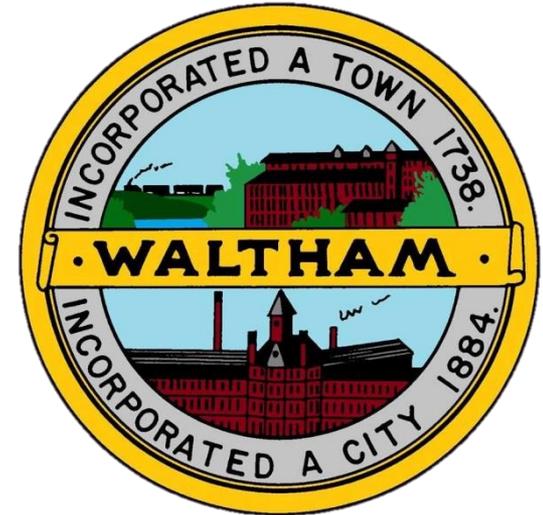


City of Waltham Transportation Master Plan

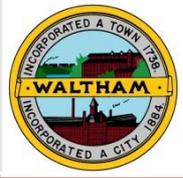


Presented by:



Date: 11/18/2015

Kick-Off Public Meeting



Agenda

- 7:00 – 7:30 PM: Presentation by McMahon
 - Overview of Project, Project Schedule
 - Project Team and Roles
 - Existing Transportation Network Conditions
 - Volumes
 - Crash analysis
 - Parking
 - Healthy Transportation Facilities – walking/bicycling/transit
 - Operations
 - Next Steps
- 7:30 – 8:00 PM: Public Comment/Question Period

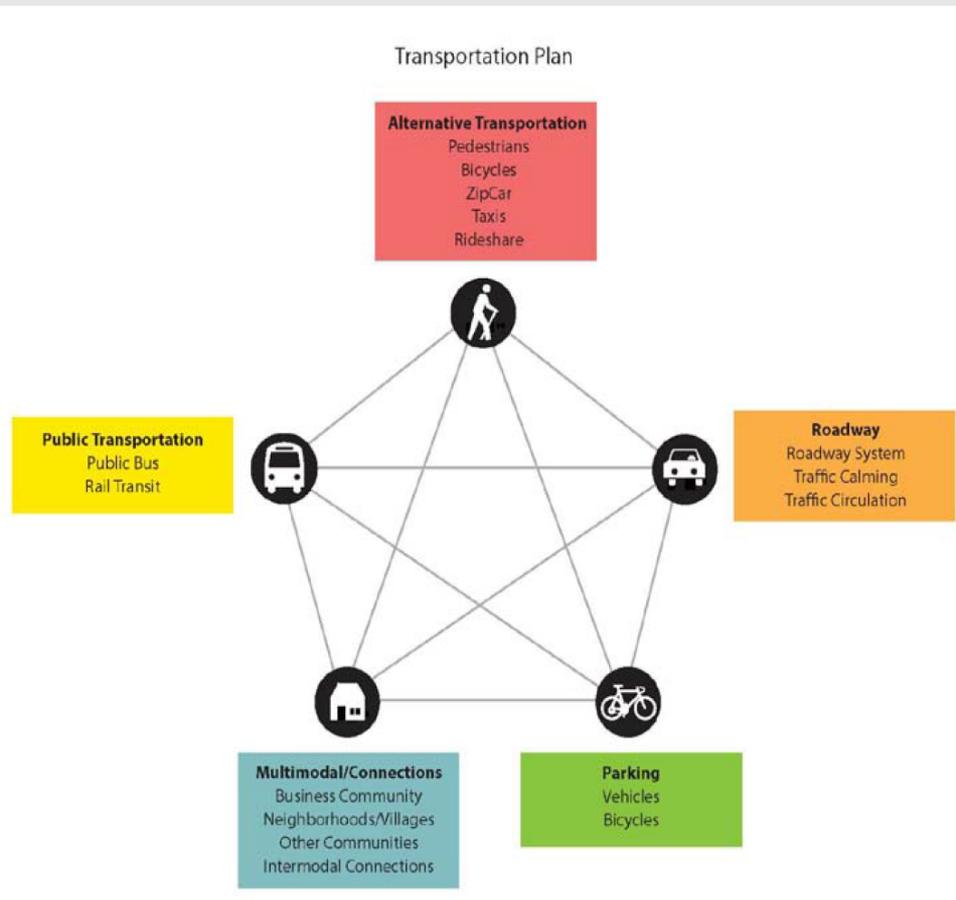


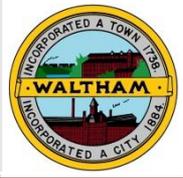
Project Purpose

- What is a Transportation Master Plan?

It provides focus for the City and its citizens to:

- Protect neighborhoods
- Promote business access
- Improve safety
- Address parking
- Ensure quality of life for all users of the transportation system; motorists, pedestrians, bicyclists, and transit users





Project Purpose

The Transportation Master Plan will:

- Identify existing transportation issues
- Develop solutions and an action plan
- Guide future short term and long term transportation improvement projects





Study Tasks

- **Task 1:** Existing Inventory and Data Collection
- **Task 2:** Evaluate Existing & Future Conditions
- **Task 3:** Identify Issues/Deficiencies & Develop Action Plan
- **Task 4:** Transportation Master Plan
- **Task 5:** Stakeholder Coordination





Project Schedule

We Are Here



Public Meeting #1

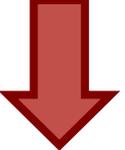
Task 1

Task 2

Task 3

Task 4

Public Meeting #2



Traffic Commission Meeting



City Council Meeting



Community Involvement Throughout Project



Project Team

City of Waltham

Planning
 Catherine Cagle, AICP
City Planner

Traffic
 Michael Garvin, P.E.
Traffic Engineer

Traffic Commission


Maureen Chlebek, P.E., PTOE
Project Manager
Colleen Medeiros, P.E.
Senior Traffic Engineer

Transit/Transportation Planning Group

Traffic Engineering Group

Roadway Design Group



Project Team

- City of Waltham Traffic Commission
 - Meets September – June (3rd Thursday) @ 10AM to noon
 - Committee includes representatives from:
 - Traffic Department
 - City Police
 - Public Works
 - Planning Department
 - Fire Department
 - Wires Department
 - City Treasurer
 - City Clerk





Public Survey

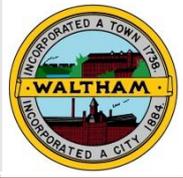
- Survey posted on City website - <http://www.city.waltham.ma.us/home/news>
- <https://docs.google.com/forms/d/1vF5WRqaLpo8cuCVIghYTjipPXX462IWNKveziYIEmA4/viewform>
- Over 2,500 responses and growing!

7. When are you most likely to drive through Waltham?
(Select one response.)

- Weekday rush hours (between 7 AM - 9:30 AM or 4 PM - 7 PM)
- Weekday non-rush hour
- Weekends
- Varies

12. How often do you walk in downtown Waltham?*
(If Never, skip to Question 16)

	Daily	Weekdays	Regularly	Rarely
To get public transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To commute to school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To commute to work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For recreation (community events, shopping, dining, errands)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Task I Relevant Studies

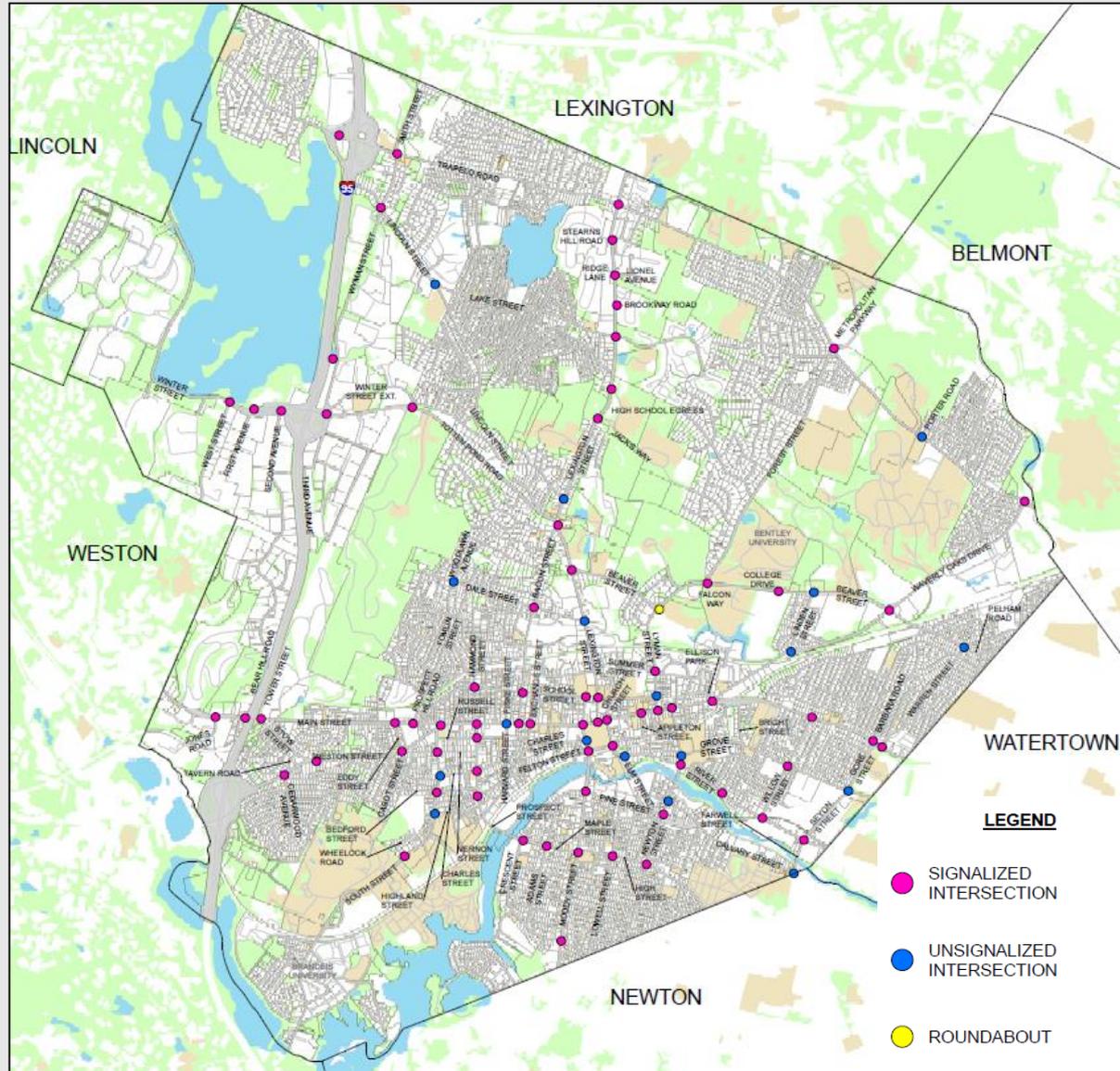
- Route 128 Central Corridor Plan (MAPC 2011)
- City of Waltham Community Development Plan (2007)
- Belmont, Lexington, Waltham Subarea Study (MAPC 2009)
- Traffic Studies for pending projects



Task I Field Reconnaissance

- 91 study area intersections

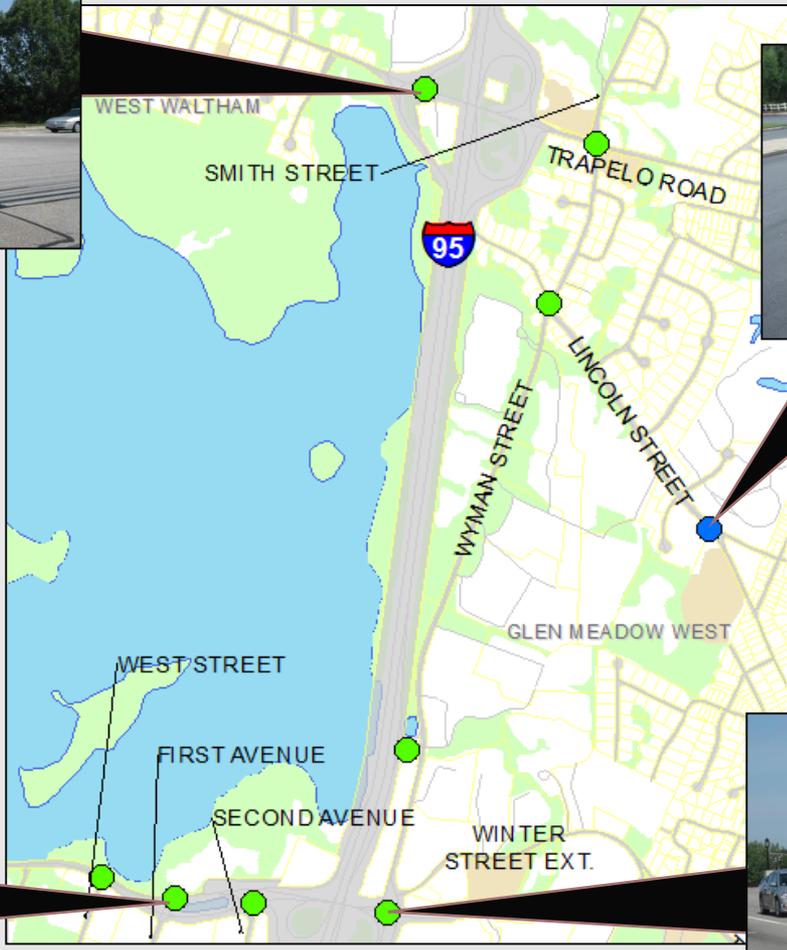
- 73 Signalized
- 17 Unsignalized
- 1 Roundabout





Task I Field Reconnaissance

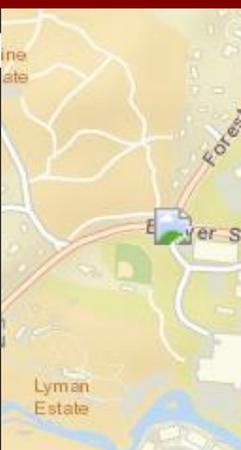
- August 2015
- Photographs, signal timings, measurements





Task I Field Reconnaissance

EB Lanes Entering Intersection <input type="text" value="2"/>	EB Lanes Exiting Intersection <input type="text" value="1"/>
EB Sidewalk - Right <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	EB Sidewalk - Left <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
EB Sidewalk - Right Width <input type="text" value="10"/> FT	EB Sidewalk - Left Width <input type="text" value="8"/> FT
EB Parking Lane - Right <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	EB Parking Lane - Left <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
EB Shoulder Width <input type="text" value="N/A"/> FT	EB Approach Lane 1 Storage Length <input type="text" value="40"/> FT
EB Approach Lane 1 Width <input type="text" value="11"/> FT	EB Approach Lane 1 Channelized? <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A
EB Approach Lane 1 Type of Movement <input type="text" value="LEFT"/>	



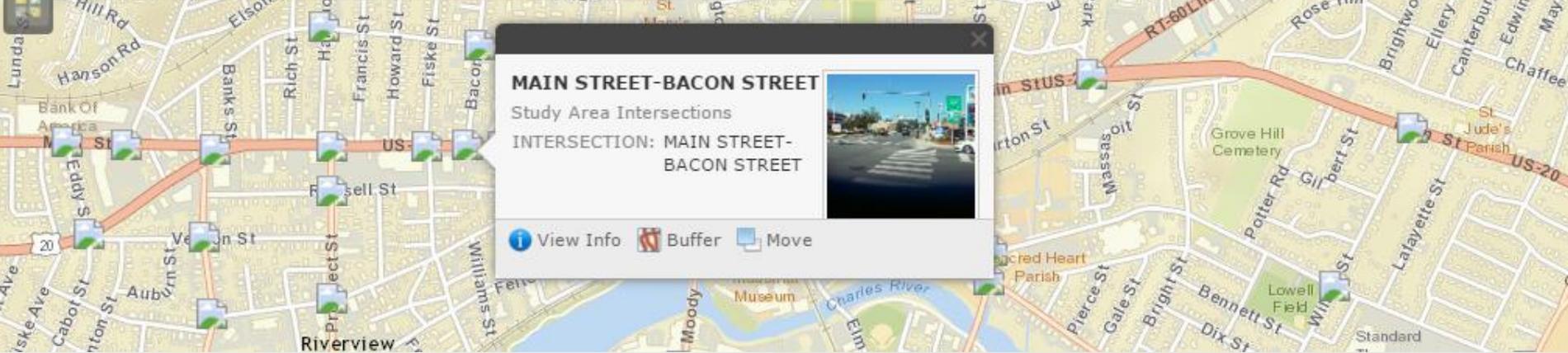
Asset Dashboard

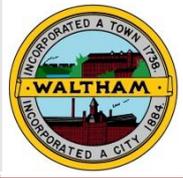
MAIN STREET-BACON STREET
Study Area Intersections

Images +

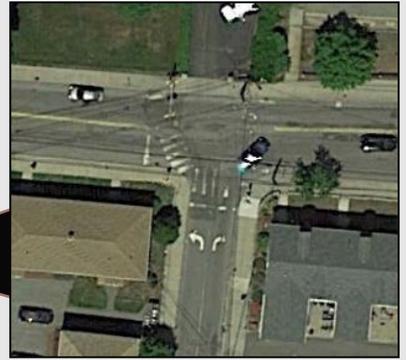
Documents +

MAIN STREET-BACON STREET.pdf
Asset Documents
8/05/2015 2:42 PM





Task I Intersection Layouts/Traffic Control





Task I Pedestrian Facilities

- Recent sidewalk improvement project in the City
 - Trapelo Road, Moody Street, Main Street
- Long crosswalks
- Signalized crossings





Healthy Transportation Facilities - Pedestrians

- Waltham's Overall Walkability Index Score: 49
- Boston's Government Center Walk Score: 85
- Desire for a balanced transportation system

Walk Score
49

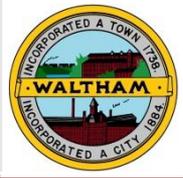
Waltham is a Car-Dependent city

Most errands require a car.

