increase on-campus student housing reinforces a trend toward a more complete campus environment and supports the financial sustainability of the University. The shift away from surface parking lots to structured parking garages reduces the consumption of land area dedicated to the temporary storage of cars. While positive from a land-use perspective, the expansion of parking structures places a significant strain on University finances. The financial burden associated with large parking structures also affects the campus community that must fund these structures through parking fees. As such, the transportation plan needs to identify ways to reduce parking and transportation demand, coupled with financial strategies to support program and infrastructure investment.

Environmental Sustainability

The University is committed to pursuing carbon neutrality and organizational sustainability and has signed the American College and University Presidents' Climate Commitment. Mason is in the process of forming a Sustainability Council, along with an Executive Steering Committee and Working Groups, to integrate sustainability activities throughout the campus community. The University is also developing a Climate Action Plan (CAP) to identify steps to achieve climate neutrality.

Current GMU policies that support environmental sustainability include:

- Minimum LEED® Silver design standard for all new buildings
- All new equipment must be Energy Star compliant, if available
- Commuter benefits for full-time faculty and staff taking public transportation
- Free local bus service to Mason students, faculty, and staff
- Flexible work options

Supportive/marketing efforts include:

- Patriot Green Fund
- Greening George Mason
- Bicycle resource marketing

Environmental sustainability efforts are relevant to the transportation plan, as they share several mutually-supportive goals. Some objectives common to both efforts include:

- Continued efforts to reduce automobile commuting
- Encouragement of walking and biking
- Linkage to health and wellness on campus

Campus Improvement

Moving the University toward a sustainable future also involves improving the built environment on campus. Creating a more complete campus setting, where more needs are met locally, reduces transportation requirements and impacts. Efforts supporting an improved campus environment include:

- Pedestrian safety enhancements
- New and upgraded bicycle facilities
- Building improvements
- Increased housing
- Gathering space improvements
- Signage and wayfinding efforts

Triple Bottom Line

Including ecological and social factors in decision-making, in addition to financial considerations, is known as triple bottom line accounting. Respecting and balancing these "three pillars," also known as people, planet, profit; leads to the sustainability and success of an institution. In the case of George Mason, the three bottom lines can be expressed as:

1. Improved financial performance
2. Reduced environmental impact
3. Better experience for the campus community

Guiding Principles

The need to balance the social, environmental, and financial requirements of the University, while planning for its continued growth, leads to a set of guiding principles. These principles are intended to provide a framework for setting transportation priorities, evaluating potential improvement projects, and balancing competing interests.

An over arching transportation goal of these principles is the reduction of single-occupant vehicle (SOV) travel to and around campus. When students, faculty/staff and visitors drive alone, impacts to roadway, parking and environmental resources increase. Thus, a goal of reducing the proportion of SOV travel by 10 percent has been articulated by Mason and is incorporated in this plan.

These guiding principles support and inform:

1. Mobility Choices
   a. Reinforce transportation options through infrastructure investment to support pedestrians, bicyclists, and transit while continuing to accommodate automobile traffic and parking need in a reasonable way.
      - Pedestrians – Continuous, accessible, and legible pedestrian path system
      - Bicycles – Connections and amenities
      - Transit – Coherent system integrated within campus
      - Automobiles – Vehicular network that provides access while minimizing modal conflicts

   b. Reinforce transportation options through programs and policies that support sustainability and alternative transportation using pricing incentives, marketing, and cooperation with the surrounding communities as tools.
      - Establish campus-wide sustainability goals for transportation
      - Provide mobility choices across modes
      - Leverage parking pricing and restrictions to affect behaviors
      - Implement a formal Transportation Demand Management (TDM) program
      - Enhance constituent education/communication programs

2. Land Use Decisions
   a. Coordinate campus land use and transportation decision-making to minimize the need for extensive infrastructure improvements and to minimize conflicts between transportation operations and university life.
      - Locate new facilities that are walkable to diversity of campus activities
      - Prioritize future development and strategies to take advantage of under utilized parking or shared parking opportunities
      - Provide campus parking holistically rather than attempting to increase parking supply for each new building
      - Invest in transportation infrastructure to serve zones of need and support future expansion

3. Parking
   a. Design facilities consistent with campus master plan safety, ecological, and aesthetic goals.
      - Provide safe and convenient entrance/exit points
      - Minimize traffic, pedestrian and bicycle conflicts

- Respect and preserve aesthetic and ecological resources
- Develop facility scale and appearance consistent with campus architectural aesthetic
- Maximize opportunities to share parking resources among various users (employees, residents, visitors and event attendees)

b. Use innovative parking management and policies to reduce demand and improve operations.

- Deploy management systems to track facility use
- Install modern and innovative signage to manage traffic flow and wayfinding
- Use information technology to advise drivers regarding facility use and alternative options
- Consider policy restrictions (e.g. resident first-years) to limit parking demand
- Price appropriately to meet financial obligations and encourage demand reduction

4. Environmental Sustainability

a. Support campus sustainability initiatives through low-impact development, alternative transportation, and clean fuel initiatives.

- Adaptively plan and design transportation facilities and programs consistent with sustainability objectives to avoid increased traffic congestion on campus and in the surrounding community
- Include low-impact development and innovative stormwater management techniques on transportation infrastructure improvements
- Set goals and establish programs to reduce the percentage of population traveling to campus by automobile over time
- Set goals to increase use of clean fuels in vehicles and campus facilities

5. Financial Sustainability

a. Use cost to help inform decisions on transportation investment, particularly when considering investments that continue reliance on automobiles and those that reinforce the use of alternative modes.

- Carefully consider parking demand/supply relationships to avoid building more parking capacity than is needed
- Avoid new structured parking unless pricing policies support construction, operation, and maintenance of the facility
- Avoid any future locations requiring provision of new campus transit systems or significant recurring transportation investments

Existing and Future Baseline Conditions Assessment

3

Transportation to and around the Fairfax Campus can take place via automobile, regional transit service, Mason shuttles, bicycle, or on foot. The following sections outline the existing conditions, strengths and weaknesses, and outside factors impacting future operations of each of the following transportation systems:

- Pedestrian Network
- Bicycle Network
- Shuttles and Transit
- Roadway Network
- Parking System
- Travel Demand Programs and Policies

Pedestrian Network

Major pedestrian corridors are found along pathways in the North Plaza; between the Johnson Center, David King Hall, and the Science and Technology Buildings; along York River Road, Chesapeake Lane, and Mason Pond Drive; adjacent to Fenwick Library; between Mason Pond Drive and Lots J and K; and between Sandy Creek and Innovation Hall. Outside of the core, major pedestrian attractors include Presidents Park, the Recreation and Athletic Complex (RAC), Patriot Center, and several large parking lots. These attractions are accessible by walking along the existing pedestrian network of pathways, sidewalks, and crosswalks.

Pedestrian crossing counts indicated heavy pedestrian volumes at crosswalks cross Mason Pond Drive, in front of the Center of the Arts; across Patriot Circle, at Mattaponi River Lane, York River Road, Sandy Creek Way, Lots A and K, and the RAC; in front of the Aquatic and Fitness Center, and at the Mason Pond Drive traffic circle. Additionally, unique pedestrian conditions exist during special events at the Patriot Center and the Center of the Arts. Visitors to the Patriot Center typically walk between Lots A, L, K and J and the venue, while Center of the Arts patrons travel from the Mason Pond Parking Deck or Lots K and J.

Sidewalks and Pathways

There are few, if any, unpaved pedestrian desire lines in the more established areas on campus, suggesting that existing sidewalk and pathway alignments generally provide adequate access. Where desire lines have formed in the past, the University has strived to pave sidewalks or pathways to improve pedestrian accessibility.

Sidewalk and pathway connectivity, especially near recent construction, is less strong. Numerous sidewalks end abruptly, and several recently constructed sidewalks are not fully utilized by pedestrians. In particular, usage of the sidewalks serving the recently completed Art and Design Building is limited. Pedestrians opt to access the building by way of the hill adjacent to the loading dock. Connectivity is also ineffective along York River Road, between Patriot Circle and the Sandy Creek Parking Deck. Pedestrians frequently walk in the roadway instead of newly constructed sidewalks, suggesting that sidewalks and pedestrian desire lines are not consistent in this area.

Pedestrian accommodations along Aquia Creek Lane lack continuity. Sidewalks are provided along both sides of the street in some locations, on one side in others, and only away from the road in still others. Rather than the roadway serving as an orienting feature for pedestrians, it divides the walkways and introduces head-in parking that either relocates or discontinues the sidewalk.

Rivanna River Way also presents connectivity issues for pedestrians. The walkway along the south side of the street ends at the curb without a crosswalk or handicap ramp. Because this sidewalk is built on a tunnel top at a sharp angle with the roadway, it reappears on the north side some distance away. Another sidewalk in the vicinity of the Southside loading dock ends in a grassy area. This lack of connectivity combines with the presence of service and drop-off vehicles to present pedestrians with additional conflicts.

Even where pathways are complete and connected, challenges for mobility impaired individuals exist. The pathways within and leading to the Commons housing area present slope and stair difficulties. Continuing construction in the area of Lot H and Thompson Hall impact the already limited accessible pathway options, particularly near Aquia Creek Lane.

While it may appear remote initially, the Sandy Creek parking deck is convenient to the Patriot Center and patrons of events there are well-served with a direct walkway connection. This walkway connects with Mattaponi River Lane near its intersection with Patriot Circle. Due to the popularity of student parking in Lot A and the proximity to the campus core, large numbers of pedestrians cross at this location resulting in regular pedestrian/vehicular conflicts.

The continuation of Mattaponi River Lane as a loading dock access also interrupts this otherwise strong connection.

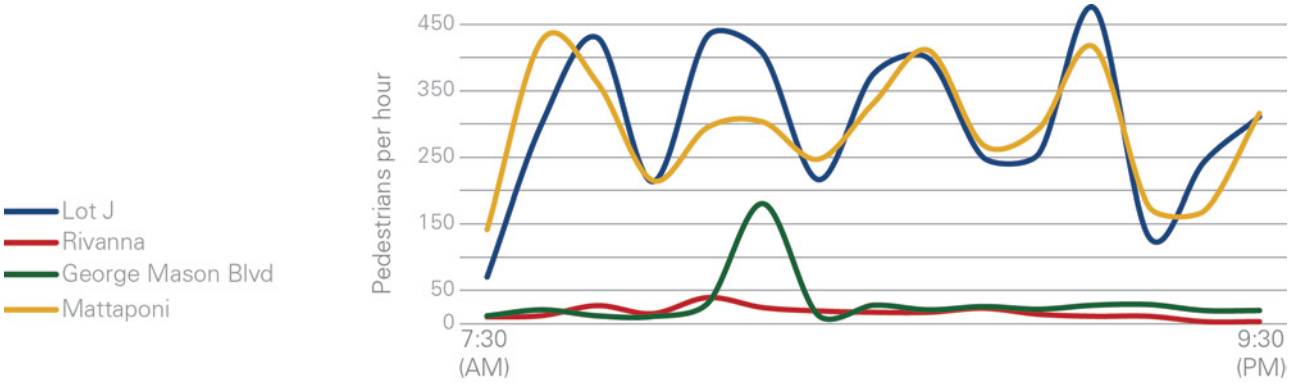
Chesapeake Lane functions as a dual-purpose corridor, serving pedestrian travel and service/delivery activities for Fenwick Library, two modules, and several student housing buildings. As such, conflicts with pedestrians occur in several areas. This wide north-south corridor connects with the North Plaza, making it an important link in the pedestrian network.

The North Plaza is the widest pedestrian facility on campus. This scale, and its unique paving pattern, reflects its place within the pedestrian network. Adjacent to the Johnson Center at the heart of the campus, the North Plaza serves as both a walkway and a gathering area. Connections are provided to multiple other pedestrian walkways.

Although it is clearly an important pedestrian space, the condition of the paving and frequent conflicts with service vehicles suggest that the plaza is an opportunity for improving the campus environment, particularly when paired with a potential extension to the south side building.

Patriot Circle Crossings

Given the arrangement of the general permit parking lots and the residential clusters outside Patriot Circle, large numbers of pedestrians must cross Patriot Circle daily. Lot A is a popular parking facility, given its proximity to the core of campus. As such, flows of pedestrians crossing Patriot Circle at Mattaponi River Lane are nearly continuous between classes.



Hourly Patriot Circle Pedestrian Crossing Variation

Connections to Off-Campus Locations

The proximity of downtown Fairfax and surrounding neighborhoods makes walking a viable mode of travel to and from the campus. To access fringe areas on campus, pedestrians use pathways or walk through parking lots. Although crosswalks are provided at all major signalized intersections along the perimeter of the campus, links to surrounding areas are limited and extremely vehicle-oriented.

Pedestrian Safety

Pedestrian-vehicle conflicts pose a significant pedestrian safety challenge on campus. A culture in which pedestrians expect motorists to yield to pedestrians is normal for a campus environment. Confusion on the part of visitors and inattentive drivers contribute to conflicts. Pedestrian-vehicle conflicts occur frequently at the following locations:

- Along pedestrian pathways. Service vehicles, golf carts and bicyclists conflict with pedestrians in the North Plaza and along pathways in proximity to Chesapeake Lane and Rivanna River Way. Fenwick Library, several academic buildings, and student housing lack well-defined vehicle access routes. As a result, pathways in these areas are generally shared spaces for pedestrians and vehicles. It is notable, however, that construction to create separate pedestrian and vehicle spaces near Fenwick Library is currently underway.
- Along Patriot Circle. Heavy vehicle and pedestrian volumes, vehicle speeds, inconsistent traffic control at intersections and crosswalks, and driver and pedestrian expectations contribute to numerous conflicts along this road. Several measures are currently in place to reduce conflicts along Patriot Circle. Marked crosswalks at intersections and mid block locations are provided to define pedestrian crossing locations and alert motorists to pedestrians. In Spring 2010, patrols were deployed at select locations to help direct vehicles and pedestrian. Speed humps are also present along some sections of Patriot Circle, which assist in reducing vehicle speeds near pedestrian crosswalks.
- Near the Rappahannock River Parking Deck and Chesapeake Lane. Pedestrian crossing locations are not well-defined in this area.
- At the Route 123 and University Drive intersection. Vehicle volumes, high travel speeds, and turning vehicles contribute to conflicts at this intersection.

- At the Braddock Road and Roanoke River Road intersection. This intersection serves as the main access to University Mall and Patriot Square. Vehicle volumes, high travel speeds, and turning vehicles also contribute to conflicts at this intersection. A crosswalk is not provided on the west to reduce conflicts with traffic in the free-flow, right-turn lane on the southbound approach.
- At the Mason Pond Drive roundabout. Pedestrians are not compliant with marked crosswalks at this roundabout; pedestrians were observed crossing both around and in the center island. The vertical alignment of Mason Pond Drive also limits sight distance of motorists approaching the traffic circle.

Signage and Markings

Pedestrian signage and pavement markings throughout the campus lack consistency. The varied sign and marking designs may lead to pedestrian and motorist confusion.

Accessibility

Several existing conditions impede pedestrian accessibility, particularly for those that are mobility or visibility-impaired. Uneven sidewalk and pathway surfaces pose tripping hazards and reduce accessibility. Pedestrian ramps and slopes are inconveniently located and sometimes obstructed by service golf carts. Crosswalks located at speed humps along Patriot Circle pose safety and access issues for mobility-impaired pedestrians.

Lighting and Security

Pedestrian-scale lighting on the campus promotes walking and improves safety during dark conditions. Lighting levels along pedestrian walkways and crosswalks are generally adequate. Low lighting levels remain in areas lacking pedestrian-scale lamps or where vegetation and landscaping may obscure lighting. The University conducts a George Mason Nightwalk each semester to determine areas where low lighting may pose a safety issue. Recent findings and field observations indicated that the following areas suffer from low lighting conditions:

- Presidents Park
- Student Union II
- West side of Patriot Circle
- North and east of the RAC
- West side of the central campus along Patriot Circle, especially north of the RAC, surrounded by RPA
- Braddock Road and Roanoke River Road intersection
- Chesapeake Lane near Dominion and University Commons
- The pathway between Presidents Park and Student Union II
- West Campus parking lot

In 2010, the University updated all streetlights with low-energy LED lighting. Some concerns about reduced light levels have been identified after implementation of LED lighting.

The George Mason Police Department also provides a complimentary Police Cadet Escort Service to ensure safe travel on campus. The services, however, are not frequently used and may be perceived as unreliable.

Housing VIII

Impact of Planned Projects

Several planned projects are expected to impact pedestrian circulation on campus. These projects and their anticipated impacts include:

- The Mason Inn—The Mason Inn is a 148-bed hotel and conference center which recently opened in July 2010. The proximity of this hotel and conference center to the core of the campus allows guests and event attendees to easily walk to other locations on campus. The Inn also offers guest access to the RAC, located within walking distance of the hotel. The Inn and Conference Center is expected to increase pedestrian travel along Mason Pond Drive and across Patriot Circle near the roundabout.
- Housing VIIIA—A 600-bed student housing complex is under construction in the former location of Lot H and is slated to open in 2011. Additional residential development is also planned in the area in the future. The completion of these residences will bring additional pedestrians to the northwest side of campus and across Patriot Circle, near Occoquan River Lane.
- University Hall—Upon completion, this administrative building will increase pedestrian traffic across Patriot Circle on the north side of campus.
- Fenwick Library expansion—As part of the library expansion project, a separate vehicle access road along Chesapeake Lane will be provided to reduce pedestrian-vehicle conflicts.

Strengths and Weaknesses Summary

The existing network of pedestrian facilities encourages walking as the primary means of travel within the George Mason University campus. A major strength of the existing pedestrian network, as determined through the SWOT analysis, is the number of connected links provided in the pedestrian-oriented core encircled by Patriot Circle. Within the core, accessibility between the Johnson Center, Nguyen Engineering, Lecture Hall, Student Union Building 1, and Fenwick Library is particularly strong.

Walking is also a viable method for travel to off-campus locations due to the proximity of downtown Fairfax and several neighborhoods. The strengths of the pedestrian network are shown in the following figure.

Pedestrian connections between the core and the rest of the campus, where the majority of parking exists, are facilitated by crosswalks along Patriot Circle. To support pedestrian safety along this roadway, police cadets assist pedestrian crossings at key crossing locations during peak periods.

Weaknesses of the pedestrian network consist of safety and accessibility issues. Pedestrian-vehicle conflicts occur frequently on campus, particularly along Patriot Circle. The inconsistent use of stop sign control at intersections and mid block crosswalks may contribute to these conflicts. Throughout the campus, several disconnected pathways and uneven surfaces hamper pedestrian travel. Despite the proximity of the campus to downtown Fairfax and surrounding neighborhoods, connections to nearby attractions are weak, and existing roadway links are largely vehicle-oriented. The intersections along Route 123, Braddock Road, and Roberts Road are particularly unfriendly to pedestrians. Although marked crosswalks and pedestrian signals are provided at these locations, large vehicle volumes and high travel speeds create a hostile environment for pedestrians.

Pedestrian Network
Strengths and Weaknesses

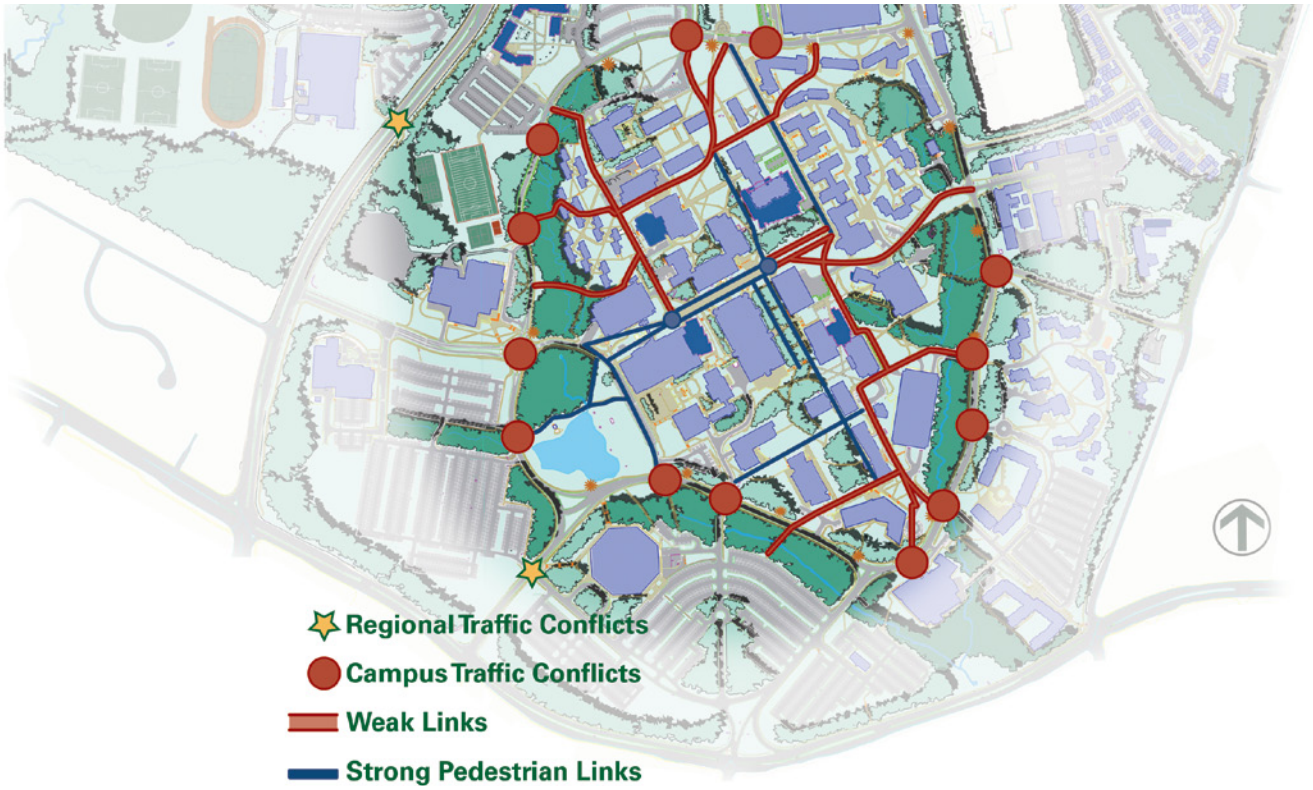
Strengths

- Johnson Center, Presidents Park, Student Apartments, SUB1/ Library Areas
- Cadet-protected crosswalks
- Compact campus
- Proximity to downtown Fairfax and neighborhoods

Weaknesses

- Links to surroundings areas
- Walking through parking lots
- Crossings of 123, Roberts Road and Braddock Road
- Wayfinding and orientation
- Localized lighting and security concerns
- Conflicts with bicycles and service vehicles
- Traffic conflicts on Patriot Circle
- Inconsistency of crosswalks and stop signs
- Pathway connectivity
- Consistency/suitability of walkway surfaces
- Sandy Creek Deck to Patriot Circle Connection
- Aquia Creek Lane
- No Sidewalk along north side of University Drive at Rt. 123

Pedestrian Network Strengths



Pedestrian Network Weaknesses

Bicycle Network
Strengths and Weaknesses

Strengths

- Fairfax County and City Bikeways
- Proximity to downtown Fairfax and neighborhoods
- Proximity to Vienna/Fairfax-GMU Metro Station
- University Drive/George Mason Blvd. connection to Fairfax
- Bikes on CUE bus and Mason Shuttles

Weaknesses

- Limited culture of bicycling
- High volume/High speed bordering streets
- Storage and support facilities
- Links to surrounding bike trails and surrounding areas
- Inconsistency of Mason to Metro trail
- Weak bike connections from south and west

Bicycle Network

Bicycling Within Campus

Bicycle volume counts confirmed that a limited culture of bicycling exists on campus. Along major routes between the core and the fringe areas along the perimeter of campus, relatively few bicycles were observed compared to pedestrian volumes. The existing network of bicycle pathways on campus is disconnected, and individual pathways are encumbered by steps and steep grades. Bicycling within campus has generally been discouraged due to potential conflicts with pedestrians and service vehicles.

In the summer of 2010, roadway improvements along Patriot Circle included the addition of bicycle lanes on both sides of the road. Bike lanes are now available on both sides of Patriot Circle throughout the majority of the campus. Gaps in bike lanes are still present along some portions of Patriot Circle and along major roads on campus.

Bicycling Off-Campus

Bicycling is encouraged as an alternative mode of travel between the campus and nearby, off-campus locations. The proximity of downtown Fairfax, surrounding neighborhoods, and the Vienna/Fairfax-GMU Metro station makes bicycling a viable method of travel. Bicyclists are able to take advantage of the bikeway network maintained by Fairfax County and Fairfax City. Bicycle storage facilities on campus are provided, but are limited to select locations. Shower and changing facilities are currently available at the RAC and the

Aquatics Center. Bicycle racks are also provided on all shuttles. To encourage bicycling, the University plans to install new bicycle shelters across campus and shower and changing facilities in University Hall and Fenwick Library.

Major roadways in proximity to the campus, however, are not bicycle friendly. Roadways are vehicle-oriented and carry a large volume of high-speed vehicles, and links to surrounding bike trails are poor. Bicyclist safety and accessibility are of concern at the following locations:

- Between the campus and Old Town Fairfax. The primary connection between campus and the City of Fairfax to the north along Route 123 lacks separate bicycle lanes. A wider sidewalk that could accommodate shared use is provided along the campus frontage and as far north as Judicial Drive. Similarly, the separate bicycle path along George Mason Boulevard extends only to the City Hall area. After this, bicyclist must travel in traffic.
- Between Fairfax and the Vienna/Fairfax-GMU Metro station. A bicycle route is provided between the City and the Vienna/Fairfax-GMU Metro station, however, it is comprised of an inconsistent path of shared vehicle and bicycle lanes, shared-use pathways or sidewalks, and trails.
- Along Roberts Road. A trail along the west side of the road between Braddock Road and Aspen River Drive was recently constructed to help alleviate safety concerns. Within the City of Fairfax, north of Forest Avenue, there are no bicycle lanes, and sidewalk widths are not sufficient to accommodate bicycles.

Several bicycle pathways and trails suffer from maintenance issues, and bicyclist wayfinding in the surrounding area can be limited and confusing.

Strengths and Weaknesses Summary

The existing bicycle network is strengthened by nearby bikeways, the proximity of local attractions, and bicycle facilities on transit vehicles. The bicycle network is, however, hampered by the limited bicycling culture on campus, a lack of bicyclist-friendly roads and facilities, and overall weak connections between major attractions. Table 2 summarizes the strengths and weaknesses of the existing bicycle network.

Shuttles and Transit

George Mason faculty, staff, and students have access to a variety of transit options, including CUE Buses, Metrobus, the Fairfax Connector, and a series of Mason Shuttles. Each of these providers focuses on a particular geography or population, although some service duplication is present.

CUE Bus Service

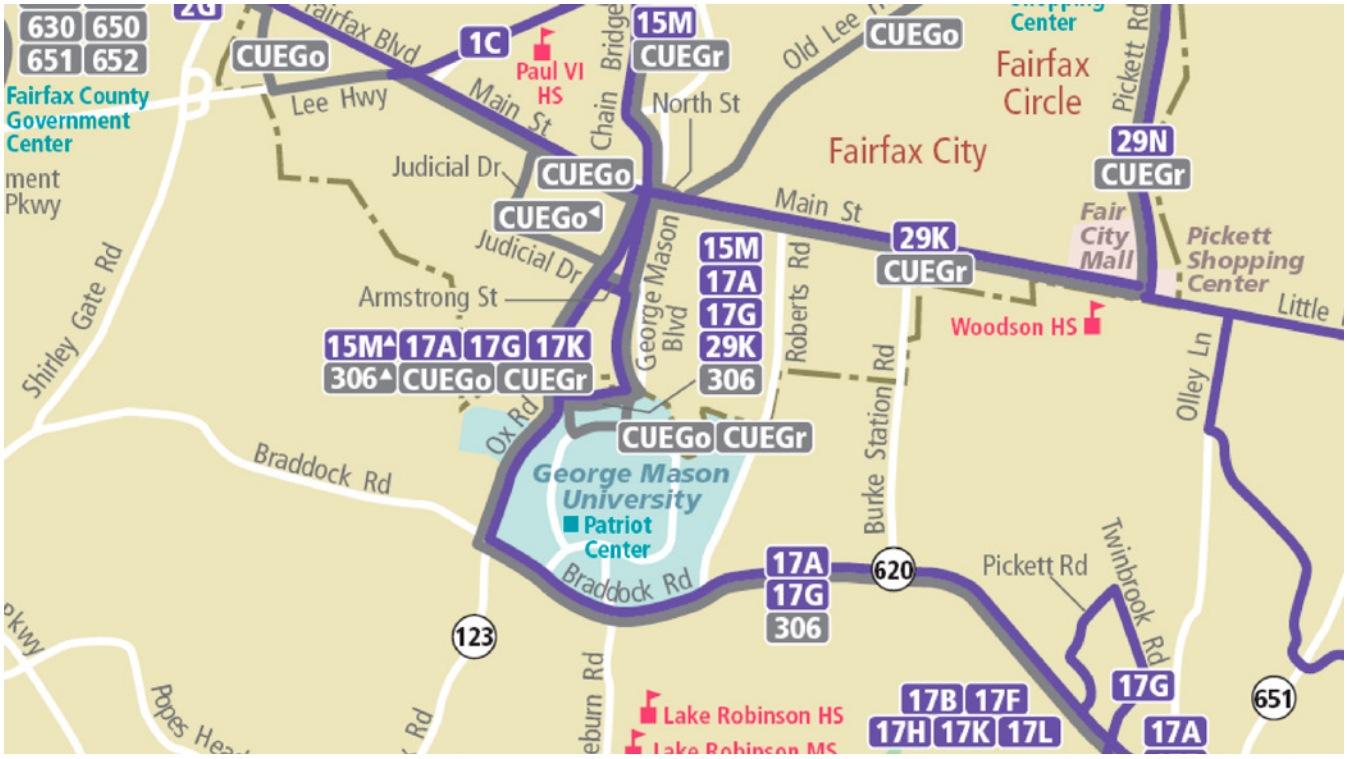
The CUE Bus is a partnership between the City of Fairfax and George Mason University. Service is comprised of four routes running between the Fairfax campus and the Vienna/Fairfax-GMU Metro station. Bus stops along these routes include several popular off-campus student housing areas in the City of Fairfax. The City of Fairfax operates the buses, with the assistance of substantial subsidies from the University. As such, patrons with a valid Mason ID ride for free, although other riders pay a nominal fare. In the past, the CUE has experimented with charging a reduced student fare of 25 cents, but plummeting ridership forced a return to fare free service.

The University's Mason-to-Metro shuttle and the CUE Buses both provide service to and from the Metro station. During peak periods, these routes typically reach capacities. Stakeholder feedback has suggested that the CUE Bus and Mason-to-Metro shuttle schedules are coordinated well, but these routes are not well coordinated with Metrorail or Metrobus schedules. Both the CUE Bus and the Mason-to-Metro Shuttle are free services offered to students, faculty and staff.

Cue Bus Map

Metrobus

Several Metrobus routes operate on the roadways bordering campus. The 15M (George Mason University-Tysons Corner Line) and 29K/29N (Alexandria-Fairfax Line), run along the north side of campus, with a stop at University Drive. The 17A/17G/17K (Kings Park and Kings Park Express Lines) operate along Braddock Road and also stop on University Drive and Armstrong Street.



Metrobus, Fairfax Connector, and CUE bus routes

Fairfax Connector

Similar to the Kings Park Metrobus Lines, the Fairfax Connector Route 306 (GMU-Pentagon Route) runs along Braddock Road, south of the campus, however there are plans to convert this route to a Metrobus route. There are no Fairfax Connector bus stops within the campus.

Virginia Railway Express

Currently, there are no connections to the Virginia Railway Express (VRE) despite the VRE Burke Center Station located just south of the campus.

George Mason University Shuttles

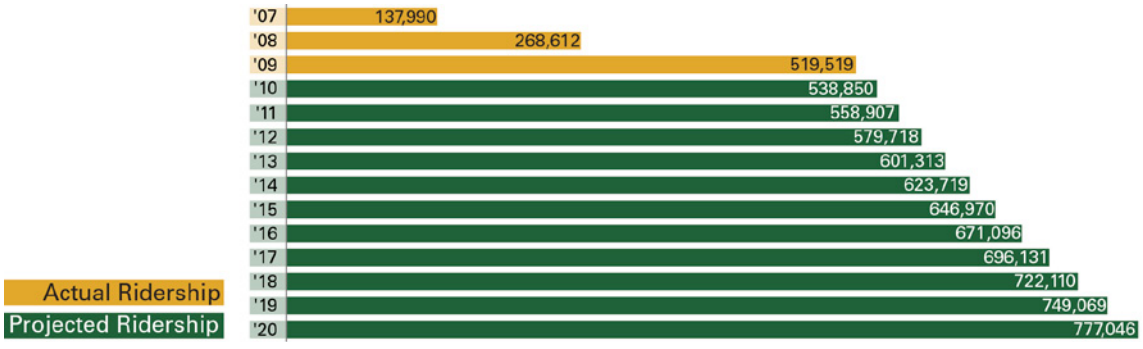
George Mason University has an extensive shuttle system which provides service within the Fairfax Campus, to the Vienna/Fairfax-GMU Metro Station and the Prince William Campus, and to nearby attractions including Metro service to the Arlington campus. These shuttle routes were changed in Fall 2010 and include the following:

- The Campus Circulator provides service within the campus and operates between 6 a.m. and 11 p.m. on weekdays. The shuttle runs on a clockwise route around Patriot Circle. There is no timetable for stops and headways are approximately 20 minutes.

- The West Campus Shuttle runs between Presidents Park, where most freshmen who live on campus reside, and the West Campus parking lot, where freshmen are required to park if they park a car on campus. This shuttle also has no timetable, and provides service to limited stops on 15-20 minute headways. The service is operated with a single bus weekdays from 7 a.m. to 1 a.m. and on Sundays from 2 p.m. to 1 a.m., with a second bus between 7 a.m. and 11 p.m. on weekdays.
- The Mason-to-Metro Shuttle provides service on half-hour headways between the campus and the Vienna/Fairfax-GMU Metro station. Weekday service is provided from 6 a.m. to 11 p.m. (3 a.m. on Fridays), Saturday service is from 8:30 p.m. to 3 a.m., and Sunday service is from 5:30 p.m. and 11:30 p.m. This route is heavily used by both commuters and campus residents, with an estimated annual ridership of at approximately 250,000.
- The Gunston Go Bus provides service to several shopping and dining destinations near the campus such as the University Mall, Fairfax Corner, Fair City Mall, and Fair Oaks Mall. The routes run every forty-five minutes between 3:00pm and 10:00pm. Prior to Fall 2010, the shuttles operated with half-hour headways, but field observations suggested that 30 minutes headways were difficult to maintain during peak hours, particularly the evening peak period.
- The Fairfax/Prince William Shuttle provides service between the Fairfax and Prince William campuses, with a stop at Manassas Mall. The shuttle operates between 6:30 a.m. and 10:30 p.m., with an advertised trip time of 45 minutes.

Ridership Trends

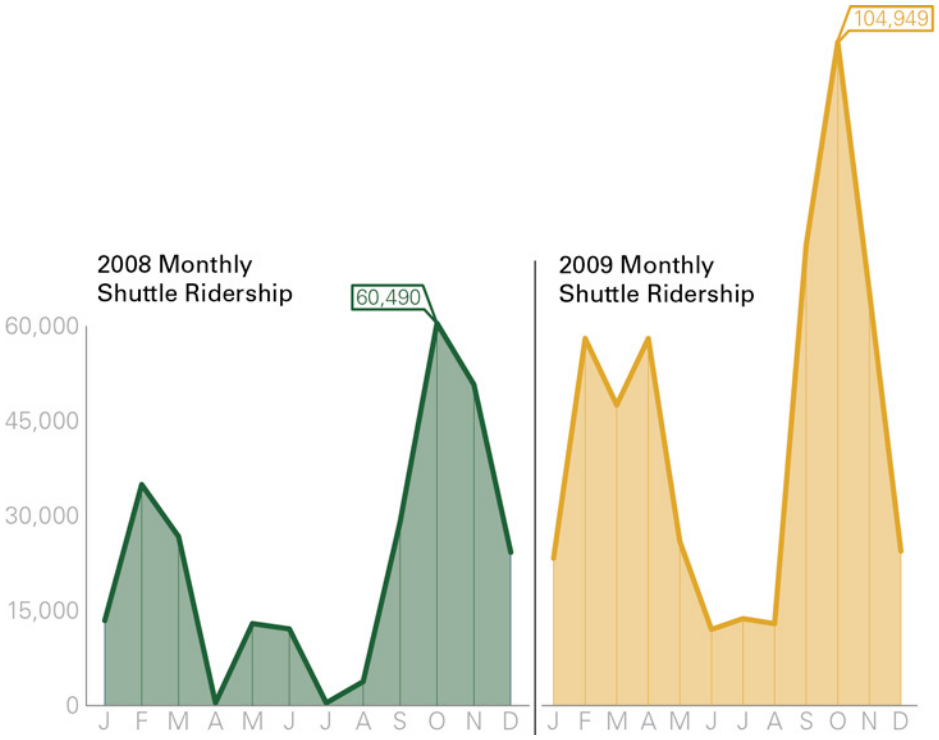
Annual shuttle ridership from 2007 to 2009 has risen dramatically from less than 150,000 trips to over 500,000 trips. Based on this growth, ridership has the potential to increase steadily to over 750,000 trips per year by 2020, as shown below.



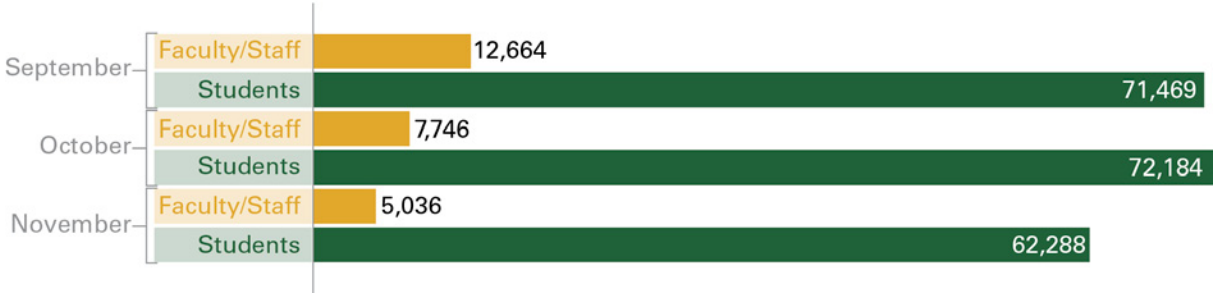
Existing and Projected Annual Shuttle Ridership Growth 2010-2020

Monthly shuttle ridership data suggest that ridership during the Spring and Summer semesters is lower than Fall ridership. Monthly shuttle ridership from 2008 and 2009 is shown in the following figure. It is important to note that data for the months of April and July in 2008 were unavailable. Holidays in January, March, November, and December also contribute to lower ridership during the winter and spring months.

