



RUTHERFORD AVE/ SULLIVAN SQUARE DESIGN PROJECT

PUBLIC MEETING

May 18, 2017



PROJECT TEAM

- City of Boston
 - James Gillooly
Deputy Commissioner
 - William Conroy
Project Manager
- Tetra Tech
 - Erik Maki, PE, PTOE
Project Manager
 - Ian McKinnon, PE, PTOE
Project Engineer





AGENDA

- GOALS
- RECAP: ADJACENT PROJECTS + TRAFFIC VOLUMES
- WYNN PROJECT CHANGES - NPC
- LOWER MYSTIC REGIONAL WORKING GROUP
- TRANSPORTATION ANALYSIS
- CONCEPT PLANS
- RESILIENCY STUDY
- Questions / Comments



PROJECT GOALS - 2009 & NOW

Improve pedestrian connections / safety to MBTA Transit Stations and community

Decrease traffic congestion

Protect Main Street from cut-through traffic

Create public/open space

Provide opportunities for appropriate development

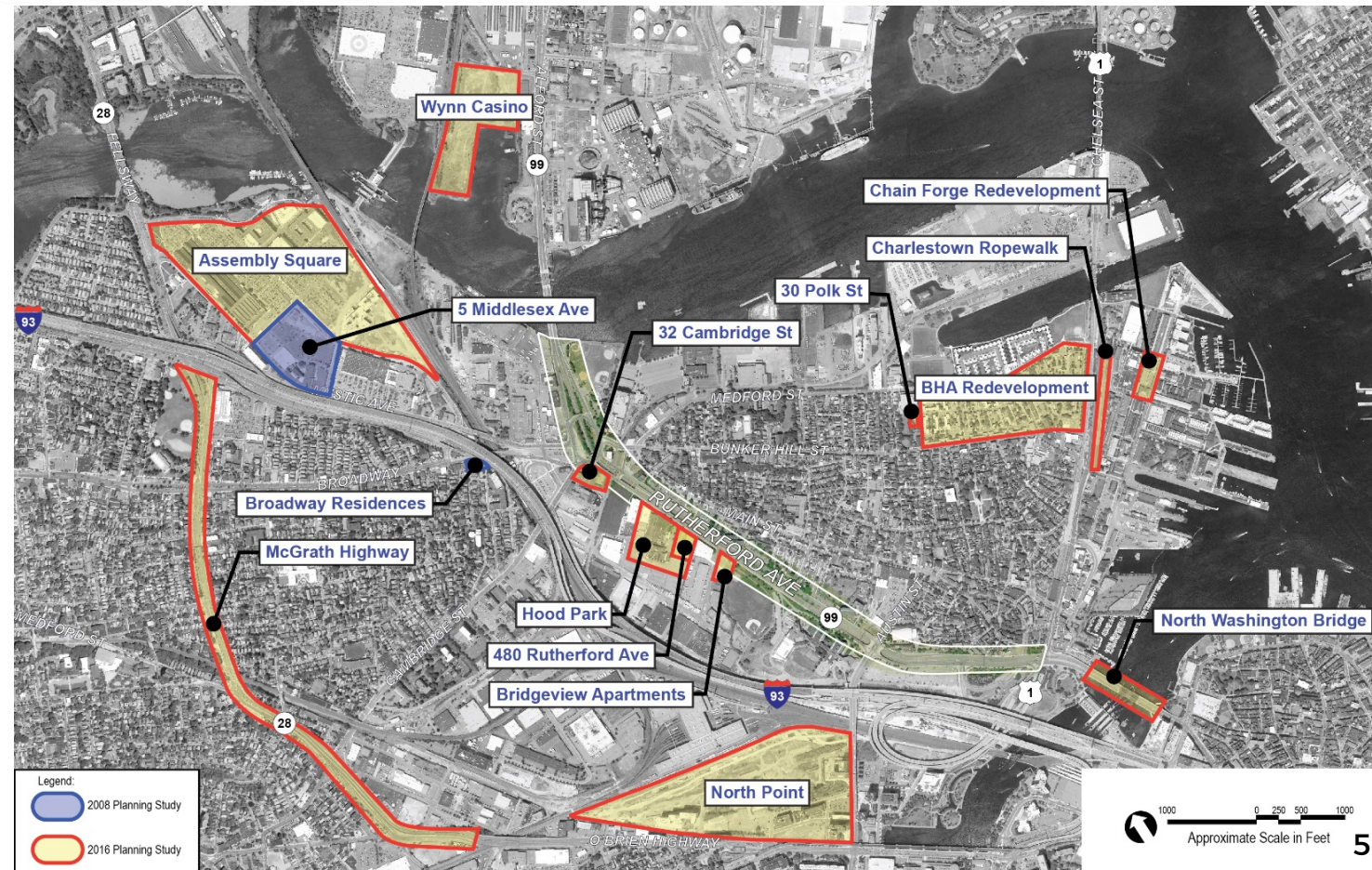
Provide bicycle connections

Increase on-street parking



ADJACENT DEVELOPMENT PROJECTS

- **Casino**
 - 46,333 Daily Person Trips
 - 17,550 Daily Vehicle Trips
 - 2914 parking spaces
- **5 Middlesex (Somerville)**
 - 1.75M SF Mixed Use
 - 220 Residential Units
 - 18,500 Daily Trips
 - 1000 parking spaces
- **Partners Health Care**
- **BHA (One Charlestown)**
 - 2,200 Residential Units
 - 14,300 Daily Trips
 - 1900 parking spaces



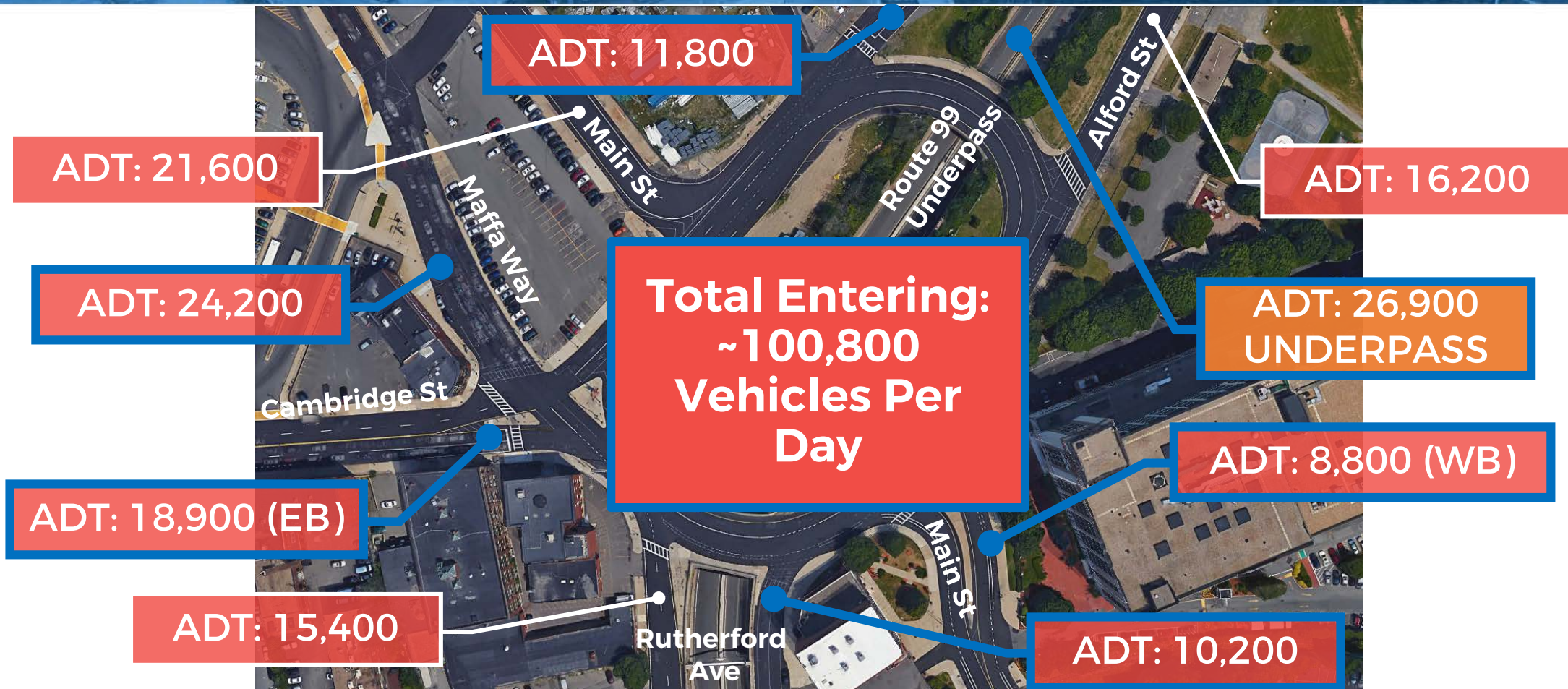


2017 - DAILY CORRIDOR VOLUMES



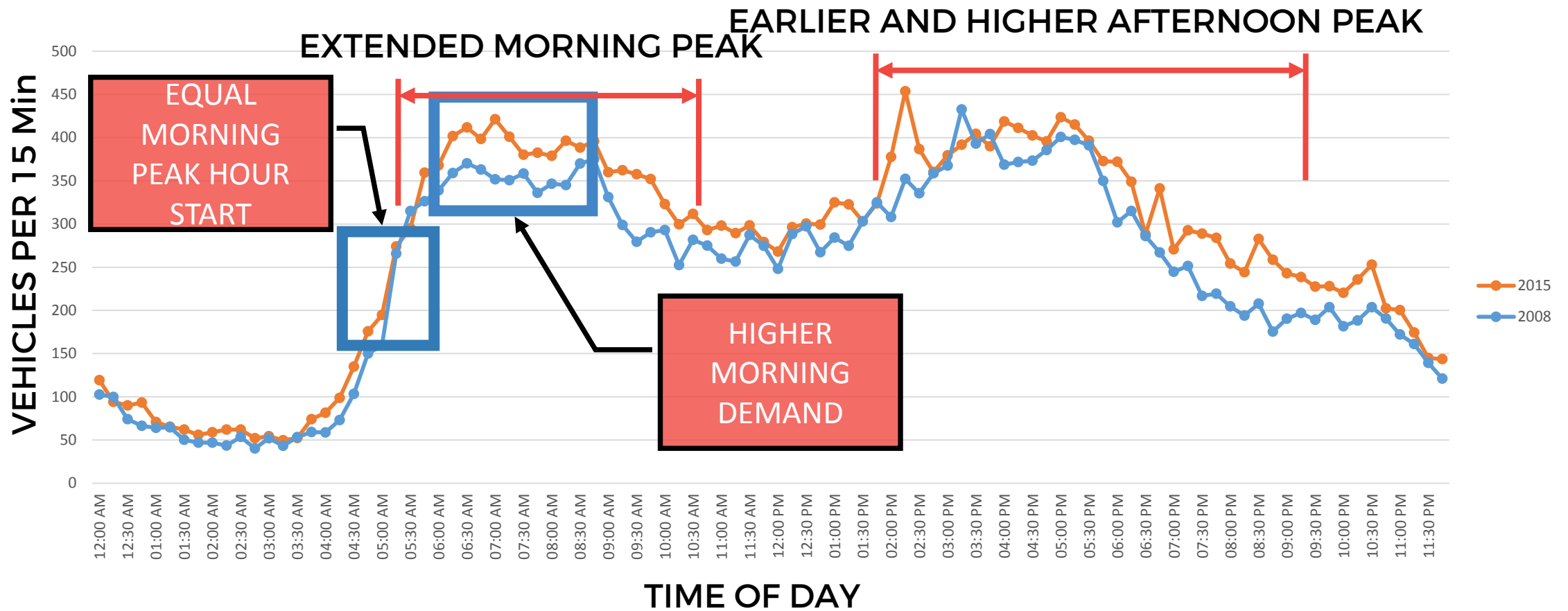


2017 SULLIVAN SQ DAILY VOLUMES





SULLIVAN SQ UNDERPASS VOLUMES



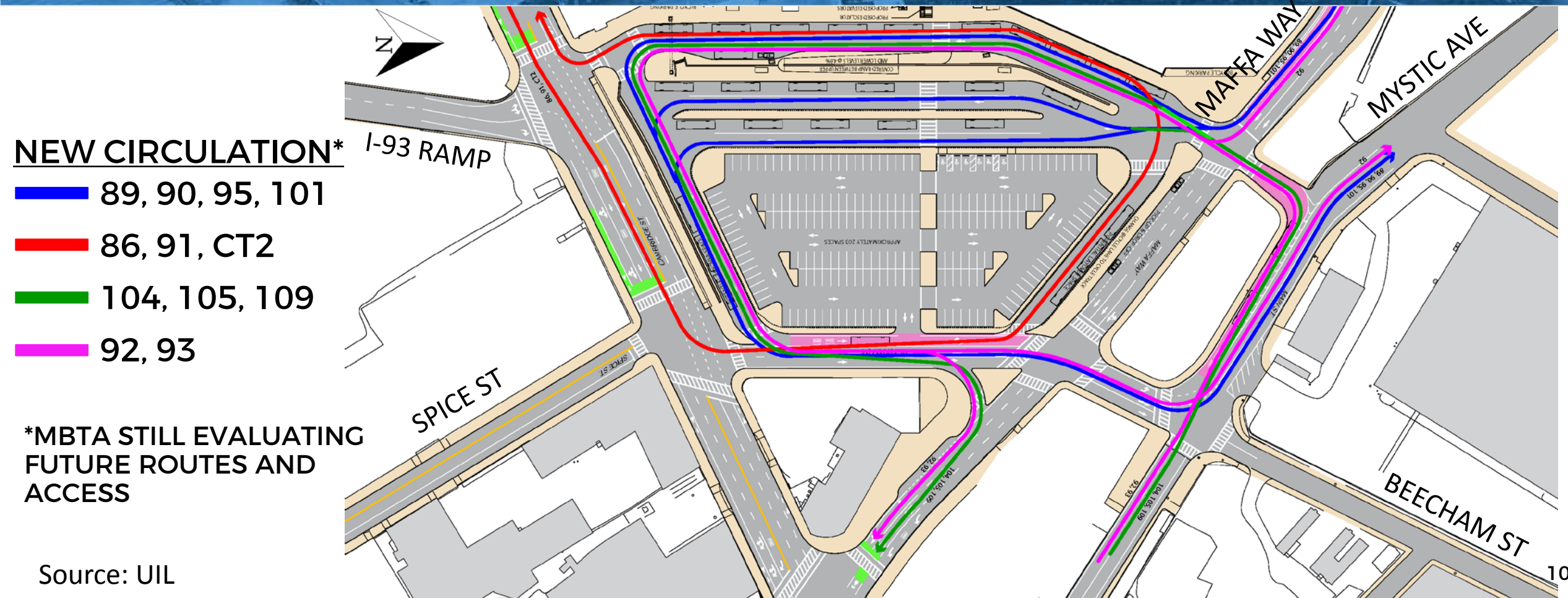


MBTA BUS ROUTES - GROWTH





MBTA BUSES- CIRCULATION



NEW CIRCULATION*

- Blue line:** 89, 90, 95, 101
- Red line:** 86, 91, CT2
- Green line:** 104, 105, 109
- Pink line:** 92, 93

