Development of the Proposed Plan

This plan was developed in the spring of 2009 by the students of Assistant Professor Marjoian Bull’s GARP 219: Land Use and Natural Resource Planning. In preparing the plan we conducted field work, assessing conditions and determining the GPS locations of features; undertook research through on-line sources, and phone and email interviews; read plans prepared and adopted by other colleges; and met with the following persons: Mark Cressotti, City Engineer Westfield, MA; Bill Bickley, Sustainability Coordinator, WSC; Captain Casiano and Chief Michael Nockunas, WSC Public Safety; Lt. Paul Nunez, Westfield Police Department (email correspondence). Also Don Podolski, Owner of New Horizons Sports, Westfield, MA and Jeffrey McCollough, Senior Transportation and Bicycle Planner of Pioneer Valley Planning Commission were guest speakers and resources for our class. We thank all of these individuals for their assistance.

Contributors:


Vision Statement & Goals

Bicycling is frequently overlooked as an alternative to help handle our transportation and sustainability issues. By providing this long-term plan for a bike network connecting Westfield State College (WSC) and the city of Westfield we will give users considerable mode choices, and make bicycling a more attractive, viable, and feasible option for the WSC community. We will show everyone that bicycling can indeed, be a healthy, non-polluting, and fun form of transportation.

WSC’s primary mission is to assist its students to develop intellectually and to use their knowledge and skills to improve the social and economic conditions in their communities. In order to make this mission successful today, we must analyze ways in which to become sustainable. Sustainability is the wave of the future and will improve the community of Westfield. WSC has done this by adopting a sustainability plan in the summer of 2008. This bike plan supports WSC’s primary mission and the objectives of the new sustainability plan. In addition, there will be a connection between the college’s campus and downtown Westfield. We will be connecting destinations between the college and downtown and make bicycling possible throughout not just WSC, but the city itself. By doing this we will be encouraging not only students, but Westfield citizens to improve the social and economic conditions in Westfield fulfilling the wider community aspect of the college’s mission statement.

Westfield will soon become a place where citizens may choose to make riding a bicycle a part of their daily lives. Students, faculty, staff, citizens, residents, and visitors of Westfield will be able to ride with assurance, all while feeling safe and protected. New and improved facilities and services will make the riding more enjoyable and convenient. It is our hope that riding and possibly owning a bicycle will become a regular part of the transportation system and everyday trips in Westfield and at WSC.

This plan offers some recommendations as a beginning toward this vision. Getting people comfortable with recreational bicycle riding is a first step toward their trying to ride for errands, and then maybe even try riding to work. The recommendations here include infrastructure improvements, educational activities, and supportive actions to encourage a bicycle culture on the campus.

GOALS:

- To increase bicycle use by students, faculty, and staff for recreational and commuting trips.
- To decrease the carbon footprint of the campus with the use of a non-polluting, viable, and attractive transportation option.
- To develop a bicycle network with access to and connections among major community destinations.
- To improve the health of students, faculty, and staff through increased physical activity.
➢ To improve the environment by reducing the number of cars and parking spaces on campus.

➢ To create an enjoyable bicycling environment that is safe and pleasant for everyone.

➢ To provide convenient connections between transit and bicycles, expanding bicycle related trips.

➢ To change attitudes towards the use of bicycles, establishing a positive bicycle culture among bicycle riders and non-riders.

_Bicycles Lined Up at Abner Gibbs School on West Silver Street._

_Train trestle over the Westfield River._
Basics on the Campus

The Westfield State College campus is located on the west side of the city of Westfield, Massachusetts. As of 2009, the college consists of 2,554 resident students who come from as far as Boston and as close as Southwick. The campus also has 2,813 commuter students. The 256-acre campus consists of a total of 9 residence halls and 5 classroom buildings. The residence halls include the old apartments (Conlin, Welch, Seymore), New Hall, Courtney Hall, Dickinson Hall, Davis Hall, Lammers and lastly Scanlon. In the center of campus, there are three classroom buildings consisting of Wilson Hall, Parenzo, and Bates. Across campus the campus center is located where there is a dining room, the campus bookstore, library, the student employment office as well as the health and fitness center. At 333 Western Avenue there are classrooms as well as administrative offices. Most of the buildings on WSC are within ½ mile (see Map 1: Making A Connection and Map 2: Walking Around Campus in Appendix). The facilities that are further, and thus more likely to be accessed by bicycle, include 333, the Woodward Center and the South Parking Lot. Students, faculty and staff may be traveling between these major campus sites during the day to attend classes, go to meetings, or use facilities.

The buildings of the campus are connected by a web of walkways, ranging from 8 – 10 feet wide. Campus security reports that there is no prohibition against using bicycles on these walkways. Also, throughout campus there is a system of campus roads that connects all of these residence buildings. There are a total of 2,915 parking spaces on campus, 1,121 of the spots located about ½ mile away from the center of campus at South Parking lot. The faculty and staff have a reserved 573 spaces for parking and commuters to the school have 684 reserved spaces. On campus there are 40 spaces for bikes within 8 racks and also 10 spaces in a closed storage located in front of Davis Hall. Currently the rate of motor vehicle parking spaces to bicycle parking spaces on campus is 72/1.

The student and faculty generally rely on walking in order to reach destinations within campus rather than driving due to the close proximity of all desired destinations. The major walkways on campus measure nearly 10 feet in width, with some narrower ones of approximately 6.5 feet in the less traveled areas. These walkways can accommodate bicycles as well, and there is no prohibition against using bicycles on these ways.

It is apparent that the current conditions of Westfield State are not conducive for pedestrian and bicycle travel. Currently, the road networks of Westfield State favor motor vehicle travel over pedestrian areas. As far as bicycle storage, there is only enough outdoor space to house 40 total bikes throughout the campus, and of these 32 are on the main campus (see Map 3: Bicycle Rack Placement in Appendix).

An easy improvement would be to integrate more bike racks and long term bike storage areas onto campus to show the student body WSC’s commitment to bicycle use. Placement of these racks should be in proximity to
residence halls. Currently, bike storage is only offered near New Hall, Davis Hall, and Dickenson Hall. The college should invest in not only placing racks around Courtney, Lammers, and Scanlon but also other places around campus. Long term storage facilities in South Lot and next to Dickenson, and additional racks around Ely and Woodward would give the campus a strong bike presence.

