Course Purpose
This course seeks to develop a comprehensive approach to planning for Sustainable Mobility, responding to contemporary mobility needs and values. It will also explore the development of a comprehensive (possibly organic) definition of the term Sustainable Mobility. The course examines transportation policymaking and planning, its relationship to environmental politics, and implementation and institutional behavior. Students will develop an understanding of the transportation policy and planning processes, principal issues, institutions, and stakeholders as they are related to successfully integrating transport and environmental policy – or failing to do so. The course theme focuses on both the tension and potential synergy between traditional transportation policy values of individual mobility, system efficiency, and business alliances with those of environmentalism and communitarian values and long-term economic growth. We will also explore how policy decisions are made and implemented in this uncertain and politicized context, whether economic growth, equity, and environmental values can be integrated as hypothesized in the sustainability paradigm, and if so how. Special emphasis will be placed on interpreting sustainability in the context of Livable Communities, both because that is where sustainability is actually experienced, and as a mechanism for building the political will to improve sustainability. Changing roles of federal and state jurisdictions in environmental and transportation issues are adding further complexity to the policy context. Finally, demographic changes are strongly affecting both the economic and politics of local, state, federal and global institutions.

Readings, lectures, simulations and active discussion around specific case studies addressing sustainability, transportation infrastructure, auto regulation, travel demand prediction and management, airport noise and air pollution, environmental justice, environmental regulation, and greenhouse gas reduction strategies will be used to explore transport and environmental problems. We
will examine the efficacy and political feasibility of available strategies including infrastructure
development and land use regulation, regulatory control, pricing and behavioral interventions and
technological alternatives such as autonomous vehicles and electric vehicles. Class assignments are
described below. The course will be explored through a uniquely Boston-oriented lens, which in our
experience is not limiting but enlightening.

Class Structure
Each class meeting will include discussion of the readings, followed by a lecture and group discussion.
Class discussion will integrate lectures, readings and assignments.

Readings
Students are expected to come to class having read the required readings and to participate actively in
class discussions. There are three categories of readings. Assignment Readings are meant to be read as
a way to inform or illuminate the Assignments and review session discussions. Weekly Readings are an
essential part of the course. They inform weekly discussion and interaction, and the Reading Responses,
which comprise an important (40%) component of your grade. Expect that these readings will be
supplemented by occasional additions (usually in the form of recent news articles). You are expected to
look at and be familiar with the assigned readings before each class; however, not every reading is
equally important: use your judgment about where to read in detail and where to skim. A variety of
Omnibus Readings should be read at your own pace, but preferably before mid-term.

Reading Responses
You are required to submit via Stellar a one-paragraph (no more than 150 words) response to the
readings each week by 4:00 PM Thursday. The responses are not meant to be formal, but instead to
help you engage with the class material and to help us lead the class discussion. You should not spend
more than 30 minutes each week on the responses, although we expect you will spend significantly
more time doing readings. Responses will count toward class participation. Please submit responses on
the LM site as raw text (not a separate document). Feel free to submit a recommended question that
you would like to discuss in class about the reading.

Assignments
The Assignments will be focused on transportation challenges currently facing the Charlestown
community in the city of Boston. You will have an opportunity to consider those challenges in the
context of historic decision making and current barriers and opportunities and provide
recommendations to decision makers regarding how to improve transportation services in and
emanating from this area. There are specific Assignment Readings which must be read in concert with
the Assignments.

Some context
The elevated I/93 through Somerville and Charlestown was the "last mistake" of exuberant highway
building before the Massachusetts highway moratorium of 1970, declared by then Governor Francis
Sargent and supported by the subsequent Boston Transportation Planning Review which shifted focus
dramatically towards transit expansion and against further construction of disruptive interstate highways through urban neighborhoods.

The Charlestown neighborhood still has visible scars from the earlier periods of exuberant highway expansion, which led to the massively out of scale Rutherford Avenue, with its underpasses at Prison Point Bridge and Sullivan Square, and remnants of its earlier overpass from Rutherford Avenue to Mystic Avenue.

Recently, the state approved construction of a major casino just north of the Mystic River in Everett (which has just opened), a decision which led to controversy over whether the very congested transportation network of this location could handle the additional stress, especially at the Sullivan Square intermodal interchange. MassDOT commissioned a study, including the participation of the regional planning agency (MAPC) and representation from the cities of Boston, Somerville, and Everett, as well as the state gaming commission and the Casino, to consider possible additional transportation improvements. The commission was provided with staff support by the Central Transportation Planning Staff, and produced a report, but no significant further actions have yet taken place.

