

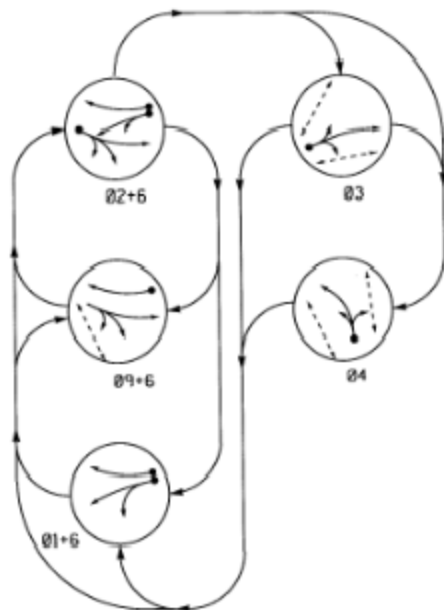
# Main St Signal Timing



College Town. Lake Town. *Your Town.*

Main St Signal Timing  
Doug Wright, Public Works Dept  
April 12, 2016

# PHASING DIAGRAM



## PHASING DIAGRAM DETECTION LEGEND

- ◀●▶ DETECTED MOVEMENT
- ◀◊▶ UNDETECTED MOVEMENT (OVERLAP)
- ◀---▶ UNSIGNALIZED MOVEMENT
- ◀---▶ PEDESTRIAN MOVEMENT

## STANDARD SIGNAL FACE CLEARANCES FOR FLASHING LEFT TURN SIGNAL

		TO					
		←	→	←	→	←	→
1	2	1	2	1	2	1	2
3	4	1	2	1	2	1	2
5	6	1	2	1	2	1	2
7	8	1	2	1	2	1	2

◊ = Flashing Yellow Arrow

## TABLE OF OPERATION

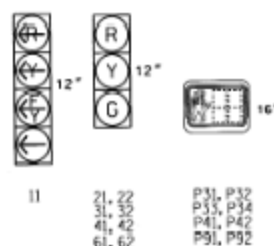
SIGNAL FACE	PHASE					FLASH
	01+6	02+6	03	04	08	
11	→	→	→	→	→	Y
21,22	R	G	G	R	R	Y
31,32	R	R	R	G	R	R
41,42	R	R	R	R	G	R
61,62	G	G	G	R	R	Y
P31,P32	DW	DW	DW	W	DW	DRK
P33,P34	DW	DW	DW	W	DW	DRK
P41,P42	DW	DW	DW	W	DW	DRK
P91,P92	DW	W	DW	DW	W	DRK

