

Final Report

# Harriman Campus - University at Albany

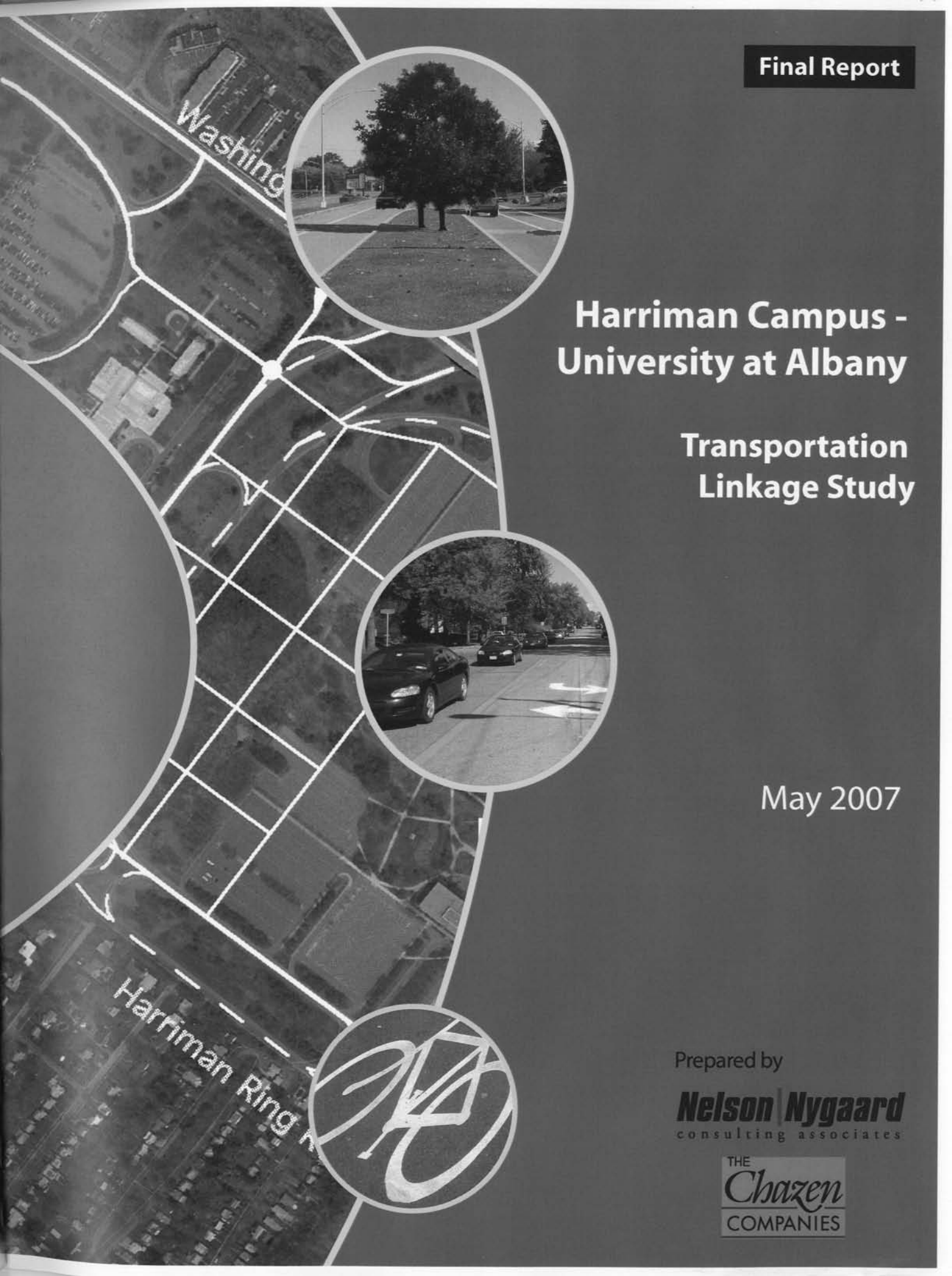
## Transportation Linkage Study

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## **Executive Summary**

The Capital District Transportation Committee (CDTC) retained Nelson\Nygaard Consulting Associates as part of a team of consultants to conduct the Harriman Campus – University at Albany Transportation Linkage Study. The project was funded through CDTC's Community and Transportation Linkage Planning Program and was a joint effort with the Harriman Research and Technology Development Corporation (HRTDC).

The study area included three major campuses: the Harriman Research and Technology Park (formerly the Harriman State Office Campus), the University at Albany (the Uptown Campus and the College of Nanoscale Science and Engineering, formerly Albany Nanotech) and the Patroon Creek Corporate Park. It also included the neighborhoods adjacent to the campuses and considered the wider region.

The objective of this project was to develop a vision for an integrated, multi-modal transportation system over a 10 year period and to identify strategies and projects that would help facilitate connections and linkages between the sites in the study area. The vision and strategies were intended to support natural synergy across campuses and also to ensure that transportation and land use projects enhance the quality of life for everyone living and working in the area.

### **Research Process**

This study was a multi-team and multi-faceted effort. CDTC and HRTDC managed the study, working with the Study Advisory Committee and a group of stakeholders representing the diverse interests in the study area. Working together this group created a series of planning principles that were used to guide the study:

- Improve inter-campus connections, especially for cycling and walking. Connect key points on the campuses, capitalize on existing routes, and develop new routes.
- Improve the interface with surrounding neighborhoods, as requested by local residents.
- Improve linkages within the City of Albany and to the greater region, especially via transit. Increase on-campus densities and massing to support this objective.
- Reduce the number of single-occupancy vehicle trips and the parking supply needed to serve those trips via active transportation demand and parking management policies and programs.
- Maintain access to the regional roadway network.
- Address pedestrian safety and accessibility issues on a site-specific level.
- Coordinate transportation improvements with land use improvements proposed in the Harriman Campus Master Development Plan and other local land use policies.

With these principles in mind, the Study Team conducted extensive field research, including site visits, examination of the motorized, non-motorized and transit networks and evaluated how these systems served area employees, students and residents. Two public work sessions were also held, one in the early stages of the project to collect ideas and another towards the end to review project recommendations.

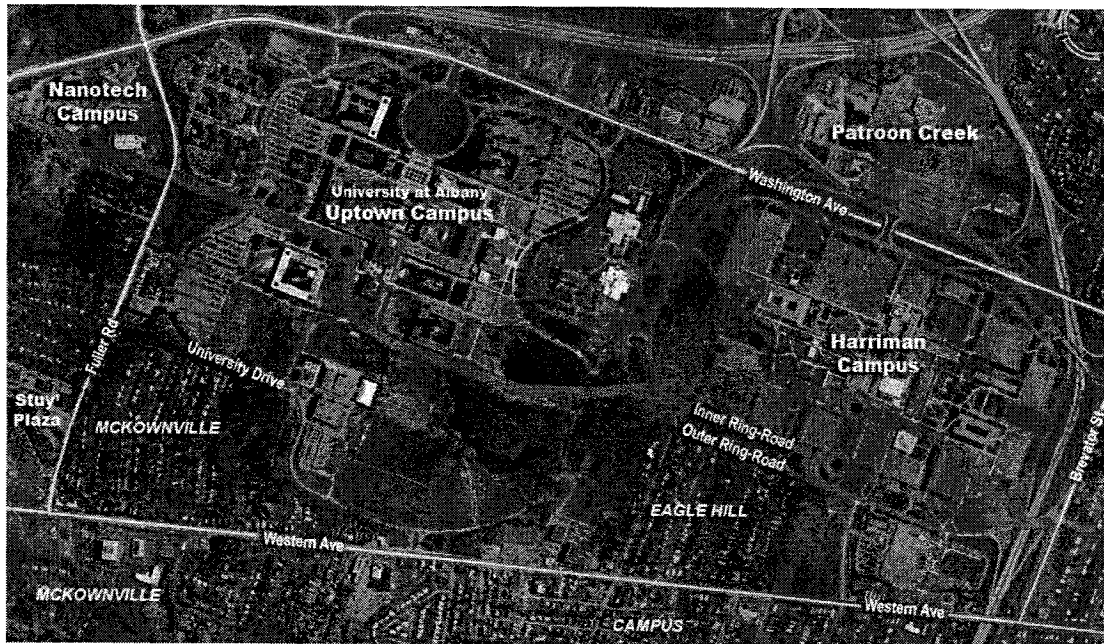
## **Short Term Strategies**

Among the key challenges facing the study area is the lack of connections between the individual campuses, and the impact this has for meeting both study and regional objectives related to managing the demand for transportation. As the Project Team examined the area and considered potential solutions, the emphasis was on providing multimodal connections that included pedestrian, bicycle and transit needs as well as providing transportation resources that are integrated with existing and proposed land uses. The recommendations, therefore, are aimed at creating opportunities for connections that provide safe and attractive facilities for all travelers and build on existing infrastructure to create an attractive, accessible and functional place to live, work, and visit.

