The Campus Traffic Safety and Circulation Improvements Project
Original Part I and II Facility Program Submission – August 2001
Facility Program Manual UPDATE – November 2011

Rendered view of the proposed Campus Gateway for the UMBC Campus

Prepared by
UMBC Facilities Management
University of Maryland, Baltimore County
The Campus Traffic Safety and Circulation Improvements Project
University of Maryland, Baltimore County (UMBC)

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Section 1  Introduction

University of Maryland, Baltimore County (UMBC)
1000 Hilltop Circle, Baltimore, MD

Established in 1966, the University of Maryland, Baltimore County is one of twelve institutions, two regional centers, and one system office that together constitute the University System of Maryland. UMBC is a public research university, emphasizing graduate programs in the sciences, engineering, public policy, information technology, and human services, building on a strong undergraduate liberal arts and science core.

Mission

The University of Maryland, Baltimore County is a dynamic university integrating teaching, research, and service to benefit the citizens of Maryland. As an Honors University, UMBC offers academically talented students a strong undergraduate liberal arts foundation that prepares them for graduate and professional study, entry into the workforce, and community service and leadership. Known for its outstanding faculty and cutting-edge research, UMBC emphasizes science, engineering, information technology, human services, and public policy at the graduate level. UMBC contributes to the economic development of the State and the region through entrepreneurial initiatives, workforce training, K-16 partnerships, and technology commercialization in collaboration with public agencies and the corporate community. UMBC is dedicated to cultural and ethnic diversity, social responsibility, and lifelong learning.

The Part II Facility Program

This document expands upon the Part I & Part II submitted in August of 2001 and the Part I & II Addendum submitted to DBM on July 15, 2009.

In the last three years, the university conducted a series of campus forums engaging faculty, staff, and students as part of three planning efforts: parking planning study; facilities master plan update; and campus parking management system. Issues regarding parking and transportation were discussed, including capital plans for improvement of the UMBC Boulevard / Hilltop Circle intersection. Participants at the local forums viewed positively the proposed solution to the traffic and circulation problems at our campus entry. Suggested modifications were made and in many cases integrated into the refined concept presented in the program addendum.

The local community was also engaged in the development of the recently approved facilities master plan update. Representatives from adjacent cities, nearby neighborhoods, and civic organizations attended an open forum and provided ideas for improvement of traffic and circulation problems. The constituents from the local community recognized that travel through this primary campus entrance has become increasingly challenging and treacherous. The solution proposed in the Campus Traffic Safety and Circulation Improvements project was presented and discussed and has been universally endorsed as a positive solution to the problem.
With the guidance and input of the various campus focus groups and the support of technical consultants, the project has been put into sharper focus.
The Project Summary

The project will reconfigure the UMBC Boulevard and Hilltop Circle intersection to address vehicular, pedestrian, and bicycle safety and circulation hazards. Specific measures that will be taken include:

- the replacement of the existing T-intersection with a roundabout;
- improvements to create clearly delineated pathways for pedestrians and bicycles;
- an enhanced arrival plaza at the Administration Building and Retriever Activities Center (RAC);
- a secondary circle to provide access to a designated passenger drop-off area, physically separated from campus vehicular through traffic, to serve as a new campus plaza; and
- improved vehicular and pedestrian access to the Administration Drive Garage.

This new configuration will improve access and circulation to the UMBC campus and will alleviate safety issues concerning students, faculty, and staff.

The project will achieve the following complementary objectives to improve:

- safety at the intersection of UMBC Boulevard and Research Park Drive;
- capacity on UMBC Boulevard;
- pedestrian access to the RAC and the academic core, separating it from visitor parking and vehicular circulation; and,
- service to the Administration Building, the Academic IV Building and the RAC.
Figure 2.1: Existing Site Conditions and Proposed Project Boundaries
Changes Since the Part I and II were Submitted in August of 2001

The 2001 facility program identified several operational and service problems along the UMBC Boulevard entrance linking the campus to Interstates 195 and 95, MD-166 and the Baltimore-Washington Parkway. Traffic flow was characterized as high speed, confusing for new or infrequent visitors, congested during peak periods, and potentially dangerous for motorists, pedestrians, and bicyclists. The conditions were sufficiently poor as to warrant a US Department of Transportation Level of Service Criteria rating of “F” indicating a failure condition that is caused by geometric and operational constraints.

Since the original Part I & Part II were submitted in August of 2001 the university has experienced growth in students and facilities, while the roadways have remained static. Some of the most notable changes and continued challenges are discussed below.

Table 2.1: Existing and Projected Growth in Students and Faculty 2000-2019

<table>
<thead>
<tr>
<th>Current Student Enrollment</th>
<th>Fall 2000</th>
<th>Fall 2010</th>
<th>% Growth</th>
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<tbody>
<tr>
<td>Undergraduate</td>
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<td>10,210</td>
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<td>Graduate</td>
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<td>2,678</td>
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<tr>
<td>Total</td>
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FT Faculty and Staff

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<th>Fall 2000</th>
<th>Fall 2010</th>
<th>% Growth</th>
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<tr>
<td>Faculty</td>
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<tr>
<td>Staff</td>
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<td>Total</td>
<td>1,657</td>
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Total Students, Faculty & Staff

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Dormitory Beds

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<th>Fall 2019</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2,665</td>
<td>3,771</td>
<td>42%</td>
</tr>
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</table>

Projected Student Enrollment*

<table>
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<tr>
<th></th>
<th>Fall 2010</th>
<th>Fall 2019</th>
<th>% Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>10,210</td>
<td>10,983</td>
<td>8%</td>
</tr>
<tr>
<td>Graduate</td>
<td>2,678</td>
<td>3,227</td>
<td>21%</td>
</tr>
<tr>
<td>Total</td>
<td>12,888</td>
<td>14,210</td>
<td>10%</td>
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</table>

* from 2009-2019 Facilities Master Plan Update

Student and Faculty Growth at UMBC

Since 2000, UMBC’s student enrollment has increased by 20%, including a 62% increase in graduate students. Full-time faculty and staff have increased as well, by 14%, in an attempt to keep up with the...
rise in enrollment. The increase between Fall of 2000 and Fall of 2010 for students, full-time faculty and staff has been 19%. Beds in residence halls have increased by 42% during this same period.

According to the 2009-2019 UMBC Facilities Master Plan Update, student growth will continue over the next ten years, but at a slower rate than the previous decade. The ten-year projections show a continued increase in all data categories with a total projected student headcount of 14,210 by Fall 2019.

**Growth of the Research Park at bwtech@UMBC**

Another significant change since the 2001 submission of the facility program is the development of the bwtech@UMBC North Research and Technology Park located off of UMBC Boulevard. UMBC’s success in partnering with research and technology firms has fueled the development of this five building research complex. Currently fully developed and occupied, the research park provides 350,000 square feet of office and laboratory space and 1,500 jobs. All access to and from the development is along Research Park Drive from UMBC Boulevard.