W - Walk  
DW - Don't Walk  
DRK - Dark

◊ = Flashing Yellow Arrow

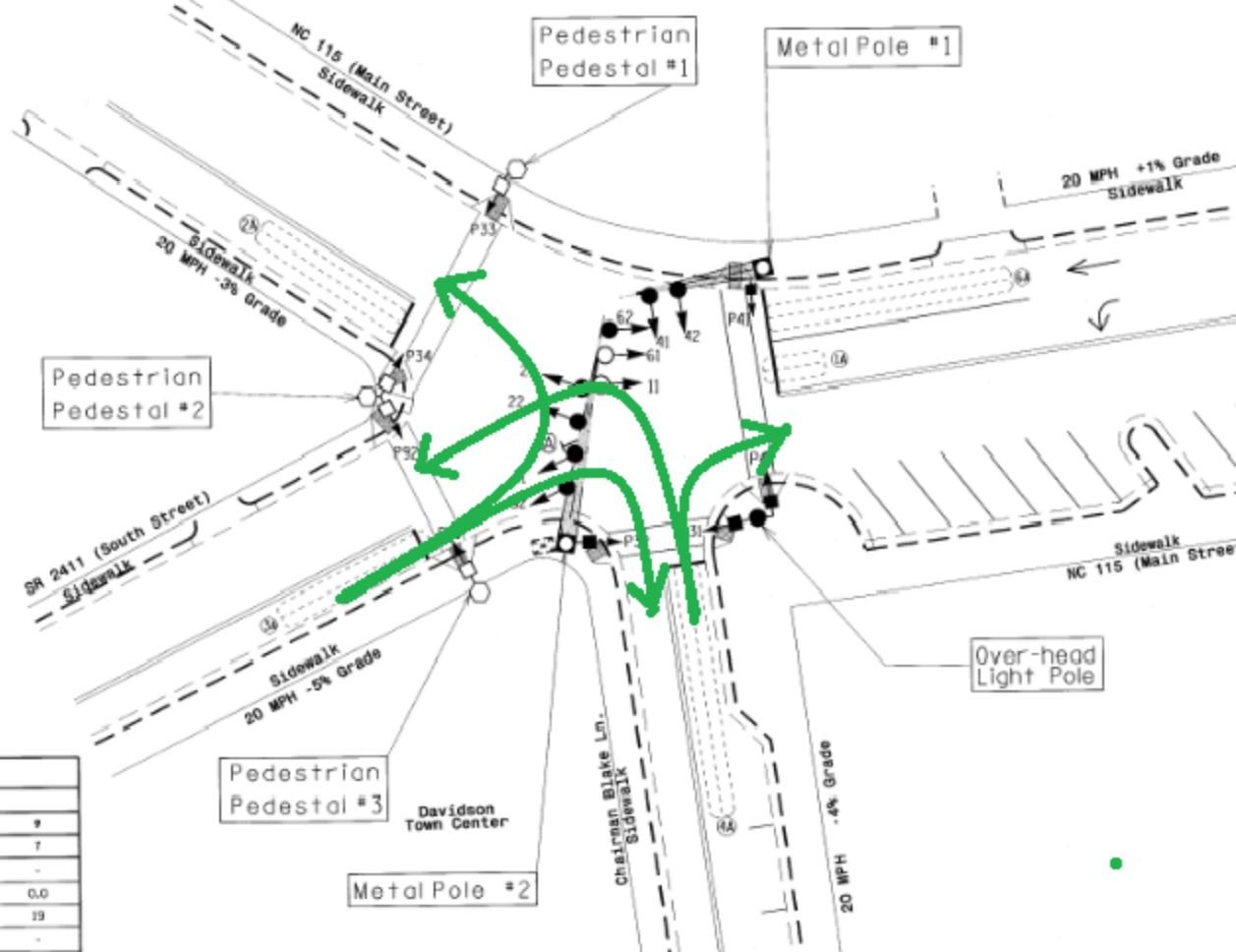
## SIGNAL FACE I.D.

All Heads L.E.D.



## OASIS 2070L LOOP & DETECTOR INSTALLATION

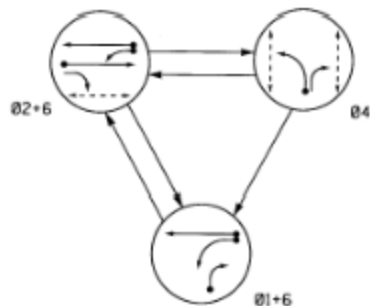
LOOP	SIZE (FT)	INDUCTIVE LOOPS			DETECTOR PROGRAM				
		DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	PULL TIME DELAY	STRETCH TIME
1A	6X15	+5	2-4-2	-	1	Y	Y	-	-
2A	6X40	0	2-4-2	-	2	Y	Y	-	-
3A	6X40	+5	2-4-2	-	3	Y	Y	-	-
4A	6X60	0	2-4-2	-	4	Y	Y	-	-
6A	6X60	0	2-4-2	-	6	Y	Y	-	-



## OASIS 2070L TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	9
Min Green 1 *	8	10	7	7	10	7
Min Green 2 *	-	7 *	-	-	-	-
Extension 1 *	4.0	2.0	1.0	1.0	2.0	0.0
Max Green 1 *	20	30	20	20	30	19
Max Green 2 *	-	11 *	-	-	-	-

# PHASING DIAGRAM



## PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

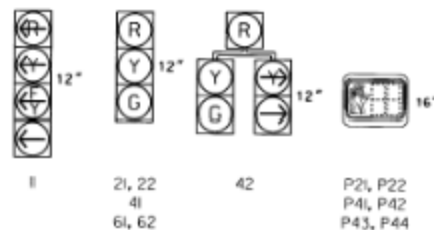
SIGNAL FACE	PHASE			
	01+6	02+6	03	04
11				
21, 22	R	G	R	Y
41	R	R	G	R
42		R	G	R
61, 62	G	G	R	Y
P21, P22	DW	W	DW	DRK
P41, P42	DW	DW	W	DRK
P43, P44	DW	DW	W	DRK

F = Flashing Yellow Arrow

W - Walk  
DW - Don't Walk  
DRK - Dark

## SIGNAL FACE I.D.

All Heads L.E.D.



