



7TH AVENUE

PROTECTED BICYCLE LANE & SAFETY IMPROVEMENTS

Manhattan Community Board 2

May 2017



Project Background

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Community Requests

Community and Elected Officials have requested a complete street redesign of 7th Avenue:

- Community Board 2 and Public School 41 (2014)
- NYS Senator Hoylman (2015)
- Joint Letter from Federal, State and Local Elected Officials (2016)
 - US Rep. Nadler
 - NYS Senator Hoylman
 - NYS Assemblymember Glick
 - Borough President Brewer
 - NYC Councilmember Johnson



Safety

- 7th Ave is a Vision Zero Priority Corridor
- Vision Zero Priority Intersections at W 14th St and at Bleecker St
- Excess roadway width and complicated intersections create long, challenging crossings

7th Ave/7th Ave S (W 30th St to Clarkson St), MN
Injury Summary, 2011-2015 (5 years)

	Total Injuries	Severe Injuries	Fatalities	KSI
Pedestrian	175	19	1	20
Bicyclists	96	9	0	9
Motor Vehicle Occupant	239	10	0	10
Total	510	38	1	39

Fatalities, 01/01/2011 – 1/9/2017: 1

Source: Fatalities: NYCDOT, Injuries: NYSDOT. KSI: Persons Killed or Severely Injured



Bicycle Network and Ridership

Existing protected bicycle lanes:

- 9th Ave (southbound)
- 8th Ave (northbound)
- 6th Ave (northbound)

High bicycle volumes on 7th Ave:

(14-hour counts, July 2016)

- 1,700 bikes at W 30th St
- 2,350 bikes at W 20th St
- 1,300 bikes at Charles St

Citi Bike launched in 2013, now regularly serves 60,000 trips/day



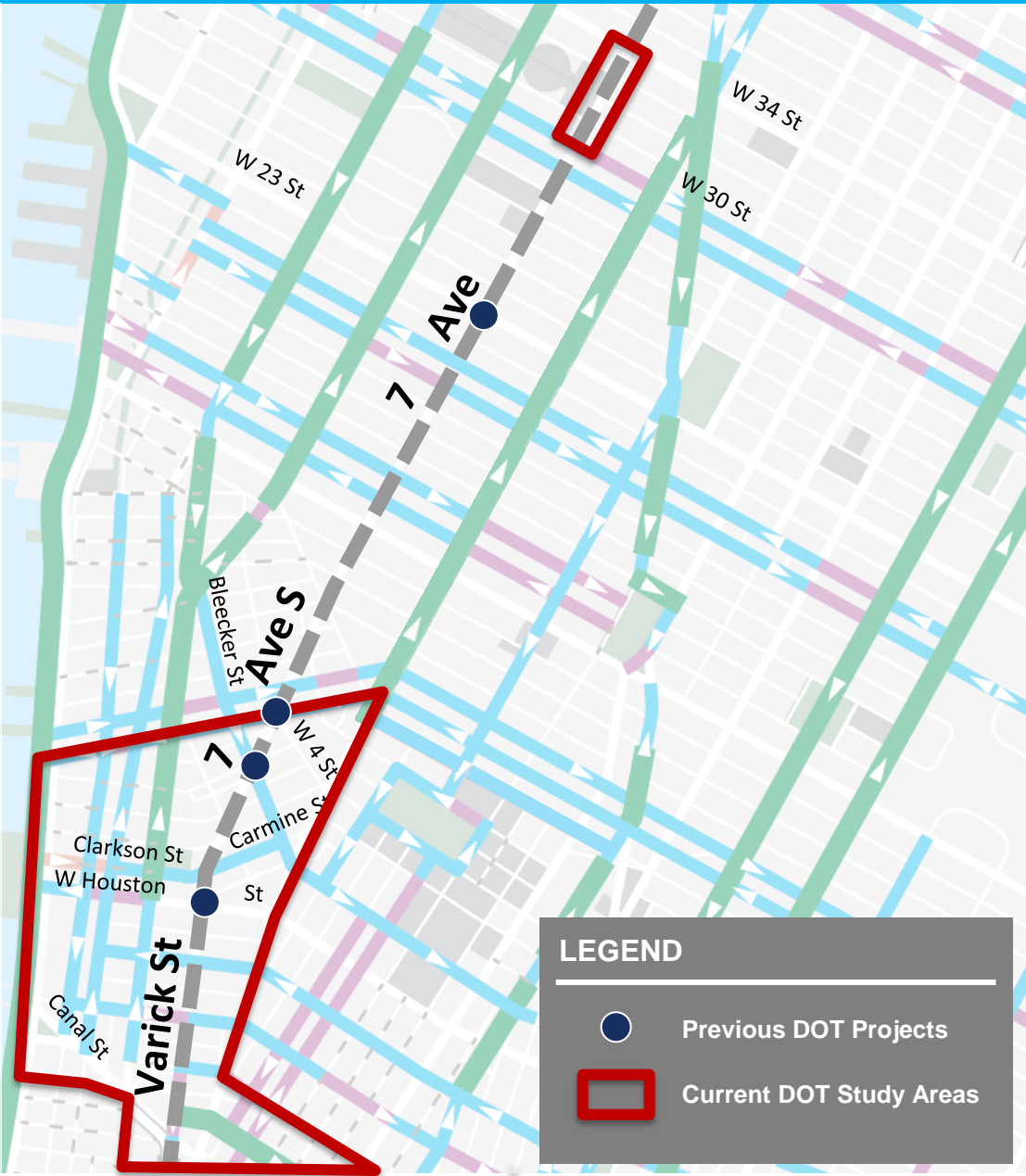
Related DOT Projects

Previously installed 7th Ave pedestrian safety projects:

- W 23rd St (2011)
- Bleecker St/Barrow St (2012)
- W 4th St (2015)
- W Houston St (2016)

On-going traffic studies:

- **7th Ave, W 34th St to W 30th St:**
Traffic impacts of closing W 33rd St from 7th Ave to 8th Ave
- **Hudson Square/West Village:**
Traffic impacts of proposed development at 550 Washington St



Proposed Project Scope

Overall Project Area:
7th Ave, W 30th St to Clarkson St

CB 2 Project Proposal:
7th Ave, W 14th St to Clarkson St

- Overall Corridor Redesign
- Intersection Improvements
 - Greenwich Ave / W 11th St
 - Waverly Pl / Perry St
 - W 4th St / Christopher St
 - Bleecker St / Barrow St
 - Clarkson St / Carmine St

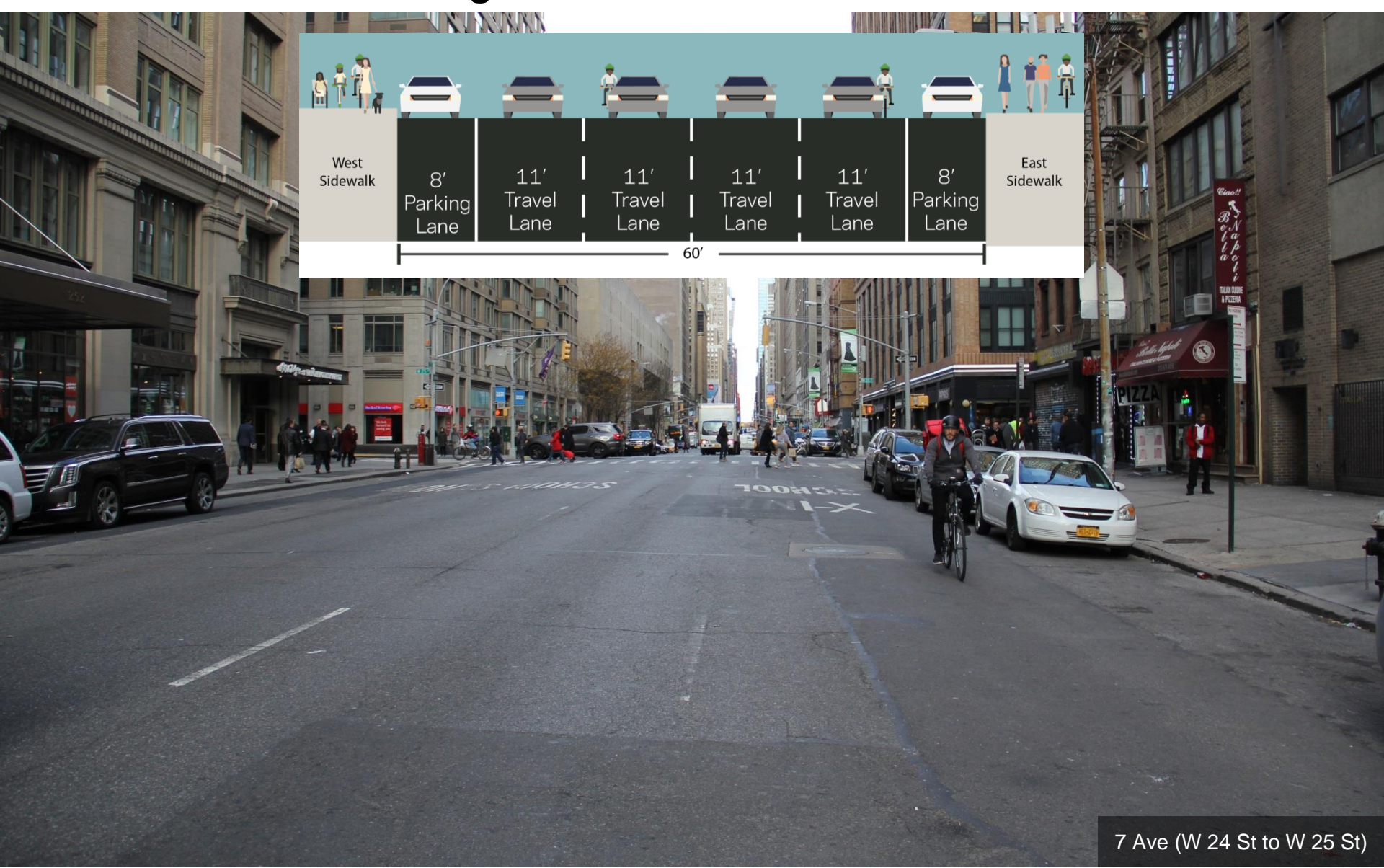
Potential future extensions to the north and south