Another goal of the college should be to change the road network to make the campus more pedestrian/bike oriented. One idea is to eliminate the roadway between the Parenzo faculty lot and the Dining Commons loading dock. This roadway could be transformed into a 10 foot wide walkway to handle both pedestrian and bicycle traffic. This plan would eliminate the hassle of walking in motor vehicle traffic in class every day from Courtney Hall and almost being run down by a faculty member in a rush to get home or a student’s off campus ride in a rush to leave campus. (This will, however, cause a dead end and thus require traffic to exit by traveling east and through the commuter lot.) Another walkway could be added from Western Avenue directly to Scanlon to give pedestrians an option other then walking into traffic if they dare to walk from South Lot.
Existing Conditions

Evaluation of Western Ave.

Western Avenue is the main route between the heart of the campus, other campus facilities (333, Woodward), Stanley Park, and downtown. It is also one route that could be used to get to destinations such as grocery stores, the proposed Columbia Bike Path facility, proposed downtown campus buildings and other attractions.

For the first 2 miles traveling from the campus towards downtown, the roadway is 28 feet of pavement, with a double yellow dividing line creating two 14 foot travel lanes. Not even 1 foot off the roadway there is a wide green space and then a sidewalk of 4 feet in width. (See Map 4: Dimensions of Westfield Avenue.) The Western Avenue roadway is in fact within an eighty-two feet right-of-way, meaning the City has a travel easement from roughly stonewall to stonewall. Under the existing lane layout bicycles can ride in the travel lane with cars, typically riding within the shoulder area. This portion of Western Avenue has no storm water collection system, and there is no room for any on-street parking.

The conditions of Western Avenue could be better than they currently are. There are many spots where sand has built up on the sides of the road where bicycles travel. Along with the sand there are also many spots where rain collects into giant puddles. Where there are drainage structures (there are only a few east of the campus) they cause a hazard be either being raised or depressed. The ones that are raised up also defeat the purpose of having drainage. There are many sections of Western Avenue where there are a lot of pot holes, making the surface a hazard for bicyclists. Inattention can cause a spill, or avoiding a pothole can mean turning into car traffic.

Other hazards of Western Ave. are the multiple intersections a bicyclist would cross through. The list of dangerous intersections is as follows (see Map 5: Existing Conditions between Downtown and WSC):

- Lloyds Hill Road/ Western Ave.- Cars pull onto and out of Lloyds Hill road all day causing a potential hazard. They also back-up here making it dangerous to pass by.
- Granville Rd./ Western Ave.- Where the elementary school is located, meaning buses and other traffic backs up at certain times of the day.
West Silver Street- Fork going towards center of town or Big Y. This is a very wide area – which is good for bicyclists, but the turning movements means bicyclists must be alert.

Mill Street- Lights right in front of Noble Hospital.

Washington St.- Where the police station is located.

When you get closer to the rotary at the center of town, past Day Avenue, Western Avenue becomes two lanes in each direction with a median separating oncoming traffic. There’s not much room on the side of the road for bicyclists. Also, closer to downtown the shoulders of the road become parking for cars—not a good mix with bicyclists.

Other things to be considered are the lane width, marked shoulder width, speeds, and pavement conditions. In its present configuration Western Avenue is not well suited to accommodating bicyclists safely.

Downtown Assessment

To assess downtown bike friendliness we decided to take bikes through the downtown area as a hands-on approach to assessing the area. We were looking for four things in our travels: (1) Conditions of the roads downtown (i.e. potholes, sand on roadsides, shoulder if any), (2) Access to biking facilities (bike storage), (3) Ease of travel through downtown area, and (4) Overall riding enjoyment.

Well known for pot holes in the roadside Westfield streets certainly live up to their reputation. During our expedition we encountered many unsafe road conditions: gravel, sand, potholes, and even some large dislodged rock. Besides physical obstacles in the roadway there was also no shoulder on any of the downtown roads. This combined with on street parking makes travels on Elm Street particularly hazardous. There are however sidewalks throughout the downtown area that are ride able on bicycle that allow access to although riding a bicycle in a business area sidewalk in Massachusetts in not allowed, we were met with little opposition. Most of
the curbs that we observed were of very sharp angles and not the bicycle safe curved variety. All and all to make downtown road conditions safe for bicycle use would take some effort.

We also noted where we found bicycle facilities. We were in search of finding bike racks and how they were dispersed through the city of Westfield. We found that all the major grocery stores had bike racks, although the bike rack outside Stop and Shop was in poor condition. The middle schools, as well as Amelia Park, have bike racks, and the school rack is well used. The closest bike rack to the “heart of downtown” is located at the library. We found no bike racks in the downtown area or any of the public parking lots. This would restrict access to the downtown for bicyclists without having proper storage facilities to accommodate them.

All and all the downtown area of Westfield is adequate to ride through. The area is flat with no real hills, making travel time short. However much of the problems the Westfield has with bike friendliness is its layout. The rotary by the town green is nearly impenetrable on bicycle; it is unorganized and definitely chaotic. Many downtown streets have on-street parking making traveling in the road hazardous, and combined with the lack of any shoulders, contributes to the lack of bicycle friendly travel.

Biking through downtown was an enjoyable experience that could be made better. There are many places that could be easily transformed to provide a more bicycle friendly downtown. Road conditions were our main concern when riding through the downtown area. We were in close proximity with automobiles when using the road for travel, and lack of a shoulder makes navigation a bit tricky. These problems however could cease to exist if
future planning of Westfield accommodates bicycle travel as a viable in-city option for transportation.
Information from Safety Personnel

We met with the WSC Department of Public Safety to talk about what concerns they may have with a bicycle program at WSC. When interviewing Captain Casciano about a potential bike path in the college and through Westfield, he thought it would be a great addition. Captain Casciano would love to see students and faculty using bicycles more often. WSC Chief Michael Nockunas agreed with Casciano but he felt that if it is to be done, “it has to be done right.” He felt that there are a lot of issues to deal with first and we need to figure out concerns such as who is going to be maintaining the paths to keep them presentable and safe. They believe safety is the main issue with a bike path because of the high traffic during school hours.

