

# Transportation for Sustainable Campus Communities

University of Colorado 2005

Spenser Havlick Professor of Environmental Design,  
University of Colorado-Boulder

and

Will Toor, Boulder County Commissioner

University of Colorado 2005

## Acknowledgements

- ☀ Charles Bloom for research assistance and graphic design
- ☀ Leanne Sweeney for research assistance
- ☀ All of the students of spring 2002 Senior Seminar in Environmental Studies and Design at University of Colorado-Boulder
- ☀ This work was funded by an outreach grant from the University of Colorado Chancellor's Office

Acknowledgements

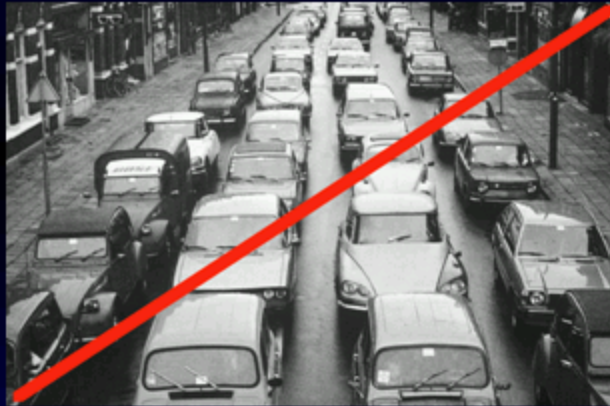
## What are universities looking for?



- ✦ Mobility and Access
- ✦ Inexpensive transportation
- ✦ Quality campus experience
- ✦ Adequate parking
- ✦ Best use of limited dollars
- ✦ Best use of limited debt capacity

What are universities looking for?

## What are communities looking for?



- ✦ Managing congestion on city streets
- ✦ Reducing student and faculty parking demand in neighborhoods
- ✦ Maintaining good relations with universities

What are communities looking for?

## The parking squeeze



- ✦ Surrounding community resents overflow parking
- ✦ New academic buildings often displace parking lots
- ✦ For many campuses, the only way to expand parking is to build structures

The parking squeeze

## Construction costs



Parking garage construction at Florida Community College, Jacksonville.

- ☀ Surface parking  
\$1500-\$5000/space
- ☀ Structured parking  
\$5,000-  
\$30,000/space
- ☀ All of these assume  
land has no cost

Construction costs

## Parking restrictions

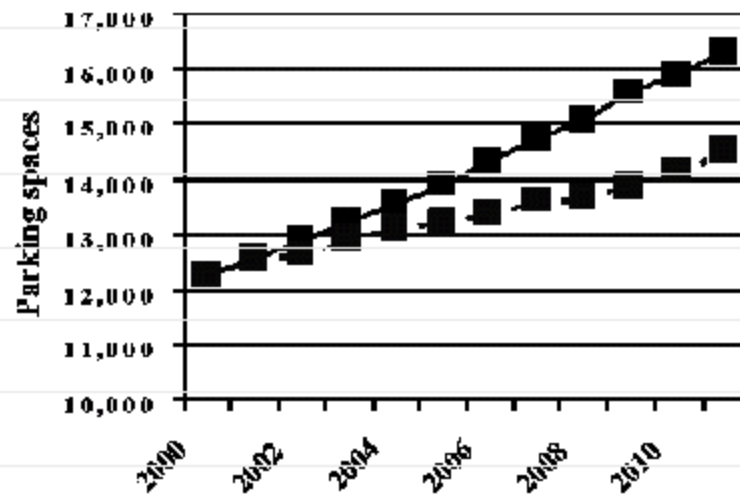
- ☀ Many schools restrict freshman/sophomore parking
- ☀ Lewis and Clark College
  - ☀ Acquiring residences adjacent to campus for faculty and staff.
    - Residents can not purchase campus parking permits



Copeland Hall at Lewis and Clark State College,  
Portland, OR

Slide 7

## Increasing prices lower demand



Courtesy of Nelson/Nygaard Associates

- Price increases required to expand parking supply lead to reduction in demand.