The Study Team identified a series of short term strategies to support the development of a multimodal transportation network. While strategies are listed as independent recommendations, projects and programs are mutually-dependent, as each proposed project and program is realized, that project will strengthen existing efforts and likewise be enhanced with the implementation of subsequent projects. These strategies include:

- **Establish an Area Transportation Management Association (TMA)** – The Study Team recommends establishing a TMA to guide the prioritization, funding and implementation of many of the projects and programs developed by this Study. The TMA would be supported and funded by representatives from each of the four major institutions. This group, together with representation from local neighborhood groups, would serve as a steering committee for development of the study area transportation network. (See implementation section on page 8).
- **Create a Transportation Spine** – Several sources identified the idea of a transportation spine as a strategy to link the campuses. While specifics are still under development, the concept is to create a multimodal facility for transit and non-motorized users that will provide connections from Harriman through to the Nanotech campus and potentially through to Crossgates Mall and downtown Albany. A potential alignment for the transportation spine is shown in **Figure ES-1**. In the immediate-term, it is critical to reserve right-of-way for this facility on the Harriman and Nanotech campuses.

Figure ES-1 Potential Transportation Spine Alignment



- **Enhance Existing Transit Services** – In support of the Capital District Transportation Authority’s (CDTA) objectives, transitioning toward trunk routes on Washington and Western Avenues would allow more frequent and efficient transit service in the area. This will require coordination with the individual campuses to ensure that shuttle services are developed (HRTDC and Patroon Creek) or modified (University at Albany) to integrate with the improved trunk route services.
- **Encourage Area Institutions to Develop Transportation Demand Management Programs** – Transportation Demand Management (TDM) refers to incentive programs that support the use of transit, biking and walking, typically by influencing the price and supply of travel options. While some TDM programs are already available at some of the area institutions, these programs (such as parking management programs) could be strengthened across the Study Area, especially with guidance and support from a Transportation Management Association (see implementation on page 8).
- **Enhance Non-Motorized Facilities on Fuller Road** – Fuller Road is the main north-south roadway connecting Stuyvesant Plaza with the University at Albany and the Nanotech campus. Conceptual ideas that improve the multimodal functions without decreasing roadway capacity include:
  - Converting the two-way left turn lane into a series of raised medians and shorter left turn pockets, allowing the medians to become refuge islands for pedestrians;

- Constructing a continuous, concrete sidewalk along the west side and striping crosswalks as necessary, coordinated with the median;
  - Narrowing the roadway four feet at the cemetery and realigning it to provide an 8-foot sidewalk on the west side; and,
  - Examining the potential to stripe a curb-side bicycle lane or designed shoulder area (by painting the pavement, adding pavement markings, etc.) through much of the corridor.
- **Improve Wayfinding** – Once drivers reach the Harriman Ring Roads from either I-90 and/or NY 85, finding specific buildings or facilities is confusing. In the short-term, developing a series of color-coded or numbered area signs, scaled appropriately for motorized (traveling at the posted speed limit) and non-motorized users that direct travelers to subsets of the campus is recommended.
  - **Develop Access Management Programs** – Managing roadway access by limiting the number of driveways or the allowed curb cuts onto a roadway is an effective way to maintain road speeds and free flow traffic conditions. Reducing turnaround movements also improves safety for motorists, and for bicyclists and pedestrians.
  - **Consider Environmental Justice** – The Study Team crafted recommendations to be sensitive to all adjacent residences and other surrounding land uses. Special attention will need to be paid to households in the areas of special concern identified as the planning concepts evolve into specific projects.
  - **Create Bike Lanes on Harriman Ring Road** – The Study Team proposes bicycle lanes on both of the Harriman campus ring roads as short term projects. It is suggested that the inside lane of each road be converted to a bike lane, as these have fewer conflicts with high-speed on- and off-ramps.
  - **Remove/Close Several Turnarounds on Ring Road** – In order to limit weaving and improve wayfinding on the Harriman ring roads, it is proposed that seven or eight of the turnarounds be closed to vehicular traffic. The turnarounds would remain open for bicycles and pedestrians.
  - **Provide Pedestrian Facilities at Washington Avenue Bridge** – The existing bridges over Washington Avenue between the Harriman and Patroon campuses present an opportunity to improve linkages between the two campuses. It is suggested that the guard rails on each of these bridges be relocated so they do not block pedestrian access. The sidewalks would be extended to the ring roads and crosswalks and refuge islands installed.
  - **Create a Non-Motorized Access at Brevator and Belvedere** – In the short term, access by pedestrians and cyclists to the Harriman Campus at Belvedere needs to be improved. These concepts include:
    - Bicycle lanes on the ring roads to provide a better bicycle facility as well as the opportunity for refuge islands at crosswalks.

- The sidewalks on the bridge across Route 85 would be temporarily designated as shared bicycle/pedestrian facilities and signed accordingly.
  - Excess roadway can be removed where the exit road diverges from the ring road.
  - The merge between the Route 85 off-ramp and the ring road can be redesigned to moderate speeds on the ring road and provide a shorter crossing distance.
  - Refuge islands can be added to the current striped median on Brevator Street. Marked crosswalks should also be added.
  - Curb extensions can be added in the parking lane at the corners.
  - Extend sidewalks from Belvedere Avenue to Brevator Street.
- **Address peak hour congestion at Harriman Outer Loop and I-90 Exit 3** – There is a yield sign at the bottom of the ramp that carries traffic from the Harriman Campus Outer Loop Road to Exit 3 of I-90. The analysis suggests that the capacity problem on the ramp from the Outer Loop Road to the “Yield” sign would likely be better solved through demand side solutions, such as Transportation Demand Management (TDM) strategies, improved transit connections, and increased non-motorized facilities.
  - **Improve Vehicular Merge at Harriman Outer Loop, NY Route 85 South off-ramp and Washington Avenue westbound off-ramp** – There are concerns regarding speed and increased merging traffic where the off ramps from Route 85 South and Washington Avenue westbound merges with the Harriman Campus Outer Loop Road. Short-term options include re-striping to narrow the lane width on the exit ramps from NY 85 South and from Washington Avenue westbound in order to slow traffic and better organize the merges.
  - **Calm Traffic in the Northwest Quadrant of University Drive** – Potential solutions to the conflict between traffic on University Drive and the pedestrians who must cross University Drive on their way to/from the center of campus involve traffic calming to reduce the speed of traffic on this segment of University Drive in conjunction with enhanced pedestrian facilities to create highly visible pedestrian crossings.
  - **Improve Non-Motorized Facilities along University Drive** – Traffic calming will be supported and achieved, in part, by building on efforts outlined in the UAlbany Purple Path Study, dated fall 2005, which recommends a multi-use path along the interior of University Drive.