Project Proposal

2

Overall Corridor - Existing Conditions



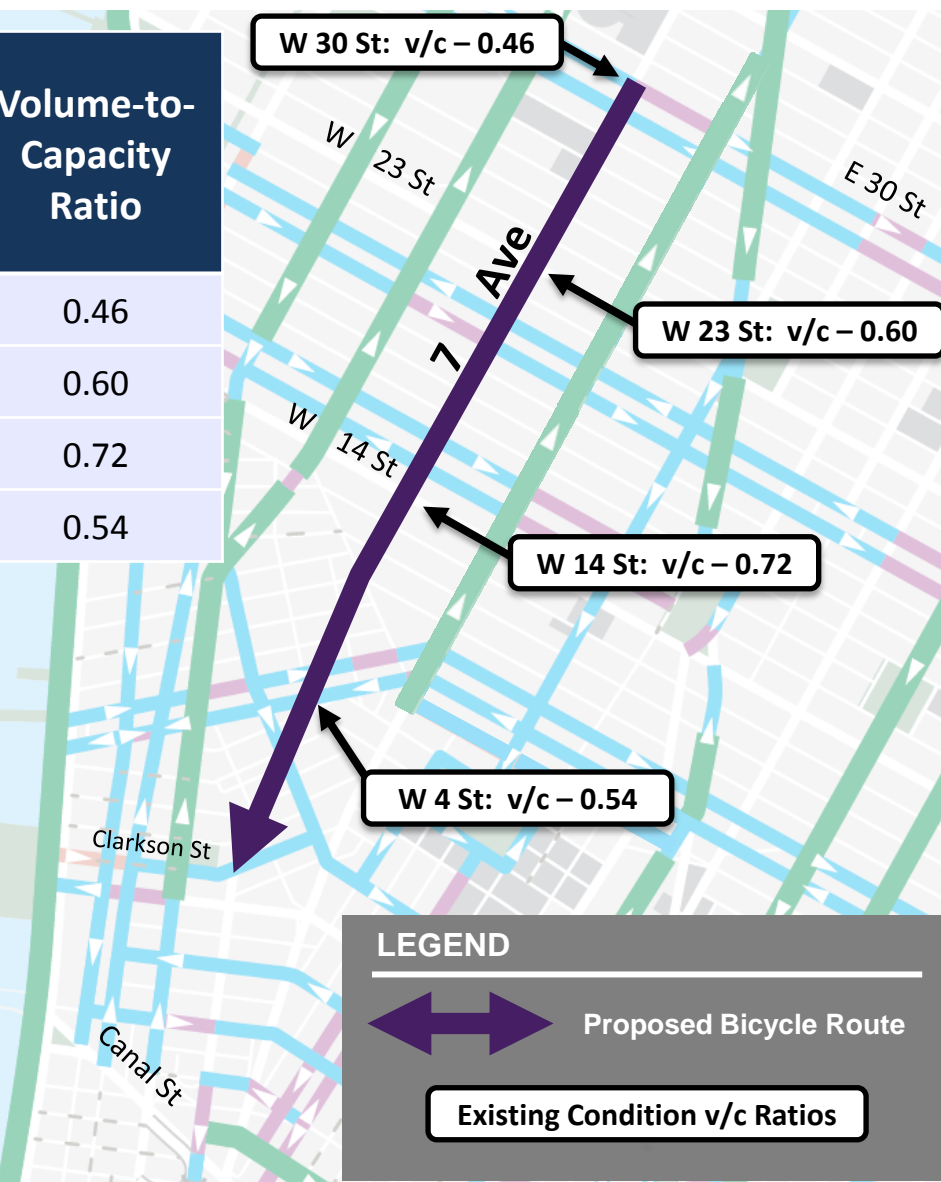
7 Ave (W 24 St to W 25 St)

Existing Vehicular Capacity

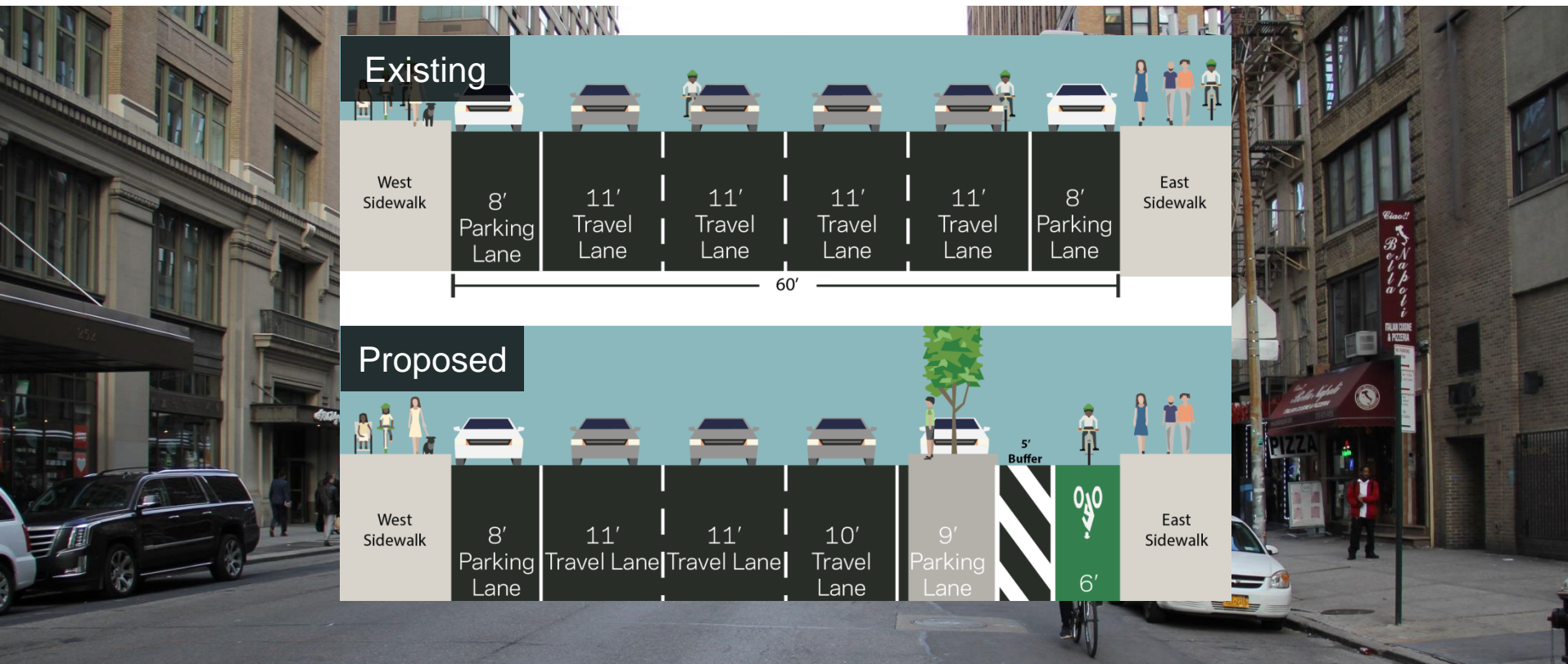
Cross Street	7 th Ave 7PM-8PM Peak Volumes (veh/hr)	Average delay/vehicle (sec)	Level of Service	Volume-to- Capacity Ratio
W 30 th St	1,200	9.1	A	0.46
W 23 rd St	1,900	7.9	A	0.60
W 14 th St	2,050	14.3	B	0.72
W 4 th St	1,550	3.1	A	0.54

The **volume-to-capacity** ratio is a measure of how “full” a roadway feels and is calculated as a ratio between the measured traffic volume and calculated capacity of the roadway. The result is expressed as a number between 0 and 1. A value of “1” would indicate that the roadway is “full.”

