City of Cambridge
Department of Public Works

Gore Street and Rufo Road Surface Reconstruction
Design Progress Meeting 2

03-19-19

Design Progress | Meeting Agenda

- **Introductions**
  - Kara Falise, Senior Engineer
- **Gore Street Utility Construction Update**
  - James Wilcox, Director of Engineering Services
  - DivCO West / CSL
- **Gore Street and Rufo Road Design Update**
  - Katherine Watkins, City Engineer
  - Patrick Baxter, Traffic Engineering Manager
  - Kara Falise, Senior Engineer
- **Small Group Discussions**

GORE STREET UTILITY CONSTRUCTION | UPDATE

- **Eversource Gas Work**
  - Gas main replacement complete
  - Work did delay sewer work in some locations but also resulted in:
    - Improved safety of operations
    - Reduced scope (time) for Gore Street Reconstruction Project
- **Cambridge Crossing Sewer Work**
  - Anticipated completion in June 2019
    - Main installation in Cambridge to be completed in May
    - Gore Street Temporary resurfacing anticipated in June
    - Sewer tie-in and surface restoration in Somerville anticipated in June

GORE STREET and RUFO ROAD | SCHEDULE

- ~~**Early Summer 2018** Design Kick-Off~~
  - ~~Community Meeting to understand Conditions~~

- ~~**Fall 2018:** Survey and Design Concepts~~
  - ~~Community meeting to evaluate concepts~~

- **Spring 2019**: Design Progress Meeting 2 (Tonight)
  - Community meeting to review design
  - Traffic Data Collection Review

- **Summer 2019**: Design Finalization

- **Fall 2019**: Bidding for Construction

- **Winter 2019:** Construction Commencement
  - Community Meeting to kick-off construction

INTRODUCTION | COMPLETE STREETS

Complete Streets are **streets for everyone**. They are designed and operated to enable **safe access for all users**. Pedestrians, bicyclists, motorists, and public transportation (transit) users of all ages and abilities are able to safely move along and across a Complete Street. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They help buses to run on time and make it safe for people to walk to and from train stations.

More sidewalks and bicycle facilities are included, which provides **increased accessibility for pedestrians and cyclists**.

During design and construction of Complete Streets, our goal is to communicate projects with neighborhoods, facilitate an integrated design process, minimize disruption to community life and provide reasonable access for all users during reconstruction.

INTRODUCTION | VISION ZERO

On March 21, 2016, the Cambridge City Council unanimously passed resolutions put forth by the City Manager to formally adopt Complete Streets and Vision Zero policies, showing that the City of Cambridge is committed to achieving these goals, assuring safe access for all users.

Vision Zero calls for the elimination of fatalities and serious injuries resulting from traffic crashes, and emphasizes that they can and should be prevented. The City of Cambridge is the 17th city in the U.S. to commit to a Vision Zero Policy.

VISION ZERO CAMBRIDGE

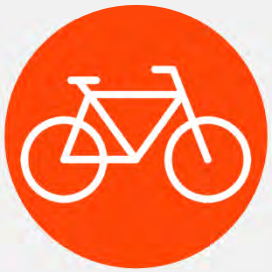
5 YEAR PLAN | SCOPE OF WORK

Our approach emphasizes **streets designed and operated for everyone**. Pedestrians, bicyclists, motorists, and transit users of all ages and abilities will be able to safely move along and across **Complete Streets**.

Emphasis on accessibility – pedestrian ramps, sidewalks and universal design.

Vision Zero calls for the elimination of fatalities and serious injuries resulting from traffic crashes.

Transit improvements – accessibility of bus stops and transit priority, as feasible.



Network of bike facilities – support people of all ages and abilities to bike safely throughout the city.

Additional street trees and green infrastructure.

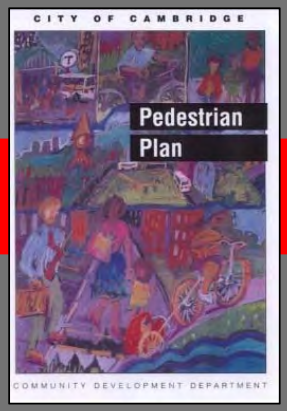
Maintain and improve city infrastructure, and coordinate with private utilities to facilitate upgrades.

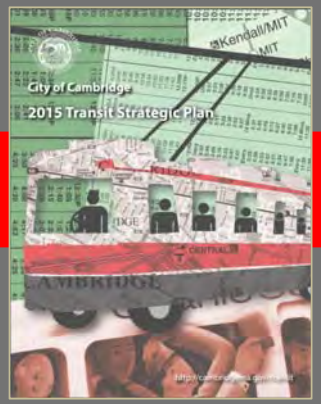
5 YEAR PLAN | PLANNED CONSTRUCTION

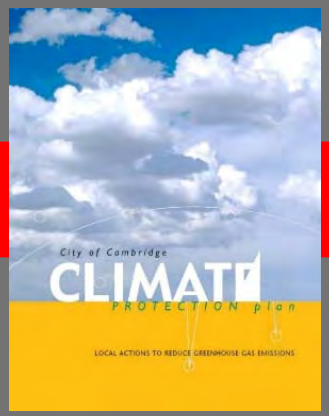
Interactive construction map: www.cambridgema.gov/theworks/constructionmap

INTRODUCTION | GUIDING PLANS AND POLICIES

In addition to Complete Streets and Vision Zero







Vehicle Trip Reduction Ordinance established programs to encourage alternatives to single-occupancy vehicle travel (1992).

Cambridge Growth Policy emphasizes sustainable modes of transportation such as walking, biking and using transit and low-emission vehicles, which promote livability and help to improve air quality and reduce greenhouse gas emissions (1993/2007).

GORE STREET | RELATIONSHIP TO NETWORK PATHS

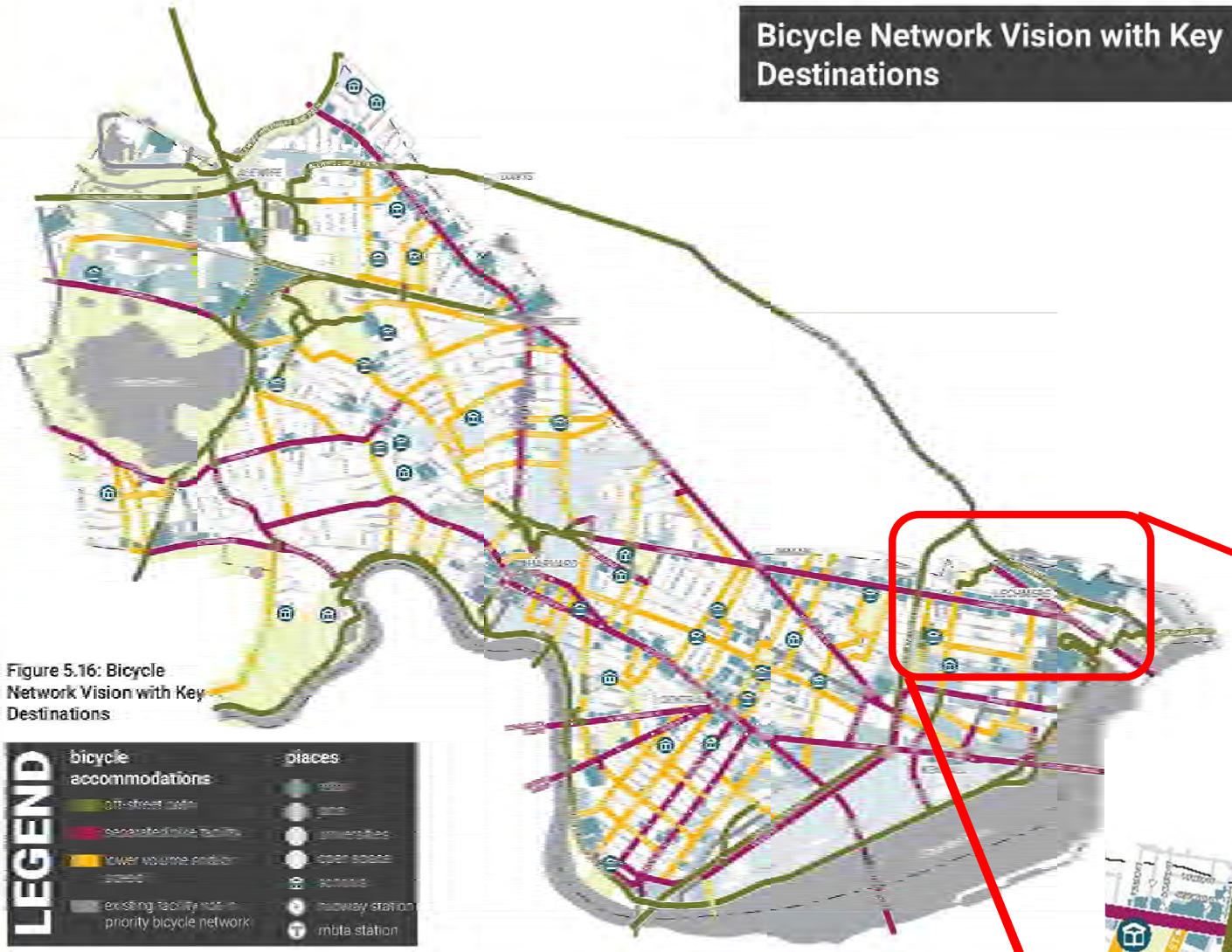
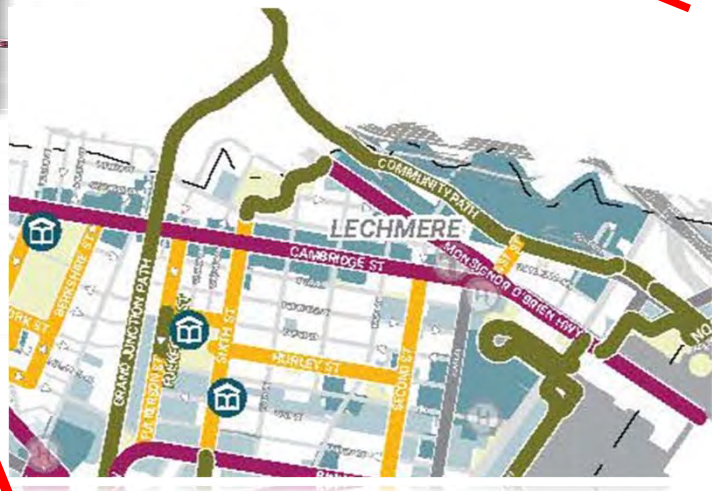
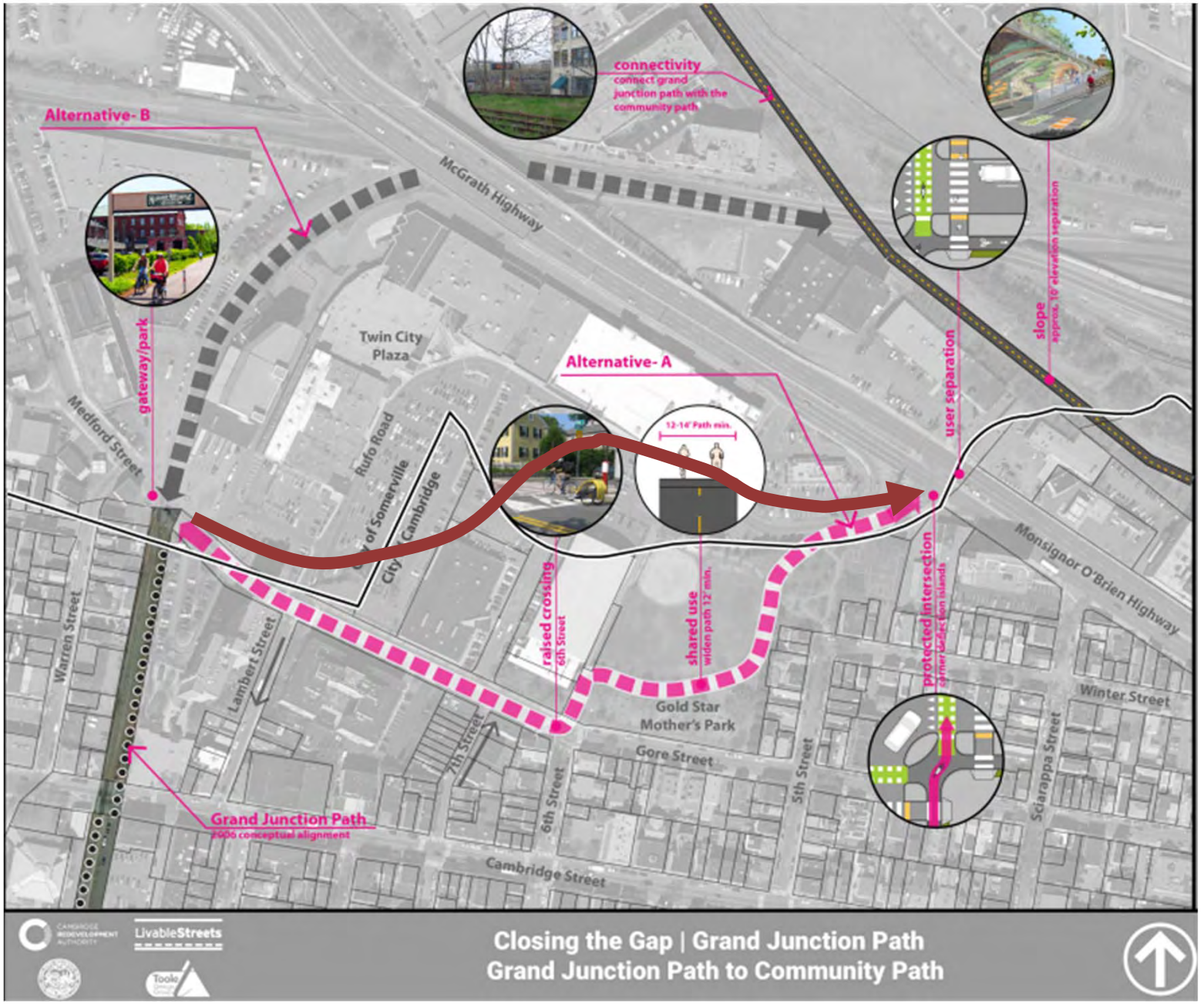


