Wynn Everett
Boston
Presentation to MGC Staff

Presented by
Keri Pyke, P.E., PTOE
Howard/Stein-Hudson Associates, Inc.

July 23, 2014
Keri Pyke, P.E., PTOE

Summary of Qualifications
• B.S. in Civil Engineering, Rensselaer Polytechnic Institute, 1993
• Registered Professional Engineer in MA, CT, NY, RI, NH, NC
• Certified Professional Traffic Operations Engineer (PTOE) by the Institute of Transportation Engineers (ITE)
• Over 21 years’ experience in traffic engineering and transportation planning

Representative Project Experience
• Seaport Square in South Boston
• Bulfinch Triangle development parcels, Boston
• Residences @ Malden Station, Malden
• East Milton Square Parking and Access Study, Milton
• EMC Westborough-Southborough Campus*
• Water Street Mills, Stonington, CT*
• I-93/I-95 Interchange Transportation Study, Woburn/Reading/Stoneham*
*completed while at another firm
Howard/Stein-Hudson Associates, Inc.

Overview

- Over 26 years’ providing transportation planning/traffic engineering services

Representative Traffic Impact Studies for Development Projects

- Boston University Medical Center, Boston
- New Brighton Landing, Allston
- Seaport Square in South Boston
- Northeastern University Institutional Master Plan
- One Congress Street mixed use development, Boston
- One Franklin/Filene’s Basement site redevelopment, Boston
- W Hotel and Towers, Boston
## Traffic Engineering Terminology

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATR</td>
<td>Automatic Traffic Recorder</td>
</tr>
<tr>
<td>DEIR</td>
<td>Draft Environmental Impact Report</td>
</tr>
<tr>
<td>DCR</td>
<td>Massachusetts Department of Conservation and Recreation</td>
</tr>
<tr>
<td>EENF</td>
<td>Expanded Environmental Notification Form</td>
</tr>
<tr>
<td>EOEEA</td>
<td>Executive Office of Energy and Environmental Affairs</td>
</tr>
<tr>
<td>FEIR</td>
<td>Final Environmental Impact Report</td>
</tr>
<tr>
<td>ITE</td>
<td>Institute of Transportation Engineers</td>
</tr>
<tr>
<td>LOS</td>
<td>Level of Service</td>
</tr>
<tr>
<td>MAPC</td>
<td>Metropolitan Area Planning Council</td>
</tr>
<tr>
<td>MassDOT</td>
<td>Massachusetts Department of Transportation</td>
</tr>
<tr>
<td>MBTA</td>
<td>Massachusetts Bay Transportation Authority</td>
</tr>
<tr>
<td>MEPA</td>
<td>Massachusetts Environmental Policy Act</td>
</tr>
<tr>
<td>TDM</td>
<td>Transportation Demand Management</td>
</tr>
<tr>
<td>vph</td>
<td>vehicles per hour</td>
</tr>
<tr>
<td>vpd</td>
<td>vehicles per day</td>
</tr>
</tbody>
</table>
Traffic Engineering Standards

- 301CMR 11.00 MEPA Regulations
- Highway Capacity Manual, Transportation Research Board (TRB), 2010
- Project Development and Design Guidebook, MassDOT, 2006
- Trip Generation Manual, 9th edition, Institute of Transportation Engineers (ITE), 2012
Transportation Analysis Overview

- Traffic impact analysis focuses on intersections; they are the most constrained element of the transportation system.
- Primary measure of effectiveness (MOE) = Level of Service.
- In urban areas, LOS D is considered acceptable.

<table>
<thead>
<tr>
<th>Signalized Intersections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Service</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>E</td>
</tr>
<tr>
<td>F</td>
</tr>
</tbody>
</table>
Transportation Analysis Overview

Existing Conditions
- Collect traffic data
- Analyze intersections
- Analyze transit services
- Review safety

No-Build Conditions
- Project to horizon year
- Add background growth rate
- Add other projects' trips
- Re-analyze intersections/transit

Build Conditions
- Add Project's trips to No-Build volumes
- Re-analyze intersections/transit

Build Mitigated Conditions
- Propose mitigation for locations with impact
- Re-analyze intersections/transit to demonstrate that impact is mitigated
- Mitigate to No-Build condition (LOS)
Trip Assignment Process

Trip Generation → Mode Split → Trip Distribution/Assignment

= Project-generated Trips
Transportation Analysis - Timeline

- Expanded Environmental Notification Form (EENF), filed May 31, 2013
- Secretary’s Certificate on EENF and scope of DEIR, issued on July 26, 2013
- Draft Environmental Impact Report (DEIR), filed December 16, 2013
- Secretary’s Certificate on DEIR and scope of FEIR, issued on February 21, 2014
- Final Environmental Impact Report (FEIR), filed June 30, 2014
- Secretary’s Certificate on FEIR anticipated by August 15, 2014
EENF Study Area

