



PROJECT REALITIES

UNION SQUARE WORKSHOP #3
FEBRUARY 18, 2015

Our Mission



Collaborate to create a viable and vital development plan that realizes SomerVision's goals for the Union Square neighborhood



We will engage, listen,
synthesize and create

D7

D5

D1

D6

D2

D4

D3

AGENDA

1 Infrastructure Considerations

2 Brownfield Considerations

3 Transportation

WORKSHOPS

Development Opportunities and Realities

- 1** Placemaking, Retail, Public Realm, Art
February 4
- 2** Creating an Employment Center in Union Square
February 11
- 3** Project Realities
February 18
- 4** Giving Shape to D2/D3
March 25

Why discuss transportation, infrastructure and brownfields?

- Effective infrastructure and transportation are fundamental to the future of Union Square
- Infrastructure and transportation systems are underperforming
- Industrial history has redevelopment implications
- Redevelopment will add new users
- City has proactively developed solutions
- Redevelopment and the resulting economic impact will be critical to implementing solution
- Collaboration to optimize solutions is critical



1. INFRASTRUCTURE CONSIDERATIONS



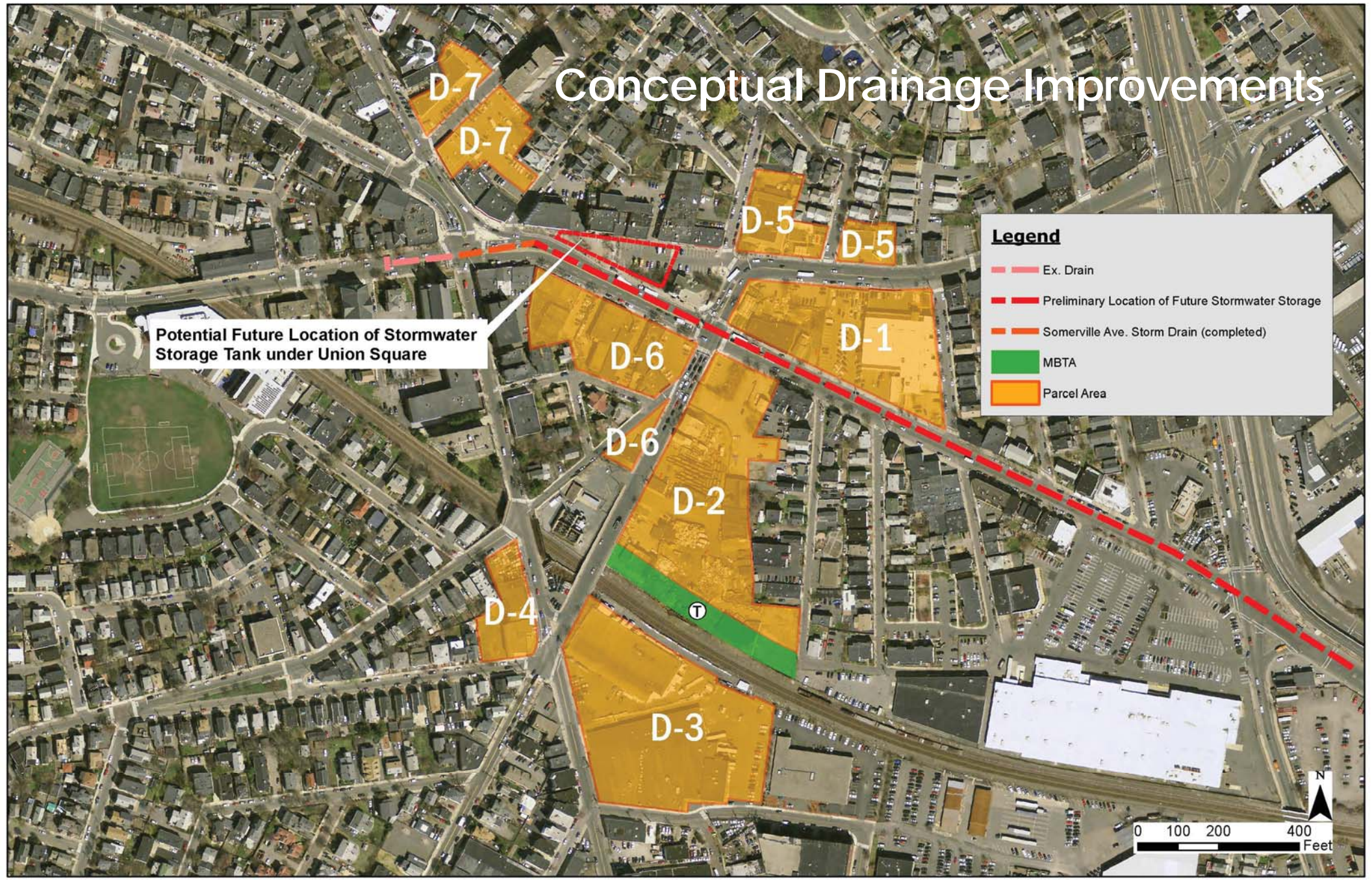
Conceptual Drainage Improvements

Potential Future Location of Stormwater Storage Tank under Union Square

Legend

- Ex. Drain
- Preliminary Location of Future Stormwater Storage
- Somerville Ave. Storm Drain (completed)
- MBTA
- Parcel Area

0 100 200 400 Feet

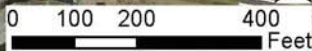


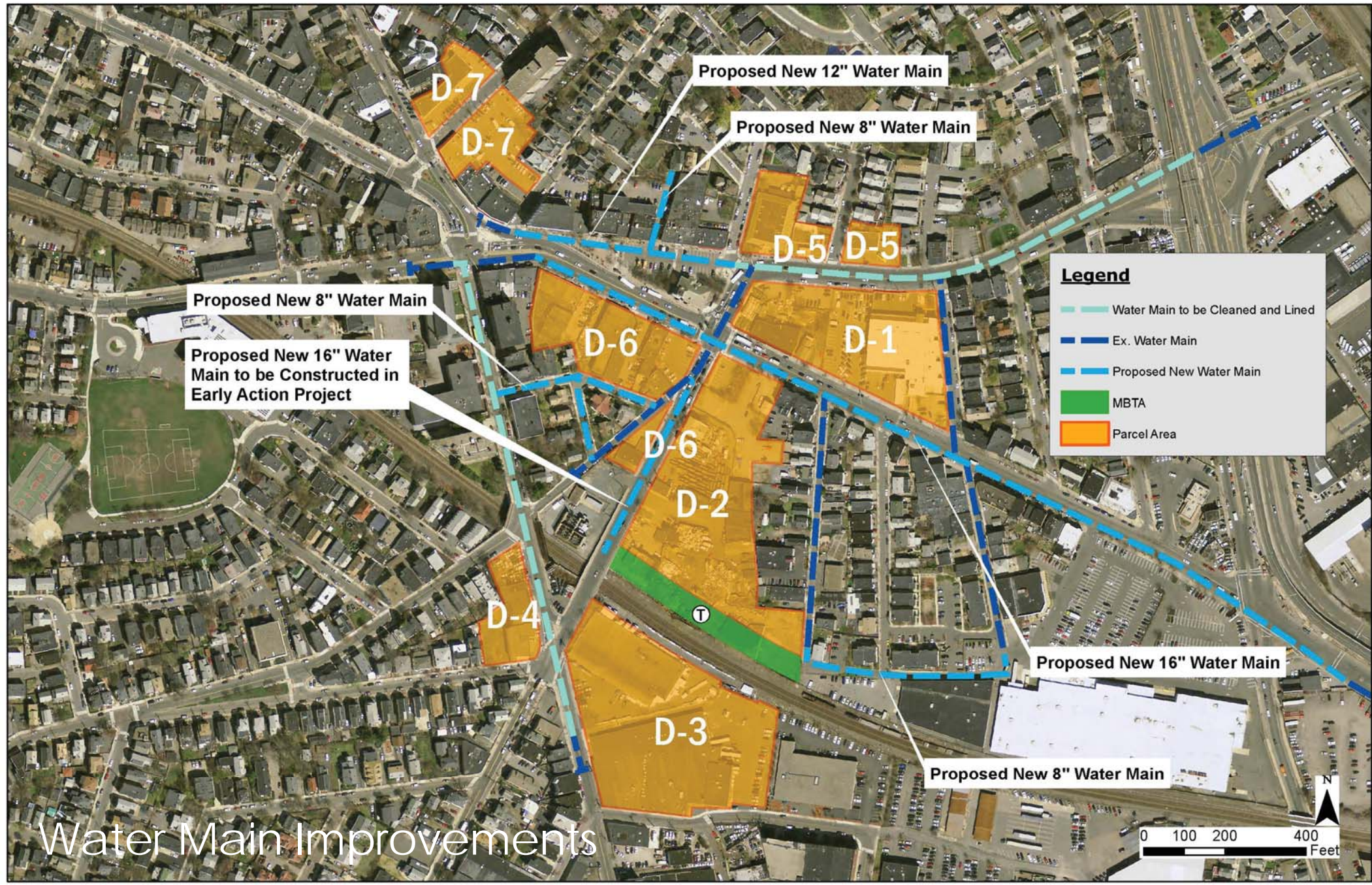
Sewer Improvements

To be Constructed
in Early Action Project

Legend

- Future Sewer Service
- Ex. Combined Sewer
- MBTA
- Parcel Area





Proposed New 12" Water Main

Proposed New 8" Water Main

Proposed New 8" Water Main

Proposed New 16" Water Main to be Constructed in Early Action Project

Legend

- Water Main to be Cleaned and Lined
- Ex. Water Main
- Proposed New Water Main
- MBTA
- Parcel Area

Proposed New 16" Water Main

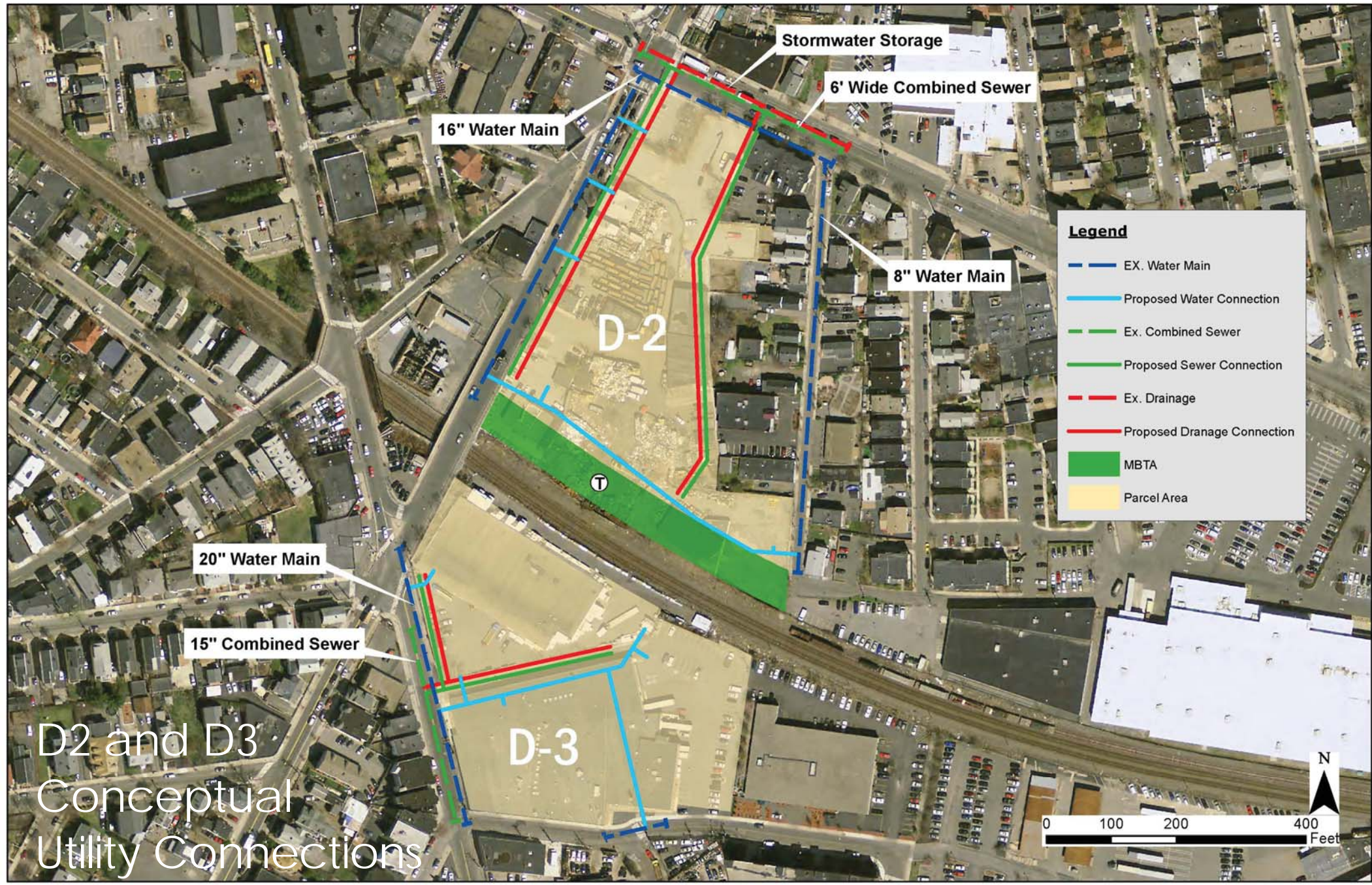
Proposed New 8" Water Main

Water Main Improvements





Conceptual Fiber Optic Line Improvements



Stormwater Storage

6' Wide Combined Sewer

16" Water Main

8" Water Main

D-2

T

20" Water Main

15" Combined Sewer

D-3

Legend

- EX. Water Main
- Proposed Water Connection
- Ex. Combined Sewer
- Proposed Sewer Connection
- Ex. Drainage
- Proposed Drainage Connection
- MBTA
- Parcel Area

D2 and D3
 Conceptual
 Utility Connections

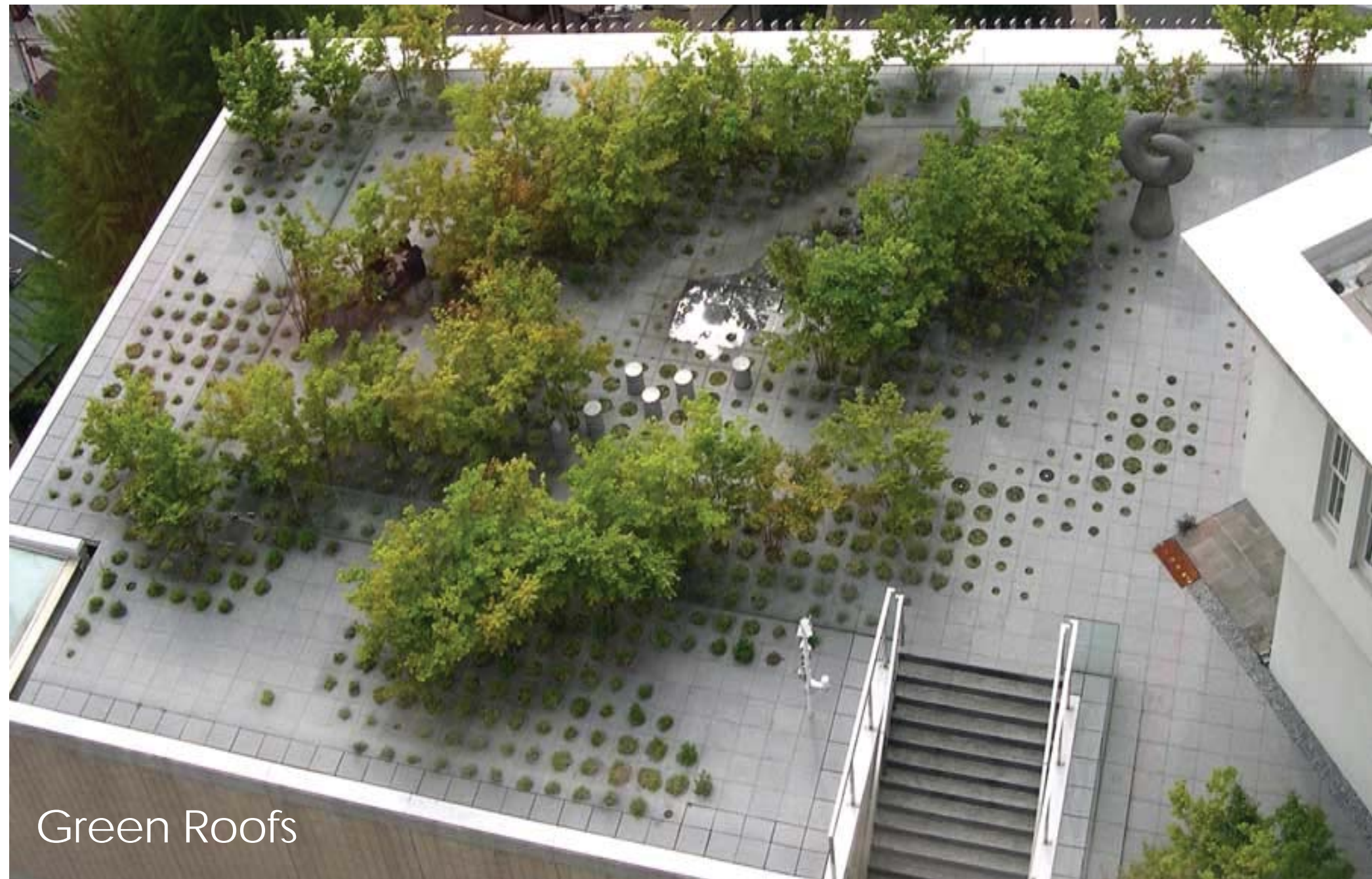




Rain Garden



Underground Stormwater Storage Tank



Green Roofs



Green Roofs

Summary

- Significant amount of infrastructure improvements happening around Union Square, lead by PB
- Stormwater management is a big part of the works being planned, that will mitigate, but may not eliminate the potential for flooding
- Individual development will contribute by incorporating stormwater management features to reduce the rate of runoff from the project sites



2. BROWNFIELD CONSIDERATIONS

Today

1. Guiding Principles
2. Area Use Background
3. Approach
4. Mitigation Tools and Measures
5. Next Steps

Guiding Principles

- Realizing Community Goals
- Urban Revitalization
- Environmental Stewardship
- Feasible Economic Development
- Resiliency & Sustainability



AREA USE BACKGROUND





Sources

- Walkthrough
- MassDEP Records
- Past Environmental Investigations
- Sanborn Fire Insurance Maps
- City Directories
- Aerial Photographs
- Environmental & Building Databases

Findings

- Environmental impacts due to historic uses
- Commercial & Industrial Activities, Residential
- Environmental Records Review of findings
- Land Use Limitations
- Future Environmental Requirements
- Adaptive Creativity in Design

SALESROOM AND GARAGE: Broadway, Cor. Boston Avenue, West Somerville.

FREDERICK A. DUTTON, MANAGER.

Agents for Interstate and Abbott-Detroit Cars.

Supplies at Boston Prices.

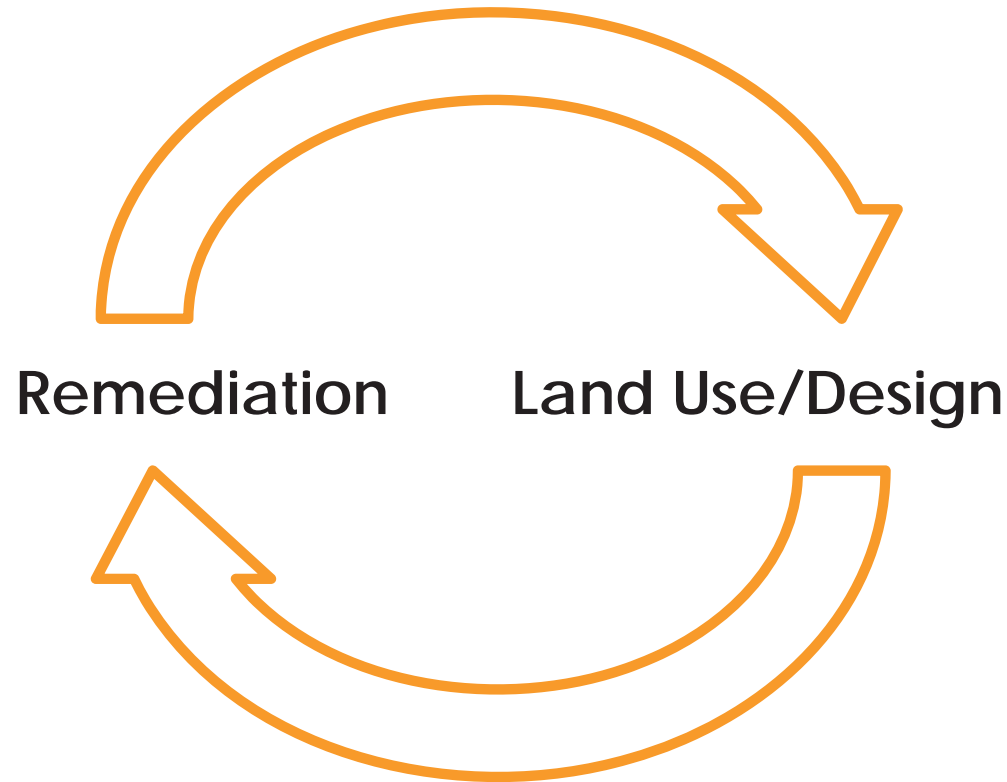


APPROACH



Integrated Approach

Least Risk, Least Cost, Maximum Public Benefit



Factors to Consider

1. Cost of mitigating environmental impact
2. Applicability of public funds
3. Land use consistent with environmental conditions
4. Long-term operation & maintenance
5. Status of regulatory reviews & reporting
6. Phasing development to accommodate improvement of site conditions
7. Developable areas vs. public amenities, easements & R/W

Develop Parcel-Specific Profile

Example

- a. SB 1888: Repair shop, water works, shed, tool house. SB 1900: Veteran Fireman Association, Somerville Sewer Dept., Shed, tool house (carpenter?). SB 1933: Same. SB 1950: Unmarked. SB 1989: Parking. SB 1991: Parking
- b. Brownfield grant (City of Somerville). Phase I ESA completed (Redevelopment authority)

Profile:

Industrial, impacted, some cleanup work completed, remaining impact being assessed. Possible waste pits & vessels



Develop Parcel-Specific Approach

1. Assess soil, groundwater and soil vapor
2. Employ Risk-Based analysis following regulatory process
3. Satisfy regulatory requirements
4. Mitigation of hazards from past industrial operations
5. Establish cost-benefit development model
6. Optimize land use for public benefit





Mitigation Tools & Measures



MassDEP

Commonwealth of Massachusetts
Department of Environmental Protection

Under Consideration

1. Activity and Use Limitations (AUL) as a notice of Deed Restriction (Institutional Controls)
2. Engineering controls integrated with design elements
3. Vapor intrusion mitigation
4. Soil handling (cut/fill), off-property soil disposal
5. Groundwater quality improvements
6. Waste area cleanup
7. Subsurface features (USTs, etc.)

Next Steps



Assessment:

Soil, groundwater and vapor

Planning:

Community input, zoning, land use, massing, roadways, utilities, open space, subterranean floors

Design:

Foundation types, pad elevations, utilities, stormwater

Regulatory:

Land use conformity, cleanup goals, restrictions

Coordination:

Phasing, remediation, infrastructure, sustainability

Summary

- Union Square industrial past is still very much influencing the way we will develop the area, impacting project cost, land use, and design
- Mitigating contaminated soils & groundwater are expensive & complex, requiring additional funding support and a creative approach to allow maximum development value
- We will continue to work with all stakeholders to achieve an optimum development

QUESTIONS?





3. TRANSPORTATION

A street scene at dusk. In the foreground, a white taxi is driving towards the camera. Behind it, a white SUV and a dark car are visible. To the left, a person is riding a bicycle. In the background, a brick clock tower stands prominently. The sky is a mix of light and dark, suggesting twilight. A black banner with white text is overlaid in the center of the image.

TRANSPORTATION INTRODUCTION

Transportation is Changing Nationally

Unbundled Parking



Car-Sharing



Rideshare Matching



MBTA Passes



Bike Sharing



Employee Shuttles



On-Street Pricing



Taxi Rides Home



Plus:

- On-Site Showers
- Employee Marketing
- On-Site Concierge
- Bicycle Lockers
- Bike Racks
- Parking CashOut

Somerville is Changing too...

HUD One Year Action Plan Program Year 2014-2015
July 1, 2014 – June 30, 2015

Office of Strategic Planning & Community Development
Michael F. Glavin, Executive Director

City of Somerville
Mayor Joseph A. Curtatone

**CITY OF SOMERVILLE
ORDINANCE ARTICLE VII - COMPLETE STREETS ORDINANCE
OR CHAPTER 12
(BY THE BOARD OF ALDERMEN)**

WHEREAS, Complete Streets are designed and implemented to ensure safety and accessibility for all the users of our streets, paths and transit systems, including pedestrians, bicyclists, transit riders, motorists, commercial vehicles, emergency vehicles and for people of all ages and of all abilities; and

WHEREAS, the SomerVision Comprehensive plan prescribes the development of a street network that is conducive to safe and pleasant use by all users and part of a multi-modal sustainable transportation network; and

WHEREAS, the SomerVision Comprehensive plan recommends the adoption of a Complete Streets ordinance;

WHEREAS, Complete Streets promotes walkability, mobility, non-motorized transit, traffic calming and pedestrian-based urban economic development over competing growth, consistent with Somerville's form as the densest city in New England, and complementing planned rapid transit expansion that will bring a station to within 1/2 mile of Somerville's population; and

WHEREAS, The Massachusetts Project Development & Design Guide (2006) states that traffic calming measures are physical elements intended to reduce vehicle speeds and improve driver attentiveness and are most often applied to existing streets where vehicle operating speeds are in conflict with or incompatible with pedestrian and bicycle activity; and

WHEREAS, Complete Streets support economic growth and community vitality by providing accessible and efficient connections between home, school, work, recreation and small businesses by improving the pedestrian and vehicular environments throughout communities; and

WHEREAS, Complete Streets were cited by the League of American Bicyclists, upon designating Somerville a "Bicycle-Friendly Community" in 2005, as the most important improvement the City can undertake to improve conditions for active transportation; and

Now, in Pursuit of the Dream

Somerville Open Space and Recreation Plan 2008-2013

ville, Massachusetts

SomerVision
City of Somerville, Massachusetts
Comprehensive Plan | 2010-2030

Endorsed by the Somerville Board of Aldermen April 12th, 2012
Adopted by the Somerville Planning Board April 19th, 2012

Somerville: an Exceptional Place to Live, Work, Play, and Raise a Family

SOMERVILLE'S STREETS
AN OVERVIEW OF POLICIES AND PLANS

Somerville is Changing too...

