21st Street Transit Priority & Safety Study

Public Meeting

December 20, 2021

BETTERBUSES

Today's Meeting

1. 30-40 minute presentation
2. Questions and answers

- Meeting will be recorded
- Camera optional
- We encourage you to put your name and affiliation (optional) in the chat
- To ask a question/make a comment
  - Enter your questions into the chat during or after the presentation
  - Use hand raise function to be recognized to speak
- Spanish translation is available

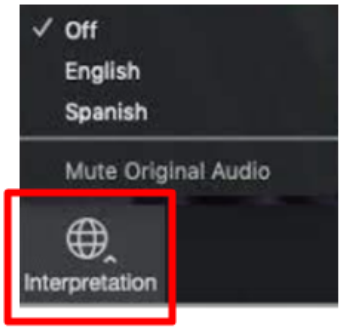
Reminders

- **Please be respectful of other in the chat**
- **Please mute yourselves unless speaking**
- **We want to ensure everyone has a chance to provide their input**
  - **We may come back to you if you have multiple questions**
  - **We may move on once you have made your point**

How to Enable Live Interpretation

- Step 1: Select **'Interpretation'** in the bottom of the Zoom panel

- Step 2: Select your language



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21st Street Transit Priority & Safety Study

Public Meeting

December 20, 2021

BETTERBUSES

Outline

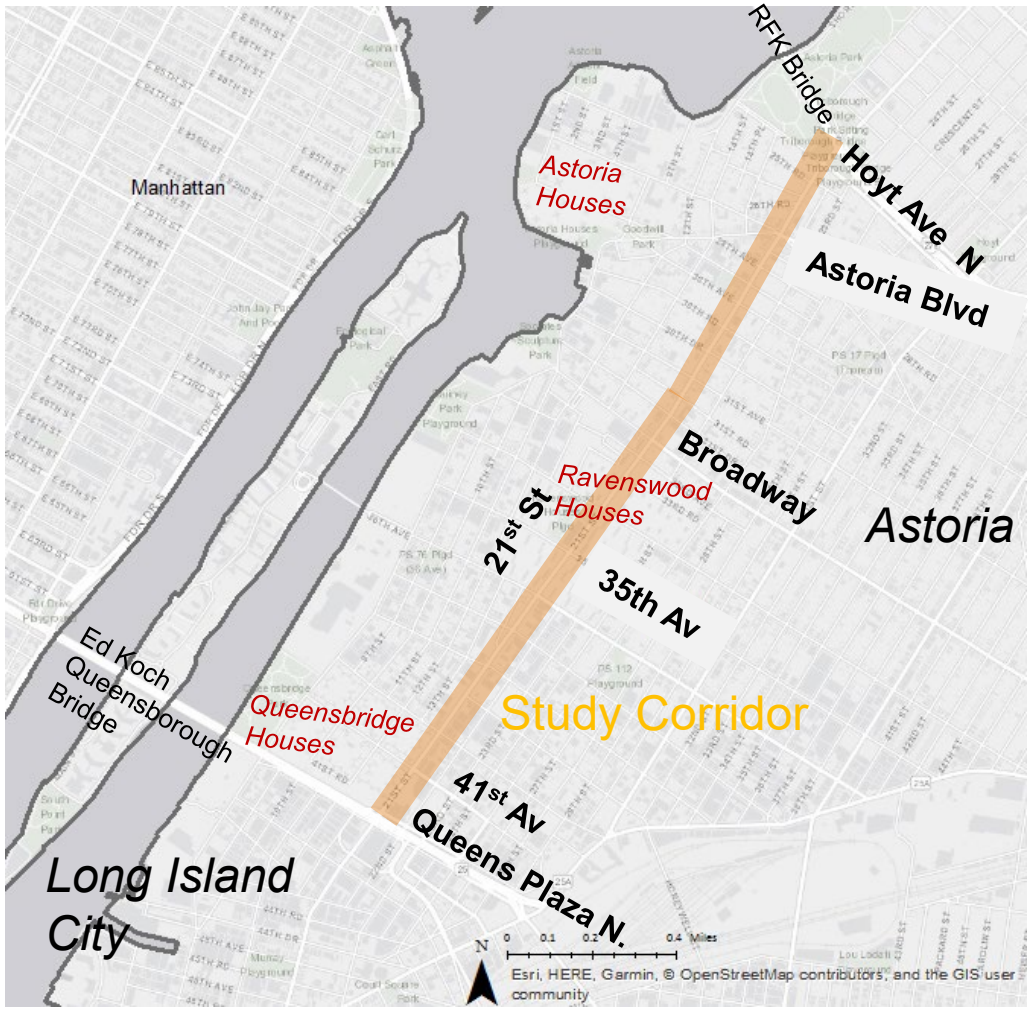
- Introduction
- Public Engagement
- Preliminary Options
- Conceptual Corridor Proposal
- Other Improvements
- Next Steps

Introduction

Introduction

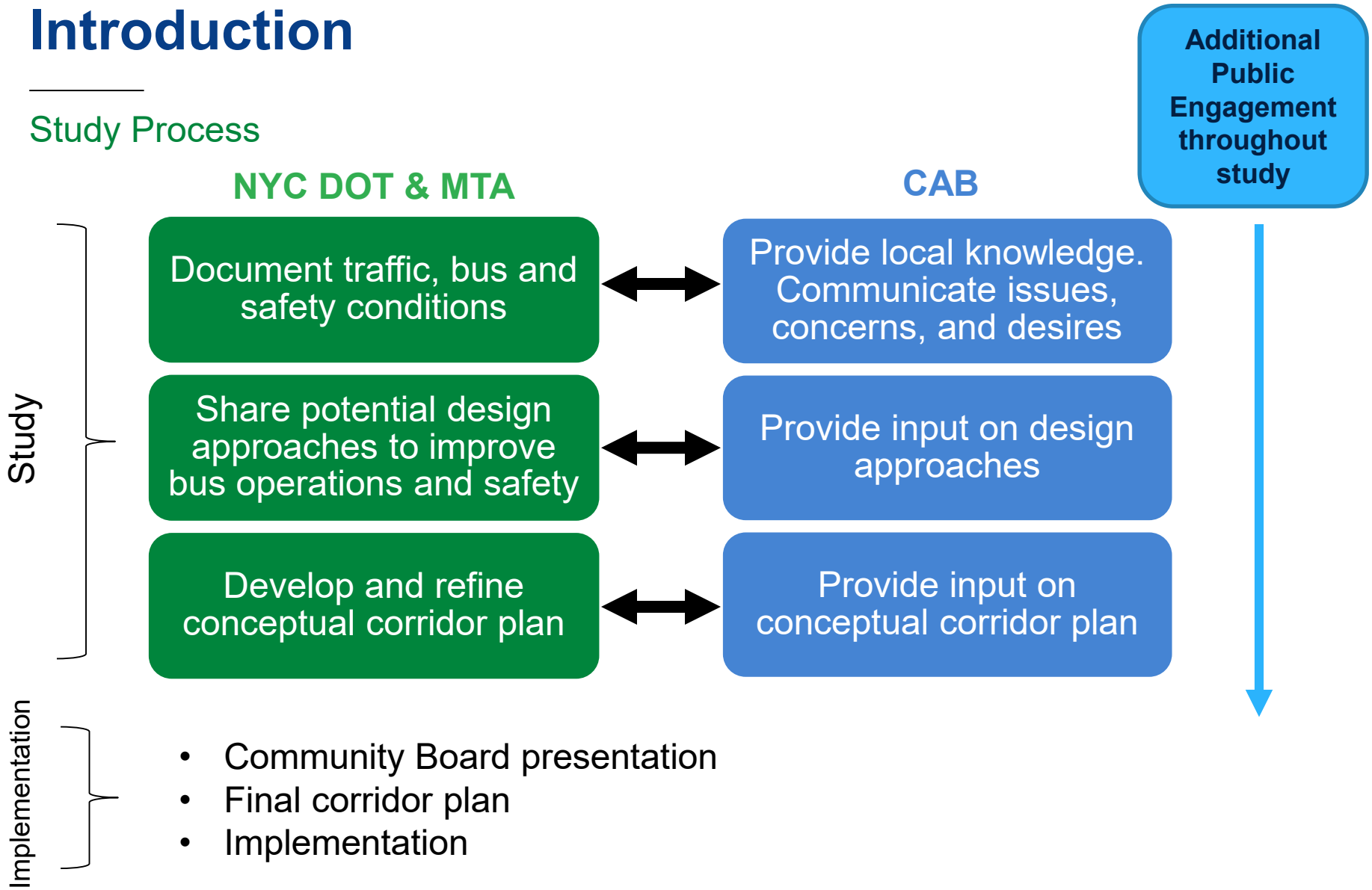
Study Corridor

- Queens Plaza North to Hoyt Ave North
- “Bridge to Bridge”
- 1.95 miles
- Consistent street width and geometry – 60’ wide
- Vision Zero Priority Corridor
- Identified as bus priority corridor in MTA’s Queens Bus Network Redesign Draft Plan



Introduction

Study Process



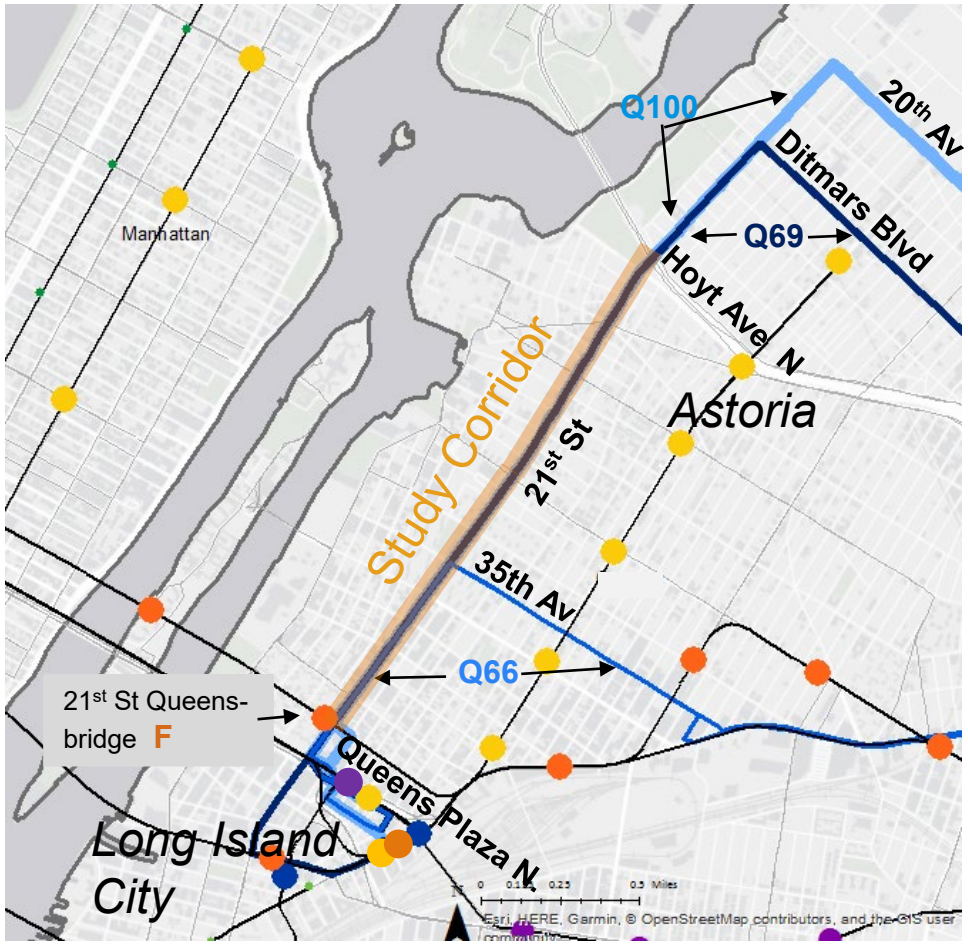
Introduction

21st Street Bus Routes

Q66
- Queens Plaza to Flushing
- Leaves 21st St at 35th Ave
- Local Service

Q69
- Queens Plaza to Jackson Heights
- Leaves 21st St at Ditmars Blvd
- Local Service

