Central Albany Bikeway
# table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>study area</td>
<td>4</td>
</tr>
<tr>
<td>purpose + goals</td>
<td>5</td>
</tr>
<tr>
<td>relevance + need</td>
<td>7</td>
</tr>
<tr>
<td>stakeholders</td>
<td>13</td>
</tr>
<tr>
<td>existing conditions</td>
<td>14</td>
</tr>
<tr>
<td>section 1 / nanotech</td>
<td>16</td>
</tr>
<tr>
<td>section 2 / ualbany + harriman</td>
<td>17</td>
</tr>
<tr>
<td>section 3 / route 85 crossing</td>
<td>18</td>
</tr>
<tr>
<td>section 4 / melrose avenue</td>
<td>19</td>
</tr>
<tr>
<td>section 5 / manning discontinuity</td>
<td>20</td>
</tr>
<tr>
<td>section 6 / mid-city</td>
<td>21</td>
</tr>
<tr>
<td>section 7 / center square</td>
<td>22</td>
</tr>
<tr>
<td>section 8 / downtown</td>
<td>23</td>
</tr>
<tr>
<td>bicycling + pedestrian concepts</td>
<td>24</td>
</tr>
<tr>
<td>wayfinding + signage</td>
<td>31</td>
</tr>
<tr>
<td>central albany bikeway: a vision</td>
<td>32</td>
</tr>
<tr>
<td>next steps</td>
<td>68</td>
</tr>
<tr>
<td>layering</td>
<td>68</td>
</tr>
<tr>
<td>select federal funding options</td>
<td>69</td>
</tr>
<tr>
<td>maintenance / operations</td>
<td>71</td>
</tr>
<tr>
<td>appendix a</td>
<td>72</td>
</tr>
<tr>
<td>appendix b</td>
<td>76</td>
</tr>
<tr>
<td>appendix c</td>
<td>85</td>
</tr>
<tr>
<td>appendix d</td>
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## studio participants

- alex appel
- mike burke
- jamie cepler
- joe ferguson
- david king
- hyun joo lee
- brigidann rauch
- trey joseph wadsworth
- jason zogg

## faculty

- jeff olson

## special thanks

- ross farrell
- kevin schwenzfeier

## cover image:

flickr.com / extranoise
The study area consists of the area parallel to Washington, Western, and Madison Avenues. Seen in bright green is the recommended path. Seen in bright pink are potential alternatives. The concentration on this study area allows a potential bike spine to reach a large portion of the major institutions and workplaces in the city of Albany while connecting major neighborhoods as well. The geography of the city of Albany lends well to a central bikeway, hence the Central Albany Bikeway.
purpose + goals /

The Central Albany Bikeway is a concept for a continuous bicycle and pedestrian corridor from beyond the western end of Albany at UAlbany Nanotech all the way east to the river front at the Corning Preserve. The conditions for bicycling in the city leaves many users feeling as if a ride for commuting or leisure would be precarious at best. The Central Albany Bikeway seeks to address this concern by identifying a preferred route for a designated bicycle boulevard that would run on existing streets and/or new proposed infrastructure.

In the end, this proposed plan is truly about quality-of-life in the City of Albany and taking advantage of a unique opportunity among American cities. Many of the nations and cities named as best places to live around the world and in the U.S. have in common a deep long-term commitment to multi-modal transportation systems which focus on the availability of safe, easy, pleasurable, connected bicycle and pedestrian infrastructure, making these cities easier to bike and walk than drive and park. It is not a coincidence that a recent international study named the Danish people as the happiest society on the planet, specifically citing their commitment to the bicycle. It is also not a coincidence that recent books on Richard Florida’s “creative class” and the new “knowledge economy” showcase developments focused on walkable, bikeable communities.

This comes at a precipice for our city and our nation overall. The concerns for our environment and energy independence are becoming an overwhelming factor in governmental actions (or should be). The economy and municipal budgets are collapsing, so money for projects is tight. One of the goals of this project was to develop a singular bicycle corridor which would serve the largest number of residents in the city and connect them to the most institutions, in addition to the Hudson River. Another goal of this project was to develop an entirely new quality of bicycling experience in the City of Albany which would induce new ridership. If the bicycle were to become the preferred travel mode along such a corridor, it would help reduce carbon emissions and lessen traffic on crowded streets in addition to reducing city parking congestion. This project would enhance the livability of the city for everyone and provide for a safe space for physical activity.

sources:
1. Fried, B. Are Bikes the Secret to Danish Bliss? Streetsblog.org January 18, 2008 <http://www.streetsblog.org/2008/01/18/are-bikes-the-secret-to-danish-bliss/>
The City of Albany has a unique opportunity among American cities as most of its largest institutions have grown in a single linear east-west corridor involving four major avenues – Central, Washington, Western, and Madison. A bicycle path running in this general direction from the Hudson River to UAlbany Nanotech would be within half a mile of most of the population of Albany, many of its major centers of employment, two of its largest universities, and more. Other similarly sized cities in this country would not be able to build only one linear bike path and touch all of that. So in the current restricted economic climate we are in now, the City of Albany should not pass up the opportunity to invest relatively little in a transportation project and transform how people in Albany live. This plan seeks to lay out what needs to be done and a method for taking advantage of this special opportunity. The Central Albany Bikeway plan is therefore dedicated to enhancing the future health and welfare of the city and its residents, commerce, and other stakeholder institutions for the rest of the 21st century.

**overarching goal + task/**

The Fall 2008 Graduate Transportation Studio was to produce a feasibility study for the corridor of bikeway facilities that link the Nanotech Campus, the Purple Path, Harriman Campus, the streets and neighborhoods between Western and Washington Avenues, the Downtown University at Albany campus, Washington Park, the State Capitol, and the Hudson river. The studio members worked on specific sections individually, and on a summary report for the overall project.

**thanks/**

The 2008 Planning Studio from the Department of Geography + Planning at the University at Albany State University of New York would like to thank those who have contributed to this plan helped this project along, especially the key stakeholders who turned out to our presentations and our sage bicycle and pedestrian faculty expert Jeff Olson.
The need for establishing a multi-use bicycle path through the City of Albany has immediate relevancy. This is the type of project that Albany must undertake soon, or risk its well being on the prevailing single mode choice of the 20th century: the automobile. As this report shows, other leading cities around the globe are proving that the prevailing transportation philosophy of the next century is multi-modal: biking, walking, cars, public transit, high speed trains, and more. On a global level there are a myriad of broad emerging economic and social trends such as a generational shift from suburbs to cities, and high gas prices, which greatly support the construction of these types of projects throughout the United States in the next decade, but we believe this specific project is particularly extraordinary.

Albany grew with a certain compactness and linearity along it’s east-west roadways which creates a distinctive opportunity among American cities. Albany has grown from the Hudson river, almost directly in a line along the Washington and Western Avenue corridors, and most of it’s major government, health, education, and recreation institutions and facilities are arranged along this path. As demonstrated by the Sustainable Design Assessment Team (SDAT): “Sixty-two (62) percent of Albany residents work in the city. These people have short travel distances to work and could potentially be lured from their autos.” Therefore, as proposed this specific project is unique in that it is a singular bike corridor which connects such an array of large traffic generating institutions, and is within half a mile of the majority of the population of the City, and therefore a large percentage of the region’s population. This makes the Central Albany Bikeway a particularly unique and very worthy bike and pedestrian linkage project, because many other cities would have to build more than one bikeway corridor to connect their institutions and population in a similar manner. As the City of Albany moves forward with it’s very first Comprehensive Plan and Bicycle Master Plan, this project needs to be at the heart of an effective transportation plan for the 21st century.

The Central Albany Bikeway typifies precisely what cities across the nation should be pursuing right now. The United States has been importing an increasing amount of foreign oil since the 1970s, affecting our national security into the 21st century. The world is

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**sources:**


running out of oil, global peak oil production has occurred, or will occur within the next two
decades. Human powered transportation is a very important solution to the coming dual
crises of peak oil and global climate change. Global climate change caused by humans is
no longer debated; it is a reality and there is a small window to make huge changes in
greenhouse gas emissions before an environmental tipping point. Globally road
transportation accounts for around 76% of all transportation sources of greenhouse gas
emissions. Albany has a responsibility to contribute to the global solution; Americans are
no longer asking, they are demanding opportunities to change.

With major state and federal fiscal constraints stemming from a national economic crisis and
dwindling state tax revenues, is important to note that bicycle and pedestrian improvements
typically cost far less than major vehicle-centered and public transit infrastructure
improvements, while reducing congestion and need for increased automobile parking
capacity. However, efforts to bring NYS in line with air quality attainment standards Albany
may still be able to obtain federal money for a portion of the project.

Safe, compelling bicycle and pedestrian infrastructure saves taxpayers money and
encourages more active lifestyles. According to the University at Albany/New York State
Initiative for Healthy Infrastructure (iHi), adults with access to places to be active were two
times more likely to be active. Over 50% of NYS adults are overweight or obese. An
analysis of the project area by iHi estimates that physical inactivity costs Albany
$130,050,793 per year, which is $1,793 per person. Broken down this is $19,552,103 in

sources:

www.netl.doe.gov/publications/others/pdf/
Oil_Peaking_NETL.pdf>.
primer>.
www.guardian.co.uk/environment/2006/sep/04/
greenpolitics.science>.
7. Eilperin, Juliet. "Debate on Climate Shifts to Issue of Irreparable Change." 29 January 2006. The
independent_reviews/
stern_review_economics_climate_change/
stern_review_Report.cfm>.
Medical Care costs, $281,292 in Workers Comp costs, and $110,217,398 in lost productivity costs. If as little as 5% of inactive people in Albany became physically active it could save $6,502,540 per year. This is not only about public health; in tough economic times this project could pay for itself quickly through basic physical activity.

Besides offering an alternative mode of transportation which is beneficial to the environment and directly beneficial to public health, this bicycle corridor also serves the need for a recreational bicycle path through the City of Albany which is a quality-of-life amenity in high demand. As the capital city of New York State, with a superb regional location, Albany has to compete in the global economy and must maintain focus on a different quality-of-life which is no longer so focused on access to suburban malls and transportation via interstate highways. Cities on major annual lists of best-places-to-live around the world usually have one thing in common: they have commitments to expanding and improving bicycle and pedestrian infrastructure and amenities to make it easier and safer to walk and bike than to drive and park. For example, well known biking and pedestrian focused metropolises among planning circles such as Portland, Oregon and Minneapolis, Minnesota in the US, or Vancouver, and Montreal, in Canada and Copenhagen and Amsterdam in Northern Europe were all recently on “The Top 25 Most Livable Cities” list in Monocle Magazine – a global magazine of international affairs and culture. In the Capital Region’s quest for the lucrative knowledge based economy and its worker of the 21st century, it is critical to understand that this is the type of infrastructure it will take to attract this demographic of people who are highly mobile and re-locate not based on salary alone, but also a quality of life that does not involve hours in a car. The Albany Nanotech campus, which is at one end of this bikeway, is at the center of the technology economy which the region has staked its future on. The graph on the next page indicates the percent of people riding to work in select cities; Albany’s percentage is so low it barely registers for comparison.

The Albany Sustainable Design Assessment Team (ASDAT) Report published in 2007 is a valuable document for the City, clearly laying out recommendations and strategies for Albany’s future and will likely be consulted in the process of writing Albany’s first comprehensive plan happening soon. The ASDAT report notes that: “It is more important to create a system in which all modes of transportation receive equal weight and are integrated

- Safe compelling bicycle infrastructure saves taxpayers money

- If 5% more residents became physically active it would save $6,502,540 per year

sources:
The aspects of quality of life that are requisite to attract the new economy employees do not exist in Albany.

The aim of the project is to provide a new cycling experience that will tap into latent demand.

Based on the volume and speed of traffic on major corridors of Washington, Western, Madison and Central Avenues, striping bicycle lane markings along these roads will not generate new riders as there is already a limited set of committed cyclists doing so. The Central Albany Bikeway aims to design an entirely different quality of on-street and off-street bicycle experience in order to influence the latent demand for a bicycling infrastructure used by not-yet-committed and future potential bicyclists on a daily basis. The level of service envisioned on the Central Albany Bikeway will induce demand by being unique

sources:
13. It is possible to estimate the number of potential bicycle commuters in the project area from census data, based on the existing population and the current and projected mode share.
enough, safe enough, and fast enough for citizens to choose biking over other modes of transport. Albany needs to achieve a bicycle mode share on par with climatological and economically comparable cities such as Minneapolis, Minnesota, Madison, Wisconsin or Portland, Oregon in order to become a globally recognizable, healthy, sustainable city.

