

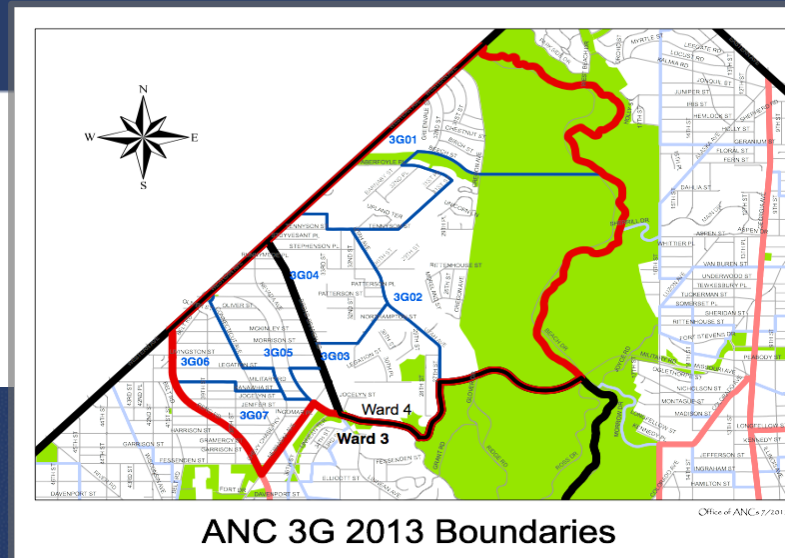


# Connecticut Avenue NW Reversible Lane Operations and Safety Study

## ANC 3-4G Presentation

February 22, 2021

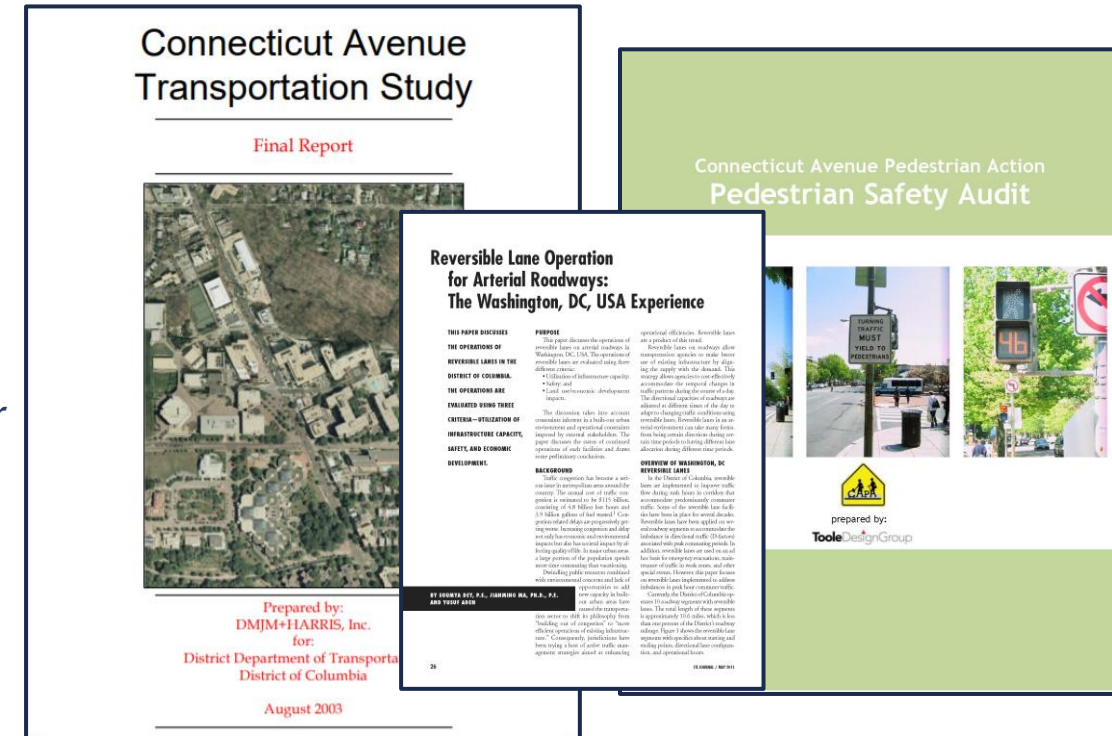
d.



# PROJECT OVERVIEW

# Background

- 2003 Connecticut Avenue/Cleveland Park Traffic Operations' study
- 2011 Institute of Transportation Engineers Study
- Connecticut Avenue Pedestrian Action (CAPA) Pedestrian Safety Audit (Toole Design Group, February 2011)
- 2014 moveDC Recommendations
- Connecticut Avenue, NW Corridor Crosswalk Safety Project ANC 3/4G (February 2015) for ANC 3/4 G
- Cleveland Park Bicycle Analysis (2016)
  - Bicycle analysis - provide bicycle improvements along corridor
- 2018 ANC Resolutions for Reversible Lane Study
  - ANC 3C (May 21, 2018)
  - ANC 3F (March 20, 2018)
  - ANC 3 /4 G (October 22, 2018)
- Community involvement in shaping RFQ for this current study



# Project Goals

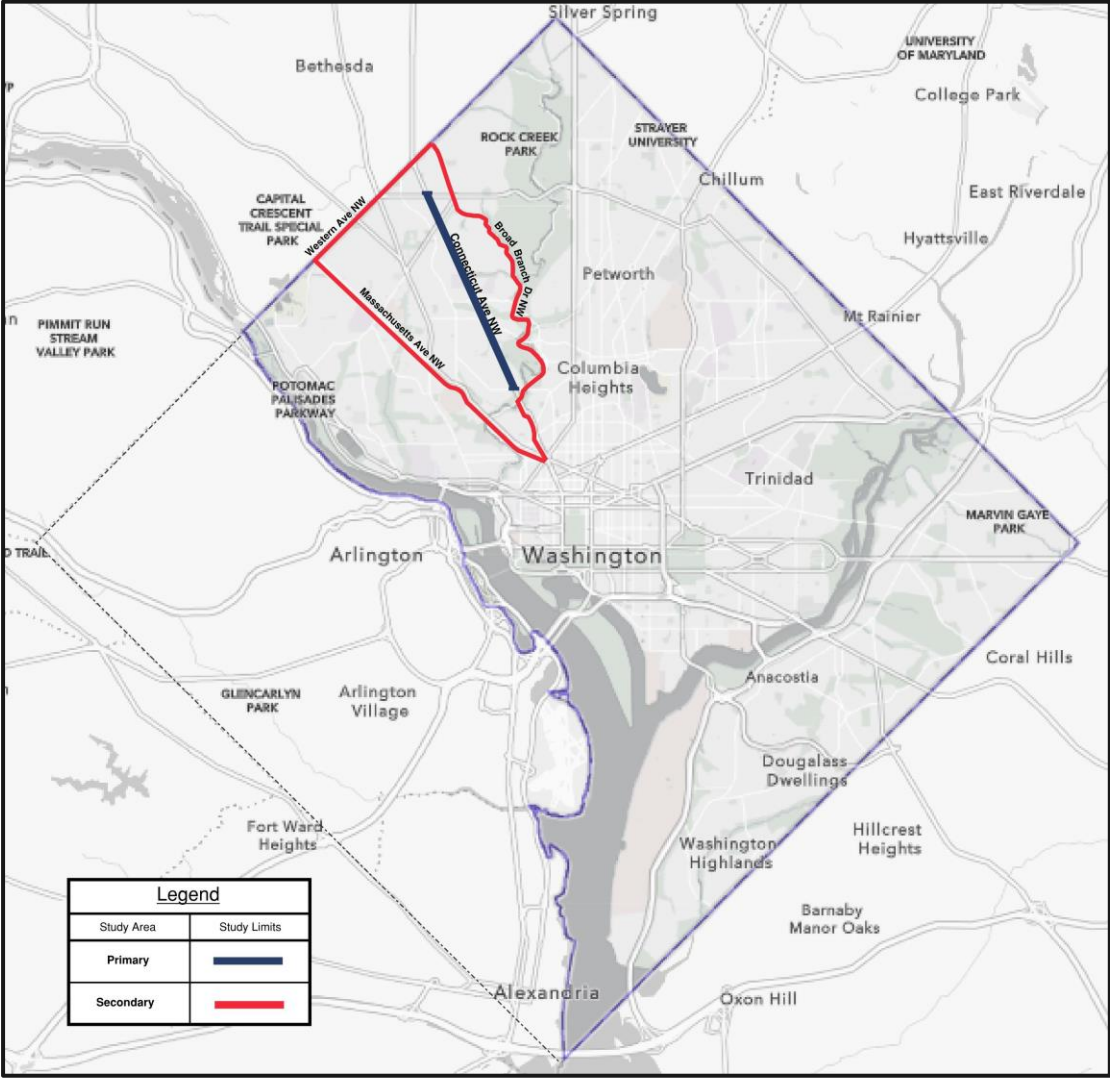
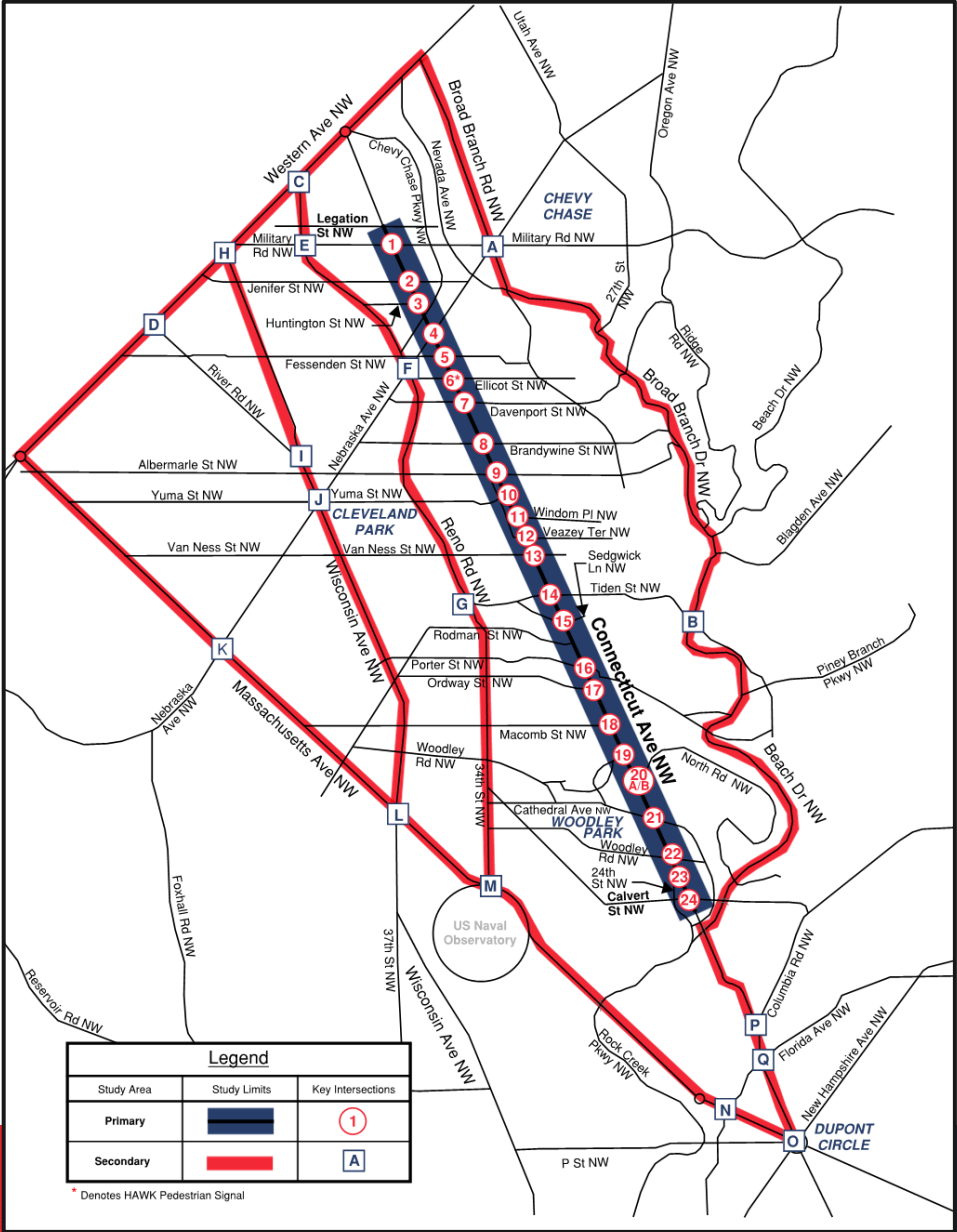
- Reduce vehicle crashes; improve safety for all modes;
- Consider a Protected Bicycle Lane; and
- Assess the feasibility of removing reversible lane operation.



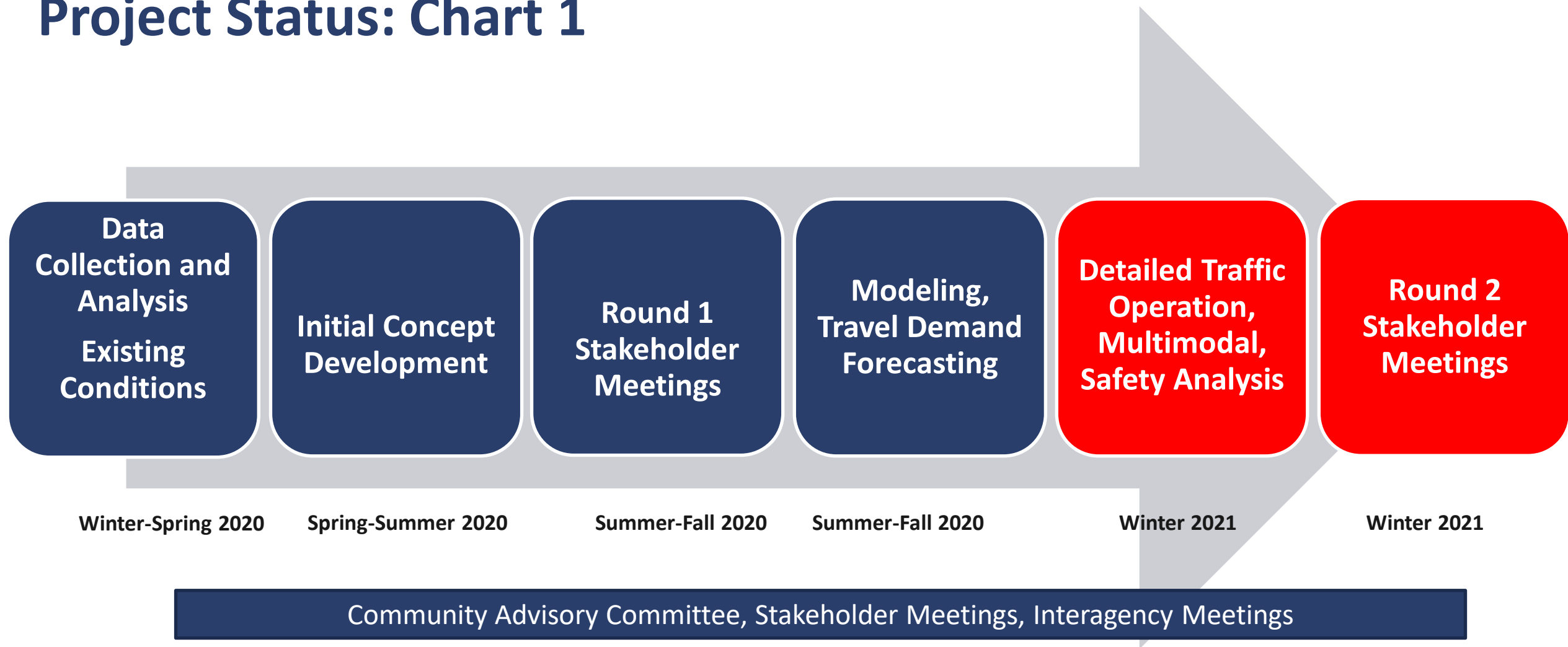
*“The District Department of Transportation is studying the feasibility of removing the reversible lane system as part of the District of Columbia’s Vision Zero initiative, which aims to eliminate traffic deaths and serious injuries by 2024. The purpose of the Connecticut Avenue NW Reversible Lane Safety and Operations Study is to assess the multimodal (vehicular, transit, bicycle, and pedestrian) operational and safety impacts associated with removing or maintaining/improving the existing reversible lane system.”*



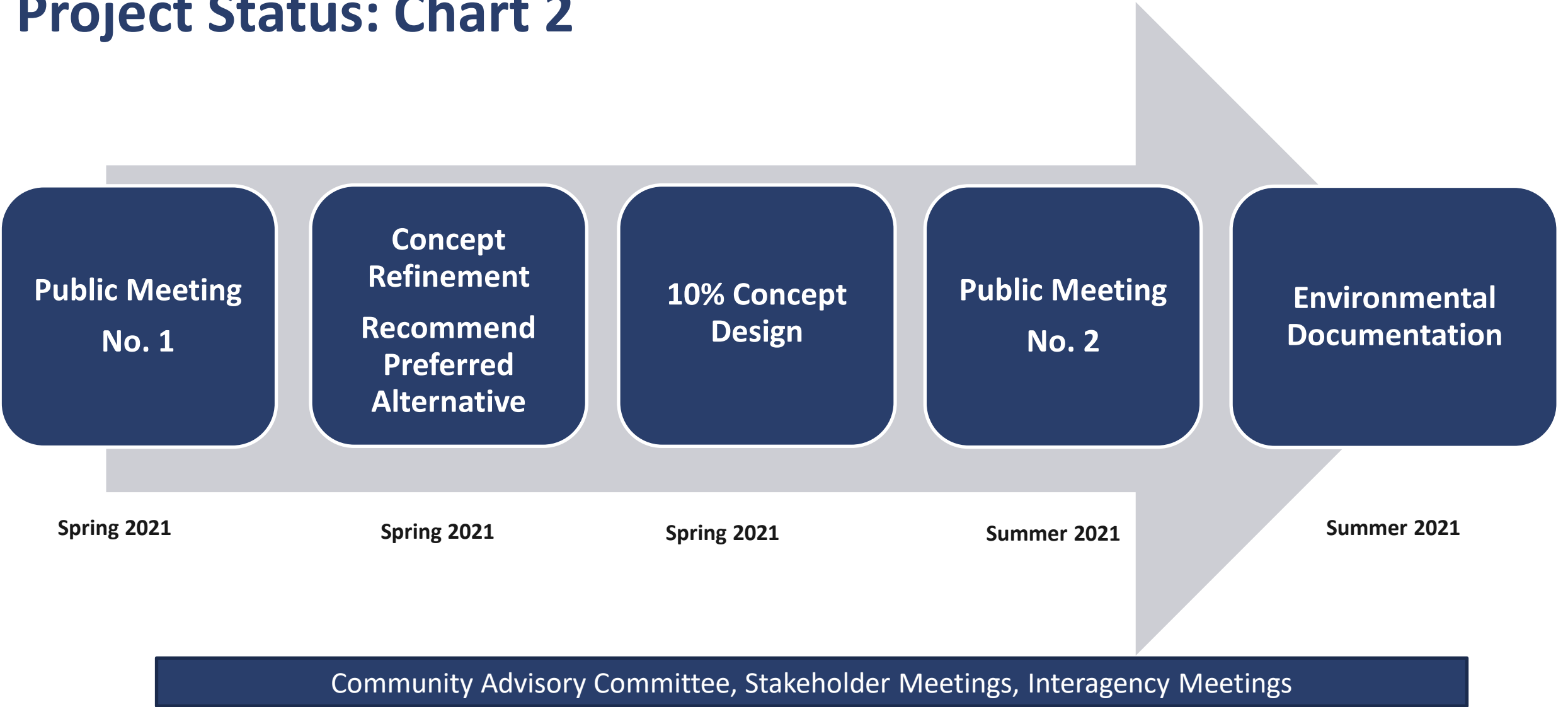
# Primary and Secondary Study Area and Connecticut Avenue Regional Context



# Project Status: Chart 1



# Project Status: Chart 2



# Agency and Community Engagement Strategy

- **Community Advisory Committee (CAC)**
  - Lee Brian Reba, 3C01
  - Beau Finley, ANC 3C04
  - Tom Quinn, 3E04
  - David Cristeal, 3F01
  - Robert Deyling, Chair, ANC 3F Streets and Sidewalks Committee
  - Chris Fromboluti, 3G07
  - Randy Speck, 3G03
  - Eileen McCarthy, Chair, Pedestrian Advisory Council (PAC)
  - Josh Rising, W3BA
- **Advisory Neighborhood Commissions (ANCs)**
- **Stakeholder Meetings**
- **Interagency Meetings**
- **Public Meetings**
- **Website**

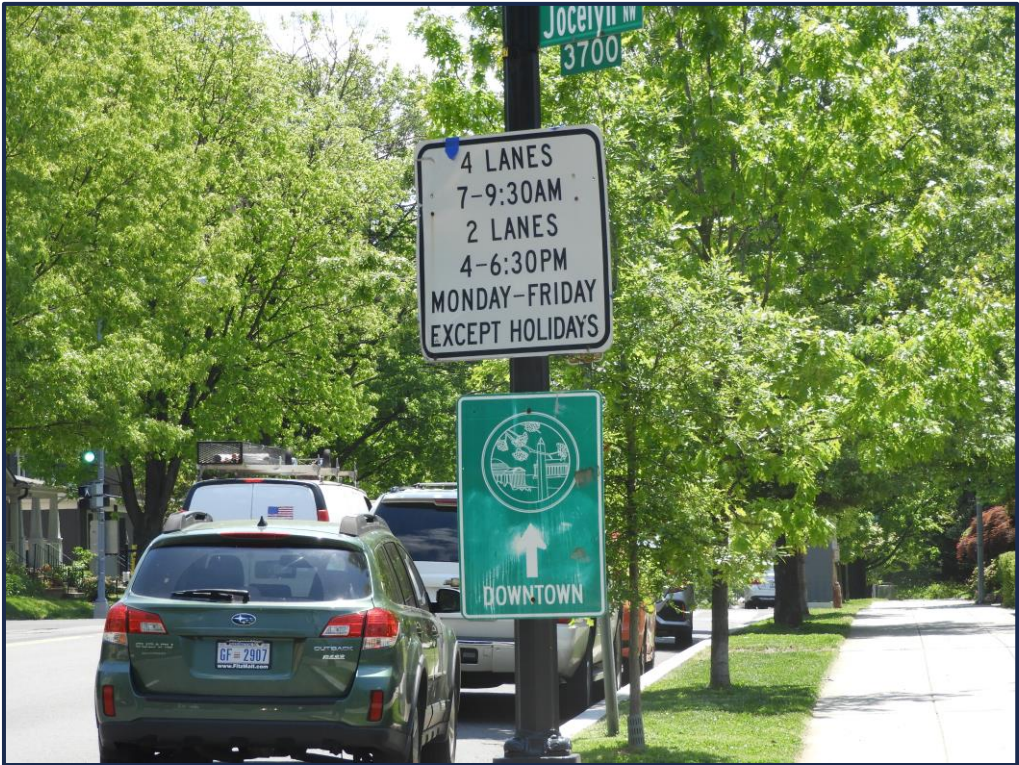


# Sample of Stakeholder Meetings Held & Upcoming Meetings

ORGANIZATION	DATE	ORGANIZATION	DATE
Montgomery County, MD Meeting	03-05-2020	Curbside Survey Meeting Update-Main Streets	09-17-2020
CAC Meeting No.1	04-30-2020	DPW	09-19-2020
CAC Meeting No. 2	06-11-2020	Cleveland Park Smart Growth-Alt E	09-28-2020
Ward 3 Vision	06-22-2020	CAC Meeting #3	10-01-2020
Cleveland Park Main Street	06-25-2020	Woodley Park Main Street	11-12-2020
W3BA	06-29-2020	Van Ness Main Street	11-18-2020
ANC 3/4G	07-13-2020	WABA-Alt D-2 Meeting	12-02-2020
ANC 3E	07-16-2020	WABA & W3BA Joint Meeting (attendee only)	12-08-2020
Van Ness Main Street	07-17-2020	<b>2021 STAKEHOLDER MEETINGS</b>	
ANC 3C	07-20-2020	CFA	01-08-2021
ANC 3F	07-21-2020	CAC Meeting #4	01-13-2021
Interagency Meeting	07-22-2020	Smithsonian Zoo	01-21-2021
Woodley Park Community Association	07-23-2020	UDC	02-03-2021
Cleveland Park Citizens Association	07-29-2020	<b>UPCOMING STAKEHOLDER MEETINGS</b>	
D.C. Office of Planning & DOEE	07-29-2020	Interagency Meeting, 2 <sup>nd</sup> Round of Stakeholder Meetings: ANC Meetings, Civic Group Meetings, Main Street Meetings, SHPO, Public Meeting #1	
HSEMA, MOCRs	07-30-2020		
Curbside Survey Meeting-Main Streets	08-21-2020	1 <sup>st</sup> Quarter 2021	
Smithsonian Zoo	09-02-2020		
Howard University School of Law	09-03-2020		

# Reversible Lane Signage

**Visibility of the reversible lane signage is difficult for motorists along the corridor**



*Reversible Lane Signs Covered During COVID-19*

USE  
2/4  
LANES

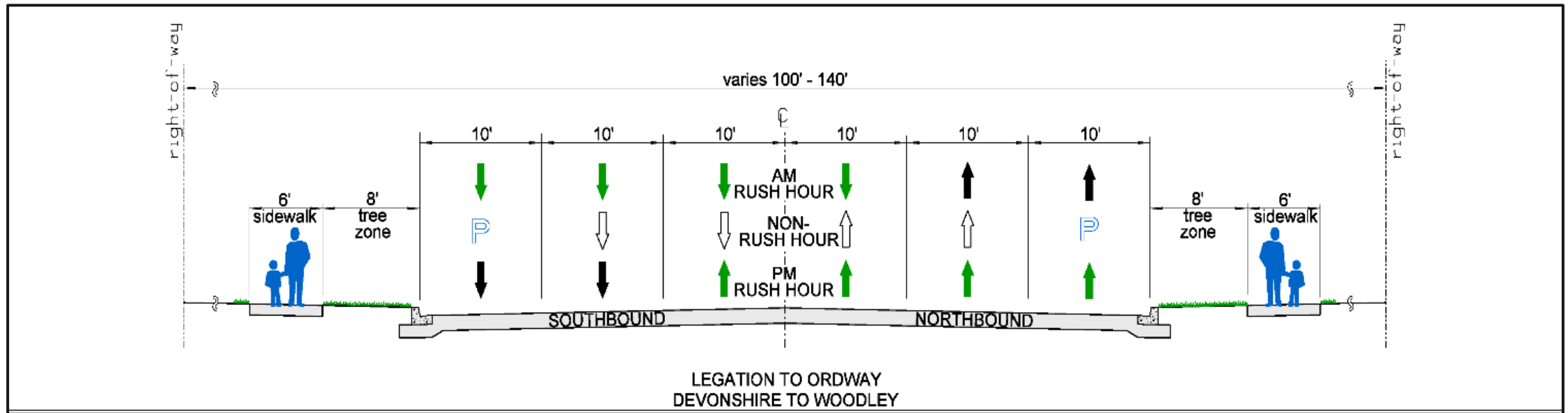
2 LANES  
7-9:30AM  
4 LANES  
4-6:30PM  
MONDAY-FRIDAY  
EXCEPT HOLIDAYS

MERGE  
2 LANES  
AT NEXT  
INTERSECTION  
7-9:30AM  
MONDAY-FRIDAY  
EXCEPT HOLIDAYS



# Roadway Geometry

- Connecticut Avenue 110 to 140-foot right-of-way
- Existing curb-to-curb roadway width is 60 feet and consists of six (6) 10-foot travel/ parking lanes.



# Safety and Crash Analysis

## Key Findings

- 1,507 police-reported crashes occurred during the five-year study period (2015-2019)
- Approximately 1/3 of pedestrian crashes and 1/5 bicycle crashes occurred during RL operations

Crash Category	Reversible Lane Operation		Normal Operation		Total Crashes	
	Count	%	Count	%	Count	%
Pedestrian	22	32%	46	68%	68	100%
Bicycle	2	20%	8	80%	10	100%
Disabling Injury	11	52%	10	48%	21	100%
Non-Disabling Injury	183	43%	239	57%	422	100%
PDO	470	44%	594	56%	1064	100%
Total Crashes	664	44%	843	56%	1507	100%

Number of Crashes by Category, by Reversible Lane, and Normal Time of Day Operations



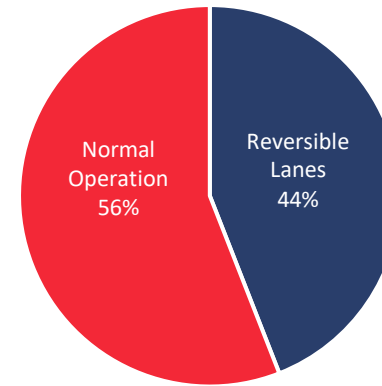
Connecticut Avenue NW Injury Crashes 2015-2019

# Safety and Crash Analysis

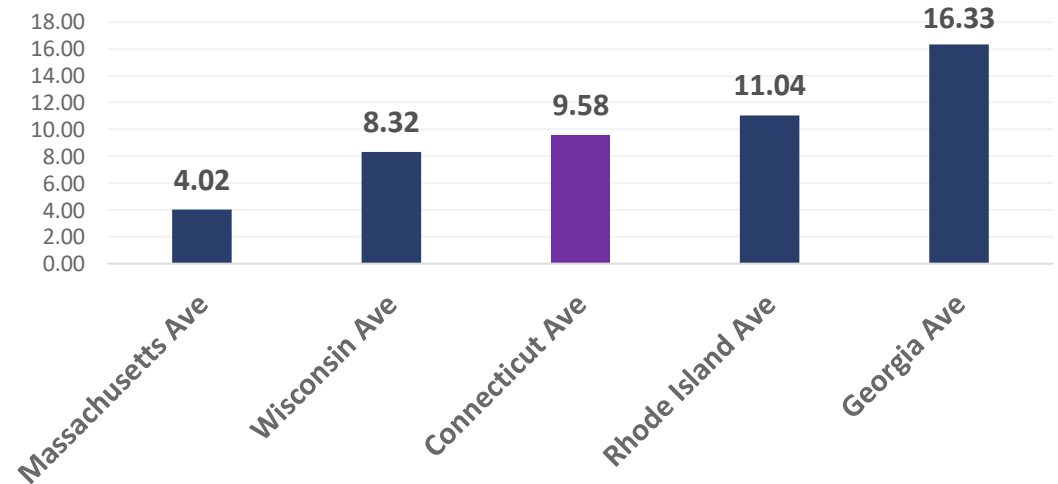
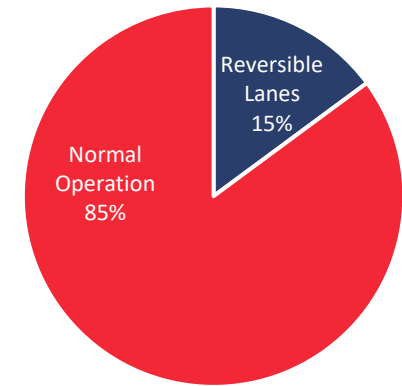
## Key Findings

- Although the reversible lane (RL) is in effect 15% of the time; 44% of the total crashes occur in RLs
- Average Annual Crash Rate
  - Higher than two comparison corridors (Massachusetts Avenue and Wisconsin Avenue,
  - Lower than two other comparison corridors (Georgia Avenue and Rhode Island Avenue)

Percent Crashes  
Reversible Lanes in Effect  
2015, 2016, 2017, 2018, 2019



Percent Time  
Reversible Lanes in Effect  
Typical Week (No Holidays)



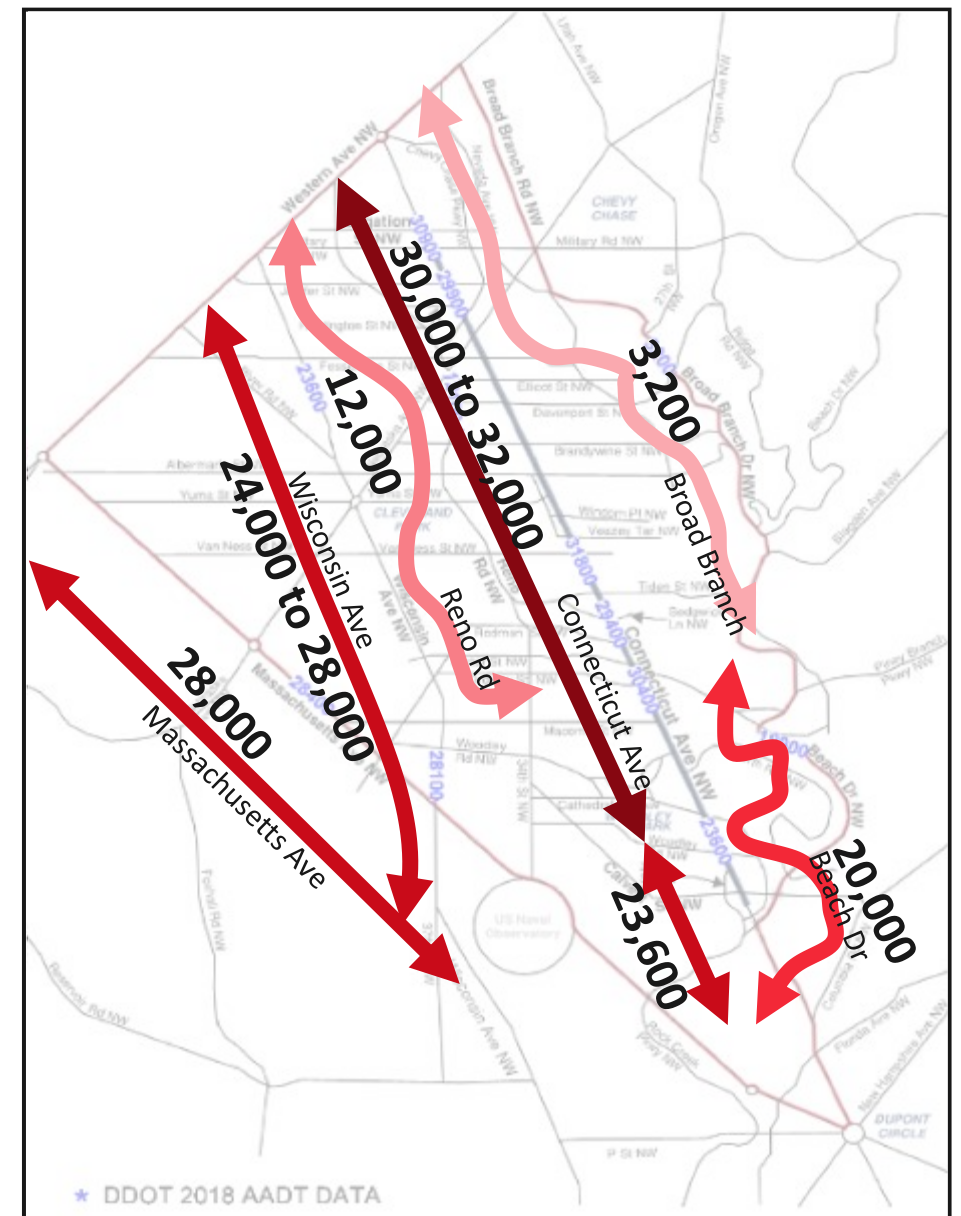
Annual Average Crash Rates per Million Vehicle Miles for Connecticut Avenue  
NW and Comparison Corridors



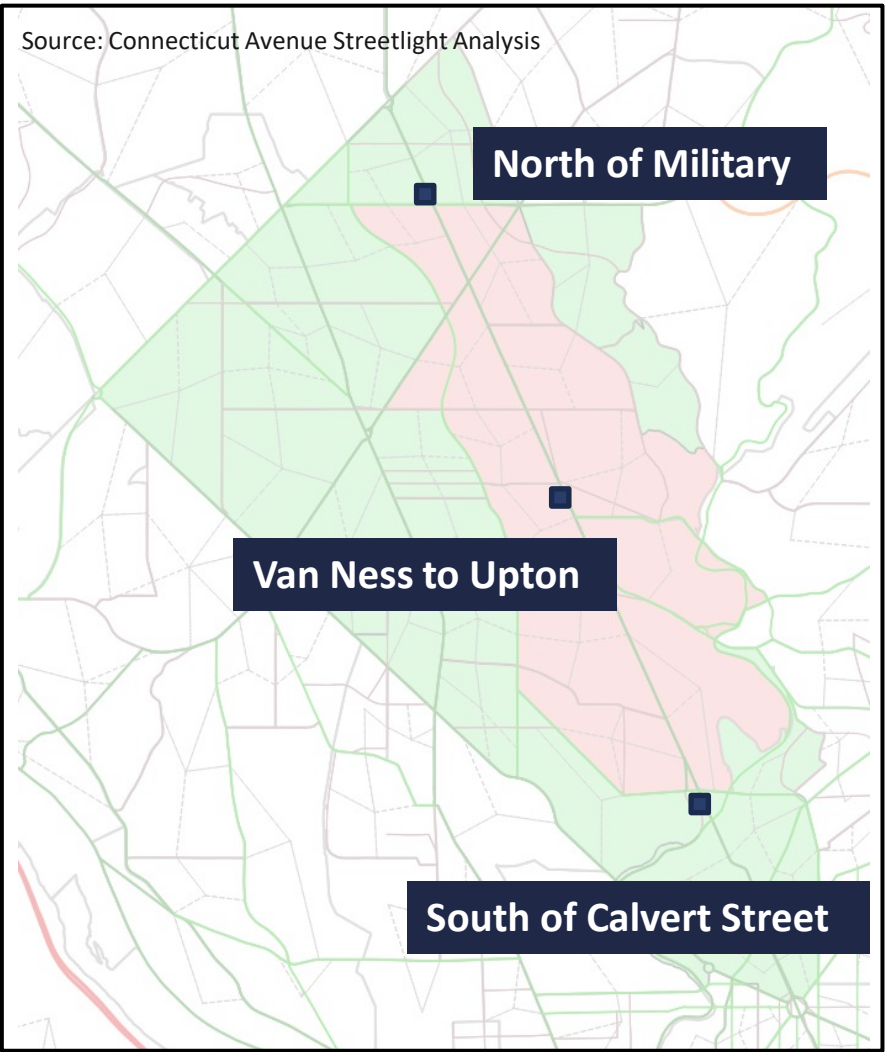
# Average Daily Traffic (ADT) Volumes

## Key Findings

- **Connecticut Avenue NW ADTs:**
  - South of Western Avenue to south of Tilden Street NW, 30,000 to 32,000 vehicles per day (VPD)
  - In the vicinity of Calvert Street NW, 23,600 VPD
- **Secondary Study Area ADTs:**
  - Wisconsin Avenue NW: 23,600 to 28,100 VPD
  - Reno Road NW: 12,100 VPD
  - Massachusetts Avenue NW: 28,400 VPD
  - Broad Branch Road NW: 3,200 VPD
  - Beach Drive NW : 19,900 VPD

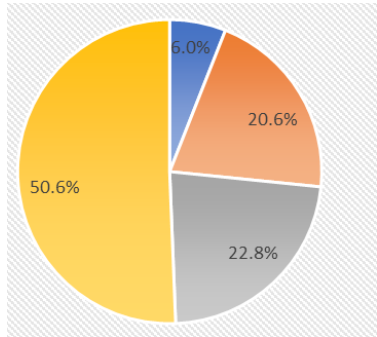


# Origins and Destinations - Select Locations along Connecticut Avenue



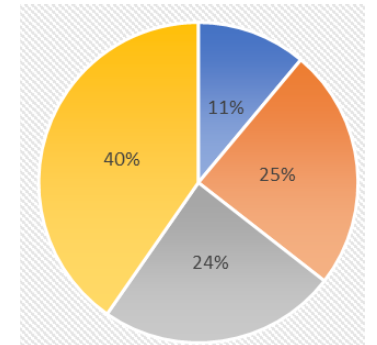
## North of Military

	%
From/to Study Area	6.0%
From Study Area to Region	20.6%
From Region to Study Area	22.8%
Through Study Area (to/from Region)	50.6%
Total	100.0%



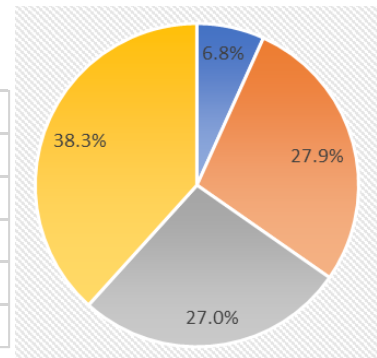
## Van Ness to Upton

	%
From/to Study Area	11.1%
From Study Area to Region	24.4%
From Region to Study Area	24.2%
Through Study Area (to/from Region)	40.3%
Total	100.0%



## South of Calvert Street

	%
From/to Study Area	6.8%
From Study Area to Region	27.9%
From Region to Study Area	27.0%
Through Study Area (to/from Region)	38.3%
Total	100.0%



# ALTERNATIVES DEVELOPMENT

# Guiding Principles

- **Quality of Life**
  - Accommodate the needs of people who live, work, and recreate within the Connecticut Avenue corridor.
  - Prioritize the needs of corridor residents/businesses.
  - Provide sustainable, resilient, and equitable transportation options for all modes.
- **Safety and Vision Zero**
  - Reduce the number of crashes and fatalities.
  - Incorporate Complete Streets principles to reduce vehicle speeds along the corridor.
- **Traffic Operations**
  - Mitigate significant traffic impacts, to the extent feasible, when considering alternative concepts.
  - Understand diversion impacts and mitigate, where possible.
- **Parking and Loading**
  - Retain some parking and loading in Commercial areas.
- **Pedestrians**
  - Integrate pedestrian improvements into each alternative concept.
- **Bicycles**
  - Include protected bicycle lane concept(s).
- **Transit**
  - Include bus transit operational improvements.
- **ROW/Construction**
  - The alternative must be constructed within the 60-foot curb-to-curb cross-section.

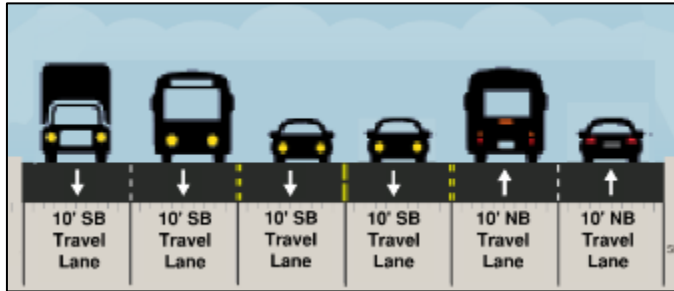
# Alternatives Development

- **Started with four (4) DDOT Build Concepts (A, B, C and D-0) plus No-Build Concept.**
- **Received potential concepts from Public/CAC (Concepts D-1, D-2 and Concept E).**
- **Concepts No-Build, A, and D-0 would require MUTCD-compliant overhead signals; Signage not supported by Commission on Fine Arts (CFA).**
- **All Concepts**
  - Will be carried forward to our Public Meeting scheduled in March 2021.
  - Developed an evaluation matrix that considers the attributes, pros, cons and fatal flaws.
- **Focused our traffic analysis on alternatives that can distinguish impacts: No-Build, Concepts B and C.**
  - Traffic models can assist in determining the impacts from reducing the number of lanes in the corridor.
- **All Alternatives**
  - Include elements to improve safety and mobility.
  - Potential posted speed limit reduction along Connecticut Avenue from 30 mph to 25 mph.

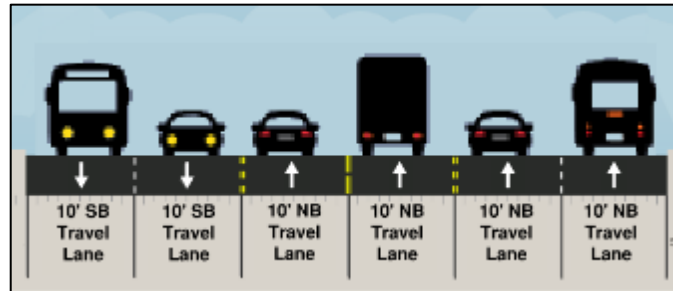


# No-Build Management Option

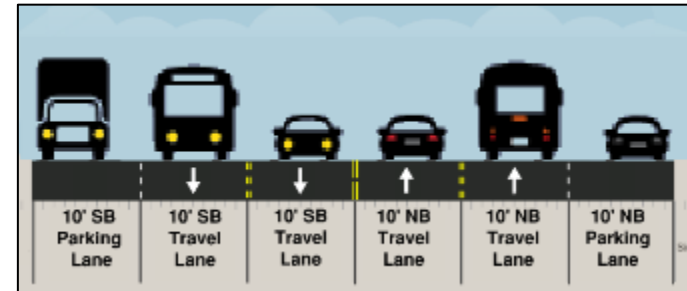
AM Peak Period



PM Peak Period

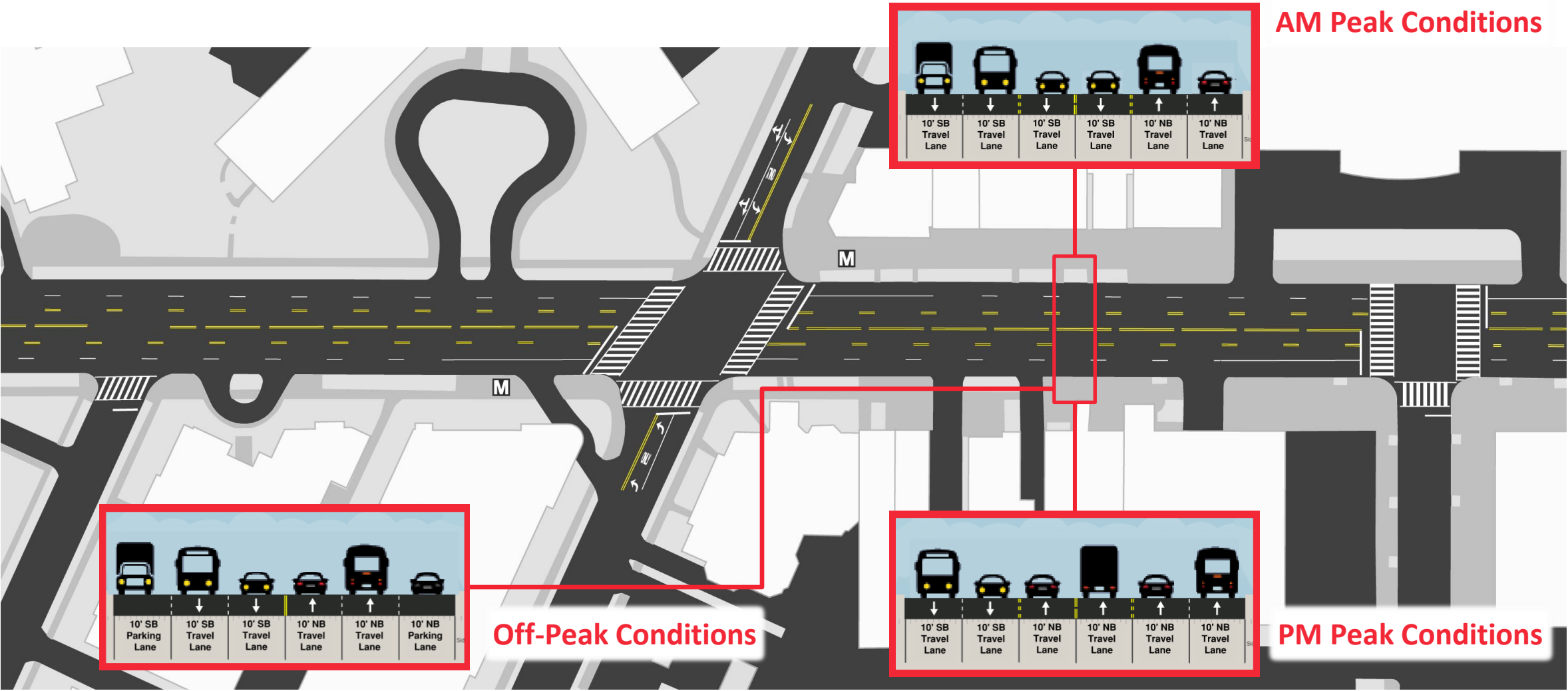


Off-Peak Periods



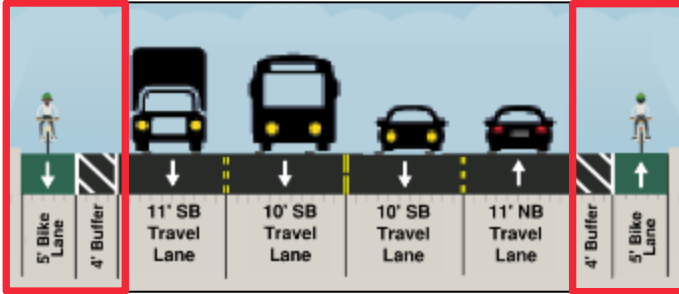
- **Retains two (2) lane Reversible Lane System**
- **No upgrades to overhead signs/signals as required by MUTCD (not supported by CFA)**
- **Peak Period/Non-Peak Period Lane Operations- no change from Pre-COVID conditions**
  - AM four (4) lanes inbound; two (2) lanes outbound; reverse in PM
  - Off-Peak Periods: two (2) travel lanes each direction; parking lane on the east and west sides of Connecticut Avenue
- **May include intersection improvements to enhance pedestrian accessibility and safety**
- **Traffic Forecasts for No-Build Option developed as a baseline to measure the impacts of concepts that change Corridor number of lanes.**

# No Build/Existing Condition – Typical Layout

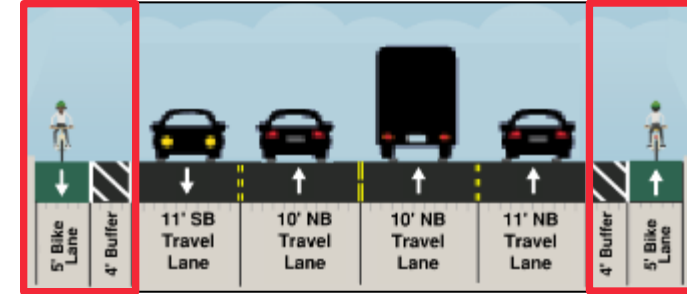


# CONCEPT A

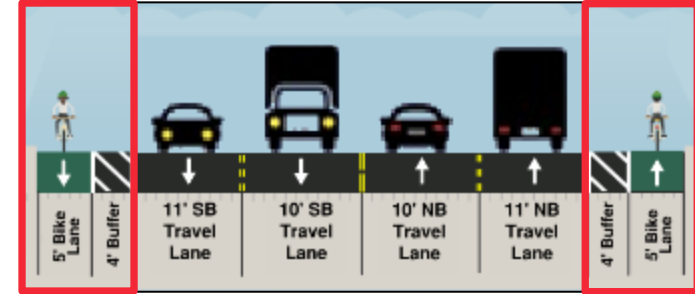
AM Peak Period



PM Peak Period



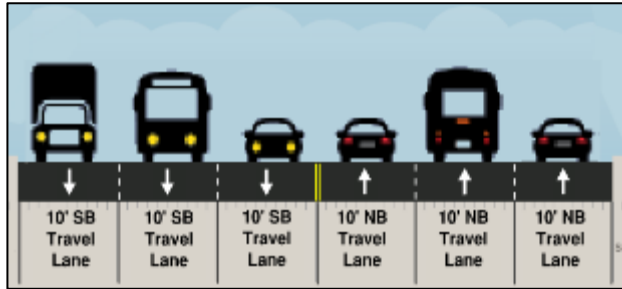
Off-Peak Periods



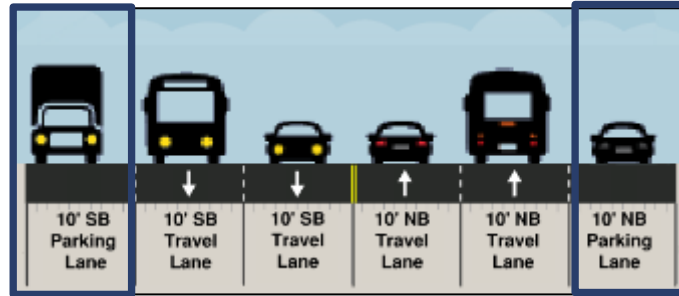
- **Retains 2-lane Reversible Lane System.**
- **Requires upgrade of Reversible Lane System to include overhead lane-use signs and signals.**
- **Peak Hour Lane Operations:**
  - Three (3) peak direction travel lanes/One (1) off-peak direction travel lane.
- **Off-Peak Period Traffic Operations:**
  - Two (2) northbound and two (2) southbound lanes.
- **One-way Protected Bicycle Lanes:**
  - Located on east and west sides of Connecticut Avenue.
  - Includes 5' bike lane and 4' buffers.
  - **All parking along Connecticut Avenue to be removed.**

# CONCEPT B

*AM Peak & PM Peak Periods*

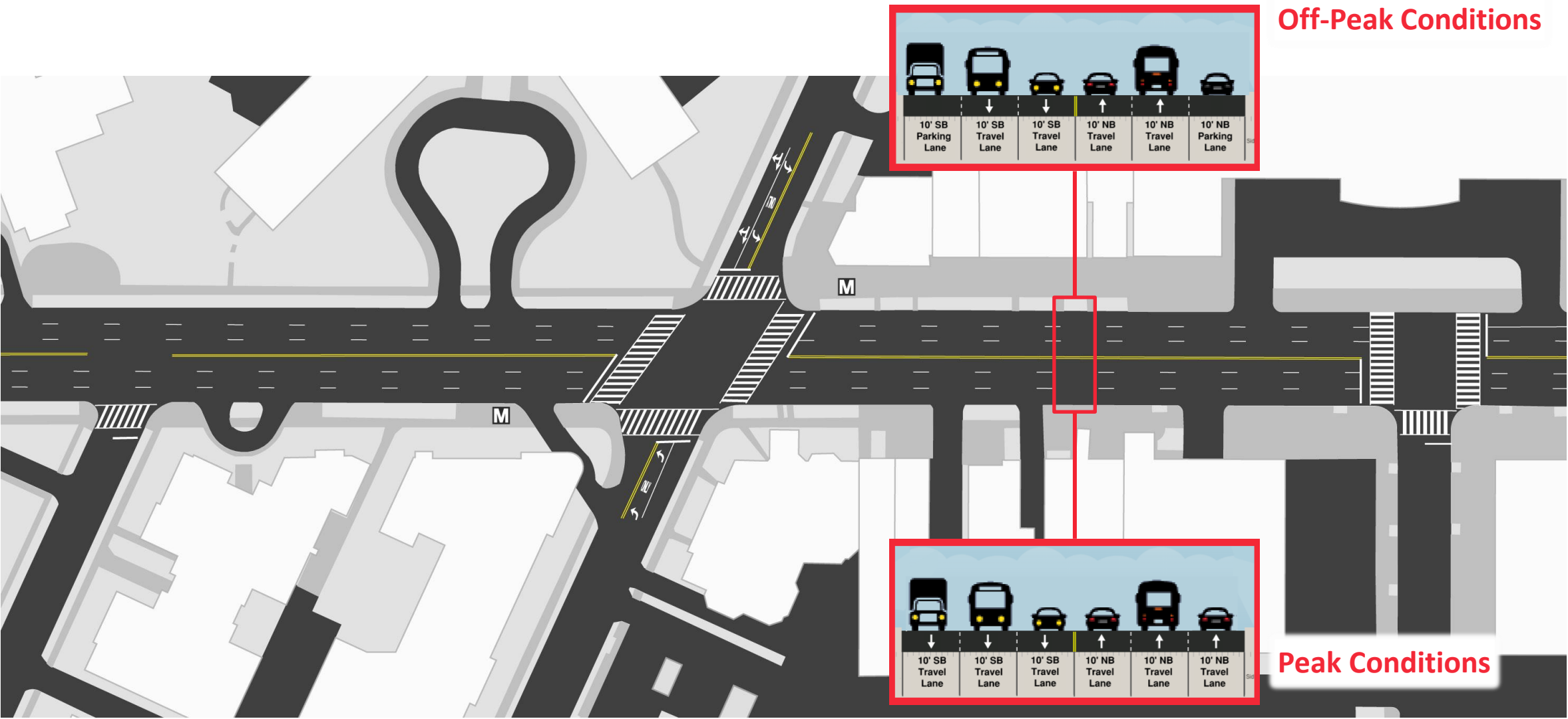


*Off-Peak Periods*



- **Removes Reversible Lane System**
- **Peak Hour Lane Operations:**
  - Three (3) northbound lanes and three (3) southbound lanes during peak hours
- **Off-Peak Period Traffic Operations:**
  - Two (2) northbound and two (2) southbound lanes
  - Parking/loading provided on the east and west sides of Connecticut Avenue
- **No Protected Bicycle Lanes**
- **Parking**
  - No Parking removed in this Concept
  - As in Pre-Covid conditions, parking would not be permitted during peak hours.

# Concept B – Typical Layout



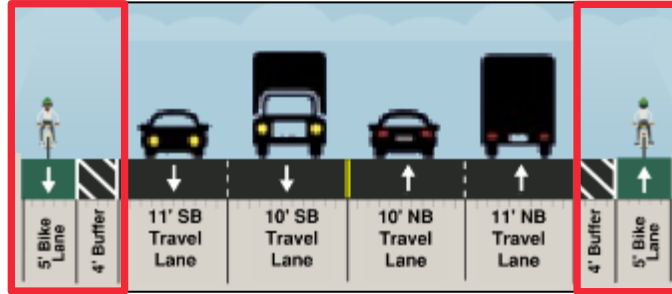
Off-Peak Conditions

Peak Conditions

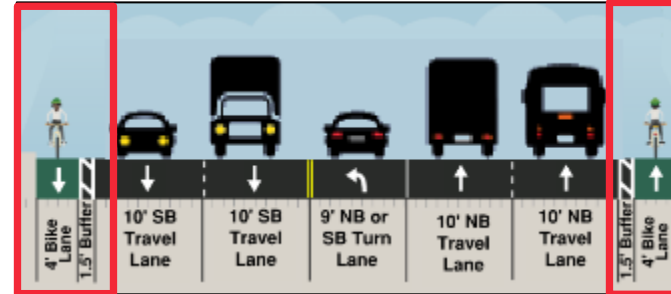


# CONCEPT C

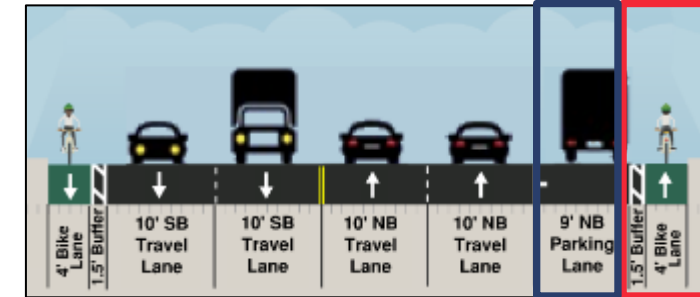
*Mainline: All Periods*



*With Left-turn Pocket: All Periods*



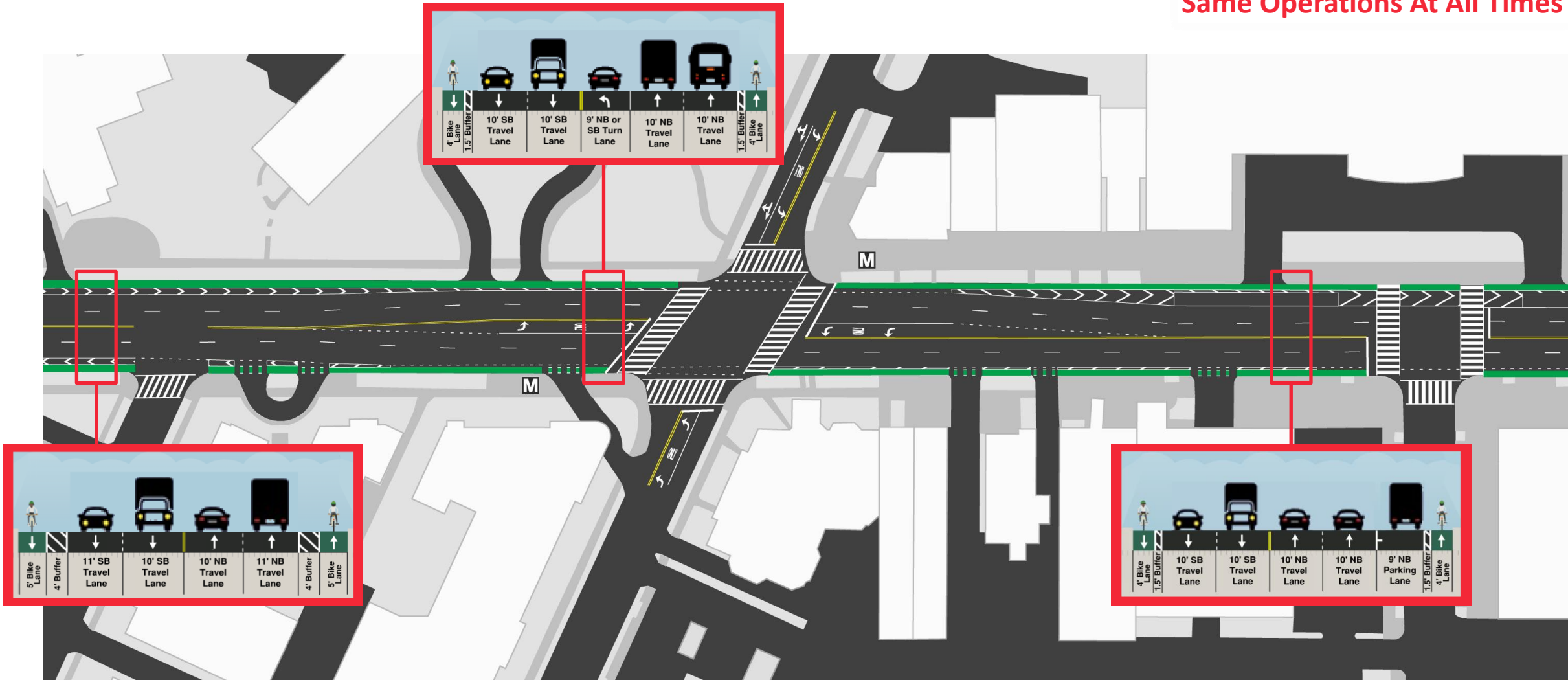
**Option #1: NB or SB Parking & Loading Lane**



- **Removes Reversible Lane System**
- **Peak Period/Off-Peak Period Operations:**
  - Two (2) northbound and two (2) southbound travel lanes
- **One-way Protected Bicycle Lanes:**
  - Located on east and west sides of Connecticut Avenue
  - Includes 4' or 5' bike lane and 4' or 1.5' buffers to accommodate either mainline or left turn/parking lane requirements
- **Traffic Operations- Manageable Impacts**
- **Parking-Retains 118 spaces in Commercial Areas; removes 507 spaces in other areas of Corridor.**

# Concept C – Typical Layout

Same Operations At All Times

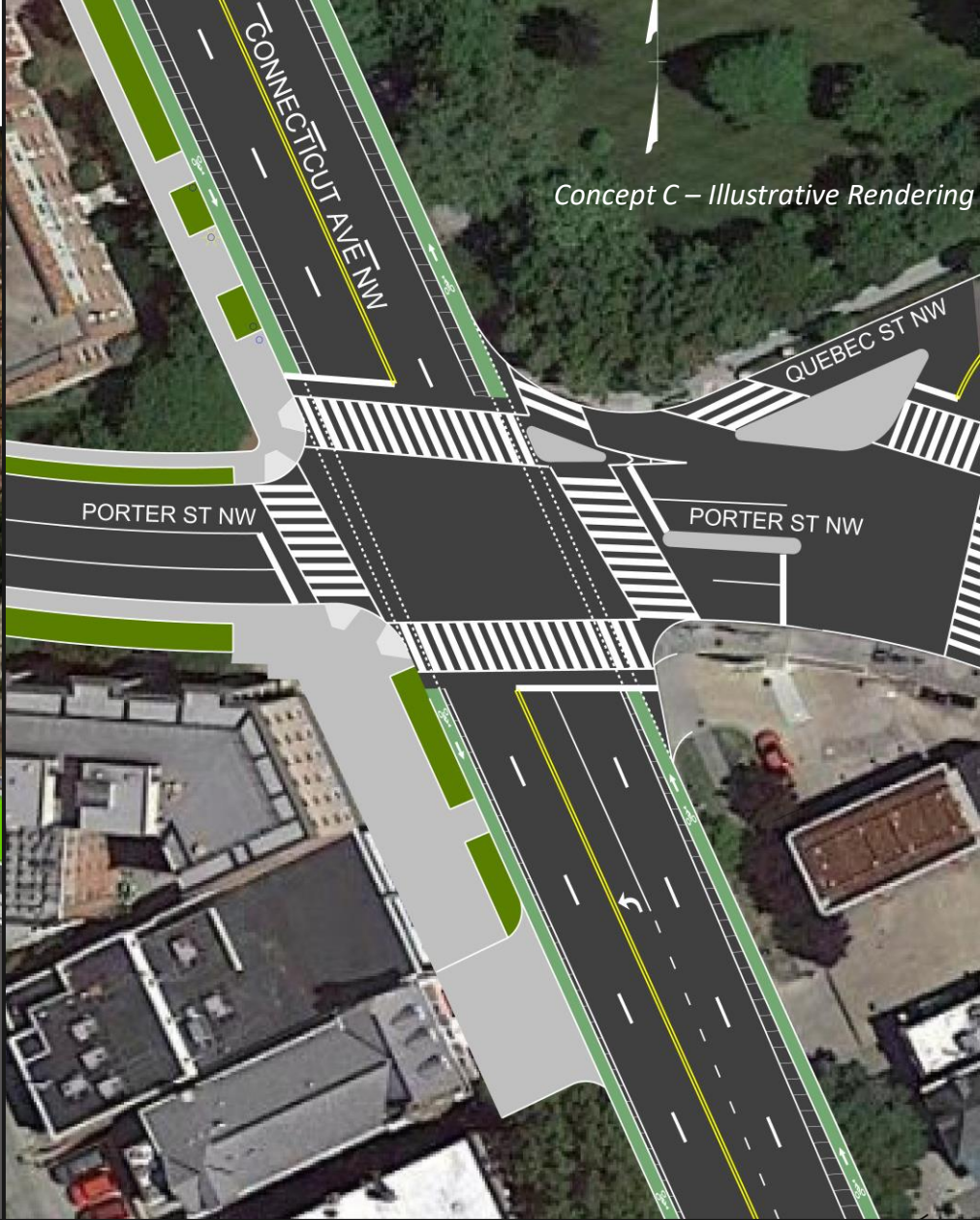




# Concept C – Segment Renderings

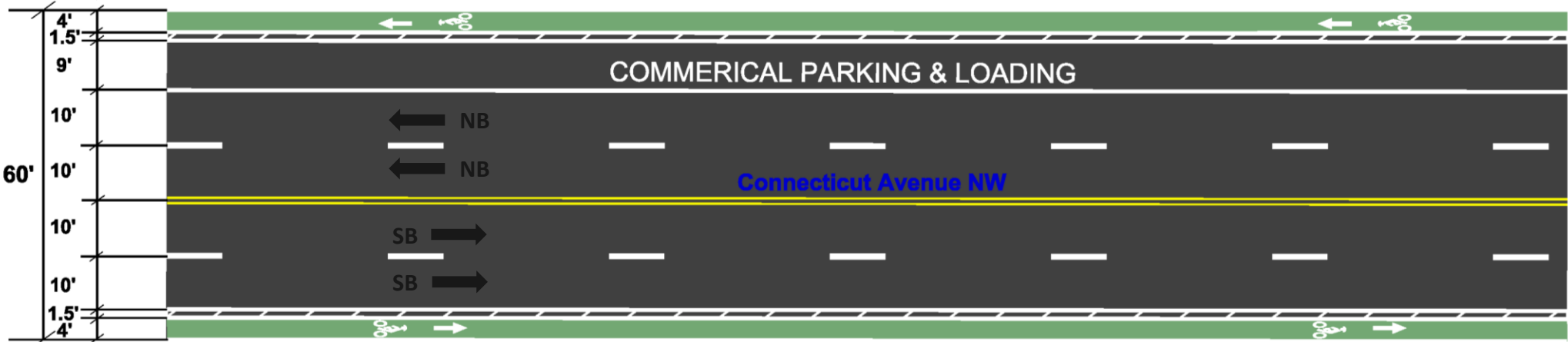


Concept C – Illustrative Rendering

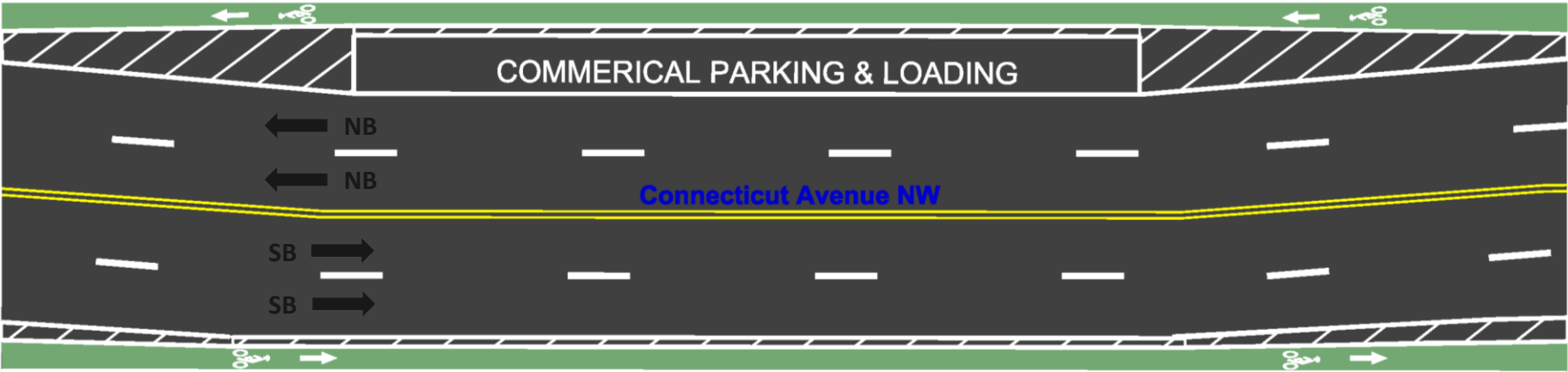


Concept C – Illustrative Rendering

# Concept C – Commercial Area All-Day Parking/Loading Lane



Concept C Option– Parking/Loading Lane Option

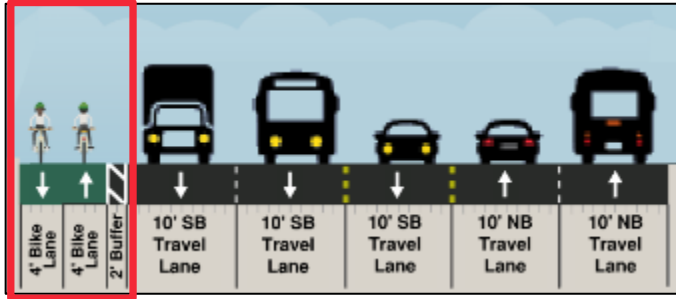


Concept C, Option Typical Segment

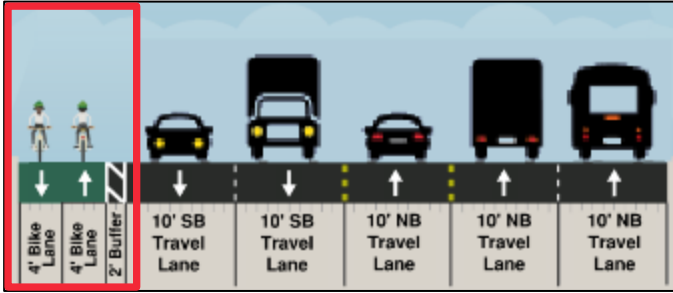


# CONCEPT D-0

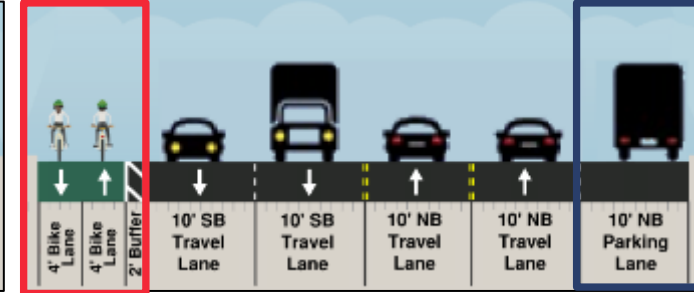
AM Peak Period



PM Peak Period



Off-Peak Period

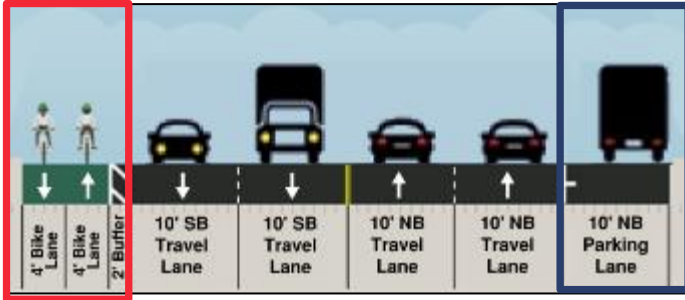


- Retains one (1) lane Reversible Lane System
- Requires upgrade of Reversible Lane System per MUTCD Standard (CFA does not support)
- Peak Hour Lane Operations:
  - Three (3) peak direction/ two (2) off-peak direction travel lanes
- Off-Peak Period Traffic Operations:
  - Two (2) NB and two (2) SB travel lanes with NB Parking/Loading lane
- Left-turn pockets with “protected only” phasing, as required by DDOT’s *Bicycle Facility Design Guide*, not constructible due to Reversible Lanes.
- Conflicting pedestrians and cyclists in two-way cycle track
- Two-way protected cycle track: Dimensions include two (2) , 4'-foot bike lanes with 2'-foot buffer

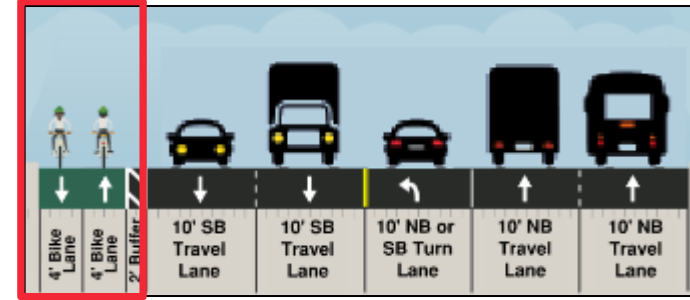


# CONCEPT D-1 (by others)

All Periods



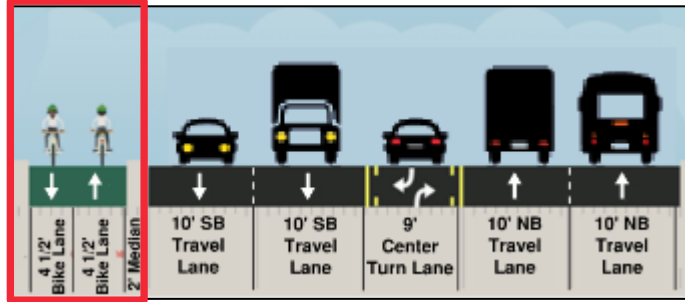
Option: Based on need for NB/SB Left-turn pockets



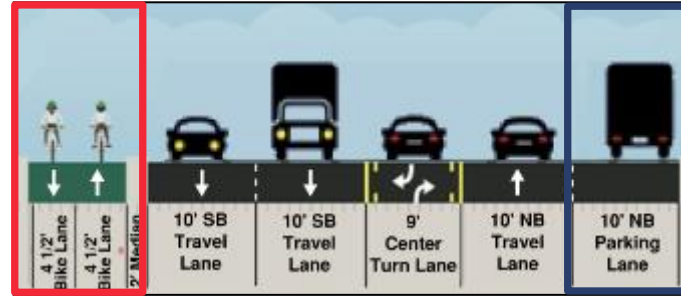
- **Retains Reversible Lane System**
- **Traffic Operations, All Day:**
  - Two (2) northbound and two (2) southbound lanes
- **Two options (based on locational needs within Corridor):**
  - Northbound (NB) parking/loading lane, **or** NB/SB left-turn pocket
- **Two-way protected cycle track:**
  - Two (2) 4-foot bike lanes and a 2-foot buffer.
- **Left-turn pockets with “protected only” phasing required for all intersections per DDOT’s Bicycle Facility Design Guide.**
  - NB/SB left turns may block left lane leaving only one lane for through movement.
  - Left turn pockets required for two-way cycle track preclude parking

# CONCEPT D-2 (by others)

AM and PM Peak Periods



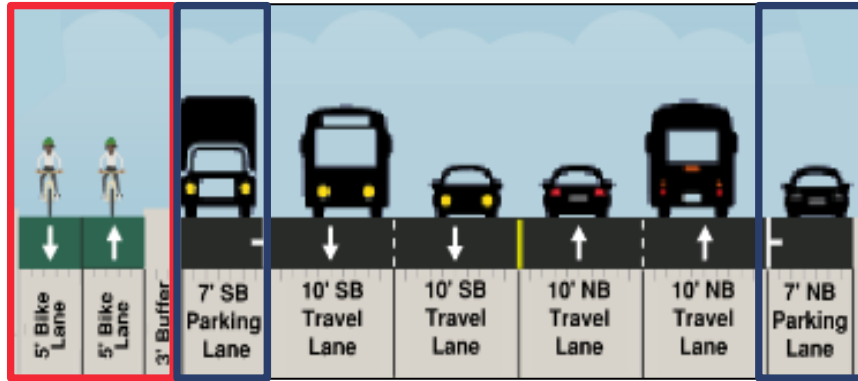
Off-Peak Period



- **Removes Reversible Lane System**
- **Peak Period Traffic Operations:**
  - Two (2) northbound and two (2) southbound lanes; two-way center left-turn lane
- **Off-Peak Period Traffic Operations:**
  - One (1) northbound and two (2) southbound lanes
  - Two-way center left-turn lane
  - Northbound parking/loading lane
- **Two-way protected cycle track (2- 4.5' bike lanes and a 2'-buffer)**

# CONCEPT E (by others)

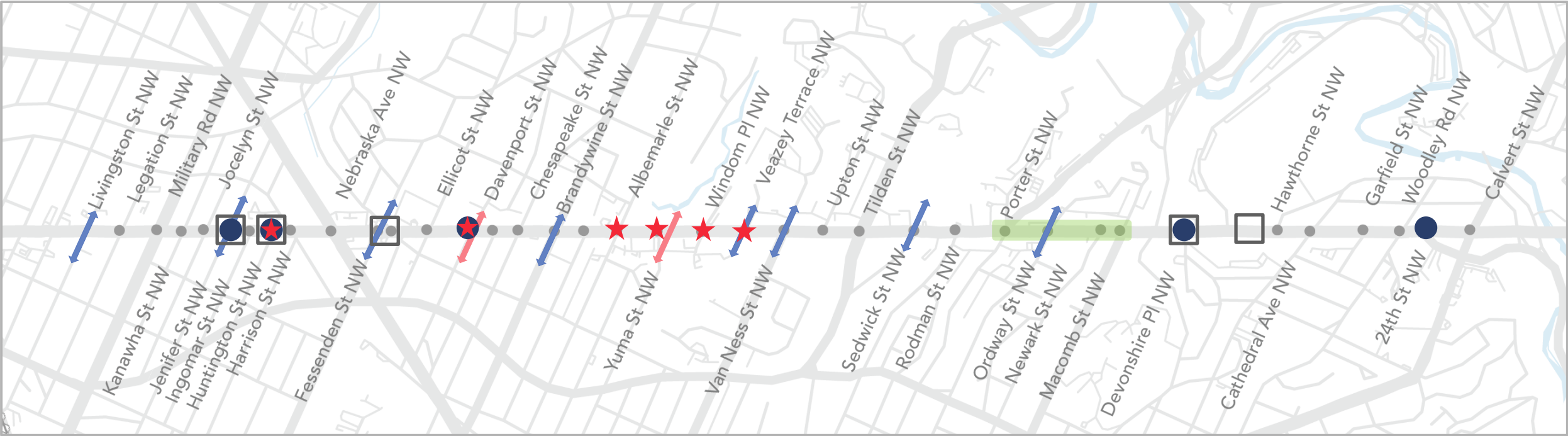
All Periods



- **Removes Reversible Lane System**
- **Peak Period/Off-Peak Period Traffic Operations:**
  - Two (2) northbound and two (2) southbound lanes
  - East and west side Connecticut Avenue Parking/Loading Lanes
- **Two-way Protected Cycle Track on the west side of Connecticut Avenue:**
  - Two (2) 5' bike lanes and a 3' buffer
- **ROW/Construction required to accommodate 67' cross-section (60-foot existing curb-to-curb).**  
*Does not conform to DDOT Guiding Principles*
- **Cleveland Park Streetscape Project design impact.**

# Recent and Ongoing Improvements

Signal Timing Optimization & Cleveland Park Streetscape and Drainage



● Leading Pedestrian Interval

□ Pretiming

↔ Updated Clearance Interval (20 MPH)

★ Extended Crossing Time

■ Streetscape Project

↔ Updated Clearance Interval (Slow Streets)

# Potential Corridor Safety Improvements

## All Concepts

### Speed Management

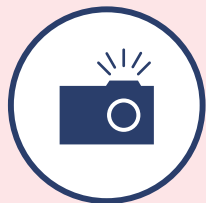


Review Existing Speed Limit. **Potential Reduction to 25 mph**

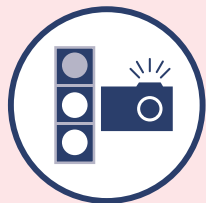


Dynamic Speed Feedback Signs

### Automated Enforcement



Speed Enforcement Cameras



Red Light Enforcement Cameras Locations (TBD)

### Pedestrian



Pedestrian Hybrid Beacon/ HAWK Signal



Curb Extensions

### Intersection Geometry



Remove channelized right-turn lane

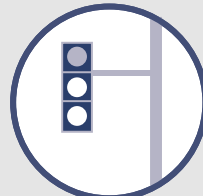


Approach Realignment

### Signal Visibility



Signal/HAWK Reflective Backplates



DDOT Specific Mast Arm

### Access Management



Left-Turn Restrictions ("No Left Turn" Signs)



Corner Driveway / Alley Intersection Clearance



# Preliminary Findings

- **Difficult to meet full Purpose and Needs.**
- **If we remove the reversible lanes, accommodate some parking/loading, and accommodate PBLs, PBL widths/buffers have reduced dimensions.**
- **If we provide for only removal of the reversible lanes (Concept B), we are not accommodating multimodal safety and accessibility goals.**
- **No-Build Management Option:**
  - Does not appear to meet Purpose and Need
  - Does not reduce crashes
  - Retains the Reversible Lanes
  - Does not meet the multimodal safety and accessibility goals
  - Requires overhead signage/signals to be MUTCD-compliant; not supported by CFA.

# ALTERNATIVES EVALUATION

# Alternatives Evaluation

- **Developed Evaluation Matrix**
  - Screen 1: Is the Alternative within 60-foot Curb-to-curb width
  - Screen 2: Considered the Attributes, Pros and Cons
- **Developed relative scoring/adjectival rating**
  - Desirable (+2), More Desirable (+1)
  - Neutral (0)
  - Less Desirable (-1), Not Desirable (-2)
- **Criteria Evaluated**
  - Traffic Safety
  - Traffic Operations
  - Bicycle Accessibility and Comfort
  - Pedestrian Accessibility and Comfort
  - Transit Accessibility and Operations
  - Parking, Loading and Pick-Up/Drop-Off
  - Constructability/Implementation
- **Embedded in the Evaluation Criteria: Consistency with District of Columbia Plans**
  - moveDC
  - Bicycle Master Plan
  - Vision Zero
  - Sustainable DC 2.0 Plan
  - District of Columbia Carbon Neutrality Goals
  - Bicycle and Pedestrian Safety Amendment Act of 2016

PROJECT PURPOSE		➤ Improve Safety and Operations along the Corridor ➤ Improve Multi-modal Accessibility	No-Build Option	Concept A	Concept B	Concept C	Concept D <sup>0</sup>	Provided by Others *							
								Concept D <sup>1</sup>	Concept D <sup>2</sup>		Concept E				
Screen 1	FATAL FLAW ANALYSIS	➤ Requires Additional ROW (existing 60’ curb-to-curb width)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES
Screen 2	EVALUATION CRITERIA ASSESSMENT	1. Traffic Safety	-2	-2	+1	+2	-2	+2	+2						
		2. Traffic Operations	+2	-1	+1	+1	-1	-1	-2						
		3. Bicycle Accessibility & Comfort	-2	+2	-2	+1	+1	+1	+1						
		4. Pedestrian Accessibility & Comfort	0	+1	0	+1	0	0	0						
		5. Transit Accessibility & Operations	+1	-1	+1	0	0	0	-1						
		6. Parking, Loading & Pick-up/Drop-off (PUDO)	+2	-2	+2	-1	+1	-1	+1						
		7. Constructability & Implementation	-2	-2	+1	0	-2	-2	-2						
Scoring			-1	-5	+4	+4	-3	-1	-1	N/A					

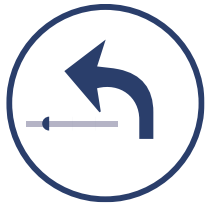
KEY				
Not Desirable	Less Desirable	Neutral	More Desirable	Desirable
-2	-1	0	+1	+2



# Alternative B – Potential Safety Benefits










**Remove Reversible Lanes - Estimated 36% reduction of crashes during peak hours (17% overall)**



**Left-Turn Calming Treatments – Slows left turning vehicles, reducing conflicts with pedestrians**

# Safety Improvement Toolbox – Alternative C

	Pedestrian & Bicycle	CRF	#
	Protected Bicycle Lane	-	26
	Bicycle Lane	-	14
	Pedestrian Refuge Island	26%	7

	Turn Lanes and Parking	CRF	#
	Left Turn Lane on One Major Road Approach	27%	7
	Left Turn Lane on Both Major Road Approaches	42%	4
	Commercial Loading/Unloading or Parking	N/A	14
	Parking Restrictions	20%	40

CRF Crash Reduction Factor

# Number of blocks/intersections where improvement may have applicability

# Alternative C – Potential Safety Benefits



**Remove Reversible Lanes - Estimated 36% reduction of crashes during peak hours (17% overall)**



**Add Protected Bicycle Lanes – Expected decrease in vehicular crashes, protects cyclists mid-block**



**Add Turn Lanes at selected intersections – Estimated 27% reduction of crashes at intersections with turn lanes**



**Remove Parking – Estimated 20% reduction of crashes where implemented**



**Pedestrian Refuge Island – Estimated 26% reduction of crashes at intersections with refuge islands**

# Parking Summary

Connecticut Avenue NW Parking & Loading		Total Available Spaces	Concept A	No-Build, Concept B*	Concept C	Concept D <sup>0</sup>	Provided by Others		
							Concept D <sup>1</sup>	Concept D <sup>2</sup>	Concept E
➤ Total Parking Spaces Removed along the Corridor		609	609	0	491	300	**	300	0
➤ Total Parking Spaces Removed by Connecticut Avenue NW Roadway Segment	1) Legation St to Jennifer St	61	61	0	61	28	**	28	0
	2) Jennifer St to Fessenden St	65	65	0	56	34	**	34	0
	3) Fessenden St to Chesapeake St	56	56	0	56	30	**	30	0
	4) Chesapeake St to Yuma St	66	66	0	54	25	**	25	0
	5) Yuma St to Upton St	78	78	0	50	42	**	42	0
	6) Upton St to Rodman St	73	73	0	73	36	**	36	0
	7) Rodman St to Newark St	66	66	0	44	36	**	36	0
	8) Newark St to North Rd	33	33	0	24	14	**	14	0
	9) North Rd to Woodley Rd	87	87	0	63	49	**	49	0
	10) Woodley Rd to Calvert St	24	24	0	10	6	**	6	0
➤ Total Parking Spaces <u>Gained During Peak Periods</u> along the Corridor		0	0	0	118	0	**	0	609
➤ Total Loading Spaces Removed along the Corridor		24	24	0	5	10	**	10	0

\*No-Build Concept and Concept B does not change the lane configurations; therefore, no parking impacts.  
\*\*Concept shows parking lane; however, the requirement for Left-turn lanes will significantly reduce the area where parking can be accommodated. Design of the corridor will be required to determine the actual number of spaces to be removed.

**Existing Conditions**  
609 Total Parking Spaces  
209 Commercial Area Parking Spaces  
24 Loading Spaces



# TRAFFIC ANALYSIS

# Traffic Analysis

- **Focus on Concepts B and C since traffic model is sensitive to changes in number of lanes.**
  - No Build: No changes from Pre-Covid configuration (4 lanes southbound and 2 lanes northbound in AM; reverse in PM)
  - Concept B: Reduces peak hour, peak direction lanes by one (1)
  - Concept C: Reduces peak hour, peak direction lanes by two (2)
- **Modeling and analysis consisted of:**
  - *Preparing 2045 traffic volume forecasts consistent with land use, employment and population estimates from DC, MWCOG*
  - *Estimating traffic diversions (looking at design conditions)*
  - *Conducting level of service/capacity analyses*
  - *Looking at relative travel time differences between Concepts*
- **The study does not account for changes in traffic volumes, on a year-to-year basis, like we are experiencing during Pandemic conditions.**

# Existing and Forecast AADT Volumes

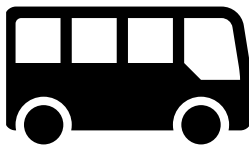
	Existing	2045 No-Build	2045 Build Concept B	2045 Build Concept C
Segment				
Legation Street NW to Nebraska Ave NW	29,900	30,200	25,590	26,700
Albemarle Street NW to Porter Street NW	31, 800	34,500	32,450	28,100
Porter Street NW to North Road NW	30,400	36,800	34,690	29,930
North Road to Calvert Street NW	23,600	25,900	24,040	19,290

# Connecticut Avenue- A Multimodal Corridor

## Order of Magnitude Existing Volumes and Forecasts



Today	23,600 to 31,800
No Build	25,900 to 36,800
Concept B	24,040 to 32,450
Concept C	19,290 to 29,930



Today  
4,300



2017-2019 Entries (rounded)  
Woodley Park- 6,000  
Cleveland Park- 3,700  
Van Ness- 5,700



Today 29-91 (depending on location in corridor, peak hour)  
Long-Term Peak Hour Forecast  
With Protected Bicycle Lane:  
AM- 518  
PM- 483  
Daily: 3,150-3,250



# PBL Infrastructure Bike Forecasts Methodology

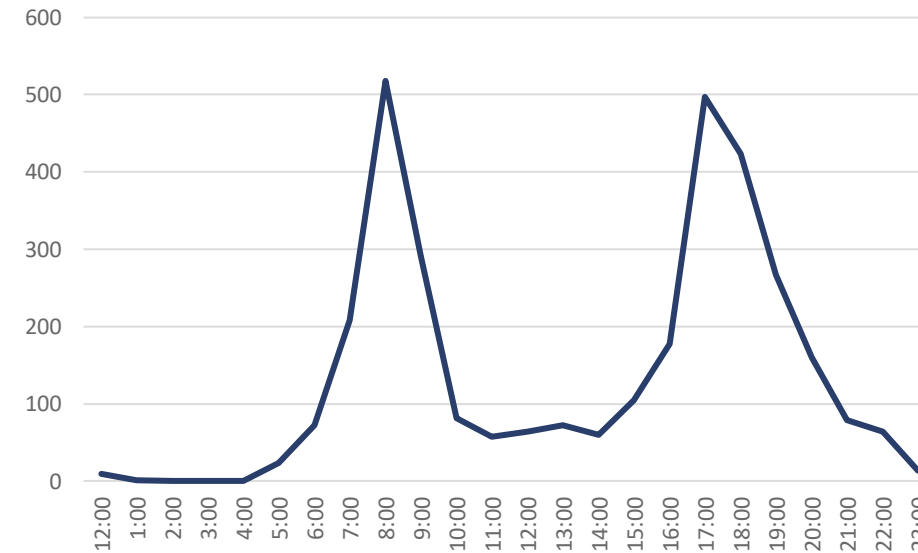
- **Purpose:** To project bicycle demand along the Connecticut Avenue NW corridor. Develop short-term and longer-term forecasts.
- **Methodology**
  - Use of Cycle Streets Routing algorithm
  - Data Sources: CABI, historic bike count data, Connecticut Avenue Bike Counts.
  - Adjustments for: most direct route, most comfortable route, balanced route
- **Assumptions**
  - PBL forecasts are based on rerouted trips/current data and induced demand.



# Connecticut Avenue Bicycle Usage Forecasts with Protected Bicycle Lane



Calvert Street NW to Porter Street NW  
Long-Term Bike Volumes



Forecast Daily Bicycle Volumes with PBL: 3,150 to 3,250 per day

# Connecticut Avenue NW Protected Bicycle Lane

## Peak Hour and Daily Forecasts

	Peak Hour			Peak Hour		
Segment	AM Existing	AM Short-Term	AM Long-Term	PM Existing	PM Short-Term	PM Long-Term
Calvert Street NW to Porter Street NW	52	255	518	39	238	483
Porter Street NW To Albemarle Street NW	23	114	231	22	134	272
Albemarle Street NW to Legation Street NW	16	78	158	13	80	162

3,150 to 3,250 Bicycles Per Day  
using Protected Cycle Track

# TRAFFIC ANALYSIS: DIVERSION

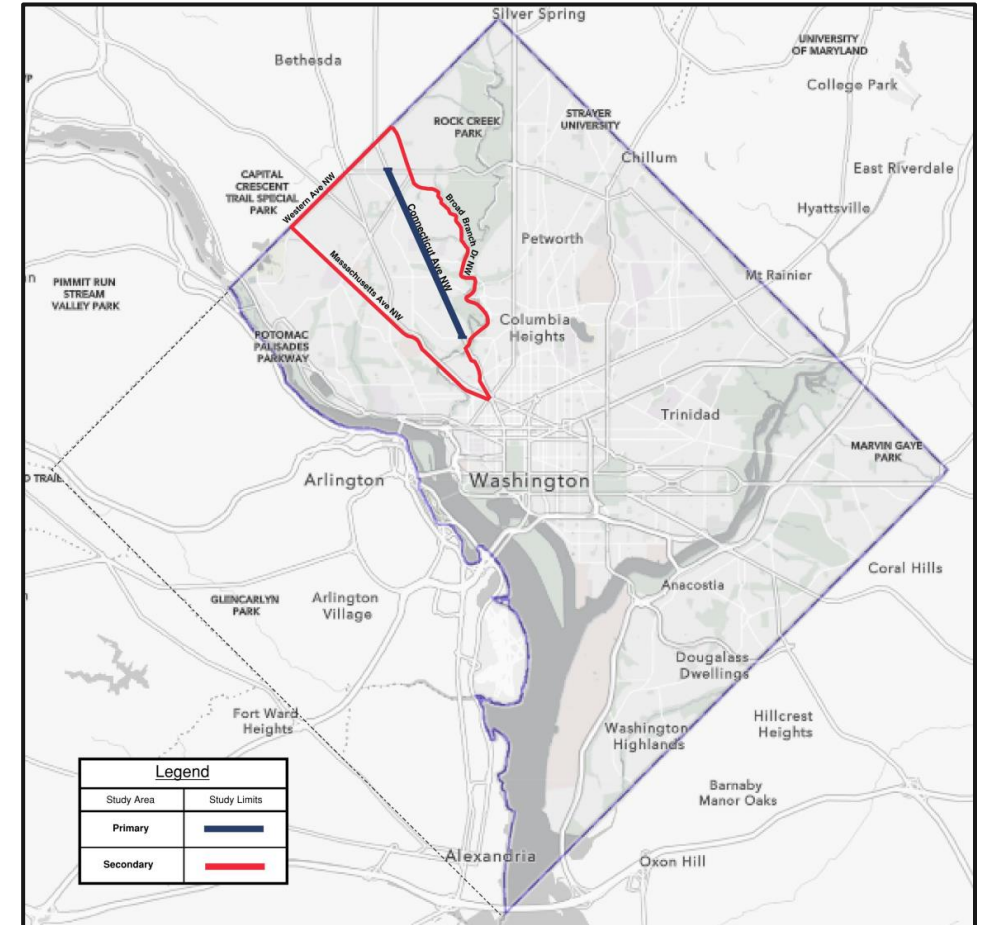


# Traffic Diversion: General Principles

- Modeled Traffic Diversions for No-Build and Concepts B and C.
- Start out with a Daily (24-Hour Diversion volume)
- Some diversions will occur within our secondary Study Area and on regional roadways. This traffic does not disappear; however, people decide to use regional roadways.
- Distribute Daily Diversion volume to 5 Hours in the AM and 5 Hours in the PM, within our secondary study area road network
- Diversions are not expected to occur during 14 of 24 hours in day (during off-peak periods)

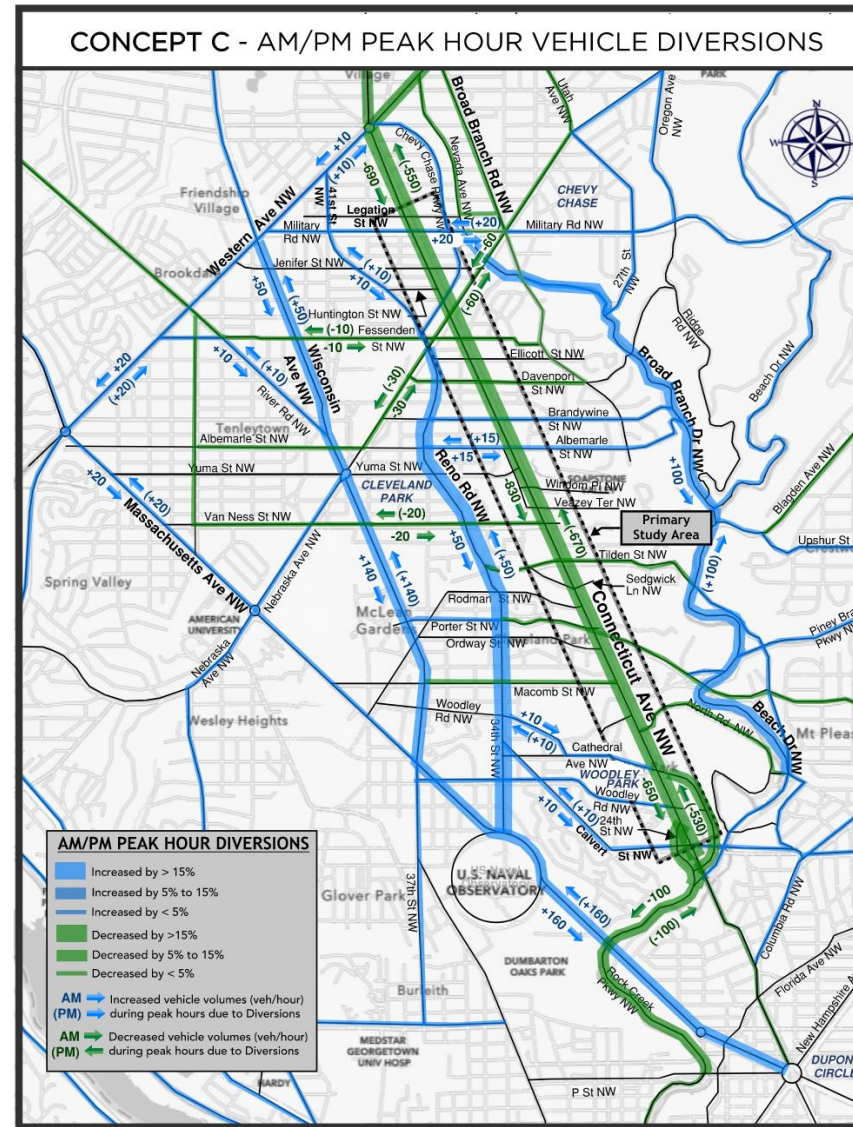
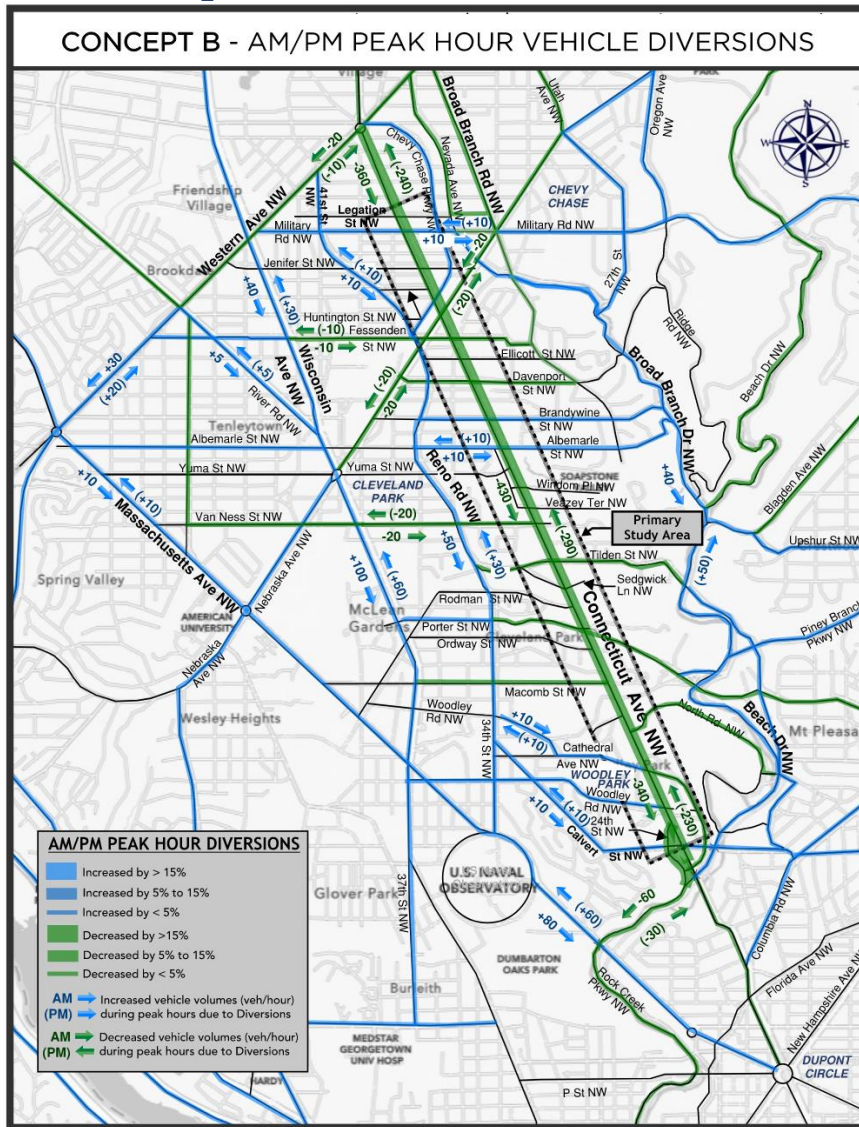
# Secondary Study Area and Regional Diversions

- **55-60% of traffic diversions will occur within the secondary study area, while 40-45% of people will travel on regional roadways**
- **Regional “diversion” roadways include Georgia Avenue, NW, Clara Barton Parkway/Canal Road NW, I-495, MacArthur Boulevard and George Washington Parkway.**
- **Concept B**
  - **Total Daily Diversions: 3,160**
  - **Secondary Study Area Daily Diversions: 1,920**
  - **Regional Diversions: 1,240**
- **Concept C**
  - **Total Daily Diversions: 7,020**
  - **Secondary Study Area Daily Diversions: 3,980**
  - **Regional Daily Diversions: 3,130**



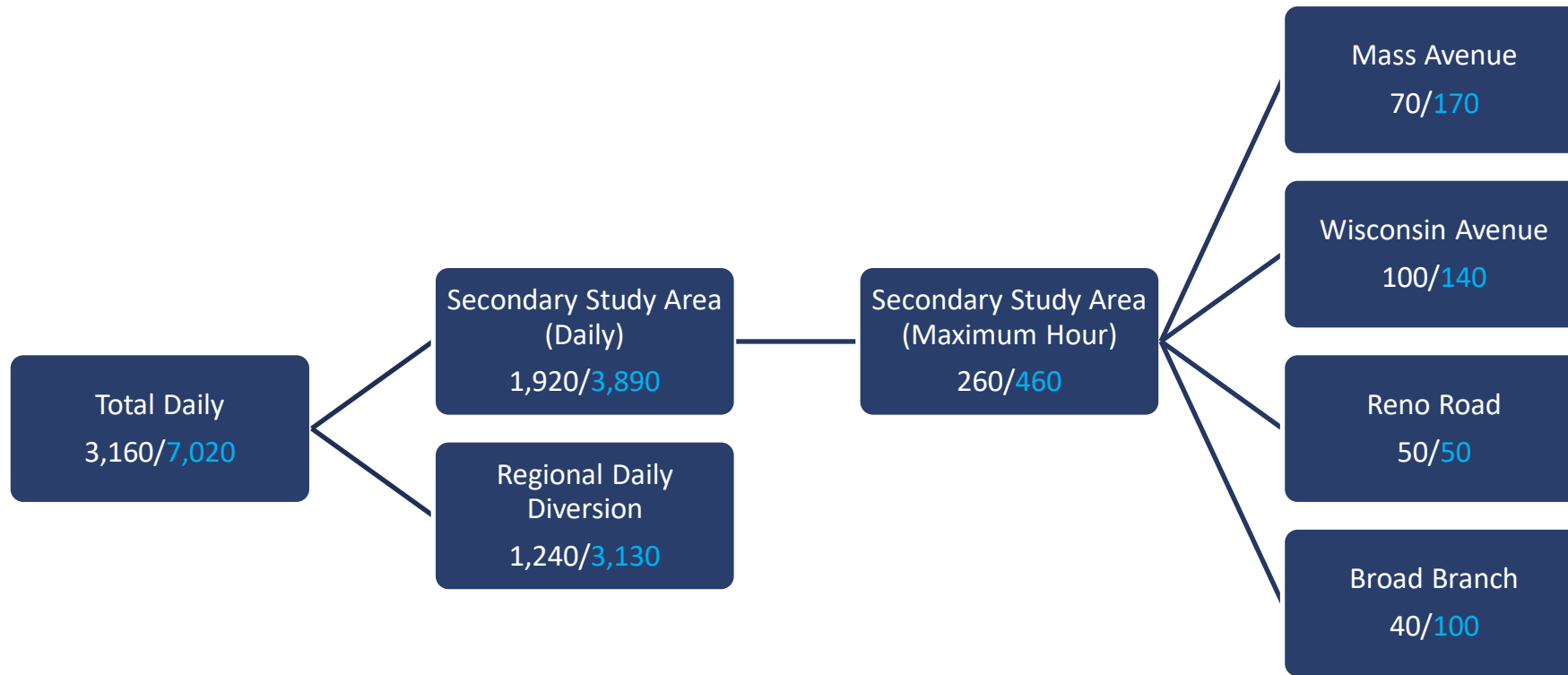


# Concepts B and C Traffic Diversions



- GREEN** shows relative decreases in peak hour traffic volumes compared to 2045 No-Build condition.
- BLUE** shows relative increases in peak hour traffic volumes compared to 2045 No-Build condition.

# Concept B and C Daily and Peak Hour Traffic Diversions



- Impacts of reducing the number of lanes along Connecticut Avenue during the peak hour, peak direction, by either one or two lanes, is manageable.
- Parallel and collector roadways can accommodate these modest increases in volumes.

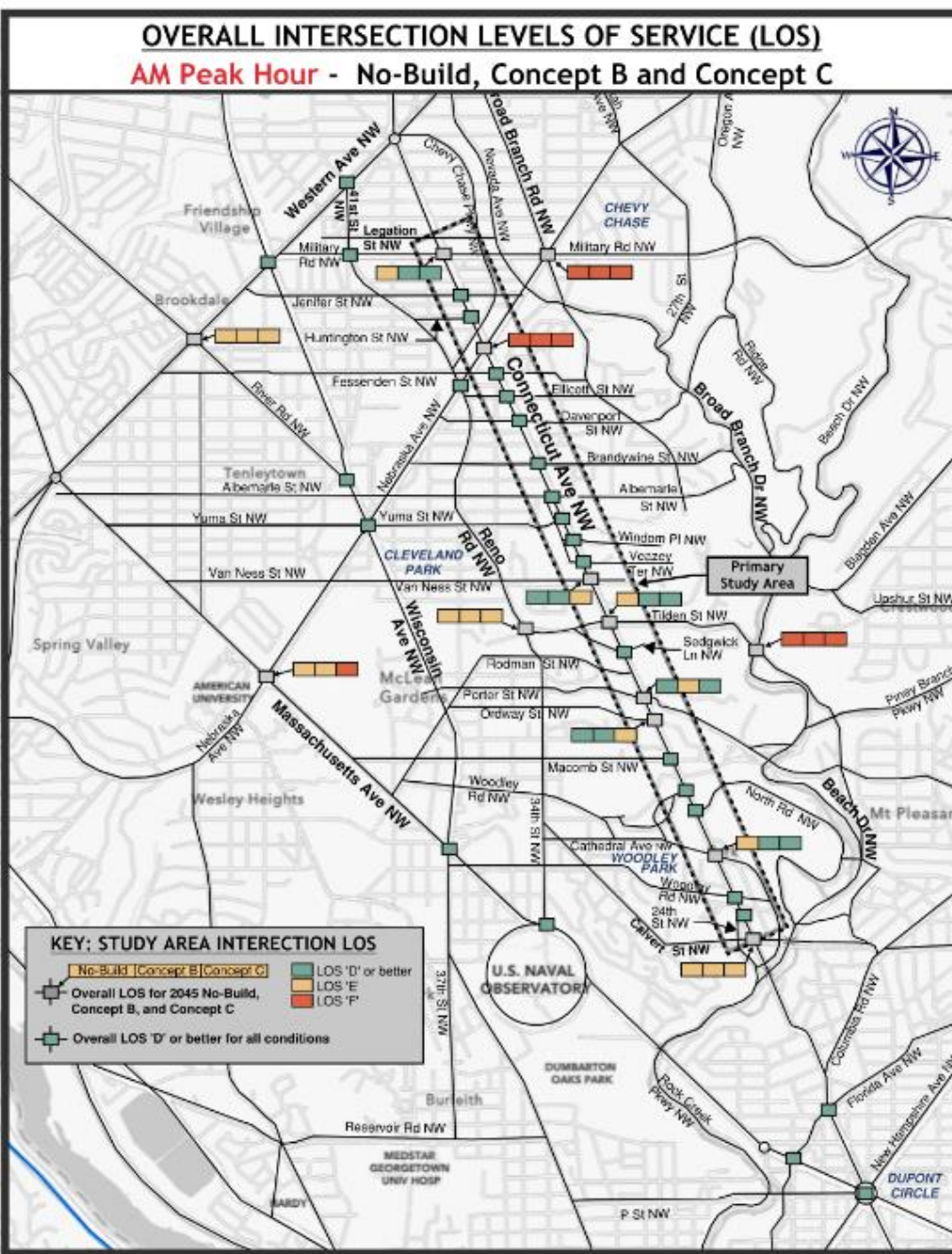
# Traffic Analysis: Level of Service/Capacity



# Intersection Level of Service and Delay

- **Level of Service (LOS) and Delay, were reported and assessed at each of the study area intersections.**
- **LOS and Delay**
  - See Grading System, LOS “A” to LOS “F”
  - Overall signalized LOS:
    - Average total vehicle delay of all movements through an intersection
- **LOS and Delay reported is for the highest one peak hour in the morning and the highest one peak hour in the evening.**
- **An intersection will likely operate better than what is reported during the balance of the day (approximately 20-22 hours).**

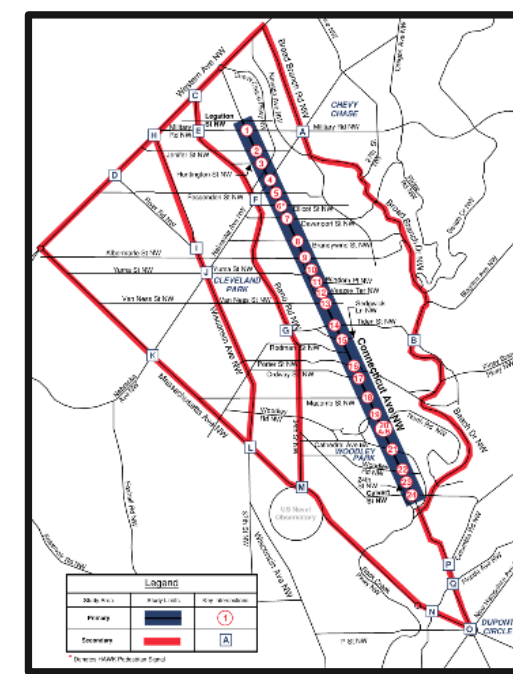
LOS	Control Delay per vehicle (seconds per vehicle)
A	≤ 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80



## AM Traffic Levels of Service Primary Study Area No-Build and Concepts B and C

PRIMARY STUDY AREA - AM PEAK SUMMARY	2045 NO- BUILD	CONCEPT B	CONCEPT C
Number of Intersections with Overall LOS F/Total Study Area Intersections	1/24	1/24	1/24

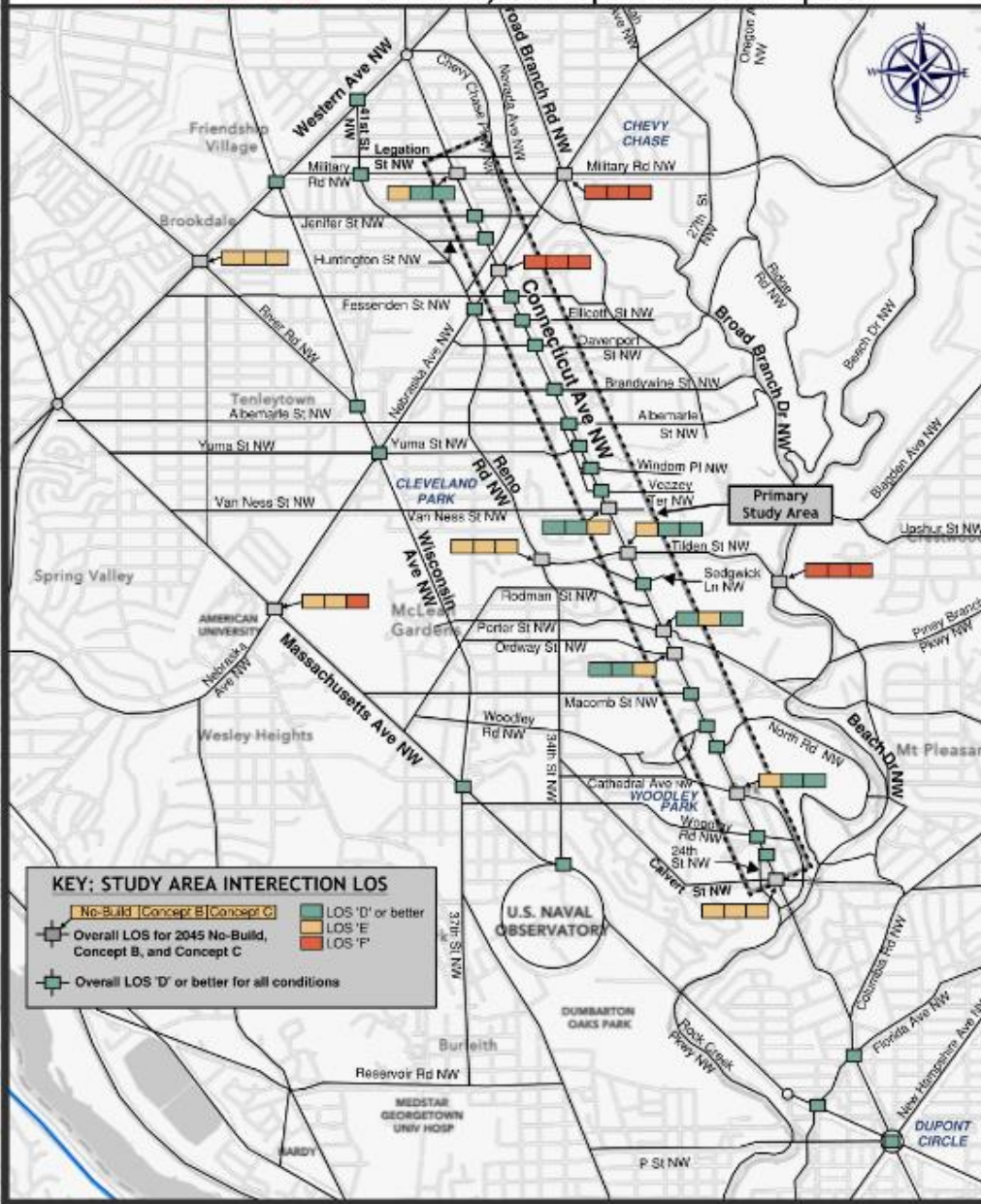
- Nebraska Avenue /Connecticut Avenue** operates at LOS F in any condition (No-Build, B or C)





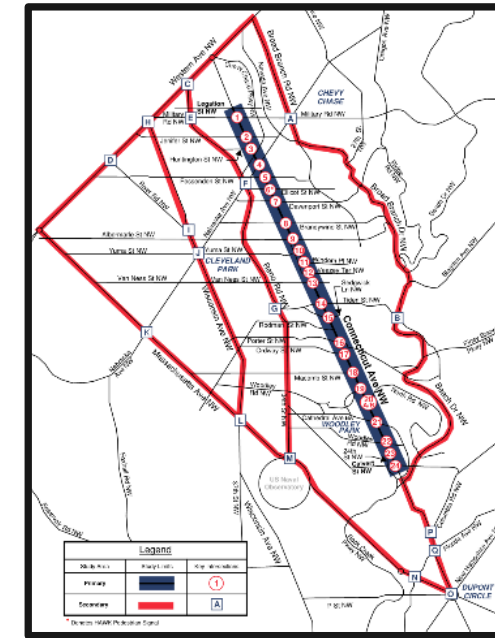
# OVERALL INTERSECTION LEVELS OF SERVICE (LOS)

AM Peak Hour - No-Build, Concept B and Concept C



## AM Traffic Levels of Service Secondary Study Area No-Build and Concepts B and C

SECONDARY STUDY AREA - AM PEAK SUMMARY	2045 NO- BUILD	CONCEPT B	CONCEPT C
Number of Intersections with Overall LOS F/Total Study Area Intersections	2/20	2/20	3/20

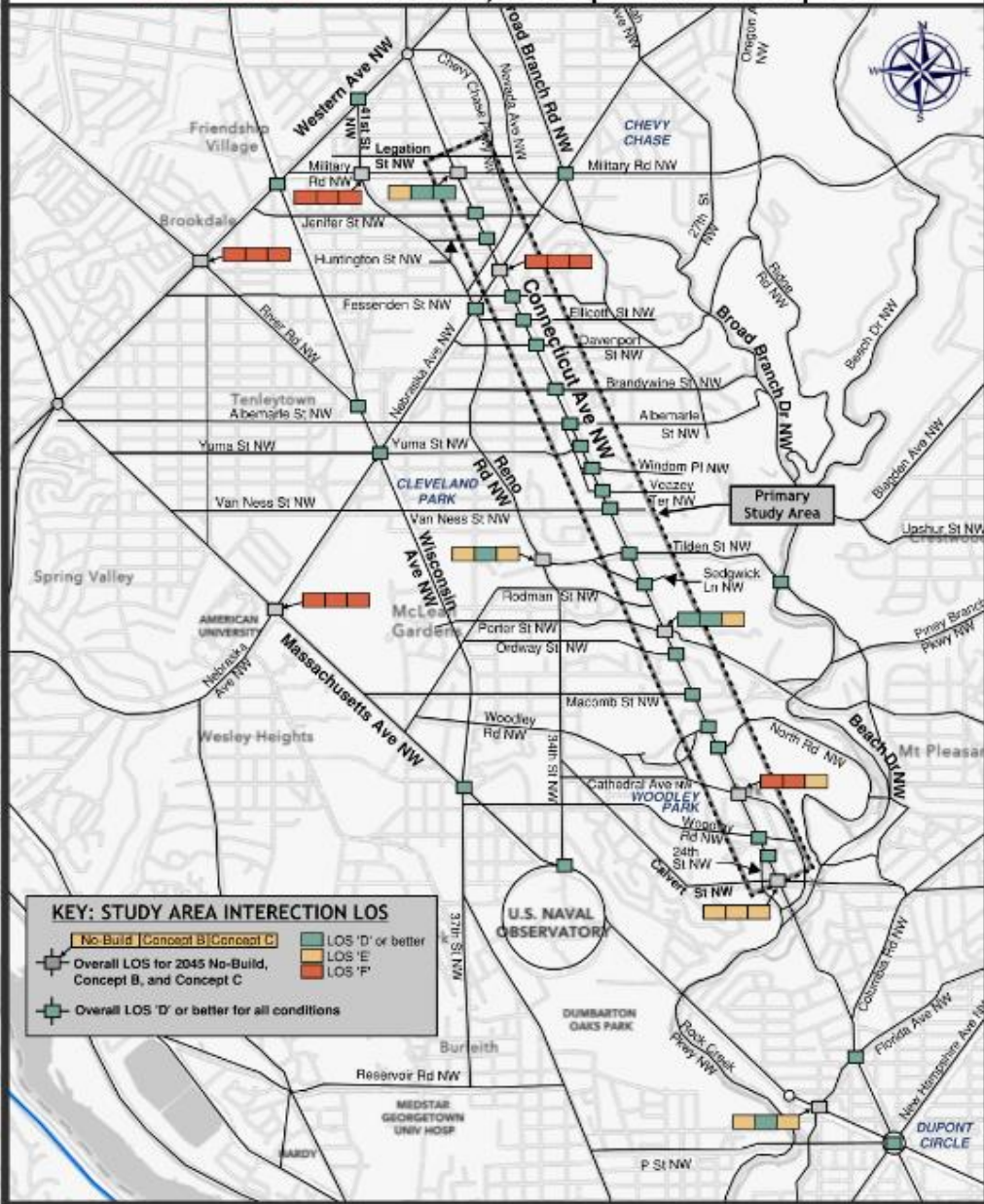


## Intersections Operating at LOS "F" in No-Build or Build conditions:

- Nebraska Avenue/Broad Branch Road
- Beach Drive/Park Road/Tilden Street
- Nebraska Avenue @ Ward Circle North operates at LOS "E" in the No-Build and Concept B condition, and LOS "F" under Concept C

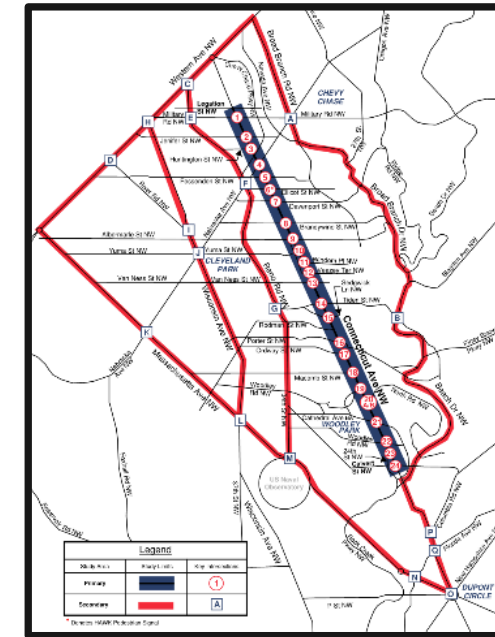
# OVERALL INTERSECTION LEVELS OF SERVICE (LOS)

PM Peak Hour - No-Build, Concept B and Concept C



## PM Traffic Levels of Service Primary Study Area No-Build and Concepts B and C

PRIMARY STUDY AREA - PM PEAK SUMMARY	2045 NO- BUILD	CONCEPT B	CONCEPT C
Number of Intersections with Overall LOS F/Total Study Area Intersections	2/24	2/24	1/24

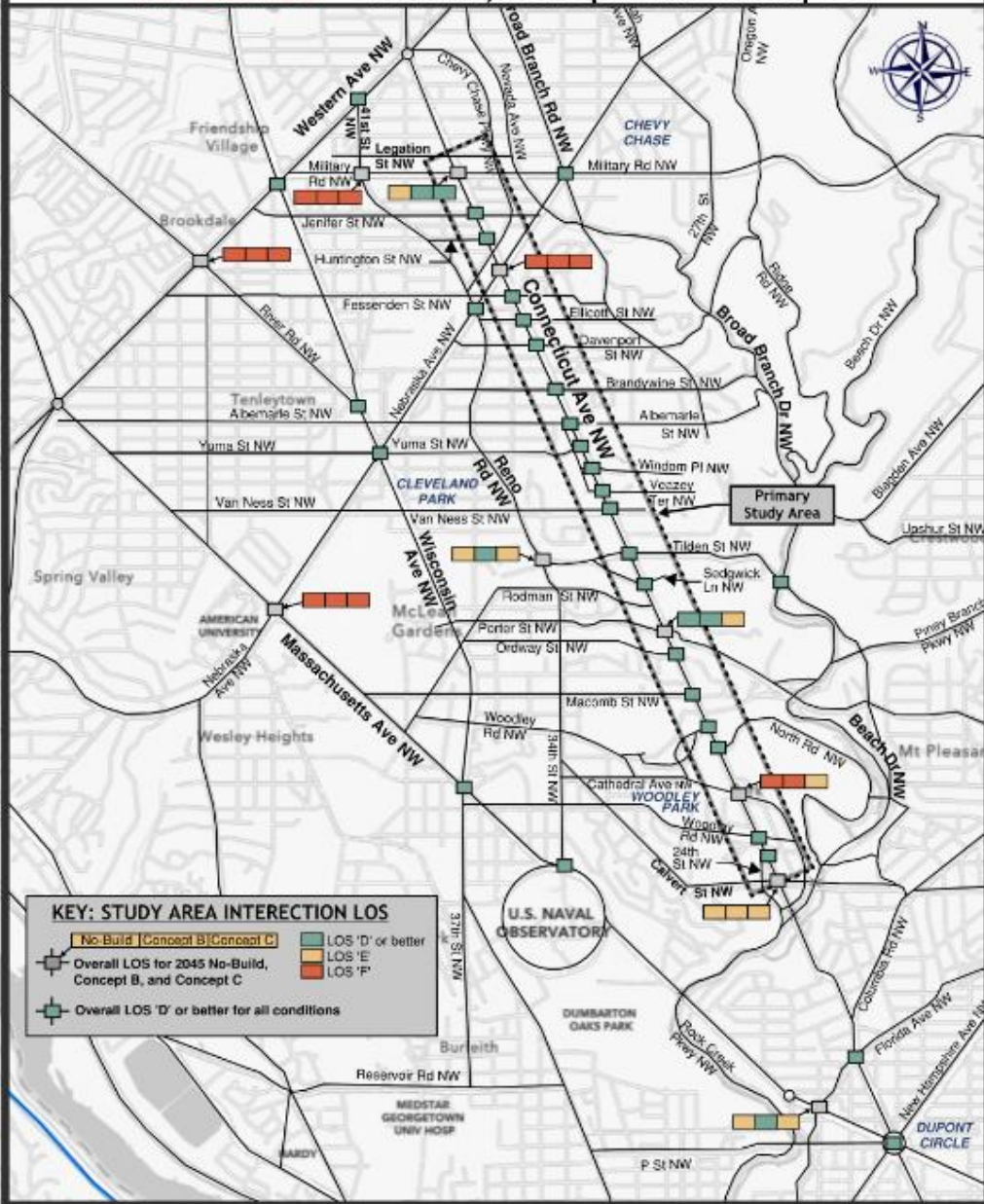


- Nebraska Avenue /Connecticut Avenue** operates at LOS F in any condition (No-Build, B or C)
- Cathedral Avenue @ Connecticut Avenue** operates at LOS "F" in the No-Build and Concept B condition, and LOS "E" under Concept C.



# OVERALL INTERSECTION LEVELS OF SERVICE (LOS)

PM Peak Hour - No-Build, Concept B and Concept C

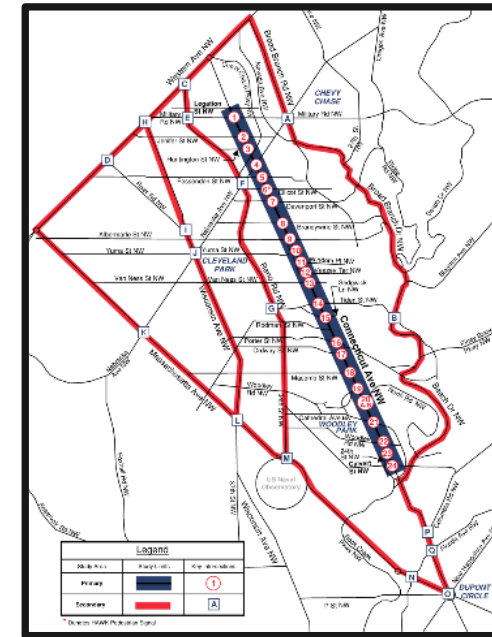


## PM Traffic Levels of Service Secondary Study Area No-Build and Concepts B and C

### SECONDARY STUDY AREA - PM PEAK SUMMARY

Number of Intersections with  
Overall LOS F/Total Study Area  
Intersections

2045 NO- BUILD	CONCEPT B	CONCEPT C
3/20	3/20	3/20



Intersections Operating at LOS "F" in No-Build or Build conditions:

- Western Avenue @ River Road
- Reno Road @ Military Road
- Nebraska Avenue @ Ward Circle North



# Connecticut Avenue Travel Time For Reversible Lane Segment

## AM Peak Hour Travel Time Comparison (Primary Study Area)

TRAVEL TIME DIRECTION	NO - BUILD	CONCEPT B	CONCEPT C	NO-BUILD VS. CONCEPT B	NO-BUILD VS. CONCEPT C	CONCEPT B VS. CONCEPT C
Northbound	17 min.	13 min.	14 min.	-4 min.	-3 min.	+1 min.
Southbound	13 min.	16 min.	20 min.	+3 min.	+7 min.	+4 min.

## PM Peak Hour Travel Time Comparison (Primary Study Area)

TRAVEL TIME DIRECTION	NO - BUILD	CONCEPT B	CONCEPT C	NO-BUILD VS. CONCEPT B	NO-BUILD VS. CONCEPT C	CONCEPT B VS. CONCEPT C
Northbound	13 min.	17 min.	21 min.	+4 min.	+8 min.	+4 min.
Southbound	15 min.	12 min.	13 min.	-3 min.	-2 min.	+1 min.

 Peak Hour/Peak Direction

## AM Peak Period- Southbound (Peak Direction)

- Compare No-Build to Concept B (+3 min)
- Compare No-Build to Concept C (+7 min)
- Compare Concept C to Concept B (+4 min)

## AM Peak Period- Northbound (Off-Peak Direction)

- Compare No-Build to Concept B (-4 min)
- Compare No-Build to Concept C (-3 min)
- Compare Concept C to Concept B (+1 min)

## PM Peak Period- Northbound (Peak Direction)

- Compare No-Build to Concept B (+4 min)
- Compare No-Build to Concept C (+8 min)
- Compare Concept C to Concept B (+4 min)

## PM Peak Period- Southbound (Off-Peak Direction)

- Compare No-Build to Concept B (-3 min)
- Compare No-Build to Concept C (-2 min)
- Compare Concept C to Concept B (+1 min)

# Next Steps

- **Present major findings of traffic analysis to Stakeholder and Interagency groups in February 2021**
- **Begin preparation and logistics activities for a Public Meeting at end of March 2021**
- **Hold Public Meeting**
- **Develop a recommendation for moving forward on a preferred concept**
- **10% design of preferred concept**
- **Environmental Documentation**

# Contact Information

## **Project Website-**

<https://ddot.dc.gov/page/connecticut-avenue-nw-reversible-lane-safety-and-operations-study>

## **Project Email-**

[Conn-Ave-revstudy@dc.gov](mailto:Conn-Ave-revstudy@dc.gov)

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### **Charlotte Ducksworth, Community Engagement Specialist**

Partner and Vice President of Business Affairs, Commun-ET, LLC  
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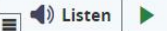


### **Ian Swain, Community Engagement Specialist**


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Email: Ian Swain [iswain@commun-et.com](mailto:iswain@commun-et.com)

# Project Website and Email

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District Department of Transportation   




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Monday to Friday, 8:15 am to 4:45 pm

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Connecticut Avenue NW Reversible Lane Safety and Operations Study



**Project Summary**

The Connecticut Avenue NW Reversible Lane Safety and Operations Study will assess the multi-modal (vehicular, transit, bicycle, pedestrian) operational and safety impacts associated with either removing or maintaining the current reversible lane system along Connecticut Avenue NW. The study effort will require the development of up to five concept recommendations, incorporating at least one no-build management option and one protected bicycle lane option.

## Project email:

- [Conn-Ave-revstudy@dc.gov](mailto:Conn-Ave-revstudy@dc.gov)

## Project website:

- <https://ddot.dc.gov/page/connecticut-avenue-nw-reversible-lane-safety-and-operations-study>



Thank You!

Questions and Comments