**Additional Campus Development**

Since 2001, the university has added a number of buildings in an effort to keep pace with the explosive growth of the student body. These include the Public Policy Building, the ITE (Information Technology and Engineering) Building, the Walker Garage, The Commons, Erickson Hall, Harbor Hall, the Walker Avenue Apartments, and a new wing to Patapsco Hall. With the advent of each of these new buildings, campus traffic has increased. The Performing Arts and Humanities Building, currently under construction, is expected to have an even greater impact.

**The Performing Arts and Humanities Building**

2012 will mark the opening of the first phase of the new Performing Arts and Humanities Building (PAHB), heightening the visibility of the arts and humanities programs at UMBC and fostering continued outreach to surrounding communities. The PAHB, phases 1 and 2, will have new performance spaces that attract the general public as well as students, faculty, and staff. When completed in three years, the facility will have a 275-seat proscenium theatre, a 120-seat black box theatre, a 350-seat concert hall, a 120-seat dance studio, and a 100-seat instrument ensemble room.

A weekend or evening series of events could bring several hundred additional vehicles to the campus. This traffic to attend performances and other events at the facility will most certainly place additional pressure upon the already overtaxed intersection of UMBC Boulevard and Hilltop Circle.

**Rising Stature and Visibility of the University**

The UMBC community is growing and experiencing more campus visitors, attracted by the national visibility of the academic programs and athletic team achievements. UMBC is catching the eye of potential students and their parents with consistent high rankings by national review agencies. An example of the recognition that the university has garnered in the last few years include:

U.S. News & World Report’s Best Colleges Guide – fourth place nationally “where the faculty has an unusual commitment to undergraduate teaching”.

Best Value College List by The Princeton Review.

Best Value College List by Kiplinger’s.

UMBC president, Freeman Hrabowski III, recently highlighted the unique approach that has made the university a success, on a nationally televised program, 60 Minutes.

In addition to its draw for academics, UMBC attracts visitors to athletic competitions, visual arts exhibits, and theatre and music performances. UMBC is drawing fans to watch the action of the university’s athletic teams, particularly men’s lacrosse, and men’s and women’s basketball and soccer, as they advance to conference finals and NCAA tournament berths. The campus and neighboring communities eagerly await the opening of the new Performing Arts and Humanities Building in 2012.

Visitors to the Campus

Visitors to the university enter the campus at one of four points permitting ingress or egress. However, the majority of visitors enter the university from UMBC Boulevard. This route has a direct access to two major interstates running between Washington, DC and Baltimore: I-95 and I-295 (Baltimore Washington Parkway) via MD-166 and I-195. I-195 also connects directly to Baltimore Washington International Airport (BWI), the regional airport. The university’s website provides directions to campus leading visitors to the UMBC Boulevard portal. Visitors are further guided to enter campus via UMBC Boulevard by directional signs posted on I-95 and MD-166.

Peak times for visitors to campus are difficult to accurately measure, but a good estimate may be during regular business hours when faculty and admissions staff are available. On a typical weekday, the flow of visitors is fairly consistent from about 9am until 4pm.

The campus’ primary visitor parking lot is located in the Administration Drive Garage. While the garage is visible from the intersection of UMBC Boulevard and Hilltop Circle, the prescribed path to the garage is not obvious and is confusing. The current intersection and roadway configuration requires the navigation of a circuitous route to access the visitor parking at the garage. When leaving the garage, visitors, faculty, staff, and students must make a u-turn at a hazardous median cut to exit the campus to the south. The combination of uncertain drivers, slope that generates high speed conditions, and poorly configured roadways leads to the unsafe conditions.

Visitor numbers increase at various points during the day in response to hosted events; and can increase at certain predictable times of the year, for example when residential students move in or move out. Visitors arrive in much greater concentrations for campus sponsored cultural and athletic events. While some of these events begin in the early afternoon on weekdays, the majority are hosted in the evenings, between 6 and 8 pm, or on weekends. Typically, the arrival of visitors attending a hosted event coincides
with the 5 to 6 pm rush of faculty, staff, and commuter students leaving campus and students arriving for evening classes.

*Figure 2.2: Existing Vehicular Circulation and Traffic Flow*

Another source of motor vehicle traffic that does not fall within the generally recognized term of visitor is motorists using the campus roadways as a bypass to local communities or business districts, avoiding congested traffic along other area highways or local roadways. University Police predict that these motorists comprise a significant percentage of the traffic flow entering or passing through the campus, most notably from 6 to 9 am and again from 4 to 6 pm. The University Police note that the campus becomes a hub for motor vehicle traffic during the above times because of UMBC’s location and proximity to surrounding Interstate highways, industry, transportation and other commercial entities. This phenomenon is accentuated anytime there are accidents or roadway construction that obstructs the surrounding highways (I-695/I-95) or State roadways bordering the campus.
It is difficult to quantify the number of visitors arriving on campus per day. However, we know that the university is hosting more events that bring visitors to the campus today than we did ten years ago. In recent years, the Department of Athletics & Recreation has experienced a steady increase in the number of sporting events, concerts, lectures, and admissions events held in their facilities throughout the year. The Retriever Activities Center (RAC), located at the terminus of UMBC Boulevard, is inarguably the busiest building on campus with recorded weekly peaks of over 15,000 patrons, the majority, campus visitors.

During the summer, UMBC offers over 28 individual camps for kids aged 6 to 16. Over 7,500 campers partake in activities at the RAC, Lecture Hall I, and the UMBC Stadium Complex. All campers eat at True Grit’s (campus’ dining hall); and a portion of campers live in the residence halls during the camp. These weeklong camps create additional traffic congestion especially during drop-off and pickup.

In 2009, over 10,000 spectators traveled to UMBC to attend the Maryland State High School Basketball Championships. Visitors also attended the Men’s and Women’s Lacrosse World Team USA tryout, numerous local high school graduations, Baltimore professional soccer team practices and games, and UMBC’s own athletic team competitions.

Other notable events attracting outside guests include:

- Career Fair held in the first week of October with approximately 500 employers and job seekers;
• Quadmania held in the fall as a multi-day outdoor festival and concert is the largest event sponsored by the Student Events Board attracting large numbers of citizens from the adjoining communities as well as faculty, staff, and students;

• LEGO State Championships and Robotics Competitions held in January or February with 60 or more teams participating;

• Visit Days for prospective students held in October through December;

• Orientation Program activities such as the Orientation Course Selection Days held throughout the summer for each class of 1,400 to 1,500 entering freshmen;

• University System of Maryland Board of Regents meetings held at the Albin O. Kuhn Library & Gallery several times each year; and

• Academic and research symposiums.

Other visitors to the campus include those conducting business (e.g. delivery and service personnel), friends and family of students, and those using UMBC as a community resource (e.g. library and Retriever Activities Center). Together these activities create a bustling campus atmosphere with daily influx of visitors and their vehicles.