The Netherlands is often considered the premier bicycle and pedestrian oriented nation, with more people biking and walking as a percentage of their daily trips than most other industrialized nations. The Netherlands and Denmark represent the very best in coordinated policies which make cycling safe convenient and attractive. When envisioning the Central Albany Bikeway the relationship of the Empire State Plaza and our Dutch heritage was reflected upon. The monumentality of Governor Rockefeller's intervention into the urban landscape with the Empire State Plaza was the mark of the 20th century upon the Capital City on the Hudson after a visit from Dutch Princess Beatrix. In the 21st century, we need not build marble monuments to memorialize our bureaucracy in vain; rather we should embark on this infrastructure project – which has been realized over and over again by our modern Dutch cousins – a critical bicycle spine connecting many of the major institutions of the city. This would spark a new era of transportation in Albany, and put us on par with the most enlightened cities on earth. This would be a better impression to give Queen Beatrix when she visits Albany for the 400th anniversary of Henry Hudson's voyage up the Hudson River in 2009. Afterall, it was said that Princess loved simple things and to ride her bike.

In the meantime it is a dispiriting reality that bicycling infrastructure in the City of Albany is absent and therefore it is faster and safer to use a car despite is effects on the environment and quality of life. The Central Albany Bikeway is a project with the clear ability to be the signature catalyst project to change the way people live, to make people question their daily trips and their lifestyle. Most of all this project would put this simple option of the greenest, healthiest form of transportation within the reach of thousands of people who have not legitimately had the option before. In a city the size of Albany it should take thirty minutes or less to bike through the city. With a relatively modest investment in the Central Albany Bikeway, this 21st century model project has the capacity to propel Albany into a new category of cities with a top-rate quality of life that the billion dollar plus 20th century project of the Empire State Plaza did not ever achieve.

sources:
Both Images: http://amsterdamize.com/2008/07/15/royal-cycle-chic-a-la-orange/
Hyperbolized below is the substantial differential between transport modes in select industrialized countries. The United States’ bicycle mode share is extremely low. This is evidenced in our carbon emissions, energy gluttonous ways and obesity pandemic. In order to remedy these crises locally, Albany needs a sustainable transport system with affordable bicycle infrastructure at the centerpiece.

source: ibike.org/library/statistics-data.htm
The studio team identified potential stakeholders throughout the study area. The stakeholders ranged from neighborhood associations, business organizations, educational institutions, city representatives, authorities in the transportation community, residents, commuters, etc. These stakeholders were invited to join the studio team for a presentation of our preliminary concepts, and provide the initial feedback necessary for us to progress in the conceptual phases of the plan. The stakeholders met with the studio team on October 20th. While turnout was below expectations, important feedback was shared by the stakeholders that could be present with members or the studio team. The stakeholders were receptive to the concept of the Central Albany Bikeway but were concerned that it lacked a numerical demonstration of its justification, and did not prescribe a realistically achievable implementation process.

Unfortunately, there is little data to directly support the number of bicyclists using the corridor when fully completed. This is a type of project in a city with little or no dedicated bicycle design or infrastructure, which induces demand. The mantra of this project is “build it and they will come.” Please see several articles listed in Appendix A addressing this specific phenomenon. In response to feedback, a unique layering concept was developed which may be more likely to lead to successful completion of the project. Layering the project differs from phasing because it involves corridor-wide treatments which will be in a sense “switched on” like layers in GIS, instead of phasing which simply involves breaking up the physical space.

On December 1st, the project team met with the consultants for the upcoming Albany Bike and Pedestrian Master Plan, select leaders from the City of Albany Planning Department, and the regional MPO (CDTC) to present the concept with more detail including SketchUp drawings to better illustrate some possible treatments. The main purpose of this meeting was to propose the Central Albany Bikeway become the central “bike spine” of the new Albany Bike and Pedestrian Master plan – a connected series of interesting public spaces, with other branches extending from there. The people in attendance were open to the idea and suggested the plan needed to be more exciting, with more splash and glamour. We hope this final plan fulfills that.
existing conditions /

As indicated previously, the Central Albany Bikeway will run on a west to east axis from Nanotech to the riverfront at the Corning Preserve. To simplify the very large undertaking of such a plan the west/east axis was split into eight major sections. This allowed the studio team to focus in on each area of the route individually.

Each individual made observations of the section, compiled data counts of bicyclers, autos, pedestrians etc., and conceived the initial route through that section. The initial route proposals were then subjected to a Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis (details available in Appendix B). The resulting ideas and reasoning behind each of the chosen routes in each section was then examined by the entire studio team. The route suggestion was adjudicated upon what the data and observations offered to be the most logical choice of path. The paths for each section were then collectively agreed upon by the studio team members.

The data tables on the following pages indicate bicycle traffic is barely measurable, but observers noted that conditions on the major avenues were not conducive to bicycles. Some streets have stop signs at every intersection, causing bicycles to loose momentum. Many larger properties are disconnected from one another. You will find solutions to these and many other issues later in the document.

the eight sections:

1 / nanotech
2 / ualbany , harriman
3 / route 85 crossing
4 / melrose avenue
5 / discontinuity
6 / mid-city
7 / center square
8 / downtown
Within a ½ half mile distance of the Central Albany Bikeway is 31,800 of Albany workers. Within one mile is 44,241 workers. The number of workers that live in Albany could be a large source of riders.

Within a ½ half mile distance of the Central Albany Bikeway is 30,152 vehicles per household. Within one mile is 41,716 vehicles. For households that lack access to a vehicle the bikeway could be a safe route.

Within a ½ half mile distance of the Central Albany Bikeway is 71,046 of Albany residents. Within one mile is 97,987 residents. Only 121 workers bicycled to work however. The latent demand that can be tapped.
section 1 / nanotech

- Direct right of way from College of Nanoscale Engineering to Stuyvesant Plaza is available under power lines
- Effective gateway between UAlbany and Nano Campus
- Major reconstruction of Fuller Road in next few years with proposed roundabouts and landscaped medians throughout
- The grade differential near the intersection would allow a tunnel or an overhead bridge under or over Fuller if needed at all
- Nature of Nano Campus is offices, will need more efficient connection to Stuyvesant Plaza for workers to lunch and shop on their breaks
- Rush hour at UAlbany does not follow the typical pattern and therefore counts were completed at the peak instruction times
- The area observed points to a very high level of auto traffic with a precarious situation for pedestrians and bicyclists
- Lots of pedestrians in this area crossing between Freedom Quad residences of UAlbany and the main Academic Podium

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Fuller Rd + Tricentennial Drive

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Weather: Overcast
section 2 / ualbany * harriman

• Purple Path being slowly built around UAlbany campus to provide pedestrian and bicycle facilities for jogging, walking and bicycling
• Direct service road across center of campus connecting Dutch and Indian Quad residence halls, the Campus Center, and the various athletic facilities; this route is very low traffic
• Dirt path connector from the end of this road at the Police Department through wooded area to outer loop of Harriman Office Campus

• Traffic counts were completed near the Purple Path to see the usage of an existing bicycle and pedestrian facility
• There was very little usage of the Purple Path by bicyclists; most cyclists used the road
• It was observed that a notable issue remains with the Path: It does not connect with Western Avenue at all
• A lot of pedestrians were forced through an ADA non-compliant intersection that experiences bottlenecks of auto traffic during rush hour

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section 3 / route 85 crossing

- Outer Loop is safest, has least turn-ins and turn-offs
- Outer Loop has potential to meaningfully connect to residential neighborhood currently severed by Outer Loop and fencing
- Outer Loop road is 40MPH and designed in such a way that much higher speeds could be observed
- Bridge on outer loop over State Route 85 has recently had one lane blocked off, shrunk to two lanes
- Brevator Avenue is overbuilt, too wide even with cars parked on both sides

- During the rush hour count it was revealed that traffic is steady
- The many turn-in and turn-outs of the loop road could present many conflicts points especially during peak traffic periods

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section 4 / melrose avenue

- There is a park nearby where Melrose and Brevator meet – opportunity for recreation on this route
- Quiet neighborhood with trees, sidewalks, lawns, 4-way stops signs
- Straight road, large trees, slower traffic, simple intersections, ideal street type for bike pedestrian facilities
- There are a lot of curb cuts for driveways and on street parking – drivers pulling in and out of driveways and out of parallel parking spots will have to be cautious of bicyclists
- The traffic is quite low and therefore conflict points between bicycles and auto traffic should be easily avoidable

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</table>
section 5 / Manning discontinuity

- Melrose Avenue ends one street before Manning Boulevard providing a discontinuity of the most logical route through low traffic residential areas
- Could be an opportunity for a narrow right of way between two houses
- Could take two homes for continuous route via eminent domain
- Sale of property and change of deed using the methods employed by Seattle whereby homes are purchased and driveways are taken for path and then the home is used for affordable housing or resold minus the driveway
- Alternative short term would be to utilize Washington and Western Avenues to reroute bike and pedestrian traffic around this impediment
- Bring bike and pedestrian traffic back down Manning Boulevard to Lancaster Avenue to continue route

- Traffic is steady on Manning Boulevard
- If route of Central Albany Bikeway is brought out to Western and Washington Avenues then cyclists will be competing very heavily with auto, trucks and buses

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<thead>
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<th>Location of Data Collection: Manning Blvd between Western + Washington Ave</th>
<th>Location of Data Collection: Manning Blvd between Western + Washington Ave</th>
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<td>Date of Count: Tuesday 09/02/08 + Friday 09/05/08</td>
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<td>Weather: Fair + Sunny</td>
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section 6 / mid-city

- Lancaster goes straight from Manning Boulevard to Albany High School
- This is opportunity to work under the Safe Routes to School directives
- The other side of Albany High School is UAAlbany and St. Rose Alumni Quad Dormitory complex
- Prior paths or sidewalks of some kind exist; cutting through the Albany High School property years ago
- This corridor brings in the College of Saint Rose campus area and the LaSalle private school
- Neighborhood may have problems with High School students being so well connected through an axial route
- Traffic counts indicate heaviest bicycle and pedestrian traffic off the UAAlbany campus
- Steady auto traffic in area
- Many connection points available for CDTA

<table>
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section 7 / center square

- Western Avenue in this area is slower, and only two lanes, and is the most direct route from Alumni Quad to Washington Park
- Would give the corridor direct access to Washington Park and UAlbany downtown campus, encouraging professors and students to commute from one campus to the other via bicycle
- Awkward intersection at Western Ave, State Street, Robin Street; good candidate for a focal roundabout
- Central Albany Bikeway could stay on State Street or could wind through the park

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Date of Count: Wednesday 11/5/2008 | Date of Count: Wednesday 11/5/2008
Time of Count: 11:00am to 1:00pm | Time of Count: 1:30pm to 3:30pm
Weather: Overcast | Weather: Overcast
section 8 / downtown

- State Street past the Capitol gives access to Empire State Plaza, Capitol Park, and major parts of Downtown
- State Street to Pine Street (between Court of Appeals and City Hall) gives a straight path to Hudson River Way bridge over to the riverfront
- Much could be done to make this part of downtown more bicycle and pedestrian friendly, few streets are used for through streets, most are used only for parking purposes
- Large grade hill up from river presents an issue for bicyclists going up hill - need to consider very slow ascents versus quick moving auto and bus traffic
- On weekdays there is a lot of pedestrian traffic at rush hour
- The area is a hub of quick moving CDTA buses - could be for connections but also need to be wary of them in terms of conflict points and bicyclists
- Auto traffic is steady but not too heavy
- Intersection in front of capital provides for awkward driver actions that could provide risky to pedestrians and cyclists

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Location of Data Collection: Pine Street + Eagle Street
Date of Count: Thursday 09/11/08
Time of Count: 4:00pm to 6:00pm
Weather: Sunny

Location of Data Collection: Pine Street + Eagle Street
Date of Count: Sunday 09/21/08
Time of Count: 4:00pm to 6:00pm
Weather: Cloudy
bicycling + pedestrian concepts

The following bicycling and pedestrian features and concepts have guided and inspired the overall plan for the Central Albany Bikeway. These are examples of the different types of treatments available to make a comprehensive bikeway successful. Below are examples of street treatments that could be incorporated into the Central Albany Bikeway (CAB).

