Status Report

Michigan Technological University
Ten-Year Bike Friendly University Action Plan

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with assistance from
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Introduction
This Status Report represents the current efforts of the Transportation Enterprise Bike Friendly Campus Project Team for the Fall 2012 semester. The primary goal of this team is to help Michigan Tech achieve Bike Friendly University status from the American League of Bicyclists (ALB). During the Fall Semester the team made a thorough assessment of the current biking situation on campus and worked with the Campus Bike Committee to help identify where bike related improvements could be made on campus. The effort resulted in recommendations for both short and long-term improvements for biking on campus which are included in the Ten-year plan of action contained in this report. It is anticipated that with further refinements, this Ten-Year plan will become a key component in the University’s application for Bike Friendly University status in February 2013.

Background
Biking issues have been part of previous Transportation Enterprise (TE) project teams including the Complete Streets team in the spring semester of 2011. Complete Streets is defined as “Roadways, planned, designed, and constructed to accommodate safe access for all users. On these streets, pedestrians, bicyclists, motorists, and transit riders of all ages and abilities are able to safely move along and across streets which may include sidewalks, crosswalks, and bike lanes”. This team recommended that Michigan Tech campus make efforts to become more bicycle friendly for students, staff faculty, and visitors.

In the spring of 2012, the first Bicycle Friendly Campus (BFC) team was started in the TE with the goal of looking into the bicycle commuting issues on campus. The team identified covered bike parking and bike repair stations as changes that could improve campus for all bikers. They also identified campus members to serve on future Campus Bike Committee.

This semester, the BFC team built on these previous efforts to actively work with the Campus Bike Committee and the City of Houghton Bike Committee to poll city and campus bikers on bike issues. With feedback provided by these wider efforts the team developed a Ten-Year action plan that they are asking Michigan Tech to help refine and then carry out.

The Keweenaw Peninsula has many extraordinary bicycling opportunities, including some of the best mountain bike riding in the entire country. The City of Houghton which surrounds campus has recently achieved a Bronze level Bicycle Friendly Community award from the ALB. Michigan Tech now has a great opportunity to join with the surrounding community to enhance biking for those on campus as well as help enhance the bike friendly image of the area. Michigan Tech is actively proposing significant changes to campus including the newly unveiled Alumni Way (www.mtu.edu/alumniway) that will. The goal of this team is to create a plan that will complement Michigan Tech’s renovations to the campus and create a more bicycle friendly campus.

Becoming considered a bicycle friendly university is very beneficial to Michigan Technological University (Michigan Tech). The main reason Michigan Tech should become bicycle friendly is that the region around Michigan Tech is an amazing place to adventure and view the beauty of nature. Creating an easy way for students to be able to ride their bicycles around and see this wonderful area should be an important goal of the school. Also, Michigan Tech prides themselves in being located in a very beautiful area; allow students and faculty a more environmentally friendly way to commute to and from the campus will help keep the area around us more beautiful than the scenery filled with a bunch of cars. Similarly, when talking about reasons Michigan Tech is a good place for students to come to school; they
can make a point about how we are bicycle friendly. Lastly, Michigan Tech is currently dealing with a parking situation; helping to expand and promote bike usage year round will assist in making the parking problems be solved.

In this plan there will be recommendations about:

- Improvements to bicycle parking on campus
- Education and promotion efforts to encourage safe bicycle use
- Developing new facilities for students and faculty
- Creating easily accessible bicycle pathways to various regions on campus

**Planning Process**

In order to help identify the areas on campus upon which to improve, the team attended monthly meetings with the City of Houghton’s Bicycle/Pedestrian Committee. In 2007, the aforementioned group was able to secure the “bronze” level of bike-friendliness for the City of Houghton. The Transportation Enterprise teamed up with the city in order to create a survey. This survey will be able to assess what daily cyclists think of current facilities, regulations, and overall ease-of-use. Additionally, it will map out the most common routes taken by the general population. The Transportation Enterprise team also created a segment that asks for input specific to Michigan Tech’s campus. The survey was online from October 18, 2012 until November 21, 2012. Advertisements for the survey were placed in both school and local newspapers as well as through email notification and radio advertisements with the local WMTU student radio station. Results from the survey helped guide the Transportation Enterprise team in creating Michigan Tech’s 10-year plan, which will be shown in the following pages.