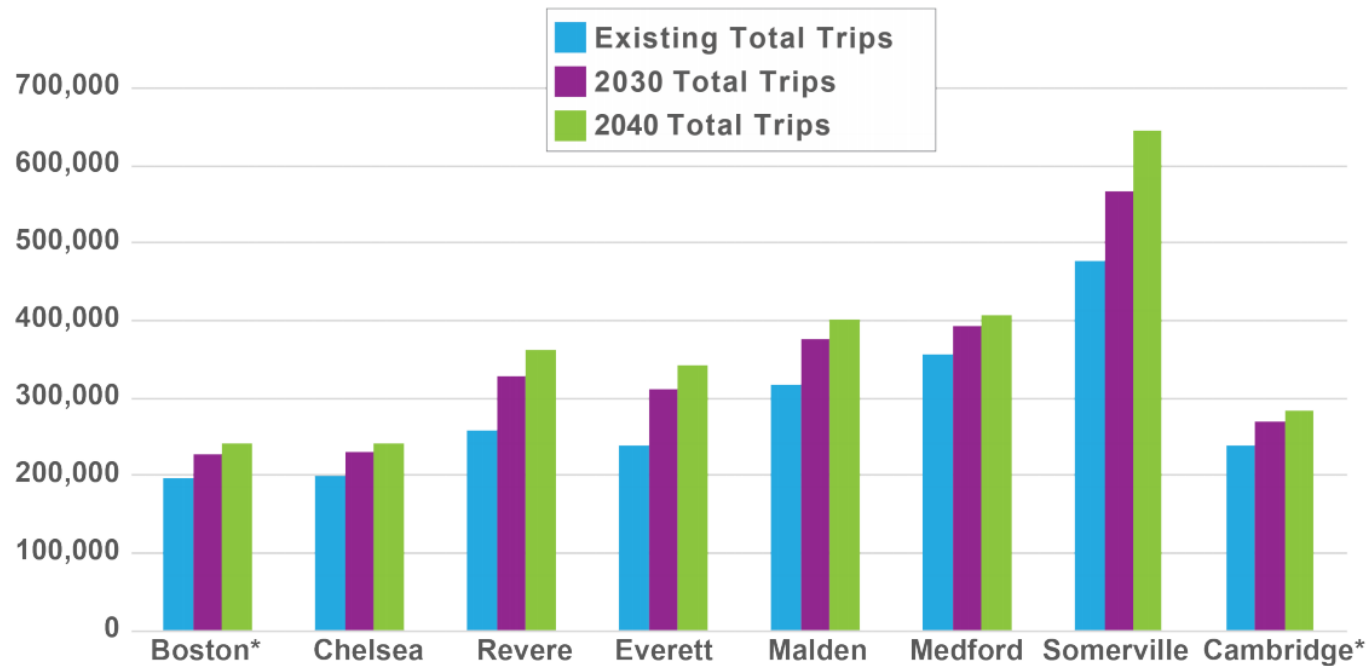
*MBTA STILL EVALUATING FUTURE ROUTES AND ACCESS

Source: UIL



REGIONAL GROWTH

Total Trips



- ▶ Vehicle trip growth increased:
 - 2030 - 18.1% from existing
 - 2040 - 27.8% from existing
- ▶ VMT increased:
 - 2030 - 9.1% from existing
 - 2040 - 11.7% from existing
- ▶ VHT increased:
 - 2030 - 16.9% from existing
 - 2040 - 24.1% from existing
- ▶ Intersection volumes increased:
 - 2030 - 5.7% from existing
 - 2040 - 10.2% from existing
- ▶ Intersection delays increased:
 - 2030 - 17.8% from existing
 - 2040 - 34.7% from existing

* These communities shows totals only from selected LMRWG study area TAZs and not the whole community.

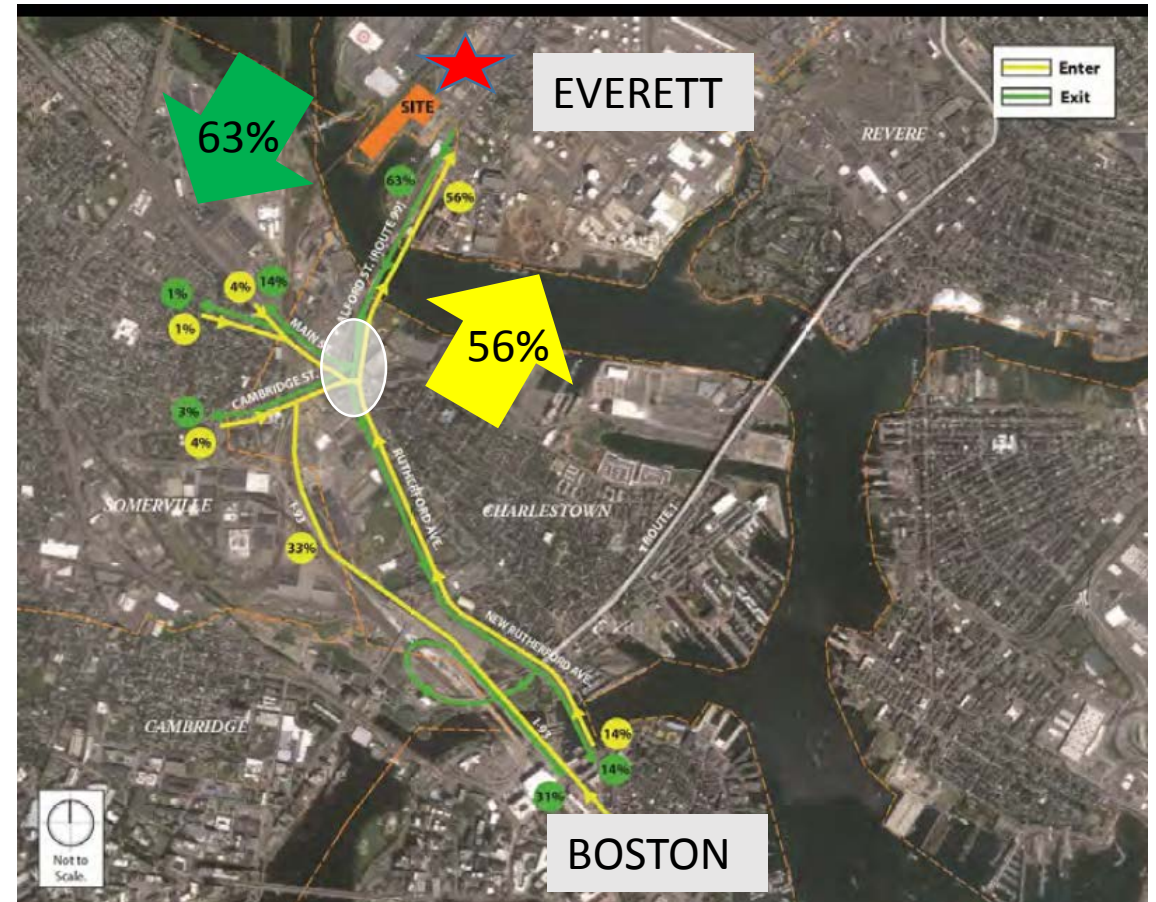


WYNN PROJECT CHANGE - NPC

Vehicle Trips to Casino = 17,550/day (Fridays)*

Table 1-5: Comparison of SFEIR Project Vehicle Trips and Project Design as Refined in NPC Vehicle Trips

Time Period/ Category	Vehicle Trips		Difference	
	Project as Evaluated in SFEIR	Project Design as Refined and Evaluated in NPC	Vehicle Trips	Percent
Friday Daily (vpd)				
Hotel	1,538	1,650	+112	
Retail	2,998	820	-2,178	
Gaming	14,754	14,244	-510	
All Shuttles and Buses ¹	840	836	-4	
Total	20,130	17,550	-2,580	-12.8%



*CASINO TRIPS THROUGH SSQ ~ 10,440 VEHICLES



WYNN PROJECT CHANGE - NPC

 TOTAL TRIPS THRU SSQ

 TRIPS THAT WOULD USE THE UNDERPASS

63% EXITING

18% SURFACE
45% UNDERPASS

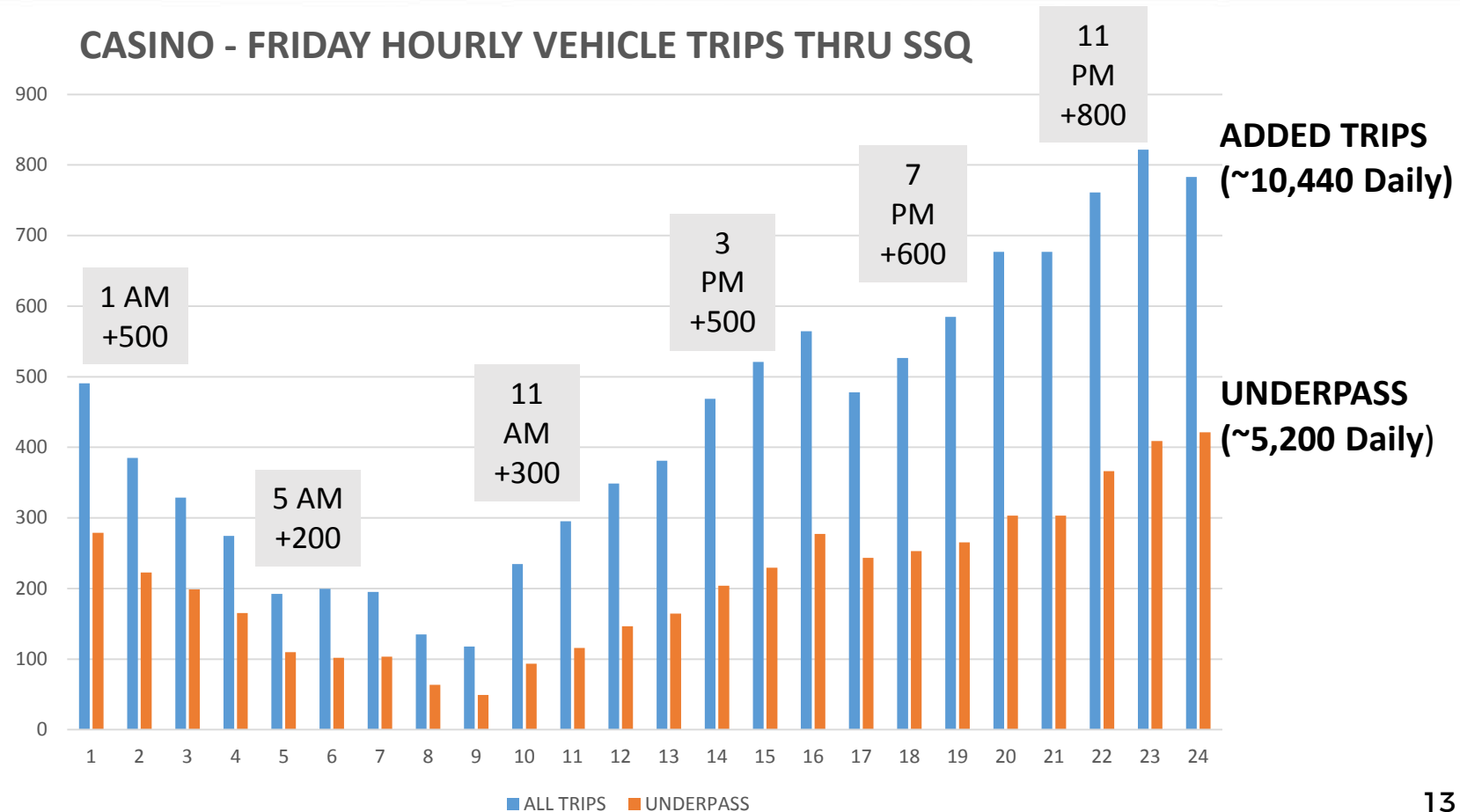
45%

56% ENTERING

42% SURFACE
14% UNDERPASS

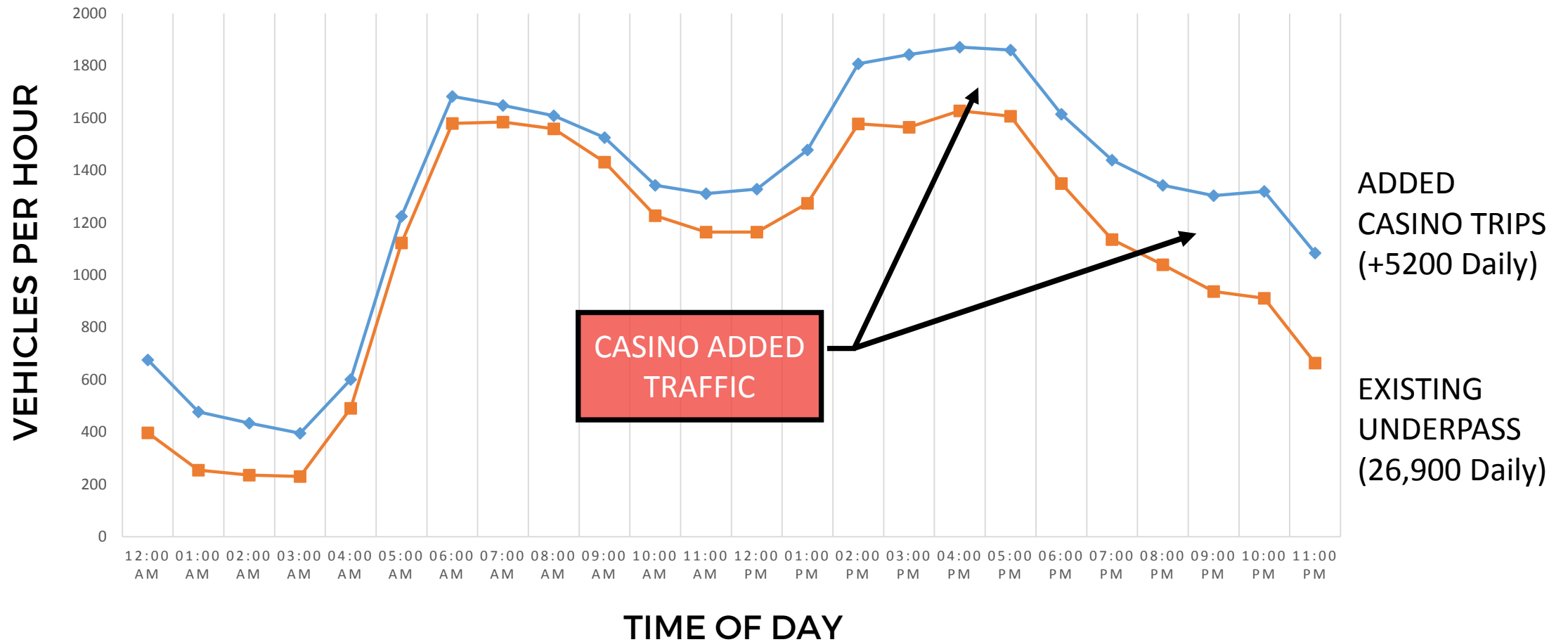
14%

CASINO - FRIDAY HOURLY VEHICLE TRIPS THRU SSQ





SULLIVAN SQ UNDERPASS VOLUMES





TRAFFIC ANALYSIS RESULTS

- Traffic Models

- Lower Mystic Regional Working Group
- Tt



- **Synchro** is a macroscopic analysis and optimization software program for signalized intersections, unsignalized intersections and roundabouts. Allows modeling of individual intersections, corridors or grid networks.
- **SimTraffic** is a microscopic model where each vehicle in the traffic network is individually tracked through the model and comprehensive operational measures of effectiveness (MOEs) are collected on every vehicle during each 0.1-second of the simulation.



