Bicycle Transportation at UMass

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Introduction

- Objective
- Observations of the As-Is Network
- Research Findings
- Current Problems
- Recommended Solutions
- Costs of Improvement
- Conclusion

Objective:
Increase Bicycle Commuting

- Shorter commute time on bike than driving

  Considering: *Warming up your car, traffic lights, pedestrians, parking, paying, walking to class…*

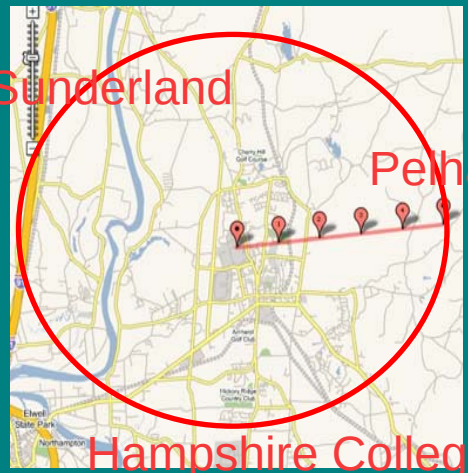
- Health Benefits
- Less Pollutions
- Don’t pay for gas or parking
- Closer parking spot
- Quicker on-campus movement

Observations:
Volume of Traffic

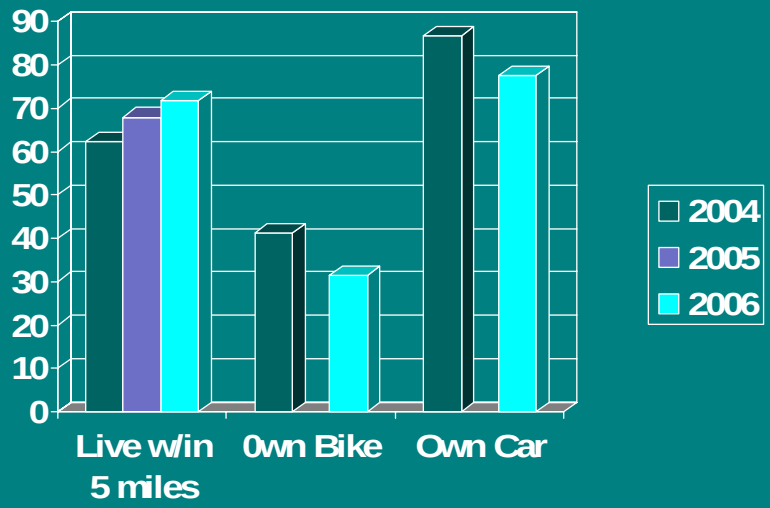
2004 to 2006 statistics:

Source: Sareo Transportation Surveys

- 2004
  - 62.3% live within 5 miles of campus
  - 41.2% own a bike
  - 86.7% own a car
- 2005
  - 67.9% live within 5 miles
- 2006
  - 71.8% live within 5 miles of campus
  - 31.5% own a bike
  - 77.5% own a car



Note: 5 miles is a 20 minute to ½ hour bike commute for the average person.



Observations:
The as-is condition and hypothesis

- Campus enrollment has risen:
  - 2004: 22,498.2 *(full-time equivalent)*
  - 2006: 23,410.7
    - 1000 person increase
    - Likely to be many more in the future
- Off-campus students live closer to campus
- **Bike commuting is down**
- Hypothesis: The condition of the network paths is the primary user cost.

Observations:
What Paths are there Now

To Campus

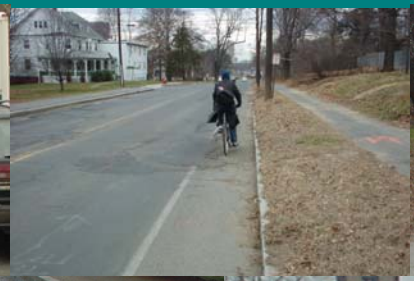
- North Pleasant*
- Eastman Lane
- Triangle Street
- Lincoln Street
- UMass Bike Way
- North Hadley Rd

On Campus

- Walking paths!