**Existing Bicycle Use and Facilities**

Biking to and from Michigan Tech has both positive and negative aspects. It is generally thought of that bicycle commuting is only used during the seasons in which there is no snow. This creates the need to change the amounts of bicycle racks and other facilities on campus depending on the season. For the students who do commute year round, the surrounding area has many great features to offer people who do commute on a regular basis.

One negative aspect is that the terrain of the surrounding area is relatively hilly. Due to steep grades in the area, students commuting typically avoid biking because at some point during their route there would be a steep elevation change. One positive thing however, is the fact that the City of Houghton is relatively small in comparison with other college towns. Because of the relatively small university campus as well as the size of the town, it is a quick commute to get to the destination. Besides being more affordable, in some cases it may be fast to get to locations by bicycle than by car.
Inventory of Existing Bicycle Infrastructure

Bike Racks—Michigan Tech offers a variety of different options for parking your bicycle on campus. There are three main types of bike racks on campus that students have the ability to use. There is the vertical hanging rack, the loop racks, and the standard bike racks which come in both black and silver. Below each version of bike rack is shown.

![Figure 1: Different types of bike racks](image)

Each type of bike rack has its own pros and cons based on what the rider is looking for. The silver standard rack (far right) provides the most capacity for the space but some students don’t like to use these because there is a higher risk of bike damage, the standard racks make up the majority of the racks on campus. The black standard rack (right center) has the attachment bars located higher and more easily attach to the body of the bike, which creates a more secure locking of the bike to the rack. This provides adequate space for parking their bikes and it also gives them a safe place to park their bike. Because of these qualities, students generally seem to like the black racks better than the silver. The loop racks (center left) are only used at Hillside place and are permanently placed in concrete. They only hold two bicycles conveniently which causes capacity problems. Finally, the hanging racks (far left) on campus are very sparse. At this point they are not well used by the students since they are unprotected from the wind that Houghton does get quite frequently. With these high winds the bicycles have a greater chance of being blown around and getting damaged. With some variations into where these are located and potentially having walls to breakup wind, these may be one of our best choices in the future.

Covered Bike Parking—Michigan Tech does not have very many covered bicycle parking locations. Near the residential halls, there are some vertical hanging loops located in West McNair (shown above in figure 1). On the main campus there are some standard bicycle racks that have been placed under overhangs on the side of a building, Shown in below in figure 2. There are also a few hangars located under the DOW Environmental Science Building archway on Cliff Drive.
Figure 2: Trying to Stay Out of the Rain

Figure 3: Bike Rack Map

The Above map shows the locations of bike racks on the main campus and residential areas. The Large dots are the standard racks (both silver and black). The small dots are the hangars. The loop racks are only located at Hillside Place (bottom right corner of map), they are bunched in one area so they are a large collection of dots. The red dots are areas that are overpopulated while the black dots are areas that are either comfortably full or empty.