Draft Zoning Ordinance Updates:

Draft Zoning Ordinance

- Urban Square and TOD area

TDM Plan

- Mobility Management Plan is required as part of permitting
- Mandates TDM Programs
- Requires annual reporting

Parking

- No minimum parking requirements only maximums
- Unbundled parking/off-site parking permitted
- Higher densities require parking underground or in a structure

Bicycle Parking

- Bicycle parking requirements for new buildings



Union Square Can Get Back to Multimodal Roots



Credit: Union Square Main Streets

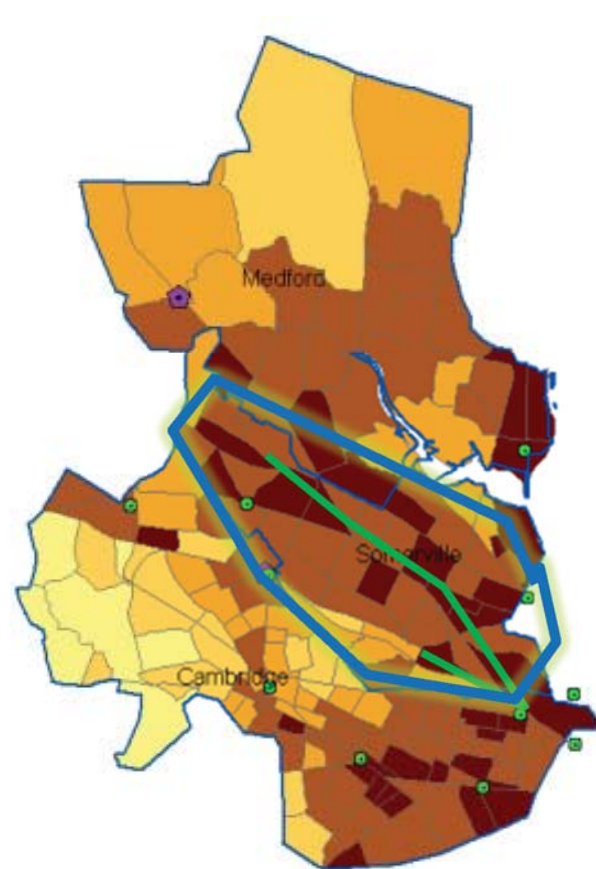
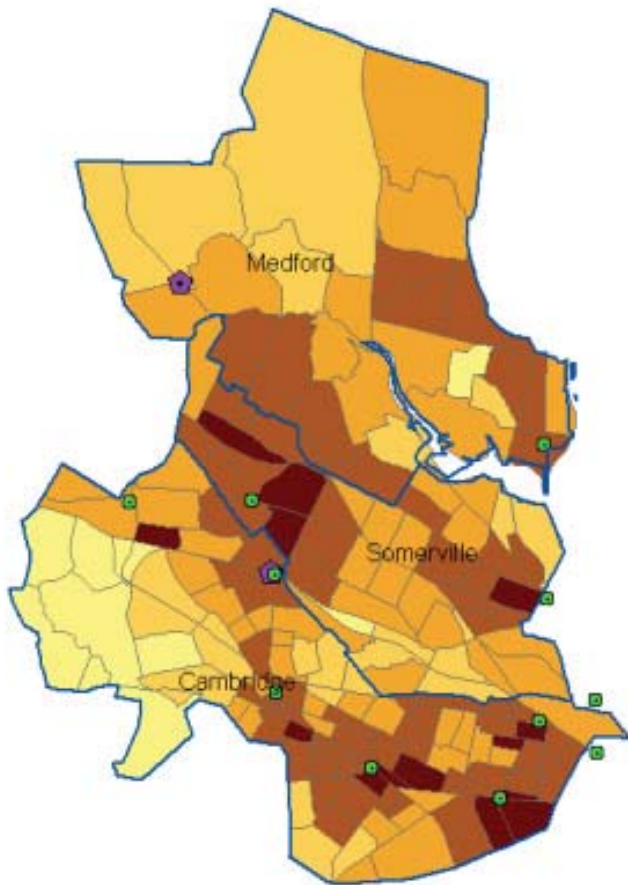
& Regional Transit Share will Grow Again

Residency Transit Share

2006 – Trips to Boston and Cambridge

Residency Transit Share

2030 Green Line Projection



Transit Share

14% - 20%

21% - 30%

31% - 40%

41% - 57%

58% - 71%

■ MBTA_T_Station

⬠ MBTA_CRR_Station

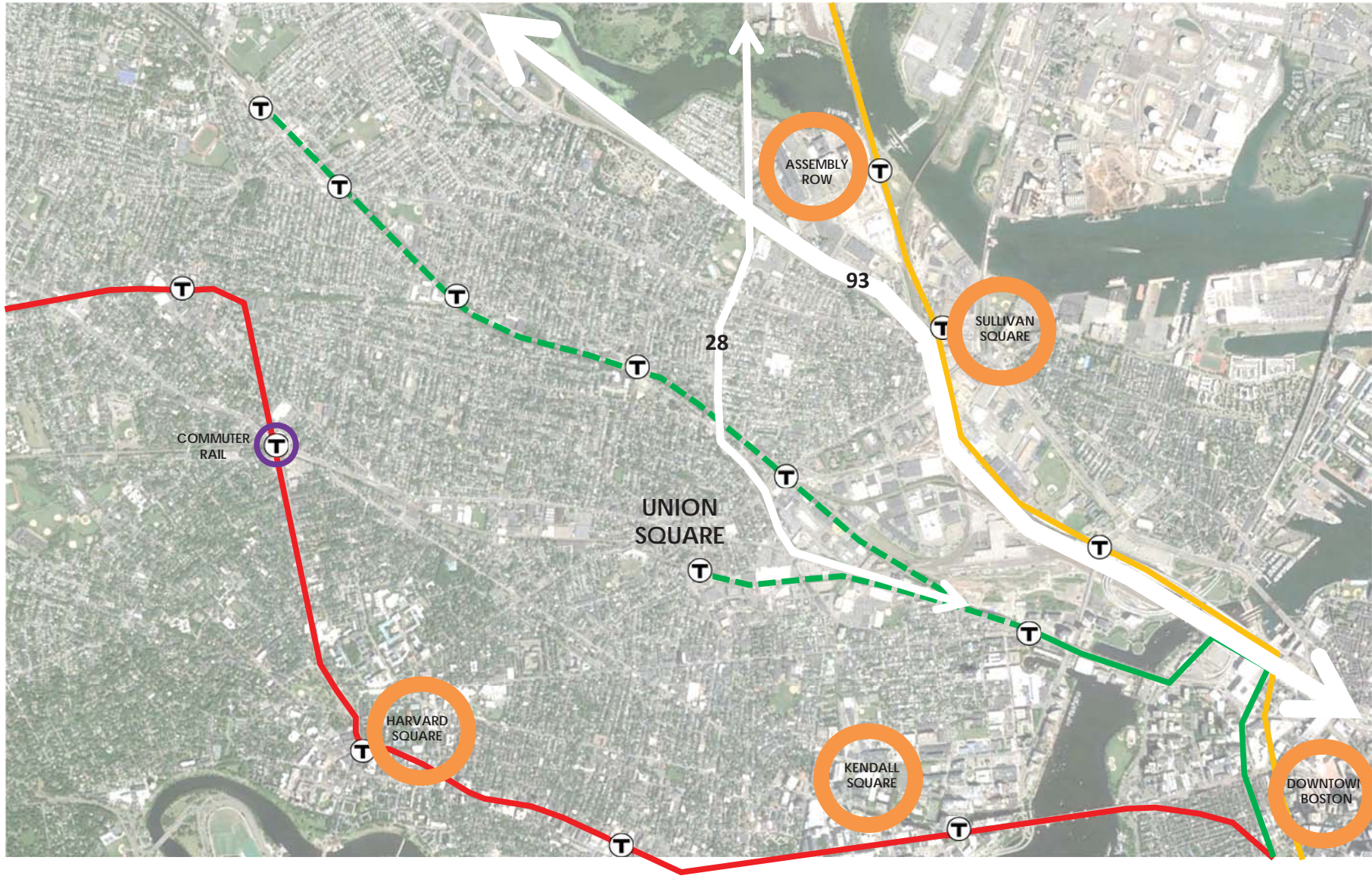
Source: CTPS Model,
greenlineextension.eot.state.ma.us/documents/about/Topics/ModeShareMemo_090429.pdf