City of Boston transportation officials want to rebuild the current Rutherford avenue, retaining its underpasses at Prison Point Bridge and Sullivan Square. But significant Charlestown advocates want Rutherford Avenue to be downscaled, to provide for better pedestrian connectivity between the traditional Charlestown neighborhood and the land adjacent to Community College, such as the former Hood Milk distribution center which is being redeveloped into housing and less massive businesses, and with a new buffer park and bike path along the traditional neighborhood edge, along the eastern edge of Rutherford Avenue.

The same transportation corridor is also the location of the MBTA’s Orange Line, which operates on a much less frequent basis (7.5-minute frequencies if all is going well) than previously because of a shortage of vehicles, and commuter rail services to the Lowell branch and the Newburyport Branch. There are active, somewhat competing proposals to improve public transportation in the corridor, which include increasing the Orange Line frequency to 3 minute headways, instead of the currently proposed 4.5 minute frequency; increasing the frequency of commuter rail services to provide at least ten minute frequencies; providing a BRT service from Everett to Boston via Sullivan square and Rutherford Avenue; and providing improved bus services on the existing bus routes in the traditional community along Maine street and Bunker Hill Avenue. Until recently there was an HOV lane (inbound) on I/93, which the state has now discontinued to expedite traffic congestion caused by other MassDOT actions reconstructing elements of the route 1 Tobin Bridge and Chelsea Viaduct, but there are now proposals to reintroduce the HOV lane, or to introduce a HOT lane on I/93 inbound.

Students will act as consultants advising the Charlestown Community; the city of Boston; the city of Everett; or the state (MassDOT). Each student will be assigned a role.

1. The first assignment is to simply count the number of autos, the number of people on buses, the number of passengers on MBTA trains, the number of trucks; the number of bicycle riders; and the
number of pedestrians using the existing Rutherford Avenue/Prison Point/ Austin Street intersection. The major movements should be counted during the AM peak hour; during a mid-day hour; and during a Saturday mid-day hour. The counting should be done by teams of students and written up into a report. There will be several groups of students, and the reports generated by the counts will be shared among all groups to support the subsequent assignments.

2. For the second assignment, each student should note the surrounding environment, including nearby land uses, and recommend whether the underpasses should be included, or not, in the reconstructed Rutherford Avenue and the existing Rutherford Avenue/Prison Point/ Austin Street intersection, based on a review of the site and the counts from Assignment 1, and a review of the commission report. How does your recommendation influence the public realm?

3. The third assignment is another individual assignment where each student should make a recommendation regarding whether to improve the Orange Line further to 3 minute headways; to introduce a BRT service; to increase the frequency of the Commuter Rail’s Newburyport branch, whether to reintroduce the HOV lane, or a HOT lane, and whether (and how) to provide night bus services. Support your recommendations with data gleaned from class assignments and/or other sources, and consider potential short, mid and long-term implementations.

Finally, we will have occasional Review Sessions (from 7pm-8:30 pm) on Tuesday evenings to be used for student presentations of the Assignments and/or discussion of same, or occasionally for a special added lecture.

Walking Tour
When the weather is amenable to an educational stroll, we will undertake one or more walking tours (approximately 3 hours each) of Boston. One walk will likely be Friday September 20, 2019 to help explain Assignment 1. Because of the difficulty scheduling a time that works for all students, we are asking that you provide us days of the week when you would be available, so we can attempt to schedule these walks at the most convenient times.

Attendance and Participation
Students are expected to attend all classes and meaningfully contribute to group discussions. See Reading Responses, above, outlining specific requirements regarding class readings. Walking tours are optional unless we inform you otherwise. Attendance and the quality of class participation (including Reading Responses) will be 40% of the final grade.

News and Events
“All politics is local” as the late House Speaker Tip O’Neil used to say, and it is very important to follow one’s locality intensely. You are encouraged to read the New York Times, the Boston Globe (discounted for MIT students), and Commonwealth Magazine https://commonwealthmagazine.org, and to attend occasional transportation events on campus and in the area.
Course Materials
All required course readings will be distributed via Stellar.