Figure 5.16: Bicycle Network Vision with Key Destinations



GORE STREET | RELATIONSHIP TO NETWORK PATHS



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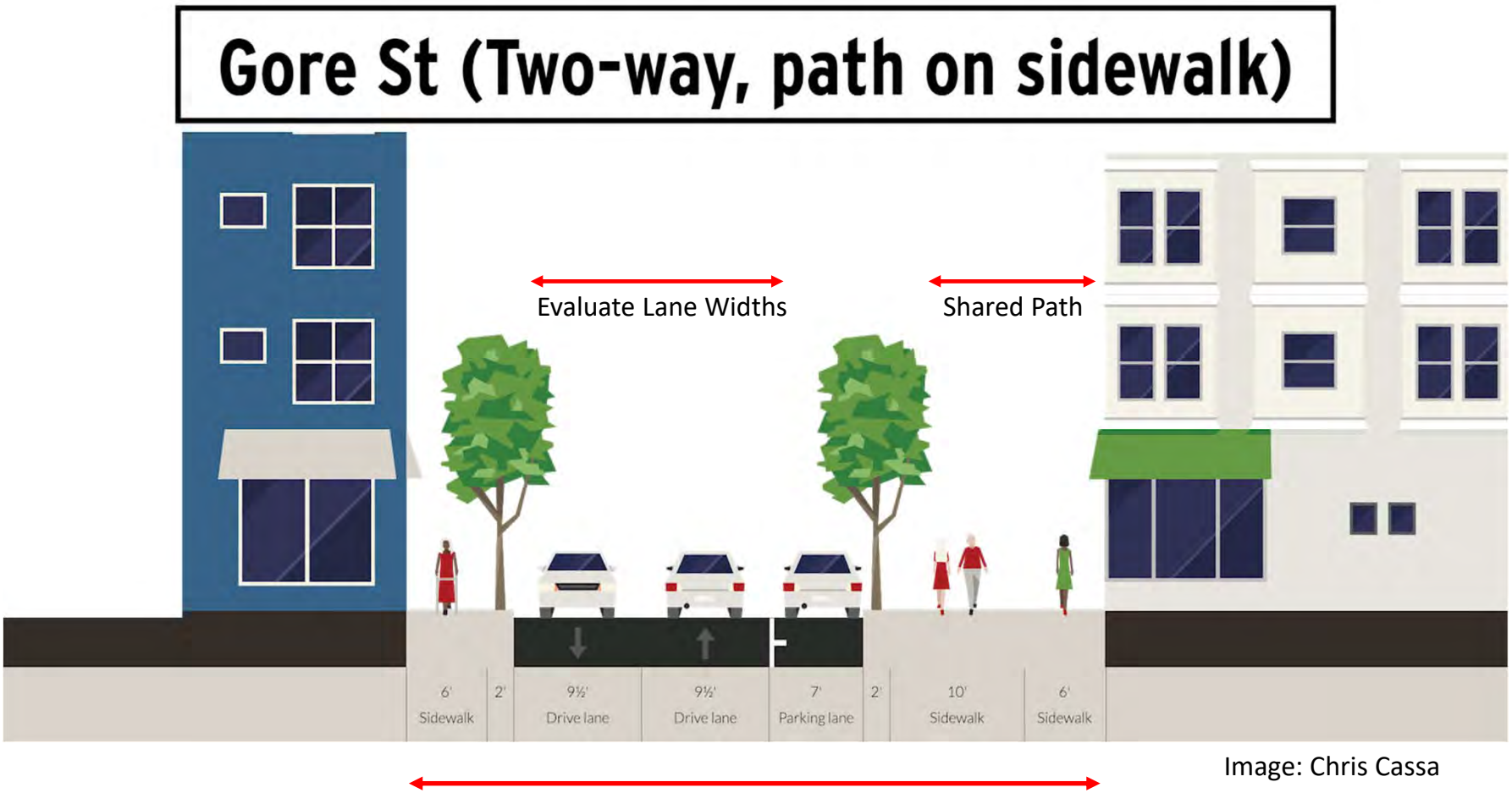
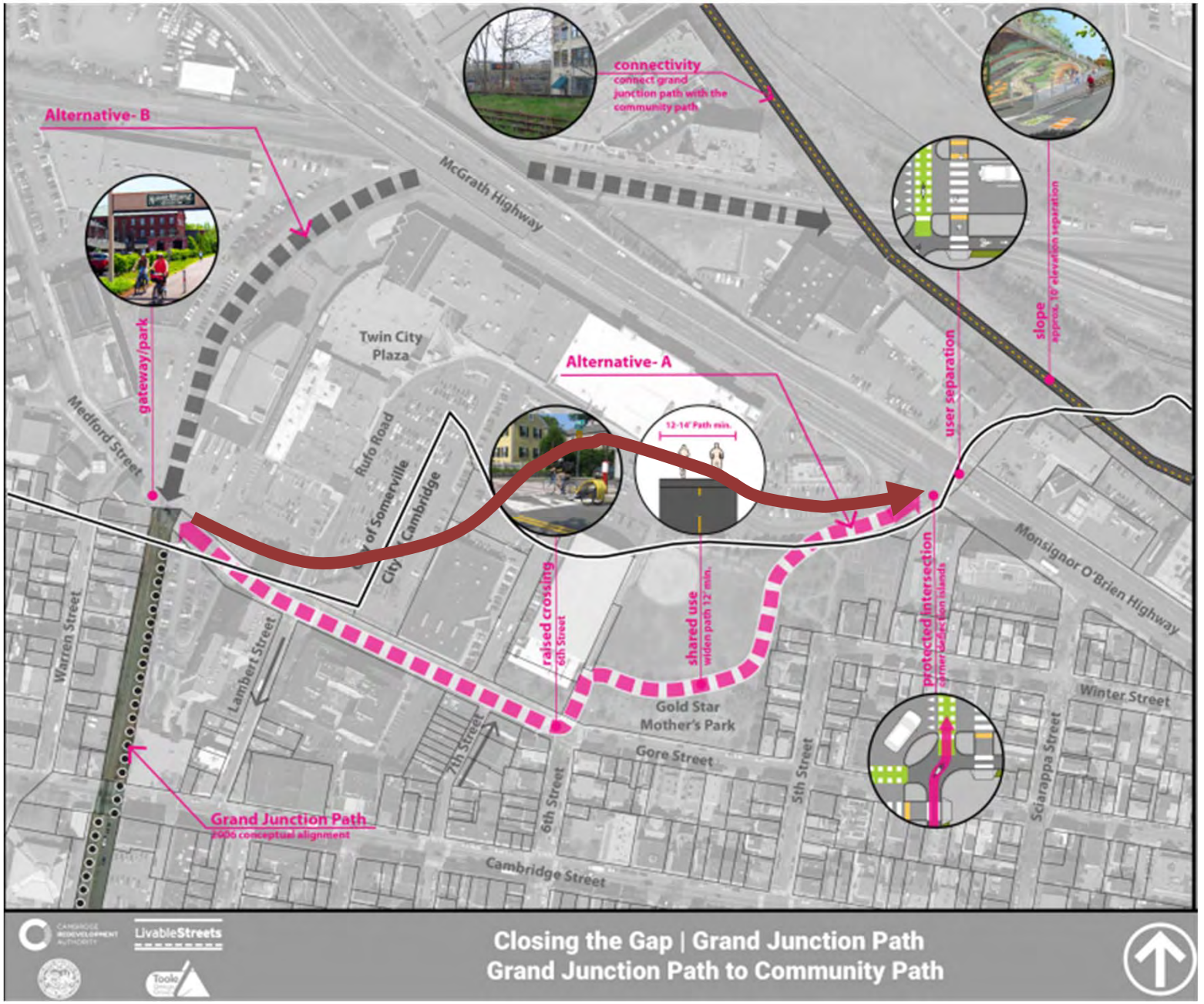
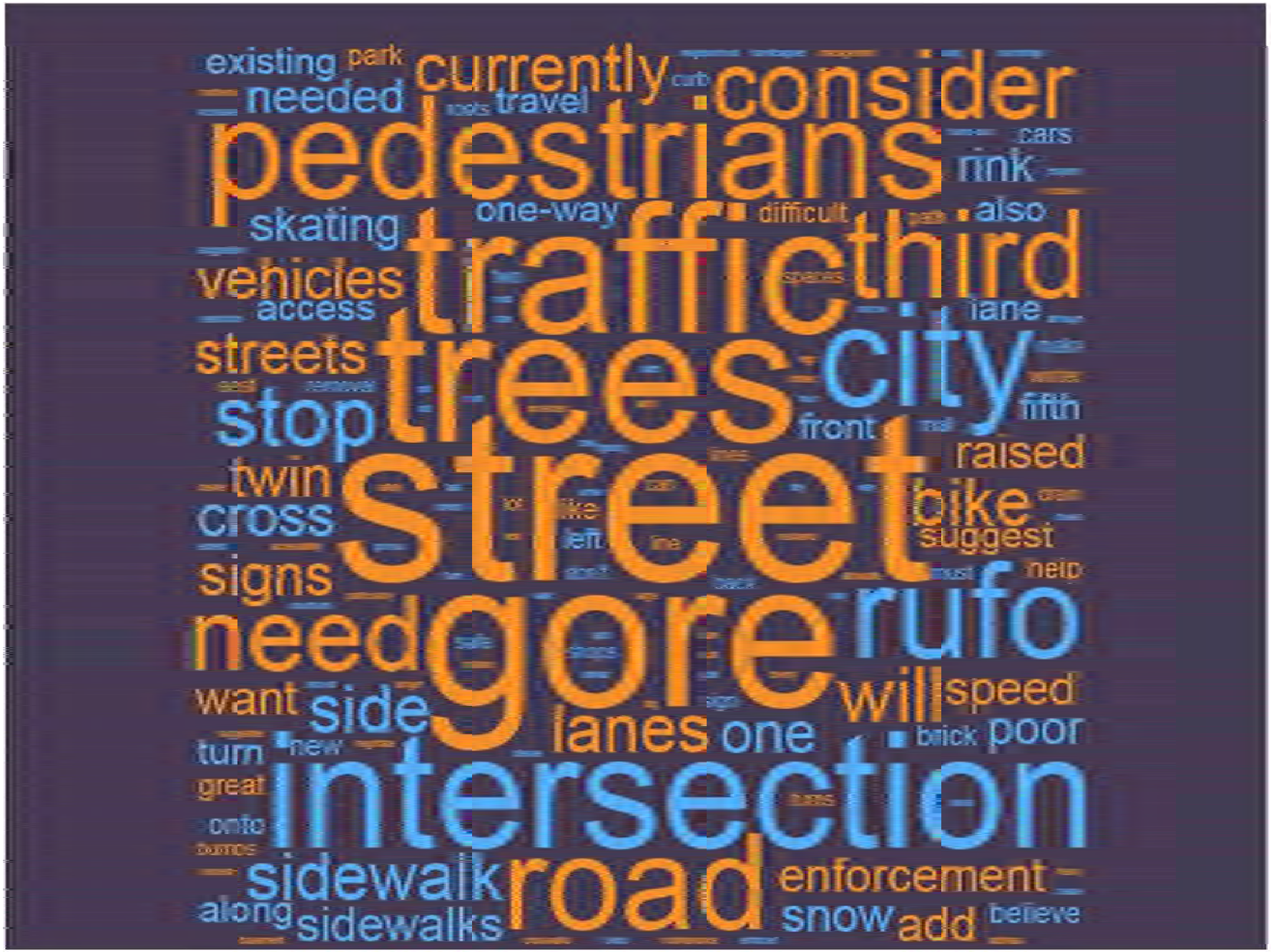


Image: Chris Cassa

GORE STREET | RELATIONSHIP TO NETWORK PATHS



GORE STREET and RUFO ROAD | DESIGN KICK-OFF



GORE STREET and RUFO ROAD | SCOPE

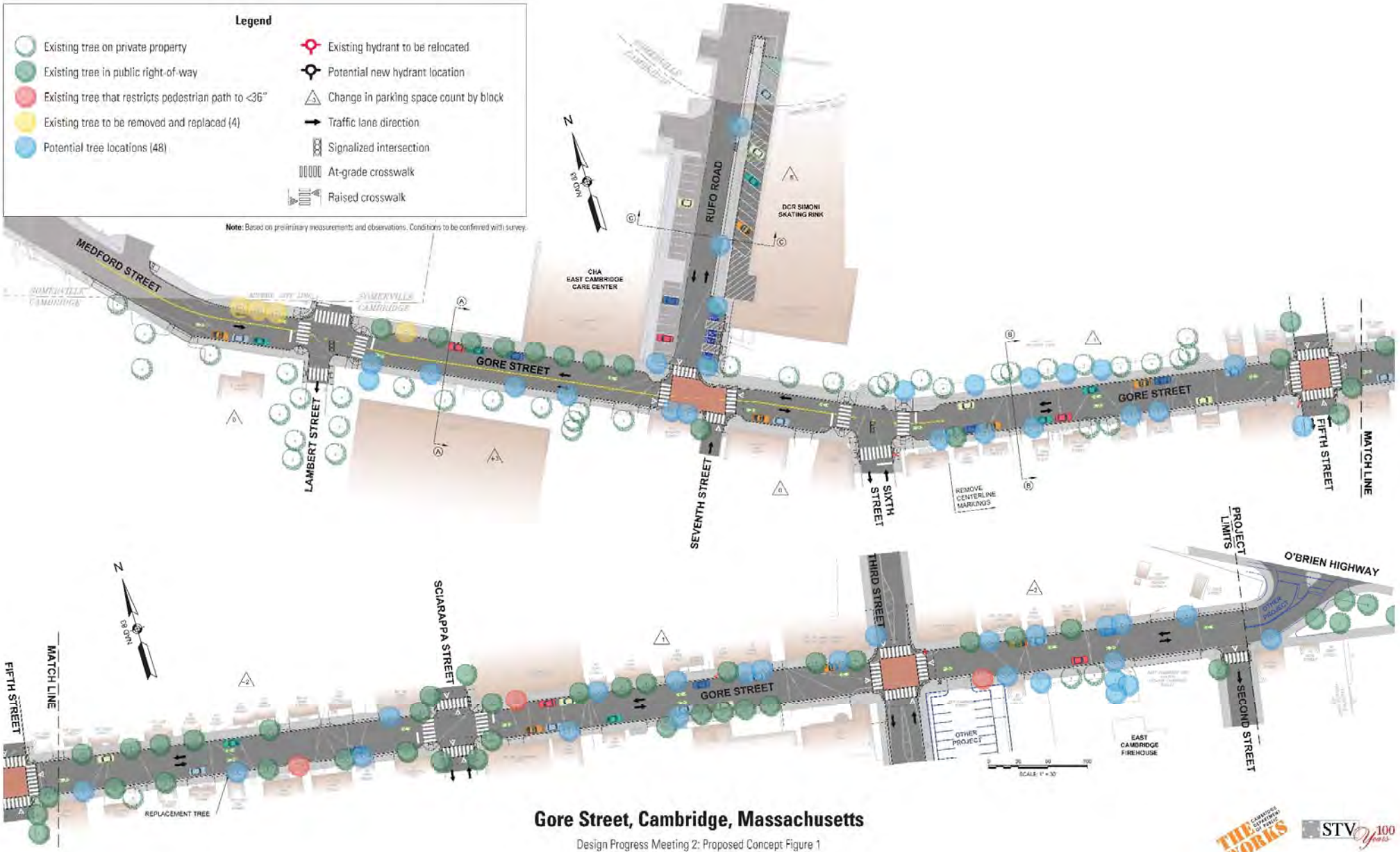
Proposed as part of City Surface Restoration Project:

- New water main and replacement of lead services.
- Sewer main rehabilitation and repairs
- Pavement profile restoration and repaving
- Accessible sidewalk reconstruction
- Tree plantings and improved drainage