This map in connection with table 1 shown below depicts a strong need for changes to be made to the bike parking structure on campus. This could be dealt with a few different ways. Reorganizing how many bike racks are at each building may help keep numbers down, but may not fully fix the problem if there are too many bikes for the number of spaces provided. The other idea is to buy/create new bike racks to add to the current numbers. Most likely it will be a combination of both to fully satisfy all locations needs.
Table 1: Bike Rack locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Slotted Stand</th>
<th>Hangars</th>
<th>Loops</th>
<th>Total Racks</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>McNair</td>
<td>16</td>
<td>15</td>
<td></td>
<td>31</td>
<td>Racks Packed! Bikes parked all over besides in racks. Also Main section of racks remote</td>
</tr>
<tr>
<td>Wads</td>
<td>14</td>
<td></td>
<td>14</td>
<td>28</td>
<td>half in back of building. Incredibly packed in some areas. Bikes parked where no racks present.</td>
</tr>
<tr>
<td>DHH</td>
<td>8</td>
<td></td>
<td>8</td>
<td>16</td>
<td>Not incredibly packed except ease side</td>
</tr>
<tr>
<td>Hillside</td>
<td></td>
<td>21</td>
<td></td>
<td>21</td>
<td>Loops useful but indoor space very cramped.</td>
</tr>
<tr>
<td>Walker</td>
<td>3</td>
<td></td>
<td>3</td>
<td>6</td>
<td>probably sufficient for amount of use</td>
</tr>
<tr>
<td>Rosza</td>
<td>1</td>
<td></td>
<td>1</td>
<td>2</td>
<td>generally a sufficient amount, at most one more</td>
</tr>
<tr>
<td>Fischer</td>
<td>7</td>
<td></td>
<td>7</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Rekhi</td>
<td>2</td>
<td></td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Library</td>
<td>9</td>
<td></td>
<td></td>
<td>9</td>
<td>Most were not visible or easily accessed on a bike. Also feels a like too many for amount of traffic.</td>
</tr>
<tr>
<td>MUB</td>
<td>2</td>
<td></td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td>10</td>
<td></td>
<td>10</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>SDC</td>
<td>8</td>
<td></td>
<td>8</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Admin</td>
<td>2</td>
<td></td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>M&amp;M</td>
<td>5</td>
<td></td>
<td>5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Dillman</td>
<td>2</td>
<td></td>
<td>2</td>
<td>4</td>
<td>Over populated</td>
</tr>
<tr>
<td>Dow Environmental</td>
<td>2</td>
<td>6</td>
<td>8</td>
<td>Should have rack by Cliff Drive</td>
<td></td>
</tr>
<tr>
<td>EERC</td>
<td>4</td>
<td></td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Chem Sci</td>
<td>3</td>
<td></td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>MEEM</td>
<td>6</td>
<td></td>
<td>6</td>
<td>12</td>
<td>Over populated including people attaching to trees</td>
</tr>
<tr>
<td>ROTC</td>
<td>1</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Academic office</td>
<td>1</td>
<td></td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Michigan Tech Trail System**—Michigan Tech has a very extensive trail system located on the upper portion of campus. This system contains about 22 miles of trails that are used for mountain biking, running, hiking, and dog walking. In the winter months these trails are also used for cross country skiing and snow shoeing. Below is a map of the designated Tech trail system. This Trail system connects to the local trail system that can take users away from campus toward the towns of Chassell and South Range. The total system including the campus owned portion involves around 50 miles worth of trails. The Red outline on the map shows the area that is owned by Michigan Tech. All the surrounding areas are public property.
**Bicycle Riders and Bicycle Use at Michigan Tech**

Before looking at what types of changes need to be done a set of definitions should be made. The types of riders that will be using the facilities, as well as how they will be moving around campus, and what types of activities they will be participating in.

When looking at the types of bicycle riders that are on Michigan Tech’s campus, there are two that are easy to see. Both recreational and commuter bicycle riding is performed on campus at the same time.

1. **Recreational Rider** – A rider using their bicycle for the sole purpose of enjoyment, amusement or pleasure. Generally considered to be having “fun.”

2. **Commuter Rider** – A rider using their bicycle for the purpose of getting from one location to another. Can also be considered an alternative to driving a car, or other mode of transportation.

Both recreational and commuter riders can also be classified into different levels of ability. It is important to define what ability levels are present on campus, both for safety on the campus as well as what types of educational sessions should be provided. There are three main types present on campus.

1. **Beginner** – Can be picking up the use of a bicycle for the first time or may just have very little experience. Will have the most benefit for educational sessions about safety and proper use of the bicycle and facilities.

2. **Intermediate** – Has bicycle riding experience, but is not an avid bicycle rider. Gaining experience and knowledge of their bicycle in different situations.

3. **Experienced** – The most knowledgeable bicyclists on campus. Will have the most control of their bicycle while riding. Much more hesitant to change their ways in safety and usage.

After defining what types of bicyclists will be using the campus for their riding purposes, it is good to figure out what types of transportation systems they will be using to move around. On campus, there
are four types of facilities that could accommodate the needs for linking facilities and destinations within the boundaries of Michigan Tech’s campus. Although on campus there are not many roadways, it is important to look at what types of roads will be used to get to and from the campus for commuting. This is also important for things such as education sessions, making sure students know how to use each type of roadways safely.