At least 85 percent of riders during the Fall semester are students, while at most 15 percent of riders were faculty or staff. The breakdown of faculty, staff, and student ridership for

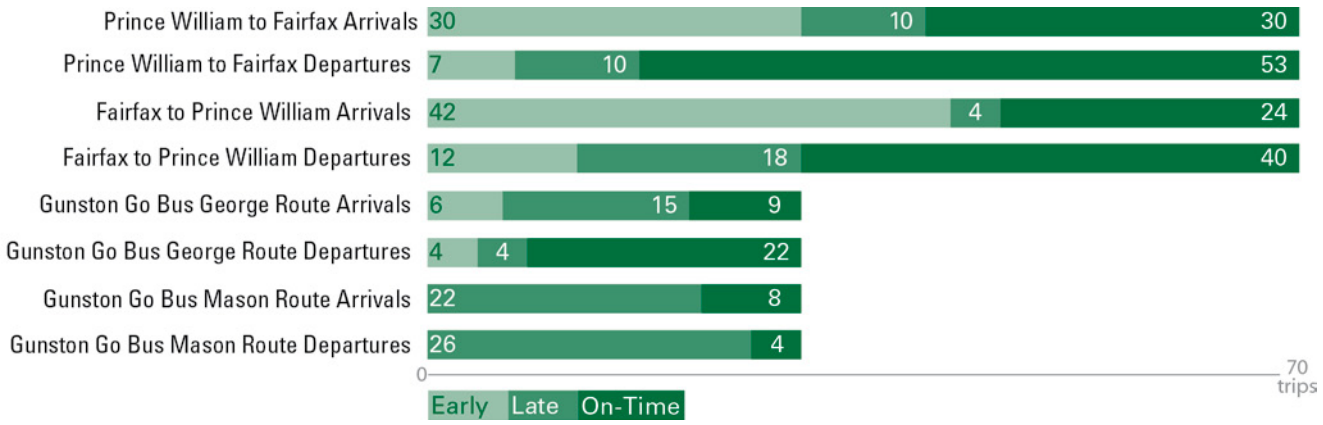


Monthly Shuttle Ridership 2008–2009

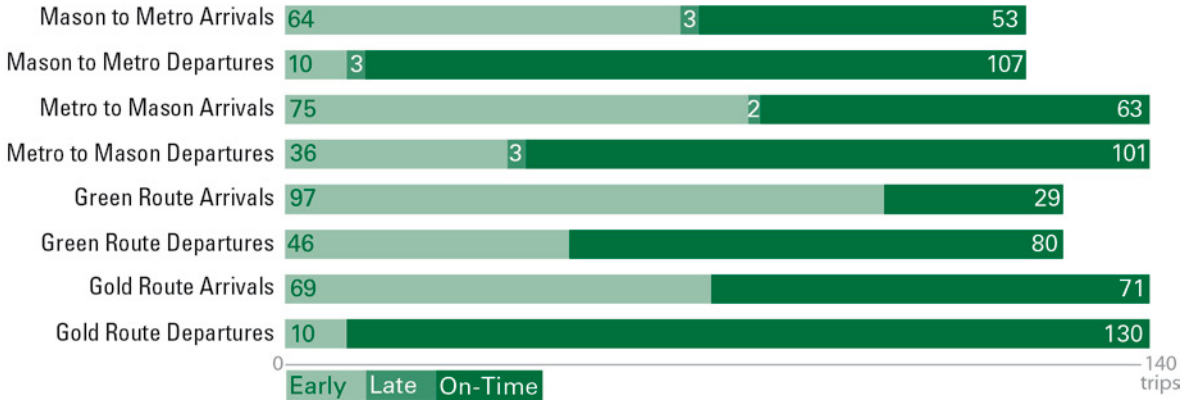


Breakdown of Shuttle Ridership in the Fall of 2009

Perception of transit reliability is largely associated with schedule adherence. Early departures as well as late arrivals and departures cause systematic schedule issues and result in passengers missing expected buses. An evaluation of the on-time performance conducted in April 2010 suggested that early arrivals and departures are frequent on all shuttle routes. Late arrivals and departures were also observed on the Fairfax/Prince William Shuttle, Gunston Go Buses, and Mason to Metro Shuttle due to congestion during peak periods and mechanical issues. On-time performance is shown in the following figures.



On-Time Performance of Fairfax/Prince William Shuttle and Gunston Go Bus



On-Time Performance of Mason to Metro Shuttle Circulator

Connections to Other Campuses

The University provides shuttle service between the Fairfax and Prince William campuses. The Arlington and Loudoun campuses, however, are not served by the shuttle systems.

The Prince William campus is home to Life Sciences, the Hylton Performing Arts Center, and the Freedom Aquatic and Fitness Center. The Hylton and Freedom Centers run in partnership with Prince William County and the City of Manassas. Specialized programs and courses, which are not available at the Fairfax campus, are offered at the Prince William campus. The Prince William campus also houses telework centers for faculty and staff who wish to telecommute.

The shuttle route connecting these campuses serves students traveling between campuses for classes, faculty and staff who park at the Prince William campus and commute to the Fairfax campus. This route also includes a stop at Manassas Mall, where some students take advantage of free parking and Omnilink transit connections. The shuttles typically experience high ridership during peak hours, with up to three shuttles operating on a one-hour headway. Stakeholder feedback has suggested that the hourly shuttle arrivals do not always align well with class schedules.

Offering graduate and continuing education programs, Arlington campus caters to a different set of students, faculty, and staff. Students enrolled in courses at the Arlington campus do not typically need to travel to the Fairfax or Prince William campuses on a regular basis. There is currently no shuttle connection to the Arlington campus, however, the Virginia Square Metro stop is located about a block from the Arlington campus and provides a direct connection to the Vienna/Fairfax-GMU Metro stop.

The Mason in Loudoun campus connects students and businesses in Loudoun County to George Mason University. A select number of undergraduate and graduate courses are offered at this campus as well as educational opportunities for retirees through the Osher Lifelong Learning Institute (OLLI). There are currently no transit connections to and from the Loudoun campus, although a park and ride lot is being considered for the future site of the campus.

Shuttle Management and Costs

The George Mason Transportation Department manages the various Mason Shuttle services, which are operated by a contractor (Reston Limousine). In FY 2009, George Mason paid approximately $2,444,000 to transit operators. Of this, approximately $400,000 went toward CUE bus subsidies, with the rest supporting operation of the shuttles. The largest share (about 40%) was spent on the Mason-to-Metro shuttle, with approximately 30% each on the Prince William and West Campus operations. In 2009, Fairfax/West Campus and Fieldhouse express services differed from 2010 operations. The remaining funds supported the Gunston Go Bus.

Vanpooling and Ridesharing

There are approximately eight vanpools currently in use primarily by the facilities staff, many of whom live in areas far to the west of Fairfax County and work earlier hours (i.e. 6am to 2:30pm) than most Mason employees. These vanpools have between three and eight staff members and are required to park in general permit lots.

In addition, some Mason faculty, staff and students travel to campus via private vanpools and carpools. The Zimride service provides free ride matching to those with an @gmu.edu e-mail address.

Special Events

Providing reliable shuttle service during special events can help reduce congestion. Existing transit service between the Center for the Arts and the Vienna/Fairfax-GMU Metro station during events is limited. The CUE Bus stops service at 8:30 p.m. on weekends, which limits transit service between the campus and the Metro station. Stakeholder feedback has also suggested that patrons tend to avoid events on Friday nights due to congestion on campus and around the campus.

Shuttles and Transit System
Strengths and Weaknesses

Strengths

- Connection to Metro
- Service around campus
- Connection to PW campus
- Connections to retail/ housing sites off campus
- Gunston Go Bus

Weaknesses

- Multiple "brands"
- Frequency of service
- Changing services and stop locations
- Schedule/service variability
- Event usage limited

Transit Facilities

The University transit center is currently located at the Sandy Creek Deck. The center provides indoor and outdoor waiting areas, shuttle schedules, and maps.

Fairfax County has expressed support for expanded transit service to George Mason and Northern Virginia Community College through grant funding for a transit center of up to 10 bus bays. The University is working with the County on the appropriate location and design of a transit center. Three potential locations for transit center facilities are at the Sandy Creek Deck, Rappahannock River Parking Deck, and Parking Lot C. The grant could fund bus operation and infrastructure at Sandy Creek, a conditioned waiting and information space at Rappahannock, a new transit center in Lot C, or a combination of these facilities.

Strengths and Weaknesses Summary

The strengths of the shuttle and transit system are the strong connections within campus and to off-campus attractions such as the metro station, housing, and retail locations. The extensive transit system, however, may seem fragmented to users, as shuttles are operated by multiple brands. The University's shuttles suffer from inadequate service frequency, changing services and stop locations, and schedule and service variability. During special events, the shuttle system is often not fully utilized. The strengths and weaknesses of the shuttle system are summarized in Table 3.

Roadway Network

Private automobile travel is the predominant means of transportation to and from the University for faculty, staff, students, visitors, and event patrons. While an extensive network of streets serves the campus, the region experiences significant levels of roadway congestion, leading to mobility challenges.

Major Access Routes

The Fairfax Campus is located five miles or less from Interstate 66 and the Capital Beltway (I-495), providing access to regional freeways in close proximity to the campus. U.S. Routes 29 and 50 (Fairfax Boulevard) are located approximately two miles north of George Mason, and provide major east-west corridors. Other primary roadways in the vicinity of the campus include Route 123 (Ox Road/Chain Bridge Road), Route 236 (Main Street), and Fairfax County Parkway (Route 7100). Important secondary roadways surrounding the campus include Braddock Road, Roberts Road, George Mason Boulevard, and Sideburn Road.

Regional Road Context

Campus Road Network

The vehicular circulation system on campus is made up of a series of access roadways, connector roads, and service/delivery ways.

Access roads include:

- University Drive
- George Mason Boulevard
- Roanoke River Road
- Nottoway River Lane
- Mason Pond Drive
- Shenandoah River Lane

Connector roads include:

- Patriot Circle
- Occoquan River Lane
- Rappahannock River Lane
- Mason Pond Drive
- Mason Inn Lane
- Mattaponi River Lane
- Po River Lane
- York River Lane
- Sandy Creek Way
- Staffordshire Lane

Service/delivery ways include:

- Aquia River Lane
- Mattaponi River Lane
- Rivanna River Way
- Chesapeake Lane

Campus Roadways

Existing Traffic Conditions

An analysis of the road network within and in the vicinity of campus was conducted based on traffic volume counts conducted in April, 2010. The analysis found that the roadways internal to the campus generally process existing traffic demands efficiently, with few backups. At the access points to Braddock Road during critical time periods in the evening, entering and exiting University traffic and regional commuters compete for roadway capacity. Conflicts between vehicles turning at the intersections of Braddock Road with Roanoke River Road and Nottoway River Lane lead to backups onto campus, as well as the regional roads. As such, University traffic must wait to turn out of parking lots and from other roadways when attempting to exit campus during some time periods.

Study Intersections External to the Campus

Signalized Intersections

- Braddock Road at Ox Road (Route 123)
- Braddock Road at Roanoke River Road
- Braddock Road at Nottoway River Lane
- Braddock Road at Roberts Road
- Ox Road (Route 123) at University Drive
- Chain Bridge Road (Route 123) at School Street

Two-Way Stop Controlled Intersections

- Roberts Road at Shenandoah River Lane
- Ox Road (Route 123) at Mason Pond Drive/Kelly Drive

All-Way Stop Controlled Intersections

- George Mason Boulevard at School Street

Assessments conducted at nine study intersections external to the campus, shown in Table 4, indicate that several intersections are currently operating at or beyond their carrying capacity. This means that vehicles must frequently wait through more than one traffic signal cycle at these locations. During the AM peak hour, poor operations and long queues of vehicles are observed at Route 123 and Braddock Road. Less severe congestion is experienced at the northbound approaches of Roanoke River Road, Nottoway River Lane, and Roberts Road along Braddock Road. This traffic is not related to University traffic, as it primarily exits the University Mall and the residential neighborhoods accessed by Sideburn Road, respectively.

During the PM peak hour, significant wait times and long queues of traffic are experienced at all intersections along Braddock Road. These delays impact traffic exiting the University, as noted above, and also other side streets along Braddock Road.

Access Patterns

In addition, an analysis was conducted to determine usage at the following six access points to the University:

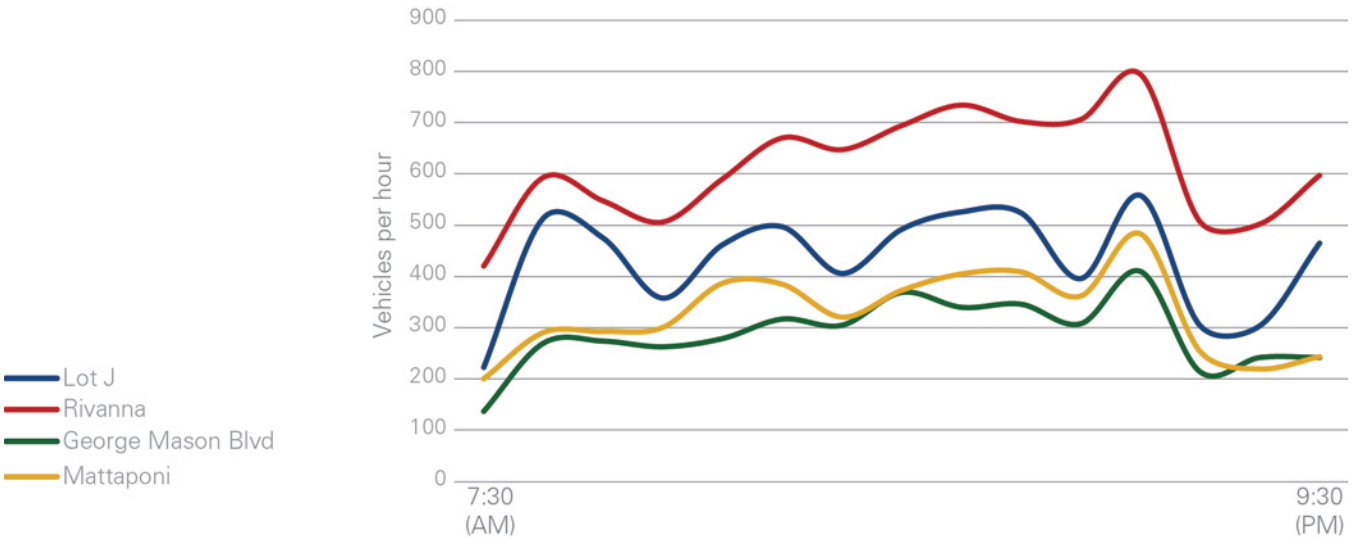
- University Drive east of Route 123
- George Mason Boulevard south of School Street
- Roanoke River Road north of Braddock Road
- Nottoway River Lane north of Braddock Road
- Shenandoah River Lane west of Roberts Road
- Mason Pond Drive east of Route 123

The entrances with the heaviest traffic volumes are University Drive via Route 123, where approximately 35 percent of University-related traffic entered and exited and at Roanoke River Road, where approximately 26 percent of traffic entered and exited. Approximately 19 percent used the entrance at Nottoway River Lane, less than that using Roanoke River Road, and another 15 percent used Shenandoah River Lane via Roberts Road. The remaining 3 percent used the right-in/right-out access point along Mason Pond Drive at Route 123. While the new Masonvale development offers another access point via Roberts Road, the development was constructed in a manner which discourages cut-through traffic.

Daily Campus Entrance Usage (Percent of Traffic)

Trip Distribution

Along Patriot Circle, traffic volume count data indicated that there is slightly less traffic on the north side than the south, as University Drive parallels Patriot Circle there. Traffic is heavier on the east side of campus compared to the west. Traffic volumes remain fairly consistent throughout the day, with the peak for all locations occurring from 6:30 p.m. to 7:30 p.m.



Hourly Patriot Circle Vehicular Volume Variation

Vehicle accessibility within the core of the campus is limited. Access to several buildings in the pedestrian-oriented core is restricted to loading and small parking areas. Emergency vehicles, service vehicles, event and catering trucks are limited to a single access to the quad area between Robinson Building and Fenwick Library. In front of the Johnson Center, vehicle drop-offs in the circle results in frequent pedestrian-vehicle conflicts as well as conflicts with service vehicles. Similar conflicts also occur along Rivianna River Way, near SUB II and the Commons residential area. Student drop-offs frequently occur in fire lanes and loading docks, due to the lack of other drop-off areas.

Wayfinding

Visitors as well as new students, faculty, and staff perceive wayfinding to be confusing. Motorists, bicyclists, and pedestrians unfamiliar with the campus typically find it difficult to navigate to and within the campus. Some of this confusion is experienced by those unfamiliar with the environment. However, it is reinforced by a lack of updated maps, confusing wayfinding signage, a lack of landmarks, and inconsistent building entrance signage.

Persons with disabilities face the additional challenge of identifying an accessible path of travel. Some major walkways lead to stairs or other barriers and no signage for accessible paths is provided

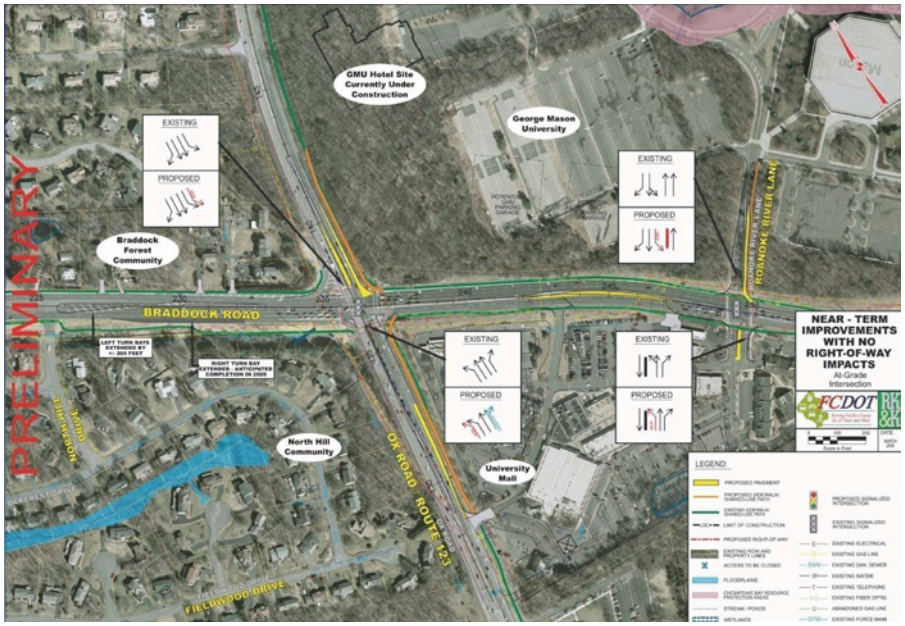
In addition to providing the locations of campus destinations, other useful information may be displayed on wayfinding materials. For example, distance markings could be included on signage, kiosks, and/or publications to promote wellness and inform visitors of walking times.

Future Traffic Conditions

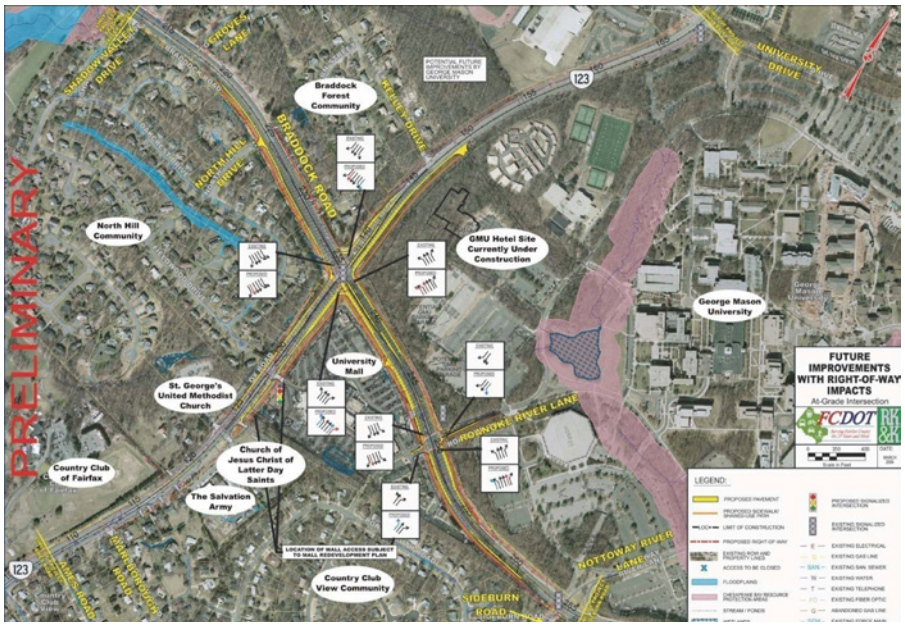
Intersection improvements were implemented at the York River Road and Mattaponi River Lane intersections along Patriot Circle in Summer 2010. Four-way stop control was implemented at these previously two-way stop controlled intersections.

Several planned future roadway projects near the campus are expected to impact traffic conditions in the vicinity. These projects and their impacts including the following:

- Route 123 and Braddock Road improvements. This intersection is one of the most congested intersections in Fairfax County. Although funding for a grade-separated interchange is currently unavailable, interim improvements are planned at the intersection. Interim improvements at Braddock Road and Route 123 include a construction of an additional left-turn lane along southbound 123, extending the eastbound left-turn lane along Braddock Road at Roanoke River Road, lane changes and signal modification for Roanoke River Road, and elimination of the median crossover between Route 123 and Roanoke River Road. Mid-term improvements requiring right-of-way acquisition include dual left turn lanes and three through lanes in each direction on both Braddock Road and Route 123.



Near-term Braddock/Ox Road Improvements



Mid-term Braddock/Ox Road Improvements

- University Mall redevelopment. Planned redevelopment of University Mall will include an expansion. As part of the proffer package with Fairfax County, the Mall developer will upgrade pedestrian connections as well as install a substantial bike rack. Another part of this project will be to construct a roadway behind University Mall that would start south of Braddock Road along Route 123 and connect to Braddock Road opposite Roanoke River Road. This would eliminate some of the campus-based traffic at the Braddock Road and Route 123 intersection. As part of the redevelopment, right-of-way is being preserved for the eventual interchange at Braddock Road and Route 123.

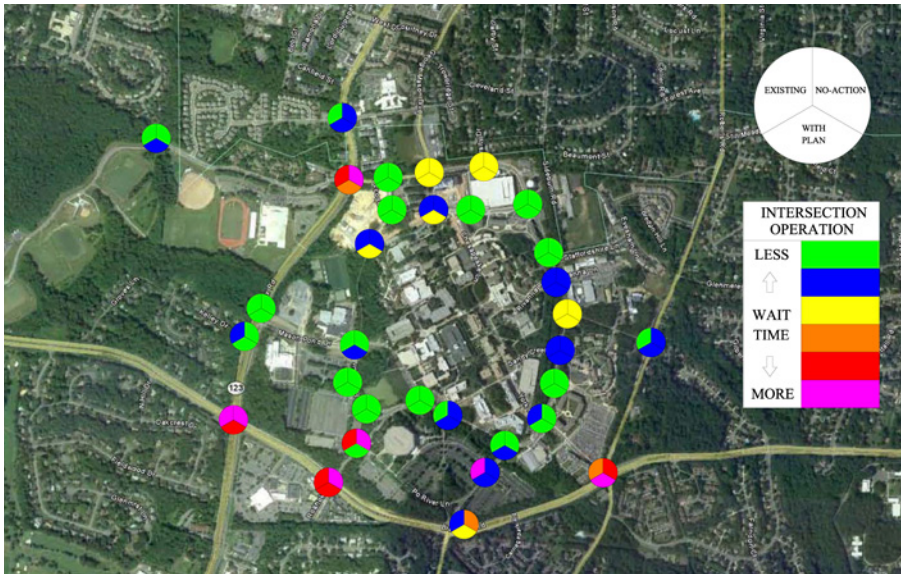
- Braddock Road and Roanoke River Road improvements. Fairfax County plans to re-construct the approach leaving the University to include a separate left-turn lane, a through lane, and a separate free-flow right-turn lane in conjunction with the near-term Braddock Road improvements. This design would allow for a left-turn only phase from Roanoke River Road and from University Mall as well as a through phase. The current split-phasing at this intersection would be eliminated, allowing for additional green time along Braddock Road and potentially alleviating some peak hour congestion. The University and Fairfax County are currently discussing alternative designs for this location that preserve two entering lanes on Roanoke River Lane
- West Campus Connector. A new roadway connecting Braddock Road west of Route 123 to the main campus via Mason Pond Drive is planned. This project would likely remove a large volume of vehicles from Braddock Road, as many students and faculty access the campus from the west. It would also provide relief at the Roanoke River Road entrance, the second-most used access to campus.
- Shirley Gate Road to Fairfax County Parkway extension. As part of the Fairfax County Comprehensive Plan, an extension of Shirley Gate Road to the Fairfax County Parkway to the south is planned. However, there are issues concerning the community as well as hazardous materials. This connection would potentially relieve pressure along Route 123 as it would open another north-south option in this part of Fairfax County, though there are no definitive plans to build it.
- Roberts Road and Shenandoah River Way signalization. A signal at the Roberts Road and Shenandoah River Way intersection was investigated in conjunction with the Masonvale road improvements at this location. The campus ministry center across from Shenandoah River Way draws a large volume of pedestrian traffic from campus, resulting in potential conflicts at this intersection. Currently, VDOT states that this signal is not warranted. However, changes in traffic volumes in the future may justify a signal; additional analysis will be necessary in the future.

Future traffic conditions for a design year of 2020 take into account the 10-year University enrollment and employment growth and plans for proposed academic, residential, and office space, as well as planned development and road improvements surrounding the University.

For the future No Action scenario, roadways internal to the campus were assumed to be unchanged. Analysis of No Action conditions shows that the planned interim improvements along Braddock Road and Route 123 would not significantly improve intersection operations in these corridors. The intersections along these roadways would function with generally similar wait times as current conditions. Long wait times would continue on side streets along Braddock Road and at the Route 123/Braddock Road intersection.

A future Build scenario was also developed, with all proposed roadway connections serving the campus in place. These improvements include intersection reconfiguration, upgrades to entry portals, reconstruction of University Drive through West Campus, and the extension of Po River Lane as a street from Braddock Road over Route 123 and into West Campus. Some changes in traffic patterns would result from these roadway projects,

resulting in improved operations along Braddock Road. However, significant wait times and queues would still be prevalent along the major corridors and drivers would continue to wait through more than one signal cycle at the several major intersections. The most significant improvements would be for vehicles traveling between points west on Braddock Road and points north on Route 123, and for left turns into the University from Braddock Road.



Peak Hour Intersection Operations

Roadway Network
Strengths and Weaknesses

Strengths

- New University Drive/George Mason Blvd. access
- New Mason Pond Drive access
- Many access points
- Circulation around campus is possible

Weaknesses

- Route 123/Braddock Road intersection
- Conflicts with pedestrian crossings
- Service access into central campus is difficult
- Wayfinding
- Congestion on campus
- Pedestrian/Service conflicts
- Limited access at Mason Pond Drive
- Unusual geometry of Nottoway entrance
- Concentration of vehicles at Roanoke River entrance, near Patriot Center
- Paratransit access into central campus is difficult

Strengths and Weaknesses Summary

The existing roadway network enables circulation around campus. Several access points are available, including the addition of two recently-constructed entryways at University Drive and George Mason Boulevard and at Mason Pond Drive.

Weaknesses of the roadway network involve issues with limited accessibility on campus, pedestrian-vehicle conflicts, confusing wayfinding, and congestion. The Route 123 and Braddock Road intersection has notable operational concerns. Conflicts between vehicles, including service vehicles, pedestrians, and bicyclists occur frequently. Accessibility is primarily an issue in the core of campus, where the roadway network does not facilitate easy access for service and emergency vehicles or for paratransit vehicles to pick up or drop off passengers with mobility impairments. Throughout the campus and on major roadways nearby, wayfinding is often confusing, and signage designs are inconsistent. Additionally, congestion is likely to become a more prominent issue as the University grows. The access points at Mason Pond Drive and Nottoway Rive Lane may not accommodate traffic well in the future. Congestion also occurs during special events, when vehicles are largely concentrated at the Roanoke River Road access point near Patriot Center.

Parking System

Parking Policy

George Mason University implements an open parking policy in which students, faculty, and staff with parking passes may park in any general parking area. Faculty/staff passes are offered for faculty/staff only lots and faculty/staff only parking spots within general lots. Students, faculty, and staff can also pay premium prices to park in one of the three parking decks: Mason Pond, Sandy Creek, or Rappahannock River.

A major issue for students and faculty/staff alike is the price of parking passes, both for general parking, faculty/staff lots, and for the premium-priced decks. However, Parking and Transportation needs to charge these prices to cover debt service and operational costs. The price for parking is about $20 per month, which is low for college campuses in general and low for the Washington D.C. metro area.

Visitor parking is available in a number of locations throughout campus. Departments may also coordinate with Parking and Transportation to purchase visitor parking permits. Overnight parking in the general lots is available after 10 p.m. on Fridays.

Parking policies and regulations are enforced by the Parking and Transportation Department on campus. Most tickets are issued for failing to display a proper permit for the parking area.

Special Event Parking

Disruptions to regular parking and traffic patterns occur during major events at the Patriot Center. Most visitors typically drive to and park at the University. Popular parking locations for Patriot Center events are Lot A, Lot L, and Lot C, although patrons also park in Lot K and Lot J. These lots, however, are occupied by faculty, students, and staff during regular weekdays, and patrons attending events during these hours are forced to park in farther lots such as the Sandy Creek Deck and the Rappahannock River Deck. Event patrons parking in Lots J and K must cross Roanoke River Road to access the Patriot Center, often during times of peak inbound event traffic and outbound academic traffic. During large events, police direction is used at the intersection of Roanoke River Road with the Lot K and L entrances to manage pedestrian crossing.

Attendees of events at the Center for the Arts, including buses transporting school-age children on field trips, frequently park in Lots J and K as well. These patrons must then cross Patriot Circle near the entrance to the parking lots. Although pedestrian and vehicular traffic volumes are typically lower at this location, conflicts lead to backups along Patriot Circle.

Existing Parking Availability

There are a total of 12,192 parking spots available on the Fairfax Campus. General parking is permitted in Lots A, C, and L, which are located near the Patriot Center on the south side of campus, as well as in Lots J and K, which are located in the southwest sector of campus. Lots J and K are considered less desirable than the other three lots and fill up later than the others. General parking is also available at the Rappahannock River Parking Deck.

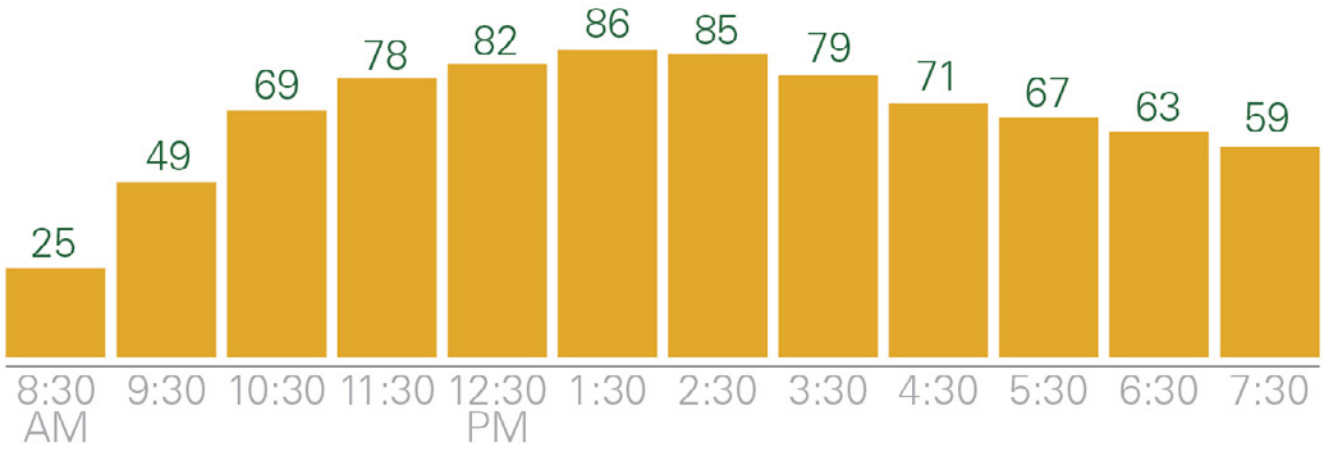
Additionally, there are concerns about use of parking available in neighborhoods near the University along Mason Oaks Court, School Street, and University Drive. Some opt to park in these neighborhoods instead of searching for parking on campus during peak periods. There are typically many vehicles parked across the street from the Field House on University Drive and along Roberts Road south of the campus. Neighborhoods may petition the local governments to institute permit parking in their neighborhoods. Sixty percent of the residents must approve the change to decal-only parking in neighborhoods, and some residents are hesitant to make the switch due to the complications of ensuring they have the correct decals and of accommodating visitor parking along their roads. Residents of some streets, such as Tapestry Drive, have pursued permit parking.

The campus provides some short-term parking areas, which are particularly desired by residents who occasionally drop-off items. At Presidents Park, there are two temporary drop-off spots and several metered parking areas.

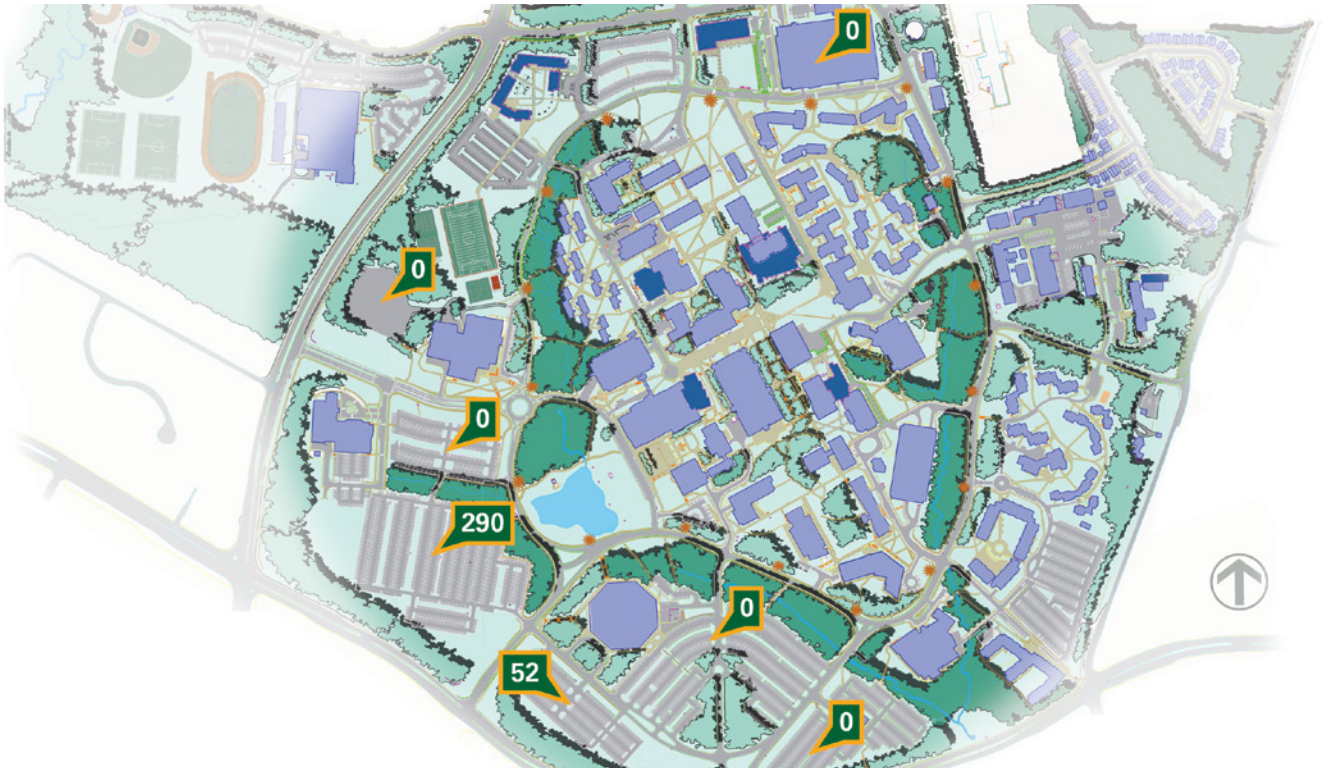
There are more ADA-accessible parking places on campus than are required by Code, including places where no other parking is available. However, at times there seem to not be enough at certain locations. In addition, it can be difficult for disabled students and faculty to travel from the accessible parking places to their destination buildings. Service vehicles often park in fire lanes, on the grass, and on sidewalks in response to limited, defined service vehicle areas.

Existing Parking Demand

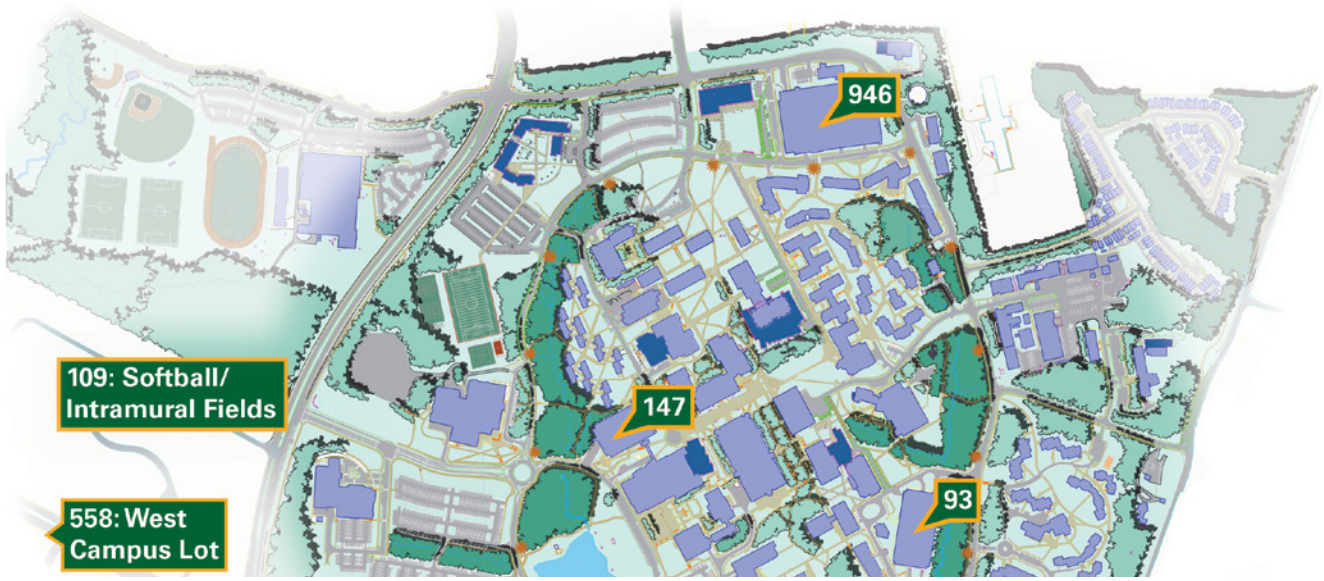
Daytime parking utilization counts confirmed that utilization is heaviest on Tuesdays, followed by Thursdays and Wednesdays. The general permit parking space utilization rate by hour on Tuesday is shown below. Peak parking utilization occurs midday, when 8,831 spaces, or 72 percent of capacity, were occupied. During this peak period, 4,947 of 5,778 general spaces, or 86 percent of general capacity, were occupied on the main campus. The data indicated that the most popular parking locations are Lot A, Lot C, Lot J, Lot H, Lot R, Patriot Village, and the Rappahannock Deck.