Design | Progress

- **Civil Design**
  - Survey Complete
  - Existing sewer condition assessment on-going
  - Data gathering from current construction
  - General design plan progression
- **Traffic Study**
  - Collected and analyzed Gore Street Traffic Data
- **Community Comments and Outreach**
  - Fielding and reviewing community input
  - Multiple internal / interdepartmental review meetings
  - Presented plan to combined Pedestrian/Bike Committee (2/4/19)
  - Outreach to Twin City Ownership and DCR

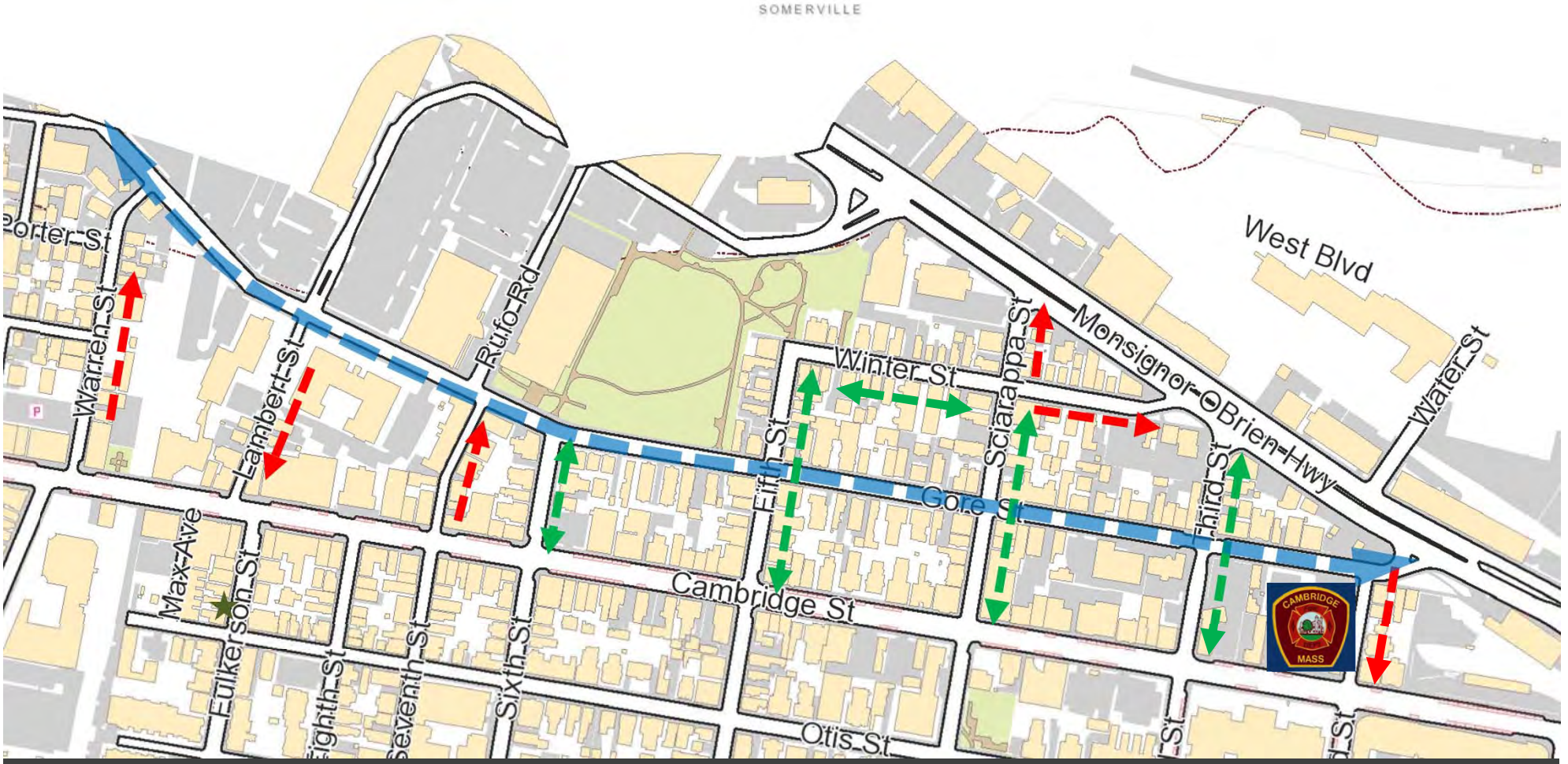
DESIGN | PLAN OVERVIEW



Gore Street, Cambridge, Massachusetts

Design Progress Meeting 2: Proposed Concept Figure 1
March 19, 2019

DESIGN | EXISTING ONE-WAY CIRCULATION



- Gore Street is two-way for the full length
- Major access points at Sixth Street, Lambert Street, and Warren Street
- Like many Cambridge streets, narrow width for two-way travel helps limit vehicle speeds
- Two-way access between Third and O'Brien is required for Fire Department Egress

DESIGN | CRASH DATA

Crash Data 2015-2017

Crash Frequency

- Highest number of crashes at Third Street intersection
- Three injury crashes, zero fatalities
- Two crashes involving cyclists, one involving a pedestrian

Crash Patterns

- Most midblock crashes are sideswipes with parked cars
- Crash pattern at Third Street: Gore Street vehicles failing to yield to cross traffic

Location	# of Crashes
Gore Street at Lambert Street	6
Gore Street at Seventh Street/Rufo Road	3
Gore Street at Sixth Street	0
Gore Street at Fifth Street	1
Gore Street at Sciarappa Street	0
Gore Street at Third Street	19
Gore Street at Second Street	0
Mid-Block	8
Total	37

TRAFFIC | ANALYSIS METHODOLOGY

Inside StreetLight InSight®

Learn how our easy-to-use online platform transforms trillions of location records from smart phones, mobile devices, cars, and trucks into Metrics designed for transportation projects.

StreetLight InSight Combines Big Data with Processing Software

Our Data Resources

We start with two categories of data:

Locational Big Data
We use trillions of anonymized Location-Based Services and navigation-GPS location records from over 35MM devices and vehicles. **No other provider uses multiple types of Massive Mobile Data for transportation analytics.**

Contextual Data
Road network, parcel, land use, and demographic data sets supplement our locational data. They improve accuracy and add contextual richness.

Algorithmic Processing

Our Route Science® processing engine converts locational and contextual data sources into travel pattern analytics.

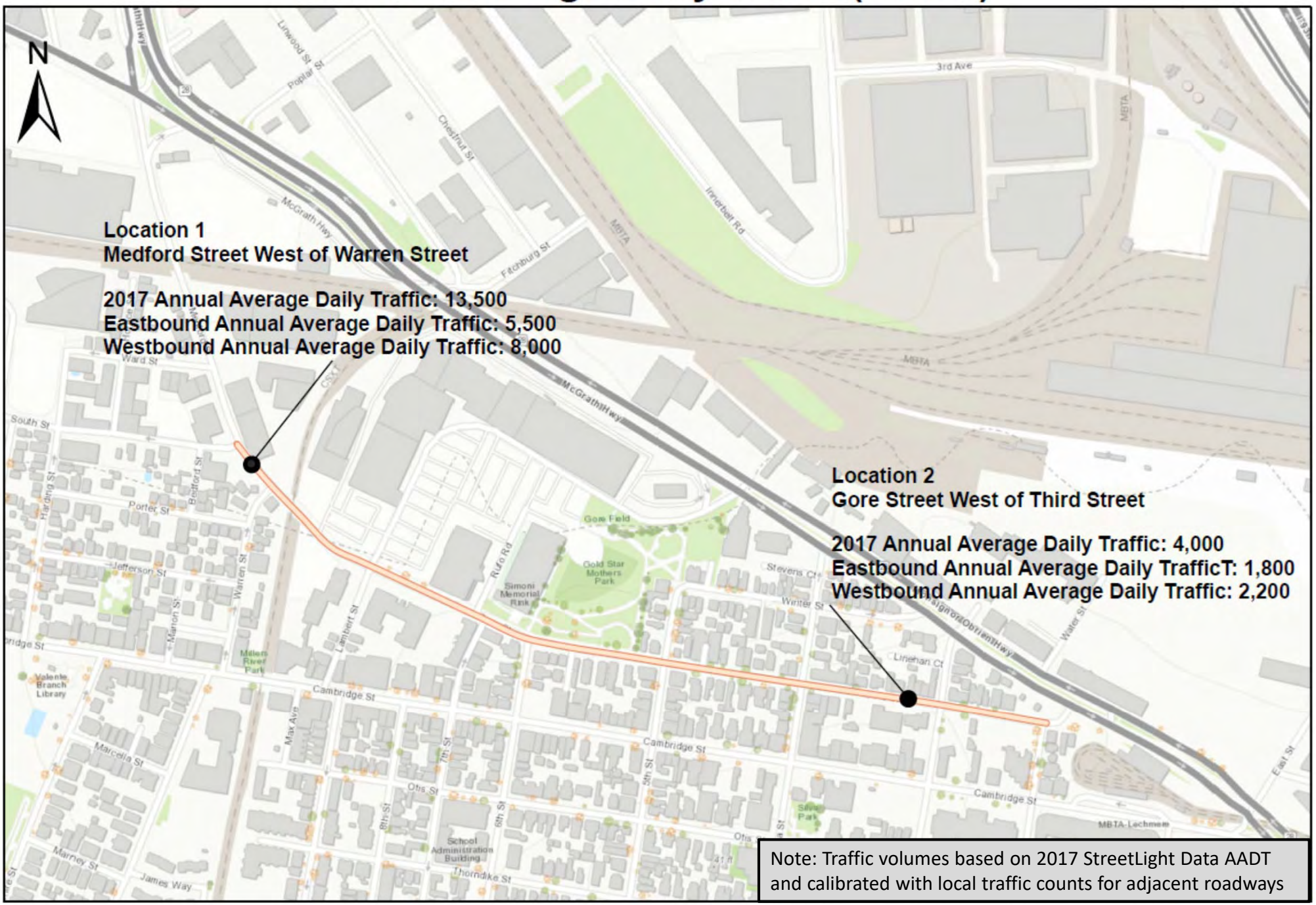
StreetLight InSight

These travel pattern analytics are then stored in a database that the *StreetLight InSight* platform queries.

To run Metrics, users enter their specifications into *StreetLight InSight*. *StreetLight InSight* then pulls up the Metrics from our database.

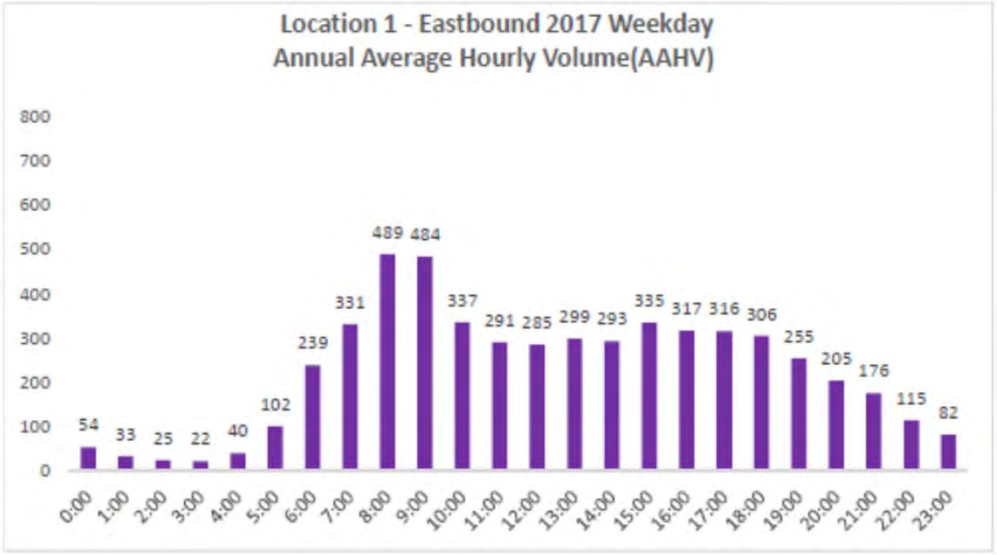
2017 GORE STREET

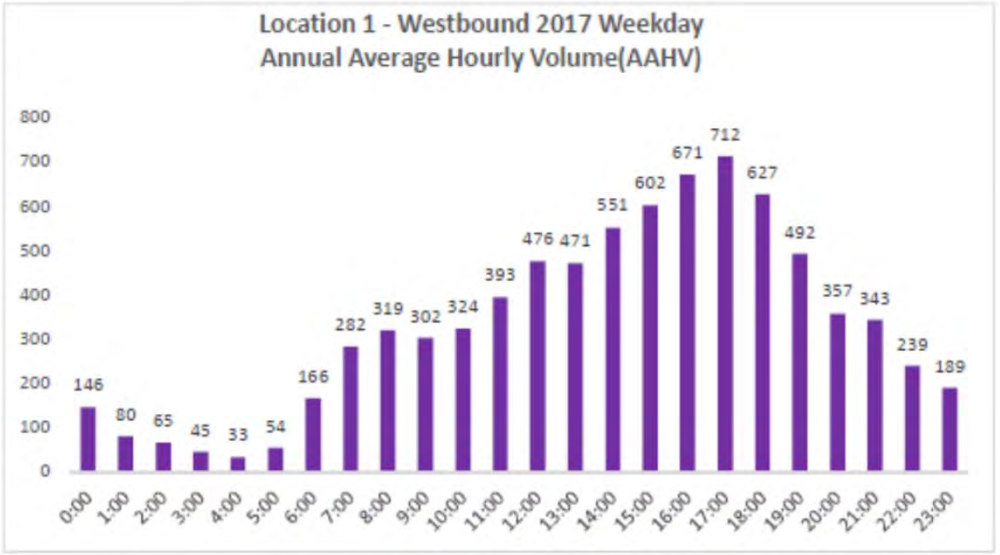
Annual Average Daily Traffic(AADT)