LOWER MYSTIC WORKING GROUP



LOWER MYSTIC REGIONAL WORKING GROUP

MassDOT | CTPS | MAPC | City of Boston | City of Everett | City of Somerville

CTPS Model Output - January 23, 2017 - Surface vs. Underpass

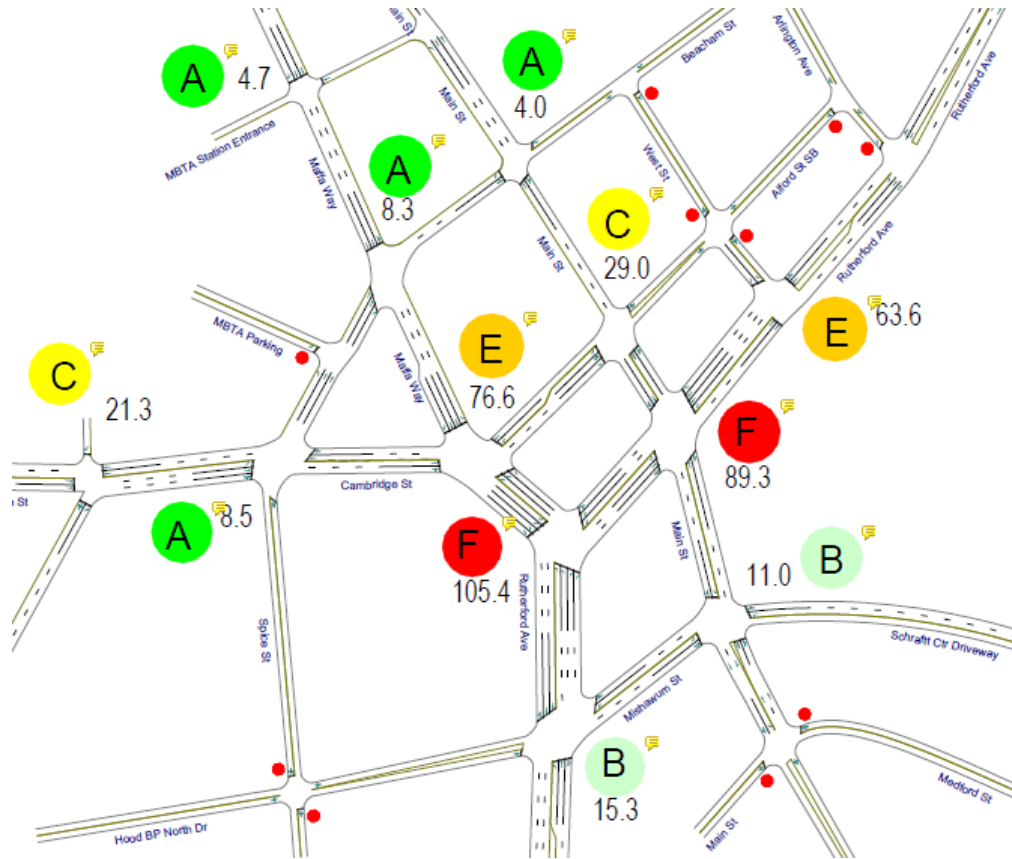
Regional Location			AM Peak Hour Delay (Seconds)			PM Peak Hour Delay (Seconds)		
INT #	Intersection	City	2040 Surface	2040 Underpass	More Favorable	2040 Surface	2040 Underpass	More Favorable
32	Sullivan Square (Route 99 @ Mystic/Main/Cambridge)	Charlestown	106	65	Underpass	52	33	Underpass
31	Rutherford Ave @ Austin St/Gilmore Bridge	Charlestown	95	38	Underpass	115	67	Underpass
30	Rutherford Ave @ Rt 1 Ramps	Charlestown	75	31	Underpass	42	23	Underpass
29	City Square (Chelsea St @ Rutherford/No. Washington)	Charlestown	73	41	Underpass	92	51	Underpass
56	Main @ Austin St	Charlestown	36	18	Underpass	82	46	Underpass

Source: Lower Mystic Regional Working Group Final Presentation 1-23-2017

SYNCHRO Performance Measures

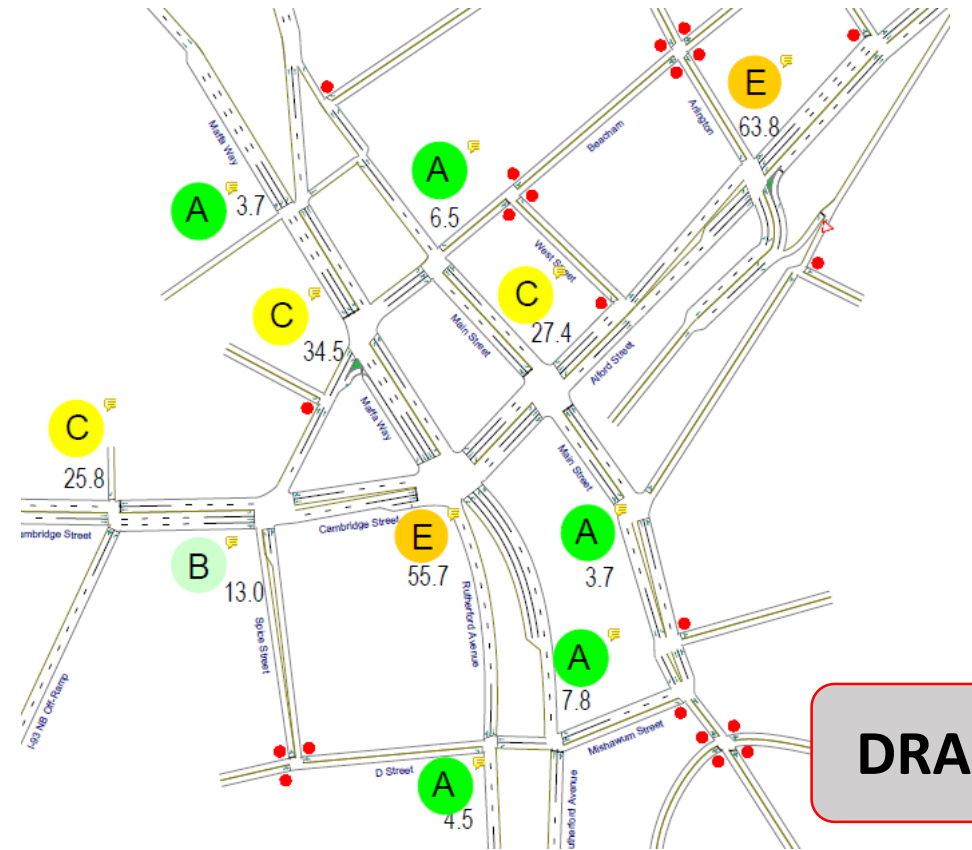


TRAFFIC ANALYSIS RESULTS - AM Peak - Tt



AT-GRADE CONCEPT

SYNCHRO Performance Measures

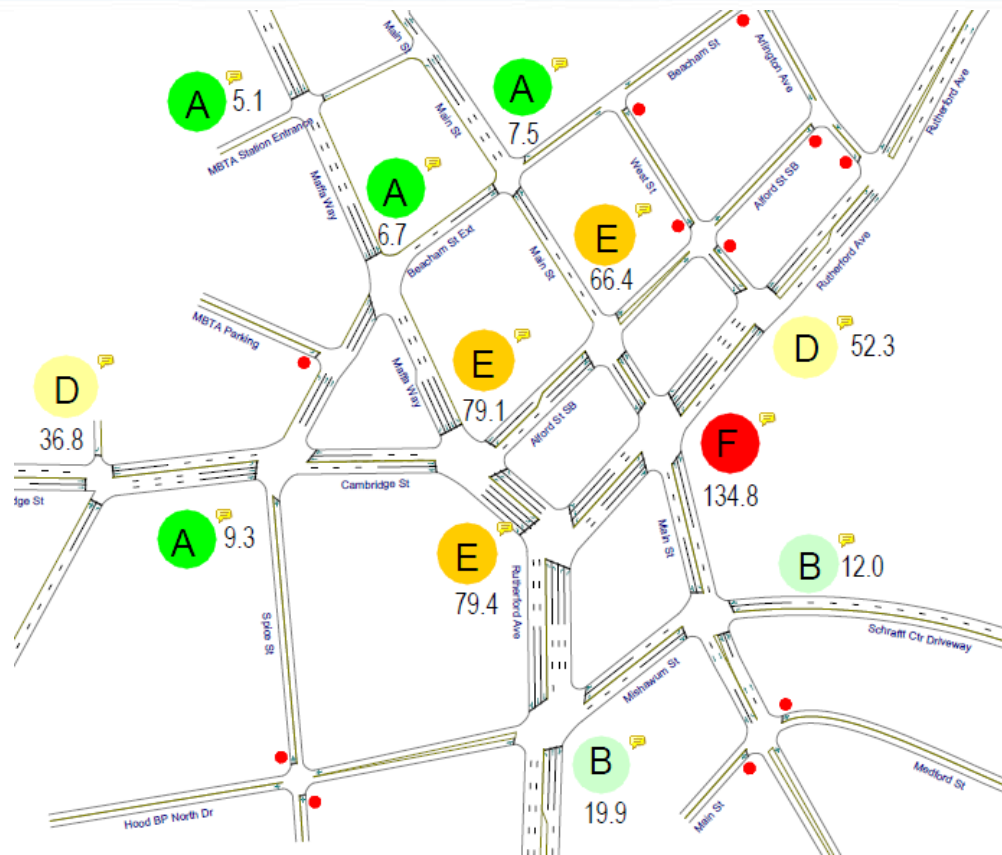


UNDERPASS CONCEPT

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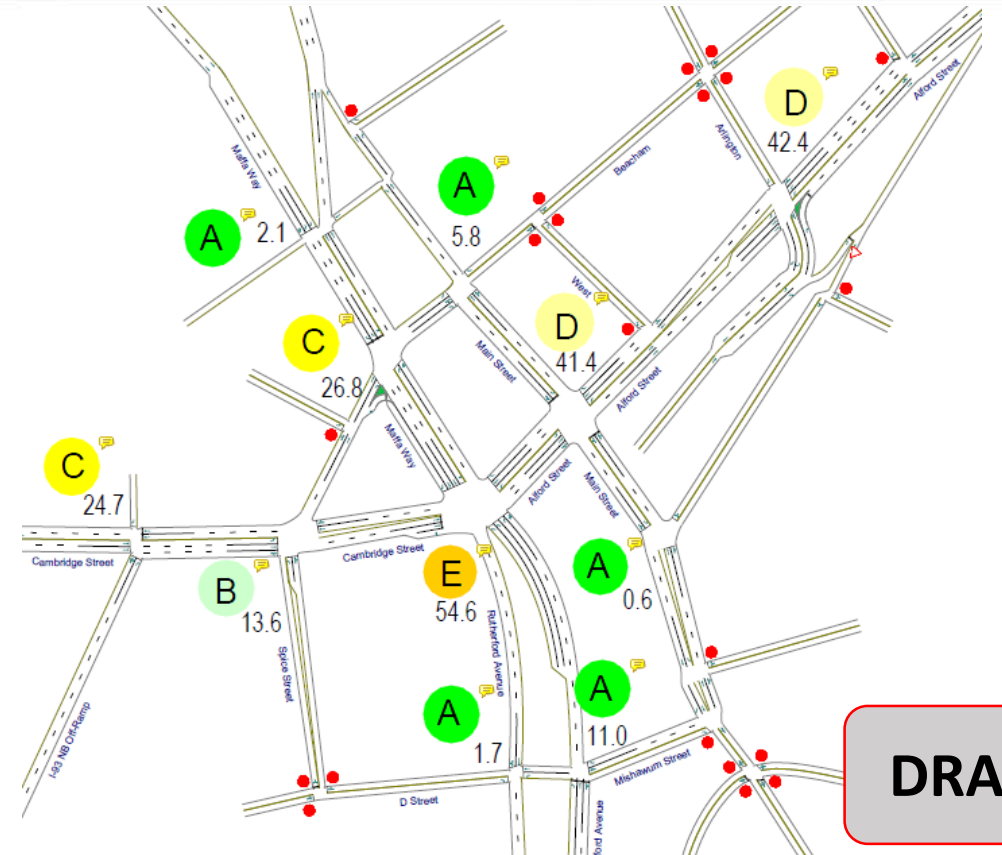


TRAFFIC ANALYSIS RESULTS - PM Peak - Tt



AT-GRADE CONCEPT

SYNCHRO Performance Measures



UNDERPASS CONCEPT

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TRAFFIC ANALYSIS RESULTS- SIMULATION

