MASSACHUSETTS AVENUE BETTER BIKE PROJECT

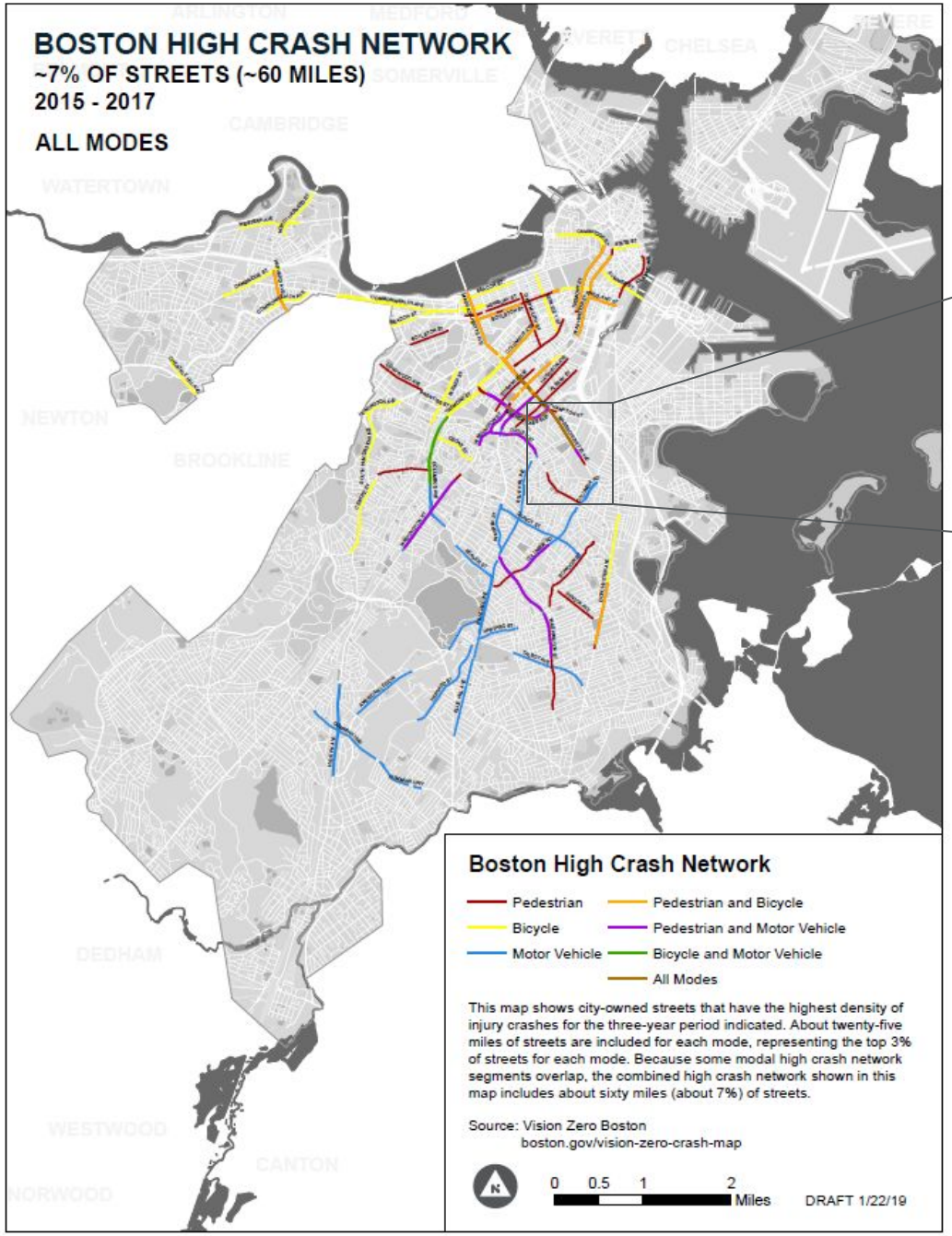
May 29, 2020

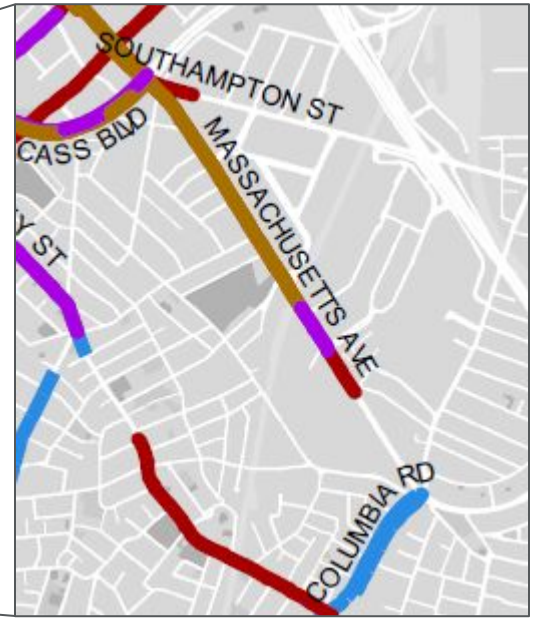
CITY OF BOSTON
Martin J. Walsh, Mayor

BOSTON TRANSPORTATION DEPARTMENT
Greg Rooney, Acting Commissioner

OVERVIEW


CAMBRIDGE
SOMERVILLE
CHARLESTOWN
WINTHROP
145
WATERTOWN
1
93
EAST BOSTON
1A
CAMBRIDGE
3
CENTRAL
90
20
20
BACK BAY/
BEACON HILL
ALLSTON/
BRIGHTON
30
90
90
FENWAY/
KENMORE
30
SOUTH
END
SOUTH BOSTON
BROOKLINE
9
Mass Ave
28
BROOKLINE
ROXBURY
3A
93
JAMAICA PLAIN
DORCHESTER
203
QUINCY
NEWTON
WEST ROXBURY
ROSLINDALE
MATTAPAN
203
93
28





Boston High Crash Network

- Pedestrian
- Pedestrian and Bicycle
- Bicycle
- Pedestrian and Motor Vehicle
- Motor Vehicle
- Bicycle and Motor Vehicle
- All Modes


Best Western PLUS
GERARD
25
DI PIERRO
DESIGN • BUILD • REMODEL

Greetings from...

NEWMARKET







Boston, Massachusetts

WHAT WE'VE DONE SO FAR

PRIORITIZED THE PROJECT

- *Prioritized by the public through the Go Boston 2030 process (2017)*
- *Council advocated for inclusion in the city's FY20 budget (spring 2019)*

INITIATED DESIGN PROCESS

CONCEPT DESIGN	▸ Review past findings, identify existing conditions ▸ Conduct outreach, identified key interests of stakeholders and users ▸ Test design alternatives ▸ Accurate traffic model using existing user volumes
25% DESIGN	▸ Set the basics of the proposed design, swept-path analysis to confirm ▸ Preliminary traffic signal phasing and timing ▸ First draft of curb ramps
75% DESIGN	▸ Fully detailed and revised traffic signal phasing and timing ▸ Detailed plans for curb ramps and drainage ▸ Adjustments to any lane dimensions, pavement markings, and signs
PIC	▸ Official sign-off on all constructed elements from the Public Improvement Commission
100% DESIGN	▸ Continued refinements to traffic signal phasing and timing; curb ramps; and drainage ▸ Last tweaks to all other elements ▸ Final draft of temporary traffic management plans
FINAL DESIGN	▸ All issues noted in thorough design review have been approved ▸ Signed by City Engineer ▸ Delivered to contractor to begin work

We're here

REVIEWED PAST FINDINGS

- *Access Boston (2001)*
- *Boston Bike Plan (2013)*
- *South Bay Town Center (2015)*
- *Alternatives Evaluation - Massachusetts Ave at Newmarket Square (2016)*
- *1258-1272 Massachusetts Avenue (2016)*
- *Go Boston 2030 (2017)*
- *Jan Karski Way Extension (2019)*
- *PLAN Newmarket (ongoing)*