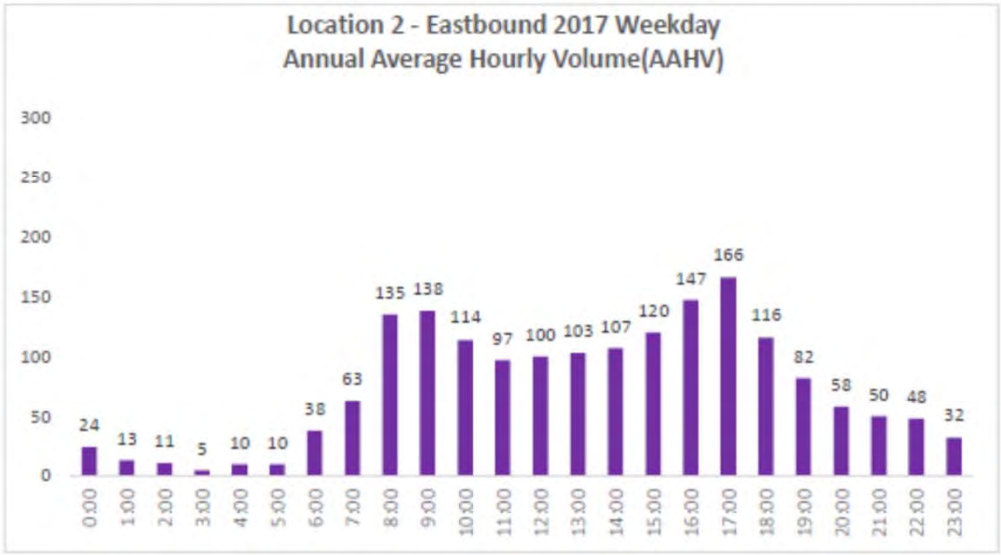


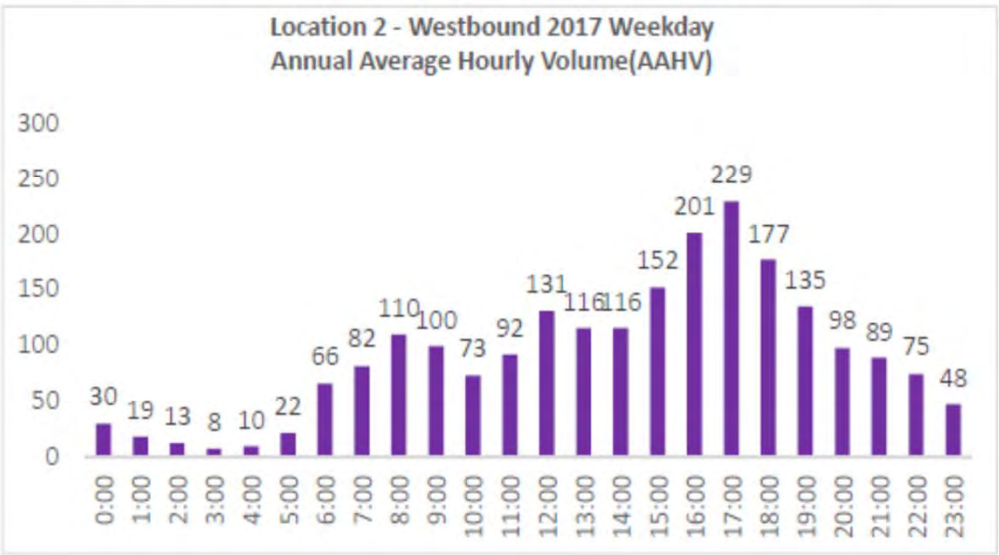
Note: Traffic volumes based on 2017 StreetLight Data AADT and calibrated with local traffic counts for adjacent roadways