Walk Score
49

Waltham has an average Walk Score of 49 with 60,632 residents.

The most walkable Waltham neighborhoods are [Chemistry](#), [South Side](#) and [Bank Square](#).



Task I Bicycle Facilities

- Limited availability of bike sharrows, bike lanes and shoulders citywide
- Charles River multi-use Path
- Honorable Mention Bicycle Friendly Community





Healthy Transportation Facilities - Bicycles

- Types of Cyclists

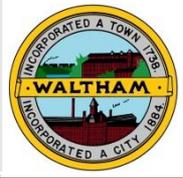


Source: Geller, Roger. *Four Types of Cyclists*. Portland, OR



Bicycle Level of Traffic Stress

LTS 1		<p>Suitable for a relaxing bike ride with little cyclist attention required. Children may need to be supervised at intersections.</p>
LTS 2		<p>Suitable to most adults, but more demanding than what a child may be expected to handle.</p>
LTS 3		<p>More traffic stress than LTS 2, acceptable for most cyclists currently riding in the US.</p>
LTS 4		<p>A level of stress beyond LTS 3.</p>

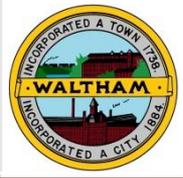


Task I

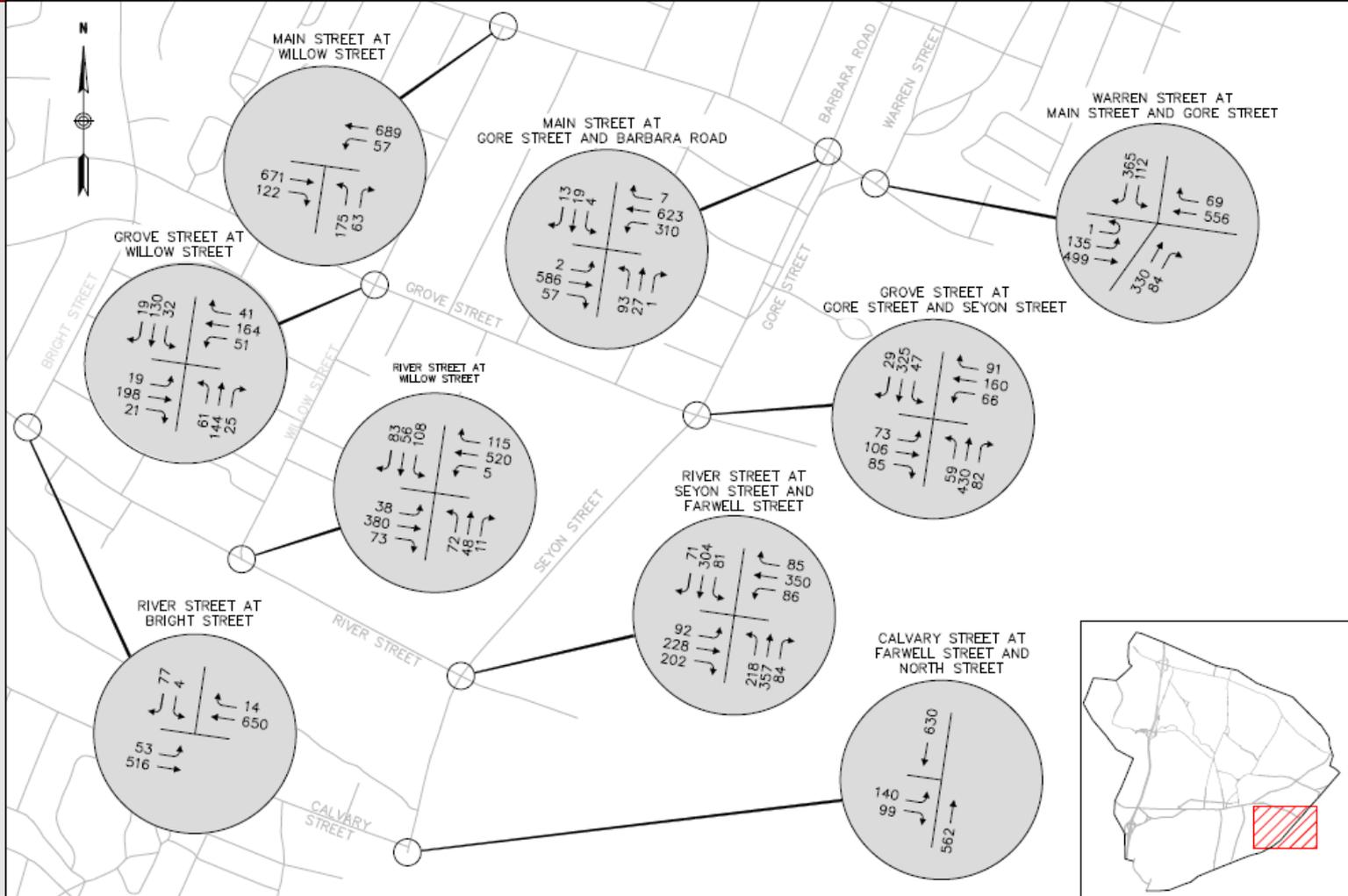
Traffic Counts

- Peak Hour (AM/PM) Manual Turning Movement Counts conducted by City (November 2014)
- Included Cars, Trucks, Pedestrian, Bicycles
- 48-Hour continuous roadway counts collected November 2015 at nine locations



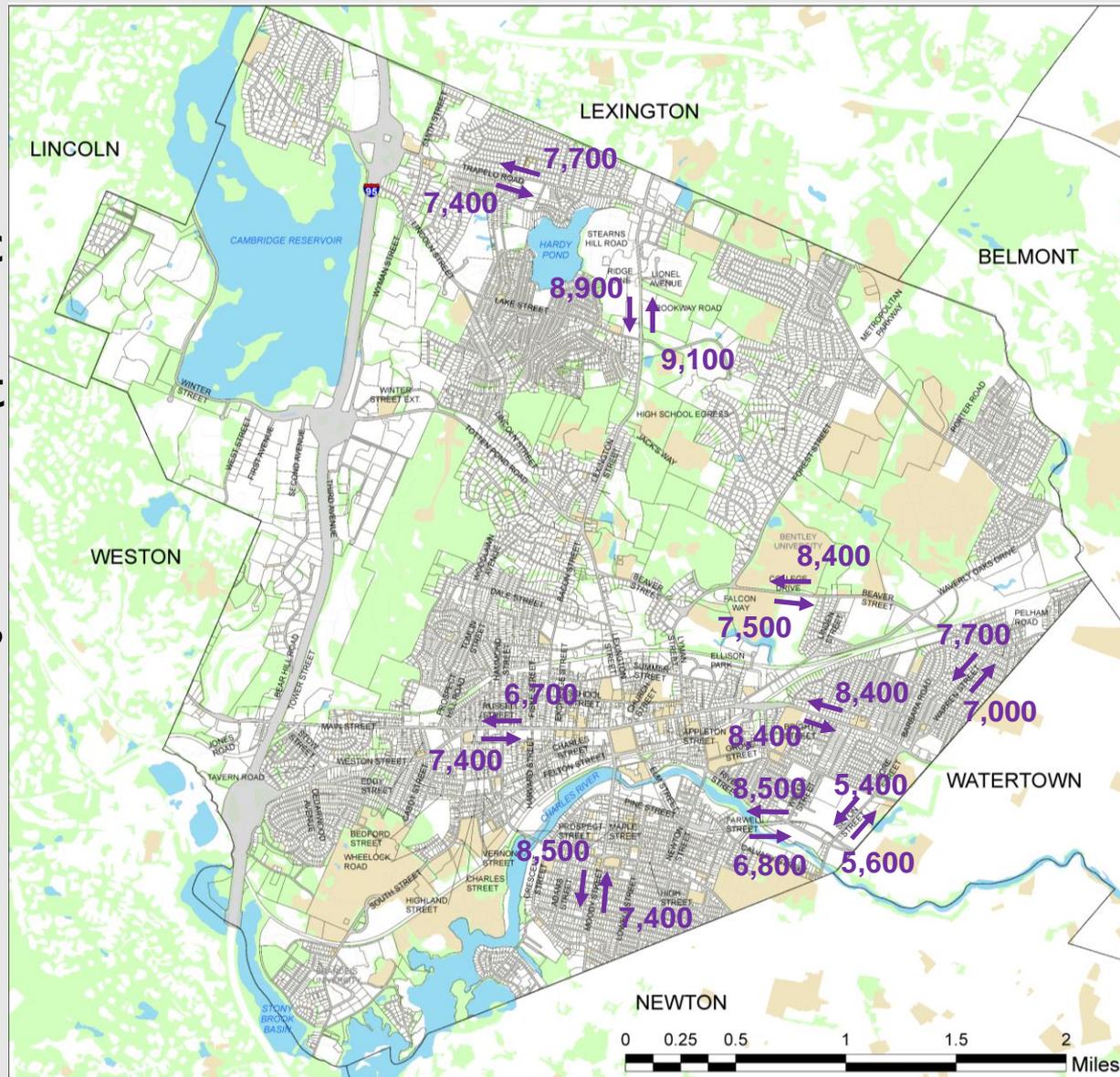


Task I Traffic Counts



Task I Traffic Volumes - Daily

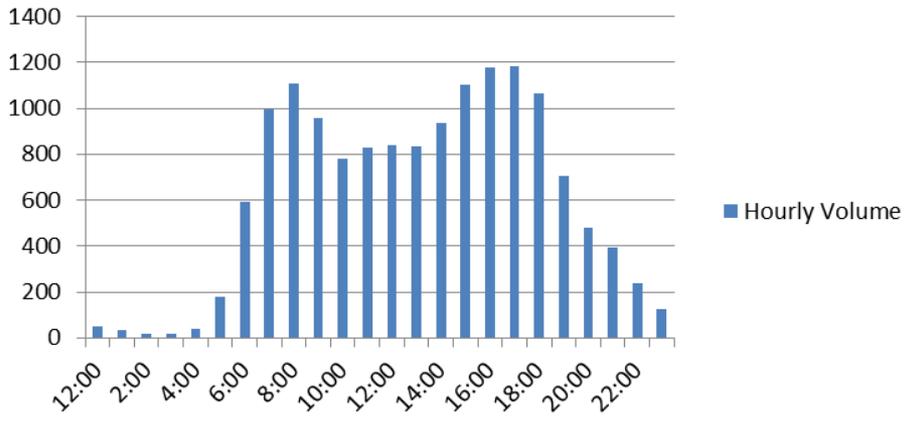
- Daily Volumes
- 48-Hour Automatic Traffic Recorder (ATR) data taken at 9 locations
- Counts included cars, heavy vehicles, bicycles and speeds



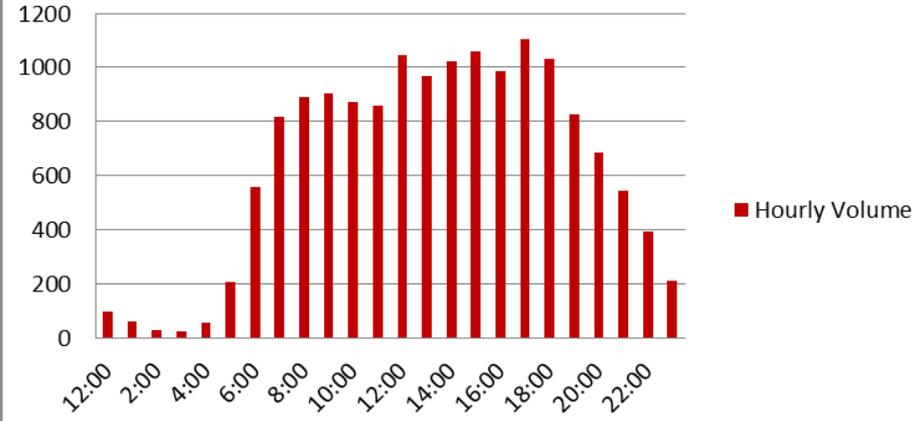


Task I Traffic Volumes - Daily

Warren Street (East of Beaver Street)

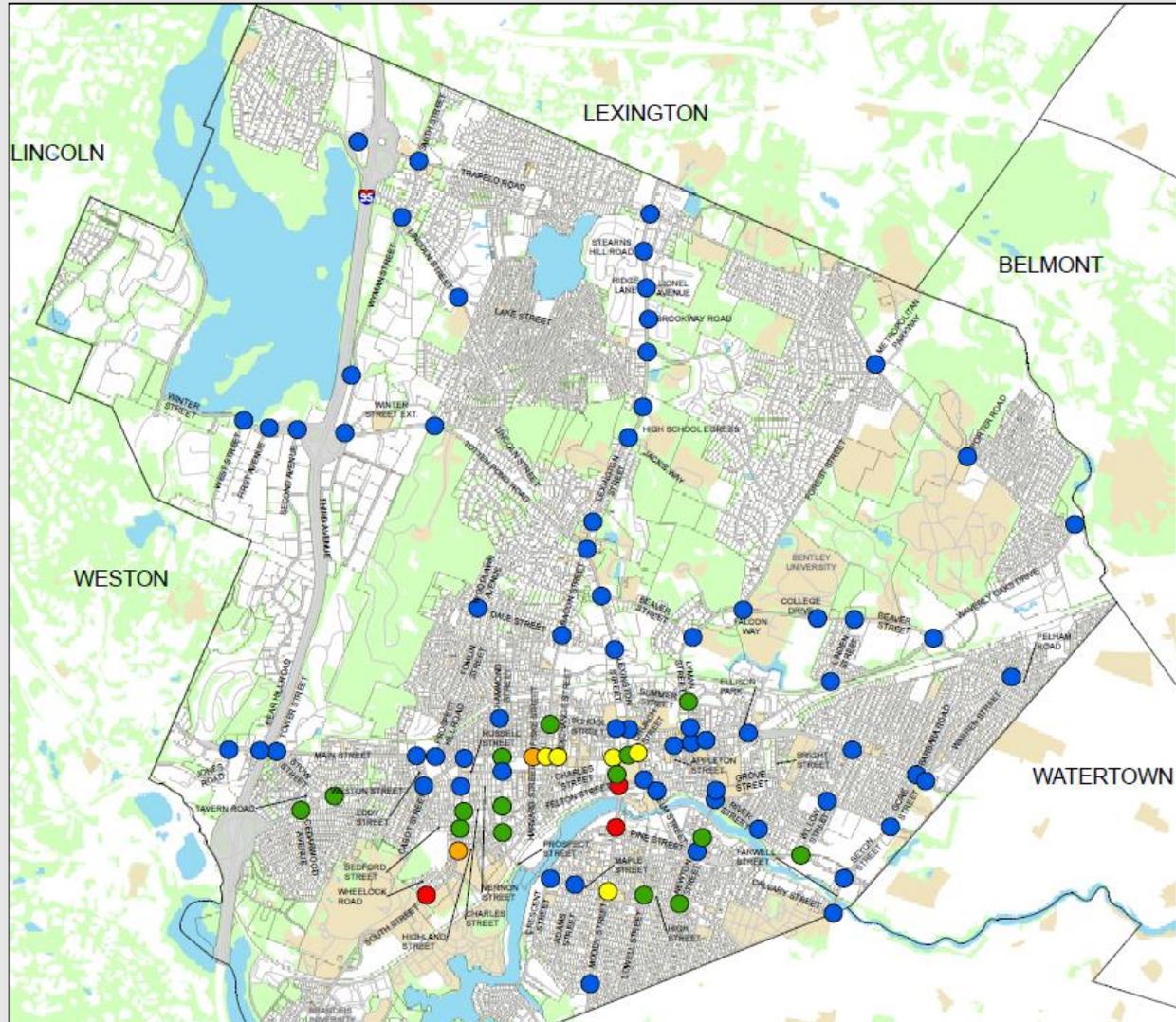


Moody Street (south of Charles Street)