**Arrivals to Campus by Vehicle**

An analysis of arrivals to campus by automobile has been conducted using current faculty, staff and student data, and the information from a student survey conducted in 2008 regarding automobile use on campus. This data suggests that up to 10,000 vehicles are driven onto campus each day by students and staff, not including those living on campus. This amounts to 20,000 vehicle trips daily using campus roads.

While this daily volume at first glance may seem unlikely due to variability in individual teaching, research, and class schedules of UMBC’s faculty and students, it is not surprising given that the campus has over 6,500 parking spaces, of which many turn over several times in a day. In addition, the numbers of vehicles travelling campus roads daily could certainly reach or even exceed this number when factoring in the number of non-UMBC drivers who use UMBC roadways as a means to travel to and from their residences in the surrounding communities. Added to this figure are the UMBC Shuttles, MTA buses, and delivery trucks and service vans that travel onto and around the campus.

Increases in vehicles on campus have been observed by University Police and Parking Services enforcement officers. These individuals are able to note traffic volume trends on campus in the course of fulfilling their job responsibilities. The consensus among these individuals is that the largest daily influx and outflow of vehicles is by means of the UMBC Boulevard entrance. Long-tenured University Police Officers have observed a steady increase in campus traffic in the last ten years. Traffic flows during certain times of the year, such as the first few weeks of each Fall semester, are sufficiently heavy as to warrant positioning University Police Officers at key points along UMBC Boulevard and its confluence with Hilltop Circle. This is required to maintain traffic flow and prevent accidents.
**UMBC Boulevard**

The results of UMBC’s accomplishments and growth have meant increased volumes on its roadways, even longer wait times along the UMBC Boulevard entrance, and increased risks of more serious accidents at the intersection. Compounding the problem, residents of the surrounding communities cut through campus using the UMBC Boulevard entrance to shorten their commuting route.

UMBC Boulevard is accessed from major high-speed highways. Motorists arriving from I-95 are required over a short distance to reduce speed from 60 mph along MD-166 to 35 mph along the ramp to UMBC Boulevard. A stop sign at the intersection of UMBC Boulevard and Research Park Drive forces vehicles to quickly and abruptly stop. The intersection at Research Park Drive becomes a choke point particularly in the late afternoon when there is a strong demand for left exits from the research park toward MD-166, I-195 and I-95.

UMBC Boulevard serves as the only external roadway link to/from the south end of the main campus. The large daily influx of vehicles from UMBC Boulevard is fed into Hilltop Circle, which serves as the primary traffic route around the university. Access to all major parking lots and garages, as well as any campus destination is provided off of Hilltop Circle. Access to all other campus roads, surrounding neighborhoods and I-695 is also via Hilltop Circle.

**Traffic Volumes**

A Level of Service (LOS) analysis quantifies how well a section of roadway is operating under peak hour traffic volumes based on a typical driver’s expectations. This classification is based on calculating the quality or efficiency of the traffic flow for the motorist. The delay is calculated based on the difference between the travel time actually experienced and the travel time that would have been experienced under ideal road conditions. This analysis is best conducted by traffic engineering consultants, such as those engaged by the university in 2001. UMBC has not contracted again for an LOS analysis since 2001; and therefore, cannot provide a current LOS for UMBC Boulevard.

As the university has grown and the local communities of Arbutus and Catonsville have experienced a net population increase, the numbers of cars traveling on and through campus have increased since 2000. As there have been no changes to the roadway system since 2000 that would result in a reduction of service delays, and the traffic volume has only worsened, the previously determined level of service of “F” (worst) would still prevail, creating unacceptable and unsafe traffic conditions.

Similarly, the measure of the ratio of traffic volume to road capacity during peak utilization requires the engagement of a traffic engineering consultant. The university has not contracted again for these services since 2001; and therefore, we cannot provide a current volume-to-capacity ratio. However, in 2001 the volume to capacity (V/C) ratio was 0.99 which is just below the 1.0 ratio that indicates the intersection is operating at the limit of its capacity. It is our expectation that with increases in enrollment (see Table 2.1) and the corresponding increase in volume that the V/C ratio is at or beyond the 1.0 threshold.
Accidents

In review of the traffic accident incident logs, the University Police have recorded a total of 98 motor vehicle traffic accidents along the roadways and at intersections within the proposed project area from January 2001 to December 2010. This represents a 58% increase in the ten-year accident rate as compared to the 62 accidents recorded for the previous decade.

Figure 2.4: Annual number of accidents at intersection of UMBC Boulevard and Hilltop Circle and along UMBC Boulevard

Figure 2.4 graphs the number of accidents within the project area over the last ten years. The graph illustrates that since 2001 the number of accidents has increased. The rate has been particularly alarming in the last two years with a high in 2010 of 18 accidents at this main campus portal. Since 2001, the annual accident rate has increased by 125% corresponding with a 25% increase in the number of students on campus (i.e. fall 2001 FTDE of 7,333 to fall 2010 FTDE of 9,130). During a year’s time, as many as 30% of these accidents have resulted in personal injury to drivers.

Figure 2.5 provides depictions of two of the eighteen motor vehicle accidents in 2010. Both are at the dangerous intersection of UMBC Boulevard and Hilltop Circle.
Pedestrians and Bicyclists

Pedestrians have great challenges crossing at the UMBC Boulevard and Hilltop Circle intersection. Currently, faculty, staff, and students who park along UMBC Boulevard and travel by foot to and from the core of campus have no designated street crossing at the intersection of UMBC Boulevard and Hilltop Circle. Due to the ramping for vehicular traffic, the two closest pedestrian crosswalks are approximately 810 ft east and 1,680 ft northwest from the roadway intersection. The distance deters most people from using the pedestrian crosswalks. Instead, pedestrians tend to progress along the shortest distance by darting across the busy intersection. Figure 2.6 illustrates the existing observed pedestrian movements along UMBC Boulevard.

With the current roadway configuration, it would be unwise for the university to consider installing pedestrian crosswalks directly at this intersection. The frenetic nature of drivers turning at the intersection and passing through the intersection creates an unsafe environment for pedestrians. Crosswalks would infer a level of safety that does not exist.

An additional problem with the existing roadway is that there are no sidewalks along the southbound lane of UMBC Boulevard. Faculty, staff, and students parking on that side of UMBC Boulevard must walk along the grass or roadway until they reach Hilltop Circle. If they want to use existing sidewalks, they must cross UMBC Boulevard at their parking space, without the aid of a crosswalk, and dodge cars that may be traveling in excess of 40 mph on a roadway with a posted speed limit of 25 mph.