The condition of these paths is so poor that they are resulting in a very high user cost…

Problems:
To-Campus Path Conditions



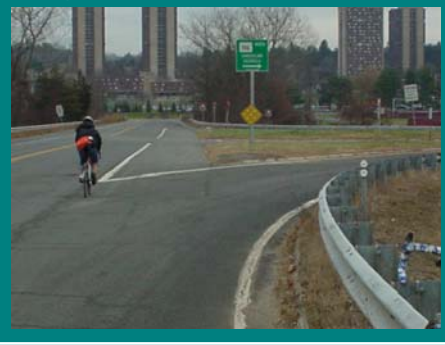
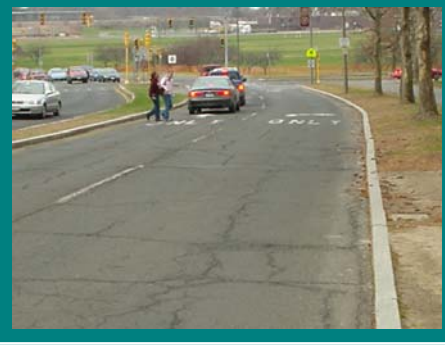




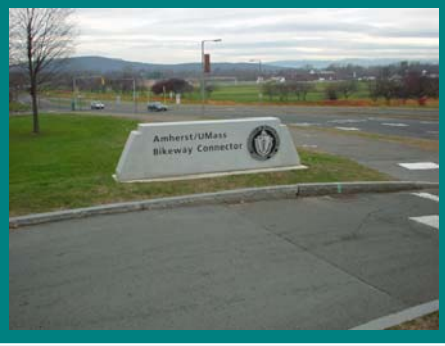
To-Campus Path Options

North Hadley Rd



UMass Bikeway





Lincoln Street




To-Campus Path Options

Triangle Street

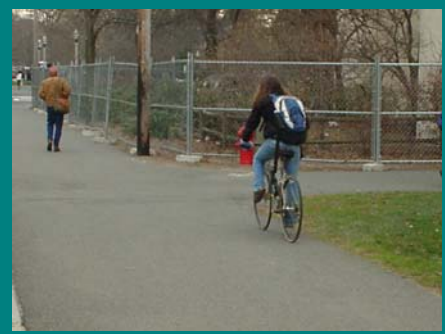


Eastman Lane




North Pleasant Street



Problems:
N. Pleasant is best among Paths

- Among all path options North Pleasant is the best
  - To campus, the bike lane is the cleanest and least damaged, but it is still not great
  - On campus the road is damaged and vehicle interference is high.

VIDEO: *"The Typical Commute"*

This video (avi) is available for download at this link: Click Here

Problems:
On-Campus Paths = Sidewalks

Campus Perimeter:

Bicycle traffic flows on the sidewalks

Campus Core:

Bicycle traffic flows on the walking paths

This condition is frustrating and dangerous for both pedestrians and bicycles

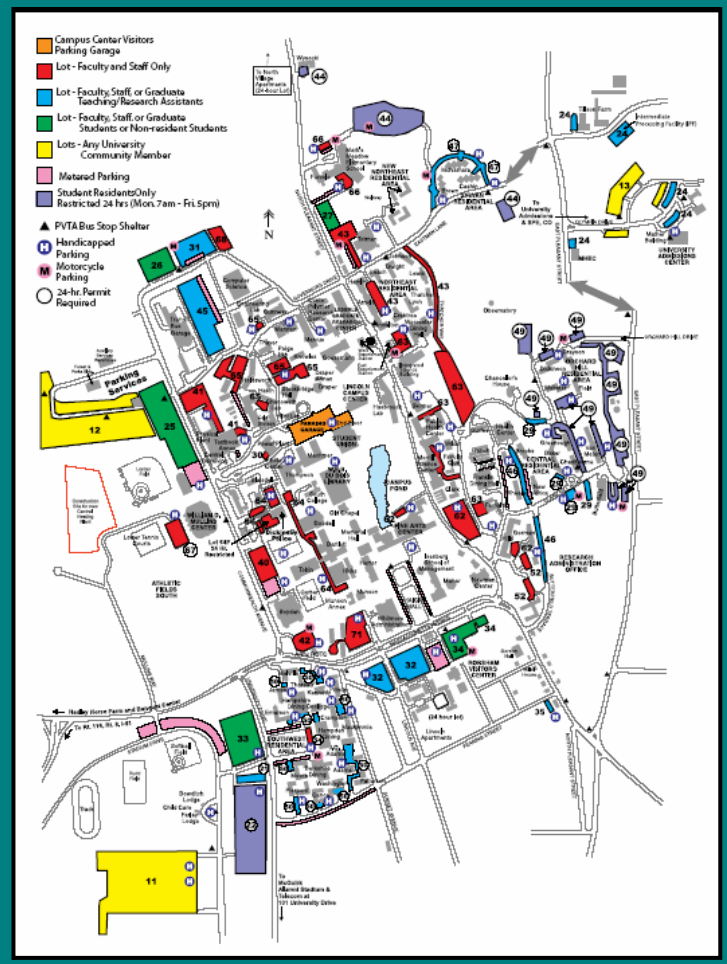
- No organized flow
- No designated paths to separate bikes and pedestrians
- Interference with each others movements
- Path intersections are congested and dangerous