Street Treatments

Location / Montréal, QC
Purpose / Dedicated bikeway paralleling roadway
CAB   / In some sections this could be applied

Location / Holland
Purpose / Crosswalk bump w/bike cut throughs
CAB   / Could be used at certain crosswalks

Location / University at Albany
Purpose / Detects crossing pedestrians + blinks
CAB   / Need to adopt at mid-block crossings

Location / Unspecified
Purpose / Bikeway is split by garden median
CAB   / Green treatments can beautify Albany

Location / Portland, OR
Purpose / Gardened chicane to slow auto traffic
CAB   / Apply to on wider streets to help bikers

Location / Vancouver, WA
Purpose / Slows autos in intersections
CAB   / Could be used in certain intersections
Below are examples of pavement markings that can be incorporated in the Central Albany Bikeway. These pavement markings indicate crucial information to bicyclists, drivers of autos, and pedestrians. Such information can enhance safety, wayfinding, or indicate roadway/bikeway rules and regulations. Each of the examples below indicate the purpose and relevance for the Central Albany Bikeway (CAB).

**Pavement Markings**

- **Location**: Victoria, BC  
**Purpose**: Bike box is a stop area at intersection  
**CAB**: Should be implemented for safety

- **Location**: Vancouver, BC  
**Purpose**: Markings indicated location of sensor  
**CAB**: Use to give bicycle priority on bikeway

- **Location**: Vancouver, BC  
**Purpose**: Left + Right turn bike box  
**CAB**: Should be implemented for safety

- **Location**: Vancouver, BC  
**Purpose**: Display to bikers pedestrian crossing  
**CAB**: Use wherever pedestrians cross CAB

- **Location**: Seattle, WA  
**Purpose**: Non-crossable bike lane on one way  
**CAB**: Could be used on Albany's one ways

- **Location**: Seattle, WA  
**Purpose**: Marking indicates shared roadway  
**CAB**: Use where roadway + bikeway merge
Below are examples of bicycle safety efforts that can be utilized as the Central Albany Bikeway is constructed so that neighbors and drivers can be prepared to share the roadway with an increase in bicycle traffic. The second set of photographs are of potential areas in which the police will need to enforce traffic codes so that bicycling will continue to be safe well after the bikeway is constructed.

Bicycle Safety

- **Location**: San Francisco, CA
  - **Purpose**: Notice for drivers to watch for bikers
  - **CAB**: Inform city residents of bikeway

- **Location**: Hampden, MD
  - **Purpose**: Sign advising of reverse angle parking
  - **CAB**: May be incorporated in certain places

- **Location**: Portland, OR
  - **Purpose**: Notice for drivers to obey the bike box
  - **CAB**: Inform city residents of bikeway

Enforcement

- **Location**: New York, NY
  - **Purpose**: Advert to end parking in bike lanes
  - **CAB**: Need to enforce rules of bikeway

- **Location**: Denver, CO
  - **Purpose**: Safer sewer grate for bicyclists
  - **CAB**: Should be implemented along bikeway
Below are examples of bicycle signage that are used in other cities and the Central Albany Bikeway may want to emulate in message. It will be recommended that the Central Albany Bikeway develop its own signage and wayfinding standards and graphic identity. This is so a clear identity of the Bikeway is presented to its users for navigational and marketing purposes.

**Bicycle Signage**

- **Location**: Unspecified  
  **Purpose**: Indicates bike crossing at right turn  
  **CAB**: Use when bikeway is dedicated path

- **Location**: Montréal, QC  
  **Purpose**: Dedicated nomenclature for bikeway  
  **CAB**: Should be used at each intersection

- **Location**: Paris, France  
  **Purpose**: Dedicated stop signal for bicyclist  
  **CAB**: Use in intersections of bikeway

- **Location**: Unspecified  
  **Purpose**: Indicates to drivers of bikeway  
  **CAB**: Use where autos will cross bikeway

- **Location**: Des Moines, Iowa  
  **Purpose**: Wayfinding signage for bicylists  
  **CAB**: Need to incorporate along bikeway

- **Location**: Unspecified  
  **Purpose**: Indicates to drivers of raised x-walk  
  **CAB**: Use for mid-block or high speed x-ings

*source: flickr.com / richard drdul*  
*source: flickr.com / franz loewenherz*  
*source: flickr.com / spacing magazine*
Below are examples of bicycle storage and parking which should be emulated along the corridor. Secured, and covered bike parking is a major hurdle to getting non-committed riders on their bikes, especially for commuting. Covered parking units would be perfect for universities, post racks would be good for city streets and so on. New York City is currently considering a bicycle parking law which would require all new buildings and commercial office space provide some type of parking shown here – more information on that is available in Appendix A.

<table>
<thead>
<tr>
<th>Bicycle Storage</th>
<th>Location / Unspecified</th>
<th>Purpose / Covered bicycle parking</th>
<th>CAB / Could be used in many neighborhoods</th>
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<tbody>
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<td>source: flickr.com / Richard drdul</td>
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<table>
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<th>Bicycle Storage</th>
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<th>Purpose / Bike parking not using sidewalk space</th>
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<th>Purpose / Simple bike post rack</th>
<th>CAB / Could be placed anywhere on CAB</th>
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<th>Purpose / On sidewalk, out of veh. + ped traffic</th>
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<th>Location / Unspecified</th>
<th>Purpose / Ideal locked + covered bike storage</th>
<th>CAB / Could be used at large institutions</th>
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<th>Purpose / Secured bicycle parking in garage</th>
<th>CAB / Could be used at parking garages</th>
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<td>source: flickr.com / Richard drdul</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Below are examples of street furniture from well planned street furniture initiatives around the world. Part of providing the best bicycle and pedestrian experience is providing logical, efficient street furniture which is as consolidated as possible so as not to clutter the space or create hazards. Street furniture does not have to be solely utilitarian – it can be expressive, unique and functional as some of the examples indicate. It can also be critical to wayfinding.

<table>
<thead>
<tr>
<th>Street Furniture</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image](source: Jason Zogg)</td>
</tr>
<tr>
<td>Location / Chicago, IL</td>
</tr>
<tr>
<td>Purpose / Consolidated newspaper furniture</td>
</tr>
<tr>
<td>CAB / Should be used to consolidate boxes</td>
</tr>
<tr>
<td>![Image](source: flickr.com / Richard drdul)</td>
</tr>
<tr>
<td>Location / Unspecified</td>
</tr>
<tr>
<td>Purpose / Pathway amenities - restrooms</td>
</tr>
<tr>
<td>CAB / Could be placed along CAB route</td>
</tr>
</tbody>
</table>
The images below indicate important opportunities to create an interesting bike corridor. Bikeways do not have to be strictly utilitarian, and are used more frequently when they are fun destinations, or there are things to experience and discover along the way. Public art can be the centerpiece of the bikeway or simply add clever touches. Attention to detail can encourage bike use – such as this bike only bank drive through with a water cooler – these are the types of unique experiences which get people out of their cars.

**Public Art**

- **Location**: Nashville Schermerhorn Symphony  
  **Purpose**: Bicycle racks  
  **CAB**: Simple functional art is important

- **Location**: Sustrans National Cycling Network UK  
  **Purpose**: Fun interactive local sculpture  
  **CAB**: Opportunity to increase interest + fun

- **Location**: Stockholm  
  **Purpose**: Logo sewer cover-local identity / brand  
  **CAB**: Creating an identity is important

- **Location**: Sustrans National Cycling Network UK  
  **Purpose**: Pathway bench: art with purpose  
  **CAB**: Simple functional art is important

- **Location**: Boulder, Colorado  
  **Purpose**: Bike drive thru with water cooler  
  **CAB**: Everything should encourage bike use
wayfinding + signage

This simplified map of the Central Albany Bikeway has been created using the same basic principles of wayfinding and graphic design used with major public transit systems around the world. This map indicates major cross streets, major institutions, and areas with bicycle parking or storage. The map should be displayed at key intersections which act as entry points to the route such as the small sign design shown below. This map also encompasses the specifics of the graphic identity created for the corridor and exhibited throughout the document. The overall theme is encompassed by a bright modern lime green mixed with a muted grey and black. The Hudson River is represented by neon blue. The text is represented with a universal Helvetica font. A right pointing arrow triangle is the logo of the corridor and symbolizes a constant movement forward.

Further development of this project would require a complete signage and wayfinding package utilizing the basic graphic design represented here. Many other pieces of signage would encompass a comprehensive wayfinding initiative, and is critical to the goal of attracting new riders. Such examples include signage directing users, with measured distances to the institutions indicated on the map, in addition to other points of interest, bicycle parking/storage, and CDTA bus stops. Signage directed at vehicular traffic would also be necessary to enhance safety. Overall it is crucial to implement complete guidelines so that users can easily identify the bikeway as to keep inexperienced riders on the bikeway at crucial directional changes and from straying onto roads that would be above their comfort level.
The following pages will graphically highlight the vision for the Central Albany Bikeway using maps and scaled 3-D models, modeled in Google SketchUp. The maps represent the preferred route chosen after careful analysis of current conditions and based on the primary goals of the project. The 3-D SketchUp models represent the types of treatments recommended at a selection of the critical intersections and segments challenging the corridor. The 3-D SketchUp models also represent the desired level of bold aesthetic details this project should convey in the long-term, seeking to become more than simple curb cuts and grassy medians, but also
become signature entry points to certain neighborhoods and major institutions along the way. Each selection of SketchUp images and maps is accompanied by a caption which lays out a handful of important treatments proposed for that section of the corridor. The following pages also showcase the preferred routing on a corridor-wide level in the short-term and long-term scenarios and several local-level maps in the long-term. Other relevant information displayed on the map includes major destinations in each section, (ie: potential pools of users groups) which have also been indicated on the wayfinding map created for this document.

**Important Note:** Appendix C contains the complete set of detailed treatment instructions, recommendations, and justifications for all of the Central Albany Bikeway. These detailed recommendations which follow the entire corridor from one end to the other are designed to be used by any future project consultants, engineers or officials to guide the final scoping, construction and complete implementation of the Central Albany Bikeway.
Short Term Vision

Treatments to Central Albany Bikeway
Short Term
- Signage, wayfinding and graphic identity (section-wide)
- Shared roadways – sharrows (Tricentennial Drive from Nano Tech to University Drive)
- Bike-safe storm grates (section-wide)
- Striped bike lanes (Campus Drive to Dutch Drive)

Long Term
- Striped bike lane (Stuyvesant Plaza inbound driveway off of Western; Tower Drive)
- Signage (throughout Stuyvesant Plaza)
- Paved bike path (along utility right of way between Executive Park Drive and Tricentennial Drive; abutting NanoFab East building)
- Roundabout (one lane at intersection of Tricentennial Drive and Jose Marti Drive)
- Protective awning (NanoFab East building)
- Signature bridge (over Fuller Road linking Nano Tech to Uptown Campus)
- Three-way street (Liberty Lane)
- Path lighting (section-wide)
This angle is viewing toward Empire Commons and the uptown campus of the University at Albany in the background. Nanotech would be to the left of the frame. Notice the roundabout centerpiece of modern art and University at Albany signs. The bright green stained concrete paths in the upper right corner of the image is the bikeway continuing down Tricentennial Drive towards the main Academic Podium of the university.
This is a view looking down Fuller Road towards Stuyvestant Plaza; Nanotech would be on the right. The roundabout could act as a gateway to the University.
This is a view looking toward where the UAlbany main campus on Tricentennial Drive would be. As bike lanes approach roundabouts they merge into the main vehicle traffic lane, so the bicycle can circulate in the center of the lane like any other vehicle type. Bike lanes then reappear on the other side.
**Short Term**
- Signage, wayfinding and graphic identity (section-wide)
- Shared roadways – sharrows (Dutch Drive)
- Striped bike lanes (Harriman Campus Ring road outer lane to Brevator)
- Bike-safe storm grates (section-wide)
- Secure – weather proof bike storage (Uptown Campus)

**Transition**
- Raised surface intersections and crossings (section-wide)
- Path lighting (section-wide)

**Long Term**
- Separated bike path (Dutch Drive; Harriman Campus ring road outer lane to Brevator)
- Paved bike path (from University Police Department intersection to Harriman Campus)
This is a view looking toward Dutch Quad and the Dutch faculty and staff parking lot. The roadway at the top left is one way, the rest are two-way roads. Note the singular bike path coming from Dutch Quad at the top of the picture, then splitting in the new park to cross the intersection safely. Splitting the path at the one-way section of road is safer than other scenarios.
This is a view along the sidewalk and new innovative concrete park coming from the main campus toward the new intersection of University Drive, then uphill toward Fuller Road. Notice the sidewalk level lights with purple and gold banners. The concrete communicates with Edward Durrell Stone architecture of the main academic podium.
This perspective is looking toward the commuter parking lot on the top of the image, the one-way street in the top right. Notice the extremely wide sidewalk leading from the main Academic Podium of UAlbany (top right) along Tricentennial Drive (bottom left) toward Fuller Road and Nanotech.
section 3 / route 85 crossing