Delay is a measure of the average time a vehicle will spend processing through an intersection



Overall Corridor - Proposed Improvements



- Remove one travel lane
- Install a parking-protected bike lane with planted concrete pedestrian islands
- Install split phase signals at W 14th St, Greenwich Ave/W 11th St, W 4th St/Christopher St, Bleecker St/Barrow St
- Install mixing zones at all other intersections
- *Requires removal of approximately 50 parking spaces (roughly 27% of corridor parking capacity)*

Example of Proposed Corridor Design

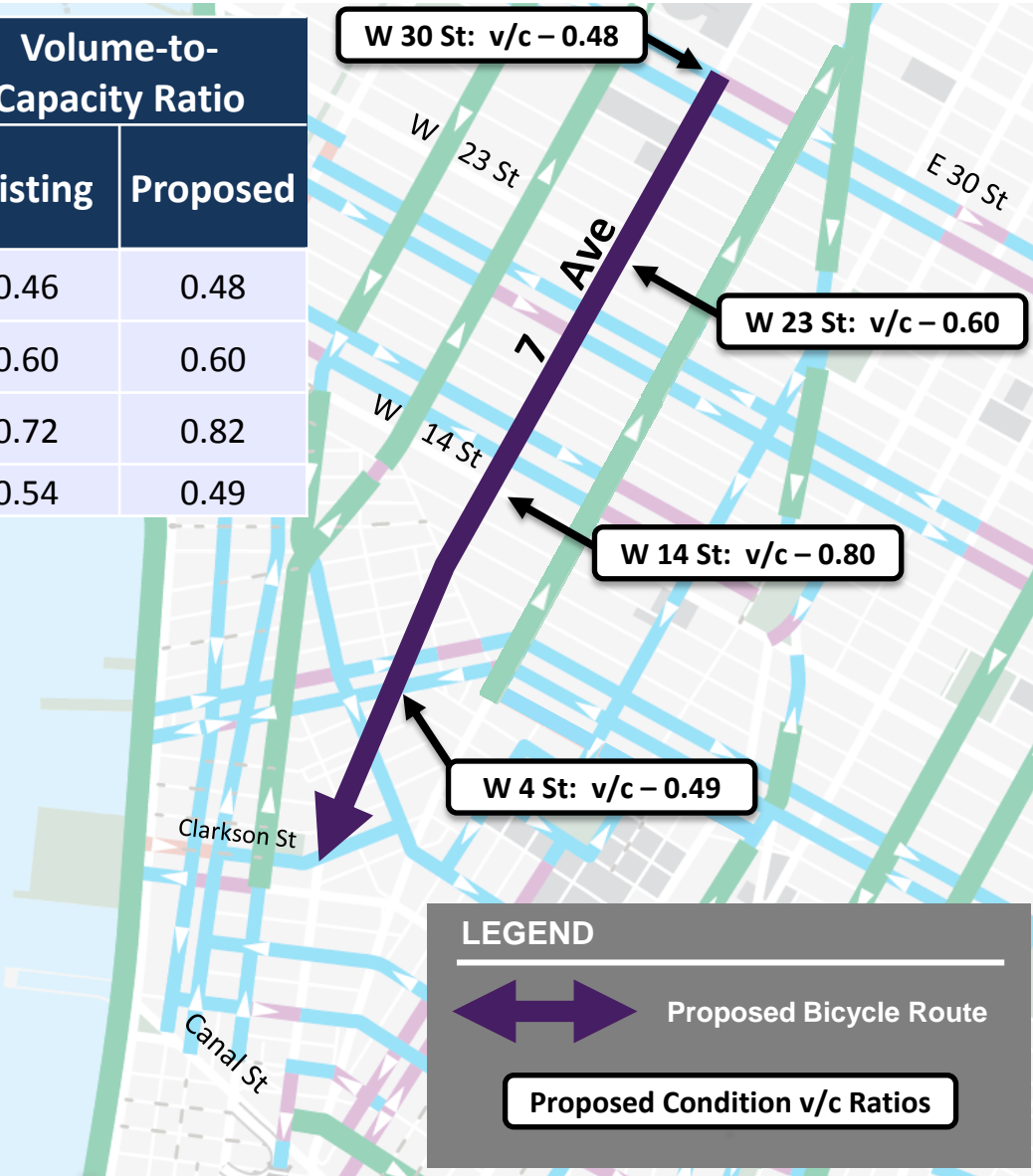


4th Ave, Manhattan

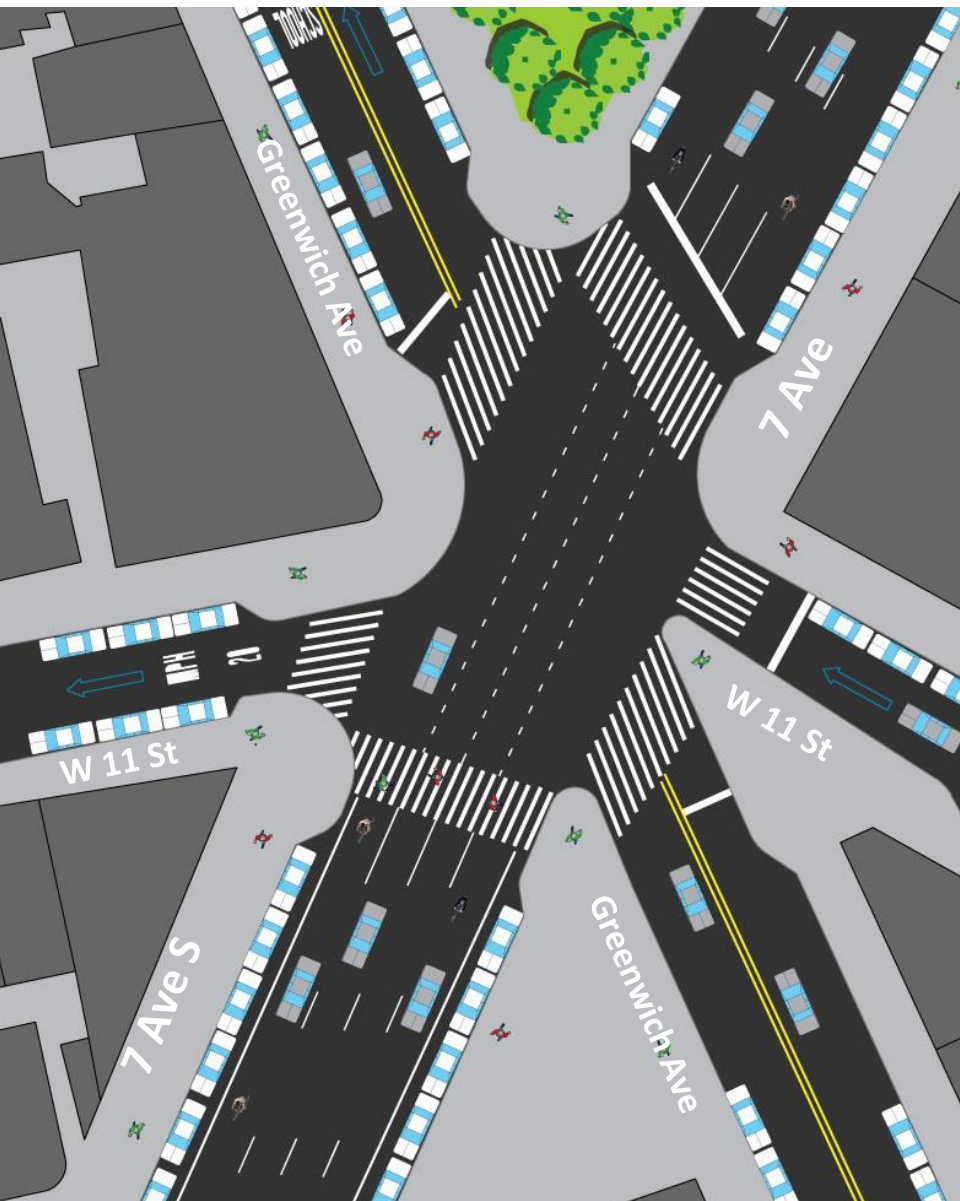
Proposed Vehicular Capacity

Cross Street	Average delay/vehicle (sec)				Volume-to-Capacity Ratio	
	Existing		Proposed		Existing	Proposed
	Delay	LOS	Delay	LOS		
W 30 th St	9.1	A	6.5	A	0.46	0.48
W 23 rd St	7.9	A	7.9	A	0.60	0.60
W 14 th St	14.3	B	8.4	A	0.72	0.82
W 4 th St	3.1	A	3.4	A	0.54	0.49

- **W 23rd St** existing split-phase signal operation and number of lanes to remain the same
- **W 14th St** and **W 4th St** benefit from dedicated left-turn phase