## Long Term Strategies

In the longer term, this study identifies a series of projects that will help transition the road network from its inward focus to one that re-directs the Harriman campus. The proposed network will create external linkages not only with the regional roadway network, but also with nearby campuses, surrounding neighborhoods and communities, and other regional facilities, such as the proposed Albany Convention Center, that are seeking improved connections. Similar to the short term recommendations, long term strategies are mutually supportive and best implemented in concert. Each project will strengthen and enhance the effectiveness not only of earlier projects as well as short-term projects and programs.

- **Complete Transportation Spine and Establish BRT Service** – In conjunction with development of a transportation spine between the campuses, planning for BRT service should likewise commence. The BRT service will provide high speed, high quality transit service between downtown Albany and each campus in the Study Area. It should be designed as an integral service in the wider CDTA service network and link to other regional resources such as the proposed Albany Convention Center. This high level of transit service between job centers at the campuses and downtown, and residential neighborhoods in between, will make living and working in the City of Albany a more attractive choice in the future.
- **Improve Wayfinding** – Once the Master Plan for the Harriman campus is finalized, work can begin to create a strong logo, color and brand for the multi-campus area, establishing an identity for area wide signage and wayfinding.
- **Develop Brevator as a “Mini Boulevard” with Non-Motorized Facilities** – A median in the center of Brevator Street is recommended between Western and Washington Avenues. Bicycle lanes would be placed between the travel and parking lanes. Crosswalks would be striped at intersections. In addition to more effectively using the existing roadway width and helping to calm traffic, the proposed boulevard would offer an attractive, planted buffer between the neighborhood and Route 85. Conceptual roadway dimensions for a typical cross-section are highlighted in **Figure ES-2**.



**Figure ES-2 Brevator Street with Median and Bicycle Lanes**



- **Remove Portions of the Harriman Ring Road** – It is proposed to virtually eliminate the ring roads (and all their attendant problems), reuse the roadways as possible, and reorganize the connections to major arterials. As major changes to portions of the Harriman Ring Road undergo detailed investigation, traffic volumes will need to be re-examined to determine how existing and future volumes will be accommodated on the proposed new street network.
- **Use Roundabouts to “Anchor” Harriman Campus** – Preliminary analysis suggests that the use of multiple, one lane roundabouts would lower vehicle speeds at and between the roundabouts making the roads safer and easier for pedestrian and bike crossings throughout the campus. This concept would also be expected to reduce the likelihood of cut-through traffic and enhance the appearance of the campus. In general, roundabouts also reduce delay while providing a better and more attractive driving experience.
- **Join Harriman and UAlbany Ring Roads** – The idea of connecting the Harriman and UAlbany ring roads at a common north/south boulevard has been suggested to reduce redundancy in the road network and to better connect the two campuses. This type of connection might also provide the University with needed land for expansion. If pursued, the design of this



connection must ensure that the remainder of University Drive does not become attractive to pass-through traffic.

- **Re-develop Washington Avenue as an At-Grade Facility** – In the long term, consideration should be given to raising Washington Avenue, creating an at-grade boulevard between the Harriman Campus and the Patroon Creek Corporate Park. An at-grade facility would facilitate connections between the two campuses and would provide additional land for development.

## Implementation

Implementation of the proposed strategies and programs will be challenging. While three of the four sites are affiliated with the State of New York, individual sites are responding to market conditions and circumstances and each site makes its own decisions about how and when to grow or change. As a result, projects at some campuses will move faster than others and the relative importance of certain strategies proposed in this report will vary at each campus and over time.

In addition, as discussed, the proposed recommendations will have the greatest success when implemented as a complete package, for example, transit systems function best when supported by TDM programs and coordinated with pedestrian and bicycle infrastructure. Successful implementation, therefore, needs to be coordinated and comprehensive.

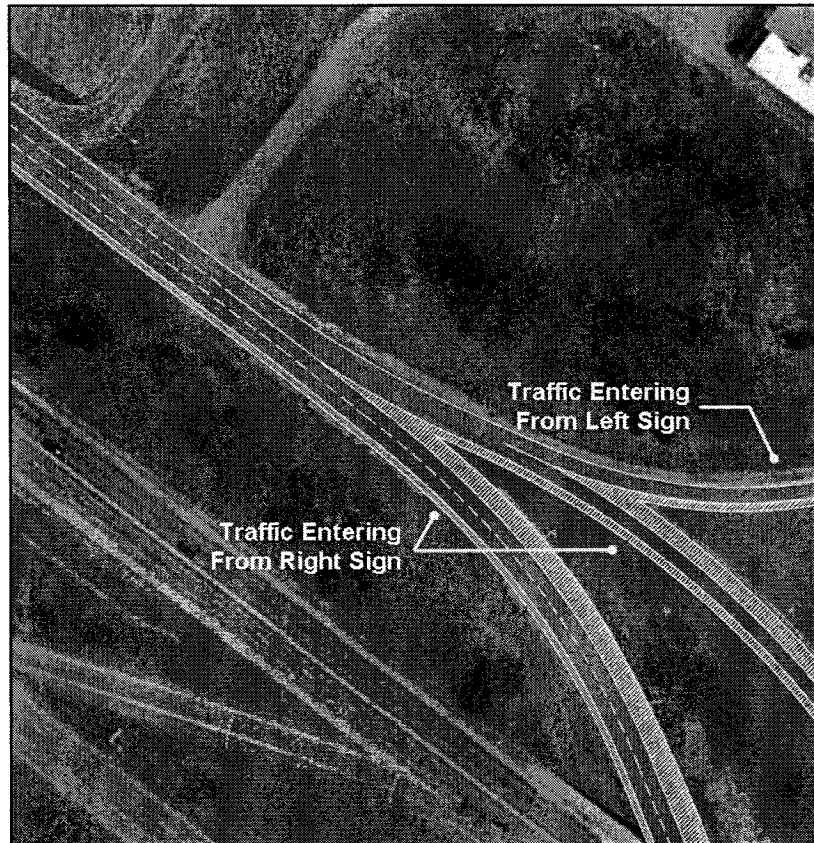
Because the precise timing of events in this dynamic area is difficult to predict, establishing a mechanism for the ongoing coordination of transportation decisions and investments is the most important, highest priority implementation action recommended in this study. Building from the dialogue and cooperation already established through this process, the first task will be to formalize a structure for advancing the many strategies and programs recommended in this report.

- **Establish Area Transportation Management Association (TMA)** – The presence in this area of four major institutions, as well as significant interest from state, regional, and local governments, suggests that this type of organizational structure could have considerable financial and technical support. CDTA and CDTC may be able to allocate seed money to the TMA with federal funds from the Congestion Mitigation and Air Quality (CMAQ) Improvement Program. A TMA has considerable potential for success in the study area because of the close proximity of the work sites, the increasing emphasis on promoting multi-modal travel, and the limited parking supply and other transportation demand management programs already in place at the University at Albany.
- **Priority Projects** – All the key recommendations from this study have been prioritized in **Figure ES-3**. Short-term actions should be initiated within the next five years. Longer-term actions should be initiated within 10 years. Primary responsibility for each project is assigned to one or more entities; however all

of these initiatives should be shared and reviewed through the TMA as they move forward to ensure coordination. An order-of-magnitude cost category (low, medium, or high) for each project is also provided.

- **Funding and Financing** – In addition to the various public sources of funding available for transportation infrastructure, there are other potential sources of revenue that should be considered given the magnitude of improvements that will ultimately take place as the Harriman Campus redevelops and Nanotech, UAlbany and Patroon Creek build out. Public-private partnerships should be pursued whenever feasible to leverage public funding sources to the greatest degree possible.

**Figure 5-9 Merge Locations on Outer Ring Road - Option 2**



## **Short-Term Recommendations – Wider Study Area**

### **Enhance Non-Motorized Facilities on Fuller Road**

Fuller Road is the main north-south roadway connecting Stuyvesant Plaza with the University at Albany and the NanoTech campus. Currently students and employees travel along and across Fuller Road on foot and by bicycle<sup>1</sup>, but there are no continuous road spaces for non-motorized travelers. There is also the potential to create non-motorized connections via enhanced facilities on Fuller Road to the proposed Patroon Greenway Trail. This trail would create links between the study area and downtown Albany.