**Area of Treatment** (pages 53-55)

Short Term
- Striped bike lanes

Long Term
- Separated bike path

source: Microsoft Live Maps
This is the intersection of the Harriman Campus loop road at the southeast corner, where the Route 85 off-ramp meets the loop road and Brevator Street. Currently, the southern most lane of the bridge is striped off, and should be used for a two-way separated bikeway. This will then transition into two bike lanes on Brevator Street. Notice this scenario involves closing access to Brevator from Route 85 for safety. An additional exit could be built further down the loop road towards Washington Avenue where there is currently an entrance from Brevator onto the loop road.
This is an aerial view of the transition from a two-way bikeway to on-street bike lanes on Brevator. By restricting access to Brevator at this point on the Loop road, a safer condition is created for the bikeway. If there would still be access to Brevator further down the loop road a new exit was built.
This is a view of the Route 85 off ramp meeting with the Harriman Campus Loops Road. The bikeway would be a two-way bikeway separated by a concrete barrier on the Harriman Campus. It would need to transition to two bike lanes on Brevator street. Notice that this a natural opportunity to create a signature welcoming point for the Harriman Campus.
Short Term
- Bike boulevard with on-street pavement markings (section wide)

Transition
- Improved (or additional) traffic control devices at intersections

Long Term
- Small traffic circles (section-wide)
Sharrows, or shared roadway markings would be needed throughout this project in the short term, most certainly on Melrose, where the roadway is too narrow and the traffic already slowed enough not to require a separated bikeway.
This perspective is looking down Brevator Street, where there is still room for parallel parked cars. The bikeway continues to the Harriman Campus in the background of this image as seen in the previous set of images. Allowing only a right turn into the Melrose neighborhood will greatly reduce conflict points for bicycles and pedestrians at this intersection, and create a much more calmed street. This also makes it easier for bikes to continue along the bikeway to the Harriman Campus.
This is a view of the entrance to Melrose Ave from Brevator Street. In accordance with typical traffic calming and bicycle boulevard principles, this intersection is restricted to right turns into, but not out of Melrose Ave from Brevator. This will also create a natural signature entrance point to the Melrose Neighborhood. Notice that parallel parking will still be available on Brevator.
Short Term
- Signage, wayfinding, and graphic identity (section-wide)
- Striped bike lane (along Winthrop between Washington Ave. and Western Ave; Washington Ave. between Winthrop and Manning Boulevard; Western Ave. between Winthrop and Manning Boulevard; along Manning Boulevard between Washington and Western)

Long Term
- Right of way acquisition for bike path (between Winthrop and Manning Boulevard)

section 5 / discontinuity

Area of Treatment (pages 61-63)

source: Microsoft Live Maps
This represents the discontinuity of the project at Manning Boulevard. This is the intersection of Melrose and Winthrop Ave. Melrose will be a restricted right turn in only, with no exit onto Winthrop at this point. This will reduce conflict points, and help keep bikers moving.
The bicycle corridor in the long term plan, will continue through a narrow right of way and connect to Manning Boulevard. Access to Melrose would be restricted from Winthrop Ave. This will greatly reduce conflict points for bikers continuing on the path. It will also help traffic calm Melrose.
This is a perspective from between the two homes. This right of way could be acquired by the city by purchasing the homes, changing the deeds for the right-of-way, and re-selling the homes hopefully for a profit. Seattle had developed this idea in the 80s.
Short Term
- Signage, wayfinding, and graphic identity (section-wide)
- Bike boulevard with on-street pavement markings (Lancaster St. between Manning Boulevard and North Main St.; State Street and Spring Street between Ontario St. and Cortland Pl.)
- Striped bike lane (Between Lancaster St. and Western Ave.; along Western Ave. between North Main and Robin St.; along Cortland Pl.)

Transition
- Raised surface intersections and crossings (section wide)
- Bicycle boxes (section wide)
- Bike signals and painted trigger points (section wide)

Long Term
- Separated bike path (along North Main between Lancaster and Albany High School (AHS) west entrance; along Partridge St. between AHS greenway and State St. – Alumni Quad west entrance)
- Greenway with designated bike path (through AHS campus between North Main St. and Partridge St.; along State St. – Alumni Quad between Partridge St. and Ontario St.; abutting UAlbany Downtown Campus)
- Right of way acquisition for bikeway (Cortland Pl. and North Lake Ave.)
This is a view of a park at the intersection of Lancaster Street and North Main Avenue near where Albany High School, LaSalle School and St. Rose College are located. This is the transition point where two on-street bike lanes would merge to become one park like greenway running along the edge of the sports fields between the two schools all the way to the UAlbany Alumni Quad residences.
This mini park would be a great place for people to take a rest by providing bike racks and seating. These planting beds could be used as a community garden or a biology class garden by the high school.
Notice how the shared roadway of Lancaster Street transitions into the greenway bikeway park. Seating is provided near the sidewalk. The banners on the light poles should be standardized throughout the bikeway. This will provide consistent visual identity.
Short Term
- Signage, wayfinding, and graphic identity (section-wide)
- Striped bike lane or sharrows (along State St. between Robin St. and the Capitol; along Elk Street between Eagle and Dove; along Dove Street between Elk and Spring Street; along Spring Street between Dove Street and Henry Johnson Boulevard; through Washington Park)

Long Term
- Rationalize the intersection of Robin Street, Western Ave, State Street and Englewood Place
  - Installing a roundabout
  - Close off access to State and Washington Park from the intersection
- Washington Park traffic would flow one way into State Street
  - This would traffic calm State Street
  - This would reduce traffic in the park
- Separated bike path (south side of State St. to the Capitol)
This is a view of the proposed roundabout at the corner of Western Ave and Robin Streets. Note that there is no access to State Street or Washington Park – instead the Park road leads directly into State Street. Notice that Englewood Place has inbound access from the roundabout.
The Park road at the corner of Willett and State is closed off, so directing traffic away from the corners of the park is a familiar situation. This would traffic calm State Street, which is greatly needed, and reduce through traffic in the park. Bikers merge into the traffic lanes when approaching a roundabout. Access to Englewood Place is on the right side of the image. Notice the wide sidewalks. This creates the safest situation for bikes and pedestrians.
As this is the symbolic entrance point to the University at Albany Downtown Campus the sign at the roundabout could welcome people to the campus on one side and the Washington Park neighborhood from the opposite side. This view is from the point at which bikes would enter the roundabout from the Park and from State Street. Only bikes would be able to access State and the Park from this roundabout.
Short Term
- Signage, wayfinding, and graphic identity (section-wide)
- Striped bike lane (Eagle Street from the Capitol to Pine Street; along Pine St. between Eagle St. and Broadway)

Transition
- Raised surface intersections and crossings
- Landscaped bulb outs at each intersection crosswalk
- Change parking patterns for traffic calming-introduce reverse angled parking

Long Term
- Roundabout (in front of Capitol: Eagle St., Pine St., Washington Ave. and State St.)
- Mini three-way roundabout at Broadway and Pine Street
- Restrict vehicle access on smaller downtown streets, creating pedestrian streets
- Take parking off the street by filling in surface parking lots with underground parking garages and large urban buildings

section 8 / downtown

Area of Treatment (pages 73-75)

source: Microsoft Live Maps
This is a view looking down State Street at the crossing between the New York State Capitol (left) and the Empire State Plaza (right). Ideally, all of State Street from the northwest corner of Washington Park all the way down to Eagle Street will have a two-way separated bikeway similar to Montréal. Notice again the stained concrete bright green/yellow bikeway. This consistent is a consistent way to assist users in continuing along the dedicated bike path. Also notice the security bollards on either side of the bikeway. They serve dual purposes by protecting cyclists and the Capitol. They also have the capability to light bikeway at an appropriate level. The outside side of the bollards has reflectors to keep drivers away from the bollard.
This south entrance to the Capitol already has jersey barriers blocking off that side of the street. Taking this area currently being used for scaffolding with the jersey barriers would be perfect for the two-way separated bikeway.
This is another view of the two-way separated bikeway located where there is currently scaffolding for facade restoration. This area is already blocked off by jersey barriers. This is the best and only grade level connection to the Empire State Plaza along the Central Albany Bikeway.

Credit: All components including, people, trees, cars, bollards, light fixtures, Empire State Plaza and New York State Capitol were used from the Google SketchUp 3D Warehouse. All drawings were completed by Trey Joseph Wadsworth.
next steps

The actual final implementation of this project will not be completed without the cooperation, commitment, and foresight of the City of Albany along with a considerable number of major institutions, neighborhood groups, businesses and individual citizens. To see the Central Albany Bikeway plan become a reality, everyone involved needs to be optimistic, open-minded and flexible. A plan like this contains many details which make the whole function properly, and all should be carefully considered.

Optimally, this corridor as designed will become the centerpiece “spine” of the forthcoming Albany Bike + Pedestrian Master Plan. Ideally, a handful of large institutions would also formally adopt this plan and move it forward. The remainder of this section contains recommendations and opportunities for adoptees to successfully complete the plan as recommended.

layering

During an initial stakeholders meeting, it was suggested to the studio team that a phasing strategy be developed to realistically implement the Central Albany Bikeway. The studio project team considered this, but developed a slightly different method which is more comprehensive and more likely to move the project to completion. Phasing a project into pieces can often leave it unfinished with some sections completed and others not. Instead, a method of layering the improvements across the entire corridor is suggested — starting from pavement markings and ending with large infrastructure alterations. This table is a graphic representation of the layering applied to the Central Albany Bikeway based on the detailed proposals laid out in Appendix C.
select federal funding options

The 2005 SAFETEA-LU reauthorizing legislation restated a goal of the 1994 National Bicycling and Walking Study, which established that it would be federal policy to attempt to increase the percentage of non motorized trips to 15 percent of all trips. As a result of the reauthorization it was codified in federal law that transportation professionals involved in metropolitan and statewide planning would be required to consider the impact of proposed plans on non motorized modes, and depending on the feasibility, include bicycle and pedestrian accommodations. Additionally, various methods in which a bicycle or pedestrian project could be funded at the federal level have been described in authorizing legislation.

Some of the federal funding programs with the most potential for the Central Albany Bikeway include the Congestion Mitigation Air Quality program (CMAQ), the Surface Transportation Program (STP), Safe Routes to School (SRTS), and Transportation Enhancement Activities (TEA). However, the University could not be an independent applicant for funding. To begin financing the Central Albany Bikeway, SUNY would have to partner with Albany City, Albany County, or CDTA to lobby for funding from CDTC, the primary federal coordinator for distribution and prioritization of federal monies. It could also reach out to the private sector, and apply as part of a public-private partnership.

The Congestion Mitigation Air Quality (CMAQ) Improvement Program was authorized in 1991 as part of ISTEA, and is directly linked to 1990’s Clean Air Act (CAA). In CAA legislation, National Ambient Air Quality Standards were established as a threshold for a metropolitan area’s emissions. If an area’s emissions exceeds those standards, then it is deemed a Non-Attainment area and is eligible for CMAQ funding. Albany is located in a Non-Attainment area.

Projects considered eligible for CMAQ funding fall in a wide variety of program areas: Traffic Flow Improvements, Transit Improvements, Intermodal Projects, and Freight Projects are some of the more popular CMAQ program areas. However, Bicycle and Pedestrian Facilities and Improvements is the most pertinent program area for the purposes of this discussion. A project falls into the Bicycle and Pedestrian category and is classified as an eligible traffic

Federal funding may be used for:

- Bicycle and Pedestrian Planning
- Bicycle Lanes on Roadway
- Signed Bike Route
- Shared Use Path/Trail
- Maps
- Bicycle Parking Facilities
- Bicycle Storage/Service Center
- Signal Improvements
- Traffic Calming
The Central Albany Bikeway could cost between: $1,500,000 + $2,000,000 for the 6.43 mile route with 129 intersections

Sources:

Cost Estimate from:

- Bicyclinginfo.org’s benefit-cost analysis of bicycle facilities
- Estimates and assumptions were made for quantity of facilities and material choices
- http://www.bicyclinginfo.org/bikecost/step1.cfm

Federal Highway Administration:

- http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm#bp4
- http://www.fhwa.dot.gov/environment/cmaqpgs/06guide.htm#bicycleped

control measure if it does any of the following: Constructs bicycle and pedestrian facilities (Paths, bike racks, support facilities, etc), Includes non-construction outreach related to safe bicycle use, or establishes a full-time bicycle/pedestrian coordinator position at the state level (Source: FHWA). The CAB falls into this criteria and theoretically, would be eligible for CMAQ funding.

