Transportation Recommendations
Kendall Square - January 2012
Current Policy *is Working*

- Responsible growth
  - Vehicle Trip Reduction Ordinance, Growth Policy
  - PTDM Program
  - Climate Action Plan
- Multi-modal approach
  - Ped/Bike Plan
  - Public Transportation/EZ Ride

**Policy # 22, Growth Policy Document**
Undertake reasonable measures to improve the functioning of the city’s street network, without increasing through capacity, to reduce congestion and noise and facilitate bus and other non-automobile circulation.

**Policy # 23, Growth Policy Document**
Encourage all reasonable forms of nonautomotive travel including, for example, making improvements to the city’s infrastructure to support bicycling and walking.
Travel Trends in Cambridge

• Auto ownership is declining
  • Households w/out a vehicle grew from 28% to 32% from 2000 – 2008

• Bicycle growth is strong
  • 150% increase in observed bicycle counts from 2002 – 2010

• America’s most walkable city
  • Prevention Mag, 2008
Travel Trends in Cambridge

Mode Shifts from SOV
• SOV share reduced from 51% to 44%
• Public Transit grew from 21% to 27%
• Bike/Walk share now 18%

Development vs. Traffic Growth
• 4 mil. sq.ft. development growth from 2000-2010 (37.6%)
• Daily Traffic Volumes remained consistent or been reduced
Proposed Enhanced TDM Mode Shares by Land Use

Office and R&D
- Current: 51% Auto, 38% Transit, 6% Walk, 5% Bike
- Enhanced TDM: 41% Auto, 42% Transit, 7% Walk, 10% Bike

Residential
- Current: 36% Auto, 31% Transit, 24% Walk, 6% Bike
- Enhanced TDM: 32% Auto, 30% Transit, 25% Walk, 10% Bike

Academic/Institutional
- Current: 27% Auto, 41% Transit, 15% Walk, 14% Bike
- Enhanced TDM: 27% Auto, 42% Transit, 15% Walk, 14% Bike

Retail
- Current: 35% Auto, 29% Transit, 28% Walk, 6% Bike
- Enhanced TDM: 31% Auto, 30% Transit, 29% Walk, 8% Bike
## Overall Growth: Land Use (K2C2 Scenario)

### Land Use Growth (2030 buildout)

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Square Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>1.5 mil sq ft</td>
</tr>
<tr>
<td>Gen Office</td>
<td>1.2 mil sq ft</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>5.6 mil sq ft</td>
</tr>
<tr>
<td>Retail</td>
<td>0.2 mil sq ft</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>8.5 mil sq ft</strong></td>
</tr>
</tbody>
</table>

urban design/planning study for the **central and kendall square area**
New Development in 2030 – Daily Trips

Enhanced TDM Total: 77,507

<table>
<thead>
<tr>
<th>Mode</th>
<th>Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>30,033</td>
</tr>
<tr>
<td>Transit</td>
<td>30,339</td>
</tr>
<tr>
<td>Walk</td>
<td>9,084</td>
</tr>
<tr>
<td>Bike</td>
<td>7,582</td>
</tr>
</tbody>
</table>
New Development in 2030 – AM Peak Trips

Enhanced TDM

<table>
<thead>
<tr>
<th>Mode</th>
<th>Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>3,895</td>
</tr>
<tr>
<td>Transit</td>
<td>3,965</td>
</tr>
<tr>
<td>Walk</td>
<td>862</td>
</tr>
<tr>
<td>Bike</td>
<td>968</td>
</tr>
</tbody>
</table>

Total: 9,717
Kendall Square Origins
New Trips – AM Peak

Mode Share (Average)

Enhanced TDM
Auto 40% (3,895)
Transit 41% (3,965)
Walk 9% (862)
Bike 10% (968)
TOTAL 100% (9,717)

2010 PTDM
Mode Share % are based on averages of proposed land uses.
Existing Conditions: Public Transportation

Daily Boardings at Kendall: 13,975 (7.3% of Red Line total)
4th busiest on Red Line