TRAFFIC | HOURLY VOLUMES

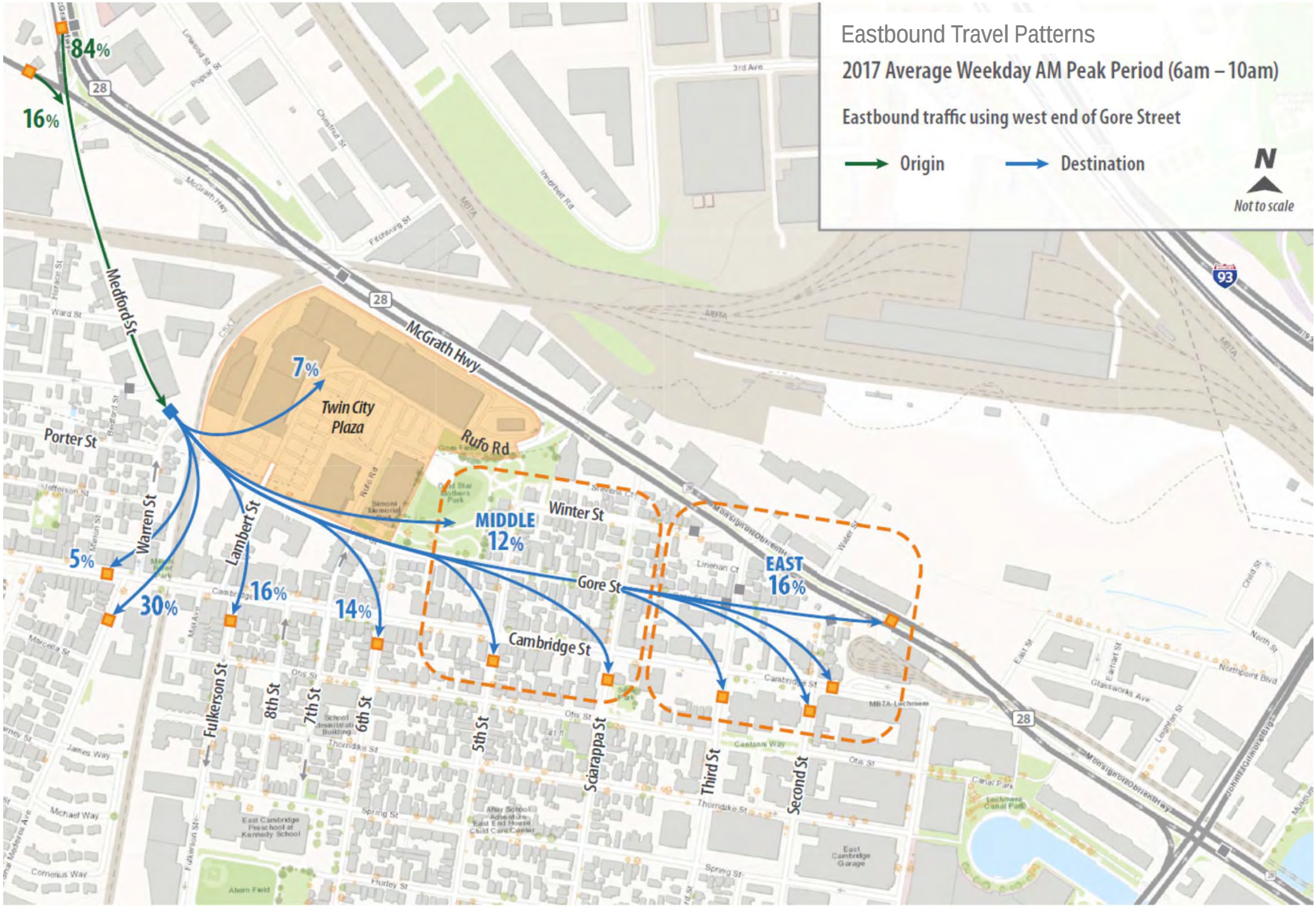




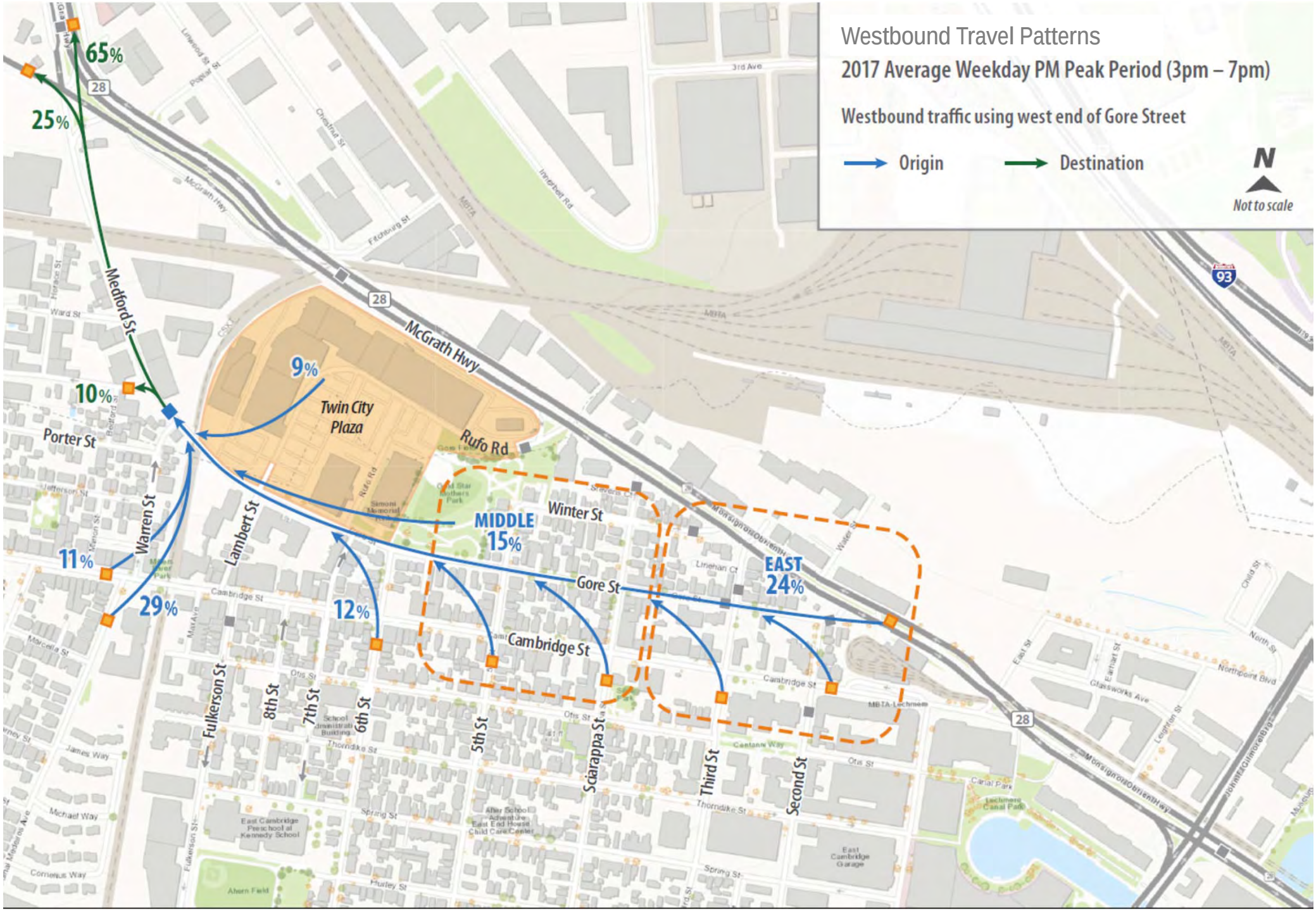




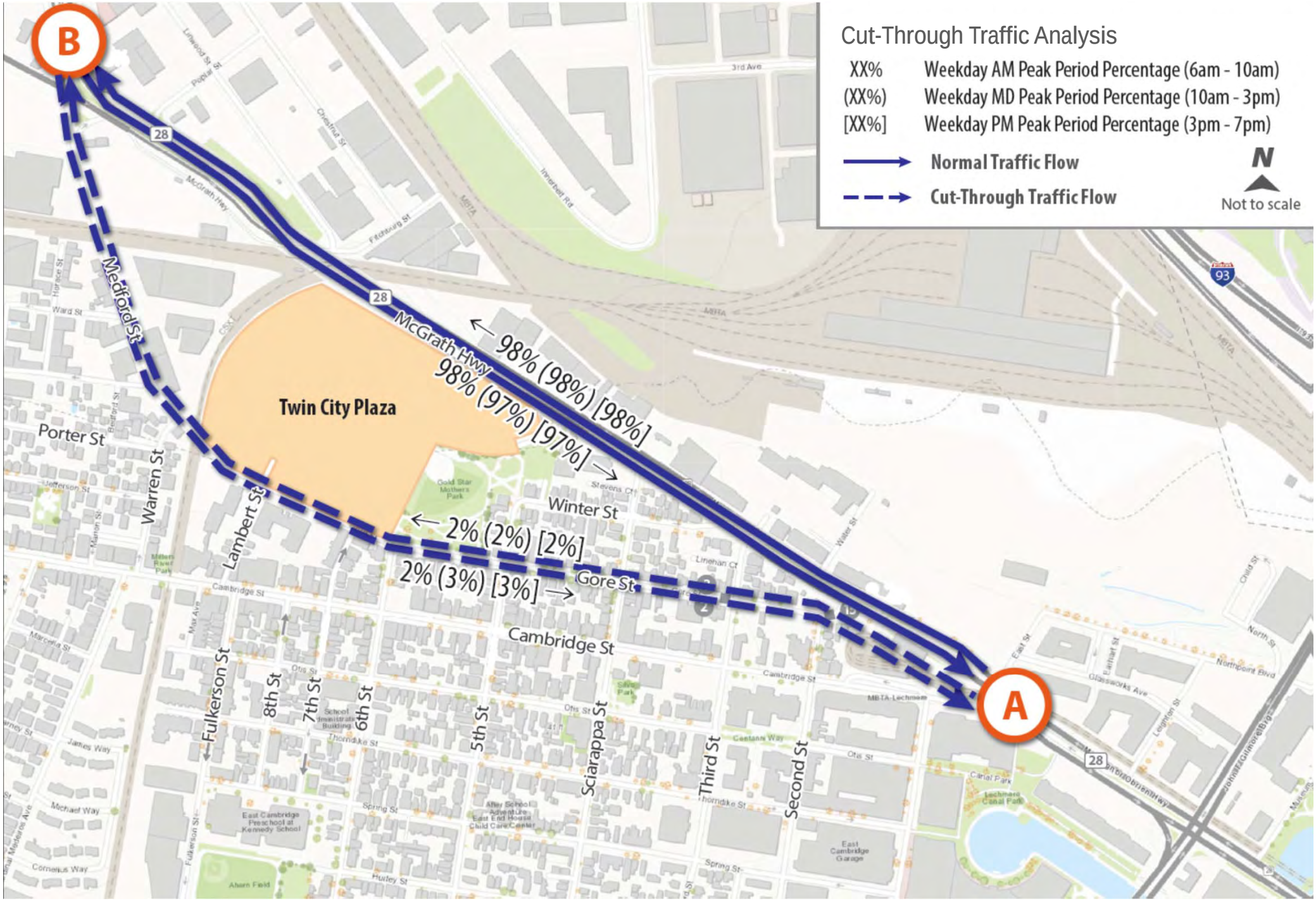
TRAFFIC | EASTBOUND TRAVEL PATTERNS



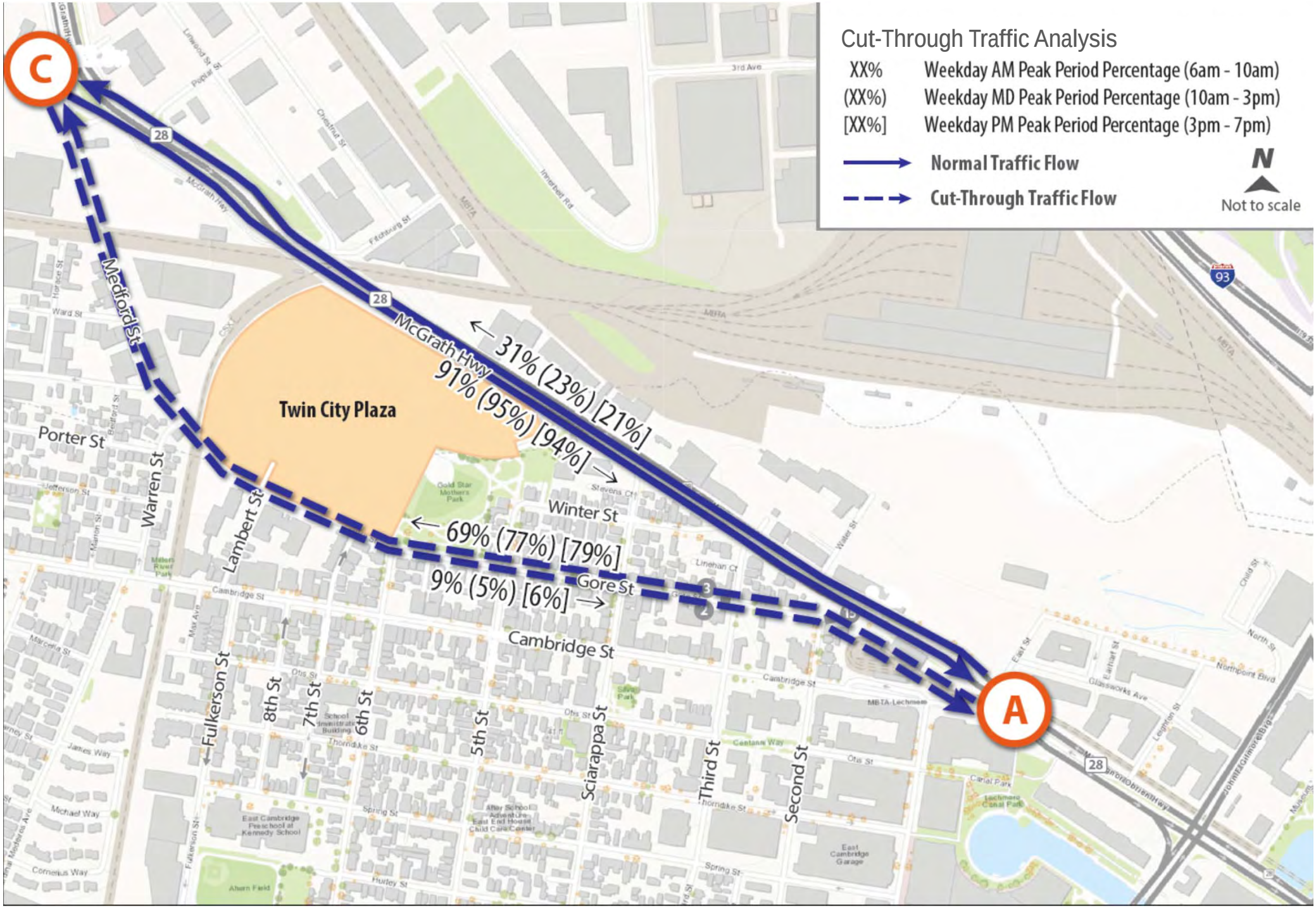
TRAFFIC | WESTBOUND TRAVEL PATTERNS



TRAFFIC | CUT-THROUGH ANALYSIS



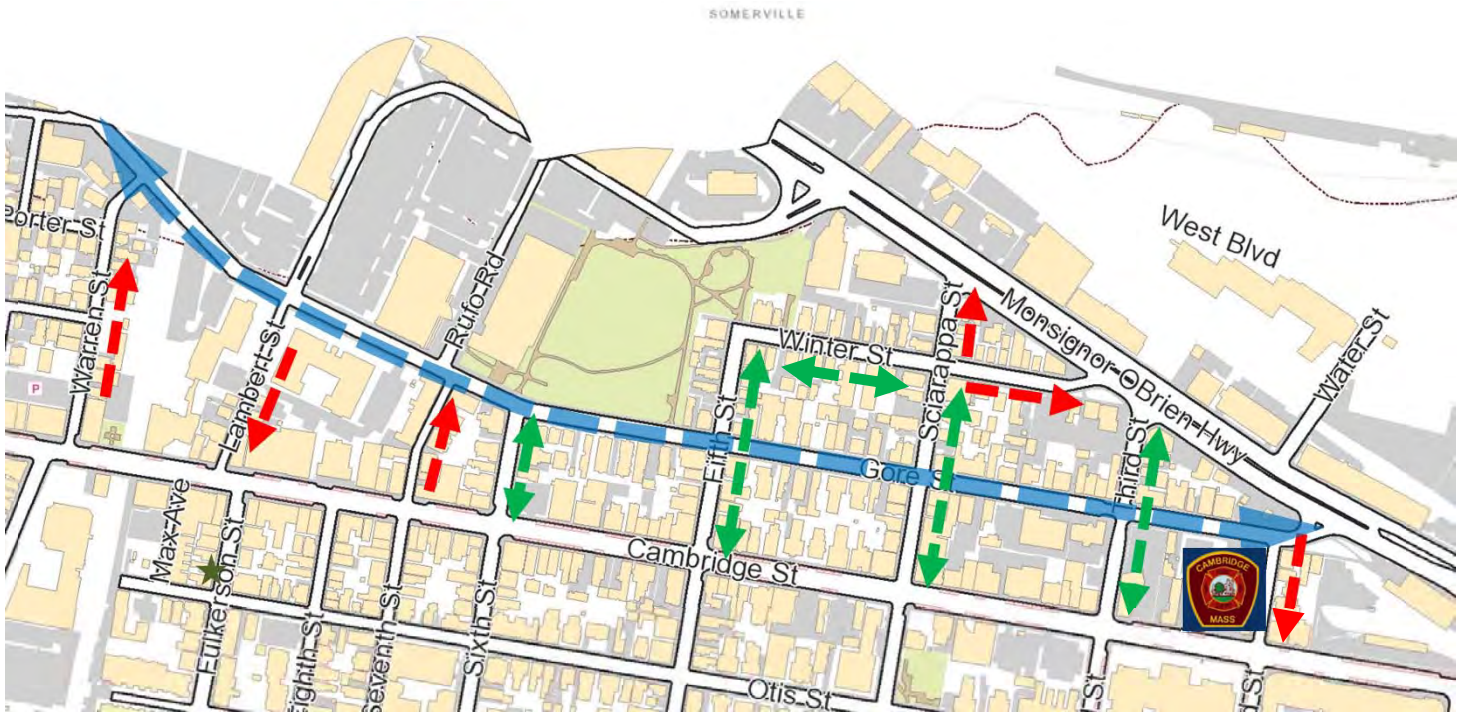
TRAFFIC | CUT-THROUGH ANALYSIS



TRAFFIC | FINDINGS

Traffic Patterns

- Most volume exits Gore Street east of Sixth St.
- McGrath bypass volume is minimal
- Biggest cut-through pattern is from O'Brien westbound to Somerville Ave



Findings

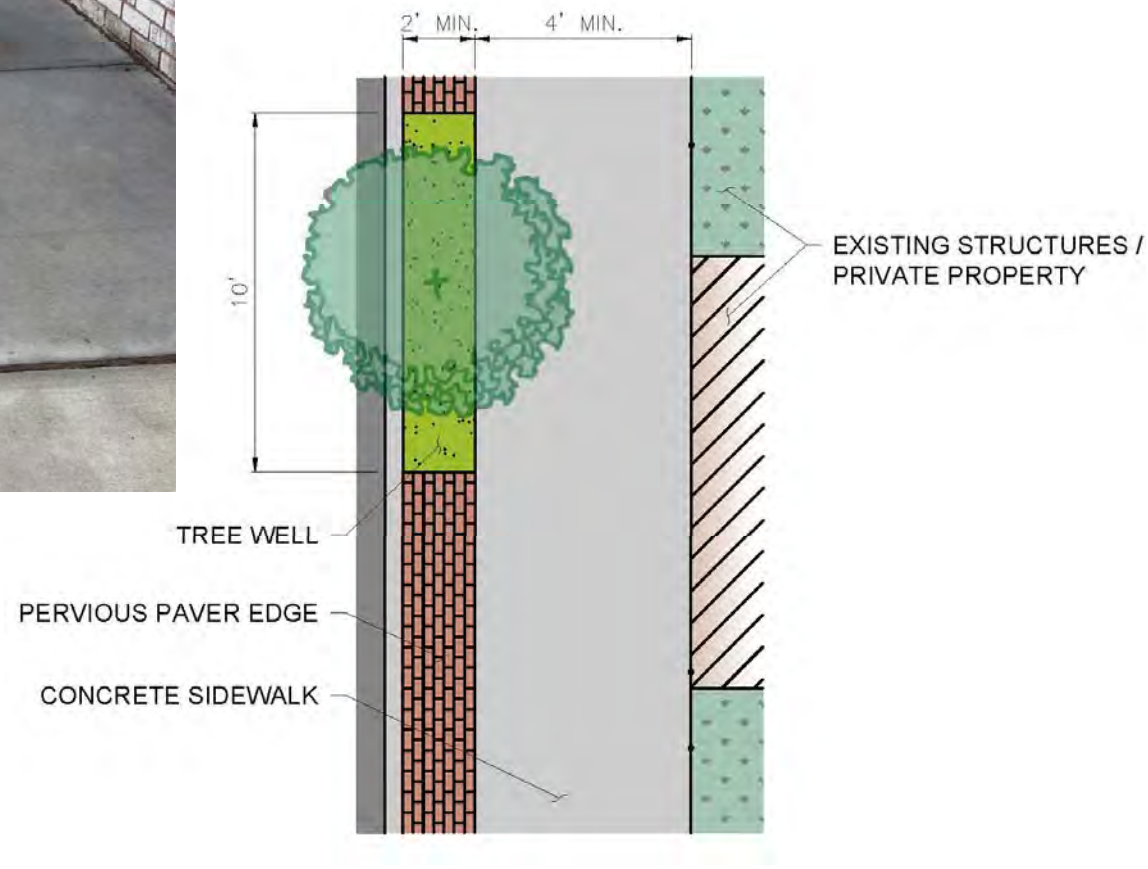
- Any change to Gore Street direction would require maintaining westbound flow for Cambridge Fire Department emergency access
- Changes to circulation would likely have secondary side effects and inconvenience residents and business owners in the neighborhood
- Traffic volume on Gore Street east of Sixth is consistent with a neighborhood connector

DESIGN | SIDEWALKS AND ACCESSIBILITY

The City is committed to accessibility in all of our construction projects.

- All new sidewalks and pedestrian ramps will meet ADA /AAB requirements.
- Sidewalk widths vary by the type of street. Typically 5’ sidewalk is required, but wider sidewalks are required on busier commercial streets and arterials.
- 4’ min is required at new driveways and street trees. 3’ min is allowable at existing street trees.
- Sidewalks will include a minimum 3’ of sidewalk or accessible routes around existing trees.
- The best design for pedestrian crossings, particularly on narrow side streets, may be a modified raised crosswalk.

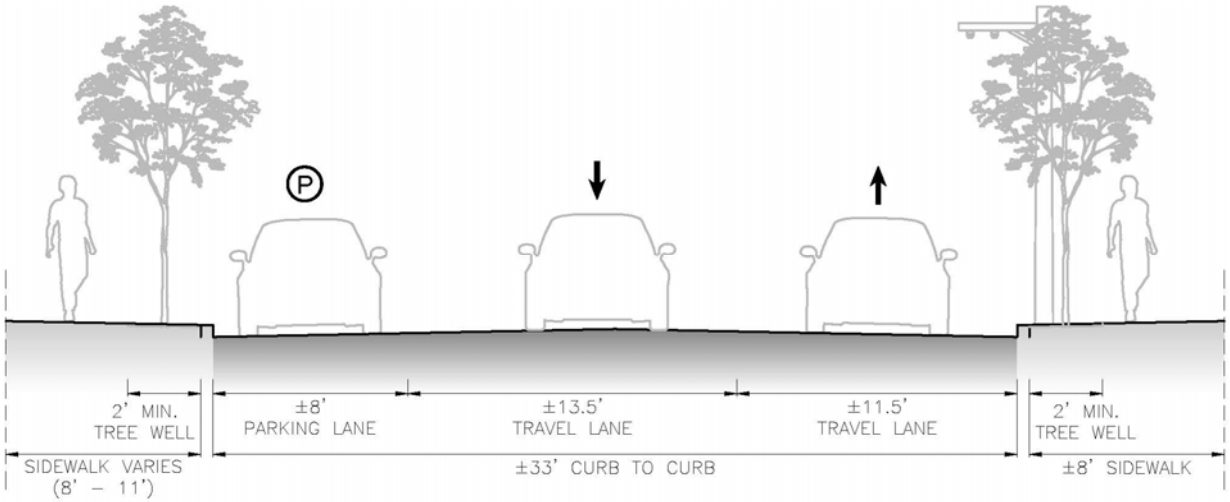
DESIGN | SIDEWALK STANDARDS



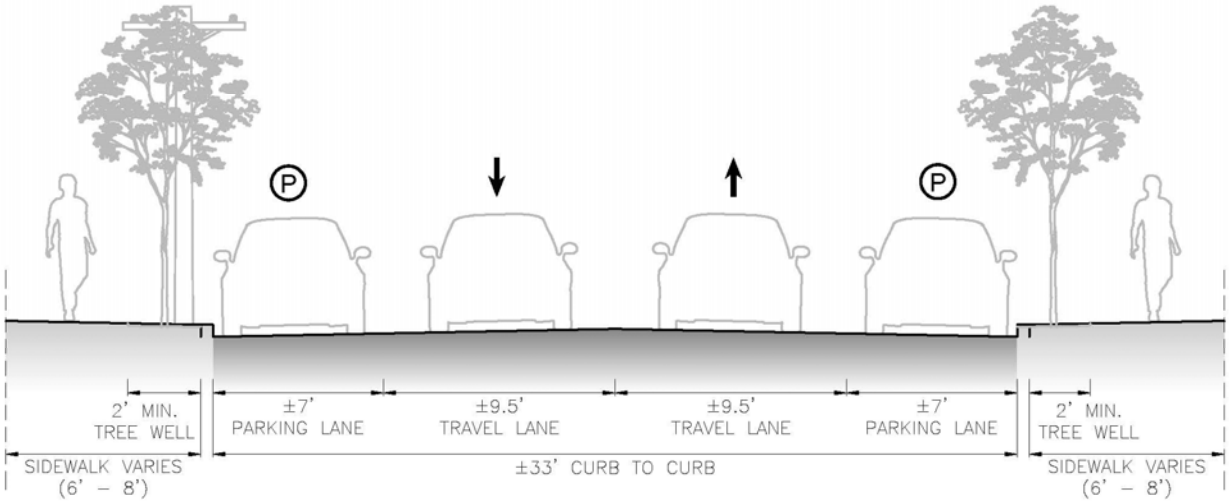
DESIGN | SIDEWALKS AND ACCESSIBILITY

- 3 existing Trees will likely require Curb Extensions for Accessibility.
- Some existing trees may require Flexi-pave installation to protect shallow tree roots while establishing stable walking surface.