Surface Transportation Program (STP) funding is one of the most open-ended federal funding programs made available by the Department of Transportation. Ordinarily, STP-eligible improvements must be implemented on any Federal-Aid highway, but bicycle and pedestrian improvements are eligible for STP funding even if sited on non-National Highway System (NHS) local and collector roads. FHWA states, “Bicycle and pedestrian improvements are eligible activities under the STP. This covers a wide variety of projects such as on-road facilities, off-road trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. The modification of sidewalks to comply with the requirements of the Americans with Disabilities Act is an eligible activity.”

Additionally, DOT requires 10 percent of a state’s STP funds be set aside for Transportation Enhancement Activities (TEA). There are twelve available uses for TEA funds, and three specifically apply to bicycle and pedestrian improvements. These include: the implementation of facilities for bicycle and pedestrian use, the implementation of safety or educational activities for bicyclists or pedestrians, or the preservation of abandoned railway corridors for future trail usage.

Finally, Safe Routes to School (SRTS), which was established as part of the 2005 SAFETEA-LU reauthorizing legislation, is aimed at increasing the use of walking and bicycling among children, as well as the reduction of air pollutants in the areas immediately surrounding schools. As part of SRTS, physical improvements (traffic calming, curb cuts, on-street bicycle facilities, off-street bicycle facilities, bicycle parking, pedestrian and bicycle crossing improvements) as well as non-physical activities (education, public awareness campaigns) are eligible for funding, and given the proximity of K-8 educational facilities to the Central Albany Bikeway, SRTS should be considered an instrumental federal funding source.
A proper maintenance and operations plan is integral to the success of any bikeway corridor. The main goal is to provide comfortable and hazard-free conditions for the bike riders.

- **Maintenance strategies**
- **Maintenance policies** used by all relevant agencies should be reviewed and changed, if necessary.
- **Designers** should be encouraged to use durable low-maintenance materials preferably.
- **Encouraging bicyclists** to report maintenance problems.

**Bike lane maintenance tips**

- **Sweep pavement edges** and paved shoulders with sufficient care to remove debris (sand, gravel, glass, auto parts, etc.)
- **Better drainage** reduces sweeping and is an relatively cost-effective solution to removing debris.
- **Properly patching surfaces** requiring other agencies or private companies to do likewise whenever they dig up a road or trail.
- **Make sure pavement overlay projects** feather the new surface into the existing one or otherwise do not create new linear joints.
- **Replacing such hazards** as dangerous grates or utility covers as the opportunity arises.
- **Patching potholes** in an expeditious manner.
- **Routinely trimming encroaching vegetation**, especially on trails or popular bike routes.

**Winter maintenance**: bike lane clearing needs to take precedence over road clearing.

**Bike path maintenance** can be **piggy-backed on** regular street cleaning by the City of Albany.

*Source:*
Federal Highway Administration, USDOT
The resources, recent articles, and relevant statistics that informed the planning process of the Central Albany Bikeway are exhibited below:

resources

National Complete Streets Coalition
http://www.completestreets.org/about.html

Project for Public Spaces
http://www.pps.org/

League of American Bicyclists: Bike Friendly US Cities and info sheets
http://www.bicyclefriendlycommunity.org/AllBicycleFriendlyCommunities.htm

FHWA Bicycle guidance and funding sources
http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm#bp4

FHWA Bike and Pedestrian safety research page
http://www.tfhrc.gov/safety/pedbike/research/current.htm

Pedestrian and Bicycle Information Center
http://www.pedbikeinfo.org/

Image library – traffic calming treatments, bike boulevards, and other treatments
http://www.pedbikeimages.org/

Traffic Calming
http://www.trafficcalming.org/
A study by Portland State University Professor Jennifer Dill shows that “although only 8 percent of city streets are equipped with any kind of bike infrastructure, 51 percent of trips were taken on them. To Dill, this means that most riders are seeking out such routes, even if they are not the shortest. “People are going out of their way to use bike infrastructure,” Dill said. Roger Geller, the city’s bicycle coordinator with the Portland Office of Transportation, is excited by Dill’s findings. “Basically it confirms the story we have been telling — if you build it, they will use it,” he said. In addition, 76 percent of infrequent riders believe cars are safer than bikes, compared to 52 percent of frequent riders. And 57 percent of infrequent riders view too much traffic as a barrier to biking, compared to only 37 percent of frequent ones.” This data shows us that to get the infrequent or uncommitted riders out on their bikes in Albany, they need to have a different quality of experience — the primary mission of the Central Albany Bikeway.

NYC experienced a 35% increase in bicycle commuting in one year. This is believed to be a result of DOT efforts to provide 140 new miles of new bicycle routes in the past two years, new bike lane markings and safer designs such as on Ninth Avenue.

Sam Adams, Portland, OR Transportation Commissioner is preparing a plan to add 110 miles to the existing 20 miles of city bicycle boulevards which would, “double or triple ridership.”
This list, compiled by worldwide conglomerate the Virgin Group, was assembled using the Five E's for Bicycle Friendly Communities developed by the League of American Bicyclists: Education, Enforcement, Engineering, Encouragement, and Evaluation and Planning. The list features a dense compilation of innovations and major initiatives including video and photography which typify these destinations mostly in Northern Europe and the United States.

_Bike and Pedestrian safety through enforcement_  

New Jersey has begun a safety operation to enforce motorist laws to stop at crosswalks with pedestrians. Enforcement makes people more aware, part education.

_NYC closes streets to cars in Summer Streets program_  

In summer 2008, New York City closed certain streets throughout Manhattan allowing only bikes and pedestrians. It appeared to be largely a success – giving people a new perspective on their city. Some people who love to bike, never do inside Manhattan because it’s too frightening. This program allowed them to bike in Manhattan and feel safe for the first time. This is exactly what the Central Albany Bikeway is supposed to do for non professional riders in Albany.

_Bicycles: the secret to the happiest societies in the world?_  
Streetsblog: http://www.streetsblog.org/2008/01/18/are-bikes-the-secret-to-danish-bliss/

Denmark has been named the happiest population in the world by the first comprehensive scientific survey of global happiness. ABC news and others speculate that the bicycle has a lot to do with this phenomenon. Links are provided to several other sources.

_Spreading Complete Streets Movement_  

Cities and states are driving new policies on road construction and rehabilitation: accommodate all modes of transportation, bike, pedestrian, public transit, autos, and include appropriate street buffers, trees, and street furniture.
Cities Rack Up Public Art with Bike Racks

Cities across the United States are improving their urban landscapes through the addition of unique and functional public art in the form of bike racks. “It's just as easy to create an attractive functional item than an ugly one so why not do it?” “Street furniture is an important thing in getting people out of their cars," Risemberg says. "Having bike racks that are pretty and clever and make people feel good makes for a better civic atmosphere — it increases the viability of your downtown area." The cities mentioned in the two separate articles are Louisville, Austin, Boston, Portland, Sioux Falls, New York City, Longmont Colorado, Mount Clemens Michigan.

NYC Proposes Bike Parking Rules for New Buildings
http://www.denverpost.com/nationworld/ci_10954230

This new ordinance would require new construction to include a certain amount of weather protected, secured bicycle storage for new apartment buildings, office buildings, hospitals, universities, stores, and auto parking garages. It is similar to those already in effect in Portland and San Francisco.

All-Weather Biking
Grand Junction, CO: http://www.gjsentinel.com/rec/content/sports/stories/2008/10/28/102908_1B_OUT_winter_riding.html

Three articles in separate newspapers encourage riders to continue biking in any weather. Some of the snowiest and rainiest major cities happen to have the highest biking mode shares.

New bicycle commuting tax credit

Effective January 2009, there will be a miniscule tax credit for bicycle commuters which may be designed to have bicycle commuters forgo taxes on $20 of their income per month.
**Bicycle Sharing**


US cities have run into serious roadblocks unique to American cities in implementing bicycle sharing programs, while European nations have implemented widely popular sharing programs with advanced technologies.

**relevant statistics**

US Census bike to work data
2005 American Community Survey Data
50 metro areas with most workers age 16+

Select cities with active climate or common Albany comparison:
Portland: 3.5%
Minneapolis: 2.4%
Seattle: 2.3%
Austin: 1.3%
NYC: 0.5%

Compare to 50%+ bike mode share in Amsterdam and 20% in Copenhagen

Source: DC DOT Bicycle Master Plan pg 9

**appendix b**

On the following pages are the results of the Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis conducted to inform the studio team on which path to choose for the final recommended route of the Central Albany Bikeway.
### Option 1
**"No Build" Roundabout**

**Description**
In this option, there would be no action required, because Albany County already plans to reconstruct Fuller Road from Western Ave to Central Ave, changing three intersections into roundabouts; I-90 Westbound exit ramp, Washington Ave, and Tricentennial Drive. Reconstructing the intersection of Fuller Road and Tricentennial Drive would have a traffic calming effect, causing traffic to slow down, making it safer for bikes and pedestrians to cross Fuller Road.

**Strength**
- No cost to the university or anyone, the project is already (mostly) funded through Albany County's capital funds
- Students will be safer; instead of jumping in front of traffic because someone doesn't want to wait for the light to change, they will always have the right of way

**Weakness**
- Even though the Capital Region has a lot more roundabouts than most places, a learning curve still exists

**Opportunity**
- Loosely connect Nano College and Freedom Apartments with Uptown campus

**Threat**
- In the current economic climate, some road projects might be curtailed or postponed

### Option 2
**Tunnel under Fuller Road**

**Description**
Fuller Road is slightly higher in elevation than the uptown campus and the Nano College. A path could utilize the drainage ditch that is just north of Tricentennial Drive, and come out in the parking lot that is on the other side of Fuller Road

**Strength**
- Removing the at grade crossing will speed up traffic (with removal of pedestrian phase) and make the intersection safer

**Weakness**
- Tunneling under the road will be expensive, probably prohibitively so.

**Opportunity**
- Reconnect Nano College and Freedom Apartments with the rest of the campus.

**Threat**
- Flooding issues with the use of an existing drainage ditch.
- Security issues of a tunnel at night

### Option 3
**Pedestrian bridge over Fuller Road**

**Description**
Instead of crossing Fuller Road at Tricentennial Drive, this bridge would cross approximately 0.10 miles North as a pedestrian extension of Liberty Lane, a one way street which recently was outfitted with flashing beacons to aid pedestrians crossing University Drive.

**Strength**
- This is a more direct route from the University at Albany's academic podium than going south to Tricentennial Drive.

**Weakness**
- On the Nanotech side, parking might have to be taken for the bridge’s descent, since it is at a lower elevation than the apartments

**Opportunity**
- A welcome to UAlbany Sign on the bridge could be incorporated and create a focal entry point to the entrance of UAlbany
- Could incorporate public art built by the art department or sculpture studio of UAlbany
- Could have the architecture that communicates with the existing style of Nanotech architecture

**Threat**
- Potential Cost
## Option 1

**Utilize Purple Path**

**Description**
The Purple Path segment to the south of the campus was completed in early 2008. It is the demonstration segment and could be utilized in the Central Albany Bikeway.

**Strength**
- Largely based on existing infrastructure
- Links to Western Avenue

**Weakness**
- Path deviates far to the south
- Path is longer to navigate

**Opportunity**
- Path utilizes existing connection between University and Harriman Campus
- Utilize and incorporate the brand new Purple Path

**Threat**
- University likely wants connection to Harriman Campus to remain closed
- Users could get lost with the number of turning points

## Option 2

**Traverse the campus through the center behind Dutch and Indian quads**

**Description**
Going straight through the center of the campus would provide a straightforward path along mostly existing infrastructure. It would utilize a wooden path through the woods on the east side of the campus to connect to the Harriman Campus.

**Strength**
- Direct route through campus
- Well connected to center of campus and points of interest

**Weakness**
- New infrastructure will have to be built
- Unbuilt section has large grade change

**Opportunity**
- Center of campus route may be used for BRT - potential connection to BRT
- Path avoids major traffic points on university campus (as of now)

**Threat**
- Center of campus route may be used for BRT - could trump or compete against bikeway

**Note**
Both options utilize the outer lane of the outer ring road around the Harriman Campus
### Option 1
**Description**
Uses signage to convey the shared use of the road along with a change in traffic flow. Autos will be prevented from using to the Outer Ring to access to Brevator and will instead have to continue on towards I-90 and the second bridge. This will free one lane or approximately ten feet. The remaining two feet can be taken out of the two lanes. Bicyclists will be directed straight to Brevator.

**Strength**
- Least expensive of the options

**Weakness**
- Bicyclists will be expected to ride with traffic
- There are numerous turning movements at peak hours of travel

**Opportunity**
- Can be constructed the quickest

**Threat**
- Safety concerns may prevent anything from being built

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### Option 2
**Description**
Separate users by constraint of access. Riders will use the same bridge to cross over NY 85, however there will be a Jersey Barrier separating the two bicycle lanes from the traffic using the access to I-90, which will now go on a single lane around the corner. Brevator will be used for access to Melrose Bicycle Boulevard. On Brevator there will be a separated and dedicated path on each side of the street for each direction of travel.

