

4/20/2016



Implementation of Alternative Transportation Infrastructure

ENVS 4100: CAMPUS AS A LIVING,
LEARNING LABORATORY

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**WESTERN MICHIGAN
UNIVERSITY**

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Executive Summary

Western Michigan University is home to Kalamazoo a vibrant community. Currently there are many risks associated with the flow of foot traffic and bicycle traffic on campus. As cycling culture continues to grow in the Kalamazoo community it is important for Western to be on the forefront of accommodating non-motorized transportation.

With the agreement in 2012 to become carbon neutral by 2065, as stated in WMU's Climate Action Plan, focusing on increasing safety for bicyclists and promoting healthier and more sustainable forms of transportation is essential to achieve our goal in reducing greenhouse gas emissions. This report utilizes research and recommendations from prior reports that proposed the implementation of shared-use pathways on existing sidewalks throughout campus.

The main focus of this report is to follow up on phase 1 of previously proposed pathways in Kevin Martini's report, *Best Practice Study of Bike Friendly University Sidewalks and Signage Policies*. Working with Mr. David Dakin who is involved with the Wayfinding Initiative project which is currently in the schematic design phase and being carried out by Campus Planning, could be leveraged for the development of proper and safe alternative transportation infrastructure.

Recommendations in the immediate future should focus on a pilot project, which provides safety and accessibility for all people traveling through the West Michigan Ave. turn around underpass near Parking Services and Faunce Student Services. This blind, curved underpass is an exceptionally dangerous and high risk space that needs to be managed properly by the university.

The report also proposes that shared-use pathways, through two high traffic corridors on main campus, be constructed and incorporated in the Wayfinding Initiative project by understanding best use practices of painted, on-pavement marked signage for campuses.

Introduction

Commuting of faculty, staff, and students is the second major contributor to greenhouse gas (GHG) emissions according to WMU's first ever GHG emission inventory from 2009. The inventory found that 21% of total carbon emissions from Western Michigan University was caused by commuting to, from, and around campus.

Since the university adopted the Climate Action plan in 2012 little has been done to acknowledge and remedy the lack of quality infrastructure for alternative forms of transportation. Recommendations for reduction of GHG from commuting by the authors of the Action Plan were to, "improve infrastructure for non-motorized commuting options (mainly walking and cycling)," and to "improve maintenance of non-motorized routes." The authors also note how carrying out these improvements, "would involve working with the city of Kalamazoo to ensure that bike lanes or off-street trails exist to connect all nearby student residences with the campus." Also recommended was the emphasis of connections to campus from all surrounding areas being accessible and safe with smooth riding surfaces and strategically placed bicycle storage.

An important step in aligning our campus with the desires of the Kalamazoo community and commitments to our environment is to construct pathways that can be used by pedestrians and people on bicycles. By implementing the pathways proposed originally in Kevin Martini's report and again in this report bicyclists can ride on campus. It is important for campus planning to get behind the research that has been done so far and to work in cooperation with the Office for Sustainability, student interns, and students from other groups on campus in designing proper infrastructure.

Currently it is against school policy to ride bicycles on campus sidewalks according to section 5.8 of WMU's current Traffic, Parking, and Pedestrian Ordinance. If the lack of proper infrastructure and the lack of proper enforcement of traffic policies on campus by public safety is

not addressed campus will continue to put pedestrians, people on bicycles, and especially people with disabilities in unsafe conditions, limiting the overall attractiveness of the campus setting.

The Wayfinding Initiative project is being carried out by Campus Planning and is going to improve how people find their way around campus. By strategically placing signage at specific locations this project will ensure more efficient ways to approach, arrive, circulate, park and find buildings on campus.

Methodology

Campus is surrounded by protected bike lanes and is a main access point for many students who are trying to reach the downtown area. Throughout campus there are bike racks intended for high volumes of bicycles and all new buildings on campus incorporate bicycle parking into construction, which clearly encourages the use of bicycles as a means of transportation to campus. Since the policy in Section 5.8 states “no person shall operate any bicycle upon other than established roadways, parking areas or bicycle paths” is currently unenforced and there is no signage that informs bicyclists to dismount and walk their bicycles, many people don’t know that riding bicycles on campus sidewalks is against university policy. The potential for negative implications from this are vast but what is most significant is that currently bicyclists have no rights on university sidewalks which is a major deterrent for prospective bicycle commuters.

The underpass at the West Michigan Ave. turnaround on campus should be a main priority of concern for the University. Since there is no signage to direct people or control traffic flow, pedestrians walk on whatever part of the sidewalk they want. Also since there is no signage directing bicyclists to slow down many times bicycles move through the underpass at high speeds around the blind curve. This area could be a part of a pilot project that works to design proper signage that increases the safety of people travelling through the underpass.