DESIGN | CROSS SECTIONS

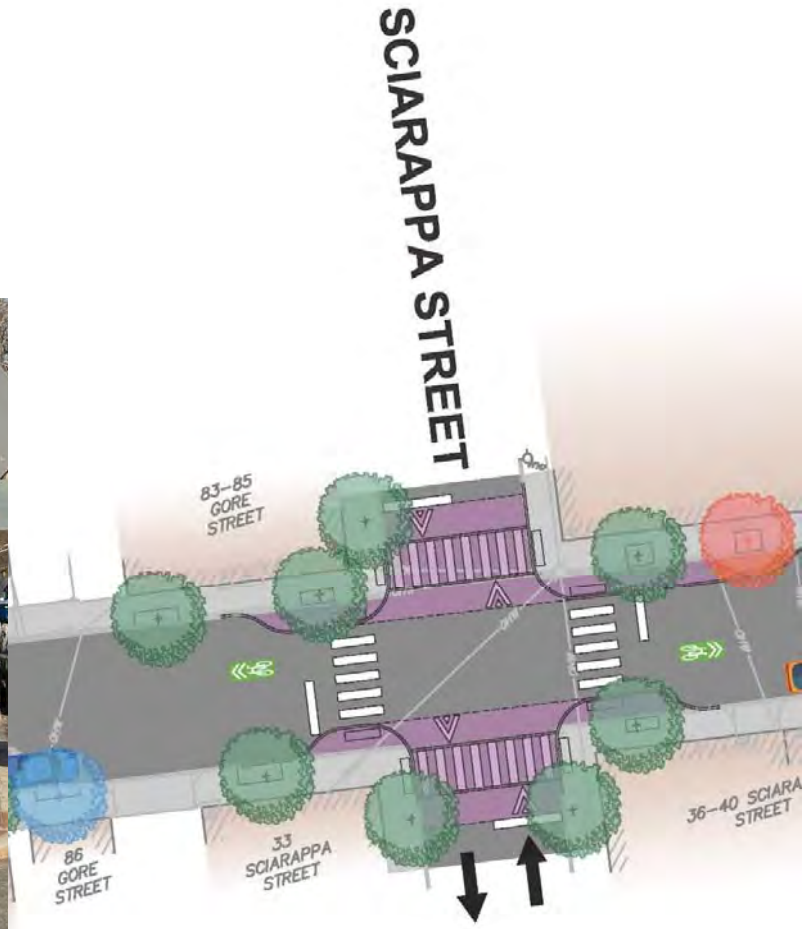


TYPICAL SECTION A - GORE STREET
TOWN LINE TO SIXTH STREET



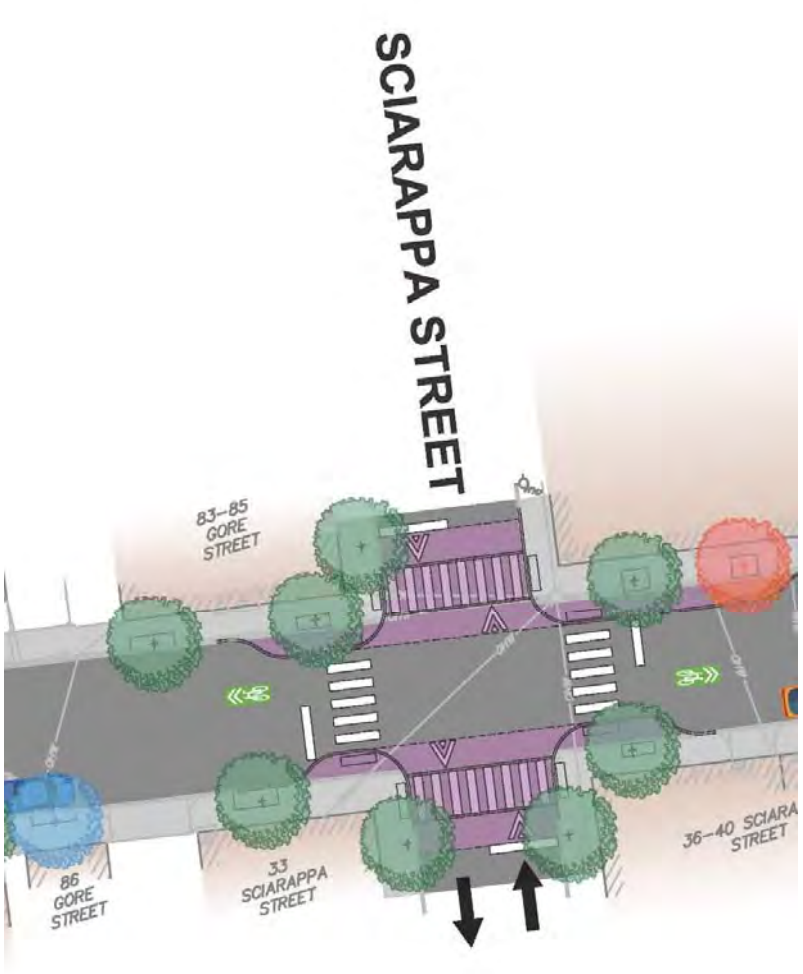
TYPICAL SECTION B - GORE STREET
SIXTH STREET TO O'BRIEN HIGHWAY

DESIGN | SIDE STREET RAISED CROSSINGS



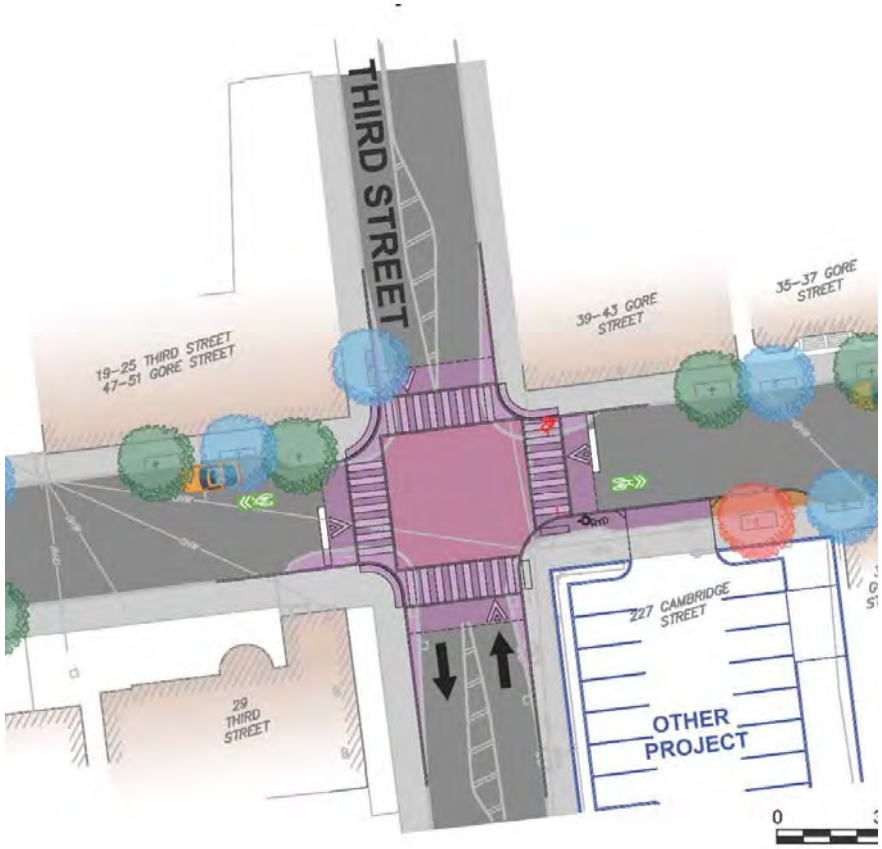
- Improved conditions for pedestrians
- Reduced vehicle speeds

DESIGN | CURB EXTENTIONS AT CROSSINGS



- **Improved conditions for pedestrians with shortened crossing and improved visibility**

DESIGN | RAISED INTERSECTIONS



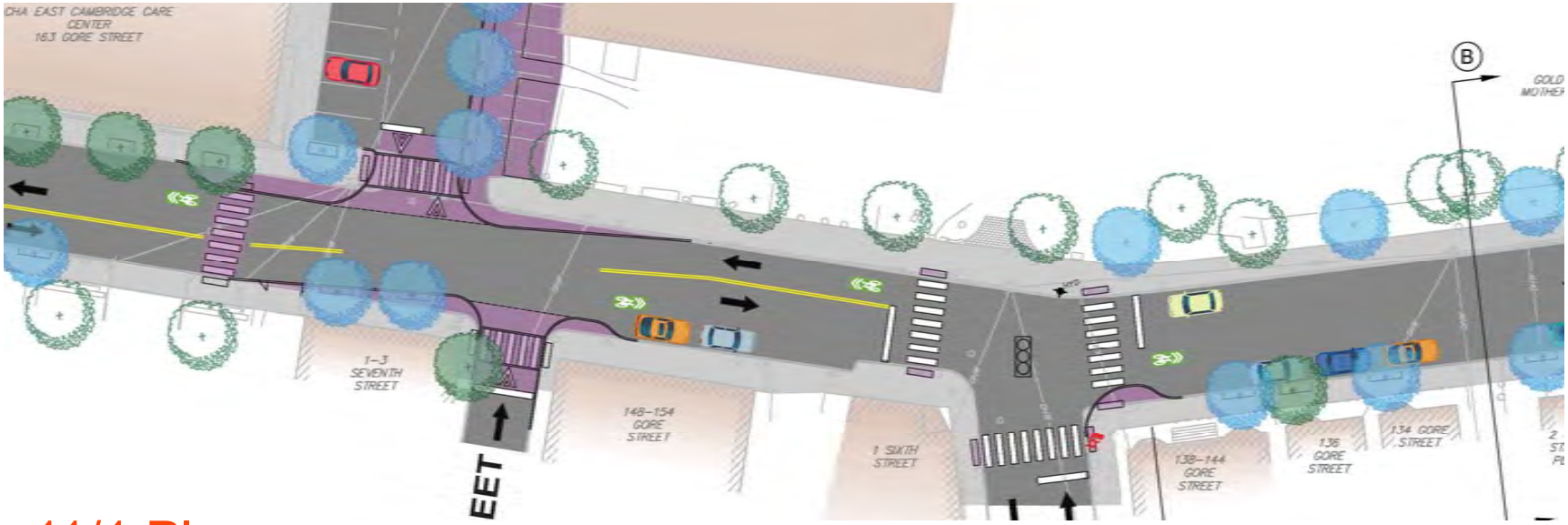
Raised Intersections proposed at :

- Gore Street and 3rd Street
- Gore Street and 5th Street
- Gore Street and Rufo Road

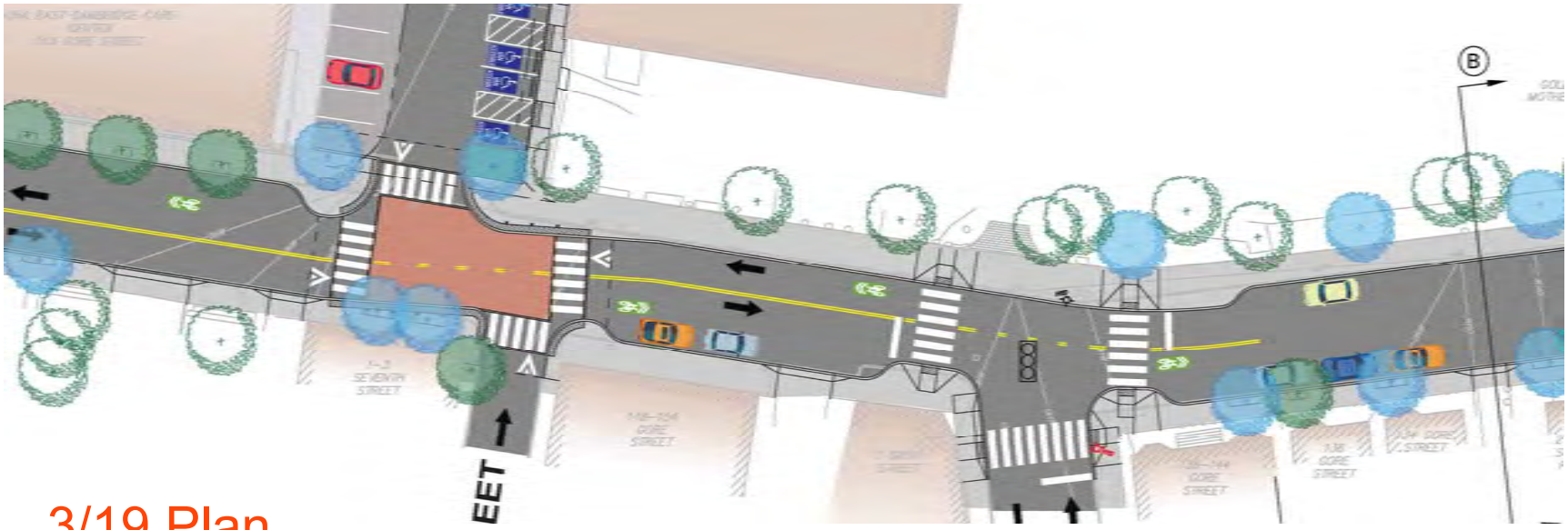
Raised Intersections:

- Reduce vehicular speeds
- Increase visibility of crossings

DESIGN | UPDATES



11/1 Plan



3/19 Plan

DESIGN | STREET TREES

Existing Street Trees

Existing street trees will be protected during construction and the sidewalks will be carefully evaluated to ensure adequate accessible routes through the neighborhood.

New Tree Plantings

- On **narrow sidewalks** (less than 8’ wide), a minimum of 4’ of sidewalk width will be retained adjacent to new trees.
- On **wider sidewalks** (8’ wide or greater), a minimum of ½ of the overall sidewalk width will be retained for pedestrians.