2040 Future Build Rutherford Avenue Reconstruction – SIMTRAFFIC Performance Measures

	AM		PM	
	At Grade	Underpass	At Grade	Underpass
Total Delay(hr)	1072	764.2	1277	964.5
Total Del/Veh (s)	720	175.6	615.2	202.7
Stop Delay (hr)	1048	649.4	1237.2	827.7
Stop Del/Veh (s)	703.8	149.2	596	173.9
Travel Dist (mi)	2681.6	9314.5	4420.5	9616.3
Travel Time (hr)	5285.7	2564.2	5484.7	3202.6
Avg Speed (mph)	2	8	3	7
Fuel Eff. (mpg)	2.1	11.1	3.2	9.7



TRAFFIC ANALYSIS RESULTS

- **PEDESTRIAN & BICYCLES**
 - Both Alternatives would have safe facilities
 - Underpass Alternative has shorter Intersection Cycle Lengths
 - Pedestrian crossing at Underpass ramps is limited
 - Several New Crossing Points added
 - Signals will have LPI (advanced walk)
 - Countdown pedestrian heads, APS pushbuttons (Advanced ADA)
 - Separated Bike Lanes – both sides of corridor
 - Bike signal indications and Bike LBI



PEDESTRIAN CROSSING SIGNALS



Rutherford Avenue



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New Crossing Signal



An UNDERPASS CONCEPT

FAMILY OF UNDERPASS ALTERNATIVES

- Urban Street Grid
 - Ped + Bike Facilities
 - Open Space and Parks
 - TOD Parcels
- Maffa Way / Mystic Ave
 - Square Blocks or Crossover
- Arlington Street / MBTA driveway
 - Traffic Signal
 - Harbor Path Crossing
 - Bus access to Underpass
- Development Parcels
- Ryan Playground
- Mid-Corridor
 - Community College
 - Industrial Park
 - Underpass Transitions
- Austin Street
- BPDA
 - Revisit Urban Design
 - Cecil Group
 - Public Involvement



UNDERPASS REDUCTION

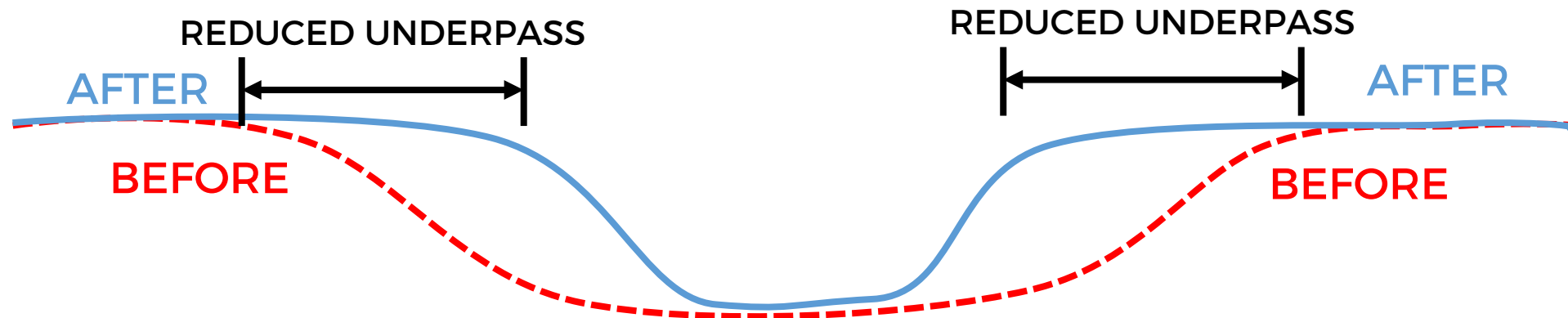
AUSTIN STREET

	EXISTING	CONCEPT PROPOSED
GRADE	4%	6%
LENGTH	1800'	1100'

SULLIVAN SQUARE

	EXISTING	CONCEPT PROPOSED
GRADE	4%	6%
LENGTH	3400'	1900'

UNDERPASS TYPICAL ROADWAY PROFILE (EXAGGERATED)

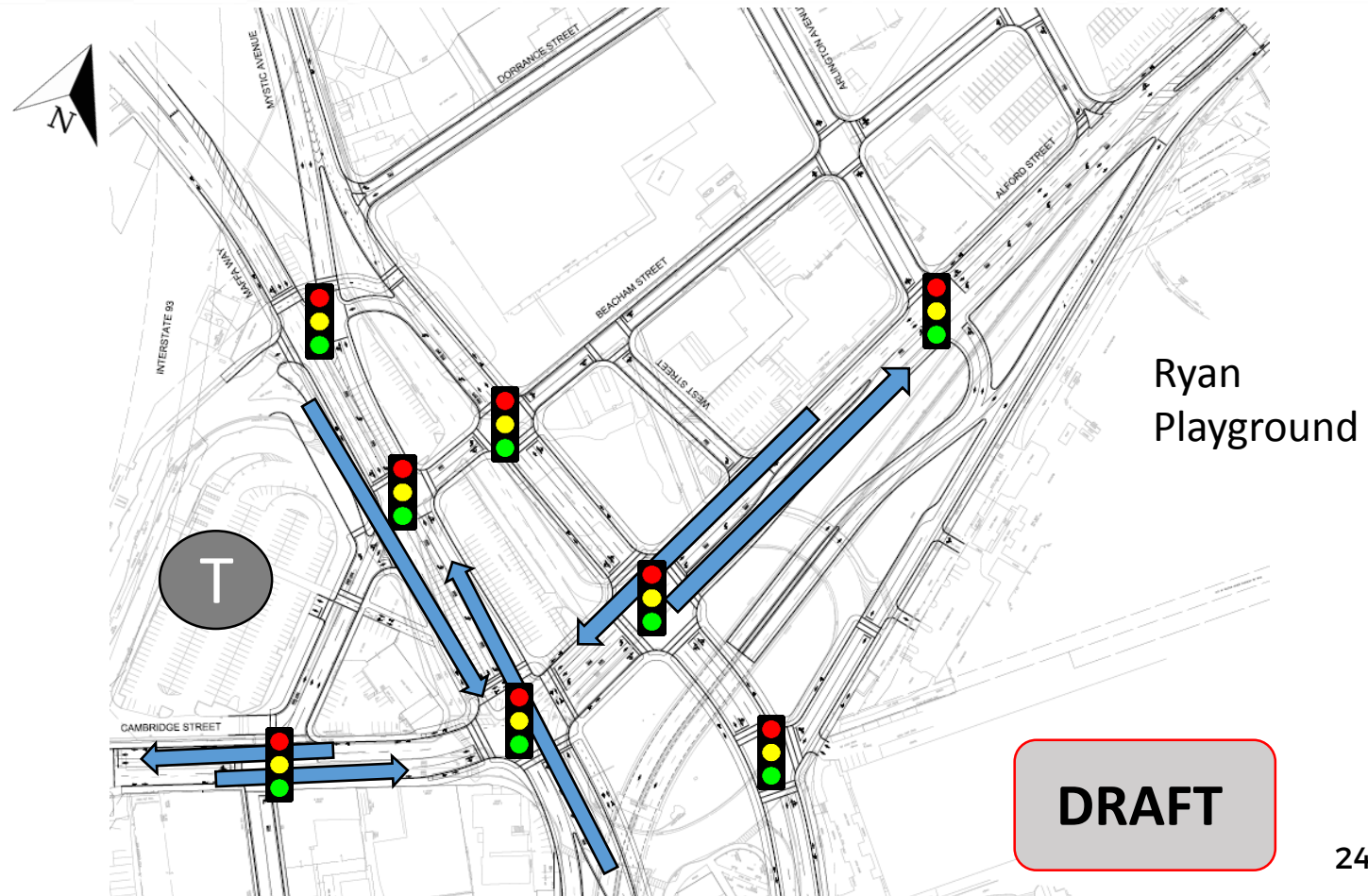




An UNDERPASS CONCEPT

• URBAN STREET GRID

- Simplify Major Movements
- Ped & Bike Facilities
- TOD Parcels
- Ryan Playground
- Arlington Street Parcels
- Underpass Transitions

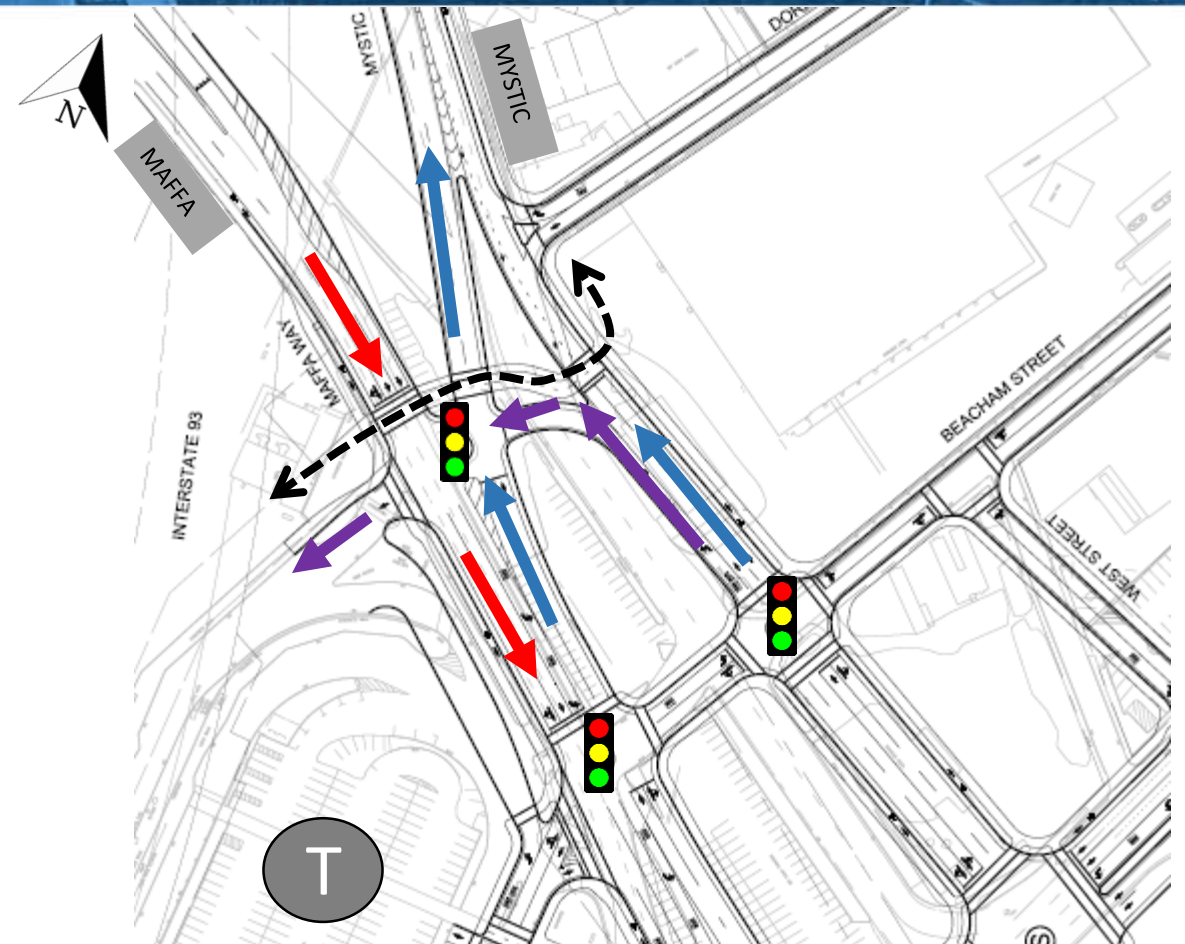


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An UNDERPASS CONCEPT

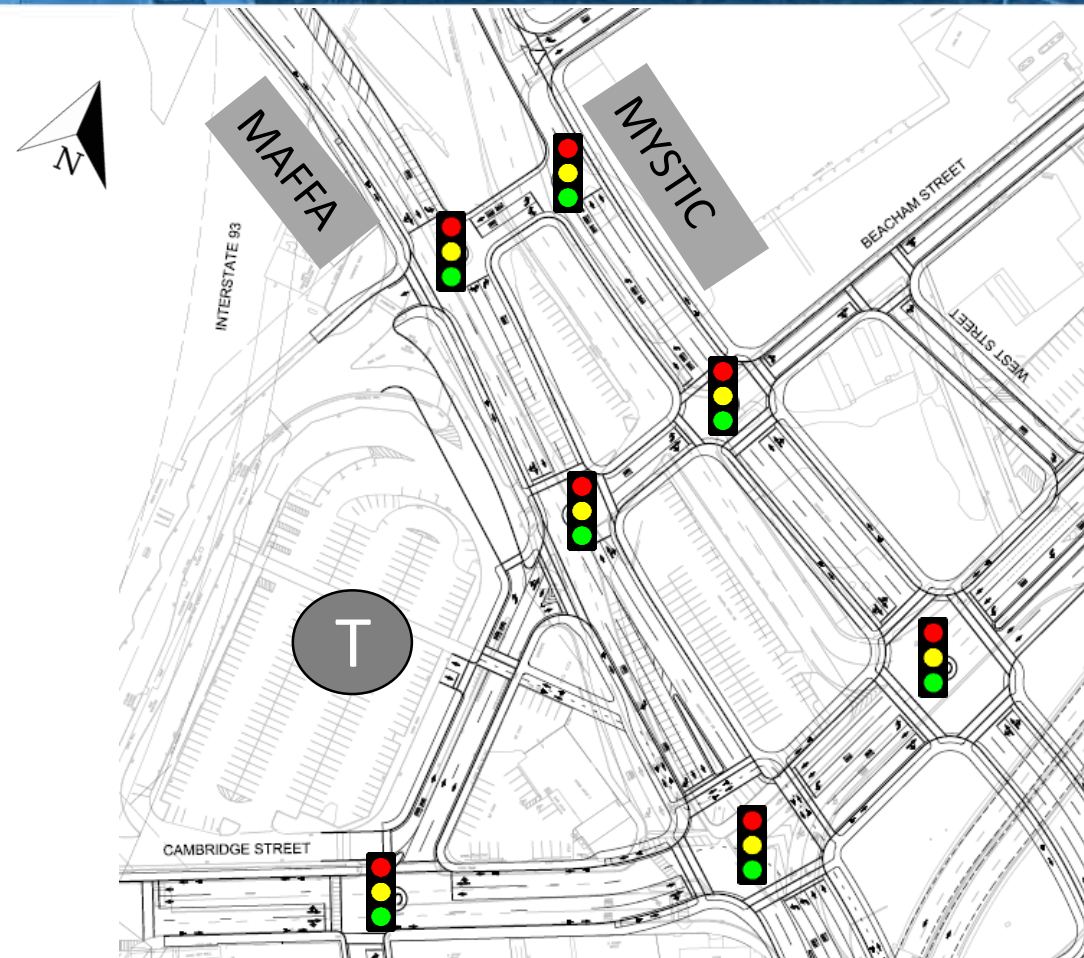
- Maffa Way at Mystic Ave
 - Crossover Alternative - revised
 - One direction - to Mystic Ave
 - Traffic Signal
 - Ped crossing to Assembly Sq
 - Dedicated lane for MBTA buses