Q100
- Long Island City to Rikers Island
- Leaves 21st St at 20th Ave
- Limited Stop Service

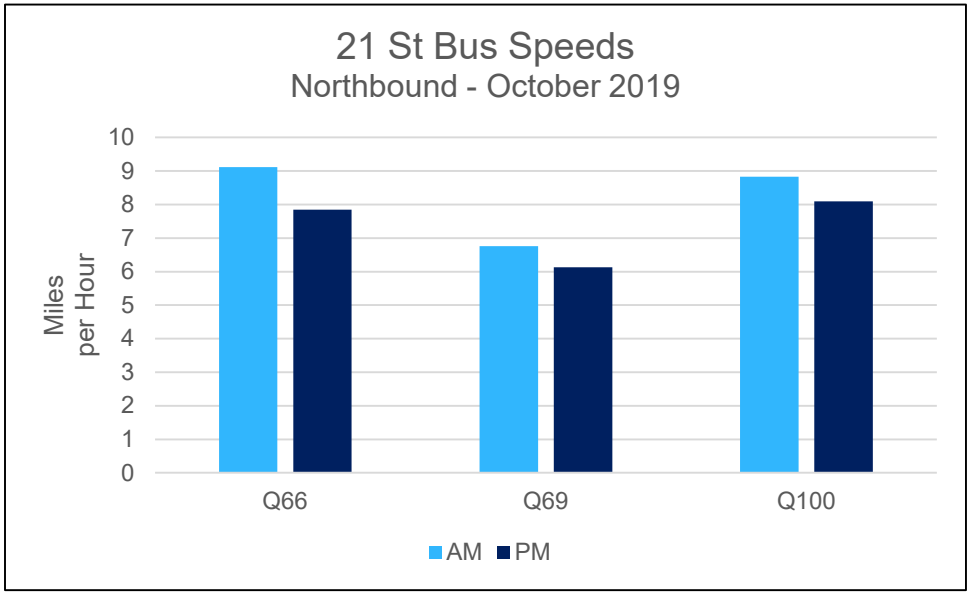


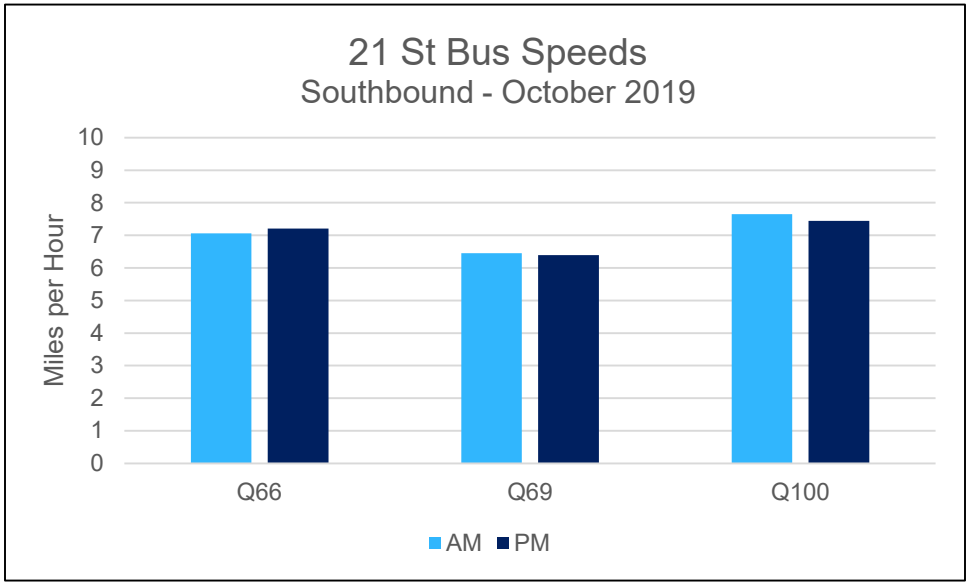
Note: Q102 & Q103 travel on short segments of 21st St; multiple bus lines cross over 21st St

Introduction

Study Corridor Bus Speeds - 2019

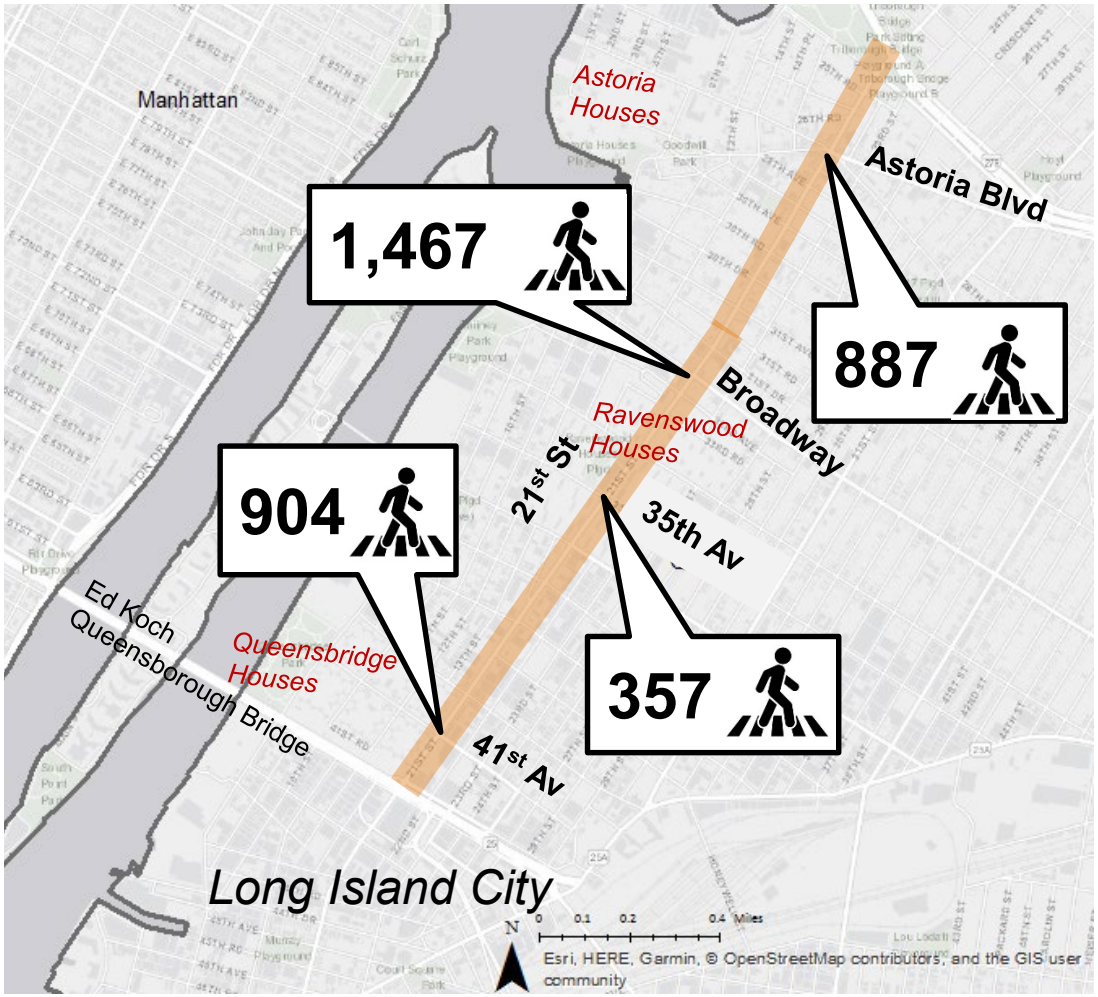
- Northbound buses generally faster than Southbound buses
- Northbound speeds decrease in PM
- Q69 is slower than other routes (runs as local through full corridor)
- Bus Speeds impacted by congestion and vehicles double parking





Introduction

Pedestrian Volumes



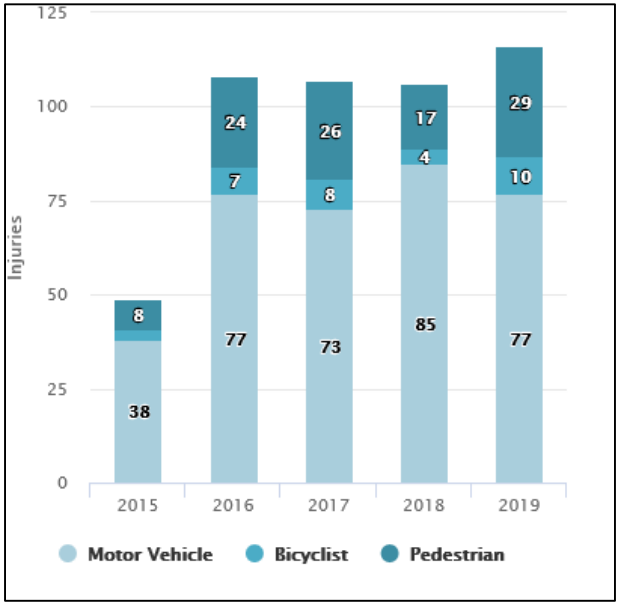
Weekday AM peak hour intersection pedestrian volumes
May/June 2019

Study Context

Injuries 2015-2019

- All of 21st Street designated as a Vision Zero corridor in 2019
- All study corridor injury types increased after 2015
- Most common pedestrian injury is left turn vehicles striking pedestrian crossing with the signal.
- Three fatalities – all were pedestrians

Injuries by Year – 2015-2019



Vehicle Action Versus Ped Action, 2015-2019 (5 Years)

	Crossing with Signal	Crossing against Signal	Crossing No Signal, Marked Crosswalk	Crossing No Signal or Crosswalk	Others	Unknown	Total
Left Turn	25	2	1	4	1	1	34
Right Turn	10	0	0	0	0	0	10
Going straight	10	11	0	14	9	1	45
Making U Turn	0	0	0	0	0	0	0
Backing	0	1	0	1	5	0	7
Other	0	0	0	0	1	0	1
Unknown	3	0	0	0	2	2	7
Total	48	14	1	19	18	4	104

Study Context

Pedestrians Killed and Seriously Injured (KSI) – 2015-19

Introduction

Traffic Volumes – 2019 vs 2021

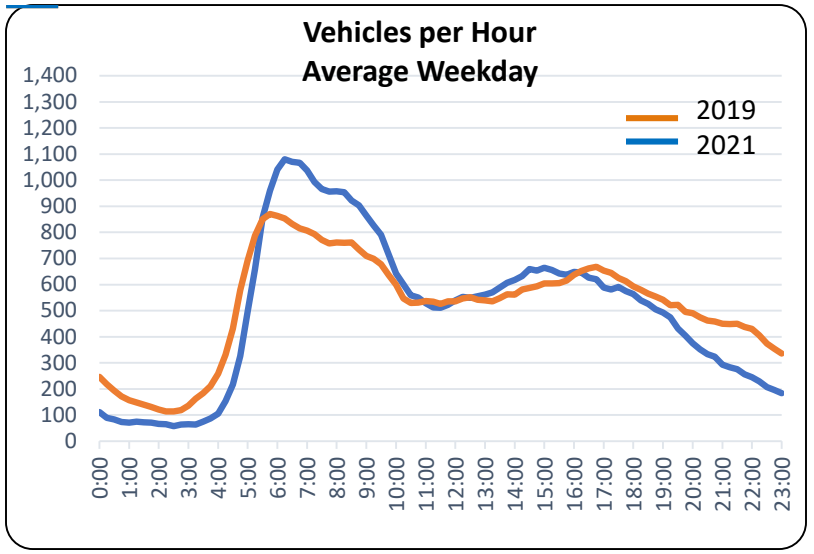
Southbound

Peak Hour:
2019 – 871 veh 5:45-6:45 AM
2021 – 1,080 veh 6:15- 7:15 AM
24-Hour Total:
2019 – 12,261 veh
2021 – 11,762 veh