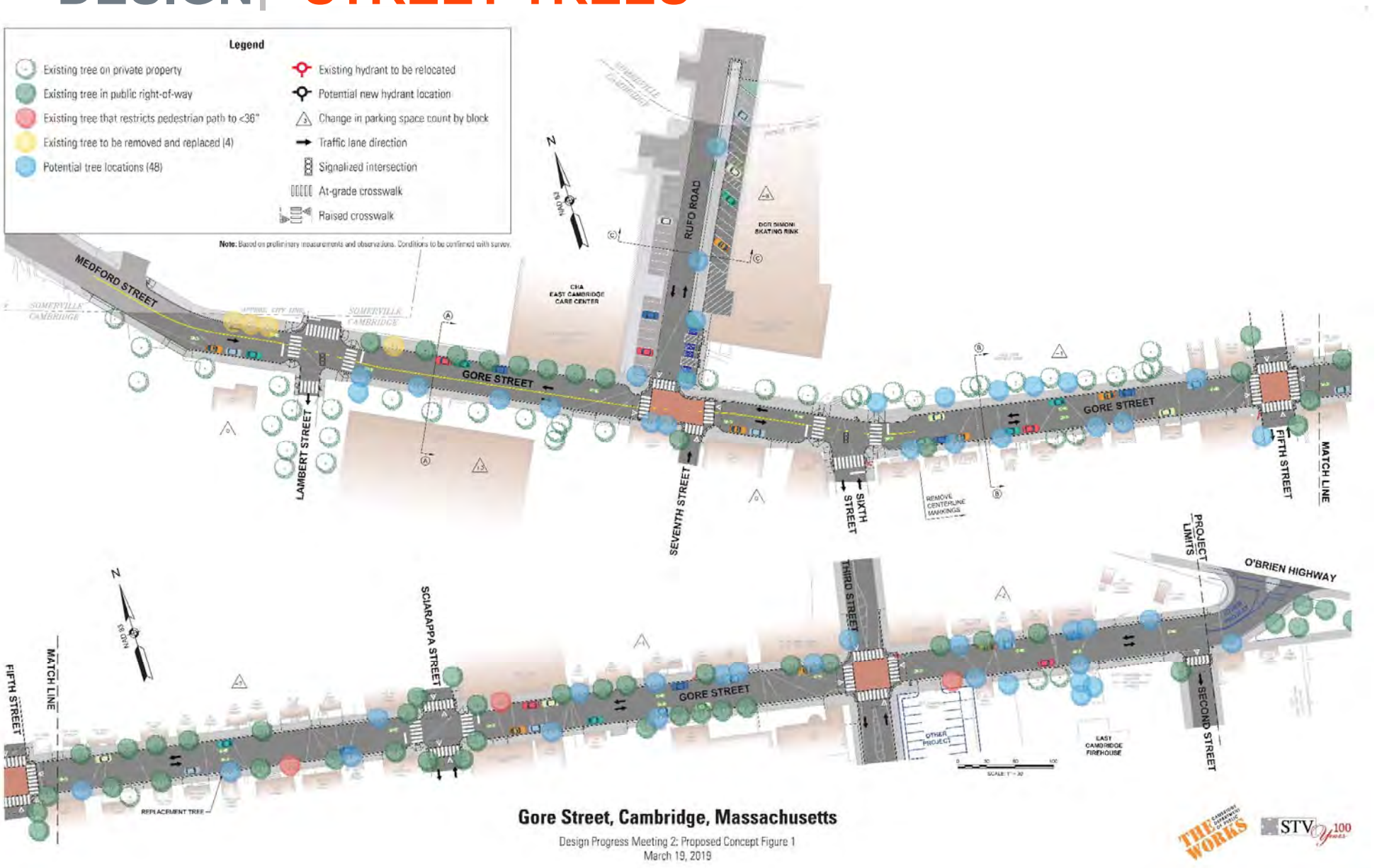
Back of Sidewalk Trees

The Arborist will work with residents interested in back of sidewalk tree plantings.

GOALS

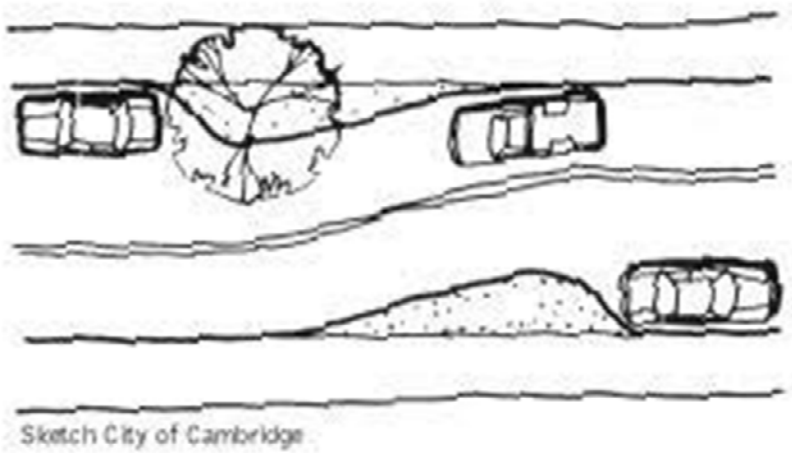
- **Protect existing** street trees during construction.
- Increase the number of street trees and maintain **accessible sidewalks**.

DESIGN | STREET TREES



48 identified potential locations for new tree plantings

DESIGN | CHICANES

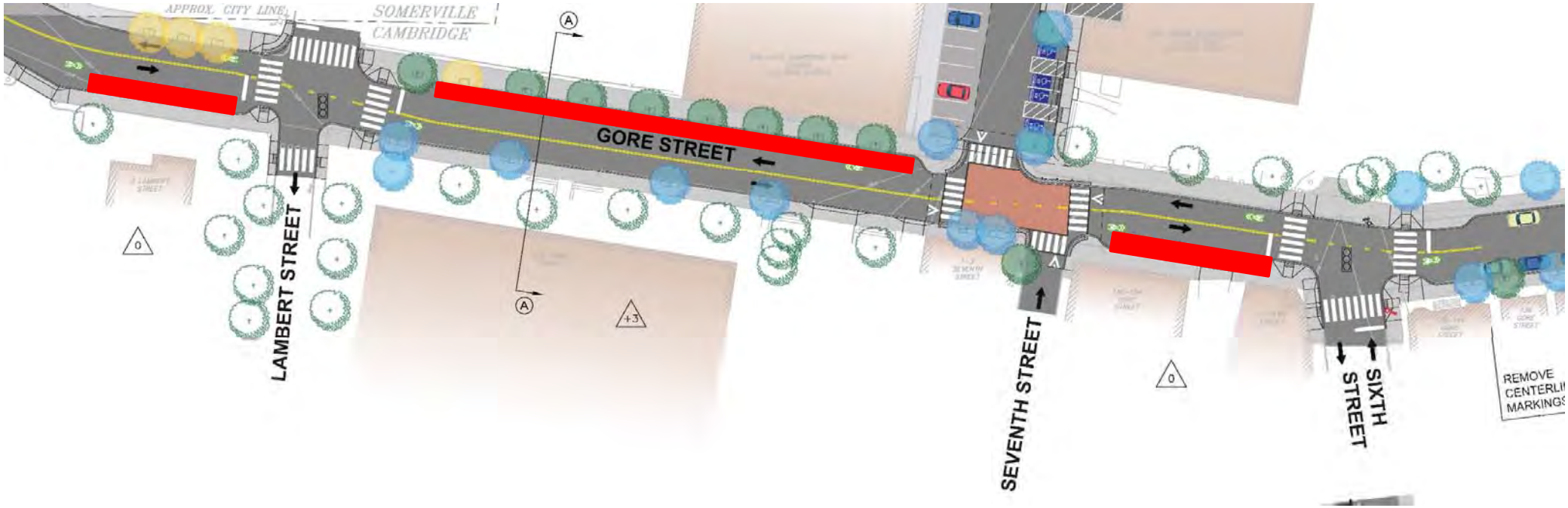


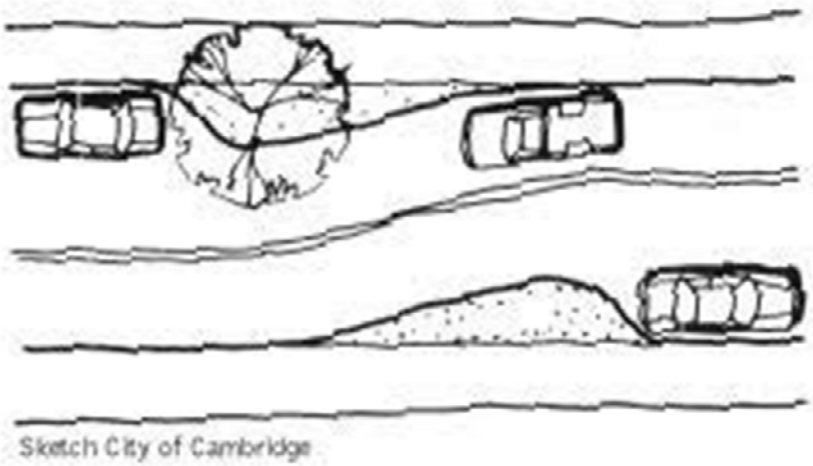
Sketch City of Cambridge

Chicanes:

- **One side of parking alternated between sides of roadway**
- **Slow vehicular speeds by breaking up lengths of straightaways**