Daytime Parking Utilization by Hour (Percent of Capacity)



Midday general permit space availability



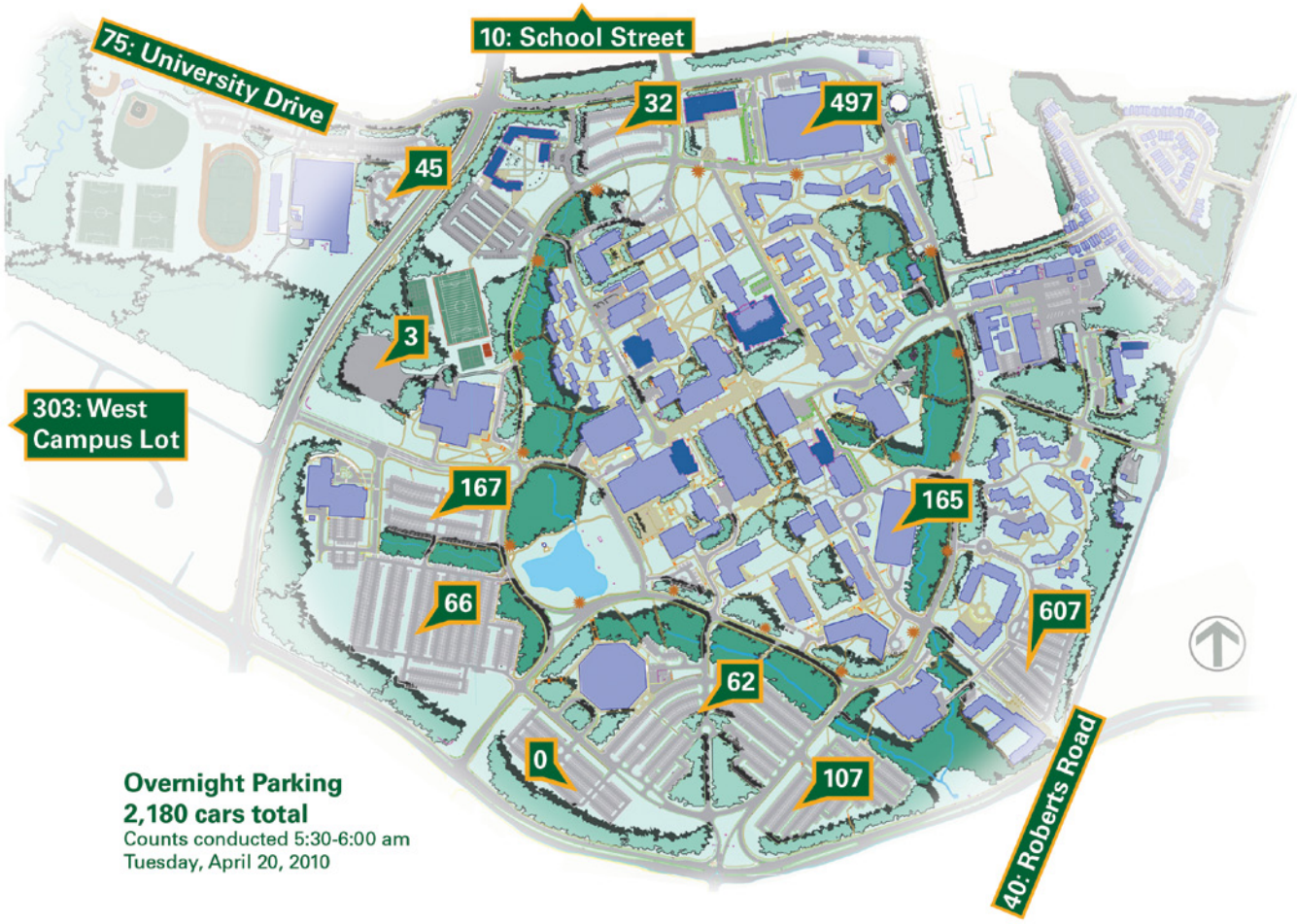
Other Available Midday Parking Spaces

The open parking policy contributes to difficulty finding parking between 10 a.m. and 3 p.m. on busier weekdays. Faculty and staff arriving to campus for afternoon and evening courses particularly have difficulty finding parking spaces in the centrally located parking areas on campus.

Nevertheless, the overall parking capacity remains sufficient. A total of 2,086 spaces remain available, which includes 342 spaces for general permits, 1,186 restricted parking spaces in decks, and 558 spaces in the West Campus Lot. Only 599 of 1,692 spaces, or 35 percent of capacity, were occupied in the athletic area during data collection.

Overnight parking utilization counts were conducted on Tuesday, April 20, 2010, during the half hour before 6 a.m. A total of 2,054 parked vehicles were observed in parking lots and garages, while 135 vehicles were parked on-street. These counts total to about 2,200 vehicles parked overnight on campus. Based on the existing 4,968 resident beds on campus, the ratio of parking to beds is 0.44 spaces per bed. It is important to note, however, that counts were not conducted at the Sandy Creek parking deck, but daytime and nighttime counts suggest an estimated 165 spaces are utilized.

Almost all of the designated parking spaces in front of the town homes on School Street were occupied overnight. Overnight parking utilization data is shown below. The majority of the space along Roberts Road closest to Braddock Road contained parked cars, with less vehicles parked south of Gainesborough Drive. The areas of Roberts Road and Tapestry Drive in the vicinity of their intersection were completely occupied by resident parking. A significant portion of University Drive west of Route 123 contained overnight vehicles. The majority of the available space was at the west end, close to Fairfax Villa.

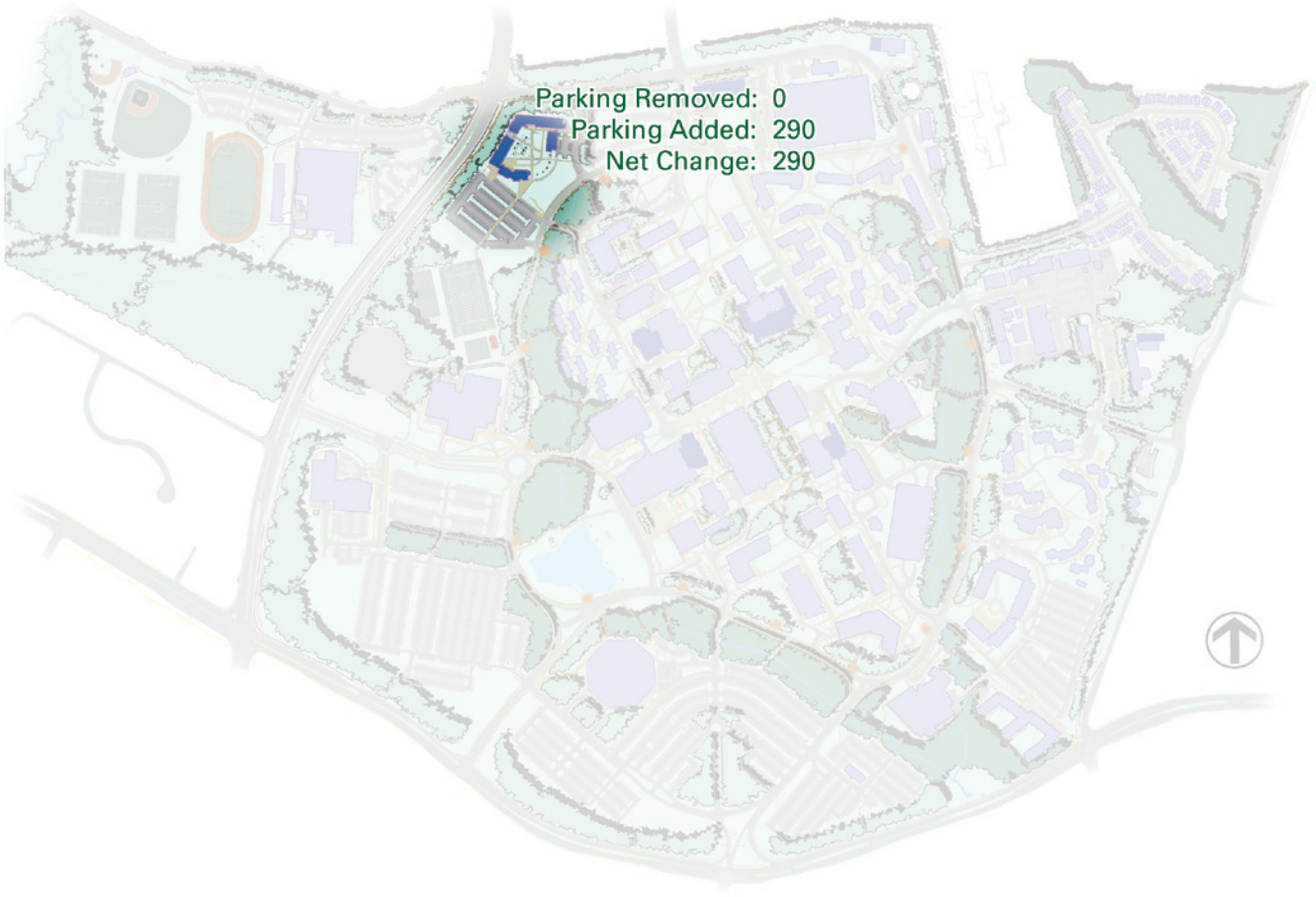


Overnight Parking Utilization

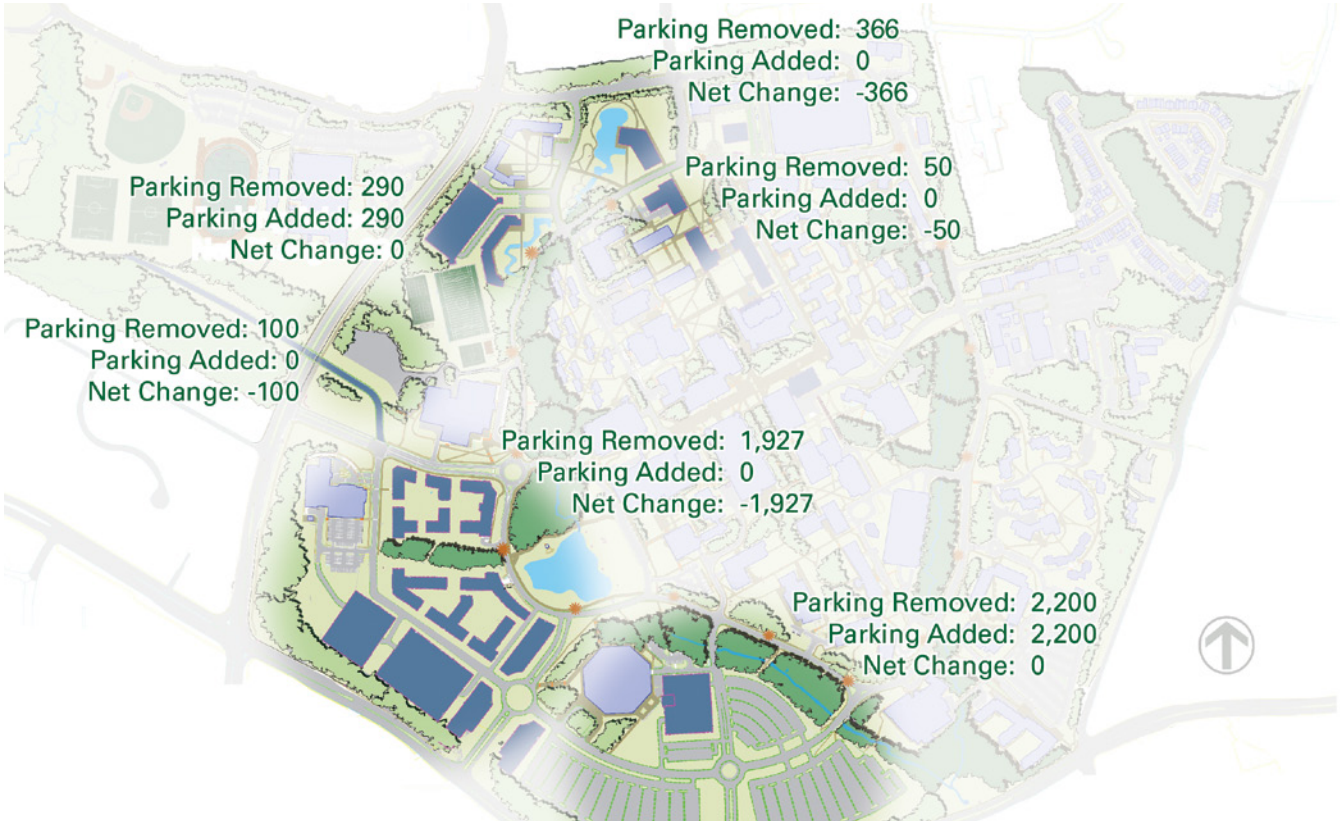
Future Parking Availability

In the next two to five years, 290 parking spaces will be added for the 600-bed residences in the Housing VIIIA project. Other planned construction projects in the short term horizon do not appear to have impacts on the parking supply. The short term changes in the parking supply are shown in the following figure

The long term outlook in the five to ten year horizon will witness a net loss of available parking spaces. The loss of Lot H will result in 366 fewer spaces. The Rappahannock Deck may accommodate displaced faculty and staff vehicles, however, providing additional spaces for students may prove to be difficult. In the Finley Lot, approximately 50 visitor parking and some reserved staff parking spaces will be removed. The new 290-space parking lot for the 600-bed residence will eventually be removed and replaced. One hundred spaces will also be removed in the PV Lot. Finally, development in Lot K and Lot J will result in 1,927 fewer spaces, which will need to be replaced in addition to new spaces for parking generated by the development. Overall, 2,443 surface parking spaces will be removed, including 366 in Lot H, 50 in Finley, 100 in Patriot Village, and 1,927 in Lot K and Lot J



Short Term Parking Supply Changes (2 to 3 year horizon)



Long Term Parking Supply Changes (5 to 10 year horizon)

Future Parking Demand

Parking demand is expected to grow as the University expands. The administration projects enrollment to increase by 20 percent, coupled with a 20 to 25 percent increase in on-campus housing. As part of proposed expansion projects, building space will also increase by approximately one million square feet. Academic, support, and administration space will grow from 3.2 to 4.2 million square feet.

This growth will require additional parking unless more members of the campus community choose alternative modes of transportation. In order to estimate the parking demand, the following ratios were applied.

- On campus ratio of 0.44
- Commuter ratio of 0.32
- Faculty/staff/other at 1.5 per 1,000 sf.

Parking demand is expected in increase by 3,450 spaces to meet the needs of 1,100 on-campus residents, 850 commuter students, and 1,500 faculty, staff, and other visitors. Based on parking count data, a total of 2,086 existing spaces are available across campus, including 1,528 spaces in the main campus and 558 spaces in the West Campus Lot. However, a total of 5,893 spaces will be needed to meet the parking demand increase and to provide parking for 2,443 removed surface lot spaces. The resulting projected deficit in 2020 if no additional parking is constructed is 3,807 parking spaces. If transportation demand management (TDM) measures can reduce parking demand by 750 spaces, 3,057 spaces will need to be

replaced. The shortfall in parking supply will need to be accommodated through the construction of replacement surface parking lots or new parking decks. Several potential parking deck locations are presented in chapter 7. A complete evaluation including a life cycle cost analysis, should be performed before the construction of any new parking structures.

Strengths and Weaknesses Summary

A major strength of the parking system is the large concentration of parking between the perimeter of campus and the loop formed by Patriot Circle. This layout facilitates vehicle circulation around campus and helps maintain the pedestrian-oriented core within campus. Several large parking facilities contribute to the existing parking system. The parking system is flexible to respond to various event needs. The current overall parking capacity is sufficient, and excess capacity is often available in West Campus and at fringe areas of campus. Short-term parking is also readily available for visitors.

The existing parking system, however, has several weaknesses. Regional access is limited primarily to Route 123 and Braddock Road. There are large, uncontrolled areas of parking. Numerous surface lots layouts and conditions are not optimal. The open parking assignment policy leads to difficulty finding parking near the campus core, while parking in less desirable locations remain empty.

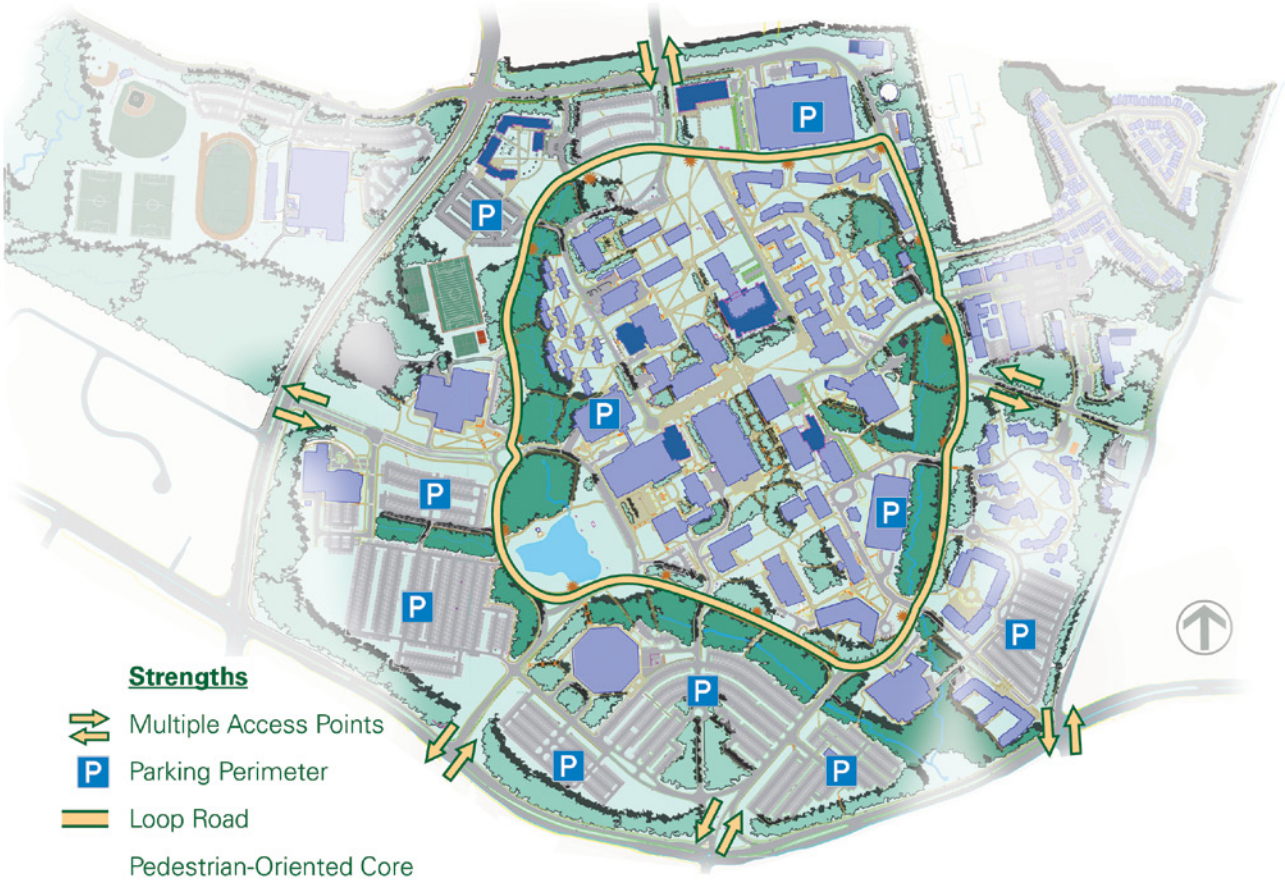
Parking System
Strengths and Weaknesses

Strengths

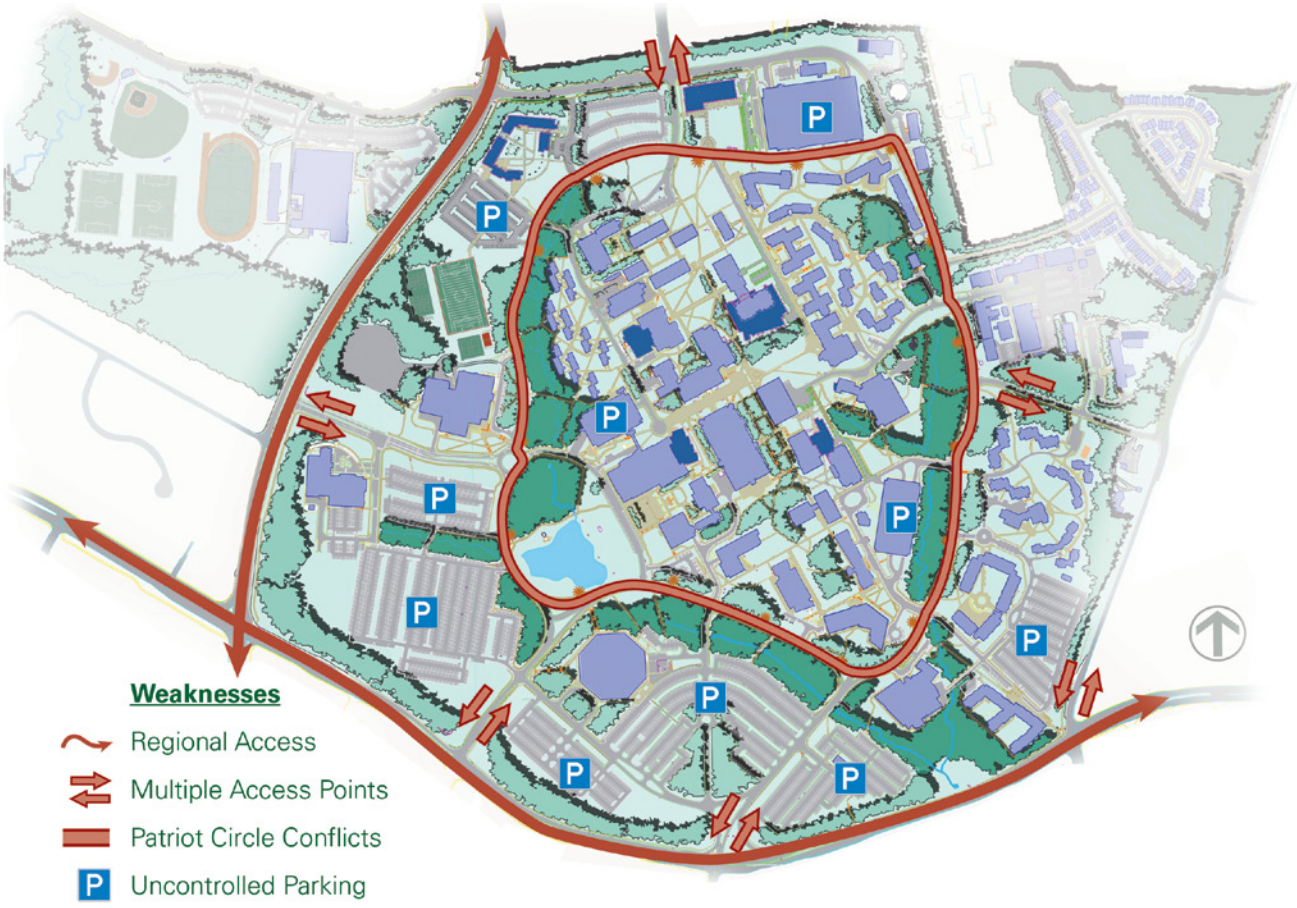
- Several large-scale parking facilities
- Flexibility to respond to event needs
- West campus capacity
- Parking availability
- Short-term parking

Weaknesses

- Large, uncontrolled areas
- Surface lot condition and layout
- Walking connections through parking areas
- Event procedures
- Parking assignments
- Midday and class change parking availability



Parking System Strengths



Parking System Weaknesses

Transportation Management, Programs, and Policies

As discussed in the transit section, George Mason students and employees ride CUE and shuttle buses free of out-of-pocket expense. The policy of requiring freshmen residents to park in the West Campus lot provides a deterrent for bringing cars to campus and encourages new students to try transit and other alternative modes.

Several additional transportation programs are currently provided by the University. These programs are typical of Transportation Demand Management (TDM) measures to reduce the number of single-occupant vehicle trips on the roadways.

Marketing

The Transportation Department markets these efforts through the University website. Pages such as "How to get to Mason without a car", "Biking", and "Benefits of using alternative transportation" provide information and direct potential users to programs and resources.

Ridesharing

The George Mason community's ridesharing program is known as Zimride. Registration with the ride-matching service is free and only available to those with a University e-mail address. Zimride provides matching for commute trips and long-distance travel, and offers a map of registered origins and destinations.

Commuter Choice

Full-time state employees are eligible for the Commuter Choice benefit program. Tax-free funds are provided from the state, up to $230 per month, for employees commuting on public transportation.

Carsharing

Zipcar maintains two vehicles on the Fairfax Campus. The carsharing program requires registration and a fee per use, but offers the ability to be "car free" the majority of the time. Carsharing promotes the use of alternative transportation modes by providing access to a car for occasional use.

These policies and programs form a core level of effort to encourage and support transportation to and around campus in modes other than single occupant vehicles. Additional planning and investment in such measures is needed to achieve sustainability goals and carbon neutrality.

Summary of Transportation Improvement Needs

4

Upon completion of the data analysis and system review portion of the planning process, improvement needs were identified for the various transportation modes. Future components of the SWOT analysis (opportunities and threats) assisted in framing potential upgrades for entire systems or segments of systems. Analysis and review of the collected data identified specific localized areas or groups of locations requiring improvement. Where possible, these large- and small-scale improvement needs were aggregated into system-wide requirements. The benefits of the various individual improvements and groups were reviewed to determine common themes. Goals were established based on these themes, and are listed below for the various transportation systems.

Pedestrian Network
Opportunities and Threats

Opportunities

- Increasing housing and parking consolidation
- Pedestrian "Boulevards" within campus
- West Campus overpass/ crosswalk improvement
- Patriot Circle traffic control changes
- Establish culture of walking
- Lighting evaluation and improvement
- Connect pathways
- Wayfinding improvements
- Roberts Road improvements
- Accessible route signage

Threats

- Resistance to walking
- Increased traffic with campus growth
- 123/Braddock increase as barriers
- Increasing service/delivery conflicts
- Increasing bicycle conflicts
- Pickup-dropoff/delivery/service areas impact walkability
- Continuous paths may not be continuously accessible
- Accessible path often more circuitous

Pedestrian Network

Numerous opportunities to improve the pedestrian network were identified through the SWOT analysis as summarized to the left.

Aside from policies and programs to promote walking, the key project goals for the future pedestrian network can be classified as connectivity, safety, legibility and consistency, accessibility, and hierarchy.

Connectivity

Pedestrian connections must provide access to desired destinations, must be reasonably direct, and should provide a number of route options. When these requirements are not met, ad hoc trails are created and walking is discouraged.

Examples of improvements to the connectivity of the pedestrian network include projects that:

- Create a more compact built environment
- Add new or alternative pathways
- Construct connections between existing pathways

Safety

Regardless of other outside factors, pedestrians will only use a particular route if it is perceived as safe. Conflicts with vehicles, personal safety concerns, and tripping or falling hazards can discourage use of otherwise direct, traversable walkways.

Some examples of safety improvement projects are:

- Lighting upgrades
- Passive or active vehicular traffic controls
- Segregation or scheduling of service/delivery/drop-off activities

Legibility and Consistency

Effective campus walkways will be identifiable as public corridors for pedestrian movement. Sidewalks that appear to be roadways, long paths through dense vegetation, or walkways in service or loading areas are confusing to pedestrians seeking alternative or more direct routes between destinations. This legibility can be further enhanced through a consistent application of design features to pathways serving similar functions.

Legibility and consistency can be achieved through projects that:

- Utilize common design features
- Organize pedestrian settings in similar ways
- Segregate service/delivery/drop-off points from pedestrian nodes
- Utilize standard design elements at pedestrian/vehicular interaction areas

Accessibility

Pedestrian networks must be able to convey persons of all ability levels between desired destinations. While every segment of every path need not be accessible, each corridor should provide a continuously accessible route. Results of accessibility improvement include:

- Continuous identifiable accessible paths
- Direct accessible routes, elimination of circuitous accessible paths
- Coordination of accessible path, paratransit pick-up/drop-off and waiting areas
- Accessible paths and corridors in all areas of campus

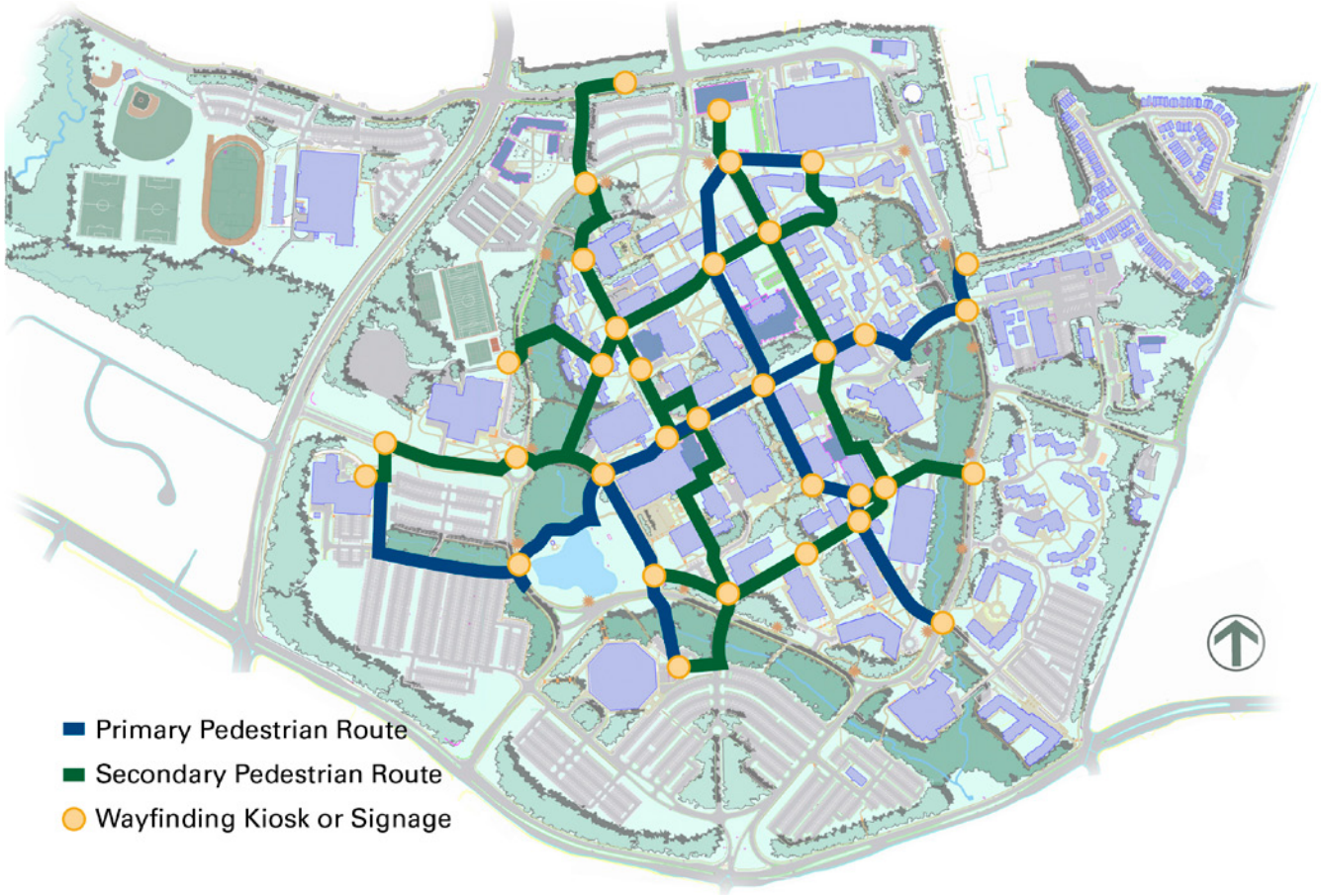
Hierarchy

One of the key concepts of the plan is the establishment of a set of pedestrian spines or boulevards, along with a system of secondary pathways. The primary pathways should connect major activities at the north and south ends, and east and west ends, of campus and cross in the vicinity of the Johnson Center. These pedestrian boulevards would be easily identifiable by the generous sidewalk width, consistent paving materials, wayfinding and branding elements, lighting fixtures, and amenity features. The secondary walkways would be distinguishable as narrower and less intricate, but provide more amenities than a simple sidewalk or path. The hierarchal elements should be consistent among walkway classes in order to reinforce legibility.

Projects that implement the pathway hierarchy are:

- Creation of design and wayfinding standards for pathways
- Construction of missing segments of primary and secondary walkways
- Reconstruction of sidewalks to identified design standards
- Installation of wayfinding kiosks in critical locations
- Standardization of lighting fixtures

If these project goals are achieved in a coordinated manner, the result would be a pedestrian network that is easy to identify and interpret, and connects to desired destinations through a safe environment.



Bicycle Network
Opportunities and Threats

Opportunities

- Bicycle route from Campus to Metro Station
- Designated bicycle routes on campus
- Improved bicycle storage, especially bike shelters
- Publicity of access to support facilities

Threats

- Resistance to bicycling
- Increased traffic on and off campus.
- Improve/extend area bicycle facilities through partnerships

Bicycle Network

Key goals for the future bicycle network on the campus are connectivity, context, and compatibility.

Connectivity

Similar to the pedestrian network, bicycle connections must be provided near desired trip origins and destinations and offer reasonably direct routes. Commuter biking in particular is discouraged when access to the network is dominated by automobile facilities.

Connectivity of the bicycle network can be enhanced through projects that:

- Establish bike lanes in areas of existing or potential cycling activity
- Link existing on- and off-street bicycle facilities
- Designate bike routes between desired destinations
- Enhance biking support facilities (storage, showers, etc.)

Context

Bikers of differing skill and fitness levels, or making trips for different purposes, may prefer one type of facility over another. Providing appropriate facilities in a specific location enhances the utility of the bicycle network and promotes its use.

Projects that account for the context of a bike facility include:

- On-street bike lanes or shared-use lanes for commuter cycling on facilities with appropriate speeds and vehicular volumes
- Bike lockers and other amenities for bicycle commuting
- Off-street shared use paths for recreational biking or where traffic conditions are not conducive to bicycling

Compatibility

Cyclists must generally share space with other facility users, whether vehicles or pedestrians. Avoiding conflict points and providing sufficient space for each user group encourage shared use of facilities.

Compatibility can be reinforced through:

- On-street bike lanes or shared-use lanes for commuter cycling on facilities with appropriate speeds and vehicular volumes
- Bike shelters in locations that provide for a bike-free campus core
- Off-street shared use paths for recreational biking or where traffic conditions are not conducive to bicycling
- Prohibition of bicycling in pedestrian-dominated areas

Implementing projects with all of these goals would result in a range of bicycle facilities appropriate to serve the recreational or transportation needs of varied users.

Shuttle and Transit System
Opportunities and Threats

Opportunities

- Fairfax County funding availability
- Remote parking support
- VRE connection
- More off-campus connections
- Student or retailer funding participation
- Increase event utilization of shuttles and transit
- Increase shuttle service to Fairfax City on weekend evenings
- Consider low- or no- tailpipe emissions vehicles for campus circulators

Threats

- University Funding
- Fairfax City Funding
- Metro/VRE service quality
- Ridership outpacing service delivery

Shuttles and Transit

Key goals for the shuttle and transit system include connectivity, convenience and availability, information, and perception.

Connectivity

Transit users must be able to travel between desired origins and destinations without numerous route or mode changes.

Projects that enhance transit connectivity include:

- New or expanded routes to connect with other nearby transit systems
- Revisions to routes in response to changing demands

Convenience and Availability

Transit services must be available during desired travel times, and must provide stops in close proximity to riders' origin or destination.

Convenience and availability can be improved through:

- New or expanded routes to connect with other nearby transit systems
- Revisions to routes in response to changing demands

Information

Accurate route and schedule information is critical to transit service success. Distributing bus arrival information over multiple media, such as the internet and e-mail, promotes ridership.

Transit information can be disseminated via:

- Published route maps and schedules
- Real-time transit information signs or internet services
- Vehicle branding and identification

Perception

Perhaps the greatest impediment to transit usage is perception. Services and waiting areas must be perceived as safe and convenient. Reliability of services significantly impacts the perception of service quality. Even when high-quality service is provided, negative perceptions regarding safety, convenience, or reliability may limit ridership.

Improvement projects that support a positive perception of transit include:

- High-quality facilities for riders to obtain information
- Safe, well-lit waiting areas sheltered from the elements
- Designated bus areas, especially for transfer activities

A shuttle and transit system meeting all of these project goals would encourage ridership and provide a high quality of service.

Roadway Network

For the roadway network within and immediately surrounding the campus, key project goals are mobility, compatibility, balance, and orientation.

Mobility

Drivers expect to be able to travel to their destination and arrive within a reasonable time frame. Lack of street connectivity and significant roadway congestion diminish mobility by car.

Projects that improve mobility on the roadways include:

- New or improved access points to campus
- Additional lanes at congested locations
- Elimination of conflicting turning movements at critical locations
- Provision of alternatives to driving

Compatibility

High-quality roadways fit within the natural and built environment and are compatible with their surroundings. Roadways that are too wide or promote excessive speeds are not appropriate for a campus environment.

Compatibility can be enhanced through projects such as:

- Reconstructing inappropriate roadway sections
- Realigning roads to relate effectively to buildings
- Planning new roadways in conjunction with anticipated building development
- Adding streetscape elements

Roadway Network
Opportunities and Threats

Opportunities

- Rethink Patriot Circle
- Designated drop-off areas
- Separate pedestrian and vehicle routes
- Short-term Braddock Road/123 improvements
- West campus overpass
- Route 123/Braddock Long-term improvements
- Mason Pond Drive “Full Access” (possibly during events only)
- Dynamic wayfinding/event management
- Reconfigure Nottoway/ Roanoke entrances
- Improve VDOT/City/County Partnerships

Threats

- Increasing traffic congestion on and off campus
- Funding for roadway improvements
- Auto-centric perceptions of campus access

Balance

Roads serve more than just cars, and must balance the needs of vehicles of all sizes, cyclists, pedestrians of all mobility levels, and parked cars, when necessary. Buffering pedestrian facilities and gathering areas from moving traffic is critical in a campus environment. Establishing bike lanes, transit facilities, crosswalks, and parking areas on appropriate road segments serves more user groups.

Projects that balance the needs of various road users include:

- Intersection reconfiguration
- Reconstructing inappropriate roadway sections
- Addition bike lanes and/or curb parking
- Adding bus stops, crosswalks, or streetscape elements

Orientation

Drivers use roads not only to travel to a destination, but for navigation. Disorienting or poorly signed roadways do not effectively convey motorists to their destination.

Projects that improve orientation include:

- Roadway realignment
- Intersection reconfiguration
- Wayfinding signage

Application of these project goals would lead to a roadway network that efficiently serves and balances the mobility needs of various user groups.

Parking System
Opportunities and Threats

Opportunities

- Manage parking as a scarce resource
- Parking finance/fee increases
- Demand management program is nascent
- Remote parking
- Additional structured parking
- Surface lot reconfiguration

Threats

- Parking is an entitlement
- Parking finance/fee increases/ debt service on decks
- Redevelopment will displace parking
- Increasing demand with campus growth
- Increasing event demands
- Neighborhood parking impacts
- Loss of accessible parking near core of campus

Parking System

Key goals for the parking system are sustainability, flexibility, and efficiency.

Sustainability

Vehicular parking areas can consume large amounts of land area. As the George Mason campus continues to grow, large surface lots limit the space available for academic, research, recreational, athletic, cultural, and open space needs. Environmental concerns associated with parking include stormwater management, hazardous materials runoff, and heat island effects.

Sustainability of the parking system can be supported through:

- Stricter parking management and elimination of general parking passes
- Construction of parking garages as replacements of surface lots
- Inclusion of low-impact design measures with curb parking
- Limiting the parking supply to encourage use of alternative transportation

Flexibility and efficiency

Parking areas on the campus serve academic, research, athletic, cultural, residential, and event parking needs. Management of the parking supply to accommodate these uses without separate

designated facilities is crucial. Parking areas are inherently temporary storage facilities, and are unutilized during significant periods of time. Obtaining maximum utilization from the parking system improves efficiency and promotes environmental and financial sustainability.

Projects that improve the flexibility and efficiency of the parking supply include:

- Event management practices that are implemented consistently
- Varied management practices for different situations
- Drop-off and information areas to limit impacts to long-term parking areas

A sustainable parking system that meets the needs of many user groups efficiently would result from projects meeting these goals.

Policies and Programs

Key goals for the transportation programs and policies include sustainability and priority.

Sustainability

Programs that support alternative modes of transportation must themselves be sustainable. Partnering with other service providers, community businesses, or facility operators offers the ability to share costs as well as benefits.

Programs that enhance the sustainability of TDM efforts include:

- Coordination of parking with nearby business communities
- Sharing of parking and transit facilities with nearby providers
- Marketing of existing and new services to maintain maximum user rates

Priority

In order to reduce travel by driving alone, and thereby reduce greenhouse gas emissions, priority must be placed on programs and policies that result in the desired mode shift. Administration support, use of marketing resources, and development of innovative programs demonstrate the University's commitment to climate action.

Programs that make TDM efforts a priority include:

- Marketing of existing and new services to maintain maximum user rates
- Enhanced subsidies for alternative transportation
- Flexible work options, including technology support

Transportation Improvement Priorities

5

Subsequent to compiling the finalized improvement projects, listed in chapter 7, and programs into the transportation improvement plan, implementation priorities were identified. Implementation of the improvement plan will be accomplished over time, since sufficient funding cannot be obtained to perform all of the work at once. Various prioritization schemes were investigated by the project team, working group, and executive committee. Projects were grouped according to campus geography to determine if performing all improvements in a given sector simultaneously would achieve desired results. The projects related to a given mode were aggregated to evaluate the effectiveness of implementing the upgrades on a system-by-system basis. Individual projects were assessed based on particular need or merit to identify critical near-term improvement requirements. Other sub-groups of projects were also created to evaluate other related improvement needs and benefits.