It is important to find out the level of safety around campus and Western Avenue at the present in order to make sure it will be safe in the future when there are more bicyclists riding around campus. When asked if there have been any bicycle accidents on campus, Captain Casciano explained that there has been one last year on the road behind the old apartments and Dickenson. This road is where most speeding tickets are given out. He recalled 2 accidents with bikes in the last five years. Car accidents on campus are limited and are usually only small fender benders like cars backing out of a parking spot, but nothing serious. Captain Casciano stated that the speed limit in the parking areas is 5 mph and on roads in campus it is 15 mph. The campus police have the authority to give out speeding tickets because they are a full police agency, although presently they usually give out warning to students. If there were more bicyclists on campus, Captain Casciano said the police will enforce the speed limit more and make sure students realize the need to be cautious for bicyclists. He explained that both bicyclist and drivers should be cautious for each other everywhere, not just on campus. The speed limit on Western Avenue is currently 40 mph then turns to 35 mph, but Captain Casciano explained that there has been discussion about changing it to 35 mph throughout Western Avenue and if there are more bicyclists in the area, this would be a good idea.

To ensure the safety of bicyclists, Casciano suggested they wear bright colors and/or reflectors. A mirror on the bike would be a good idea so the bicyclists can see behind them. He explained how bicyclists should not be wearing headphones while riding a bike so they are fully aware of their surroundings. Drivers should not be texting or on their cell phones because they need to be fully aware as well.

Captain Casiano is “100% for a bike path through campus.” He thinks having a bike share program would be a great addition as well. He suggested a bike path from the main campus behind to the athletic building and to 333. This will decrease students driving from campus to 333. “I think it is ridiculous that students drive their car from campus to 333.” If there is a bike path, this may decrease the traffic. He also believes that if engineers can make it a safe environment with having enough leeway for a bike path to ensure safety, it could work, but
right now there are a lot of issues. The paths would need to be wider, given the amount of pedestrians already. Captain Casciano said a bike repair shop would certainly be needed if we have a bike program on campus to provide services for bicyclists.

When asked their opinion about a bike path behind Stanley Park, the Public Safety Chief was concerned with safety. If there was a bike path through the woods, the paths would need to be wide enough for emergency vehicles to get through. He also had a concern with the curbs on Western Avenue. If bikes are on the road and cars are too close, with the curb, the bikes do not have enough room to move over. So, they felt widening the road is a good idea.

Other comments that the Public Safety Chief had were putting sensored flashing lights on the cross walks so when someone is standing on either side of the cross walk it will light up. This way, drivers will know there is someone trying to cross and the flashing lights will make them more cautious.

Presently, the Public Safety team at Westfield State College has bikes that they can use, but they do not use them very often. For a police officer to patrol on a bicycle, they need to go through a 3 week long training. After the training, the officers have the authority to pull vehicles over and give out tickets. If there are more bicyclists around campus, the police may use bikes more often as well for the purpose of having an officer present. An officer on a bike is more visible for pedestrians and bicyclists to see when they are wearing their bright blue shirts. Just to know police officers are around may ensure the safety of bicyclists.

The Captain reported that registering your bicycle for on campus use is not required, but it is recommended as a way of recovering stolen bicycles.

We also met with Bill Bickley, Sustainability Coordinator at WSC about bicycling and WSC. He was supportive of all efforts to increase bicycling and connect the college with downtown, but had the same safety concerns as the Public Safety personnel. He expressed enthusiasm for a Bike Share program and noted that there are many models on other campuses.

We also had a meeting with Westfield City Engineer Mark Cressotti. Mr. Cressotti relayed important information including the fact that a crosswalk is being considered for the Woodward/Stanley Park area; that he would support striping a shoulder along Western Avenue, and that a major reconstruction project was proposed for Western Avenue. This project will not likely be funded for construction for many years (8-10) but the design will start much sooner. Incorporating on off-road bicycle path is entirely feasible as the right-of-way for Western Avenue is 82 feet wide. He stated he could support such an idea for Western Avenue. Mr. Cressotti also spoke of the progress with the Columbia Greenway project. It is under design and will be funded as federal dollars become available.

Lt. Paul Nunez of the Westfield Police Department provided data on traffic accidents along Western Avenue.
He reported that there have been no accidents involving bicyclists along Western Avenue in the past 2 years. In general, accidents along this stretch number less than 5 annually, and in 2008 140 traffic citations were given on Western Avenue, of which 34 were for speeding. He stated that in general bicycle riding on this stretch is safe, and he feels most accidents involving a bicycle are the fault of the bicyclist. He noted that there are 8 officers in Westfield who are certified bicycle cops and they are out in the downtown area on a regular basis. Finally, Lt. Nunez pointed out that bicycles are not permitted to ride on the sidewalks in downtown. Additional data provided by MassHighway, indicates that for 2005-2007 there were no accidents on Western Avenue involving bicycles, while in the City as a whole there were 12, 16, and 16 respectively – all less than 1.9% of all annual traffic accidents in each year.

The Massachusetts General Laws relevant to bicyclists are included in the Appendix. Some of the more important basic parts dealing with frequently asked questions include:

- **Every person operating a bicycle upon a way, shall have the right to use all public ways in the Commonwealth except limited access or express state highways where signs specifically prohibiting bicycles have been posted, and shall be subject to the traffic laws and regulations of the Commonwealth and the special regulations contained in the section, except that: (1) the bicycle operator may keep to the right when passing a motor vehicle which is moving in the travel lane of the way, (2) the bicycle operator shall signal by either hand his intention to stop or turn, and (3) bicycles may be ridden on sidewalks outside business districts when necessary in the interest of safety unless otherwise directed by local ordinance. A person operating a bicycle on the sidewalk shall yield the right of way to pedestrians and to give an audible signal before overtaking and passing a pedestrian.**

  - The operator shall ride single file on any way except when passing.

  - The operator shall ride only upon or astride a permanent seat, a passenger shall ride only upon or astride a permanent and regular seat or by trailer towed by the bicycle.

  - The operator shall not transport another person between the ages of one to four years old, or weighing forty pounds or less, on a bicycle, unless in a baby seat.
- Any person twelve years of age or younger operating a bicycle or being carried as a passenger on a bicycle on a public way, bicycle path or on any other public right-of-way shall wear a helmet.

- The operator shall give an audible warning whenever necessary to insure safe operation of the bicycle; provided, however, the use of a siren or whistle is prohibited.