**Strength**
- A moderate costing solution with limited capital construction costs

**Weakness**
- Introducing new movement patterns to the Outer Ring Road may have the potential to create accidents

**Opportunity**
- Allows a wider range of users and abilities levels to feel comfortable using the path

**Threat**
- DOT approval is needed to close ramp

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### Option 3
**Description**
A dedicated bridge built across NY 85 for both pedestrians and bicyclists as the main point of access to the Melrose Bicycle Boulevard. The bridge can either run straight along with the Outer loop or be realigned to provide a center connection with Brevator.

**Strength**
- Completely separates users from vehicle turning movement; provides high level of comfort

**Weakness**
- Bicycle traffic will still have to negotiate difficult sections of the outer ring road

**Opportunity**
- Allows the potential for a completely straight path between the SUNY Uptown Campus and Melrose if the path is constructed down the center of the Harriman Office Campus.

**Threat**
- DOT Approval will be needed for construction of the bridge and the closing of NY 85
- Loss of momentum; cost may prevent any preliminary steps taken for several years
**Option 1**  
**Melrose Ave Alignment**

**Description**  
This section is a quiet neighborhood with narrow streets and grassy sidewalks. Melrose is the only street which goes continuously from the west side (Brevator) to the east side (Winthrop Ave and hopefully Manning Blvd someday). There are many four way stops here, which are opportunities for community traffic circles which require nothing more than a small garden in the middle and removal of stop signs for yield signs, keeping bike traffic flow moving.

**Strength**  
- Infrequent use; low traffic volume; low speeds  
- Represents the easiest “textbook” street/neighborhood to implement traffic calming in this project

**Weakness**  
- Difficulty connecting it with adjacent segments of the Bikeway: Brevator in west, Manning in east

**Opportunity**  
- Neighborhood Association along Melrose Avenue already advocating bikeway (Source: Neighborhood Association Website)

**Threat**  
- NIMBY objections  
- Right-of-Way issue at Manning Boulevard

**Note**  
To connect the Harriman Campus section to the Manning Blvd neighborhood, while adhering to the goal of avoiding busy higher speed roadways, this is the most logical route.
### Option 1  
**Break through discontinuity**

**Description**  
Currently Melrose Avenue stops at Winthrop making a direct connection across Manning Boulevard and onto Lancaster Street difficult. Find properties that can have their driveways reclaimed for the bikeway; through eminent domain or easements.

**Strength**  
- Keeps the bikeway route linear and uncomplicated
- Manning Boulevard wide enough to add bike lanes
- Keeps cyclists away from Washington and Wester which is too busy

**Weakness**  
- Damaged pavement
- Potentially too hilly to make bike path from Melrose to Lancaster.
- Narrow paths resulting from narrow property acquisitions resulting in slow rides

**Opportunity**  
- Elementary schoolers and faculties members would be pleased to bike to school in the area
- Providing the residents and visitors with opportunities to enjoy beautiful natural environment of the neighborhood

**Threat**  
- Possible conflicts with eminent domain
- Neighborhood opposition to bikeway bringing people through the neighborhood

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### Option 2  
**Work around discontinuity**

**Description**  
Avoid issues with property owners by going around the discontinuity. This option would result in bicyclists being routed out to Washington and Western Avenues depending on the direction they are traveling in.

**Strength**  
- Allow for quick implementation of plan with limited issues from nearby residents

**Weakness**  
- The path would become complex and would not provide the level of service needed to induce ridership and tap latent demand for bicycle riding opportunities among non-committed cyclists

**Opportunity**  
- Will allow for the Bikeway to be implemented while a long-term Option 1 is negotiated

**Threat**  
- Level of service issues on Western and Washington could inhabit ridership on the bikeway and limit its success and viability
**Option 1**  Greenway through High School and Alumni Quad properties

**Description**  Through this area the corridor would run behind the Albany High School building and the sports fields along an existing path; then continuing and cutting through to University at Albany / St. Rose Alumni Quad at Partridge Street. It would then continue along the back side of Alumni Quad which leads State Street and eventually to Western Ave and Washington Park.

**Strength**  
- The segment of Western Avenue in this section has relatively calmer traffic as compared to other segments uptown  
- State and Spring streets between Ontario and Cortland Place provide parallel one-way routes running in opposite directions  
- Utilizes existing infrastructure that is low traffic or no traffic in certain stretches

**Weakness**  
- Some intersections within the section are high traffic areas; ie: North Main and Western and South Lake and Western  
- Road surface conditions need to be improved  
- This segment of Western Avenue accommodates a volume of CDTA, UAlbany and St. Rose busses, which could potentially decrease the riding comfort of those traveling by bike

**Opportunity**  
- Provide a connection that links four campuses including dormitories and student housing so that students could avoid auto use  
- Creation of a greenway in front of the UAlbany Downtown Campus would foster identity and a sense of place for the University  
- Such a greenway would provide a natural segue into Washington Park  
- Addition of a roundabout at the intersection of Robin, Western, State and Washington Park would create a front door to the University and provide a better link between the campus and the park  
- The corridor could have a positive impact on this area, which is commonly viewed as problematic in regards to housing and the student population  
- CDTA and university shuttles could be linked for multi-modality

**Threat**  
- Routes run through Albany High School and University at Albany properties which could draw neighborhood concerns of student traffic through quieter neighborhoods  
- Deterioration in the quality of housing, specifically between Ontario and the Downtown Campus could potentially affect safety and security as well as aesthetic qualities  
- One other potential route that would provide a connection between Cortland Place and Ontario is blockaded by existing structures

**Note**  To connect the Manning Blvd neighborhood, Alumni Quad, and the UAlbany Downtown Campus, to the Washington Park area, the route presented is the most logical route which meets the objectives of being straight, flat, direct, low-speed and low-volume.
### Option 1  
**On City Streets**

**Description**: Utilize State Street from western corner of Washington Park to the Capitol, likely with a two-way separated bike lane

**Strength**:  
- Straight, direct, and intuitive  
- Many bikers will likely go straight down State because it’s direct and without grade changes  
- If people want to access the park it is extremely easy  
- Bypass the impenetrable side of the Empire State plaza (Swan Street and DMV Building)

**Weakness**:  
- State is one of the busiest streets in the Center Square neighborhood; lots of cars parallel parking  
- State is a one way street going downtown  
- A two-way separated bicycle lane would be necessary on one side of the road; this could be expensive  
- Would potentially require moving parking capacity to new neighborhood parking garages and lots currently used by the State of NY

**Opportunity**:  
- Lark Street BID could support the effort  
- Businesses in Center Square could attract nearby residents to patronize their businesses without a place to park due to low capacity  
- Removed parking along State St could gives Albany a reason to start neighborhood on-street permit parking system "again"

**Threat**:  
- Possible neighborhood resistance to redistributing parking capacity through new parking garages or State owned parking lots  
- In the short term a different route would have to be chosen for westbound bikes until a permanent separator is installed

### Option 2  
**Through Park**

**Description**: Utilize Washington Park and less traveled streets in Center Square neighborhood. Likely split path with eastbound bikes going toward the riverfront traveling through Washington Park and then State Street, while westbound bikes would travel up State Street, across Swan and up Lancaster, and through Washington Park.

**Strength**:  
- Would utilize less traveled streets  
- Would require less intensive construction efforts

**Weakness**:  
- Unnecessarily circuitous route  
- Many people not likely to follow route because it is not the straightest most direct route; creating unsafe situation on State Street by default  
- Connection would be made to Lancaster; it is one way in the wrong direction for one block  
- Swan Street is one way in the wrong direction for this option  
- Washington Park is currently a bit dangerous for bikes, with curves at odd angles, forward visibility is greatly impaired

**Opportunity**:  
- Leaves an opportunity to direct the path through Washington Park, which is a leisurely ride

**Threat**:  
- Park closes after a certain hour  
- Festivals and events in park would sever connectivity of corridor  
- Washington Park can be unsafe at night
Option 1
Dual Paths in Pedestrian Zones

| Description | This option features two paths going in opposite direction through downtown Albany, connecting at the Hudson River Way Pedestrian Bridge. Eastbound: From State Street toward the waterfront, utilize the extra width of State Street hill after Eagle Street; turn on North Pearl and connect to the bridge pedestrian-oriented Maiden Lane. Westbound: From the bridge, turn north on James Street and follow already established pedestrian-only zones up Steuben Street and between the Court of Appeals and County Court. From Eagle street continue up Elk Street to Dove, crossing back over to Spring Street to head uptown. |
| Strength | • Use of two established pedestrian-only zones will let bicyclists ride free of competition from autos • Uptown path at the steepest grade of the project is on a low-volume streets which will let the rider move slowly uphill • Nearby access to buses but do not directly interfere with main bus routes and planned BRT stops • There are small businesses that could attract a family audience on weekends |
| Weakness | • Eliminates some on-street parking • Presently no businesses in these pedestrian zones are open after 5 PM or on weekends |
| Opportunity | • Could bring some life to downtown after 5 PM and on weekends • Could make Elk Street feel more traveled, safer, and attractive with bicyclists regularly traversing it • Give more people a reason to move and to live downtown, near the waterfront |
| Threat | • Offices and businesses who want to keep all street parking • Political agendas, and the stagnation of Albany and NYS politics dragging out implementation therefore increasing costs |

Option 2
Dual Paths on Street

| Description | This option is similar to option two, except it is far more direct: simply utilizing State Street and Pine Street to get to the waterfront bridge in the Eastbound direction, and Pine Street and Elk Street in the westbound/uphill direction. |
| Strength | • Simple, direct path to the waterfront, more intuitive • Uptown path at the steepest grade of the project is on a low-volume streets which will let the rider move slowly uphill • Nearby access to buses but do not directly interfere with main bus routes and planned BRT stops • There are small businesses that could attract a family audience on weekends |
| Weakness | • Eliminates some on-street parking • The intersection of Pine and Washington and Eagle would require a major investment and reengineering • Does not feature direct access to many destinations along the route |
| Opportunity | • Could bring life to downtown after 5 PM and on weekends; give people a reason to move and to live downtown, near the waterfront • Could make Elk Street feel more traveled, safer, and attractive with bicyclists |
| Threat | • Offices and businesses who want to keep all street parking • Political agendas, and the stagnation of Albany and NYS politics dragging out implementation therefore increasing costs |
appendix c

Detailed plans and instructions for each section – segment by segment – in short-term and long-term, are exhibited below in full detail of how the Central Albany Bikeway is recommended to be built.

system wide
Lighting, wayfinding, public art
‣ A system wide lighting design should focus on low level path lighting rather than high overhead street lamps
‣ Backlit wayfinding kiosks with maps should be scattered across the corridor
‣ A consistent pedestrian-level wayfinding initiative would direct people to major streets and buildings nearby
‣ Establish a bicycle corridor graphic identity
‣ Public art is a good way of creating a linear path of things to discover, a path of linked public spaces, a path that is an experience in and of itself
‣ Public art similar to the large scale initiatives of the Sustrans National Cycling Network in the UK will bring some life and attraction to certain sections which are void of stimulus otherwise

section 1 / nanotech

Stuyvesant Plaza

Short Term
‣ Bike lanes within Stuyvesant Plaza striped
  ‣ On the west side of the plaza currently there is 30 feet of travel space which includes the fire lane.
  ‣ The eastbound bikes will ride in the striped areas on the right side of traffic, and the westbound bikes can ride in the fire lane.
  ‣ Bike lanes continue out of the back of Stuyvesant Plaza, turning right onto Tower Drive.
  ‣ On the east side of Tower Place, head in parking may need to be changed to back-in angled parking or parallel parking to allow for bicycle safety. Parking on the west side many need to be altered too.

Long Term
‣ Off-street portion on utility line right-of-way
  ‣ Utility line right of way begins at the intersection of Tower Drive and Executive Park Drive
  ‣ The path would go up the ramp at the current CDTA bus shelter, which has already been widened.
The off road, paved bike path (which needs to be graded and leveled out) continues on the utility right of way, crossing Providence Street and Mercer Street.

The path continues on a northwest course, behind the UAlbany Freedom Apartments to Tricentennial Drive.