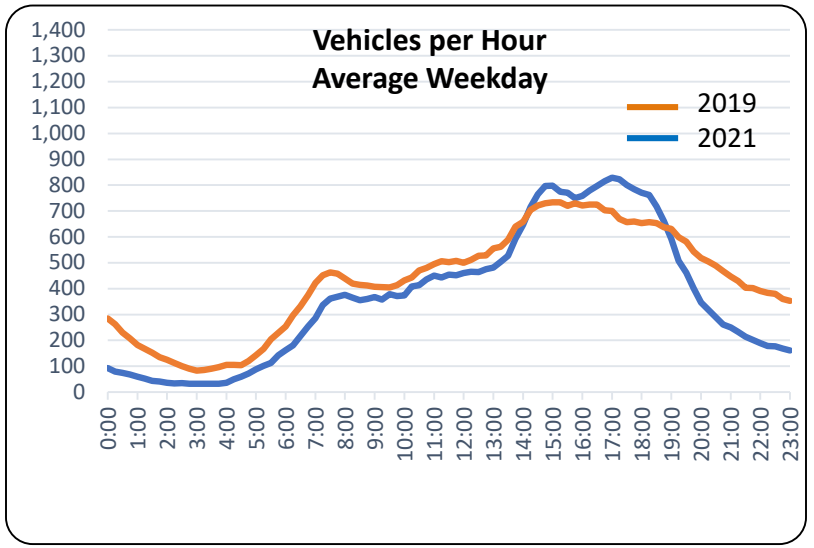
Northbound

Peak Hour:
2019 – 725 veh 4:15-5:15 PM
2021 – 829 veh 5:00- 6:00 PM
24-Hour Total:
2019 – 10,231veh
2021 – 8,643 veh

Average Weekday Vehicles **Southbound** @ 26th Rd



Average Weekday Vehicles **Northbound** @ 26th Rd



Public Engagement

Public Engagement

Elements

Community Advisory Board

- Over 50 Community stakeholders representing Community Board, Electeds, Neighborhood Associations, Advocacy Groups, and many others
- Provided input onto study during four meetings

Online Feedback Map

- Allows anyone to identify issues in the corridor
- Over 200 individual comments received

On-street Pop-ups

- Shared potential corridor approaches with pedestrian and bus riders
- Completed 144 in-person surveys

Public Meetings

- December 20th 2021 and January 12th 2022

Public Engagement

Community Advisory Board (CAB)

- Used successfully by DOT for multiple projects
- Opportunity for DOT and community stakeholders to engage from inception of project planning process
- CAB members suggested by local elected officials - intended to be broad and inclusive
- Only one part of an engagement strategy - does not replace Community Board consultation or other engagement elements.

Public Engagement

Feedback Map

Category	Number of Comments	Specific Concerns
No Crosswalk	27	Astoria Blvd/Newtown Ave, 25th Rd,33rd Rd,33rd Ave, 39th Ave
Aggressive Drivers	19	Unsafe for bikes and peds, double parking and wide roadway encourages aggression, high speeds, Astoria Blvd complex intersection cited
Double Parking	15	Double parking cited at locations along 21st St and side streets
Areas of Opportunity	13	Citi Bike station at F Subway Station, bike lanes, trees/planters/benches, wayfinding signs
Speeding	12	Speeding on long blocks, vehicles trying to make lights
Bus Stuck in Traffic	10	Double parking, difficult for buses to merge into traffic after stops, bus bunching, signal delays

https://nycdotprojects.info/project-feedback-map/21st-street-bus-priority-and-safety-study

Public Engagement Feedback

Pop-Ups – Results

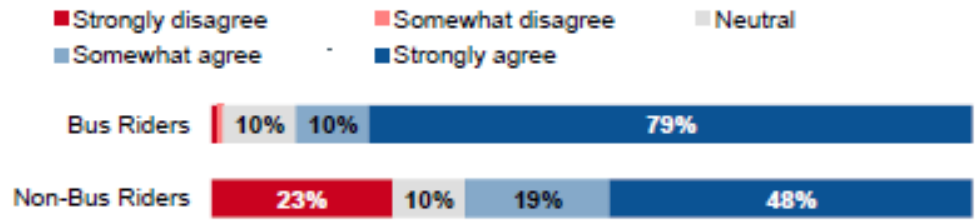
Three-in-five people (63%) cited pedestrian safety as a primary concern along 21st Street. Another half (51%) experience slow or unreliable bus service and that traffic congestion (50%) is a problem in the area

In a select-all-that-reply question among participants, % who say the following issues are transportation concerns along 21st Street…

Transportation Issues	Responses
Pedestrian safety	63%
Slow or unreliable buses	51%
Traffic congestion	50%
Double parking/parking on sidewalks	39%
Bus stop conditions	29%
Parking availability	22%
No issues	6%

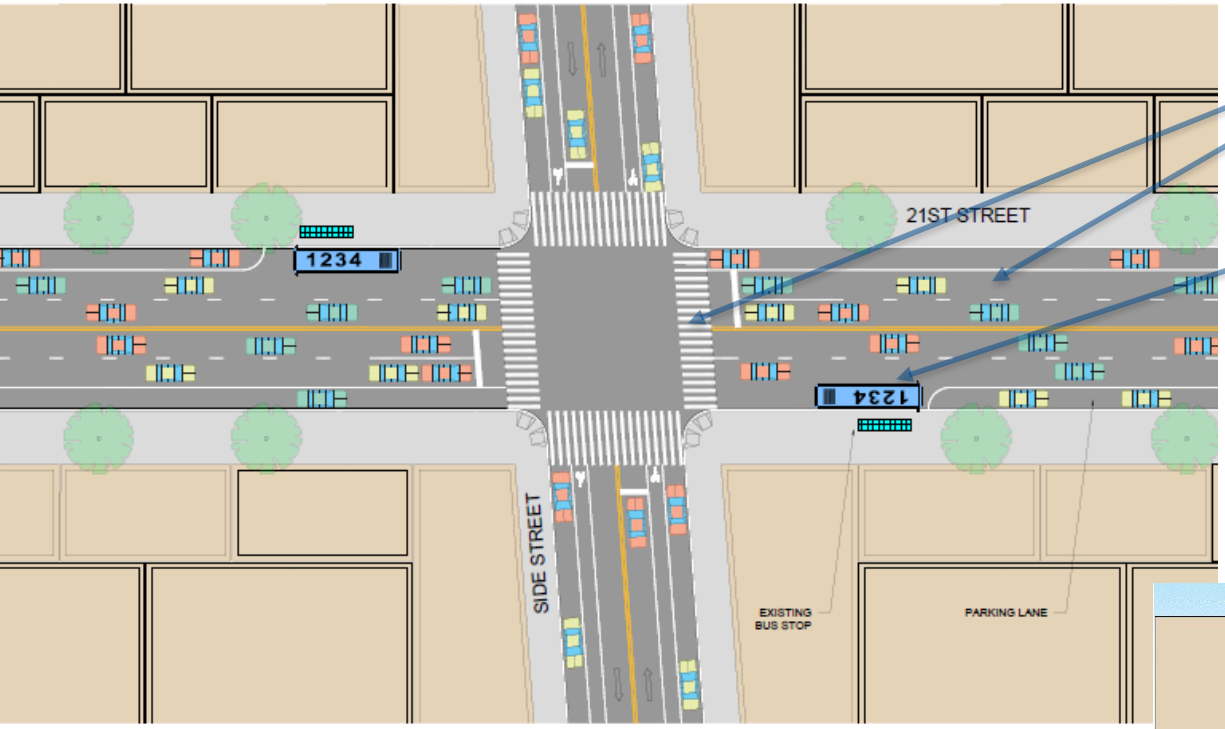
… and more than three-quarters of respondents who identify as bus riders said they would take the bus more often if buses were faster and more reliable; Additionally, nearly three quarters (67%) of non-bus rider respondents said they would consider taking the bus instead of other modes if buses were faster and more reliable as well

In a agree/disagree question among participants who self identify as bus riders, % who agree or disagree on whether they would take the bus more often in 21st St if buses were faster and more reliable



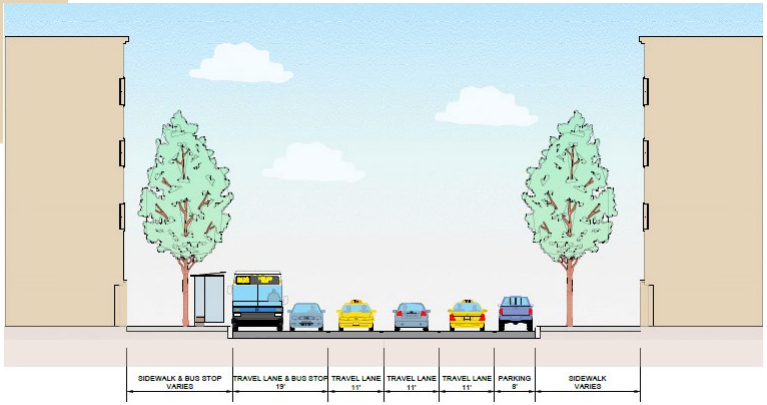
Preliminary Options

21st Street Today



Existing Conditions

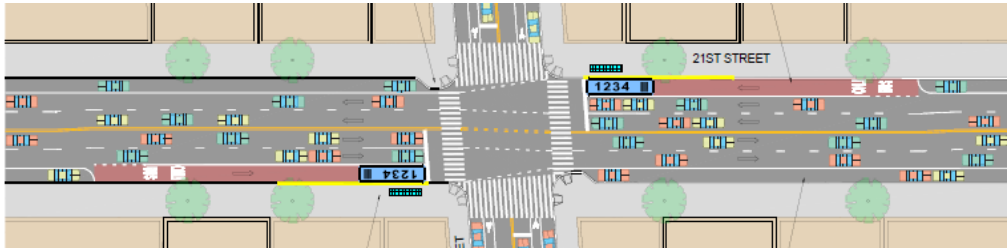
- Pedestrians have a long crossing of 21st Street
- Buses use same lane as other traffic and can get caught in congestion or behind double parked cars
- Buses must pull in and out of bus stops which slows them down



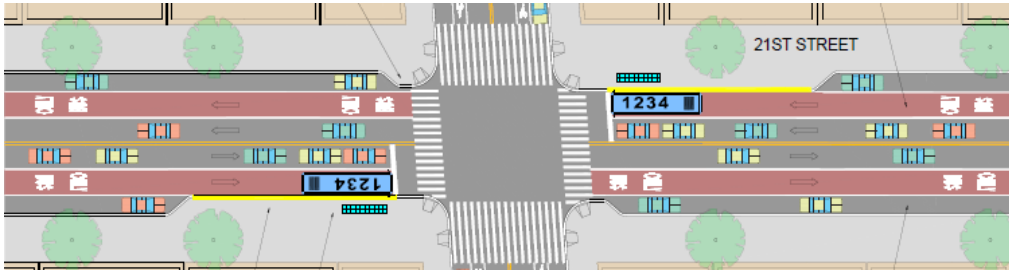
Preliminary Options

Three options were considered…

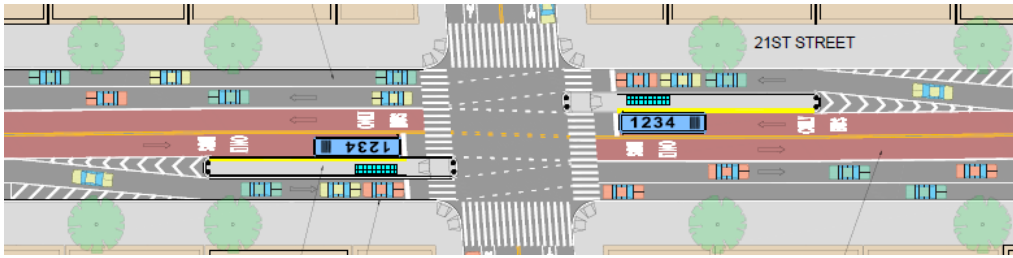
Option #1 – Queue Jump Lanes and Signals