CONDUCTED RESIDENT OUTREACH

- *Flyered light posts and all residences along corridor*
- *Conducted walk/ride tours*
- *Presented at civic association meetings*
  - *Columbia-Savin Hill*
  - *Hancock Street*
  - *Jones Hill*
  - *Eastman-Elder*
  - *McCormack Executive Board*
  - *McCormack*
  - *Polish Triangle United*
  - *Uphams Corner Westside*

CONDUCTED BUSINESS OUTREACH

- *Delivered an informational flyer to every open business on the corridor*
  - *Returned twice to ensure every business had been visited*
- *Presented at Newmarket Business Association Meetings*
- *Followed up via 1:1 conversations with specific businesses:*
  - *Di Pierro Construction*
  - *Best Western Roundhouse Suites*
  - *Victory Programs*
  - *Edens*
  - *Ace Plumbing*
  - *South Bay Auto Body*
  - *Home Run Cafe*
  - *Dorchester Brewing Co.*

IDENTIFIED DESIGN PRIORITIES

- ***Safety of people biking and walking***
  - *Separated bike lanes*
  - *Intersection design*
  - *Pedestrian signal phases*
- ***Flow of buses, trucks, and cars***
  - *Multiple bus routes*
  - *Trucks*
  - *Newmarket/Shirley*
  - *Columbia Rd*
- ***Use of the curbside***
  - *Commercial loading for businesses*
  - *Parking for businesses and organizations*
  - *Parking for 1010 Mass Ave*
- ***Planning for the future***
  - *Plan Newmarket*
  - *Sidewalk reconstruction*
  - *Development*

IDENTIFIED EXISTING CONDITIONS

North of Columbia Road

Sidewalk	Parking lane	Drive lane	Drive lane	Drive lane	Parking lane	Sidewalk
8’	8’	15.5’	10’	12’	8’	8’

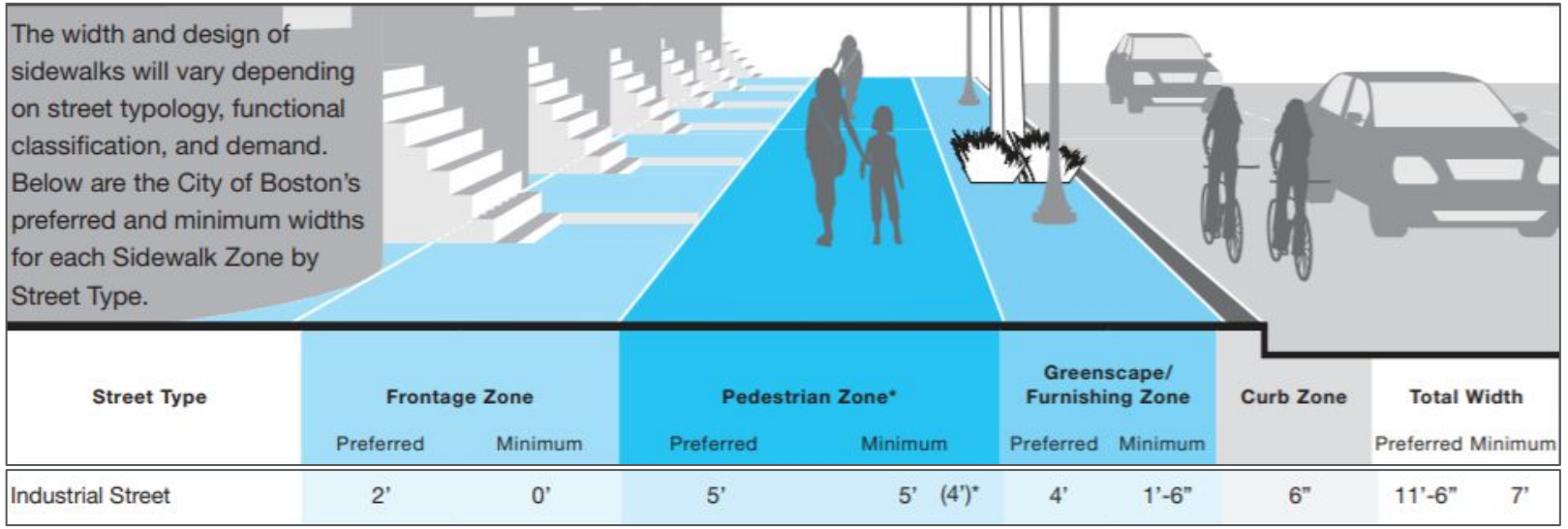
53.5’

IDENTIFIED KEY DIMENSIONS

Sidewalks

**Note: we avoid cross-sections that use all minimums.*

	Preferred	*Minimum*
Sidewalk	11.5 feet	7 feet



Street Type	Frontage Zone		Pedestrian Zone*		Greenscape/ Furnishing Zone		Curb Zone	Total Width	
	Preferred	Minimum	Preferred	Minimum	Preferred	Minimum		Preferred	Minimum
Industrial Street	2'	0'	5'	5' (4')*	4'	1'-6"	6"	11'-6"	7'

from Boston Complete Streets Design Guidelines (2013)

IDENTIFIED KEY DIMENSIONS

Motor Vehicles

Lane Widths	*Preferred*	*Minimum*
Travel lane	11 feet	10 feet
Parking lane	8 feet	7 feet

*Note: *we avoid cross-sections that use all minimums.*

Clear Turning Radii

Box trucks

Tractor-trailers

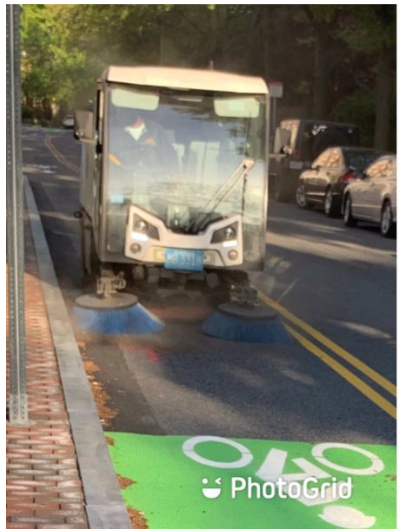
Boston Fire Ladder

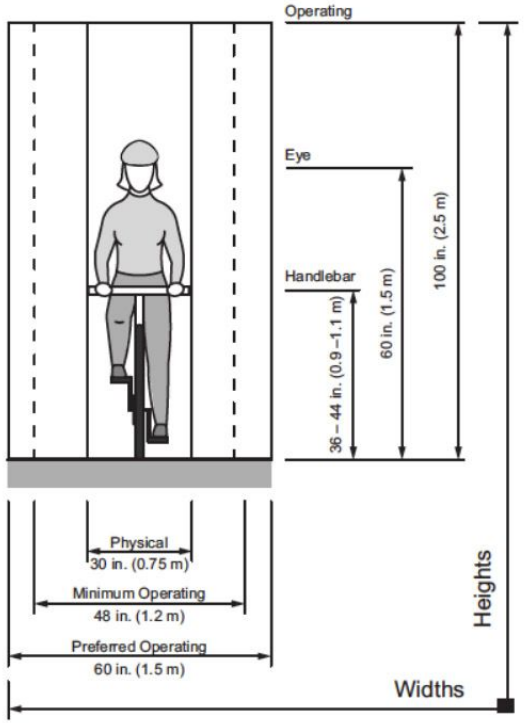
IDENTIFIED KEY DIMENSIONS

Bike facilities

*Note: we avoid cross-sections that use all minimums.