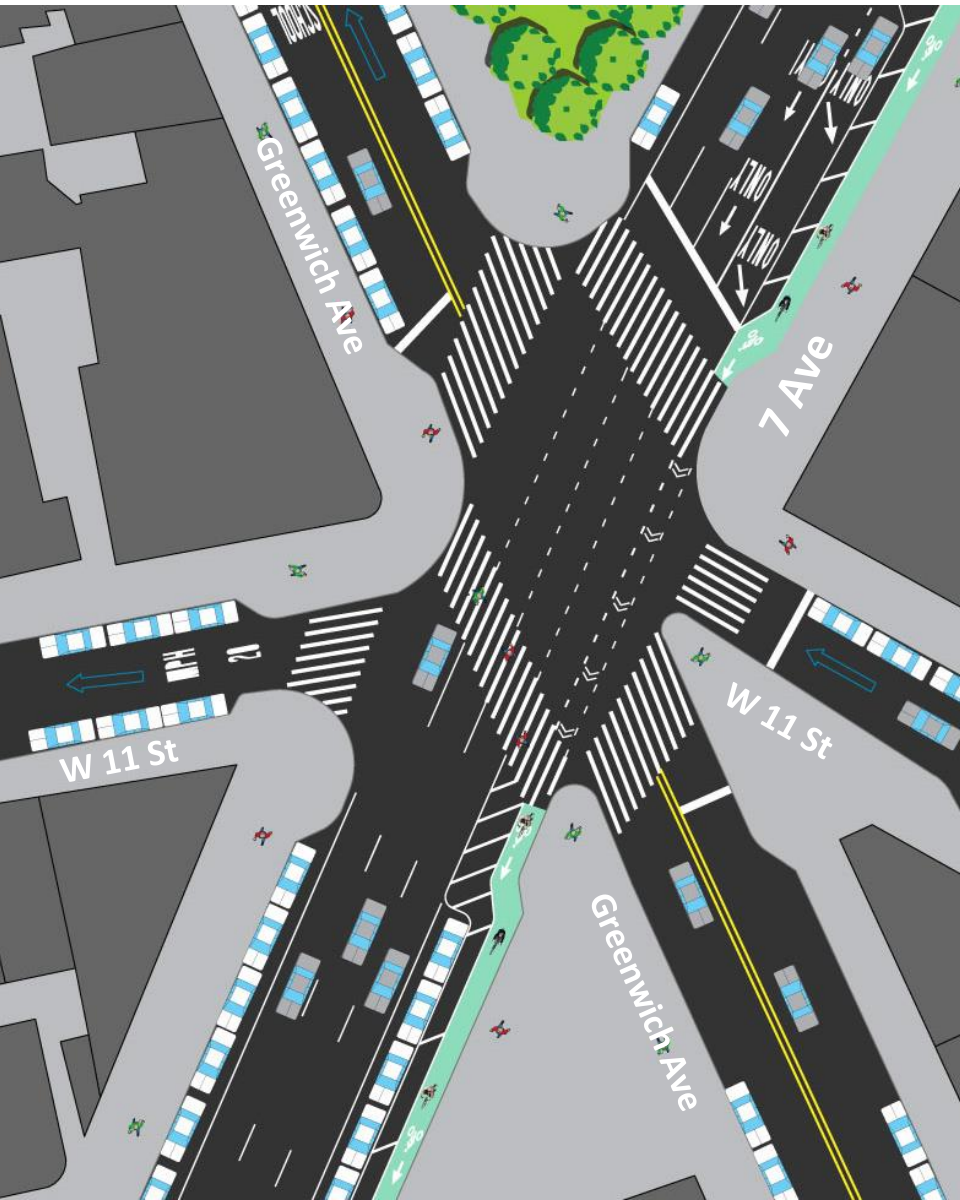


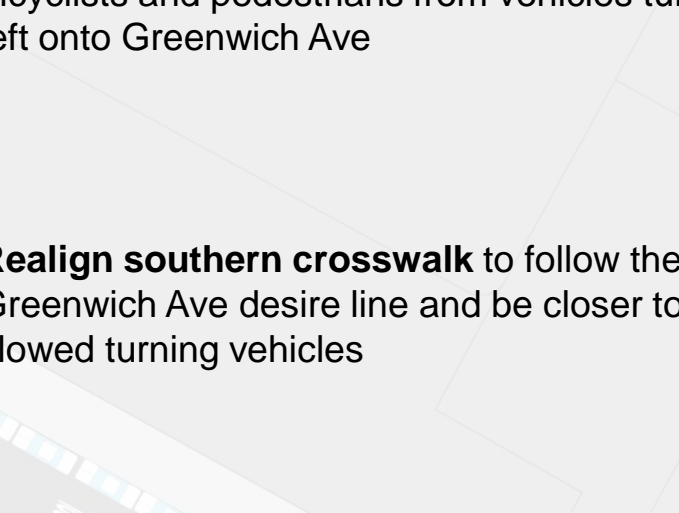
Greenwich Ave / W 11th St Intersection: Existing Conditions



- **5 legged intersection** with 3 signal phases
- Recently installed **curb extensions**
- **Indirect pedestrian crossing** for south side of Greenwich Ave
- **Heavy southbound left turn** onto Greenwich Ave
- **Complaints** from Public School 41 parents **about vehicle speed** at southern crosswalk

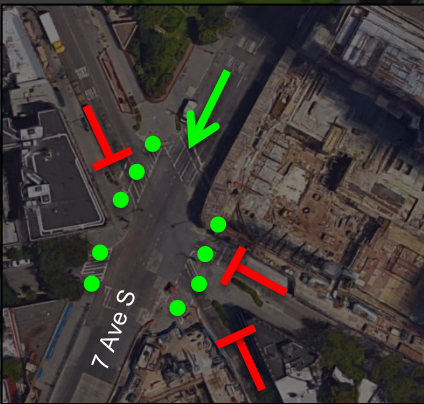
Greenwich Ave / W 11th St Intersection: Proposed Improvements



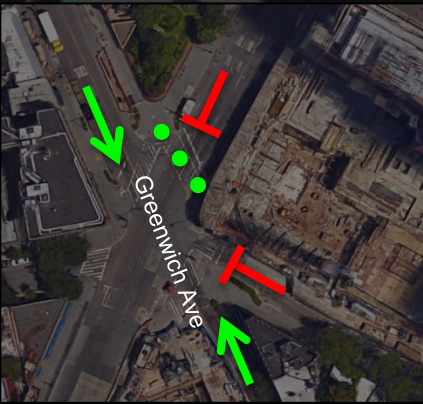
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- **Implement split-phase signal**, protecting bicyclists and pedestrians from vehicles turning left onto Greenwich Ave
 - **Realign southern crosswalk** to follow the Greenwich Ave desire line and be closer to slowed turning vehicles
 - **Increase crossing time** on southern crosswalk

