

MEMORANDUM

Date: 12/21/2011
Project: Madison College Wright Street
SAA#: 2430.06

To: Dave Dryer P.E. City Traffic Engineer
From: John Lichtenheld P.E. AICP

Re: Wright Street Crosswalk Analysis

We have conducted a pedestrian crosswalk analysis based on data that was collected on Wednesday, December 14 in the morning, noon, and evening peak hours. **Figure 1** shows a breakdown of the pedestrian crossings in fifteen minute increments during these peak hours with a total of 1172 pedestrian crossings over the duration of the three peak hours. The maximum number of pedestrian crossings was 468 recorded during the noon peak hour.

Table 1 shows a breakdown of the number of pedestrian crossing, vehicle queues, directional split, and maximum queue length during the peak time periods considering a single lane condition. **Figure 2** shows the single lane queue lengths graphically. The predominant queues were in the northbound direction in the morning, southbound in the evening, and evenly split during the noon hour. The total number of cars required to stop during each of the three peak hour periods peaked at 155 during the morning peak hour. The Appendix shows the queue lengths in each of the peak hour 15 minute intervals. Note that the maximum queue of 6 vehicles occurred twice in the three peak hour periods and on half a dozen occasions, there were queues of 5 vehicles.

Figure 3 shows the queuing capacity of the existing and future crosswalk locations. The northbound direction is the distance of major concern due to its proximity to Anderson Street. There is over 400 feet of stacking distance between the Wright Street midblock crosswalk and the Anderson Street crosswalk to the south. Assuming a 20 foot queue space for each vehicle, the existing and future crosswalk conditions would allow for a queuing capacity of 30 vehicles under a two lane condition and 20 vehicles with a single lane.

Under future conditions, we are projecting a 20% increase in student enrollment and a 10% increase in background traffic. This would result in a 30% increase in overall traffic volume on Wright Street under a worst case scenario. However, we do project that the traffic volume on Wright Street will be reduced in the future due to the restrictions on inbound traffic turning movements into the student parking area from Wright Street (currently outbound traffic at this drive is prohibited). Based on these factors, we estimate that the future maximum queue lengths at the Wright Street crosswalk could vary between 6 and 8 vehicles under a single lane condition.

As a validation of our assumptions, we will conduct similar observations next spring (2012) when we begin a 90 day temporary trial lane closure on Wright Street with a single lane in each direction.

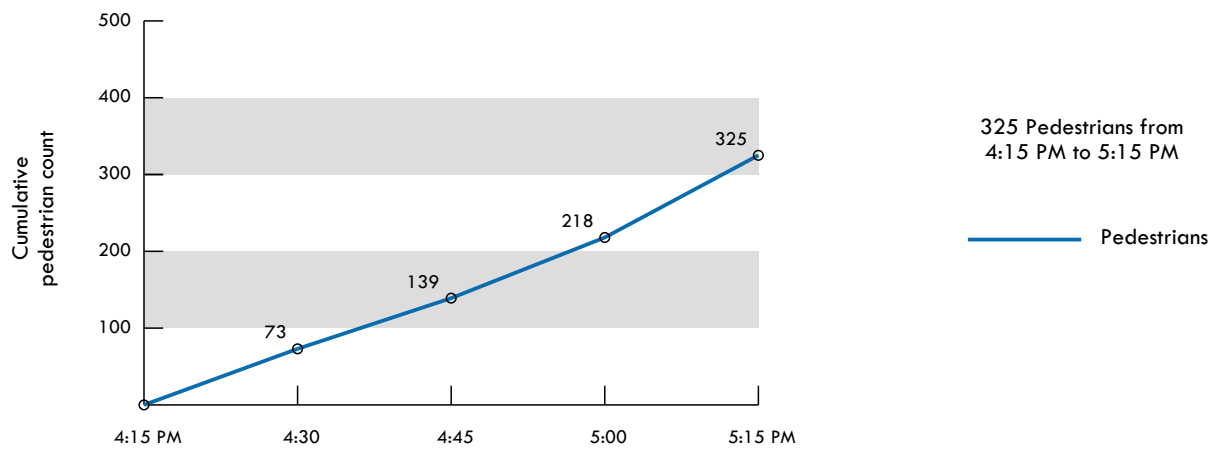
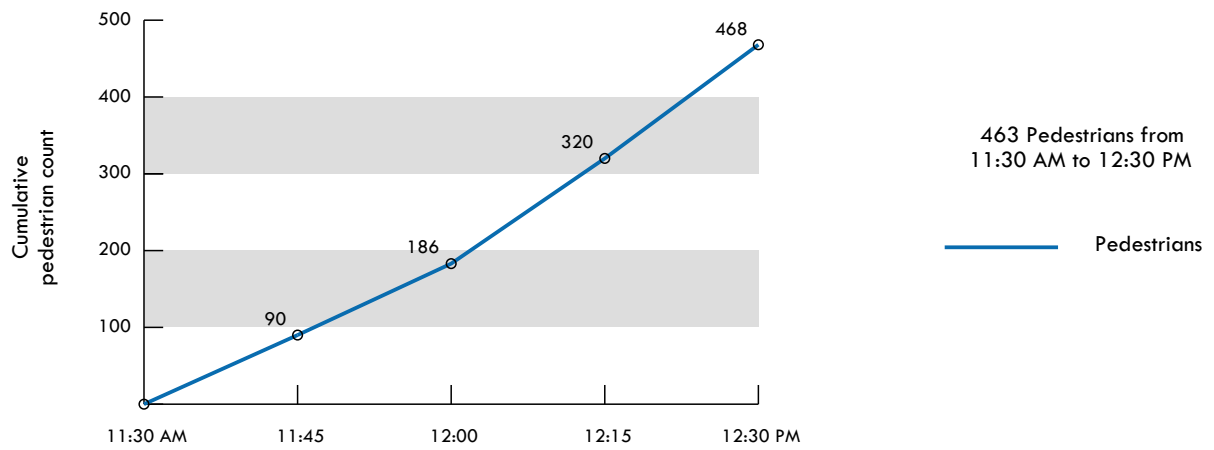
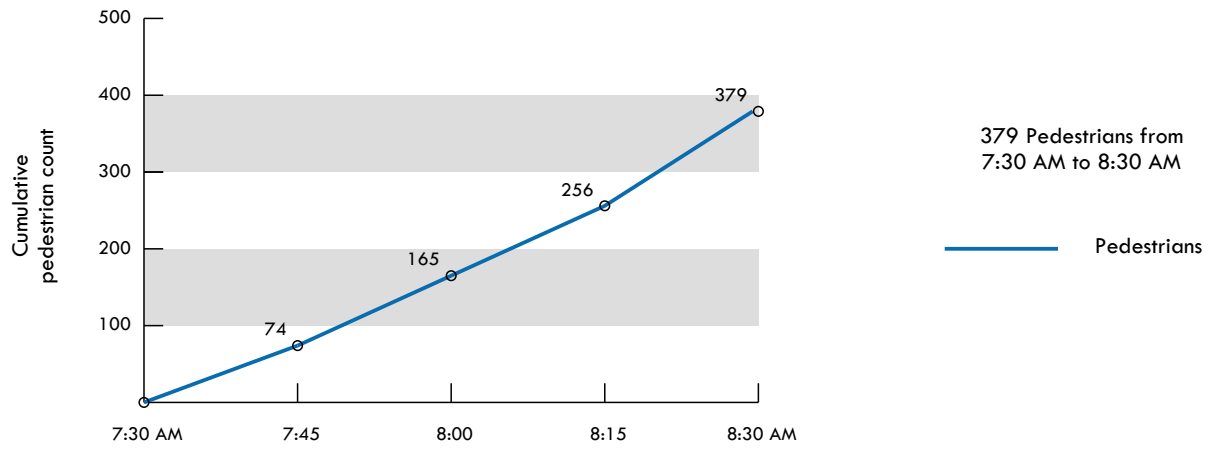


Figure 1
Pedestrian Crossings - Wright Street Crosswalk

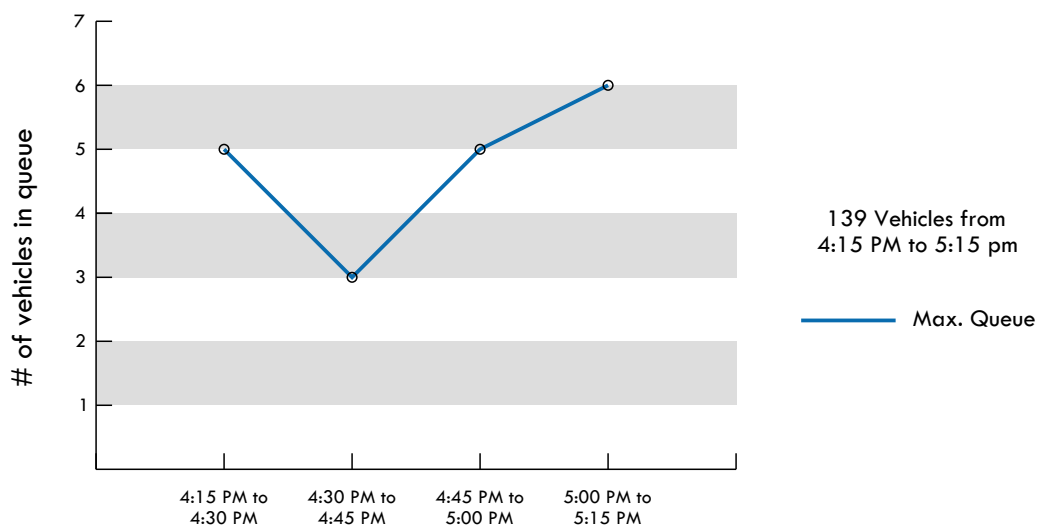
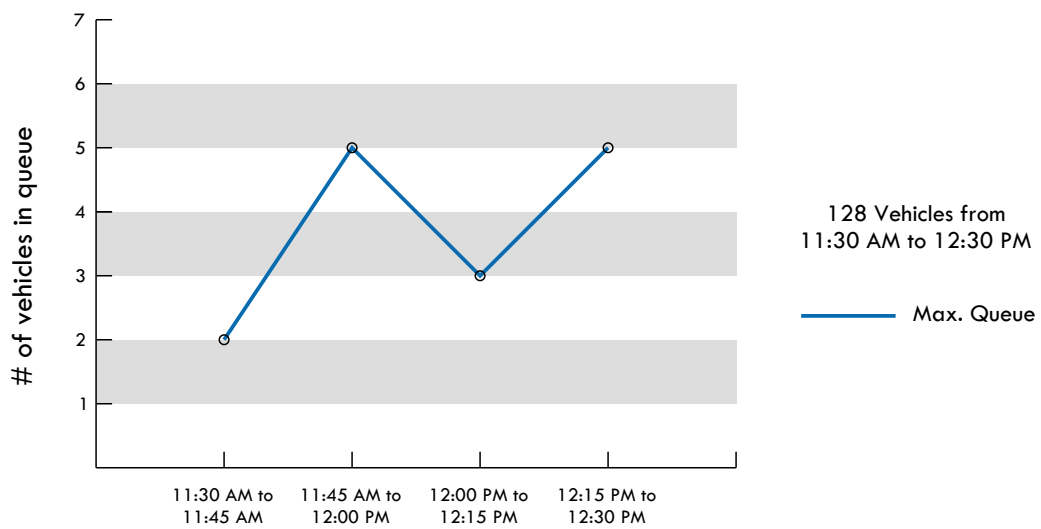
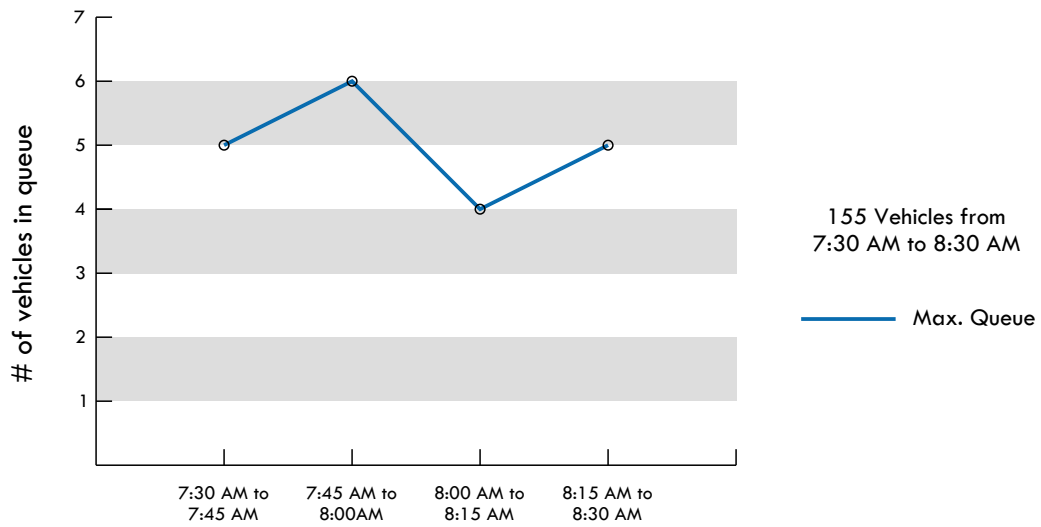
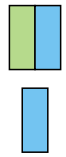