	Preferred	*Minimum*
Separated bike lane (one-way)	9 feet	8 feet
Separated bike lane (two-way)	15 feet	11 feet

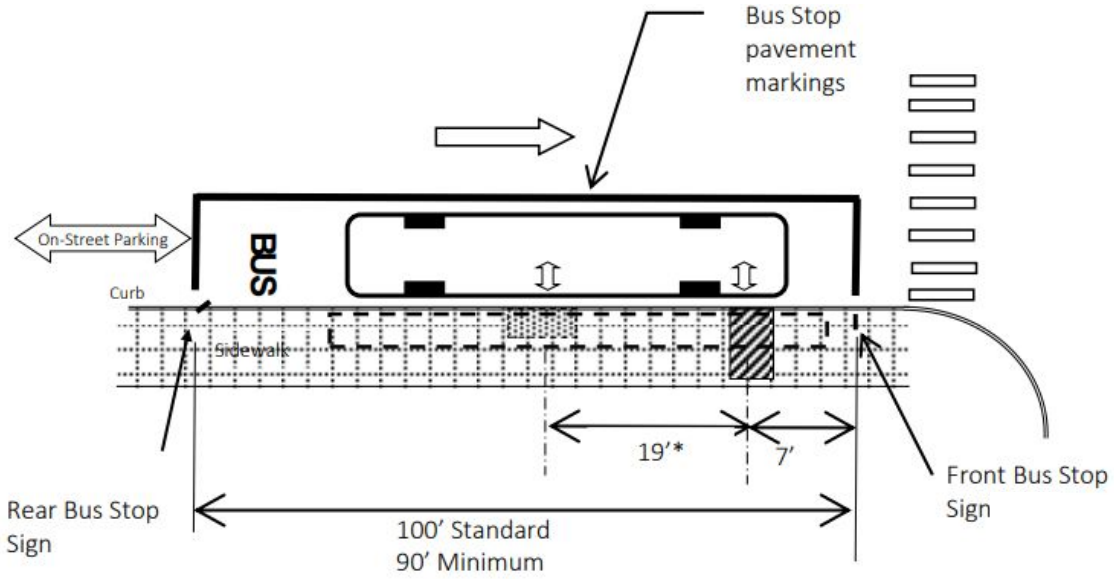




from Figure 3-1 Bicyclist Operating Space, AASHTO Guide (2012).

IDENTIFIED KEY DIMENSIONS

Near-side bus stop



ADA LANDING PAD
(5' X 8' MIN., 10' X 8' PREFERRED)

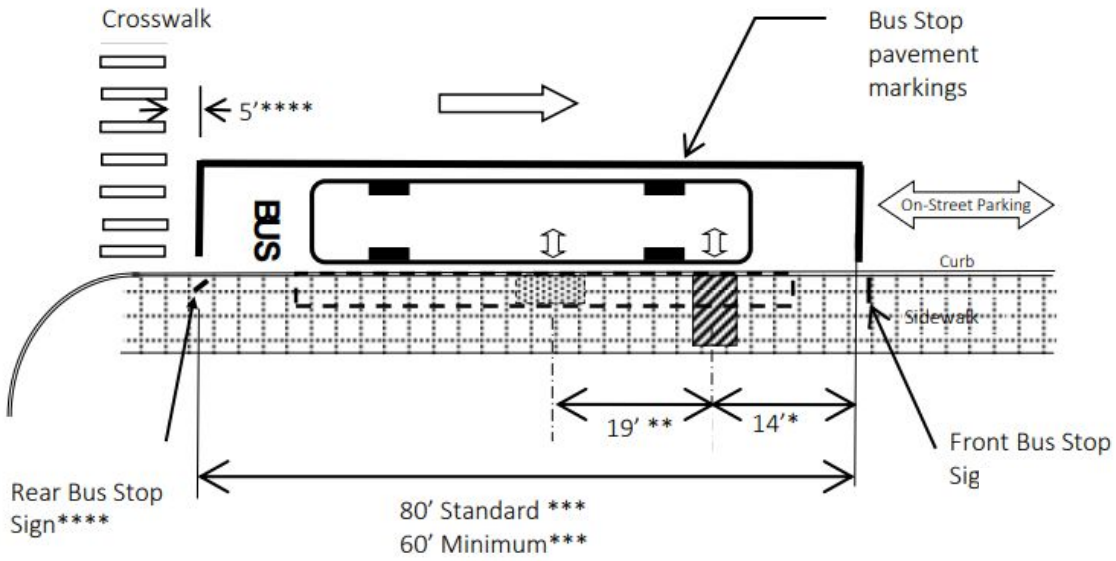
REAR DOOR CLEAR ZONES (4' X 10' MIN.)

RECOMMENDED CLEAR ZONE
(4' DEEP MINIMUM)

* Reduce to 7' if there isn't parking or another obstruction directly in front of bus stop.

IDENTIFIED KEY DIMENSIONS

Far-side bus stop



ADA LANDING PAD
(5' X 8' MIN., 10' X 8' PREFERRED)

REAR DOOR CLEAR ZONES (4' X 10' MIN.)

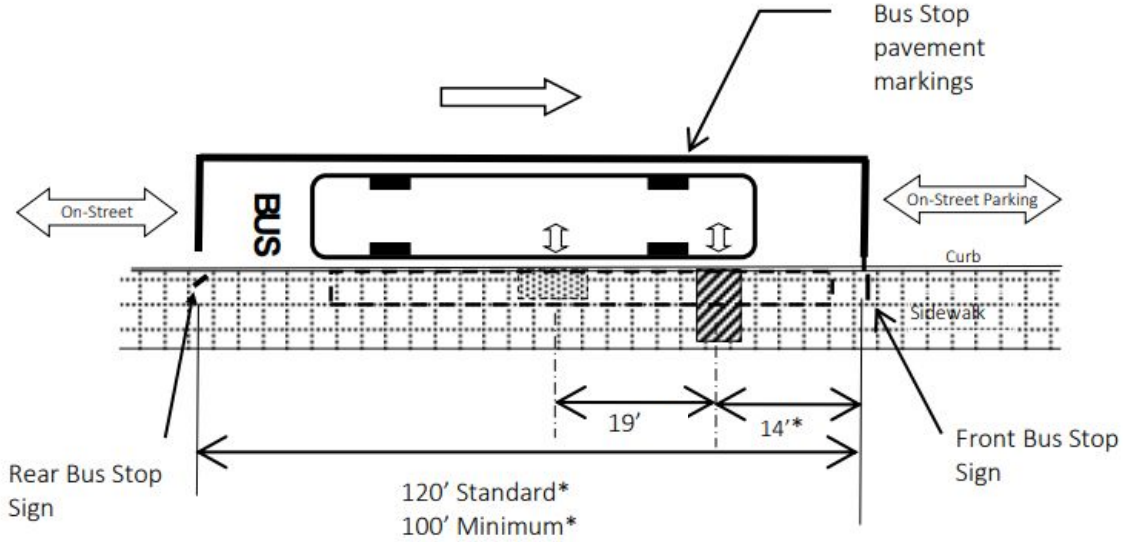
RECOMMENDED CLEAR ZONE
(4' DEEP MINIMUM)

* Reduce to 7' if there isn't parking or another obstruction directly in front of bus stop.

** Reduce by 7' if there isn't parking or another obstruction directly in front of bus stop.

IDENTIFIED KEY DIMENSIONS

Mid-block bus stop



ADA LANDING PAD
(5' X 8' MIN., 10' X 8' PREFERRED)

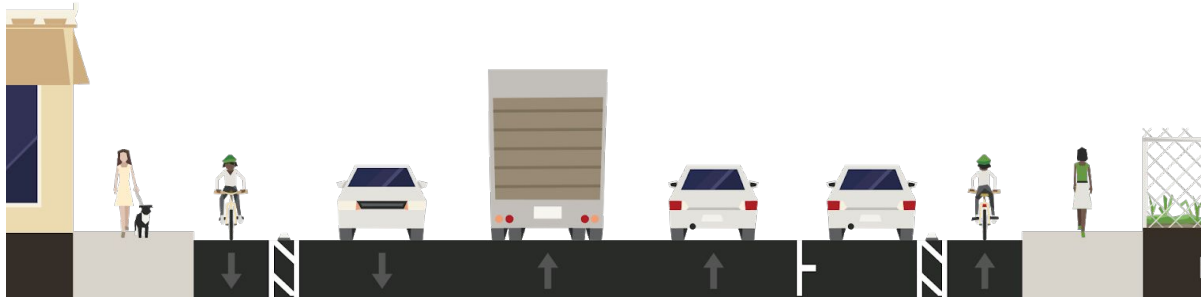
REAR DOOR CLEAR ZONES (4' X 10' MIN.)