Task I Traffic Counts

Weekday Morning Peak Hour Pedestrian Volumes



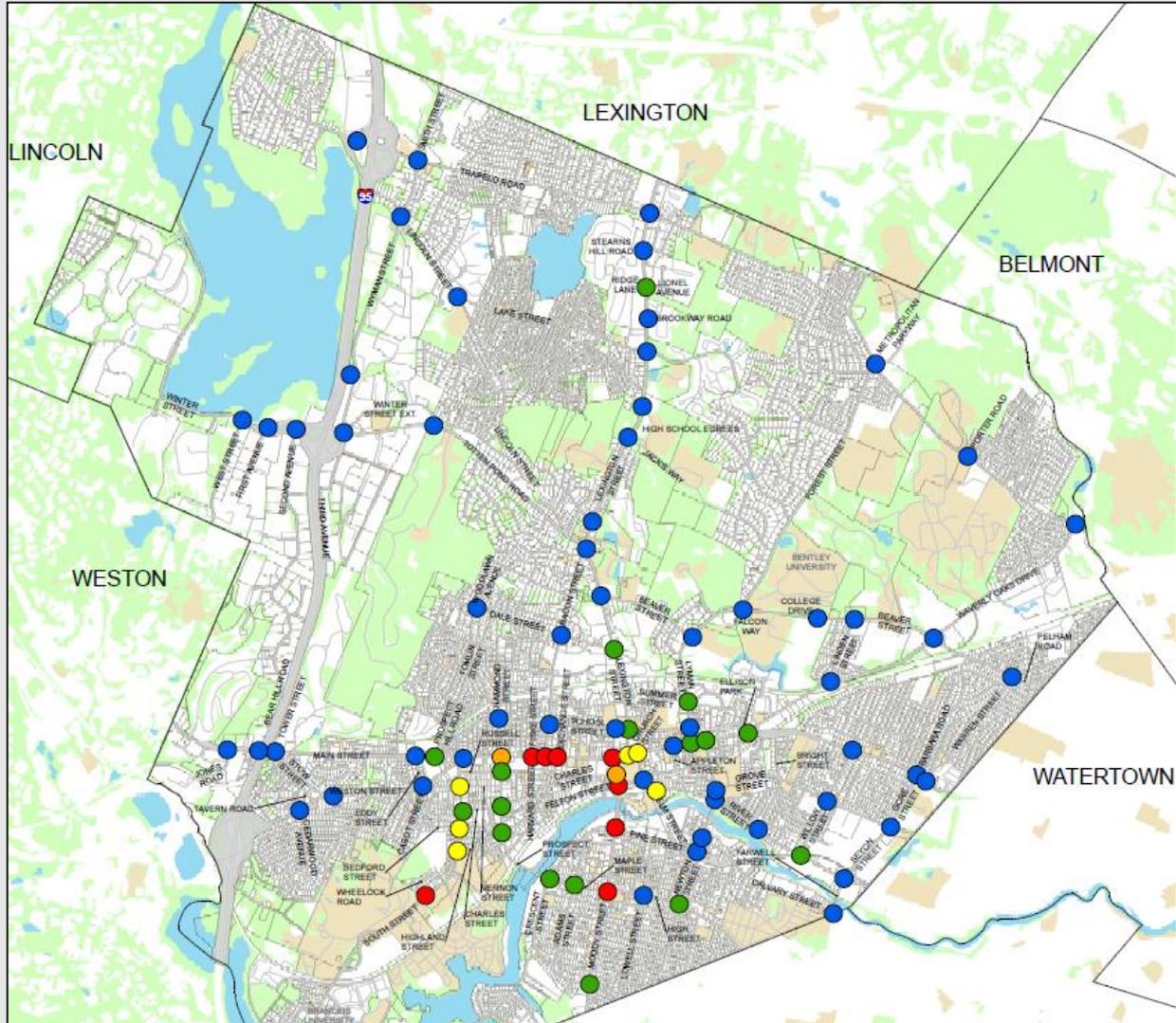
LEGEND

- 0-25 Pedestrians
- 25-50 Pedestrians
- 50-75 Pedestrians
- 75-100 Pedestrians
- >100 Pedestrians



Task I Traffic Counts

Weekday Afternoon Peak Hour Pedestrian Volumes



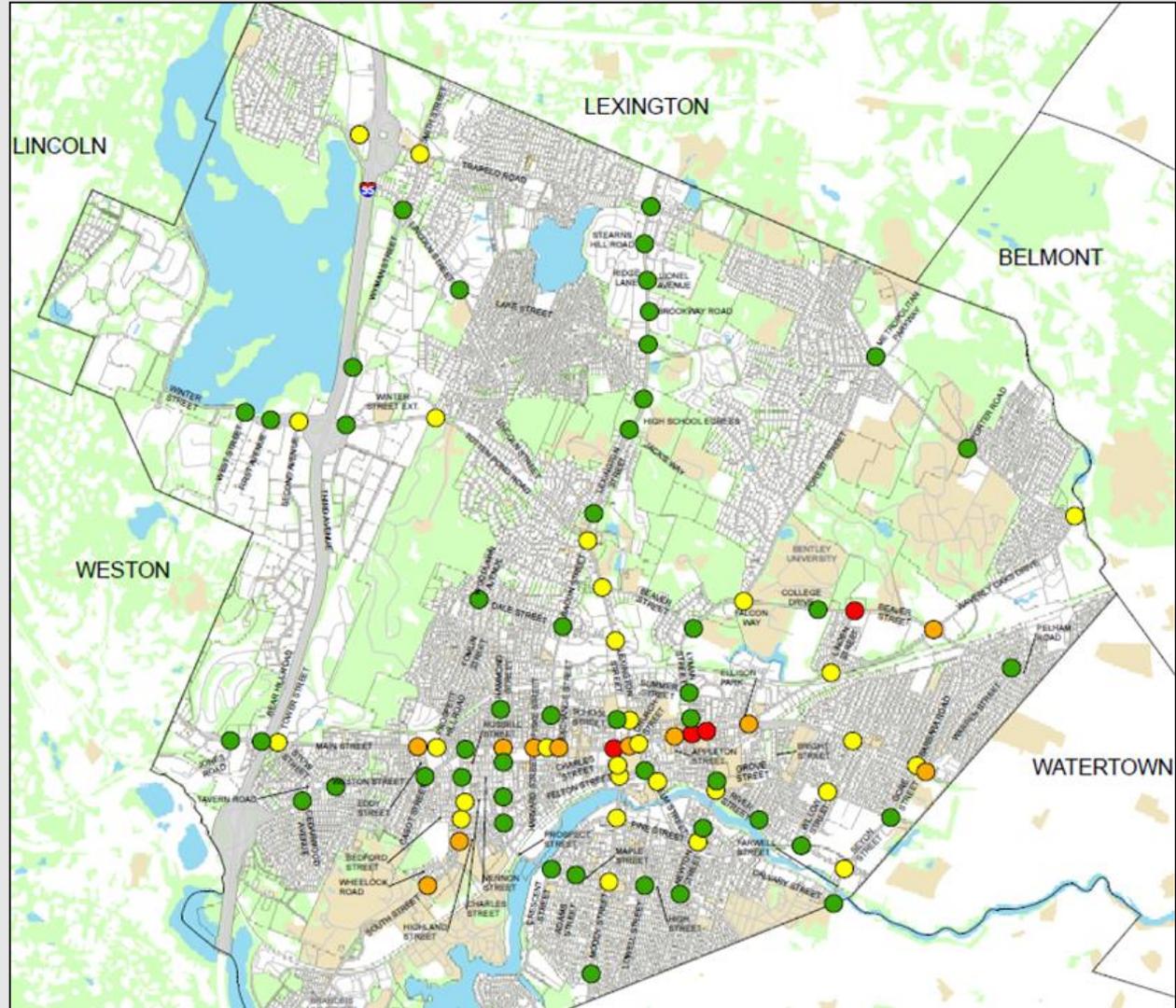
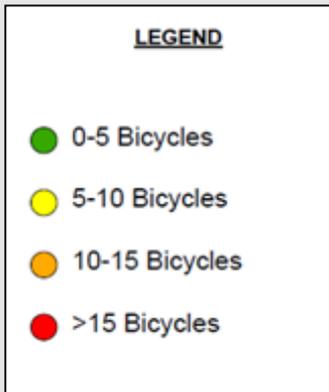
LEGEND

- 0-25 Pedestrians
- 25-50 Pedestrians
- 50-75 Pedestrians
- 75-100 Pedestrians
- >100 Pedestrians



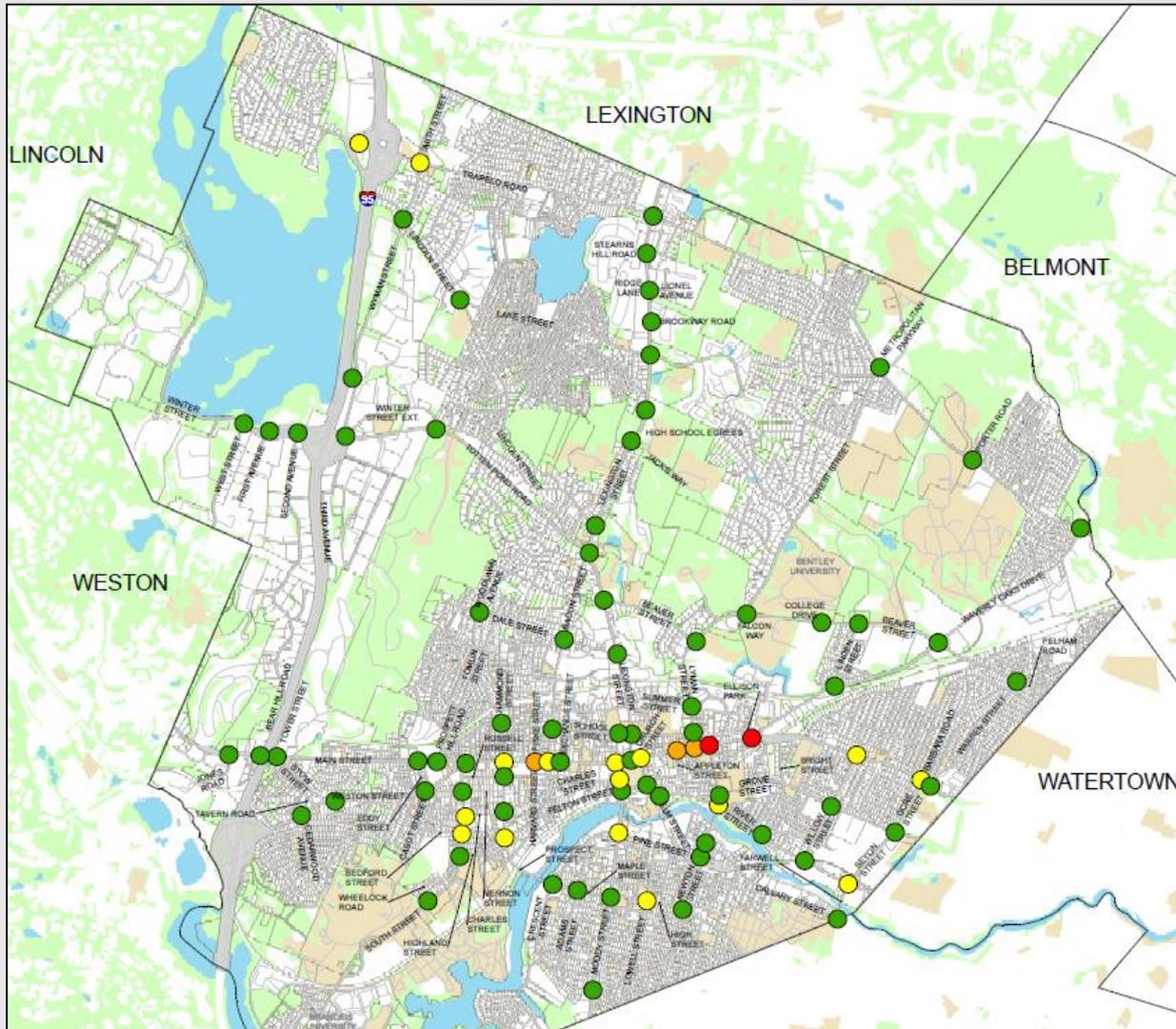
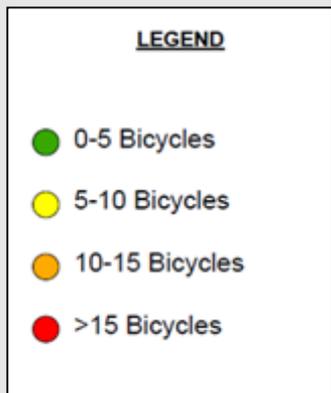
Task I Traffic Counts

Weekday Morning Peak Hour Bicycle Volumes



Task I Traffic Counts

Weekday Afternoon Peak Hour Bicycle Volumes



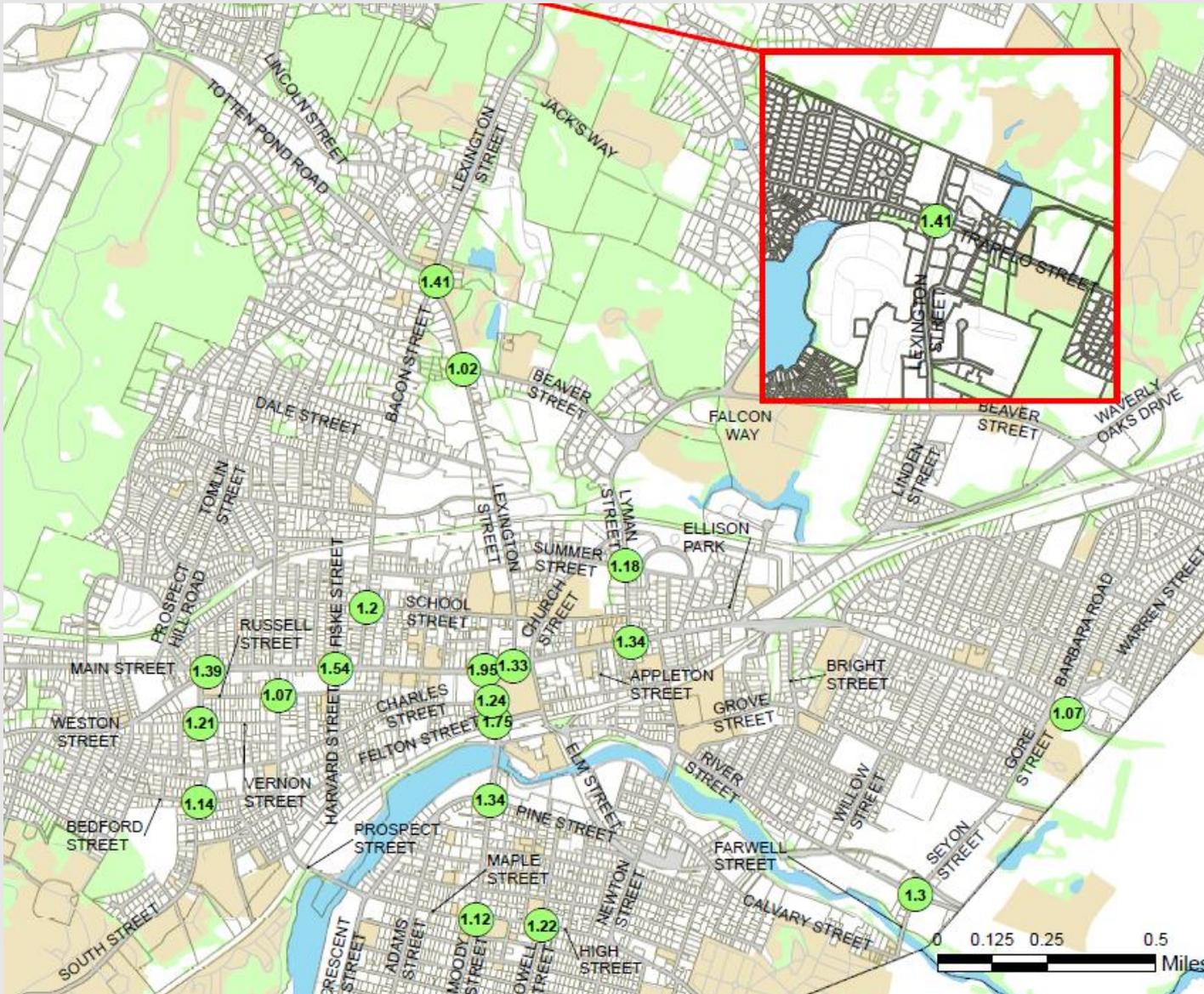
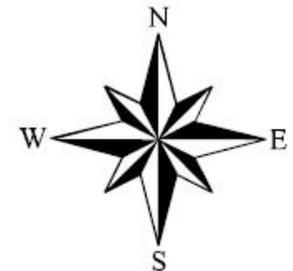
Task I Crash Data – High Crash Locations

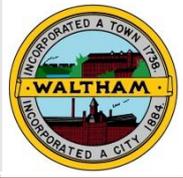
WALTHAM TRANSPORTATION MASTER PLAN CITY OF WALTHAM, MA