Figure 2
Maximum Vehicle Queue - Wright Street Crosswalk

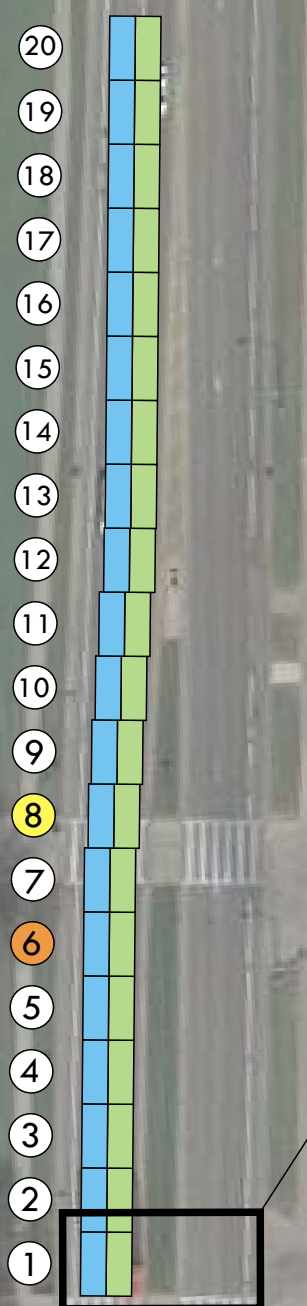
Figure 3 Wright Street Crosswalk Queue

Existing Crosswalk to Anderson Street



Existing Queue (2 Lanes)

Proposed Queue (1 Lane)



Future crosswalk location

Proposed distance
crosswalk to
crosswalk
427'

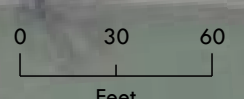
Existing distance
crosswalk to
crosswalk
410'

Max. existing queue
with single lane

Max. projected queue
with single lane

Wright St

Anderson St



**Table 1
Wright Street Crosswalk Counts**

7:30 to 8:30	Pedestrian Crossings	Expected One Lane Max. Queue	Total Vehicles Queued	Total Vehicles Queued by Direction	
				Southbound	Northbound
7:30 to 7:45	74	5	32	3	29
7:45 to 8:00	91	6	36	0	36
8:00 to 8:15	91	4	42	7	35
8:15 to 8:30	123	5	45	8	37
Total	379	6	155	18 11.6%	137 88.4%

11:30 to 12:30	Pedestrian Crossings	Expected One Lane Max. Queue	Total Vehicles Queued	Total Vehicles Queued by Direction	
				Southbound	Northbound
11:30 to 11:45	90	2	23	10	13
11:45 to 12:00	96	5	27	17	10
12:00 to 12:15	134	3	34	20	14
12:15 to 12:30	148	5	44	21	23
Total	468	5	128	68 53.1%	60 46.9%

4:15 to 5:15	Pedestrian Crossings	Expected One Lane Max. Queue	Total Vehicles Queued	Total Vehicles Queued by Direction	
				Southbound	Northbound
4:15 to 4:30	73	5	40	38	2
4:30 to 4:45	66	3	23	18	5
4:45 to 5:00	79	5	30	16	14
5:00 to 5:15	107	6	46	31	15
Total	325	6	139	103 74.1%	36 25.9%

TOTAL	Pedestrian Crossings	Expected One Lane Max. Queue	Total Vehicles Queued	Total Vehicles Queued by Direction	
				Southbound	Northbound
Total	1172	6	422	189 44.8%	233 55.2%

Appendix

Wright Street Crosswalk Counts

Time: 7:30 to 7:45

Page: 1 of 1

Date: 12/15/11

Weather: 43°, Cloudy

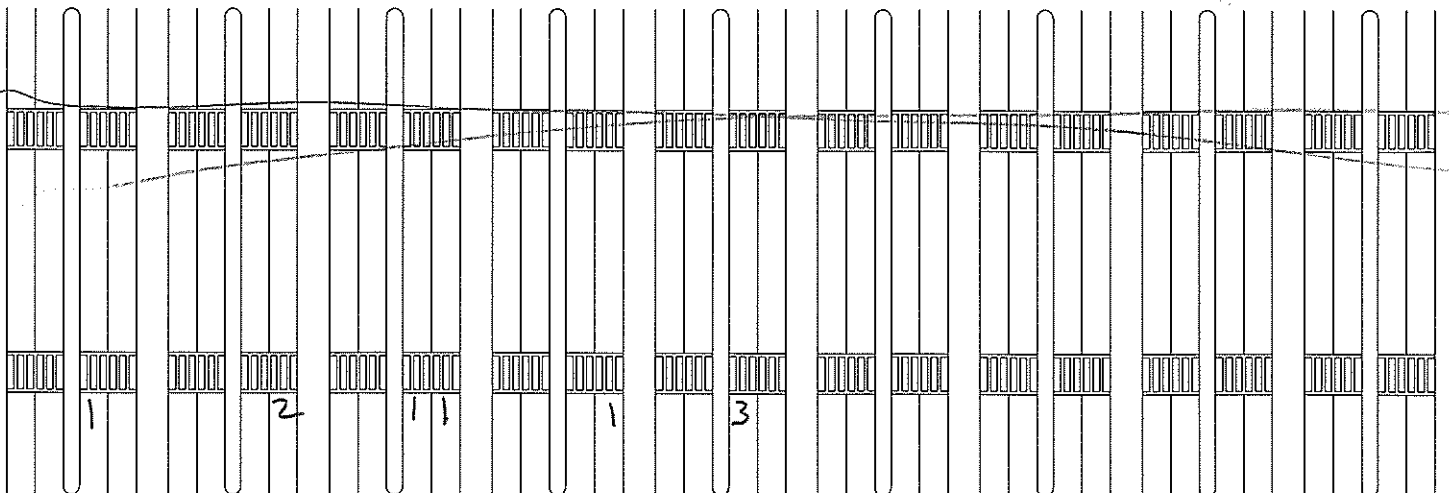
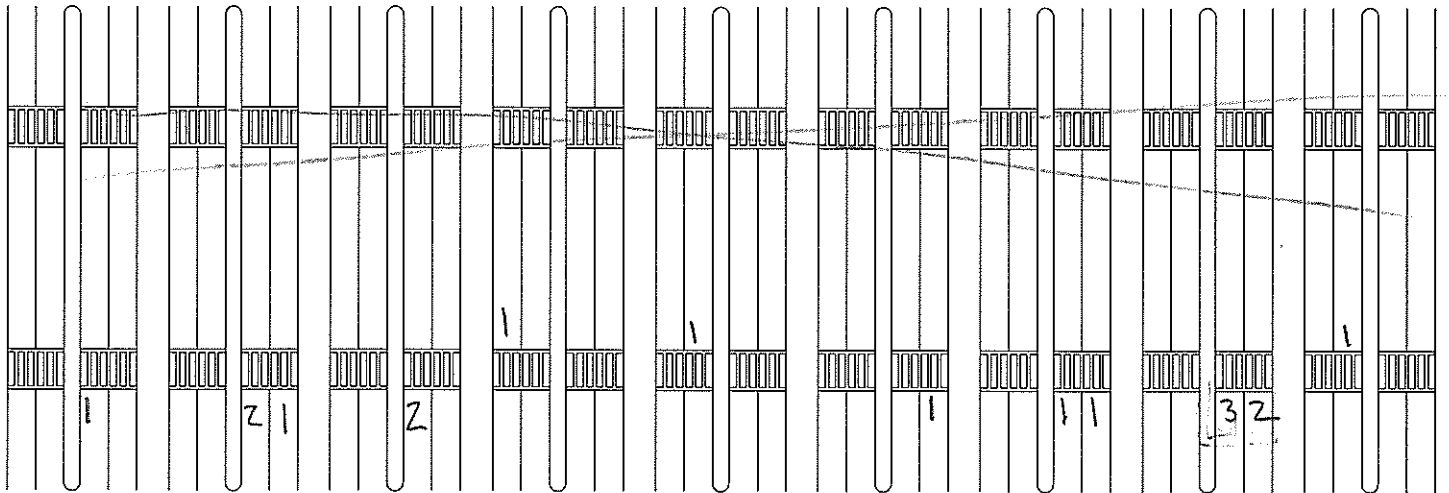
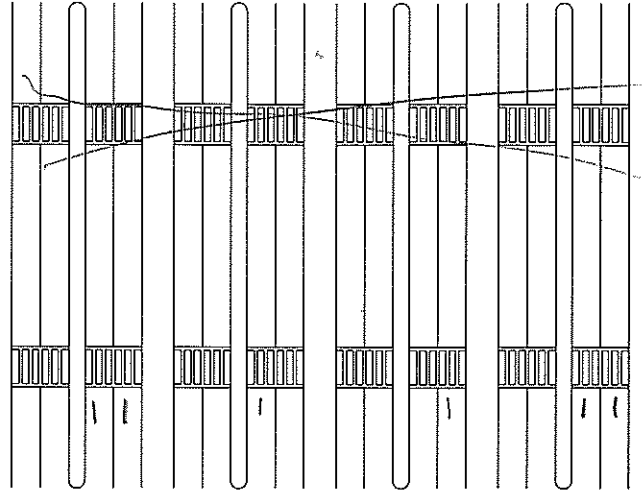
Observer: A.O.