RECOMMENDED CLEAR ZONE
(4' DEEP MINIMUM)

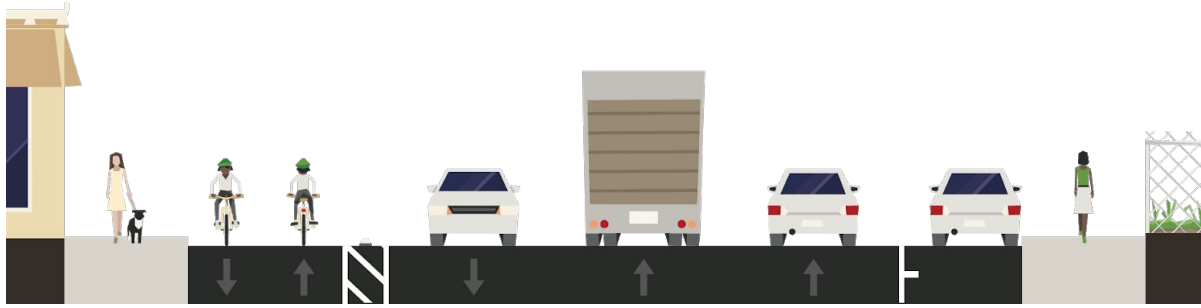
* Reduce to 7' if there isn't parking or another obstruction directly in front of bus stop.

ANALYZED ALL POTENTIAL CONCEPTS

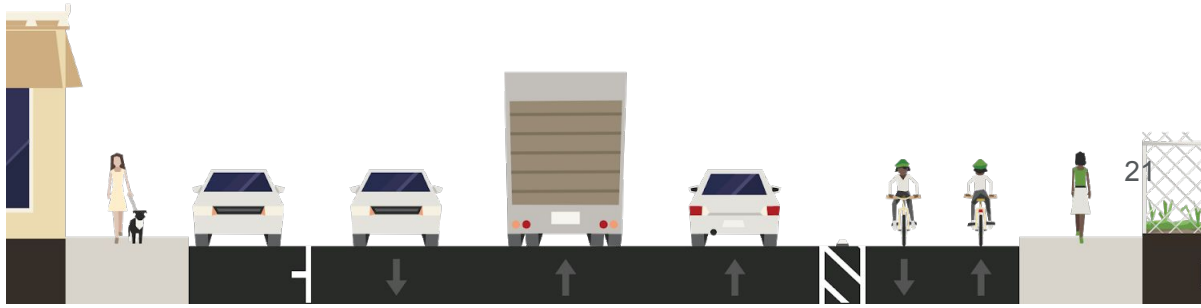
Pair of one-way separated bike lanes (SBLs)



Two-way SBL along eastern curb

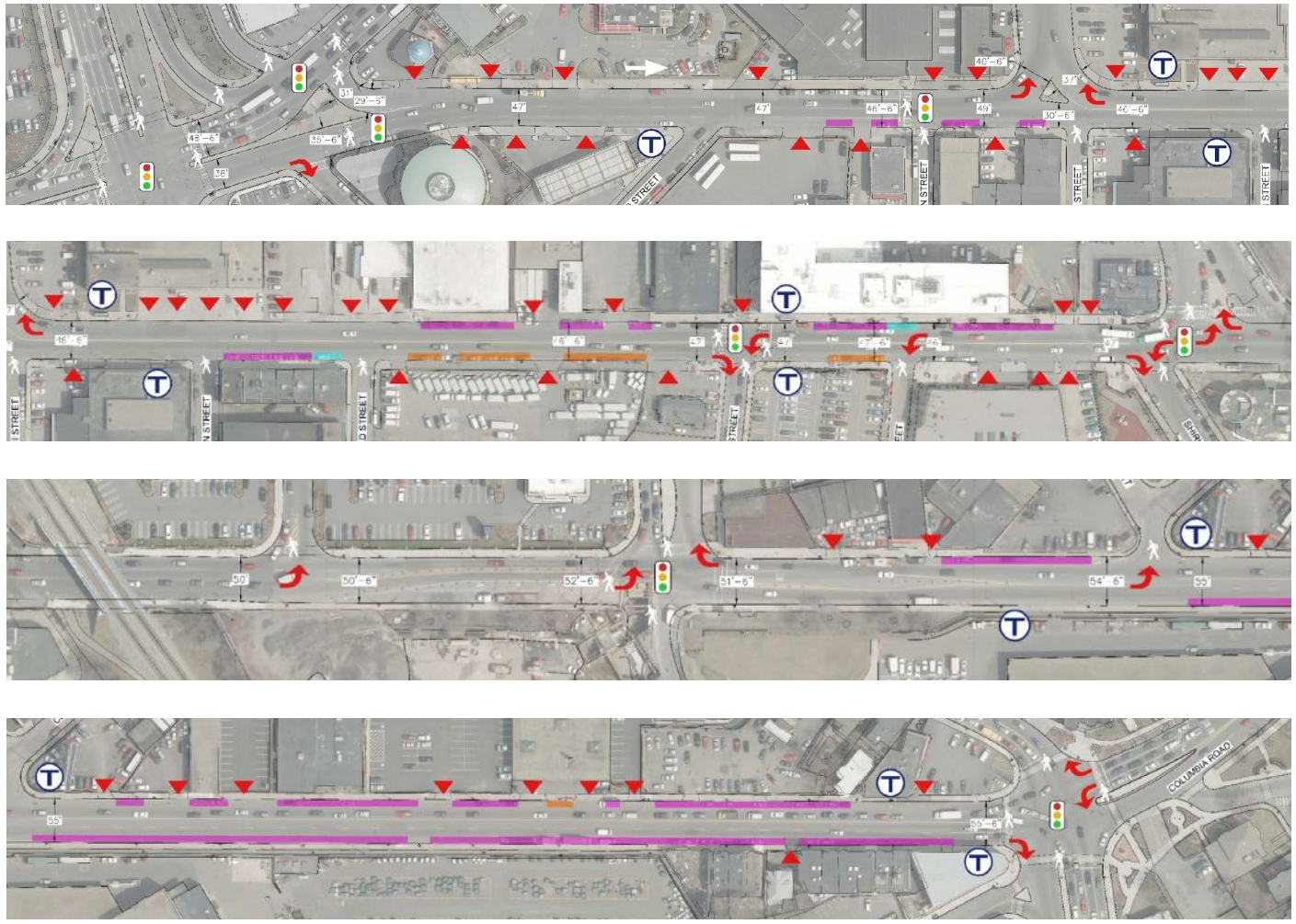


Two-way SBL along western curb



ELIMINATED EAST SIDE 2-WAY SBLs

- *No vehicular curbside access possible along east side, including at 1010 Mass Ave and Dorchester Brewing*
- *Conflicts from high volumes of vehicles turning across the bike lane*
- *Conflicts from many and expansive driveways*
- *Significant delays at Newmarket Square from phase separating bikes*
- *Additional traffic signals and/or full intersection reconstruction required at Theo Glynn, Clapp*



COMPARED REMAINING CONCEPTS

- *Our preferred design approach is one-way separated bike lanes.*
  - *Follow normal traffic flow,*
  - *Fewer impacts on traffic signal operations,*
  - *Allow for simpler transitions, and*
  - *Provide access to both sides of street*
- *On Massachusetts Avenue, the benefits of a pair of one-way SBLs were outweighed by the impacts on people driving, biking, and taking transit*

COMPARING DISADVANTAGES OF REMAINING CONCEPTS

	ONE-WAY SBLS	WEST SIDE TWO-WAY SBL
Motor vehicles	▸ Eliminates more parking spaces ▸ Some traffic impacts caused by elimination of one left turn lane from Columbia Rd to Mass Ave ▸ Some traffic impacts from left turning vehicles without a turn lane at Newmarket ▸ Necessitates changes to Allstate Rd & Newmarket signals that would add significant delays	▸ Necessitates changes to signal at Newmarket/Shirley to separate northbound left turn
Bicycling and Walking	▸ Heavy turn conflicts at Newmarket are a severe safety issue ▸ Northbound lane compromised from Theo Glynn to Melnea Cass ▸ Potential plowing & sweeping concerns	▸ Two-way facility is less legible with the rest of Boston's bike network
Transit	▸ Constrained bus stop design	