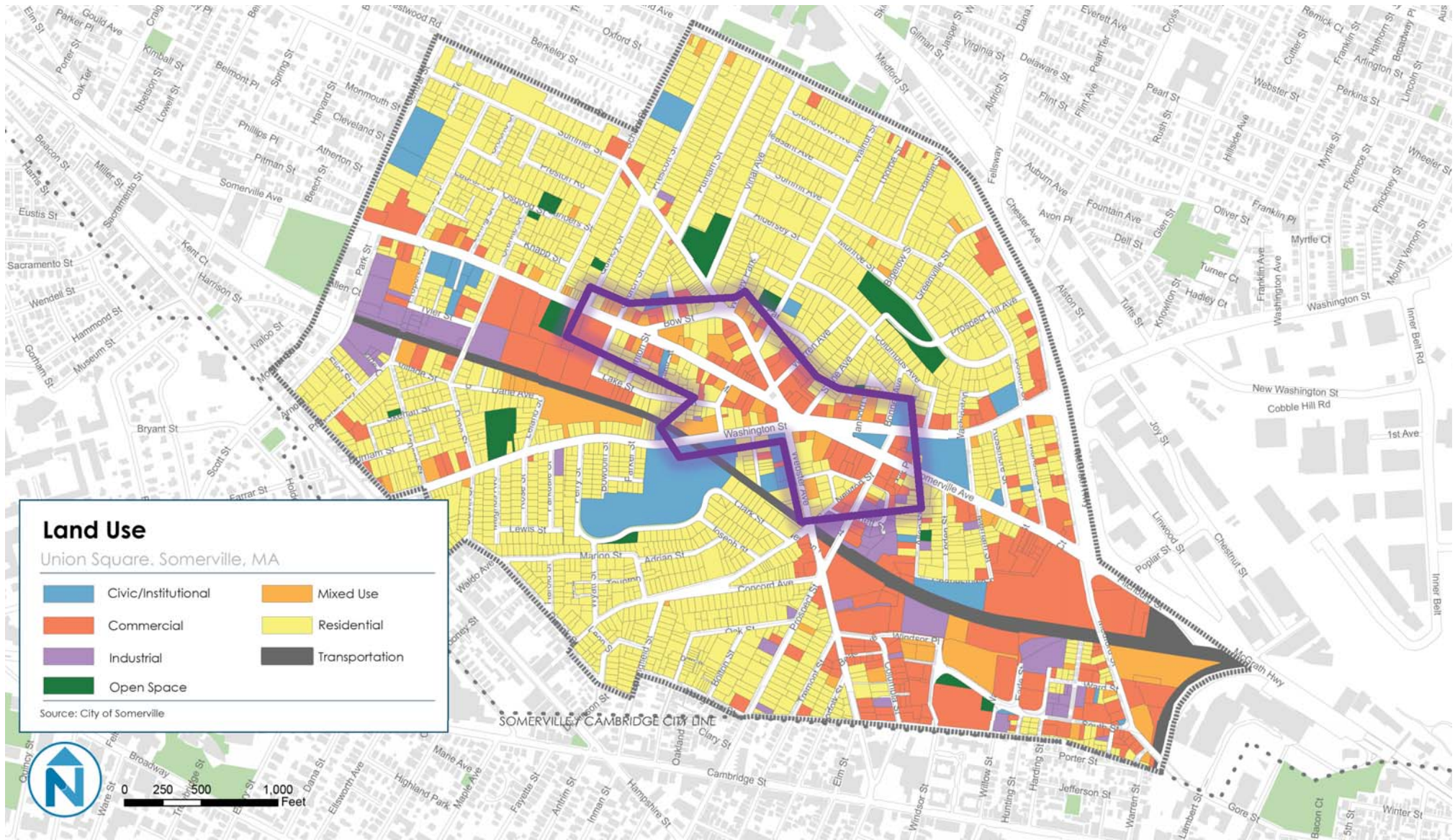
STUDY AREA & CONTEXT



At the Crossroads of Regional Destinations



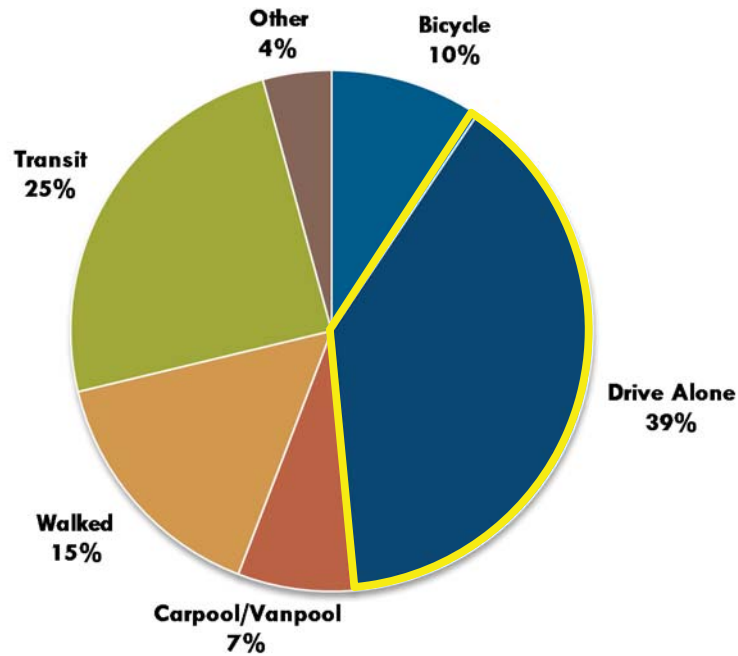
Hosts a Mix of Uses



Accessed by a Mix of Modes

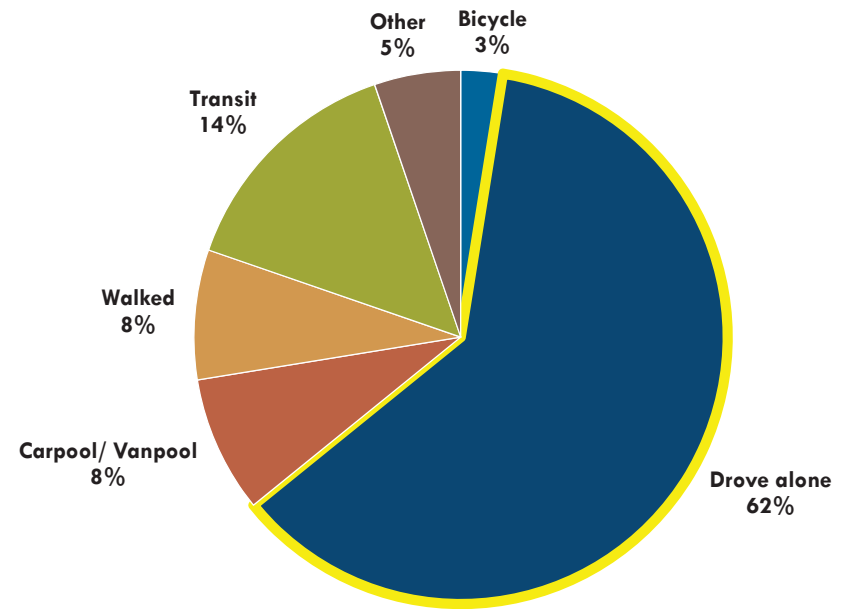
Union Square

Union Square Residents



Data: American Community Survey 2013 5-year estimates

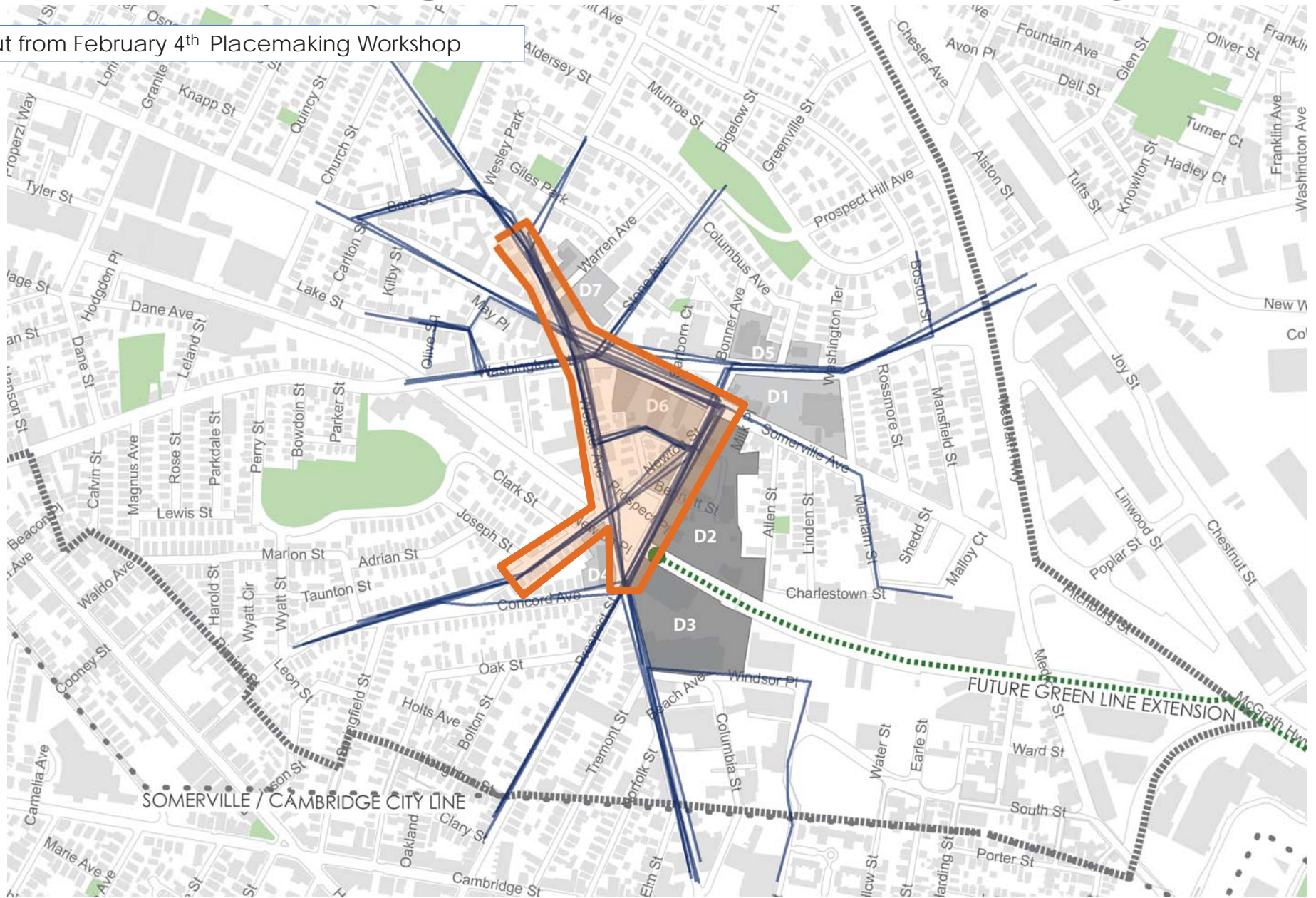
Those Who Work in Union Square



Data: American Community Survey 2006-2010, Extracted through CTPP

People Travel through Union Square on a Variety of Routes

Input from February 4th Placemaking Workshop

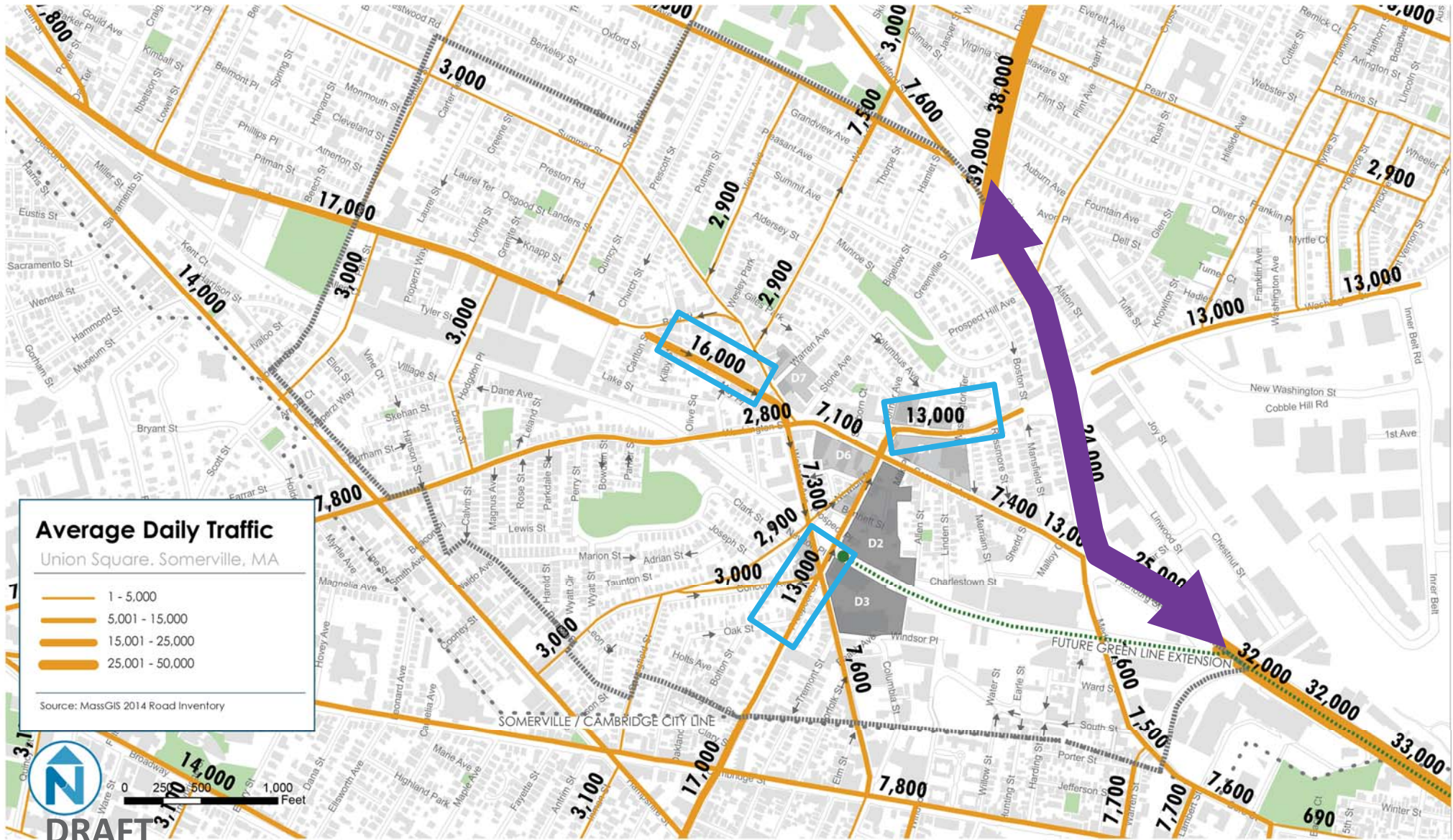




VEHICLE MOVEMENT

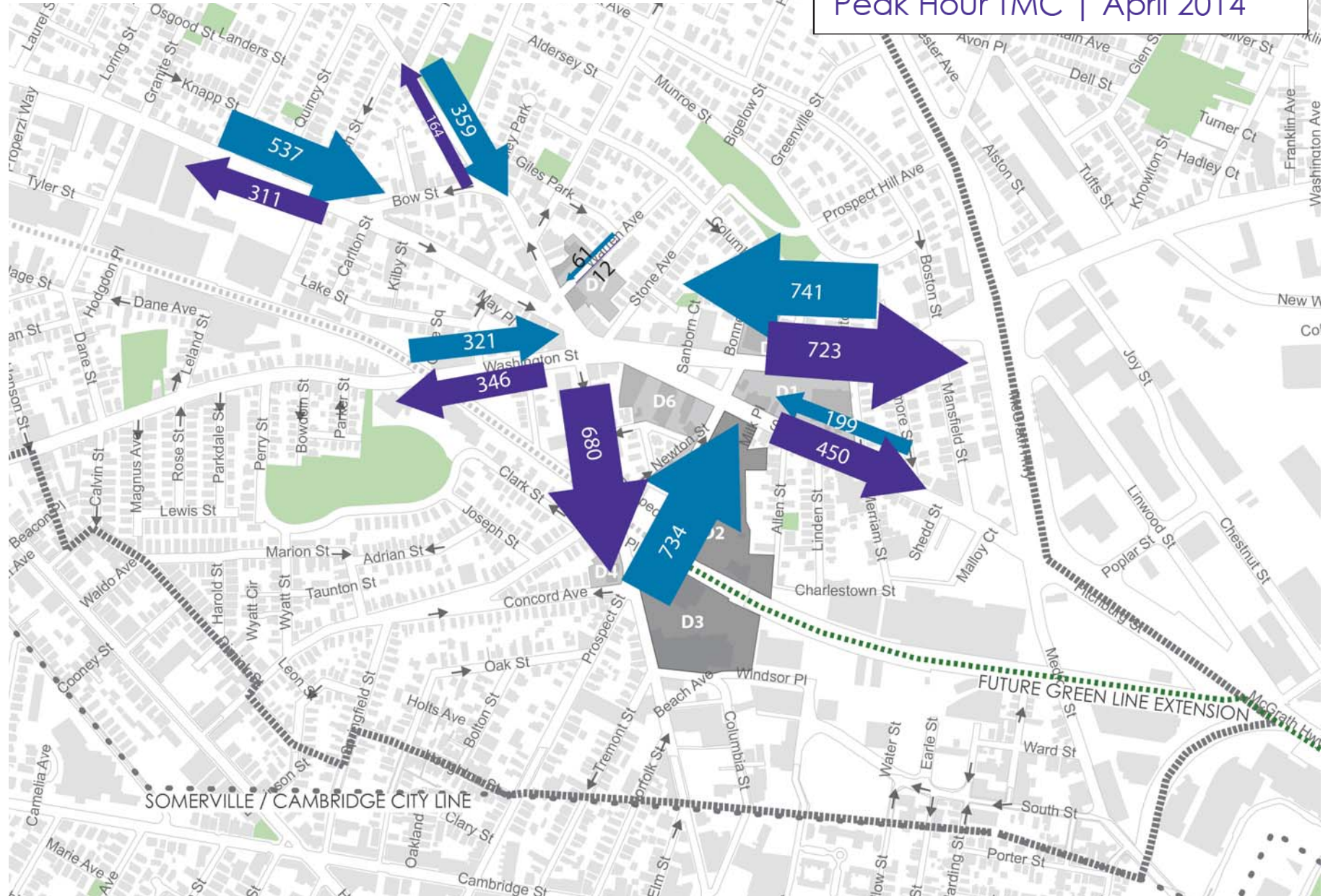


Heavy Daily Traffic through Square



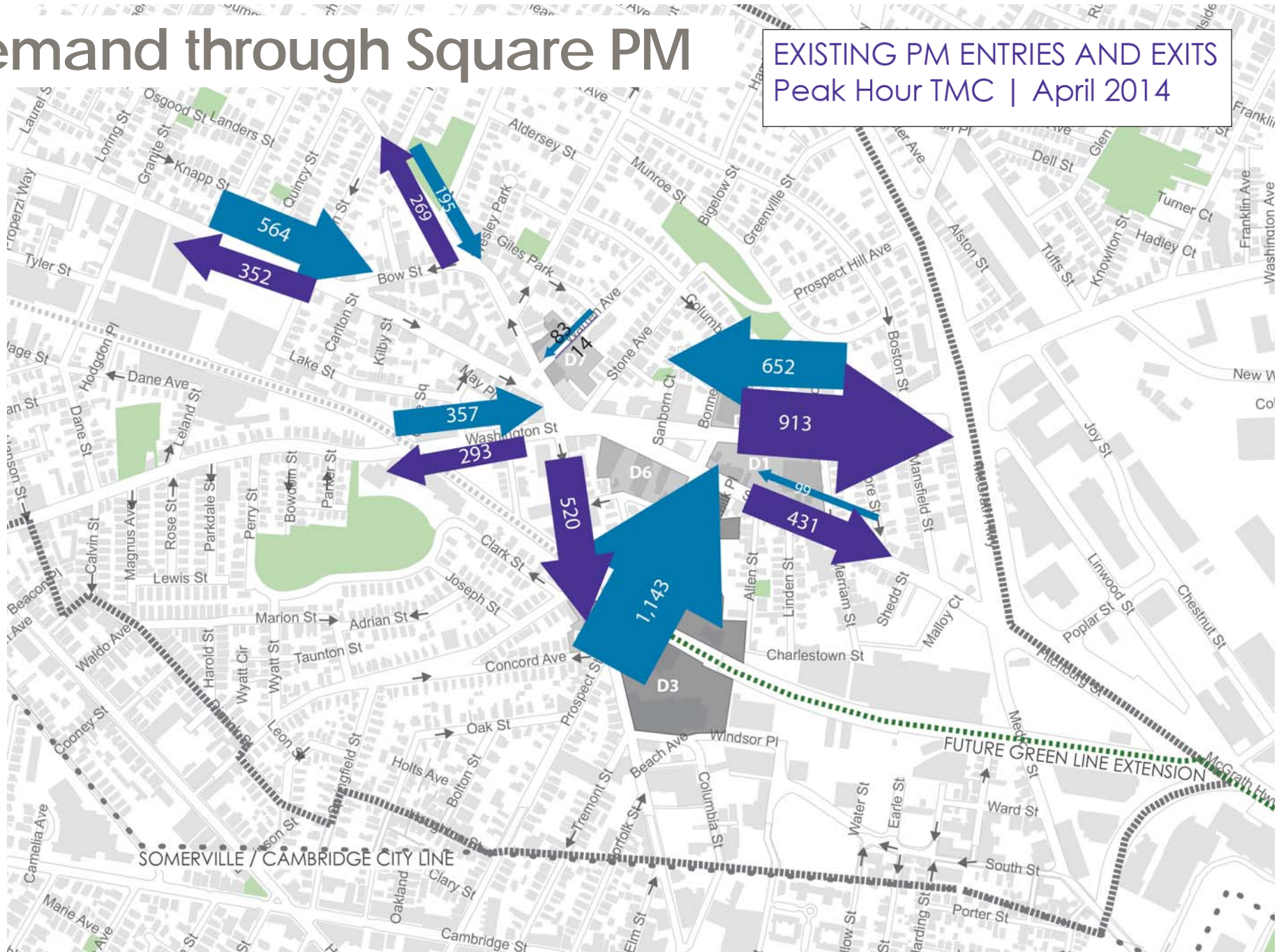
Demand through Square AM

EXISTING AM ENTRIES AND EXITS
Peak Hour TMC | April 2014

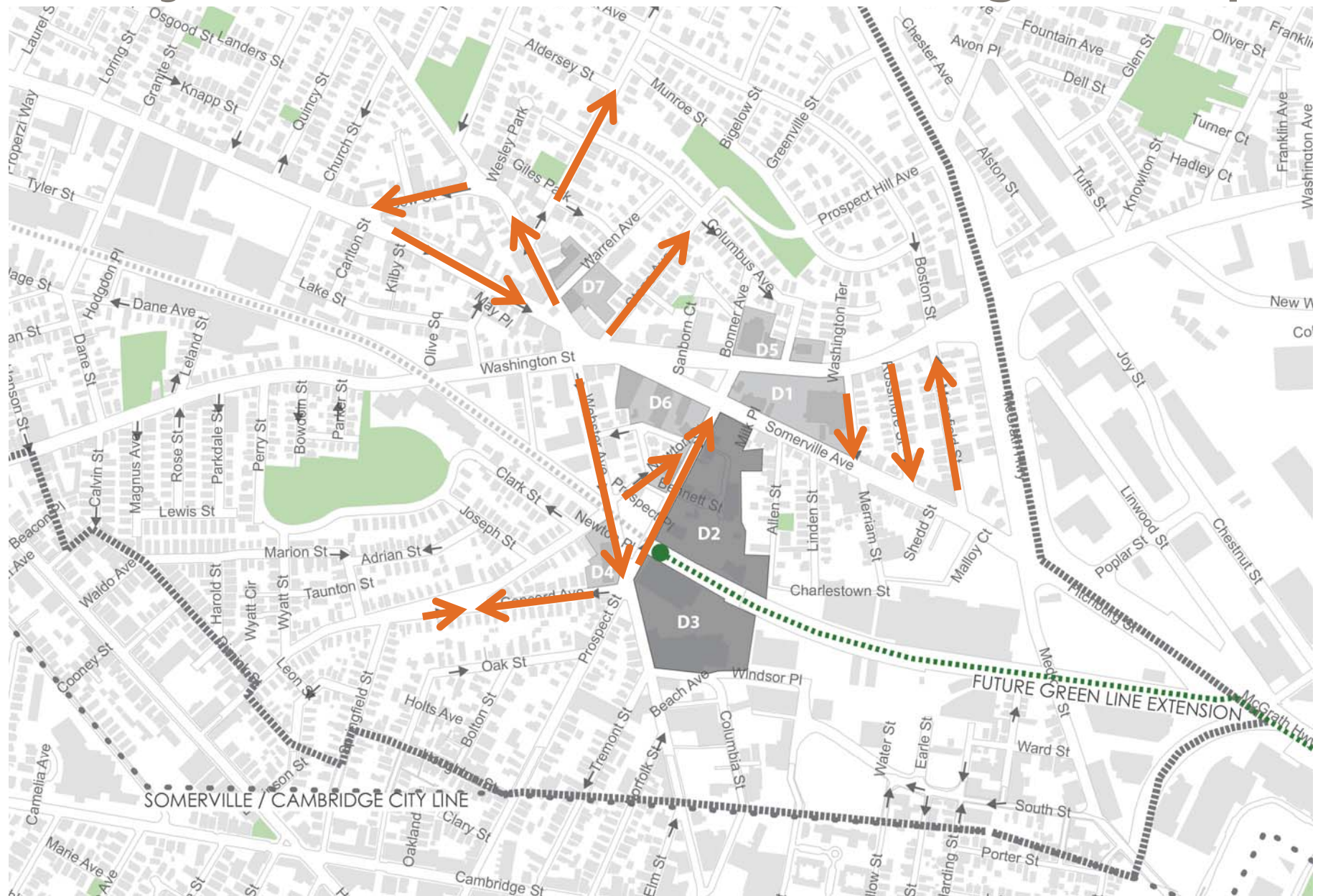


Demand through Square PM

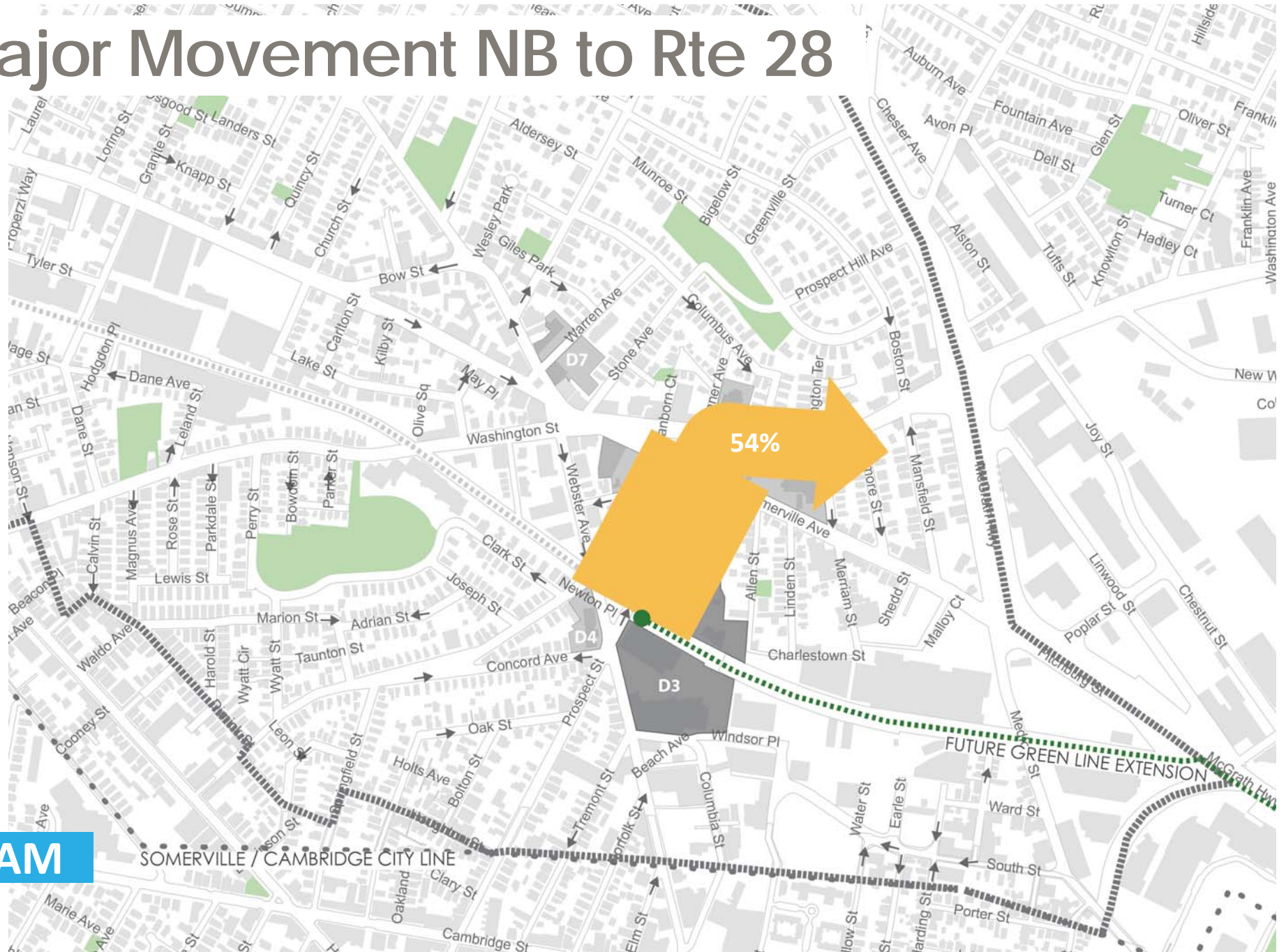
EXISTING PM ENTRIES AND EXITS
Peak Hour TMC | April 2014



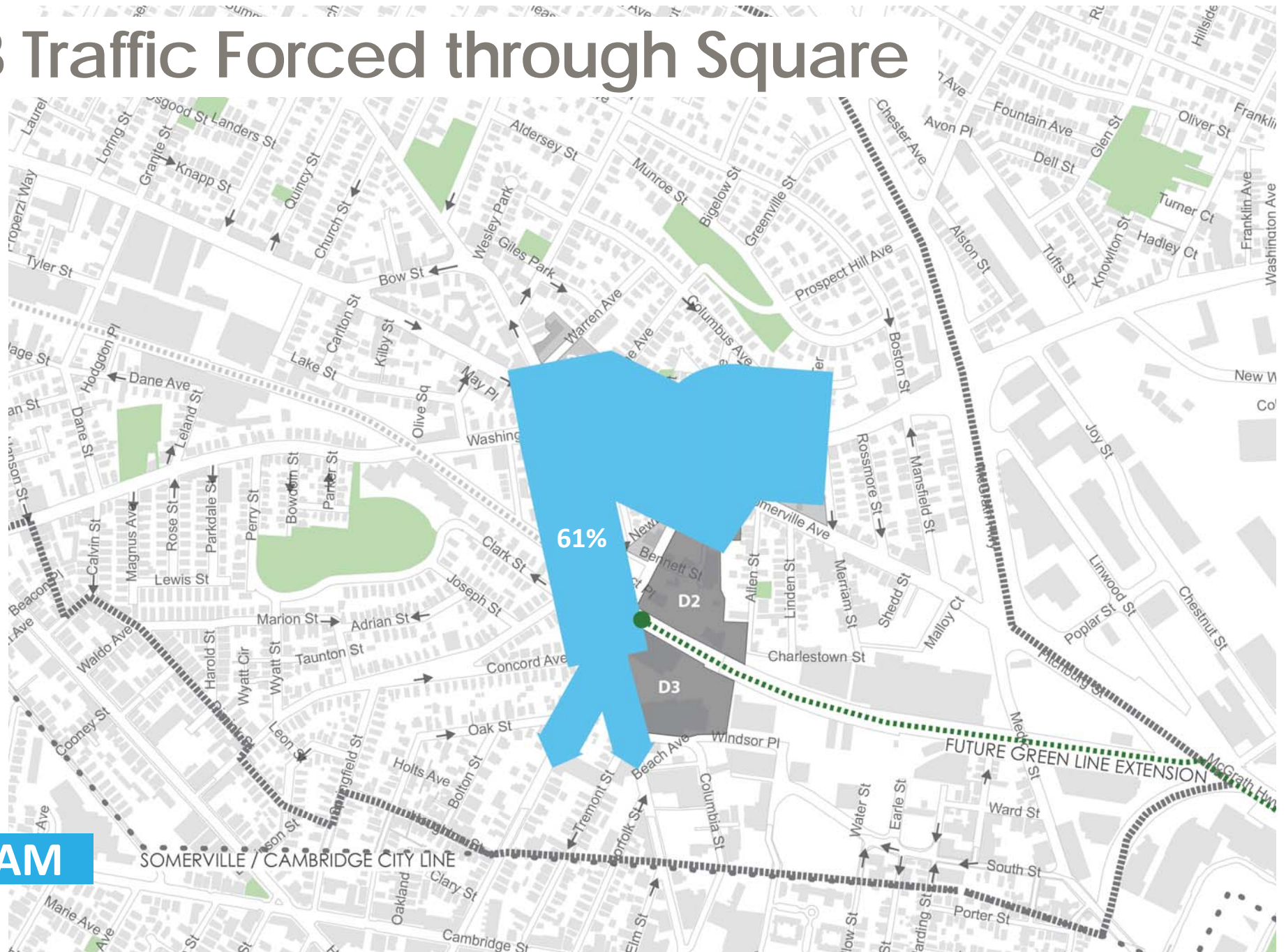
One Ways Dictate Movement to/through the Square