Academic Integrity
We are required to say that plagiarism and cheating are not tolerated, and that anyone caught cheating on an assignment will be reported in line with recognized university procedures. On the other hand, discussing, sharing and exchanging ideas and insights with your classmates is encouraged and is a key part to the learning experience of this course – even when it comes to individual assignments. However, when preparing your individual submissions please be honest with yourself and the other students: use your own words, give appropriate credit to the ideas of others, and always cite your sources.
### Assignments (topics subject to change)

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Grading</th>
<th>Distributed</th>
<th>In-Class Explanation</th>
<th>Due</th>
<th>Debrief Discussion</th>
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<tbody>
<tr>
<td><strong>Introductory Assignment</strong></td>
<td>-</td>
<td>Friday, September 6</td>
<td>-</td>
<td>Wednesday, September 11</td>
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<td><strong>Assignment 1 – Counts</strong></td>
<td>10%</td>
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<td>Friday, September 13</td>
<td>Monday, September 30</td>
<td>Tuesday, October 1</td>
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<td>Count the number of autos, the number of people on buses, the number of passengers on MBTA trains, the number of trucks; the number of bicycle riders; and the number of pedestrians using the existing Rutherford Avenue/Prison Point/ Austin Street intersection. The major movements should be counted during the AM peak hour; during a mid-day hour; and during a Saturday mid-day hour. The counting should be done by teams of students and written up into a report.</td>
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<td><strong>Assignment 2 – Recommendation on Rutherford Avenue &amp; the Rutherford Avenue/Prison Point/ Austin Street intersection.</strong></td>
<td>20%</td>
<td>Friday, October 11</td>
<td>Monday, October 28</td>
<td>Tuesday, October 29</td>
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<td>Each student should note the surrounding environment, including nearby land uses, and recommend whether the underpasses should be included, or not, in the reconstructed Rutherford Avenue, based on a review of the site and the counts from Assignment 1, and a review of the commission report. How does your recommendation influence the public realm?</td>
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<td><strong>Assignment 3 – Memo</strong></td>
<td>30%</td>
<td>Friday, November 8</td>
<td>Monday, November 25</td>
<td>Tuesday, November 26</td>
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<td>Each student should make a recommendation regarding whether to improve the Orange Line further to 3 minute headways; to introduce a BRT service; to increase the frequency of the Commuter Rail’s Newburyport branch, whether to reintroduce the HOV lane, or a HOT lane, and whether (and how) to provide night bus services. Support your recommendations with data gleaned from class assignments and/or other sources, and consider potential short, mid and long-term implementations.</td>
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<td><strong>Participation (class discussion and reading responses)</strong></td>
<td>40%</td>
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Week 1: September 6 - Introduction & Overview

Overview of class syllabus & expectations; mutual introductions.

What do we mean by “Planning”?

Thumbnail History of Boston (with a Transportation perspective).

Job & Housing Densities

**Introductory Assignment:** Write (1) a short (one-page max) description of yourself, your interests and background in transportation and/or the environment (please include a digital photo of yourself.), and (2) provide a short definition of Sustainable Mobility as you understand the term today, and a brief statement of its importance. **Upload to Stellar by 4pm, Wednesday September 11**

*Assignment Readings*

The following readings are meant to inform or illuminate the Assignments. They should be read before the assigned date, so you are prepared to discuss them in class or at an Assignment Review session.

1. [https://archives.lib.state.ma.us/bitstream/handle/2452/217592/ocn896825484.pdf?sequence=1&isAllowed=y](https://archives.lib.state.ma.us/bitstream/handle/2452/217592/ocn896825484.pdf?sequence=1&isAllowed=y)
3. A People’s History of Recent Urban Transportation Innovation, Transit Center
4. The WalkUP Wake-Up Call: Boston

Week 2: September 13 – Transportation Planning Methods & Measures of Capacity & Use; Access: An Introduction

**Guest Lecturer: Ruth Bonsignore**

Explanation/Discussion of Assignment 1; read Assignment Readings 1and 2 before you do your counts.

Fred Salvucci: The Transportation Planning method – Four Step Models or 19-step Procedures?
Readings:
1. Meyer, M. and Miller, E. “Urban Transportation Planning” Chapter 1 (pp. 1-45); Chapter 3, Sections 3.0 and 3. (pp. 1-26); Chapter 6, Sections 6.0, 6.1 (pp. 333-341); Chapter 7, sections 7.0-7.2 (pp. 385-400).
3. Martens, K. Transport Justice, part 1, Chapters 1 and 2 (pp. 1-31).
5. Pucher, J. and C. Lefevre “The Urban Transport Crisis in Europe and North America”, Chapter 2 (pp. 7-42).