Video: *"Bikes on Sidewalks"*

This video (avi) is available for download at this link: Click Here

Problems:
On-Campus Path Mess

- New buildings
  - Limited physical space
  - Vehicle congestion
    - Limited Parking
  - Disrupt travel paths
- Add-hoc addition of paths created by users and campus planners
  - Braess' Paradox likely to occur as paths are added and intersect in suboptimal manner

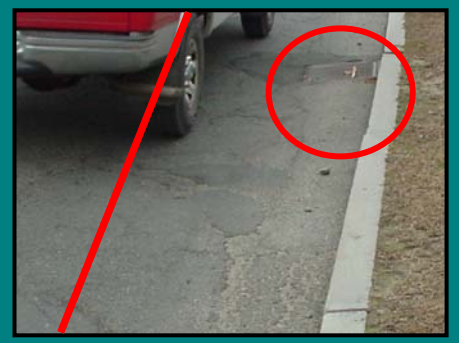


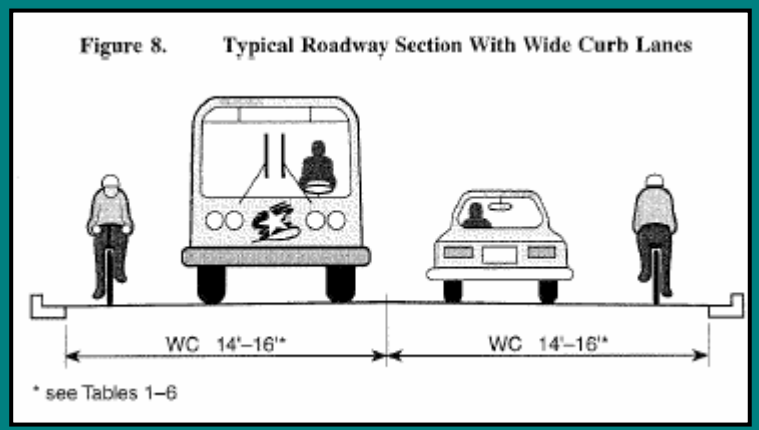
Recommendations:

1. Improve the condition of the to-campus paths
2. Educate about the benefits of bicycle commuting and etiquette
3. Address user costs to reduce objections to commuting
4. Miscellaneous secondary improvements

Recommendations:
Path Conditions

- Repair the roads
- Add adequate bike lanes
  - Clearly marked and wide
- Add signage to signal bikers where correct paths are
  - Around and within campus core





Recommendations:
Educate the Commuter Population

- UMass Parking Services: **Bicycle Commuter Program**
  - Exists but not utilized
- PVTA “Rack & Roll”
- Student orientation meetings:
  - Encourage Bicycle Commuting
  - Bike Riding Rules & Etiquette
- Campus “Bicycle Commuter Day”
  - Involve the police, bike Co-Op, UMass Bike Team
- Partner with the Bike Co-op
  - There is on-campus service for repairs and flat fixes

PVTA

Recommendations:

Educate to overcome perceived costs

- Cost: Bad weather
  - Solution1: Its okay to be a fair weather commuter
  - Solution2: Weather appropriate clothes and equipment are available at local bike shops
- Cost: Daylight
  - Solution1: Lights and reflectors are cheap and easy to put on
  - Solution2: Multi-modal commute: e.g. bike in then “rack & roll” home
- Cost: Long Distance Commutes
  - Solution1: Multi-modal commuting
    - Satellite parking areas provided by UMass that are close enough to bike
    - Take the bus for a distance then ride your bike
- Cost: Don’t want to ride and work in the same clothes
  - Solution1: May not really get all that sweaty
  - Solution2: Leave clothes at work, enough for a week or a couple days
  - Solution3: There are lockers and showers on campus to refresh and change

Recommendations: Secondary Improvements

- "Yellow Bike"
  - Take abandoned bikes and make them campus bikes
- Create Official Satellite Parking
  - Near enough to campus to bike but for people driving from a distance
- Logical link additions
  - Separated Paths on campus
  - Added routes into campus
- Covered bike parking
- Clearing snow from racks and from paths

Recommendations: System Costs vs Benefits

- These infrastructure changes will cost the school:
  - Adding signs and path markers
  - Community education
  - Maintaining roads
- But the benefits include:
  - Increased overall health of students and faculty
    - Healthy people are happier and more productive
  - Reduced vehicle congestion
    - Less pollution
  - Increased safety for the commuting population

Conclusion:

Problem: The current bicycle commuting network is in extremely poor shape

Result: The number of bicycle commuters is decreasing

Solution: The first thing to do is make repairs to the network and educate the community

- It would be impossible to overcome other inhibitions if safety is not addressed

Justification: The return on the investment (health, pollution, etc.) is worth the expense

Thank you.

Questions?

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