Major Movement NB to Rte 28



SB Traffic Forced through Square

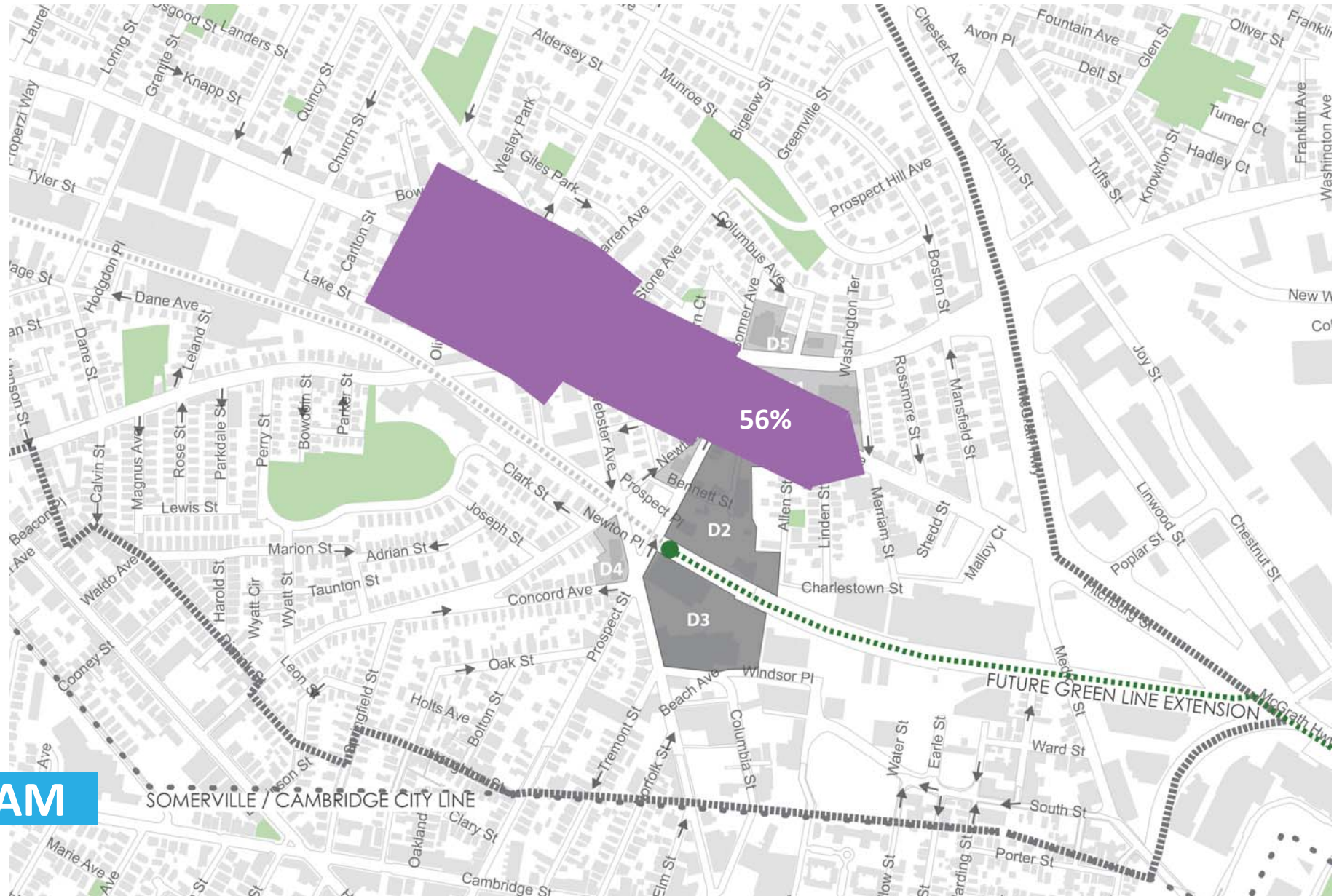


AM

SOMERVILLE / CAMBRIDGE CITY LINE

FUTURE GREEN LINE EXTENSION

Heavy EB Traffic on Somerville in AM and PM

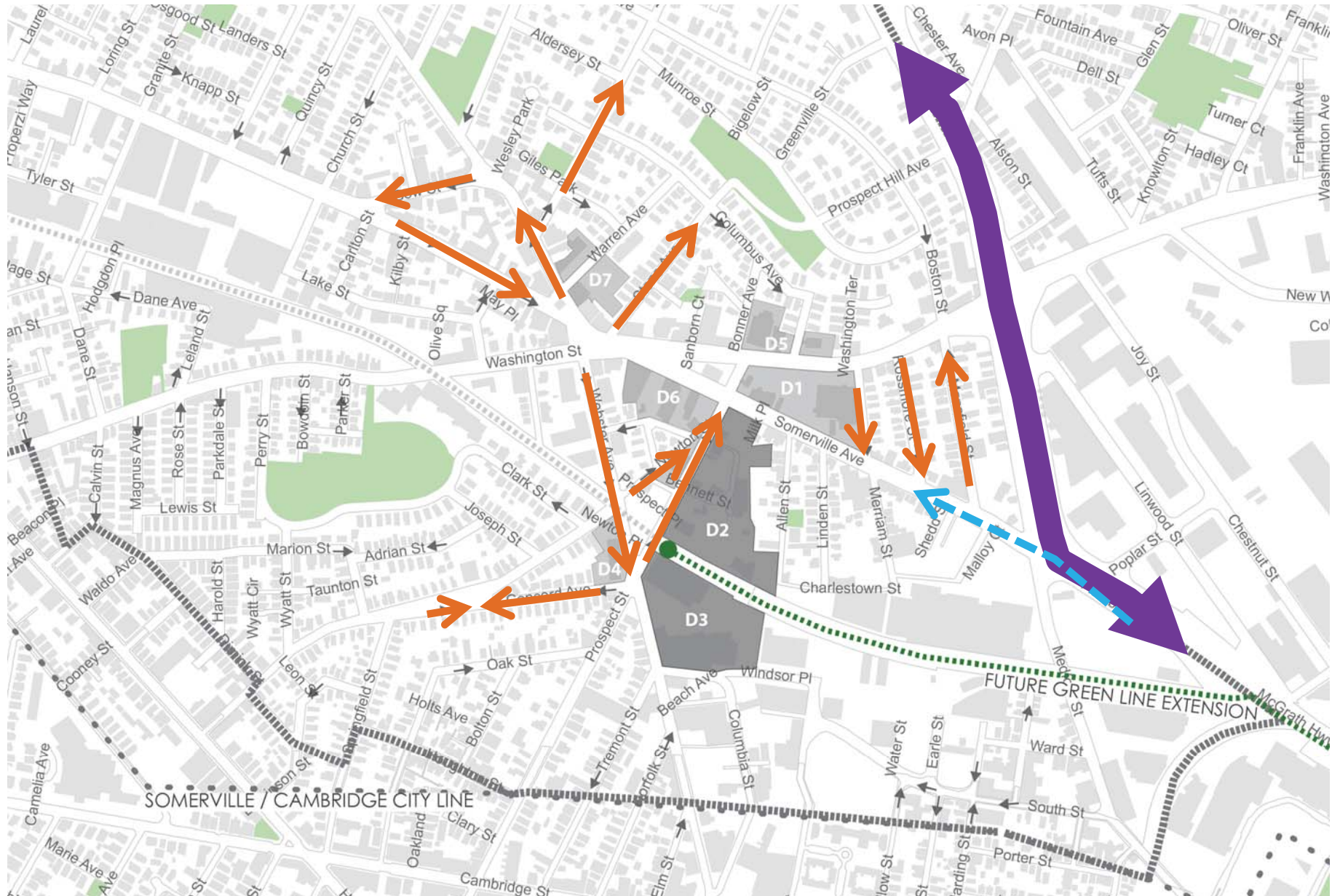




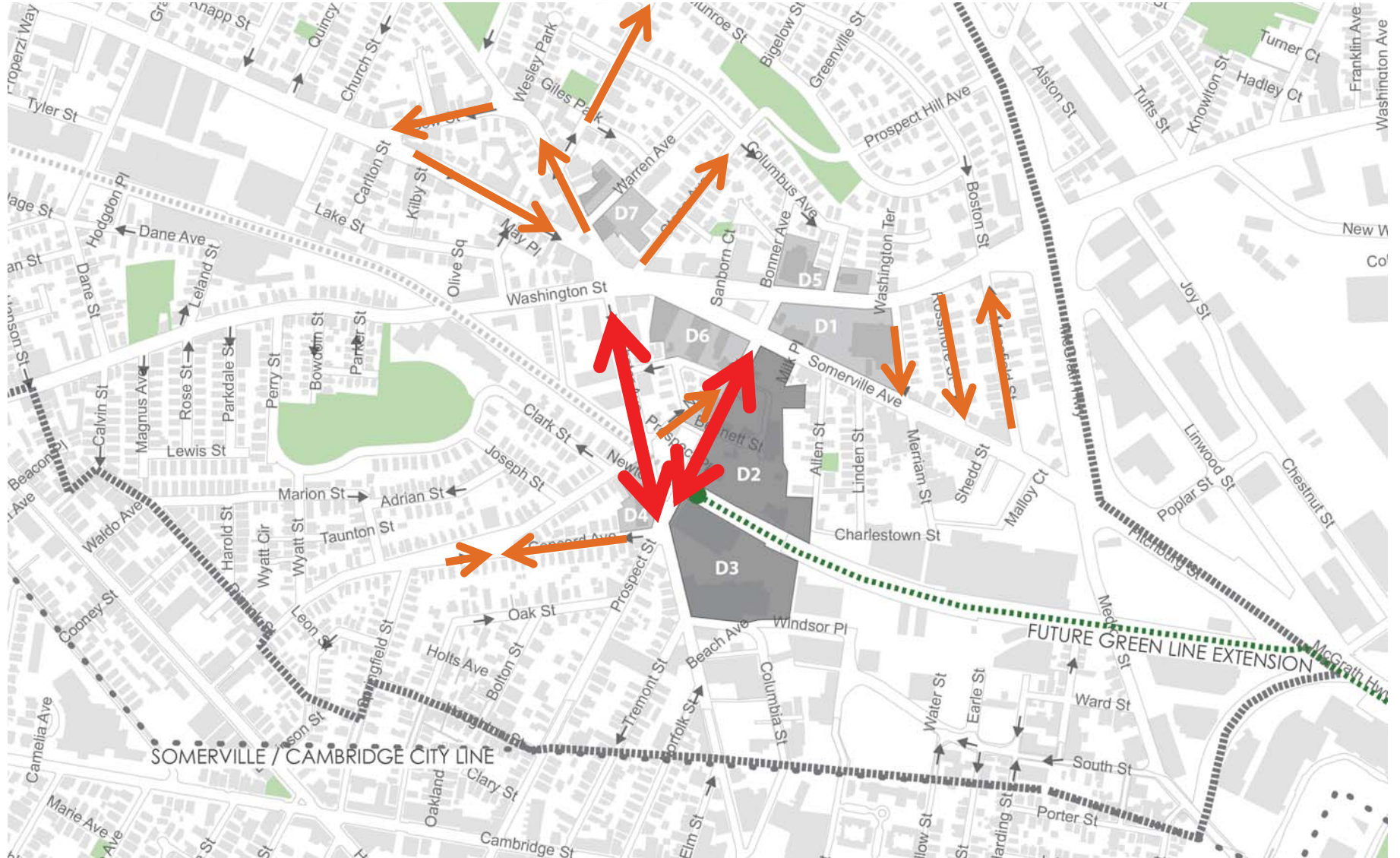
CHANGES TO STREET NETWORK



One-Ways Route Congestion through the Core

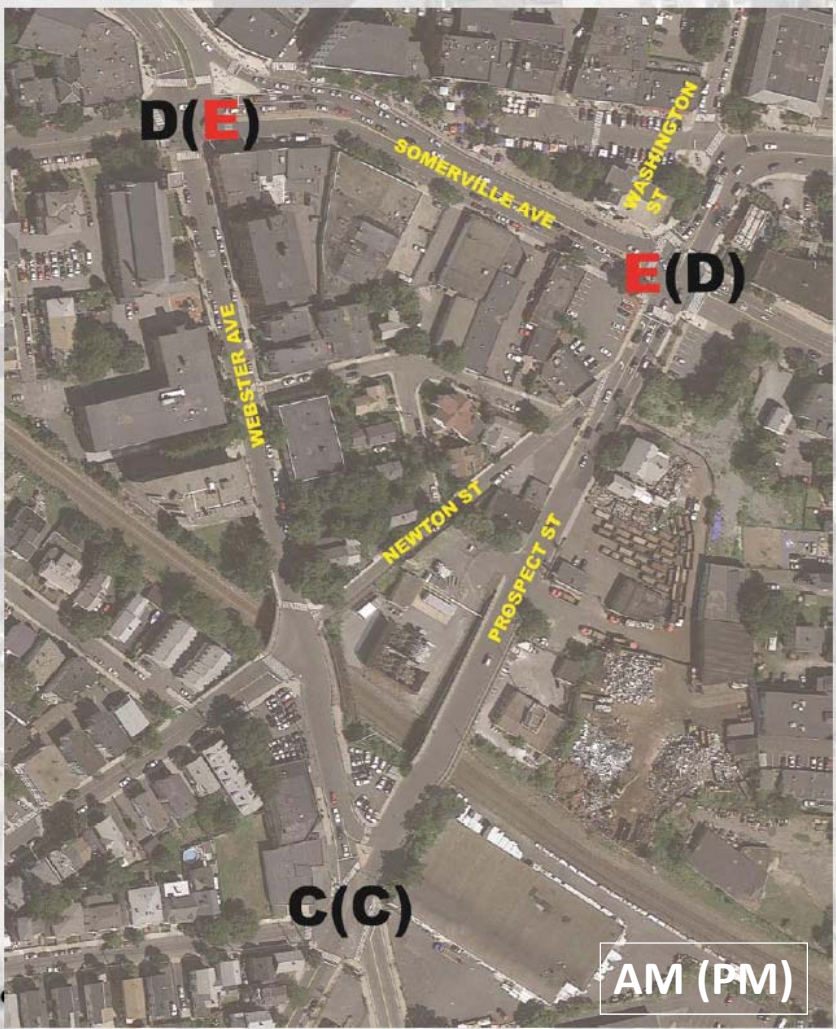


Two-Ways on Webster and Prospect Can Improve Neighborhood Circulation

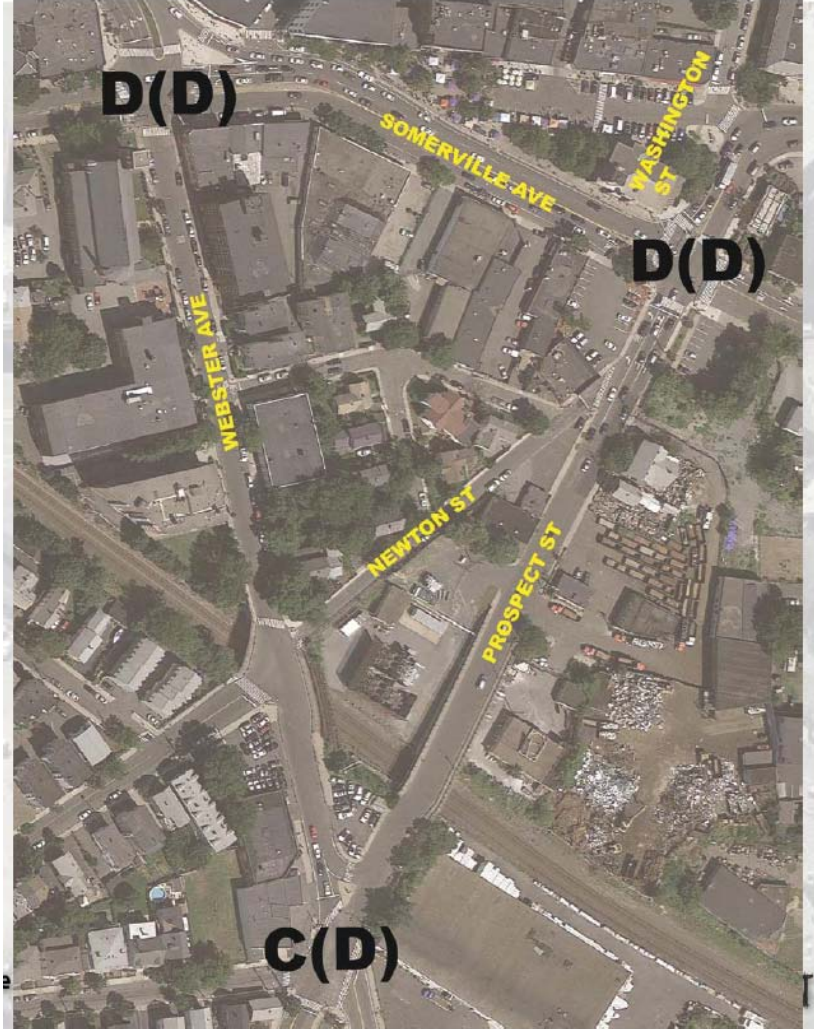


Two-Way Slightly Improves LOS and Greatly Improves Area Access

EXISTING



INTERIM IMPROVEMENTS

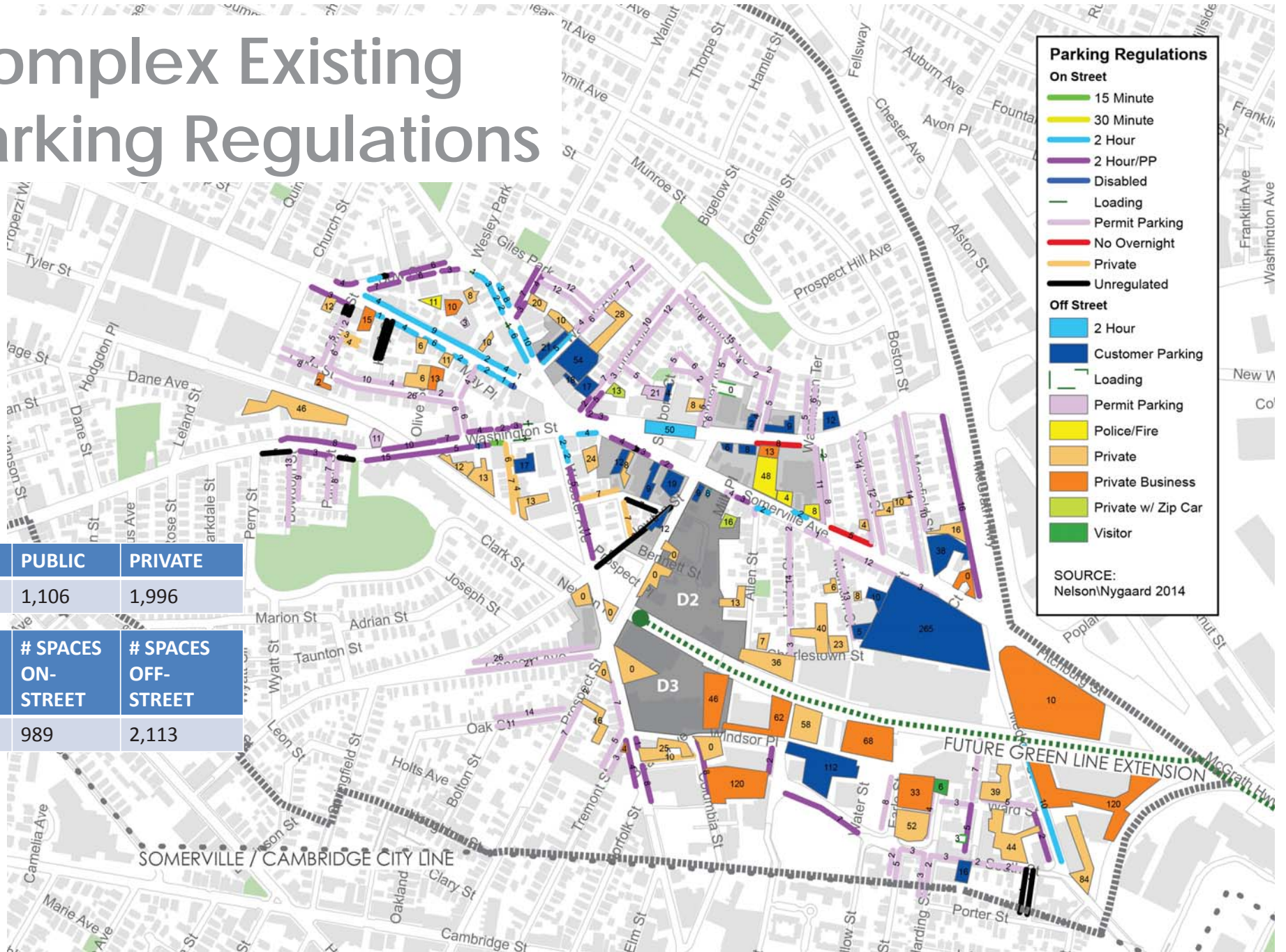




PARKING



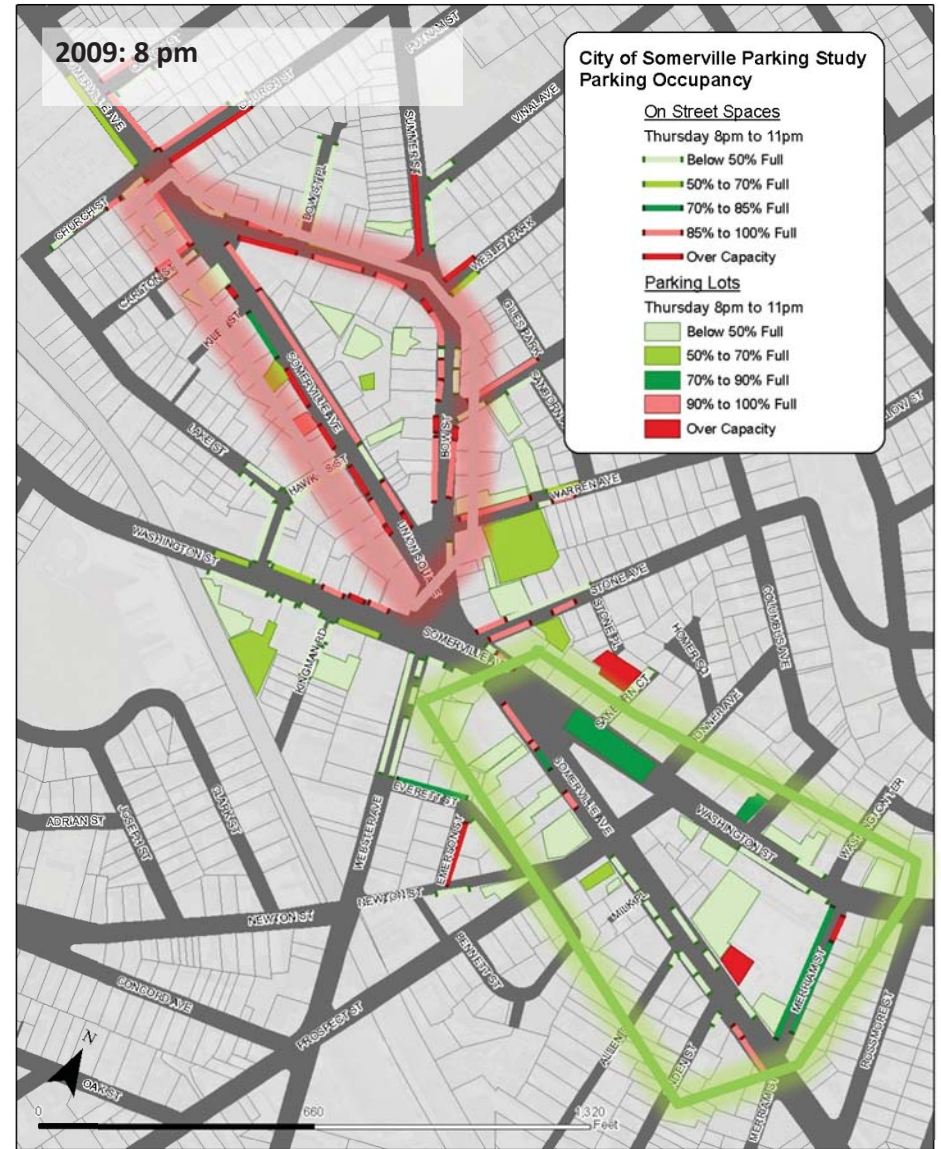
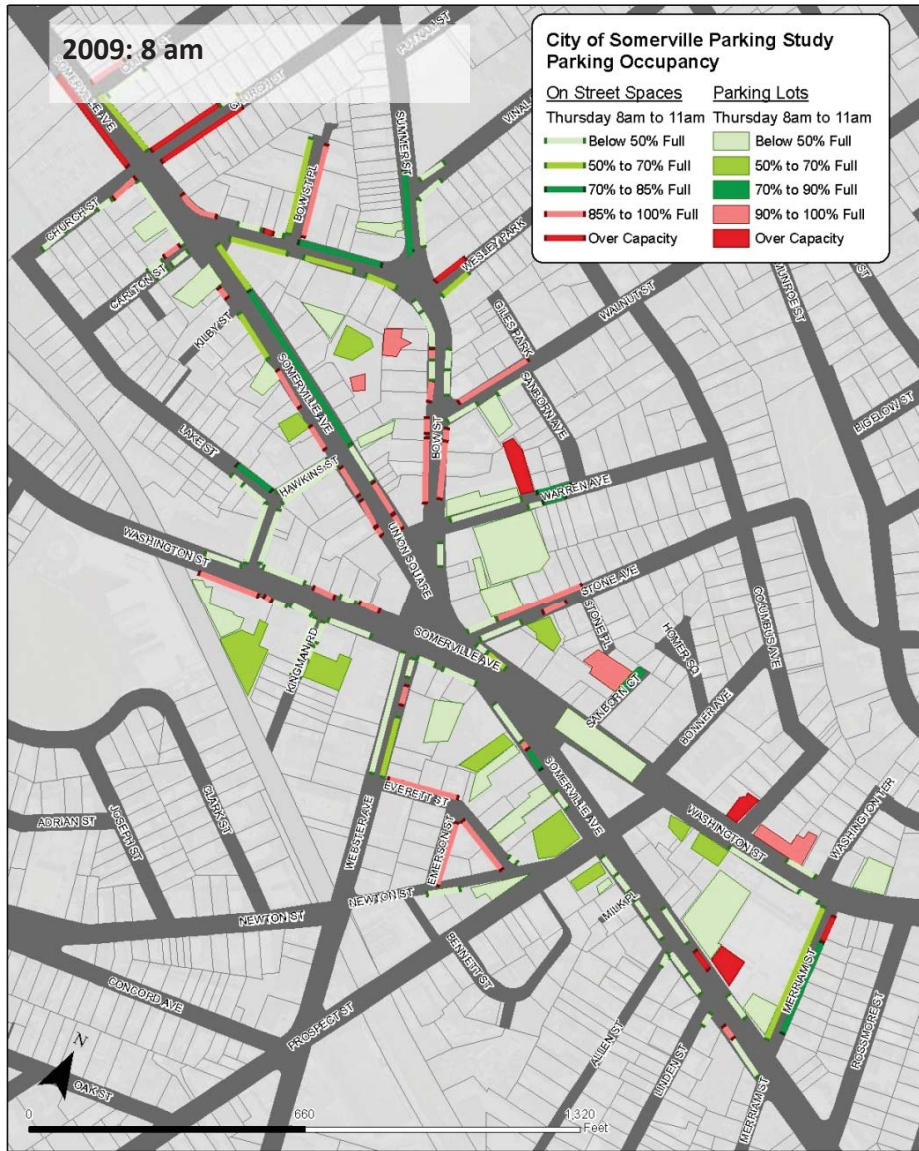
Complex Existing Parking Regulations



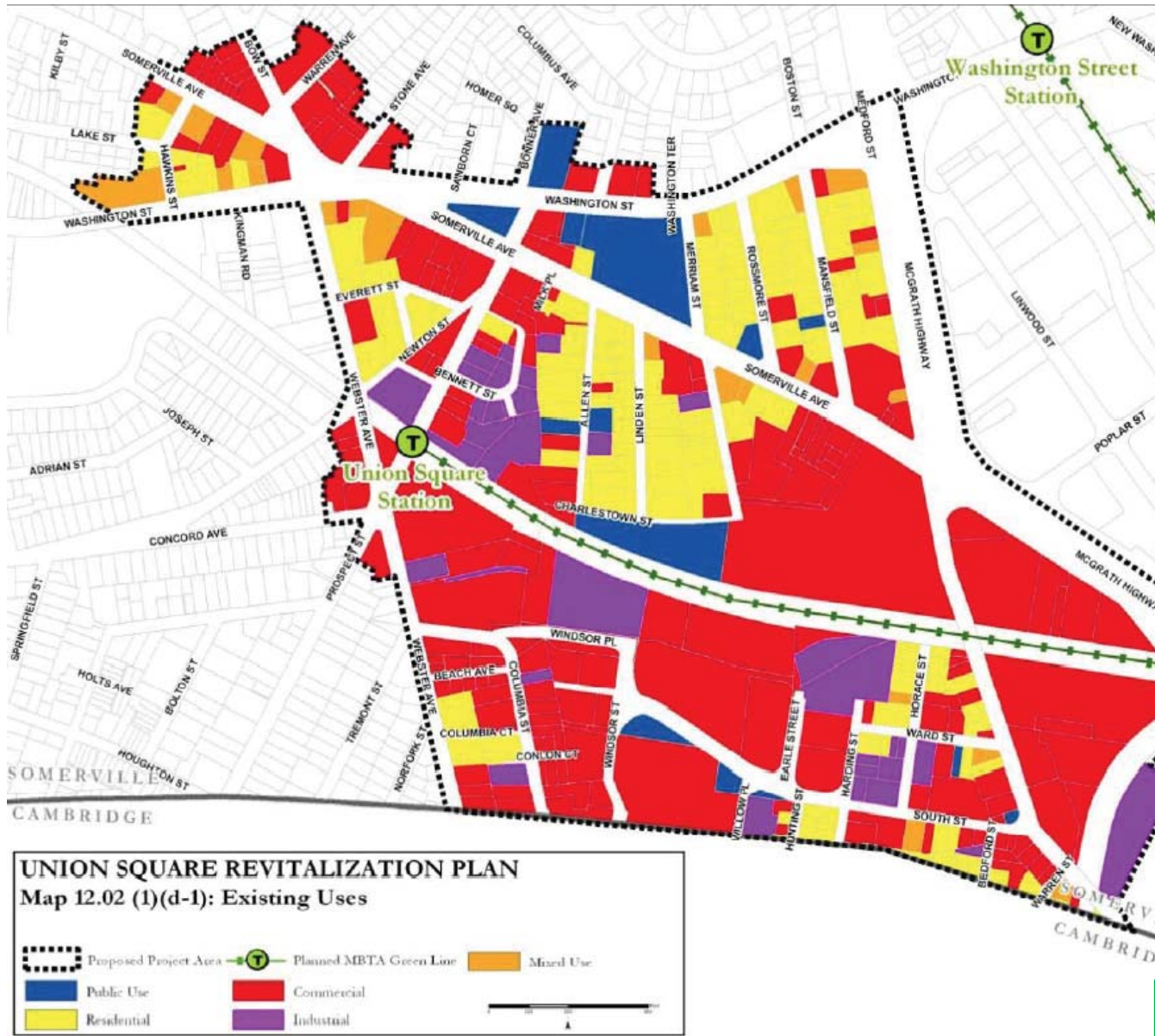
TYPE	PUBLIC	PRIVATE
Total	1,106	1,996

TYPE	# SPACES ON-STREET	# SPACES OFF-STREET
Total	989	2,113

2009 Parking Utilization shows Availability



Mixed Land Use Mitigates Parking Demand

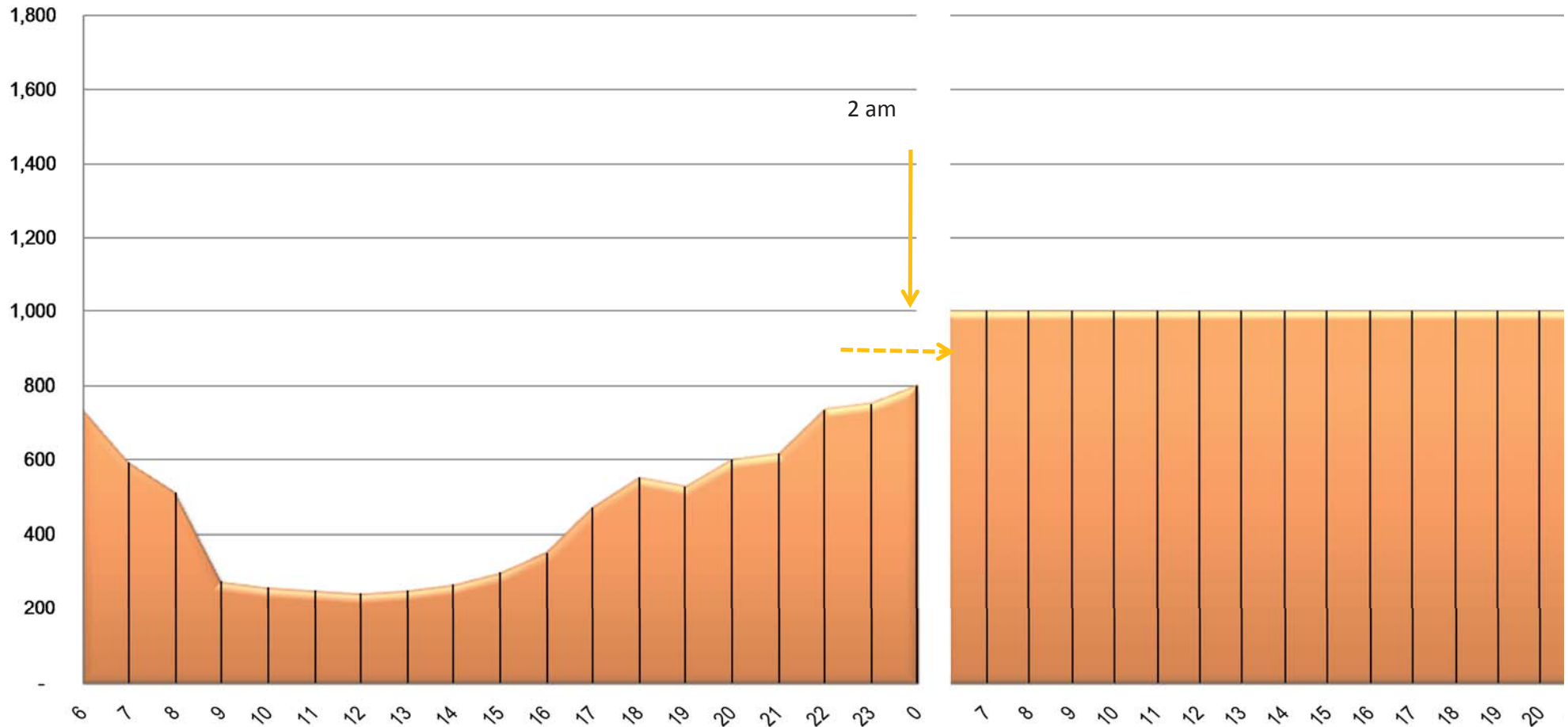


Use	Size
Apartments	1,367 units
Auto Repair	168,155 SF
Bank	33,059 SF
Bar	7,671 SF
Church	51,322 SF
Condo	44 units
Convenience Market	15,743 SF
Donut/Coffee Shop	18,471 SF
Fast Food	11,381 SF
Furniture Store	7,318 SF
Gallery	76,364 SF
Grocery Store	37,262 SF
High-Turnover Sit Down Restaurant	50,296 SF
Light Manufacturing	173,953 SF
Medical Office	115,442 SF
Office	200,505 SF
Quality Restaurant	43,085 SF
School - 1100 k-12	57,200 SF
School - 555 students	110,000 SF
Target Store	130,947 SF
Warehouse	229,549 SF
Cleaners	3,555 SF
Government Office	127,702 SF
Residential in Mixed Use	72,824 SF
Health/Fitness Club	6,065 SF
Recreation Center	13,464 SF
Shopping Center	23,507 SF
General Shopping Center	25,678 SF
TOTAL	1,800,000 SF + 1,400 HU

Shared Parking Concept in a Mixed Use Environment

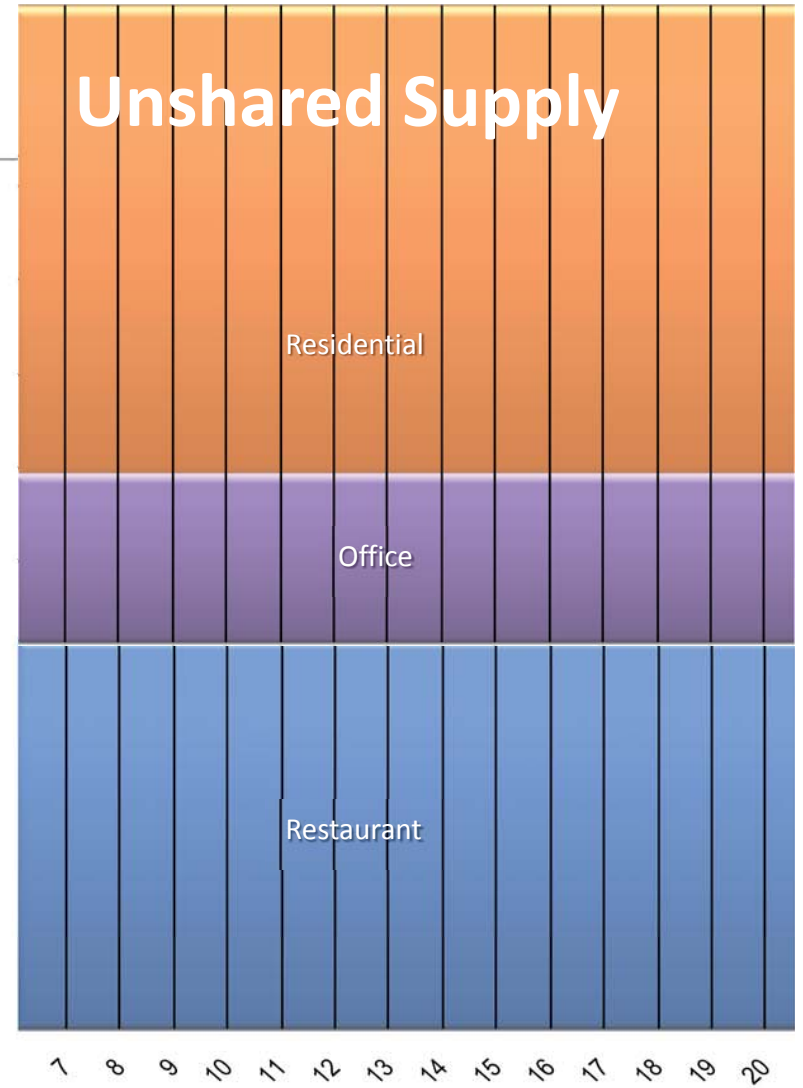
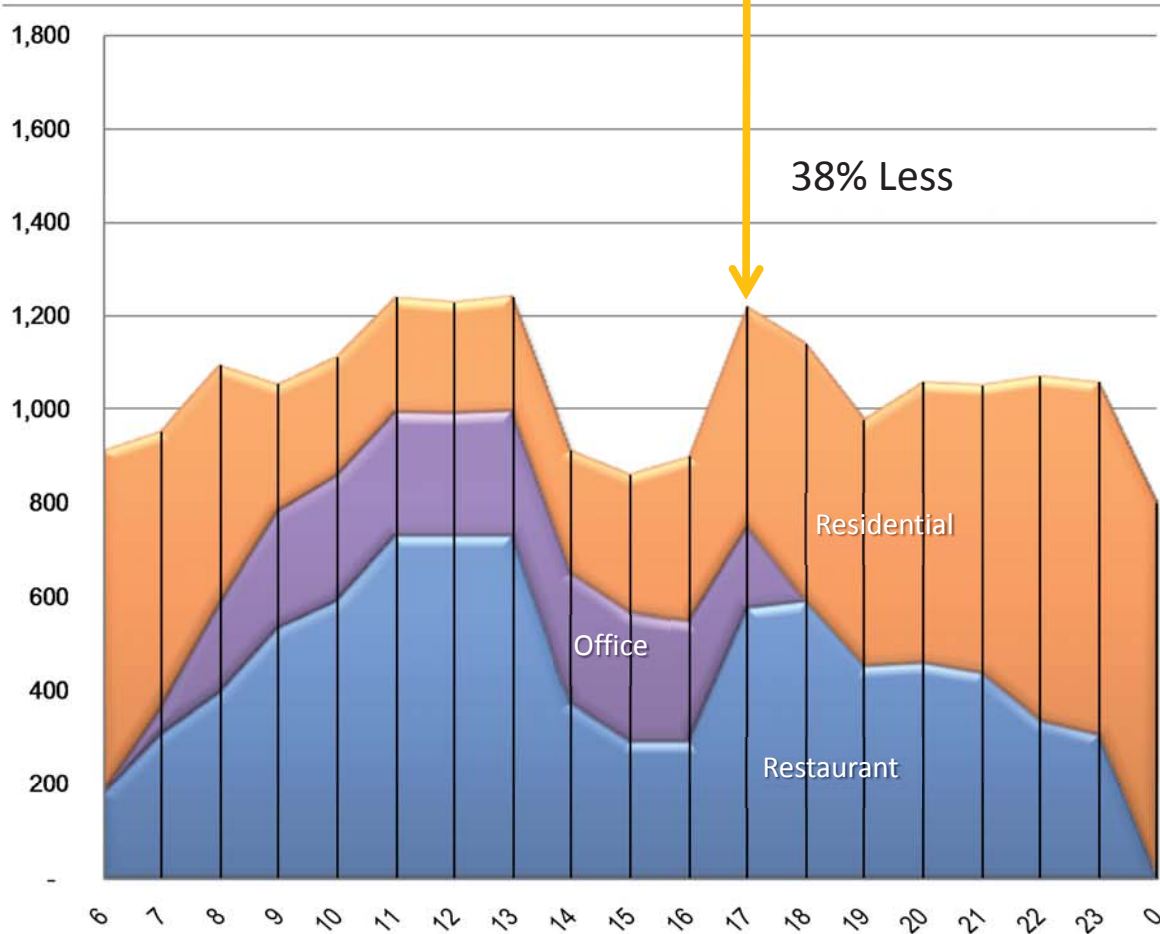
Residential (1000 units):
Real Demand

Unshared Supply



Shared Parking Concept in a Mixed Use Environment

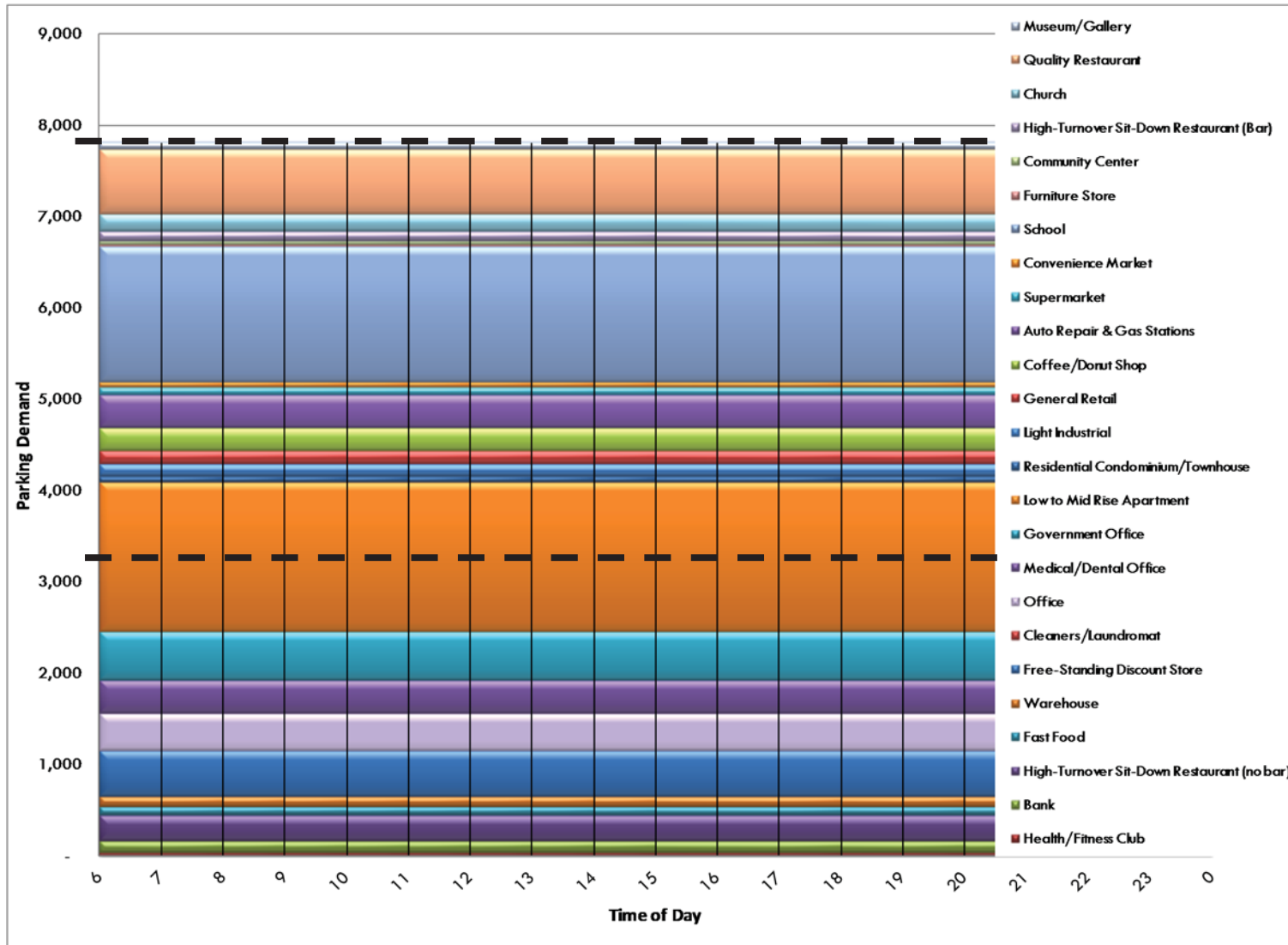
Shared Uses: Real Demand



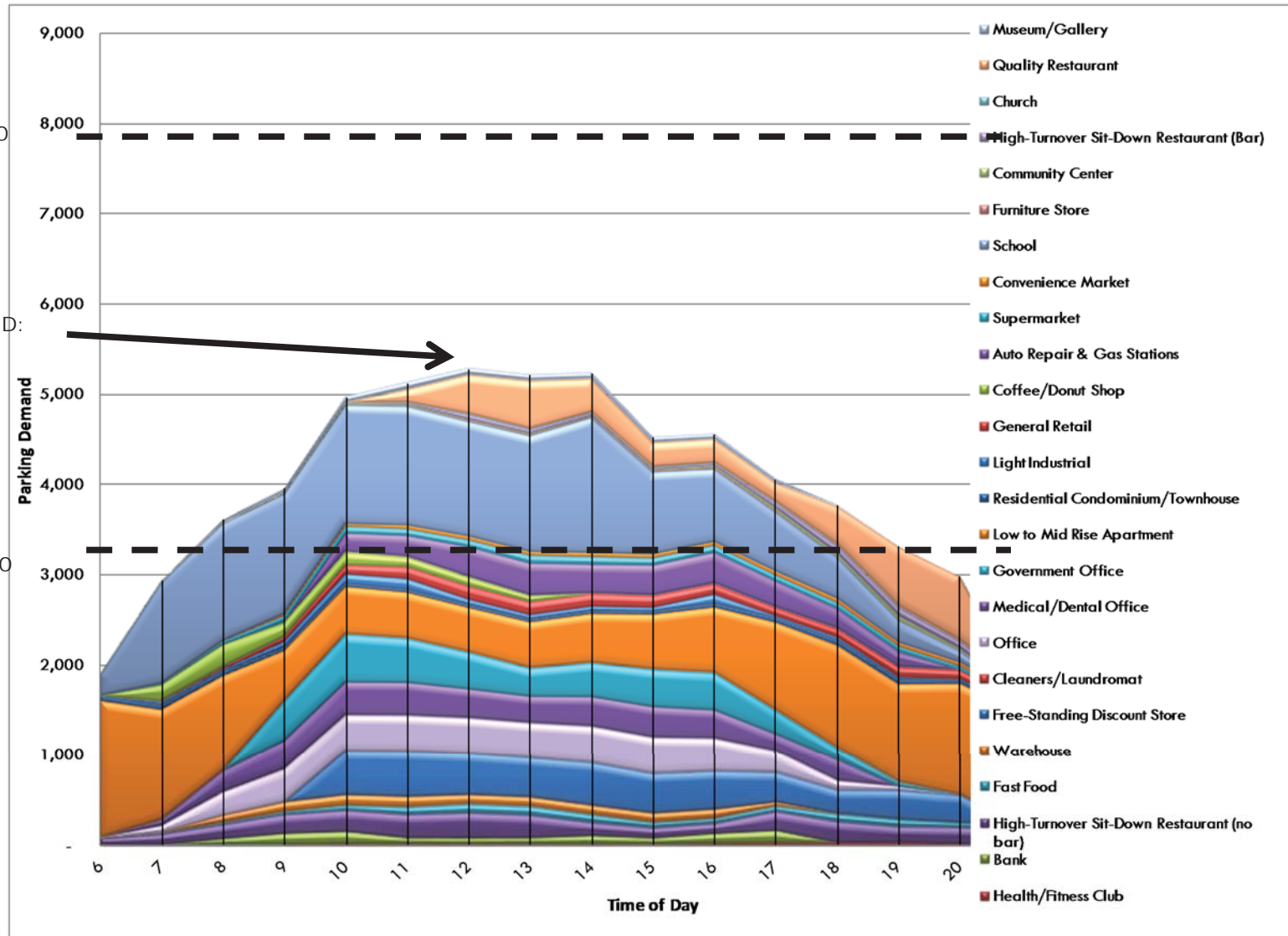
National Standards Suggest 7,000+ Spaces