Pedestrians

|||||
|||||

74

Crosswalk Queue



Wright Street Crosswalk Counts

Date: _____

Time: 7:45 to 8:00

Weather: _____

Page: 1 of 1

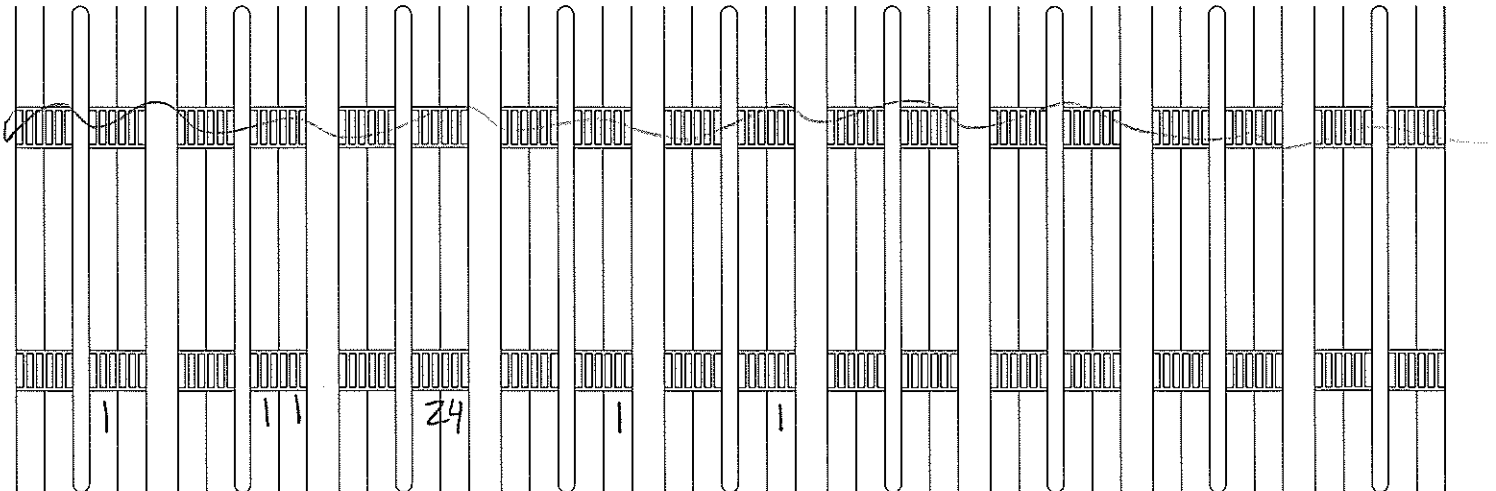
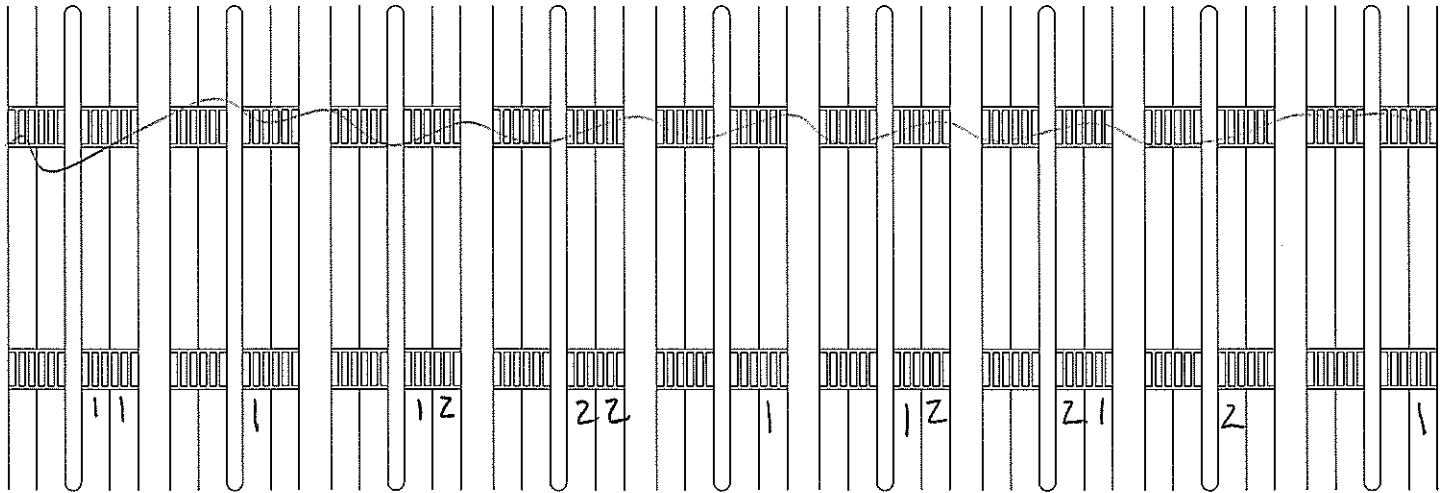
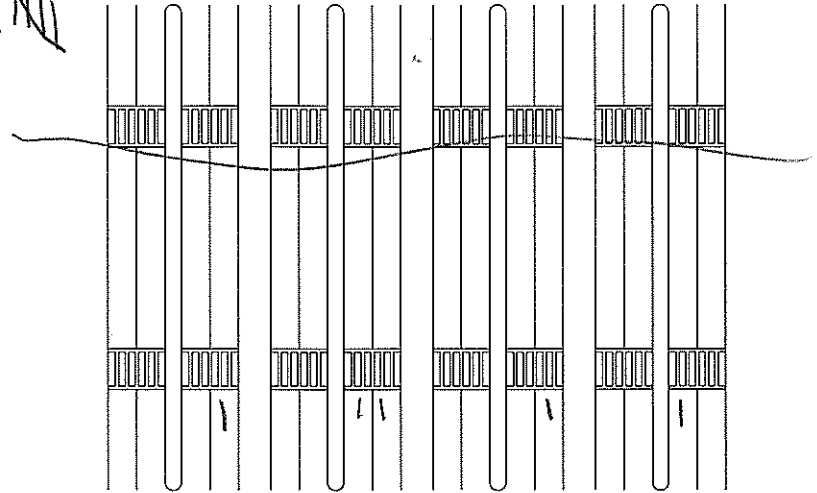
Observer: _____

Pedestrians

Crosswalk Queue

Handwritten tally marks for pedestrian counts, consisting of two rows of vertical lines with diagonal strokes.