Faculty, staff, and students who may wish to use a bicycle to travel between the bwtech@UMBC Research and Technology Park and the main campus face many of the same problems as pedestrians. Bicyclists that are travelling only along Hilltop Circle face the prospect of dangerous sweeping ramps and poor sight lines for drivers. The campus’ ability to promote alternative transportation like bicycling is hindered by the unsafe conditions at this key intersection.
Figure 2.6: Existing Pedestrian Movements at UMBC Boulevard
Section 3 Instructions to the Consultant

The Consultants will provide design services for the construction of a new campus gateway that is a safe and effective improvement to the existing roadways, pedestrian paths and plazas. The Consultant’s design shall:

- Reconfigure the geometry of existing UMBC Boulevard / Hilltop Circle intersection to eliminate hazardous conditions leading to the Level of Service Criteria rating of “F”.
- Eliminate the unsafe conditions of pedestrian and vehicular crossings at the intersections of UMBC Boulevard and both Hilltop Circle and Research Park Drive.
- Provide a drop-off area, with direct access to the core of the campus, to safely discharge passengers and individuals with disabilities.
- Provide designs for a new campus pedestrian scaled portal adjacent to the Administration Building. Provide pedestrian enhancements to the plaza between this building and the Retriever Activities Center (RAC).
- Provide access for buses and delivery vehicles, including large semi-trucks to the southeast of the RAC, physically separated from major pedestrian pathways.
- Provide additional safe areas to discharge and pick-up passengers, with parking for sport team buses and vans, to the south of the RAC.
- Enhance service access to the Administration Building and Academic IV.
- Improve the campus entrance and sense of arrival to the University System of Maryland’s 4th largest institution.
- Create an entry sign in the median of UMBC Boulevard at the campus approach from MD-166.
- Reconfigure vehicular circulation to allow visitors to the campus to access existing parking resources at Administration Drive, UMBC Boulevard and Hilltop Circle in a clear and safe manner.
- Provide bus, pedestrian and bicycling facilities that increase safety and access.
- Design roadway and pedestrian improvements to accommodate a future campus growth of over 30% to 17,000 students.
- Improve vehicle movements along the full length of UMBC Boulevard, with special attention placed at improvements to traffic flow at the intersection of Research Park Drive.

The university requires innovative solutions that provide the best economy in design, construction, and maintenance while conforming to the criteria as established in Section 4.

The Consultant, comprised as a professional team of Landscape Architects, Architects, Engineers, and Transportation Consultants is to provide specialized studies, architectural and engineering design, and preparation of appropriate plans and specifications for each aspect of the work as described in this
Section, and subsequent Sections. The Consultant is expected to provide all services as required by University of Maryland, Baltimore, Department of Architecture, Engineering, and Construction (UMB DAEC) and UMBC, the University System of Maryland’s Procedure Manual for Professional Architectural/Engineering Services of University of Maryland Projects, and the UMBC Design Criteria Manual.

The intent is that the Consultant shall perform all required design functions, including the gathering of data on existing and desired conditions. The Consultant shall prepare and include in the construction specifications the work schedule for those items of work which are sequential and could unduly disrupt operations. The Consultant shall also provide any instructions as to scheduling, staging, or similar information needed to achieve optimum construction efficiency and to minimize disruptions to campus operations.

The Consultant is responsible during each phase of design to recommend alternatives that will achieve cost efficiencies to maximize available funding. These recommendations should provide creative design solutions rather than suggest reductions in the defined project requirements. If, in the course of design, the Consultant recognizes architectural or engineering solutions that would be more beneficial to the university than those indicated herein from the preliminary surveys, the university expects and solicits this professional advice for its early review.

The Consultant will be required to work with a project management team comprised of university representatives that will interact directly with the Consultant and be active in the review, resolution, and approval of all design work. The solicitation documents will define the respective roles and responsibilities of university personnel and the Consultant.

It is the intention of UMBC to separately engage the services of a Construction Management (CM) firm. The CM will be responsible for preconstruction services for constructability reviews, phasing, site logistics, cost estimating and soliciting trade bids. The CM will also provide management services through construction.

The university anticipates the following disciplines will comprise the Consultant's project team:

- Landscape Architect
- Site Civil Engineer
- Transportation Planning/Traffic Engineer
- Structural Engineer
- Architect
- Geo-Technical Engineer
- Electrical Engineer including Exterior Lighting Specialist
- Environmental Graphics Specialist
- Cost Estimator
Consultant Services/Scope of Work

The specific programmatic requirements and design criteria provided in this Program are as complete and accurate as possible at this point in the project. It will be the responsibility of the Consultant to consult with the university during the program validation phase of design to verify and/or refine the programmatic requirements and criteria.

The Consultant will be required to provide the basic architectural and engineering services per the University System of Maryland’s Procedure Manual for Professional Architectural/Engineering Services of University of Maryland Projects, as well as all requirements outlined in this section and in this document.

In addition to basic design and construction administration services, the Consultant is responsible for providing the following special services:

- A transportation study of UMBC Boulevard and the intersections at Hilltop Circle and Research Park Drive to establish a current analysis of Level of Service and volume-to-capacity ratio, as well as current and projected traffic volumes. The transportation study will inform the Schematic Design Phase to insure that the proposed solution results in a correction of current safety and circulation problems and will accommodate satisfactorily a future maximum capacity of 17,000 students.

- A thorough review and validation of the facility program assumptions and conclusions, to identify any alternative ways of meeting the program objectives in a more cost effective manner.

- Verification that the locations of the proposed site elements, circulation paths and access/egress points in any conceptual plans are optimized in relation to the existing site topography and features.

- The establishment of a preliminary site development plan incorporating the proposed roadways, service needs, water retention and filtration features, site landscaping and pedestrian features, required modifications to the existing Administration Drive Garage, and any other facilities identified in this and subsequent sections.

- The inclusion of areas outside the specific boundaries of the site that will be impacted by the project.

- The development of a construction staging and construction phasing plan that minimizes impacts to nearby buildings, mature tree stands, streams and pedestrians. The Consultant will coordinate with the Construction Manager to develop a campus-wide transportation plan to ensure that roadways providing access to buildings and parking areas are left accessible throughout the construction schedule.

- Prepare all documentation and obtain approval of all permits and licenses as required by agencies and jurisdictions having authority, which includes but is not limited to: Maryland Department of the Environment, Department of Natural Resources, Maryland State Fire Marshal, and UMBC Environmental Safety and Health.
The provision of estimates and projections of all capital costs connected with the construction of the project; such as, demolition of any existing structure(s), cost of new construction, equipment installation, utility extensions, and site development at each submission (i.e., schematics, design development, and each phase of the construction documents). All estimates shall be prepared and presented in CSI Division and DGS formats. Lump sums will not be acceptable. The selected Consultant’s independent estimator shall provide complete estimates concurrent with the submission of the Schematics and Design Development phases and a review of 50% cost estimate prepared by the university’s Construction Management firm. The Consultant will not proceed to the next design phase until the cost estimates are reconciled with the available budget and the Construction Management firm’s estimates.

The preparation of presentation materials, including boards, electronic presentations and 3D models to convey the design concepts to university decision makers and outside review boards.