UNSHARED:
7,800

EXISTING
SUPPLY: 3,000



With Different Uses, Fewer Cars may be Parked



UNSHARED: 7,800

PEAK DEMAND: 5,280

EXISTING SUPPLY: 3,000

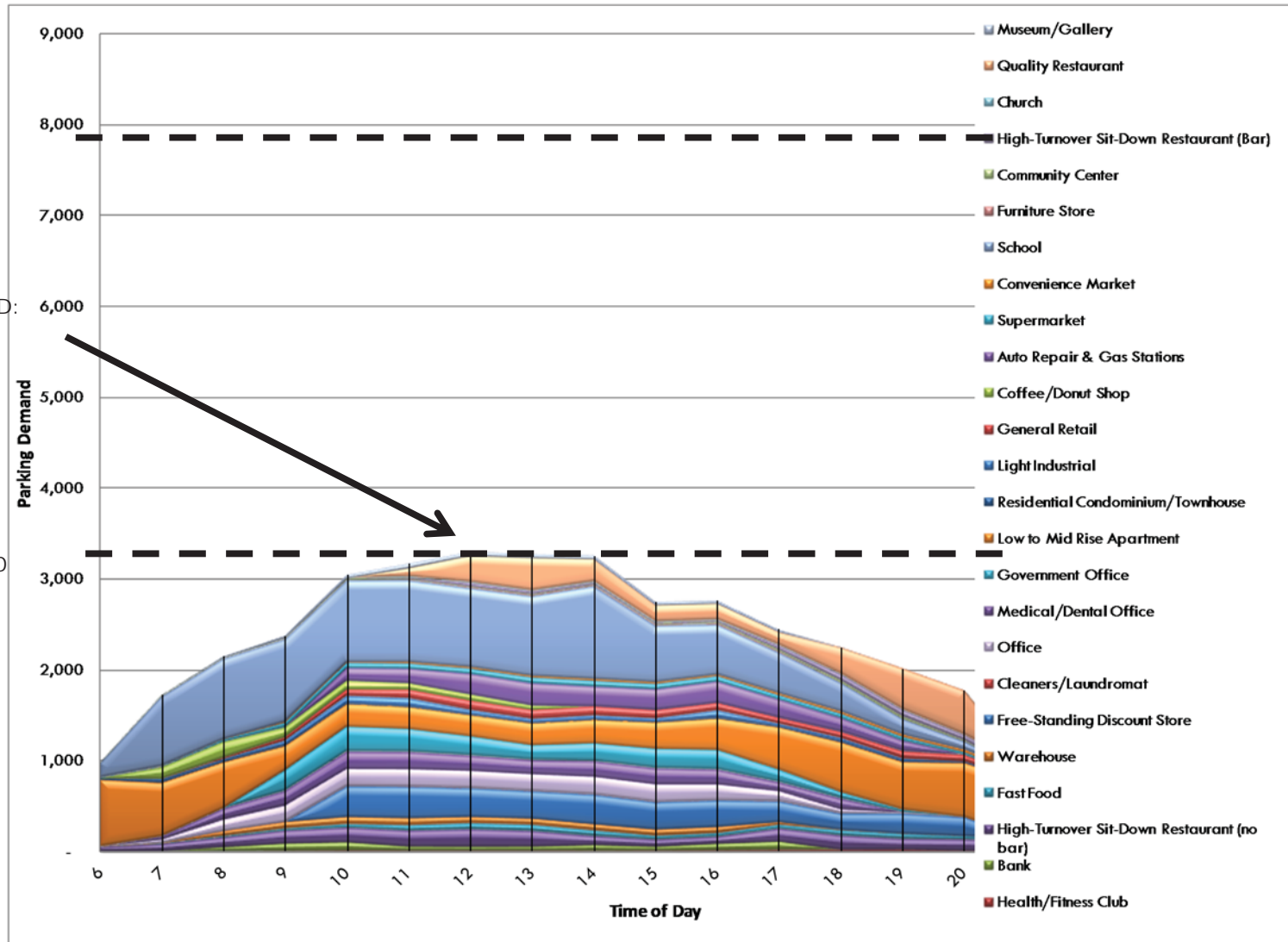
- Museum/Gallery
- Quality Restaurant
- Church
- High-Turnover Sit-Down Restaurant (Bar)
- Community Center
- Furniture Store
- School
- Convenience Market
- Supermarket
- Auto Repair & Gas Stations
- Coffee/Donut Shop
- General Retail
- Light Industrial
- Residential Condominium/Townhouse
- Low to Mid Rise Apartment
- Government Office
- Medical/Dental Office
- Office
- Cleaners/Laundromat
- Free-Standing Discount Store
- Warehouse
- Fast Food
- High-Turnover Sit-Down Restaurant (no bar)
- Bank
- Health/Fitness Club

Union Square Likely Requires Even Less Parking

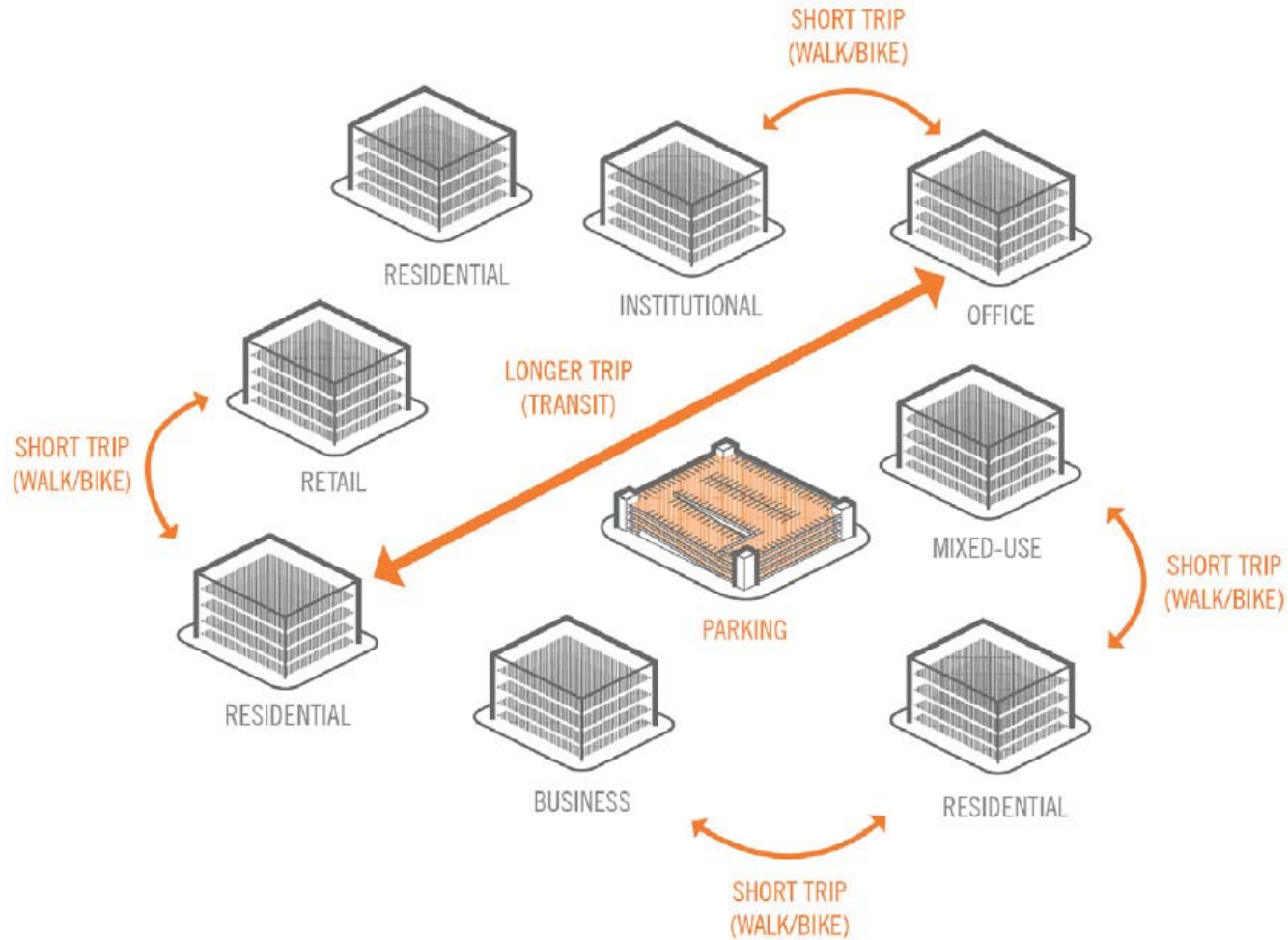
UNSHARED:
7,800

PEAK DEMAND:
3,296

EXISTING
SUPPLY: 3,000

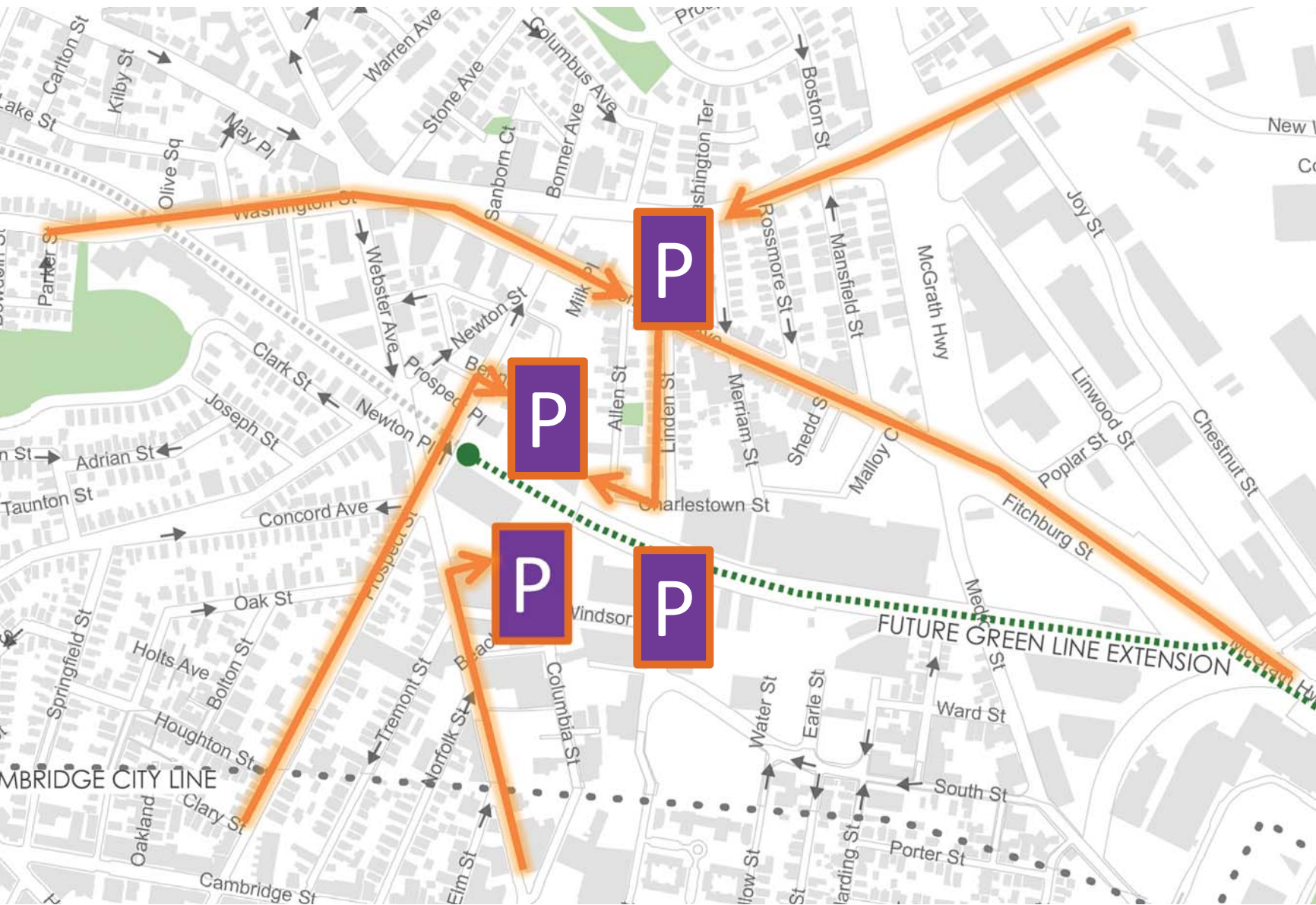


District Parking Intercepts Auto Traffic



"PARK ONCE" DISTRICT

District Parking Keeps Auto Traffic Out of Square





BICYCLE MOVEMENT

Biking Today: Class 2 Bike Lanes and Sharrows

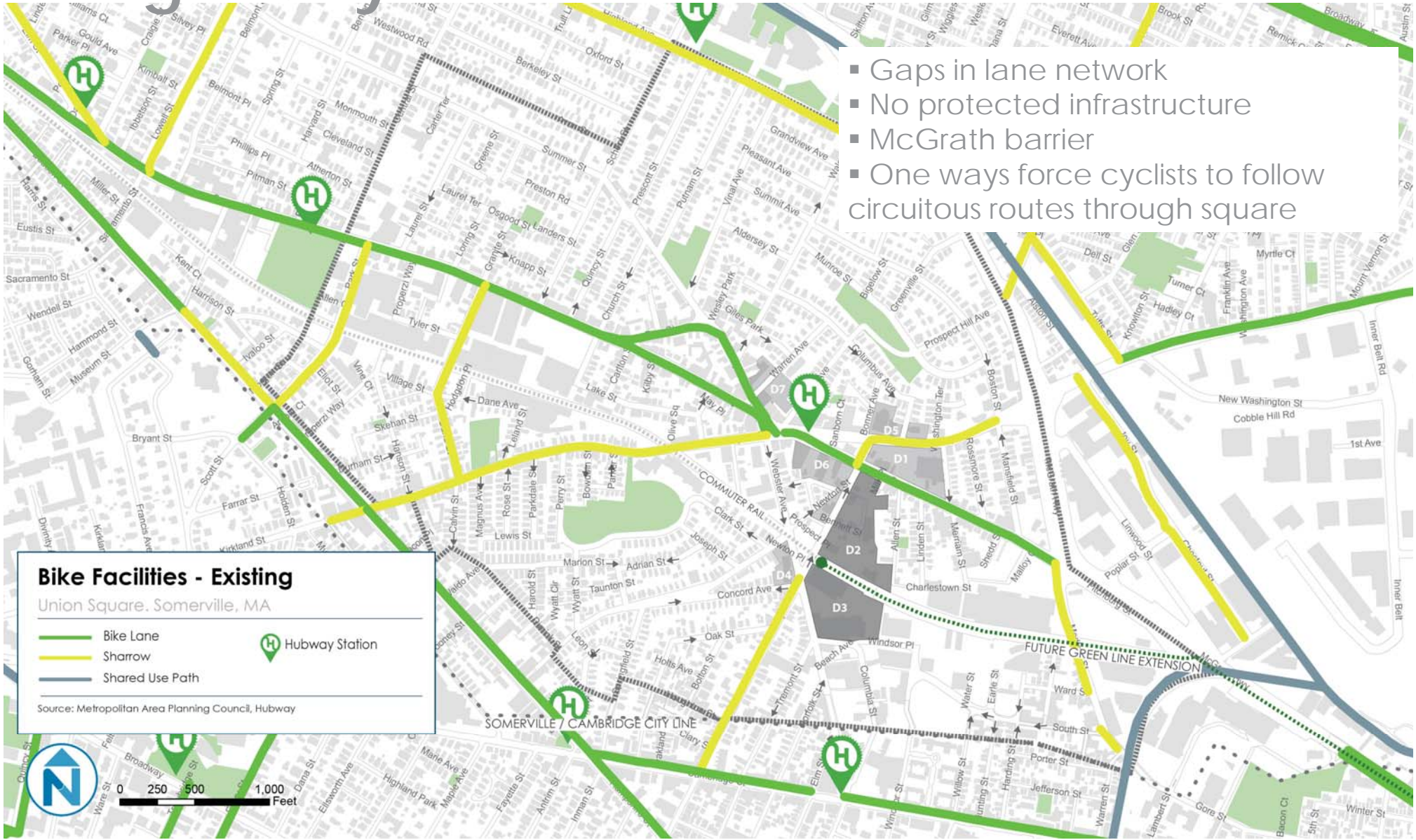
- Gaps in lane network
- No protected infrastructure
- McGrath barrier
- One ways force cyclists to follow circuitous routes through square

Bike Facilities - Existing
Union Square, Somerville, MA

-  Bike Lane
-  Sharrow
-  Shared Use Path

 Hubway Station

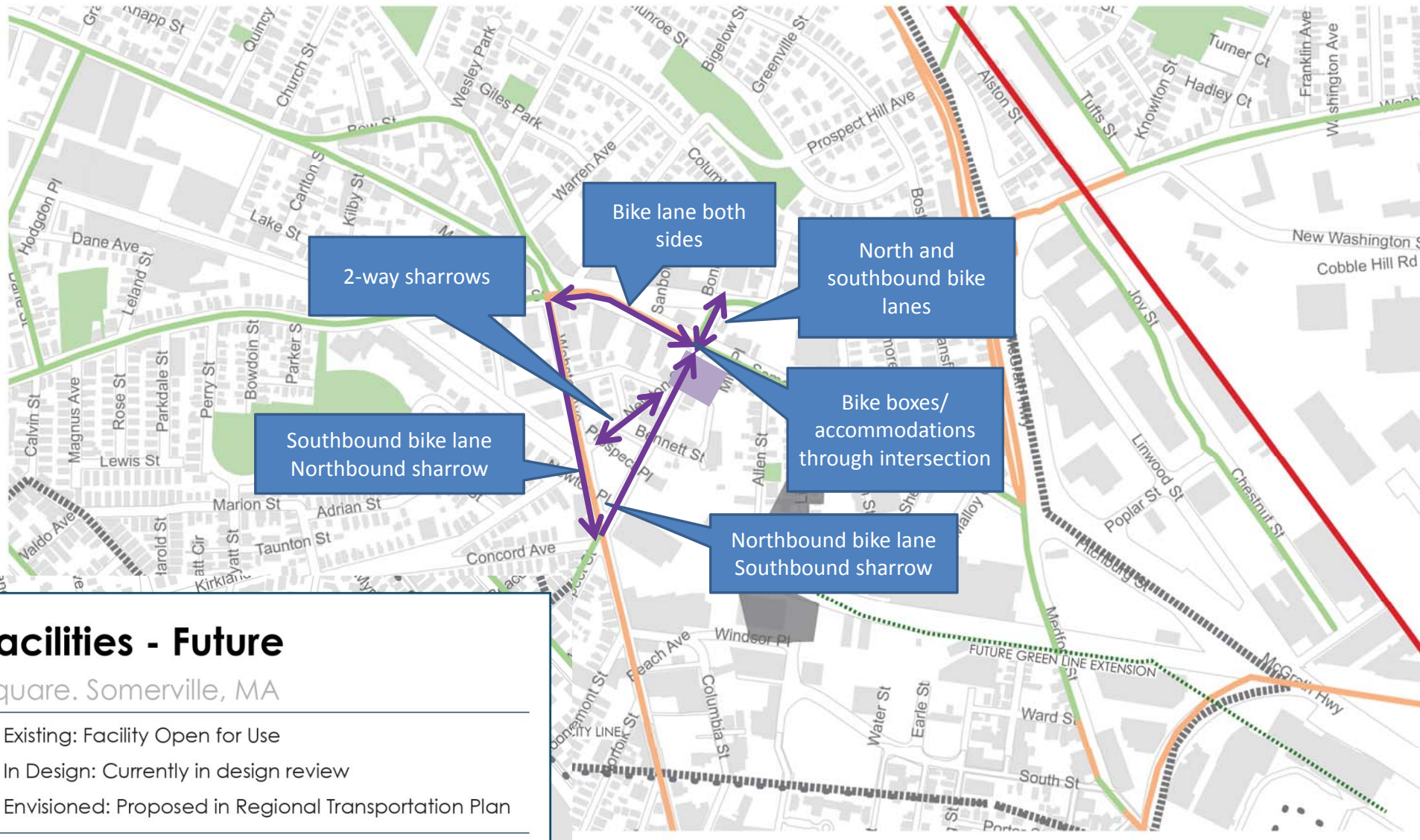
Source: Metropolitan Area Planning Council, Hubway



Future Biking Network will be More Robust



Interim Biking Network – Early Action



Bike Facilities - Future

Union Square, Somerville, MA

- Existing: Facility Open for Use
- In Design: Currently in design review
- Envisioned: Proposed in Regional Transportation Plan

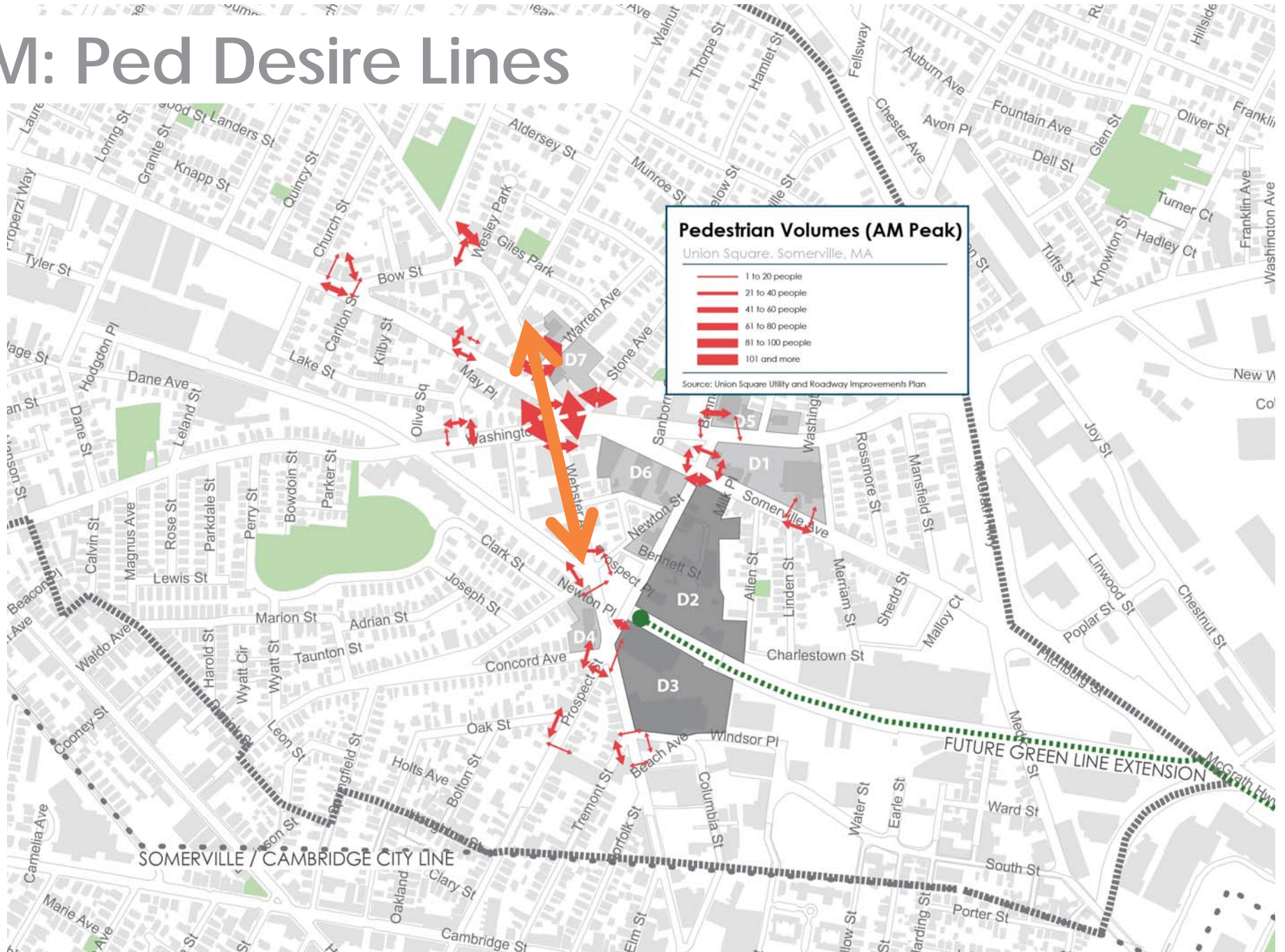
Source: Metropolitan Area Planning Council