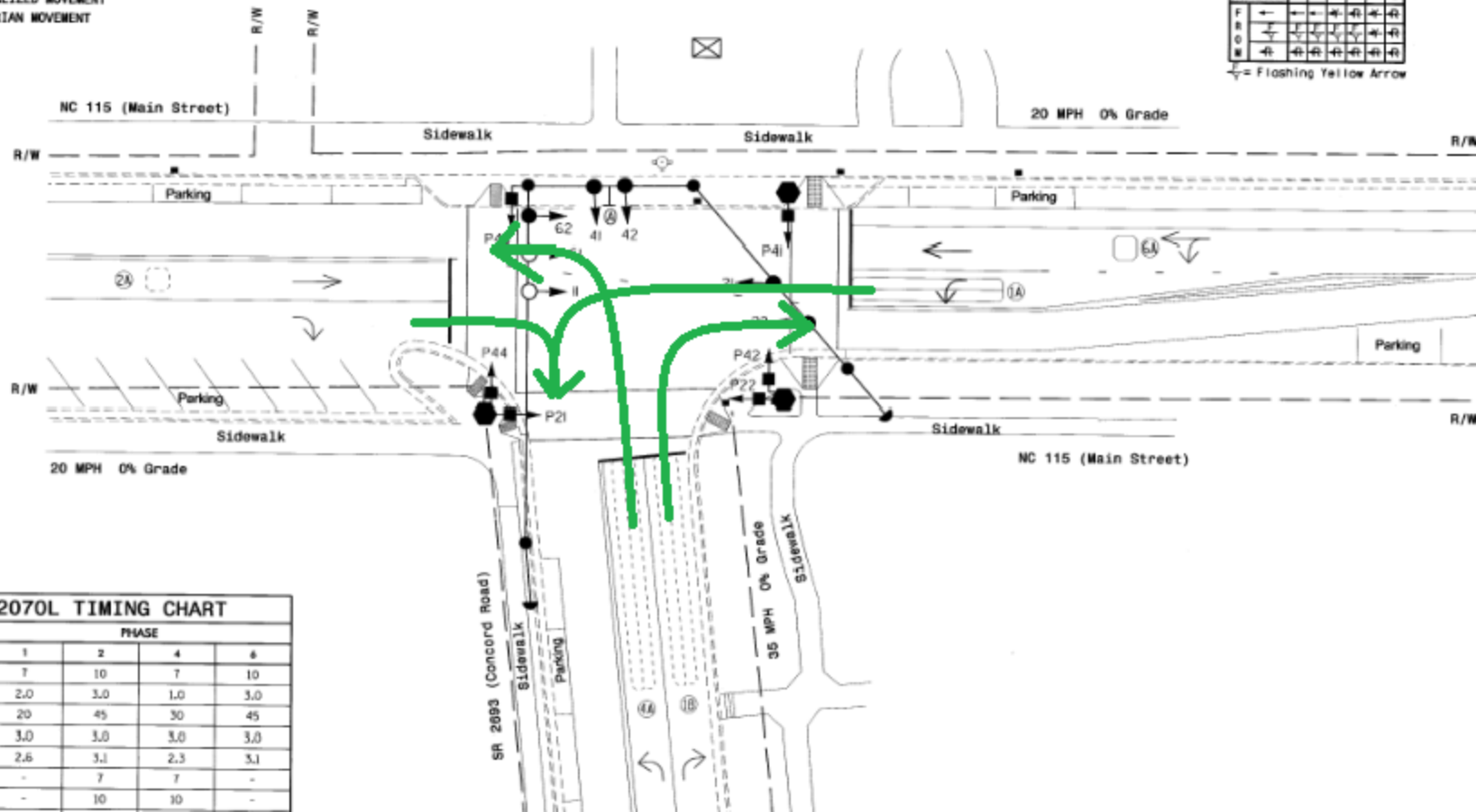
## OASIS 2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNING	NEW LOOP	DETECTOR PROGRAMMING				
					PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME
1A	6X40	0	2-4-2	Y	1	Y	Y	-	15
1B	6X60	0	2-4-2	-	1	Y	Y	-	15
2A	6X60	70	EXIST	-	2	Y	Y	-	-
4A	6X60	0	2-4-2	-	4	Y	Y	-	3
6A	6X6	70	3	Y	6	Y	Y	-	-

