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NYC Clear Curbs: Implications for goods movement Phase II study

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Overview

- NYC Clear Curb Initiative
- Phase I review
- Phase II study

Midtown, Manhattan



Clear Curb Regulations



NYC Clear Curbs Initiative

- In October 2017, Mayor Bill de Blasio announced his Congestion Action Plan -- a series of initiatives to combat traffic congestion in New York City;
- “Clear Curbs” as one of these initiatives, aiming to increase lane capacity during weekday peak hours by maintaining a curbside travel lane from 7AM to 10AM and from 4PM to 7PM;
- Pilot locations include: Midtown Manhattan, Flatbush Ave in Brooklyn and Roosevelt Ave in Queens. Our research will focus on Midtown Manhattan;

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Phase I study

- To investigate the impacts of “clear curbs” implementation on local delivery activities, a Phase I study was conducted relied on field observation, data collected on a specific block – **W 46th Street between 5th Ave and 6th Ave Midtown Manhattan** from **7:00AM to 1:00PM** on six days between January and June in 2018;
- Delivery activities (including arrival and departure time, vehicle type, commodity type, parking regulation where they parked, etc.) on this single block before and after implementation were recorded;
- In addition, we analyzed parking violation data from Department of Finance.



Main findings from Phase I study:

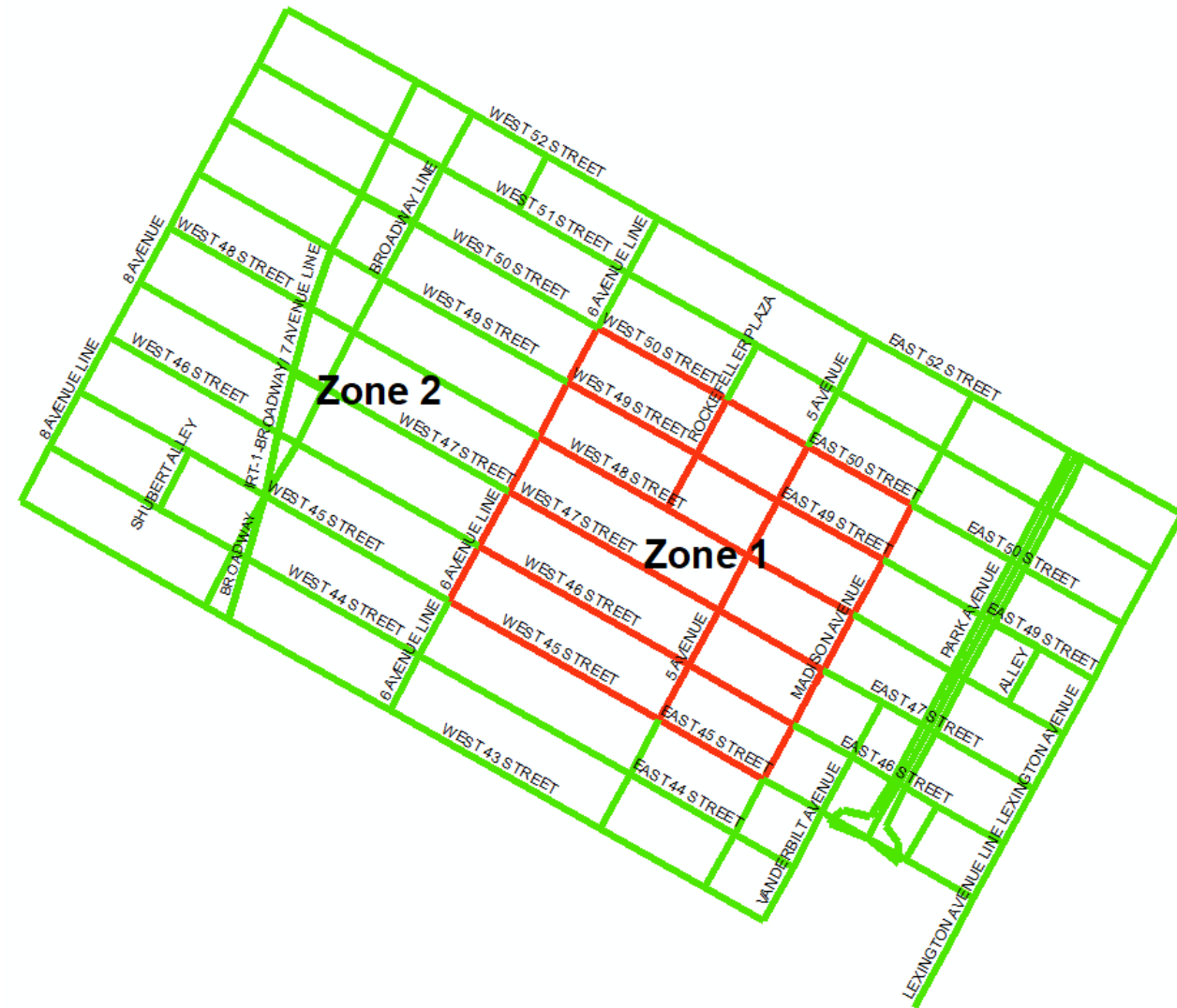
- A substantial volume of delivery trips continue to occur during rush hours;
- While economic pressures from increased violation costs may have influenced some operators to adapt their operations, some continue, some disappear, we are not sure the reason, some may because of seasonality;
- A generous increase in parking violations accrued by all vehicle types (especially delivery and refrigerated trucks and vans) following clear curbs implementations.
- Higher violation costs and enforcement result in substantial increase in the cost to park on W 46th street;
- From field observations, this increase is unlikely to be due to higher volumes of vehicles;