Early Action Source: Union Square Utility and Streetscape Improvements Study

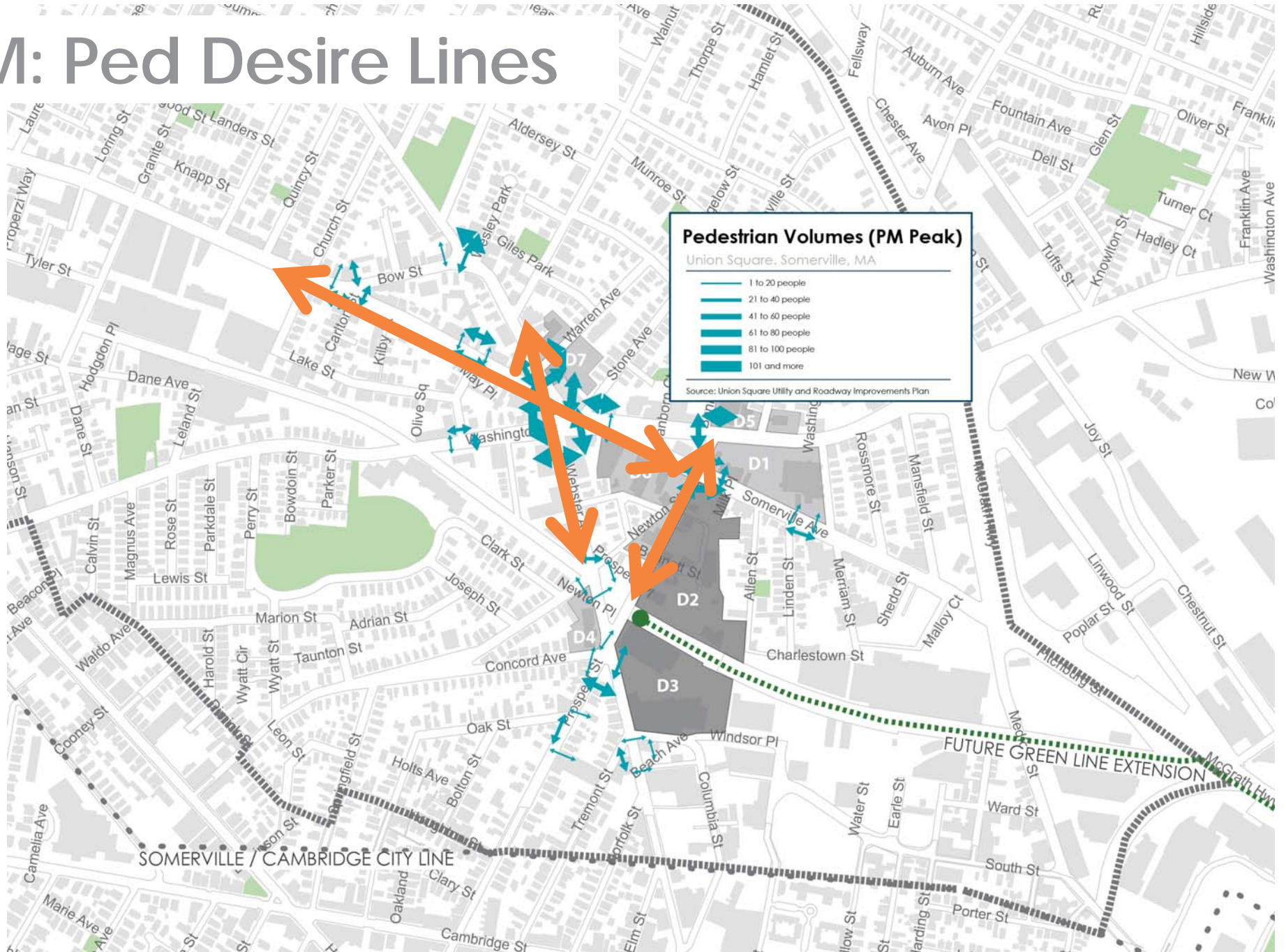


PEDESTRIAN MOVEMENT

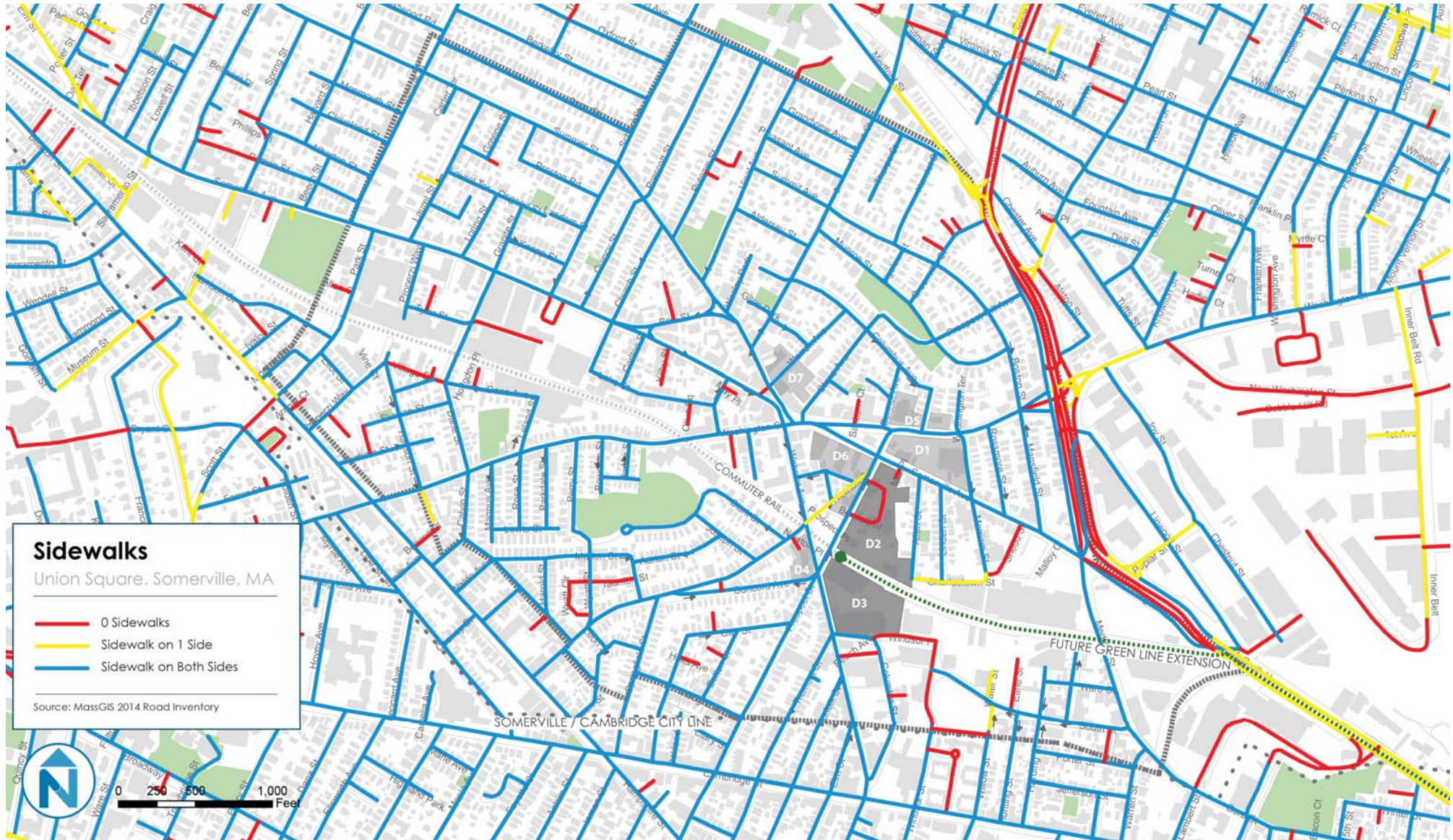
AM: Ped Desire Lines



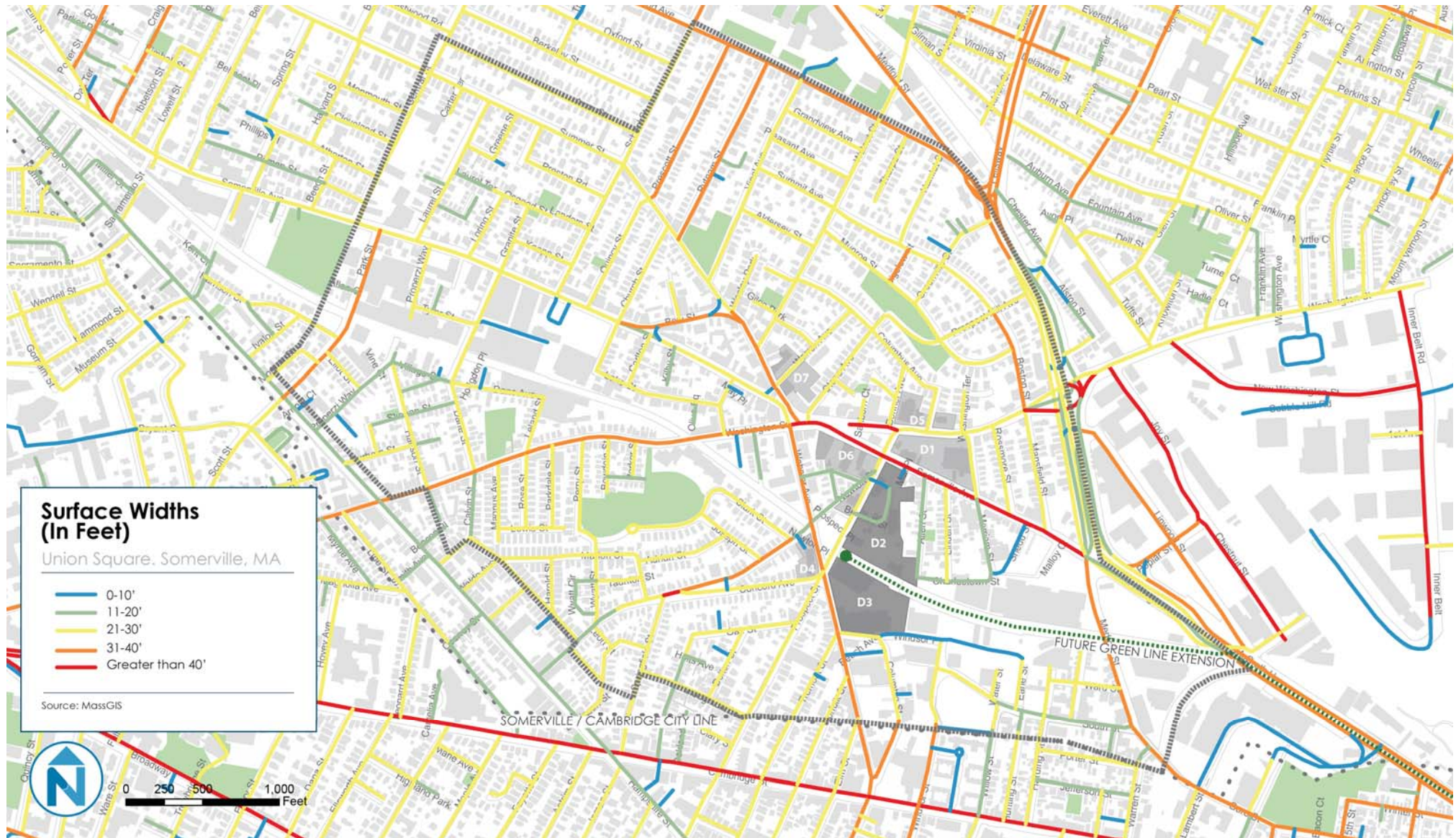
PM: Ped Desire Lines



Sidewalk Coverage is Good



Street Widths are Important for Those Who Walk



Sample Street Widths: Prospect, Webster, & Somerville



PROSPECT STREET – 35'



WEBSTER STREET – 33'



SOMERVILLE AVE - 60' IN SQUARE

Surface Widths (In Feet)
Union Square, Somerville, MA

- 0-10'
- 11-20'
- 21-30'
- 31-40'
- Greater than 40'

Source: MassGIS



Interim Plans from Streetscape Study

Prospect Street, looking North



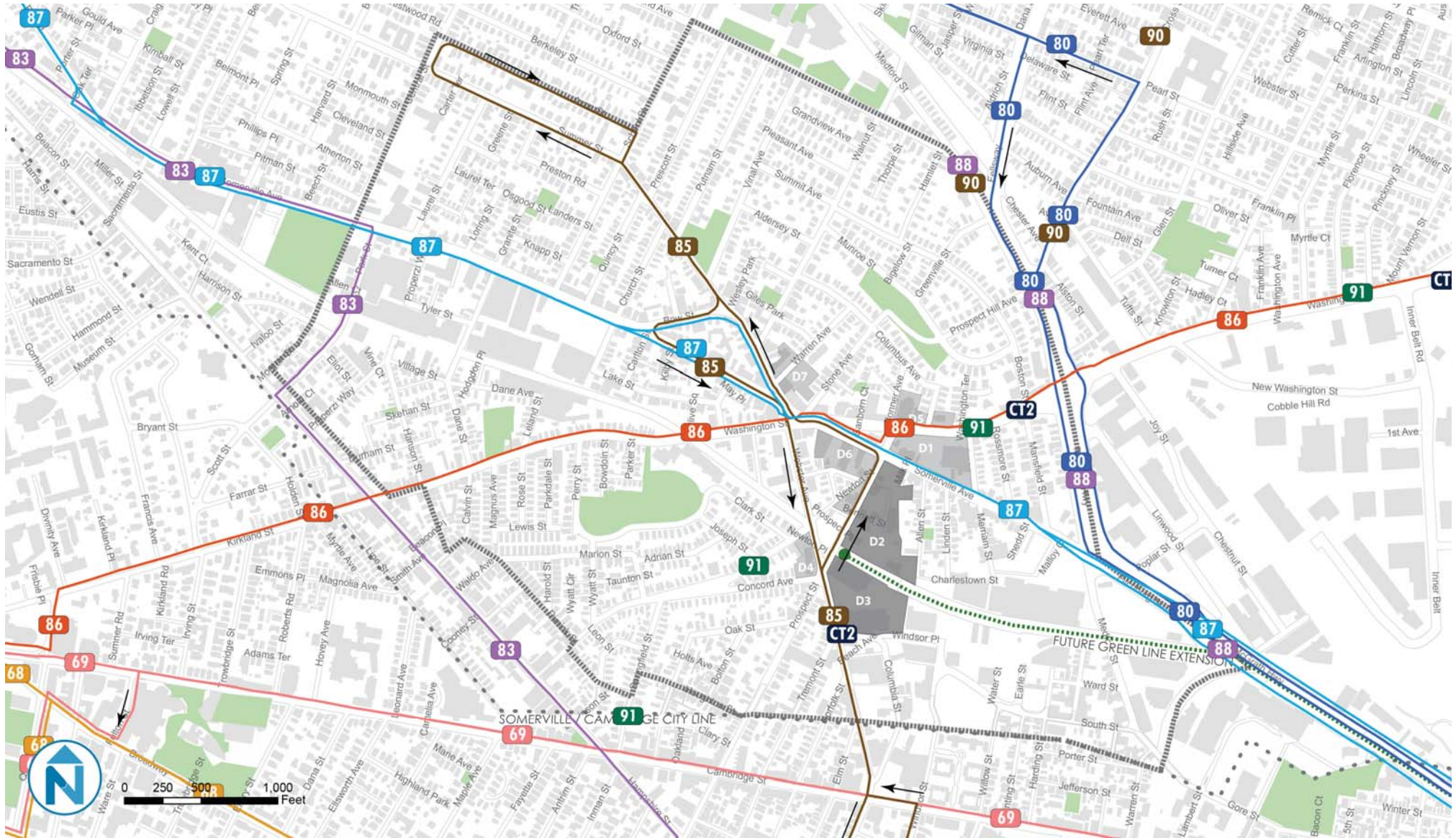
PROSPECT STREET – 35'

Source: Union Square Utility and Streetscape Improvements Study

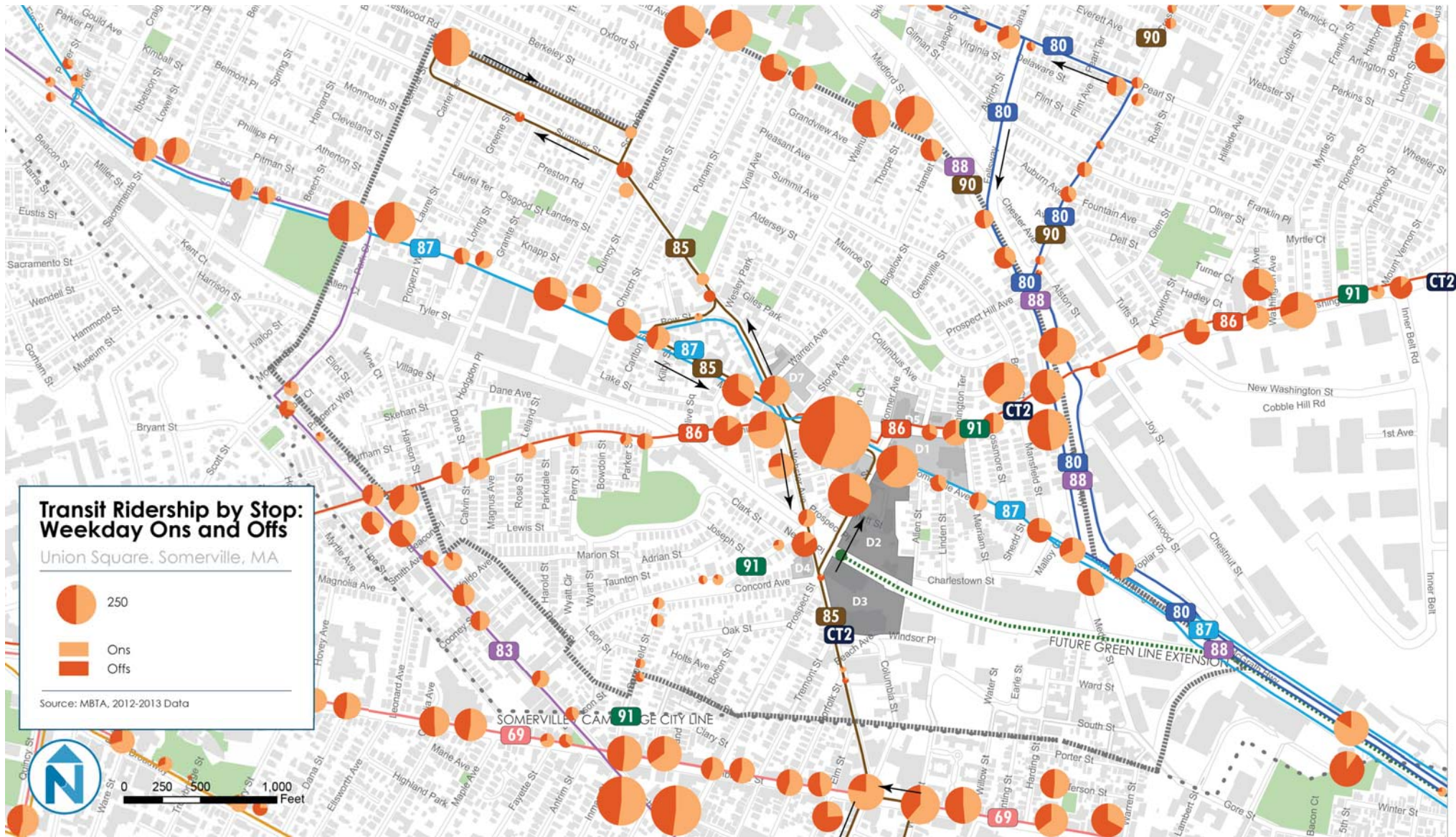
MASS TRANSIT



Union Square is a Bus Hub



Ridership is Highest within the Square



East West Bus Service is More Frequent than North-South



Currently: Frequent Connections to Harvard, Sullivan, and Lechmere

Bus Route	Origin-Destination	Weekday Peak Headway (minutes)	Weekday Midday Headway (minutes)	Weekday Evening Headway (minutes)	Weekend Headway (minutes)
CT2	Sullivan Station - Ruggles Station via Kendall/MIT	20	30 - 35	--	--
69	Harvard/Holyoke Gate - Lechmere Station via Cambridge Street	10-20	25	40	20-40
80	Arlington Center - Lechmere Station via Medford Hillside	20	25-35	60	30-60
83	Rindge Ave - Central Square Station via Porter	20	30	60	25-60
85	Spring Hill - Kendall/MIT Station via Summer Street & Union Square	40	40	--	--
86	Sullivan Station - Reservoir (Cleveland Circle) via Harvard	8-18	20	28-45	30-60
87	Arlington Center/Clarendon Hill - Lechmere Station via Somerville Avenue	20-22	30	30-35	30-40
88	Clarendon Hill - Lechmere Station via Highland Avenue	8-18	30	35	20-40
90	Davis Square Station - Wellington Station via Sullivan Square Station and Assembly Mall	40	40-55	65	70
91	Sullivan Square Station - Central Square Station via Washington Street	25-30	25-30	60-65	20-60

KEY:

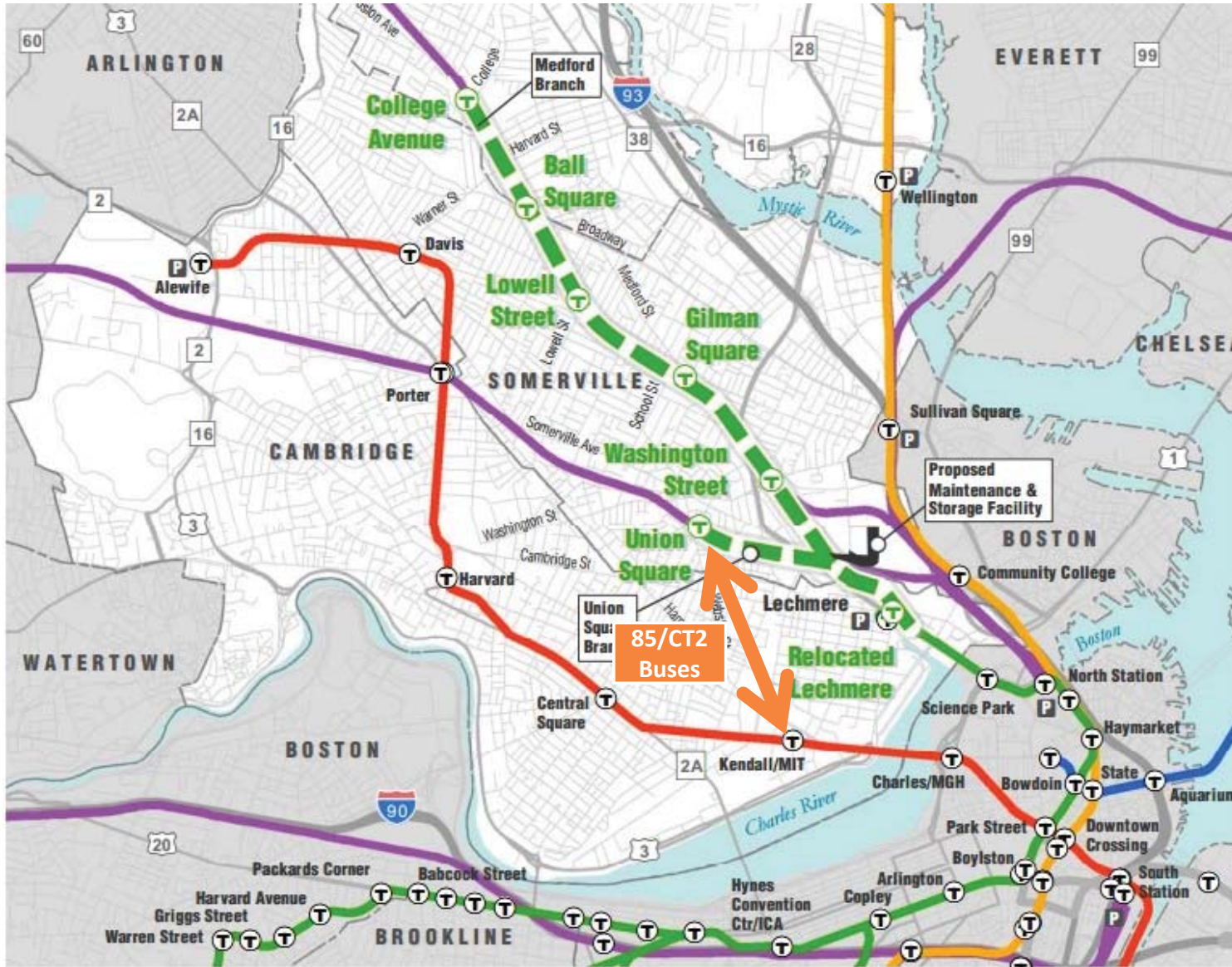
Route Runs Directly Thorough Union Square
Route Runs Within 1/2 Mile of Union Square



NEW T STATION IMPACT



Green Line Extension Will Increase Transit Accessibility



Future Connections between Red and Green Line?

Credit: MassDOT

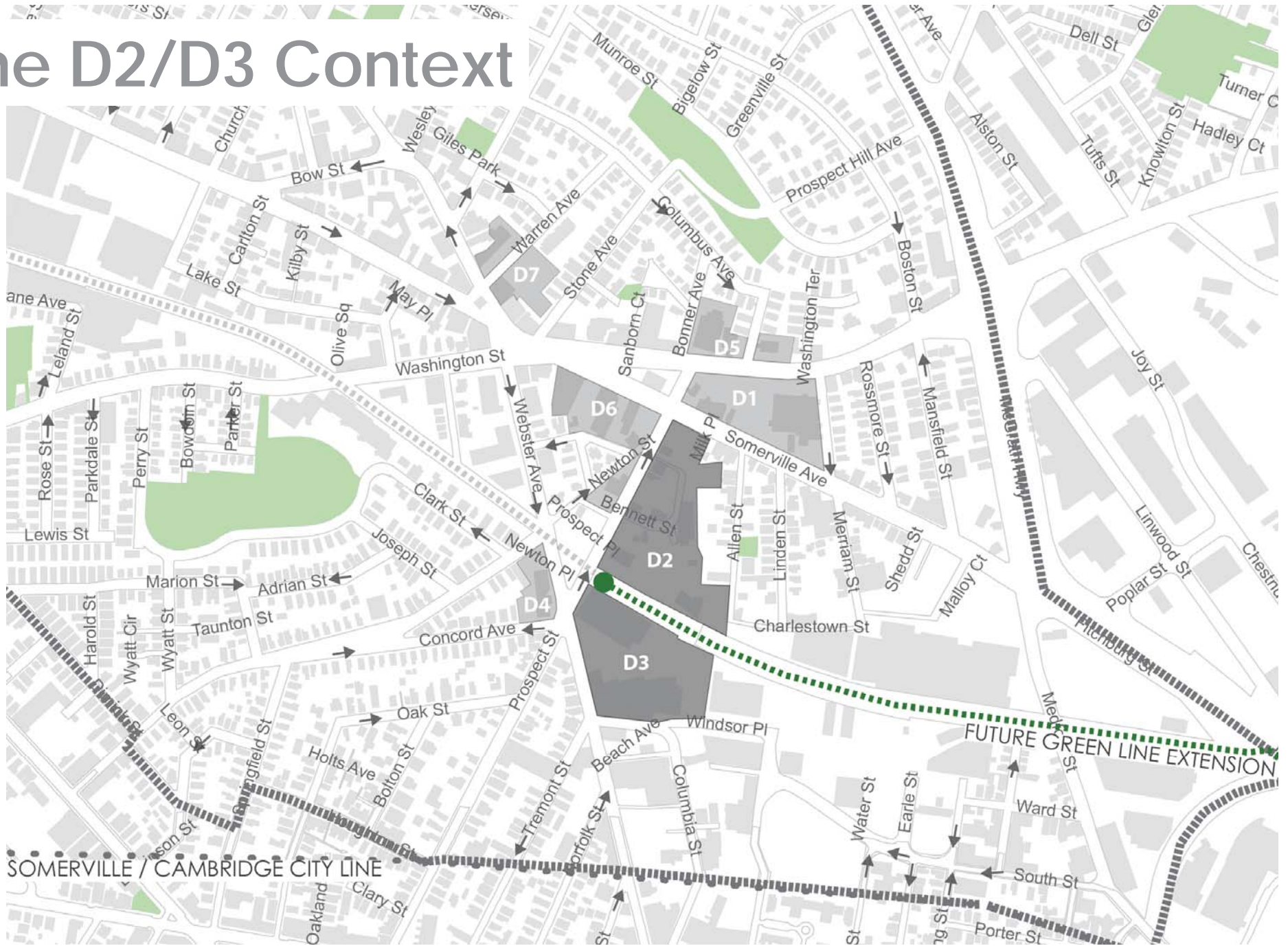
Projected to have over 3,500 Boardings Daily