Fuller Road is 40 feet wide with one travel lane in each direction and a continuous two-way left turn lane between Western Avenue and Tricentennial Drive. There are discontinuous asphalt sidewalks and few crosswalks. The fences of the Beth Abraham

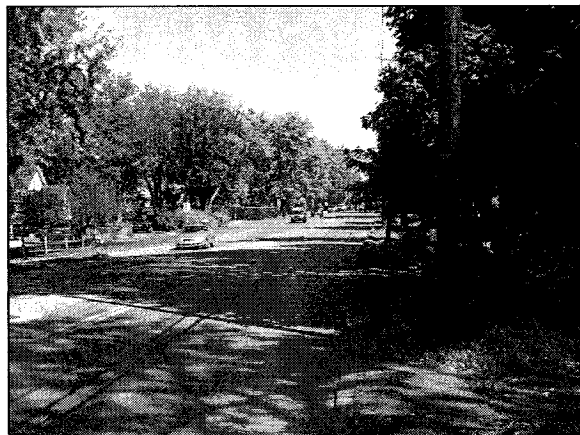
<sup>1</sup> An unpaved path under the high-tension wires to the west of Fuller Road currently serves as an ad hoc connector. There is merit to developing this path; however the project team does not see it as an alternative to improvements on Fuller Road.

Jacob Cemetery severely constrain the right-of-way and there is no sidewalk through this section. **Figures 5-10 through 5-13** illustrate existing conditions along Fuller Road.

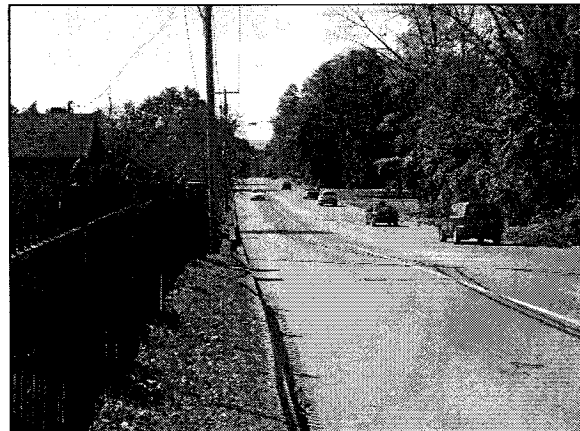
**Figure 5-10 Two-way Left Turn Lane on Fuller Road**



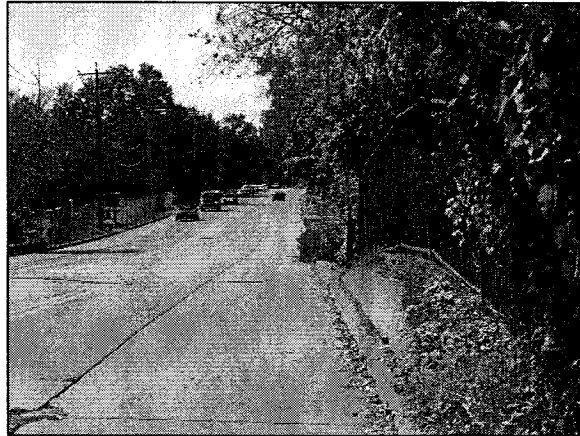
**Figure 5-11 Discontinuous Sidewalks on Fuller Road**



**Figure 5-12 East Side of Fuller Road at Cemetery**



**Figure 5-13 West Side of Fuller Road at Cemetery**



Funding has been set aside in the Albany County 2007 – 2011 Capital Plan to rehabilitate Fuller Road; preliminary engineering is scheduled for 2007 with reconstruction planned for 2009. As stated in the 5-year capital plan, the Fuller Road project will:

*Rehabilitate 1.75 miles of Fuller Road in the Towns of Guilderland and Colonie from Western Avenue to Central Avenue. The roadway would be rehabilitated, curbs would be repaired, drainage improved and pedestrian facilities would be enhanced. Project design is scheduled to begin in 2007 and construction will be completed in November 2009, with a useful life of 15 years. The total cost of the project is estimated to be \$12,038,000 and will be financed through bond issue.*

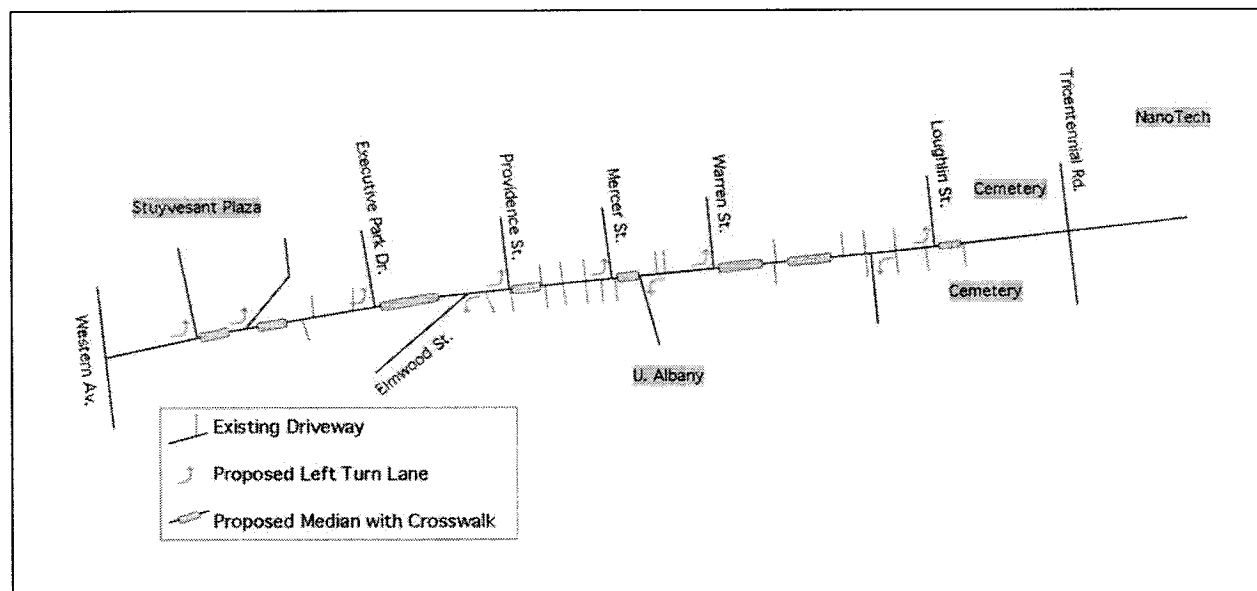
The current plans for Fuller Road will enhance the functionality of the facility and provide needed improvements to existing pedestrian facilities. As the Study Team examined Fuller Road and discussed the roadways' current use and design with members of the community, the Team developed a list of conceptual ideas that offer improvements to the multimodal functions without decreasing roadway capacity; most of these concepts also represent relatively low-cost alternatives that can be implemented as part of the Fuller Road improvements. They include:

- Converting the two-way left turn lane into a series of raised medians and left turn pockets, allowing the medians to become refuge islands for pedestrians. As shown in **Figure 5-14**, the medians would be located as to not interfere with driveways. **Figure 5-15** details a typical left turn lane, refuge island and crosswalk;
- Constructing a continuous, concrete sidewalk along both sides of the street;

- Narrowing the roadway to 36 feet at the cemetery (the total width between the fences is 44 feet) and realigning it to provide a sidewalk on the west side.<sup>2</sup> **Figure 5-16** highlights road dimensions and shows how road space would be allocated. The sidewalk would connect directly to the NanoTech campus; and,
- Stripe a bicycle lane or a designed shoulder through much of the corridor. At the cemetery the bicycle lane would transition to a shared roadway (13-foot travel lane) with share the road signage, potentially in the form of “sharrows” (see **Figure 5-17**) to mark road space for cyclists in areas where there is not sufficient lane width for bike lanes. Sharrows would likely be used in conjunction with other road signage, in locations with relatively slow speeds, and safety measures and would need to be installed with retro-reflective paint to increase nighttime visibility.