Greenwich Ave / W 11th St Intersection: Proposed Improvements

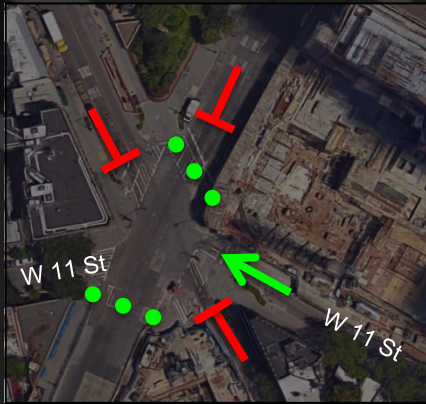
Existing Signal Phasing



7th Ave S phase

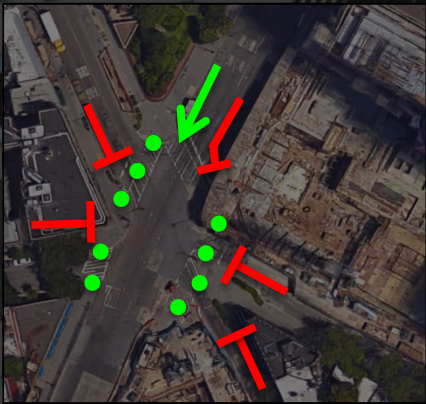


Greenwich Ave phase



W 11th St phase

Proposed Signal Phasing



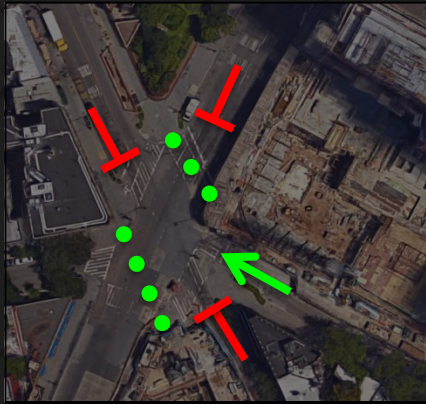
7th Ave S bike/pedestrian phase



7th Ave S protected left



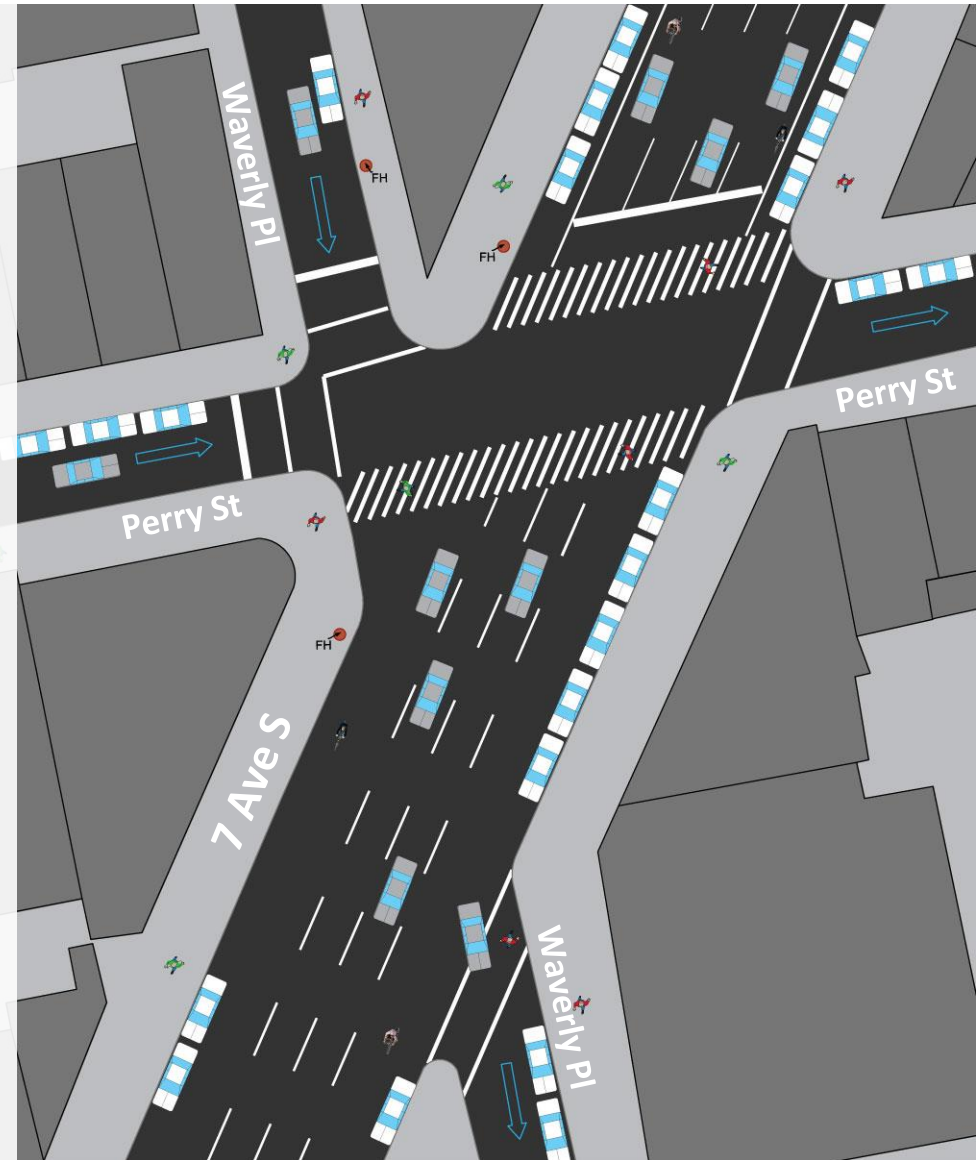
Greenwich Ave phase



W 11th St phase

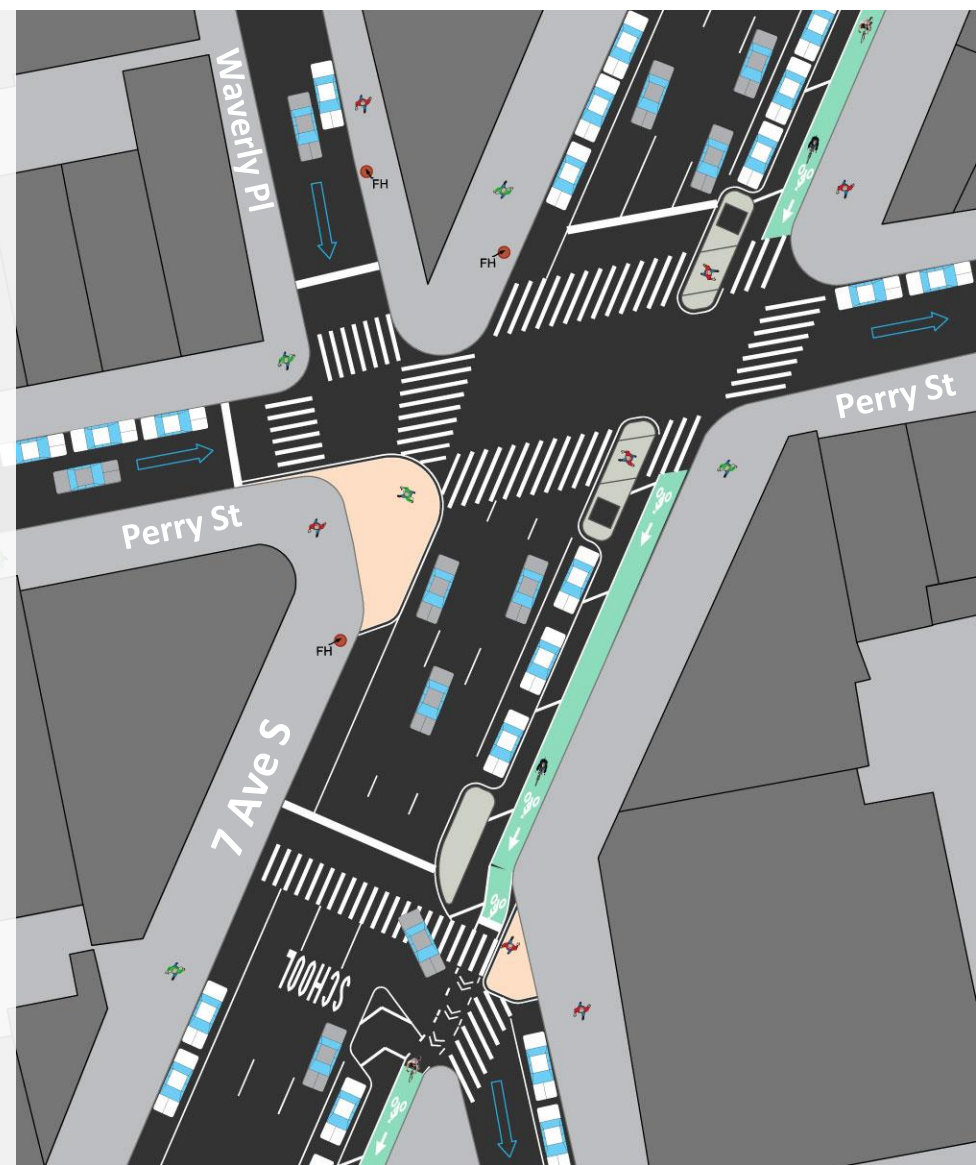
Waverly Pl / Perry St Intersection: Existing Conditions

- Extremely low left turn volume from 7th Ave S to Perry St
- Unsignalized receiving lane on Waverly Pl is a pedestrian hazard
- Long crosswalk on south side of Perry St

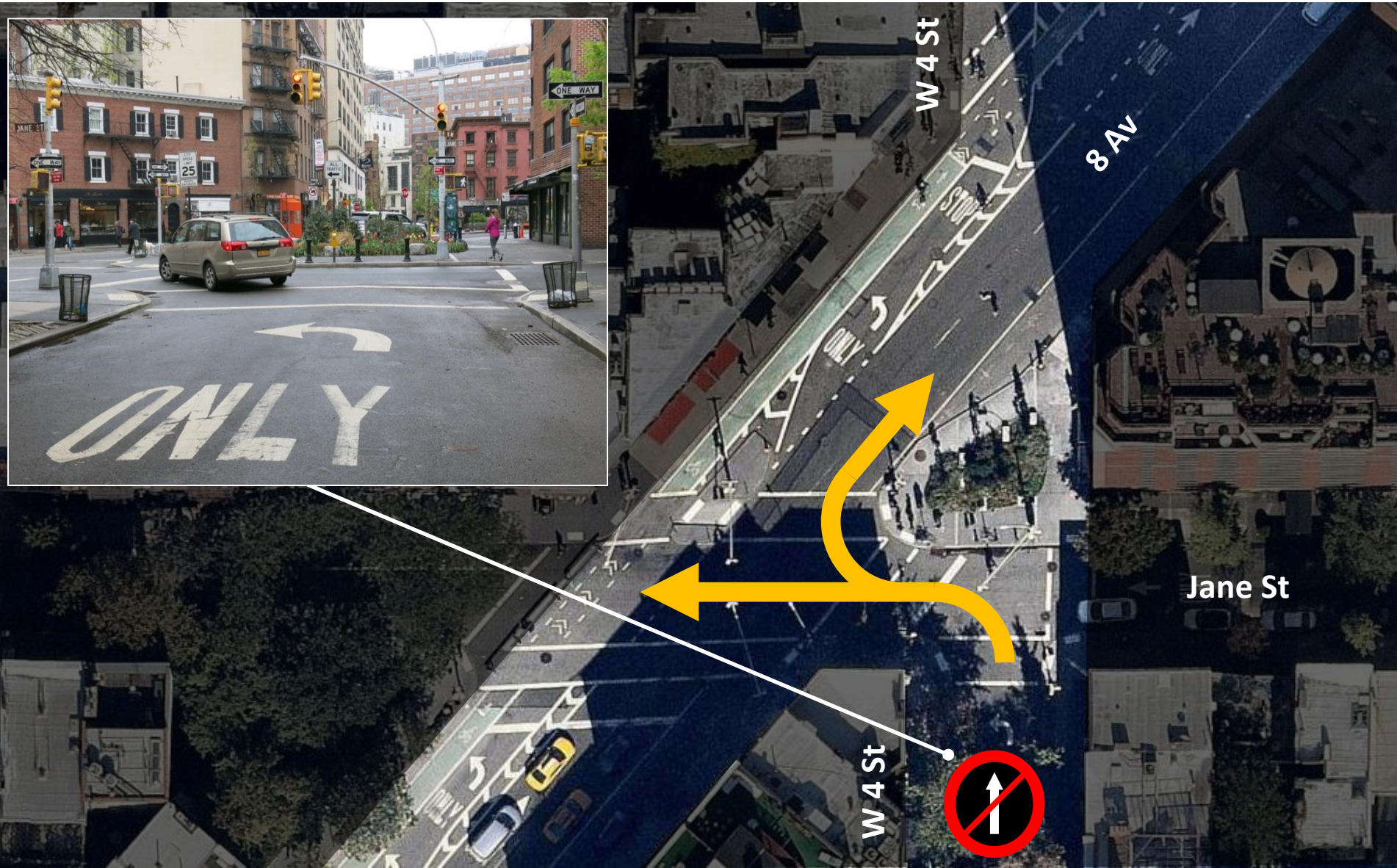


Waverly Pl / Perry St Intersection: Proposed Improvements

- **Ban left turn from 7th Ave S to Perry St**
 - **Pedestrian island** on north crosswalk shortens crossing distance by 30%
 - **Vehicles can access Perry St** by turning right on W 11th St, left on Waverly Pl, left on Perry St
- **Install new traffic signal** at the receiving block of Waverly Pl
- **Build curb extension** to force southbound Waverly Pl vehicles to turn left at Perry St before making the right turn onto 7th Ave S
 - Slows Waverly Pl traffic
 - Improves visibility of traffic signal
 - Discourages fast turns across bike path
 - Lengthens the crossing time for the south crosswalk
 - Shortens pedestrian crossing distance by 50%