91



Wright Street Crosswalk Counts

Time: 8:00 to 8:15

Page: 1 of 1

Date: _____

Weather: _____

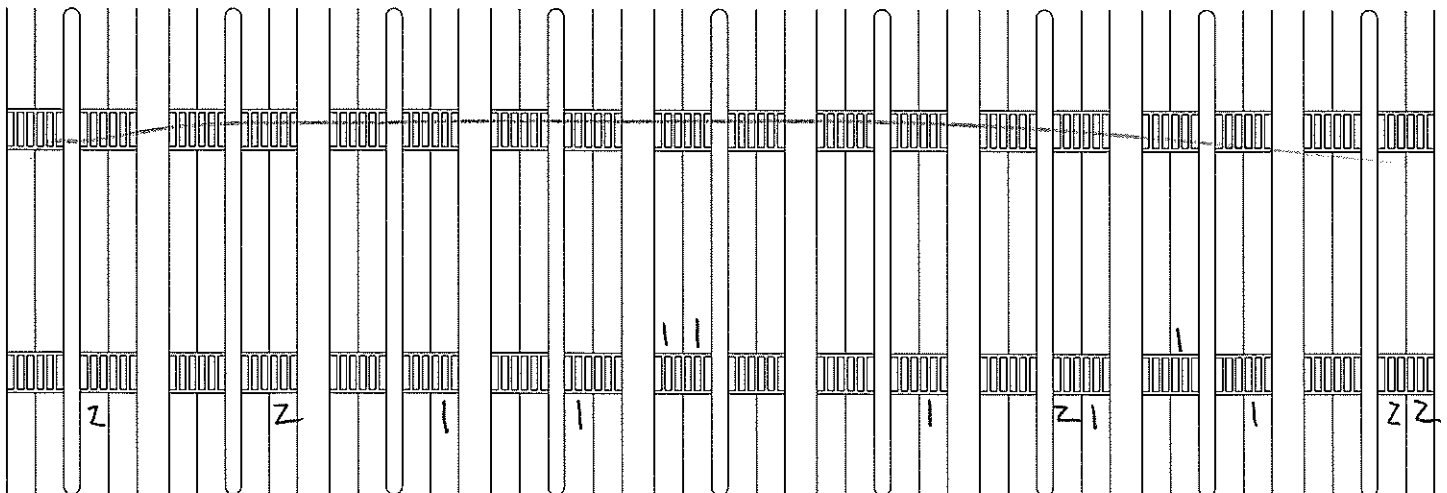
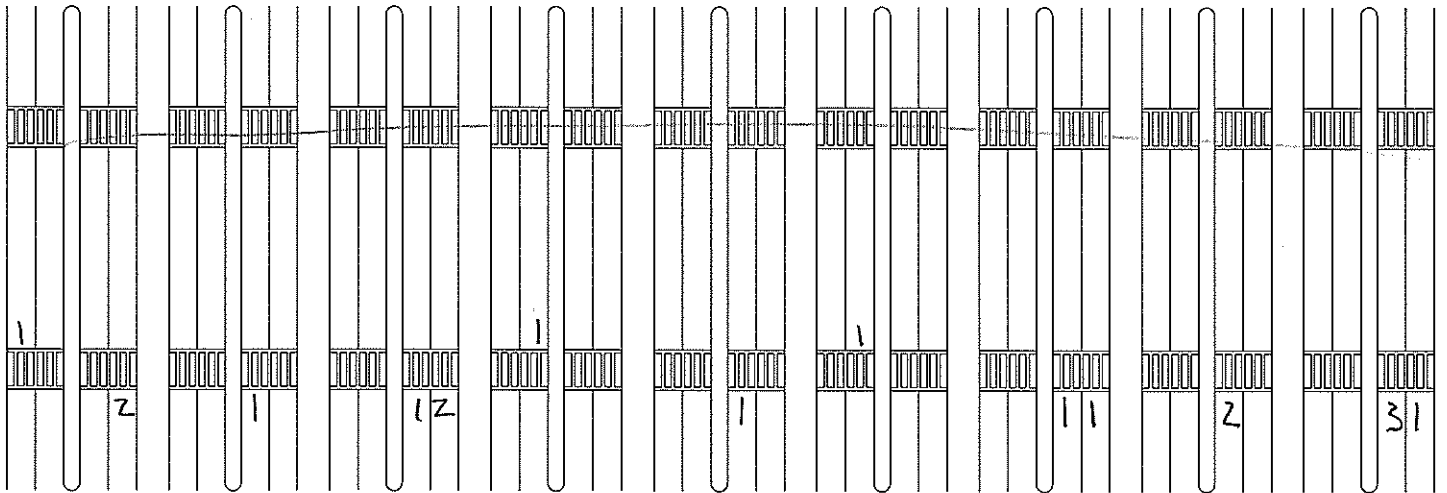
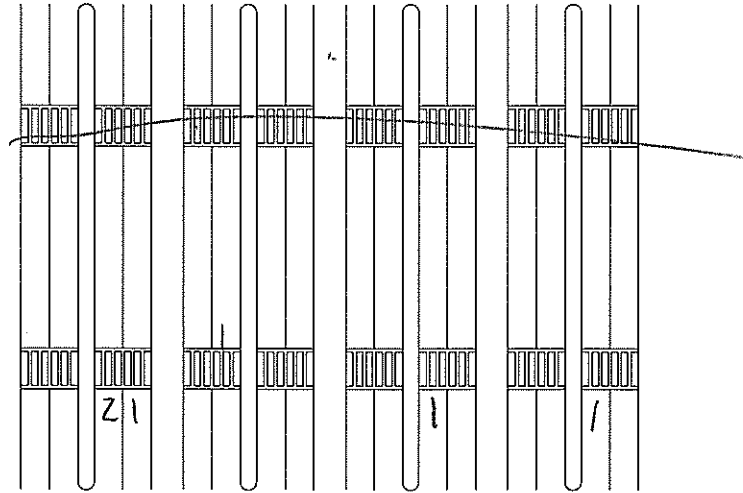
Observer: _____

Pedestrians

||||# ||||# ||||# ||||# ||||# ||||# ||||# ||||# ||||#
||||# ||||# ||||# ||||# ||||# ||||# ||||# ||||# ||||#

91

Crosswalk Queue



Wright Street Crosswalk Counts

Date: _____

Time: 8:15 to 8:30

Weather: _____

Page: 1 of 1

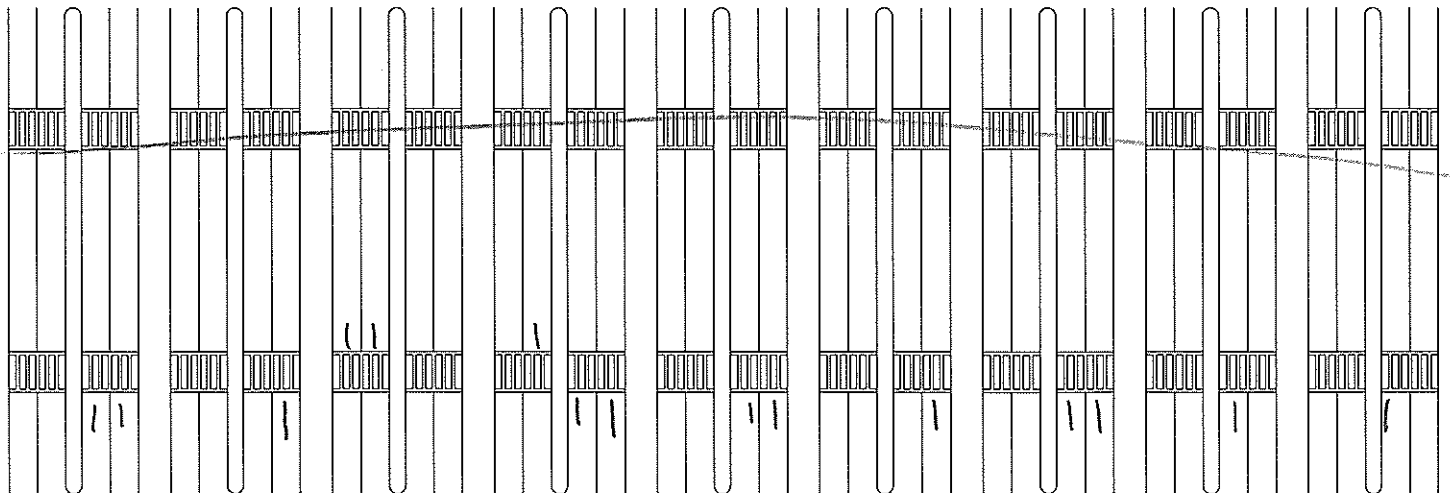
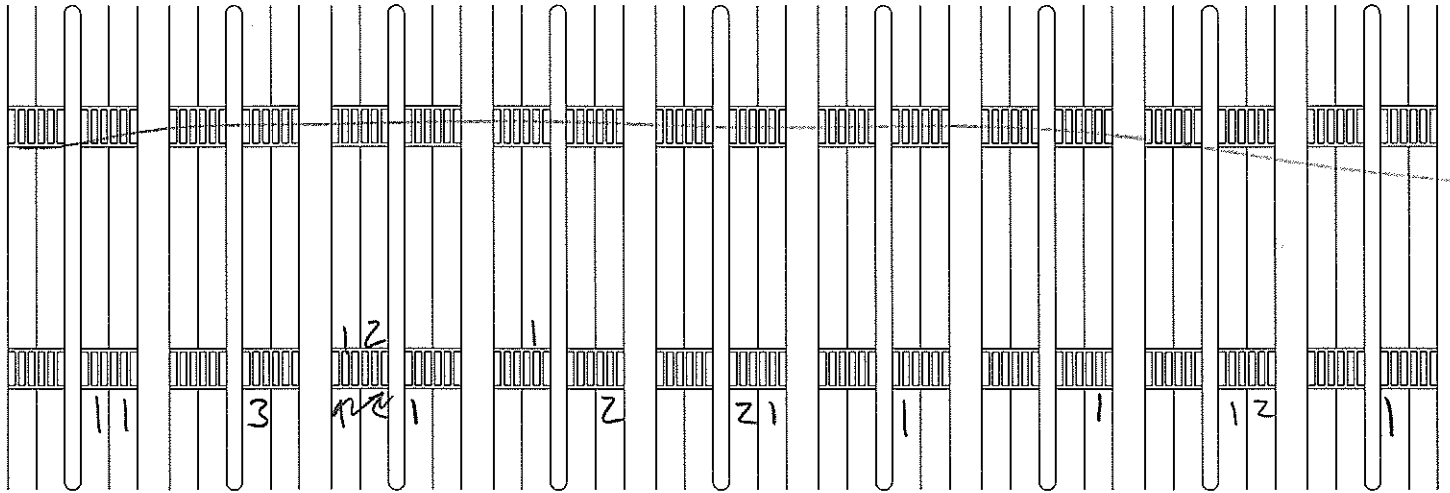
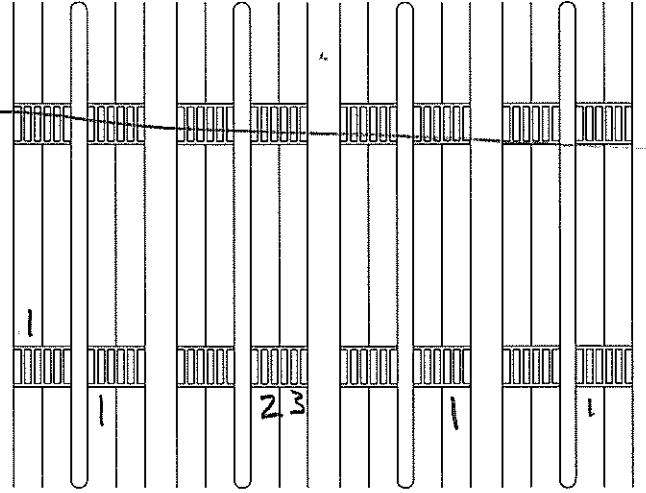
Observer: _____

Pedestrians

Crosswalk Queue

Handwritten tally marks for pedestrians, consisting of three rows of vertical strokes with diagonal slashes.