Carrying out Phase 1 which was proposed in Kevin Martini's Sidewalk and Signage Policies report is going to be the most important step to improving campus infrastructure. Without the implementation of established pathways any encouragement for bicycles on campus will be ill-advised.

By identifying what the main outcomes of Campus Planning's Wayfinding Initiative project, we can better understand the timeline of when next steps should be taken. Wayfinding will be an integral part of making shared-use paths more accessible and easier to navigate through, which would encourage more efficient traffic flows. Working with Mr. David Dakin of campus planning in the future will be critical in order to communicate the potential impacts, both positive and negative, that proper implementation can have. Mr. David Dakin could also open communication with Cloud Gehshan Associates, which is the company that is working with campus planning to develop a master plan for improving wayfinding on campus.

Examples of Best Practices

Included in Kevin Martini's report was an expansive review of certified Bicycle Friendly Universities and each school's, "approach to traffic ordinances, codes, or official policies relating to the use of bicycles on sidewalks." Each of these schools have unique policies in order to deal with bicycling on campus. Out of the 22 universities identified in the report, "6 of them forbid riding bicycles on sidewalks without exceptions, 4 allowed riding on sidewalks with exceptions, 4 forbid riding on sidewalks unless they were established shared-use pathways, and 1 allowed riding on sidewalks except in pedestrian zones."

This shows that there is no uniform set of policies for universities to follow that controls traffic on campus. Each university must develop policies based on the existing infrastructure and the way traffic flows through the campus. In the report Kevin mentions that, "a representative from the

University of Oregon stated that they found on-pavement markings to be highly effective.” WMU has expressed the desire for lane markings on campus to be primarily on-pavement markings which means that the University of Oregon’s infrastructure may be a good resource in developing pathways at Western’s campus.

Discussion

The wayfinding initiative is a project that works to carry out these four main goals:

- Improve the experience of visitors, as well as students, faculty and staff in navigating the campus environment.
- Develop proposals for upgrading campus maps, nomenclature, signage and digital applications to improve the clarity of wayfinding.
- Develop a consistent nomenclature for naming of campus, streets, buildings and landmarks.
- Provide a hierarchy of signage elements for campus approach, arrival, circulation, parking and buildings.

The timeline for this project is to finalize the schematic design phase this fall of 2016. Once the designs are finalized, spring of 2017 will be spent getting the proper construction approvals, allocating funds, and contracting necessary companies. During the summer of 2017 all construction will be carried out and is scheduled to be finalized before classes start in fall of 2017.

The Wayfinding project is going to change the way people navigate the campus and should help to alleviate confusion at high circulation areas on campus as well as make certain aspects of campus more noticeable. Potentially the Wayfinding project could be a perfect way to promote newly constructed pathways, especially at major gateway locations on campus. If Cloud Gehshan

were to review the pathways that are proposed and campus planning adopted the idea of implementing shared-use pathways on campus, proper signage could be developed and utilized for wayfinding, which would let people know where designated bike ways are on campus.

Conclusion & Recommendations

Based on the information received from Mr. David Dakin we can conclude that if properly proposed, the implementation of shared-use pathways on campus is potentially a project that could mutually support the Wayfinding Initiative. Also, it is important to utilize the recommendation that on-pavement signage is highly effective in displaying the intended uses of the trail ways.

What shared-use pathway pavement markings will look like at Western Michigan University is something that has yet to be determined. There are many different illustrations that are used all around the world, they are dependent on the environments that they are deployed in and the dimensions of the paths they are on. Developing a report that specifically identifies the best practices of shared-use pathway on-pavement markings at Bicycle Friendly Universities is highly recommended.

A pilot project that helps to slow down and organizes the direction of traffic at the underpass near the turnaround on West Michigan Ave. is also recommended. A study included in the Federal Highway Administration University Course on Bicycle and Pedestrian Transportation, *Evaluation of Safety Design and Operation of Shared Use Paths*, found that “center line stripes have a significant impact on how bicyclists tend to operate on shared–use paths.” They found that striped center lines influence a bicyclist’s perception of freedom to maneuver on a pathway, reinforcing the ability to pass slower traffic by moving into the oncoming lane if it is clear. Although

a striped center line should be used throughout campus, to delineate opposing travel lanes, it is clear that the underpass should use a solid centerline stripe to keep bicyclists from moving into the oncoming lane. There should also be pavement markings that inform bicyclists to SLOW DOWN prior to going through the underpass.