Through a series of discussions with the project team, stakeholders, and the Executive Committee, a general consensus around the priority of project sets was developed. In general, it was determined that programs encouraging the use of alternative transportation (including flexible work options), campus entrance improvement projects, pedestrian network upgrades, and bicycle system improvements should be pursued as priorities. These priorities are each discussed in greater detail below.

Transportation Programs and Policies

Overview

Policy changes, programs, and physical improvements that reduce reliance on single-occupant vehicle travel are known as Transportation Demand Management (TDM) measures. Elements of TDM programs improve marketing of transit and other non-automobile modes of travel, provide monetary or other incentives (or disincentives) to effect mode choice, and expand available alternatives to driving alone.

Priority Rationale

Support of programs and policies to reinforce non-automobile travel was determined to be the top priority for implementation since they are consistent with the University's sustainability goals and the positive impact across several systems. Reduction in single-occupant vehicle trips, whether by limiting travel or by use of transit or ridesharing, significantly reduces greenhouse gas emissions and supports the University's goal of carbon neutrality. Limiting the number of new parking spaces required as the campus continues to grow supports environmental health and financial sustainability. Additionally, each student or faculty/staff trip converted from a single-occupant vehicle to transit reduces competition for roadway capacity, eliminates the need for a parking space, and removes conflicts with non-motorized travel modes, improving efficiency.

Additionally, these measures need to be in place early so that changes in travel behavior occurs early enough to forestall the need for additional on-campus parking

Priority Projects

Critical TDM projects for first-tier implementation are the marketing program for transportation options (project ID D-3, page 150) and a significant increase in funding of subsidies for transportation options (project ID D-5, page 152). Implementation of the revisions to the parking permit system (project ID P-1, page 112) is also a priority, so planning efforts should commence in the near future.

Costs for the first-tier programs would total approximately $530,000.

Second-tier priorities for transportation programs and policies include coordination with the garage owners on the potential for shared parking in the Burke Center VRE and Old Town Fairfax Village parking decks (project ID D-1, page 148 and D-2, page 149). Development of standard event parking procedures (project ID P-12, page 121) will improve parking efficiency and support the permit parking system. These programs are important and should be pursued in the near-term, but are not as critical as the first-tier programs.

Together, these second tier programs would cost approximately $100,000.

It is important to note that some of these programs, such as the parking permit system changes and event management procedures, have the potential to be revenue generating.

Campus Entrance Improvements

Overview

This group of improvements supports various travel modes at the gateways to campus from the surrounding community. Projects that upgrade pedestrian and bicycle accommodations, and increase their importance relative to vehicular travel, at the campus portals are an integral part of the overall improvements at these locations. These projects also serve to reduce congestion at campus entrances, provide additional flexibility for event management, and seek to improve the visual character of campus gateways, and aid in orientation and wayfinding for campus visitors.

Priority Rationale

Campus entrance improvements were determined to be of critical importance to the University due to the proportion of users impacted by conditions on and along the entry roadways. Whether in a private or transit vehicle, as a pedestrian or cyclist, the majority of students, almost all faculty and staff, all academic and non-academic visitors, and most event patrons pass through the campus portals entering and exiting Mason. Even with a greater emphasis on student housing within the campus, significant congestion at the entrances can impact the ability to reach destinations in a timely manner, and thus the cultural, educational and research missions of the University are affected. The campus gateways are also the first element that visitors and prospective students and faculty/staff experience upon arrival. Entrances should be well-organized, orient users to the campus features, and serve all modes in a balanced manner.

Priority Projects

First-tier improvement projects related to the campus entrances include improvements to the heavily-utilized Roanoke River Road entrance (project ID R-5, page 127 and R-6, page 128), new or reconfigured entrances along Braddock Road (project ID R-1, page 124; R-2, page 124; and R-4, page 126), enhancements of University Drive and George Mason Boulevard (project ID R-7, page 129 and B-1, page 96), and installation of a new traffic signal or other pedestrian safety improvements at the Roberts Road/Shenandoah River Lane intersection (project ID W-1, page 81).

Capital costs for the first-tier improvements would total approximately $2,000,000, not including architectural features.

Further upgrades to the wayfinding signage, with the addition of variable message signs, (project ID S-3, page 156) would support all campus entrances by directing traffic to the appropriate location and providing the ability to manage traffic flow for events or incidents. This project should be pursued as a second-tier campus entry priority since implementation of the first-priority projects will affect the layout and operation of the wayfinding system.

This second-tier project would cost approximately $500,000.

Pedestrian Systems

Overview

The pedestrian systems consist of conveyances for pedestrians of all mobility levels including walkways (concrete sidewalks, asphalt paths, and natural-surface trails), crosswalks, ramps, and stairs. In many cases, crosswalks and handicap curb ramps are addressed with roadway improvements, out of necessity.

Priority Rationale

Every faculty or staff member, visitor, and student utilizes the pedestrian system during at least a portion of their stay on campus. The University sidewalks and paths serve users for transportation, fitness, recreation, and leisure activities. While receiving less focus than roadway issues, the condition and utility of walkway connections can impact the Mason community on a more regular and on-going basis. Improving pedestrian accommodations can increase the number of trips made on foot, reducing vehicle-miles of travel and greenhouse gas emissions, thereby supporting the University's sustainability goals. Pedestrian system improvements also signify a shift of focus from a "commuter-campus" to a 24/7 learning community. Along with having a major impact on the campus environment and travel behavior, a unified pedestrian system serves as a critical orienting feature of the campus, allowing members of the campus community to understand how to move around within the campus and can provide an important fabric that links together different campus neighborhoods and activities. Pedestrian system improvements also reinforce institutional goals associated with landscape and connectivity with surrounding communities and reinforce health and wellness objectives for the campus community.

Priority Projects

The first-tier of pedestrian projects consists of the primary and secondary walkways. The primary walkways (project ID W-32 etc, page 84 and W-4 etc, page 83) will create north-south and east-west pedestrian boulevards linking through the campus. The secondary walkways (project ID W-30 etc, page 85 and W-44 etc, page 86) will connect the primary corridors with each neighborhood and major event center on campus. Prior to the implementation of these walkway projects, a set of standards and an overall plan (project ID W-27, page 89) should be developed.

Capital costs for the first-tier improvements would total approximately $4,250,000.

Second-tier pedestrian projects focus on the reconstruction of Aquia Creek Lane to better balance pedestrian needs with parking, loading, and drop-off activities (project ID P-7, page 117 and P-13, page 122). This project is a second tier project primarily due to the higher level of investment needed on this important roadway, service, pedestrian and visual corridor.

Together, these second-tier projects would cost approximately $315,000.

Bicycle Systems

Overview

Components of the bicycle systems include separate designated on-street bicycle lanes, shared-use travel lanes, off-street shared use pathways, bike racks or lockers, bicycle shelters, and support facilities. Several of the on-street bicycle facilities are included with roadway projects and many elements of this system were implemented through maintenance activities in the summer of 2010.

Priority Rationale

Cycling as a mode of transportation provides health and fitness benefits and is sustainable, reducing both greenhouse gas emissions and impervious land area needed for parking. Bicycle travel is more practical for longer distances than walking and is compatible with most transit services in the region. Bicycle travel also affords a degree of security and freedom to on-campus residents. Through use of a bicycle, on-campus residents can travel more quickly around campus during late evening and other periods and can experience a broader range of activities by traveling slightly further as afforded by bicycling. Such options include shopping and entertainment in Old Town, off-campus housing options, and recreational opportunities.

Priority Projects

Critical projects for creating a connected bicycle network include projects on the University grounds and those exterior to the campus. The widening of George Mason Boulevard to accommodate two vehicular lanes and a bike lane in each direction (project ID B-1, page 96) was noted under campus gateway projects, as was the reconfiguration of the Roanoke River Road/ Patriot Circle intersection (project ID R-6, page 128). Along with the widening of Patriot Circle to accommodate bike lanes in the remaining segments that are currently too narrow (project ID R-24, page 145 and B-9, page 102), these projects would complete the bicycle lane around the campus core.

Capital costs for first-tier improvements would total approximately $1,000,000.

Provision of complete bike facilities off-campus requires approval and cooperation from surrounding jurisdictions. Projects to connect bike routes to Old Town Fairfax (project ID S-4, page 157) and the Vienna Metro Station (project ID B-5, page 100) should be pursued, but may take longer to accomplish than projects within the campus.

Together, these second-tier projects would cost approximately $60,000.

Other Improvements

Several large-scale transportation improvement projects will be implemented by surrounding jurisdictions or will require independent financing plans in order to fund their implementation. Projects that will be constructed by, or in partnership with, Fairfax County or VDOT include the Braddock Road/Route 123 interchange and interim improvements, transit center improvements, and Route 123 pedestrian crossing upgrades. Those projects of a scale that prohibits incremental financing include parking structures, West Campus roadways, the extension of Po River Lane, and improvements around the Academic VII building.

Potential Multiyear Transportation Improvement Programs

6

Implementation of the transportation improvement projects could occur through several distinct mechanisms as discussed in the following sections. Likely, improvements will be implemented through a combination of these methods. Several of the funding options are discussed in general terms below.

Implementation through Capital and Special Project Linkages

Historically, Mason has relied primarily on funding from adjacent capital building projects and "Campus Access" special projects (funding derived primarily from student fees and parking revenues) to implement transportation improvements. If the construction of a new walkway or the realignment of a road is required with a new building, but outside the project limits, funding is typically obtained with the building capital project. Authorization for funding the transportation improvement, part of the improvement, or a group of similar improvements may occur separately and in advance of capital project approval.

Minor transportation improvements, and occasionally significant projects, are performed using funds from Campus Access. Funds must be requested through the regular capital budget process and funding allocations for this project have been modest. Particularly for large roadway or walkway projects, sole reliance on these mechanisms would not be sufficient to implement the majority of the transportation improvement plan projects.

Improvement projects with linkages to specific capital projects include:

- Widening of George Mason Boulevard (Academic VII)
- Realignment of Patriot Circle (Academic VII)
- Occoquan River Lane Realignment (Housing VIII)
- Chesapeake River Lane Reconfiguration (University Hall and Fenwick Library Improvements)
- Patriot Circle Sidewalk from Shenandoah to Facilities (Central Plant)
- Aquia Creek Lane East Side Reconfiguration (Thompson Hall Renovation)
- Adjacent Primary Walkway Upgrades (Fenwick Library Addition)
- Adjacent Secondary Walkway (SUB II Renovation)
- Science and Tech II Loading Dock Reconfiguration (Science and Tech II)

Regular Funding Program Scenarios

As noted above, several other revenue sources could be developed to provide funding for the transportation improvement plan. Each of these funding streams has an individual potential funding limit and associated administrative complexities. As the basis for this plan, a transportation improvement fund of varying levels is assumed. There are a wide variety of complex considerations in the formulation of such a fund. Differing levels of effort would be required to obtain funding through the various sources, due to political, user, or administrative resistance, and are beyond the scope of this plan. The primary considerations in the formulation of such a fund include the administrative practicality of establishing the revenue streams and an understanding of how the fund is incorporated into the year-to year capital and operating program for parking and transportation.

General Principles

As a transportation improvement fund represents a significant shift in how transportation investments are conceived and implemented, it is important to establish some general principles around the formulation of such a fund. Some of these concepts include:

- User fees will be associated with the operation and investment in the facilities and services for which the fees are collected.
- Programs, policies and capital projects that broadly benefit the University should derive their funding from a broad funding platform.
- Every opportunity to leverage, external, one-time, and donor funding should be evaluated and utilized.
- The long-term impacts and funding of mega-projects should be considered, but should not compromise progress toward annual and continuous improvement of the transportation system.
- Establishing a regular funding model will allow the University to respond to changing transportation needs and priorities over time.

While these concepts apply broadly, many specific options are available to support the annual fund. These are explored below.

Student Fees and Payroll Fringe Assessment

Capital funding could be obtained from students and/or payroll budgets, through student fees and payroll fringe assessments. The student fees would simply be an increase in an existing revenue stream. Payroll fringe assessments would essentially be an administrative "tax" applied to the University payroll that is largely invisible to the individual employee, but accumulates in a fund dedicated to provide transportation improvements and commuter programs. Individual line item charges could be added to student fees to fund transit services, transportation demand management measures, or a general transportation fund. Payroll assessments could be applied to transportation demand management programs, parking projects, or a general transportation fund. These funding streams could be implemented individually or in combination. In order to capture as much of the campus population as possible, it is most likely that they would be applied in combination

Capital Project Assessment

Rather than associating individual transportation improvements with nearby building projects, a transportation improvement assessment could be implemented for each capital building project. This assessment could be calculated as a percentage of the project construction budget, based on the square footage of the building, or could use another metric. Funding obtained through the assessment would be collected in a transportation improvement fund for allocation to future transportation capital projects.

Operating Assessments to Departments

Each department within the University could be assessed an annual amount in the budget to support a transportation improvement fund. The assessment may be based on metrics such as space utilization, faculty and staff employment, student head count, or a combination of these metrics. An annual funding target would be established and collected from departments and operating units based on the established metrics.

Administrative Budget

The transportation improvement plan could be funded through a stand-alone line item in the University administrative budget.

User Fees

In contrast to the general assessment approaches above, funding could be based on user fees. Fees charged to transit riders, parking patrons, or registered bicyclists would be available to fund future improvement projects for those systems. User fees directly support the mode of choice for those being taxed and are only collected from actual users. Therefore, higher levels of assessment are generally acceptable under this funding scheme. While conceptually attractive, user fee schemes are not effective in addressing University-wide programs or infrastructure improvements where the benefits accrue broadly to the entire University community. User fees can also serve as a disincentive for people using preferred services. For example, user fees may discourage use of campus transit services, resulting in an uptick in traffic on the "free" road system and increased parking demand which will exacerbate deficit generating parking structures. As another consideration, the priority improvements are some of the least suited to user fee funding. This funding model is most applicable to the provision of a premium service or to a large capital facility with captive users (i.e. parking structures).

State Sponsored Annual Transportation Improvement Fund

Financing for the transportation improvement program could be provided, at least conceptually, by the state through annual funding increments. Allocation of a fixed sum over a defined period would provide some level of certainty that large, multi-year projects could be completed. This strategy may not be politically feasible in the current environment, but may attract sponsorship from other state university system institutions that face a similar challenge.

Donor Opportunities

Many of the priority projects are potential donor opportunities. While transportation infrastructure has not traditionally been a sought-after naming opportunity for large donors, some projects in this plan could attract donor interest. Examples of these projects include campus gateway improvements, primary walkways such as the North Plaza of the Johnson Center.

Partnership Opportunities

George Mason University may also find willing partners to participate in the funding and implementation of programs and projects. These partners could include the City of Fairfax, Fairfax County, VDOT, the University Mall ownership, Old Town merchants, INOVA, and other businesses. These entities may be willing to partner in infrastructure improvements where benefits accrue to each partner. They may also be willing to sponsor investments in transit facilities and operations that serve the broader region.

Multiyear Transportation Improvement Program

In order to analyze how these programs would work, projects in the transportation plan were separated into categories of "mega-projects," which are of a scale that requires independent financing plans, and program projects, that are of a scale to fit into a multiyear program. This breakdown is provided below.

Mega-projects (and approximate costs):

- Parking Structures ($70,000,000)
- West Campus Roadways ($20,000,000)
- Po River Lane Extension, SW Sector ($5,000,000)
- Transit Center Improvements ($1,800,000)
- Academic VII Roadway Improvements ($1,300,000)

Program Projects (totaling approximately $19,000,000):

- New or Reconstructed Walkways
- Pedestrian Crossing Improvements
- Other Pedestrian Network and Safety Improvements
- Bike Lanes and Shared-Use Pathways
- Other Bicycle Network and Safety Improvements
- Transit Operations Changes
- Intersection Modifications
- Campus Gateway Modifications and New Access Points
- Loading, Service, and Drop-Off Improvements
- On-Street Parking Upgrades
- Parking Management Programs
- Transportation Demand Management Programs

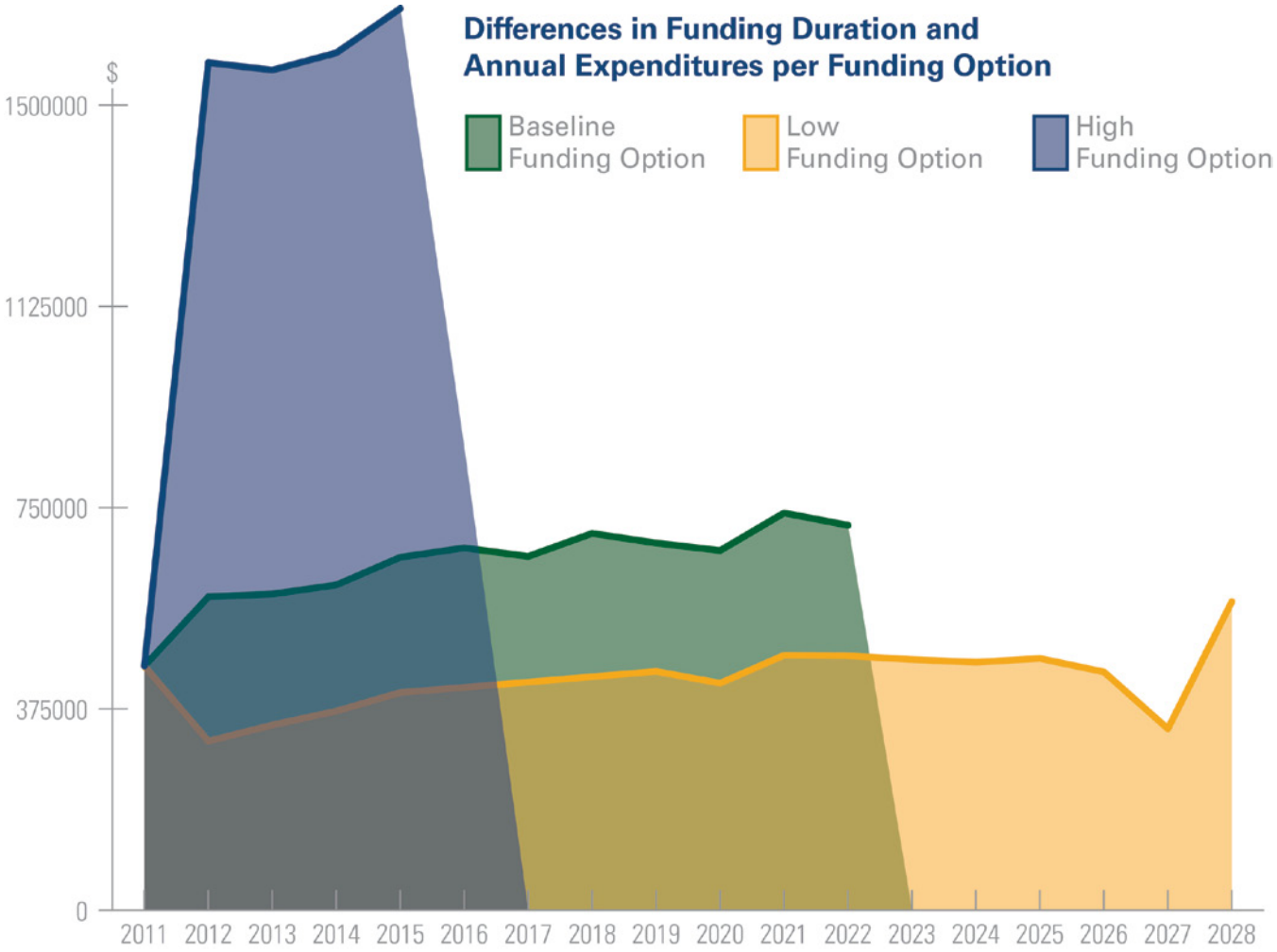
Baseline Scenario and Analysis

To establish a baseline of how this approach works, an annual funding level of $1,000,000 over a period of ten years would provide $10,000,000 for implementation of transportation improvements. A sample improvement program with this annual funding level was developed and is detailed below. Projects with current planning efforts were followed by transportation programs and policies, campus entrance improvements, pedestrian improvements, and bicycle improvements, based on the identified funding priorities. Expected annual program costs, planning and capital investments, and generated revenues were accounted for.

The program indicates that initial funding of approximately $500,000 would be required for imminent improvement projects, and $1,000,000 annual funding for a period of 11 years would be required to complete the identified improvements. After that, funding of approximately $300,000 per year would be required to cover annual costs, after accounting for generated revenues.

Overall Funding Differences

The chart below show the differences in expenditures over time for each funding option



Transportation Improvement Plan by System

7

Transportation Improvement Plan by System

Potential improvement projects and policy changes that were identified through the SWOT analysis or the planning process were vetted through the project team and the stakeholder groups. Projects supporting the guiding principles and offering benefits to one or more transportation modes were carried forward. Varying levels of design or analysis were conducted for the potential projects, based on project scope and dependencies. These draft improvement projects were then reviewed with the project team, working group, stakeholders, and executive committee to verify compatibility with Mason missions and policies.

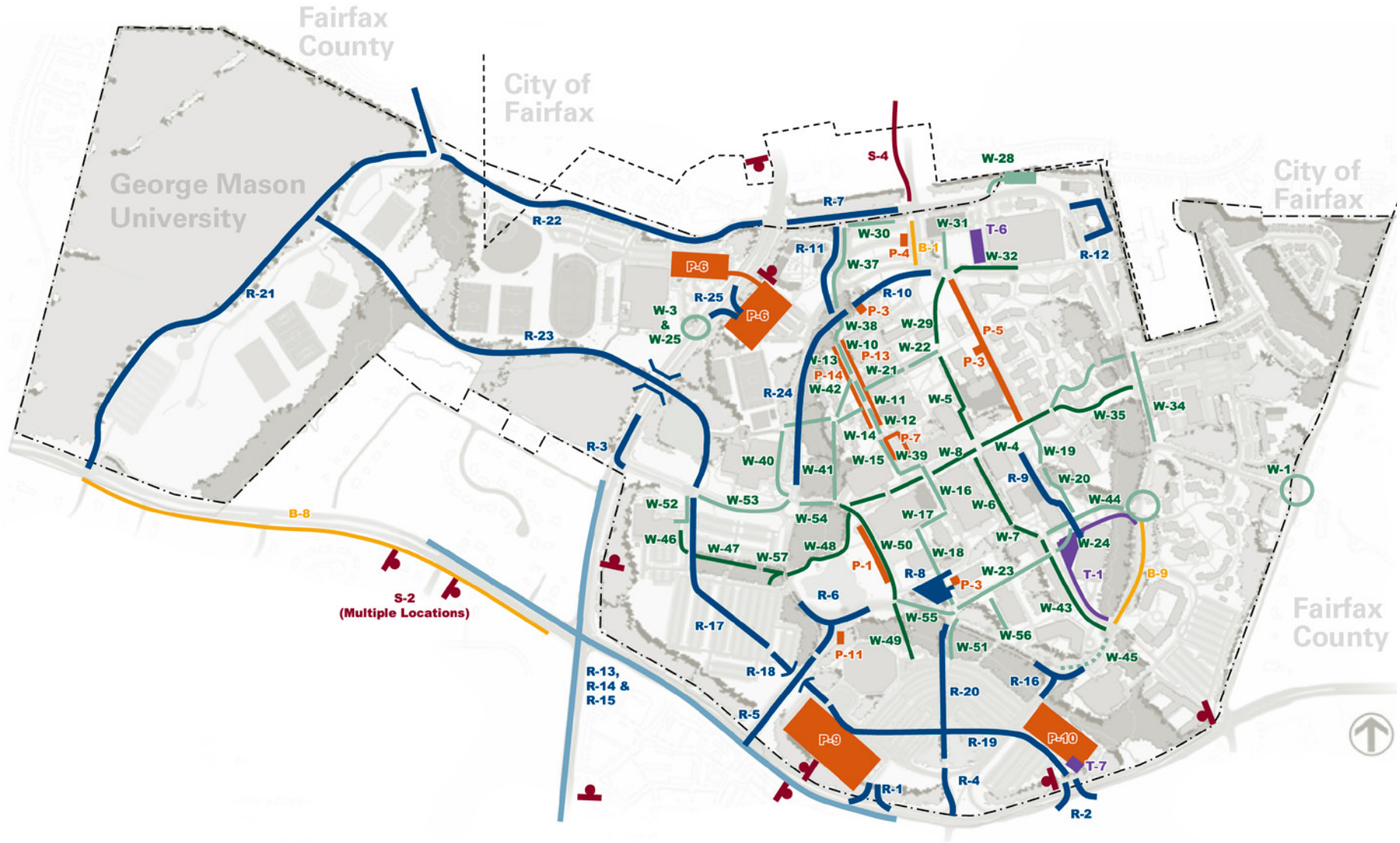
The resulting set of improvement projects make up the Transportation Improvement Plan. Descriptions of each improvement project are presented below, and are organized by transportation system. Each project is assigned a project identification code, with a letter designating the system and a sequential number for the individual project. The system letter designators are as follows:

- W = Walkways (Pedestrian Network)
- B = Bicycle Network
- T = Transit (and Shuttles)
- P = Parking System
- R = Roadway Network
- D = Demand (Transportation Demand Management)
- S = Signage (and Wayfinding)

The project description sheet for each project, or group of related projects, provides the following information:

- Name – a brief description of the project
- Geography – the general location on campus is identified
- Map – the specific location of the project is highlighted
- Goals – the objective(s) of the improvement
- Potential Funding: possible partners, governmental agencies, or University projects that may have an interest or responsibility to contribute funding for the improvements were identified. Preliminary funding discussions have not yet been initiated with these stakeholders.
- R.O.M. Cost: Rough Order of Magnitude (R.O.M.) cost estimates were prepared for each improvement project. These estimates reflect generalized construction costs or capital programmatic expenditures and do not include other expenses such as design, site constraints, land cost, and maintenance.
- Images – photos of existing conditions, plans, sketches, and/or analogous images
- Description – a narrative providing background on the specific need and proposed solution

The projects identified during this planning process are shown in the following map and index.


Fairfax County
City of Fairfax
George Mason University
City of Fairfax
Fairfax County
S-4
W-28
R-7
R-22
R-11
W-30
W-31
T-6
P-4
B-1
W-32
R-12
W-37
P-6
R-25
R-10
P-3
W-3 & W-25
P-6
W-38
W-29
P-5
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P-3
R-24
W-42
W-11
W-5
W-34
W-12
W-35
W-14
P-7
R-3
W-40
W-39
W-8
W-4
W-19
W-41
W-15
R-9
W-20
W-1
W-16
W-44
W-52
W-53
W-6
B-8
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W-17
W-46
W-47
W-57
W-48
W-50
W-7
W-24
P-1
W-18
R-8
T-1
B-9
W-23
P-3
S-2
(Multiple Locations)
R-6
W-43
W-55
R-17
W-56
W-49
W-51
P-11
W-45
R-18
R-16
R-13, R-14 & R-15
R-20
R-5
P-9
P-10
R-19
T-7
R-4
R-1
R-2

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Pedestrian Network

Potential pedestrian network improvement projects that would be compatible with the guiding principles, produce benefits to the users, and support one or more of the project goals were refined further and are presented below. These projects generally are intended to create a safe, accessible, connected pedestrian circulation system with a hierarchy that is legible and consistent. This is proposed through new or significantly upgraded walkways in some areas, and simple amenity enhancements in others. Major pedestrian boulevards (primary walkways) are envisioned to form north-south and east-west spines through the campus. Secondary walkways would serve other important routes, with less-extensive wayfinding and amenities. Primary, secondary, and minor pathways would be easily distinguishable from one another. Safety enhancements would include crosswalk and pedestrian signal improvements.

Project goals supported by pedestrian network improvements include:

- Connectivity
- Accessibility
- Mobility Choices
- Pedestrian/Bicycle Safety
- Sustainability
- Traffic Management
- Community Benefit

Project Id: **W-1**

Traffic Control/Crossing Improvements of Roberts Road at Shenandoah

Geography: Perimeter
Transportation System: Walkway
Goal 1: Pedestrian/Bike Safety
Goal 2: Traffic Management
Potential Funding: VDOT
R.O.M. Cost: $75,000

Existing crosswalk

A signal at the Roberts Road and Shenandoah River Way intersection was investigated in conjunction with the Masonvale road improvements along Roberts Road. The campus ministry center across from Shenandoah River Way draws a large volume of pedestrian traffic from campus, resulting in potential conflicts at this intersection.

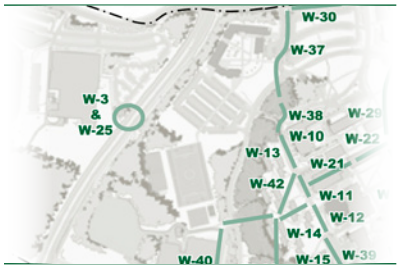
A traffic signal is not currently warranted according to VDOT standards. However, changes in traffic volumes in the future may justify a signal. The University should continue to coordinate with VDOT on the need for a signal and to investigate other pedestrian safety improvements at this location.

Example of crossing island

Project Id: **W-3**

At-Grade Crosswalk Improvements on Rt. 123 – Street Lighting

Geography: Field House Area
Transportation System: Walkway
Goal 1: Pedestrian/Bicycle Safety
Goal 2: Mobility Choices
Potential Funding: Fairfax County
R.O.M. Cost: Completed



Existing crosswalk before lighting

A marked at-grade pedestrian crossing is provided on Route 123 between University Drive and Mason Pond Drive. High-visibility pedestrian warning signs are installed near the crosswalk.

Fairfax County is currently investigating the possibility of installing street lighting to improve visibility at the crosswalk. No warning beacons or traffic control signals would be included with this project.

Street lights have been installed at the crosswalk

Project Id: W-4, W-8, W-9, W-35, W-46, W-47, W-48, W-49, W-50

Primary East-West Path

Geography: Northeast Sector, Southwest Sector, Inner Core

Transportation System: Walkway

Goal 1: Connectivity

Goal 2: Accessibility

Potential Funding: Building Development and Renovation Projects

R.O.M. Cost:

W-04: $90,000

W-08: $175,000

W-35: $68,000

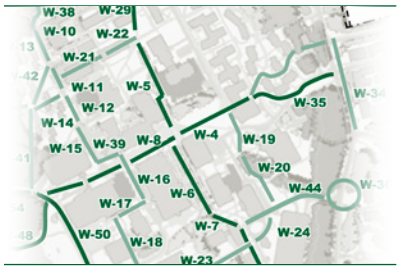
W-46: $30,000

W-47: $130,000

W-48: $146,000

W-49: $80,000

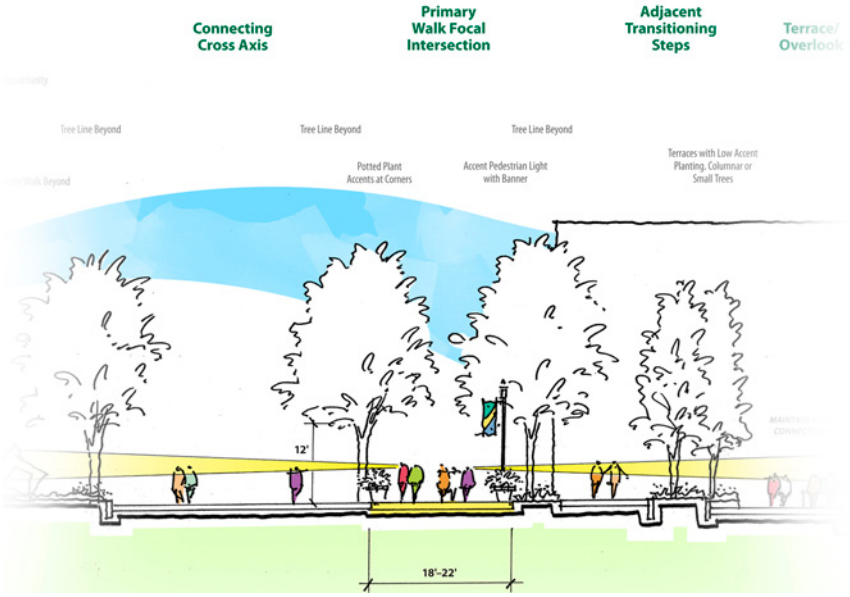
W-50: $113,000



Existing pathways provide minimal orientation

Pathways on the campus have varying widths, paving treatments or textures, lighting, landscaping, and other features. Walkways are often shared between pedestrians and service vehicles. These pedestrian boulevards would be easily identifiable by the generous sidewalk width, consistent paving materials, wayfinding and branding elements, lighting fixtures, and amenity features. These sections will be part of the east-west primary walkway.

This project involves constructing and upgrading walkways from the Mason Inn, across the Mason Pond, open space, between the performing arts and Mason Pond deck, across the North Plaza to Southside, and then along Rivanna River Way to Facilities and Masonvale.



Potential pathway elements

Pathway with seating

Project Id: W-5, W-6, W-7, W-29, W-32, W-43

Primary North-South Path

Goal 1: Connectivity

Goal 2: Accessibility

Geography: North Sector, Northeast Sector, Inner Core, Southeast Sector

Transportation System: Walkway

Potential Funding: Building Development and Renovation Projects

R.O.M. Cost:

W-05: $203,000

W-06: $135,000

W-07: $56,000

W-29: $100,000

W-32: $68,000

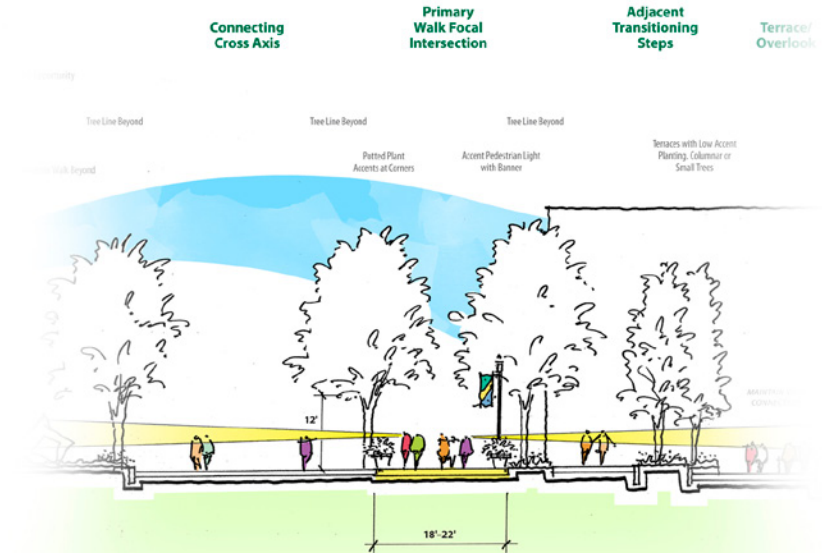
W-43: $180,000

Existing pathways provide minimal orientation

Pathways on the campus have varying widths, paving treatments or textures, lighting, landscaping, and other features. Walkways are often shared between pedestrians and service vehicles.

These pedestrian boulevards would be easily identifiable by the generous sidewalk width, consistent paving materials, wayfinding and branding elements, lighting fixtures, and amenity features. These sections will be part of the north-south primary walkway.

This project involves constructing and upgrading walkways from the Rappahannock parking deck, in front of University Hall, past the Library, between the Johnson Center and Science & Tech I, and past Research I to Patriot Circle near the Aquatic Center



Potential pathway elements

Pathway with seating

Project Id: W-10, W-11, W-12, W-13, W-14, W-15, W-16, W-17, W-18, W-19, W-20, W-30, W-31, W-37, W-38, W-39, W-51

Secondary North-South Path System

Geography: North Sector, Southwest Sector, Northwest Sector, Inner Core

Transportation System: Walkway

Goal 1: Connectivity

Goal 2: Accessibility

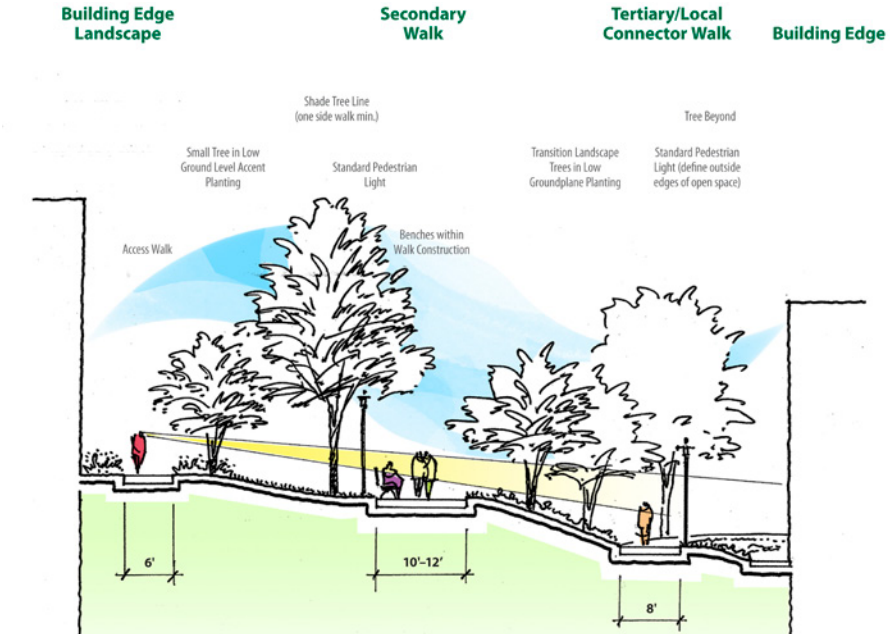
Potential Funding: Building Development and Renovation Projects

R.O.M. Cost:

W-10: $56,000	W-19: $31,000
W-11: $37,000	W-20: $56,000
W-12: $46,000	W-30: $38,000
W-13: $74,000	W-31: $25,000
W-14: $93,000	W-37: $60,000
W-15: $46,000	W-38: $32,000
W-16: $31,000	W-39: $56,000
W-17: $25,000	W-51: $75,000
W-18: $44,000	

Pathways on the campus have varying widths, paving treatments or textures, lighting, landscaping, and other features. Walkways are often shared between pedestrians and service vehicles.

The secondary walkways would be distinguishable as narrower and less intricate, but provide more amenities than a simple sidewalk or path. Secondary north-south pathways would extend from University Drive, along Aquia Creek Lane, past the Johnson Center, to the Patriot Center and also from University Hall, along Shenandoah River Lane, past SUB II, to the Sandy Creek deck



Potential pathway elements

Existing pathways provided minimal orientation

Pathway

Project Id: W-21, W-22, W-23, W-24, W-40, W-41, W-42, W-44, W-52, W-53, W-54, W-55

Secondary East-West Path System

Geography: Southeast Sector, Southwest Sector, Northwest Sector, Inner Core

Transportation System: Walkway

Goal 1: Connectivity

Goal 2: Accessibility

Potential Funding: Building Development and Renovation Projects

R.O.M. Cost:

W-21: $56,000

W-22: $50,000

W-23: $100,000

W-24: $31,000

W-40: $50,000

W-41: $60,000

W-42: $64,000

W-44: $50,000

W-52: $50,000

W-53: $75,000

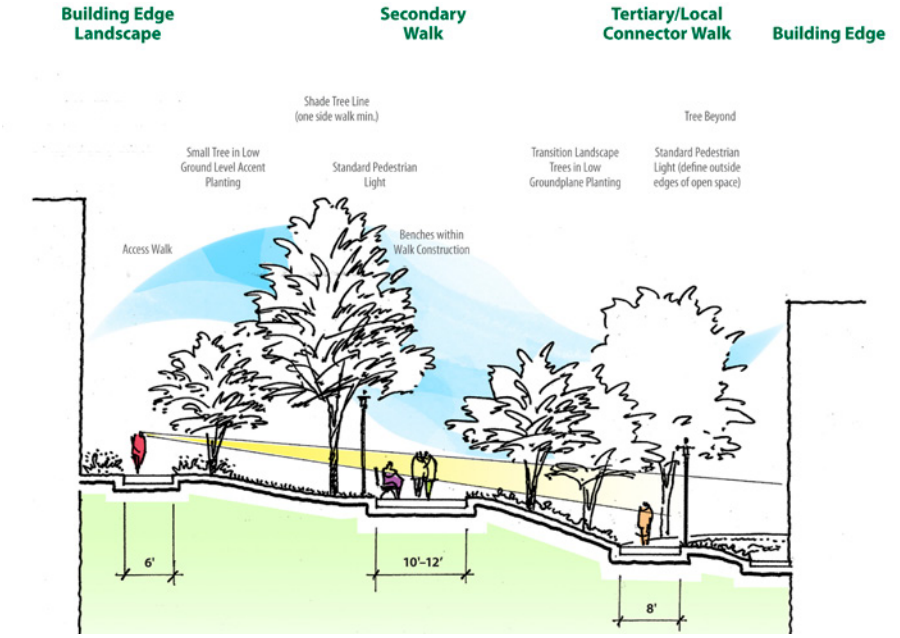
W-54: $50,000

W-55: $44,000

Existing pathways provided minimal orientation

Pathways on the campus have varying widths, paving treatments or textures, lighting, landscaping, and other features. Walkways are often shared between pedestrians and service vehicles.