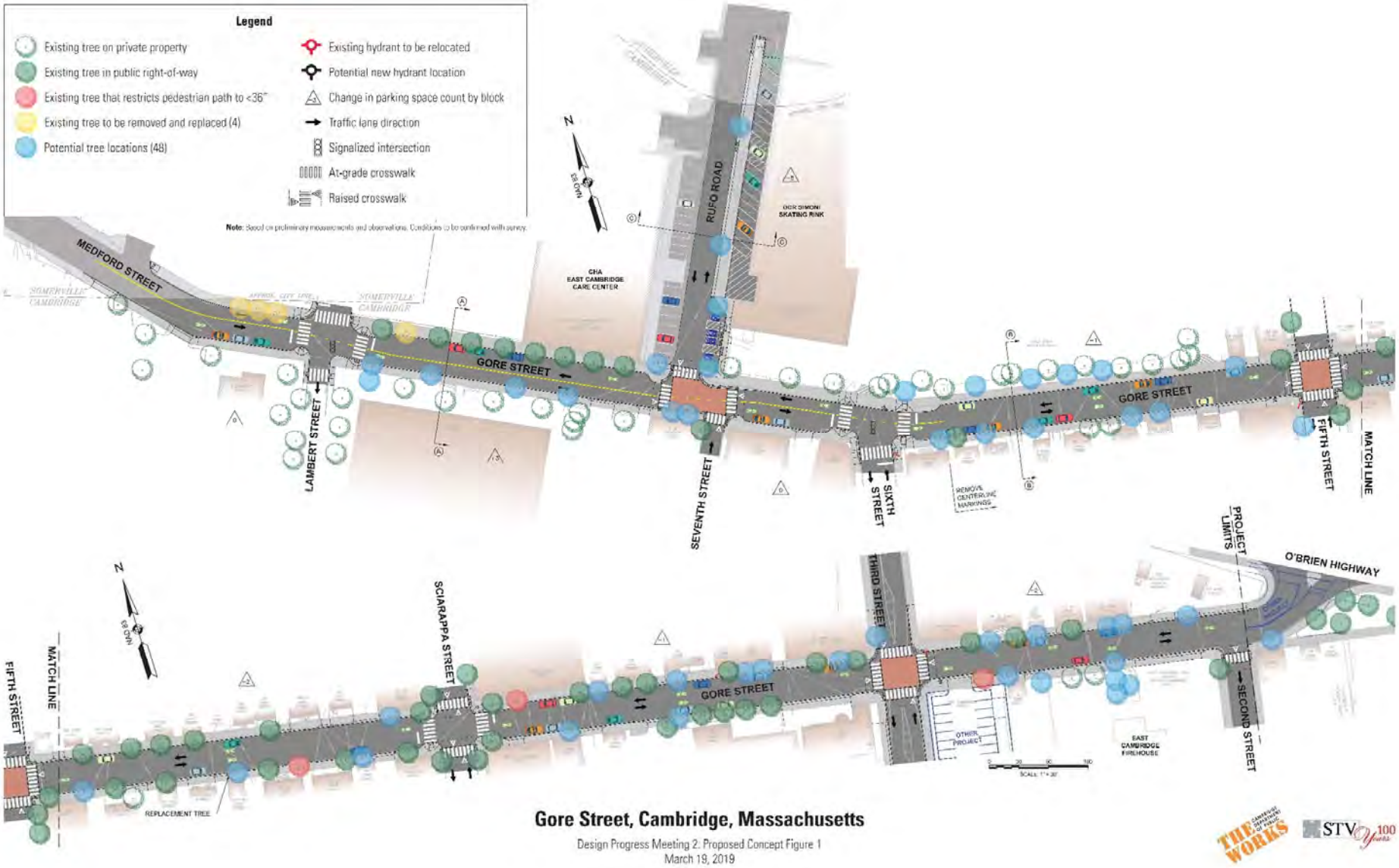
DESIGN | CHICANES





Sketch City of Cambridge

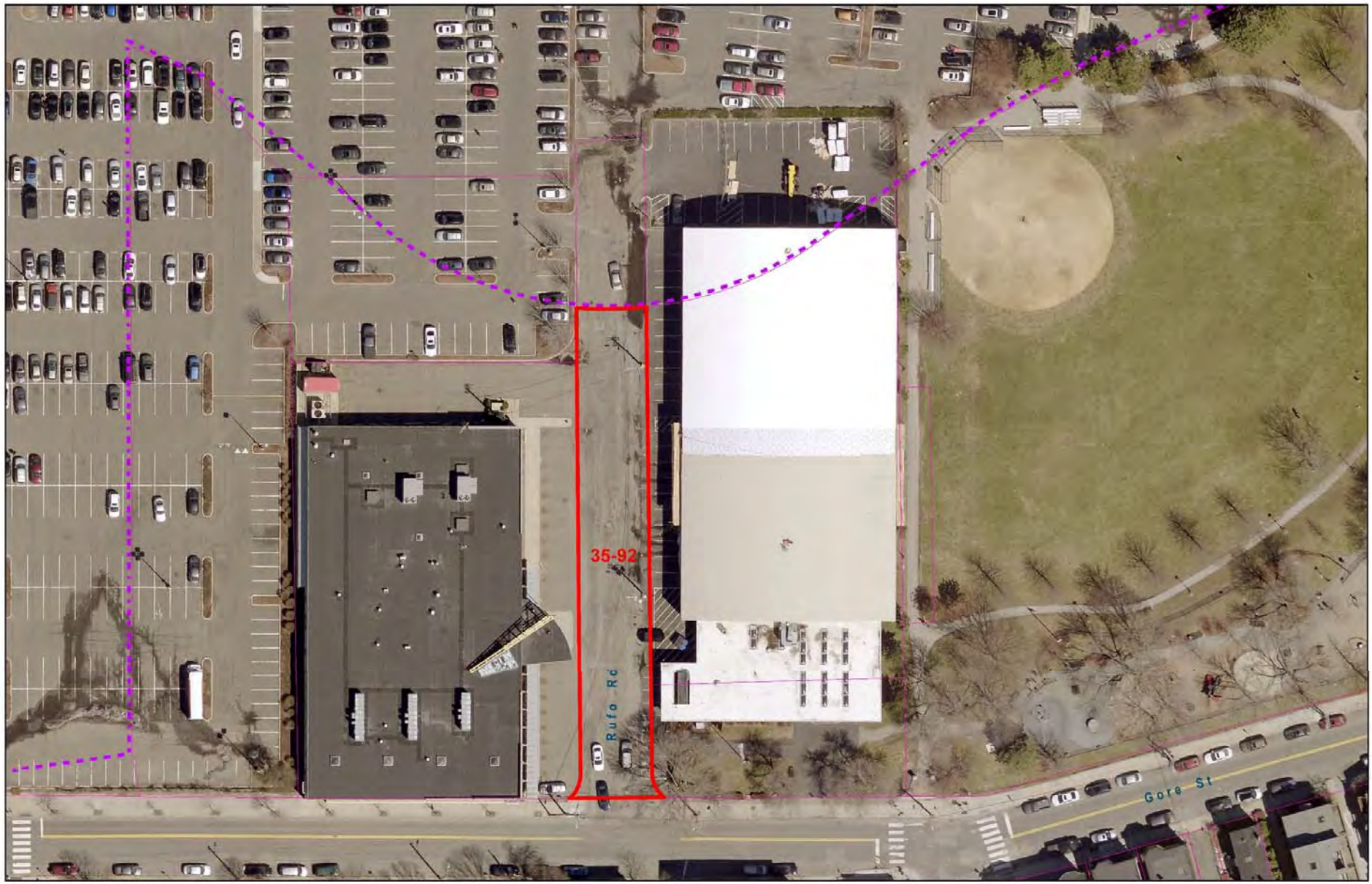
DESIGN | Features



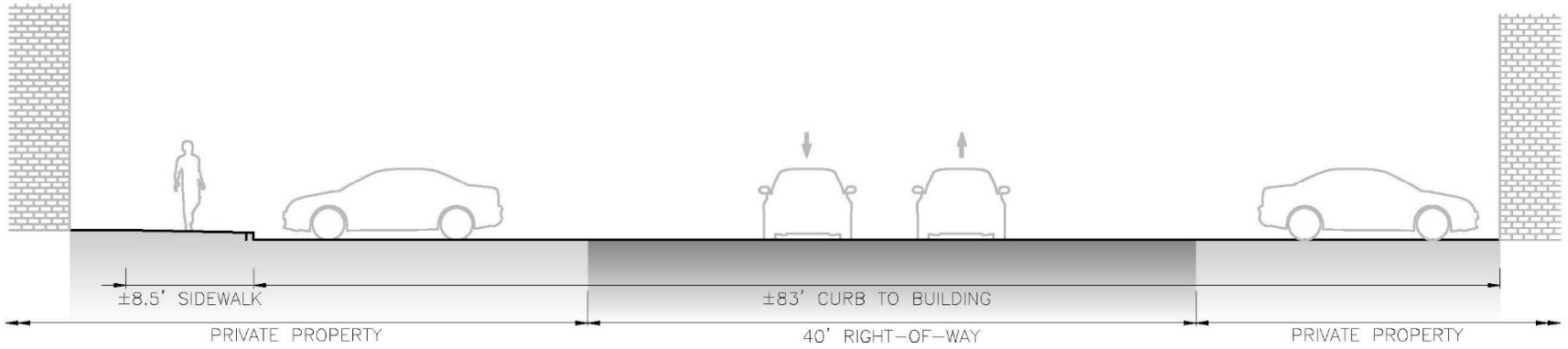
- **Remove Centerline from 6th Street to Msgr O'Brien Highway**
- **Shared Lane Markings for Bicyclists**

RUFO ROAD | EXISTING CONFIGURATION

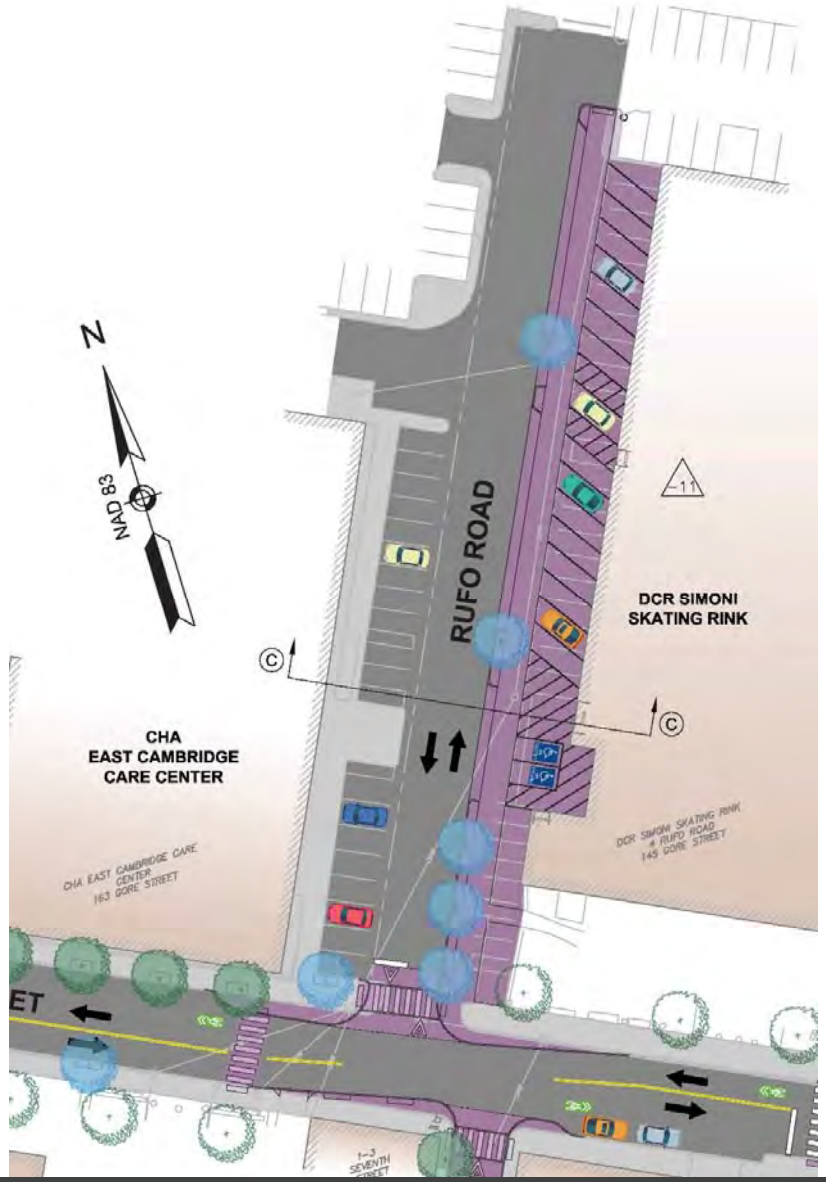
RUFO ROAD | EXISTING CONFIGURATION



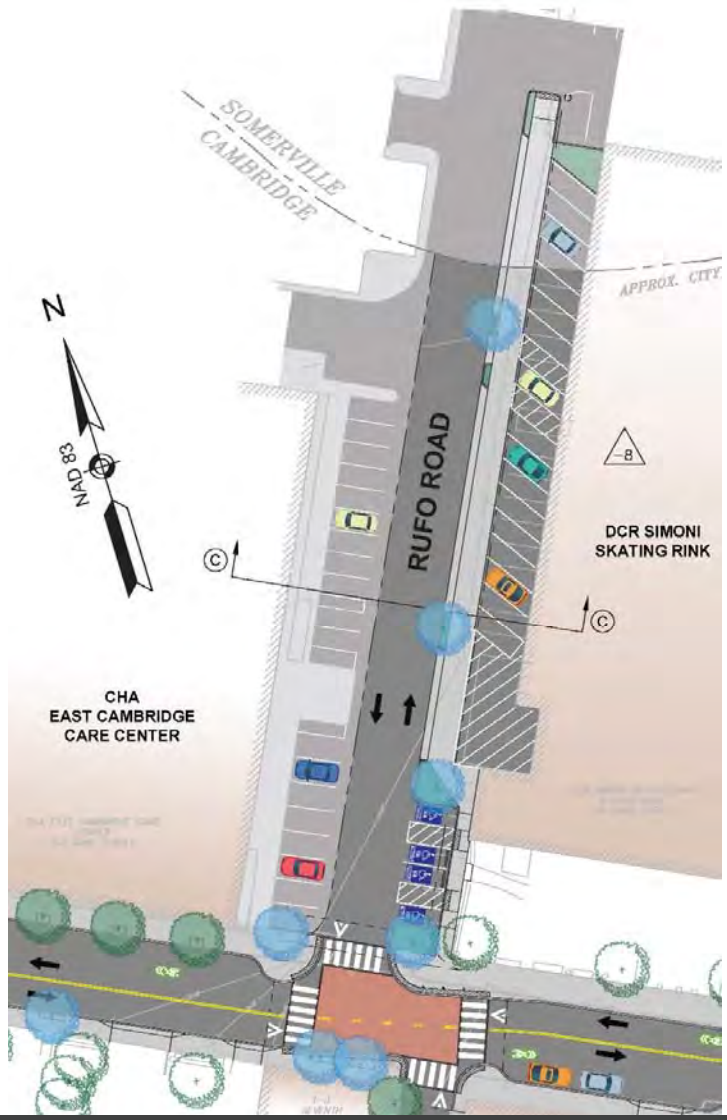
RUFO ROAD | EXISTING SECTION



RUFO ROAD | PROPOSED CONDITIONS

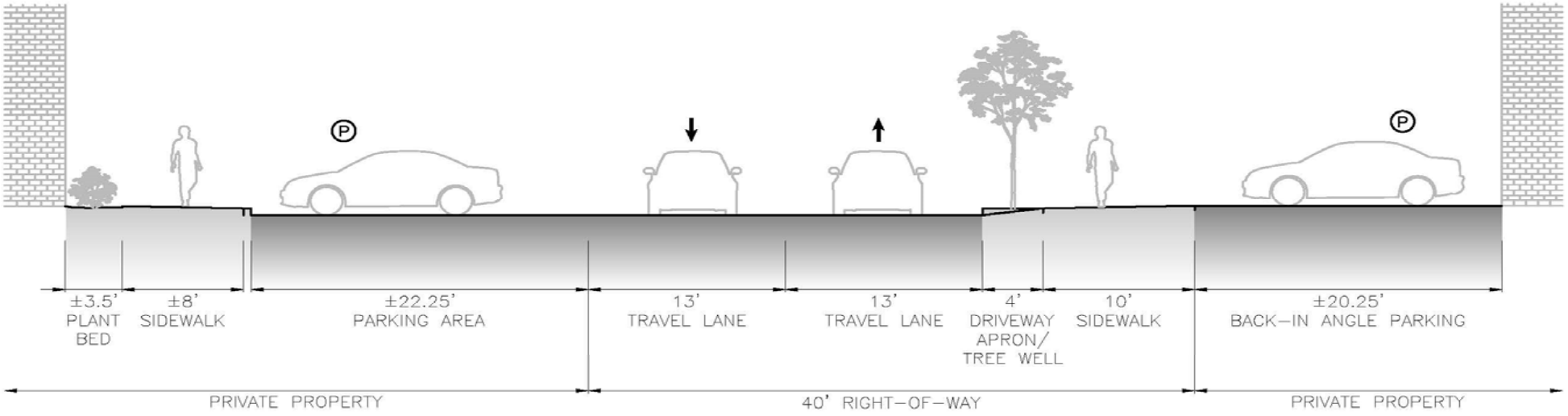


11/1 Plan



3/19 Plan

RUFO ROAD | PROPOSED CONDITIONS



TYPICAL SECTION C - RUFO ROAD

RUFO ROAD | CURRENT CONDITIONS

GORE STREET and RUFO ROAD | SCHEDULE

- ~~**Early Summer 2018** Design Kick-Off~~
  - ~~Community Meeting to understand Conditions~~

- ~~**Fall 2018:** Survey and Design Concepts~~
  - ~~Community meeting to evaluate concepts~~

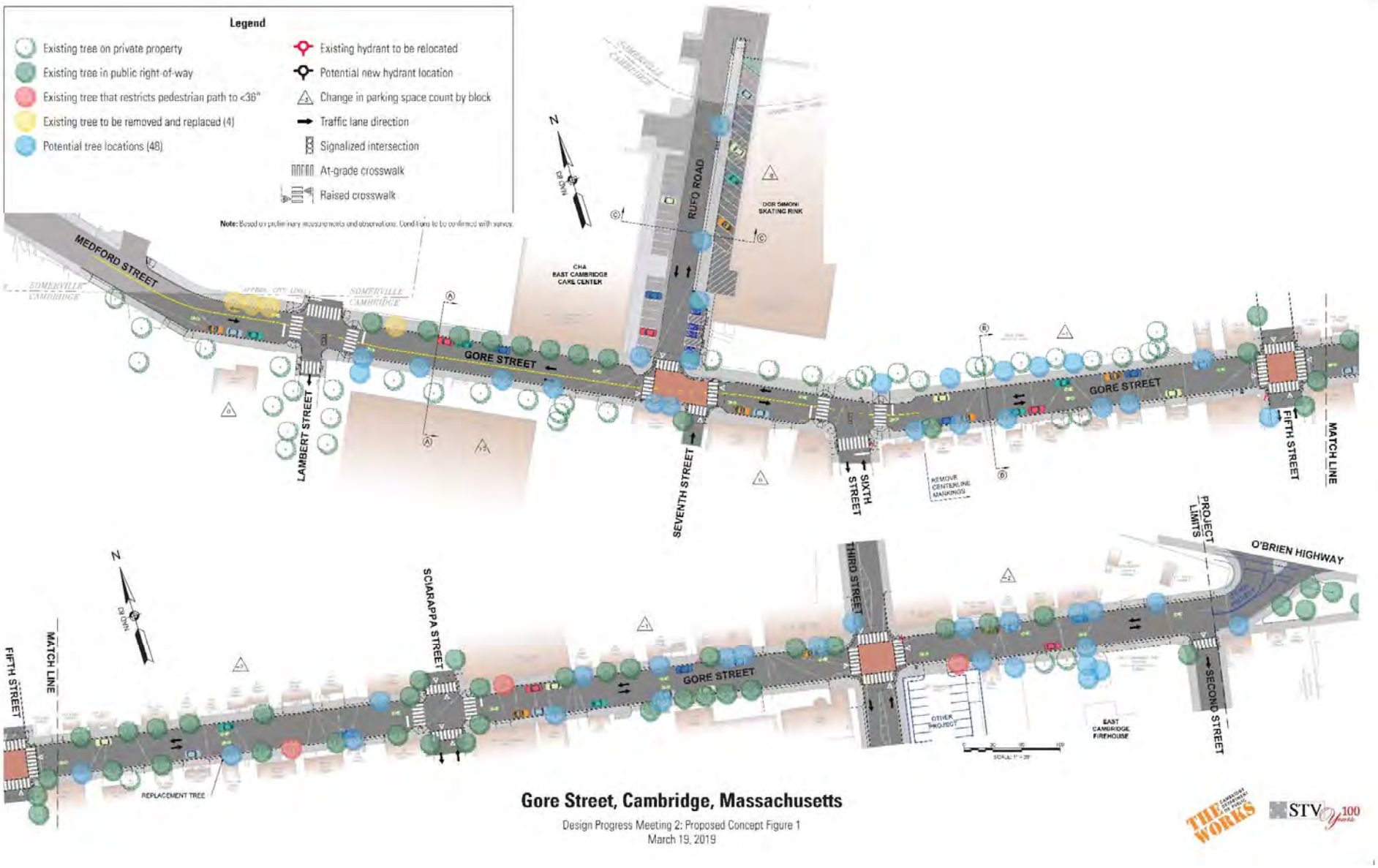
- **Spring 2019**: Design Progress Meeting 2 (Tonight)
  - Community meeting to review design
  - Traffic Data Collection Review

- **Summer 2019**: Design Finalization

- **Fall 2019**: Bidding for Construction

- **Winter 2019:** Construction Commencement
  - Community Meeting to kick-off construction

GORE STREET | SMALL GROUP DISCUSSION



Presentation and plan to be posted on Project Website: http://bit.ly/GoreStRufoRd

GORE STREET | RELATIONSHIP TO NETWORK PATHS