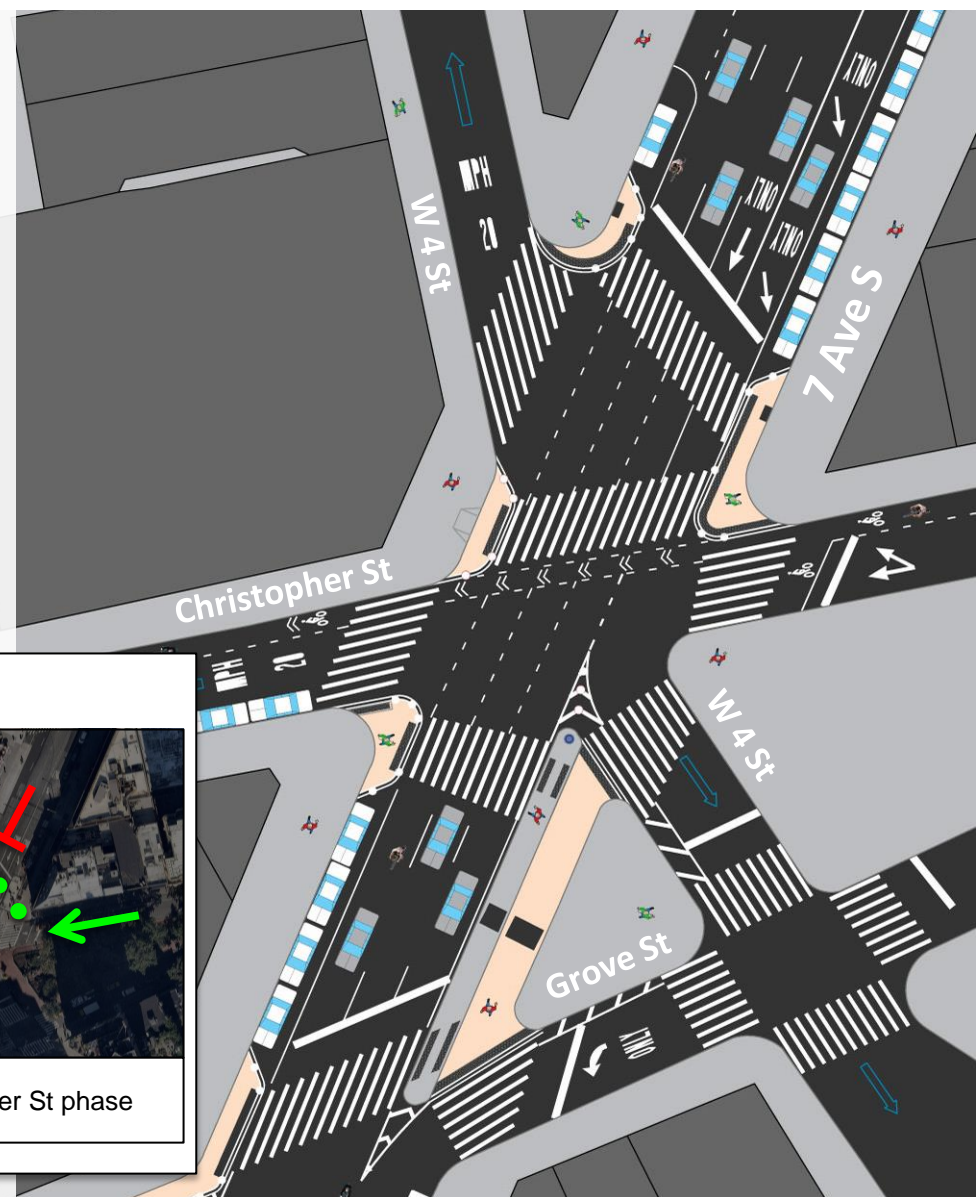


Example of Forced Turn-off: Jane St at W 4th St

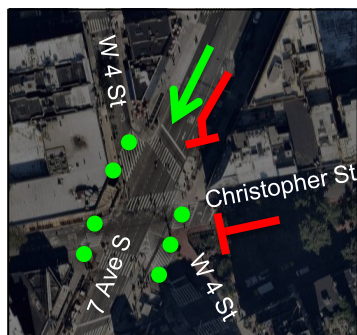


W 4th St / Christopher St Intersection: Existing Conditions

- **Heavy left turn** volume from 7th Ave S to W 4th St
- **2015 NYC DOT pedestrian safety project** included curb extensions, pedestrian refuge island, dedicated southbound left turn lane, leading pedestrian interval for east crosswalk
- **Motorists turning onto W 4th St often drive aggressively** through the eastern crosswalk



Existing Signal Phasing



7 Ave S leading pedestrian phase



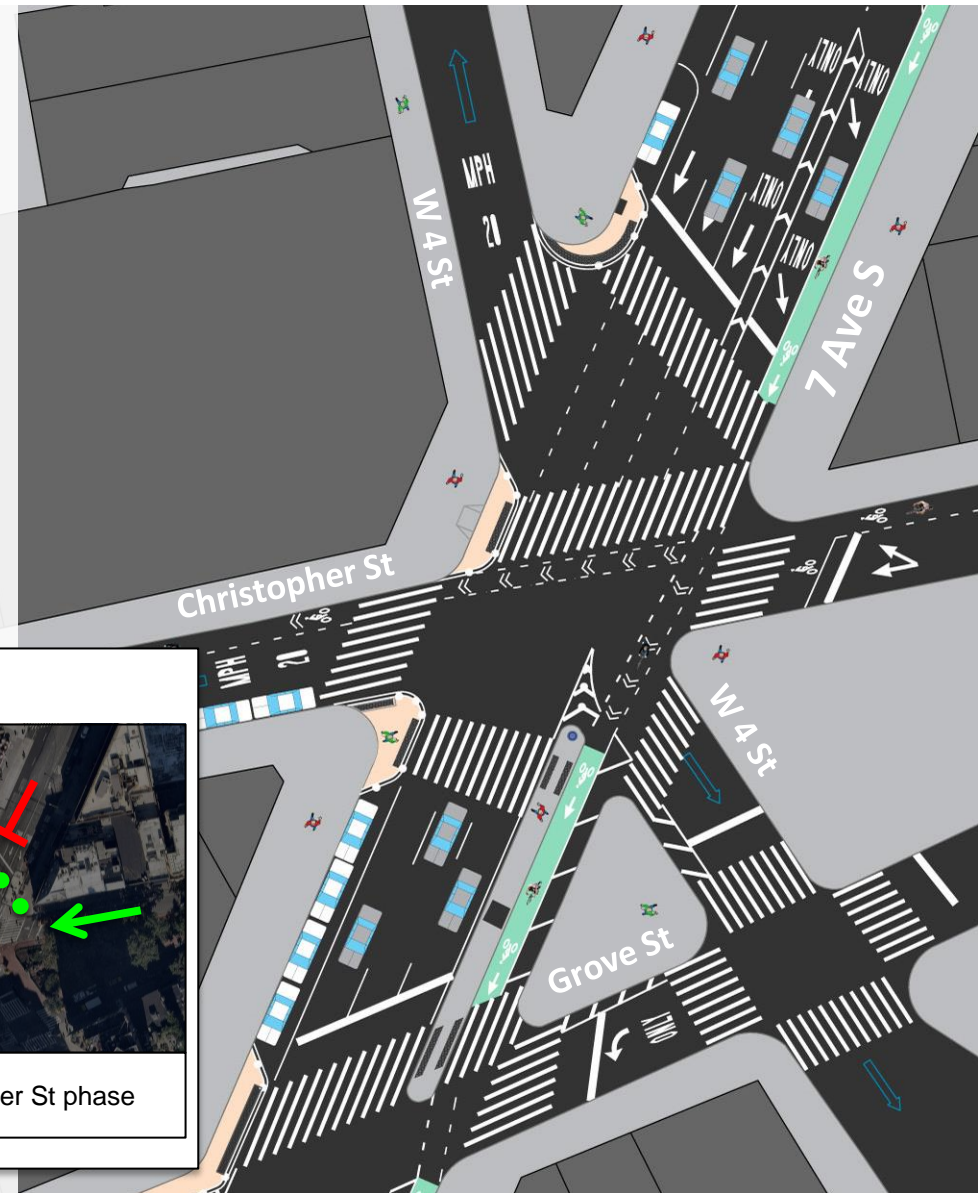
7 Ave S permitted left



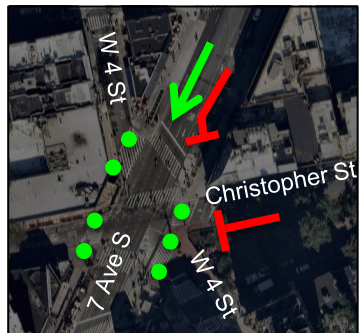
Christopher St phase

W 4th St / Christopher St Intersection: Proposed Improvements

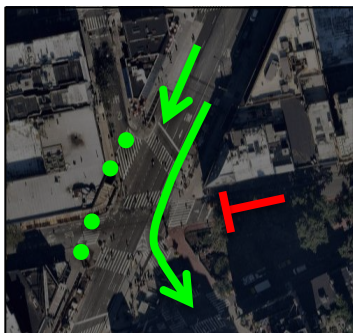
- **Implement split-phase signal** to protect bicyclists and pedestrians from vehicles turning left onto W 4th St
- **Convert painted pedestrian space** with planters in front of uptown 1-train entrance **to bicycle lane and painted buffer**