HIGH CRASH LOCATIONS
2011 - 2013

LEGEND

-  TOP 20 CRASH LOCATION
- # CRASH RATE



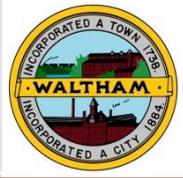


Task I

Crash Data – Top 20 Intersections

Crash Ranking	Intersection		Total Crashes	Ped	Bike	Crash Rate*
1	Main St	Moody St	50		1	1.95
2	Felton St	Moody St	35	3	1	1.75
3	Main St	Friske St	34	2	1	1.54
4	Trapelo Road	Lexington Street	56	1		1.41
5	Lexington Street	Totten Pond Rd/ Bacon St	60	1		1.41
6	Main St	Weston St	38			1.39
7	Lyman St	Main St	32		1	1.34
8	Moody	Crescent St/Pine	23		1	1.34
9	Lexington Street	Main Street	31	1		1.33
10	River St	Seyon St	33	1	1	1.30
11	Charles St	Moody St	21			1.24
12	High St	Lowell St	18		1	1.22
13	South Street	Vernon St	18			1.21
14	Bacon St	School Street	23			1.20
15	Lyman St	Summer St	20			1.18
16	South Street	Bedford St	20			1.14
17	Moody St	Maple St	23			1.12
18	Prospect St	Russell St	16			1.07
19	Warren St	Main St	27			1.07
20	Lexington Street	Beaver St	40			1.02

*Crash Rate =
crashes per million
entering vehicles

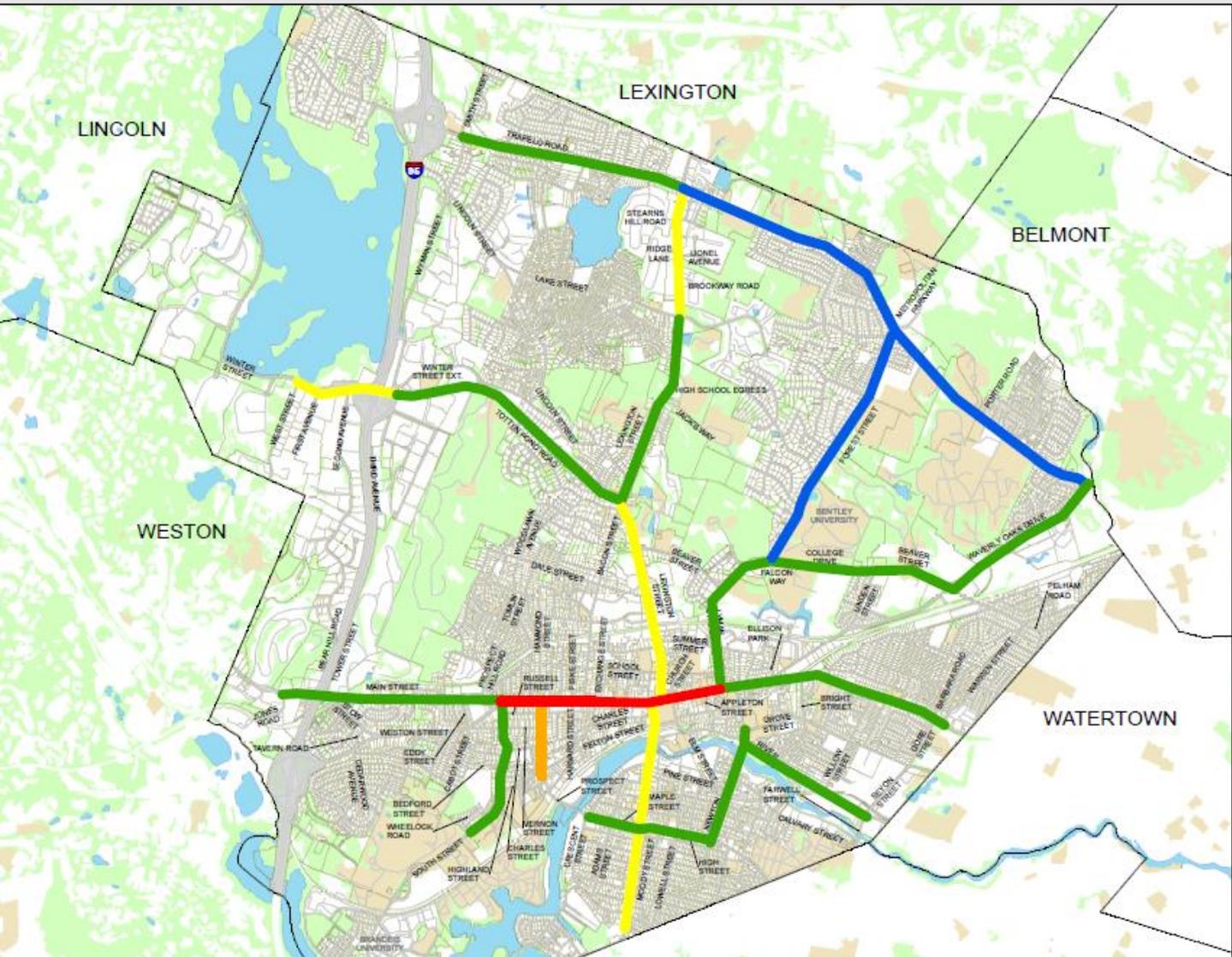


Task I Crash Data – Police Department

- Coordination Meeting held with Police Department
- Annual grant for pedestrian/bicycle safety
- Issues discussed:
 - Regulatory issues
 - Red light running locations
 - Cut thru traffic
 - Failure to yield
 - Lane designation confusion



Task I Crash Data – Crash Clusters



WALTHAM TRANSPORTATION MASTER PLAN

CITY OF WALTHAM, MA

CRASH CLUSTERS 2011 - 2013

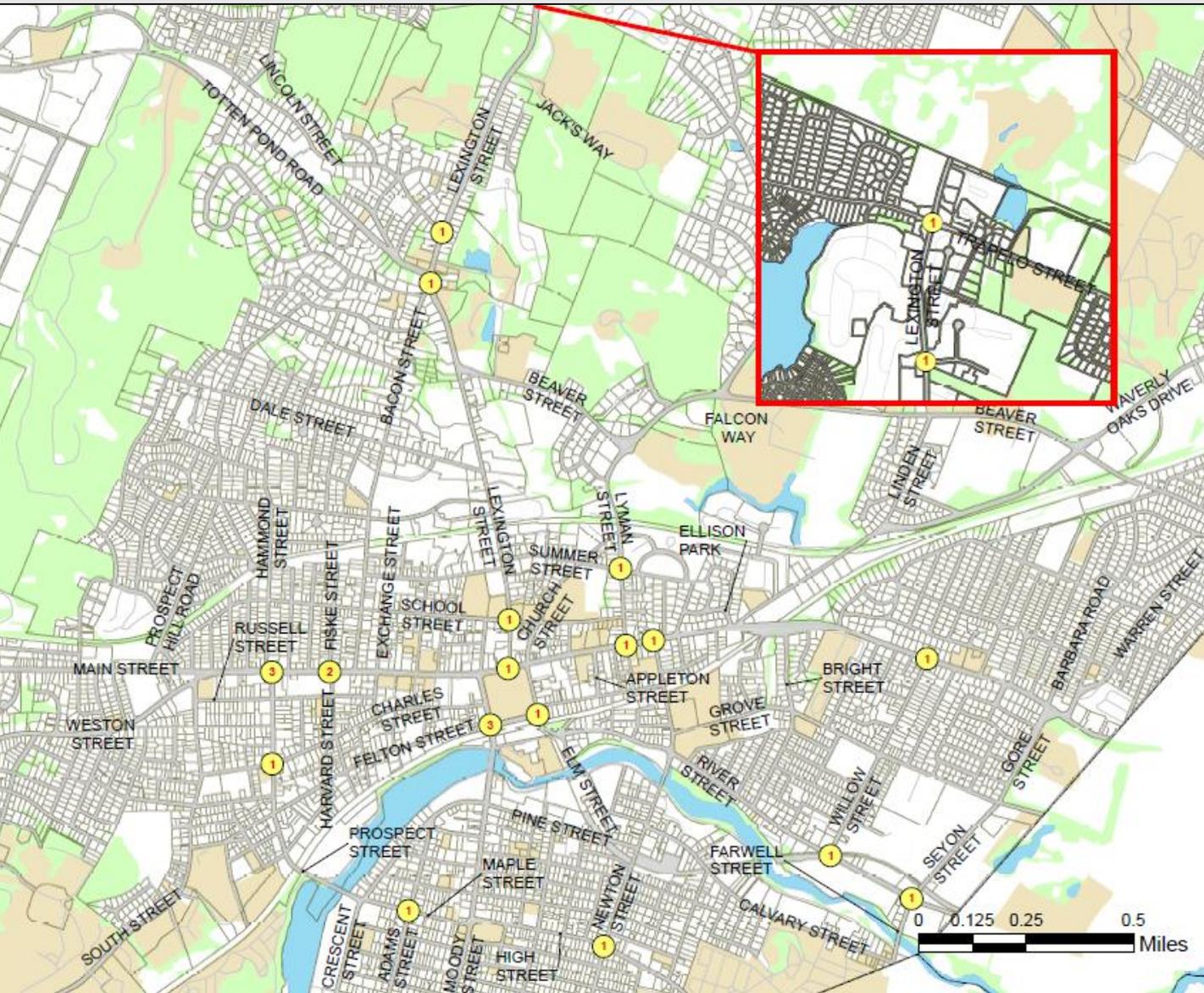
LEGEND

- █ 400-500 CRASHES PER MILE
- █ 300-400 CRASHES PER MILE
- █ 200-300 CRASHES PER MILE
- █ 100-200 CRASHES PER MILE
- █ <100 CRASHES PER MILE

Note: Based on the number of crashes/mile and is not the calculated crash rate for the segment



Task I Crash Data – Pedestrians



WALTHAM TRANSPORTATION MASTER PLAN

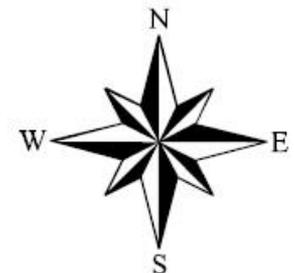
CITY OF WALTHAM, MA

PEDESTRIAN CRASHES
2011 - 2013

LEGEND

● PEDESTRIAN CRASH LOCATION

NUMBER OF PEDESTRIAN CRASHES



0 0.125 0.25 0.5 Miles

Task I Crash Data – Bicycles

WALTHAM TRANSPORTATION MASTER PLAN

CITY OF WALTHAM, MA

**BICYCLE CRASHES
2011 - 2013**

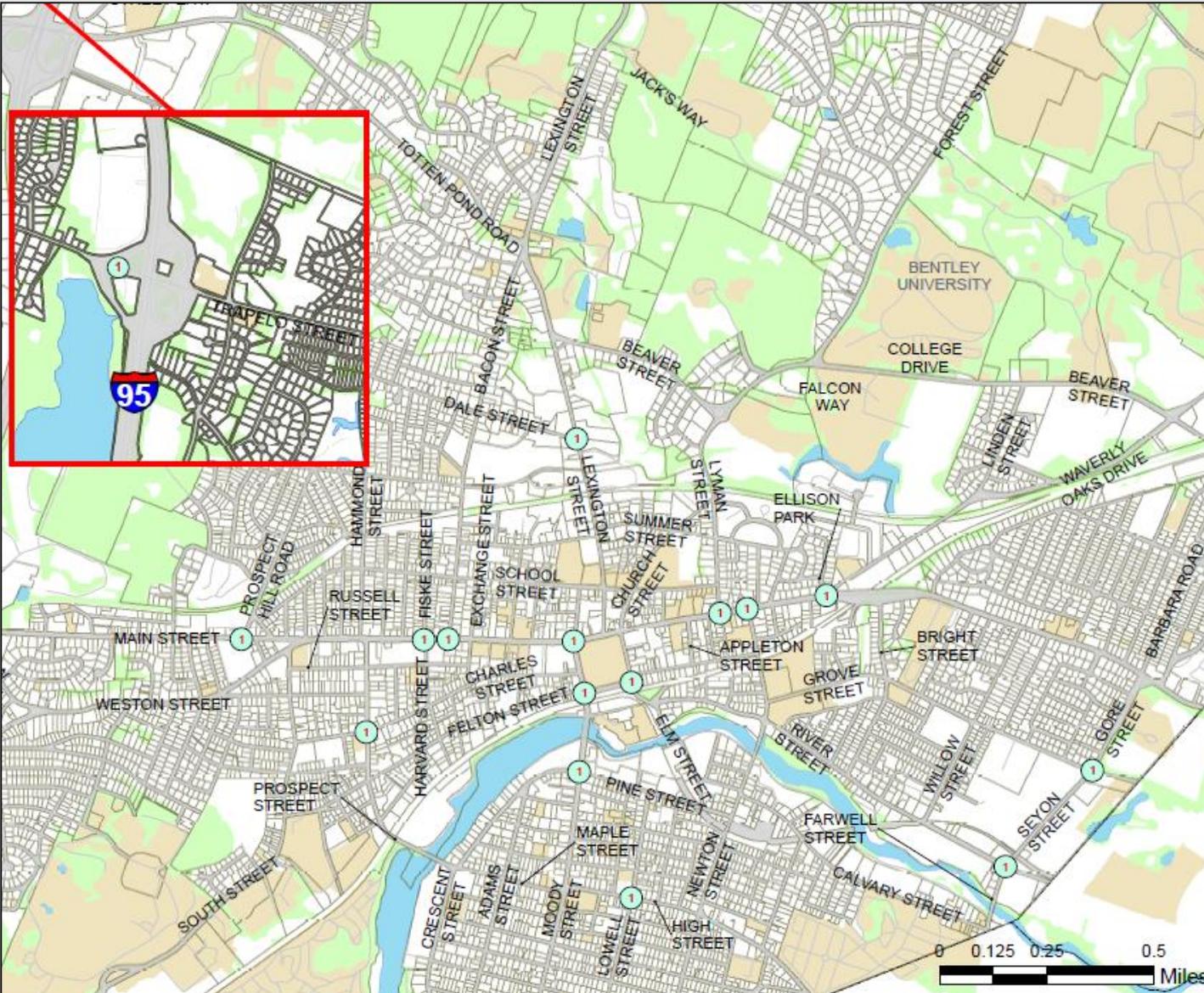
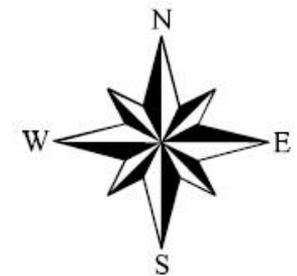
LEGEND



BICYCLE CRASH
LOCATION

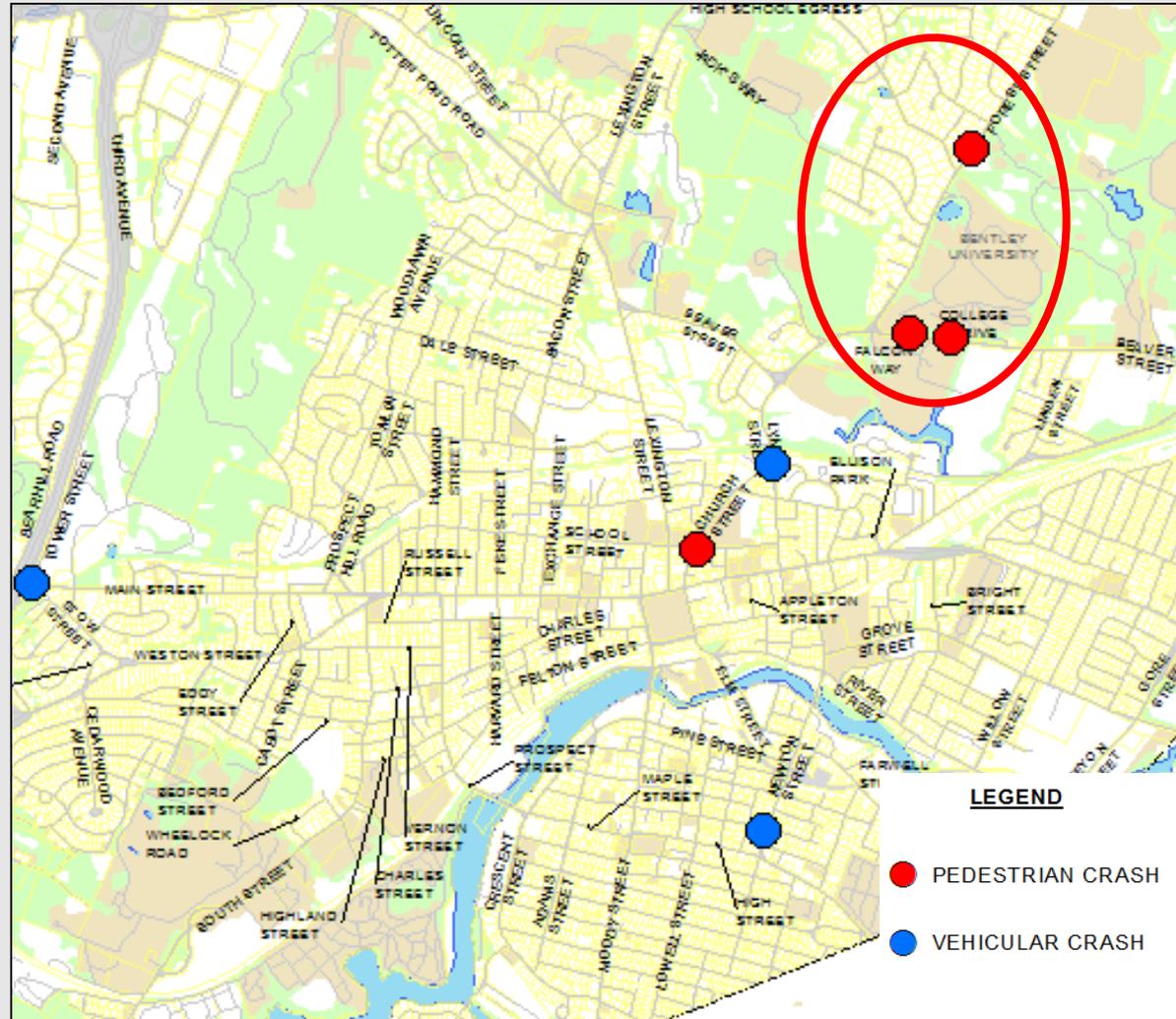


NUMBER OF
BICYCLE CRASHES



Task I Crash Data – Fatalities

- Seven Fatal Crashes reported between 2011-2014
- Cluster of pedestrian crashes at Bentley