Option #2 – Offset Bus Lanes with Bus Bulbs



Option #3 – Center Running Bus Lane



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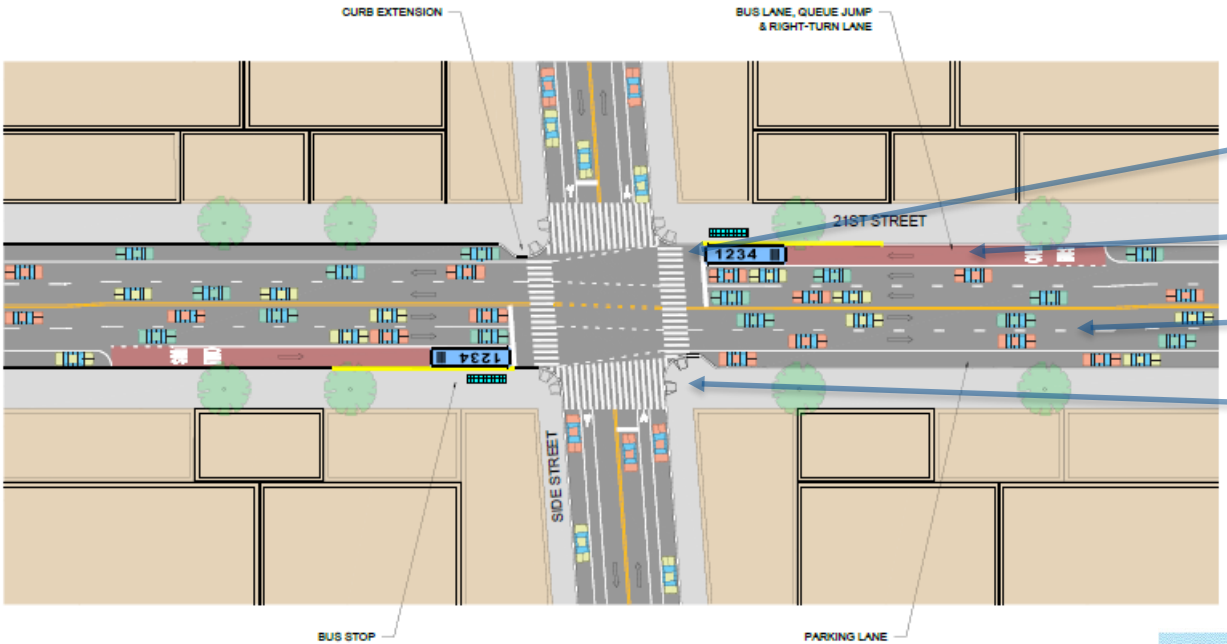
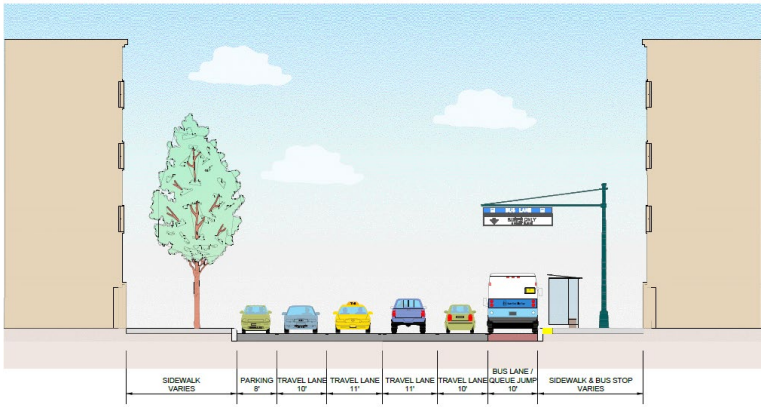


Benefits

- After picking up passengers, buses can get a "green light" before other traffic
- Buses have their own short lane to pass traffic and reach bus stops
- Same number of travel lanes for cars and trucks as today
- Curb extensions shorten distance for pedestrians to cross 21st Street

Limitations/Challenges

- Buses subject to congestion delay excepting intersection approaches
- Curbside queue jump lanes could experience illegal standing/parking
- Pedestrian curb extensions would be paint prior to a capital buildout
- Some parking loss



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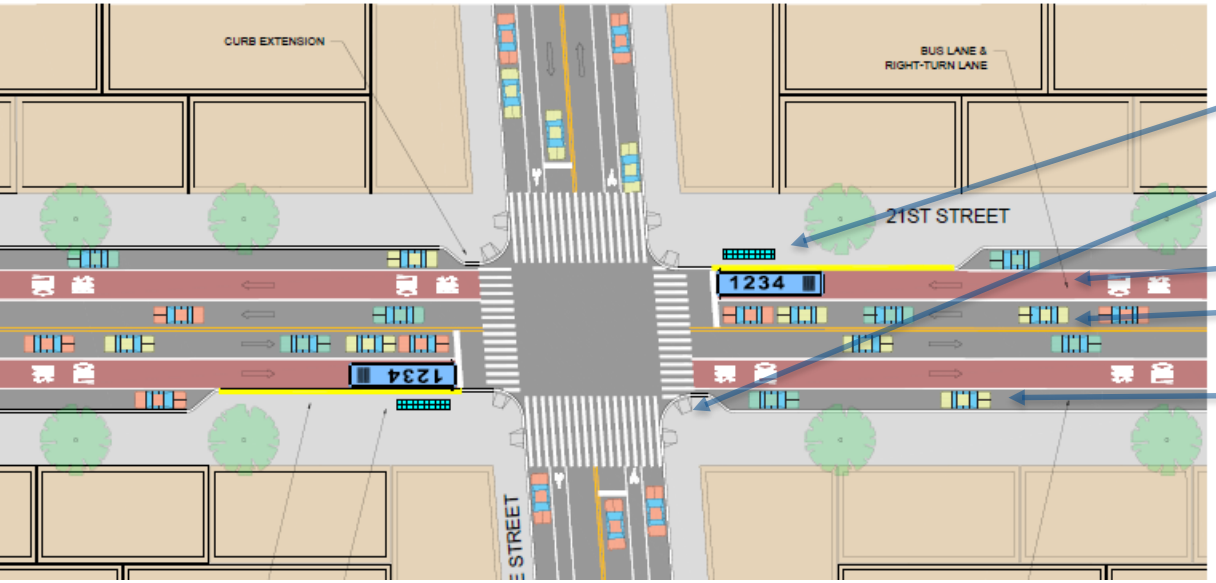
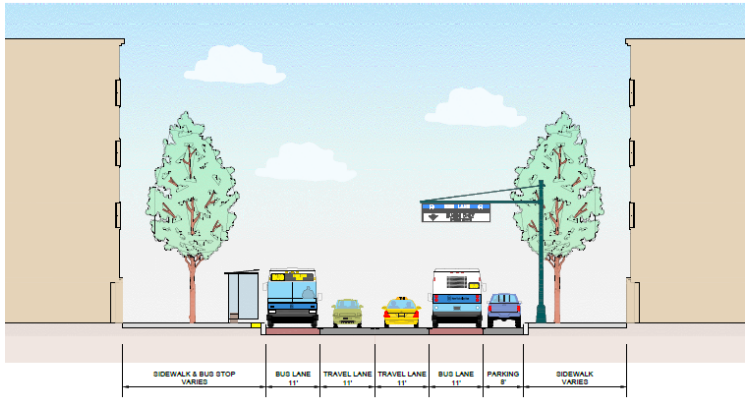


Benefits

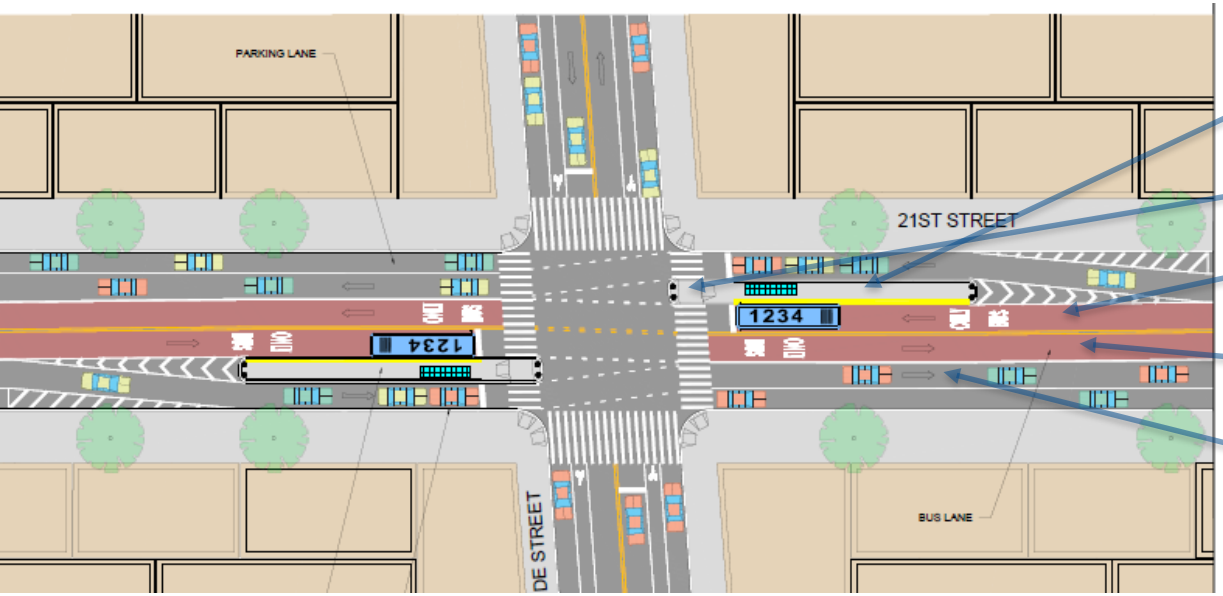
- Bus bulbs provide extra space for people waiting for bus
- Bus bulbs and curb extensions shorten distance for pedestrians to cross 21st Street
- Buses have their own lane so can move faster
- Less speeding with a single lane for cars and trucks
- Amount of car parking about the same as today

Limitations/Challenges

- Offset bus lanes may experience double parking without other measures in place
- Build out of bus bulbs requires capital project. Plastic “bus boarders” may be implemented sooner in some locations
- Reduction of traffic capacity – further traffic analysis required
- Left turn restrictions required unless bus lane is shifted to curb at intersections



Option #3 – Center Running Bus Lane w/ Bus Stop Islands

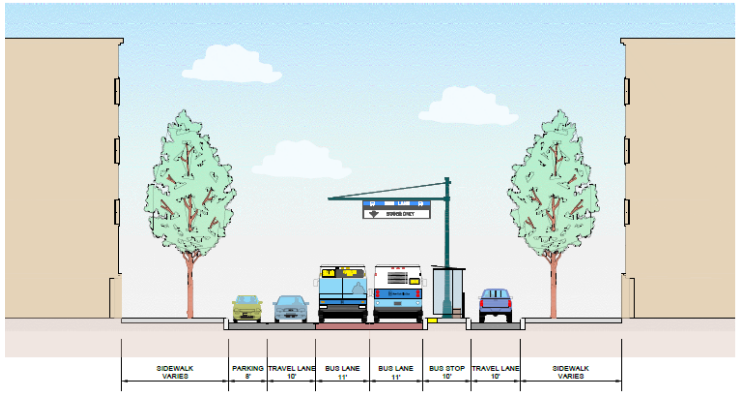


Benefits

- Bus stop islands provide extra space for people waiting for bus
- Islands extend into crosswalk – makes it safer for pedestrians to cross 21st Street
- Buses have their own lane so can move faster
- Center running bus lane avoids double parked vehicles
- Less speeding with a single lane for cars and trucks