Secondary east-west pathways would extend from the Mason Inn through Student Apartments, past Krug Hall and Commonwealth Hall, to the Rappahannock deck and also from the Center for the arts, past Innovation Hall and Enterprise Hall, to Presidents Park. These walkways would be distinguishable as narrower and less intricate, but provide more amenities than a simple sidewalk or path.



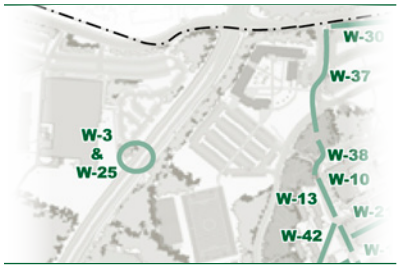
Potential pathway elements

Pathway

Project Id: **W-25**

At-Grade Crosswalk Improvements on Rt. 123 — HAWK Signal

Geography: Field House Area
Transportation System: Walkway
Goal 1: Pedestrian/Bicycle Safety
Goal 2: Mobility Choices
Potential Funding: VDOT
R.O.M. Cost: $75,000



Existing crosswalk

A marked at-grade pedestrian crossing is provided on Route 123 between University Drive and Mason Pond Drive. High-visibility pedestrian warning signs are installed near the crosswalk.

The Virginia Department of Transportation is examining the possibility of promoting pedestrian safety by providing traffic control at this location. A newer type of pedestrian crossing signal, the HAWK signal, may be appropriate for this location. A HAWK signal, or pedestrian hybrid beacon, remains dark until activated by a pedestrian. The signal then flashes yellow to alert motorists, and proceeds through a solid yellow phase to a steady red indication when the pedestrian begins to cross. After the pedestrian has crossed most of the roadway, the beacon flashes red to allow vehicles to pass if the crosswalk is clear. The signal then returns to dark until activated again.

If the HAWK signal would disrupt traffic operations along Route 123, VDOT is considering a standard flashing yellow beacon as an alternative. Either beacon would be installed by VDOT and would increase visibility of the pedestrian crossing.

Example of a HAWK signal

Project Id: W-26

Near-term Crosswalk Changes

Geography: Main Campus

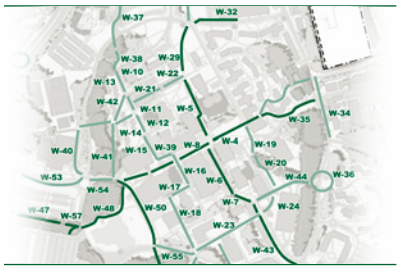
Transportation System: Walkway

Goal 1: Connectivity

Goal 2: Pedestrian/Bicycle Safety

Potential Funding: Facilities Maintenance

R.O.M. Cost: Completed



Previous striping

A variety of different pedestrian treatments have historically been found on campus roadways. Some crosswalks have been painted Mason colors, some are marked on speed humps, and some have signs associated with them. Little consistency existed between the crossing locations or with public road standards.

During Summer 2010, the University upgraded the pavement markings at crosswalks throughout campus. The restriping reduced the number of varying elements used at the crosswalks to improve the consistency of the installations. The new markings also better conform with standard elements of crosswalks found on public streets. Standardized crosswalk markings improve driver expectancy and improve pedestrian safety.

Upgraded striping

Project Id: W-27

Wayfinding Standards and Overall Plan

Geography: Main Campus
Transportation System: Walkway
Goal 1: Mobility Choices
Goal 2: Connectivity
Potential Funding: Special Projects
R.O.M. Costs: $300,000

Existing banners do not provide directions

The University is in the process of defining a campus neighborhood scheme to identify and differentiate various areas on campus. Branding of these neighborhoods and association of the areas with campus gateways is likely to be included. This new organizational framework would support a standardized wayfinding system to conveniently orient visitors to the campus.

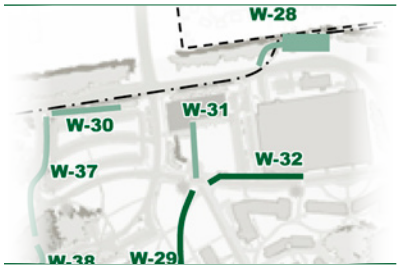
The University should create a set of wayfinding standards and an overall campus wayfinding plan in order to improve orientation and visitor experience. These standards would guide the implementation of wayfinding on the primary and secondary pathways. With a standardized neighborhood and wayfinding convention, directions to individual buildings would not be necessary. A visitor would only need to know which neighborhood the destination was in, then be directed to the building upon arriving in the neighborhood.

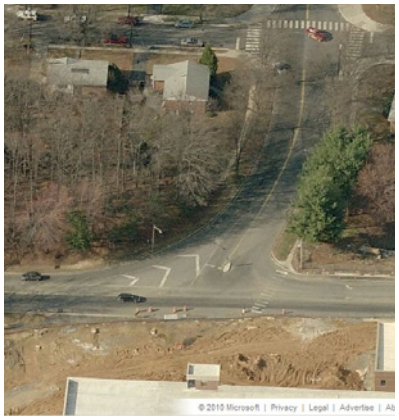
Examples of wayfinding elements

Project Id: **W-28**

University Drive Park/Pathway

Geography: North Sector
Transportation System: Walkway
Goal 1: Community Benefit
Goal 2: Connectivity
Potential Funding: Parking Deck 3
R.O.M. Cost: Completed





University Drive prior to construction

The construction of George Mason Boulevard as a replacement for University Drive created an unusable segment of paved right-of-way bordering the City and University.

Reclaiming this area as green space with a pathway and pedestrian amenities would benefit both the University and City of Fairfax communities.

Realignment of the pathway through the park would allow a pedestrian crossing of Patriot Circle at the Rappahannock parking deck exit, under signal control

Completed University Park

Project Id: **W-34**

Install Sidewalk Along East Side of Patriot Circle from Shenandoah to Facilities

Geography: Northeast Sector

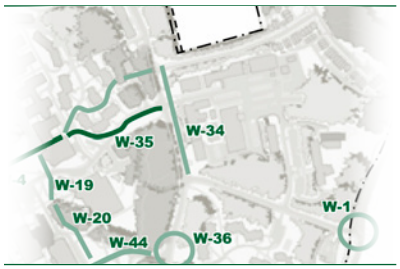
Transportation System: Walkway

Goal 1: Pedestrian/Bicycle Safety

Goal 2: Connectivity

Potential Funding: Central Plant Project

R.O.M. Cost: Completed



Prior to construction

No sidewalk exists along the east side of Patriot Circle adjacent to the central heating and cooling plant. While not a heavily-traveled pedestrian link, the lack of a sidewalk presents a disruption for walking in the area.

Due to drainage and utility conflicts, a sidewalk would need to be located along the back of the Patriot Circle curb. This sidewalk should be constructed to improve connectivity in the area.

New sidewalk

Project Id: W-45

Install Pedestrian Barrier Along North Side of Patriot Circle Between Nottoway and York River

Geography: Southeast Sector

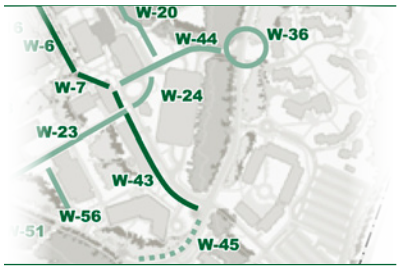
Transportation System: Walkway

Goal 1: Pedestrian/Bicycle Safety

Goal 2: Traffic Management

Potential Funding: County Transit Funds

R.O.M. Cost: $90,000



Existing crosswalk area

Sample planter

In several areas along Patriot Circle, conflicts with pedestrian crossings outside of marked crosswalks have necessitated the installation of pedestrian barriers. A guardrail was installed opposite Nottoway River lane and a handrail was added near Sandy Creek Way to serve this function. Pedestrians cross Patriot Circle near the Aquatic Center at an angle and in several locations, often outside of a crosswalk.

Installation of a planter or other pedestrian barrier would channel crossings to the crosswalk associated with the primary path along York River Road. Pedestrian/vehicular conflicts would be confined to an area where expectation of interaction is higher and vehicles must already stop.

Existing guardrail used to deter jaywalking

Project Id: **W-56**

West Side Art Building Pedestrian Pathway Connection to Lot A

Geography: Southwest Sector
Transportation System: Walkway
Goal 1: Pedestrian/Bicycle Safety
Goal 2: Accessibility
Potential Funding: Academic V
R.O.M. Cost: $45,000

Currently, students walk up the hill from Lot A past the new Art and Design Building, accessing it via the loading dock. This trail can be muddy and slippery following rains.

Despite the availability of other pedestrian connections, including accessible routes, in the vicinity, a sidewalk along this desire line for pedestrian travel should be constructed.

Existing path of travel

Example pathway

Project Id: W-57

Patriot Circle Pedestrian Crossing Reconfiguration at Lot J/K

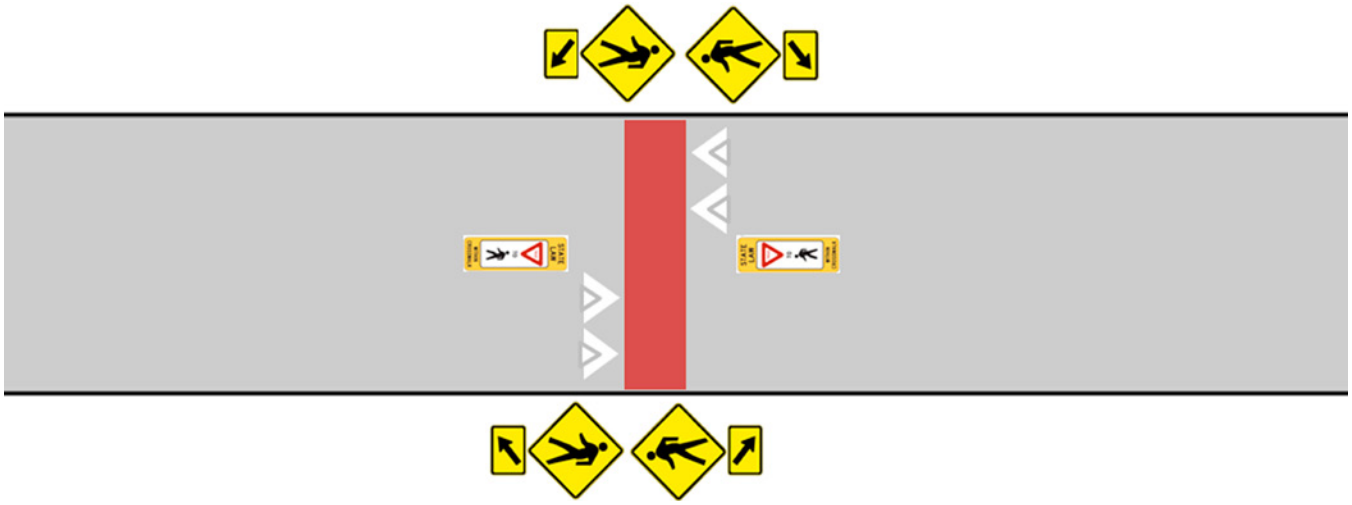
Geography: Southwest Sector
Transportation System: Walkway
Goal 1: Pedestrian/Bicycle Safety
Goal 2: Connectivity
Potential Funding:
R.O.M. Cost: $36,000

Existing crossing

Given the size of the general permit parking areas outside Patriot Circle, large numbers of pedestrians cross Patriot Circle at the entrances to Lots J and K when travelling to and from classes. In addition, patrons of events at the Center for the Arts may park in these lots and cross in the same location.

This project includes the reconfiguration of this pedestrian crossing area. Consolidating the multiple crossing paths would minimize conflict points. Construction of a separate walkway along Lot J and connection to the striped walkway within Lot K would reinforce the primary pedestrian boulevard concept. Features on both the east and west sides of Patriot Circle to channelize pedestrian traffic to a single point should be considered. In addition a pedestrian activated traffic signal could be installed at this location as a future phase of this project.

Example of a raised crosswalk near Hampton Roads



Example signing and striping treatment

Bicycle Network

Potential bicycle network improvement projects that would be compatible with the guiding principles, produce benefits to the users, and support one or more of the project goals were refined further and are presented below. These projects generally are intended to create a safe, connected bicycle circulation system for both casual and commuter cyclists. This is proposed through the addition of on-street bicycle lanes, upgrades to off-street multi-use trails, and bicycle support facilities. Bike lanes around Patriot Circle would be completed and connected to bicycle facilities off-campus. Through cooperation with Fairfax City, upgrades to bike routes to Old Town and the Vienna Metro would be pursued. Bike shelters would support bicycling, while permitting the establishment of a bike-free zone in the heart of campus.

Project goals supported by bicycle network improvements include:

- Mobility Choices
- Sustainability
- Pedestrian/Bicycle Safety
- Traffic Management

Project Id: **B-1**

George Mason Boulevard Bike Lane – Widen Street to Add Bike Lane

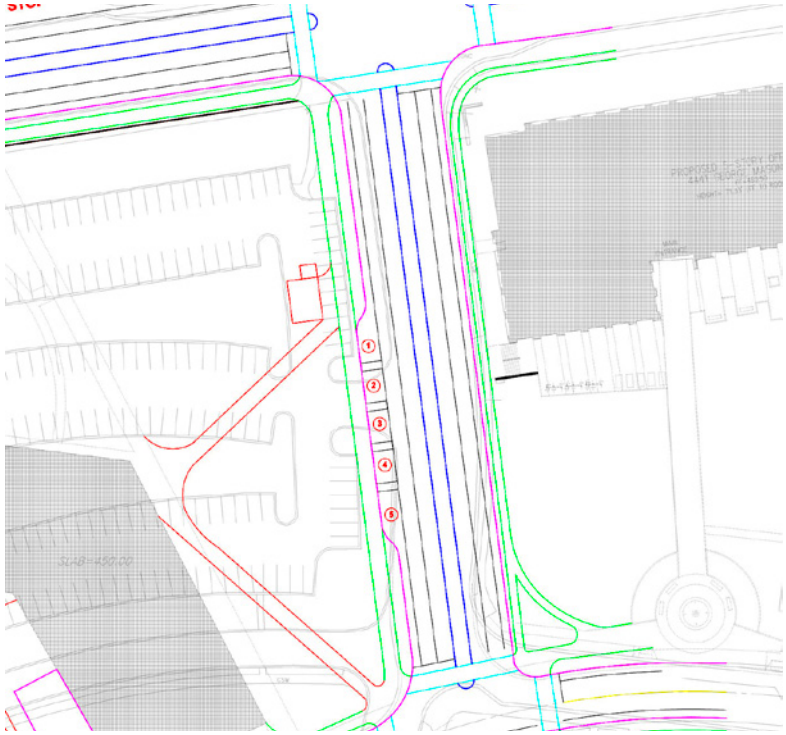
Geography: North Sector
Transportation System: Bicycle
Goal 1: Mobility Choices
Goal 2: Sustainability
Potential Funding: Academic VII
R.O.M. Cost: $75,000

Existing George Mason Boulevard

Between Patriot Circle and University Boulevard, George Mason Boulevard is configured with three vehicular travel lanes and two separate bicycle lanes. Previously, the four vehicular lanes had limited the designated on-street bike lane to the northbound direction only.

In order to match the cross-section north of University Drive and provide sufficient roadway capacity, George Mason Boulevard should be widened in order to return to four lanes, and maintain the two dedicated bike lanes. A median would also be desirable to reduce the expanse of pavement and to provide a location to control pedestrian crossings.

Example bike lane on University Drive



Striping plan

Project Id: **B-2**

Near-term Bike Lane Changes

Geography: Main Campus

Transportation System: Bicycle

Goal 1: Mobility Choices

Goal 2: Pedestrian/Bicycle Safety

Potential Funding: Facilities Maintenance

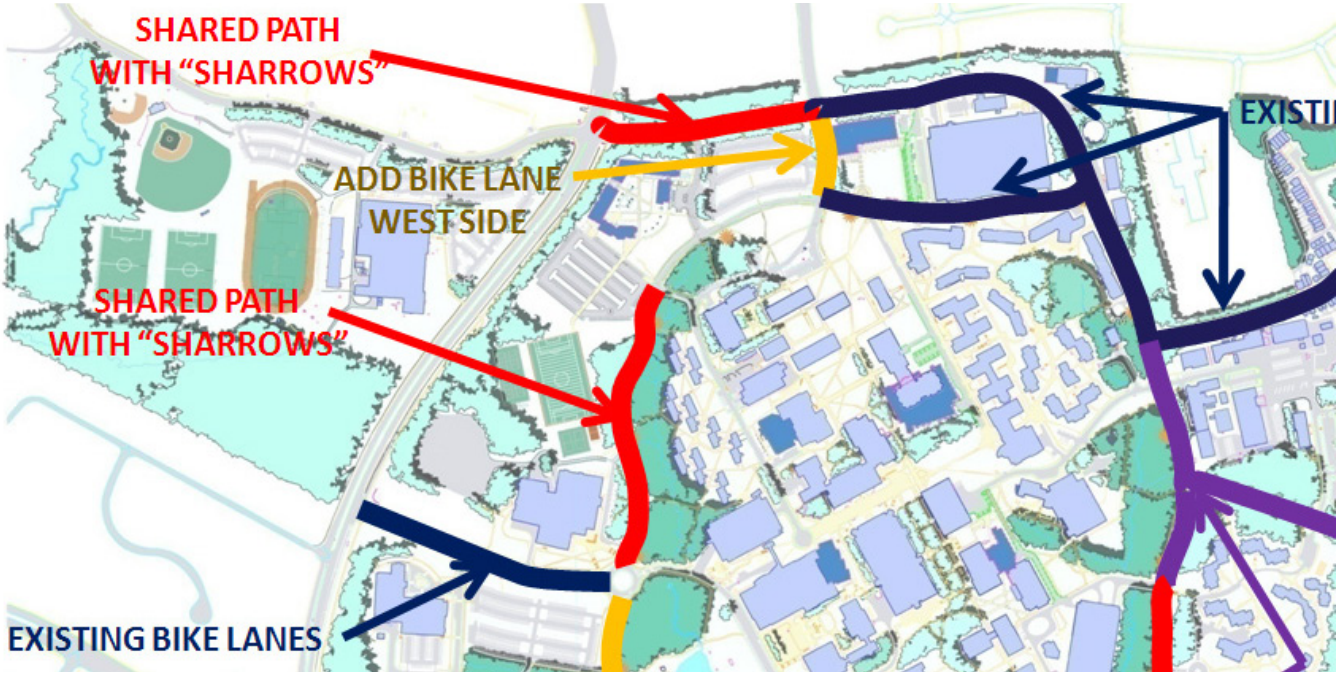
R.O.M. Cost: Completed

Facilities for bicycling on the George Mason campus have historically been limited and disconnected. This fragmented system discouraged biking on the University and as a commuting mode.

During Summer 2010, the University completed several changes to the bike lanes throughout campus. A significant proportion of Patriot Circle was striped with separate on-street bike lanes. In areas where sufficient space was not available for vehicular travel lanes and bike lanes, shared lane use arrows, or "sharrows", were painted on the pavement. George Mason Boulevard was restriped between Patriot Circle and University Drive to provide bike lanes in each direction, by removing one of the inbound travel lanes.

Previous end of bike lane

Extended bike lane on Patriot Circle



Near-term bike lane improvements

Project Id: **B-3**

Bike Lane Completion

Geography: Main Campus
Transportation System: Bicycle
Goal 1: Mobility Choices
Goal 2: Pedestrian/Bicycle Safety
Potential Funding: Campus Access
R.O.M. Cost: $15,000

Existing shared bike lane

In order to complete the connected network of bicycle facilities initiated with the summer bike lane striping, additional pavement marking efforts will be required. Once construction activities on Patriot Circle along University Hall are complete, bike lanes should be clearly marked. If not completed with the relocation and widening of Patriot Circle between George Mason Boulevard and Mason Pond Drive, bike lanes should be striped in this section.

Example of bike lanes on Patriot Circle

Project Id: **B-4**

Bike Shelters/Bus Shelters/Information Kiosks

Geography: Main Campus
Transportation System: Bicycle
Goal 1: Mobility Choices
Goal 2: Sustainability
Potential Funding: Campus Access
R.O.M. Cost: $225,000

Existing open bike rack

Some bicycle facilities are currently provided on the campus. Bike racks have been installed near most buildings, and shower facilities are available in the Aquatic Center and RAC.

In order to reinforce biking to and from campus, the University is working with an outside firm to provide bicycle shelters. These facilities would provide protection from the elements, would be well lit, and include areas for advertising. The advertising spaces can also be used to promote alternative transportation programs, indicate bike or bus routes, and provide wayfinding and maps. Cross-coordination with bus shelter marketing materials and information would promote the use of non-automobile transportation.

Example bike shelter

Project Id: **B-5, B-6, B-7**

Metro Bike Route: Old Town Fairfax Signage/Old Lee Highway Delineation/Fairfax Circle Wayfinding and Upgrades

Geography: Off Campus

Transportation System: Bicycle

Goal 1: Mobility Choices

Goal 2: Pedestrian/Bicycle Safety

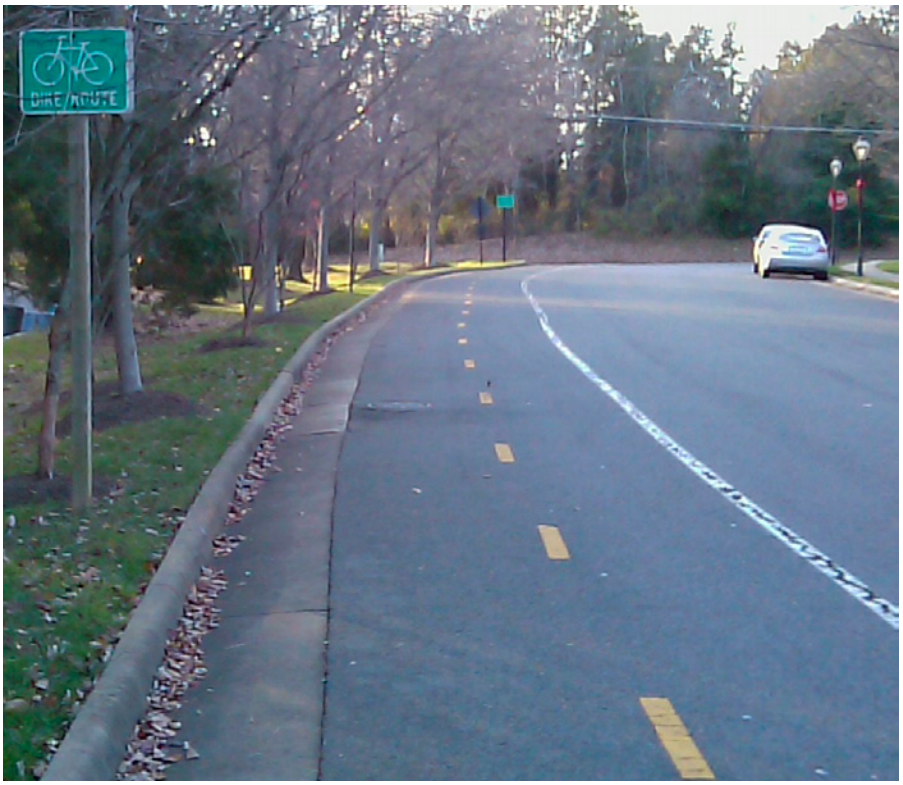
Potential Funding: City/ County Partners

R.O.M. Cost: $60,000

Existing conditions

Bicycle routes from Mason to Old Town Fairfax, Fairfax Circle, and the Vienna Metro Station are a confusing combination of shared use paths, separate designated facilities, and unmarked shared traffic lanes.

A coordinated effort is needed to designate the trail and offer better wayfinding signs, possibly even branding a "Mason to Metro Trail", working with both the City of Fairfax and Fairfax County to do so. Safety upgrades to the trail along Old Lee Highway are especially important, given the speed and volume of traffic and frequently varying roadway and trail cross-section. These initiatives can make students, faculty, and staff more aware of this alternative transportation mode that is available.



Example bike route: City of Fairfax

Project Id: **B-8**

Shared Path Upgrades to Braddock Road

Geography: Off Campus
Transportation System: Bicycle
Goal 1: Mobility Choices
Goal 2: Pedestrian/Bicycle Safety
Potential Funding: Fairfax County
R.O.M. Cost: $143,000

The existing trail is in disrepair

Along Braddock Road, there is an existing regional bicycle trail. The trail has been crossed with numerous utilities, its condition has deteriorated, and it is not well-maintained.

In order to improve biking conditions, the trail should be improved in order to entice cyclists to utilize the existing trail for bicycle commuting.

Example trail

Project Id: **B-9**

Widen Patriot Circle Near Sandy Creek Way for Addition of Bike Lanes

Geography: Southeast Sector

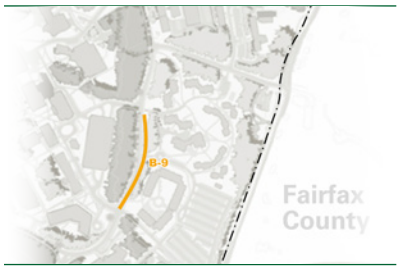
Transportation System: Bicycle

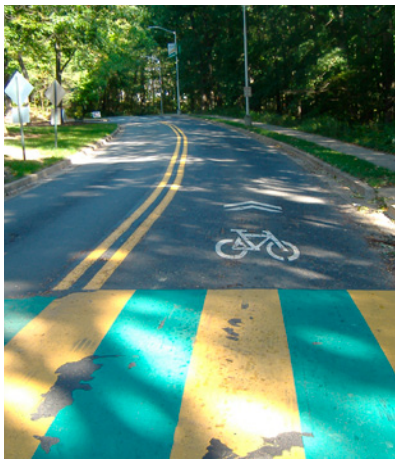
Goal 1: Pedestrian/Bicycle Safety

Goal 2: Traffic Management

Potential Funding: County Transit Funds

R.O.M. Cost: $138,000



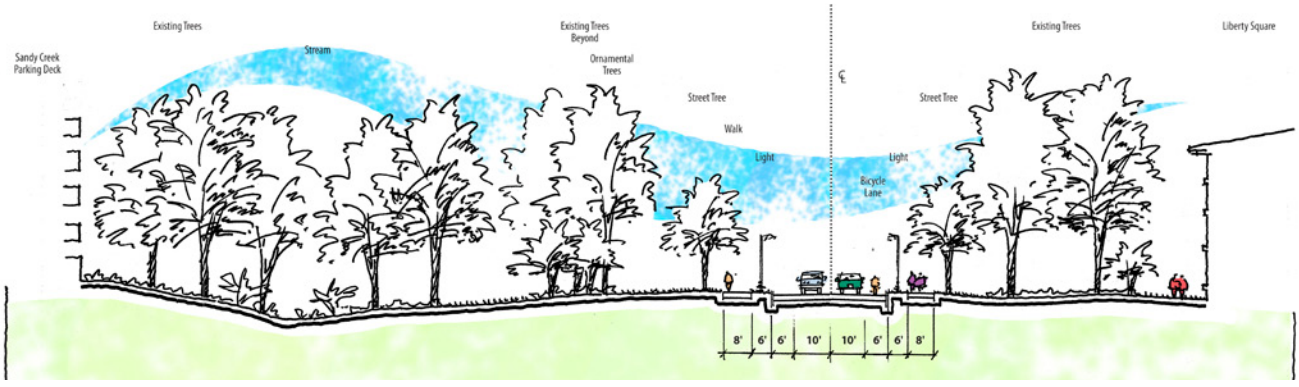


Existing conditions

Mason Shuttle buses serve the Sandy Creek Transit Center and necessitate the left turn lane on Patriot Circle into Sandy Creek Way. Insufficient width remains between the curbs to provide separate bicycle lanes in this segment of Patriot Circle.

In order to complete a full bicycle pathway circling the core of the campus, Patriot Circle needs to be widened.

Example bike lanes on Patriot Circle



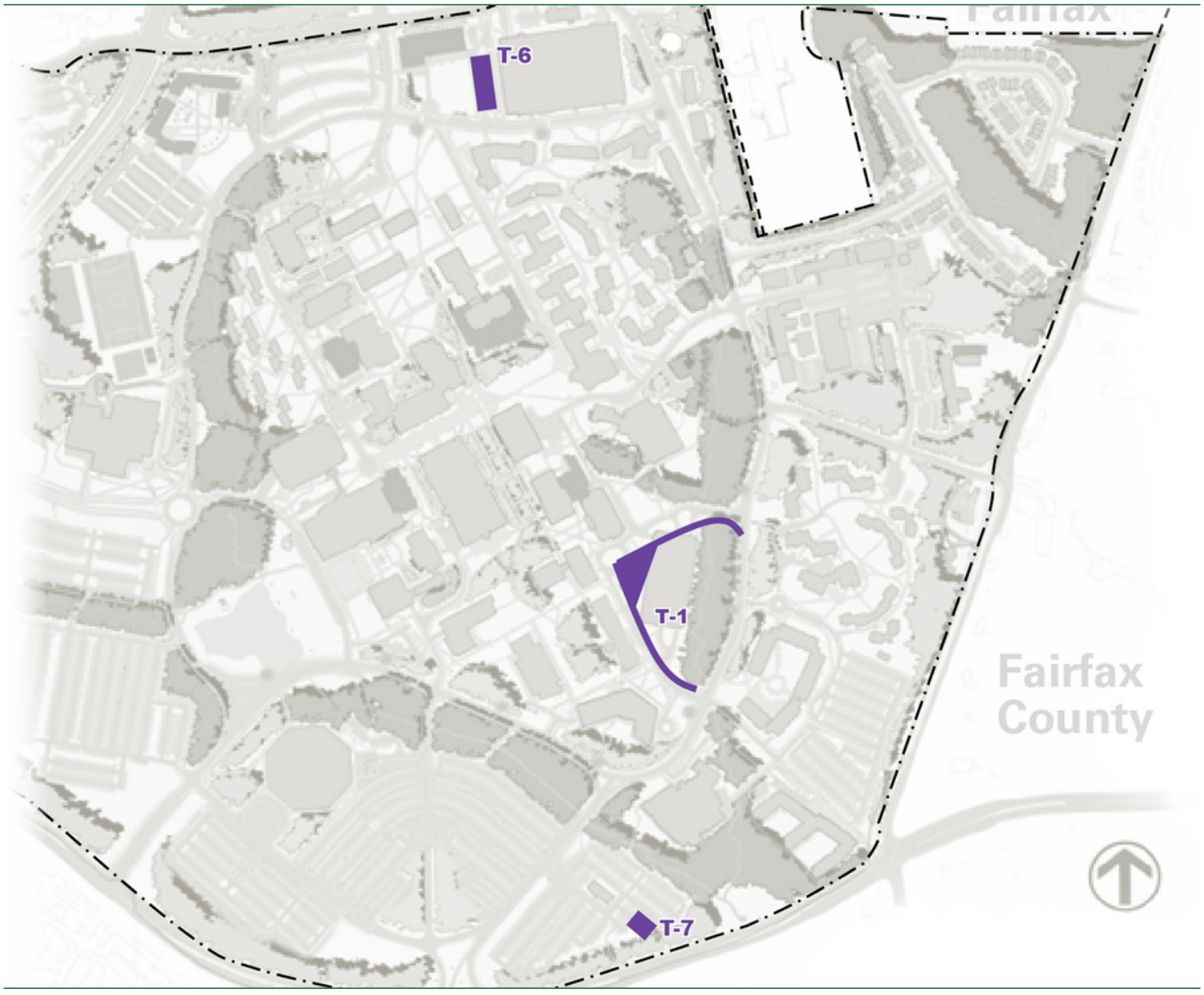
Proposed cross-section

Transit and Shuttles

Potential transit improvement projects and policy changes that would be compatible with the guiding principles, produce benefits to the users, and support one or more of the project goals were refined further and are presented below. These projects generally are intended to support and increase ridership of all campus-related transit services and to create new ones. Significant upgrades to the existing transit centers, along with a new transit center for the southern portion of the campus, would improve the quality of transit service and make it more user-friendly. Changes to the shuttle operations and investigation of new off-campus routes would better meet demands.

Project goals supported by transit improvements include:

- Transit Enhancement
- Sustainability
- Mobility Choices



Project Id: T-1

Sandy Creek Shuttle Stop Improvements

Geography: Inner Core

Transportation System: Transit

Goal 1: Transit

Goal 2: Sustainability

Potential Funding: County Transit Funds

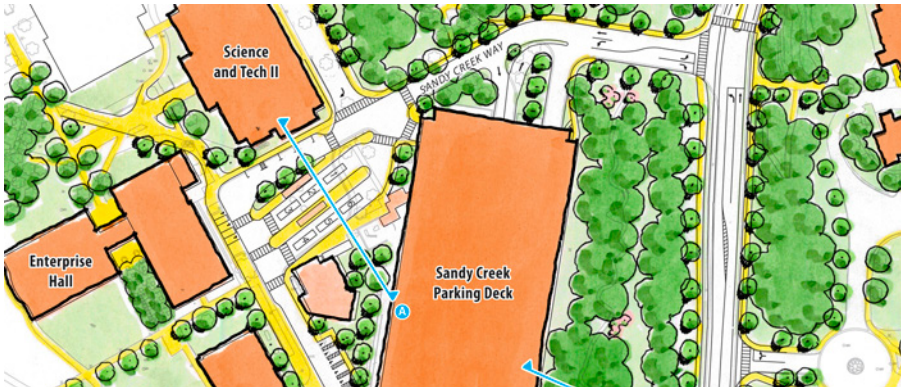
R.O.M. Cost: $950,000

Existing Sandy Creek shuttle stop

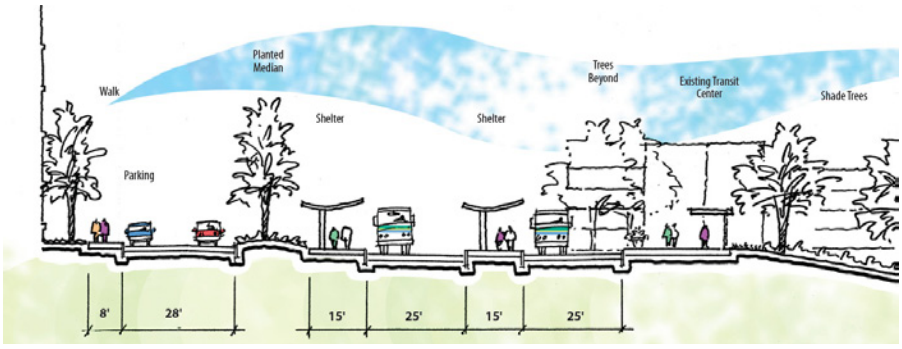
Multiple transit options are available to the George Mason community, however, there is not a central transit center where a rider can choose from CUE, Mason Shuttles, or Metrobus service at the same location. The Sandy Creek transit center serves only Mason Shuttles, while the Rappahannock bus stop serves CUE and Mason Shuttles, but does not provide a conditioned space for information or waiting. Metrobus service is only available on University Drive, at a bus stop that provides only a shelter and limited connectivity.

Grant funding for a transit center is potentially available through Fairfax County. Up to $1,000,000 may be available for a transit center of up to 10 bays. The University intends to pursue a distributed transit center concept, with facilities at Sandy Creek, Rappahannock, and in Parking Lot C. Each of the distributed centers would provide pedestrian and bicycle access, dedicated bus boarding/alighting areas, covered passenger waiting shelters, and conditioned information buildings.

Improvements to the Sandy Creek Transit Center would include the reconstruction and expansion of bus parking areas, more shelters, improvements to the access roadways, and pedestrian/bicycle improvements. The academic core of campus would be serviced by an improved Sandy Creek transit center. A potential traffic signal at either Sandy Creek Way or York River Road could be included a part of this project.



Transit center concept



Transit Center cross-section

Project Id: T-2

Changes to Circulator Shuttle Operations

Geography: Main Campus
Transportation System: Transit
Goal 1: Transit
Goal 2: Mobility Choices
Potential Funding: Campus Access
R.O.M. Cost: Completed

Existing shuttle stop

NextBus lobby sign

The University Transportation Department recently instituted changes to the Circulator Shuttle Operations. The shuttle no longer runs on twenty minute intervals with scheduled stops. Instead, it runs on a continuous loop, so students wait for the next available shuttle instead of following a schedule that was often not adhered to. In addition, shuttle operations for the West Campus and Field House Express services have been consolidated, and Mason-to-Metro shuttle services have been extended to the Mason Inn.

In the longer term, the circulator is intended to serve on campus trips while off-campus services would originate at the transit center and would not circulate around the campus

Revised shuttle route

Project Id: T-3

Development and Publication of Transit Maps and Schedules and Performance Information

Transportation System: Programmatic

Goal 1: Mobility Choices

Goal 2: Sustainability

Potential Funding: Campus Access

R.O.M. Cost: $5,000

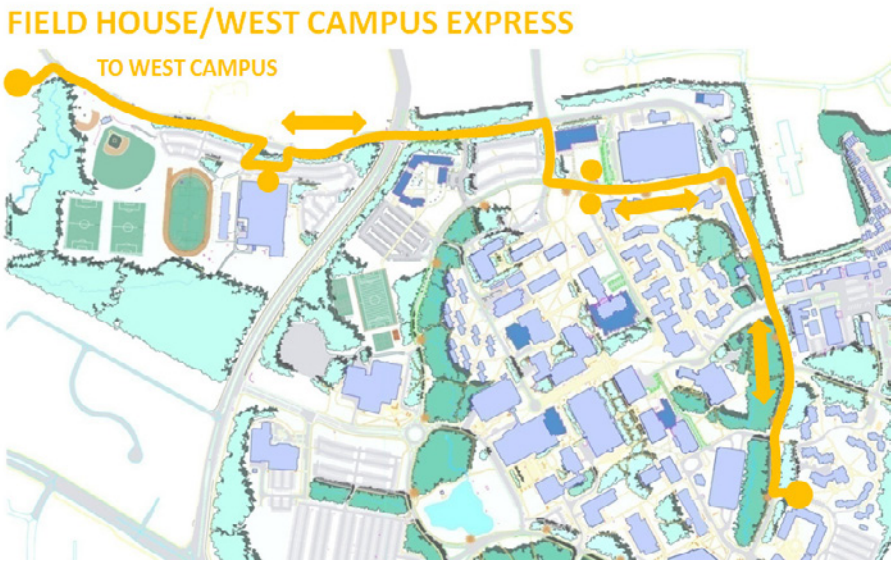
Example of a posted timetable

Information about the various Mason Shuttles is available on the University website. Printed timetables and maps have historically not been available for campus transit services.

In addition to the planned NextBus real-time transit information signs and services, published schedules and maps would aid users in making informed transit decisions and encourage use of public transportation. Published schedules need not be in paper format. E-mail updates, downloadable maps, and information posted at stops can be useful to riders and serve marketing as well as informational purposes.