## STANDARD SIGNAL FACE CLEARANCES FOR FLASHING LEFT TURN SIGNAL

	TO			
	1	2	1	2
F	←	←	←	←
R	←	←	←	←
O	←	←	←	←
W	←	←	←	←

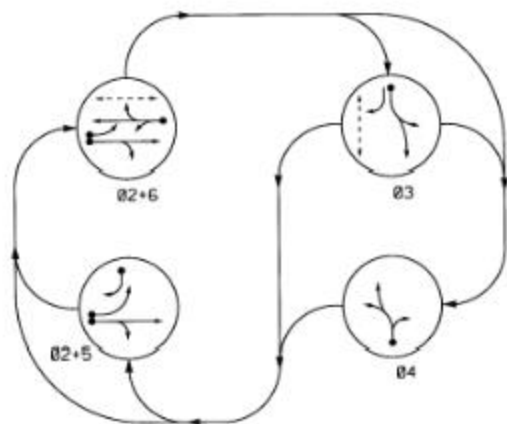
F = Flashing Yellow Arrow



## OASIS 2070L TIMING CHART

FEATURE	PHASE			
	1	2	4	6
Min Green 1"	7	10	7	10
Extension 1"	2.0	3.0	1.0	3.0
Max Green 1"	20	45	30	45
Yellow Clearance	3.0	3.0	3.0	3.0
Red Clearance	2.6	3.1	2.3	3.1
Walk 1"	-	7	7	-
Don't Walk 1"	-	10	10	-

# PHASING DIAGRAM



## PHASING DIAGRAM DETECTION LEGEND

- ● → DETECTED MOVEMENT
- → → UNDETECTED MOVEMENT (OVERLAP)
- → → UNSIGNALIZED MOVEMENT
- → → PEDESTRIAN MOVEMENT

## TABLE OF OPERATION

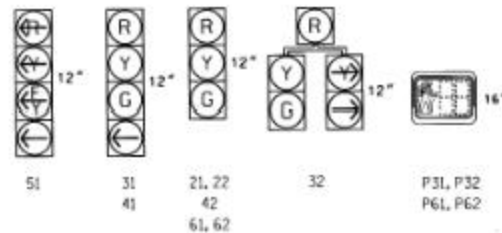
SIGNAL FACE	PHASE				
	Ø 2+5	Ø 2+6	Ø 3	Ø 4	FLU
21, 22	G	G	R	R	Y
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
51	←	←	←	←	←
61, 62	R	G	R	R	Y
P31, P32	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	DW	DRK

← = Flashing Yellow Arrow

W - Walk  
DW - Don't Walk  
DRK - Dark

## SIGNAL FACE I.D.

All Heads L.E.D.



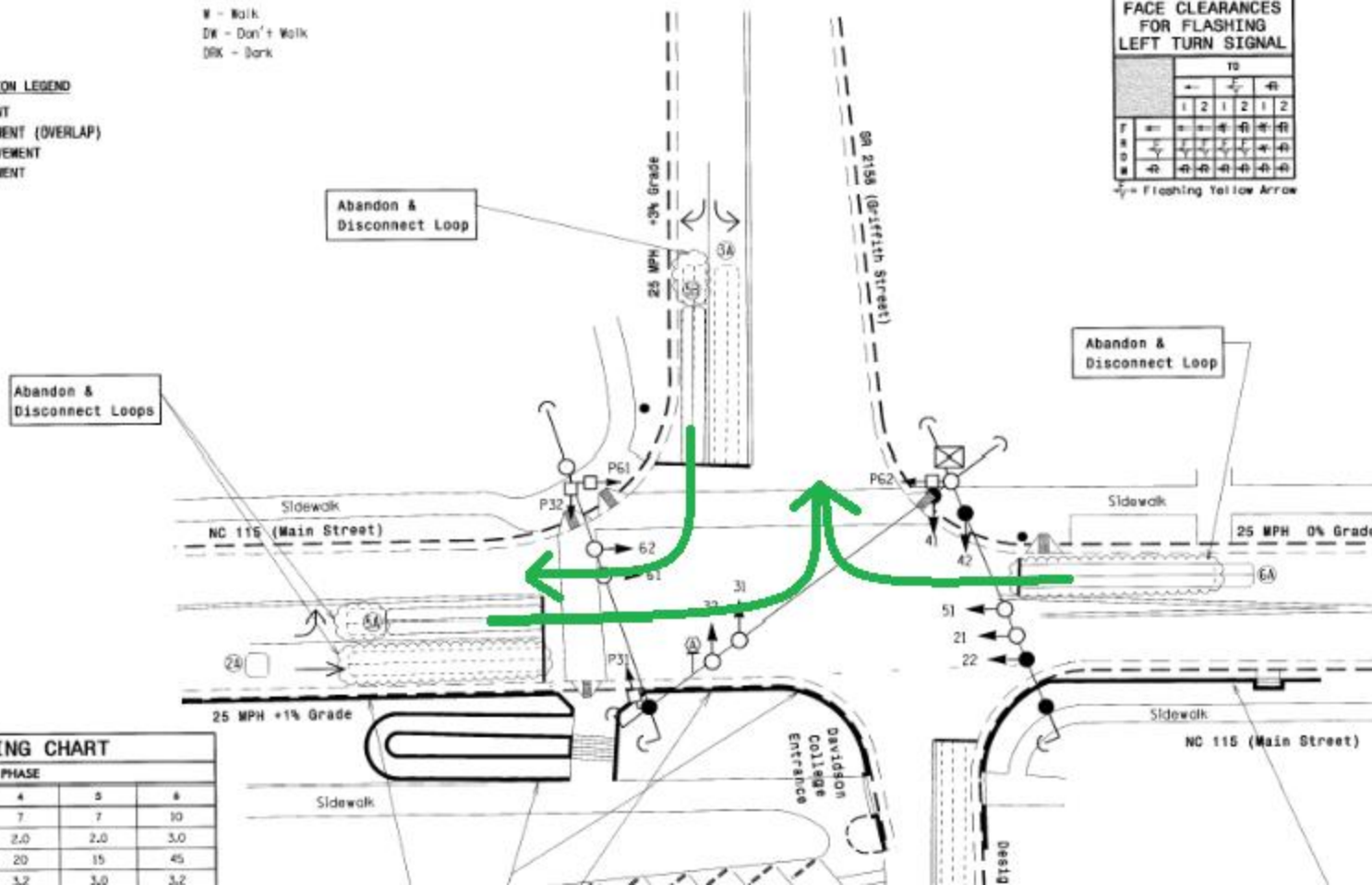
## OASIS 2070L LOOP & DETECTOR INSTALLATION