Current Hourly Peak Capacity at Kendall: 2,650 seated/7,000 policy

Unused Capacity at Kendall - AM Peak: 1,450 persons/hour
Unused Capacity at Kendall - PM Peak: 2,800 persons/hour

Transit Growth – Trends

MBTA Ridership hitting Record Highs

EZ Ride ridership has been growing 4% per year since 2002

Red Line Ridership forecasted to almost double by 2030

Source: Urban Ring RDEIR, 2008

Boston.com, 11/02/11
## Key Issues/Questions

MBTA fares could rise as much as 43 percent; ferry, bus, commuter rail cuts also eyed

By Martin Flanigan, Globe Staff
Ready to shell out more for that MBTA ride?

### Summary

<table>
<thead>
<tr>
<th></th>
<th>Scenario 1</th>
<th>Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Fare Increase</strong> (all fare media types)</td>
<td>43%</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Current / Proposed Fares</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus CharlieCard</td>
<td>$1.25 / $1.75</td>
<td>$1.25 / $1.50</td>
</tr>
<tr>
<td>Rapid Transit CharlieCard</td>
<td>$1.70 / $2.40</td>
<td>$1.70 / $2.25</td>
</tr>
<tr>
<td>RIDE</td>
<td>$2.00 / $4.50</td>
<td>$2.00 / $3.00</td>
</tr>
<tr>
<td>RIDE Premium Territory</td>
<td>$12.00</td>
<td>$5.00</td>
</tr>
<tr>
<td>Parking</td>
<td>28%</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Service Eliminations or Reductions</strong></td>
<td>Commuter rail, bus, light rail, ferry, RIDE service area</td>
<td>Commuter rail, bus, light rail, ferry, RIDE service area</td>
</tr>
<tr>
<td><strong>Ridership Impact</strong></td>
<td>34-49 million annual trips</td>
<td>53-64 million annual trips</td>
</tr>
<tr>
<td>% of total current ridership</td>
<td>9 to 13%</td>
<td>14 to 17%</td>
</tr>
</tbody>
</table>
Key Issues/Questions - Transit

- Many barriers to expanded transit to Kendall are general **SYSTEMWIDE** service/expansion issues
  - Greater overall frequency
  - Central subway system congestion
  - Need for additional station access (parking, bicycle facilities)
  - Expanded public transportation coverage
Key Issues/Questions - Transit

• Develop transit service to levels comparable to similar employment areas:
  – Financial District
  – Back Bay
  – Longwood Medical Area

• Kendall should be a significant Transit Hub for Cambridge
  – Large Job Center
  – Direct Red Line Connection
  – Improved Street Network
  – Growing Residential Population
Existing Conditions: Bus

Kendall has the least bus service/capacity of nearby MBTA Transit Hubs

<table>
<thead>
<tr>
<th>Hub</th>
<th>Rush Hour Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kendall Square</td>
<td>768</td>
</tr>
<tr>
<td>Lechmere</td>
<td>1,008</td>
</tr>
<tr>
<td>Central Square</td>
<td>1,509</td>
</tr>
<tr>
<td>Sullivan Square</td>
<td>2,434</td>
</tr>
</tbody>
</table>
Potential Transit Expansion/Enhancement Ideas

Expand/Extend Bus Routes
• Extend Express Buses (and Rte 111) from Haymarket
• Extend Harvard Sq buses to Kendall (Rte 66, 72, 74, 75, 77, 78, 96)
• Rte 39 connection

Corridor Improvements
• Main Street
• Lechmere/Kendall connection — 1st Street or Land Blvd
• Leverett Circle & O’Brien Highway bus priority for EZ ride
• Wadsworth Street

Commuter Rail Connections
• Sullivan Square Commuter Rail
• Worcester to Kendall
• Explore a North Point Station on Commuter Rail/”Greater Lechmere?”
• South Station Expansion
Potential Transit Expansion/Enhancement Ideas