- The operator shall park his bicycle upon a way or sidewalk in such a manner as not to obstruct vehicular or pedestrian traffic.

- During the period from one-half hour after sunset to one-half hour before sunrise, the operator shall display a bicycle lamp emitting a white light visible from at least 500 hundred feet.

- The operator of a bicycle shall report any accident involving either personal injury or property damage in excess of one hundred dollars, or both, to the police department in the city or town in which the accident occurred.

*From: MGL Chapter 85. Section 11B*
Survey Results

Questions about bicycle use and attitudes towards bicycles were sent to the campus community as part of a larger survey conducted by Movement Science majors investigating physical activity. This survey was conducted using survey monkey, and included five questions we developed about bicycle use. The survey was emailed to all faculty, staff and students in mid March 2009, and remained open for responses for one week. An example of the survey can be found in the appendix. It should be noted the response rate is low (468 out of approximately 5,367 current students; and 164 out of 858 on the faculty staff listing) and the results may indicate a bias in that the respondents may be a self selected group of those most interested in the issues of physical activity. However, as the bicycle plan is aimed at increasing bicycle use on campus, targeting the group already interested is a good first step.

The surveys indicate that only about 6% of Westfield State College students who took the survey (29) use a bike to or from campus. Of the other 94% of students, 60% feel that they do not use a bike because there is no need as the destinations on campus are close. When asked which types of facilities would be likely to encourage biking, 76% of the respondents chose bike paths (off-road). The next two facilities that would encourage more bicycling were someone to ride with and incentives/rewards for biking.

When asked which top three destinations they would travel to by bike, Stanley Park had the most responses with 71%, 333 building had the second most with 54%, and a revitalized downtown Westfield had a 42% response. When asked if they would use a bike provided to them for campus related use at no cost, about 68% of the respondents chose yes. Of the 128 extended comments, 65 students on campus responded by saying that they do not have a bike. The second most common comment, with 22 responses, was that there were no adequate facilities on campus to store bikes.

From this survey, we can conclude that the bike path idea along with community bicycles would promote the use of bikes here at Westfield State College. With 94% of the 468 students declaring that they do not use a bike on campus, but 68% of students saying that they would use one if the school provided one to them, it is obvious that with the right incentives and facilities, we can shift this college towards a new, bike friendlier college and do our part for the environment.

The general attitude in the survey results seems promising. In the open comments section (see Question #20), many students were excited about the possibility of a bike being provided and felt that with proper storage, they would bring their bikes from home or use ones provided to them. Comments included:

I think the making bikes available for no cost would be a great idea.
A lot more kids would get out and become active if we had it.

A campus that is more bicycle friendly, and actively promotes bicycling in the community is attractive to me.

I was just talking to someone recently about how much more we would exercise if bikes were available to "rent" out from the college.

I have been looking around for a bike/way to get it and keep it on campus safely. It is something that I would consider using just about everyday since I have classes in the church and 333. I would really love to have this type of bike program at our school.

I think the making bikes available for no if there was like a bike renting place on campus that would be amazing!!

The faculty and staff survey differs from the students. This group of individual consists of people who do not live on campus and have different responsibilities compared to students. Many faculty and staff juggle their children’s lives and running errands throughout the day and this alteration in lifestyle should be considered when interpreting the results.

Of the 164 members of the faculty and staff here at Westfield State College who responded to the survey, 14% (23) declared that they use a bike on, to or from campus. When asked why they do not use a bike, 60% said that the distance they would have to travel is too far. When asked which types of facilities would encourage bicycle use, about 86% agreed on off-road bike paths, while 45% also said that indoor bike parking facilities would promote their bike use.

Consistent with student responses, the top three destinations for bicycle use would be Stanley Park, 333, and a revitalized downtown. Also, 33% of the respondents agreed that home would be one of their top destinations. If a bike were provided to them, about 59% agreed that they would use it. Of the 41 other comments in regards to why they do not bike, 13 said that they did not own a bike, and that there was not proper storage. Also, 12 said that they needed their car for errands and transporting children, or that they had too long of a commute to use a bicycle. Another large response was a statement that they lacked a bicycle.

In the comments about bike use, the overall attitude is very positive. Many feel that promoting bike use and reducing car use is a great idea here at Westfield State College. The idea of a free bike program had an overwhelming positive attitude as well. A few samples are:

I think it would be great if there were bikes on campus that people could use to go from building to building.
An available free bike option would be EXCELLENT, I would absolutely use it!

I fully support any programs designed to increase bike use. One of the first things I noticed when I started here last fall was the lack of bike racks on campus

Considering if you're over 60 I would like to see bikes on campus I would definitely use one even at my age.

From these responses, it is clear that a separate bike path with facilities and bikes provided to them would promote bicycling here at Westfield State College. We can also see that 33% of the respondents would use their bicycle to travel home. This means we can cut the college trip count down, while promoting a clean alternative to using one's car everyday.

Also, during the same time period that this Bicycle Plan was being prepared, the City of Westfield conducted a survey about downtown revitalization. That survey found overwhelming support for the completion of the Columbia Greenway project—75% of the over 1,400 respondents said it should be a high or very high priority for recreational opportunities to be added in the city.
Standards

There are different ways to incorporate bicycles into roadways. This incorporation depends on the volume and speed of traffic, width of right-of-way, and the other types of users to be served. Bicycle paths, bicycle lanes, striped shoulders and shared roadways, combine to form a bicycle network. The highest level of bicycle accommodation is a bike path – a paved surface reserved only for bicyclists and pedestrians, which may parallel a roadway or be along an old rail line, or travel over other lands. The requirements for this, as outlined within the Massachusetts Highway Design Manual (which sets the standards for roadway/transportation projects in the Commonwealth) is shown below:

Shared Bicycle and Pedestrian Use Paths

These are paths that are separated from the road and are normally located on old out of use railways and in areas that have wide utilities corridors. These paths are for both bicyclists and pedestrians.

- In general for a two way path the paved part needs to be between 10 and 12 feet wide.
- There also needs to be 3 feet on either side of the path that is cleared for the safety of the users.
- Total space needed is between 16 and 18 feet at minimum.

These paths are very expensive and can take a long time to construct. This is a viable option for the campus/downtown connection but it is a long term plan.

Separate Facilities for All Users

If having a totally separate facility is not possible (or not possible for the entire length you wish to cover) the MassHighway Design Manual includes standards for accommodating bicycles within the roadway with a bicycle lane.