Wynn Project
DEIR Study Area

Wynn Project
Transportation Analysis - DEIR

Wynn Project

• Analyzed intersection capacity at 57 locations (7 cities)
• Analyzed transit capacity on Orange Line (northern end) and MBTA bus routes (4)
• Prepared detailed Project trip generation
• Prepared detailed Project trip distribution
• Proposed recommended access to Project site
• Proposed TDM measures to reduce auto trips
• Proposed transportation mitigation
FEIR Study Area - Wynn Project

1. Hudson Way/Broadway (Route 99, Everett);
2. Mystic Street/Dove Street, Everett;
3. Lynde Street/Broadway (Route 99, Everett);
4. Assembly Street/Broadway (Route 99, Everett);
5. S. Thompson Street/Broadway (Route 99, Everett);
6. Beecham Street/Broadway (Route 99, Everett);
7. Bowditch Street/Broadway (Route 99, Everett);
8. Revere Beach Parkway (Route 16)/Samm Hill Highway Mystick View Road/Route 99 Connector, Everett;
9. Revere Beach Parkway (Route 16)/Broadway (Route 99/Main Street (aka Swathmore Circle), Everett;
10. Revere Beach Parkway (Route 16)/Union Street, Chelsea;
11. Revere Beach Parkway (Route 16)/Washington Avenue, Chelsea;
12. Revere Beach Parkway (Route 16)/Wattson Avenue, Chelsea;
13. Revere Beach Parkway (Route 16)/Mystic Valley Parkway, Medford;
14. Mystic Valley Parkway (Route 16)/Mystic Valley Parkway (Route 16) Southbound Connector, Medford;
15. Mystic Valley Parkway (Route 16)/Falloway (Route 28)/Middlesex Avenue (aka Wellington Circle), Medford;
16. Duxbury Street/Aedon Street (Route 99), Boston;
17. Cambridge Street 9-28 Northbound Off-Ramp, Boston;
18. Main Street/Maffia Way/Cambridge Street/Aford Street (aka Sullivan Square), Boston;
19. Austin Street/New Rutherford Avenue (Route 99), Boston;
20. New Rutherford Avenue (Route 99)/Route 1 ramps, Boston;
21. New Rutherford Avenue (Route 99)/Chelsea Street (aka City Square)
Transportation Analysis - FEIR

Wynn Project

- Analyzed intersection capacity at 21 locations (5 cities)
- Analyzed transit capacity on Orange Line (northern end) and MBTA bus routes (4)
- Updated detailed Project trip generation
- Updated mode splits
- Proposed recommended access to Project site
- Proposed TDM measures to reduce auto trips
- Proposed transportation mitigation
# Travel Mode Share - Wynn Project

<table>
<thead>
<tr>
<th>Travel Mode</th>
<th>DEIR</th>
<th>Patrons</th>
<th>Employees</th>
<th>FEIR</th>
<th>Patrons</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Park on-site</td>
<td>69%</td>
<td>0%</td>
<td></td>
<td>63%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Taxi/Private Car Service</td>
<td>8%</td>
<td>0%</td>
<td></td>
<td>8%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Park remotely (connect to employee shuttle)</td>
<td>0%</td>
<td>44%</td>
<td></td>
<td>4%</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>77%</td>
<td>44%</td>
<td></td>
<td>71%</td>
<td>44%</td>
<td></td>
</tr>
<tr>
<td>Public Transportation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange Line (connect to transit shuttle)</td>
<td>10%</td>
<td>20%</td>
<td></td>
<td>10%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Local bus</td>
<td>0%</td>
<td>10%</td>
<td></td>
<td>0%</td>
<td>10%</td>
<td></td>
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<tr>
<td>Water transportation</td>
<td>3%</td>
<td>3%</td>
<td></td>
<td>6%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>13%</td>
<td>33%</td>
<td></td>
<td>16%</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>Tour Bus</td>
<td>10%</td>
<td>0%</td>
<td></td>
<td>10%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Premium Park and Ride</td>
<td>0%</td>
<td>0%</td>
<td></td>
<td>0%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Walk/Bicycle</td>
<td>0%</td>
<td>3%</td>
<td></td>
<td>0%</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Neighborhood Employee Shuttle</td>
<td>0%</td>
<td>20%</td>
<td></td>
<td>0%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
## Trip Generation Summary - Wynn Project

<table>
<thead>
<tr>
<th></th>
<th>DEIR</th>
<th>FEIR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Patron Vehicle Trips</td>
<td>Employee Vehicle Trips</td>
</tr>
<tr>
<td><strong>Friday Daily (vpd)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In</td>
<td>8,983</td>
<td>1,793</td>
</tr>
<tr>
<td>Out</td>
<td>8,983</td>
<td>1,793</td>
</tr>
<tr>
<td>Total</td>
<td>17,966</td>
<td>3,586</td>
</tr>
<tr>
<td><strong>Friday p.m. Peak Hour (vph)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In</td>
<td>745</td>
<td>126</td>
</tr>
<tr>
<td>Out</td>
<td>703</td>
<td>169</td>
</tr>
<tr>
<td>Total</td>
<td>1,448</td>
<td>295</td>
</tr>
<tr>
<td><strong>Saturday Daily (vpd)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In</td>
<td>10,656</td>
<td>2,072</td>
</tr>
<tr>
<td>Out</td>
<td>10,656</td>
<td>2,072</td>
</tr>
<tr>
<td>Total</td>
<td>21,312</td>
<td>4,144</td>
</tr>
<tr>
<td><strong>Saturday Afternoon Peak Hour (vph)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In</td>
<td>880</td>
<td>148</td>
</tr>
<tr>
<td>Out</td>
<td>836</td>
<td>177</td>
</tr>
<tr>
<td>Total</td>
<td>1,716</td>
<td>325</td>
</tr>
</tbody>
</table>
### Changes in Traffic Volumes - Friday p.m. Peak Hour
#### Wynn Project