Transit Options
• Red/Blue Connector
• Green Line extension to Rte 16
• Provide a limited Beacon Yard connection to Kendall
• Establish Ferry connection from North Station to Kendall (“EZ Boat”)
• Extended ferry options from Long Wharf & Downtown to Kendall
• Create Direct Express Bus Service to Kendall
  • Woburn – Anderson Center
  • Outside Communities (Northeast & Northwest)

Expanded commuter rail service
• Fitchburg Line Improvements
• Better frequency
• Additional parking

Red Line Enhancement potential
• More “Big Reds”
• Higher frequency
• Extended trains
• Modifying mix of Ashmont/Braintree trains

Expand Alewife parking capacity
• Vehicles
• Bicycles
Proposed Transit Expansion Evaluation - Criteria

**Coverage**
- Coverage Area
- Travel Time
- Transfers needed

**Operations**
- Service Frequency
- Span of Service

**Cost / Implementation**
- Timeline
- Operating Cost
- Capital Cost
- Likely Implementation

**Added Benefits**
- Red line Reduction
Kendall Square Origins
New Trips – AM Peak

<table>
<thead>
<tr>
<th>Location</th>
<th>Trips</th>
<th>Mode Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwest</td>
<td>1,539</td>
<td>16%</td>
</tr>
<tr>
<td>Arlington</td>
<td>385</td>
<td>4%</td>
</tr>
<tr>
<td>Somerville</td>
<td>770</td>
<td>8%</td>
</tr>
<tr>
<td>West</td>
<td>673</td>
<td>7%</td>
</tr>
<tr>
<td>Watertown, Waltham, Newton, Brookline</td>
<td>962</td>
<td>10%</td>
</tr>
<tr>
<td>Southwest</td>
<td>577</td>
<td>6%</td>
</tr>
<tr>
<td>Boston</td>
<td>1,443</td>
<td>15%</td>
</tr>
<tr>
<td>Northeast</td>
<td>1,636</td>
<td>17%</td>
</tr>
<tr>
<td>Cambridge</td>
<td>1,058</td>
<td>11%</td>
</tr>
</tbody>
</table>

2010 PTDM
Mode Share % are based on averages of proposed land uses.

Mode Share (Average)
- Enhanced TDM: 41% (3,965)
- Auto: 40% (3,895)
- Transit: 41% (3,965)
- Walk: 9% (862)
- Bike: 10% (968)

TOTAL 100% (9,717)
Regional Connections

Northwest 16%
Northeast 17%
Southwest 6%
Boston 15%
PTDM Review - Top Towns

Sullivan Square
Urban Ring Overall

Benefits are Systemwide

- Removes trips from Central Subway System
- Not Funded
- Many elements do NOT directly benefit Kendall
- 184,000 Daily riders
- 15,000 Kendall boardings
Urban Ring – Sullivan – KENDALL - Longwood

Greatest Kendall benefit

- Covers Primary areas without good current transit access
- Potential Capacity – 1,920 peak hour trips
  >Assumes 5 min headway (each direction)
Urban Ring Charles River Crossing - Kendall (NPC)

Important connection to LMAa & WWNB towns
- Watertown, Waltham
- Newton, Brookline

Green Line Connection(s)
- Projected Ridership – 89,000 daily riders
- Ridership is higher with tunnel options
**Enhanced CT-2**

<table>
<thead>
<tr>
<th>Ridership</th>
<th>AM Peak Frequency</th>
<th>Coverage</th>
<th>AM Peak Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT 2</td>
<td>2,110</td>
<td>6</td>
<td>324</td>
</tr>
</tbody>
</table>

**Could provide added Kendall benefit quickly**

- Urban Ring Frequency - 5 min headways
- Improved Routing
  - Through Lechmere
  - McGrath Highway
Extend Sullivan Sq Buses to Kendall