Mason Inn	Mason Pond Drive Patriot Circle (side of Mason Hall)	Sandy Creek Shuttle Stop	Masonvale Patriot Circle at Staffordshire Lane	Rappahannock River Lane	Commerce Building	Vienna Metro North Side
6:00am	---	6:05am	---	6:10am	---	6:30am
6:30am	---	6:35am	---	6:40am	---	7:00am
6:45am Mon-Thur	---	6:50am Mon-Thur	---	6:55am Mon-Thur	---	7:15am Mon-Thur
7:00am	---	7:05am	---	7:10am	---	7:30am
7:15am Mon-Thur	---	7:20am Mon-Thur	---	7:25am Mon-Thur	---	7:45am Mon-Thur
7:30am	---	7:35am	---	7:40am	---	8:00am
7:45am Mon-Thur	---	7:50am Mon-Thur	---	7:55am Mon-Thur	---	8:15am Mon-Thur
8:00am	---	8:05am	---	8:10am	---	8:30am
8:15am Mon-Thur	---	8:20am Mon-Thur	---	8:25am Mon-Thur	---	8:45am Mon-Thur

Shuttle schedule



Shuttle route

Project Id: T-4
Burke Center VRE Shuttle

Geography: Off Campus

Transportation System: Transit

Goal 1: Transit

Goal 2: Mobility Choices

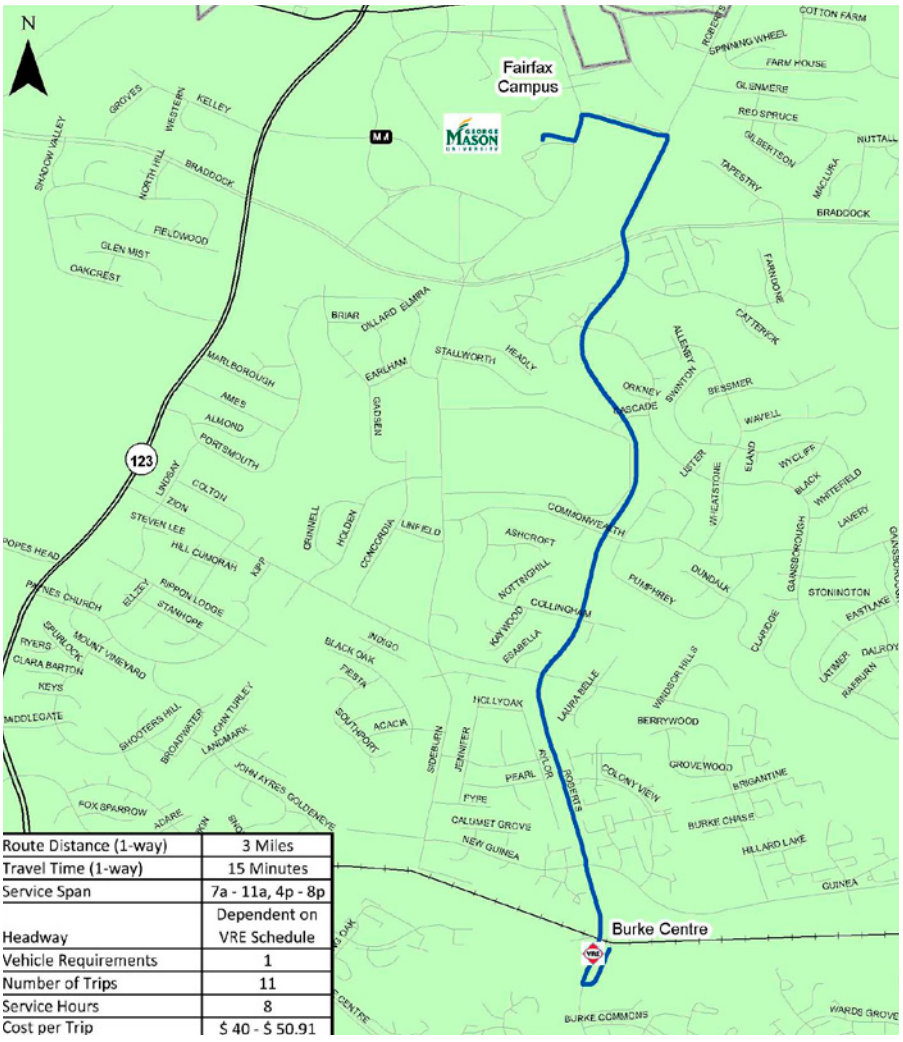
Potential Funding: County Transit Funds

R.O.M. Cost: $115,000 per year

Existing VRE garage

While there are transit connections to the Vienna Metro Station through both CUE and Mason Shuttle buses, there is currently no connection to the Virginia Railway Express (VRE) system.

The Burke Center Station is located just to the south of the Fairfax Campus, and connections could be made to offer another mode of transportation to access the campus, especially since the VRE travels to the south and west, where there are currently limited transit options. A single shuttle bus could serve this connection, and provide service for most VRE trains. Alternatively, a stop or stops on the campus could be incorporated into a Burke VRE/Old Town Fairfax shuttle route. It is anticipated that this service would be operated in partnership with Fairfax County and Fairfax City.



Potential shuttle route

Project Id: T-5

Explore Expanded CUE Service Replacement of Mason-to-Metro Shuttle

Geography: Off Campus

Transportation System: Transit

Goal 1: Transit

Goal 2: Mobility Choices

Potential Funding: Mason/ City Partnership

R.O.M. Cost: Savings

The CUE Bus, run by the City of Fairfax, is frequently used by students going to the Vienna Metro station, providing another option for travel to and from the station from the campus in addition to the GMU-run shuttle. Students typically just take whichever bus shows up first, since they each serve the same locations. Both the CUE Bus and Mason shuttles are free for students, and the CUE service is partially subsidized through payment from GMU.

Consolidating service on the larger CUE buses and utilizing the shuttle buses for services in closer proximity to the campus may provide fiscal and operational benefits and make the different equipment and routes easier for transit patrons to understand. Mason is investigating options for replacing the Mason-to-Metro shuttle with CUE bus service exclusively.

CUE Bus

Mason Shuttle

Project Id: T-6

Rappahannock Shuttle Stop Improvements

Geography: Inner Core

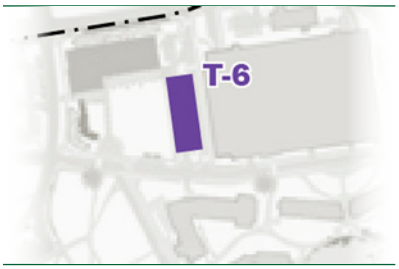
Transportation System: Transit

Goal 1: Transit

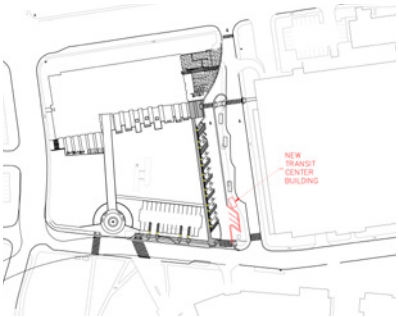
Goal 2: Sustainability

Potential Funding: County Transit Funds

R.O.M. Costs: $300,000



Mason shuttle stop



Transit center schematic

Multiple transit options are available to the George Mason community, however, there is not a central transit center where a rider can choose from CUE, Mason Shuttles, or Metrobus service at the same location. The Sandy Creek transit center serves only Mason Shuttles, while the Rappahannock bus stop serves CUE and Mason Shuttles, but does not provide a conditioned space for information or waiting. Metrobus service is only available on University Drive, at a bus stop that provides only a shelter and limited connectivity.

Grant funding for a transit center is potentially available through Fairfax County. Up to $1,000,000 may be available for a transit center of up to 10 bays. The University is pursuing a distributed transit center concept, with facilities at Sandy Creek, Rappahannock, and in Parking Lot C. Each of the distributed centers would provide pedestrian and bicycle access, dedicated bus boarding/alighting areas, covered passenger waiting shelters, and conditioned information buildings.

The Rappahannock shuttle stop currently provides saw-tooth bus bays and passenger waiting shelters. To create a transit center at Rappahannock, a conditioned information/waiting building should be constructed. Upgraded facilities at the Rappahannock Transit Center would serve northern portions of campus and services coordinated with Fairfax City.

Example transit center
(photo courtesy of Noritake Associates)

Project Id: T-7

Lot C Shuttle Stop Improvements

Geography: Inner Core

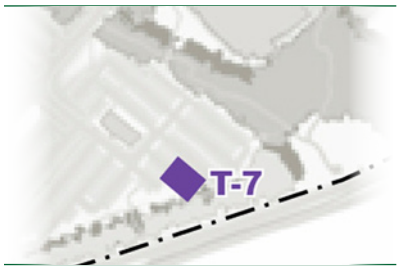
Transportation System: Transit

Goal 1: Transit

Goal 2: Sustainability

Potential Funding: County Transit Funds

R.O.M. Cost: $550,000



Existing parking and transportation services building

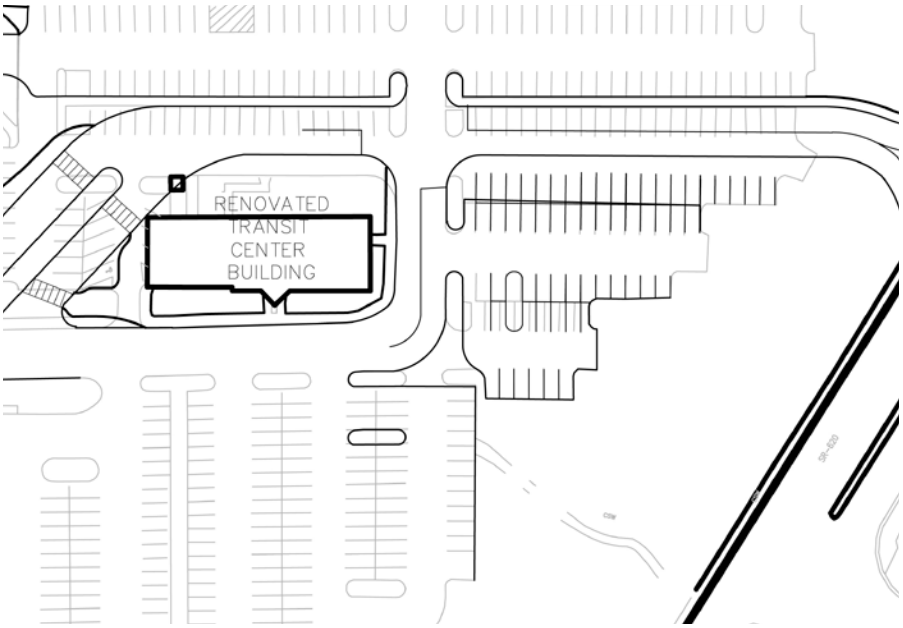
Existing Metrobus stop

Multiple transit options are available to the George Mason community, however, there is not a central transit center where a rider can choose from CUE, Mason Shuttles, or Metrobus service at the same location. The Sandy Creek transit center serves only Mason Shuttles, while the Rappahannock bus stop serves CUE and Mason Shuttles, but does not provide a conditioned space for information or waiting. Metrobus service is only available on University Drive, at a bus stop that provides only a shelter and limited connectivity.

Grant funding for a transit center is potentially available through Fairfax County. Up to $1,000,000 may be available for a transit center of up to 10 bays. The University is pursuing a distributed transit center concept, with facilities at Sandy Creek, Rappahannock, and in Parking Lot C. Each of the distributed centers would provide pedestrian and bicycle access, dedicated bus boarding/alighting areas, covered passenger waiting shelters, and conditioned information buildings.

Improvements required in order to establish a transit center in Parking Lot C include reconstruction of parking areas to provide bus bays and access aisles, renovation of the Parking and Transportation Services building to a conditioned waiting and information space, construction of sidewalks, and the addition of direct access to Braddock Road.

A new transit facility in Parking Lot C would host Fairfax County and/or MetroBus services and be convenient to southern portions of campus.



Transit center schematic

Parking System

Potential parking improvement projects and policy changes that would be compatible with the guiding principles, produce benefits to the users, and support one or more of the project goals were refined further and are presented below. These projects generally are intended to concentrate parking in appropriate areas and manage its use effectively. Strategic placement of new parking garages and service parking areas would support new and existing buildings without consuming valuable land resources. More active management of both academic and event parking would improve the efficiency of parking usage, minimize the need for new parking spaces, and reduce impacts on academics and mobility.

- Project goals supported by parking system improvements include:
- Parking Efficiency
- Sustainability
- Traffic Management
- Land Use Decisions
- Connectivity
- Accessibility
- Pedestrian/Bicycle Safety

Project Id: **P-1**

Mason Pond Circle Streetscape Improvements

Geography: Inner Core

Transportation System: Parking

Goal 1: Parking

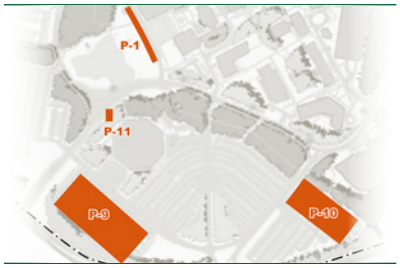
Goal 2: Pedestrian/Bicycle Safety

Potential Funding: Donor Opportunity

R.O.M. Cost: $75,000

Angled parking is provided along both sides of Mason Pond Drive. While some street trees are planted along the east side of the roadway, no vegetated buffer exists along most of the parking area. Vehicles parked on this side of the street overhang the curb and sidewalk areas, reducing pedestrian comfort.

Reconstruction along this roadway to introduce planting strips, pedestrian amenities and separation from vehicles would improve the pedestrian experience on this approach to the Center for the Arts. It would also be compatible with other walkway segments as a part of the secondary pedestrian network.



Existing conditions

Example of a landscaped buffer

Project Id: **P-3**

Passenger Drop-Off Areas

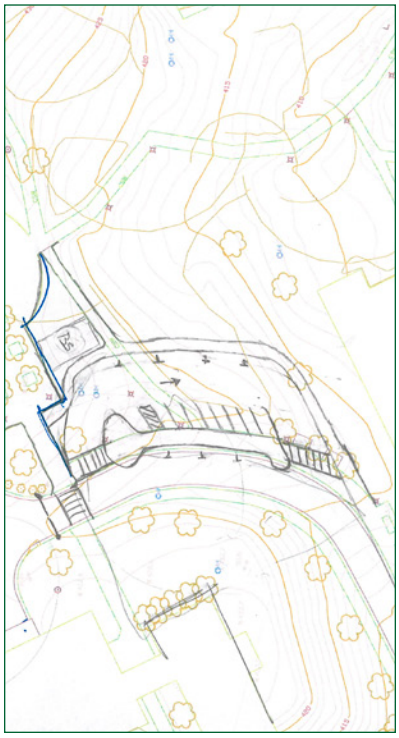
Geography: Main Campus
Transportation System: Parking
Goal 1: Traffic Management
Goal 2: Parking
Potential Funding: Campus Access
R.O.M. Cost: $156,000

Even with the move away from an exclusively commuter-oriented student population, drop-off activities remain prevalent, and will for the foreseeable future. As such, drop-offs need to be managed to fit appropriately within the campus context and avoid serious conflicts with other activities.

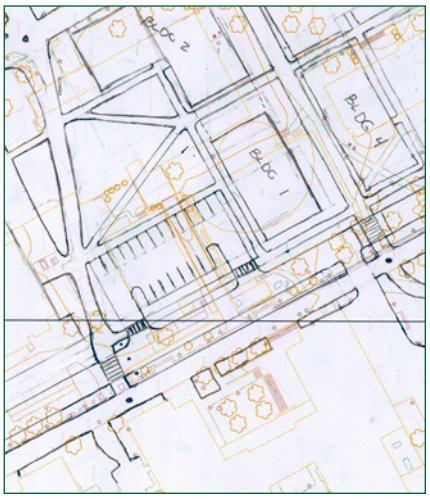
To accomplish this, construction of small parking/waiting areas at strategic locations around campus are warranted. Such designated spaces would reduce reliance on curb parking and idling that conflict with loading, service, and emergency vehicle movement. These areas would also reduce the potential for short-term parkers to utilize general lot spaces desired by long-term users. At least one drop-off area close to the campus core should be designed and marked to accommodate paratransit drop-off and pick-up.

Existing turnaround

Example drop-off area



Drop off area schematics



Project Id: **P-4**

George Mason Boulevard Information Center

Geography: North Sector
Transportation System: Parking
Goal 1: Traffic Management
Goal 2: Parking
Potential Funding: Academic VII
R.O.M. Cost: $125,000

Visitors to campus may currently visit the drive-up information booth in front of Finley Hall, or the walk-up information center adjacent to the Mason Pond parking garage. With the realignment of Patriot Circle, the booth in front of Finley Hall will be eliminated.

An information center for visitors should continue to be provided in the north sector of campus. This service could be provided within the Rappahannock parking garage, in conjunction with one of the newer north sector buildings, or as a stand-alone building along George Mason Boulevard.

Previous information center

Gateway concept with information center

Project Id: **P-5**

Chesapeake River Lane Pedestrian/Drop-Off/Parking Changes

Geography: Northeast Sector

Transportation System: Parking

Goal 1: Connectivity

Goal 2: Parking

Potential Funding: University Hall/Library

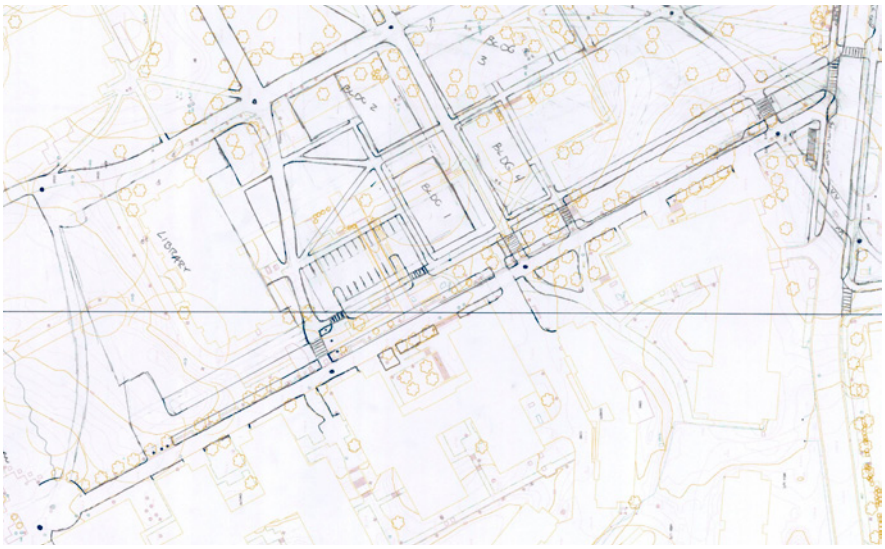
R.O.M. Cost: $150,000

Chesapeake Lane functions as a dual-purpose corridor, serving pedestrian travel and service/delivery activities for Fenwick Library, two modules, and several student housing buildings. As such, conflicts with pedestrians occur in several areas. This wide north-south corridor connects with the North Plaza, making it an important walkway link with high pedestrian usage.

Improvements to provide separate spaces for loading activities, service vehicle parking, and drop-off functions should be provided to the extent possible. These changes would reduce conflicts and improve the utility of the corridor for pedestrians.

Walkway/loading conflict

Existing walkway



Chesapeake River Lane concept

Project Id: **P-6**

Parking Structure at Housing VIIIB/Field House

Geography: Northwest Sector
Transportation System: Parking
Goal 1: Parking
Goal 2: Land Use Decisions
Potential Funding: Deck Project
R.O.M. Cost: $30,000,000

Existing field house parking

The Housing VIII site occupies the former student Parking Lot I. While new parking capacity has recently been added in the Rappahannock River parking deck, it is somewhat remote from Housing VIII. More large events drawing attendees from outside the University are being held at the Field House and Stadium complex.

In conjunction with the second phase of the housing project, a parking garage has been proposed. Construction of this deck, and/or a parking structure adjacent to the Field House, could serve event patrons and resident students. An associated pedestrian connection over Route 123 would reduce pedestrian conflicts at the University Drive intersection, but would require careful aesthetic design and VDOT approval.

Example parking deck: Sandy Creek

Project Id: **P-7**

Aquia Creek Lane Turn-Around Relocation

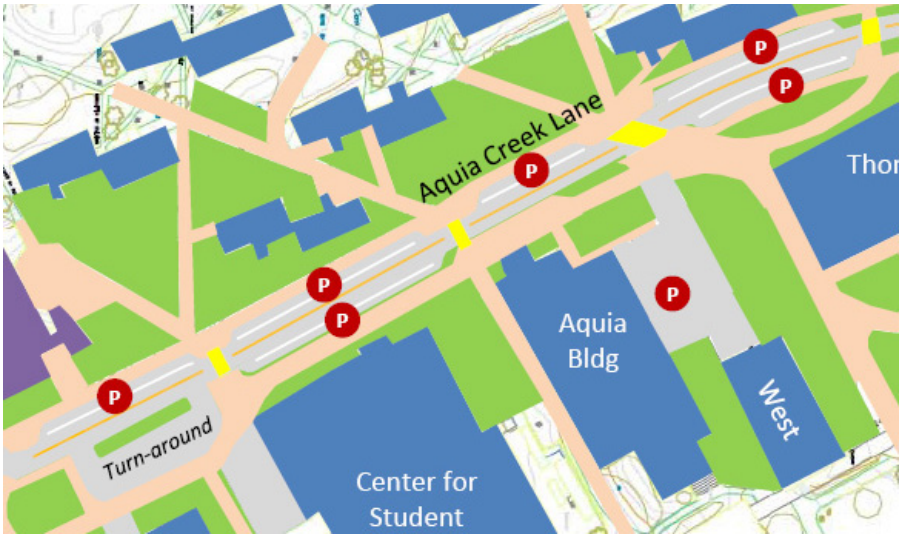
Geography: Northwest Sector
Transportation System: Parking
Goal 1: Traffic Management
Goal 2: Parking
Potential Funding: Campus Access
R.O.M. Cost: $255,000

Existing turn around

A popular drop-off location, the turn-around area at the end of Aquia Creek Lane carries both vehicular and pedestrian traffic. The turn-around is located between the North Plaza of the Johnson Center and the large staircase accessing Mason Pond Drive. As such, vehicular movement is introduced into one of the heaviest pedestrian corridors on campus.

This project includes the removal of the turn-around and reconstruction as a segment of the primary pedestrian boulevard in order to eliminate conflicts on a major pedestrian route. The turn-around and drop-off functions could be accommodated through a reconfiguration of the Harris Theater loading dock. Service and delivery activities could be accommodated along with the relocated passenger vehicles.

Example drop-off area



Aquia Creek Lane concept

Project Id: **P-8**

Develop Standard Operating Procedures for Large Event Management

Transportation System: Programmatic

Goal 1: Traffic Management

Goal 2: Parking

Potential Funding: Campus Access

R.O.M. Cost: $75.000

Patriot Center Parking

The George Mason Fairfax Campus is a popular location for large community events, theatre performances, and concerts because of accommodating facilities, specifically the Patriot Center, the Center for the Arts, and the planned expansion of the Performing Arts Building. Large events take place regularly on campus, but vary in attendance and traffic and parking characteristics.

The University and event venue operators develop a standard operating procedure to manage event patrons and balance their needs with typical student, faculty, and staff requirements for parking and access. A standard operating procedure would allow the University to give advance notice of parking lot closures and would be more predictable for regular users and could allow the University to improve parking efficiency and revenue generation.

Event traffic control

Project Id: **P-9, P-10**

Parking Structure at Lot L Location, Parking Structure at Lot C Location

Geography: Southwest Sector

Transportation System: Parking

Goal 1: Parking

Goal 2: Land Use Decisions

Potential Funding: Parking Deck Project

R.O.M. Cost: $20,000,000

With the expansion of academic programs and increasing enrollment, parking requirements may continue to increase, even with more resident student housing and aggressive measures to manage parking demands.

The replacement of surface parking spaces in Parking Lot L and Parking Lot C with structured parking could accommodate event and academic parking, while freeing up land area for new building sites. The Lot L deck especially could serve Patriot Center events with spaces more remote from the core of campus. The Lot C garage could permit the construction of housing or other building types while maintaining parking supply levels. It is noted that in all cases, increases in parking supply should be carefully considered for their impacts on financial and environmental sustainability.

Existing Patriot Center parking

Example parking deck: Sandy Creek

Southwest sector concept

Project Id: **P-11**

Roanoke River Road Information Center

Geography: Southwest Sector

Transportation System: Parking

Goal 1: Traffic Management

Goal 2: Parking

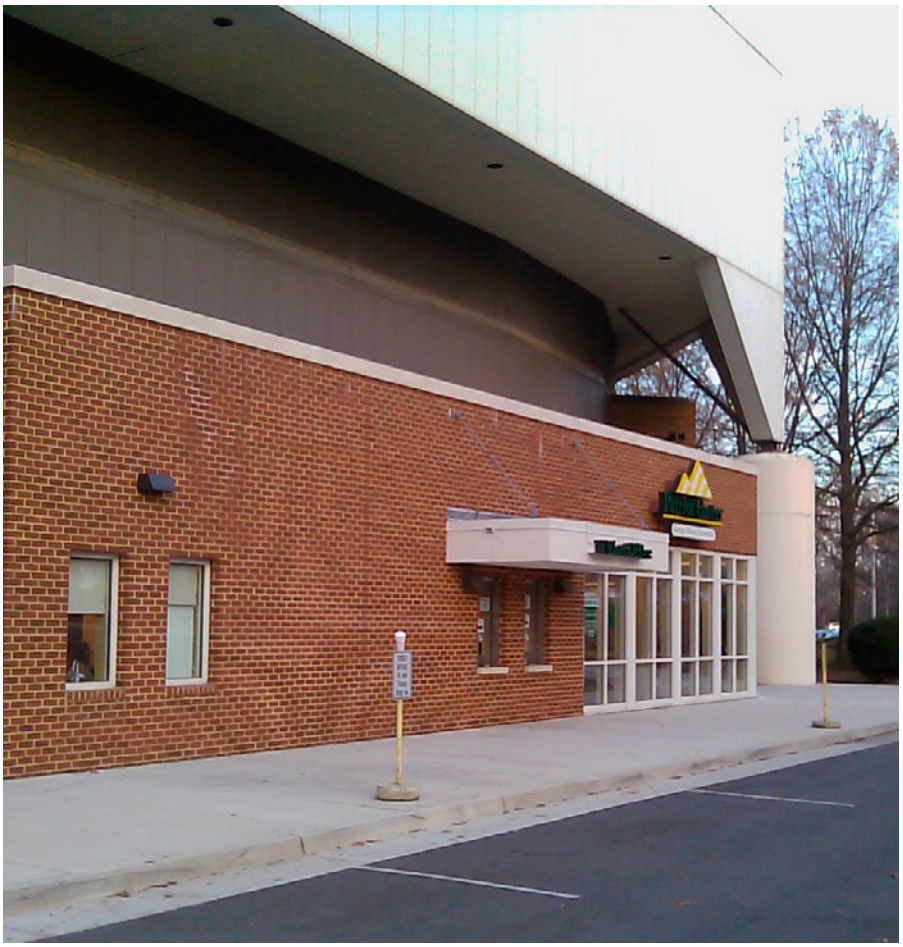
Potential Funding: Southwest Sector Development

R.O.M. Cost: $250,000

Existing information center

While Roanoke River Road is the second most-used entrance to campus, and is convenient for vehicles arriving from the east, west, or south, no visitor information is provided in the south end of campus. Visitors must enter campus, travel to the Mason Pond parking deck, and walk to the information booth.

A visitor information center near Roanoke River Road would be more visible, permit earlier decision-making on parking and travel options, and potentially reduce vehicular traffic on Patriot Circle. A south campus visitor center could be provided in conjunction with the Patriot Center ticket office, a stand-alone building adjacent to the roadway or as part of a Lot L parking structure.



The Patriot Center ticket office could serve as an information center

Project Id: **P-12**

Implement Event Management Procedures for Medium and Small Events

Transportation System: Programmatic

Goal 1: Traffic Management

Goal 2: Parking

Potential Funding: Individual events

R.O.M. Cost: $75,000

In addition to large events at the Patriot Center, smaller events are hosted in other venues across campus. The Center for the Arts and other performance venues draw outside patrons, and the Field House, athletic fields, and stadium bring in visiting and local teams and spectators.

Events of different sizes at the various venues result in unique parking and traffic impacts. Developing and implementing standard event procedures not only improves the patron experience, it results in predictable conditions at surrounding locations and for regular campus users.

Center for the arts

Event traffic control

Project Id: **P-13, P-14**

Aquia Creek Lane East Side Parking Upgrades/Aquia Creek Lane West Side Parking Upgrades

Geography: Southwest Sector

Transportation System: Parking

Goal 1: Connectivity

Goal 2: Accessibility

Potential Funding: Thompson/ Student Apartments

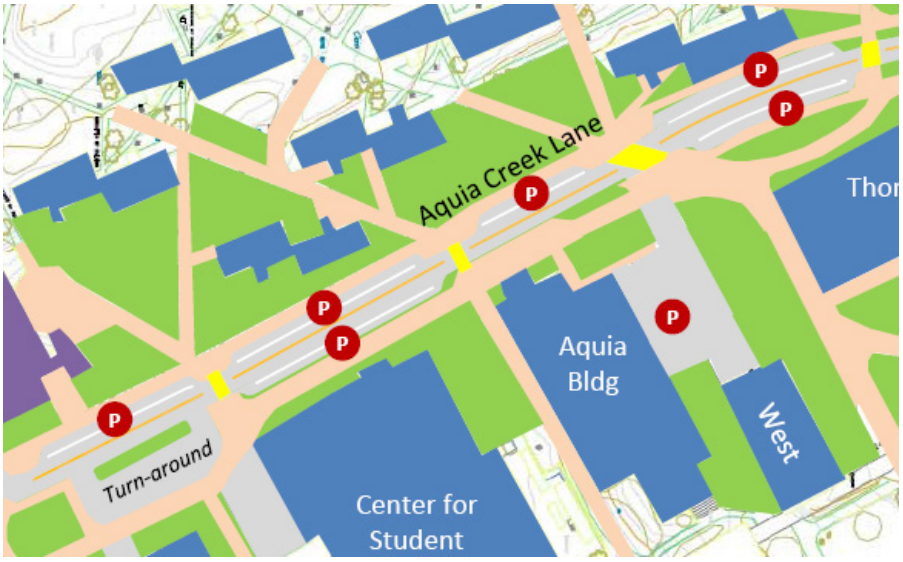
R.O.M. Cost: $210,000

Existing conditions

Pedestrian accommodations along Aquia Creek Lane lack connectivity and consistency. Parking areas, loading areas, dumpster pads, and steep grades result in areas where pedestrians face conflicts or must travel in the street.

As part of this project Aquia Creek Lane will be reconstructed to provide parking in discrete areas, separated from the continuous pedestrian path and from loading activities. This layout would reduce conflicts while maintaining the support functions that this street must serve.

Example of a landscaped buffer



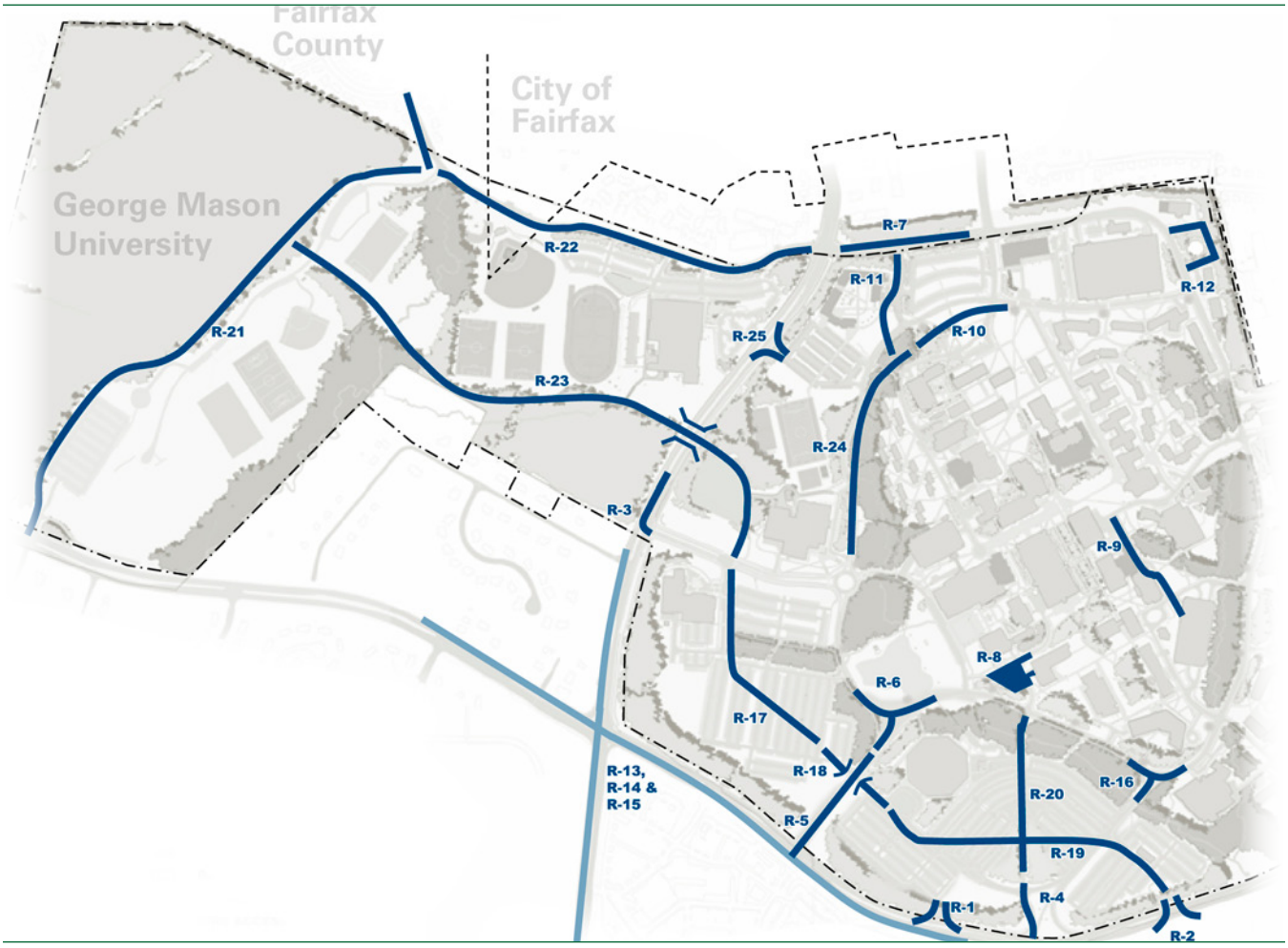
Aquia Creek Lane concept

Roadway Network

Potential roadway improvement projects that would be compatible with the guiding principles, produce benefits to the users, and support one or more of the project goals were refined further and are presented below. These projects generally are intended to improve access and orientation at the entrances to campus and create internal roadways that balance the needs of various user groups in the context of a particular setting. The addition of travel lanes, new roadways, and other capacity enhancements would be focused on the edge of campus. Improvements along and interior to Patriot Circle would generally support non-automobile modes of travel.

Project goals supported by road network improvements include:

- Traffic Management
- Land Use Decisions
- Event Management
- Pedestrian/Bicycle Safety
- Parking Efficiency
- Emergency and Service Access
- Community Benefits



Project Id: **R-1, R-2**

Right-in/Right-out Access from Braddock Road into Lot L and Lot C

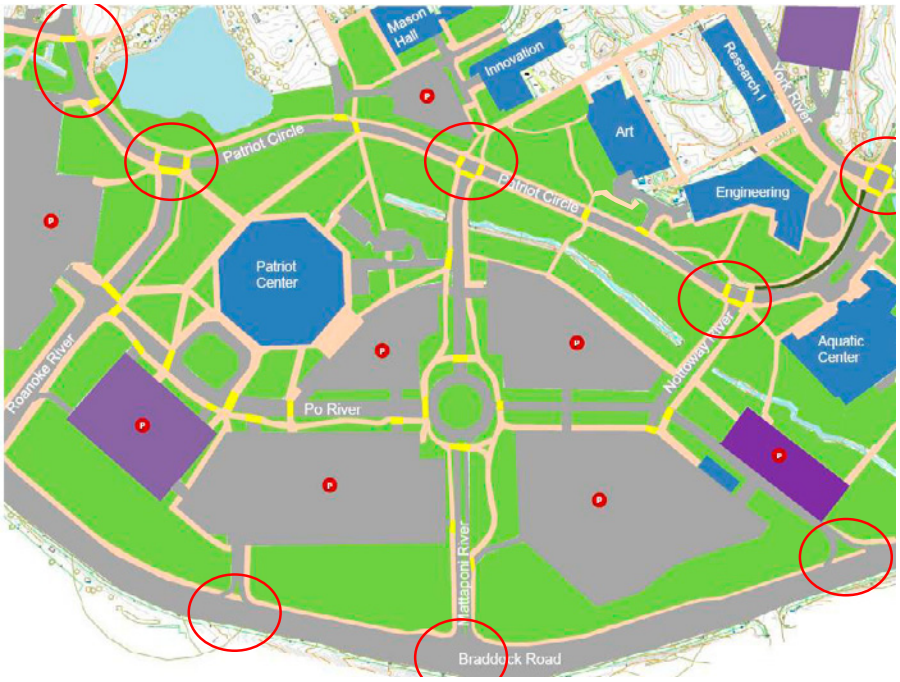
Geography: Perimeter
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Event Management
Potential Funding: VDOT
R.O.M. Cost: $269,000

Existing conditions (Google Maps)

Example right-in/right-out

When major events occur on George Mason's campus, especially in the Patriot Center, significant disruptions to regular parking and traffic patterns result. The Braddock Road/Ox Road (Route 123) intersection is one of the most heavily congested intersections in Fairfax County, creating weekday traffic delays along both corridors. Afternoon and evening classes at the University are popular, and overlap with the PM peak commuter period. Particularly for weekday evening events at the Patriot Center (which is adjacent to the Roanoke River entrance) the combination of commuter, academic and event traffic results in long wait times and queues.

Adding right-in, right-out access along Braddock Road to serve Lot L and Lot C would help improve flexibility for traffic access. These new access points would reduce turning movements at the signalized intersections and provide more direct connections to the parking lots. Given the number of vehicles entering and exiting for major events, these driveways would provide a valuable traffic management tool.

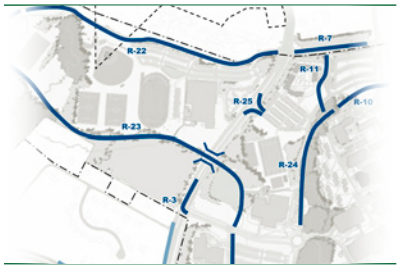


Schematic of roadway changes

Project Id: **R-3**

Left-turn Access into Mason Pond Drive from Route 123

Geography: Perimeter
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Event Management
Potential Funding: VDOT
R.O.M. Cost: $25,000



Existing conditions (Google Maps)

While two full-movement, signalized intersections serve University traffic in both directions along Braddock Road, University Drive provides the only point for GMU left turns along Route 123.

A median break and a southbound left turn lane along Route 123 at the Mason Pond Drive entrance could complete this access at University Drive. This access could be configured to allow or preclude left turns out of Mason Pond Drive and would be intended to serve event traffic. Mason and VDOT could gate the median along Route 123, which would be otherwise closed at other times to limit the entrance to its current right-in/right-out only configuration. When a major event takes place on campus, especially at the Patriot Center, the gate could be opened to allow for left turns onto Mason Pond Drive from southbound Route 123, and perhaps left turns out to southbound Route 123. Police direction would need to supplement this configuration.

