Seminar:
A Sustainable Transportation Plan for MIT

Spring 2007

1.963 Special Graduate Studies in Civil & Environmental Engineering

6 credits (1.5 - 0 - 4.5)
Wednesdays, 2:30-4:00 PM

Instructors:
J. Attanucci (Center for Transportation & Logistics)
L. Brutti (Operations Manager, MIT Parking & Transportation Office)
Course Schedule

February 7:
Introduction to transportation at MIT/Course Expectations from both the faculty and student perspectives

February 14:
Perspective on MBTA service to MIT: From the #1 Bus to the Urban Ring (Fred Salvucci)

February 21 - March 14 (4 classes): Topics to be determined

March 21:
Interim Research Reports

April 4 - May 9 (6 classes):Topics to be determined

May 16:
Final Project Presentations
Course Requirements

Assignment #1 (due February 21):
Outline of research interest, including questions to be addressed and proposed methodology (2-3 pages)

Assignment #2 (due March 21):
Interim research reports: Powerpoint presentations (10-15 minutes)

Assignment #3 (due April 25):
Outline of results and recommended strategies

Final Report (due May 9):
Written report and draft powerpoint presentation

Final Presentation (May 16): Presentation to MIT Community
Transportation at MIT

• Commuting to Work/School
  -- Lots of alternatives/no dominant mode
  -- MIT highly encourages alternative modes

• Visitors/Vendors
  -- Not many options to park
  -- Red Line helps, but not central to campus

• Mid-day travel
  -- Most to Cambridge or Back Bay destinations
  -- Easy in/easy out allows parkers to use cars if available
2006 Transportation Survey

- Raw results available; not yet adjusted for response bias

- Rough Commuter Mode Shares (not including freshmen)
  - 30-35% Walked or biked
  - 25-30% Drove
  - 25-30% Took public transit
  - 0-5% Other mode (taxi, shuttle, etc.)
  - 5% Worked at home/took time off

- Out of almost 20,000 total campus population:
  - 4,300-5,100 MBTA passes distributed monthly
  - 3,200 Regular employee parkers
  - 1,400 Occasional employee parkers
  - 550 Student parkers
Policy Options to Consider

- Parking policies and pricing
- MBTA pass program options
- MIT shuttle services vs. MBTA services
- MIT "Commuting Alternatives" services
- The Urban Ring project impact
- Campus Master Plan/physical design elements
- Housing policies
- City of Cambridge policies vis a vis street space and parking
### MIT Parking and Transportation FY07 Budget

<table>
<thead>
<tr>
<th>Parking Type</th>
<th>Spaces</th>
<th>Expenses</th>
<th>Revenue</th>
<th>EB Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employee Parking</strong></td>
<td>3,711</td>
<td>$10.5M</td>
<td>($2.7M)</td>
<td>($7.8M)</td>
</tr>
<tr>
<td><strong>Shuttles</strong></td>
<td></td>
<td>$1M</td>
<td>($145K)</td>
<td>($855K)</td>
</tr>
<tr>
<td><strong>Student Parking</strong></td>
<td>1,103</td>
<td>$560K</td>
<td>($390K)</td>
<td>($170K)</td>
</tr>
</tbody>
</table>

| **Employee Tpass** | 3,016 per month | $2.7M   | ($1.45M) | ($1.25M) |
| **Student Tpass**  | 2,250 per month | $1.3M   | ($700K)  | ($575K)  |

<table>
<thead>
<tr>
<th>Commuting Alternatives</th>
<th>Expense</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$165K</td>
<td>Bike racks</td>
</tr>
<tr>
<td></td>
<td>$10K</td>
<td>EzRide Shuttle</td>
</tr>
<tr>
<td></td>
<td>$98K</td>
<td>Emergency Ride Home</td>
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<tr>
<td></td>
<td>$24K</td>
<td>Carpools</td>
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<tr>
<td></td>
<td>$30K</td>
<td>Vanpools</td>
</tr>
<tr>
<td></td>
<td>$3K</td>
<td>ZipCar</td>
</tr>
<tr>
<td></td>
<td>$16K</td>
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</tbody>
</table>
Parking

- 4,814 spaces
- $11M expense
  - Materials and Services $700K
  - Leased Parking $1.3M
  - Interest $2.7M
  - Depreciation $2.1M
  - Institute space charges $2.5M
  - Contract Services $800K
  - Other $900K
Parking

- Parking Revenue $3M
  - Employee Revenue $2.4M
  - Student Revenue $360K
  - Violation Revenue $50K
  - Other Revenue $223K

Expense per parking space $2,285
Revenue per parking space $623
Average subsidy 73%
Shuttles

$1M Expense

- Maintenance and Repairs $164K
- Drivers (contract services) $680K
- Fuel $110K
- Vehicle Leases $70K

($145K) Revenue

- DSL and Donor $75K
- Charters $70K
MBTA Pass Program

- Payments to MBTA $4M
  - Employee Payroll Deductions $1.47M
  - Student Bursar Deductions $700K
  - Employee Subsidy $1.25M
  - Student Subsidy $575K

Average subsidy 46%
Questions

- How can we more efficiently utilize the limited P&T budget dollars?
- How can we increase services without increasing expenses?
- Can we utilize the MBTA and private shuttle routes in conjunction with the MIT shuttles to offer more service at a lower cost?
Discussion of Student Interests

• Are particular options "dominant"?
• What criteria should be used to rank alternatives?
• Should we separate options by budget impacts? (re-allocate existing budget vs. new budget)
• How should we interact with the administration "along the way" versus delivering a final report?