Deliverables

The Consultant shall submit to the university, nine sets of all drawings and specifications required for review and approval by the university, UMB, and the Maryland State agencies for each phase of the project. Each submission should consist of three full-size drawing sets and six half-size sets unless otherwise stipulated by the university.

The Consultant shall develop a 3D computer model that would be used throughout the early design phases and developed into a final presentation following the completion of the Design Development Phase. The model shall be in a format that allows it to be integrated into a campus-wide computerized site model that currently is in Google SketchUp.

The consultant will be required to provide a manual describing the care and maintenance to be given to planting and other appropriate elements for a two year period following the completion of construction. The manual shall include a schedule and recommendations for mowing, aerating, fertilizing, pruning, and other care as required, as well as the number of man-hours needed to fulfill the maintenance schedule.

Following the acceptance of the final Construction Documents Phase drawings by UMBC and UMB, the Consultant shall provide the university with:

1. Reproducible copy record drawings;
2. Hard copy plus electronic file of specifications on most current version of Microsoft Word;
3. Electronic drawing files on most current version of AutoCAD comprising Architectural, Mechanical, Electrical, Plumbing, Structural, Site Civil, Landscape Architecture, and any Specialty Consultant’s drawings and details per UMBC’s CAD standards.
4. Traffic Studies and Reports
Information to be Collected or Developed by the Consultant

The Consultant shall collect all available information from UMBC’s Facilities Management-Planning and Construction Services regarding existing utilities and infrastructure. The university will provide to the Consultant available existing building and site plans, and reports as listed below. No assurances, however, are given that these records are complete or accurate. It shall be the responsibility of the Consultant to establish the precise location of all underground utilities and/or services in the construction area and to show the same in detail on the design drawings.

In addition, the Consultant will have the responsibility of contracting with a surveyor, geotechnical engineers, etc. to gather necessary data for the completion of the design work.

Field Investigation Requirements

- The Consultant is fully responsible for accurately defining existing conditions and the impact of these conditions on the design. The selected Consultant is required to examine existing drawings, order test borings, test pits, radon tests, infrared tests, electrical load tests, and any other means necessary to ensure accuracy for the design.

- Existing drawings, whether “as built” or construction drawings should only be used as a guide and for reference and under no circumstances be construed as accurate. All conditions shall be field verified by the selected Consultant team during the design development of this project.

Survey

- The Consultant shall prepare a survey that shall document all existing conditions of the site and confirm all information provided by the university. The extent of the information and work required by the survey shall include, but not be limited to, all existing topography, utilities, roads and improvements, significant vegetation and natural features, existing utilities, boundaries, easements, and any legal restrictions that are applicable.

- All survey data shall be in compliance with Maryland State plain coordinates NAD 83/91 and NAVD 88.

Bench Marks

- The Consultant, with the approval of the university, shall establish a sufficient benchmark for the development of contract documents.

Test Holes and Soil Borings

- Where there is a doubt as to the actual location of any existing utility or there is the possibility of interfacing with the alignments of new or existing utilities, and if such information is deemed necessary to prepare an accurate design, the selected Consultant will make test holes either by performing the work or contracting for the work, only after the approval of the university.

- It will be the responsibility of the Consultant to inform the university as to the quantity and location of test holes required and field check the utilities after the test holes are open.
• Soil conditions and/or stability may pose limitations to the development of adjacent landforms, site landscaping, and placement of on-site support systems (e.g., parking, storm water retention ponds, etc.). The Consultant is expected to secure contract services to provide a soil analysis, determine the condition of existing soils and substrata, and identify any restrictions the soil types or subsurface conditions may place on the project solution.

• Test borings to determine soil conditions shall be done under the direction of the Consultant. It will be the responsibility of the Consultant to inform and receive approval from the university as to the quantity and location of the test borings needed.

Additional Information

Codes and Regulations

• BUILDING CODE: In accordance with the building code of the State of Maryland which includes the latest editions of the International Building Code (IBC) for Basic Building, Mechanical, and Energy Conservation Codes, National Electrical Code, and ASHRAE standards, the Consultant shall be responsible for developing the specifications and drawings in strict adherence to meet or exceed these requirements and regulations impacting on the project whether or not it is so defined or listed in the final Construction Documents. The Consultant will be responsible for adhering to all current standards, codes and regulations imposed by the State, UMBC, and any other regulatory agencies or jurisdictions involved in the design and construction activities on the UMBC campus.

• ACCESSIBILITY: In the preparation of all plans and specifications, the Consultant shall be responsive to Federal and university's requirements for barrier free design according to all applicable laws, rules, regulations, and codes. Regulations Governing Construction of Facilities for the Handicapped by the State of Maryland (COMAR 05.02.02), the Fair Housing Amendments At (1988) and the Americans with Disabilities Act (1990) or other Federal regulations, where applicable, will supersede COMAR requirements.

• SMART GROWTH AND NEIGHBORHOOD CONSERVATION – SMART GROWTH AREAS: All facility programs shall comply with the principles and practices outlined in Smart Growth legislation identified as Acts of 1997, Chapter 759, Article – State Finance and Procurement, Section 5 – 7B – 01 through Section 5 – 7B – 10, subtitled Priority Funding Areas.

• PLUMBING: Building plumbing systems also must comply with the requirements of COMAR Title 09, Department of Licensing and Regulation, Subtitle 20, Board of Commissioners of Practical Plumbing (the State Plumbing Code).

• ROADWAYS: Regulations of the Maryland Department of Transportation, State Highway Administration, latest edition of the Standard Specifications for Construction and Materials, for any construction affecting a roadway route or right-of-way.
• FIRE CODE: The State Fire Prevention Code (COMAR 29.06.01 and 29.06.02 or current applicable regulations) which references the NFPA National Fire Codes, latest edition, including Standards, Recommended Practices Manuals, etc.

• FLOOD PLAIN: Management Regulations & Permits, Department of Natural Resources (COMAR 26.17.04 or current applicable regulations).

• FOREST CONSERVATION: Maryland Department of Natural Resources regulations for development of Forest Stand Delineation and Forest Conservation Plan in accordance with forest Conservation Act (COMAR 08.19.04 or current applicable regulations).

• SEDIMENT AND EROSION CONTROL AND STORM WATER MANAGEMENT: Regulations of the Maryland Department of the Environment (MDE), Sediment & Storm Water Administration, 1800 Washington Boulevard, Baltimore, Maryland 21230 (MDE Article Sections 4-101 through 4-116 Annotated Code of MD. and COMAR 26.17.01 and 26.17.02, or current applicable regulations):
  a. Chesapeake Bay Critical Area Criteria (COMAR 27)
  b. Nontidal Wetlands (COMAR 26.23)
  c. Wetlands (COMAR 26.24)

Information to be Provided to Consultants


2009-2019 UMBC Master Plan Update

UMBC Vehicular and Pedestrian Signage Standards

UMBC Site Lighting Standards

UMBC Site Furnishing Standards

Google SketchUp UMBC Existing Campus Model

UMBC CAD Model with Campus Utilities, Topography and Buildings

The UMBC Forest Stand Delineation Plan and Forest Preservation Bank Plan

Stormwater Management Master Plan (2002)

2009 Planning Study for Parking Facilities

2009 Rendering of Entry Gateway
Section 4  Development Criteria

Existing Conditions

The purpose of this section is to provide a basic outline of site problems, assets and project requirements for the Consultant. The information provided in this section is intended to supplement the Consultant’s own site evaluation.

Project Boundaries

- Site limits suggested for the roadway improvements, site development and landscaping are referenced in Figure 2.1 Proposed Project Boundaries and Existing Site Conditions.
- During the initial stages of design, the Consultant is required to survey the impact of all of the site requirements in order to establish the final project boundaries for this project.

Existing Structures within the Project Boundaries

- Administration Drive Garage is a two-level garage, built without interconnecting ramps or elevators. Built in 1989, the 430-space garage is accessed off of Administration Drive. The construction sequencing must factor into providing continued use of the garage or parts of the garage when at all possible.
- A silo, from the historic farm once occupying the site, is located on the west side of UMBC Boulevard. This structure will remain and should not be impacted by the construction. Signage identifying the campus will be removed.
- A concrete information kiosk is located on the east of UMBC Boulevard. Modifications to this structure to improve electronic signage are expected.

Adjacent Facilities

- The project site borders buildings and campus facilities that shall be protected during construction. These include the bwtech@UMBC research park, the Administration Building, the ITE Building, Academic IV, and the Retriever Activities Center. Access to these facilities shall be maintained throughout the construction period.

Existing Site Utilities

Figures 4.1 through 4.4 illustrate the existing utilities that serve or cross the project area. Figure 4.4 illustrates the existing streams and ponds, and the stormwater management facilities. The university shall provide the Consultant with the latest CAD mapping of all campus site utilities. The Consultant is required to verify all existing utilities.
Electric

- Buried underground cabling and wires extend through the project area providing power to street lights, signage, and the Administration Drive Garage. See Figure 4.2.
- A concrete ductbank runs under the Administration Drive Garage and crosses Hilltop Circle. This ductbank carries both electric cabling and fiber optic cable to the outside of Hilltop Circle and the east side of the campus.
- Buried electrical conduits provide power to bwtech@UMBC from the west side of UMBC Boulevard, crossing the roadway just north of Research Park Drive.
- Additional power to the research park is via a buried feeder from the south along UMBC Boulevard.

Telecommunication

- Buried fiber optic cables in a concrete duct bank run from the RAC, below the Administration Drive Garage to the south side of Hilltop Circle. See Figure 4.2.
- Buried telecom lines access bwtech@UMBC from the west side of UMBC Boulevard, crossing the roadway just north of Research Park Drive.

Domestic Water

- A 12” water line runs along Hilltop Circle from Wilkens Avenue and feeds the eastern part of the campus and the bwtech@UMBC North complex along Research Park Drive. The water line extends to bwtech@UMBC along the south side of Hilltop Circle and the west side of UMBC Boulevard. See Figure 4.3.
- There is an 8” water line that runs along Administration Drive linking with this water main providing 6” water service to several buildings, including the Retriever Activities Center.

Fire Protection

- Fire hydrants are located along both sides of Hilltop Circle, Administration Drive and the west side of UMBC Boulevard. They are served from the adjoining domestic water mains. See Figure 4.3.

Stormwater Management

- The existing stormwater management system of 15”-24” stormwater piping, manholes and culverts runs along Hilltop Circle, UMBC Boulevard and the south and west sides of the Administration Drive Garage. See Figure 4.4 for relative locations.
- There is a 54” culvert that runs under UMBC Boulevard, just south of Hilltop Circle, draining into Pig Pen Pond within the forested natural preserve of the Conservation and Environmental Research Area (CERA).
- A 48” culvert crossing UMBC Boulevard south of Research Park Drive.
• There is a 46” culvert that runs below Hilltop Circle, just to the west of the intersection of Administration Drive and Hilltop Circle.

Natural Gas

• BGE provides a 4” buried pipe serving the research park from the south along UMBC Boulevard. See Figure 4.5.

Sanitary Sewer

• A 12” gravity main runs along Hilltop Circle from the east and crosses this roadway under the west corner of the Administration Drive Garage to avoid the T-intersection at UMBC Boulevard. The sanitary sewer line crosses Hilltop Circle again on its route west. See Figure 4.5.

Forested Areas, Streams and Ponds

• The project site is adjacent to forested areas of the university campus that act as a physical buffer to adjoining development and provide a sensitive and rich ecosystem serving as an educational tool, a research resource, and a recreation area. Successful designs shall minimize to the extent possible impact to adjoining forested areas, including the Knoll, a wooded hill located to the east of the RAC. This forested area is particularly venerated by many in the campus community.

• The CERA (Conservation and Environmental Research Area) located south of Hilltop Circle and east of UMBC Boulevard was established as a protected area in 1997. Much of the project area drains into the streams and ponds of the CERA. The CERA should not be impacted by the project.
Figure 4.1: Existing Topography and Natural Features
Figure 4.2: Existing Utilities – Electrical and Voice/Data
Figure 4.3: Existing Utilities – Water and Fire Protection
Figure 4.4: Existing Utilities – Stormwater Management
Figure 4.5: Existing Utilities – Sanitary Sewer and Natural Gas
**Design Criteria**

The specific programmatic requirements and design criteria provided in this Program are as complete and accurate as possible at this point in the project. It will be the responsibility of the Consultant to consult with the university during the program validation phase of design to verify and/or refine the programmatic requirements and site development criteria.

The Consultant is responsible for complete design of all impacted elements within the project site boundary. At a minimum, design will include modifications to utility and drainage infrastructure, roadways, the Administration Drive Garage, surface parking, site access, and open space. Roadways must be designed to integrate traffic and pedestrian signage, wayfinding signage, event messaging, institutional identity elements, and landscaping, in a cohesive and aesthetically pleasing manner. Imaginative and responsible solutions must be developed to form a cohesive, economical, and unified design.

**Excavation and Soils**

- Geotechnical information is not available for the proposed site area. The Consultant is responsible for securing all geotechnical engineering services required for design.

- Topography is an important element in the utilization of the site and critical to the development decisions. Careful consideration of the site character is required in the development of the site and in determining the “footprint” of the roadway changes and plazas. Integration of the topographical features, utilization of advantageous landforms, and avoidance of undesirable site features shall be incorporated into the design solution.

**Drainage and Stormwater Management**

- The Consultant is responsible to comply with all current MDE requirements regarding drainage and storm water management.

- Drainage patterns should be directed away from foundations, walks, roadways, and turf areas so as not to interfere with the function of these site elements.

- The project scope includes preservation and/or relocation of storm drains and storm drain lines, as well as upgrade of existing storm water collection and management systems as required to address changes to the project site and maintain the integrity of the campus’ storm water management system.