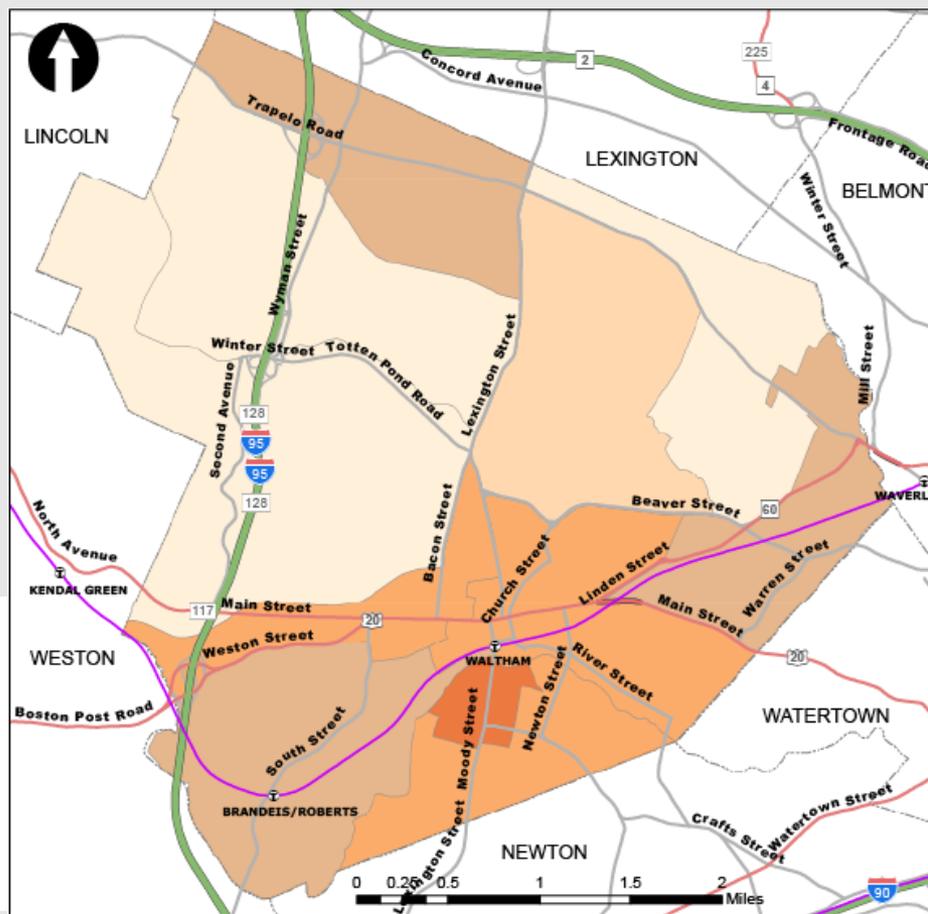


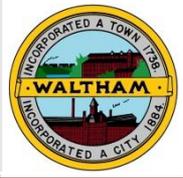


Task I Demographics

- Expected population growth
 - 2015 population: 63,376
 - 2025 population: 69,608
- Car dependent population
 - 70% of residents drive alone to work
 - 8% of households without access to a vehicle
- Major employment center
 - 53,214 employees in the city
- 46,602 Waltham residents in the workforce

Existing Population

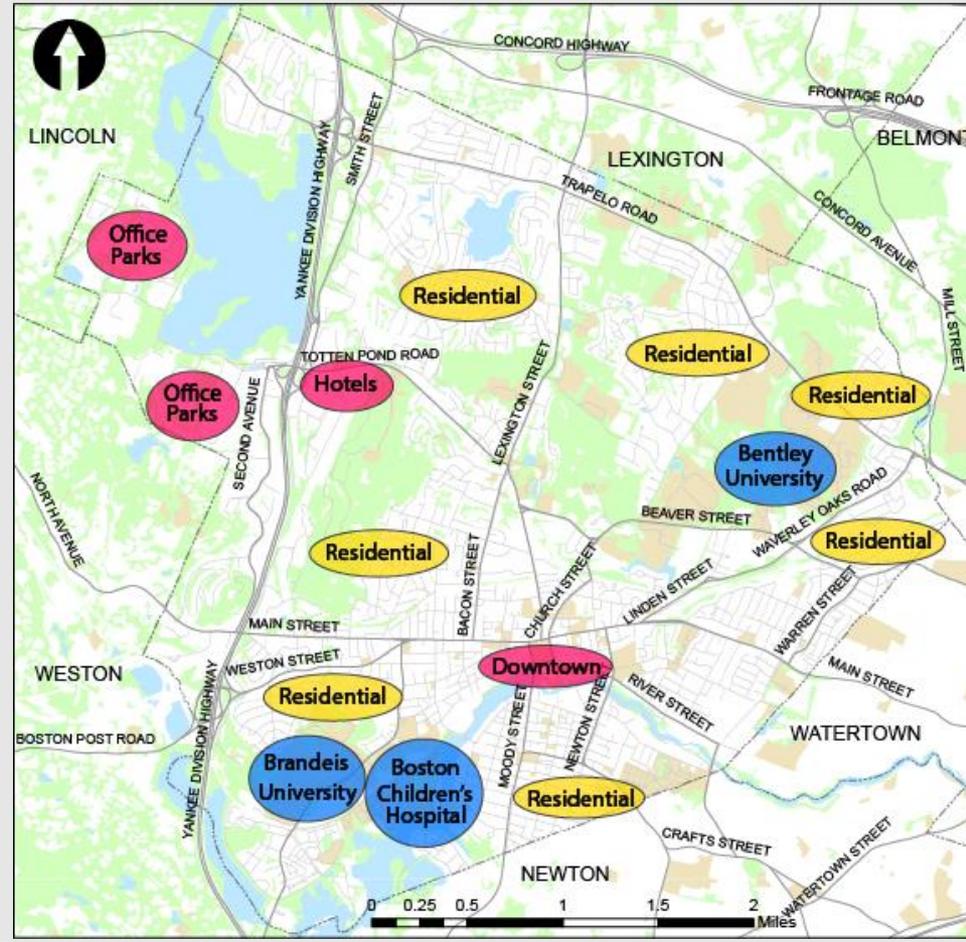




Task I Land Use

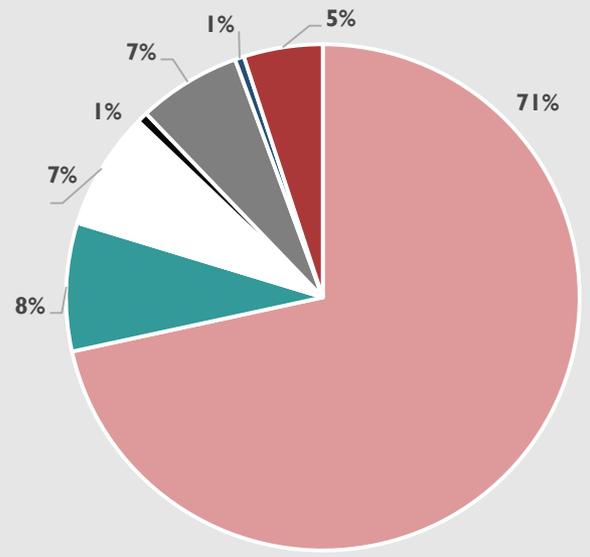
- Industrial and commercial space concentrated along Route 128/I-95
- Institutional space
 - Bentley University
 - Brandeis University
 - Boston Children's Hospital
- Mixed-use area concentrated in downtown Waltham

Existing Land Use

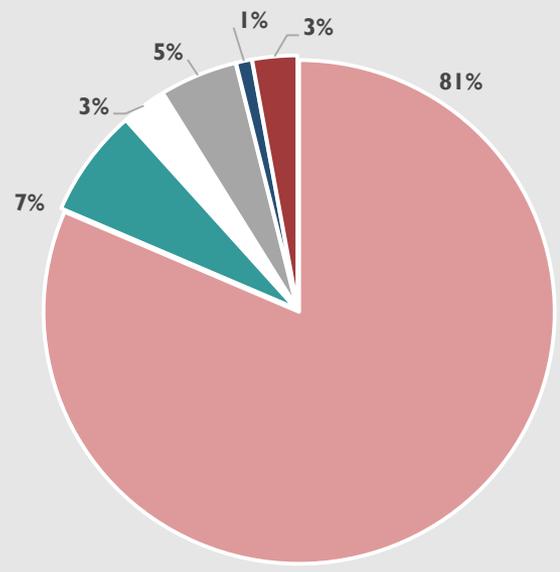
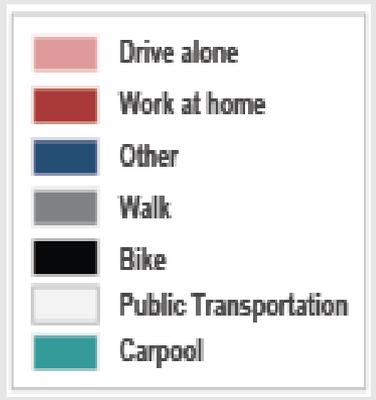




Task I Mode Share



Waltham Residents

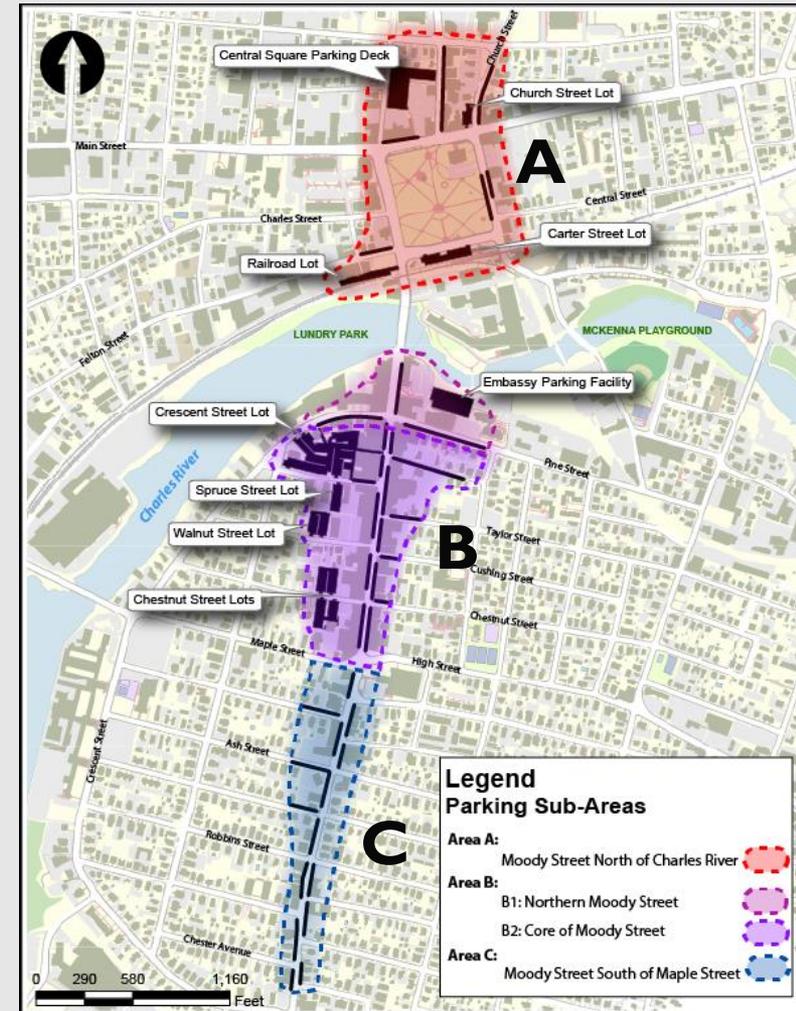


Waltham Workers

Average Commute time: 22 Minutes

Task I Parking

- Parking Study
 - Friday September 25, 2015, 10:00 AM – 8:00 PM
 - Performed by City Staff
 - 1,330 public parking spaces in Downtown/Main/Moody St. area
 - 290 on-street and 1,040 off-street
- Best Practices: 85% utilization for downtown



Task I Parking

- Parking fees
 - On-street free
 - Off-street 50 cents an hour, max of \$2.00/day
- Parking time restrictions
 - On-street ranges from 15 minutes to 4 hours
 - Off-street ranges from 2 hours to 12 hours

Legend Parking Regulations

Cost



Free



50¢ per hour until 6pm; free after 6pm

Time Restriction



1 Hour or 15 Minutes



1 Hour or 30 Minutes



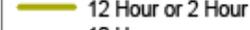
1 Hour



2 Hour



4 Hour



12 Hour or 2 Hour



12 Hour

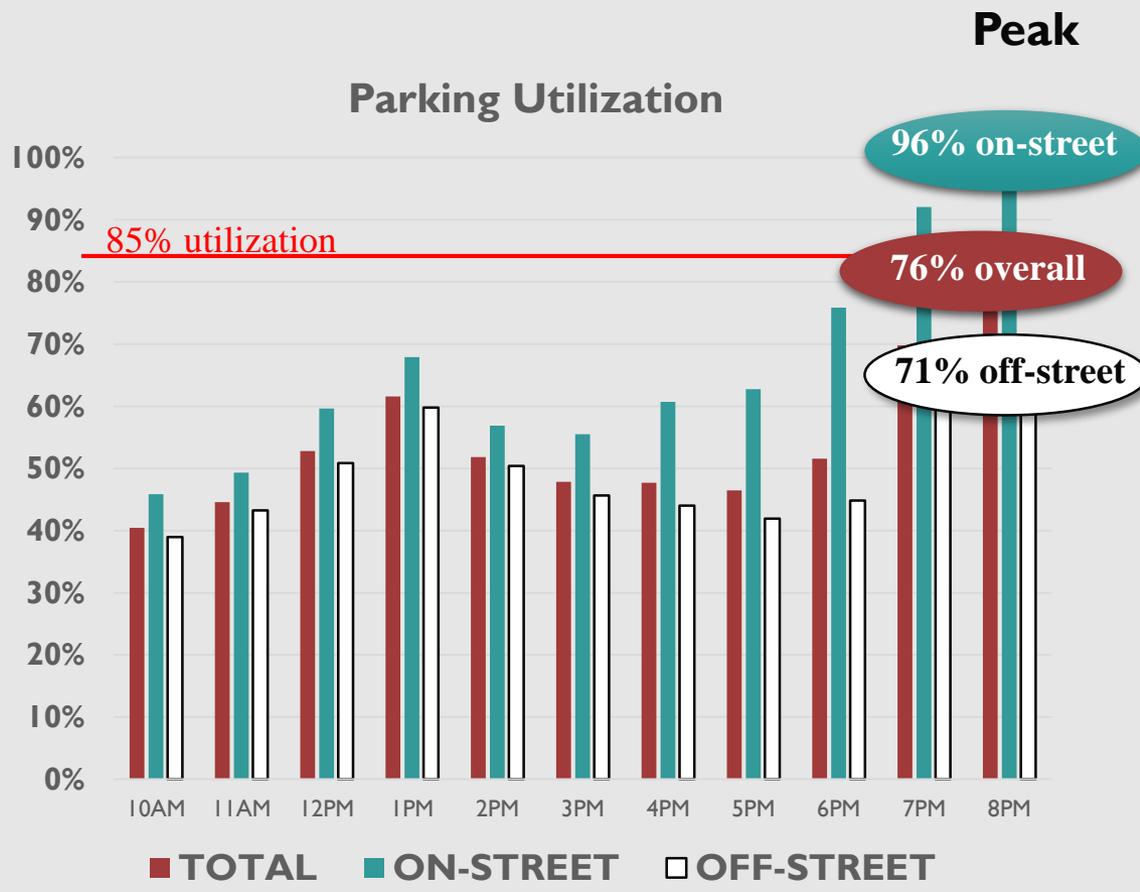
Source: City of Waltham

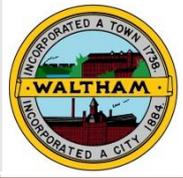




Task I Parking: General Trends

- High demand for on-street parking
- Underuse of parking supply within study area as a whole
- Utilization peaks at 8:00PM

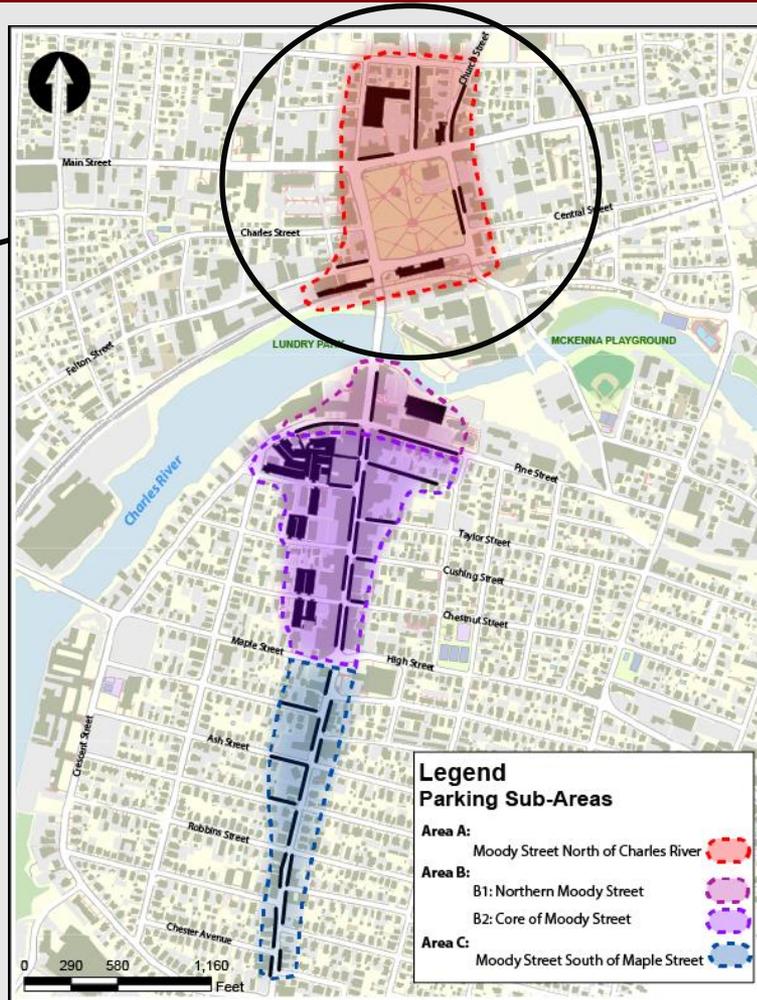




Task I Area A: Moody Street North of Charles River

Area A

Moody Street
North of Charles
River





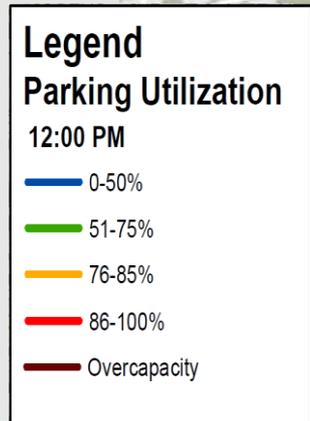
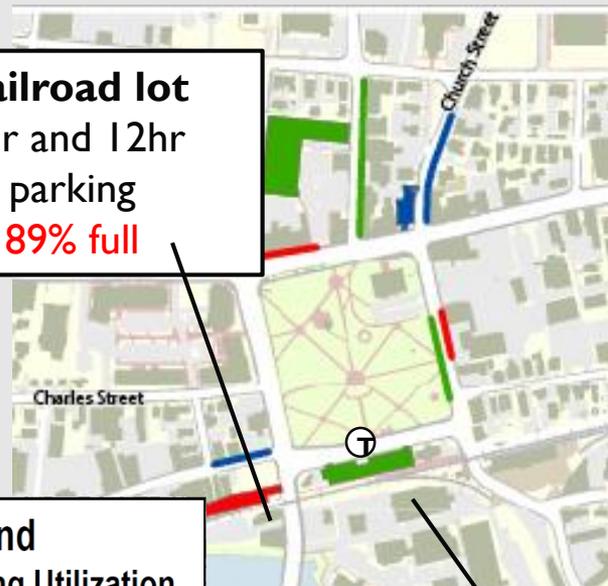
Task I Area A: Moody Street North of Charles River

- Demand fueled by proximity of commuter rail station
- Railroad lot exceeds 85% capacity from 10:00 AM – 1:00 PM.

12:00 PM: 73%

8:00 PM: 38%

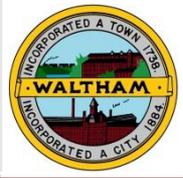
Railroad lot
2hr and 12hr parking
89% full



Carter St. lot
12hr parking only
71% full

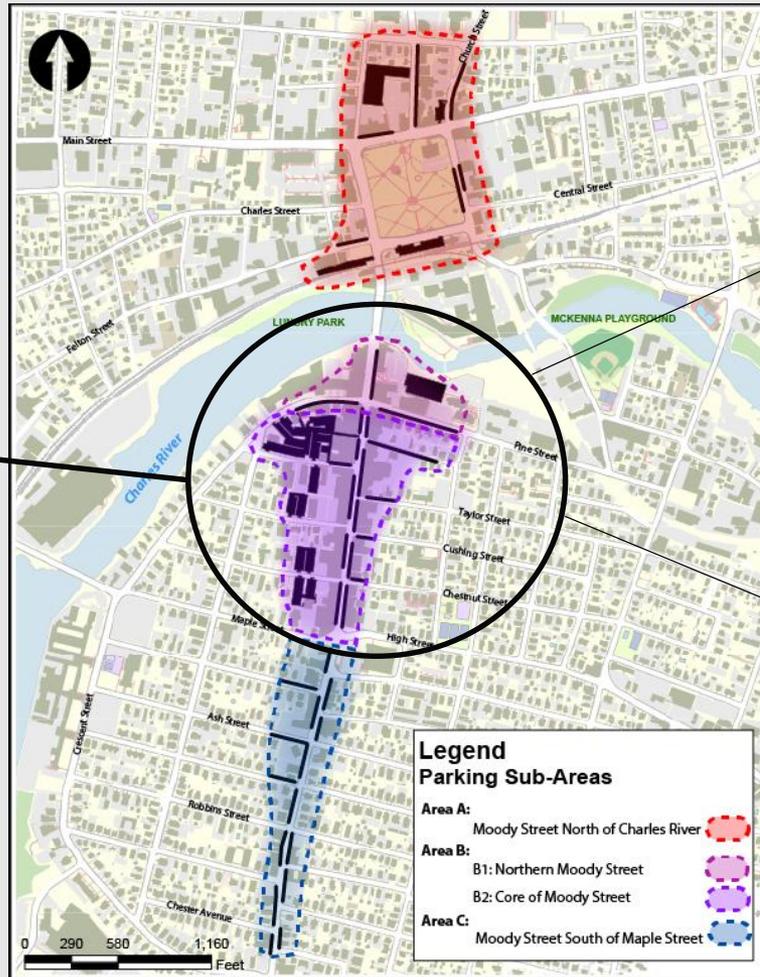
Both lots
14-20% full

Area A: Daytime peak, evening under use



Task I Area B: Core of Moody Street

Area B
Core of Moody Street



Sub-Area B1

Sub-Area B-2



Task I Area B: Core of Moody Street

Area B Utilization



10:00 AM: 30%

2:00 PM: 45%

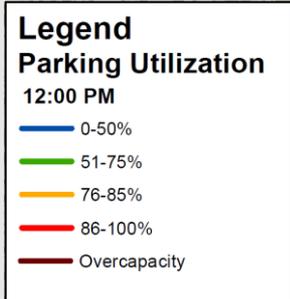
8:00 PM: 94%



B1: 18%
B2: 37%

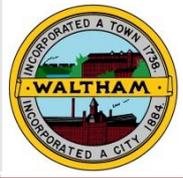
B1: 26%
B2: 57%

B1: 86%
B2: 99%



Area B: Demand driven by business activity and evening entertainment

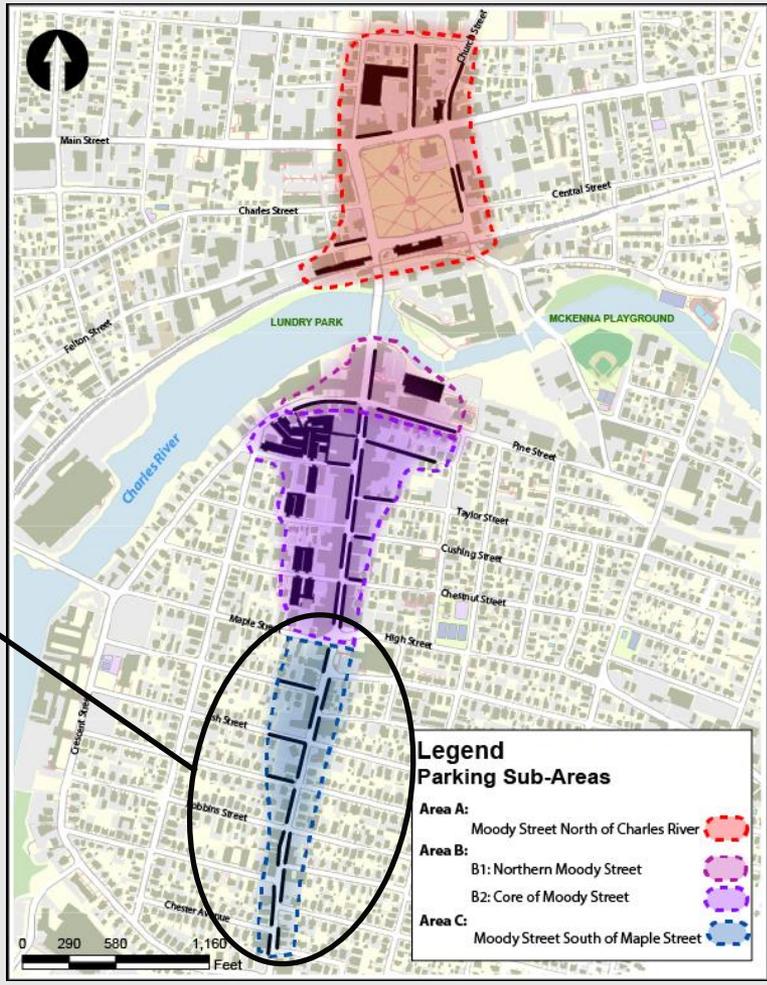
Higher demand for parking in the core of Moody Street, captured by subarea B2

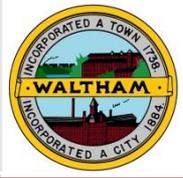


Task I Area C: Moody Street South of Maple Street

Area C

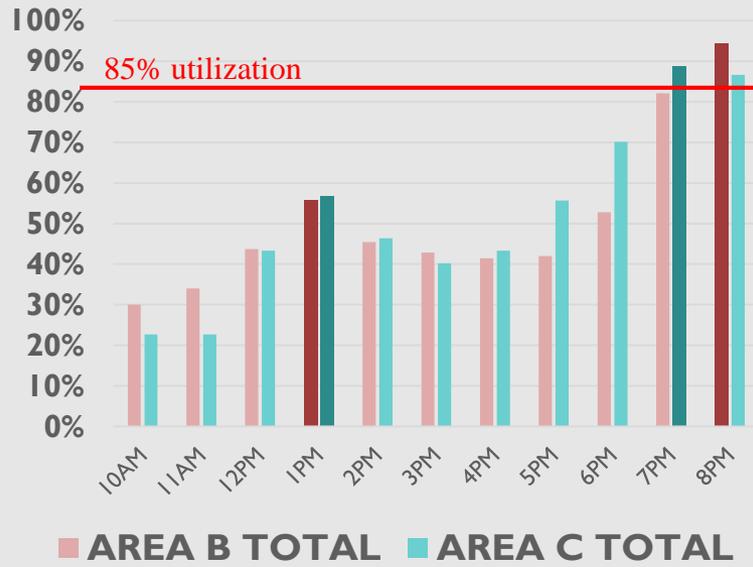
Moody Street South of Maple Street





Task I Area C: Moody Street South of Maple Street

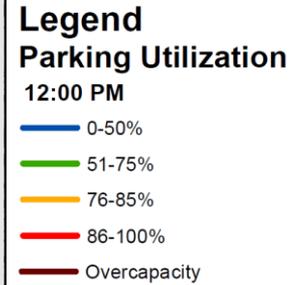
Sub Areas B and C Utilization



10:00 AM: 23%

2:00 PM: 46%

8:00 PM: 87%

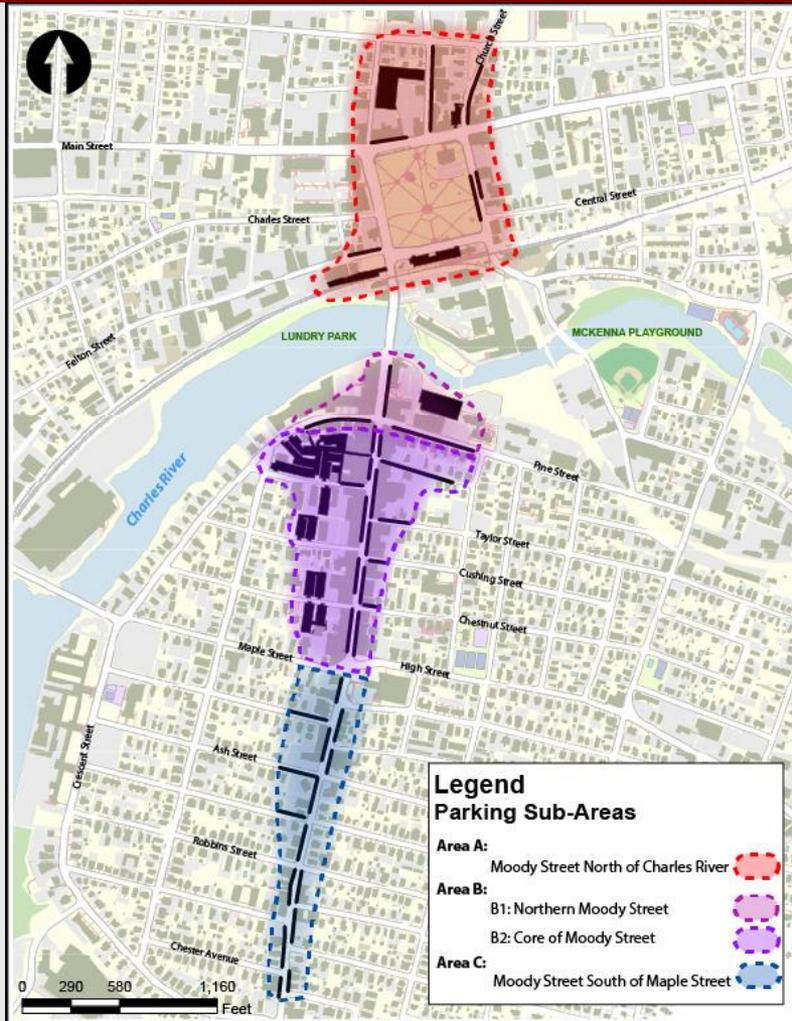


Area C: Similar pattern to Area B, but up to 1/2 mile further from businesses and entertainment on Moody St.



Task I Parking Conclusions

- Parking demand does not exceed supply within study area
- Pockets of high utilization at peak periods
- On-street demand typical of a healthy downtown





Task I Parking Conclusions

- Parking demand does not exceed supply within study area
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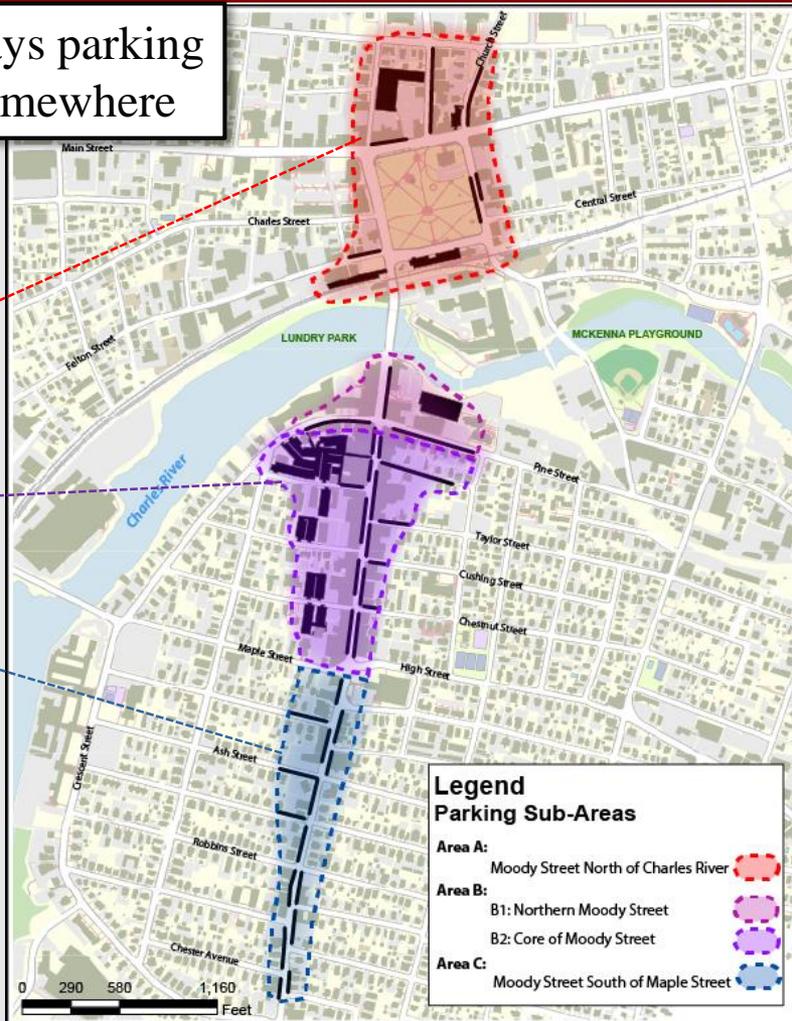
There is always parking available somewhere

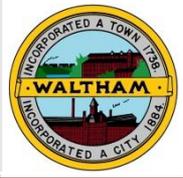
10:00 AM

Area A: 66%

Area B: 30%

Area C: 23%



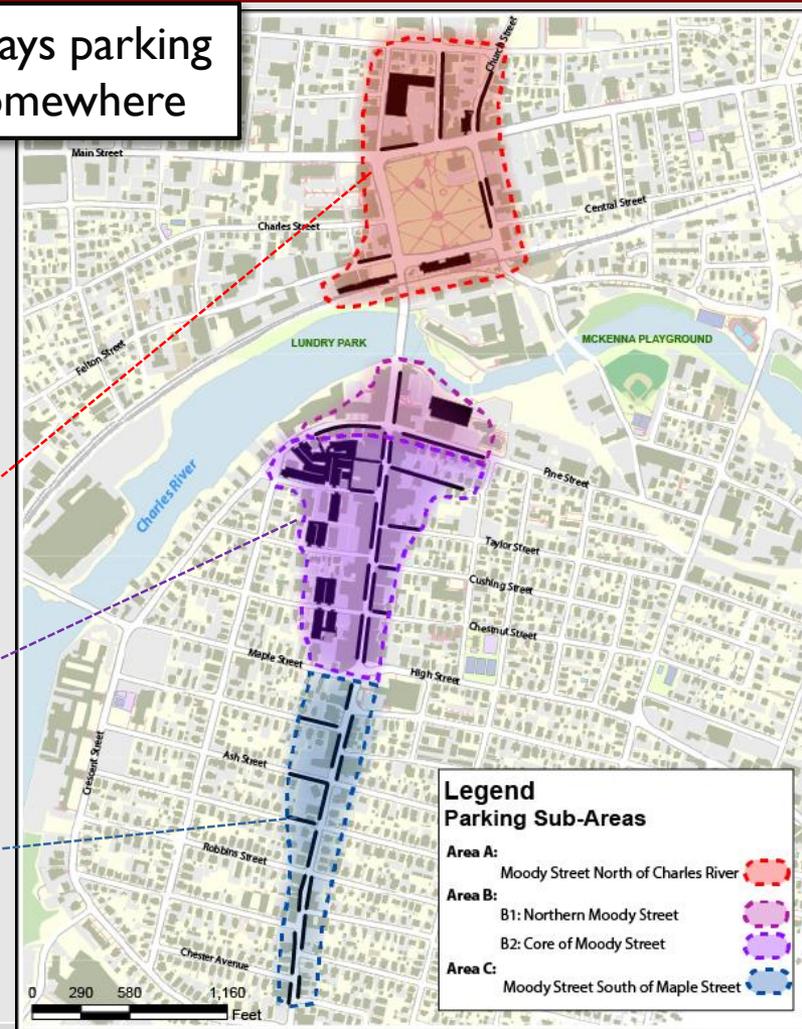


Task I Parking Conclusions

- Parking demand does not exceed supply within study area
- Pockets of high utilization at peak periods
- On-street demand typical of a healthy downtown

There is always parking available somewhere

	10:00 AM	8:00 PM
Area A:	66%	38%
Area B:	30%	94%
Area C:	23%	87%





Task I Parking Conclusions

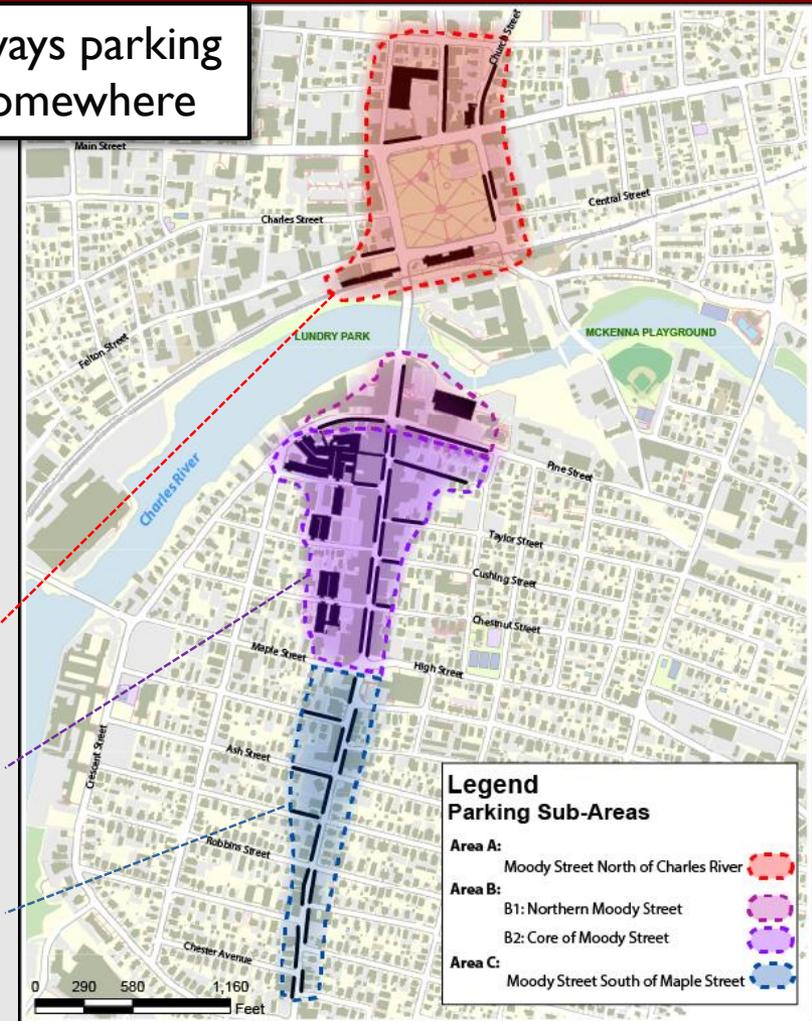
- Parking demand does not exceed supply within study area
- Pockets of high utilization at peak periods
- On-street demand typical of a healthy downtown

There is always parking available somewhere

Downtown parking management as a system:

- Encourage turnover to attract customers
- Consider pricing strategies
- Manage long-term commuter and employee parking

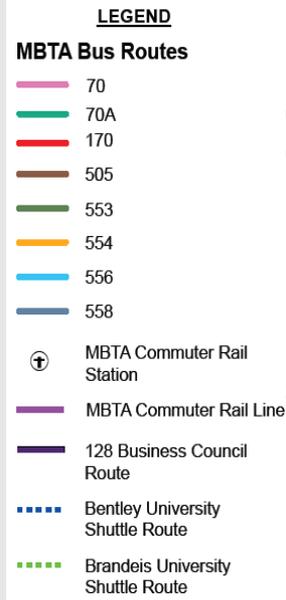
	10:00 AM	8:00 PM
Area A:	66%	38%
Area B:	30%	94%
Area C:	23%	87%



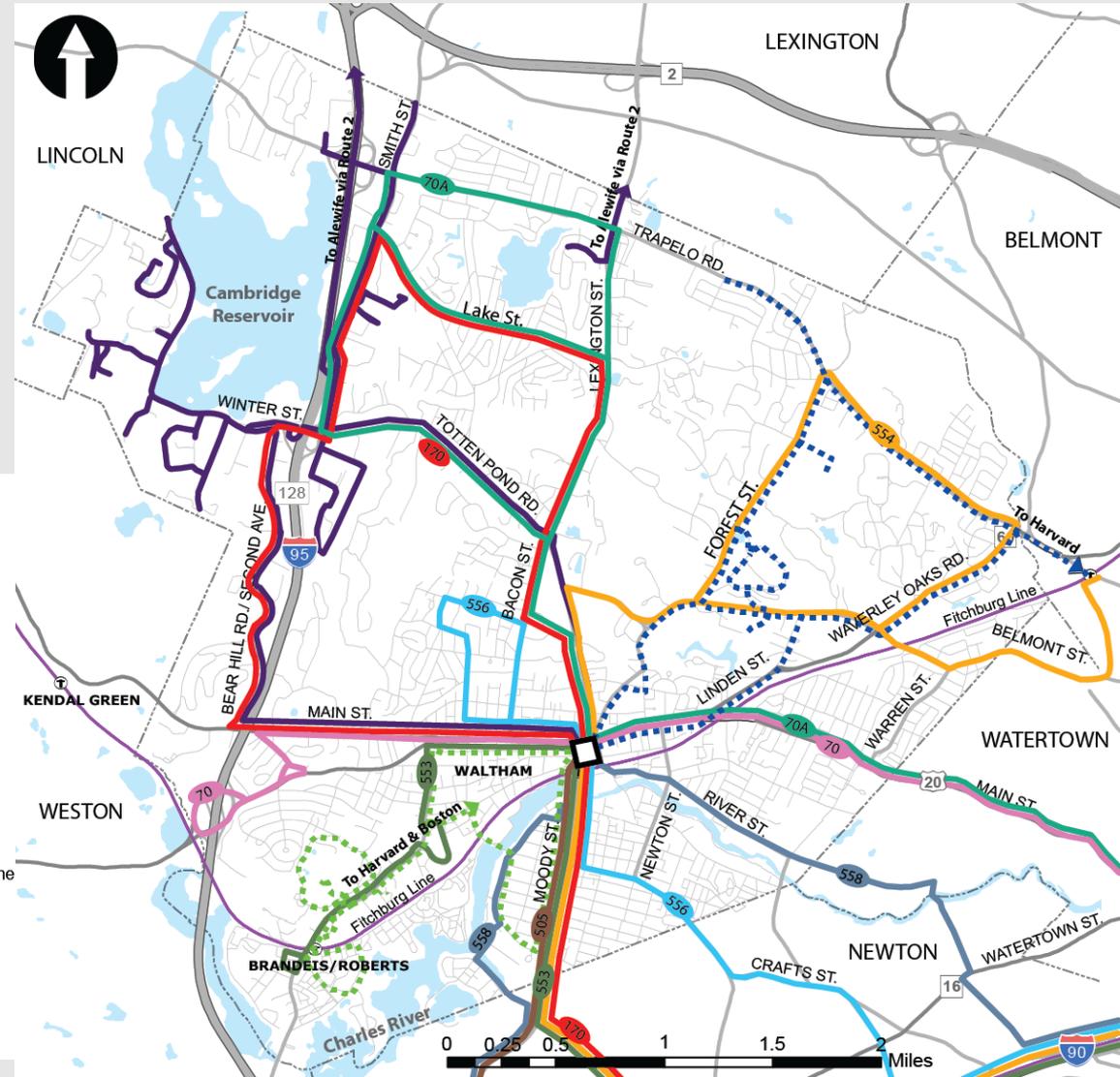
Task I Healthy Transportation Facilities - Transit

Served by:

- MBTA Bus
- MBTA Commuter Rail Fitchburg Line
- Shuttles



Existing Transit

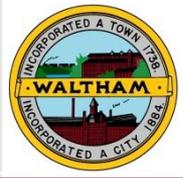




Task I Public Transportation: MBTA Bus Ridership

MBTA Bus Routes Serving Waltham

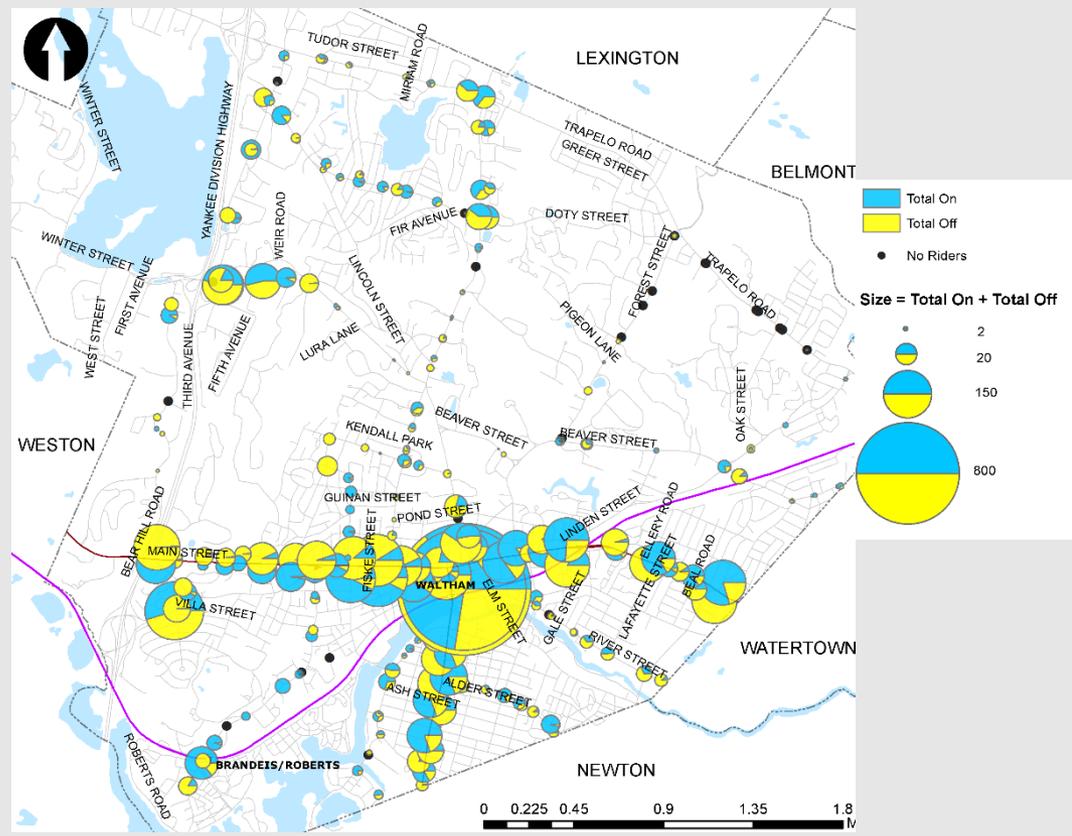
Route	From	To	Via	Peak Frequency (minutes)	Total Daily Route Ridership	Total Daily Ridership at stops within Waltham	Percent of Daily Ridership in Waltham
Local Bus Routes							
70	Weston St. & Cedarwood Ave	Franklin St & Sidney St. (Cambridge)	Central Square, Arsenal Street, and Western Ave	10-20	11,102	2,858	26%
70A	Lincoln St. Opp Silver Hill Lane	Franklin St & Sidney St. (Cambridge)	Central Square, Arsenal Street, and Western Ave	25	3,989	1,262	32%
170	Carter St. & Waltham Commuter Rail Station	Dudley Station	Moody Street and Mass Pike	35-60	183	116	63%
Express Buses to Downtown Boston							
505	Moody St. & Main St.	Federal St. and Franklin St.	Moody Street and Mass Pike	10	1,928	430	22%
553	South St. & Angelside Road	Federal St. and Franklin St.	Newton Corner and Central Square	30	1,753	464	26%
554	Trapelo Road & Church Street	Federal St. and Franklin St.	Washington Street	30	1,339	301	22%
556	Tomlin St. & Summit St.	Federal St. and Franklin St.	Newton Corner, Central Square, Waltham, Newtonville	30	1,083	248	23%
558	Riverside Station	Federal St. and Franklin St.	Newton Corner and Mass Pike	60-70	822	207	25%



Task I Bus and Commuter Rail Ridership

- Bus ridership
 - Concentrated downtown along Main Street and Moody Street
 - Underutilized stops around Bentley Campus

MBTA Bus Ridership by Stop





Task I MBTA Commuter Rail Ridership

- Commuter Rail: Fitchburg Line

Station Name	Average Daily Boardings	Percent of Total Line Boardings at Station	Trips per Weekday
Waltham	610	6%	16
Brandeis/Roberts	437	4%	15

- MBTA Transit Survey - http://www.mbta.com/about_the_mbta/default.asp?id=6442454743