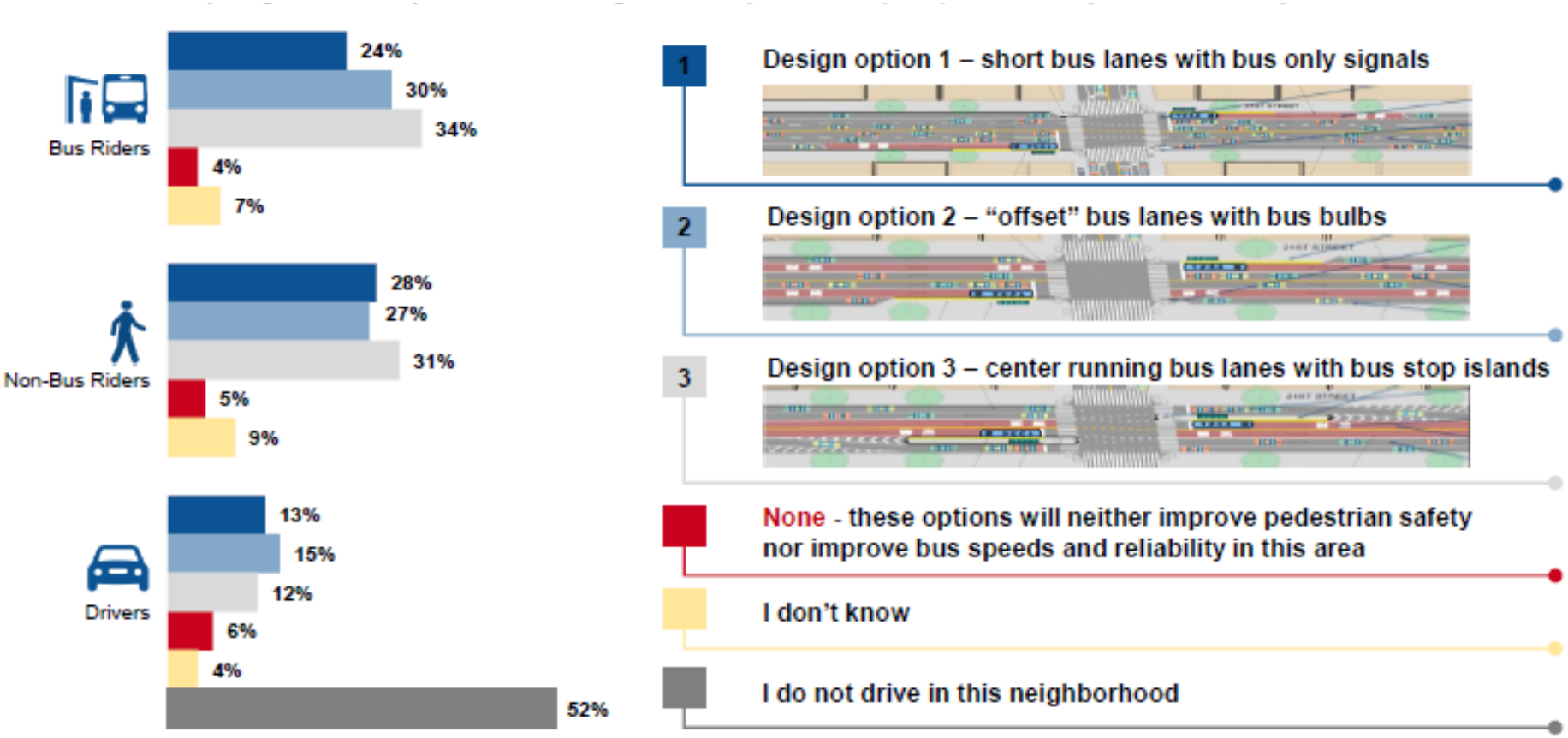
Limitations/Challenges

- Reduction of traffic capacity – further traffic analysis required
- Left turn restrictions required
- Buses will need to transition to/from center-running lanes on either side of treatment
- Some parking loss



Preliminary Options

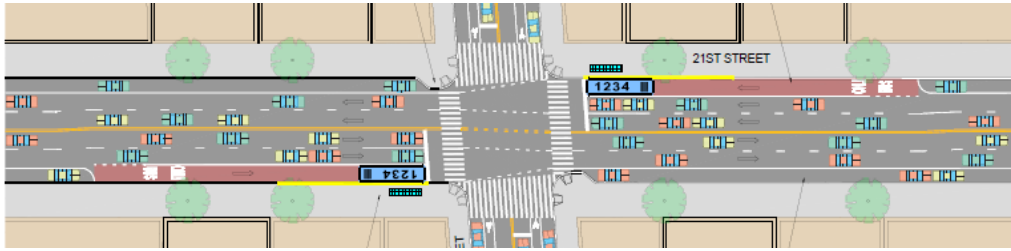
On-street Pop-ups – Results



Preliminary Options

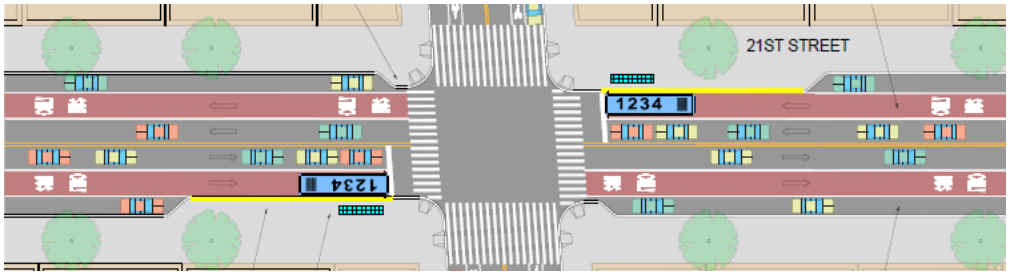
Option #1 – Queue Jump Lanes & Signals

- Least popular option among CAB and pop-up survey
- Fewest pedestrian safety and bus benefits



Option #2 – Offset Bus Lanes

- Buses benefit from continuous bus only lane
- Potential to adapt to provide additional pedestrian safety benefits

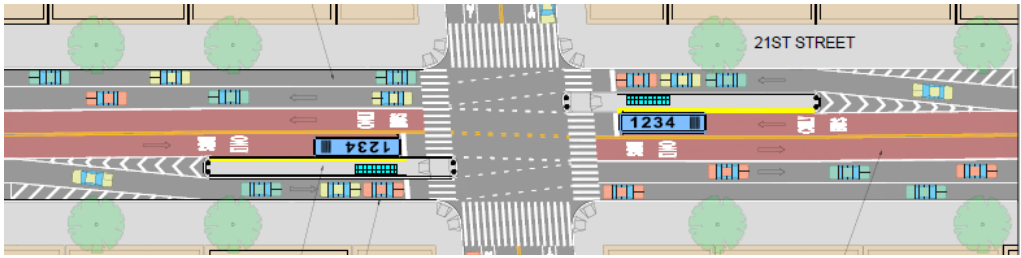


Our proposal uses option #2 as a starting point but adds in pedestrian islands and dedicated left turn bays at key locations.

Preliminary Options

Option #3 – Center Running Bus Lanes

- Preferred by many CAB members
- Slight preference of option #3 (34%) over option #2 (30%) of pop-up bus rider survey respondents



Though center running bus lanes have proven effective in some locations, it is not the optimal approach in this corridor. **Why?**

1) **Impact on limited buses (Q100)**
   - Will experience delay passing local buses (must wait behind stopped buses or use general traffic lane to bypass bus stop island)
2) **Impact on trucks**
   - Several Intersecting truck routes in the corridor are also locations of key bus stops
   - Design would limit ability for trucks to turn right or left
3) **Impact on traffic circulation**
   - Left turns not possible without slowing down buses

Conceptual Corridor Design

Conceptual Corridor Design

Key Considerations

- Design should significantly enhance both pedestrian safety and bus speed and reliability
- Design needs to accommodate truck and emergency vehicles turns
- Left turns should be restricted where possible, and safely accommodated where needed

Conceptual Corridor Design

Precedent – Utica Ave, Brooklyn

Utica Ave @ Ave L

- Major north-south arterial in Southern Brooklyn
- Offset bus lanes move to curb to accommodate left turns
- Pedestrian islands included in some locations