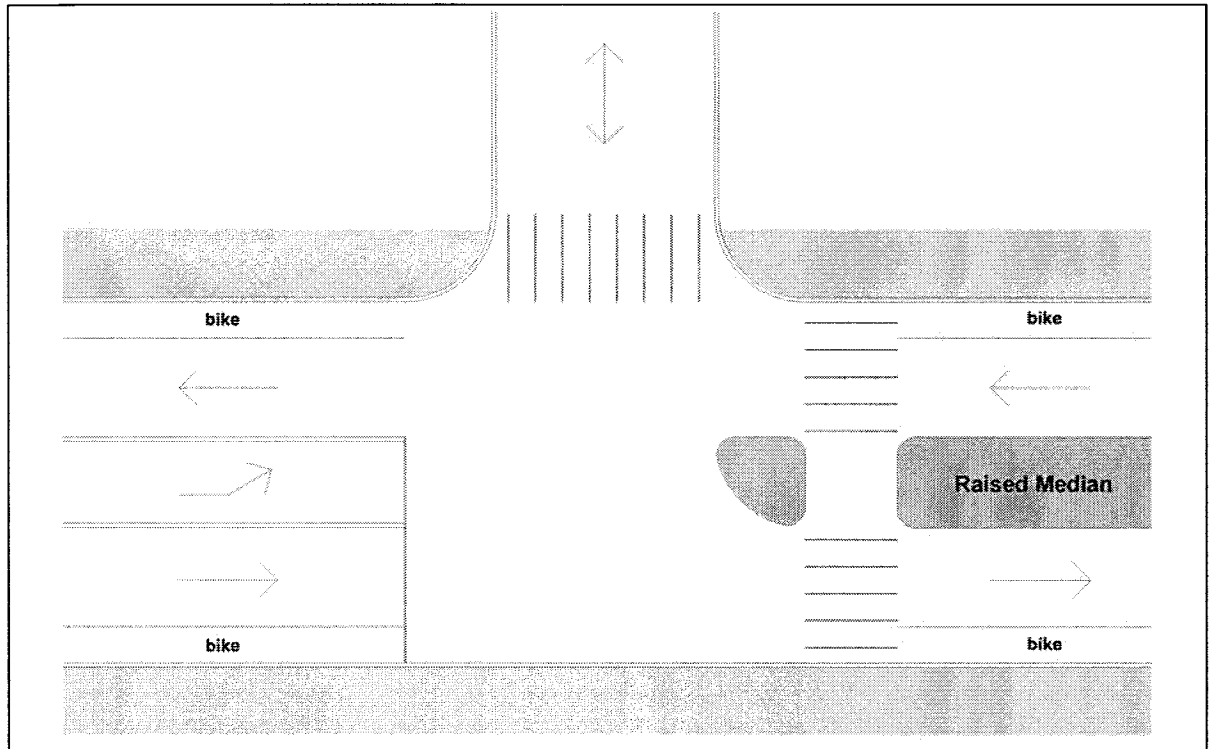
Our preliminary evaluation suggests that medians would serve several purposes along Fuller Road, including improving pedestrian safety, slowing traffic, enhancing area aesthetics and transforming Fuller Road into a “mini boulevard”. The conceptual design for the medians recommends using the existing left hand turn lane to minimize their impact on roadway capacity. The design, however, would need additional analysis and discussion, especially with residents and neighbors so that potential benefits are adequately weighed against potential costs.

**Figure 5-14 Proposed Medians along Fuller Road**



<sup>2</sup> The Study Team suggests a wider (8-foot) sidewalk on the west side as opposed to two 4-foot sidewalks on either side. This is more consistent with the desired line between NanoTech and Stuyvesant Plaza, and will provide a higher quality of service.

**Figure 5-15 Sample Detail of Proposed Median, Left Turn Lane and Crosswalk along Fuller Road**



**Figure 5-16 Fuller Road Dimensions**

Lane	Bicycle	Travel	Median and Left Turn	Travel	Bicycle	Total
Existing Dimension (ft)	--	14	12	14	--	40
Proposed Dimension (ft)	4	11	10	11	4	40
Proposed at Cemetery (ft)	--	13	10	13	--	36



**Figure 5-17 "Sharrows" Markings - Shared Vehicle-Bicycle Lane**



### **Create a Transportation Spine**

Several sources identified the idea of a transportation spine as a strategy to link the campuses. While still under development, the concept is to create a multimodal facility for transit and non-motorized users that will provide connections from Harriman through to the NanoTech campus and potentially to Stuyvesant Plaza. This transportation spine may initially start as bicycle and pedestrian access only and eventually be developed into a transit and non-motorized facility. The concept for transit service is to provide high-quality, high-speed transit service in the form of BRT that would provide reliable, frequent connections from Harriman and Patroon Creek via Western or Washington to downtown Albany, including connections to the proposed Albany Convention Center. The transportation spine would also preserve a right-of-way that has the potential to accommodate a light rail corridor depending on BRT ridership and success and regional priorities.

The Study Advisory Committee proposes two key attributes of the transportation spine: 1) the non-motorized elements of the transportation spine should be on the same alignment as potential BRT service; and 2) a potential alignment for a potential BRT service is shown in **Figure 5-18**.

This alignment passes between the UAlbany Science Library, Dutch Quad and the podium with the stop being located next to the Campus Center. This stop is the most central location on campus with the athletic complex, podium buildings, and all residential quads being less than a five minute walk away. This alignment shows the potential service extending through the Harriman Campus, using either the inner ring road or other interior road to Brevator and Western Avenue. Ultimately an alignment for the non-motorized transportation spine and its potential expansion to include a BRT or light rail alignment will require on-going examination in light of NanoTech's security concerns and the redevelopment of the Harriman campus.

**Figure 5-18 Potential BRT Alignment**



While the transportation spine is a longer term concept, there are several steps that can be taken in the short term to preserve flexibility for the idea and ultimately make implementation more feasible and cost-effective. The following short term steps are designed to lay the foundation for the transportation spine.

### **Preserve Right of Way on Harriman Campus**

As part of the Harriman Master Planning process, the right-of-way for the transportation spine should be identified and preserved. The right-of-way may be used initially for pedestrians and cyclists but should ultimately be planned to accommodate potential BRT service.

### **Preserve Tricentennial Drive Right-of-Way to Washington Avenue**

Tricentennial Drive begins within the UAlbany campus, crosses Fuller Road and ends at the NanoTech campus. Besides linking the two campuses it also provides access to student housing south of NanoTech. The project team recommends that right-of-way be maintained in the immediate term for a possible extension of Tricentennial Drive. It is envisioned that the street be used first to provide bicycle and pedestrian access and in the longer term to create the “transportation spine” as discussed in the transit recommendations. We do not recommend that this new road be used for through traffic; only for bicycle, pedestrian and transit access to NanoTech. As NanoTech develops it is essential that the right-of-way be preserved now to maintain

opportunities for future connections and linkages. Any proposal must also be cognizant of the significant security requirements at NanoTech.

### **Prioritize Transportation Spine Non-Motorized Connections**

The current focus of non-motorized improvements on the UAlbany campus is the implementation of the Purple Path, as outlined in the Purple Path Study, dated fall 2005. The primary focus of these recommendations is to create non-motorized facilities along the UAlbany ring road. The Study Team feels these projects are a key element supporting the overall success of this linkage. At the same time, the Study Team recommends that development of the non-motorized elements of the transportation spine also be prioritized to help build momentum and support for this key linkage facility. As soon as the Tricentennial right-of-way is preserved, UAlbany can commence planning for the multimodal and non-motorized spine. Complementary planning efforts will help support applications for federal funding.