**UMBC Forest Stand Delineation Plan**

- This project will be developed in accord with the prevailing Forest Conservation Act and its pertinent Regulations. The Consultant is solely responsible for complying with and submitting all documentation required of the Forest Conservation Act.

- UMBC has an approved forest preservation bank that may be utilized when submitting required documentation to the Department of Natural Resources. A forest conservation plan is required for each project that requires forest stand delineation. Forest mitigation plans will be accounted
for in the campus’ long-term forest protection plan. All forest conservation plans should reference this forest protection plan in order for the mitigation requirements for reforestation or afforestation to be reconciled.

Vehicular Circulation and Roadways

- The design of all roadways, including UMBC Boulevard, the intersection with Research Park Drive and the intersection of Hilltop Circle shall comprise an integrated solution.
- Roadways shall be designed to eliminate current operational and capacity deficiencies and accommodate volume increases anticipated with the future build-out of the campus (i.e. 17,000 students).
- Reconfigure the geometry of the UMBC Boulevard / Hilltop Circle intersection to eliminate hazardous conditions and improve the USDOT Level of Service. The intersection shall be designed to provide access to and from UMBC Boulevard, both directions of Hilltop Circle, the upper level of the Administration Drive Garage and a drop-off area near the Administration Building.
- Design an appropriate roadway configuration that allows for unsignalized flow of traffic at the intersection of UMBC Boulevard and Hilltop Circle, and at the intersection of UMBC Boulevard and Research Park Drive.
- Design a vehicular drop-off court located north of the main roundabout that accommodates passenger drop-offs to the academic core of campus.
- Roadway configuration shall provide access to the visitor parking on the upper level of the Administration Drive Garage.
- Modify Administration Drive to allow for vehicles to reach the Retriever Activities Center and the lower level of the parking garage, and return to Hilltop Circle. Transit buses, as well as team and tour coaches must be accommodated.
- Roadway solutions shall ensure that there is sufficient distance between the intersection of the principal roadways and the access drive to the ITE Building and the Academic IV Building, improving visibility for service vehicles.
- Ensure that emergency vehicle access is maintained to the campus core.
- All roadways shall be designed to meet Maryland State Highway Administration standards and details.

Parking

- The Consultant’s design solution shall provide greatly improve vehicular access to visitor parking in the Administration Drive Garage. As currently envisioned, parking access to the upper level of the garage will be from a drop-off court adjacent to the Administration Building.
The lower level of the garage will likely remain as assigned parking for faculty and staff, as well as special events parking. As currently envisioned, access to this level would be maintained from Administration Drive adjacent to the southwest corner of the Retriever Activities Center.

Since the project will displace parking within and around the Administration Drive Garage, and along UMBC Boulevard and Hilltop Circle, the Consultant is required to study ways to minimize the reduction in the net number of parking spaces. The Consultant is tasked with implementing a scheme that creates no net loss of parking within the boundaries of the project site.

The upper level of the Administration Drive Garage will be accessed directly from the intersection of Hilltop Circle and UMBC Boulevard. This access should not interfere with the drop-off zone for pedestrians.

**Service Access**

- Careful design of service access to the academic core is required. The Consultant shall familiarize themselves with the service needs of the Administration building, the RAC and other adjoining buildings.
- At the southeast corner of the Retriever Activities Center a lot and roadway reconfiguration shall allow for the loading and unloading of products, trash collection, the drop-off/pick-up of students and athletes, and the parking of team buses and at least two service vehicles. Vehicular access to the lower level of the garage, and other relocated parking resources will also be accessed off of this route.
- Service access to the rear of the Administration Building shall be maintained throughout construction.

**Roadway Lighting**

- The design shall provide a comprehensive lighting solution that identifies vehicular and pedestrian zones with unique characteristics and designs.
- The Consultant shall incorporate UMBC standards for site lighting. Lighting fixtures that meet the current UMBC site lighting standards shall be specified.
- The overall design shall comply with the Illuminating Engineers Society of North America Standards and the USGBC for light spillover.

**Pedestrian Pathways**

- Pathway organization, orientation, and design must be considered in conjunction with the overall pedestrian network on campus and as projected in the 2009-2019 Facilities Master Plan Update.
- Integrate the design with the existing pedestrian spine connecting the garage with the Albin O. Kuhn Library & Gallery. Provide a drop-off area to safely discharge passengers to this pedestrian precinct.
• The specific patterns, materials, widths and construction of pathways should be developed to reinforce existing buildings and the development of the outdoor space.

• UMBC standards for materials, furnishings, plantings and construction details should be solicited and followed.

• Eliminate the unsafe conditions of pedestrian and vehicular crossings at all roadway intersections. Provide a design solution that does not hinder the safe movement of bicycles and pedestrians through intersections.

• Maintain pedestrian access between the campus and bwtech@UMBC along UMBC Boulevard.

• Provide clear and safe access for pedestrians to parking facilities.

• Improve pedestrian gateways and the plaza between the Administration Building and the RAC. Design the space to be welcoming and to support growing pedestrian flows. See Figure 4.6 and 4.7.

Figure 4.6: Campus Pedestrian Portal

Alternative Transportation

• The project shall encourage alternative forms of transportation, including bicycling, bus and shuttle use with facilities and pedestrian amenities.

• Provide areas to safely park bicycles.

• Integrate an MTA and campus shuttle bus stop on the inner roadway of Hilltop Circle. Provide pedestrian connections to encourage transit use.
• Develop improvements to encourage and promote safe bicycle usage on campus. Design all intersections to accommodate bicycles.

**Landscaping and Plantings**

• Design solutions developed for this project shall include landscaping as an integral design element. The landscaping design for the whole project area is to be considered as a unified and comprehensive design.

• Plant species selection and planting layout should emphasize color, texture and other aesthetic considerations throughout the year. Special consideration should be given to the use of native plants and those that require minimal maintenance.

• The project shall address Department of Natural Resources reforestation requirements.

• The landscape design shall be an integrated plan that replaces or modifies landscaping disrupted during the construction.

**Accessibility**

• The design shall provide for the convenient use of the facility by individuals with disabilities.

• Design pertaining to use of the facilities by individuals with disabilities shall conform to the ADAAG and Maryland Accessibility Code regulations.

• The Administration Drive Garage, on the uppermost level, will continue to serve as one of the campus’ principal parking areas for persons with disabilities.

**Facility Modifications**

• Modify Administration Drive to achieve these goals:
  ° Allowing access to the upper level of the adjacent garage from the west.
  ° Providing improved pedestrian access to both levels of adjacent garage.
  ° Ensuring that the main pedestrian drop-off is not impacted by parking and parking access.
  ° Ensuring pedestrian access to parking that appropriately addresses the needs of visitors and individuals with disabilities.
  ° Consider snow removal requirements in the design of the roadway and adjoining facilities.