ANALYZED TRAFFIC

- *Collected counts by vehicle type (cyclists, cars, box trucks, tractor-trailers, & buses) over two days in both April and November 2019*
  - *At intersections*
  - *Midblocks*
- *Field checks to observe*
  - *Driver behaviors*
  - *Significant turning movements/desire-lines*
  - *Queues at signals*
  - *Problematic conflicts*
- *Traffic models/analyses - Synchro software*
  - *Where turning lanes would be beneficial*
  - *Where multiple approach lanes "needed"*
  - *Amounts of time given to each "piece" of the intersections*
  - *Expected queues*

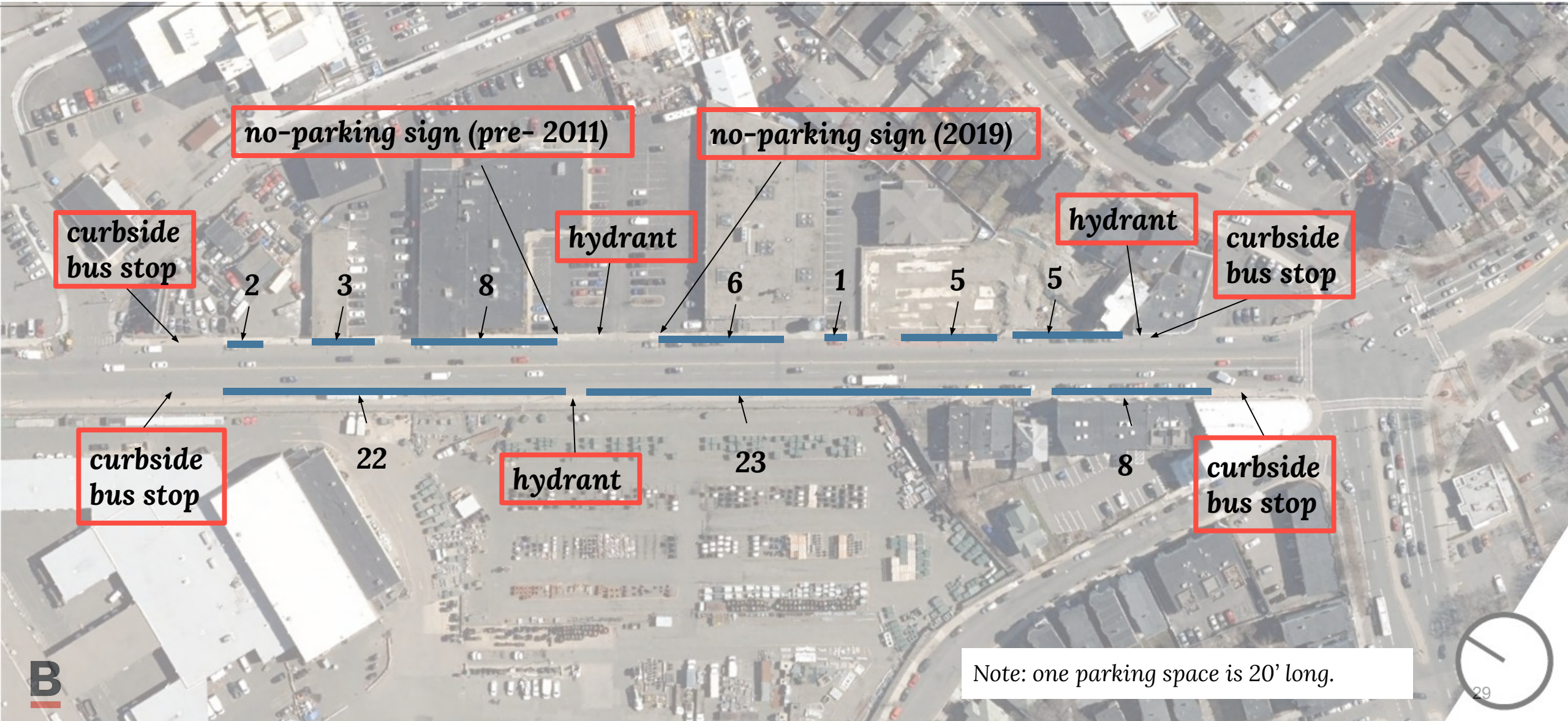
EXISTING TRAFFIC CONDITIONS

EXISTING TRAFFIC CONDITIONS

CLAPP TO COLUMBIA

- *Queues SB approaching Columbia*
  - *Observed existing*
  - *Model prediction*
  - *Contingency with bus at stop*
- *SB Left onto Clapp*
  - *Considerable volume of vehicles*
  - *Left-turn pocket removed delays to through vehicles*
- *Bus stops*
- *Parking*
  - *Observed typical conditions*
  - *Inventoried curb regulations & maximum available spaces*

EXISTING CURB REGULATIONS



Note: one parking space is 20' long.

PREPARED 25% DESIGN

CONCEPT DESIGN	▸ Review past findings, identify existing conditions ▸ Conduct outreach, identified key interests of stakeholders and users ▸ Test design alternatives ▸ Accurate traffic model using existing user volumes
25% DESIGN	▸ Set the basics of the proposed design, swept-path analysis to confirm ▸ Preliminary traffic signal phasing and timing ▸ First draft of curb ramps
75% DESIGN	▸ Fully detailed and revised traffic signal phasing and timing ▸ Detailed plans for curb ramps and drainage ▸ Adjustments to any lane dimensions, pavement markings, and signs
PIC	▸ Official sign-off on all constructed elements from the Public Improvement Commission
100% DESIGN	▸ Continued refinements to traffic signal phasing and timing; curb ramps; and drainage ▸ Last tweaks to all other elements ▸ Final draft of temporary traffic management plans
FINAL DESIGN	▸ All issues noted in thorough design review have been approved ▸ Signed by City Engineer ▸ Delivered to contractor to begin work