### **Apply for New Starts/Small Starts Funding for Conceptual BRT Planning**

CDTC and CDTA may apply for federal funding as part of the New Starts or Small Starts program to assess feasibility for the BRT system. While funding under these programs is limited, the Capital District has several advantages and on-going projects that create synergistic connections and may make the project attractive to the federal government. In addition, part of the potential alignment includes low income census tracts with the potential for transit improvements, to bring additional economic benefits to the area. These attributes include building on an existing BRT service to create a regional BRT system, using BRT services as part of a transit and non-motorized transportation corridor, and designing BRT services to provide high speed connections between key economic resources (i.e., Harriman Research and Technology Park, the NanoTech campus and downtown Albany, including potential connections to the future convention center)

### **Enhance Non-Motorized Environment on UAlbany Ring Road**

#### **Traffic Calming in the Northwest Quadrant**

The University at Albany community has expressed concern about the impact of traffic that enters and leaves the campus from the intersection of Washington Avenue and I-90 Exit 2. Because this entrance to the campus has direct access to/from the Interstate, a high volume of traffic enters the University Drive from this location. Much of this traffic is headed to the northwest quadrant of University Drive, between this intersection and Tricentennial Drive. Commuter parking and the new Empire Commons residential community, both located on the outer side of University Drive (away from the academic podium at the center of campus), create a considerable flow of pedestrian traffic across University Drive in this quadrant.

The conflict between traffic on University Drive and the pedestrians who must cross University Drive on their way to/from the center of campus has been identified as an area of concern. Potential short term solutions to this problem involve traffic calming

to reduce the speed of traffic on this segment of University Drive in conjunction with enhanced pedestrian facilities to create highly visible pedestrian crossings.

### **Improve Non-Motorized Facilities on Ring Road**

Traffic calming will be supported and achieved, in part, by building on efforts outlined in the UAlbany Purple Path Study, dated fall 2005, which recommends a multi-use path along the interior of University Drive (along with on-street bicycle lanes) to address the needs of bicyclists, pedestrians, and recreational users such as joggers. In addition, UAlbany recently commenced the design process for traffic-calming along the perimeter road.

The interior trail is composed of two components: a paved surface for pedestrians and low-speed, recreational bicycle use and a parallel, non-pervious running surface which would vary in width depending on site constraints. The Study proposes a four-phased approach to the completion of the Path, as follows:

- Phase 1: design and construct walking and running trail components;
- Phase 2: add amenities and landscaping;
- Phase 3: construct regional connections and public spaces; and,
- Phase 4: reconstruct University Drive with bicycle-lanes.

In the short term planning cycle considered as part of this linkage study, it is unlikely that all of the above Phase 1 work would be completed. As Phase 1 is implemented, the location of the off-road trail components needs to be carefully considered to ensure that the bicycle lanes envisioned in the fourth and final phase can be accommodated without the need to redesign earlier phases of the project. The study also recommends specific design treatments for a handful of more difficult locations along University Drive. Along sections of University Drive that are 24 feet wide, the most constrained condition along the loop road, it is assumed that a slight narrowing of existing travel lanes may be necessary to accommodate the additional five feet that would be needed for the bicycle lane on the exterior of University Drive. Any narrowing of travel lanes would also likely have a desired traffic calming effect on motorized traffic.

Additional traffic calming features should be incorporated into University Drive, particularly in the northwestern quadrant of the ring road where pedestrian conflicts occur with greater frequency. Features including curb extensions (at intersection driveways) to shorten pedestrian crossing distance, and textured or stamped crosswalks to better delineate the pedestrian realm should be incorporated, along with on-street bicycle lanes, into the future design of University Drive.

While a funding source to fully implement the Purple Path is not yet in place, the goal of an on-street utilitarian bicycle facility in addition to a multi-use path has significant merit for serving the existing transportation and recreational needs of the campus, as well as contributing to the regional bicycle and trail network. Transportation concepts

proposed as part of this linkage study for the Harriman Loop Road, in conjunction with a short term multi-use connection between the University at Albany and Harriman campuses, create the potential for a significant non-motorized network to serve both recreational and transportation needs. The Harriman Campus Master Plan shows a conceptual transportation network within the Campus which appears to complement the future cross-section of University Drive with on-street bicycle lanes, traffic-calmed street design and intersections, sidewalks, and interior trail connections.

The Golden Grid, a follow-up study to the Purple Path, is currently under development by the University at Albany's Graduate Planning Studio class. The new study looks at bicycle and pedestrian infrastructure campus wide, including connections to and from the proposed Purple Path. Additional recommendations and implementation strategies will emerge from this study and should be pursued to enhance the area's overall transportation network.

## **Long Term Strategies**

In both the short and long term, many of the strategies and concepts revolve around transitioning the Harriman transportation network from an inward to an outward orientation. Recognizing that most road projects require substantial lead time, the short term strategies focus on adapting existing facilities and taking advantage of scheduled improvement projects to develop non-motorized connections from and to Harriman (and across the study area).

In the longer term, this study identifies a series of projects that will help transition the existing road network into one that creates external links not only with the regional roadway network, but also with nearby campuses and those surrounding communities seeking improved connections.

## **Proposed Harriman Master Plan Roadway Network**

The Harriman Market Assessment and Master Plan Study shows the ring roads modified into boulevards and a partial grid system overlaid on the campus. To the west, new roads connect to the University at Albany ring road and the western boulevard extends south to Western Avenue. To the north, Washington Avenue is shown partially at grade and there is a formal entrance at the center of campus. To the east, the ring road has been left intact and a new connection is shown at the southeast quadrant of the campus to Western Avenue.

In the course of this Linkage project a series of concerns about the Master Plan road network arose:

- UAlbany supports connections to its ring road only where traffic analyses illustrate that they will not be used by through traffic;

- There has been general consensus supporting the need for the southwest connection to Western Avenue, but its exact location needs to be studied further, especially the impact on adjacent residences.
- The future of Washington Avenue either in its current limited-access condition or as an at-grade boulevard appears to be unresolved;
- The integration of the future road network design with the potential transportation spine and BRT service.
- The inner ring road on the eastern end of the campus is shown as two-way in the master plan, but the on- and off-ramps to Route 85 remain designed for one-way traffic. This would need to be resolved;
- There is concern that traffic will be diverted through the Melrose neighborhood to the east, especially at Belvedere Avenue;
- There are existing yield and merge issues at the northern outer ring road; and,
- The design and location of roundabouts shown in the master plan requires further study and analysis.

The short term recommendation section of this report addresses several of these concerns and offers potential strategies to address them. Other issues that have arisen include:

- There is a sense that the existing connections between the Harriman ring roads and I-90 are oversaturated and less than ideal in terms of wayfinding (one has to travel from Exit 3 entirely around the campus to access Washington Avenue);
- There is a desire to better utilize the NY 85 connections;
- There has been general consensus supporting the possibility of linking the UAlbany ring road with the new Harriman network as long as care is taken to ensure traffic is not able to easily cut through the UAlbany campus; and,
- There is general consensus on the need for a north-south connector between I-90 and Western Avenue. This presents new opportunities for transit (BRT) service as well.

The Study Team examined these issues within the resources available for this study and proposes the following conceptual roadway network. This is seen as an opportunity to expand on the Harriman Master Plan and include linkages to the immediate environs, one of the objectives of this Linkage project. The Study Team also believes that many of the issues identified above can be resolved, which will improve overall transportation and wayfinding in the area.

### **Remove Portions of the Harriman Ring Road**

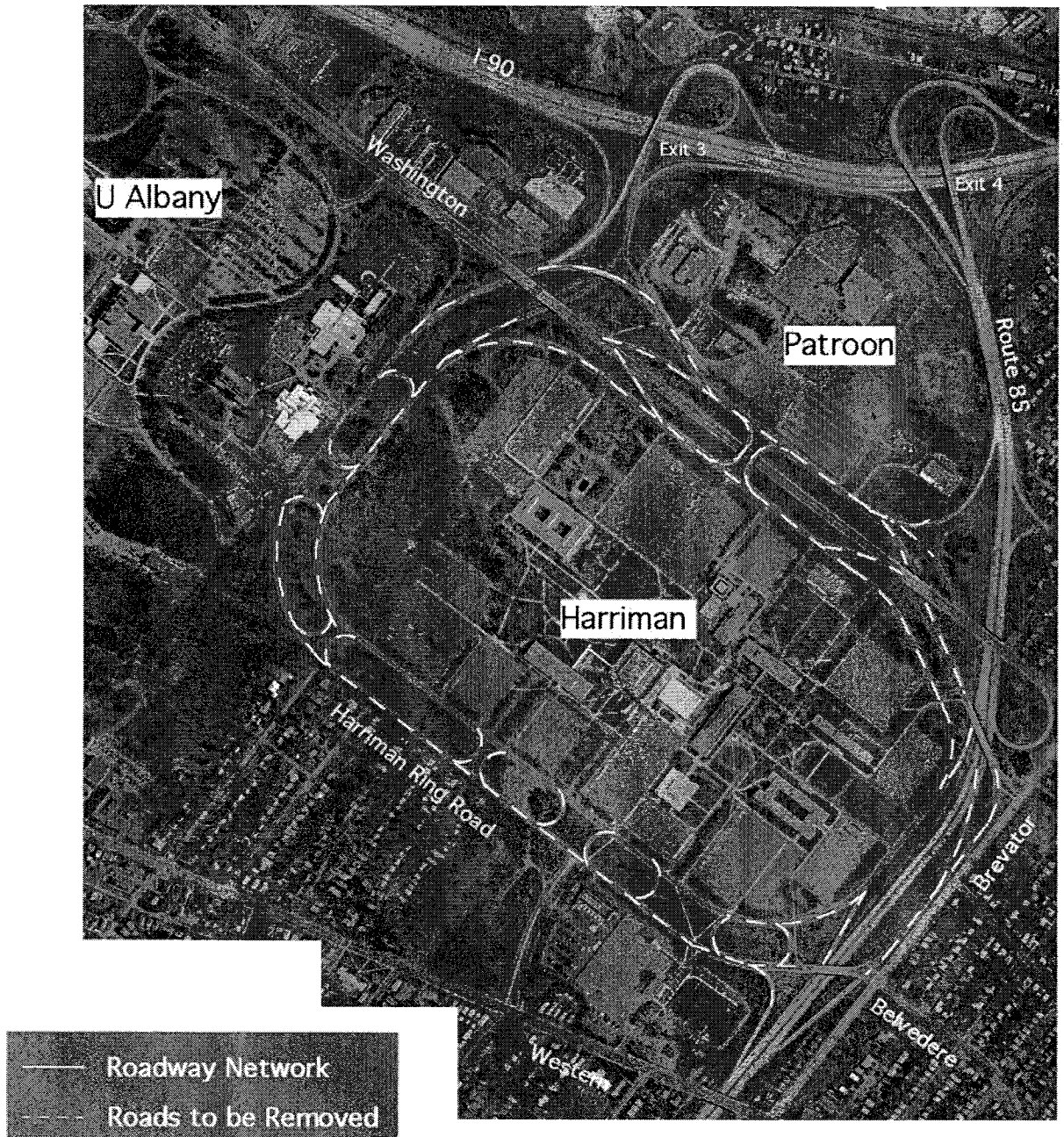
The Harriman Master Plan removes parts of the northern, western and southern ring roads, but leaves the eastern end intact. **Figure 5-19** shows the parts of the Harriman ring roads which would be removed in this plan. The Study Team proposes to virtually

eliminate the ring roads (and all their attendant problems), reuse the roadways as possible, and reorganize the connections to major arterials.

At the time when major changes to portions of the Harriman Ring Road are under detailed investigation, traffic volumes will need to be re-examined to determine how existing and future volumes can be accommodated on the proposed new street network. Such proposals will need to examine traffic flow associated with accessing both the local street network (Washington and Western) and the regional highway network (I-90 and NY 85), as well as any spillover impacts to adjacent neighborhoods.



Figure 5-19 Proposed Sections of Ring Roads to be Eliminated



**Figure 5-20** shows the reorganized arterial street network, which has the following highlights:

- The western roadway would supplant the outer ring road. The off-ramps from Washington Avenue and I-90 Exit 3 would be brought into a roundabout at the northwest corner. The descending horizontal curves would moderate driver speeds as they approach the campus. Two connections would be made to the UAlbany ring road, thus allowing this section of roadway to function as part of it. The roadway would serve as a direct connection between I-90 and Western Avenue, intersecting at Homestead Street, where there is an existing signalized intersection, University Plaza and other commercial establishments. The effects of enlarging this intersection would need to be studied in greater detail. Specifically, precautions would need to be taken so that additional traffic is not generated on nearby streets.
- Washington Avenue would be raised to grade level and the ring roads eliminated. The Route 85 ramps would remain, but other ramps would come to T-intersections. As shown in the next image, a road connecting these two ramps through the Patroon Creek campus would allow easy access from I-90.
- The southern roadway is the same as shown in the Harriman Master Plan. At the intersection with NY85, the ramps would be modified to create a clear entry-exit point from the campus. The roadway would not continue to Brevator Street, thus eliminating any cut-through traffic. Access for cyclists and pedestrians would remain. Motorized traffic would be directed to the bridge just to the north, which would need to be modified to accommodate two-way traffic.

Figure 5-20 Proposed Primary Roadway Network

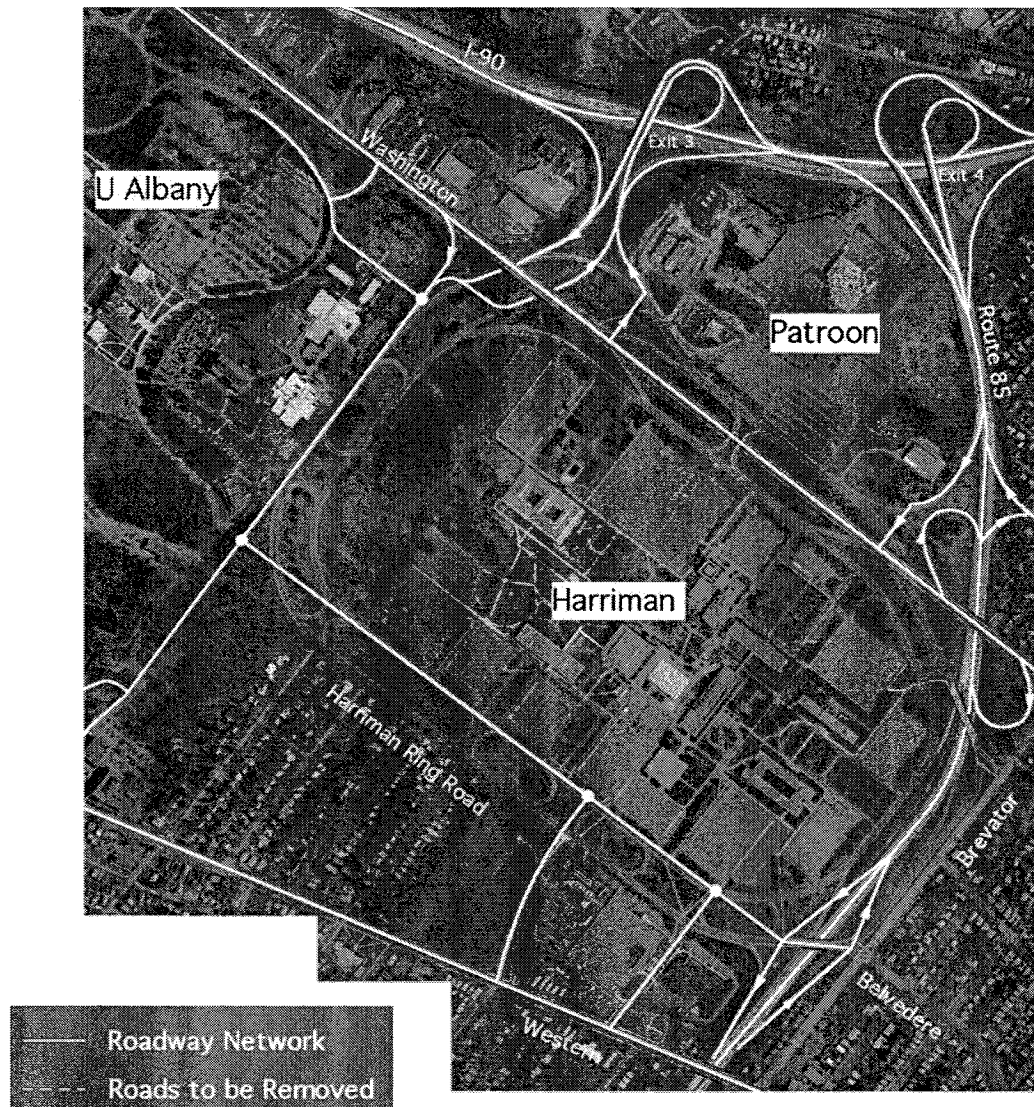
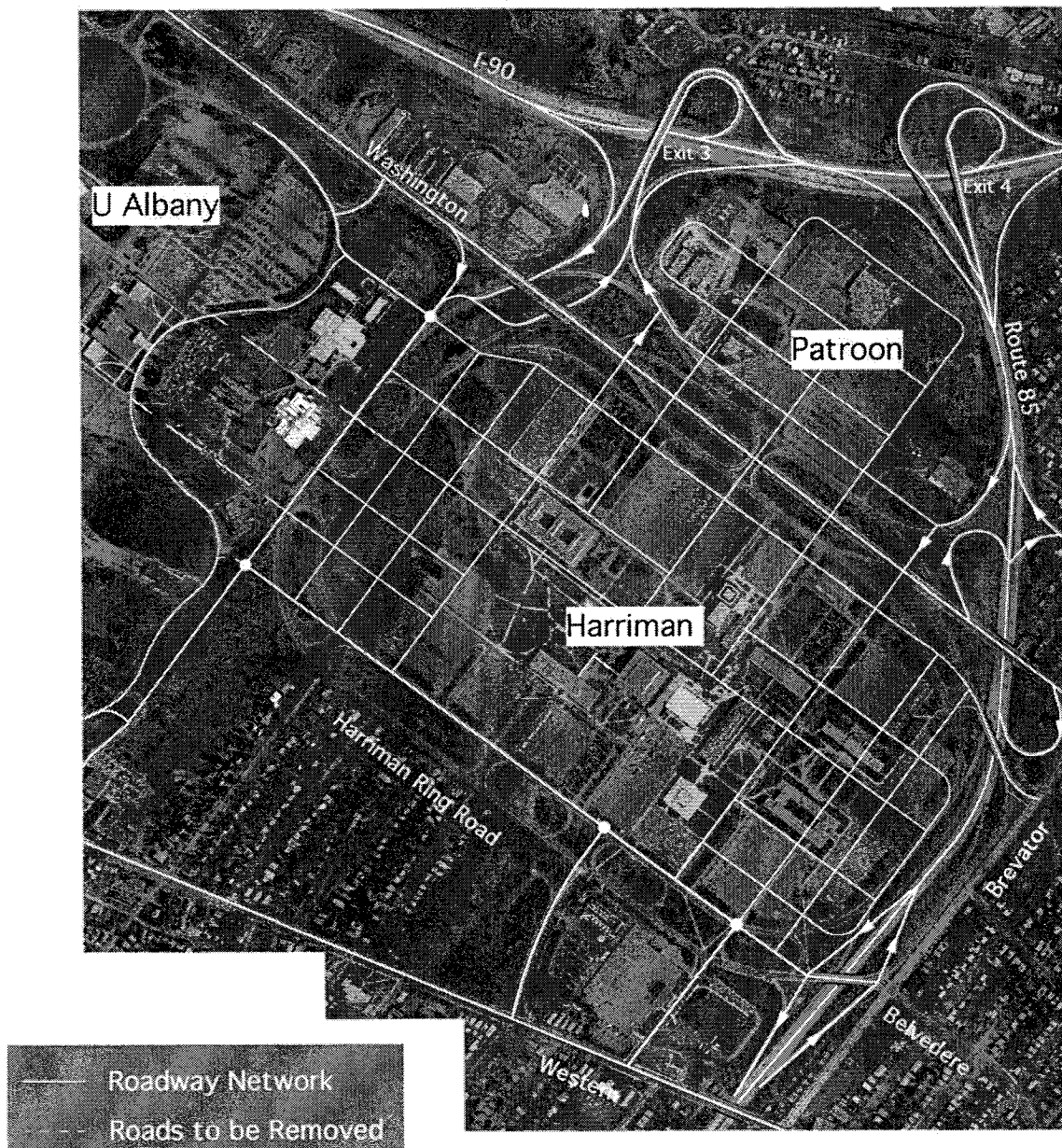


Figure 5-21 adds the system of minor streets completing the network. These streets are largely suggestive: some taken from the Harriman Master Plan, some taken from the current Patroon Creek Development, some linking through existing parking lots on the UAlbany campus. The actual number and layout of the streets will require extensive examination before being developed. This examination should reflect the final Harriman redevelopment plan, the progression and effectiveness of non-motorized facilities, current traffic volumes, neighborhood concerns, and need for service roads.

This proposed roadway network, while extensive, addresses some of the major concerns listed by the Study Advisory Committee, stakeholders and residents. It increases access where possible, especially to NY 85 and decreases it where necessary. It reutilizes existing infrastructure where possible and ties into the existing transportation network. It directly links the Harriman Campus to both UAlbany and Patroon Creek. It creates a simpler and more direct street system oriented toward Washington Avenue, which could become a great urban boulevard. This future roadway configuration itself would improve wayfinding without the need for a multitude of signs and maps.

**Figure 5-21 Conceptual Primary & Secondary Roadway Network**



### **Join Harriman and UAlbany Ring Roads**

The Study Team supports the concept of connecting the Harriman and UAlbany ring roads and has included it in the roadway network described elsewhere. It is therefore recommended that the possibility of joining the Harriman and UAlbany ring roads be studied in greater detail to address the following considerations:

- A joint ring road would need to be coordinated with the proposed roundabouts on the Harriman grid;
- Access to the ring roads would need to be coordinated with the proposed road from the Harriman Campus to Western Avenue;
- Because UAlbany opposes additional cut-through traffic on their ring road, this would have to be mitigated by significant traffic calming that would reduce the appeal of using the UAlbany ring road for off-campus destinations; and,
- Some or all of the proposed ring road connections may offer limited vehicle access, connections for bus service only and/or non-motorized access only. As such we have shown them dashed in **Figure 5-21**.

At the same time, the Study Team recognizes that the creation of a transportation spine (Section 5.3.2) would also provide cross-campus connections and may provide sufficient connections such that joining the ring roads is not warranted. As the sites develop and work on short term recommendations proceed, some ideas such as joining the ring roads may become lower-priority or longer term projects. An additional possibility that could be explored along with the idea of a joint ring road is to transfer the lands currently west of the Harriman ring road from Harriman to UAlbany.

### **Use Roundabouts to “Anchor” Harriman Campus**

The Proposed Master Plan concept for the Harriman Research and Technology Park shows two roundabouts along the proposed boulevard on the western edge of the Park. As discussed elsewhere in this report, the precise design of this boulevard is not yet known. Alternatives, including an idea to bring University Drive eastward to the Harriman Research and Technology Park’s boulevard, must still be analyzed and agreed to by all of the stakeholders. Furthermore, the final design of the Harriman Research and Technology Park’s internal road system, the eventual mix of uses, and the location and size of buildings on the redeveloped campus remains unknown. As a result, it is not possible at this time to analyze the functionality of the two proposed roundabouts.