1. **Shared Roadway (no bikeway designation)**
   Cars, bicyclists and pedestrians share the same roadway; no special signage or extra lane exists.

2. **Signed Shared Roadway**
   Cars, bicyclists and pedestrians share the same roadway but signage identifies it as a bicycle route, which creates more awareness that bicycles are present.

3. **Bike Lane or Bicycle Lane**
   A wide shoulder is provided along a route that is designated as a bike lane. A bike lane is usually separated from the traffic lane by a wide white stripe, pavement markings and signage.

4. **Shared Use Path (hard or natural surface)**
   Separate part from the roadway for bicyclists, pedestrians and other non-motorized use.

Additional things to consider when selecting a facility are continuity, parking, barriers, directness, accessibility, aesthetics, personal safety, limited stops, conflicts, maintenance, surface, traffic conditions and surface quality.

**Ten Year Plan Goals and Objectives**

There are three goals that have been developed that will help to direct both long and short term bicycle plans in the coming years. There are attached objectives that will get these from goal to implementation on Michigan Tech’s campus.

**Goal 1:** Design, Construct, and maintain adequate bicycle parking for Michigan Tech students, faculty and staff.

1. Look at what currently exists, and if it is adequate for the current usages
2. Find what types of facilities students, faculty, and staff would like to have on campus. As well as where they would like to see racks moved to or from.
3. Design new racks, either personally or professionally.
4. Place new racks around campus
5. Continually inspect bicycle parking structures and perform needed maintenance operations when needed.

**Goal 2:** Create a smarter, safer, bicycle rider population at Michigan Technological University through education. As well as promote bicycle riding on campus

1. Create educational programs that will teach safe habits for all levels of bicycle riders.
2. Create a website associated with Michigan Technological University that will show all bicycle related facilities on campus. Include things such as bicycle renting, repair locations, maps, and rack locations, etc.
3. Create more interest on campus for bicycle usage year round. Host special events, incentives programs for registering your bicycle with the school, etc.

Goal 3: Design, Construct, and maintain easily accessible pathway(s) from Michigan Tech’s main campus to the water front trail on the portage lake.

1. Find potential locations for paths leading from campus to river front trail.
2. Use construction standards to create potential pathways to state regulations
3. Pick best option, then construct pathways
4. Continually inspect and maintain bicycle pathways for the safety of all who use them.

**Action Plan**

From the goals identified above, a system has been designed to make sure that everything is completed. For ease they will be segregated into four categories; parking ease, ease of transportation, maintenance and repair, and education.

Parking ease:

There are some changes and additions that need to be done to the bicycle parking system; as well as constant maintenance of current facilities.

- Location – Add bicycle racks where needed. Make sure all major entrances are sufficiently accessible
- Covered Bicycle stations – Add covered bicycle parking on campus for inclement weather and winter use
- Renovate bicycle racks to the style of rack that students find easiest to use.
- Keep bicycle racks out of areas that pool with water, creating a hard place for students to place their bicycle without getting wet.
- Make locations on campus that bicycle racks are easily accessible year round, even in the winter.
- Create an easy system to monitor and maintain racks.

Ease of Transportation:

Students ride their bicycles to class on the same pathways as students who are walking to class. For easy and safe movements to, from, and on campus there need to be some changes to the current system.

- Make sure main locations where bicycles cross the street have slopes to and from street level for easy transition while crossing
- Making sure that sidewalks are kept smooth and remove potholes for same pathways
- During colder months make sure pathways are as dry and removed of ice as possible
- Making sure downhill paths are kept clean and don’t end into heavy traffic roads if avoidable.
- Create easy to follow paths from river front trail to campus
- Create easy to follow path from campus to SDC and Tech Trails

Maintenance and Repair:
Bicycles need maintenance for optimal use and to keep wear from usage to a minimum. Also if there is minor or major repair that need to be performed, students should have an ability to fix them on campus.

- Create and place remote bicycle repair stations on campus for maintenance and minor repair abilities
- Assist OAP in creating a repair location on their premises so major and minor repairs can be performed by a knowledgeable staff on campus.
- At local bicycle shops create student discounts for tune-ups and major repairs.

Education:

Students of many ability levels will be using the Michigan Tech campus for bicycle commuting and recreation. Education of how to properly use equipment and facilities will create a safer atmosphere for bicyclists and pedestrians alike.

- Open educational sessions to learn about helmet safety, proper bicycle use, and other equipment related topics.
- Sessions explaining facilities given on campus. Includes bicycle racks, covered parking, repair stations, and on campus rental abilities.
- Educational session about how to get to Tech trails and how to safely use mountain biking trails including dirt jump region.

**Funding Options**

One main hurdle in looking for funding possibilities is that advertising of off campus companies is prohibited on campus. This causes a problem when looking for places such as restaurants and stores to sponsor the creation of items such as bike racks. Even with that there are other forms of funding possible.

The main funding source for the creation of new amenities on campus as well as upkeep of these amenities is Michigan Technological University. As Michigan Tech makes changes to the campus the work of attaching bicycle changes to those projects is something this group is working on as well. The facilities department on campus has shown interest in making changes to the campus, in hope to create a better system for both students to use and easier for facilities employees to work with.

The University Student Government has shown interest in giving money for the creation of bicycle racks. At this moment no money has been given, but it is a group that will be looked into more in the future. This opens the idea of possibly having on campus groups sponsor a bike parking structure and be able to have a space to post events on campus or put their name out there to the students. This ability would not only benefit the different organizations but it would benefit the students since they would be able to have more access to information around campus.

Overall, there are multiple sources in funding for the various projects that need to be completed over the coming ten years. Figuring out which ones will be the most useful is an ongoing task that will constantly be looked at over the next ten years.
Implementation Strategy

In order to meet the future demands of bicyclists commuting back and forth, it is advised that an implementation strategy be put into effect. This strategy is geared towards the standard that the League of American Bicyclists have set forth pertaining to the five E's. They are engineering, encouragement, education, enforcement, and evaluation and planning. The timeline attached in back, shows when each change will be taking place over the next ten years.

Engineering

Engineering is by far the most thought of when it comes to people looking at how to improve campuses bike friendliness. It’s not always the complete fix to the problems, but it is a very important step in creating a better environment for bicycle use.

Bike Repair Stations

Currently there is a plan for bicycle repair stations to be placed on campus by the end of summer 2013. The suggested number would be a total of four repair stations. Two repair stations on the main campus will be located near the main traffic areas. There will also be a location on the river front trail. A specific location is not designated, but it is suggested to put near a currently standing building for ease of maintenance. The last location will be up near the main entrance to the Tech Trails. All four locations are shown in figure 5 below.

![Figure 5: repair stations locations](image)

Covered Bicycle Parking

Preliminary Covered Parking (Summer 2013)

From looking at the survey data (shown below) it is obvious that students would like covered bicycle parking on campus. It is expected that the use of any covered parking will be used but knowing exactly how many stations we need is hard to tell. Also, covered parking stations are fairly expensive so we would like to make sure wasteful spending takes place. With that being said, the suggestion is to put one parking structure in a central location on campus and watch how much use it gets.
McNair Covered Parking (Summer 2014)

McNair has a very large bicycle parking area on the east side that is currently open to the outside environment. Covering this area with a simple metal type roof would keep the bicycles safe in inclement weather without adding many structures around the building. For West McNair, bike lockers would be a good possibility for covered parking since there is quite a bit of open space in the court yard. These bike lockers would have a lock and could be rented out to students for a low cost. These lockers are also an option for any of the other residence halls located on campus.

Wads Covered Parking (Summer 2015)

Wadsworth Hall is the largest residence hall on campus. Since this is the largest population of students it is rather important to create locations that the students can safely store their bicycles. At the current moment, find a good location for covered parking spaces is tough since there is quite a bit of landscaping around the building. The best option found so far is a location behind the building that is a parking spot (shown in figure 8).
Main Campus Covered Additions 1 (summer 2015)
After two years of having the preliminary covered parking location in use, more locations should be built in correlation with the amount of expected use on campus. If the preliminary rack is usually full it would be good to add, but if the preliminary location does not get as much use as originally expected it may be a better idea to not build more structures at the current time.