If having a totally separate facility is not possible (or not possible for the entire length you wish to cover) the MassHighway Design Manual includes standards for accommodating bicycles within the roadway with a bicycle lane.
• A typical travel lane for vehicles in this case would be about 11-12 feet
• A bicycle lane needs to be at least 4 feet wide, 5 feet or more is recommended especially if the speed limit of the roadway is higher and/or there is on street parking. A wider bike lane ensures the safety of the riders.
• Clear pavement markings and signage need to be in place to make drivers more aware of the bicycle traffic.

This scenario is good for areas with high traffic traveling at moderate to high speeds along with a high amount of bicycle traffic.

Figure 1- Bike Lane, MassHighway Design Manual, 2006.

Partial Sharing for Bicycles and Cars

This option is best suited for areas with moderate traffic and moderate speed limits for car, as it has bicyclists sharing travel lanes, with a stripped shoulder available.
• There should be either signs or pavement markings to alert motorist that the lane is shared
• There should be a 2-3 foot shoulder for bicyclists to use
• Vehicle lanes should be between 11 to 12 feet wide
• An 4-8 foot shoulder and 9-11 foot lanes can be used to slow traffic down but this forces cars to drive closer to the center lines of the road.

In this scenario, bicyclists can use the shoulder to ride and while it is not a separate bike lane it is better than forcing cyclists to ride in the travel lane of Vehicles

Figure 2- Shared Lane, MassHighway Design Manual 2006.
Shared Bicycle and Motor Lane

This option is best suited for areas with low traffic and low speed limits and areas with a minimal Right Of Way.

- Signage is recommended to remind drivers to share the road
- In a scenario the lane should be wider than normal in the area of 12 to 14 feet to allow vehicles to pass bicyclists without crossing lanes.

This scenario is not ideal in the city and on roads with higher amounts of traffic due to the fact that the bicyclists would be riding with the traffic which can cause safety issues—there is no stripped shoulder area.

Figure 3- Shared Lane, No Shoulder. MassHighway Design Manual, 2006.
Bike Share Programs and Supporting Activities

The following case study summaries outline data from 4 college bike share programs. In the recommendation section is an outline of a program for WSC based on these other models.

Bicycle Share Programs
1. Southern New Hampshire University
2. Emory University
3. University of Colorado Boulder
4. University of California Berkley

Southern New Hampshire University
- 1,900 undergraduate students
- 6 bicycles and 15 bicycle racks around campus—checked out at student and athletic centers, the college paid for the bicycles and 5 of the bicycle racks
- Bikes are damaged, but damages are charged to students and all the bikes are serviced by a local shop
- An average of 4-5 bikes are rented each day by students and faculty since the program started in the fall and started again this spring
- Helmets and locks are provided for the bikes
- Penmen Bike Rental Program- students fill out agreement form, review safety and equipment check list, and are given a campus bike map with the locations of the 15 bike racks and parking

- Need valid college ID to participate
- Free of charge- Can use the bikes for a 4 hour period of time
- Liability: SNHU has not had any liability issues. The college worked with the insurance carrier to develop the language on the agreement form:
- User agreement allows for rental of bicycle and related equipment including helmet, cable, and lock key, but the person renting the bicycle is responsible for any loss or damage to equipment regardless of cause
- Person renting the bicycle is required to make full payments within 7 days of the date the equipment was to be returned
- If the equipment is not paid for a hold is put on the students account
- By signing the membership agreement the bicyclists assumes responsibility for any risks or injuries

Emory University
- 12,755 undergraduate students
They have 40 bicycles in the bike share program—all of the bikes in the bike share program were donated.

Contract with Fuji Bikes and Bicycle South who provide discounts to students and supply bikes at four locations around campus.

Bicycles are for same day use only, students sign out bicycles and return them the same day.

5 steps to check out bicycle
1. Choose numbered bike
2. Go to desk and show ID
3. Get key
4. Inspect bike
5. Put on helmet

Have mobile repair and bicycle maps available.

Helmets are required to participate in the program. There are limited numbers available to rent, but if a bicycle is bought through Fuji Bikes students receive a helmet, lock, and light for their bikes.

Liability: There have been no liability issues since the start of the program.

Bicyclist responsible for the condition of the equipment.

By signing release form, participant verifies they have health insurance and can prove it if asked.

University of Colorado, Boulder
- 29,709 on-campus students
- 600 acres
- Bike Station Open 9am – 5pm every day, 150 bikes available for rent
- Provides area maps for trails and bike-friendly roadways
- Minor maintenance; flat tires, chain replacement, etc.

Bicycle registration mandatory: $10 fee for the life of the bike while enrolled, registration using Student Identification Number.

Benefits of registration include; insurance often covers lost or stolen bikes; stolen bikes become harder to sell and easier to find, service is provided only to those registered; police will not follow-up on stolen, unregistered bikes.

Scheduled Bike Clinics with Lessons in basic bike maintenance.

Bike model showcase provided by local shops.

Mobile mechanics—can request service anywhere on campus via request form; registered bike only

90 bikes purchased through grant and increased student fees.
Newest 60 bikes purchased from rental and fee revenues.
- Free with student ID (with paid fees) and faculty/staff ID
- U-Lock provided; Optional helmets available
- Lights and reflectors are required at night on all bikes
- Riding on commercial-area sidewalks is prohibited
- Waiver is signed by bike owner at time of rental
- 2 instances of waiver dispute initially. No recent issues.