• Modify the existing concrete information and map kiosk on UMBC Boulevard to allow for the integration of electronic signage, improved lighting and visibility to motorists, and usability.

**Materials and Finishes**

• Materials and finishes shall be selected to meet criteria regarding aesthetics, durability, and ease of maintenance. When appropriate, exterior materials shall be compatible to the general patterns, textures, style, and colors of adjacent facilities.
• The design team must work closely with the university's Department of Facilities Management maintenance staff to benefit from their knowledge and experience in the maintainability of various surfaces and systems. The Consultant shall specify materials and finishes that will insure significant life cycle cost savings.

• Details and materials adopted for this project will be integrated by the university into campus standards for site details, paving, lighting, and furnishings.

Signage and Graphics

In the summer of 2010, the university replaced existing signage on campus with new vehicular and pedestrian wayfinding signage. These signs work to clearly direct first time visitors to parking and significant buildings.

• Existing signage will be preserved when possible and relocated when necessary. Sign messaging will be modified as needed in response to new traffic patterns.

• Additional vehicular and pedestrian signage will be installed along UMBC Boulevard, Administration Drive, Hilltop Circle, and where needed to match the new signage system and conform to UMBC Signage standards.

• An electronic signage system will be designed and installed to provide notification of events, alerts, or other messaging for drivers, passengers, and pedestrians entering campus. This system will be integrated into the existing information kiosk on UMBC Boulevard, and adopted as the standard for other kiosks on campus.

• It is the Consultant’s responsibility to design an identification and directional system to communicate information essential to arrival, parking and drop-off. The Consultant shall coordinate all interior and exterior graphics and signs with standards established by UMBC in construction, location, color and lighting.

• In accordance with ADA requirements, particular attention must be given to the needs of individuals with disabilities in the design and location of all signage.

• As currently envisioned, the new driving circle will include a large landscaped circle at its center. This project includes a monumental sign scaled to the driver and serving as a fitting gateway to the campus.

• Modify existing signage and/or relocate existing signage to address new roadway configurations.

• The project includes salvage of the existing UMBC signage that currently exists at the silo that will be removed.

Emergency Vehicle Access and Coordination

Fire and life safety issues are major design considerations. The Consultant must investigate all potential fire and life safety challenges, including those that may be generated by the program requirements.
• The Consultant shall coordinate emergency vehicle access within the project site and to buildings adjoining it with campus life safety and security personnel and with local jurisdictions.

• Paths used for designated emergency vehicle access, regardless if they are roadways, pedestrian paths or green spaces shall be designed to accommodate the maneuvering requirements and weight of emergency vehicles.

• Fire truck and other emergency vehicle access must continue to be provided to the Retriever Activities Center and the Administration Building throughout the construction of the project. Approved routes to buildings and spaces adjoining the project site must remain accessible to emergency vehicles throughout the entire construction phase.

Security and Access Control

• At a minimum, site security measures shall include pedestrian scaled lighting, parking deck lighting, and emergency phones. Emergency phones shall be linked to the university’s call response system.

• Additional security and surveillance systems shall be incorporated into the design as directed by the Department of Information Technology and Campus Police.

• The Consultant shall provide design solutions that maintain, enhance, or augment the existing access control system for the parking garage and possibly the Retriever Activities Center service area. Design solutions shall be compatible with existing parking management systems and developed in coordination with UMBC’s Parking Services, Campus Police, and Facilities Management departments.

Service and Access Disruptions from Construction

• The Consultant’s design and construction phasing plan will insure that there are minimal outages and negative impacts to campus operations as a result of any required relocation or replacement of roadways, parking, utility piping and conduit, stormwater management piping and culverts, voice and data communication cabling, and fire protection systems.

• While service outages may not be completely avoidable, they must be carefully coordinated and scheduled during periods of campus closure to limit the impact to the community.

• The construction phasing plan shall maintain vehicular access to the campus via MD-166. While the university will encourage members of the campus community to use one of the other three campus portals (i.e. Wilkens Avenue, Poplar Avenue, and Walker Avenue) to alleviate congestion, the construction strategy must be developed to maintain vehicular circulation along UMBC Boulevard throughout all of the construction phases to the fullest extent possible.

• If/when existing traffic patterns are disrupted by construction, alternate travel routes and temporary roadway detours must be coordinated with UMBC and authorities having jurisdiction.

• Accessible pedestrian routes to parking facilities, bus stops, and adjacent buildings must be provided and maintained during construction.
The Proposed Concept

UMBC has developed a Proposed Concept that addresses and tests the Design Criteria for the campus improvements outlined above. This concept plan represents one possible design solution. The Consultants should use this concept as a guide illustrating the goals and intent of this project. A more in depth understanding of the existing site conditions and traffic patterns may lead to an alternative solution.

The Proposed Concept (see Figure 4.7) is focused on roadway, utility, storm water, transit, and pedestrian circulation improvements to transform the entry of UMBC. The proposed reconfiguration transforms the campus entrance from a dangerous, congested, parking-laden roadway into an aesthetically pleasing gateway that signifies arrival at UMBC in a safe and secure manner, while reducing traffic impacts.

The proposed concept mitigates the unsafe conditions at the UMBC Boulevard campus entrance and alleviates the congestion and way-finding challenges associated with access to the current Administration Drive Garage and drop-off area. The concept also improves vehicular, pedestrian and service access to adjoining areas within the project site, including Administration Drive, the plaza linking the new drop-off area and existing parking garage, and all intersections along UMBC Boulevard.

This concept improves on the existing approach to the access road providing service access to the Information Technology and Engineering Building (ITE Building) and the Academic IV Building. Currently, the northwest end of Administration Drive is too close to this access road, creating proximity issues.

The conceptual design focuses on the separation of service vehicles, especially to the RAC, with visitor drop-off and parking. It reconfigures both Administration Drive and the access to the Administration Drive Garage. Administration Drive has been conceived to provide access only for the lower floor of the Administration Drive Garage (faculty and staff parking), the east court of the RAC with spaces for service vehicles, loading and team bus parking, emergency vehicle access, and a vehicular turn-around.

The proposed solution for the intersection of Hilltop Circle and UMBC Boulevard creates a clear arrival sequence with clear visual clues leading a visitor to parking within the Administration Drive Garage. Enhanced orientation kiosks, monumental signage and event messaging has been provided to provide better information at the main entry to the campus.

The gateway to the pedestrian core of the campus is improved in this concept to focus on the pedestrian, including a drop-off and pick-up plaza, an improved pedestrian plaza and a new campus gateway. This area is illustrated as providing a fitting drop-off zone for campus visitors and an elegant arrival sequence to the campus.
Figure 4.7: Campus Traffic Safety and Circulation Improvements Proposed Concept

Pedestrian Drop-off Plaza and Garage Access
Garage Improvements
Vehicular Circle
RAC Service and Garage Access
Roadway Improvements and Landscaping

Rendering and Concept Plan by Ayers/Saint/Gross