**Justification**

- This is a logical connection to make from the Nanotech campus to Stuyvesant Plaza. UAlbany Nanotech is a landlocked campus largely of parking lots, the people working there need to be connected to the outside world using non-motorized transportation
- Nanotech needs to be attractive to the “creative class” and this is the type of infrastructure necessary

**Nano Tech Campus**

**Short Term**

- On the Nano Campus portion of Tricentennial Drive, the bike lanes operate as a shared roadway
- The intersection of the Freedom Apartment access road (Jose Marti Drive) could be reengineered as a simple one lane roundabout.
- From Freedom Apartments to Fuller Road, the eastbound bike lane would operate as a separate lane, since it is uphill
  - The westbound bike lane would be a shared lane, since it is downhill.
- The intersection of Tricentennial Drive and Fuller Road will soon become a roundabout in the County Fuller Road reconstruction plan.
  - On the main UAlbany campus, Tricentennial Drive westbound is uphill, so it has the separate bike lane, and eastbound is downhill, so it is a shared lane.

**Long Term**

- In the long term the bike path will not use Tricentennial Drive on the Nanotech Campus, it will use a dedicated alignment and bridge over Fuller Road
- The intersection of Freedom Apartments and Tricentennial Drive would ideally be a simple one lane roundabout
- The path proceeds in shared lanes across the front of the newest NanoFab East Building.
- The area between the parking spaces and the building will be a paved and landscaped bike path
  - An awning is added to the roof of the building, matching its architecture, to protect the bike path.
- The path gradually rises so that it can go over Fuller Road.
- The path crosses through a completely enclosed bridge over Fuller Road, that matches the pedestrian bridge between NanoFabs North and East,
- The bridge lets out onto Liberty Lane, which would been re-striped as a three way street. At the intersection of Liberty Lane and Campus Drive, the bike lane turns south onto the purple path.
Justification

- This bridge will become the signature gateway to the University
- This is an opportunity to showcase the materials innovations created by Nanotech
- This is a much safer way to cross Fuller Road, and the large volume of student pedestrian traffic warrants such an improvement

Uptown Campus

Long Term + Short Term

- The path turns away from University Drive, and into the Dutch Quad parking area
- To protect the continuity of the path, several speed tables would be required through the parking area, so the bikes do not have to change grade.
- Utilizing the current sidewalk alignment the path would meet Dutch Drive behind Dutch Quad, to go across campus

section 2 / ualbany + harriman

UALbany Campus Route

Short Term + Long Term

- Short term: Use sharrow shared lane markings along existing roadway behind Quads
  - Long term: Ideally served by a straightened and separated bicycle path
- Route bicycle and pedestrian corridor along small service road behind Dutch and Indian Quads
- Bicycle storage:
  - The University should adopt dedicated, covered, locked bicycle storage at each residence quad, on both ends of the Podium, at the athletic facilities and at the apartments.
  - The George Washington University Medical Center Washington DC Metro station is an example.

Justification

- This gives access to the core of campus – the Podium, two major quads, athletic facilities, the main bus stop, campus center, University Police Department, nature trail around pond
- Plenty of room, little vehicle traffic
- This routing would be complimentary to Purple Path, designed to encourage people who are going commuting to work or going to class, different audience than Purple Path
- Would not require a tremendous investment as infrastructure is largely existing
Harriman Office Campus Connection

Short Term + Long Term
- The connection to the Harriman Office Campus is best made through the area currently with a dirt path across from the intersection near the University Police Department, straight into the outer loop of the Harriman Office Campus
- The outer lane of the three lanes should be separated with a landscaped median or a jersey barrier;
- this would be a two way path, so a barrier would be necessary
- At points where there are turn offs on the outside lane, the protective barrier would end, and there would be warning signs for vehicles to watch for bicycles which have the right of way
- Bicycle-safe storm grates would need to be installed
- Raised, colored crosswalks for the path would help slow down turning cars coming on or off the loop road

Justification
- The outer lane has few curb cuts for turning vehicles, therefore is the safest, most direct option
- When Harriman is finally redeveloped, a path routing through the middle should also be considered
- The neighborhood roads which come close to the south side of the office campus would ideally be connected on the outer loop

section 3 / route 85 crossing

Bridge over Route 85 to Brevetor

Short Term + Long Term
- The outer loop bridge was recently reduced to two lanes, leaving plenty of space to continue the separated bike corridor across the bridge and straight into Brevetor.
- The intersection of the State Route 85 off-ramp, Brevator Street, Belvidere Avenue, and the exit off of the outer loop road would need to be rationalized
- Brevator is an overbuilt street
  - Initiate a road diet, separated bike lanes on both sides with landscaped medians would be feasible while maintaining on-street parking

Justification
- Utilizing the striped off portion of the Harriman Campus Loop road on the bridge over route 85 would significantly reduce costs by eliminating the need for a new bridge across Route 85
- Brevator represents the most obvious case for a road diet in the city.
section 4 / melrose avenue

**Short Term**
- Designate as a “traffic calmed bicycle boulevard”
  - 1: Shared lane for auto traffic and bicycle traffic, marked explicitly with sharrows (shared lane arrows) and hanging signage
  - 2: Small neighborhood traffic circles at most intersections
    - These allow the cyclist to conserve energy and maintain momentum
    - Auto traffic would then need to simply slow down and yield
  - This design is based upon those already built in Berkeley; Palo Alto, CA; Portland, OR; and Vancouver, BC, many are landscaped by the local community

**Long Term**
- 3: Bulb outs at intersections or mid block crossings could be used to visually narrow the street
- 4: Speed tables with textured pavements at crosswalks would calm traffic and make pedestrians more visible
- 5: Traffic diverters at certain intersections would greatly reduce conflict points at some intersections by re-routing traffic
- 6: Street access limiters would be used at some points, such as the intersection of Brevetor and Melrose – where traffic would be able to enter Melrose at this point, but not exit Melrose at this point.

**Justification**
- As defined in Berkeley’s 2000 Bicycle Plan a Bicycle Boulevard is, “a roadway that has been modified, as needed, to enhance bicyclists’ safety and convenience. It provides better conditions for bicyclists while maintaining the neighborhood character and necessary emergency vehicle access.” (Page 4-2).
- Key component of bike boulevards: increase visible cues in streetscape to reinforce to drivers that the space is shared, all of these treatments fulfill this
- Bike Boulevard allows bicyclists to assert themselves in the flow of traffic, forcing auto traffic to yield accordingly, these treatments fulfill this mission
section 5 / manning discontinuity

Short Term
- Traffic calming measures in the Melrose neighborhood may include restricted access for Melrose Ave to right turn coming from Winthrop only to further traffic calm the neighborhood and reduce conflict points
- The neighborhood has sufficient connections to other streets that such a turning restriction would not be a problem
- Sharrow arrows would be necessary along Melrose, Winthrop, and Manning Boulevard.
- Because of the discontinuity of Melrose and Manning, the bikeway would have to go around Manning using Western and Washington Avenues.
- Ideally, the bicyclist would be directed to turn in a direction which is opposite most people would expect, in an effort to keep them from crossing traffic on Western or Washington
- An eastbound biker would turn left at Winthrop, and take two rights on Washington Ave to get back to Manning Boulevard, thereby not crossing high volume traffic on Washington
- A westbound biker on Lancaster Street would turn left at Manning Boulevard, so they could take two rights at Western Ave and get back on the path at Winthrop and Melrose, thereby not crossing high volume traffic on Western
- The outside service roads on Manning Boulevard would be slow enough for this project with proper shared lane markings

Long Term
- The ideal long term solution to this discontinuity at Manning Boulevard would be to acquire a right-of-way between the homes on Winthrop and Manning, in order to access Manning Boulevard.
- This could be achieved using a variety of methods: In the 80s Seattle explored purchasing homes, changing their deeds, and selling them, hopefully for a profit or keeping them for affordable housing
- In the 70s, Albany acquired tens of square blocks for the Empire State Plaza, so one right of way should not be too difficult.

Justification
- This is a critical point in the project path, and without this portion, the effectiveness of the entire project will be in question.
- Presumably the Manning Boulevard neighborhood and the Melrose neighborhood have a desire to be linked to their fellow neighbors. In this case, the park at the end of Melrose Avenue should be directly linked. The park
will then be more easily reached by neighbors. This is one of the only portions of the project path which has a discontinuous street grid.

section 6 / mid-city

Lancaster Street to North Main Street

Short Term
• Striped bicycle lane
• Route-directional and safety signage

Long Term
• Bicycle boulevard
• Addition of bicycle signals at the intersection of Lancaster St. and N. Allen St. with bicycle boxes and paint on trigger points

Justification
• This stretch of Lancaster Street between Manning Boulevard and North Main St. is situated in a quiet residential neighborhood with a low volume of automobile traffic traveling at low speeds.
• Implementation of bicycle boulevards in neighborhoods with similar characteristics and traffic patterns has proven successful in cities such as Portland, OR and Berkeley, CA.

North Main Street

Short Term
• Striped bicycle lane between Lancaster St. and Western Ave.
• Route-directional and safety signage

Long Term
• Addition of traffic and bicycle signals with bicycle box and paint on trigger point at the intersection of N. Main St. and Lancaster St.
• Raised surface at intersection
• Crossing designated by striped lane or brick pattern
• Flashing lights on crossing surface controlled by bollards with sensors are proposed as an alternative to traffic and bicycle signals
• Bicycle lane separated by curbing or landscaping between the intersection of Lancaster St. and N. Main St. and the entrance Albany High School athletic fields
Justification
- Traffic on this stretch of N. Main St. between Western Ave. and Washington Ave. is at a higher volume with higher speeds.
- The addition of intersection treatments mentioned in the long-term proposals above would be necessary for the following reasons:
  - to ensure the safety of bicyclists in this segment
  - to mitigate potential congestion that may result from the demand this project is trying to attract

North Main Street to Partridge Street (Albany High School Campus)
Short Term
- Alternative route: striped bicycle lane along Western Ave.
- Route-directional and safety signage
Long Term
- Greenway with designated bicycle path between Albany High School buildings and athletic fields

Justification
- In adherence to the project’s goal of creating a “spine” the best option is to route the corridor through the Albany High School property, bisecting the campus’s buildings and athletic fields.
- An access road bisecting the buildings and fields currently spans approximately two-thirds of the way through the property.
- The proposed greenway would be constructed adjacent to the south side of this access road spanning the entire length of the property between N. Main St. and Partridge St.
- The greenway would effectively compliment the campus setting. It would abut the athletic fields thereby creating a space similar to a park.

Partridge Street
Short Term
- Continuation of short-term proposals outlined in previous segment
Long Term
- Raised surface crossing
- Crossing designated by striped lane or brick pattern
- Flashing lights on crossing surface controlled by bollards with sensors
• Bicycle lane separated by curbing or landscaping between the proposed crossing at the Albany High School greenway and the intersection of Partridge St. and State St.

Justification
• Traffic on this stretch of Partridge St. between Western Ave. and Washington Ave. travels one-way heading north at low volume and low speed.
• The addition of intersection treatments mentioned in the long-term proposals above would be necessary to ensure the safety of bicyclists in this segment.

State Street (including Spring Street parallel segment)

Short Term
• Continuation of short-term proposals outlined in previous segment
• Route-directional and safety signage

Long Term
• Within the sub-segment between Partridge St. and Ontario St. a greenway with designated bicycle path is proposed.
• The proposed greenway would be constructed adjacent to the north side of State St. spanning the entire length of the property between Partridge St. and Ontario St bisecting Alumni Quad and Beverwyck Park
• Raised surface crossing at intersection of Ontario St. and State St.
• Crossing designated by striped lane or brick pattern
• Flashing lights on crossing surface controlled by bollards with sensors
• Bicycle lane separated by curbing or landscaping spanning Ontario St. between State St. and Spring St.
• Parallel bicycle boulevards along State St. and Spring St. with intersection treatments similar to other segments within the section at Quail St. crossing.
• Traffic on State St. currently travels one-way from east to west
• Traffic on Spring St. currently travels one-way from west to east

Justification
• The greenway would effectively compliment the campus setting at Alumni Quad. It would abut both the campus and Beverwyck Park.
• The proposed greenway would provide a better link to Beverwyck Park which currently lacks a direct access link with the campus.
• State St. and Spring St. are situated in a quiet residential neighborhood with a low volume of automobile traffic traveling at low speeds.
Right-of-Way Acquisition between Cortland Place and Western Avenue

**Short Term**
- Bicycle lanes along Cortland Pl. connecting Spring St. and State St. to Western Ave. or a continuation of short-term proposals outlined in previous segment
- Route-directional and safety signage

**Long-term**
- Right-of-way acquisition for bicycle path connecting Cortland Pl. and N. Lake Ave.
- Crossing designated by striped lane or brick pattern at N. Lake Ave.
- Flashing lights on crossing surface controlled by bollards with sensors

**Justification**
- In adherence to the project’s goal of creating a “spine” the best option is to route the corridor through the block between Cortland Pl. and N. Lake Ave.