Left turn access schematic

Project Id: **R-4**

Reconfiguration of Nottoway River Lane/Mattaponi River Lane Entrance

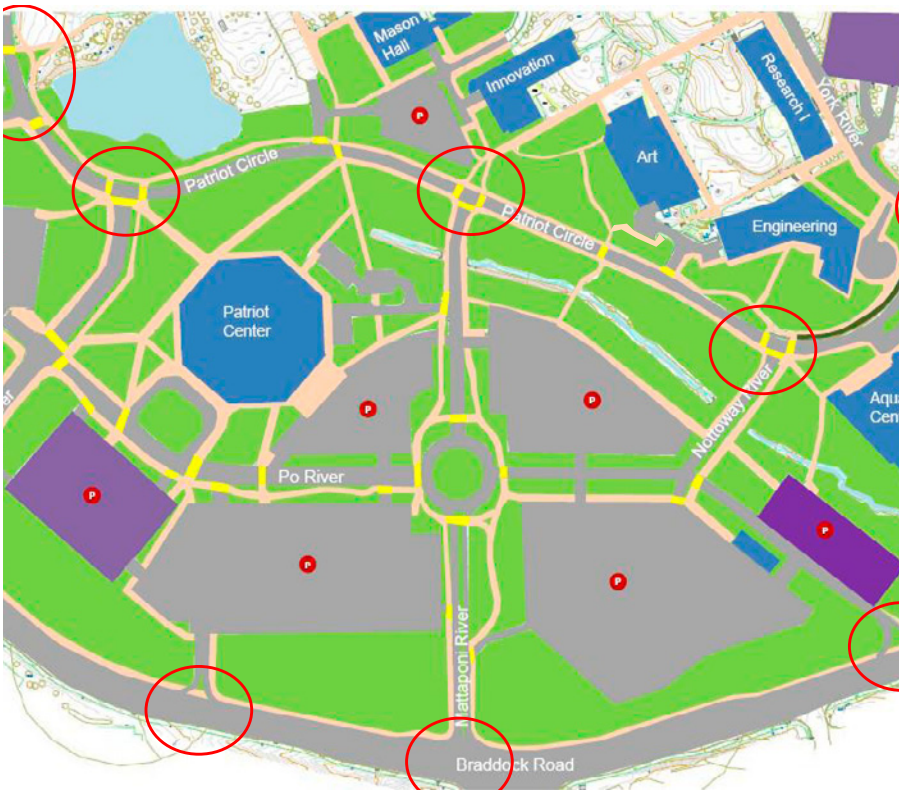
Geography: Perimeter
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Land Use Decisions
Potential Funding: Campus Access
R.O.M. Cost: $251,000

Existing configuration is disorienting

Existing condition (Google Maps)

The eastern entrance to campus along Braddock Road is configured with sweeping roadways and distributed turning movements. While this arrangement limits the number of vehicular conflicts at any given point, it is difficult to navigate for first-time visitors and is disorienting.

Reconfiguration of this entrance to provide a regular intersection with a straight roadway into campus would aid in wayfinding and reduce driver confusion. Given the popularity of Lots A and C for event parking, this would be especially beneficial for Patriot Center traffic. Creating a roadway more similar to the Roanoke River Road entrance would assist in balancing the traffic between the two Braddock Road entrances more evenly.



Schematic of access changes

Project Id: **R-5**

Roanoke River Road/Po River Lane Widening/Turn Restrictions

Geography: Perimeter

Transportation System: Roadway

Goal 1: Traffic Management

Goal 2: Parking

Potential Funding: Mason/ County Partnership

R.O.M. Cost: $600,000

Existing conditions

Access to Lots K and L from Roanoke River Road, at Po River Lane, is in close proximity to the traffic signal at Braddock Road. Given this proximity, the regional traffic congestion on Braddock Road, and the high proportion of University traffic using Roanoke River Road; traffic backs up past Po River Lane in the evening and during events. These queues can block access into the lots, resulting in queues of inbound traffic back to Braddock Road.

By widening Roanoke River Road to provide a northbound left turn lane to Lot K, and prohibiting the remaining left turns at Po River Lane, traffic conflicts would be reduced. Even when queues block the access to Lot K, entering through vehicles could continue past waiting left turns, eliminating impacts to Braddock Road traffic.

Roanoke River Lane concept

Project Id: **R-6**

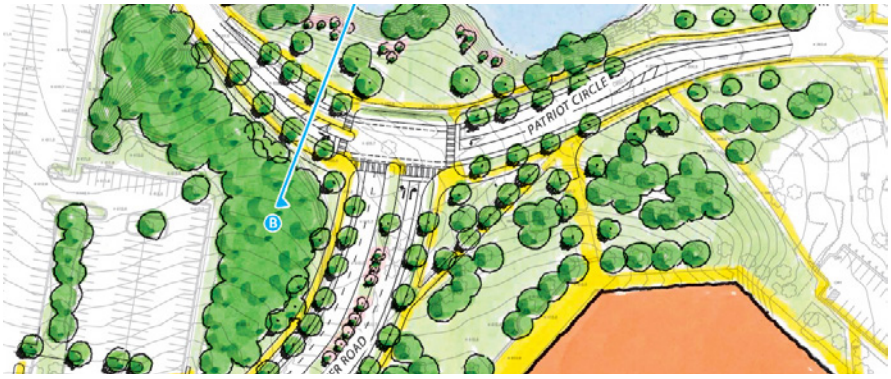
Realignment /Tightening of Patriot Circle/Roanoke River Road Intersection

Geography: Perimeter
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Pedestrian/Bicycle Safety
Potential Funding: Campus Access
R.O.M. Cost: $670,000

Existing sweeping turns

The intersection of Patriot Circle with Roanoke River Road is designed with sweeping curves and distributed conflict points. This can be disorienting for visitors, especially in continuing along Patriot Circle in a counter-clockwise direction. While turning movement conflicts are minimized, the configuration is not pedestrian-friendly and uses a significant amount of land area. In addition, the width of individual roadway segments and the orientation of the intersection do not permit on-street bicycle lanes today.

Reconstructing this location as a regular intersection with crosswalks and all turning movements in a confined space would lead to simplified navigation by pedestrians and visitors. Separate bicycle lanes could be accommodated in the design, while reducing the footprint of the intersection. A safer, more predictable accommodation for the various road users would result. An alternative to this configuration is a roundabout at this location



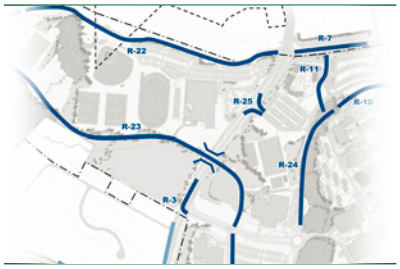
Intersection concept

Example intersection: York River Road

Project Id: **R-7**

University Drive Median (East of Rt. 123)

Geography: Field House Area
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Pedestrian/Bicycle Safety
Potential Funding: Campus Access
R.O.M. Cost: $205, 000

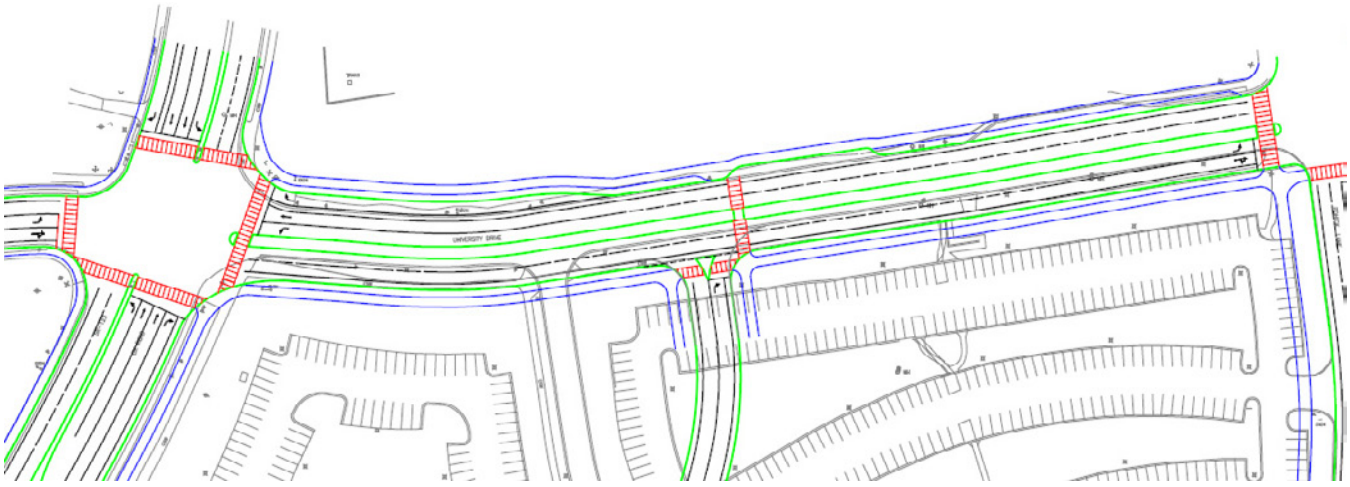


Existing conditions

While not a direct entry into the core of campus, University Drive at Route 123 has many characteristics of a campus gateway. Historically, it provided the primary entrance to the campus. With the increase in parking supply at the Rappahannock parking garage and new housing and administration buildings, the importance of this entrance will continue.

In order to create a more defined gateway and enhance the streetscape of University Drive, this project includes a median with the future reconstruction of the roadway. The median should be planted with trees to increase shade and promote use of on-street bike lanes. Wider sidewalks should be provided outboard of a row of street trees along the curb. A low wall, hedge, or other defining feature may be included to visually link the gateway to the campus.

Example of a planted median



University Drive Concept

Project Id: **R-8**

Johnson Center Loading Dock Reconfiguration

Geography: Inner Core

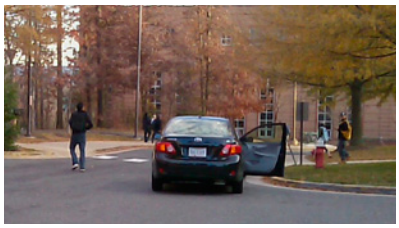
Transportation System: Roadway

Goal 1: Emergency & Service Access

Goal 2: Parking

Potential Funding: Johnson Center

R.O.M. Cost: $ 300,000



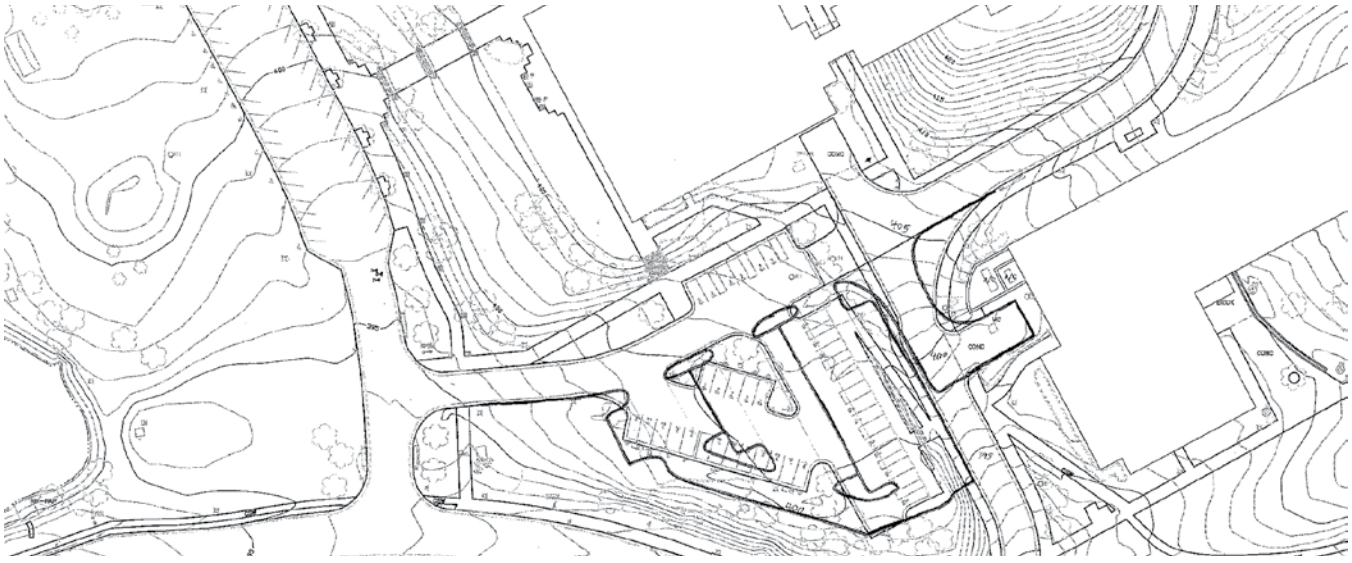
Existing drop-off activity

The Johnson Center is a popular destination, since the building provides places to eat, the Bookstore, and other campus services. Due to this, and its proximity to many academic buildings, the area near the Johnson Center loading dock is used as a passenger drop-off zone. This creates conflict between service vehicles, which are intended to utilize the loading dock, other vehicles, and pedestrians.

With the proposed reconfiguration of Mattaponi River Lane to provide a more direct connection into campus to Patriot Circle, this undesirable activity may increase. Access to the loading dock should be relocated to Mason Pond Drive, between Mason Hall and Innovation Hall. To further restrict drop-off activities, vehicular gates could be installed between the accessible parking area and the loading docks.

Example of gated access

Reconfiguration concept



Project Id: **R-9**

Science and Tech Loading Dock Reconfiguration

Geography: Inner Core

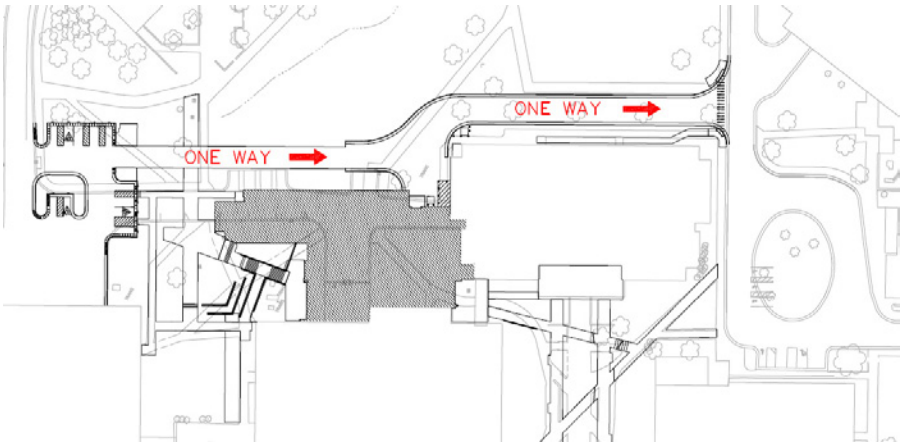
Transportation System: Roadway

Goal 1: Emergency and Service Access

Potential Funding: Science I and Tech II

The planned expansion of Science and Tech II includes reconfiguration of the loading dock and directs all trucks to Sandy Creek Way. This would conflict with buses traveling to and from the transit center and cars entering and exiting the garage, particularly as trucks make wide turns into the loading dock.

The roadway serving the loading dock should be reconfigured to provide a one-way connection from Rivanna River Road, to the loading dock, and exiting on Sandy Creek Way. This configuration would eliminate the most disruptive truck movement and reduce the number of remaining conflicts. Along with modifications associated with the Sandy Creek transit center, one-way circulation on both the loading dock access roadway and Sandy Creek Way would improve traffic operations, even with the introduction of trucks.



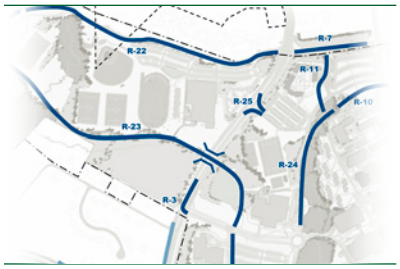
Reconfiguration schematic

Example of paver treatment

Project Id: **R-10**

Patriot Circle North Realignment

Geography: North Sector
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Land Use Decisions
Potential Funding: Academic VII
R.O.M. Cost: $754,000

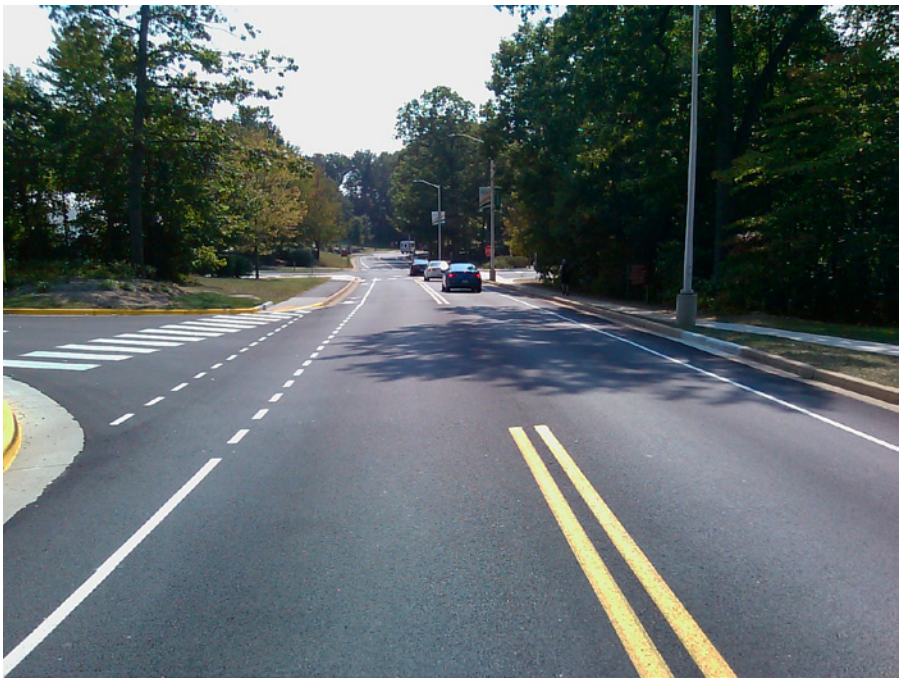


Existing Conditions

As part of George Mason's Campus Master Plan, Patriot Circle is planned to be realigned in order to accommodate future master planned building projects.

The reconstruction of Patriot Circle provides the opportunity to modify the roadway section. The proposed cross-section should include two single modest vehicular travel lanes and on-street bicycle lanes.

Realignment schematic

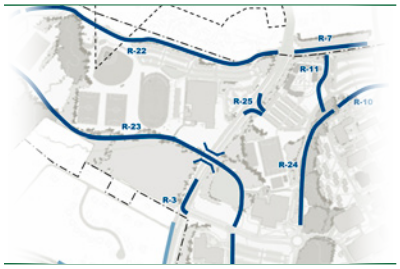


Example of Patriot Circle with bike lanes

Project Id: **R-11**

Occoquan River Lane Realignment

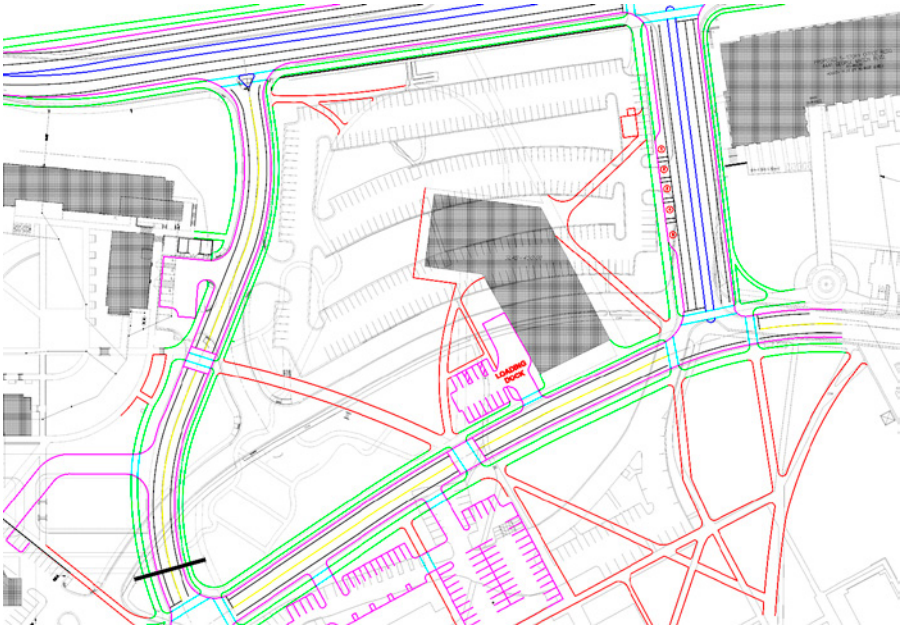
Geography: North Sector
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Land Use Decisions
Potential Funding: Housing VIIIA
R.O.M. Cost: Completed



Previous alignment

In order to accommodate the relocation of Patriot Circle, its intersection with Occoquan River Lane must be relocated.

This reconstruction allows the opportunity to create a four-way intersection with Patriot Circle, Occoquan River Lane, and Aquia Creek Lane. Redesign of the intersection to provide tight corner radii, short crossing distances, and other pedestrian/bike accommodations is recommended.

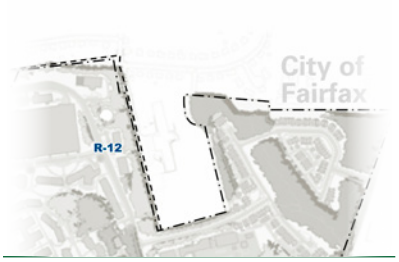


Realignment schematic

Realigned Occoquan River Lane

Project Id: **R-12**
CDC Loop Road

Geography: Northeast Sector
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Parking
Potential Funding: Parking Deck 3
R.O.M. Cost: Completed



Previous conditions

Both parking and drop-off activities are performed in the small parking area in front of the Child Development Center. Parents dropping off children must turn around in the confined space, conflicting with other vehicles entering and leaving parking spaces.

The addition of a modest one-way roadway from Patriot Circle, around the water tower, and connecting to the east side of the CDC parking lot allows for efficient student drop-off and fewer parking conflicts.

This project was constructed in the fall of 2010

Aerial photo after construction

CDC loop road

Project Id: **R-13, R-14**

Short Term and Mid Term Braddock Road Improvements

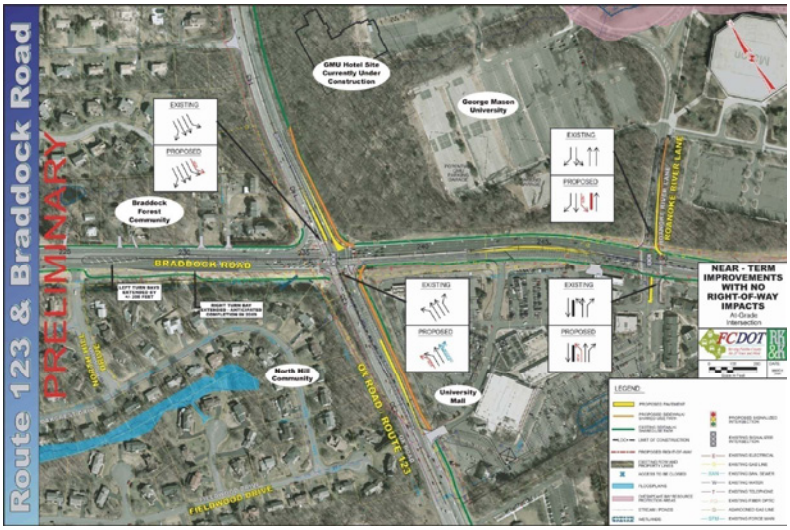
Geography: Off Campus
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Event Management
Potential Funding: Fairfax County
R.O.M. Cost: $5,670,000 total

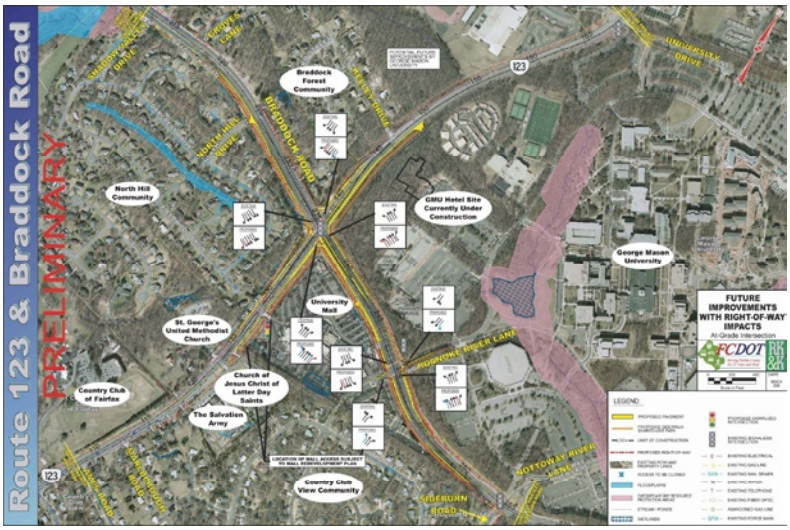
Existing conditions

The Braddock Road/Route 123 intersection is among the most congested locations in Fairfax County, and is directly adjacent to the University, with most access to campus from one of these major roadways. George Mason traffic creates additional turning movement conflicts with the regional traffic congestion on these corridors.

Fairfax County has developed concepts for intersection improvements for Braddock Road and Route 123, up to and including a grade-separated interchange. Interim improvements before the long-range grade-separation include adding an additional left-turn lane along southbound 123, extending the eastbound left-turn lane along Braddock Road at Roanoke River Road and closing a median break to the University Mall.

Mid-term improvements requiring right-of-way acquisition include dual left turn lanes at the major intersections and three through lanes in each direction on both Braddock Road and Route 123.





Project Id: **R-15**

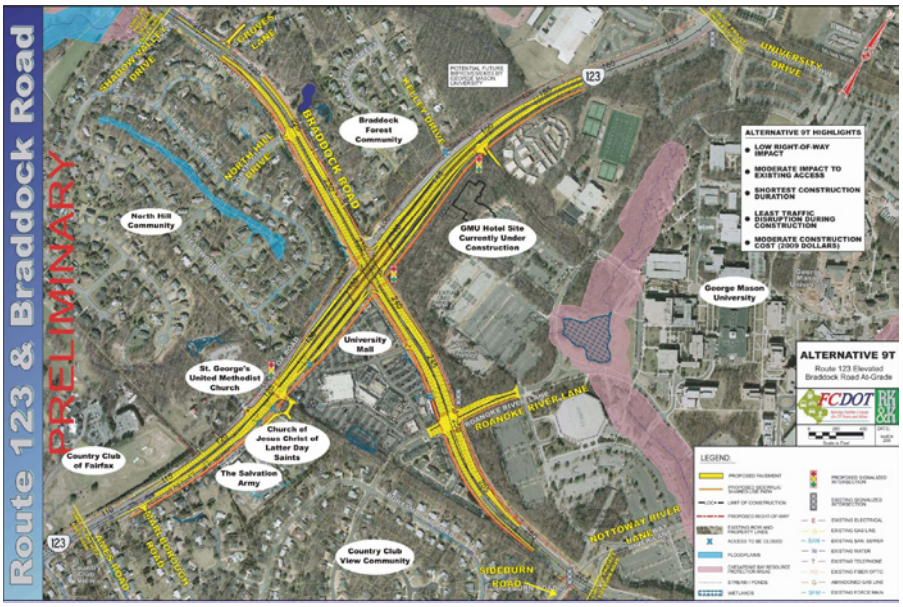
Long Term Braddock Road Improvements

Geography: Off Campus
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Event Management
Potential Funding: Fairfax County
R.O.M. Cost: $83,400,000

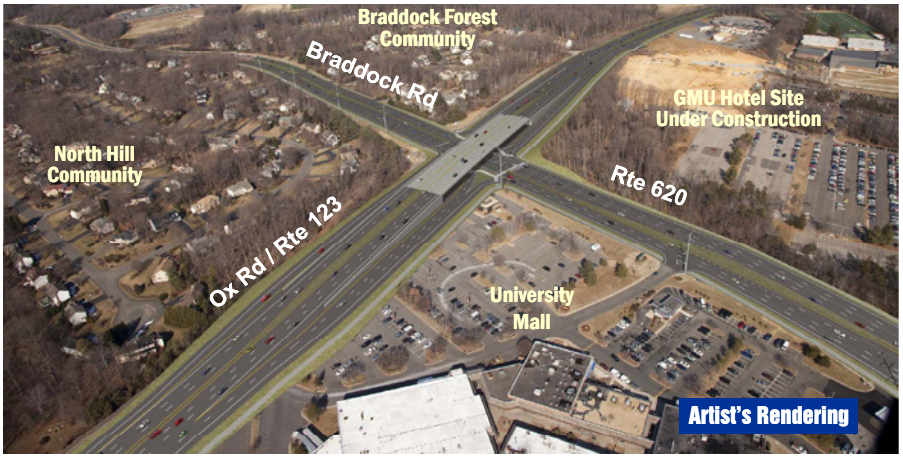
Existing conditions

The Braddock Road/Route 123 intersection is among the most congested locations in Fairfax County, and is directly adjacent to the University, with most access to campus from one of these major roadways. George Mason traffic creates additional turning movement conflicts with the regional traffic congestion on these corridors.

Fairfax County has developed intersection improvements for Braddock Road and Route 123, up to and including a grade-separated interchange. The preferred interchange configuration was identified as Alternative 9T. This tight Single-Point Urban Interchange would feature Route 123 bridging over a single signalized intersection for left turns on Braddock Road. This alternative would require a relatively small right-of way acquisition. No funding for interchange construction has yet been identified.



Interchange Schematic



Project Id: **R-16**

Tightening of Patriot Circle/Nottoway River Lane Intersection

Geography: Southeast Sector

Transportation System: Roadway

Goal 1: Traffic Management

Goal 2: Pedestrian/Bicycle Safety

Potential Funding: County Transit Funds

R.O.M. Cost: $49,000

Existing configuration

The intersection of Patriot Circle with Nottoway River Lane is designed with channelized right turn lanes and distributed conflict points. This can be disorienting for visitors and results in increased pedestrian crossing distances.

Reconstructing this location as a regular intersection with crosswalks and all turning movements in a confined space would lead to simplified navigation by pedestrians and visitors. A safer, more predictable accommodation for the various road users would result.

Reconfiguration schematic

Example intersection: York River Road

Project Id: **R-17**

Po River Lane Extension through Lot K

Geography: Southwest Sector

Transportation System: Roadway

Goal 1: Land Use Decisions

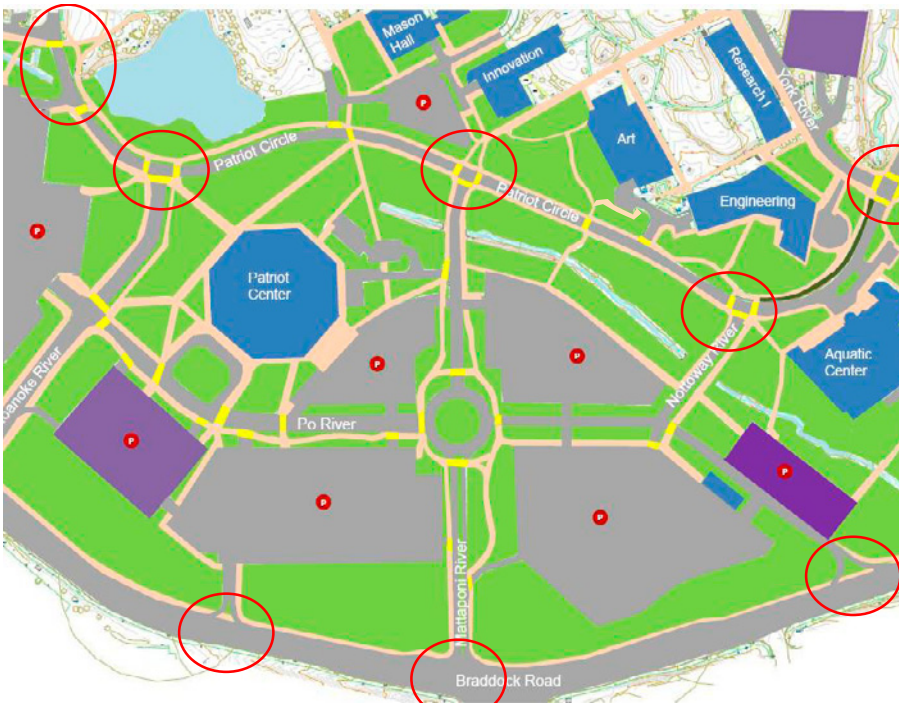
Goal 2: Event Management

Potential Funding: Southwest Sector Development

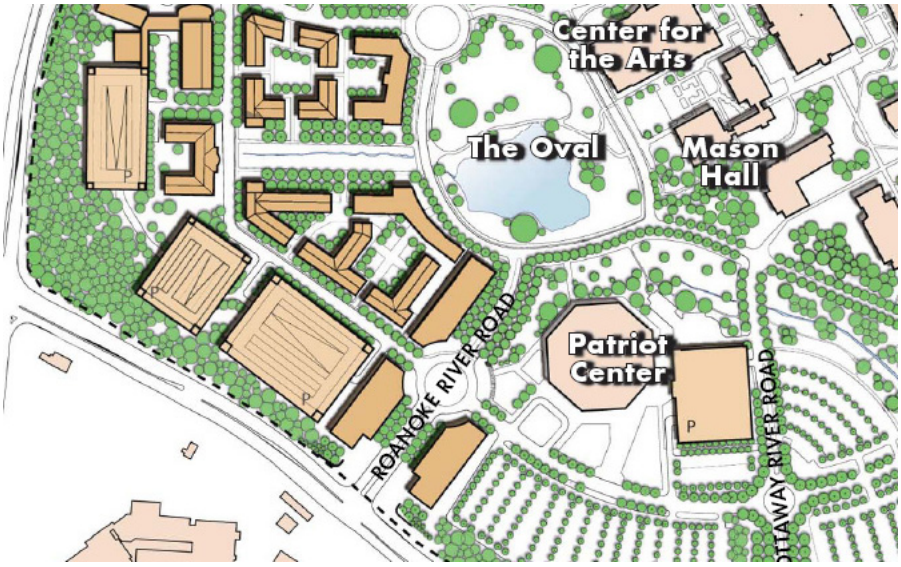
R.O.M. Cost: $1,480,00

Existing conditions (Google Maps)

The University Master Plan and the Southwest Sector Plan include a roadway connection between Roanoke River Road and Mason Pond Drive. This roadway is intended to organize future building sites and provide service and parking access. The extension of existing Po River Lane to Mason Inn Lane could connect to a potential crossing of Route 123 and the West Campus Connector.



Schematic of roadway changes



Southwest sector concept

Project Id: **R-18**

Roanoke River Road/Po River Lane Grade Separation

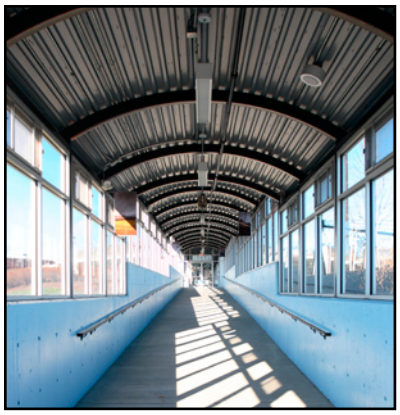
Geography: Southwest Sector
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Event Management
Potential Funding: Patriot Center
R.O.M. Cost: $981,000

During peak evening class change-over times, which coincide with commuter peak periods, queues of vehicles on Roanoke River Road can block the entrances to Lots L and K. Vehicles waiting to turn left into Lot K may, in turn, block vehicles entering campus.

For capacity events in the Patriot Center, patrons park in Lot K, as well as Lots A, L, and C. In order to access the venue, these patrons cross Roanoke River Road at Po River Lane. This crossing conflicts with event vehicles attempting to park in Lot J, and with academic vehicles entering or leaving the campus at the second most-used entrance.

A pedestrian tunnel at this location has been proposed in the past, but pedestrian-only tunnels are typically unpopular, due to personal safety concerns. With the extension of Po River Lane to Mason Pond Drive, increased vehicular traffic may result in turning conflicts that impact the operation of the Braddock Road/Roanoke River Road intersection. Elimination of turning conflicts through grade-separation for vehicles and pedestrians would improve traffic operations and safety at this location.

Event pedestrian crossing



Example pedestrian tunnel

Underpass concept

Project Id: **R-19**

Realignment of Po River Lane

Geography: Southwest Sector

Transportation System: Roadway

Goal 1: Traffic Management

Goal 2: Land Use Decisions

Potential Funding: Southwest Sector Development

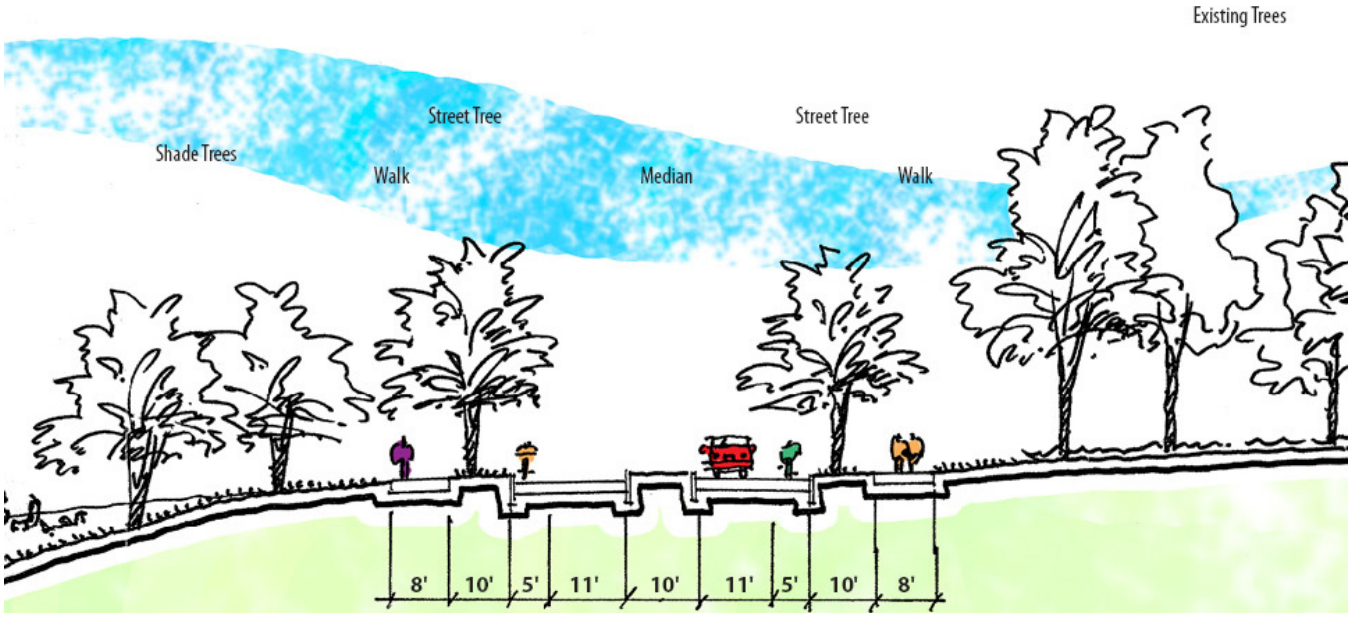
R.O.M. Cost: $ 1,190,000

Po River Lane intersects Nottoway River Road considerably closer to Braddock Road than at Roanoke River Road. Reconfiguration of Mattaponi River Lane to improve orientation and access to campus may result in conflicts at Po River Lane that impact Braddock Road.

Realignment of Po River Lane to the north would reduce the proximity to Braddock Road, create discrete development parcels for future buildings, and provide a continuous path to and from future facilities in Lot C.

Existing conditions

Southwest sector concept



Example roadway cross section

Project Id: **R-20**

Mattaponi River Lane Reconfiguration

Geography: Southwest Sector

Transportation System: Roadway

Goal 1: Traffic Management

Goal 2: Pedestrian/Bicycle Safety

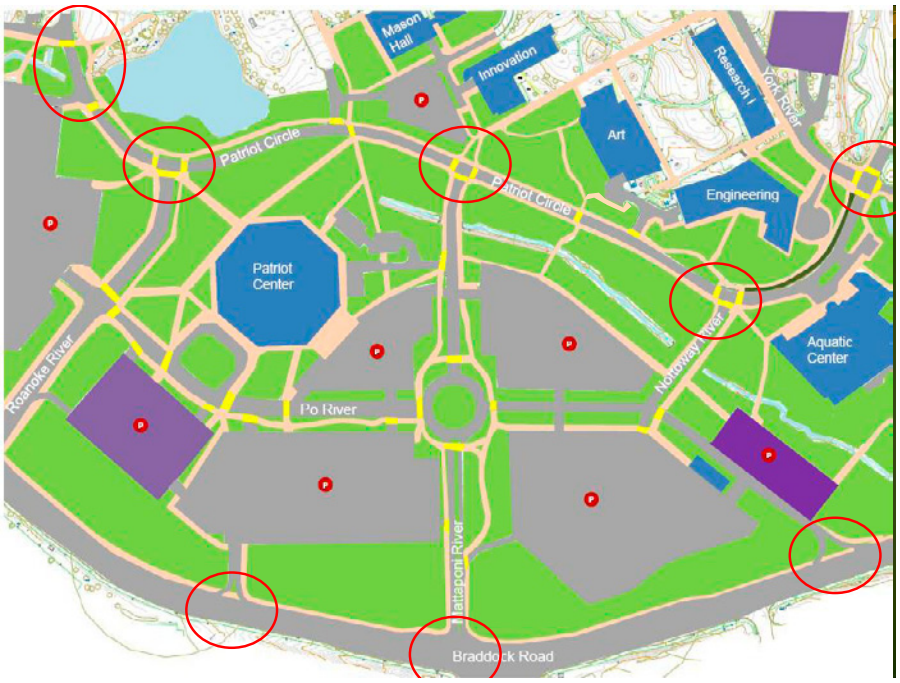
Potential Funding: Southwest sector development

R.O.M. Cost: $735,000

Existing Conditions

Currently, Mattaponi River Lane serves primarily as a pedestrian connection and a parking lot circulation aisle, with some vehicular and service traffic.