An UNDERPASS CONCEPT

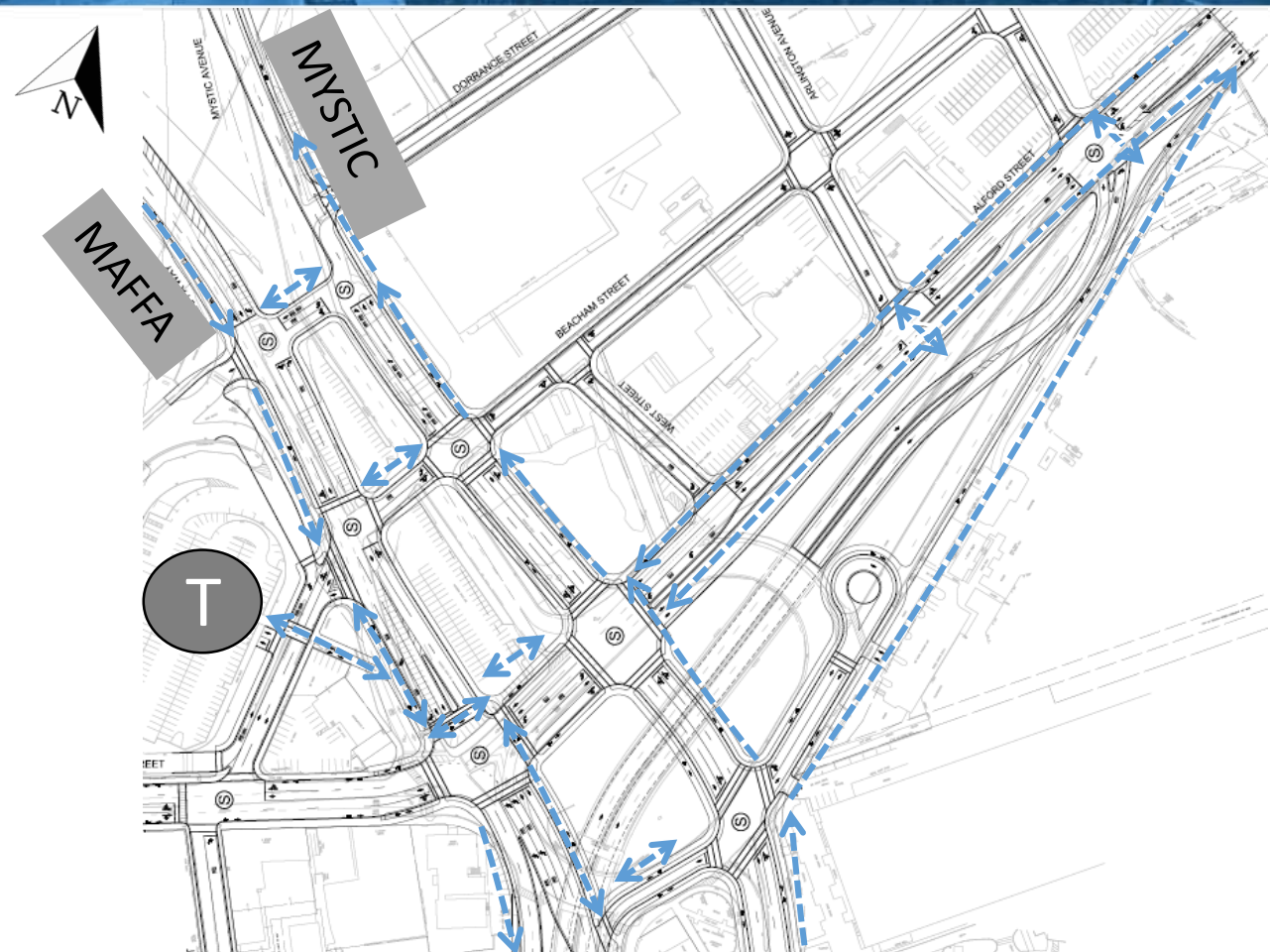
- Maffa Way at Mystic Ave
 - Crossover Removed
 - Square Blocks
 - Short spacing
 - Traffic queues
 - Parcel Shape





An UNDERPASS CONCEPT

- Pedestrian & Bicycles
 - Separated bike lanes
 - Access to:
 - MBTA station
 - Assembly Sq
 - Ryan Playground
 - Neighborhood
 - Multi-use Path



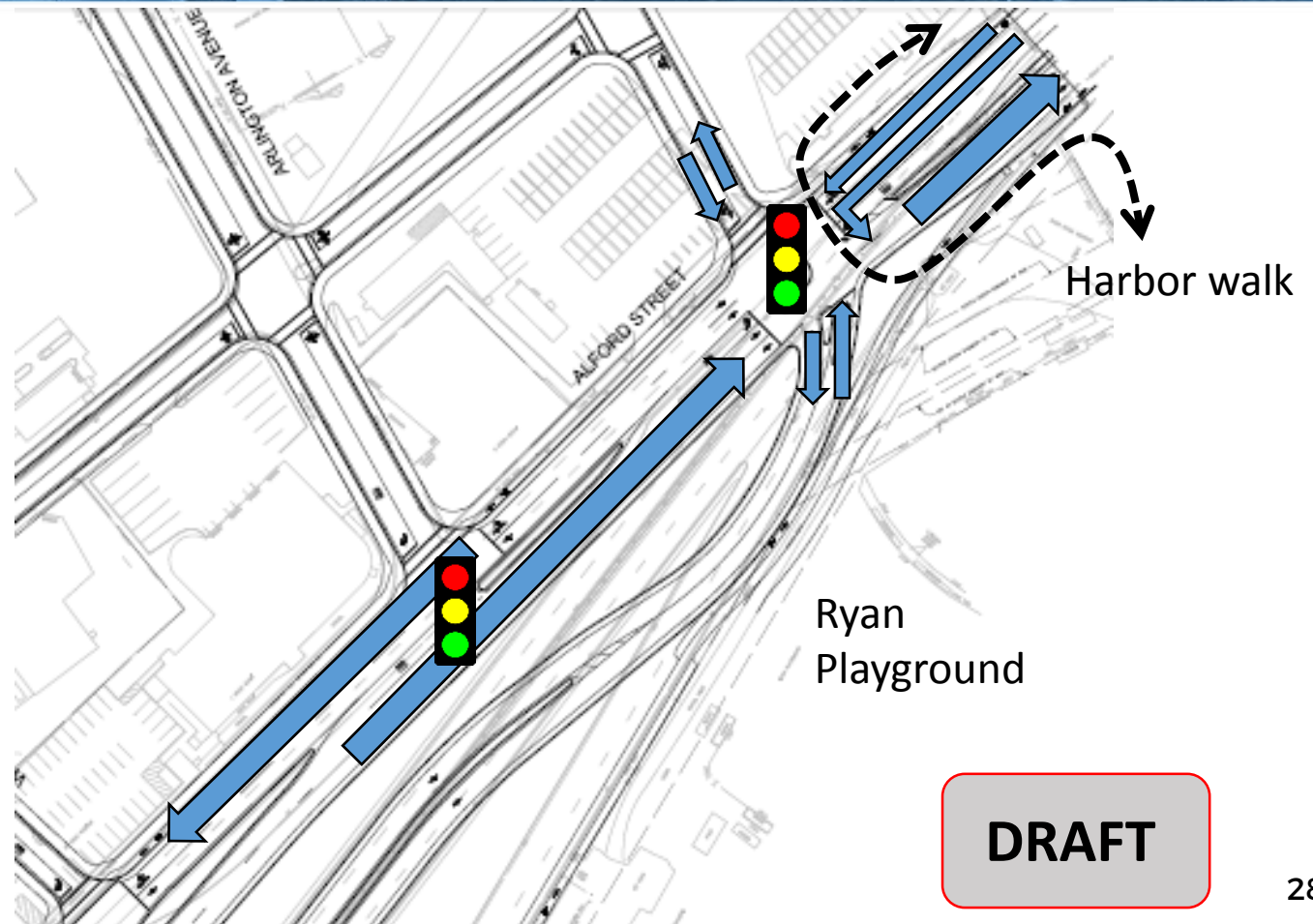


An UNDERPASS CONCEPT

- **Arlington St/MBTA Yard**



- New Signals
- MBTA Bus Yard Access/Egress
- 35 Acre Parcel
 - Future development
- Pedestrian Path Crossing
- Bus access to Underpass
 - Bypass Sullivan Square

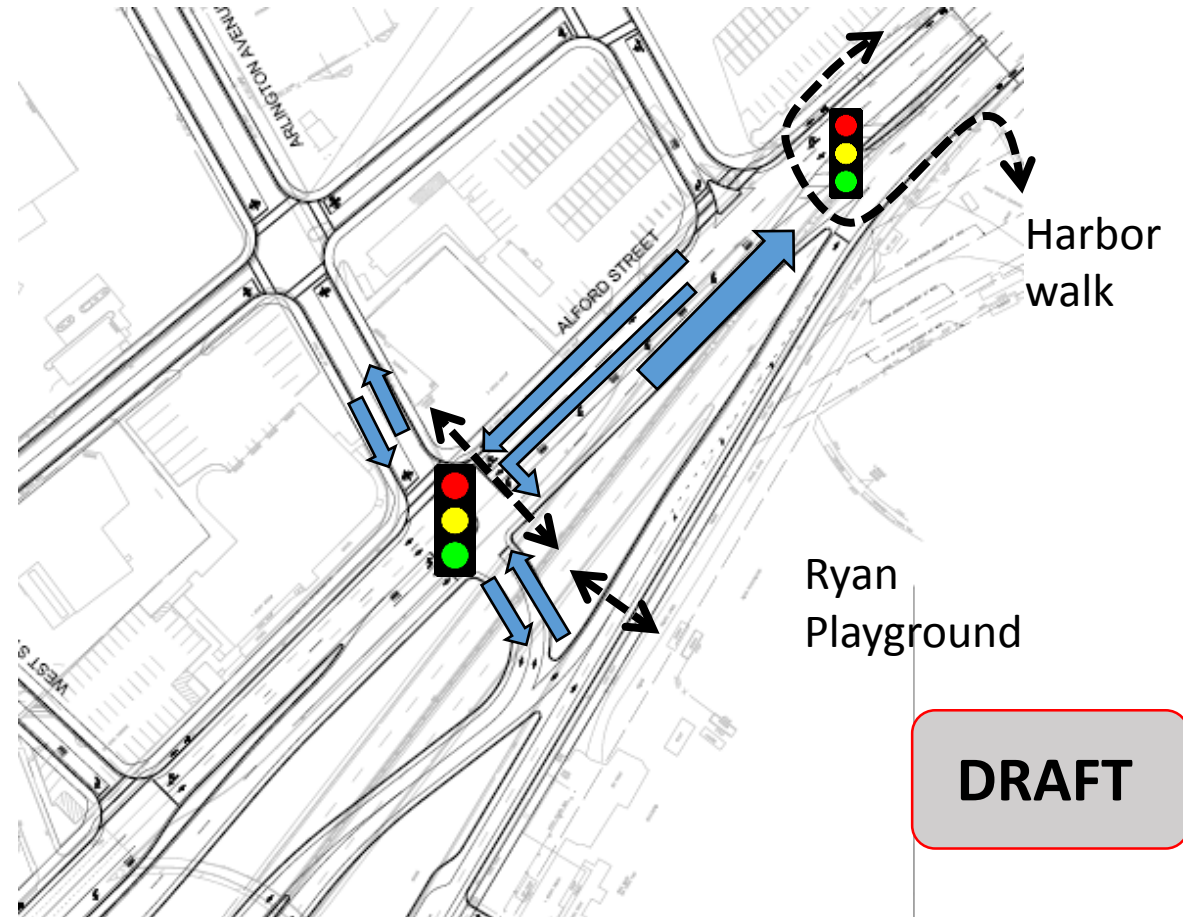


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An UNDERPASS CONCEPT

- **Arlington St/MBTA Yard**
 - New Signal
 - MBTA Bus Yard Access/Egress
 - Pedestrian Path Crossing
 - Hybrid Signal
 - Parcel access to Underpass
 - Bypass Sullivan Square







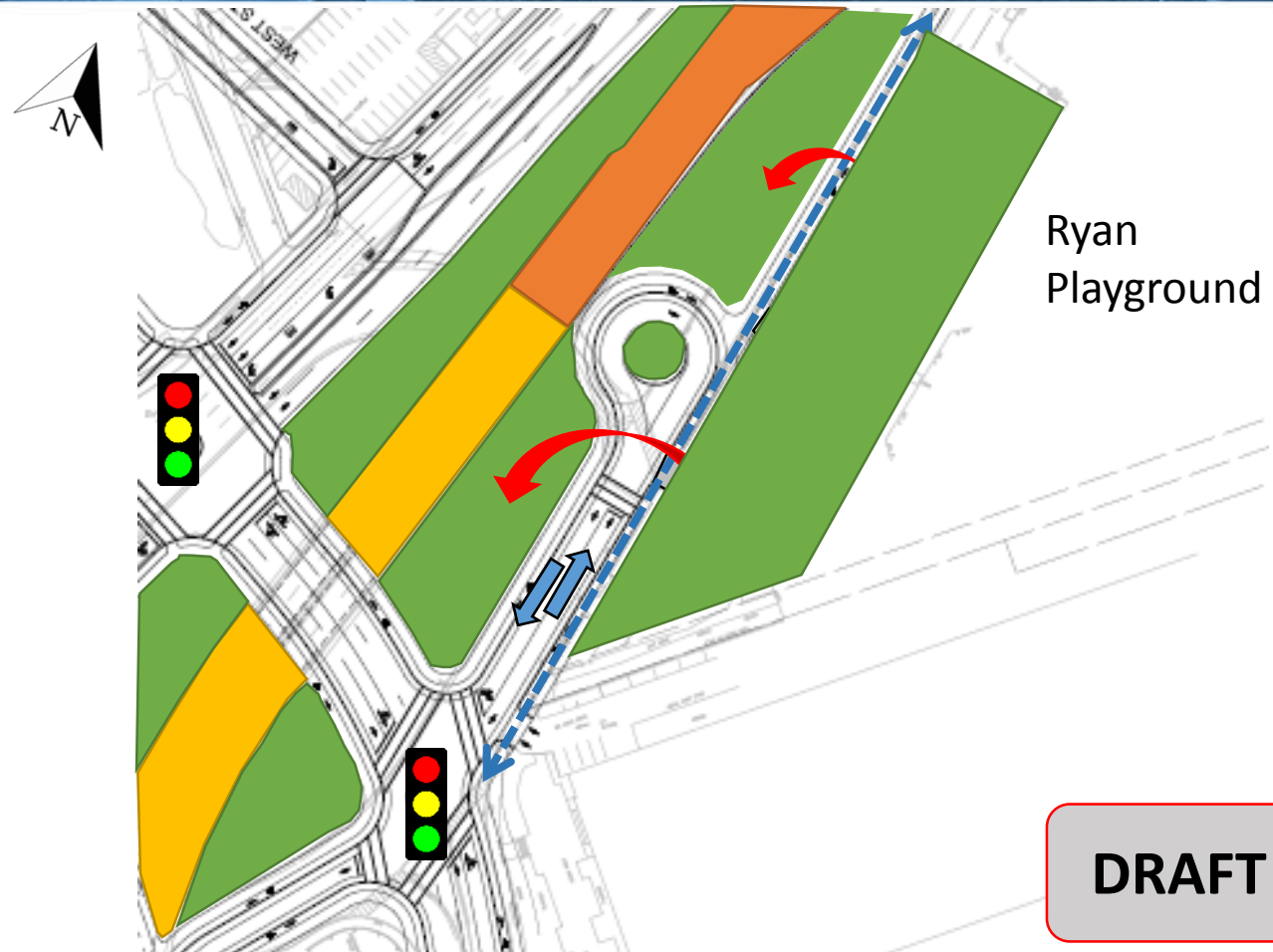


An UNDERPASS CONCEPT

- **Ryan Playground**

- Local road access/egress
- Expanded Open Space
- Expanded parking
- Portal Entrance