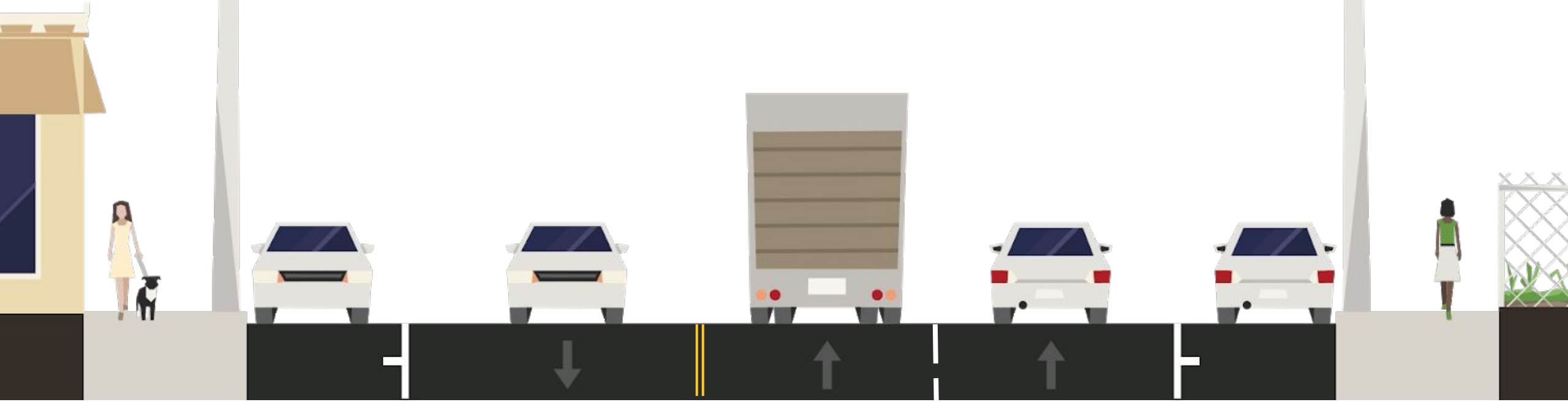
We're here

25% DESIGN

EXISTING PLAN VIEW

IDENTIFIED EXISTING CONDITIONS

North of Columbia Road

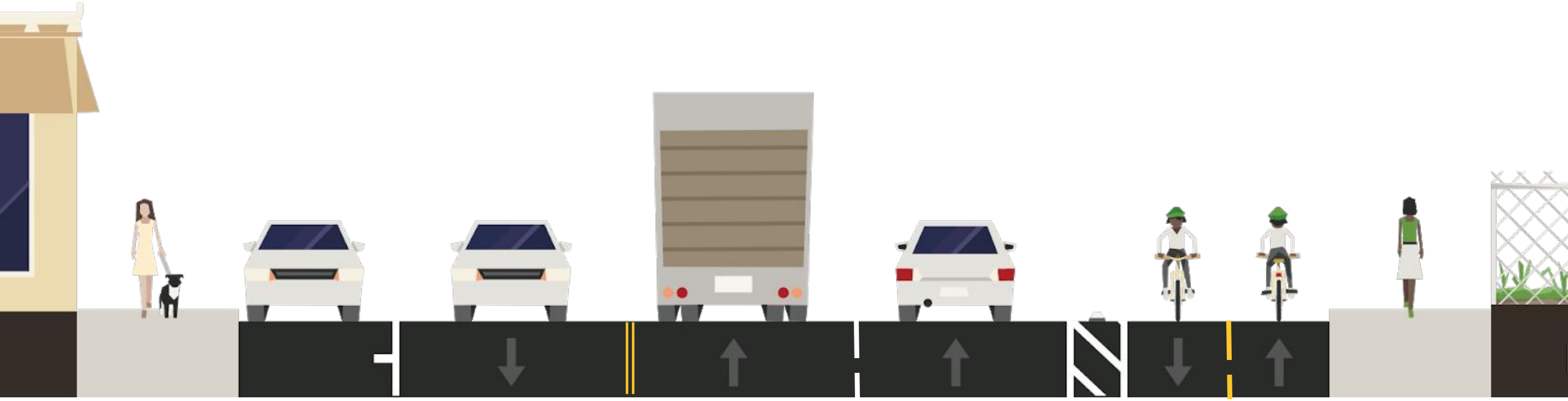


Sidewalk	Parking lane	Drive lane	Drive lane	Drive lane	Parking lane	Sidewalk
8’	8’	15.5’	10’	12’	8’	8’

53.5’