Task I Shuttle Service

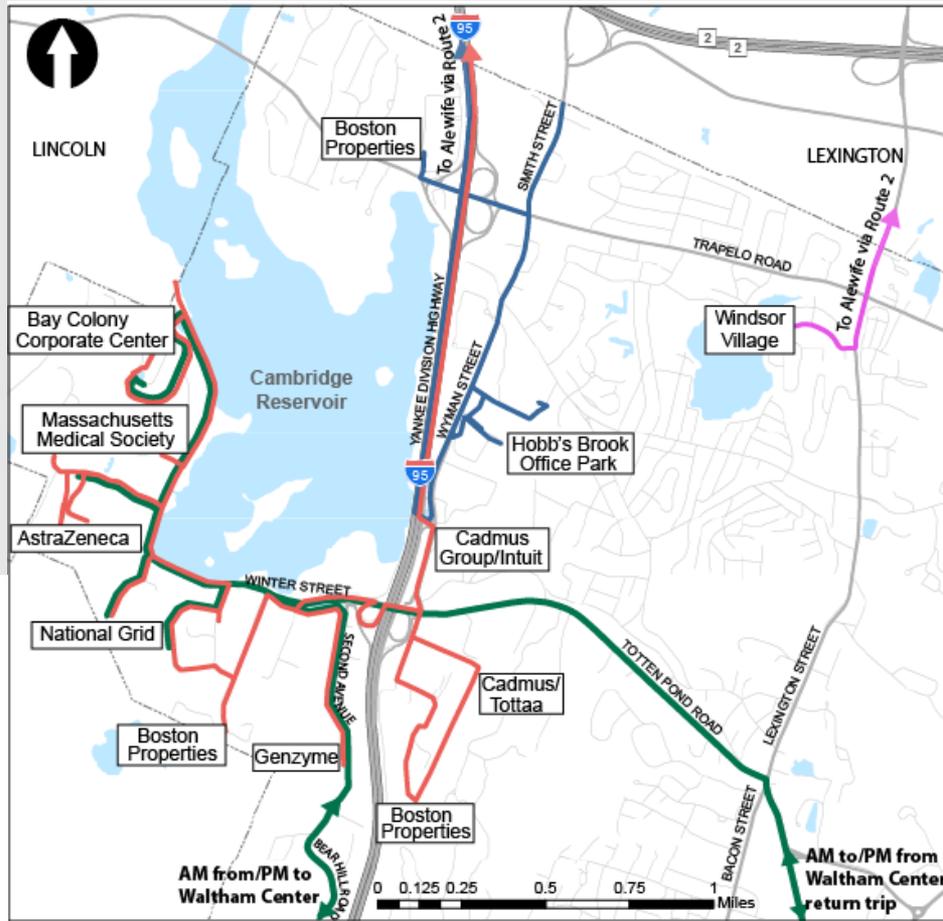
- Route 128 Business Council
 - Private Membership based Transportation Management Association (TMA)
 - Serves mainly reverse commute connecting to Alewife Station
 - One shuttle to downtown Waltham

128 Business Council Shuttle Routes

Route

- Alewife Route A
- Alewife Route B
- Waltham Center
- Windsor Village

Source: 128 Business Council Shuttle Schedules



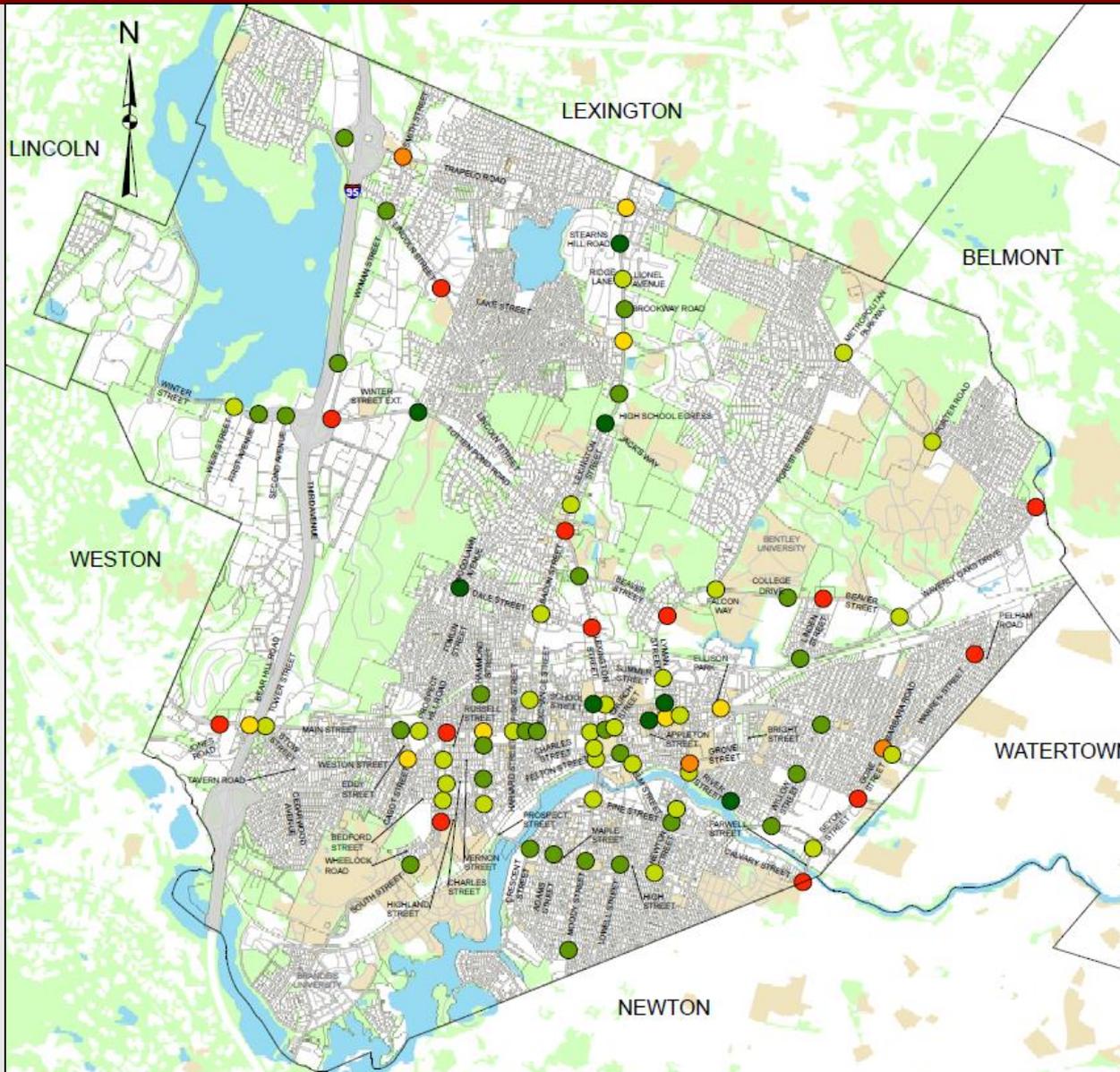


Task I Other Shuttle Services

- Brandeis University Shuttle
- Bentley University Shuttle
- Boston Children’s Hospital Shuttle
- Hotel Shuttles



Task 2 Existing Traffic Operations



WALTHAM TRANSPORTATION MASTER PLAN

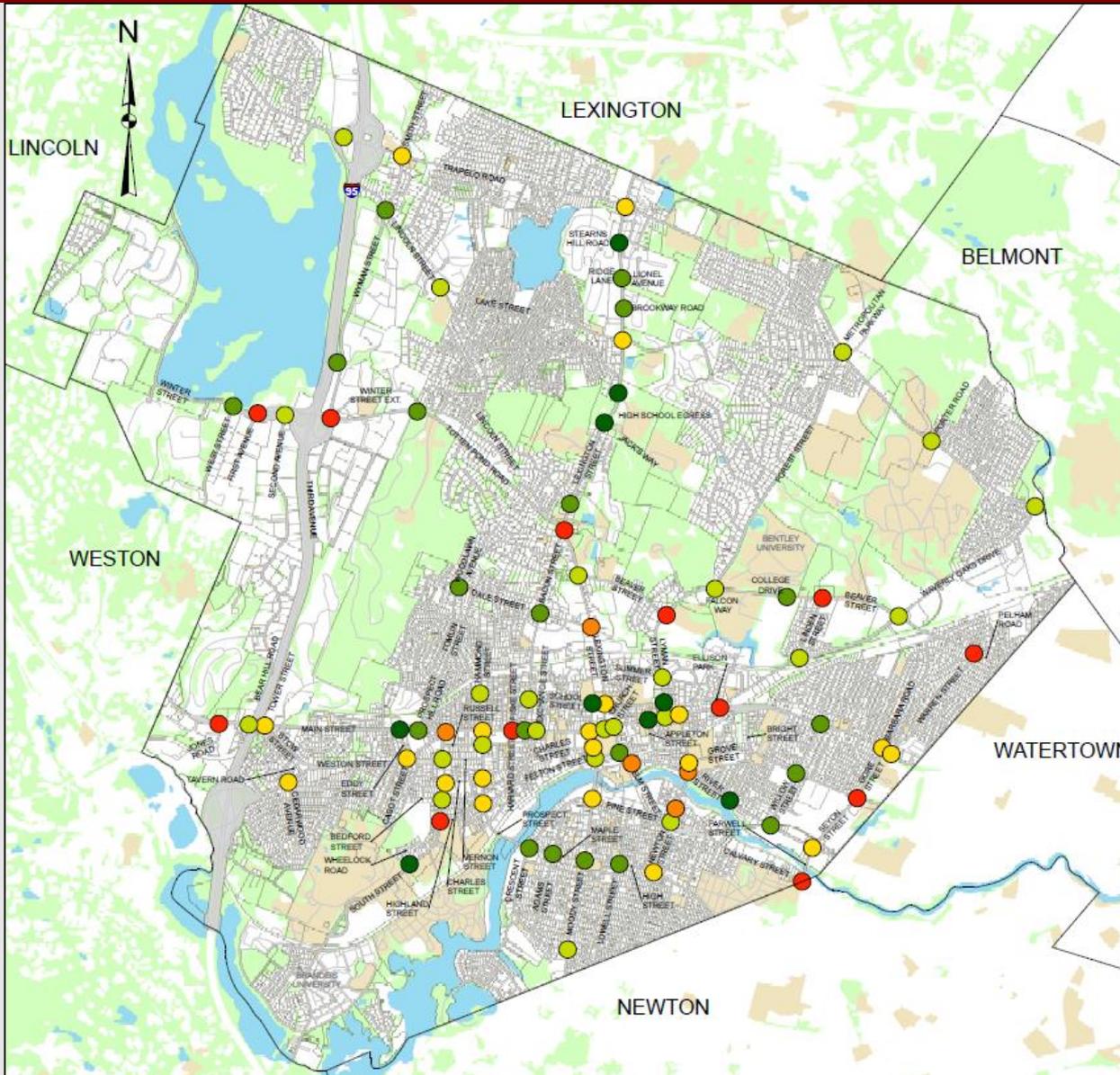
CITY OF WALTHAM, MA

WEEKDAY MORNING LOS

- A
- B
- C
- D
- E
- F



Task 2 Existing Traffic Operations

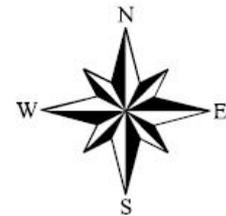


WALTHAM TRANSPORTATION MASTER PLAN

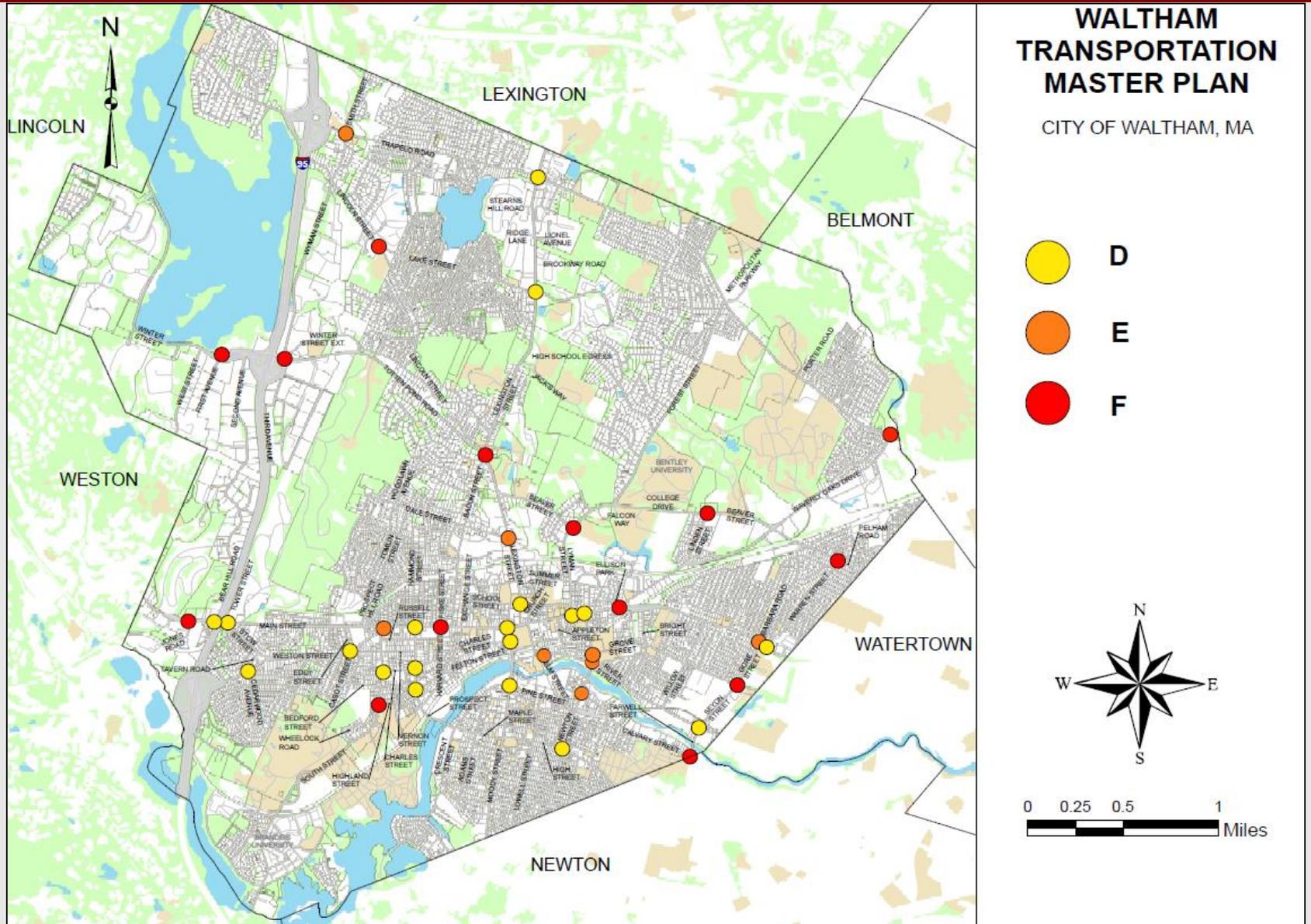
CITY OF WALTHAM, MA

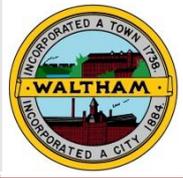
WEEKDAY AFTERNOON LOS

- A
- B
- C
- D
- E
- F



Task 2 Existing Traffic Operations





Task 2 Existing Traffic Operations



Piety Corner



Main Street at South Street



Main Street at Lyman Street



Task 2 Future Traffic Volumes

- 10-year traffic projections
- Coordination with City and MAPC
- Background Growth, Pending Projects, Future Roadway Improvements





Task 2 Future Traffic Volumes

Future Permitted Developments

Project	Location	Size	Daily Added Traffic
Polaroid Site	Main Street near I-95	650k SF Mixed-Use	10,230 trips
10/20 City Point	Totten Pond Road near I-95	430k SF Mixed-Use	8,150 trips
20 Cooper Street	Cooper Street/Elm Street	264 Apartment Units	1,290 trips
130/180 Third Avenue	Third Avenue	412k SF Mixed-Use	4,380 trips
“The Merc”	Main Street/Moody Street – Retail and Residential	277 Units, 29k SF Retail	2,735 trips
36 River Street	36 River Street - Residential	200 Apartment Units	1,330 trips



Project Schedule

We Are Here



Public Meeting #1

Task 1

Task 2

Task 3

Task 4

Public Meeting #2



Traffic Commission Meeting



City Council Meeting



Community Involvement Throughout Project



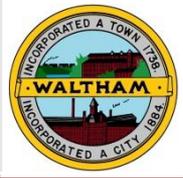
Recap

- Project description, team and schedule
- Existing Conditions:
 - Field work
 - Traffic count data
 - Crash data
 - Mode share and demographic information
 - Parking study
 - Transit services



Next Steps

- Future Traffic Volumes & Operations
- Identify Issues/Deficiencies
- Mitigation
 - Five Corridors
 - 20 Study Area Intersections
- 10-Year Action Plan
- Public Meeting #2 (Spring 2016)
- Transportation Master Plan Report



Public Survey

- Survey posted on City website - <http://www.city.waltham.ma.us/home/news>
- <https://docs.google.com/forms/d/1vF5WRqaLpo8cuCVIghYTjipPXX462IWNKveziYIEmA4/viewform>
- Over 2,500 responses and growing!

7. When are you most likely to drive through Waltham?
(Select one response.)

- Weekday rush hours (between 7 AM - 9:30 AM or 4 PM - 7 PM)
- Weekday non-rush hour
- Weekends
- Varies

12. How often do you walk in downtown Waltham?*
(If Never, skip to Question 16)

	Daily	Weekdays	Regularly	Rarely
To get public transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To commute to school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To commute to work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For recreation (community events, shopping, dining, errands)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Questions

Thank You!

Public Comments (please use microphone)



mchlebek@mcmahonassociates.com