University of California, Berkeley
- 35,000 students (25,000 undergraduate; 10,000 graduate)
- Shared Bike Plan with the city of Berkeley; Run by the Parking and Transportation Department
- UC Police Department covers safety, registration, and lost or stolen materials
- Both provide bicycle licensing, bike racks on campus transit and outside of buildings, as well as enforced parking and rules
- Purchases largely through grants from Bay Area Air Quality Management District
- Collisions resulting in injuries between 2002 and 2006 reported only 7 on average per year, all minor injuries, least frequent between pedestrians and automobiles, and most often among solo bicyclists.
- Less than 1% of all unregistered stolen bicycles are found each year.
- The number of stolen bicycles since implementation of the plan has decreased steadily.
- Free bicycle licenses for campus affiliates
- Licenses must be renewed every 3 years
- Lighting, pavement markings, designated lanes, and signage are provided on all bikeways, paths, and shared roadways.
- Steadily decreasing number of citations written each year
- 3700 on-campus rack spaces; 7 secure bicycle parking facilities; controlled access, video surveillance, located at most major auto parking facilities.
- 50 spaces of portable bike racks provided by the school for campus events such as athletic games as well as valet bicycle parking for football games that began in 2002.
- Educational Materials include: Rolling Through Berkeley; UBC bicycle reference brochure
- Secure Bicycle Parking information cards
- Parking and Transportation website
- Periodic articles in campus publications
- Incentives Include: Alameda County Guaranteed Ride Home Program; discounted parking; and subsidized transit passes
- Student founded/run program $15 registration per semester
- Longer-term rental to students implemented in Fall 2009
- Connections/routes to BART, Muni, Caltrain, etc.; Maps/schedules provided

Below is a summary of bicycle programs and approaches, other than bike share programs, adopted by MA state colleges and some area colleges.
**Framingham State**
- Framingham State Bicycle Extravaganza hosted by MetroWest Transportation Management Agency.
- Promotes bicycle commuting on campus by recycling used bikes and selling them for $20 a piece
- Encourage bike donations which are tax deductible

**University of Massachusetts - Amherst**
- Traffic observations
- Hypothesized that bike commuting was down due to inadequate and under maintained paths
- Google earth map with pictures of existing paths
- Documentation of existing conditions (bad)
- Determine that bicycle traffic cannot be on sidewalks
- Recommend improving path conditions and educate on benefits of bicycling: bicycle commuter program
- Educate on overcoming perceived costs
- Improvements such as covered bike parking, new routes, satellite parking
- Cost vs. benefit analysis

**Salem State College**
- Bike Path Committee of residents and businesspeople
- Few bike lanes and little space to build them
- Bike lanes only option because of heavy traffic and lack of space
- Coordination between college and city
- City may be reimbursed for half the cost of bike racks placed throughout the city
- Bike paths ideal for tourism

**Smith College**
- Biking promotion programs provide incentives such as short and long term bike parking, covered bike racks, shower facilities, and commuter rewards.
- College provides bikes for students and faculty to run errands or work related issues

**Supporting Actions**

**Safety and Education**
Obviously safety is a huge concern when it comes to bicycle use. A few key points would make the experience of riding more enjoyable for all users. First of all, one of the most important factors in bicycle enjoyment is making sure that bikes and cars stay separate. Anytime that the two interact it is always more intimidating for the bicyclist. Separating the two would decrease accident rates and improve overall safety. So where ever possible bicycle paths should be installed.

Trying to lower the speed limit from 40 to 30 MPH on Western Ave would greatly benefit pedestrians and bicyclists sharing the road, alike. Safer road speeds lead to safer conditions for everyone. In Oahu, Hawaii whenever bicycle paths end and shared road conditions begin, the speed limit is dropped 5 mph.

Visibility of the path is important. When the path is put down reflectors should be added into the shoulder lane to improve visibility for riders on the path and also drivers passing the path. With reflectors the path’s line is obvious at night.
Storage safety is important, extra lighting should be added to bike storage units and there should be increased patrol by police. Having storage units seem safer would be a great way to improve the user satisfaction. UMass Amherst has been working diligently on providing safer bicycle storage for their students by providing lighting, security cameras, and extra campus police patrols in the vicinity of the storage areas.

The first step to promote safety on the bicycle network would be for all incoming students to have a section of the orientation process be a general learning process of the rules and practices adhered to within the network. Re-teach the students the proper hand signals when using a bike. Also mention that audible signals are used when passing another cyclist. An important thing to remind (or tell) students would be that even though they may be using a bicycle and not a car you can still receive a OUI for using a bike while intoxicated. Many colleges use the orientation of students to get students more aware of the bike networks available and the safety issues.

Providing a one credit bicycle class that covers general bicycle repairs, proper use and practices, would increase safety by increasing awareness of rules and regulations. It may also increase how comfortable students feel about riding if they know how to maintain the bike.

**Maintenance**
Bikeways require regular maintenance to maintain safety levels.

1. All bikeways should be swept and maintained when necessary to ensure a smooth surface without gravel, sand, potholes, or other debris (suggestion: once weekly).
2. All bicycle lanes and road edge stripes should be repainted when needed to ensure that they are sufficiently reflective to be visible.
3. Snow removal should be considered in our plan due to our climate.

**Enforcement**
Ways to enforce these rules would include some of the following: Having WSC police use their bicycles would be a way for bike use to be regulated to a certain degree, and get some increased visibility. Having “rules of the road” which states proper hand signals and audible signals for everyone to read would increase safety and awareness.

**Facilities and Security**
On the majority of campuses that have bicycle plans bicycles are clearly identified as vehicles and must abide by the vehicular laws. Facilities for bicycles are important on campus for the safety of the bicycle during non-riding times. At Emory College, there is storage for 28 bicycles located on an indoor courtyard and 4 showers available for students and faculty who drive bicycles to campus. Most areas that are provided for bicycle parking and security are bicycle racks with bicycle locks. Campuses with harsh unpredictable weather conditions should be provided with bicycle racks with roofs.
Currently at Westfield State College there are bicycle racks located either in the dormitory’s basement or just outside the dormitories. Storage in the actual dormitory bedroom is not generally permitted. A suggestion that should be made is to have a protected bicycle rack in the South Parking Lot where there are security cameras present to ensure that the bicycles are secure.

Repair Shop
Some campuses have a bike website and students can download a free online guide of “easy how-to’s” for fixing common problems. Others have on campus bike shop/town bike shop that offers a variety of free and paid services. Such as:

1. Free services
   a. pressure gauge, 24 hours a day, with lights, outside our shop.
   b. Free loaner tools during our open hours are always outside the entrance and more expensive and larger tools are available at the front counter.
   c. Free oil.
   d. Free estimates or suggestions how to fix your bike.
   e. Free loaner bike with any major service.
2. Paid services
   a. Quick repairs, anything from a flat tire on a student’s bike to a tune-up on a racing bike.
   b. Receiving/assembling of all boxed bikes for students.
   c. Lock cutting for broken U-locks on location for a quarter of the cost of a locksmith.
   d. Registering and licensing of bicycles.
   e. Rental bikes, from a daily rental to long term.