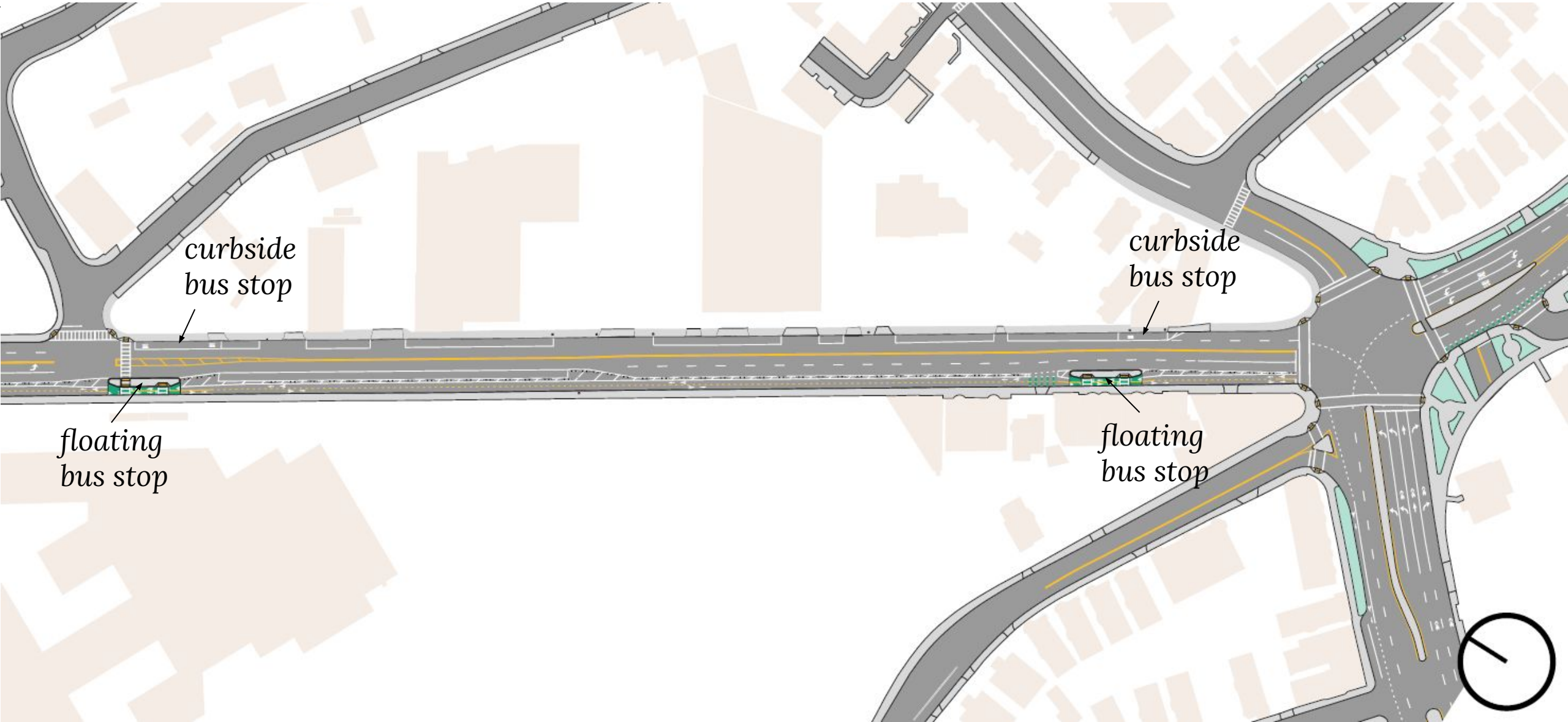
PROPOSED DESIGN CROSS SECTION

North of Columbia Rd

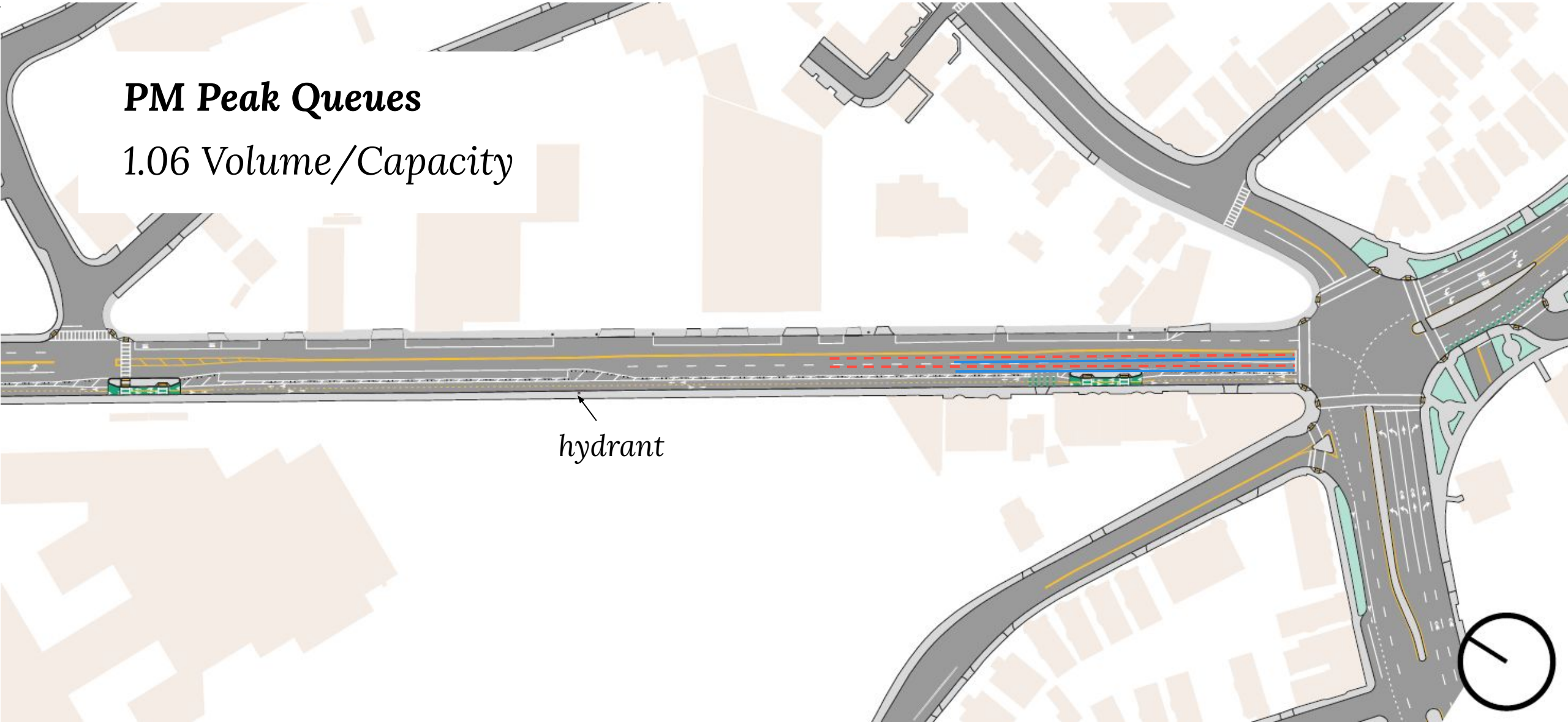


A	Parking lane	Drive lane	Drive lane	Drive lane	Buffer	Bike lane	Bike lane	B
	8’	11’	11’	11’	2.5’	5’	5’	