123



Wright Street Crosswalk Counts

Date: 12/15/11

Time: 11:30 to 11:45

Weather: 33° Cloudy

Page: 1 of

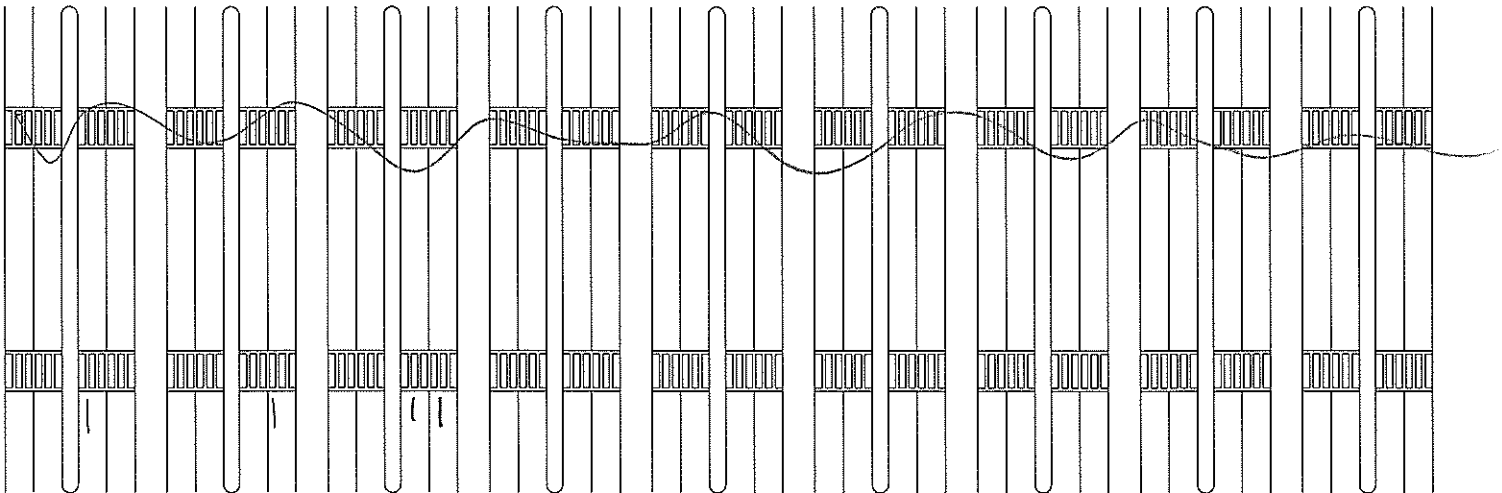
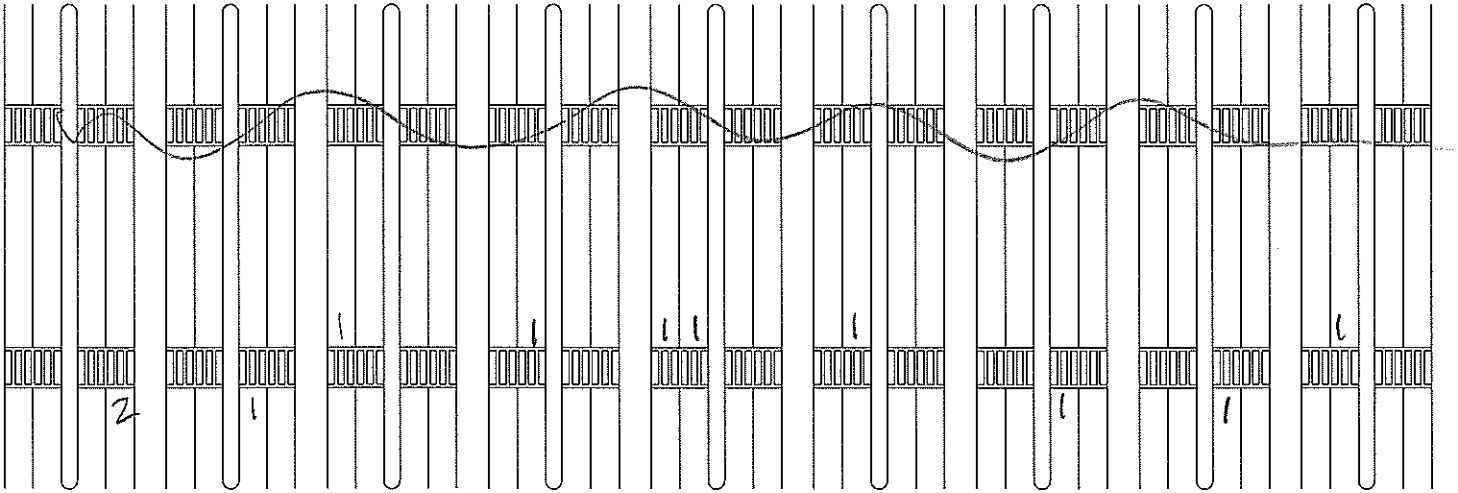
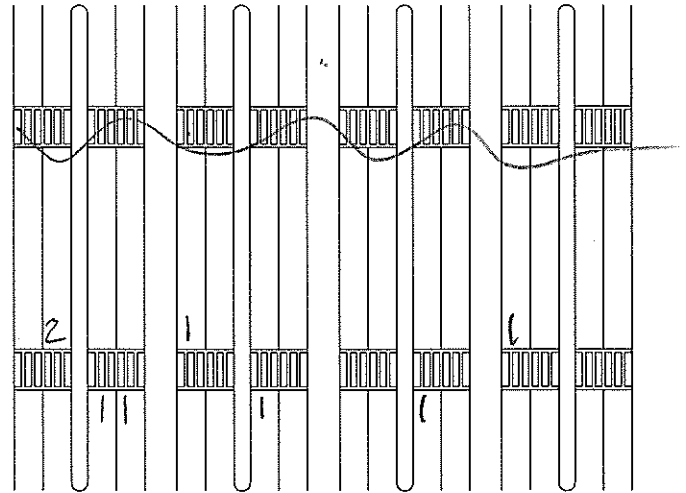
Observer: A.O.

Pedestrians

Crosswalk Queue

Handwritten scribbles representing pedestrian counts, possibly using tally marks.

90



Wright Street Crosswalk Counts

Time: 11:45 to 12:00

Page: _____ of _____

Date: _____

Weather: _____

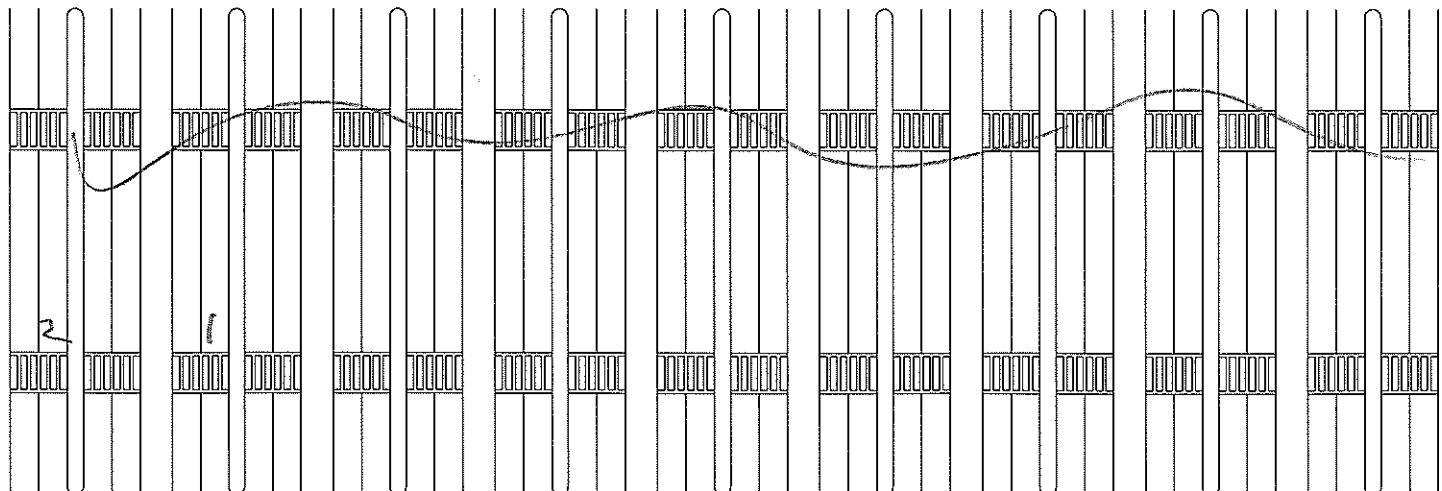
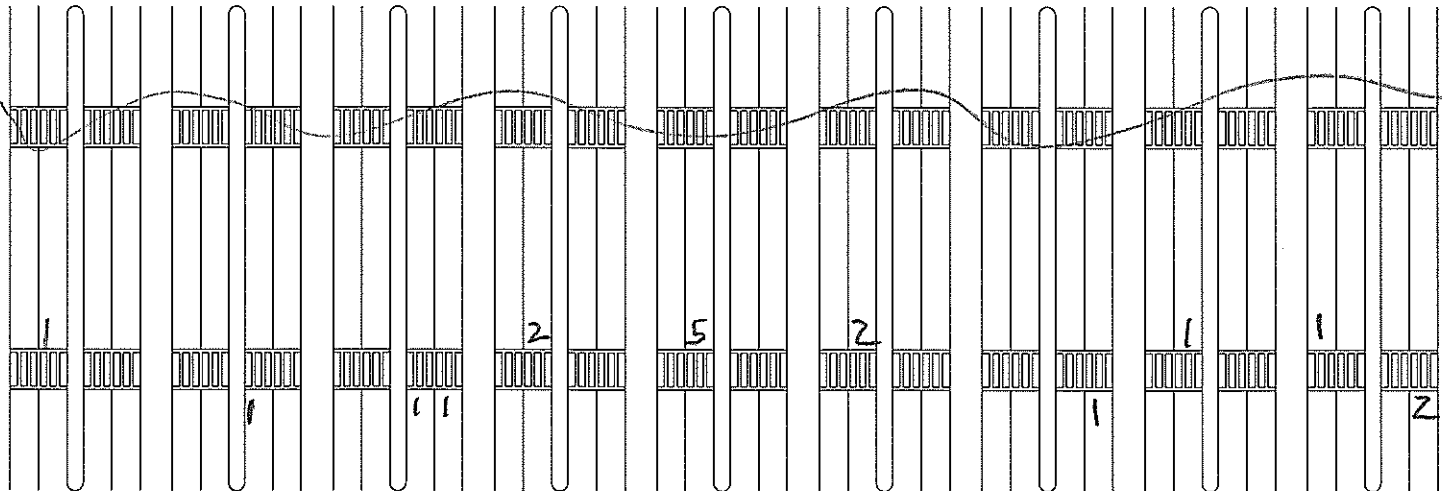
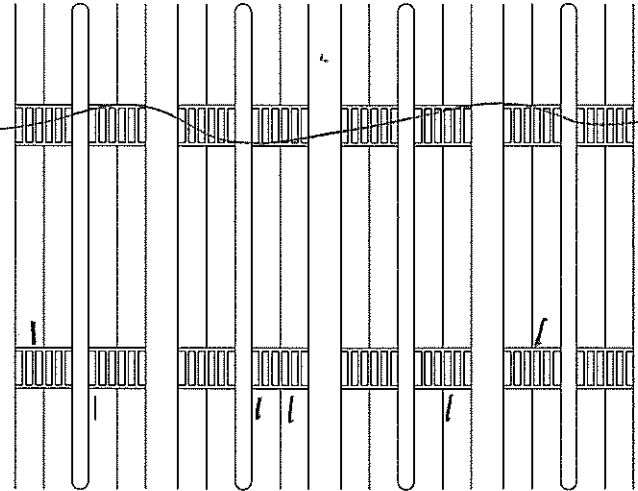
Observer: _____

Pedestrians

Handwritten tally marks for pedestrian counts, organized into two rows of vertical bars.