   Includes $2,000 road bikes!
   f. Engraving and spray painting, for theft prevention.
   g. Sales of new, slightly used, and refurbished bicycles.

Signage
Most campuses and towns/cities that have bicycle plans need signage to make drivers and walkers aware that bicycle lanes are there and not to use them. Here are some examples of bicycle signs:

Marketing
In order to create of awareness that bicycles are environmentally friendly there are various ways to do so. For example a website like the site: [http://baystatebikeweek.kintera.org](http://baystatebikeweek.kintera.org), which promotes bike riding in the Massachusetts Bay State area.

Advertisements have been posted in Westfield promoting safe biking. This advertisement enforces our goal of taking cars off the road to ultimately reduce carbon
emissions. For example, Bike Commute Week is being advertised for the 10th year (see appendix). It encourages citizens to commute for a week to work, with the catch phrase, “Green your Routine”. It includes a number of events to encourage biking, including tour guides, breakfasts, films, and cooperative biking. The Bike Commute Week involves the entire Pioneer Valley, even children, to successfully promote healthy and environmentally friendly transportation options. This is something the campus could get involved in. Also Westfield State College has a bicycle club that tries to support existing riders and encourage new riders (see appendix).

Incentives
An incentive can be defined as a positive motivational influence. We want to apply this to bicycling and Westfield State College. Other colleges such as the University of Virginia have had tremendous success with using bike incentives. They have a bike day, where everyone who rides a bike to campus or around town that day will get a free meal in the dining hall of UV. Westfield State College could work out a deal with Wal-Mart or the bike shop downtown, to create a successful and positive bicycle incentive.

Bicycle Culture
Bike cultures can be defined as places that feature a high rate of bicycle usage as part of their cultural identity. This is one of the main goals we discussed in class. We are attempting to make Westfield more of a bike friendly environment. Numerous countries have reputable bicycle cultures such as Denmark, the Netherlands, and Germany. In Copenhagen and Amsterdam it is said that about 40% of all citizens ride their bike on a daily basis. We might not achieve these numbers here in Westfield, however, in time it is possible to increase from the present low figures. We need to create a bike culture in order to increase the use of bikes. At WSC we can encourage bike use by increasing the price of parking on campus, decreasing parking spots (or not creating any more parking), and making the criteria for having a car on campus stricter. i.e.: only upperclassmen can have cars on campus.
Recommendations

Our recommendations are presented in three categories:

- Routes for bicyclists—how to maintain and expand a bicycle network;
- Bike Share program—what a campus bike share program should look like; and
- Supporting Activities—what else should be done to encourage new riders and support existing riders.

Routes:

- **On campus, bicyclists can ride on the pathways and internal roadways.** Adding some signage may be appropriate.

- **For connections to the farther parts of campus, the first option should be exploring the widening of the sidewalk between the main campus and 333.** There is certainly enough land area within the right-of-way to provide a wider sidewalk, one that could serve as an off road shared use path. It may be difficult to meet the design standards for 10–12 feet (with an additional 2-3 feet of a graded and cleared shoulder on each side) all along this stretch without the costly expense of utility relocation or the taking down of mature trees.

Presently the sidewalk is 8 feet wide, with the graded shoulder varying. Where it is possible to gain width to the sidewalk this should be pursued so bicyclists and pedestrians can comfortably share this space. However, given the anticipated low volume of bicycles expected, widening where possible may meet the anticipated need of WSC users. Also, sidewalk should be added where it does not exist now—east of 333 up to Dickinson Place.

- **The most direct route for connecting Westfield State College to downtown Westfield is by way of Western Avenue to Court Street. It is recommended that in the short term the City stripe a 3-4 foot shoulder line off of the curb, which would leave a 10-11 foot travel lane.** This will have the effect of slowing the traffic and providing bicyclists with a somewhat more secure place to ride, as cars move toward the center line. Maintenance in terms of surface treatment and street sweeping would improve bicycling conditions, and a crosswalk at the Woodward Center/Stanley Park where bicyclists could walk bikes to cross, would add to a safer riding environment. We were told that the City’s Traffic Commission is considering this additional crosswalk location and we believe this would make the area safer for pedestrians and bicyclists. The high volumes on Western Avenue, however, are still problematic, making this roadway less than ideal for bicyclists.
According to the City of Westfield Engineer Mark Cressotti, P.E., Western Avenue is on the Regional Transportation Improvement Plan for a complete reconstruction in about 7-10 years time. This project will include a full storm water drainage system. This would be an excellent opportunity to incorporate a complete off-road shared use path facility within the 82 foot right-of-way. Mr. Cressotti indicated he could support such a recommendation, but it should not wait until the design work is done. **The bike facility needs to be part of the design so if WSC wishes to see such an addition a written request from the WSC President should be made to the City indicating this.**

Existing and already planned bike paths are shown on Map 7: Creating a Culture. This includes the proposed rail trail known as the Columbia Greenway, and the path along the Westfield River. These are important to making Westfield bike friendly. These proposed facilities are only 2.5 miles from the campus, so in addition to serving Westfield residents, they can also serve students as a recreational facility. (See Map 8: Proposed Access Ramps for the Columbia Greenway.) **The completion of these projects should be supported because as stated above, recreational bicycle use can lead to greater bicycle use overall. It would be good for WSC to express its support for these projects.**

In designing a bicycle network, the City of Westfield should consider directing bicyclists heading into downtown from the west to take Washington Street rather than continue into the Rotary. Turning onto Washington (at the light) would allow bicyclists to then access municipal parking areas where bike racks could be placed. Bicyclists could then park their bikes and walk to downtown destinations. Another alternative as part of the bicycle network would be to have bicyclists leave Western Avenue for West Silver Street and then access downtown along Broad Street. (See Map 6: Making A Connection ADT Counts.)

Several alternative routes are indicated on Map 7: Creating A Culture. These possible routes should be explored further as they could add to the bicycle path network. **This could be done as a student independent study and include evaluating site conditions, ownership, permitting issues, and estimated costs.** These include:

A path way that goes from Davis Hall, through Overlook Drive, and into the Woodward / 333 vicinity. This is meant as an exploratory route as time did not allow for a full review of the slopes and other constraints to a path in this area. Obviously the private property owners would need to be involved.
The joining of existing trails behind South Lot and west of Stanley Park to create an off-road alternative for getting from South Lot to Woodward/333 area. This connection could be for recreation or as another off-road option to connect the main campus with 333 and Woodward. WSC could develop an off-road (paved) bicycle path and Stanley Park would need to be interested in such a connection, as well. In the absence of a full connection, having off road bike paths behind South Lot may provide an area for bicycle recreation.