DHH Covered Location (Summer 2016)
Douglas Houghton Hall (DHH) is the smallest residence hall on campus. Even though it is the smallest it is still a good idea to create some covered parking structures on the building for the students that live there. Luckily DHH has a lot of open areas around the building, this makes it easy to add an overhang to the side of the building and create relatively cheap covered parking (Figure 9). The other option is to put a station in the large open area right in front of the building, shown in figure. This covered parking could be on one or two sides of the building, depending on what is deemed needed at the time of implementation.

Main Campus Additions 2 (Summer 2017)
This is the same as stated in Main Campus Additions 1. Evaluation of the bicycle parking structure over the previous couple of years will allow the bicycle committee as well as facilities to decide if more covered parking structures are needed, as well as the best locations.
Bike Paths

River Front Connection Paths (Summer 2018)
Michigan Tech has a very nice river front path that runs right next the campus. The main problem is that there is a large hill between campus and the path and at the current moment there is no good route to get from the main campus to the path. The creation of a bike path on both the east and west side of the campus will allow students to use the river front path for commuting to and from campus easily.

East path – The east bike path seems to be relatively simple. The path is expected to run from a location near the Rosza parking lot east down the hill. This can be relatively straight since there are no large obstructions on the hill in this direction. This path should have a relatively shallow gradient to make it easier for students to use.

West path – The west path creates many obstacles. To start this seems to be the steeper part of the hill; as well as there is a road, electrical station, and various buildings in the area. At the current moment, the exact path route and location is being researched.

Both potential paths are shown below in figure 10.

![Figure 10: Potential Bike Path Locations](image)

Upper Campus Connection Path (Summer 2020)
The main campus is all on a relatively flat section of land. The Student Development Complex (SDC) and the Tech Trails are up on top of the main hill in Houghton. At this moment bicycle riders have no designated path up to these locations besides following the road. It is strongly encouraged to create a path that would allow easy access from the main campus to the upper campus while keeping the bicycles away from the heavy pedestrian and car traffic.

From these ideas a generalized route has been looked at. At the current moment we do not have an official path design. This path would hopefully include easy access to the Forestry Building as well as the Mineral Museum. This path also has the added bonus of creating a connection between the parking lot and Sherman Field, which can be used for more than just bicycling purposes. The potential path is shown below in figure 11.
Ruby Avenue Bridge
Many commuters need to cross US 41 near Ruby Avenue. With the curve on College Avenue from the west, cars turning off Cliff drive, and hills sloping up on both sides of the road; this crossing area sometimes feels very dangerous. With the creation of the Alumni Way this may become even busier than it currently is, adding to the potential danger. Because of all of these potential dangers a bridge starting on the corner of Ruby Ave and Vivian St should be created. This bridge would be for pedestrians and bicyclists only; allowing all forms of automobile traffic to cross under.

One main advantage to building a bridge at this location is that Ruby and Vivian are elevated above US 41; since the bridge would start above the road surface there is potentially no need to create large pillars to raise the bridge above the logging trucks that frequent the road. On the campus side of the bridge there is no need for stairs either since there is plenty of space for the bridge to come to the surface level. The advantage of having no pillars or stairs is that bicyclists would be able to easily walk their bicycle across the bridge. Below is a simple map depicting where this location is.
**Bike Commuter Locker/Shower Room**

The final facility that should be added to the campus for bicycle commuters is a locker and shower room. This would be useful for staff, faculty, and students who would like to ride to campus and then be able to change into professional attire before teaching, or interviews, etc. Also on hot days the showers will allow students and faculty to rinse off so they are comfortable during the work day.

The locker and shower rooms should be looked at as options for buildings as they are renovated. Also, if any new buildings are created on campus, these types of facilities should be added into the design. Besides being useful for students, faculty, and staff; these facilities would be a great selling point for Michigan Tech to use.