Week 3: September 20 Walking Tour [Time TBD]

This walking tour will take place in Charlestown, focused on the areas pertinent to the Assignments.

*Omnibus Readings* The course includes several Omnibus Readings that ought to be read at your own pace. We will be referencing these throughout the course. This might be a good week to dip into these. Items 1, 2, and 3 below, should be read as soon as you are able, and in any event before Week 5.

1. Regional Rail for Metropolitan Boston (TransitMatters)
2. Transportation Dividend Report (ABC)
4. History of Urban Transportation Planning (Weiner)
5. Lewis and Sprague. Federal Transportation Policy and the Role of Metropolitan Planning Organizations in California. Chapters 1 and 3.

Week 4: September 27 – The Role of Government in Managing a Sustainable Mobility System; The Entwined Tragedies of the Concrete & Green Commons

Jim Lecture

Readings:


5. Congestion in the Commonwealth: Report to the Governor 2019


**Week 5: October 4 – Transit: Its Role & Funding; Its Wider Economic Benefits; Access: What does it mean?**

**Guest Lecturer: Anson Stewart**

**Readings:**

3. Elliott Sclar & Mans Lonnroth, An Introduction to the challenge of financing urban access (selected pages)
5. Sarriera and Zhao, H. Baumol’s Cost Disease in Public Transit.
7. Expected that you have read or skimmed the first three (3) readings on the Omnibus Readings List.

**Week 6: October 11 – Transportation by Design**

**Fred Lecture**

NEPA; Highway Expansion

Explanation/Discussion of Assignment 2; read Assignment Readings 3 and 4 before undertaking Assignment 2.

**Readings:**


**Week 7: October 18 – Project Evaluation & Environmental Impacts of Transportation**

**Guest Lecturer: Laurie Hussey & Tom Rossi**

FTA New Starts Evaluation Criteria

**Readings:**
1. Meyer, M. and E. Miller: “Urban Transportation Planning”, Chapter 5, Sections 5.0-5.1 (pp. 247-255), and Section 5.4 (pp. 270-289 – focus on general process and steps, not procedural details); Chapter 8, Sections 8.1 – 8.4 (pp. 483-508), and Chapter 9, Section 9.3 (pp. 32-35).

**Week 8: October 25 - Sustainable Mobility: Its Meaning; the politics; the solutions. Massport: A Case Study**

**Guest Lecturer: Hayes Morrison**

**Readings:**
Week 9: November 1 – Climate & Automobility: How to Regulate?

Guest Lecturer: Sonia Hamel

Readings:
5. https://frontiergroup.org/blogs/blog/fg/transport-decarbonization-pyramid

Week 10: November 8 – Environmental Justice; Mobility Equity; The Distribution of Costs & Benefits

Guest Lecturer: Jay Monty

Explanation/Discussion of Assignment 3

Readings:
1. Martens, Karl (2017). Transport Justice Chapter 8 (pp. 150-1800; Chapter 9 (optional)
4. Aloisi & Johnson, The Transportation Equity Conundrum
**Week 11: November 15 – How to Regulate Driving (and drivers): Is Taxing/Pricing a policy alternative or political suicide (or both)? The Cost of Free or Subsidized Parking. Is Congestion Pricing a good idea?**

**Readings:**
4. Four Short Takes on Congestion Pricing

**Week 12: November 22 Yesterday, Today and Tomorrow: Part 1 – Sustainable Mobility in a Techno-Centric Era**

**Readings:**
2. Tony Seba video (in class)
3. Shared Mobility Principles
4. The New Automobility: Lyft, Uber & the Future of American Cities
5. A New Way Forward - Envisioning a Transportation System Without Carbon Pollution

**Friday, November 29: Thanksgiving Break**
Week 13: December 6 - Yesterday, Today and Tomorrow: Part 2 – Sustainable Mobility in a Techno-Centric Era

Class Dinner

Readings:
1. Fulton, Mason and Meroux, UC Davis and ITDP, “Three Revolutions in Urban Transportation”
3. Salvucci – Learning from Mistakes