The City of Kalamazoo is currently working on a downtown connection of the Kalamazoo River Valley shared-use trail way. This connection could potentially create pathway corridors that would connect WMU, Kalamazoo College, and KVCC to the KRVT and downtown business areas. The proposed shared-use pathways would connect many existing, protected bike lanes with designated trail ways that lead to major recreational areas around Kalamazoo providing a better quality of life for people who live near campus. This connection exemplifies some of the vision and goals that Kalamazoo is striving to attain, it is important for WMU to improve its infrastructure to support the mission of the surrounding community. By working with the City of Kalamazoo we can develop uniform signage and infrastructure throughout all of Kalamazoo.

Contacts

- Mr. David Dakin- Director of Planning, Space Management and Capital Projects

References

Martini, Kevin, “Best Practice Study of Bike Friendly University Sidewalks and Signage Policies”
https://wmich.edu/sites/default/files/attachments/u159/2014/WMUNonMotorizedTransportationPolicyReport_0.pdf

WMU Climate Action Plan, 2012
http://rs.acupcc.org/site_media/uploads/cap/1028-cap.pdf

Federal Highway Administration University Course on Bicycle and Pedestrian Transportation, 2006
<http://www.fhwa.dot.gov/publications/research/safety/pedbike/05085/chapt19.cfm>

Campus Planning Wayfinding Initiative

<http://www.wmich.edu/facilities/planning/wayfinding>

Appendix 1

Distances = ~10,350 ft. of shared use pathways, and ~3,696 ft. of shared road lane marking

Figure 1: Phase 1 of proposed Pathways with approximate distances

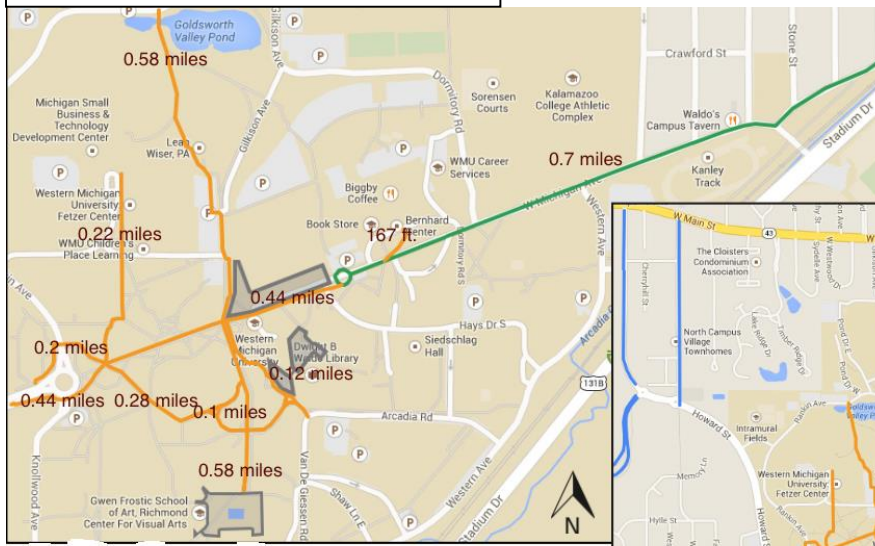
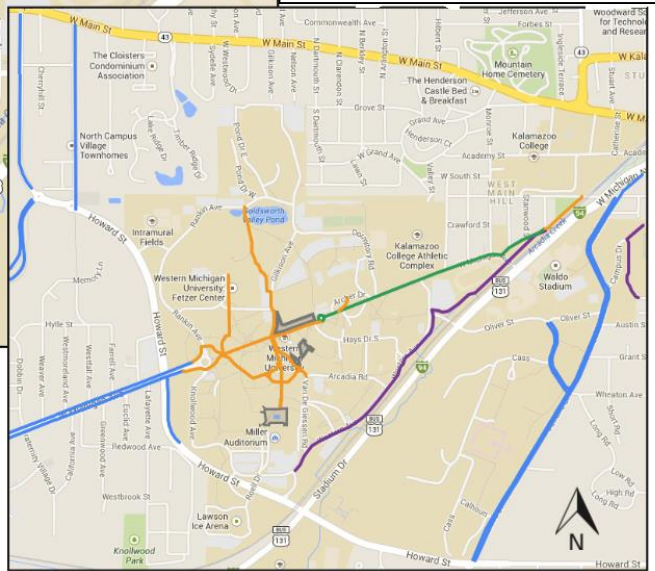


Figure 2: Phase 1 & Existing Infrastructure



The map illustrates several categories of pathways:

- **Purple** is used to designate pedestrian pathways, these are to serve as walking-only paths
- **Orange** represents shared-use pathways, where both cycling and walking are allowed
- **Green** roads feature shared-lane marker to encourage safe co-travel between motorists & cyclists
- **Blue** paths represent preexisting on-road bike lanes, to be used exclusively by bicycle traffic

In addition to pathways there are also markings suggesting dismount zones in intentional pedestrian congregation locations, these areas are marked in gray (🚶)