INDUCTIVE LOOPS				DETECTOR PROGRAM			
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	PHASE	CALLING	STRETCH TIME	DE T
2A	6X6	70	3	Y	2	Y	-
3A	6X40	0	2-4-2	-	3	Y	-
4A	6X40	0	2-4-2	-	4	Y	-
5A	6X40	0	2-4-2	Y	5	Y	-
5B	6X40	0	2-4-2	Y	5	Y	-
6A	6X60	0	2-4-2	Y	6	Y	-

## STANDARD SIGNAL FACE CLEARANCES FOR FLASHING LEFT TURN SIGNAL

	TO			
	1	2	1	2
T	←	←	←	←
R	←	←	←	←
W	←	←	←	←
D	←	←	←	←

← = Flashing Yellow Arrow



## OASIS 2070L TIMING CHART

FEATURE	PHASE				
	2	3	4	5	6
Min Green 1"	10	7	7	7	10
Extension 1"	3.0	2.0	2.0	2.0	3.0
Max Green 1"	45	20	20	15	45
Yellow Clearance	3.2	3.1	3.2	3.0	3.2

- **Concurrent Phasing**

Pedestrian signal phase activates simultaneously with the parallel vehicle phase, permitting motorists to turn left or right across pedestrians' paths after yielding to pedestrians.

- **Leading Pedestrian Interval (LPI)**

An LPI gives pedestrians an advance walk signal before motorists get a green signal, giving the pedestrian several seconds to start walking in the crosswalk before a concurrent signal is provided to vehicles. This makes pedestrians more visible to motorists and motorists more likely to yield to them. Typical LPI settings provide 3 to 6 seconds of advance walk time. LPI has been used successfully in several places, such as New York City, for two decades and studies have demonstrated LPI reduces conflicts and crashes for pedestrians. To be useful to pedestrians with vision restrictions, an LPI needs to be accompanied by an audible signal to indicate the WALK interval. There are some situations where an exclusive pedestrian phase may be preferable to an LPI, such as when high-volume turning movements conflict with pedestrians crossing.

- **Exclusive Pedestrian Phasing**

When vehicles are stopped on all approaches to an intersection, pedestrians are given a WALK indication. The phasing is referred to as “exclusive” or as a “pedestrian scramble.” Intersections with pedestrian scramble phases often feature pedestrian crossing markings indicating pedestrians may walk diagonally across the intersection. Exclusive pedestrian timing has been shown to reduce pedestrian crashes by 50 percent in some downtown locations with heavy pedestrian volumes and low vehicle speeds and volumes.

- Pedestrians usually receive more frequent crossing opportunities and experience less delay with concurrent signal phasing than with exclusive signal phasing, which must service vehicle traffic and pedestrian volumes separately. When pedestrians are required to wait a long time for a pedestrian interval, many will simply choose to ignore the signal and cross during a gap in traffic, negating the potential safety benefits of the exclusive signal. Exclusive pedestrian phases, without accessible pedestrian signal technology, introduce a problem for pedestrians with visual restrictions, as the audible cues associated with parallel traffic streams will lead pedestrians to cross at inappropriate times -<http://www.pedbikesafe.org>