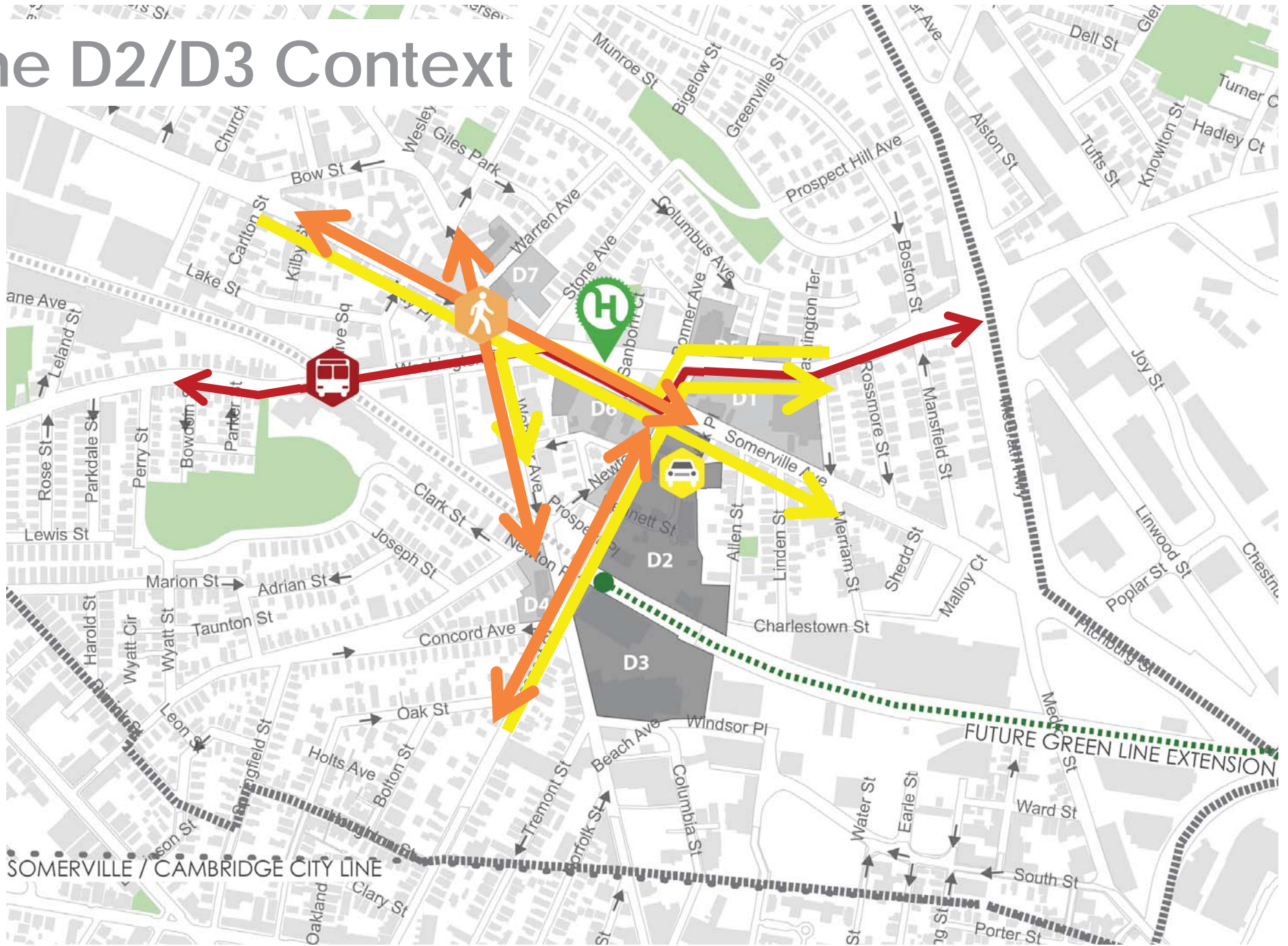
D2/D3 CONSIDERATIONS



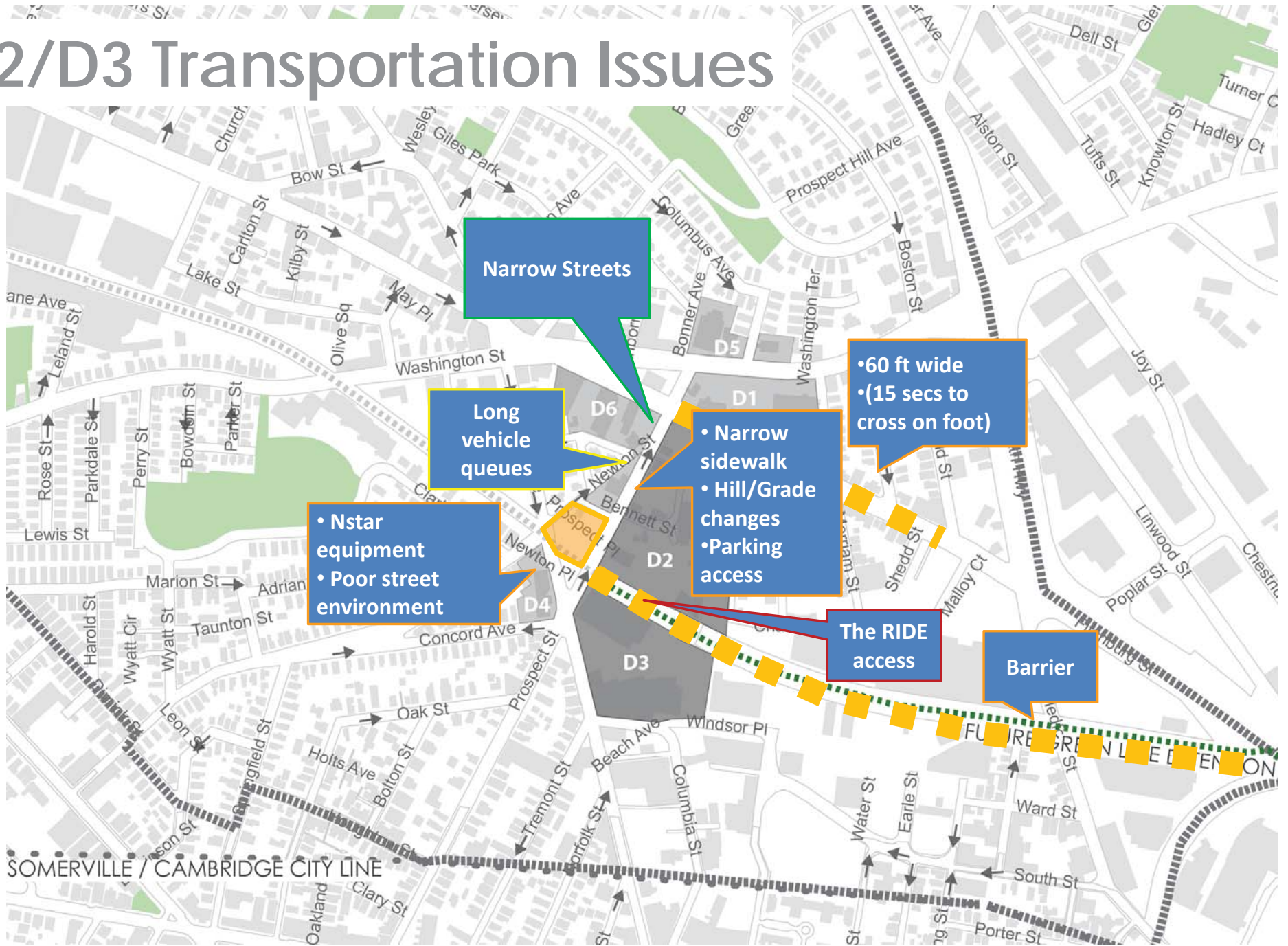
The D2/D3 Context



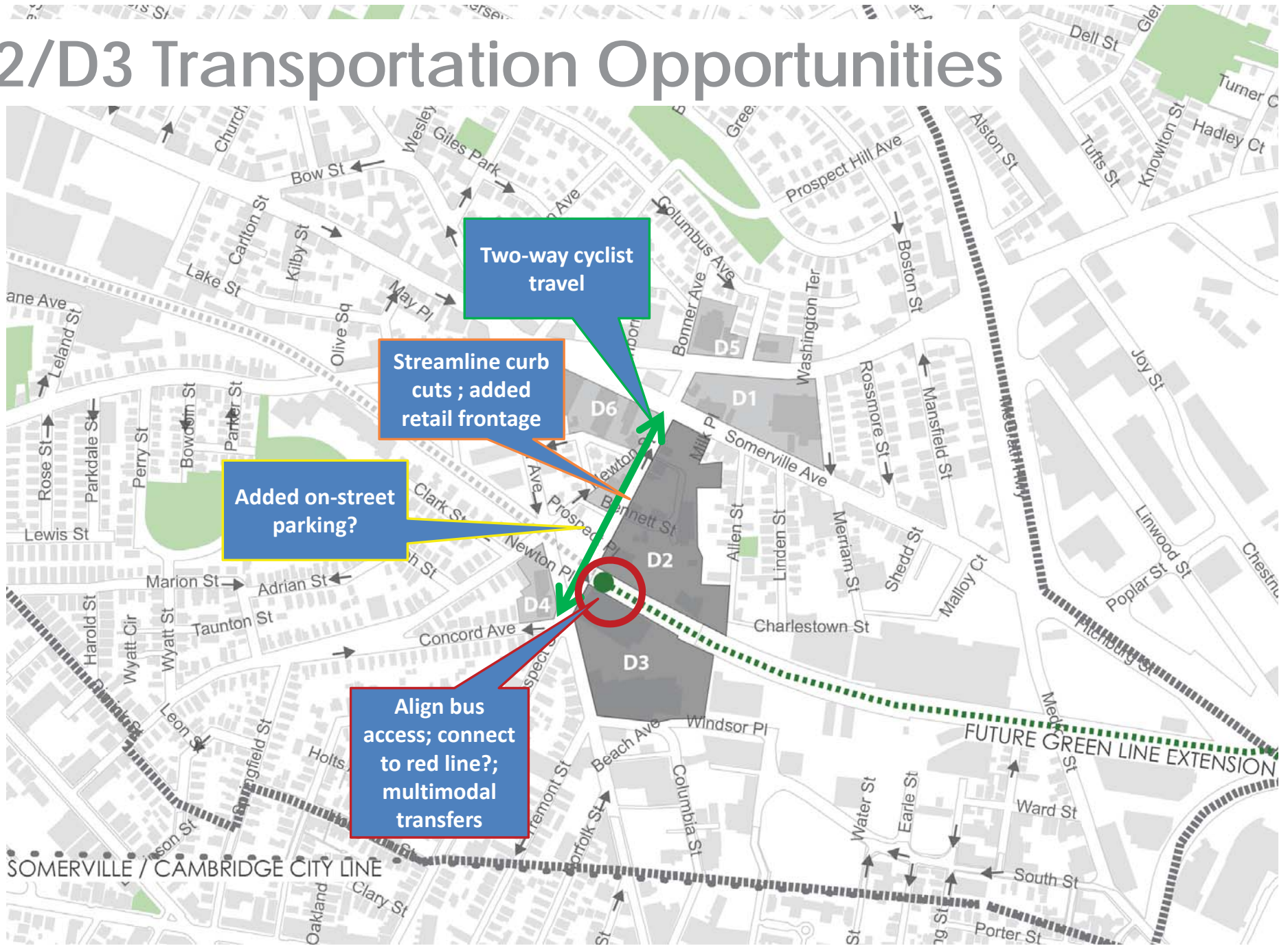
The D2/D3 Context



D2/D3 Transportation Issues



D2/D3 Transportation Opportunities

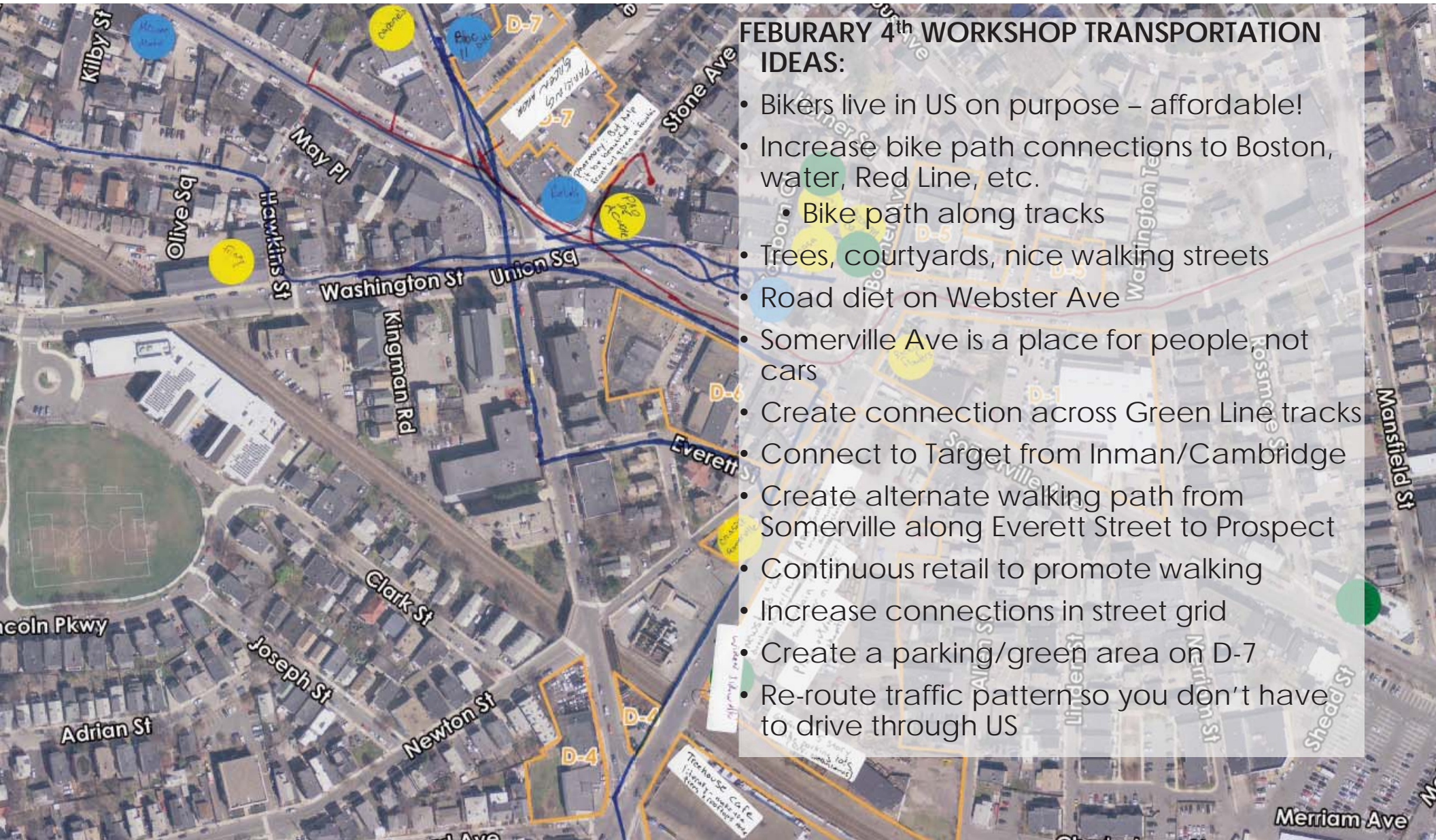




SUMMARY/NEXT STEPS



What We've Heard: February 4 Workshop



FEBRUARY 4th WORKSHOP TRANSPORTATION IDEAS:

- Bikers live in US on purpose – affordable!
- Increase bike path connections to Boston, water, Red Line, etc.
 - Bike path along tracks
- Trees, courtyards, nice walking streets
- Road diet on Webster Ave
- Somerville Ave is a place for people not cars
- Create connection across Green Line tracks
- Connect to Target from Inman/Cambridge
- Create alternate walking path from Somerville along Everett Street to Prospect
- Continuous retail to promote walking
- Increase connections in street grid
- Create a parking/green area on D-7
- Re-route traffic pattern so you don't have to drive through US

What We've Heard: Somerville Bike Committee

SOMERVILLE BICYCLE COMMITTEE IDEAS:

- Ground level-bike access
- Sharing ramps w/cars = bad
- Park bikes closer to door than vehicles
 - "Separate and better rather than separate but equal"
- In Union Square area, good bike parking expected
- 15% - target bike mode share
- Awnings along Prospect would provide a covered connection Green Line - US
- Promote bike friendliness as part of development identity

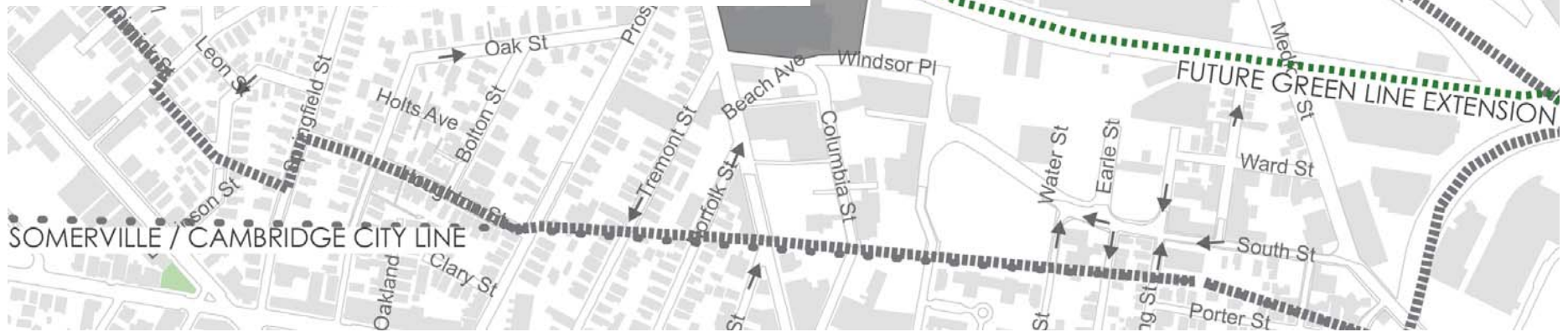


Transportation Exercise

Union Square Project Realities Workshop

Using the colors indicated below, please draw ideal access to the D2/D3 site for people who are:

- **Walking (in red marker)**
- **Biking (in blue marker)**
- **Driving (in black marker)**
- **Taking transit (in green marker)**



APPENDIX

Projected Green Line Ridership

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Green Line Extension Project: Systemwide Stats and SUMMIT Results

Transit Statistic	Base Year	2030					
	Existing Conditions	No-Build	Difference w/Existing Cond.	Updated Baseline	Difference w/No-Build	Proposed Action	Difference w/No-Build
Key Operating Characteristics	Green E ends at Lechmere Green D ends at Gov't. Center Route 80: Arlington to Lechmere Existing Lechmere Station	Green E ends at Lechmere Green D ends at Gov't. Center Route 80: Arlington to Lechmere Existing Lechmere Station		Green E ends at Lechmere Green D ends at Lechmere Enhanced Route 80 to Lechmere Route 80: Arlington to Lechmere Union Square Shuttle Existing Lechmere Station		Green E ends at Union Square Green D ends at College Ave Relocated Lechmere Station	
Linked Transit Trips	849,400	993,700	144,300	996,000	2,300	1,001,200	7,500
Unlinked Transit	1,180,670	1,349,910	169,240	1,354,960	5,050	1,348,140	-1,770
Red Line	231,400	244,280	12,880	241,480	(2,800)	233,730	-10,550
Blue Line	62,400	68,900	6,500	68,600	(300)	69,340	440
Green Line	221,600	251,600	30,000	261,100	9,500	277,570	25,970
Orange Line	170,200	195,310	25,110	190,410	(4,900)	188,970	-6,340
CRR	104,770	122,280	17,510	122,310	30	122,360	80
BRT	25,600	53,970	28,370	54,090	120	54,460	490
Local Bus	353,400	401,300	47,900	404,700	3,400	389,440	-11,860
Ferry	4,500	4,730	230	4,730	-	4,730	0
SUMMIT (hrs daily)							
Relative to Baseline	N/A	N/A	N/A	N/A	N/A	7,549	

Credit: 2012 Ridership Estimates

Projected Green Line Ridership

Green Line Extension Project: Station Level Boardings and Alightings

Anticipated Station Level Weekday Boardings and Alightings		Base Year		No-Build (2030)		Proposed Action (2030)		
		Boardings	Alightings	Boardings	Alightings	Boardings	Alightings	
Key Operating Characteristics		<ul style="list-style-type: none"> Green E ends at Lechmere Green D ends at Government Center Rte 80: Arlington to Lechmere Existing Lechmere Station 		<ul style="list-style-type: none"> Green E ends at Lechmere Green D ends at Government Center Rte 80: Arlington to Lechmere Existing Lechmere Station 		<ul style="list-style-type: none"> Green E ends at Union Sq. Green D ends at College Avenue Relocated Lechmere Station 		
System	Station							
Existing	Green Line	North Station	8,700	8,700	12,640	12,640	13,610	13,610
	Green Line	Science Park Station	800	800	1,790	1,790	2,150	2,150
	Green Line	Existing Lechmere Station	6,400	6,400	9,290	9,290	NA	NA
Extension	Green Line	Relocated Lechmere Station	NA	NA	NA	NA	8,820	8,820
	Green Line	Washington Street Station (formerly referred to as Brickbottom Station)	NA	NA	NA	NA	2,830	2,830
	Green Line	Gillman Square Station	NA	NA	NA	NA	3,930	3,930
	Green Line	Lowell Street Station	NA	NA	NA	NA	1,140	1,140
	Green Line	Ball Square Station	NA	NA	NA	NA	1,850	1,850
	Green Line	College Avenue Station	NA	NA	NA	NA	2,140	2,140
	Green Line	Union Square Station	NA	NA	NA	NA	3,570	3,570

Credit: 2012 Ridership Estimates

- Half as busy as existing Lechmere Station
- Projected to be 3rd busiest Green Line station North of the Charles

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Subway Operations

Green Line Subway Station Entries (Typical Weekday)



GREEN LINE	1990	1991	1992	1993	1995	1997	EXPANSION:		1997	2007	2008	2009	2013	
	(a)	(a)	(a)	(a)	(a)	(b)	Early AM	Late PM	Total	(g)	(g)	(g)	(g)	
LECHMERE	4,939	4,749	4,519	5,407	5,191	5,312	(f)	50	59	5,421	5,792	6,416	6,645	6,421
SCIENCE PARK (h)	NA	NA	NA	NA	NA	1,334	(c)	0	26	1,360	1,047	808	1,179	1,042
NORTH STATION	10,481	11,590	11,712	13,476	11,770	4,853	(c)	10	43	4,906	5,966	5,924	8,491	6,248
HAYMARKET	5,247	5,671	5,500	5,751	6,677	4,206	(c)	70	189	4,465	4,740	6,474	5,204	4,428
GOVERNMENT CENTER	14,922	13,095	15,460	16,902	11,500	13,618	(c)	35	610	14,263	9,614	9,903	10,072	7,993
PARK STREET	17,000	17,402	19,157	14,673	15,202	10,310	(e)	24	111	10,445	11,996	11,882	11,169	8,119
BOYLSTON	4,975	5,658	5,181	5,318	4,728	5,526	(c)	12	396	5,934	7,566	7,503	7,618	6,826
ARLINGTON	9,076	10,304	8,980	6,583	8,872	8,280	(c)	22	668	8,970	8,298	8,374	8,378	8,519
COPLEY	13,085	16,374	13,504	12,173	14,758	13,420	(c)	67	290	13,777	13,536	13,488	13,500	14,021
HYNES	7,595	9,374	9,638	9,893	9,967	8,211	(d)	118	250	8,579	8,842	9,178	9,525	8,946
KENMORE	7,646	9,130	8,729	6,486	7,357	7,249	(c)	81	280	7,610	7,797	8,133	8,653	9,503
PRUDENTIAL	2,182	2,104	1,685	1,261	1,860	NA	See Surf.	See Surf.	See Surf.	3,430	3,681	3,732	3,643	
SYMPHONY	1,565	1,618	1,788	1,144	1,065	NA	See Surf.	See Surf.	See Surf.	1,887	1,999	1,993	1,711	
TOTAL	98,713	107,069	105,853	99,067	98,947	82,319	489	2,922	85,730	90,510	93,763	96,159	87,420	

(a) - MBTA Service Planning Dept turnstile counts. Does not include S-Box and gate readings. Counts for total span of service.

(b) - CTPS counts.

(c) - 600AM-1100PM external entries, both directions

(d) - 630AM-1100PM external entries, both directions

(e) - 600AM - 1100PM external entries from west, north, Winter Street elevator, and DTX via concourse entrances, both directions.

(f) - 600AM-1100PM external entries, inbound

(g) Green Line Station Entries at North Station, Haymarket, Government Center and Park Street estimated from daily weekday AFC data and CTPS Surveys.

(h) Science Park Station Entries (2007-2008) are from 12:00PM to 6:00PM only. Onboard fare collection applies at all other times.

Expanded Counts include estimates of Early AM and Late PM customers not counted by checkers.

2007 figures are based on average weekday daily station entries from AFC Data collected from January through June 2007

2008 - 2013 figures are based on average weekday daily station entries from AFC Data collected from FY2008-FY2013

Existing Turning Movements Counts



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AM: NB on Prospect

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

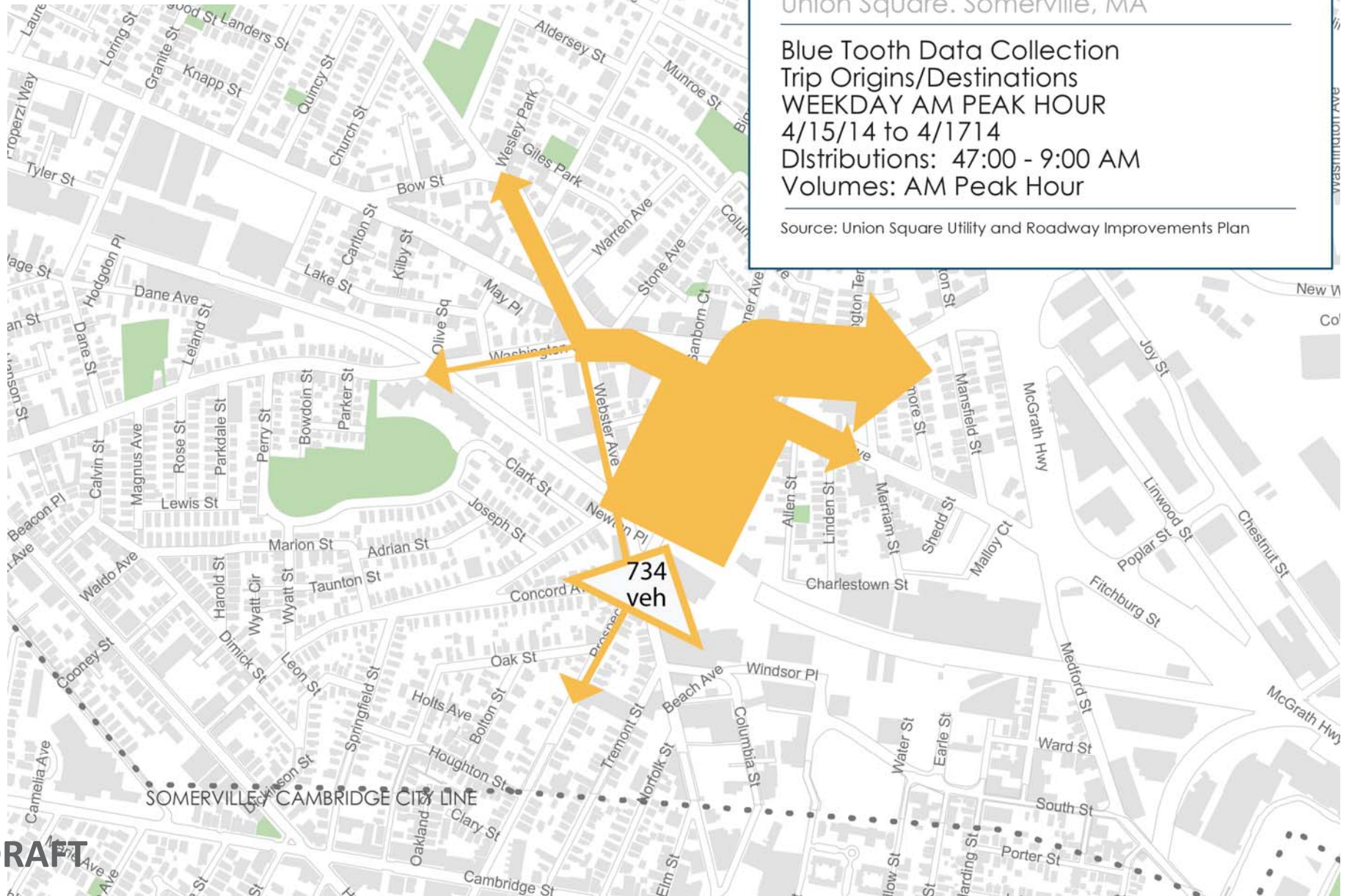
WEEKDAY AM PEAK HOUR

4/15/14 to 4/17/14

Distributions: 47:00 - 9:00 AM

Volumes: AM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan



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AM: EB on Washington

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

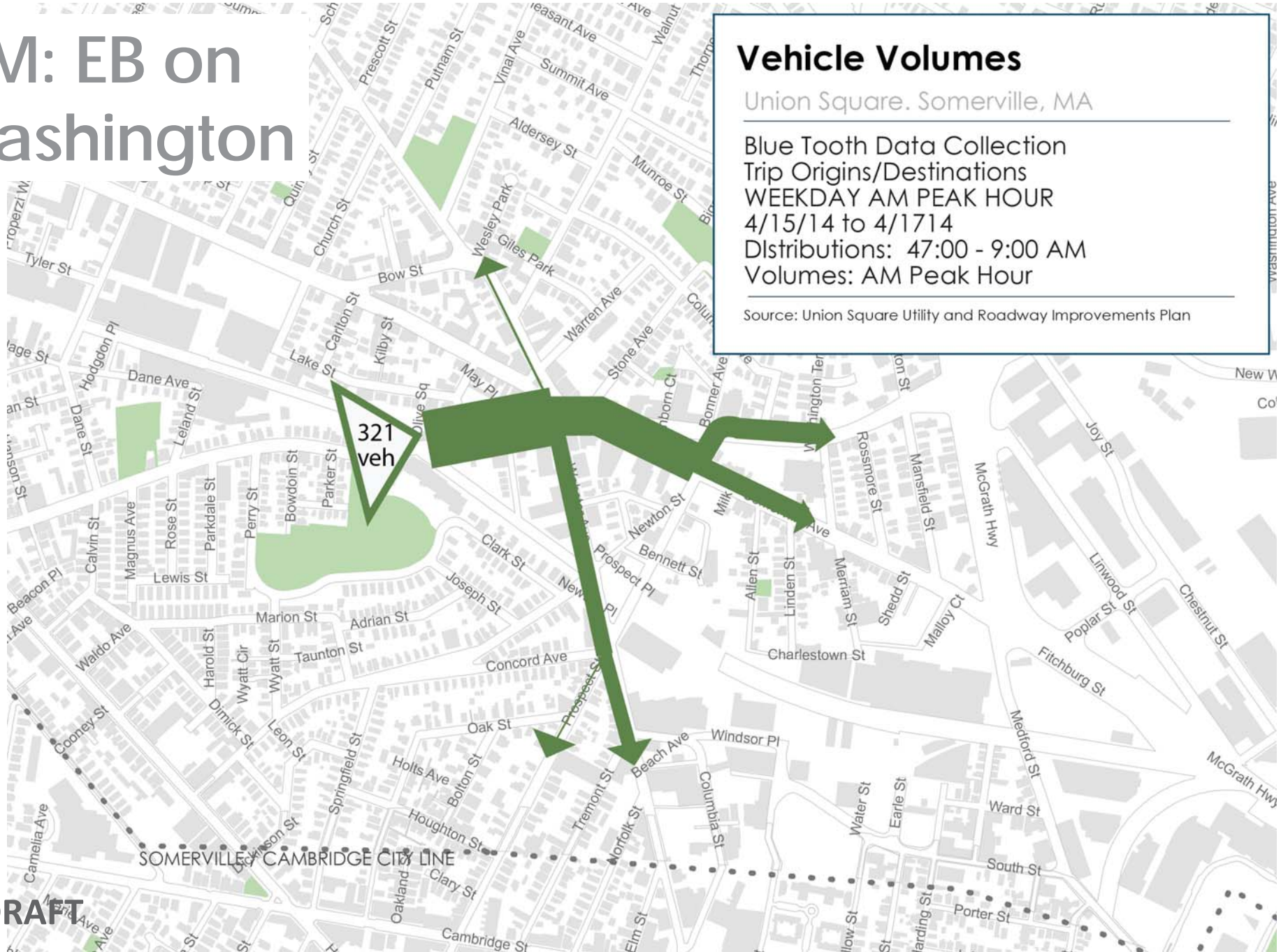
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AM: EB on Somerville