<table>
<thead>
<tr>
<th>Route</th>
<th>Ridership Weekday Boardings</th>
<th>AM Peak Frequency</th>
<th>Coverage</th>
<th>AM Peak Capacity/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rt 89</td>
<td>3,431</td>
<td>7</td>
<td>Somerville, Charlestown, Boston</td>
<td>378</td>
</tr>
<tr>
<td>Rt 101</td>
<td>4,116</td>
<td>6</td>
<td>Medford, Somerville</td>
<td>324</td>
</tr>
<tr>
<td>Rt 104</td>
<td>3,360</td>
<td>4</td>
<td>Malden, Everett, Somerville</td>
<td>216</td>
</tr>
<tr>
<td>Rt 109</td>
<td>2,988</td>
<td>4</td>
<td>Malden, Everett, Somerville</td>
<td>216</td>
</tr>
<tr>
<td>Rt 95</td>
<td>1,751</td>
<td>3</td>
<td>Medford, Somerville</td>
<td>162</td>
</tr>
<tr>
<td>Rt 105</td>
<td>926</td>
<td>2</td>
<td>Malden, Everett, Somerville</td>
<td>108</td>
</tr>
<tr>
<td>CT 2</td>
<td>2,110</td>
<td>6</td>
<td>Boston, Cambridge, Somerville</td>
<td>324</td>
</tr>
<tr>
<td>Total</td>
<td>18,682</td>
<td>32</td>
<td></td>
<td>1,728</td>
</tr>
</tbody>
</table>
### Sullivan Sq Transit Connection through Inner Belt

<table>
<thead>
<tr>
<th>Route</th>
<th>Ridership Weekday Boardings</th>
<th>AM Peak Frequency</th>
<th>Coverage</th>
<th>AM Peak Capacity/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rt 89</td>
<td>3,431</td>
<td>7</td>
<td>Somerville, Charlestown, Boston</td>
<td>378</td>
</tr>
<tr>
<td>Rt 101</td>
<td>4,116</td>
<td>6</td>
<td>Medford, Somerville</td>
<td>324</td>
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<td>3,360</td>
<td>4</td>
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<td>216</td>
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<td>2,988</td>
<td>4</td>
<td>Malden, Everett, Somerville</td>
<td>216</td>
</tr>
<tr>
<td>Rt 95</td>
<td>1,751</td>
<td>3</td>
<td>Medford, Somerville</td>
<td>162</td>
</tr>
<tr>
<td>Rt 105</td>
<td>926</td>
<td>2</td>
<td>Malden, Everett, Somerville</td>
<td>108</td>
</tr>
<tr>
<td>CT 2</td>
<td>2,110</td>
<td>6</td>
<td>Boston, Cambridge, Somerville</td>
<td>324</td>
</tr>
<tr>
<td>Total</td>
<td>18,682</td>
<td>32</td>
<td>1,728</td>
<td></td>
</tr>
</tbody>
</table>
PTDM Review - Top Towns

Sullivan Square
Transit Expansion – Green Line Extension

- Operational 2020?
- Shifts some demand from Red Line
- To serve Kendall – May require added bus service from Lechmere
- Serves only part of Kendall trip origin market
Extend Lechmere buses to Kendall

<table>
<thead>
<tr>
<th></th>
<th>Ridership Weekday Boardings</th>
<th>AM Peak Frequency</th>
<th>Coverage</th>
<th>AM Peak Capacity/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rt 87</td>
<td>3,373</td>
<td>3</td>
<td>Arlington, Somerville, Cambridge</td>
<td>162</td>
</tr>
<tr>
<td>Rt 88</td>
<td>3,785</td>
<td>4</td>
<td>Somerville, Cambridge</td>
<td>216</td>
</tr>
<tr>
<td>Total</td>
<td>7,158</td>
<td></td>
<td></td>
<td>378</td>
</tr>
</tbody>
</table>

To Arlington, Somerville, Cambridge

To Somerville, Cambridge
Green Line extension, re-route
Lechmere buses to Kendall