96

Crosswalk Queue



Wright Street Crosswalk Counts

Time: 12:00 to 12:15

Page: _____ of _____

Date: _____

Weather: _____

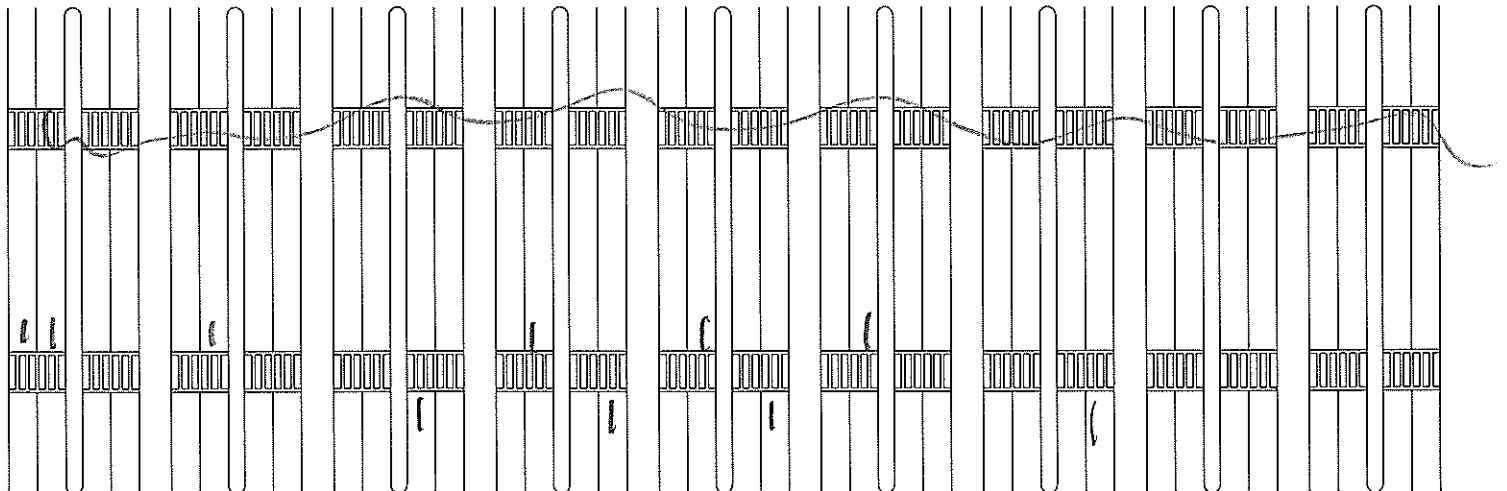
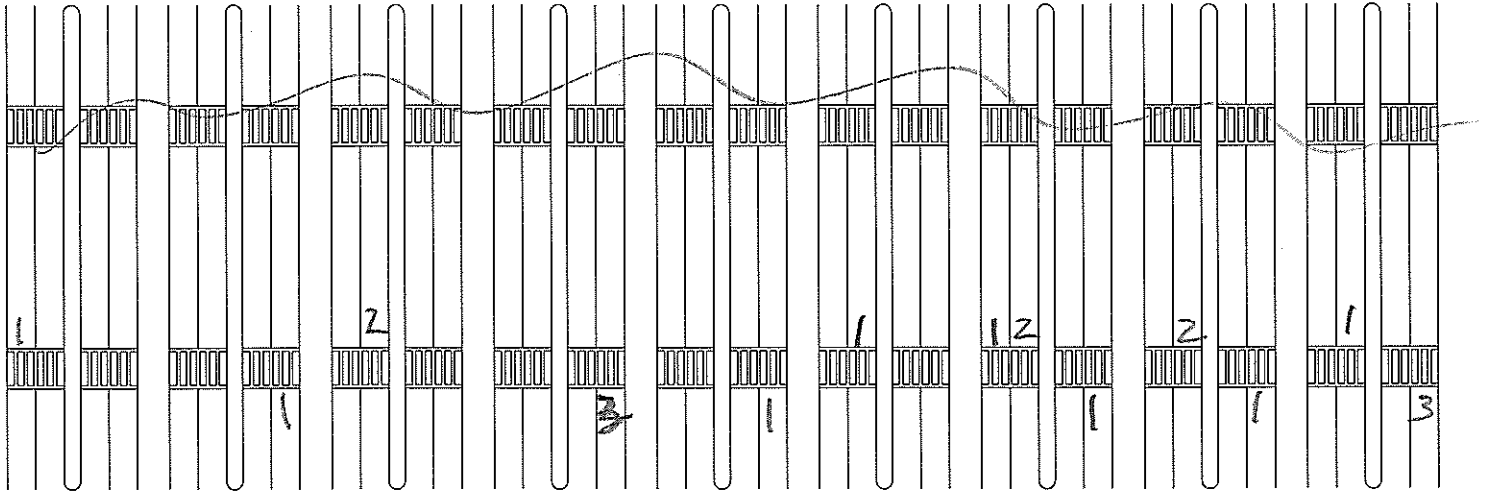
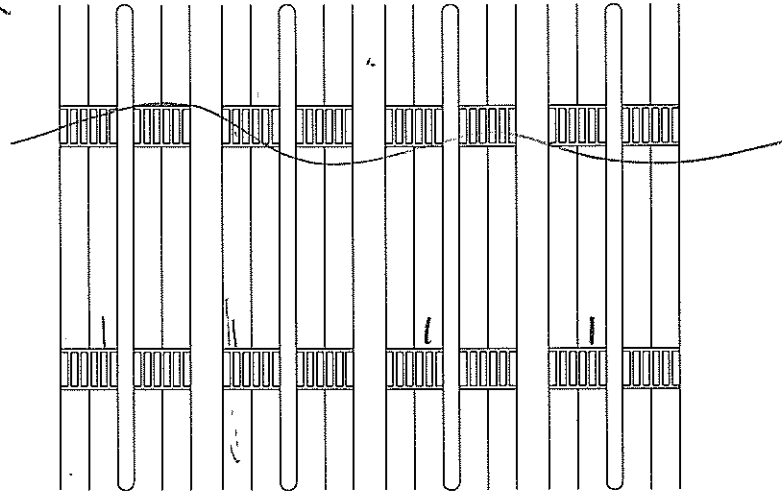
Observer: _____

Pedestrians

Handwritten tally marks for pedestrian counts, organized into three rows of vertical columns.

134

Crosswalk Queue



Wright Street Crosswalk Counts

Time: 12:15 to 12:30

Page: _____ of _____

Date: _____

Weather: _____

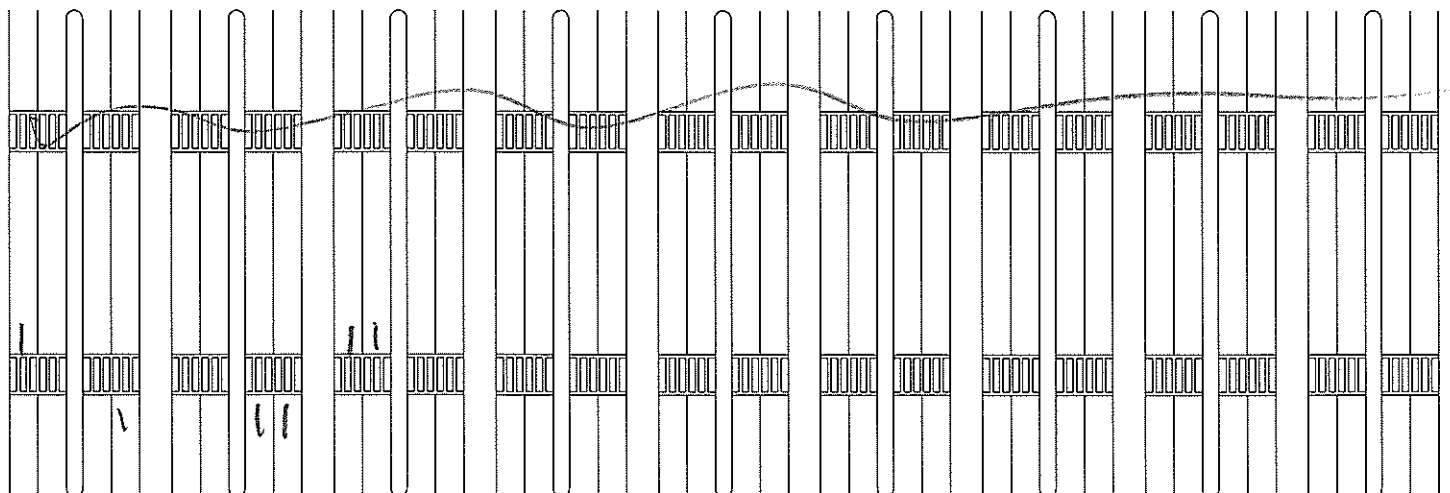
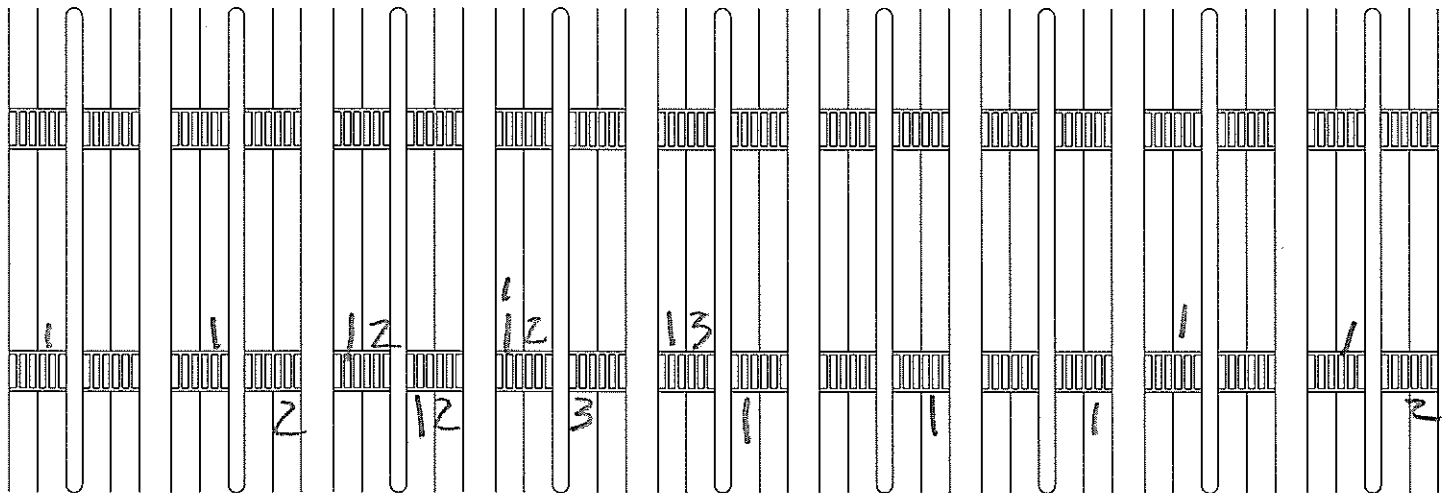
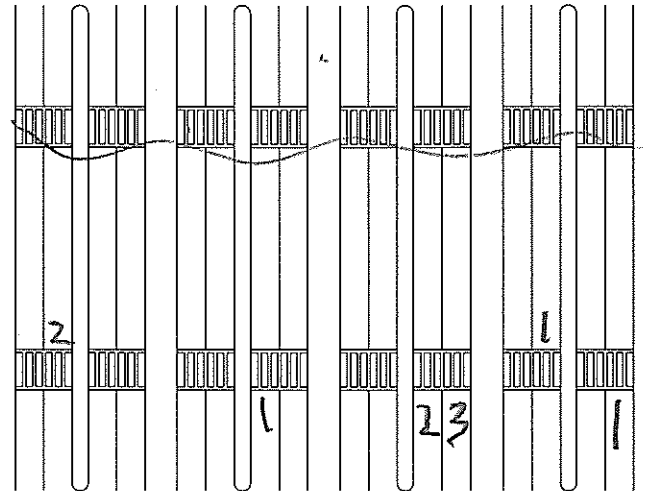
Observer: _____