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

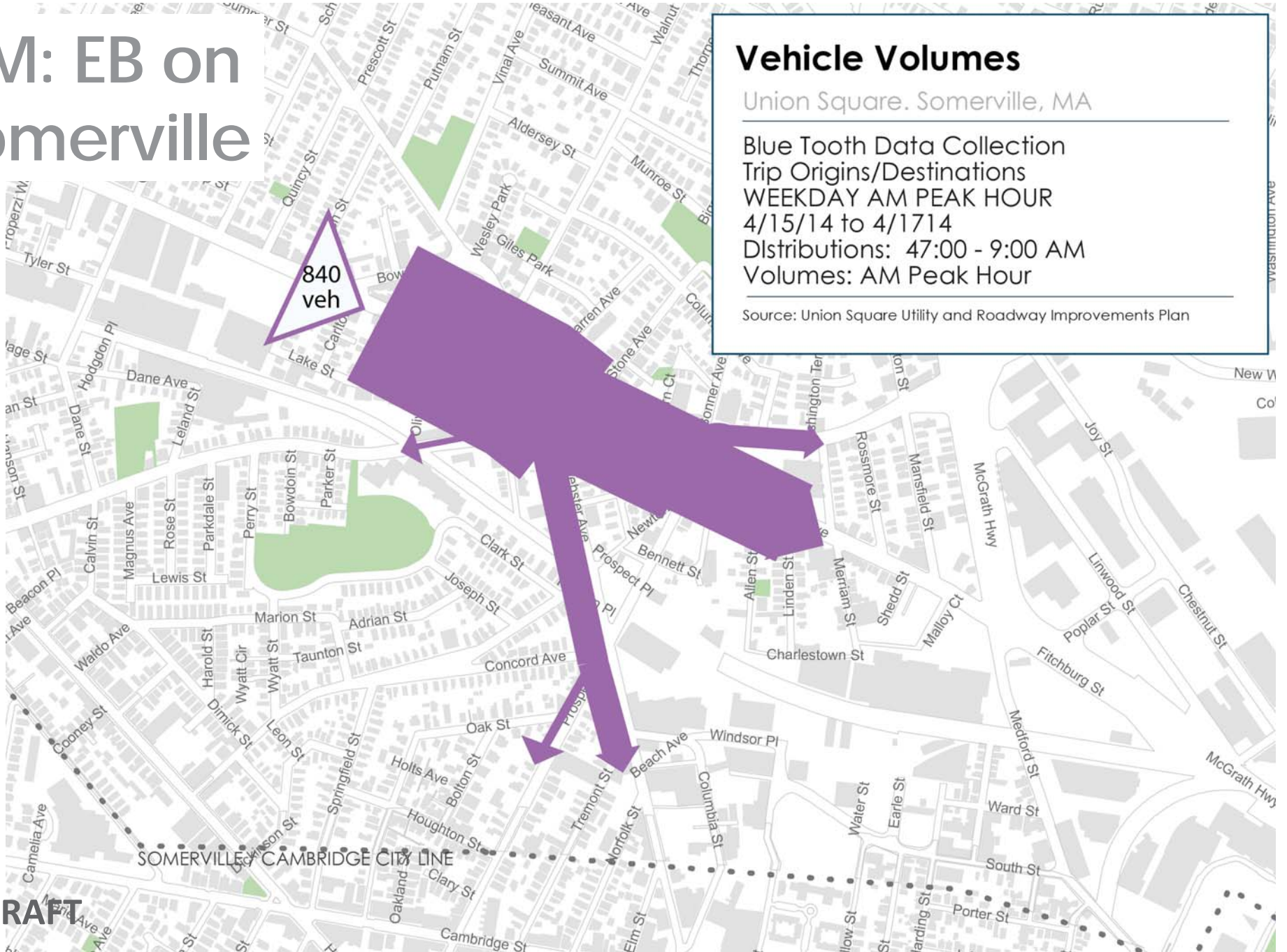
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Volumes: AM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan



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AM: WB on Washington

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

WEEKDAY AM PEAK HOUR

4/15/14 to 4/17/14

Distributions: 47:00 - 9:00 AM

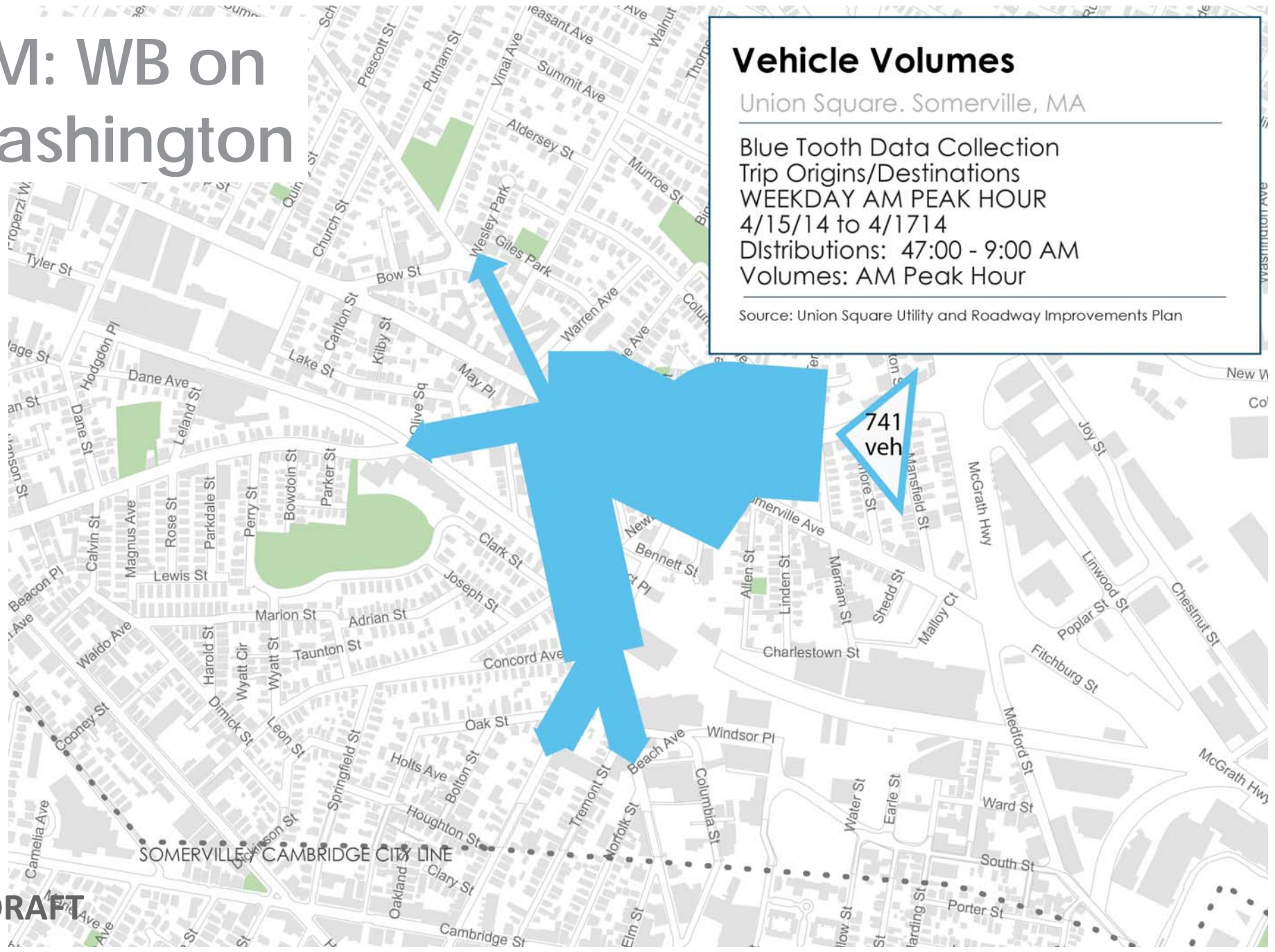
Volumes: AM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan

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SOMERVILLE / CAMBRIDGE CITY LINE



AM: WB on Somerville

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

WEEKDAY AM PEAK HOUR

4/15/14 to 4/17/14

Distributions: 47:00 - 9:00 AM

Volumes: AM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan



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PM: NB on Prospect

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

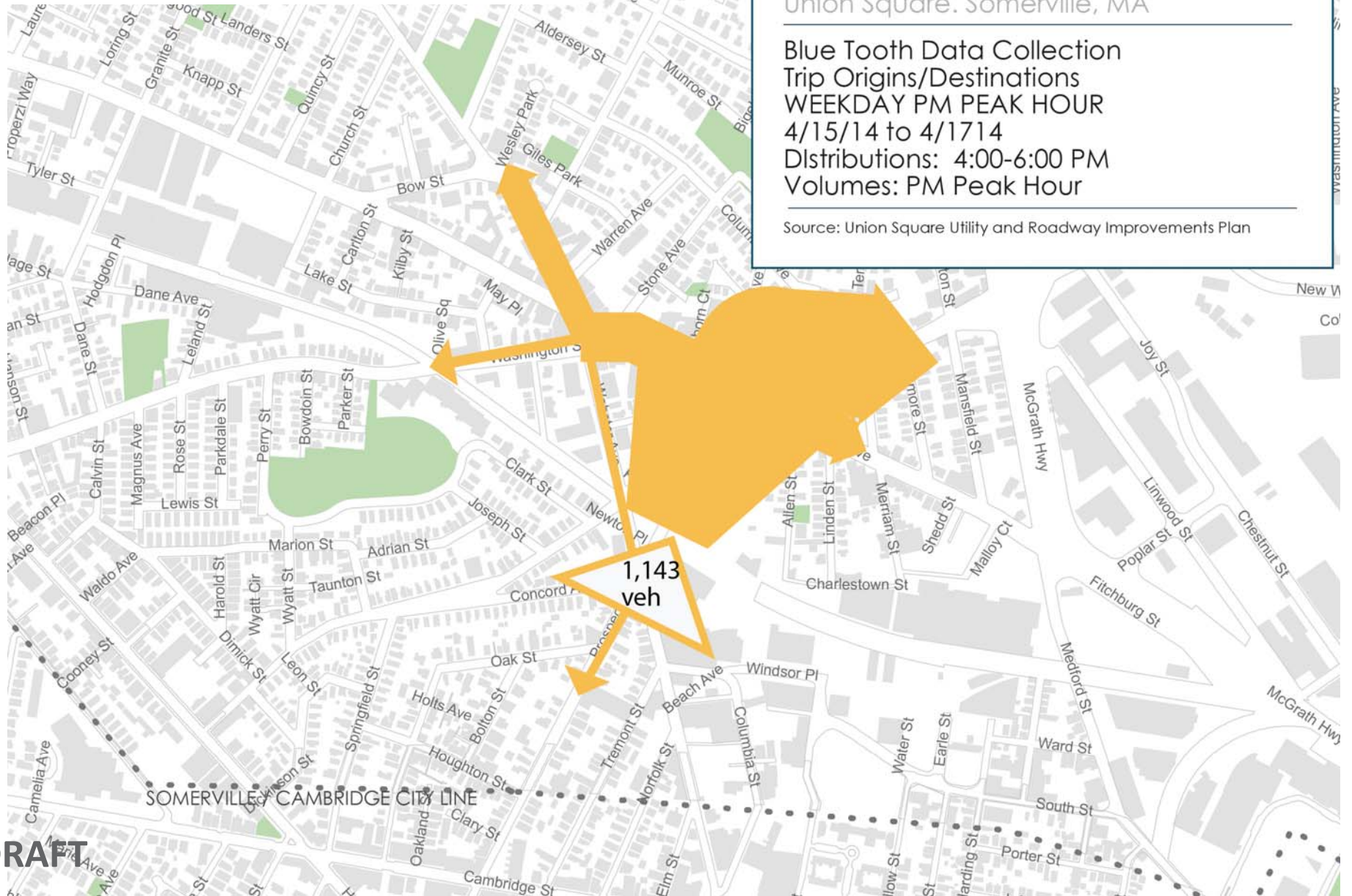
WEEKDAY PM PEAK HOUR

4/15/14 to 4/17/14

Distributions: 4:00-6:00 PM

Volumes: PM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan



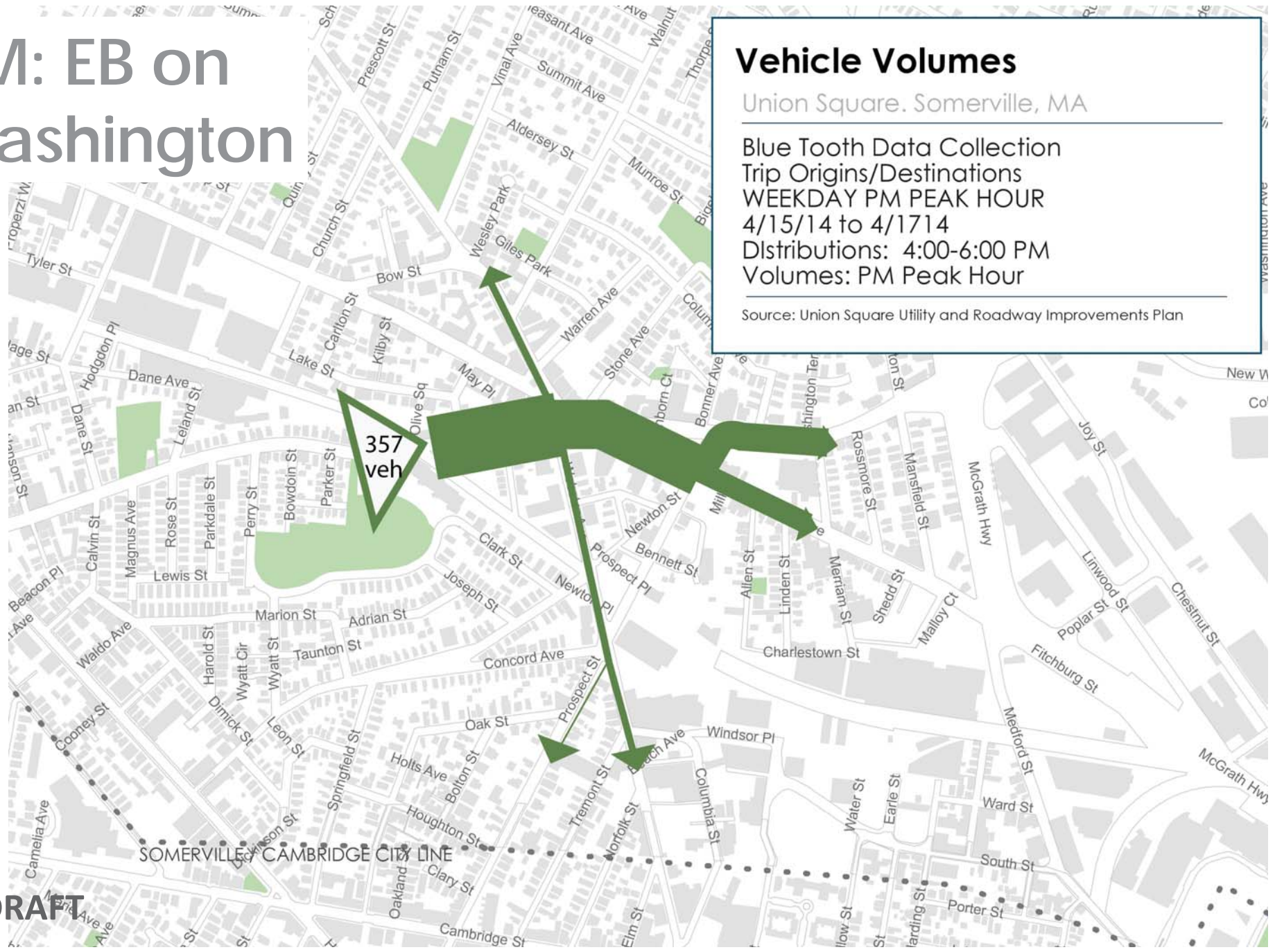
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PM: EB on Washington

Vehicle Volumes
Union Square. Somerville, MA

Blue Tooth Data Collection
Trip Origins/Destinations
WEEKDAY PM PEAK HOUR
4/15/14 to 4/17/14
Distributions: 4:00-6:00 PM
Volumes: PM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan



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PM: EB on Somerville

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

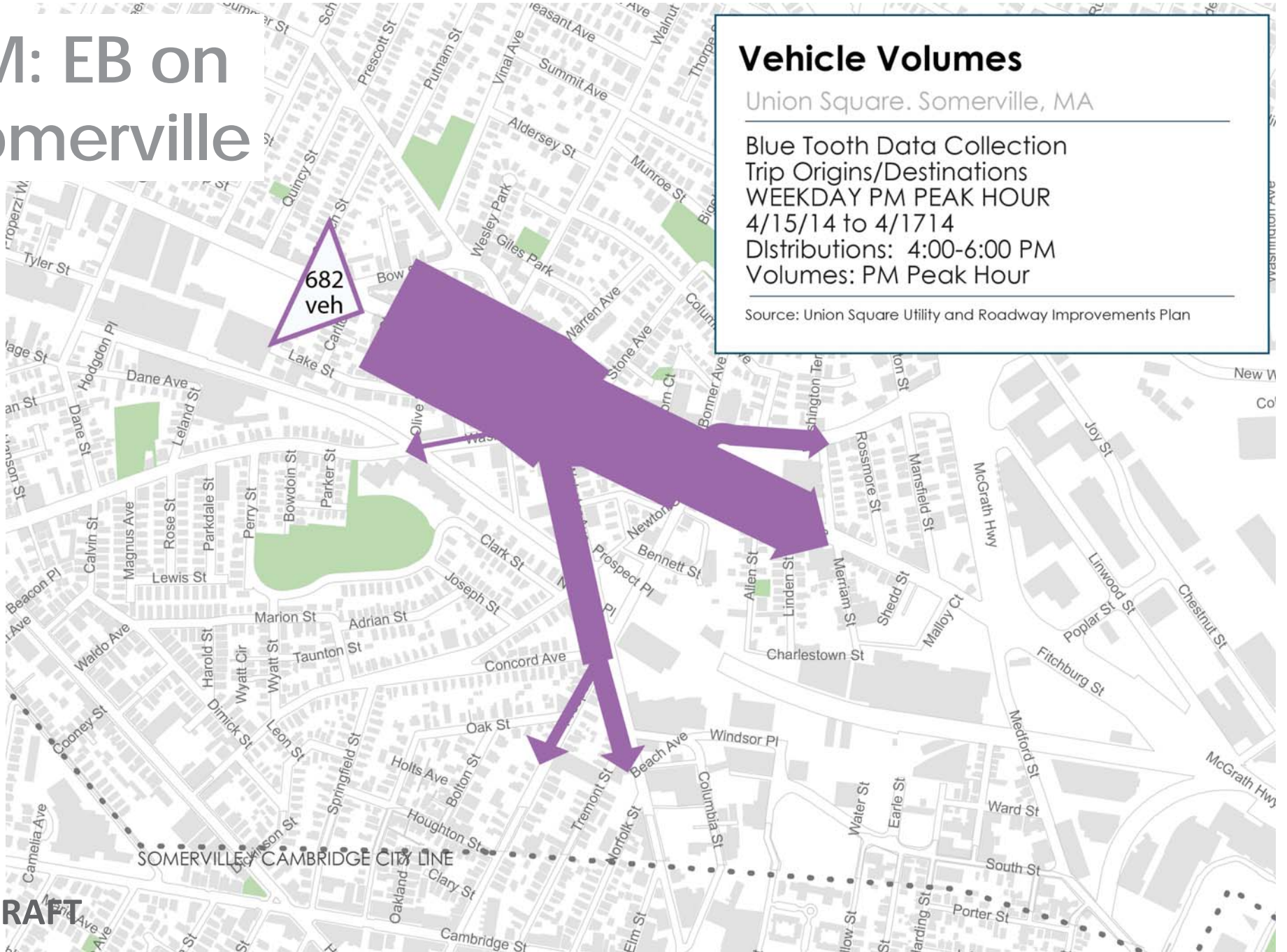
WEEKDAY PM PEAK HOUR

4/15/14 to 4/17/14

Distributions: 4:00-6:00 PM

Volumes: PM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan



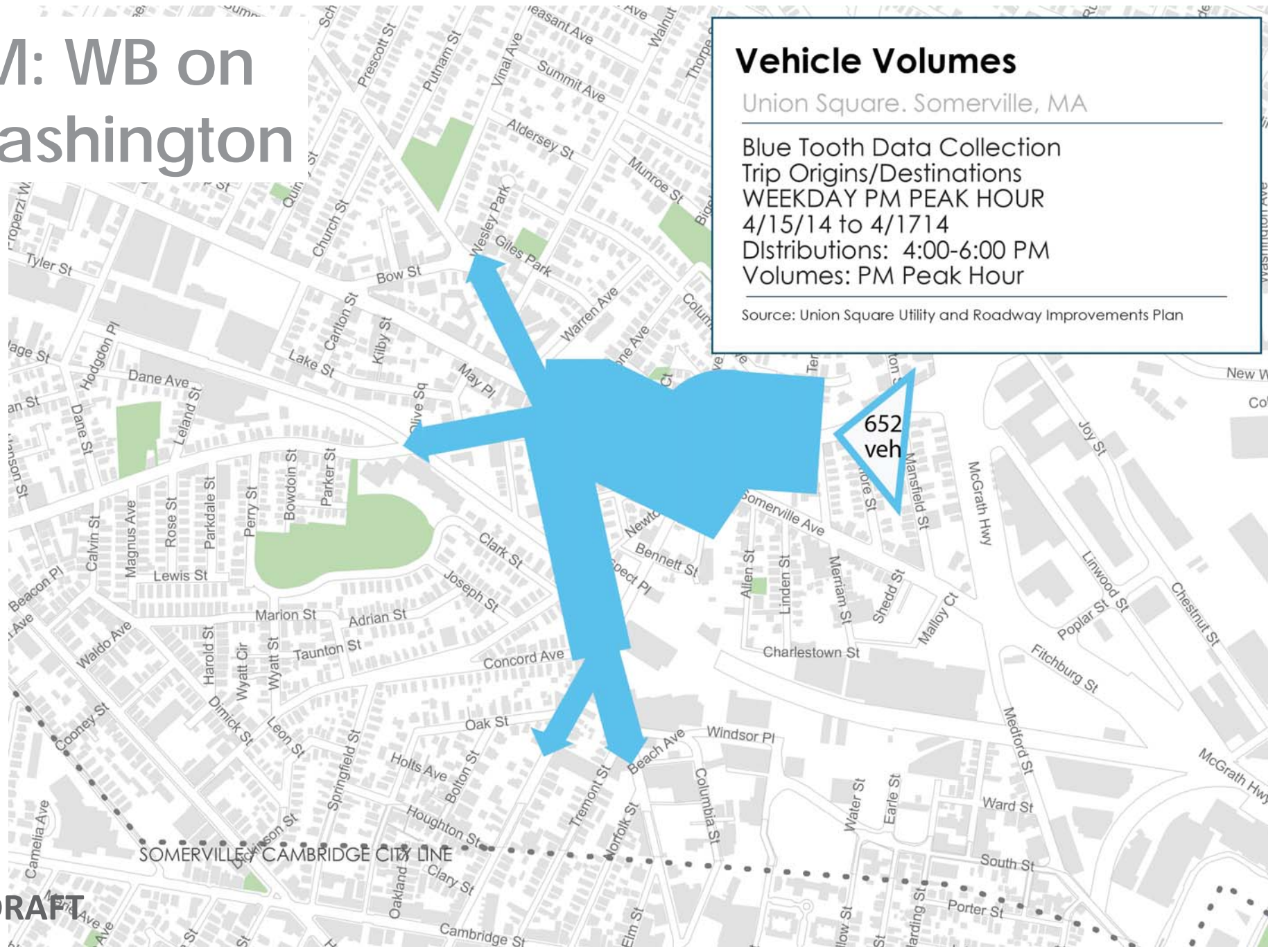
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PM: WB on Washington

Vehicle Volumes
Union Square. Somerville, MA

Blue Tooth Data Collection
Trip Origins/Destinations
WEEKDAY PM PEAK HOUR
4/15/14 to 4/17/14
Distributions: 4:00-6:00 PM
Volumes: PM Peak Hour

Source: Union Square Utility and Roadway Improvements Plan



DRAFT

PM: WB on Somerville

Vehicle Volumes

Union Square. Somerville, MA

Blue Tooth Data Collection

Trip Origins/Destinations

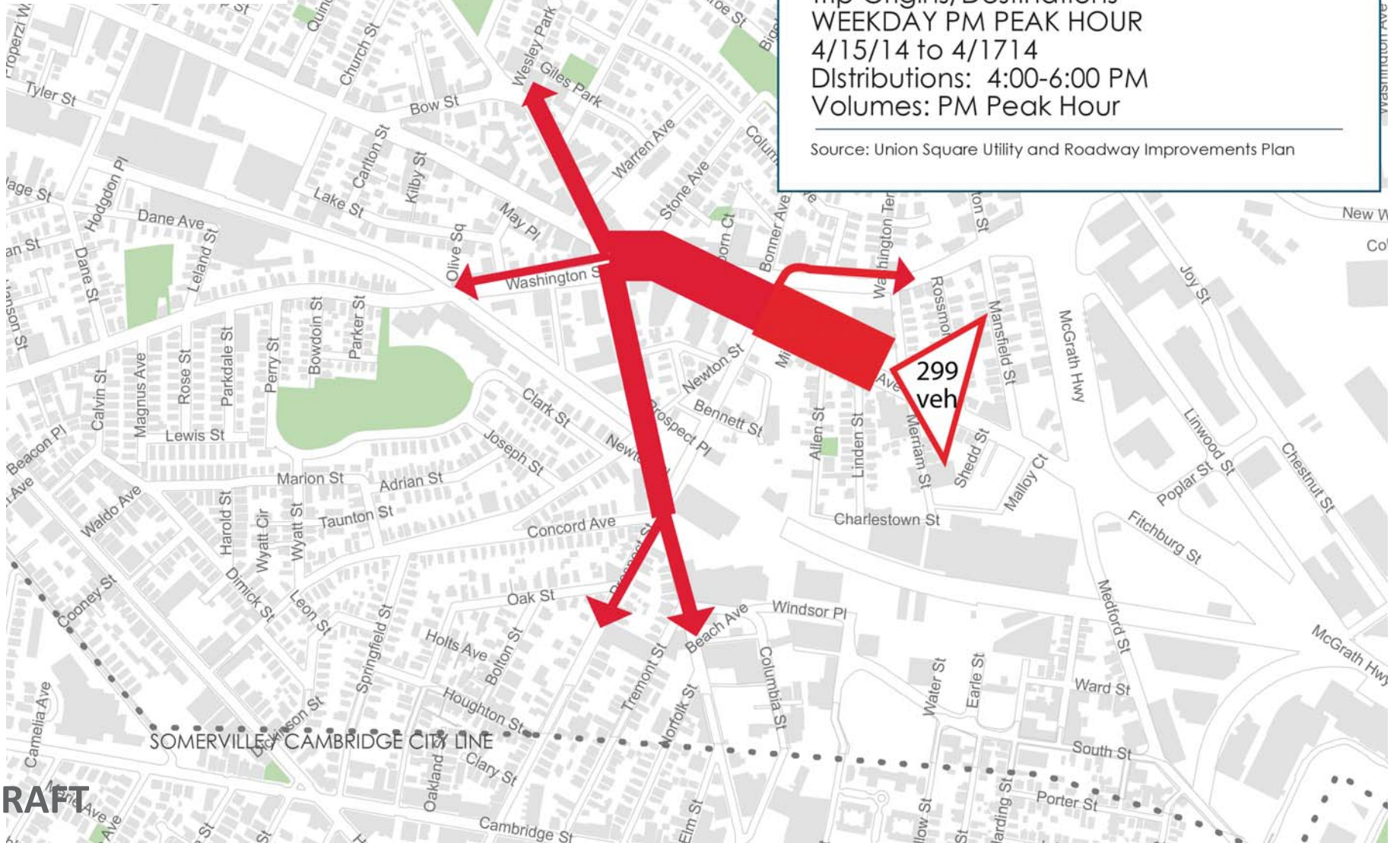
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