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
Recommendations:

Educate to overcome perceived costs

- **Cost: Bad weather**
  - Solution 1: It's okay to be a fair weather commuter
  - Solution 2: Weather appropriate clothes and equipment are available at local bike shops

- **Cost: Daylight**
  - Solution 1: Lights and reflectors are cheap and easy to put on
  - Solution 2: Multi-modal commute: e.g. bike in then “rack & roll” home

- **Cost: Long Distance Commutes**
  - Solution 1: 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**
  - Solution 1: May not really get all that sweaty
  - Solution 2: Leave clothes at work, enough for a week or a couple days
  - Solution 3: 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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