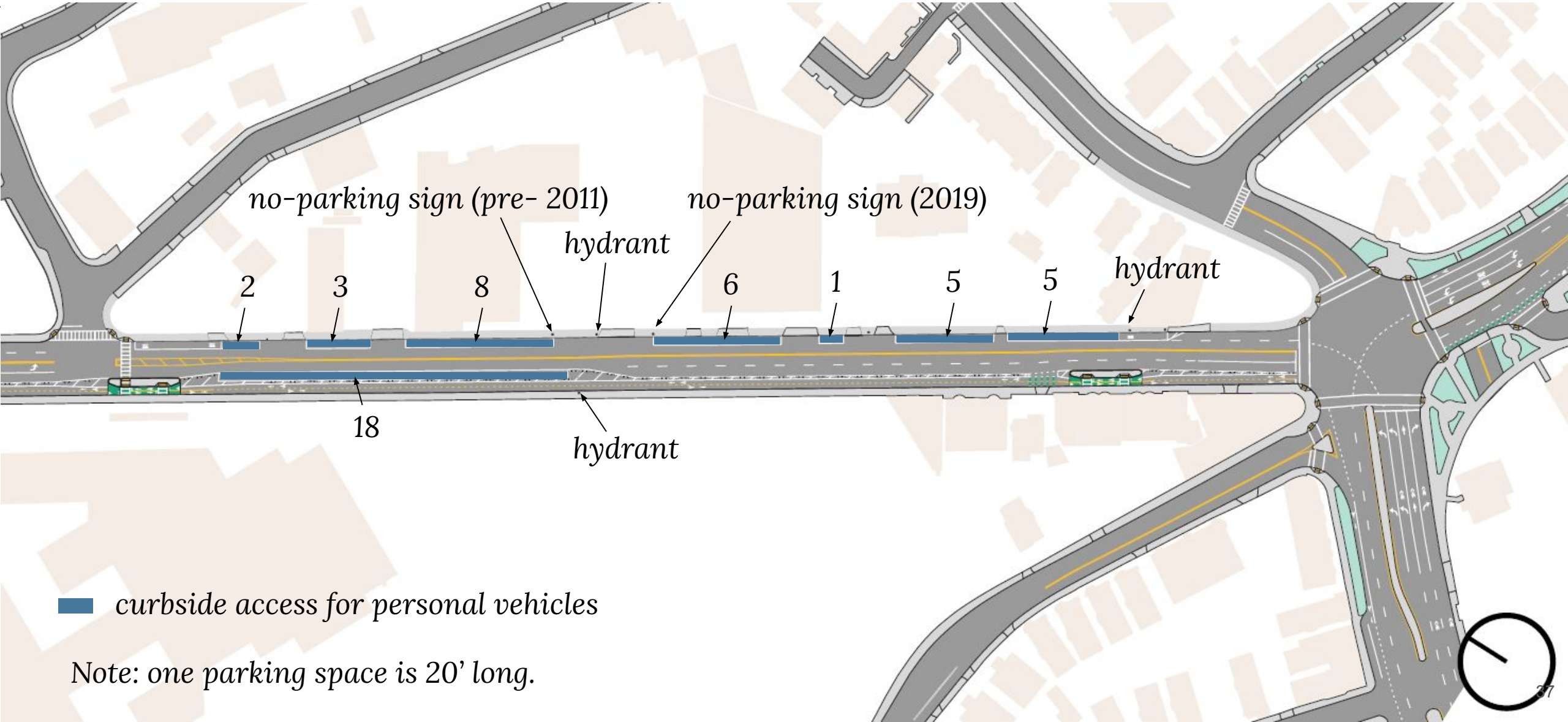
PROPOSED DESIGN PLAN VIEW



PROPOSED DESIGN PLAN VIEW

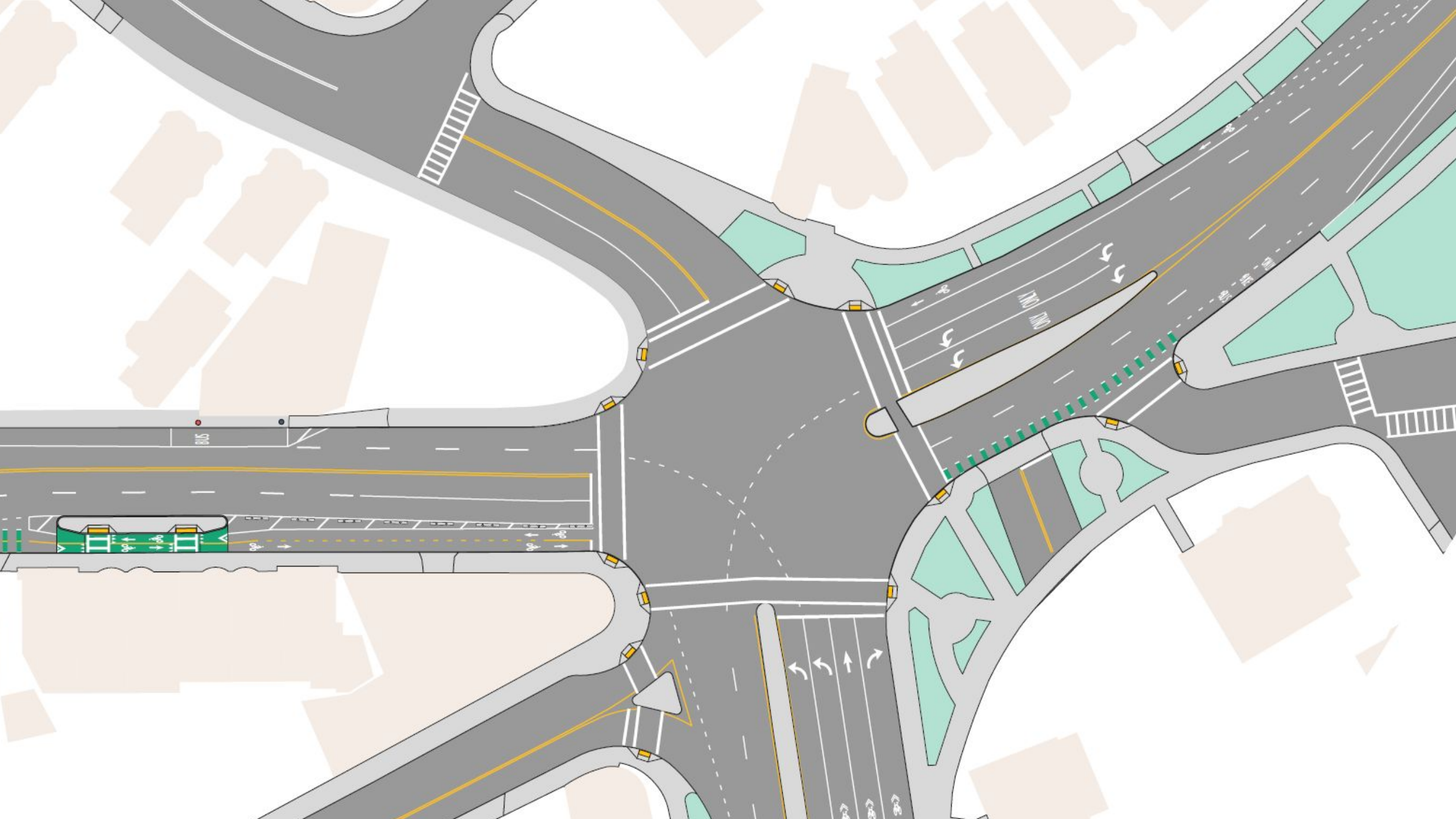


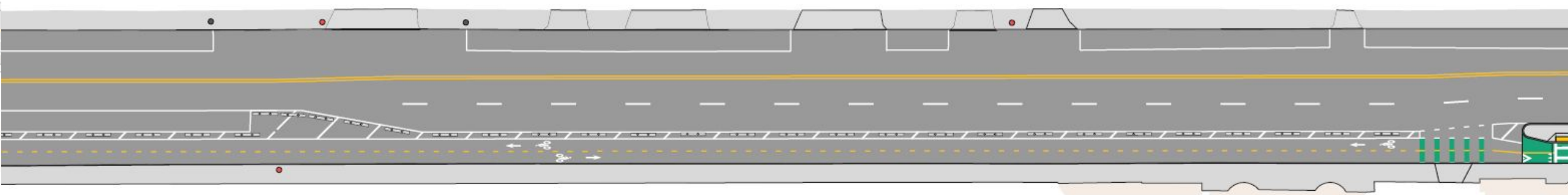
PROPOSED DESIGN PLAN VIEW

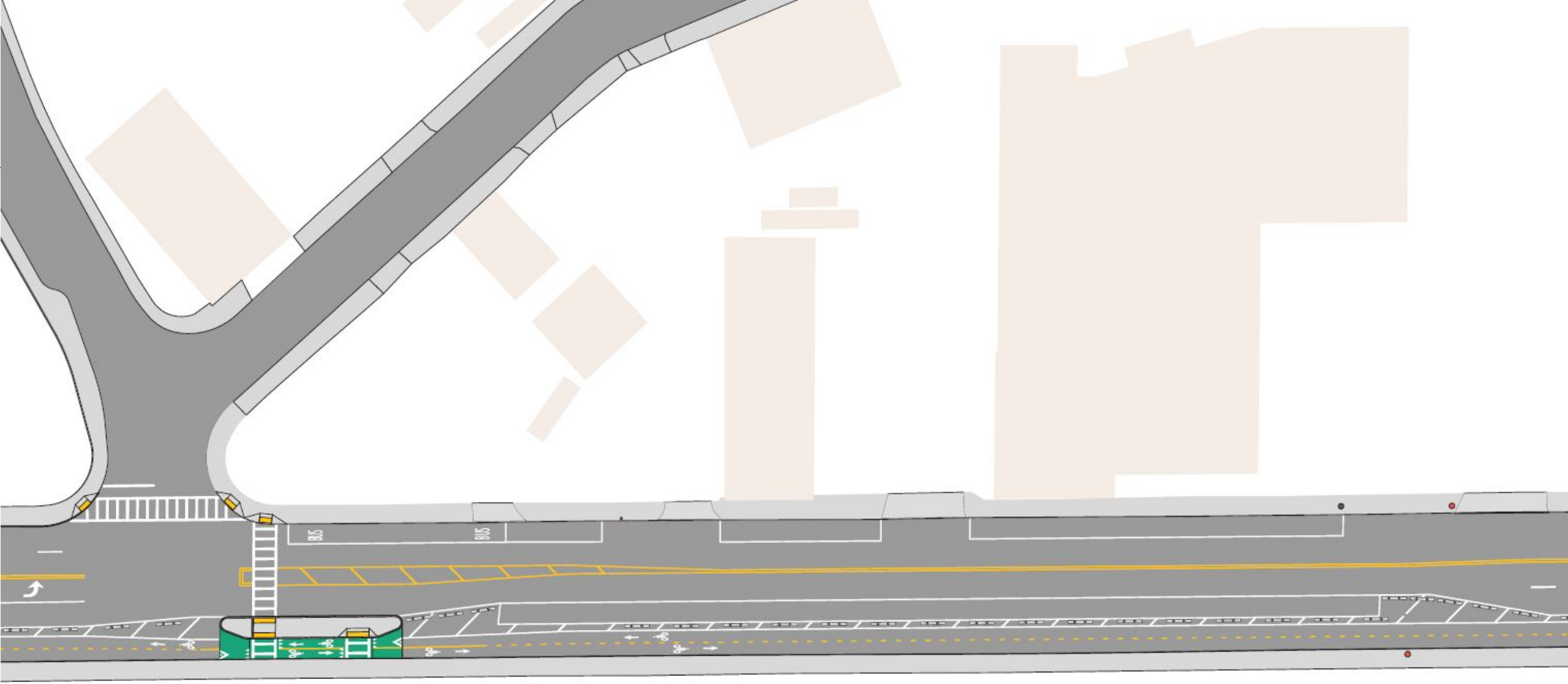


curbside access for personal vehicles

Note: one parking space is 20' long.

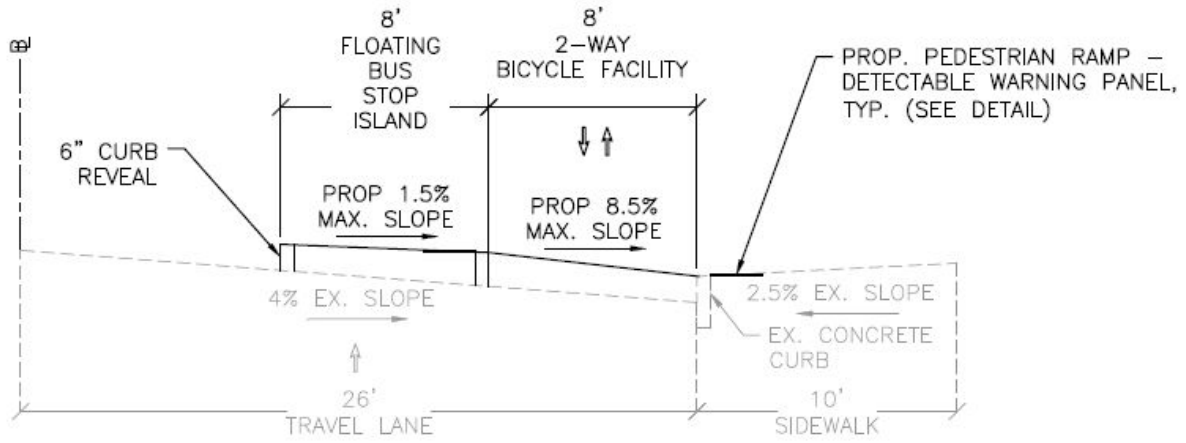

BUS
CHAT CREST




BUS
BUS

WORK IN PROGRESS

- Refine traffic signals
  - Columbia Rd
  - Allstate
  - Newmarket/Shirley
  - Magazine
- Engineering curb ramps and drainage



CONCEPT 1 – FLOATING BUS STOP ISLAND
CROSS SECTION, VIEW SOUTHBOUND

AT THE SAME TIME...

We're confident we can make Mass Ave safer for people biking and walking, manage existing vehicle use, accommodate key curbside needs, and support this important economic area.