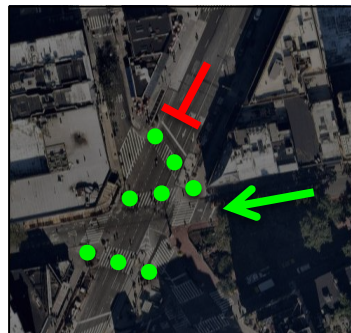
Proposed Signal Phasing



7 Ave S
bike/pedestrian phase

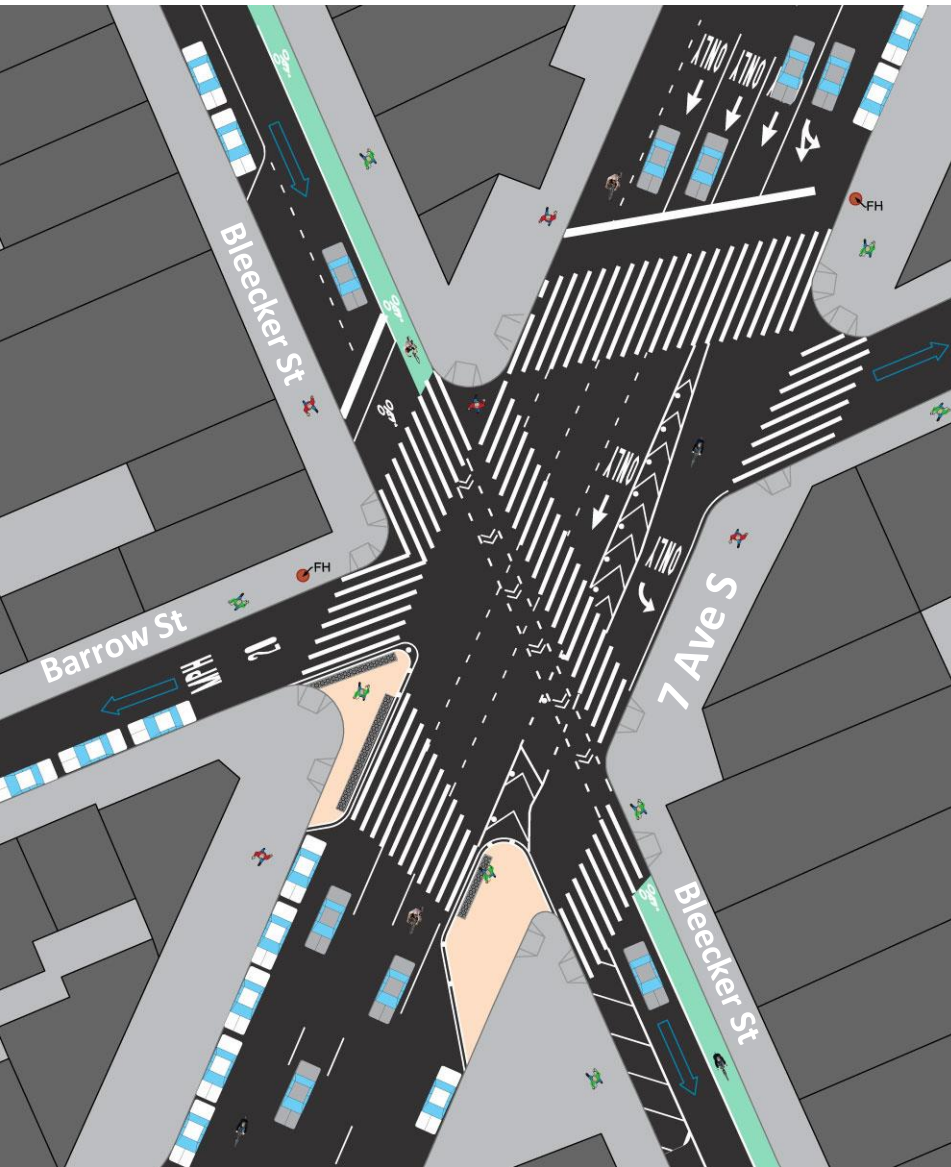


7 Ave S protected left



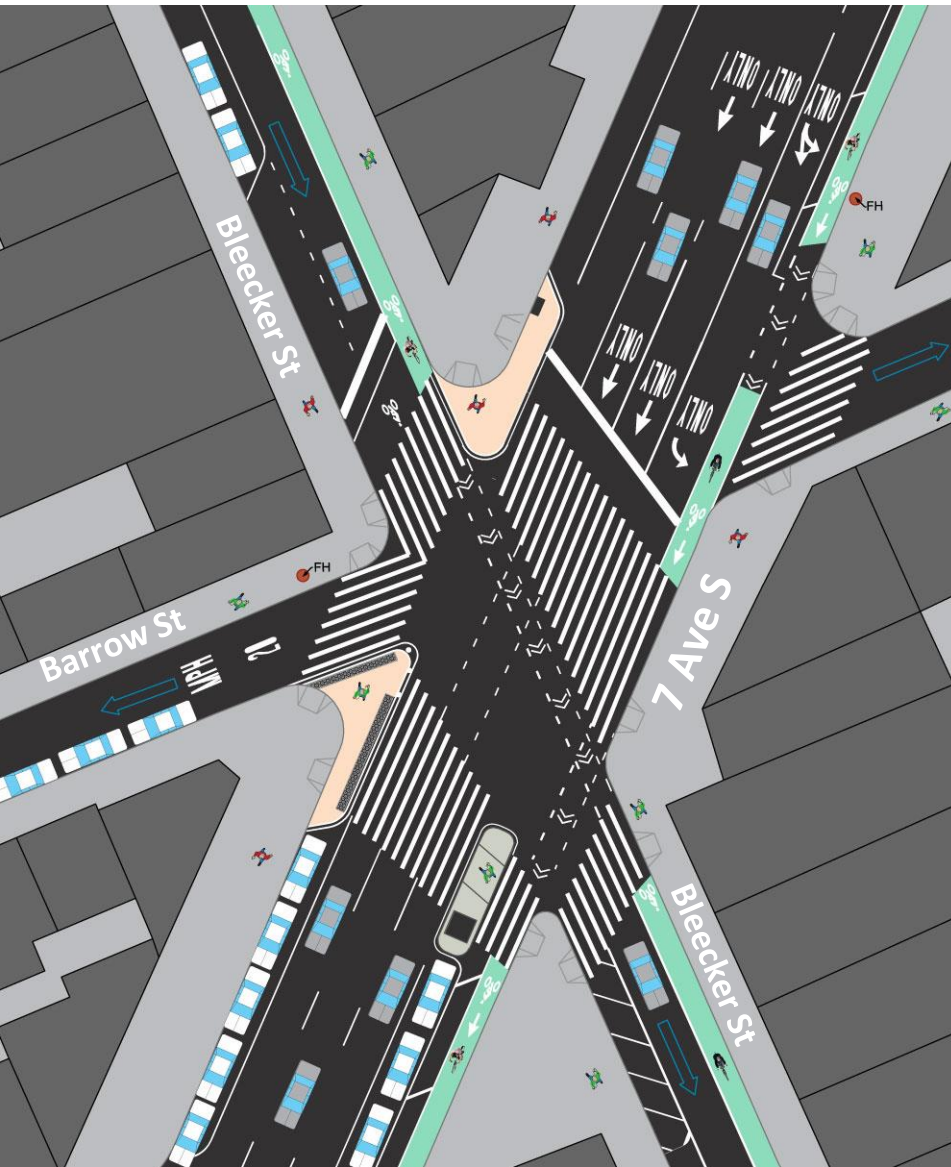
Christopher St phase

Bleecker St / Barrow St Intersection: Existing Conditions



- **Heavy left turn** volume from 7th Ave S to Bleecker St
- **Heavy right turn volume** from Bleecker St to 7th Ave S
- **2012 NYC DOT pedestrian safety project** included curb extensions, dedicated southbound left turn lane
- **Motorists turning onto Bleecker St often drive aggressively** through the eastern crosswalk

Bleecker St / Barrow St Intersection: Proposed Improvements



- **Implement split-phase signal operation** that protects bicyclists and pedestrians from vehicles turning left onto Blecker St
- **Combine and widen two crosswalks** on the north side of Blecker St to improve pedestrian circulation on Blecker St and to allow for the split-phase signal operation
- **Build a pedestrian refuge island** on the southern crosswalk
- **Build a curb extension** on the northwest corner to shorten crossing distances and provide more pedestrian queueing space