	Ramp Roadway
	Covered Deck or Air Rights Development
	Bike/Multi-use Path
	Park/Landscaping



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MULTI-USE PATH & OPEN SPACE



Ramp Roadway



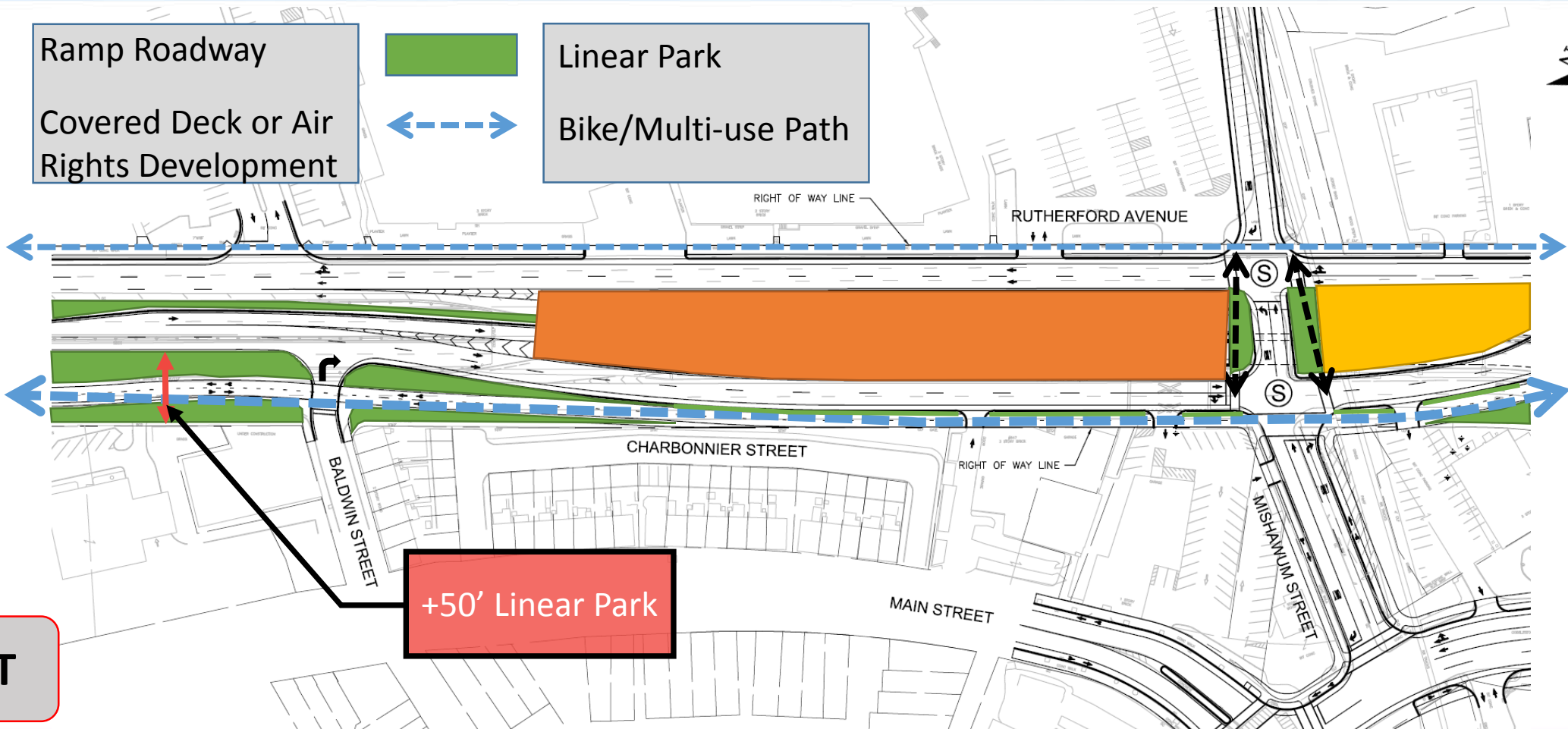
Linear Park



Covered Deck or Air Rights Development



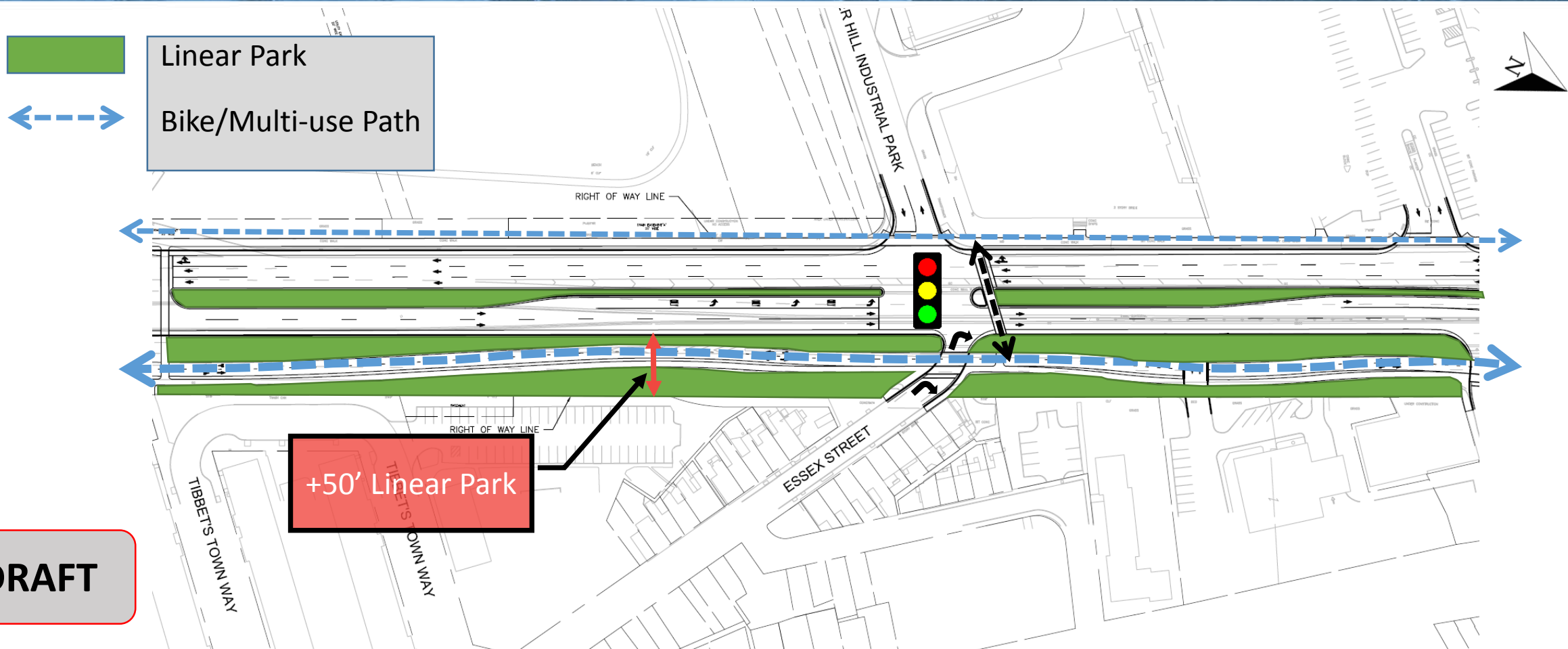
Bike/Multi-use Path



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MULTI-USE PATH & OPEN SPACE





MULTI-USE PATH & OPEN SPACE



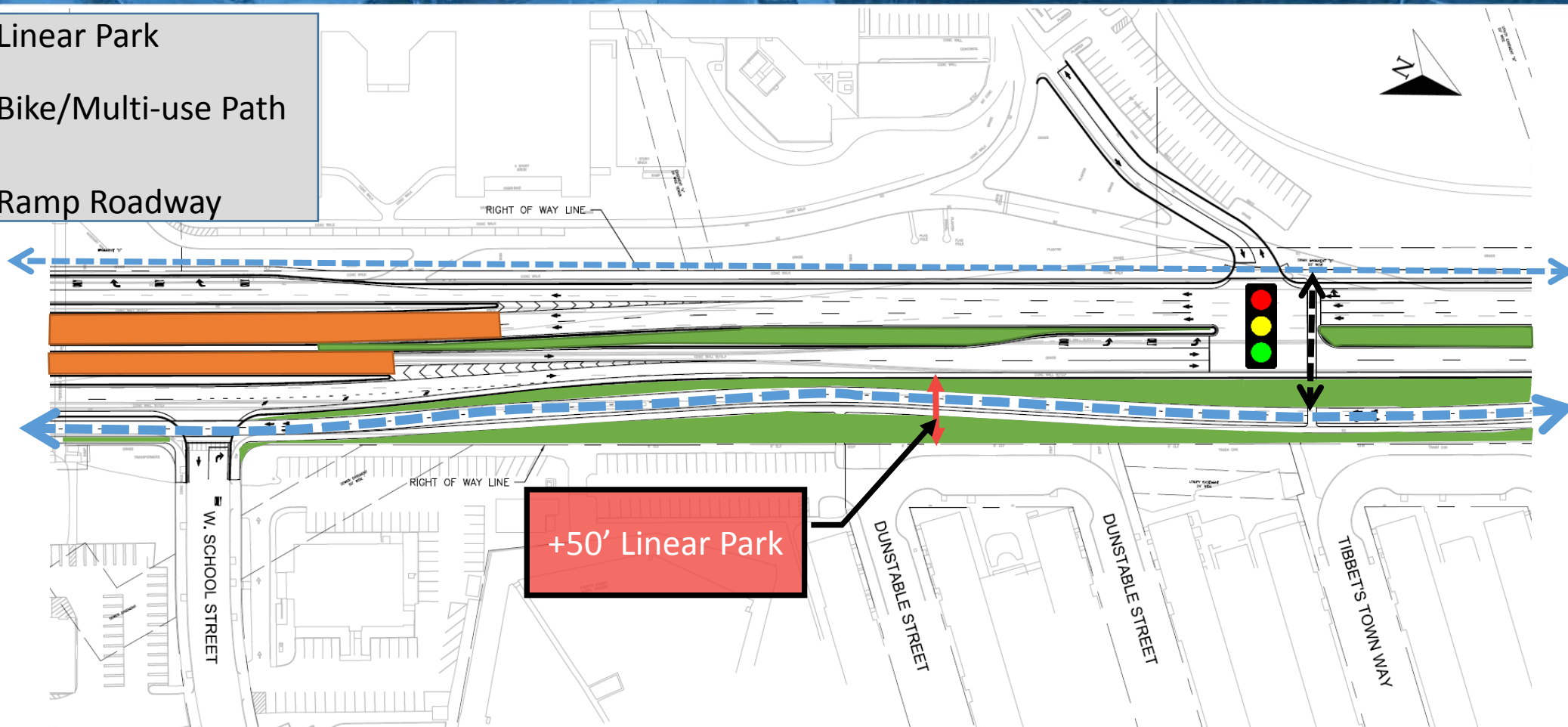
Linear Park



Bike/Multi-use Path



Ramp Roadway



+50' Linear Park

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SHARED-USE PATH at AUSTIN STREET