Utica Ave @ Winthrop St

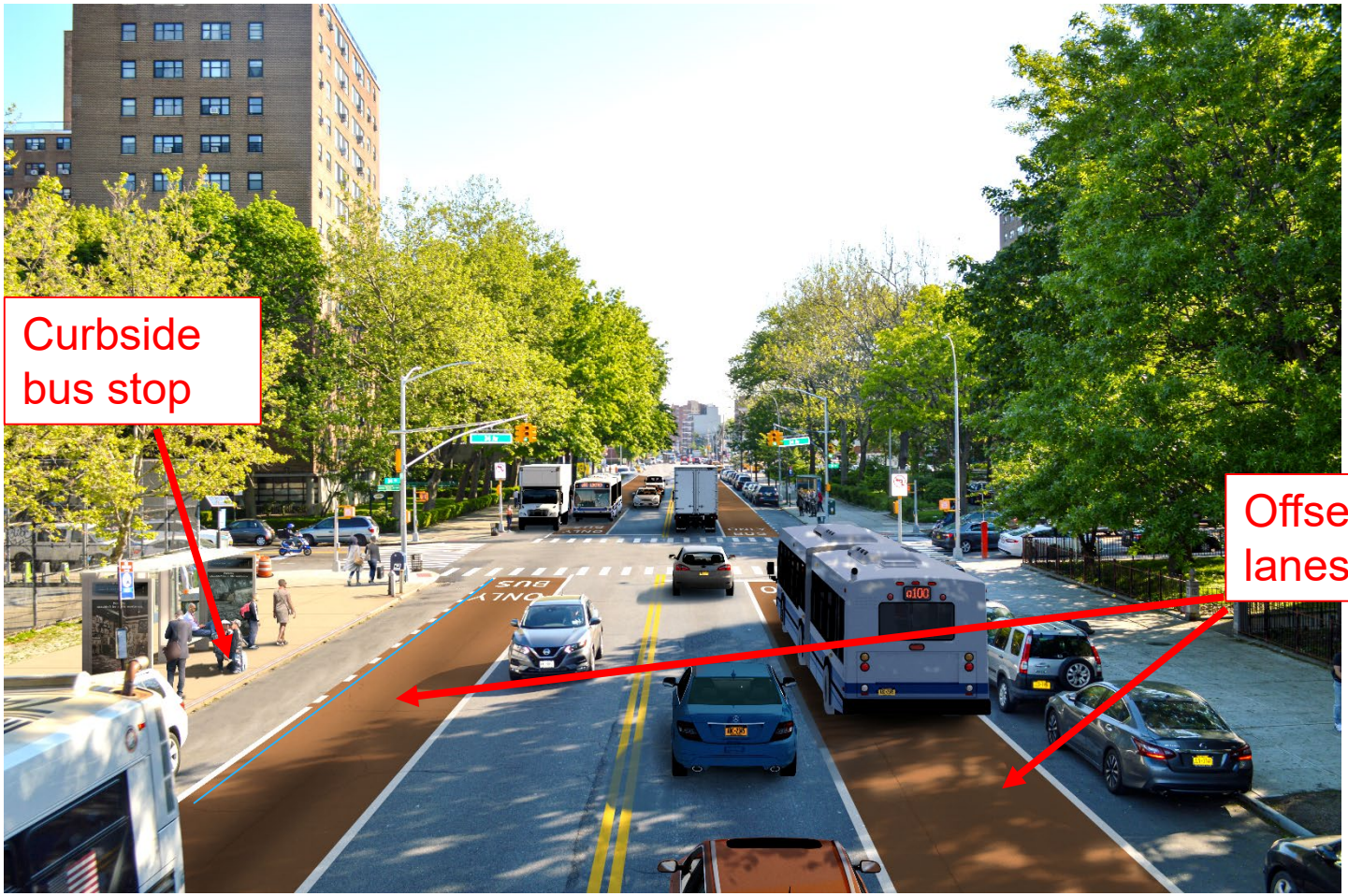
Utica Ave @ Winthrop St

Conceptual Corridor Design

21st St @ 34th Ave - Existing

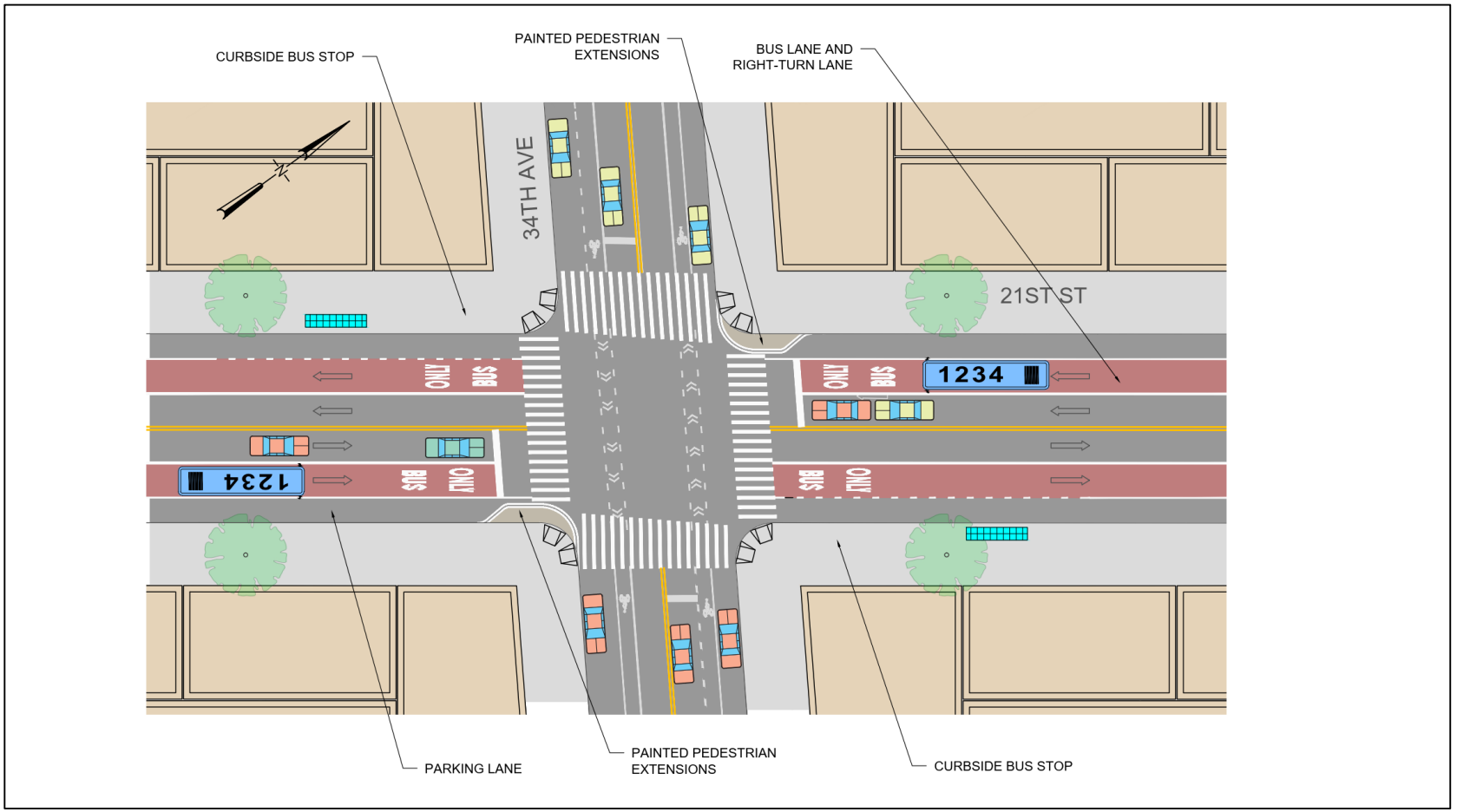
Conceptual Corridor Design

21st St @ 34th Ave - Proposed



Conceptual Corridor Design

21st St @ 34th Ave - - Proposed

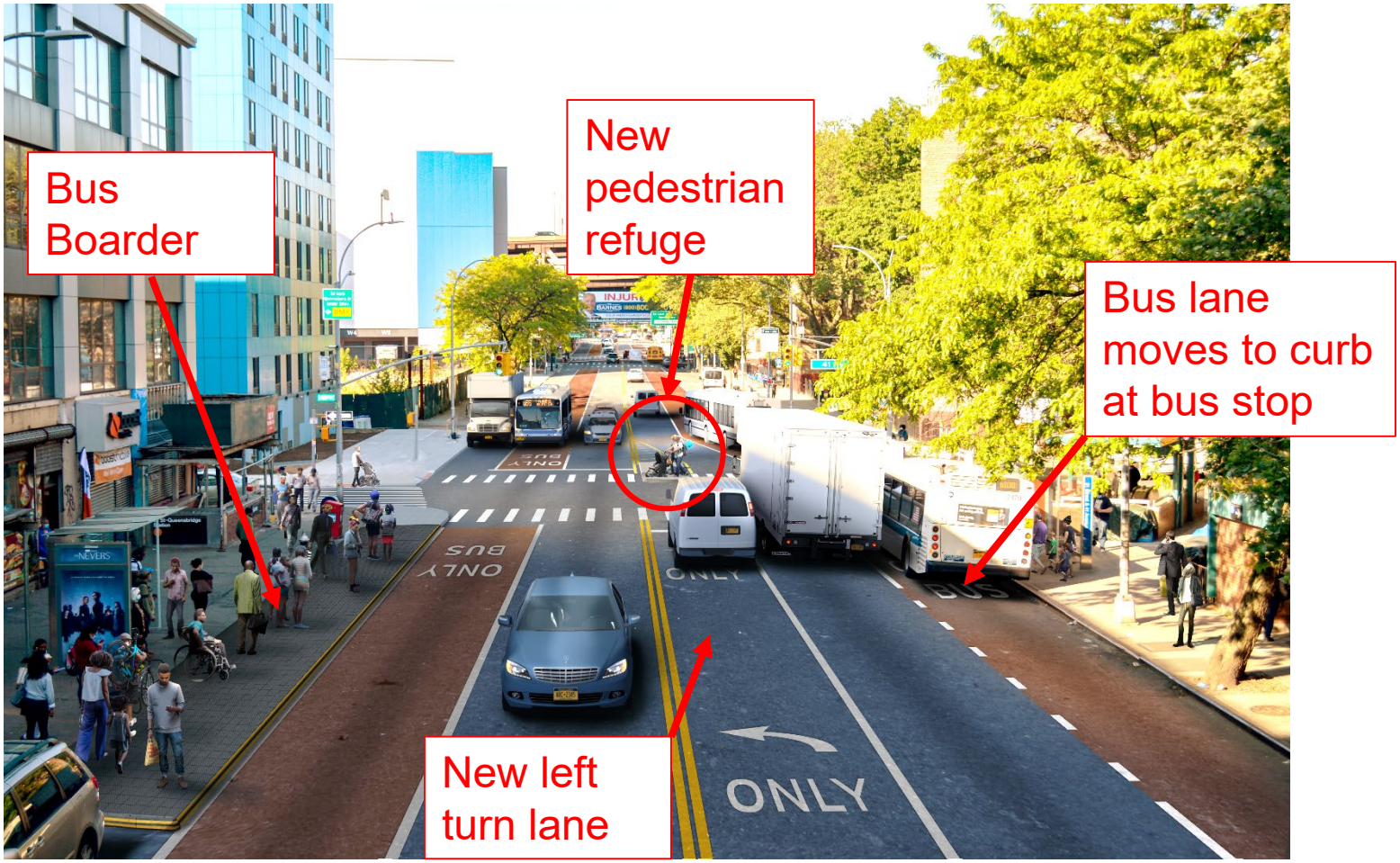


Conceptual Corridor Design

21st St @ 41st Ave - Existing

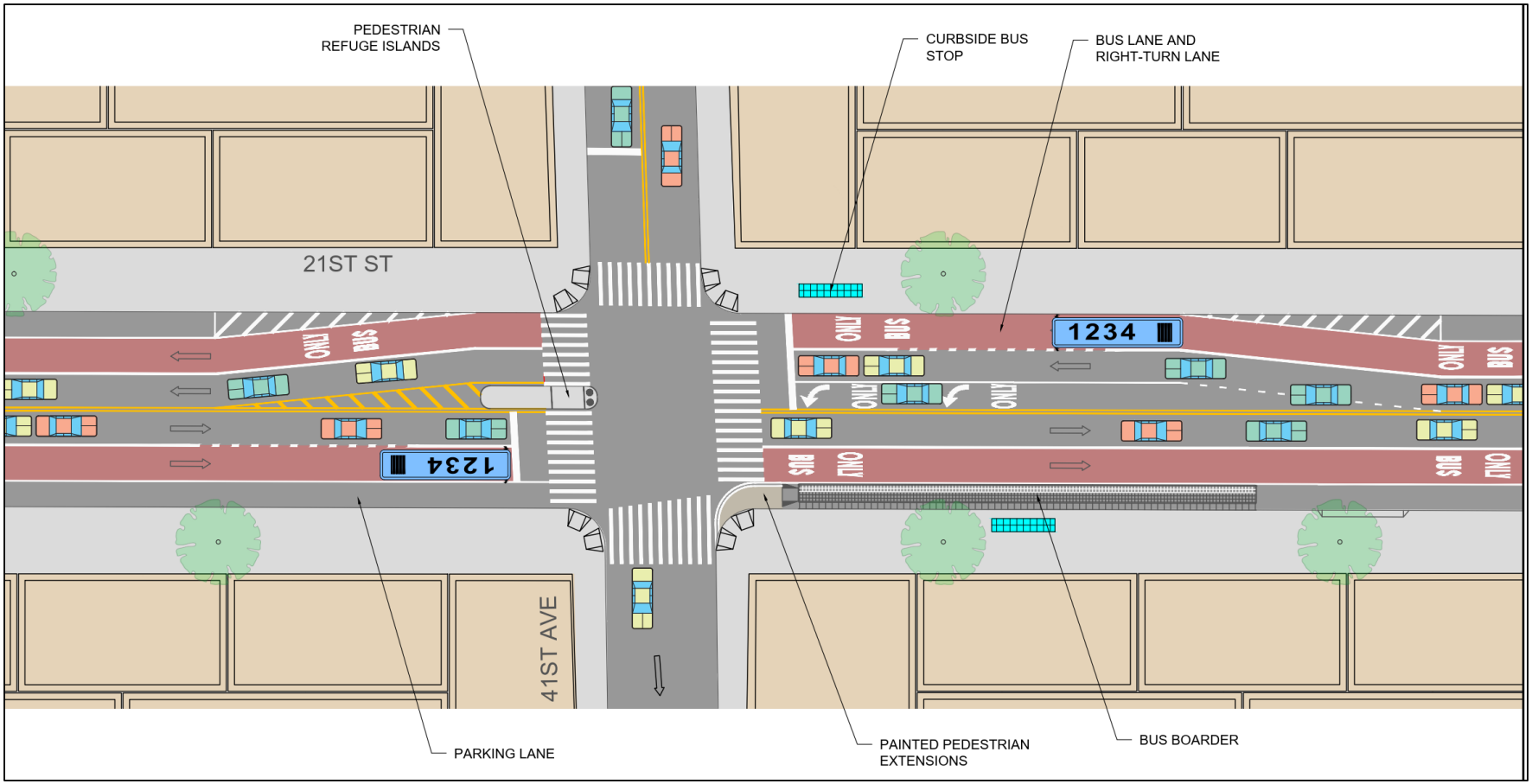
Conceptual Corridor Design

21st St @ 41st Ave - Proposed



Conceptual Corridor Design

21st St @ 41st Ave - Proposed



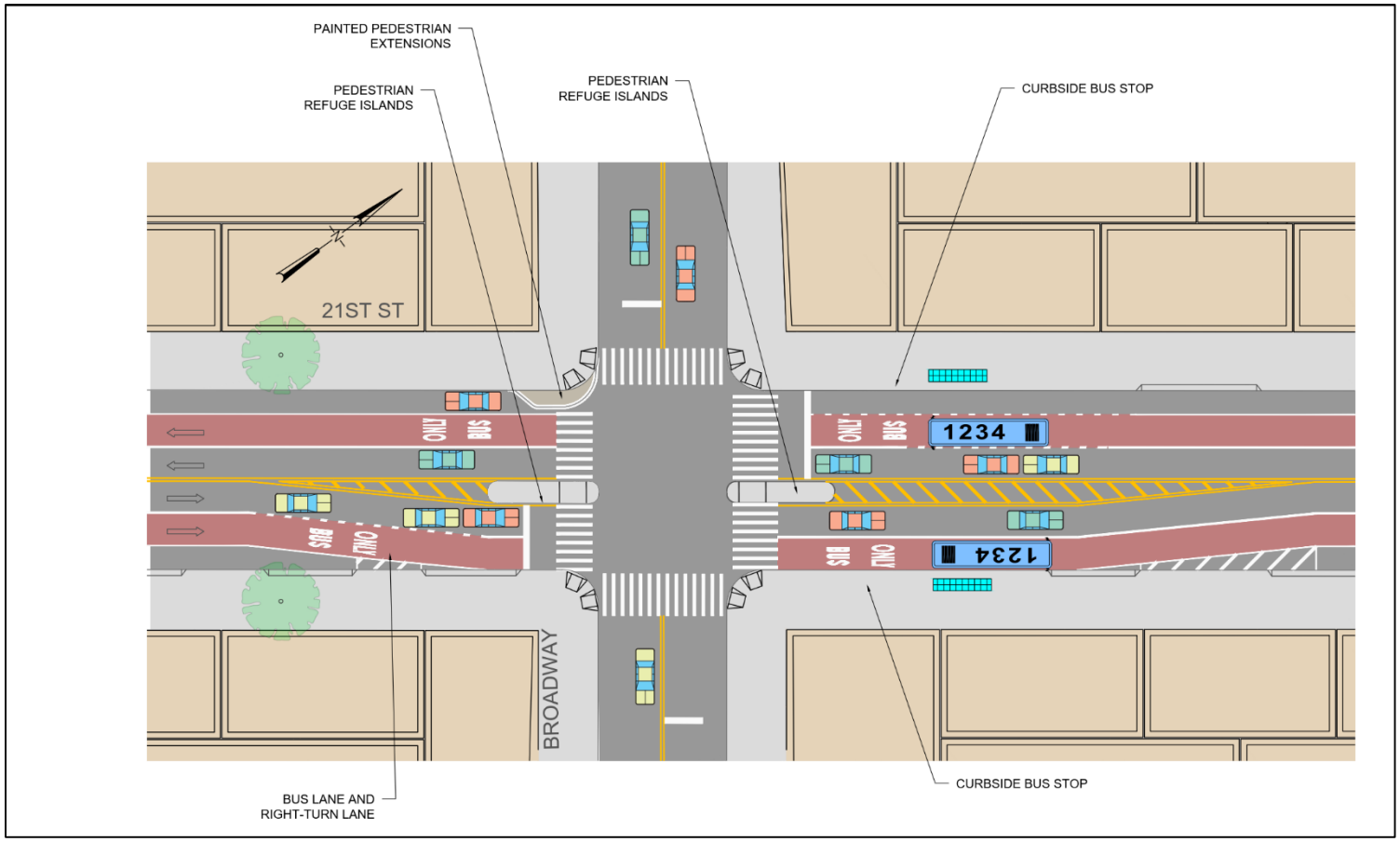
BETTERBUSES

Conceptual Corridor Design

21st St @ Broadway - Existing

Conceptual Corridor Design

21st St @ Broadway - Proposed

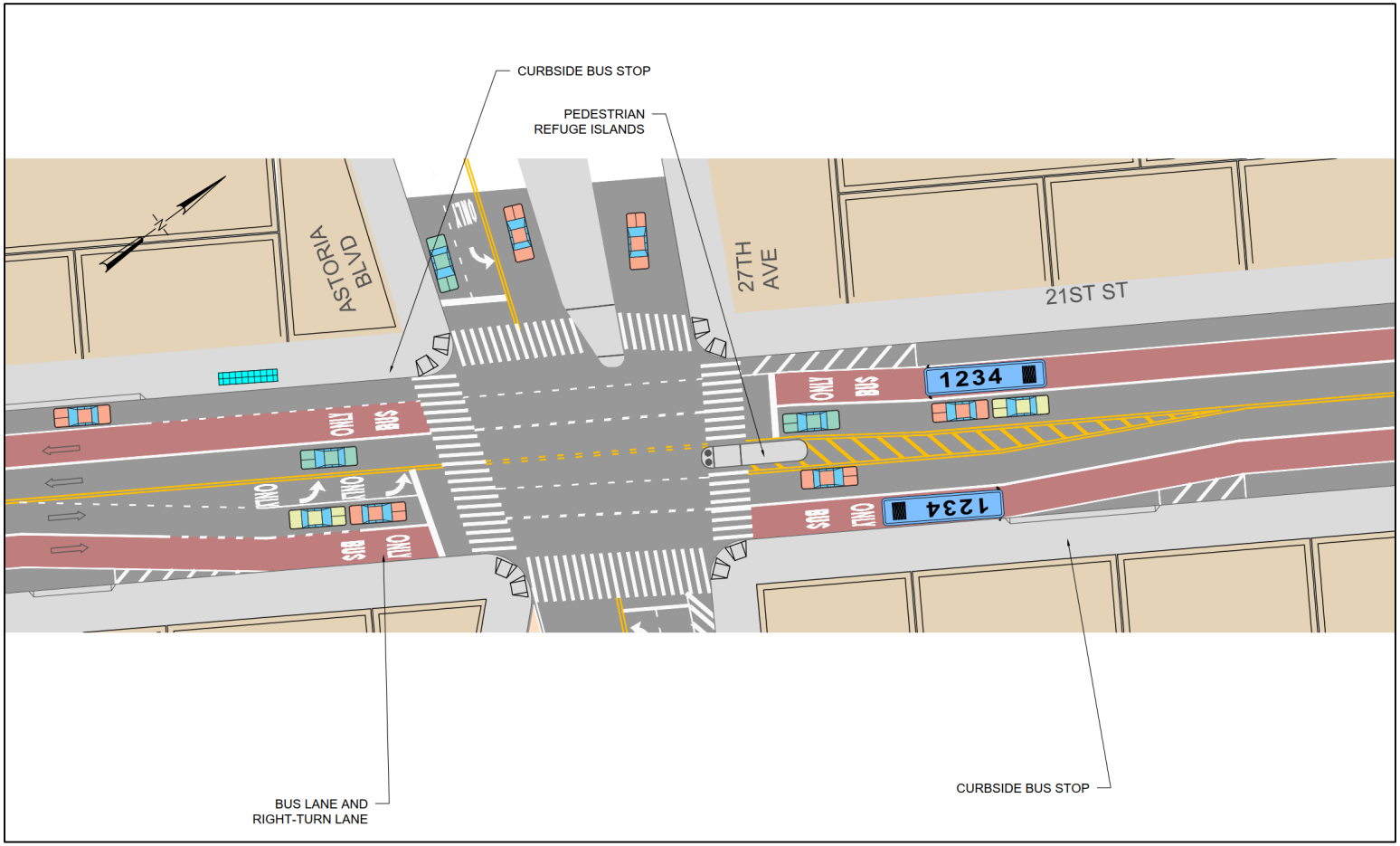


Conceptual Corridor Design

21st St @ Astoria Blvd - Existing

Conceptual Corridor Design

21st St @ Astoria Blvd - Proposed



Conceptual Corridor Design

Design Elements

Woodhaven Blvd, QN

Offset Bus Lane

Proposed Locations

- Throughout corridor

7th Ave, MN

Bus Boarder

Proposed Locations

- 21st St @ 41st Ave (northbound)