Increasing prices lower demand

## Cheaper approaches

### Before You Bring a Car to CU, Consider the Alternatives

	Parking	Insurance	Fare
Car	\$30+/month	\$50 to 200/month	-
Bike	\$0	\$0	-
Bus	\$0	\$0	Free w/ CU ID Card

**Bus Service Will Take You Where You Want To Go:**  
*(local and regional bus and light-rail service is free with a valid CU Student ID)*

- ✦ Transit passes typically cost \$5-\$15/month; involve no debt
- ✦ Cost of one new bicycle parking space: ~\$150; cost to get one new rider ~\$5,000
- ✦ Market incentives - net revenue gain if parking charges are increased

Photo courtesy of University of Colorado Environmental Center  
Insert fig 2.1

Cheaper approaches

## Transit pass programs



Transit super-stop

- ☀ Over 50 universities totaling over 800,000 students and staff offer transit passes
- ☀ Average cost of \$30/student per year
- ☀ Student ridership increased between 71% and 200% - inaugural year of programs
- ☀ For info: Shoup and Hess at:

<http://www.sppsr.ucla.edu/its/ua/>

Transit pass programs

## Economics of the UCLA pass



Royce Hall at UCLA, photo courtesy of UCLA

<http://www.ucla.edu>

- ✦ Pilot student bus pass program decreases parking demand by 798 spaces at a cost of \$1745/year
- ✦ To build a new parking structure, cost / new parking space is \$2041/year

Economics of the UCLA pass

## Managing demand through price



- Parking demand goes down as price goes up - ~1% per dollar
- Switching from free parking to paid parking reduces driving by 15-40%
- Expanding parking supply generally requires price increases
- In many cases managing demand through price increases will actually be less costly to parkers than a supply side approach!
- Can also pay people not to drive!

Managing demand through price

## Advantages of using financial incentives

- No use of debt capacity
- Net new revenue can be generated - unlike a supply side approach where new revenue pays for new parking
- Low risk approach - easily reversible since no long term debt

Advantages of using financial incentives

## Stanford University Clean Air Cash Program



Photo courtesy of Stanford University

- ✦ Early 1990s created financial incentives to drive less
- ✦ Employees who choose not to buy a parking permit are paid \$144/year
- ✦ Parking rates raised 15%/year
- ✦ Net effect: added 2 million square feet of buildings with no increase in traffic!

[transportation.stanford.edu](http://transportation.stanford.edu)

Stanford University Clean Air Cash Program

## Cornell University carpool incentives



- ✦ User friendly transit service
- ✦ Rideshare
- ✦ Emergency ride home
- ✦ Occasional parker permits
- ✦ Preferred carpool parking; payments to multiple carpoolers

<http://www.cornell.edu/>

Cornell University carpool incentives

## Seattle Central Community College



Photo courtesy of Go Boulder

- Every student wanting to purchase an AM pass must purchase a carpool pass
  - \$31.50 per quarter
  - Require two people per vehicle
- Significant discount compared to single occupant PM permit (\$55.50 per quarter)

<http://seattlecentral.org/>

Seattle Central Community College

## The Bicycle - vehicle for a small planet

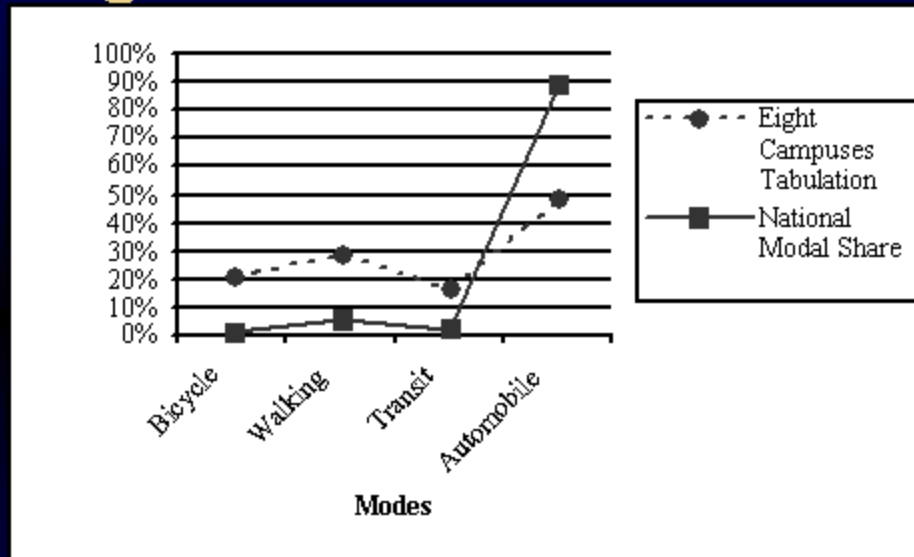


Photo courtesy of Spenser Havlick

- One bike parking space costs \$25-\$100 compared to \$3000-\$30,000 for one car
- Efficient use of space
- Most energy efficient form of transportation
- Low cost to users