Western Avenue (University at Albany Downtown Campus)

**Short Term**
- Continuation of short-term proposals outlined in segment 6.3
- Route-directional and safety signage

**Long Term**
- Greenway with designated bicycle path spanning the segment of Western Ave. between N. Lake Ave. and intersection at Robin St.

**Justification**
- Creation of a greenway in front of the University at Albany Downtown Campus would foster identity and a sense of place for the University.
- Such a greenway would provide a natural segue into Washington Park

section 7 / center square

State Street / Washington Park / Center Square / Empire State Plaza

**Short Term**
- The east and west directions of the path would have to be separated in the short term due to one-way streets
• From the northwest entrance of Washington Park, moving east, route the path along State Street with sharrow markings (shared lane arrows)
• Moving west: Come up the hill on Elk Street – stripe a bike lane or use sharrows. At the end of Elk cross over to Spring Street, continue to the end of Spring Street and re-combine the path at the intersection of Henry Johnson Boulevard and State Street
• Introduce Sharrows (shared lane arrows) to Washington Park roadways to encourage cycling in the park
• Provide continuous Bike corridor directional signage and motorist warning signs
• Re-educate public to watch for bicycles when opening doors parking on streets

**Long Term**

• Rationalize the intersection of State Street / Western Ave / Robin Street / Englewood Place with a landscaped roundabout
  • This could serve as the symbolic entrance of both Washington Park and UAlbany Downtown Campus
  • Close off access to State and Washington Park from the intersection
  • Washington Park traffic would flow one way into State Street, and not touch Western Ave
  • This would traffic calm State Street
  • This would reduce unnecessary through traffic in the park
  • Englewood Place would be one way in from the roundabout, and one way out into the park
• Insert a two-way separated bike lane on the south side of State Street through the park neighborhood with a small separation curb similar to the separated urban system used in Montreal
  • Along the park, a few feet of park property would be needed to accomplish this layout
  • This is the safest method to deal with two way bike traffic on a one way street
  • Several ways of dealing with parallel parking in the area
  • Separate enough to avoid door swinging problem
• Continue the two-way separated path down State street through Center Square to Capitol and Empire State Plaza
  • Pavement width currently is 35 feet
  • The traffic lane width reduced to 10-12 feet,
  • Two-way bike lane 10 feet wide
  • Separation curb at 1-2 feet wide
  • Trucks should be restricted
    • To maintain a wider separation curb or a wider vehicle travel lane
  • Two major options to avoid taking away parking:
• 1: Neighborhood permit parking similar to many other cities would be applied to Center Square
  • Parallel parking could be narrowed to 6 feet w/ parking restriction for compact cars only on State
  • This would have a net zero effect because it would simply shift around neighborhood parking
• 2: Long-term scenario would be to ensure all neighborhood lots, especially the Robinson Square lot are
  open to residents after working hours
  • Any city or state owned lots developed would have a limited number of spots, and all landlords in the
    area would be issued a limited number of permits to distribute as they see fit
  • City or State should construct a large underground/above ground parking garage with street level
    commercial space on the current Robinson Square parking lot, and allow resident parking after 4pm
    and on weekends

section 8 / downtown

Capitol / Eagle + Pine at City Hall

Short Term
• Re-stripe State Street to include a bike lane, possibly even coloring it
• Re-stripe this intersection by including a bike box where State Street meets Eagle Street
• Re-configure the landscaped circle at City Hall to be a larger triangular curbed instillation to influence proper
  traffic flows and eliminate illegal parking, to improve sightlines and discourage illegal maneuvers
• Rationalize the intersections: eliminate option to turn left onto Washington Ave from the City Hall Circle
• Optionally, entirely eliminate southbound Eagle Street access to Washington Ave from the Court of Appeals
  (make Eagle directly in front of City Hall one-way Northbound) and force all westbound Pine Street traffic to turn
  right only, therefore all access to Washington Ave from either street would require vehicles go up Elk to the traffic
  signal at N. Hawk Street

Long Term
• Combine the awkward intersections of Eagle Street, Pine Street, Washington Ave, and State Street
• Construct a ceremonial roundabout centered on the Capitol connecting all of these streets
  • This would be similar to the grand park-like monuments and fountains that occupy critical traffic circles and
    viewscapes in cities like Paris and Madrid
  • This would allow for a constant flow of traffic through all four streets without stopping at long signals
  • This would dramatically improve the safety of this area for pedestrians which is currently very dangerous
  • Depending on the final design, it could provide a better bus-stop turn off area
Would be far safer for bicycles compared to the current design of the two separate intersections
While using a small amount of the park in front of the Capitol, it would dramatically increase the amount of green space in the area, and establish a more aesthetically enjoyable setting to the most critical institutions in the city – the Court of Appeals, the Capitol, City Hall, the County Court, Academy Park and State Street
If made large enough, it could provide a good space for a protest zone, as Capitol park is now used as such
Roundabouts are proven to be safer, more reliable and cheaper from any measure
* http://www.iihs.org/research/topics/roundabouts.html

Pine Street / Broadway

Short Term
* The majority of what is outlined for this section of downtown can be done in the short term with minimal cost, however there are some specific ideas which could be implemented first:
  * Switching to diagonal back-in parking and closing off some streets to cars
  * striping bike lanes and bike boxes and loop detector markings
  * improving pedestrian and bicycle wayfinding, which has already begun
  * improvements in bicycle parking have started and need to be expanded
  * Major lighting improvements would come with re-pavement of sidewalks and travel lanes as prescribed
  * new vehicular signage and sharrow markings would be a a good first step to sensitize people
  * Bicycle compatible stormwater grates
  * consolidated newspaper concessions and street furniture

Long Term: “Holistic Approach to Downtown”

Creating a new vibrant downtown
* The downtown zone bounded by State Street, Columbia Street and Broadway could become a network of pedestrian streets similar to Old Montreal, which also has a tight grid up against the riverfront
  * In this case Pine, Columbia, Eagle, State, Pearl and Broadway would be the major vehicle thoroughfares
  * Corning Place (next to City Hall), Lodge Street, Steuben Street, Chapel Street, James Street, and Maiden Lane would become pedestrian-focused or pedestrian-exclusive streets
  * These streets are currently used mostly by people trying to find parallel parking, they are not through streets
  * Most of Steuben Street and Maiden Lane are already restricted pedestrian-only zones
  * Traffic calmed vehicle and delivery access would still be available on some streets

Parking Solutions
• Parallel parking capacity on many of these streets would be replaced by:
• expanded diagonal back-in parking along most of Pine Street
• expanded diagonal back-in parking on Lodge Street between State and Pine
• Traditional parking meter system would be replaced with consolidated solar powered block meters similar to
  the system in use in Montreal, parts of NYC, and other major urban areas
• The City needs to designate **off street** metered public parking in the downtown area
• Any new buildings in the downtown area should have underground parking garages integrated into design
  • There are three major empty surface parking lots which are the perfect redevelopment opportunities for
    the city to fill in the urban landscape/streetscape, offer underground municipal parking, better utilize
    valuable land in downtown, and make people feel safer especially after business hours
    • Remember: surface parking lots are giant voids in the urban landscape!
    • North Pearl and Sheridan Ave at the Hampton Inn and First Church
    • Empty surface at Broadway and Orange lot at the DEC building
    • The empty surface a State and James street at Bank of America ATM

**Desired treatments**
• Surfaces, aesthetic treatments and amenities
  • Sidewalks on all streets would need to be widened
  • All sidewalks would be paved in red brick, similar to Portland, ME and Boston, MA
  • All streets in this zone would be paved using cobblestones or granite pavers for aesthetic and traffic
    calming
  • Widest streets would have wide sidewalks with designated outdoor eating areas, permanent public
    sculpture, and landscaped buffers separating the street
  • Street trees would be essential to the welcoming streetscape
  • All newspaper concessions would be consolidated into single, clean dispenser units similar to Chicago
  • Bicycle compatible stormwater grates
  • landscaped sidewalk bulbouts would be integrated into every crosswalk and intersection
  • covered and/or locked and enclosed bicycle parking located at strategic locations
  • City incentives for offices installing shower and changing facilities, and indoor secured bike parking

**Lighting**
• Lighting in this zone would be low pedestrian level lighting,
• the lighting priority should be the sidewalks, not the street pavement
• Fun sidewalk lighting opportunities – embedded runway LED’s
Grants given to buildings that invest in energy efficient night time architectural lighting

**Intersections**
- Ideally, traffic signals, crosswalk signals, and vehicle signage would be consolidated into one unit similar to Troy, NY, Portland, OR, or Calgary, AB
- Raised intersections and speed tables for any mid-block crossing would be preferable
- Turn restrictions may be necessary at some intersections similar to State Street hill restrictions

**Bike Corridor**
- Ideally, a bike lane would be separated from the back-in parking on Pine by curbing, similar to the Montreal model, if not the bike lane could stay on the travel lane side of the parked cars
- A simple striped bike lane could also work on Pine with back-in diagonal parking
- All intersections with traffic signals would have colored “bike box” stop line waiting areas for safety
- Bicycle loop detector pavement markings would be marked at signalized intersections

**Wayfinding**
- All intersections would have the street names engraved onto the sidewalk similar to Seattle and Pittsburgh
- The city would need to expand upon recent investments in pedestrian signage with more kiosks
- Street signs for State Street and Pine Street would have a bicycle symbol to indicate where the path goes
- State Law Yield signs integrated into crosswalks

*Broadway at Hudson River Way Bridge to Hudson River*

**Short Term**
- Insert metal guideways on stairs at Hudson River Way Bridge or signs directing bikes to elevators
- Reduce the width of Broadway at this intersection, or add a landscaped median in the extra striped area
- Add sharrows (shared arrows) and/or bike lane markings
- Add a bike box to the intersection
- Place Capital Region bike-hike maps at kiosks to describe connections to regional bikeways

**Long Term**
- Mini three-way roundabout at intersection of Pine and Broadway
  - Plenty of space for a three-way roundabout
  - Broadway in this area is extra wide, perfect for a tree-lined median island leading to a roundabout
  - Would keep broadway traffic moving
  - Would add some green space to the broad sea of asphalt that is there now
  - Roundabouts are extremely pedestrian friendly
- roundabouts keep traffic moving, and are significantly safer
- A roundabout here would give the entire bike and pedestrian corridor an eastern focal point, ceremonial beginning and ending, presently the Hudson River Way bridge is simply inserted between buildings but has no grand indicator from the streetscape on Broadway.
- This would create an important new ceremonial node and major focal point in downtown
- Adjustments to the Hudson River Way Bridge over 787
  - ideally the bridge would be extended to meet the broadway sidewalk, providing a flat connection
  - a less expensive solution would be to insert dutch stair steel guideways on the railing and widen the stairs

Albany’s Melrose Avenue is an ideal candidate for rehabilitation in a fashion similar to that of Berkeley, California’s Bicycle Boulevard network. The section of Albany directly east of the Harriman State Office Campus features two roads, Western Avenue and Washington Avenue, which function as primary roads with direct Interstate access. Bus traffic, truck traffic, and excessively high volumes of automobile traffic are common on the two four-lane roads, which are also both east-west connectors that run between SUNY Albany and the Hudson River. While Western Avenue is a signed, state-designated bicycle route, and Washington Avenue has nearly identical dimensions to Western, neither are ideal for bicycle transit, due to the high volumes of traffic and relatively unpredictable driver behavior. Melrose Avenue, though, is an ideal alternative to the two busy roads, and a viable continuation of the Albany Bicycle Boulevard through the Melrose neighborhood.
The Central Albany Bikeway

The class will develop and present a report of their work to key decision makers and the campus community.

Performance Standards:
Students will be graded both individually and as part of the overall studio. Participation and attendance will count as 25% of their grade, 25% will be for individual effort, and 50% for the overall studio.

City Agency Contact:
Douglas R. Metnick
Director of Planning
City of Albany
Department of Development & Planning
21 Lodge Street
Albany, NY 12207
914.434.2332 x16
914.434.9346 - fax
metnickd@ci.albany.ny.us

Course Calendar:

25 August - Kickoff Meeting / Team Organization
1 September - Labor Day (no class)
8 September - Field Work / Project Tour(s)
15 September - Field Work / Data Collection
22 September - Preliminary Concepts
29 Rosh Hashanah (no class)
6 October - Preliminary Concepts (continued)
13 October - Presentation Practice Session
20 October - Mid-Term Presentation
23 October - Project Concept Presentation(s)
27 October - Presentation De-Brief / Re-Organization
3 November - Individual Meetings
10 November - Project Development
17 November - Project Development
24 November - Project development
1 December - Document production
15 December - Final Presentation