**Education**

Through education sessions the school can make sure that students are ready for bike commuting around campus. Both through sessions teaching personal safety and what facilities are available on campus, including how to use them, the school can achieve a very safe place for both bicyclists and pedestrians.

**Orientation Sessions**

A prime area of providing education to students would be during Michigan Tech’s orientation week. This is a weeklong orientation session where incoming students come in before classes and get a feel for campus. Part of Orientation is a series of educational sessions that students can choose to go to and learn about various aspects of campus life. Having a bicycle usage orientation session would be a great way to start a safe bicycle riding mentality on campus. These education sessions could also have extra parts such as bike registration and selling bike locks at a discounted rate at the event.

**OAP Repair Teaching**

The OAP club has many students who are very knowledgeable in repairing bicycles. They also rent out bicycles to students at a discounted price. Showing students how to fix their bicycle is a great way to
keep a safer area for bicyclists. This also helps because students will then know how to fix their bicycle while on campus and using the remote repair stations.

**Mountain Biking P.E. Class**
Another area being looked into is having a biking physical education (P.E.) class. Currently there is a P.E. class that takes students on bike rides around the area but it only lasts a few weeks out of the 7 week program. This new class would hopefully last a full seven weeks, as well as different levels like many of the other P.E. classes that are offered at Michigan Tech currently. Having a beginner, intermediate, and advanced class would allow students to safely grow as bicyclists at Michigan Tech and help them to graduate with new skills for a healthy lifestyle for the rest of their life.

**Encouragement**

**Spring Fling**
During Michigan Tech’s celebration of the snow leaving, most organizations on campus set up booths around campus to get the word out about their organization. This would be a great time to expand the knowledge of the bicycle committee on campus, and gaining more members. Also at this booth showing the future changes to campus will help to get the students interested in the changes and voice their opinion about what they want to see changed.

**Helmet Benefits**
Helmet use is something that is currently lacking at Michigan Tech. Having a reward system to raise the number of students that wear helmets would be a great way to encourage this behavior. The exact reward system can be designed around what would get the students interested.

**K-Day**
At Keweenaw Day (K-Day), students are shown what organizations and clubs are on campus for them to get involved with in the coming year. This event is generally held the weekend after the first week of the fall semester. This is a great time to again get interest in the committee as well as the changes coming to campus.

**Before School info**
Michigan Tech sends fliers to accepted students before they head up to school for their first semester. Having information in those fliers that explains why they should bring a bicycle to campus and shows what facilities are available on campus will be a great way to reach the students before they are up here and have already decided to bring their bike or not. This is also a good place for the school to say that we have bike friendly staff once it has been awarded.

**Other Various Events**
There are several other ways to encourage biking on campus. These possible events are not timeline types of events. Michigan Tech already has extensive maps of bike paths in the area. These maps encompass paths both on and off road. Spreading those fliers out around campus would be a good way to get the word about the trails out. These could be formatted similar to how maps are found in state parks other outdoor tourist attractions. The City of Houghton’s Bike Friendly Committee works to promote bicycle commuting through “Bike to work day,” Michigan Tech could work with the committee and expand the event to the campus as well. Other events such as bike races are also options that would be good for the future.
Enforcement
With the expansion of the biking network as well as more facilities for the campus population to use we will need to expand enforcement procedures. Enforcement does not just mean more patrols, tickets, and such; it also means creating registration procedures and an added connection between public safety and the biking population. Enforcement patrols will be modified as needed over the next ten years. Since the expansion of bicycling on campus is not known completely it will be up to the decisions of public safety as to patrols, tickets, and other methods of enforcement.

Registering Bicycles
On campus bicycles are supposed to be registered with Public Safety. This mostly helps to track a bicycle in the occurrence that it is stolen. In the fall of 2017 our goal is to have 50% of the bicycles on campus registered. After that is met the goal moves up to 75% by the fall of 2022.

Evaluation
Evaluation will be a constant task over the next ten years. Evaluating how bike racks are being used and how students are liking the changes will allow the school to make biking on campus as nice as possible. Evaluation of helmet use, crash statistics, theft rates, rack usage, winter use, etc. will help the bike committee figure out what changes should be made as needed.