<table>
<thead>
<tr>
<th>Location</th>
<th>Existing (2013) Volume (vph)</th>
<th>No-Build (2023) Volume (vph)</th>
<th>Project-generated Trips (vph)</th>
<th>Build (2023) Volume (vph)</th>
<th>Change in Volume Build to No-Build (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alford Street (Route 99) Bridge, Charlestown</td>
<td>2,702</td>
<td>3,220</td>
<td>540</td>
<td>3,760</td>
<td>17%</td>
</tr>
<tr>
<td>Rutherford Avenue (Route 99), north of City Square, Charlestown</td>
<td>2,814</td>
<td>2,955</td>
<td>197</td>
<td>3,152</td>
<td>7%</td>
</tr>
</tbody>
</table>

Note: All volumes reflect Friday p.m. peak hour of roadways, which occurs 4:30-5:30 p.m. Wynn’s peak traffic volumes occur between 9:00-10:00 p.m. on a Friday night.
Transit Overview

• Patron shuttles from Orange Line stations

• Patrons not expected to take MBTA buses to site

• Percentage of employees expected to use MBTA buses

• New water transportation service to be provided by Wynn
Transportation Demand Management

- Transportation coordinator on-site
- Guaranteed ride home
- Ride sharing program
- MBTA Charlie Cards provided for employees and sold on-site for guests
- Provide information regarding public transportation services to employees and guests
- ZipCar on-site
- Hubway bike share on-site
- Covered, secure bicycle parking in parking garage
- Electric vehicle charging stations in parking garage
- Employee and patron shuttles to transit stations
- Water shuttle to downtown Boston
Boston - Intersections Studied in MEPA
Dexter Street/Alford Street (Route 99)

- HSH analysis: Wynn has proposed mitigation through the MEPA process.
  Estimated cost = $400,000
Boston – Transportation Infrastructure
Dexter Street/Alford Street (Route 99)

Legend
XX (XX) = No-Build (2023) Friday p.m. peak hour volumes
(Friday p.m. peak hour project trips)
Boston - Dexter Street/Alford Street (Route 99)
Capacity Analysis Summary - Friday p.m. Peak Hour
Cambridge Street/I-93 Northbound Off-ramp

- HSH Analysis: Wynn has proposed mitigation through the MEPA process. Estimated cost = $4.6 Million (combined with Sullivan Square)
Legend
XX (XX) = No-Build (2023) Friday p.m. peak hour volumes (Friday p.m. peak hour project trips)
Boston - Cambridge Street/I-93 Northbound Off-ramp Capacity Analysis Summary - Friday p.m. Peak Hour
Sullivan Square

- HSH Analysis: Wynn has proposed mitigation through the MEPA process. Estimated cost = $4.6 Million
Boston - Transportation Infrastructure - Sullivan Square
Legend
XX (XX) = No-Build (2023) Friday p.m. peak hour volumes (Friday p.m. peak hour project trips)
Boston - Sullivan Square
Capacity Analysis Summary - Friday p.m. Peak Hour
Boston - Proposed Transportation Improvements
Cambridge Street/I-93 NB Ramp and Sullivan Square
Austin Street/New Rutherford Avenue (Route 99)

- HSH Analysis: No mitigation required.
Legend
XX (XX) = No-Build (2023) Friday p.m. peak hour volumes
(Friday p.m. peak hour project trips)
Boston - Austin Street/New Rutherford Ave
Capacity Analysis Summary - Friday p.m. Peak Hour
HSH Analysis: No mitigation required.
Legend
XX (XX) = No-Build (2023) Friday p.m. peak hour volumes
(Friday p.m. peak hour project trips)
Boston – New Rutherford Avenue (Route 99)/Route 1 Ramps
Capacity Analysis Summary - Friday p.m. Peak Hour
Boston - Transportation Infrastructure Analysis
New Rutherford Avenue (Route 99)/Chelsea Street (City Square)

- HSH Analysis: No mitigation required.
Boston - Transportation Infrastructure
New Rutherford Avenue (Route 99)/Chelsea Street (City Square)

Legend
XX (XX) = No-Build (2023) Friday p.m. peak hour volumes
(Friday p.m. peak hour project trips)
Boston – New Rutherford Avenue (Route 99)/Chelsea Street (City Square)
Capacity Analysis Summary - Friday p.m. Peak Hour