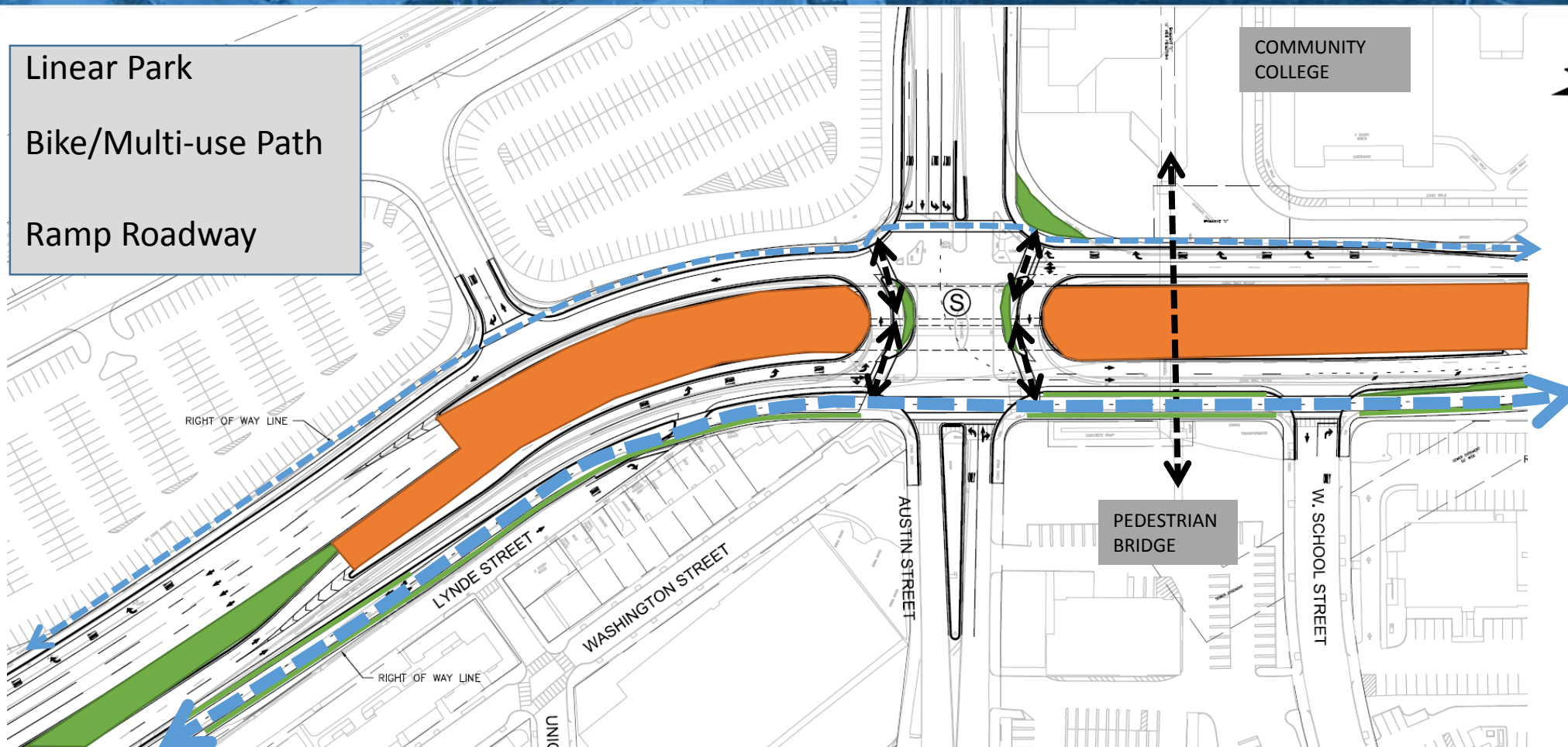
Linear Park



Bike/Multi-use Path



Ramp Roadway



COMMUNITY COLLEGE



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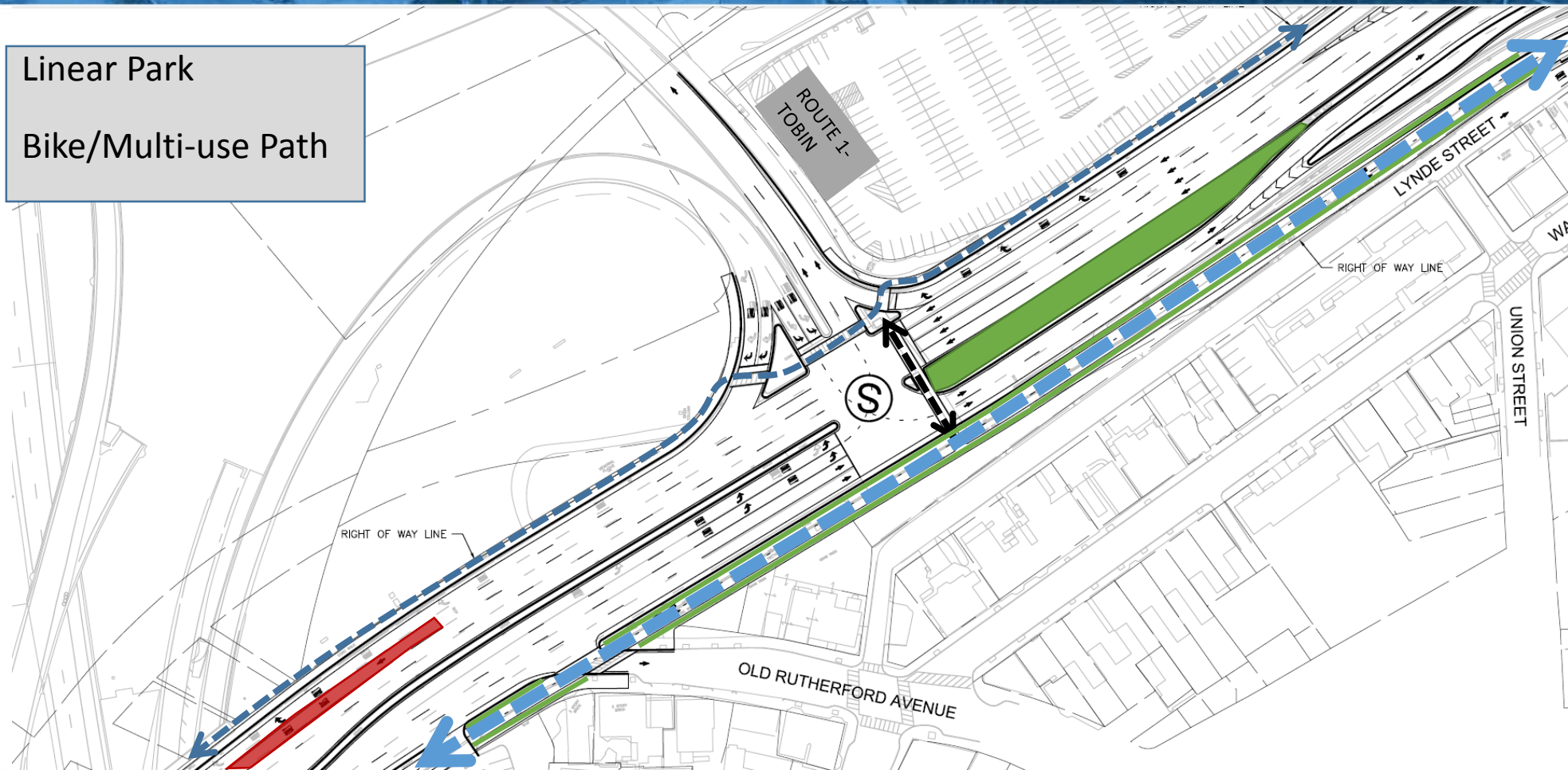
SHARED-USE PATH at RTE 1 RAMPS



Linear Park






Bike/Multi-use Path

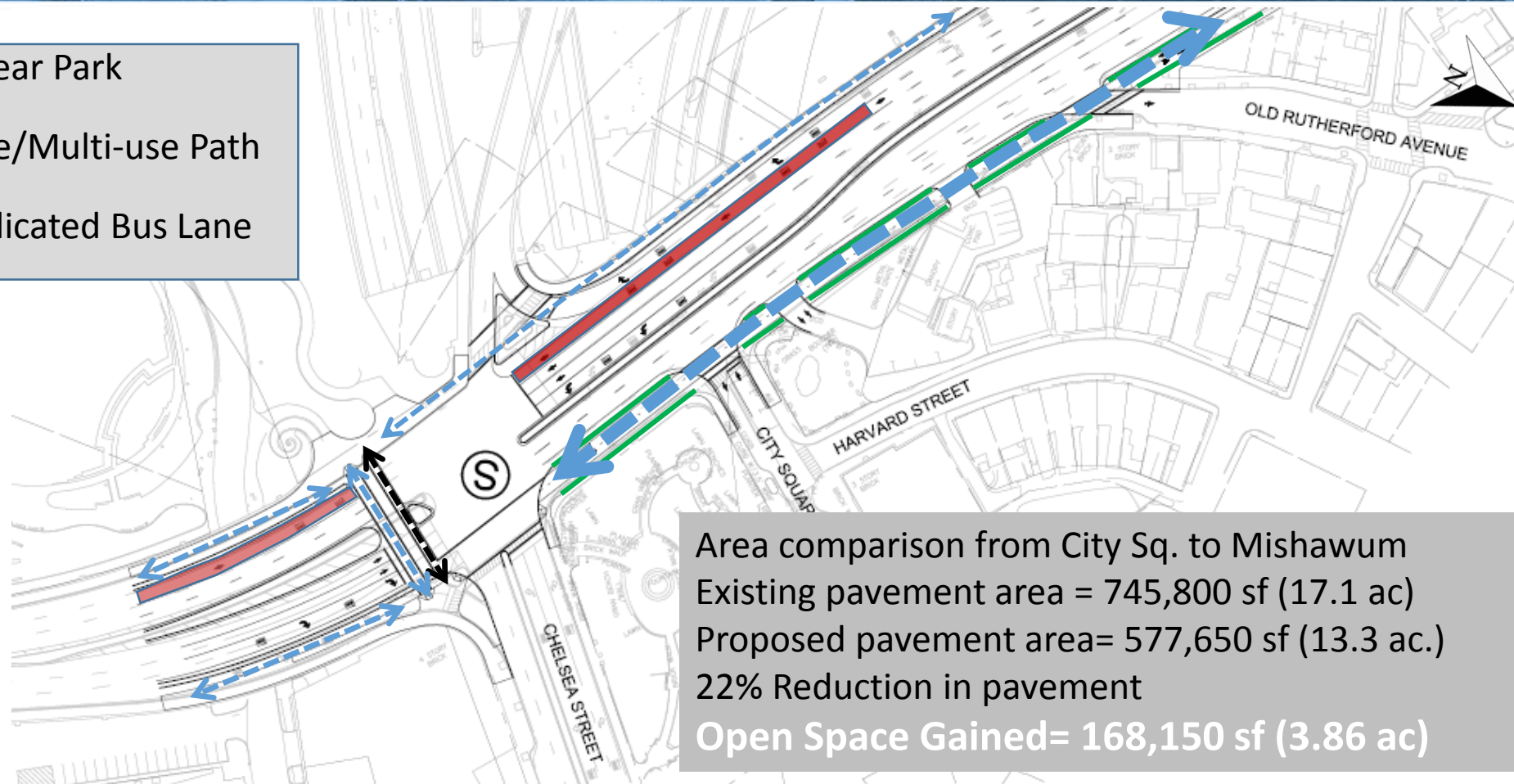


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SHARED-USE PATH at CITY SQUARE

-  Linear Park
-  Bike/Multi-use Path
-  Dedicated Bus Lane



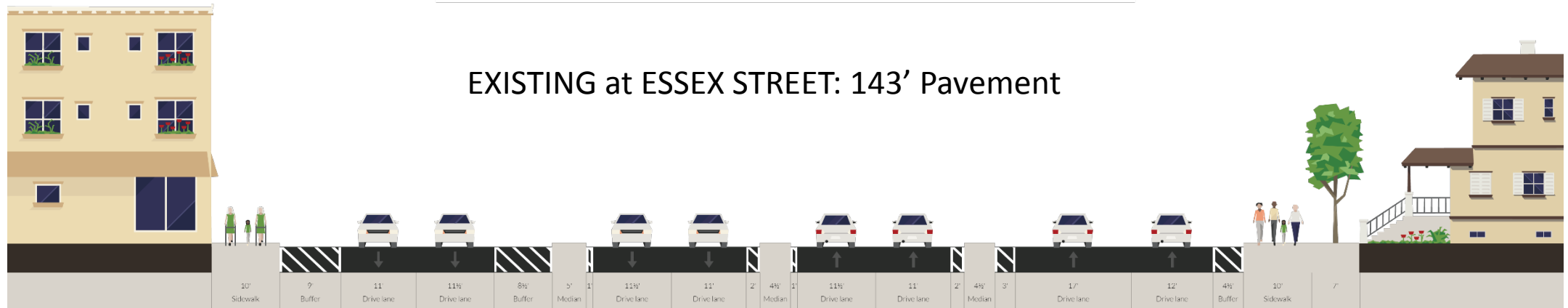
Area comparison from City Sq. to Mishawum
Existing pavement area = 745,800 sf (17.1 ac)
Proposed pavement area = 577,650 sf (13.3 ac.)
22% Reduction in pavement
Open Space Gained = 168,150 sf (3.86 ac)

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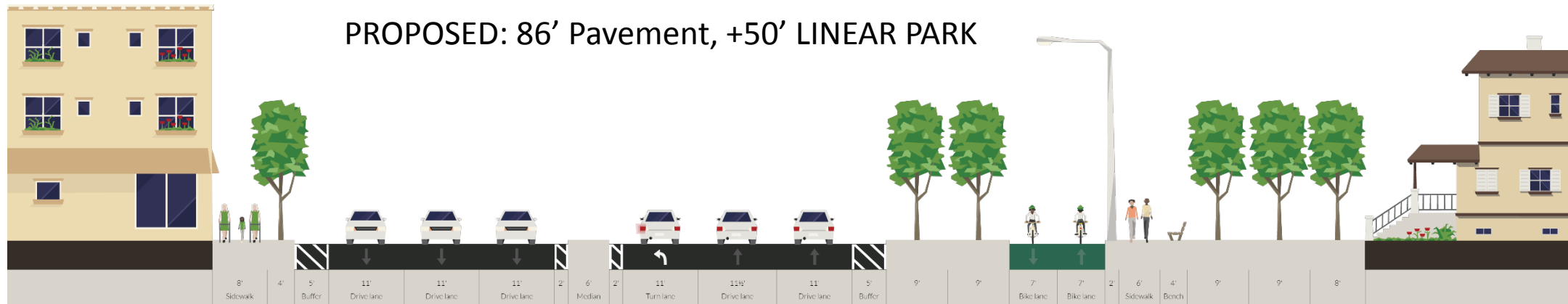


CROSS SECTION VIEW

EXISTING at ESSEX STREET: 143' Pavement



PROPOSED: 86' Pavement, +50' LINEAR PARK





RAISED CROSSINGS

- Typical Minor Street Crossings from Neighborhood
 - Baldwin Street
 - Essex Street
 - West School Street
- Raised Crossing to prioritize pedestrians and bikes