Pedestrians

Handwritten tally marks for pedestrian counts, organized into four rows of vertical bars with horizontal strokes.

148

Crosswalk Queue



Wright Street Crosswalk Counts

Time: 4:15 to 4:30

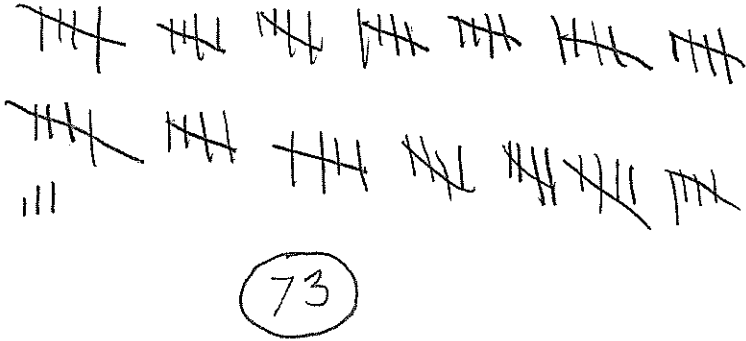
Page: _____ of _____

Date: _____

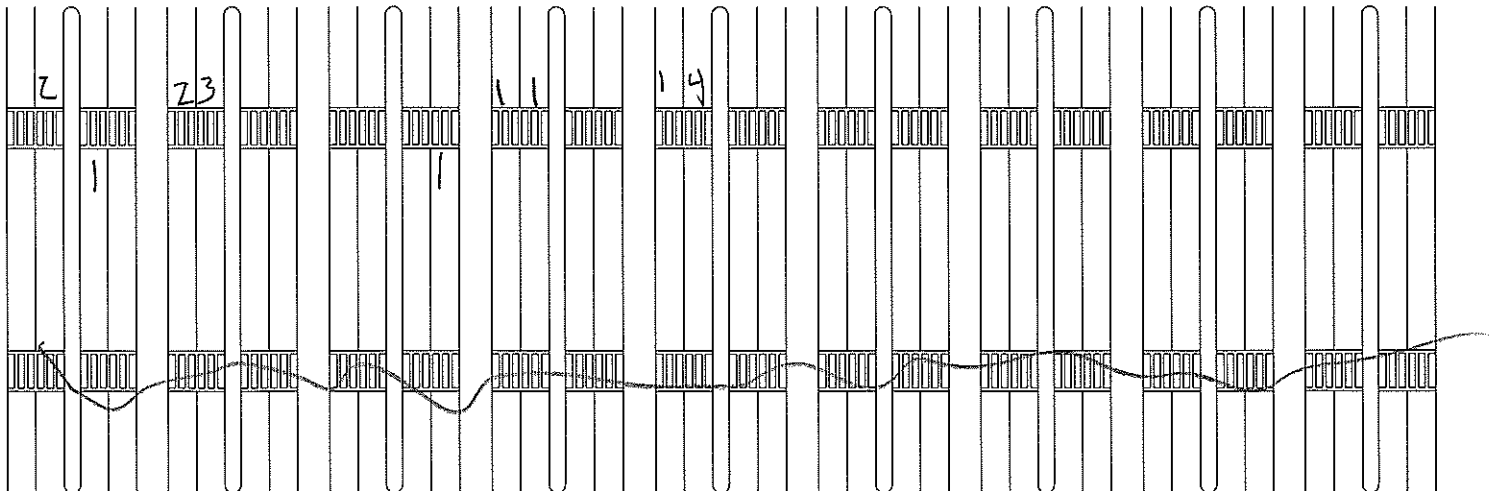
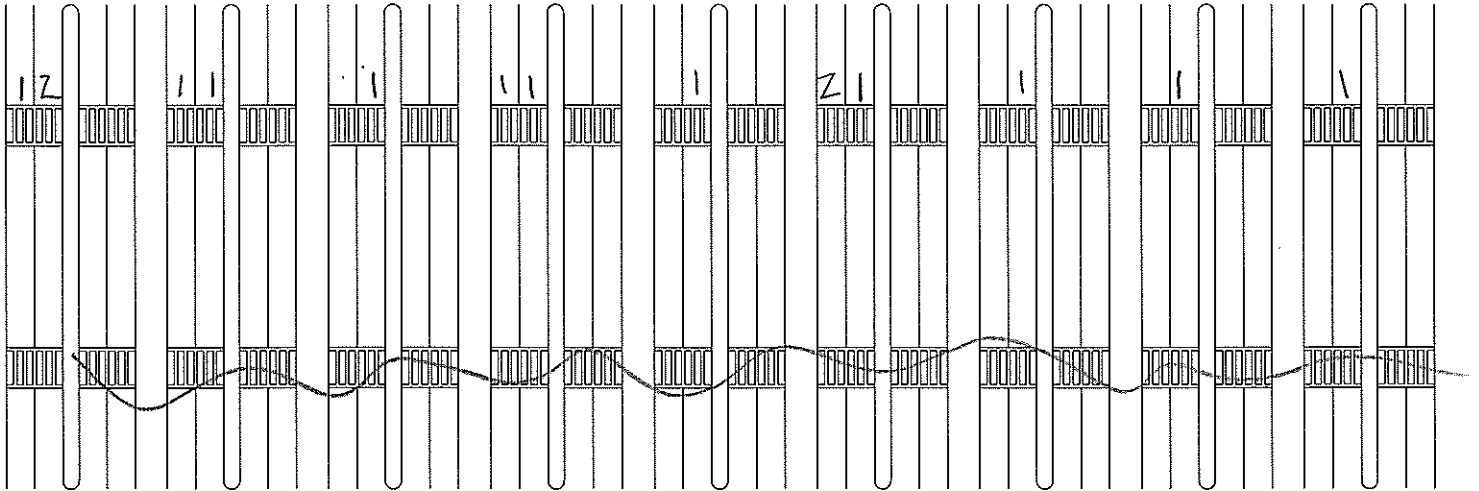
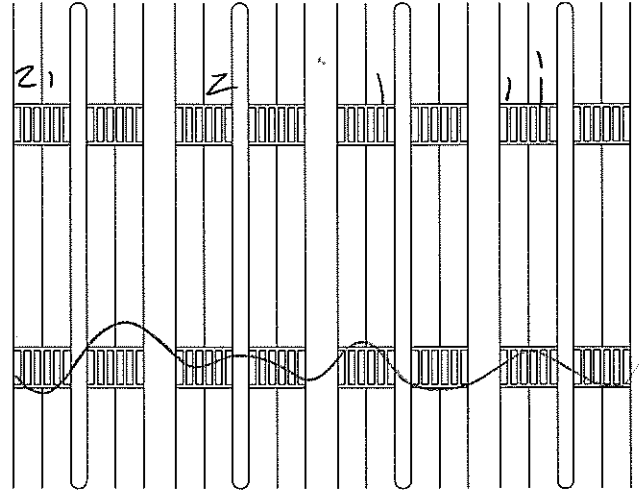
Weather: _____