<table>
<thead>
<tr>
<th></th>
<th>Ridership Weekday Boardings</th>
<th>AM Peak Frequency</th>
<th>Coverage</th>
<th>AM Peak Capacity/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rt 87</td>
<td>3,373</td>
<td>3</td>
<td>Arlington, Somerville, Cambridge</td>
<td>162</td>
</tr>
<tr>
<td>Rt 88</td>
<td>3,785</td>
<td>4</td>
<td>Somerville, Cambridge</td>
<td>216</td>
</tr>
<tr>
<td>Rt 80</td>
<td>1,872</td>
<td>3</td>
<td>Arlington, Somerville, Cambridge</td>
<td>162</td>
</tr>
<tr>
<td>Total</td>
<td>9,030</td>
<td>10</td>
<td></td>
<td>540</td>
</tr>
</tbody>
</table>
Extend Central Sq. Buses to Kendall

<table>
<thead>
<tr>
<th>Route</th>
<th>Ridership Weekday Boardings</th>
<th>AM Peak Frequency</th>
<th>Coverage</th>
<th>AM Peak Capacity/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rt 70</td>
<td>4,654</td>
<td>4</td>
<td>Waltham, Watertown, Boston, Cambridge, West</td>
<td>216</td>
</tr>
<tr>
<td>Rt 70A</td>
<td>2,032</td>
<td>2</td>
<td>Waltham, Watertown, Boston, Cambridge, West</td>
<td>108</td>
</tr>
<tr>
<td>Total</td>
<td>6,608</td>
<td>6</td>
<td></td>
<td>324</td>
</tr>
</tbody>
</table>

To Waltham, Watertown, Boston, Cambridge
EZ Ride Improvements

- Enhanced Frequency

Please distribute to EZRide commuters

More frequent Rush Hour service starts January 30th!

Charles River Transportation Management Association is pleased to announce that EZRide Shuttle will provide more frequent Rush Hour service, starting Monday, January 30, 2012. An additional bus will operate during the morning and evening commutes to provide more frequent departures at our busiest times.

Here’s how the changes will impact your commute:

Morning Shuttles:
6:20-7:30 am - No changes, shuttles will continue to run every 10 minutes.
7:30-8:50 am - Outbound shuttles will depart North Station every 8 minutes. Inbound shuttles will leave Cambridgeport every 8 minutes from 8:00-9:20am.
8:50-10:20 am - No changes, shuttles will continue to run every 10 minutes.
EZ Ride Improvements can be controlled
Potentially easier implementation
Extend Kendall Connectivity Quickly

- Enhanced Frequency
- Continually Improve Connection
  - Lechmere to Kendall
- Provide Off-Peak Connections
  - Lechmere
  - North Station
- Express Service or Direct Routing
  - Reduces Travel Time
- Additional Connections
  - Haymarket
  - Sullivan/Community College
  - Kenmore
- Expanded Membership/Funding
  - Greater employer contribution
Major Investments with Maximum KENDALL benefits

- Sullivan/KENDALL/LMA portion of Urban Ring
- Transit Bridge to Sullivan
- Charles River Crossing

Importance of Adjacent Connections

> Lechmere  > North Station
> Sullivan  > Community College/North Point
> Haymarket  > Central

Kendall Square should be a significant Transit Center

- Extend Buses from Lechmere, Central, Sullivan

EZ Ride Expansion

- Provide additional coverage AND frequency
- Significantly expand membership/funding

Advocate for continued MBTA systemwide expansion
Additional Strategies – Transit +

Enhanced Bus Stops
For Consideration
Additional Strategies – Transit +

Promoting combination trips
  • Bike sharing from nearby Centers
    – North Station
    – Haymarket
    – Sullivan
    – Bowdoin

  • Expanded bike parking at Alewife

  • Pedestrian connections
    – North Station
    – Community College
Additional Strategies – Transit +

11% of riders

urban design/planning study for the central and kendall square area
Additional Strategies – Transit +

Expand Span of Service beyond peak hours

– Supports residential

– New bars/restaurants extend service need

– Lack of transit options outside peak contributes to auto complacency

– Shift trips (even transit trips) away from the peak hour