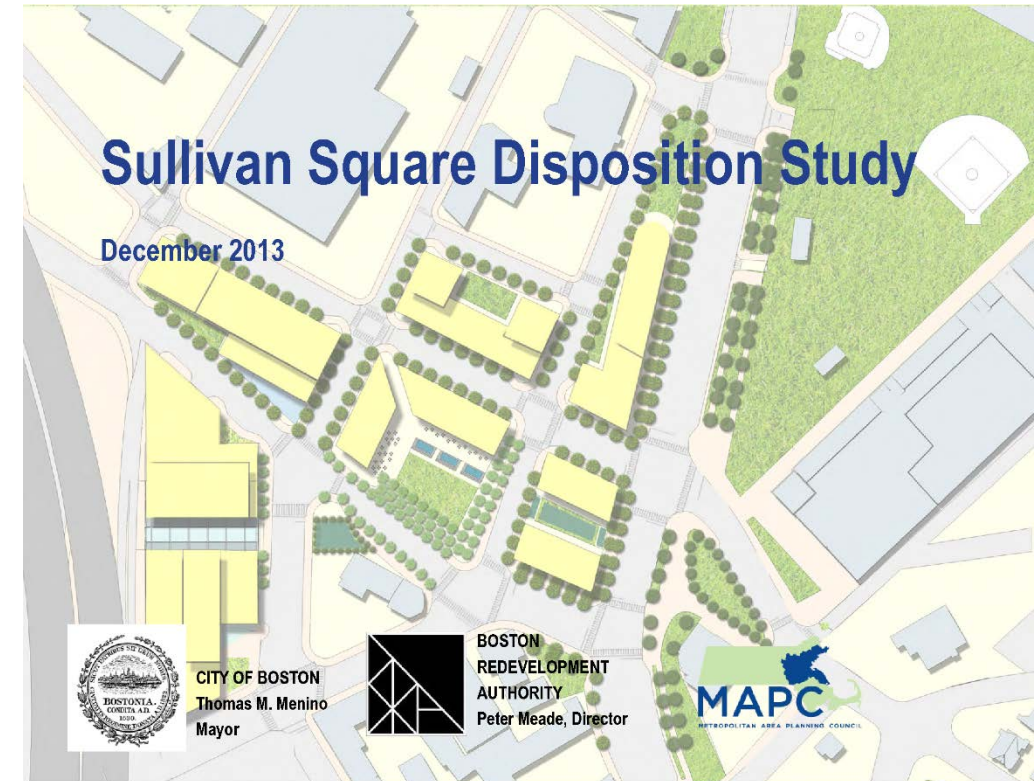
• Source: Google Maps: Pond St, Brookline



SUPPORTING THE VISION

2013 BPDA Community Study

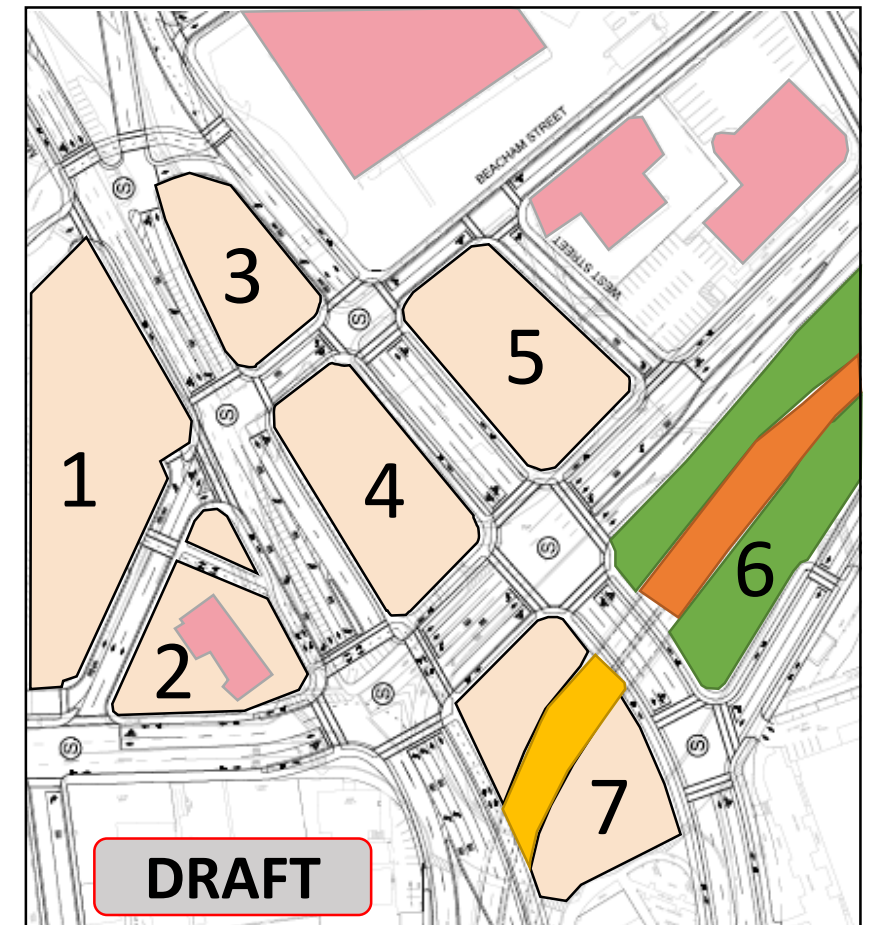
- Better access to MBTA
- New open spaces
- Mixed-use Transit oriented development
- Pedestrian friendly streetscape
- Neighborhood connections
- Accommodating bus operations





An UNDERPASS CONCEPT

- Underpass - Family of Alternatives
- TOD PARCELS
 - Parcel Layout
 - Air Rights
 - Decking
 - Open Space
- Subconsultants
 - Cecil Group
 - Brown Richardson & Rowe





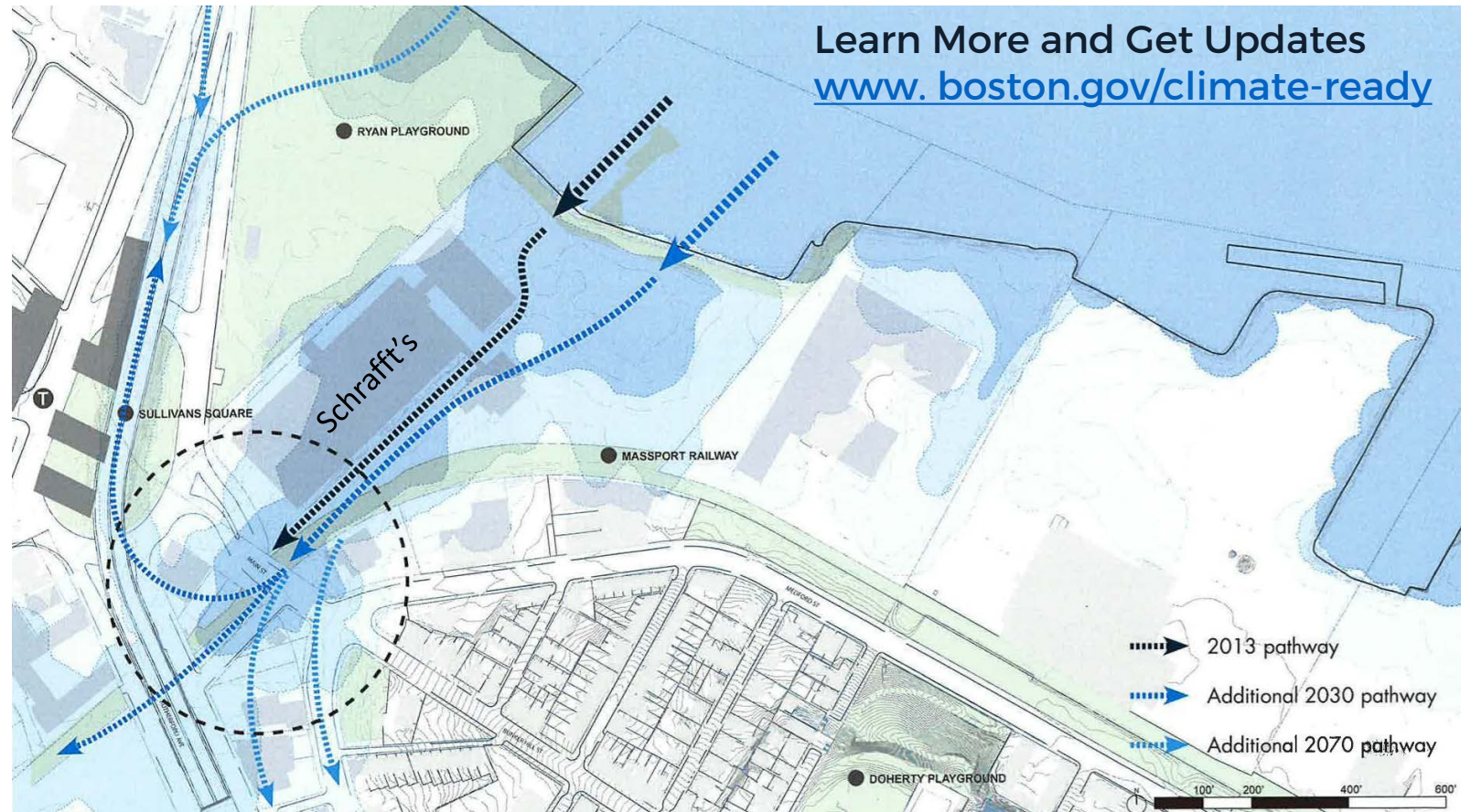
RESILIENCY STUDY - UPDATE

DESIGN GOALS:

- ✓ Protect the Community from Coastal Flooding
- ✓ Make Infrastructure Resilient
- ✓ Enhance Waterfront Access
- ✓ Expand Open Space

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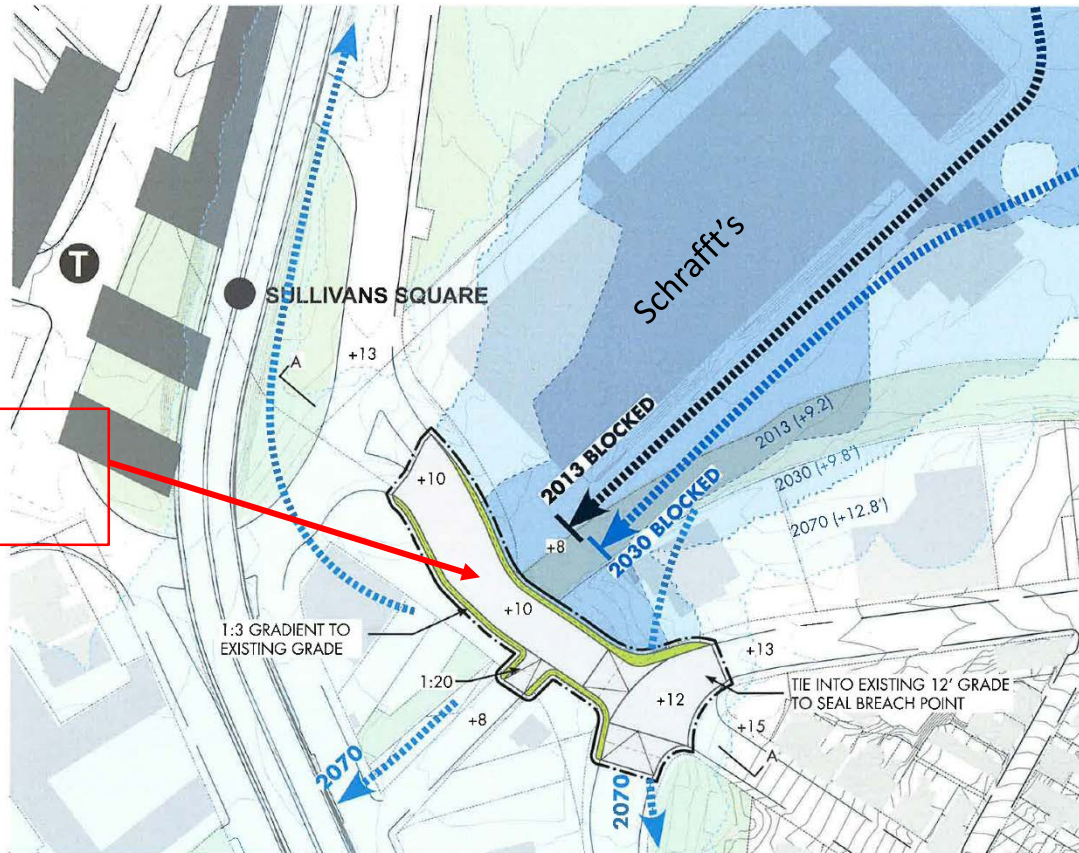
Source: Kleinfelder



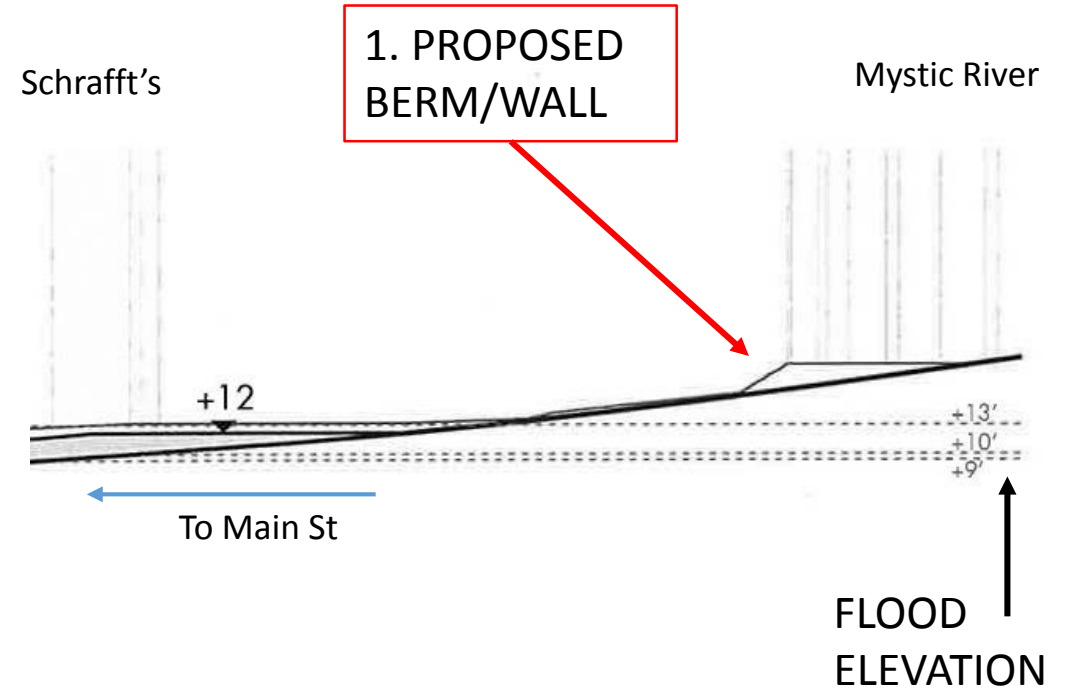


RESILIENCY STUDY - UPDATE

Main Street - Raised 2' (EL +10')



2. RAISED ROADWAY



1. PROPOSED BERM/WALL

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Thank you for your continued involvement

QUESTIONS?

NEXT MEETINGS – TBD



*Austin, TX
Lance
Armstrong path
Photo credit:
Adam Coppola
Photography*

FOR MORE INFO: <https://www.cityofboston.gov/transportation/rutherford/>