Reconfiguration of this roadway to continue the Nottoway River Road campus entrance would provide an orienting connection directly toward the core of campus. In order to support its function and appearance as a campus gateway, it should be reconstructed to eliminate curb parking, provide appropriate lanes for through and turning vehicles, and include bike lanes. A traffic signal may also be implemented at the intersection of Patriot Circle and Mattaponi River Lane



Schematic of roadway changes

Pedestrian crossing of Patriot Circle

Project Id: **R-21**

West Campus Connector – Rapidan River Road Segment

Geography: West Campus

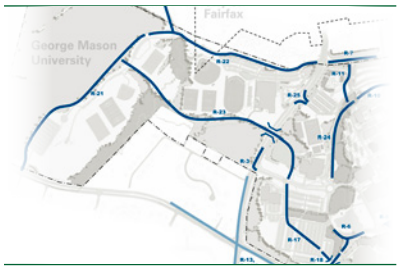
Transportation System: Roadway

Goal 1: Traffic Management

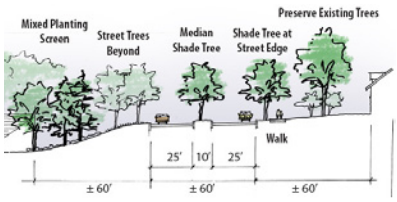
Goal 2: Community Benefits

Potential Funding: VDOT/ County Partnership

R.O.M. Cost: $4,631,000



Existing roadway



West Campus Connector cross-section

A roadway connection through West Campus has been included on the University Master Plan for many years. The current master plan shows a roadway in the approximate location of Mason Pond Drive bridging over Route 123 to connect with West Campus south of the athletic fields. A north-south roadway connecting University Drive, the new east-west roadway, and Braddock Road is also shown on the plan. The overpass and associated roadway have typically been referred to as the West Campus Connector.

Construction of the bridge over Route 123 is costly and would require significant planning and permitting efforts. In addition, the master plan alignment of the West Campus Connector parallels an existing stream, requiring careful consideration of the environmental impacts of this roadway.

VHB investigated the potential to provide a connection to and through West Campus via upgrades to University Drive and improvement or replacement of Rapidan River Road. This configuration would provide regional traffic benefits, reduce costs, and could be implemented sooner than the grade-separated design.

In order to serve as a portion of the West Campus Connector, the Rapidan River Road upgrade would require construction of the east-west segment across Route 123, connection to University drive or both.

West Campus roadway concept

Project Id: **R-22**

West Campus Connector – University Drive Segment

Geography: West Campus

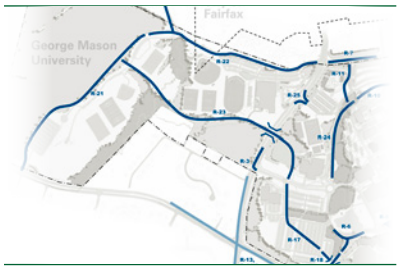
Transportation System: Roadway

Goal 1: Traffic Management

Goal 2: Community Benefits

Potential Funding: VDOT/ County Partnership

R.O.M. Cost: $4,282,000



Existing roadway

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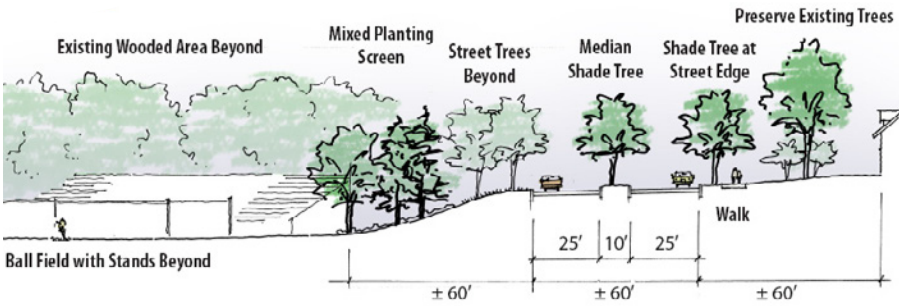
VHB investigated the potential to provide a connection to and through West Campus via upgrades to University Drive and improvement or replacement of Rapidan River Road. This configuration would provide regional traffic benefits, reduce costs, and could be implemented sooner than the grade-separated design and could be constructed in conjunction with Rapidan River Road improvements, or as a stand-alone project. Some City of Fairfax residents have expressed opposition to this alignment. This option would require significant additional study and coordination with all stakeholders.

West Campus roadway concept



West Campus Connector cross-section

Project Id: **R-23**

Underpass or Bridge Connection Between Mason Pond Drive and West Campus

Geography: West Campus

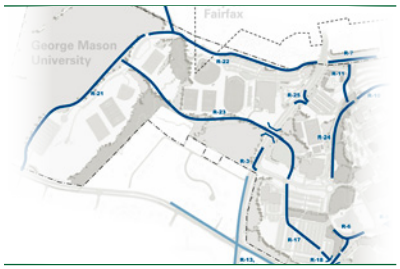
Transportation System: Roadway

Goal 1: Traffic Management

Goal 2: Event Management

Potential Funding: VDOT/ County Partnership

R.O.M. Cost: $10,717,000



Existing roadway

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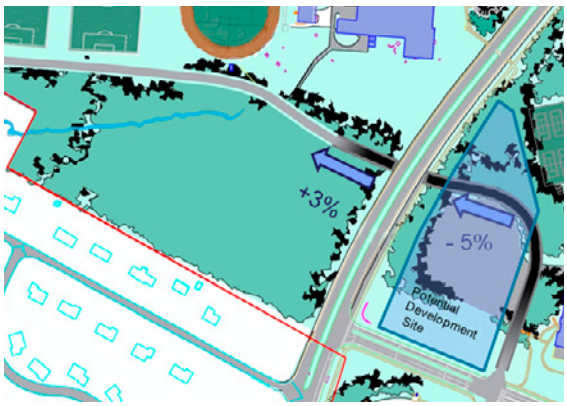
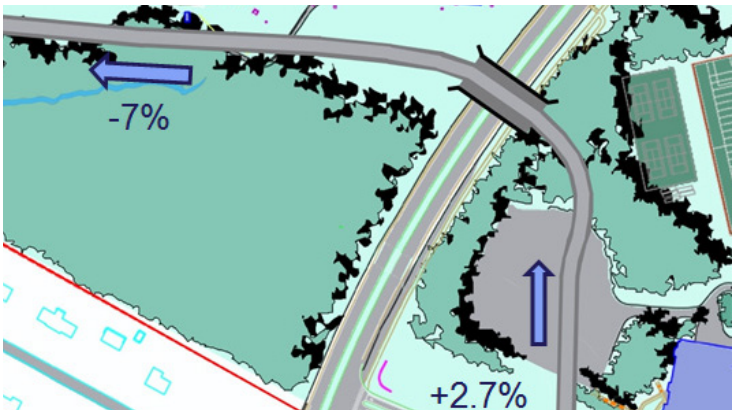
The grade-separated West Campus Connector would facilitate movement of George Mason students and employees between the campus areas without the need to use the regional roadway system. This facility would improve connectivity and reduce reliance on the Roanoke River Road entrance.

While it has been shown as a bridge over Route 123, the grade-separated connection could be constructed as a tunnel under Route 123. A tunnel would reduce visual impacts and would require less grading along the stream, as compared with the bridge.

VHB suggests that both connection options receive consideration during the planning of West Campus access. This planning should include evaluation of impact to the Resource Protection Area (RPA), alignment studies, and additional transportation analysis

Example of bridge signage





Potential alignment schematics

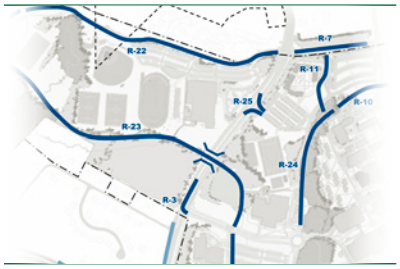
Project Id: **R-24**

Widen Patriot Circle near RAC

Geography: Northwest Sector
Transportation System: Roadway
Goal 1: Traffic Management
Goal 2: Pedestrian/Bicycle Safety
Potential Funding: Housing VIII B
R.O.M. Cost: $150,000

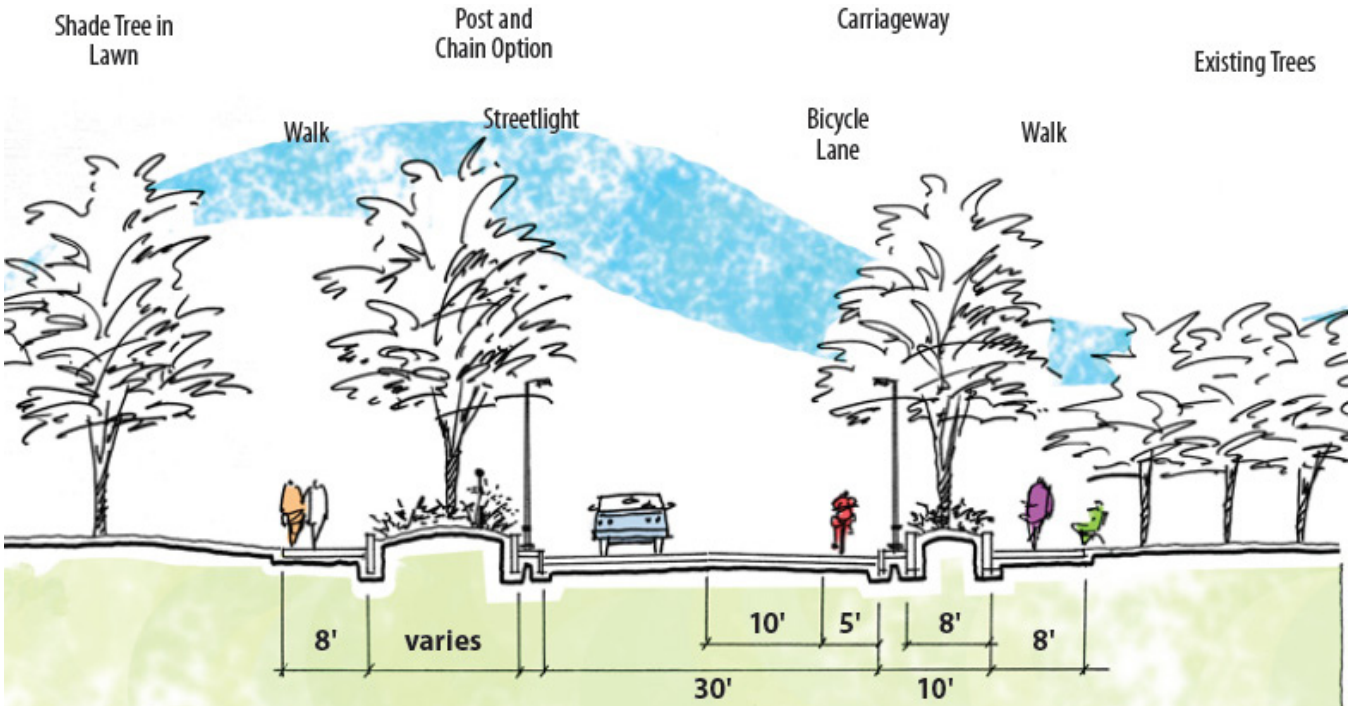
As part of George Mason's Campus Master Plan, Patriot Circle is planned to be realigned in order to accommodate future master planned building projects.

The reconstruction of Patriot Circle provides the opportunity to modify the roadway section. These improvements leave a gap between the Housing VIII site and the Mason Pond Drive roundabout. This project includes reconstruction of this segment to include bicycle lanes and sidewalk improvements.



Existing conditions

Example of Patriot Circle with bike lanes



Potential cross-section

Project Id: **R-25**

Right-in/Right-out Access from Rt. 123 into Housing VIIIB

Geography: Perimeter

Transportation System: Roadway

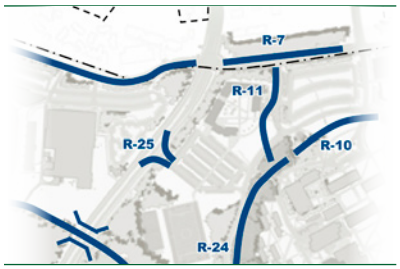
Goal 1: Traffic Management

Goal 2: Event Management

Potential Funding: VDOT/ Campus Access

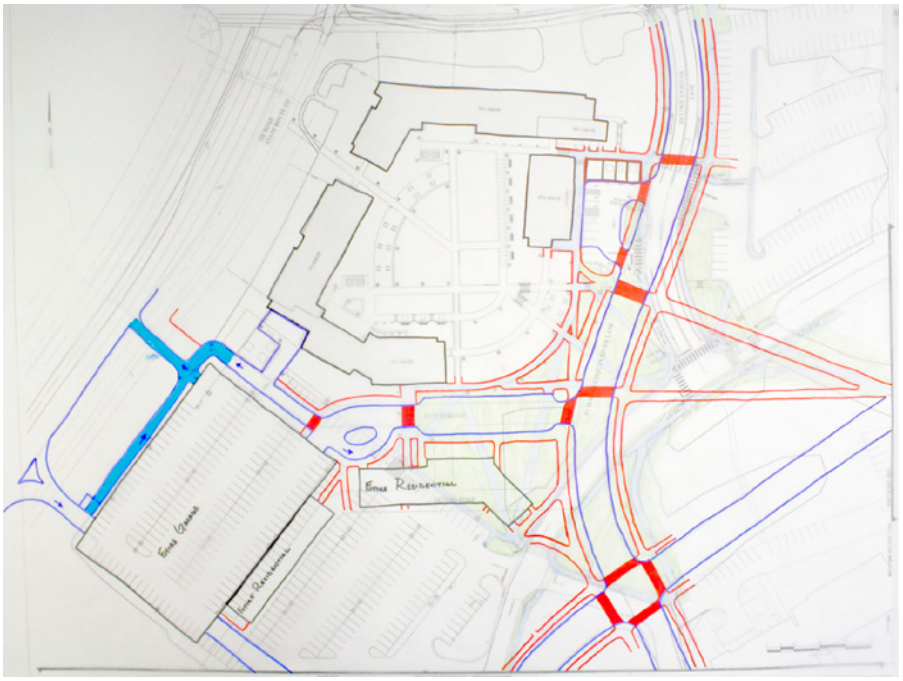
R.O.M. Cost: $117,00

When major events occur on George Mason's campus, especially in the larger event venues, significant disruptions to regular parking and traffic patterns result. As the University hosts more regional sporting events, such as DC United games, event parking in the future garage associated with the Housing VIIIB project may become common. A right-in, right-out access from Ox Road to serve that parking will provide more flexibility by reducing the turning movements at the Ox Road/University Drive intersection and provide a valuable traffic management tool.



Existing conditions

Example of right-in/right-out



Schematic of access changes

Transportation Demand Management

Potential Transportation Demand Management (TDM) measures that would be compatible with the guiding principles, produce benefits to the users, and support one or more of the project goals were refined further and are presented below. These measures generally are intended to provide alternatives to drive alone to campus. Remote parking, transit subsidies, rideshare support, and marketing efforts would be pursued under these projects.

Project goals supported by TDM measures include:

- Mobility Choices
- Sustainability
- Traffic Management
- Parking Efficiency

Project Id: **D-1**

Coordination with VRE on Use of Burke Center Parking

Transportation System: Programmatic

Goal 1: Mobility Choices

Goal 2: Parking

Potential Funding: VRE/ County Partnership

R.O.M. Cost: $10,000

Existing VRE garage

As surface parking spaces are removed for building construction, replacement spaces must be provided if the campus parking demand is not reduced. These parking spaces could be located on the main campus, on West Campus, or off-campus entirely. Utilizing parking spaces away from the campus would have the dual benefit of reducing the campus parking demand and reducing entering and exiting traffic.

One opportunity is to work with Virginia Railway Express to determine if the unused spaces in the Burke Centre parking area could be shared with the University community. A partnership could be formed to promote the use of VRE by the George Mason community, encourage patronage at nearby establishments, and utilize the parking for faculty, staff, or students.

Potential parking locations

Project Id: **D-2**

Coordination with Fairfax City on Use of Old Town Parking

Transportation System: Programmatic

Goal 1: Mobility Choices

Goal 2: Parking

Potential Funding: Developer/ City Partnership

R.O.M. Cost: $10,000

Old Town Village parking

As surface parking spaces are removed for building construction, replacement spaces must be provided if the campus parking demand is not reduced. These parking spaces could be located on the main campus, on West Campus, or off-campus entirely. Utilizing parking spaces away from the campus would have the dual benefit of reducing the campus parking demand and reducing entering and exiting traffic.

One opportunity is to work with the owners of Old Town Fairfax Village to determine if the unused spaces in the Old Town parking garage could be shared with the University community. A partnership could be formed to promote the development to the George Mason community, encourage patronage at nearby establishments, and utilize the parking for faculty, staff, or students.

Potential parking locations

Project Id: **D-3**

Marketing Program for Transportation Options

Transportation System: Programmatic

Goal 1: Mobility Choices

Goal 2: Sustainability

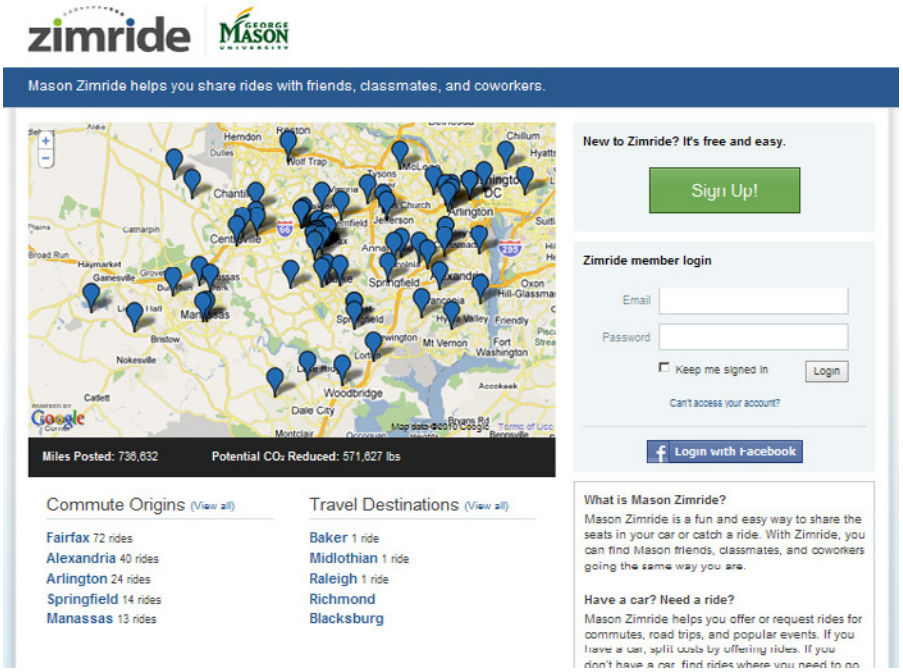
Potential Funding: Campus Access

R.O.M. Cost: $75,000 per year

Most of the University community drives alone to campus

The University participates in several programs to encourage the use of alternative transportation. These programs include rideshare matching, carsharing, transit subsidies, and commuter benefits.

While information is available on the University website regarding these initiatives, aggressive marketing would improve the exposure and likely increase the success of these programs. Reducing the number of students, faculty, and staff that drive alone to campus is key to meeting the University's sustainability goals.



Example of a marketing website

Project Id: **D-4**

Consider Supplemental Parking at Arlington Campus

Geography: Off Campus
Transportation System: TDM
Goal 1: Transit
Goal 2: Traffic Management
Potential Funding: Campus Access
R.O.M. Cost: $5,000

Transit service between the Fairfax and Arlington campuses is provided by Metrorail and CUE/shuttle bus connections. Parking for the Arlington campus will be provided in four garages, once the Founders Hall garage is completed at the end of 2010.

Students, faculty and staff utilizing both campuses could park at Arlington, reducing the parking demand on the Fairfax campus. This parking supply could also be used to augment the Fairfax supply for special events, during construction of new parking garages, and other similar circumstances. User acceptance and potential fiscal impacts should be explored.

Founders Hall Garage

Project Id: **D-5**

Subsidies for Transportation Options

Transportation System:
Programmatic

Goal 1: Mobility Choices

Goal 2: Sustainability

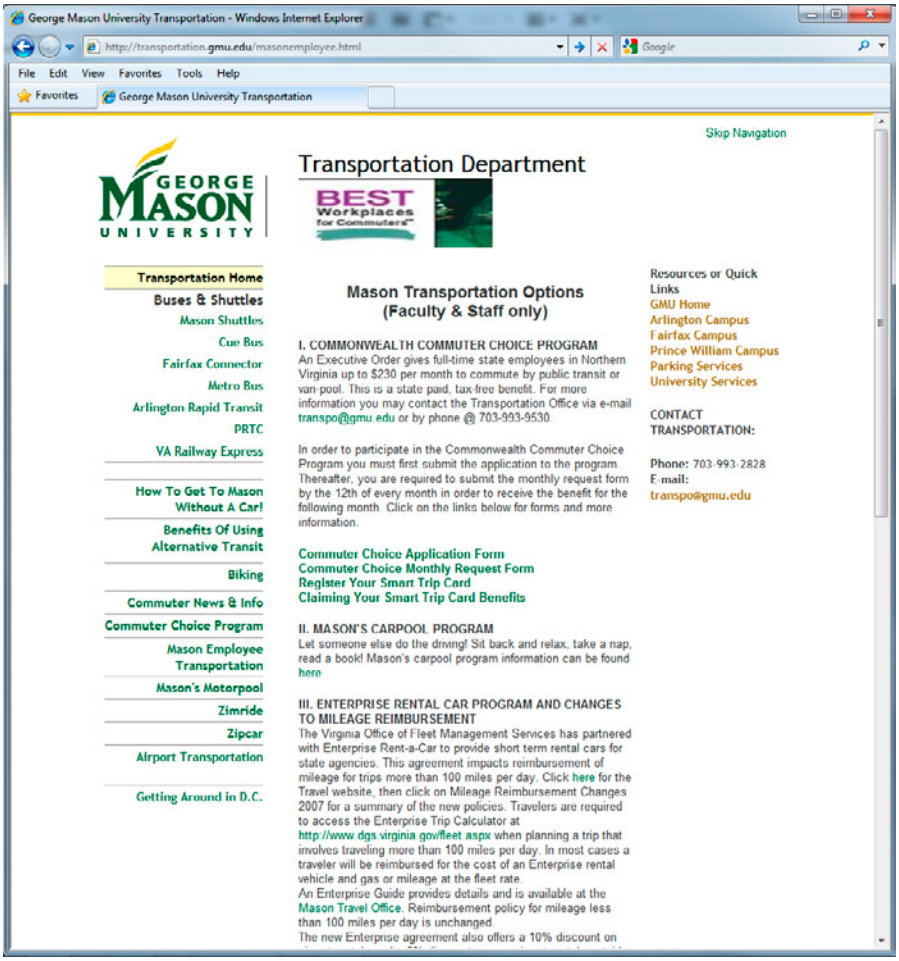
Potential Funding:
Employee Benefits

R.O.M. Cost: $400,000 per year

Most employees drive alone

Full-time state employees are currently eligible for the Commuter Choice program, which provides tax-free transit subsidies. The proportion of the University community eligible for this program is limited.

By expanding the program to include classified part-time employees, the potential for reduced automobile travel would increase dramatically. As the state program is not available to these groups, funding would need to be provided by the University.



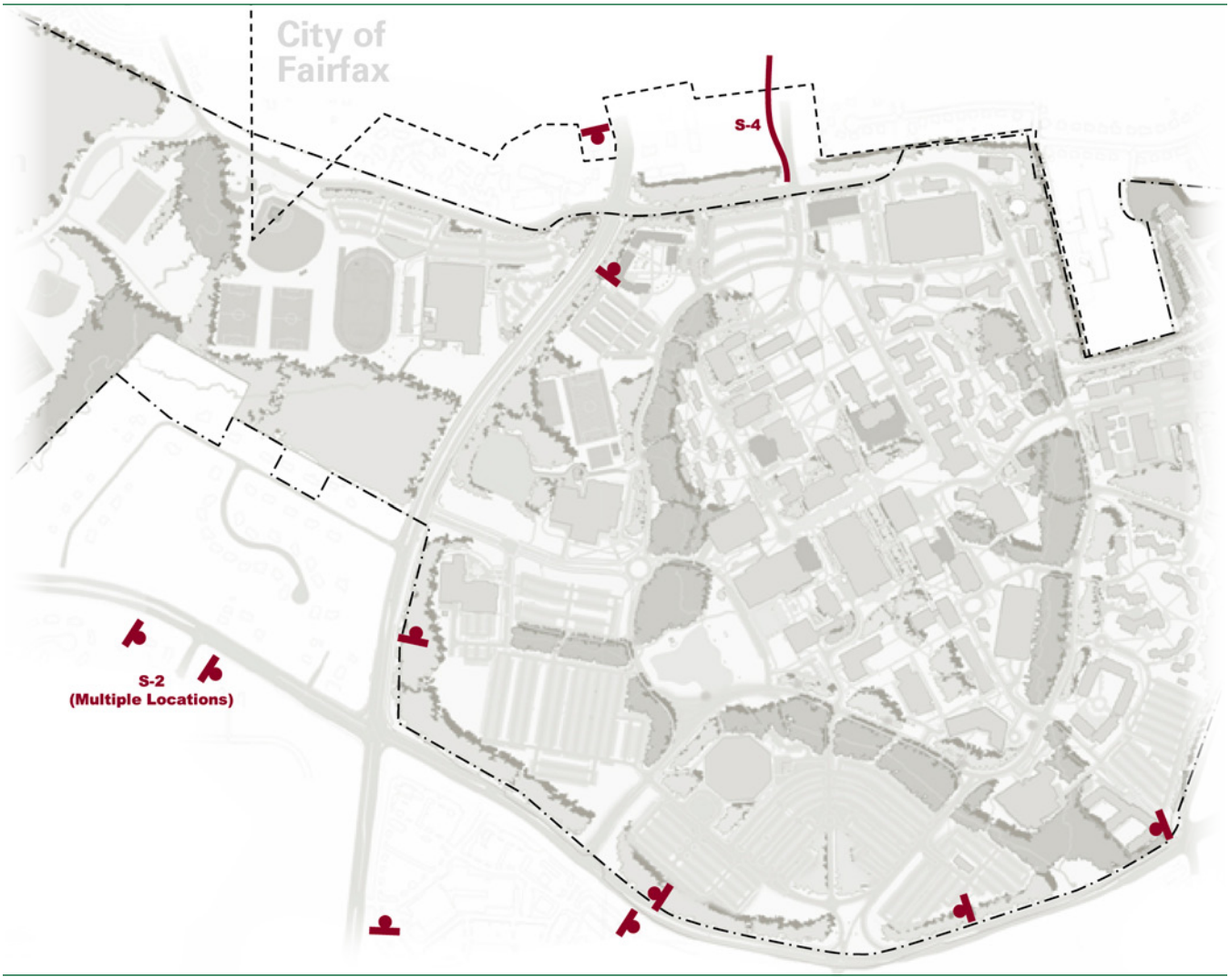
Existing commuter choice program

Signage and Wayfinding

Potential signage and wayfinding improvements that would be compatible with the guiding principles, produce benefits to the users, and support one or more of the project goals were refined further and are presented below. These projects generally are intended to orient users and provide important travel information. Signage for crosswalks and bicycle facilities would support non-motorized travel. Wayfinding upgrades would direct and orient visitors to appropriate travel paths and parking locations for various event venues. Accessible corridors and routes would also be clearly identified

Project goals supported by signage and wayfinding improvements include:

- Pedestrian/Bicycle Safety
- Mobility Choices
- Sustainability
- Traffic Management
- Event Management
- Connectivity



Project Id: **S-1**

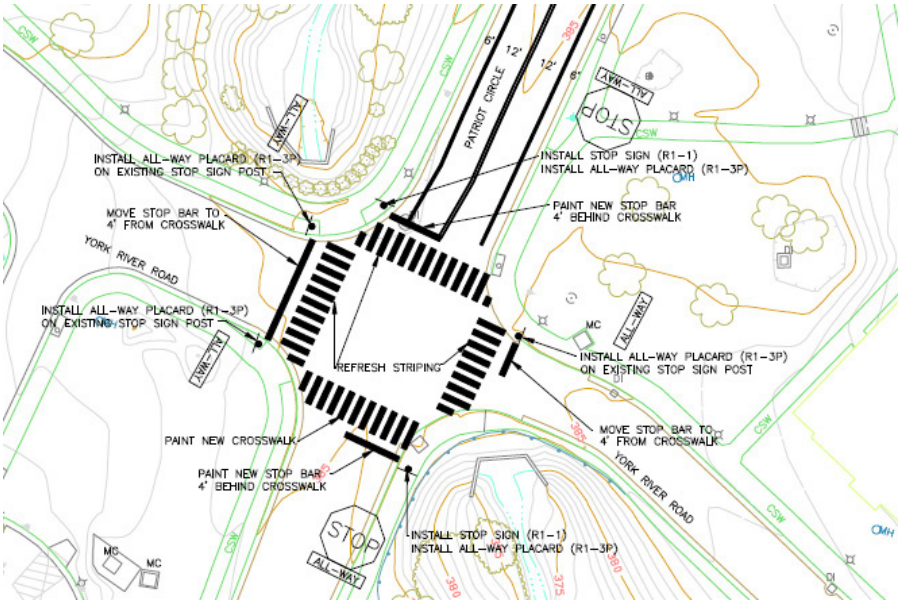
Crosswalk Signage and Further Pavement Marking

Geography: Main Campus
Transportation System: Signage
Goal 1: Connectivity
Goal 2: Pedestrian/Bicycle Safety
Potential Funding: Campus Access
R.O.M. Cost: $7,000

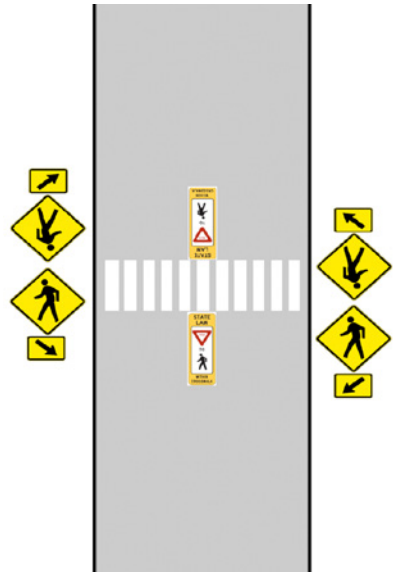
The University implemented several crosswalk and pavement marking upgrades along Patriot Circle during Summer 2010.

These changes should be supplemented by installing crosswalk signage to emphasize pedestrian safety in areas of high crossing volumes or pedestrian/vehicle conflicts. Further modifications to the pavement marking scheme may be appropriate with the signage or in conjunction with other projects.

Existing Crosswalk



Pavement marking plan



Signage and striping schematic

Project Id: **S-2**

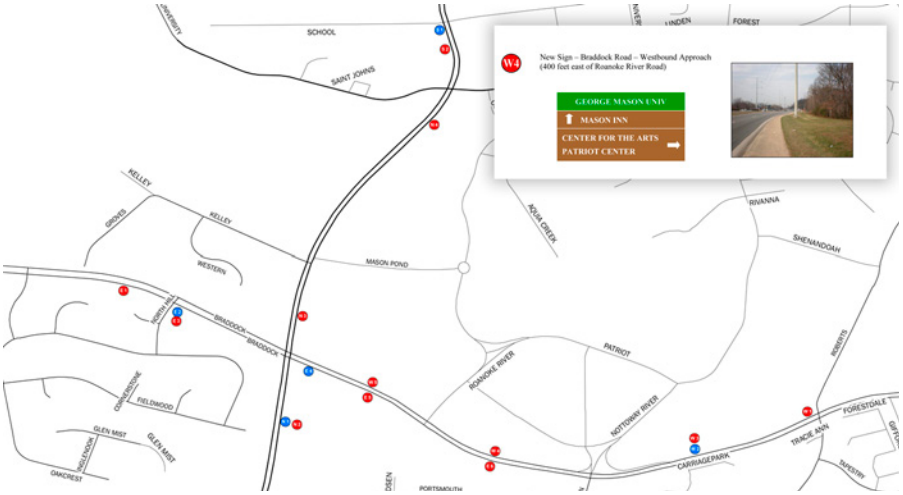
Updated Wayfinding/Signage Plan Including the Mason Inn

Geography: Off Campus
Transportation System: Signage
Goal 1: Traffic Management
Goal 2: Event Management
Potential Funding: Special Project
R.O.M. Cost: Completed

The Mason Inn Hotel and Conference Center was recently constructed at the corner of Route 123 and Mason Pond Drive. The facility will host gatherings of varying sizes and bring additional visitors to the University. The road in front of the Mason Inn is currently not named on most street maps or GPS/mapping programs.

In order to better direct visitors to specific destinations on-campus, updated wayfinding signage was implemented along the regional roadways. The Mason Inn and Mason Pond Drive should be included on the revised sign layouts.

Previous signage



Wayfinding plan

Upgraded signage

Project Id: **S-3**

Upgrade Regional Wayfinding to Include Variable Sign Options

Geography: Off Campus
Transportation System: Signage
Goal 1: Traffic Management
Goal 2: Event Management
Potential Funding: Special Project
R.O.M. Cost: $500,000

Previous signage

Fixed-message regional wayfinding currently directs visitors to George Mason University from the Interstate Highways along major arterial roads. The information provided to travelers is limited and can be confusing. Many patrons misinterpret the signs indicating "Patriot Center/Center for the Arts" to mean that the Patriot Center is the Center for the Arts.

Updating the regional wayfinding signage to include additional event destinations, such as the Mason Inn, and replace confusing language would assist visitors. Including a variable message component to address events at other venues, direct patrons to less-congested routes and specific entrances, or accommodate simultaneous events at multiple venues would provide benefits to patrons and regional traffic.

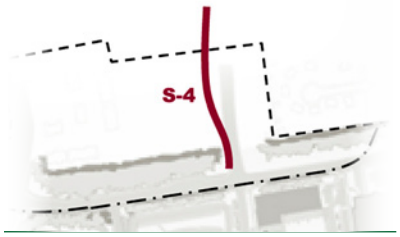
This signage should be completed by improvement to on-campus wayfinding described in project W-27

Example of a variable message sign

Project Id: **S-4**

George Mason Boulevard Off-Street Trail Signage

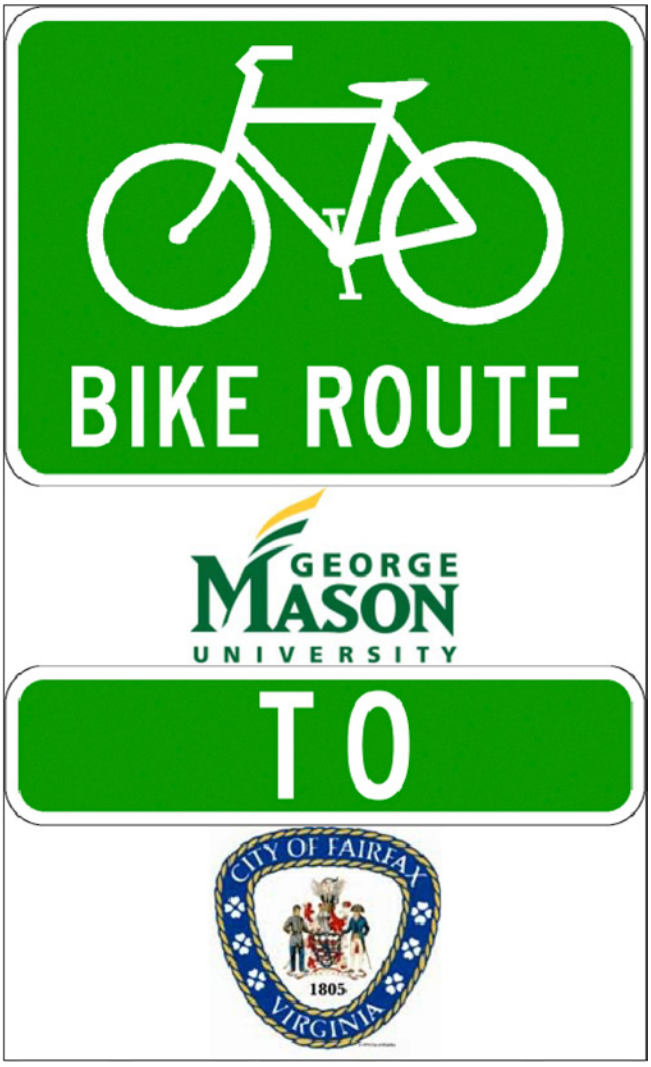
Geography: Off Campus
Transportation System: Signage
Goal 1: Mobility Choices
Goal 2: Sustainability
Potential Funding: City of Fairfax
R.O.M. Cost: $2,000



Existing multi-use trail

George Mason University is promoting bicycle commuting as a sustainable transportation option for faculty, students, and staff in order to decrease single-occupant vehicle drivers on campus. Strong bike connections to the surrounding community are a key part of achieving this goal. While a shared use off-street path accommodates biking along George Mason Boulevard between the University and Armstrong Street, no signage directs users to Old Town Fairfax via this route.

VHB suggests developing and installing signage, in order to better communicate the presence of this important non-motorized option. The campus bike facilities should connect with the off-street trail in order to create an enhanced network connecting the campus to the community and eventually become part of the "Mason to Metro" trail.



"Branded signage should be developed

Projects Eliminated from Consideration

Several other potential transportation improvement projects were proposed in the initial phases of the Master Plan process and were subsequently eliminated from consideration. A brief description of the major projects that were not carried forward follows.

Two-Way Mason Pond Drive

Mason Pond Drive operates one-way north/west-bound between Patriot Circle near Mason Hall and the Mason Pond Parking Deck entrance. Conversion of this segment to two-way traffic operation was considered as an improvement project. Potential benefits of the conversion would include direct access to the Center for the Arts from Route 123 and as an alternative traffic route during Patriot Center events. These benefits were overshadowed by increased conflicts with pedestrians and drop-off activities, the frequency of coinciding Patriot Center and Center for the Arts events, and the potential for visitor confusion.

Additional Parking Deck Locations

Beyond the three parking deck locations recommended for near-term consideration, and the next tier of candidate sites identified elsewhere, several potential parking deck locations were determined to be of lesser interest. A parking deck at the south end of George Mason Boulevard would provide convenient access, but would be contrary to the character of the core of campus in that area. A parking structure in the Facilities area would displace functions that are difficult to house in multi-story buildings and require paved staging areas. A Lot R garage would permit additional dormitories and serve the Aquatic Center, but may displace too much student housing area. Parking decks in Lot A would be in close proximity to the Patriot Center and in a historically preferred parking location, but near-term construction of stand-alone garages may constrain the ability to integrate building and parking development on that site in the future.

One-Way Patriot Circle

Restriction of Patriot Circle to one-way traffic operation, in either the clockwise or counter-clockwise direction, was considered. Traffic volumes are directionally balanced along most of the roadway, so a large redistribution of traffic would result from the change. Additionally, transit operations and event traffic management (both formal and informal) would be impacted by the elimination of circulation in one direction.