Observer: _____

Pedestrians



Crosswalk Queue



Wright Street Crosswalk Counts

Time: 4:30 to 4:45

Page: _____ of _____

Date: _____

Weather: _____

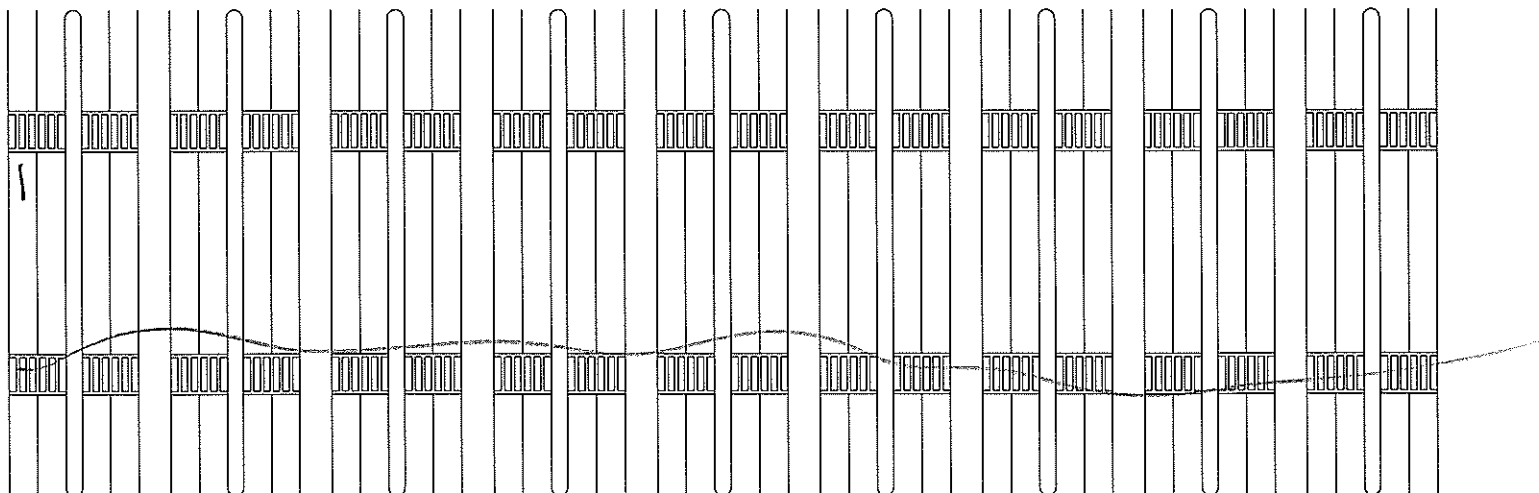
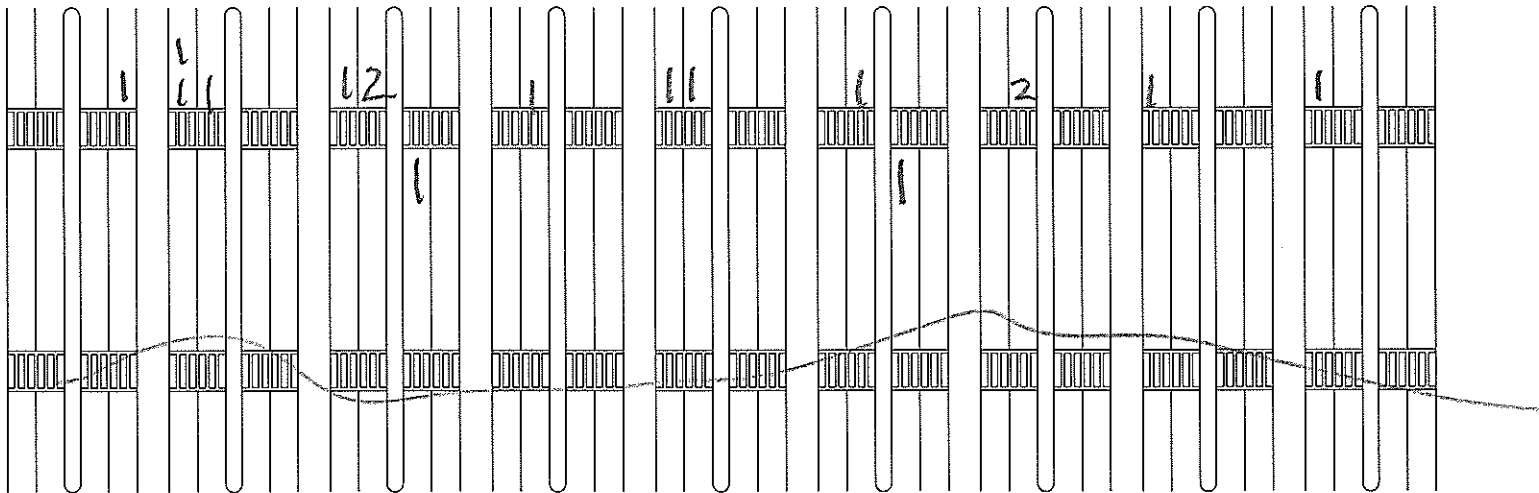
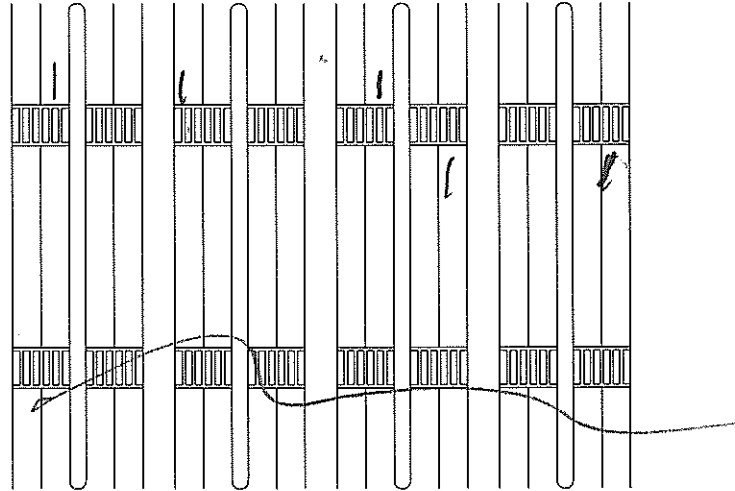
Observer: _____

Pedestrians

Handwritten tally marks for pedestrian counts, including two rows of vertical bars and a circled number 66.

66

Crosswalk Queue



Wright Street Crosswalk Counts

Time: 4:45 to 5:00

Page: _____ of _____

Date: _____

Weather: _____

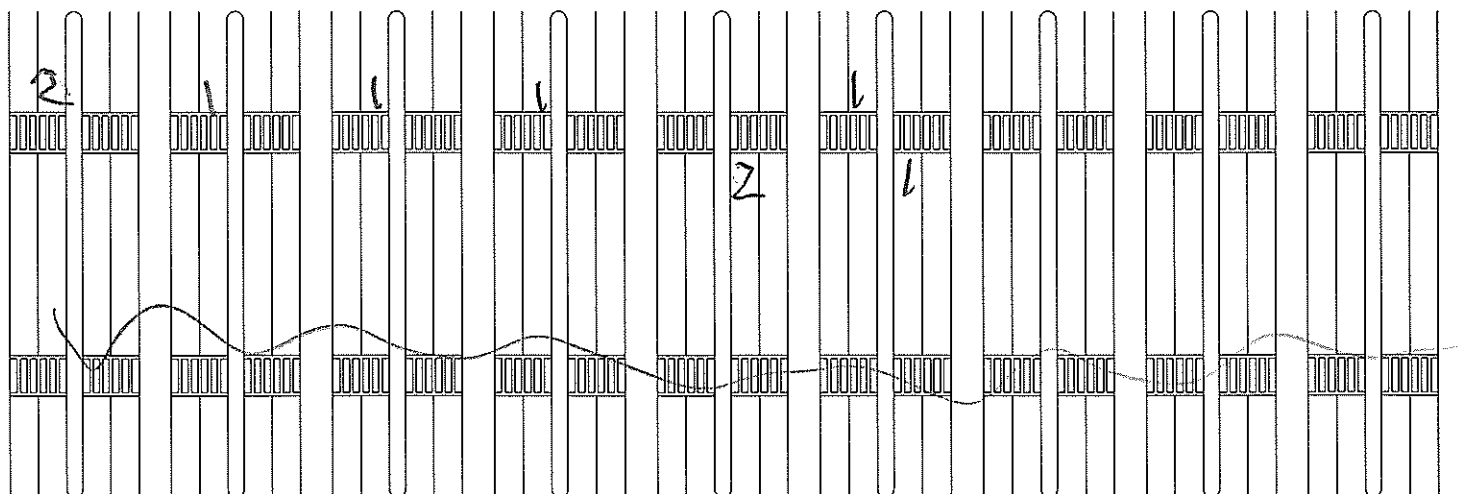
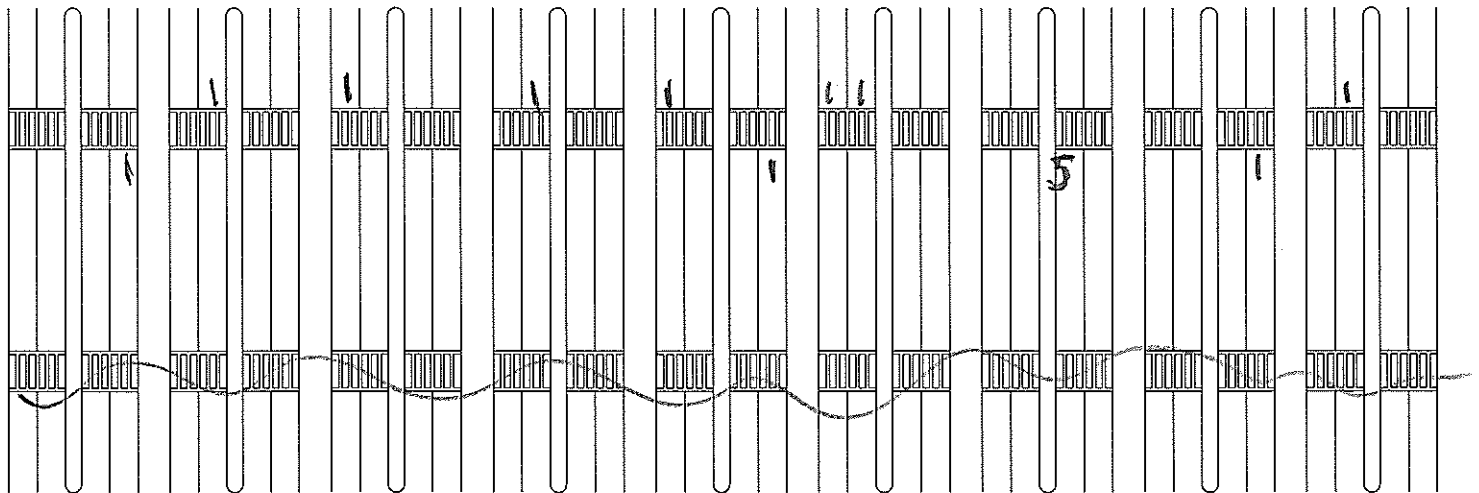
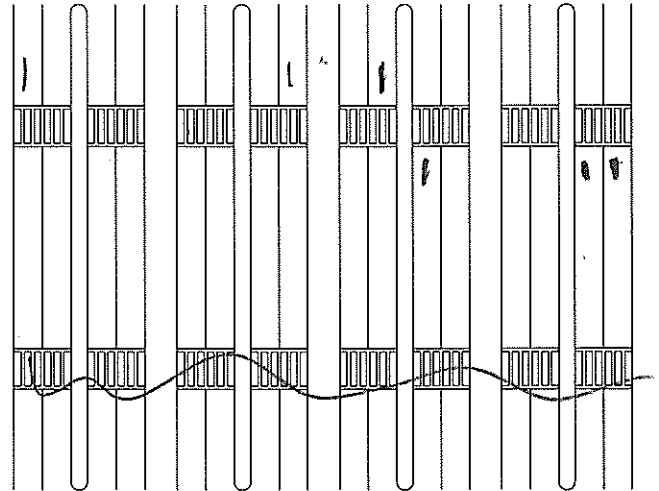
Observer: _____

Pedestrians

Hand-drawn tally marks for pedestrian counts, organized into two rows of approximately 10 marks each.

79

Crosswalk Queue



Wright Street Crosswalk Counts

Date: 12/15/11

Time: 5:00 to 5:15

Weather: 32° Cloudy

Page: _____ of _____

Observer: A.O.

Pedestrians

Crosswalk Queue

Handwritten tally marks for pedestrians, consisting of three rows of vertical strokes with some diagonal strokes for tens.

(107)