- 21st St @ 35th Ave (northbound and southbound)
- 21st Ave @ 30th Ave (southbound

Conceptual Corridor Design

Design Elements

Utica Ave, BK

Left Turn Lane

Proposed Locations

- 21st St @ Queens Plaza North (northbound)
- 21st St @ 41st Ave (southbound)
- 21st St @ 40th Ave (northbound)
- 21st Ave @ 30th Ave (northbound)
- 21st St @Astoria Blvd (northbound)

All other intersections have NB/SB left turn restrictions except Hoyt Ave South SB.

Hillside Ave, QN

Pedestrian Island

Proposed Locations

- 21st St @ 41st Ave (south side)
- 21st St @ 40th Ave (north side)
- 21st Ave @ Broadway (south and north sides)
- 21st St @ 30th Ave (north side)
- 21st St @ Astoria Blvd (west and north sides)

Conceptual Corridor Design

Design Elements

21st St @ 31st Dr,

Painted Curb Extension

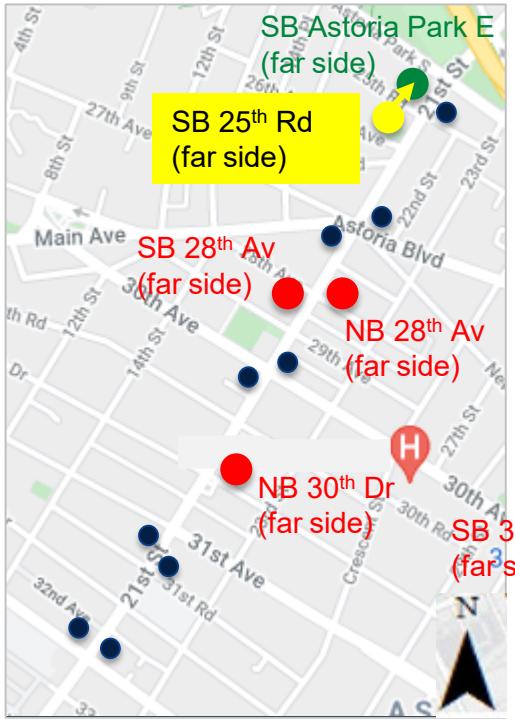
Proposed Additional Locations

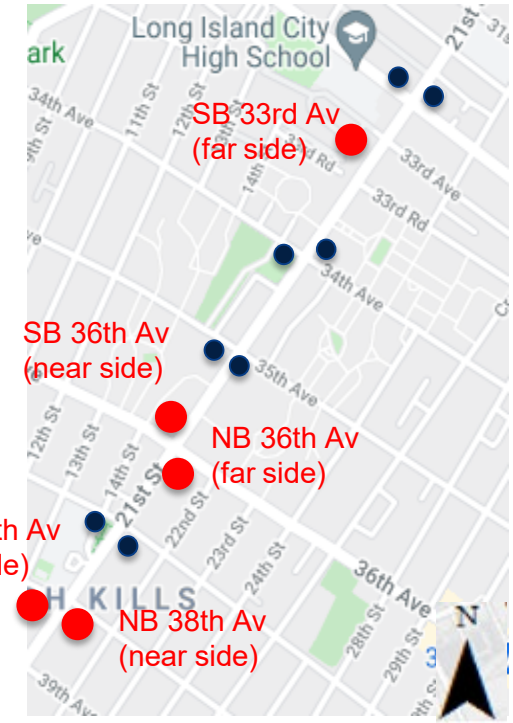
- 41st Ave (NE corner)
- 40th Ave (NW corner)
- 38th Ave (All four corners)
- 14th St (NW corner)
- 35th Ave (SE, SW, and NW corners)
- 34th Ave (SE and NW corners)
- 31st Ave (SE and NW corners)
- 30th Ave (SW and NW corners)