A trail that connects the back of Stanley Park to the rail trail by Amelia Park, following Little River.

**Bike Share Program:**

**Proposed Westfield State Bike Share Program:**

This proposal is based on the research completed for this plan. It is recommended that the final Bike Share program be designed with the help of a committee made up of interested students, staff, faculty, and Student Government Association appointees. This group could also monitor the program, making changes as necessary. Finally, this committee could take on some of the supporting actions.

Using both SNHU and Emory as models, a bike share program for Westfield State would have many similarities although the number of bicycles used in the program would differ because each school has a different number of undergrads.

The bicycles could be located at designated bicycle stations around campus. One of these locations could include Ely Campus Center where work study students could sign out bicycles to students at the helpdesk.

To rent a bike a student or faculty member would have to do the following:
- Present ID
- Sign waiver for liability purposes
- Inspect the bike
- Receive map of bicycle path and locations of bike racks
- Receive helmet and lock for the bike


**Time Limits:**

Students/faculty could be able to rent for an allotted time period, or the entire day. If a student has classes all day, renting the bicycle for the entire day might be more beneficial.

**Damage to bike:**

The person renting the bicycle will be responsible for any damage. They will be charged for the damage and will have a time frame to pay the amount back. If the
students do not pay, then a hold will be placed on their account.

Maintenance:
Each of the bicycles would require 30 minutes of maintenance a month. The bicycles would be used roughly from September through November and again in late February through May of each school year. A local shop or other repair facility would have to be established so the bicycles could be maintained. Another possibility is for a one credit course in bicycling run by Movement Science to take on the maintenance of the Bike Share fleet.

Bicycles/Helmets:
Unless the student or faculty member has their own helmet, one will be provided with the bicycle when it is rented.

If a student or faculty member wanted to bring their own bicycles on campus, they could register them with Public Safety.

- Registration:
  - With Public Safety as with automobiles
  - No fee
  - Registration should be required in order for Public Safety to provide better assistance

Storage Facilities:
Storage for the shared as well as personally owned bicycles is an important aspect of the bicycle plan. Options for storage could involve the following:

- Consider opening Woodward locker room areas to bicyclists who are commuting
- Increase number of bike parking areas/bike racks outside of academic and resident halls
- Possible indoor facility for bike parking, possibly in resident halls.

Number of bicycles:
The number of bicycles to have in the bike share program would be based on how many students would rent the bicycles. As a pilot study, or to test how many people participate in the program, the college could start with 20-25 bikes available for rental. If the number of students/faculty wanting to rent a bike increased, then more bicycles could be purchased.

A bicycle that would be ideal for the bike share program would cost between $250-350. If the college purchased 20 bicycles, it would cost around $6,000.

Additional Items:
The bicycle share program would require additional items such as a lock to keep the bicycle secure and a carrier basket for books and other materials. Locks for the bikes would range from $15-30. Purchasing 20 locks at $20 would cost $400. Baskets for the bicycles would cost an average of $30. Purchasing 20 baskets would cost around $600. As indicated below, the funds for these purchases can be generated through a modest parking fee to faculty/staff.

20 bicycles: $6,000
20 helmets: $600
20 locks: $400
20 baskets: $600

Total Estimated Costs: $ 7,600
(These estimates were provided by Don Podolski of New Horizons Sports, Westfield, MA.)

Promoting Bicycle Share Program:
Encouraging use of the bicycle share program could increase the overall bicycle use on campus. One idea is to work with downtown by developing scheduled bike promotion events on campus with assistance from related businesses.
Supporting Actions

- Add more bike racks and secure, covered and well-lit storage areas on campus. Make storage of personal bikes easy and accessible in all dorms.

- Lower the speed limit on Western Avenue.

- Add reflectors and make crosswalks highly visible.

- Create incentives for students to ride their bikes. This can be done by establishing a way for bike commuters to have each trip logged in, and when they reach a certain number of trips they get a portion of their parking fee returned. (This assumes that it is not possible to ride to school all the time.)

- Fund proposed improvements and bike share program by charging faculty/staff $25 for parking. Connecting parking fees to bicycle infrastructure makes sense and this disincentive for driving can also encourage bicycling or other alternative means to get to campus. Also, the same offsetting mechanism offered students can be offered faculty/staff.

- Adopt a policy that anyone that gets to WSC by bicycle can use a campus vehicle in case of an emergency.

- Require bicycle registration with the Department of Public Safety.

- Include bicycle training as part of Orientation program – cover the responsibilities of bicyclists and drivers, and the rules with regard to safe bicycling on campus.

- Develop a map and brochure of bicycling basics for WSC use.

- Install clear signage to indicate shared bicycle facilities.

- Make bicycle accommodation an integral part of any future campus development, including proposals for the use of South Parking Lot and downtown buildings.

- Host a bicycle swap event open to the community. This will identify the campus with bicycling and provide a community benefit. Community members can exchange or sell bikes.

- Encourage integration of bicycle racks at strategic locations in downtown Westfield. As riding in downtown is not easy, it makes sense to have some prominently located racks so riders can park their bikes and walk to locations. See Map.
- Start a program to encourage and increase bicycling by helping offset the cost of a new bike for transportation for students. Students and residents of Westfield will get 60% of the cost of a new bike, per person. This would encourage more people to purchase a bicycle from the stores downtown. The stores will get more business, and the students/residents will receive cheaper bikes.
APPENDIX

Map 1: Making A Connection: WSC and the Downtown
Map 2: Walking Around Campus
Map 3: Bicycle Rack Placement
Map 4: Dimensions of Western Avenue
Map 5: Existing Conditions between Downtown and WSC
Map 6: Making A Connection: ADT Counts
Map 7: Creating a Culture
Map 8: Proposed Access Ramps- Columbia Greenway
Copy of Flyer for Bicycle Commute Week/ Pioneer Valley
Copy of Flyer for WSC Bicycle Club
Bicycle Related MGL Statutes
Copy of Survey Questions