The Bicycle - vehicle for a small planet

## Campus bike use can be significant



- ✦ Comparison of bicycle mode share for 8 campuses to national average.
- ✦ (Courtesy of Carlos Balsas)

Campus bike use can be significant

## UC DAVIS - taking bicycles seriously



<http://www.ucdavis.edu/>

- Generally flat land area
- About 15,000 bicycles on campus daily
- 14 miles of bicycle paths and 12 miles of shared roadway on 832 acres
- Bicycle signal heads
- Bicycle traffic circle
- 60% of student trips to campus are bike/ped

UC DAVIS - taking bicycles seriously

## Pedestrian infrastructure



Photo courtesy of Spenser Havlick

- ☀ Many campuses now have lighted crosswalks
  - University of Colorado

Pedestrian infrastructure

## Pedestrian conveniences



University of Colorado, Boulder, CO

- ☀ Underpasses
  - ◆ U of Colorado, Boulder
- ☀ Bridges
  - ◆ Southern U, Baton Rouge
- ☀ Raised crossings
  - ◆ Many Universities



Southern University, Baton Rouge, LA

Pedestrian conveniences

## U of Georgia - Athens



Before: Herty Field as a parking lot

- ☀️ Greenspace program
  - Convert major roadway through campus to pedestrian mall
  - Convert core campus parking to pedestrian uses

- ☀️ Master Plan to emphasize pedestrian oriented campus
  - Lessen the auto presence on the campus



After: Herty Field present. Photo by Peter Frey

Slide 22

## Why bring a car to campus?

- ✦ Campuses can give students access to cars without owning a car!
  - ✦ Car share programs
  - ✦ Zipcar, Flexcar
  - ✦ Stanford's on-campus car rentals
  - ✦ Cranfield University student rental program

Why bring a car to campus?

## Rental cars on campus

- ✦ Stanford University contracts with private rental company
- ✦ Students must be 18 or older to rent a car
- ✦ Students get affordable promotional rate
- ✦ Vehicles are covered by students personal insurance; Stanford risk management assists with students who have no auto insurance
- ✦ Program is marketed as an alternative to automobile ownership

Rental cars on campus

## TDM funding options



Parking Services employee collecting meter money at the University of Colorado Campus, Boulder  
Photo courtesy of Charles Bloom

- ☀ Parking revenues
- ☀ Student fees for transit
- ☀ Parking fines
- ☀ General fund dollars
- ☀ Federal funding (CMAQ, enhancements)

TDM funding options

## A comprehensive program: U Washington caps traffic!



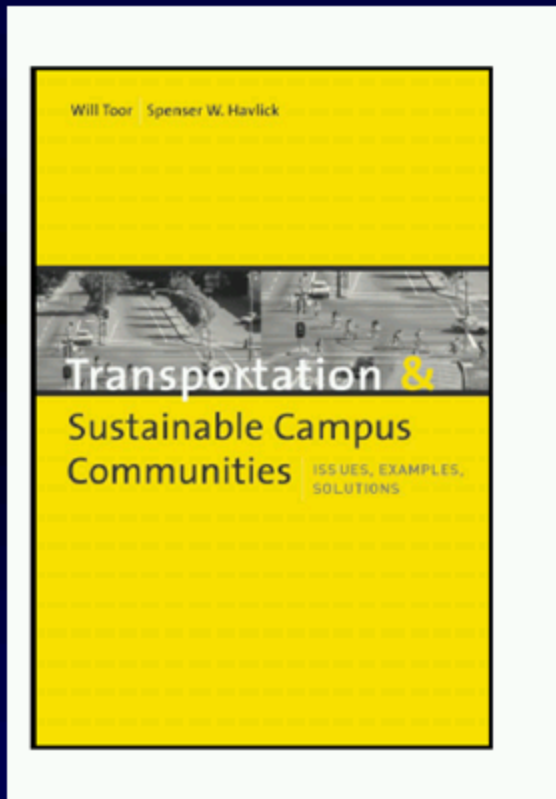
Photo courtesy of University of Washington

<http://www.washington.edu>

- Binding agreement with Seattle to cap traffic to campus
- Gradually increasing parking rates
- U-PASS
  - Unlimited rides within King and Snohomish Counties
- Results: 5% reduction in traffic during 1990s, while population grew 7%

A comprehensive program: U Washington caps traffic!

## For More information:



- ✦ For more details, check out this book!
- ✦ It can be ordered at [www.islandpress.org](http://www.islandpress.org)

For More information: