



Chevy Chase Circle NW d.

Pedestrian Crossing and
Lane Reduction Alternatives

PEDESTRIAN CROSSING ALTERNATIVES

Pedestrian Crossing Alternatives

Existing Conditions

- Currently, two crossing location across the circulatory roadway:
 - At Chevy Chase Pkwy
 - At Western Ave (South)
 - Both on DC side of the circle
- The crosswalk at Western Ave has very limited pedestrian sight distance when crossing from the central island side

Pedestrian Crossing Alternatives

- The Circle has 9 locations/segments
- Two criteria for alternative crossing locations:
 - Circulatory vehicular volume at each location/circle segment
 - Available crossing sight distance at each location/circle segment

3

Pedestrian Crossing Alternatives

Crossing Sight Distance Requirements

- Although AASHTO does not show information on pedestrian sight distance, other sources show:

$$\text{Pedestrian Crossing Sight Distance} = \frac{\text{Crossing Distance}}{\text{Walking Speed}} \times 85^{\text{th}} \text{ Vehicle Speed}$$

- Based on 3 circulatory lanes (approx. 42 feet), and 3.5 ft/sec walking speed, required pedestrian sight distance for the different vehicle speeds is:

Vehicle Speed (mph)	15	20	25	30	35	40
Pedestrian Sight Distance (ft)	122	163	204	245	286	327

- No posted speed limit on the circle
- Posted speed limit on Connecticut Ave approaches is 30 mph
- Posted speed limit on all other approaches is 25 mph

4

Pedestrian Crossing Alternatives

min.
200 ft

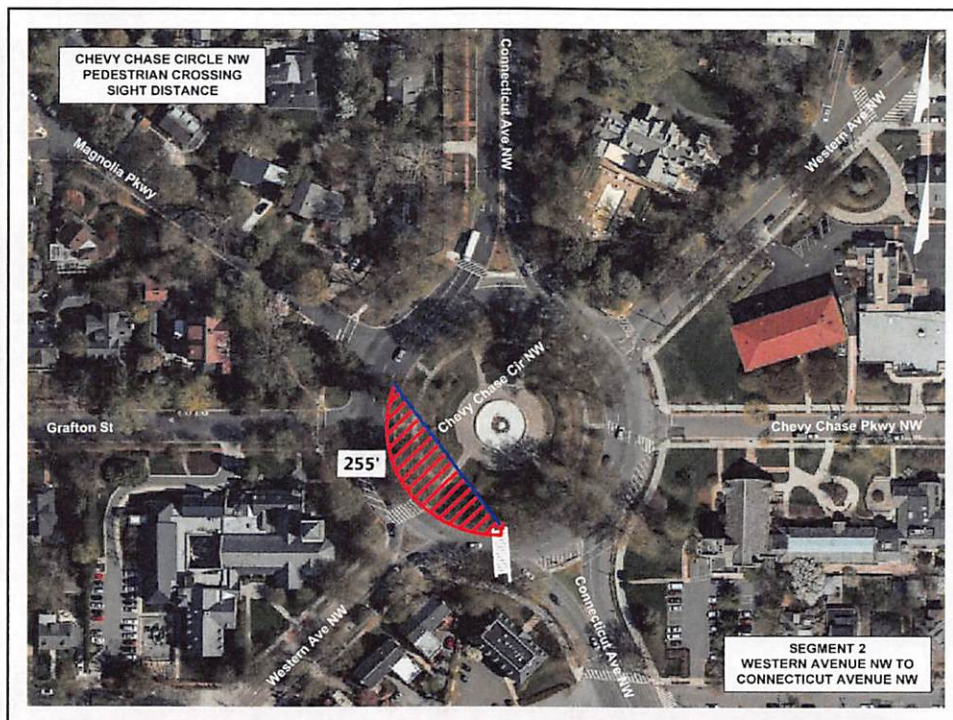
#	From/To	Circulatory Volume (vph)		Available Ped Sight Distance (ft)
		AM Peak	PM Peak	
1	Grafton/Western	2,834	1,742	162
2	Western/Connecticut	2,039	2,064	255
2A	Connecticut Splitter Island	500	1,118	210
3	Connecticut/Chevy Chase	1,346	2,842	230
4	Chevy Chase/Western	1,493	2,827	238
5	Western/Connecticut	1,988	2,181	209
5A	Connecticut Splitter Island	882	368	212
6	Connecticut/Magnolia	2,792	1,587	220
7	Magnolia/Grafton	2,819	1,603	203

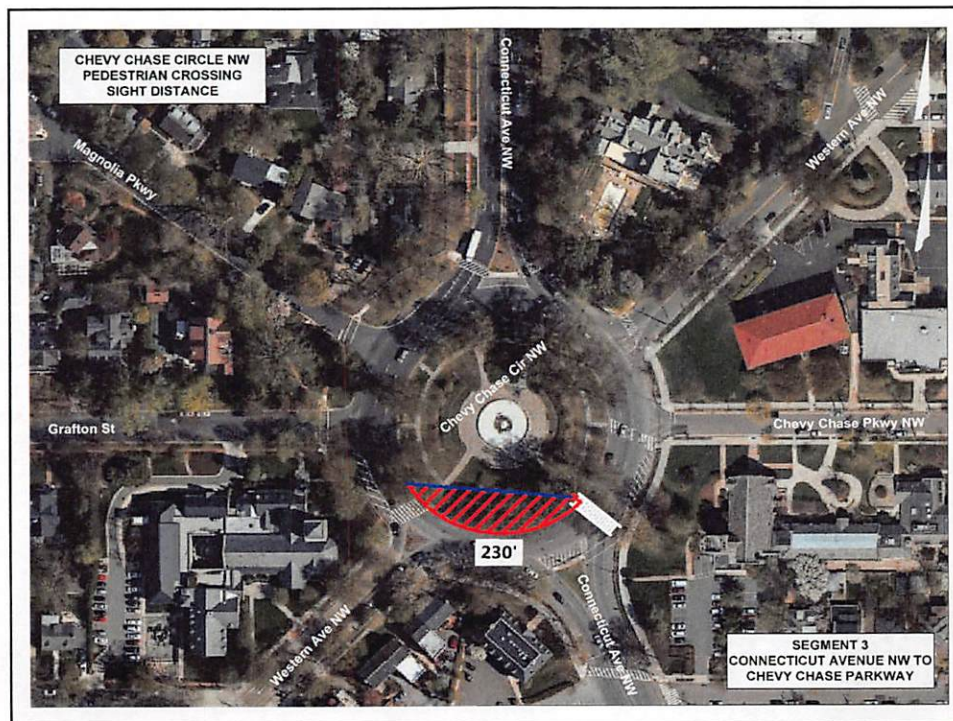
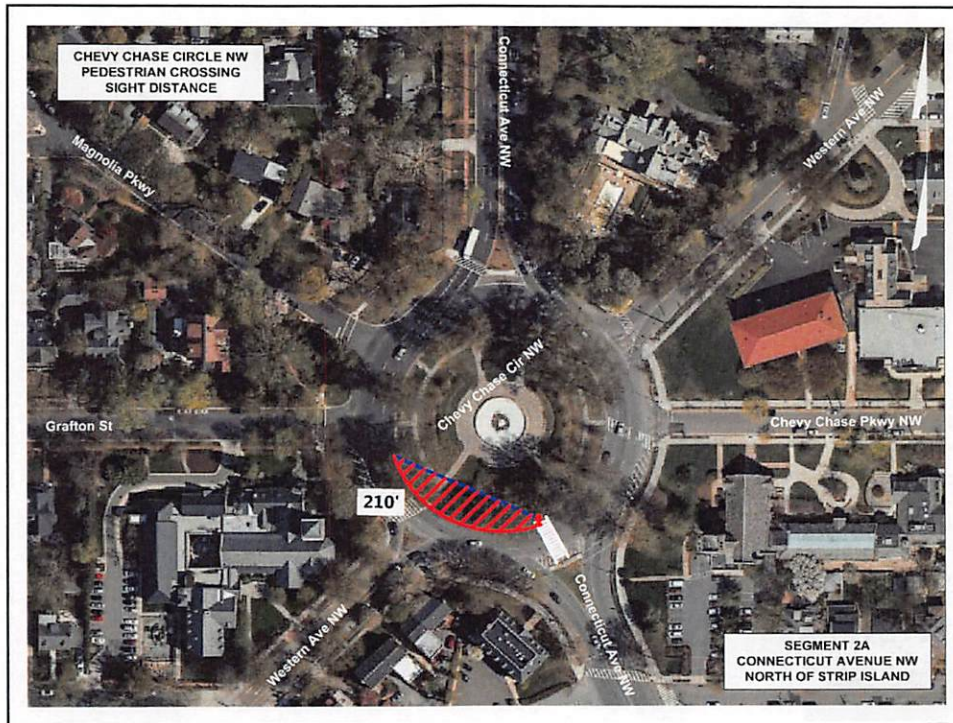


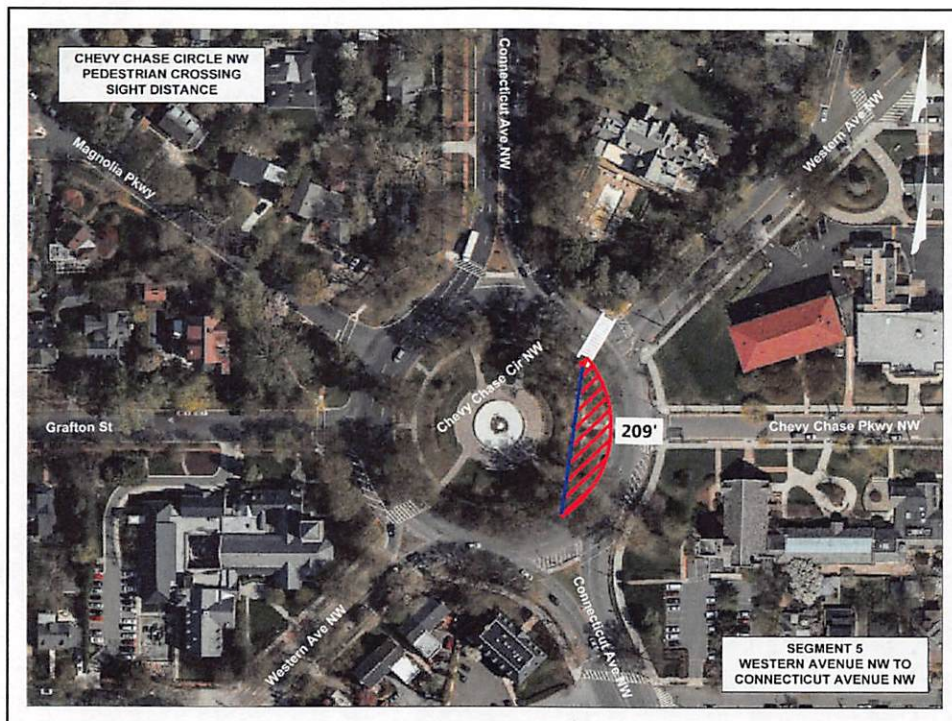
5

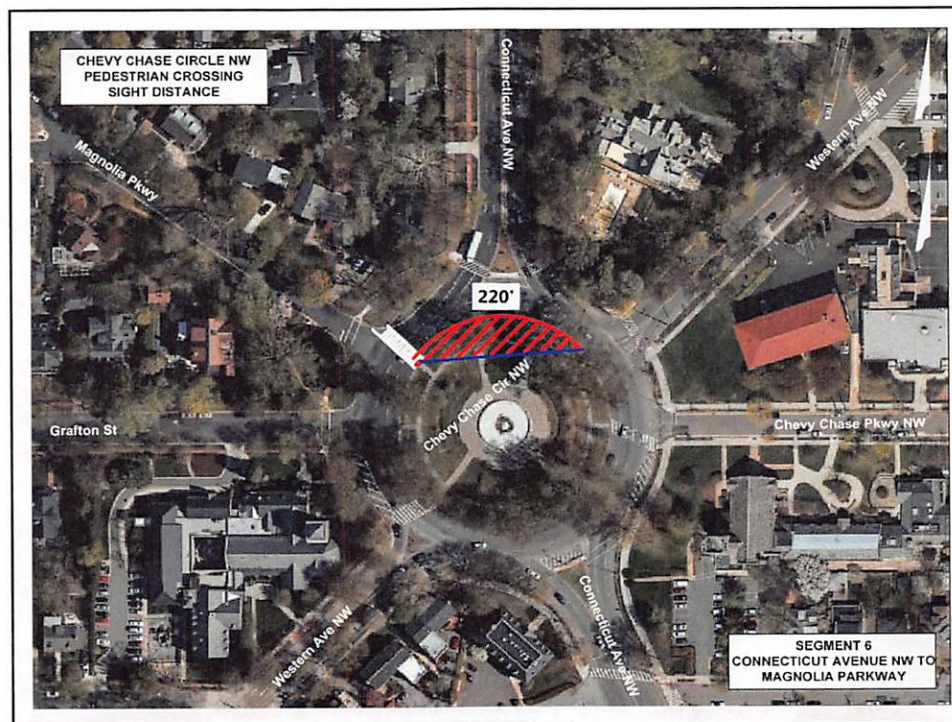
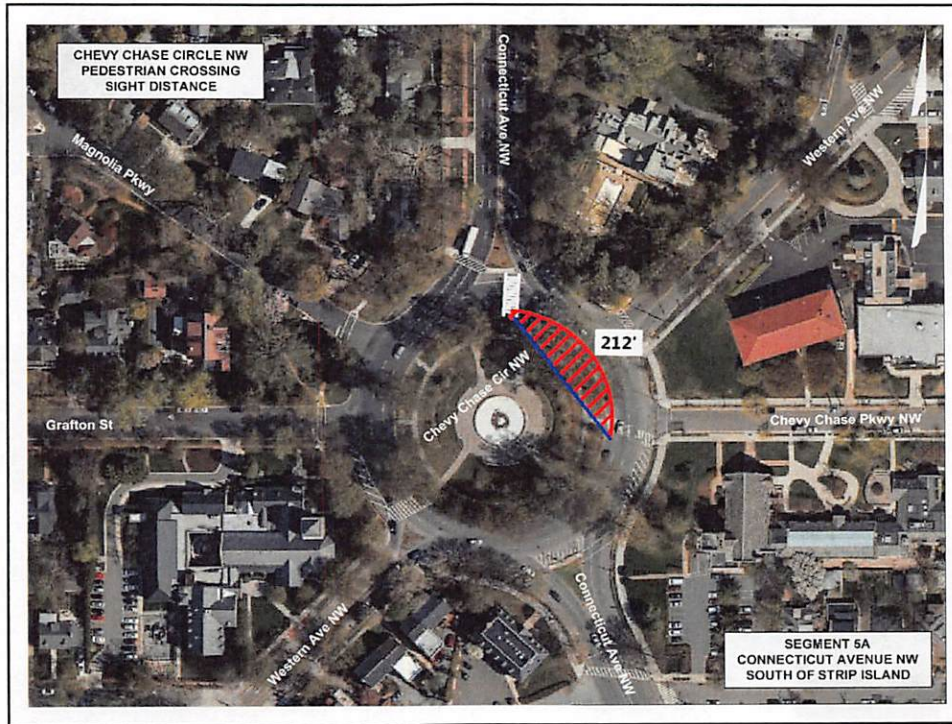
PEDESTRIAN CROSSING SIGHT DISTANCE DIAGRAM

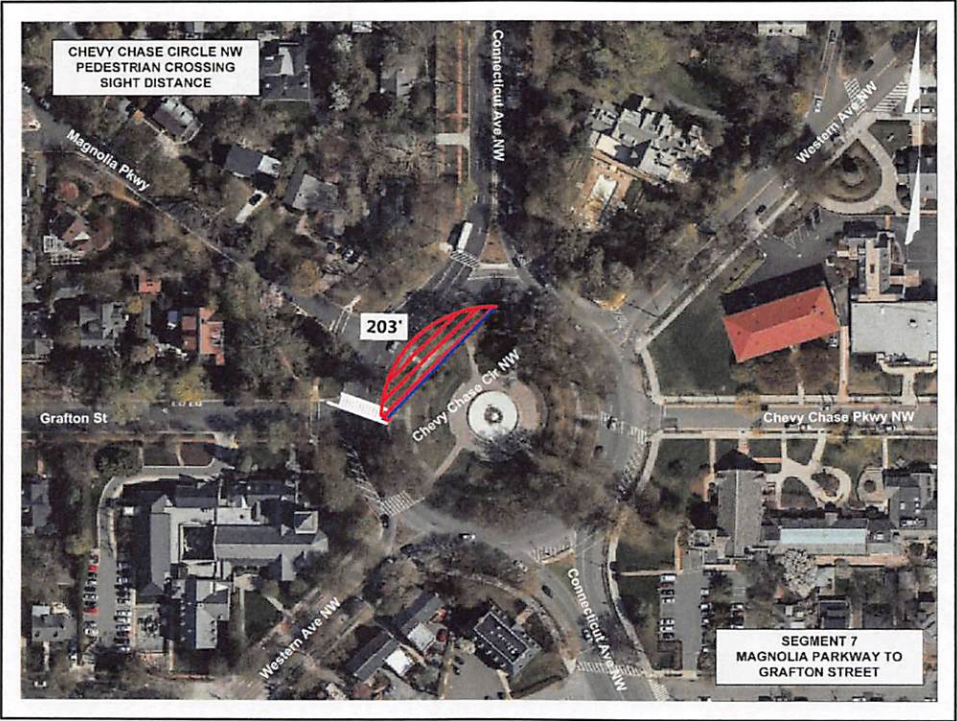
6











PEDESTRIAN CROSSING CONCLUSIONS

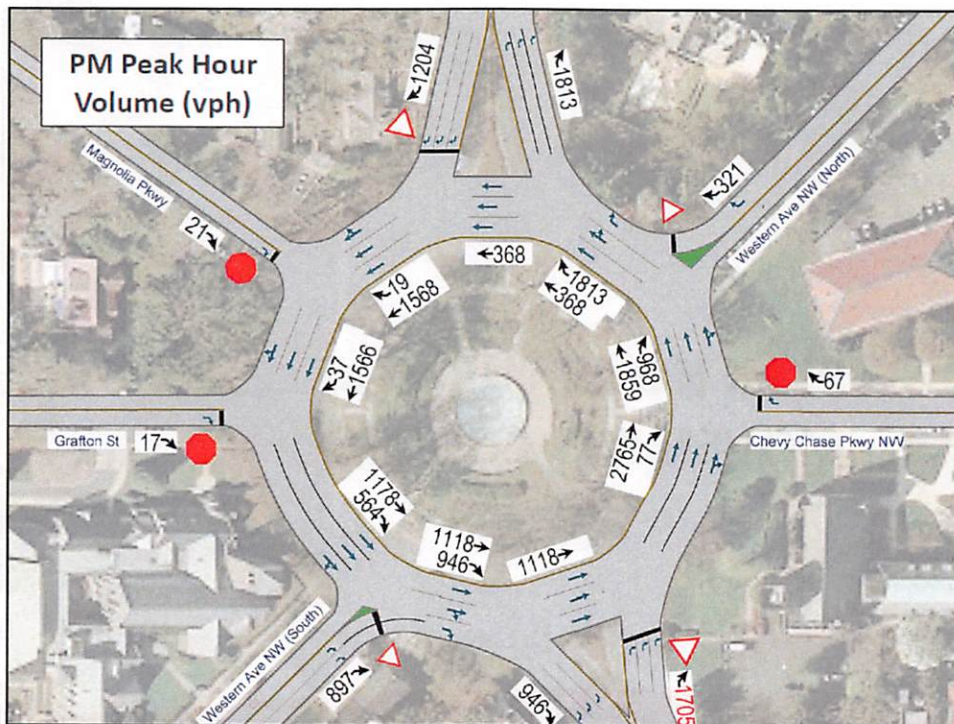
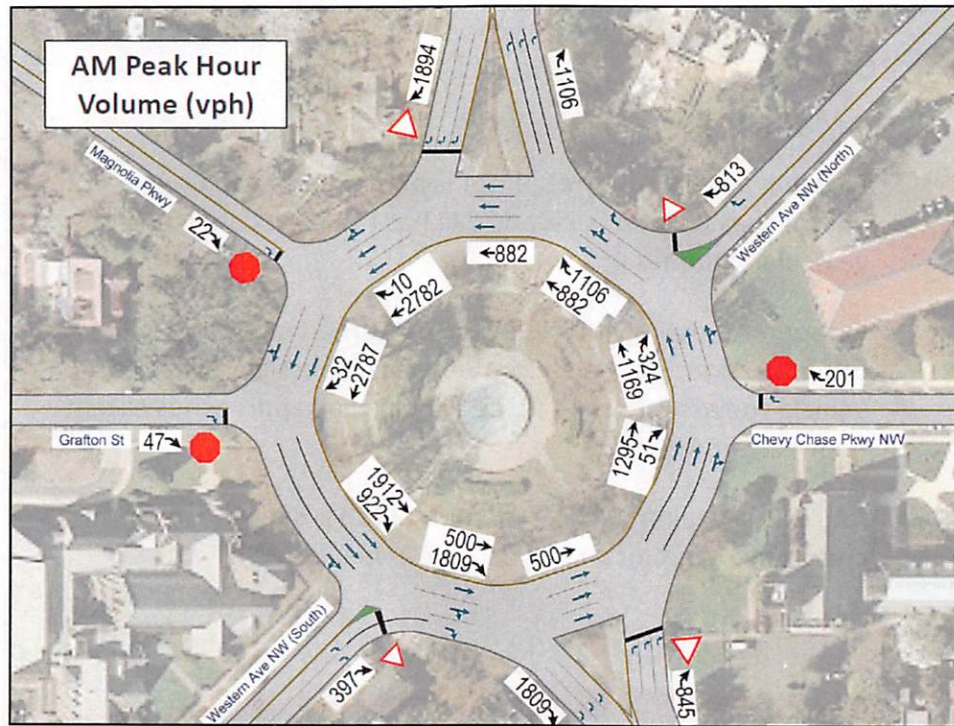
Pedestrian Crossing Conclusions

- Crossing at either of the splitter island of Connecticut Ave approaches (locations 2A and 5A) has the least conflicting vehicular volumes
- Except for crossing at location 1 (Western Ave (South)), all other locations have an acceptable available sight distance for vehicle speeds ≤ 25 mph (speed limit on all approaches except Connecticut Ave)
- AASHTO stopping sight for 30 mph (200') is satisfied at all crossings except location 1 (Western Ave (South))

17

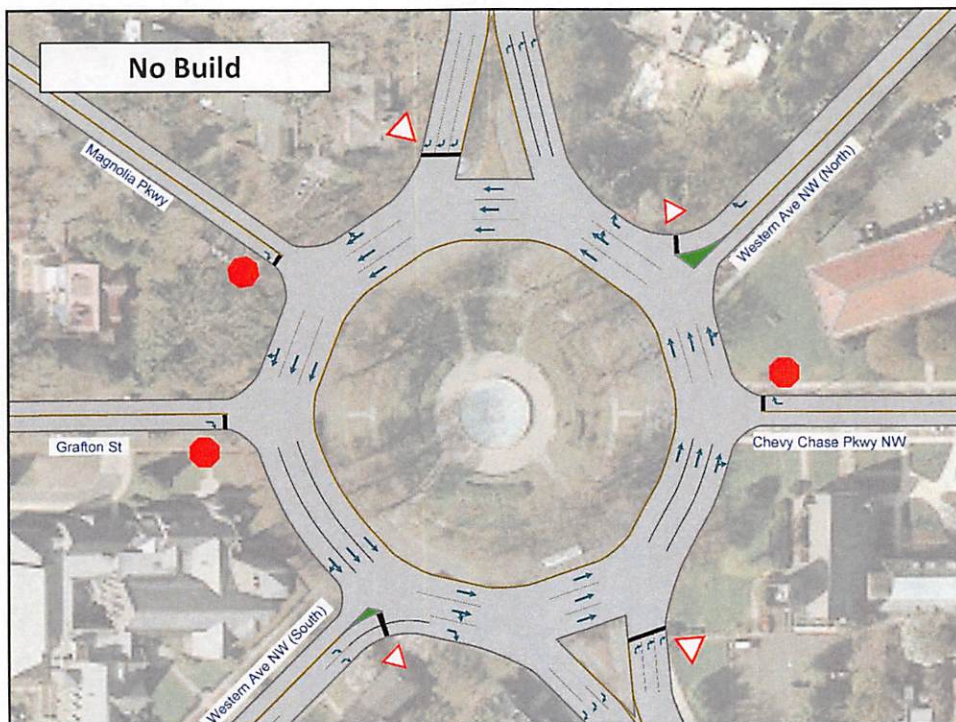
PEAK HOUR TURNING MOVEMENT COUNTS

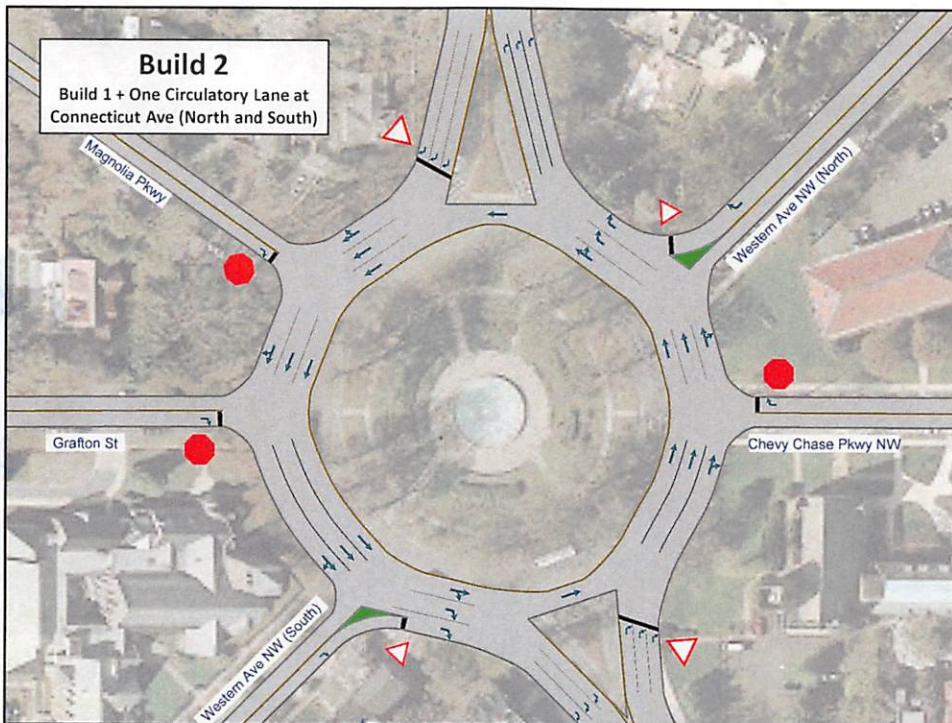
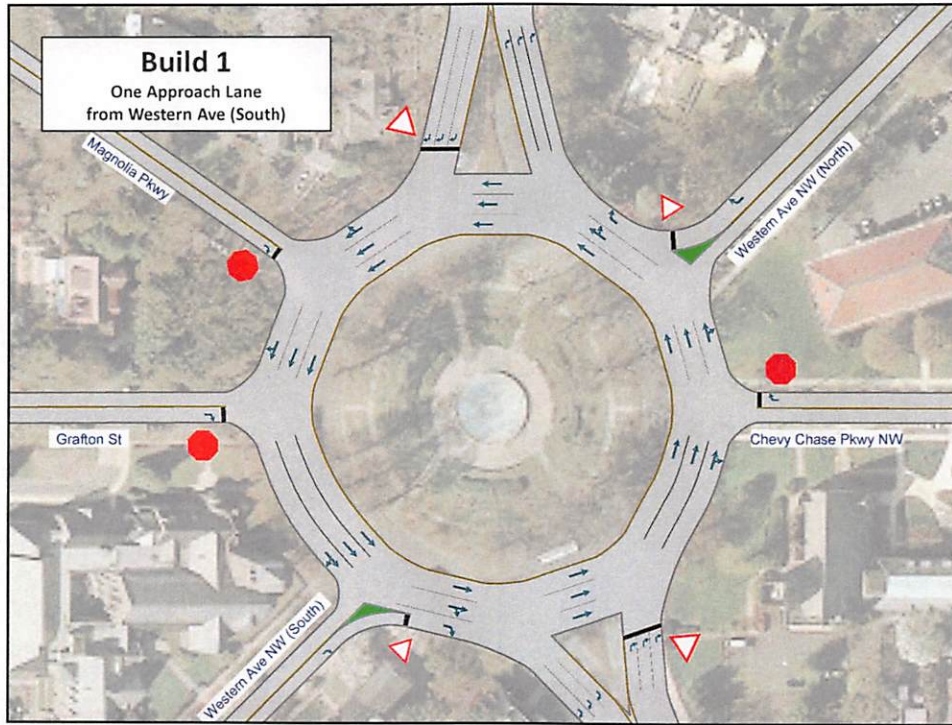
18



LANE REDUCTION ALTERNATIVES

21





*Signalization
not
considered
in this
modeling*

SYNCHRO MEASURES OF EFFECTIVENESS

25

Measures of Effectiveness AM Peak

Node	Mov	Delay (sec)			Level of Service (LOS)			V/C Ratio			95 th % Queue Length (ft)		
		No Build	Build 1	Build 2	No Build	Build 1	Build 2	No Build	Build 1	Build 2	No Build	Build 1	Build 2
Western Avenue (S)	NBR	233.9	807.9	807.9	F	F	F	1.34	2.67	2.67	348	1042	1042
Connecticut Avenue (S)	NBR	11.8	11.8	20.1	B	B	C	0.37	0.37	0.57	43	43	88
Chevy Chase Parkway	WBR	29.1	29.1	29.1	D	D	D	0.68	0.68	0.68	12	124	124
Western Avenue (N)	SBR	656.0	656.0	656.0	F	F	F	2.39	2.39	2.39	1924	1924	1924
Connecticut Avenue (N)	SBR	45.4	45.4	466.2	E	E	F	0.94	0.94	1.95	330	330	1128
Magnolia Street	EBR	24.1	24.1	24.1	C	C	C	0.15	0.15	0.15	12	12	12
Grafton Street	EBR	26.8	26.8	26.8	D	D	D	0.27	0.27	0.27	26	26	26

26

traffic light not considered

Measures of Effectiveness

PM Peak

Node	Mov	Delay (sec)			Level of Service (LOS)			V/C Ratio			95 th % Queue Length (ft)		
		No Build	Build 1	Build 2	No Build	Build 1	Build 2	No Build	Build 1	Build 2	No Build	Build 1	Build 2
Western Avenue (S)	NBR	183.7	751.0	751.0	F	F	F	1.30	2.60	2.60	553	1971	1971
Connecticut Avenue (S)	NBR	48.4	48.4	683.3	E	E	F	0.94	0.94	2.42	311	311	1167
Chevy Chase Parkway	WBR	28.4	28.4	28.4	D	D	D	0.36	0.36	0.36	38	38	38
Western Avenue (N)	SBR	372.4	372.4	372.4	F	F	F	1.69	1.69	1.69	564	564	564
Connecticut Avenue (N)	SBR	12.6	12.6	19.4	B	B	C	0.47	0.47	0.63	63	63	111
Magnolia Street	EBR	13.6	13.6	13.6	B	B	B	0.07	0.07	0.07	6	6	6
Grafton Street	EBR	19.4	19.4	19.4	C	C	C	0.46	0.46	0.46	59	59	111

27

CONCLUSIONS AND RECOMMENDATIONS

28

Lane Reduction Conclusions

- For both AM and PM peaks, Western Avenue (South) approach operates at LOS F during no build 2-lane approach, and it will experience more delay and queues with reducing to 1-lane approach
- Similarly at Connecticut Ave approaches, reducing the number of circulatory lanes from three to one deteriorates the approach performance:
 - From LOS B to C in AM and from E to F in PM on the south side
 - From LOS E to F in AM and from B to C in PM on the north side

29



District Department of Transportation

30