Bleecker St / Barrow St Intersection: Proposed Improvements

Existing Signal Phasing



7th Ave S phase
with flashing amber left turn



Bleecker St
leading pedestrian phase



Bleecker St phase

Proposed Signal Phasing



7th Ave S bike/pedestrian phase



7th Ave S protected left

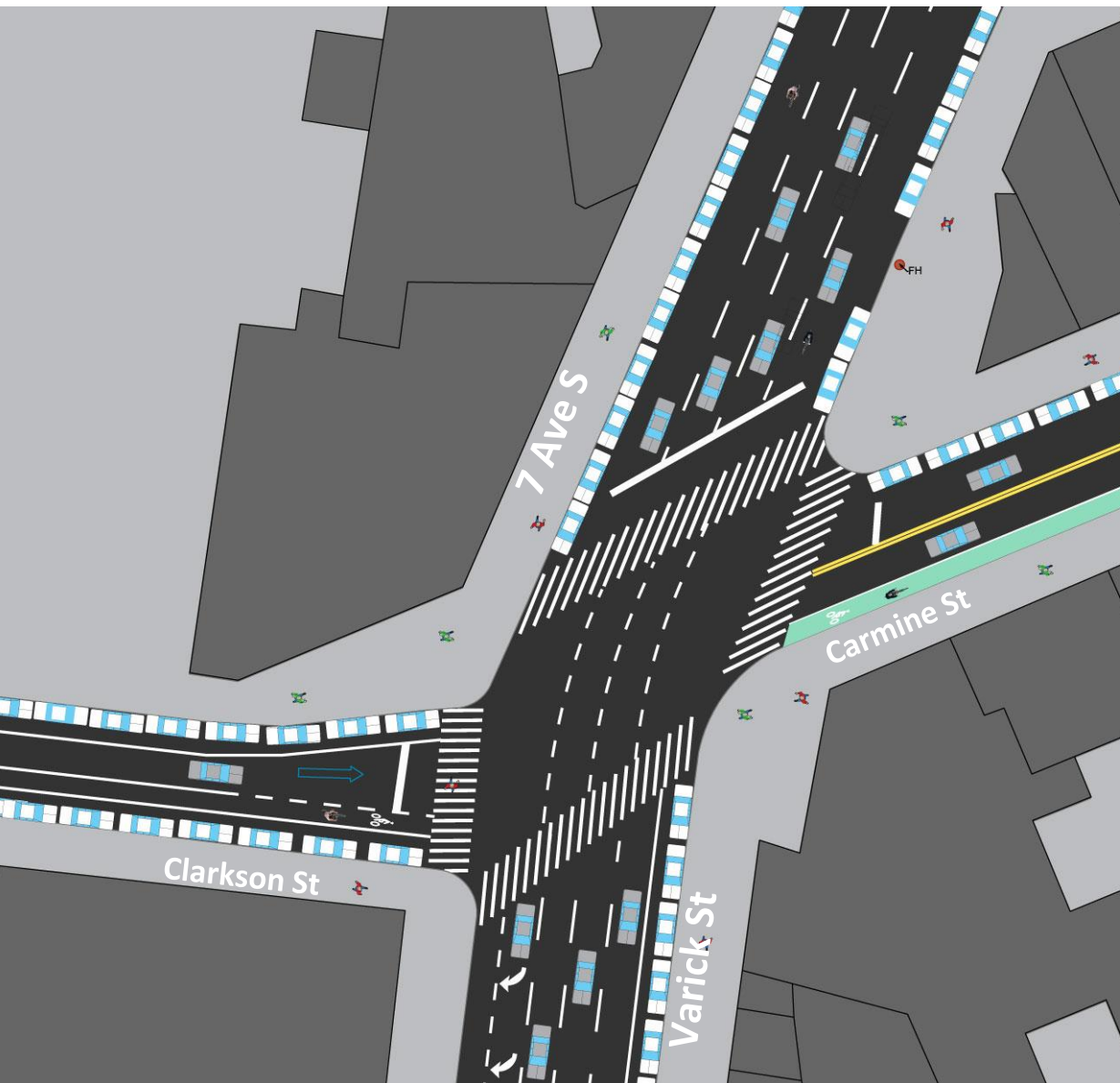


Bleecker St
leading pedestrian phase



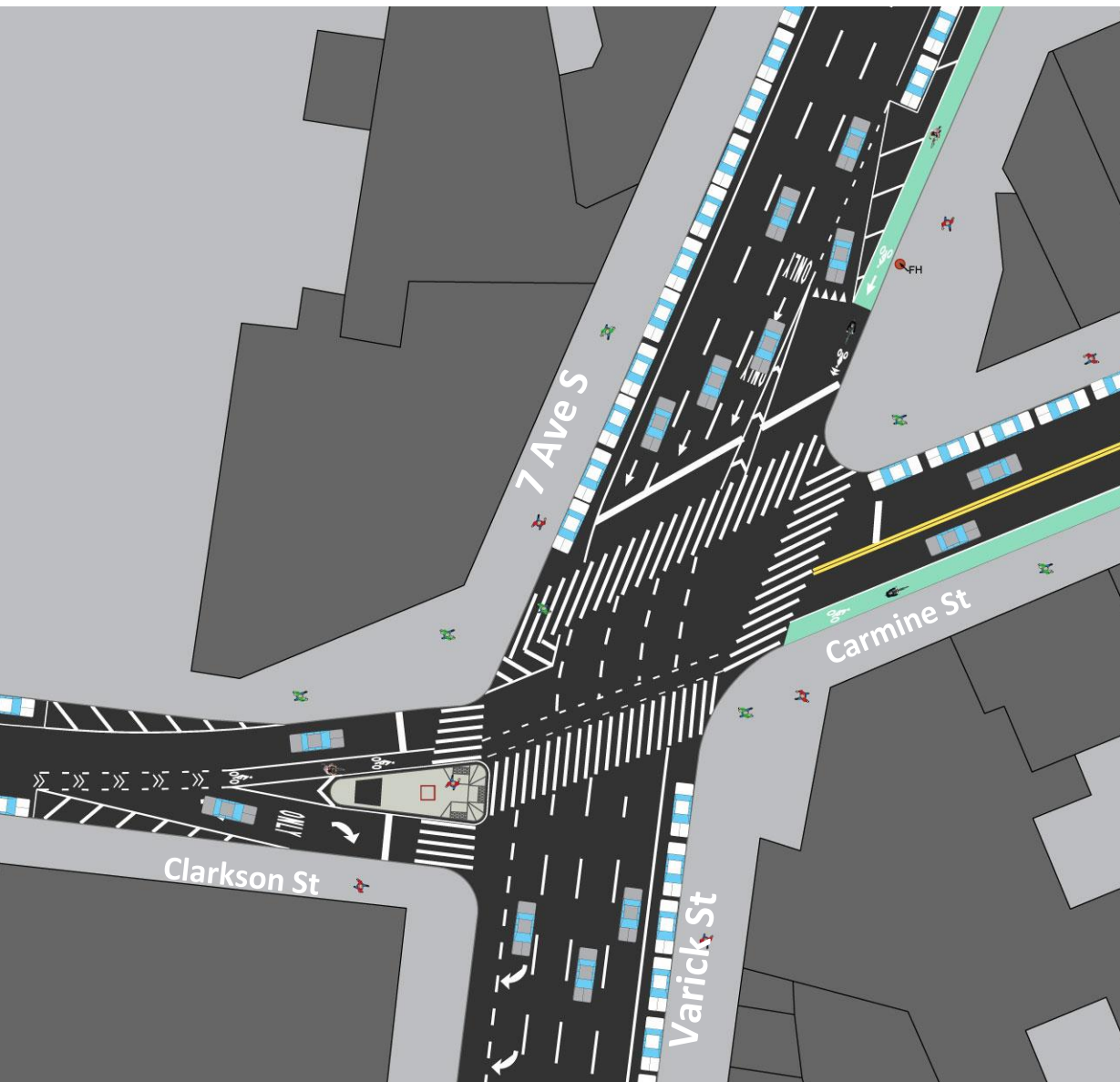
Bleecker St phase

Clarkson St / Carmine St Intersection: Existing Conditions



- **Skewed intersection** creates awkward vehicle movements and long crosswalks
- **Heavy right turn volume** from Clarkson St to Varick St conflicts with bike lane and southern crosswalk

Clarkson St / Carmine St Intersection: Proposed Improvements



Build a pedestrian refuge island that splits through and right turning traffic on Clarkson St

- Shorten crossing distances
- Protect pedestrians and bicyclists from eastbound right turning traffic
- Better organize eastbound traffic
- Requires loss of 12 parking spaces on Clarkson St

Summary

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Project Summary

- Install a parking protected bicycle lane with planted concrete pedestrian islands on 7th Ave/7th Ave S between W 30th St and Clarkson St
- Implement split phase signal operation at W 14th St, Greenwich Ave/W 11th St, W 4th St/Christopher St, and Bleecker St/Barrow St
- Install mixing zones at all other conflicting bicycle/vehicle conflicts
- Implement additional safety enhancements at Greenwich Ave, Waverly Pl/Perry St, Bleecker St, and Clarkson St
- Requires the removal of 1 travel lane, and roughly 27% of on-street parking spaces along the corridor within Community Board 2

Project Benefits

- Reduced pedestrian crossing distance
- Split-phase signal operation at intersections with heavy left turns reduces conflicts between pedestrians/bicyclists and turning vehicles
- Parking-protected bicycle lane reduces bicyclists exposure to vehicular traffic
 - Potential future expansion to the north and south
- Narrowed road discourages speeding
- Existing vehicle volumes can fit in 3 lanes

THANK YOU!

Questions?



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