Conceptual Corridor Design

Bus Stop Balancing

- Bus stops on 21st Street often closer than MTA Guidelines (750')
- Very closely spaced stops reduce bus speed and reliability
- MTA and DOT proposing removal or move of nine stops
  - NB 30th Dr, SB 36th Ave, and SB 33rd Ave all had less than 100 daily passenger ons and offs
  - 28th Ave, 36th Ave, and 38th Ave stops less than 500' from adjacent stops
  - SB 25th Rd moved to locations with better bus stop conditions
- No changes to stops south of 38th Avenue





KEY:

- Existing bus stop
- Bus stop removed
- Bus stop moved
- New bus stop

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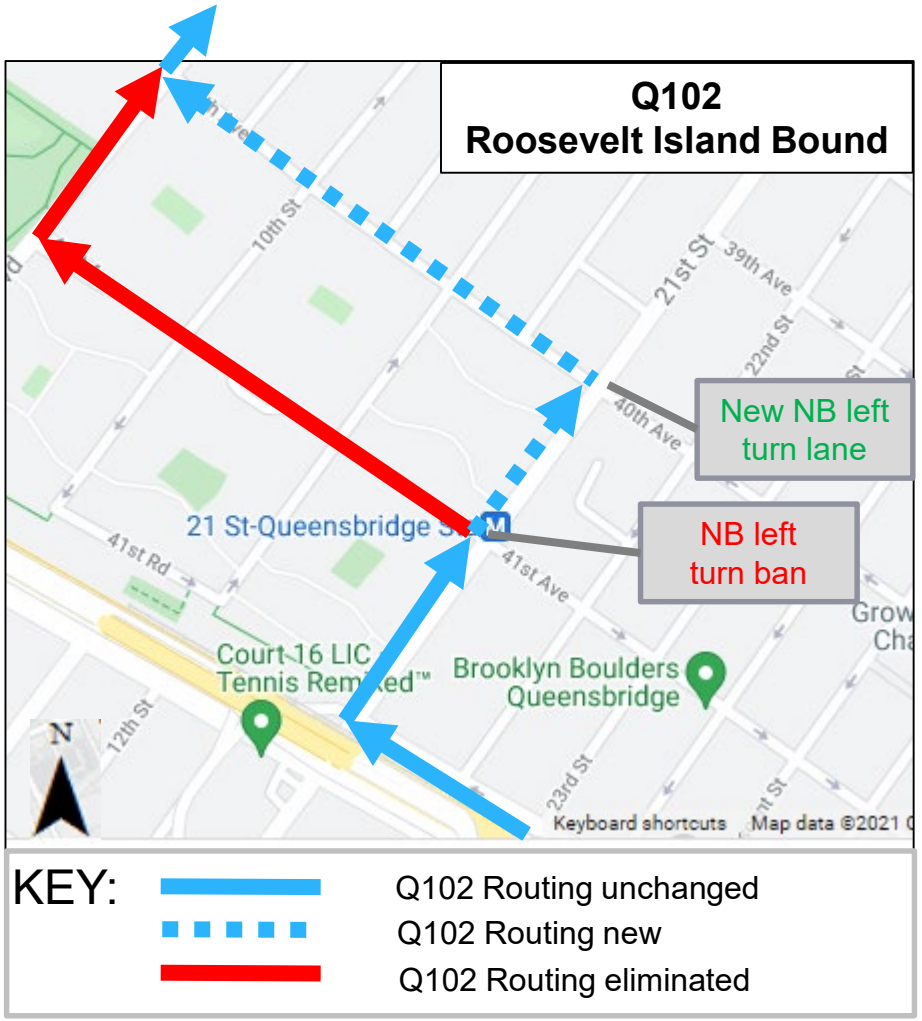
Bus Route Change

- Roosevelt Island-bound Q102 bus currently turns left at 41st Avenue
- Proposed design provides dedicated northbound left turn lane at 40th Ave
- New routing uses 40th Ave instead of 41st Ave
- No changes proposed to Q102 in Astoria-bound direction
- No other bus route changes proposed



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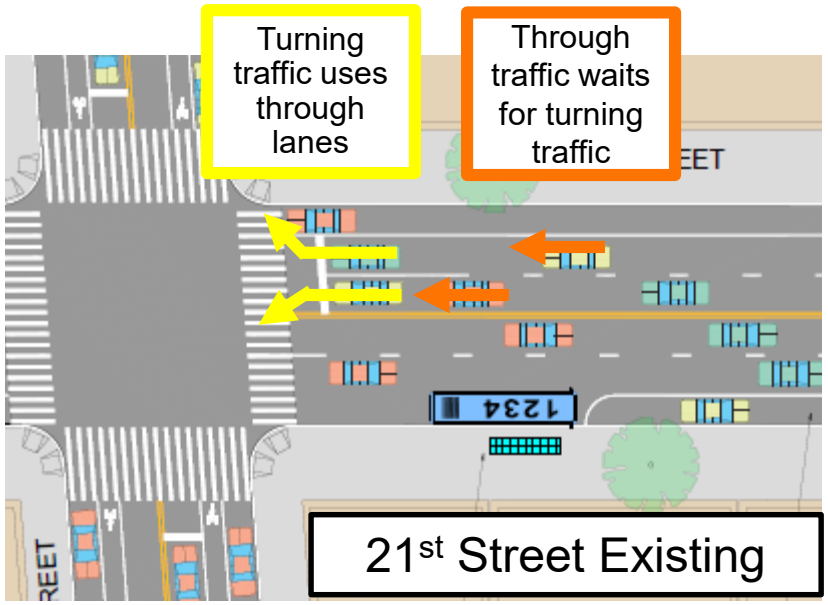
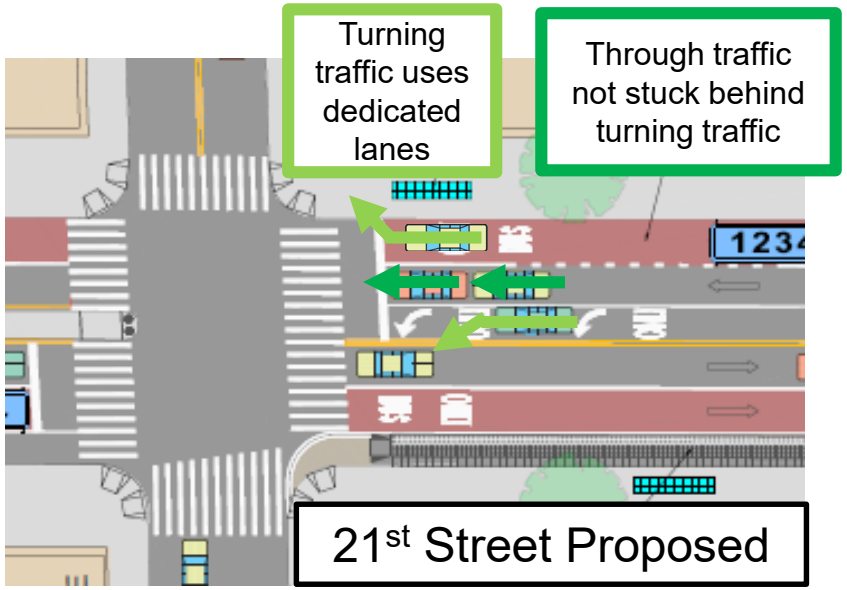
Traffic Considerations

- To improve bus travel and pedestrian safety project reduces through travel lanes from two to one in each direction
- However, left turn bans, left turn lanes, and right turns made from bus lanes take turning traffic out of the through lane





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Signal Timing

- DOT will adjust signal timing to optimize for new design
- In some cases, green time will be re-allocated to 21st Street from side streets

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Traffic – What to Expect

- Initial congestion likely as drivers get used to new design of 21st Street
- Conditions will improve over time due to **Triple Divergence**

Triple Divergence – When overall capacity decreases, drivers will seek out other modes, travel during other times of day or use alternative routes.

Triple Divergence		
1.	Mode	Some drivers will shift to other means of travel. Increases in bus speed and reliability will make that mode more attractive
2.	Time	Some drivers will choose to travel at off-peak times.
3.	Route	Some drivers will use parallel streets to reach their destination.

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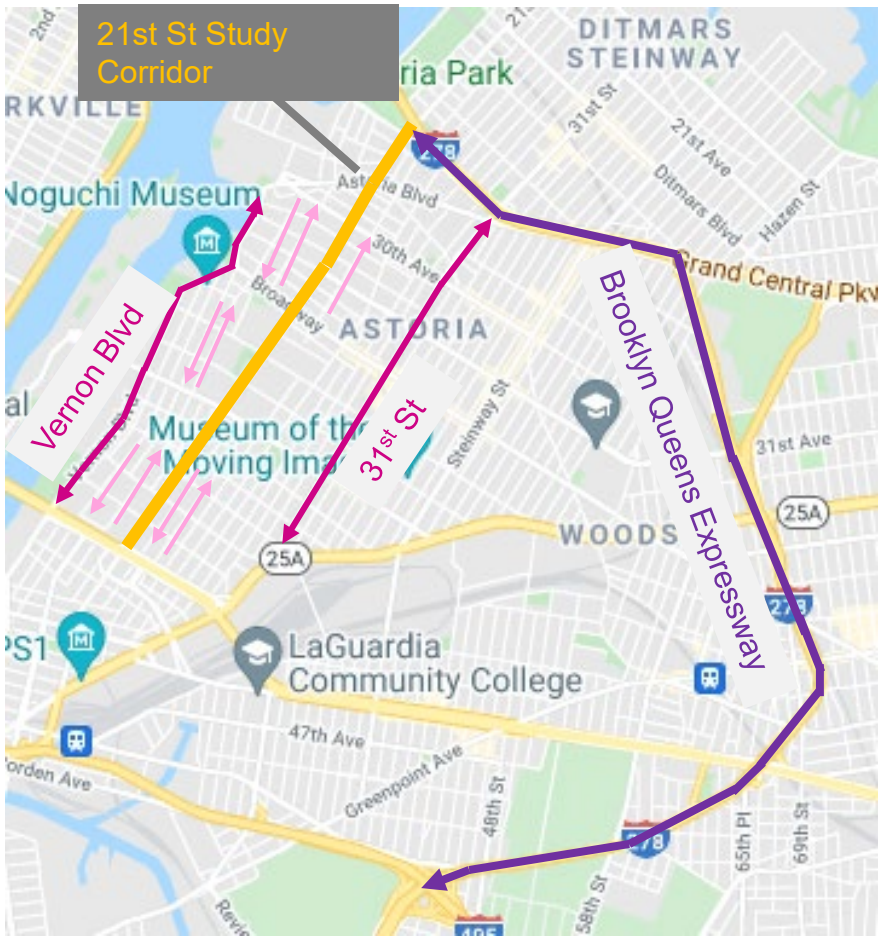
Traffic Diversions

- The majority of current traffic volumes can be accommodated on 21st St
- Regional through traffic may use BQE
- Some traffic may divert to Vernon Blvd or 31st St
- Many local north-south alternatives for local trips



KEY:

- Regional route
- Through route
- Local connections

Other Improvements

Ongoing Investigations

1) Vehicle Loading Zones
   - Goal = reduce double parking
   - Time lapse camera observations planned
   - Curbside management plan to be developed
2) Sidewalk Tree Plantings
   - DOT has requested survey by Department of Parks and Recreation
   - Expected to be complete by end of year
3) Bus Lane Enforcement
   - Will investigate for 2022 installation of road side cameras
   - MTA piloting cameras on buses – will eventually be citywide
4) Transit Signal Priority
   - Have requested study
   - If feasible would be implemented in 2022

Next Steps

- Second Virtual Public Meeting – January 12th – 6-8 PM
- Community Board Presentation – Early 2022
- Please provide any additional thoughts and comments to DOT
  - **John O'Neill - joneill@dot.nyc.gov**

- For more information – **nyc.gov/busprojects**

Questions and Comments?

Thank You!

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