Phase II study

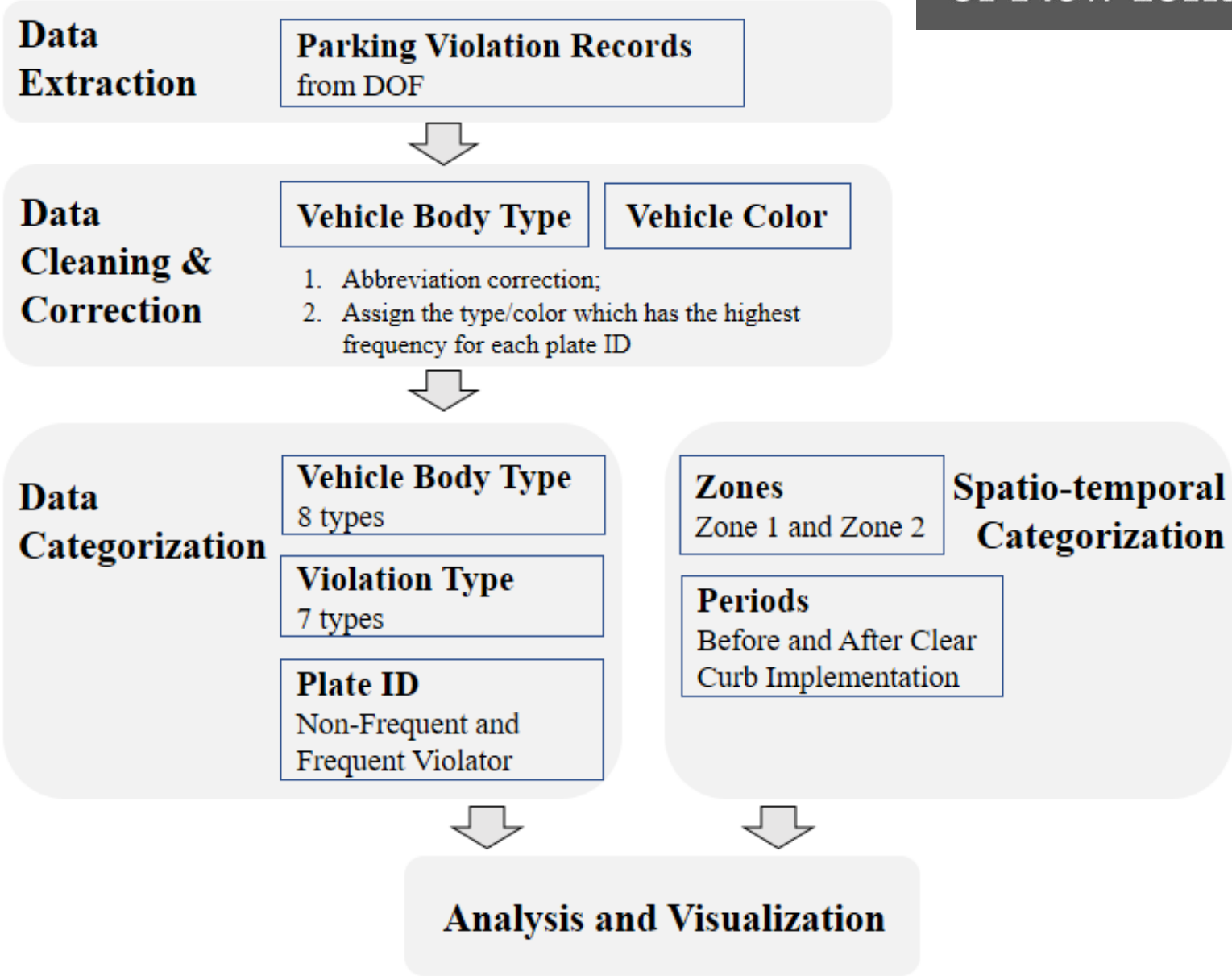
Phase II expands upon the scope of Phase I to investigate:

- (1) the entire “clear curbs” study area (zone 1) area spanning from **6th Ave to Madison Ave** and from **45th Street to 50th Street**;
- (2) its immediate surrounding neighborhood (zone 2);
- (3) A comparison of Zone 1 and Zone 2 during “before” and “after” April 2018 are analyzed.

This analysis relies on detailed New York City Department of Finance (DOF) parking violation records issued between **January 2017 and December 2018** on **weekdays**.



Methodology
& Data

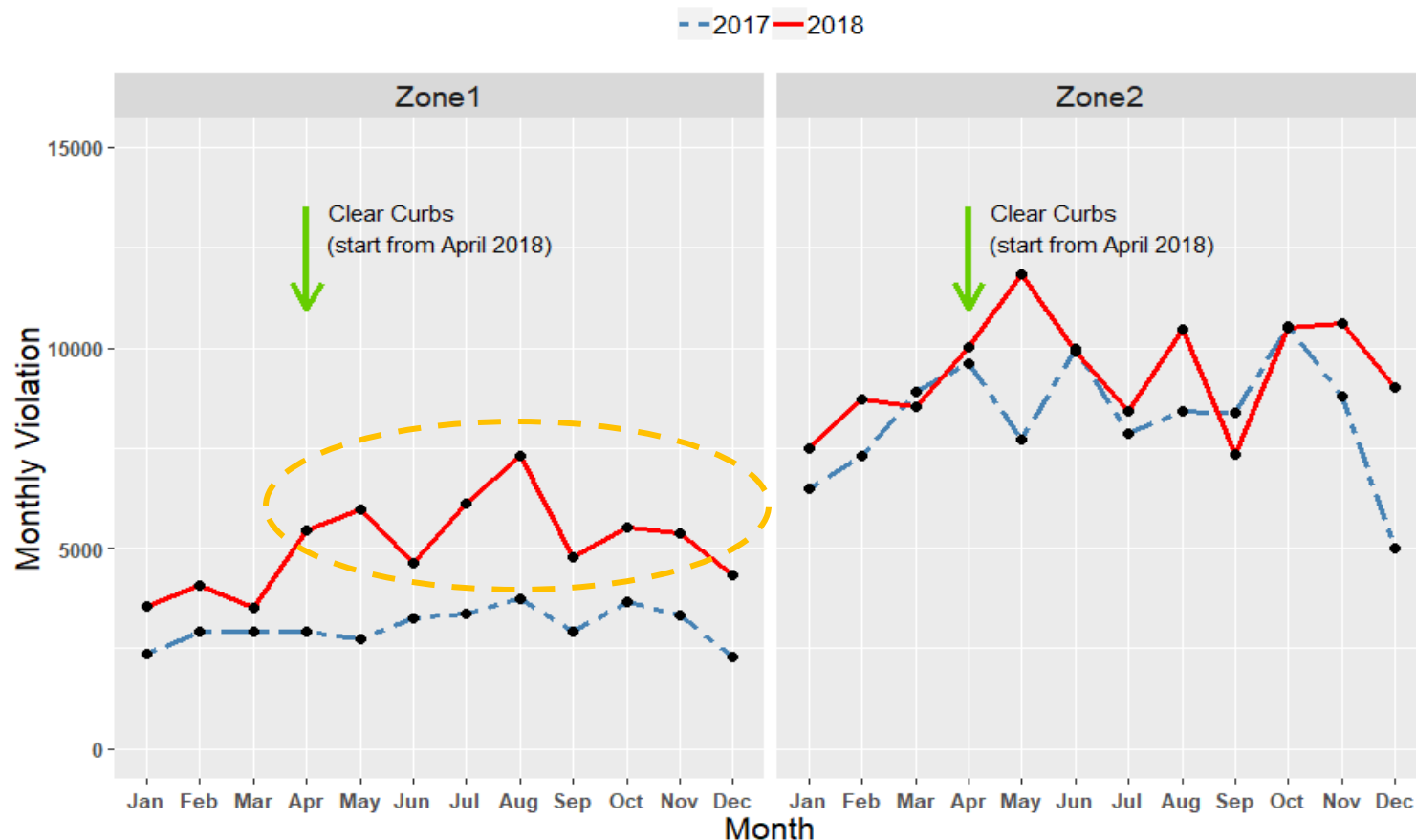


Overall Violation Frequencies and Potential Revenue

- In total, **309,063 tickets** were issued in both zones from **79,514 individual vehicles** (Plate ID);
- 77%** were **freight or service-related vehicles (DELV, VAN, REFG, and TRAC)**, 1% are utility vehicles (UTIL), and 22% are passenger related (SUBN and PASSENGER) or OTHER;
- This substantial growth in cost is due to two factors: **an increase in overall enforcement** and **a shift in violation types** from less costly meter violations to relatively more expensive No Parking/No Standing violations

Zone	Average Monthly Violations		Change in Average Monthly Violations		Average Monthly Potential Revenue		Change in Potential Monthly Revenue	
	Before	After	No.	%	Before	After	\$	%
1	<u>3,174</u>	<u>5,501</u>	2,327	<u>73.3</u>	<u>325,007</u>	<u>586,377</u>	261,370	<u>80.4</u>
2	8,254	9,792	1,538	18.6	809,774	963,569	153,795	19.0

Yearly violation trend



Month of the year distributions in both zones

Zone 1:

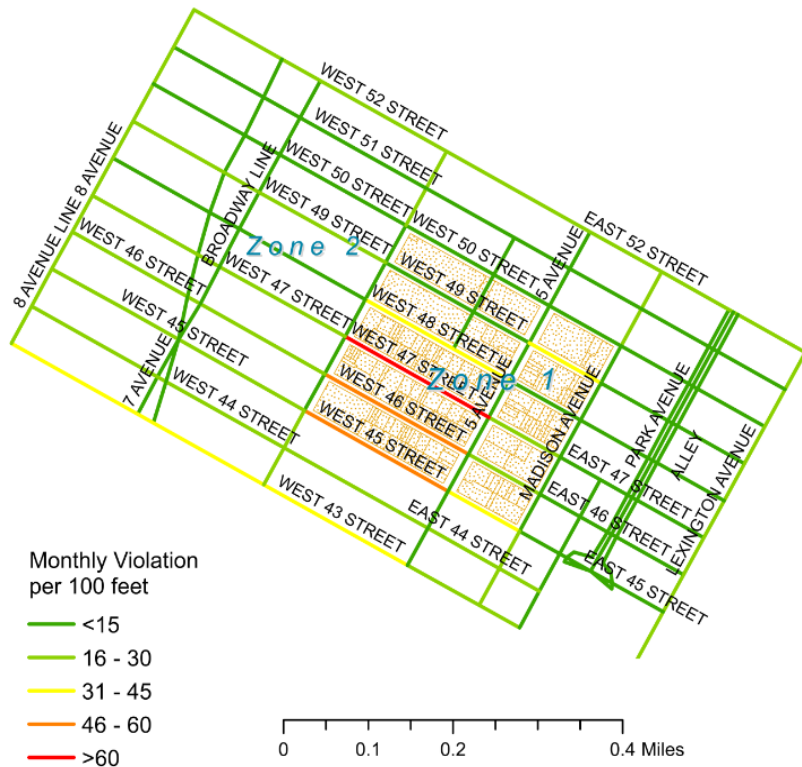
- In 2017, the number of tickets hovers around 2,500-3,000 per month, when *Clear Curbs* were implemented in April 2018, an immediate increase is observable. The typical monthly violation rate approximately doubled, even reaching close to 7,500/month in August 2018.

Zone 2:

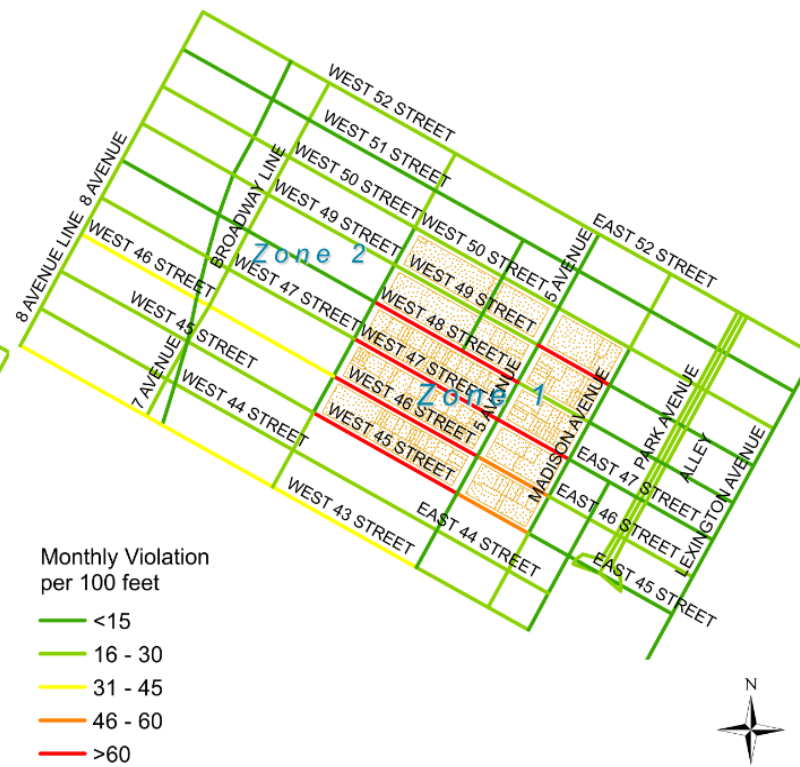
- 2018 monthly ticket rates are fairly consistent with 2017 trends, except for a substantially higher rate of violations issued in May 2018. While some monthly variation is observed, there does not appear to be any systematic response in overall violation rates following enforcement (e.g. a decline in violation rates following increased enforcement).

Block Violation density

Zone 1 & Zone 2
Monthly Violation per 100 feet
Before Pilot



Zone 1 & Zone 2
Monthly Violation per 100 feet
After Pilot



Block Violation Density Calculation
Equation was used to estimate average monthly violation densities on each individual block:

$$d^{j,p} = \sum_j v^{j,p} / l_j * 100$$

Where

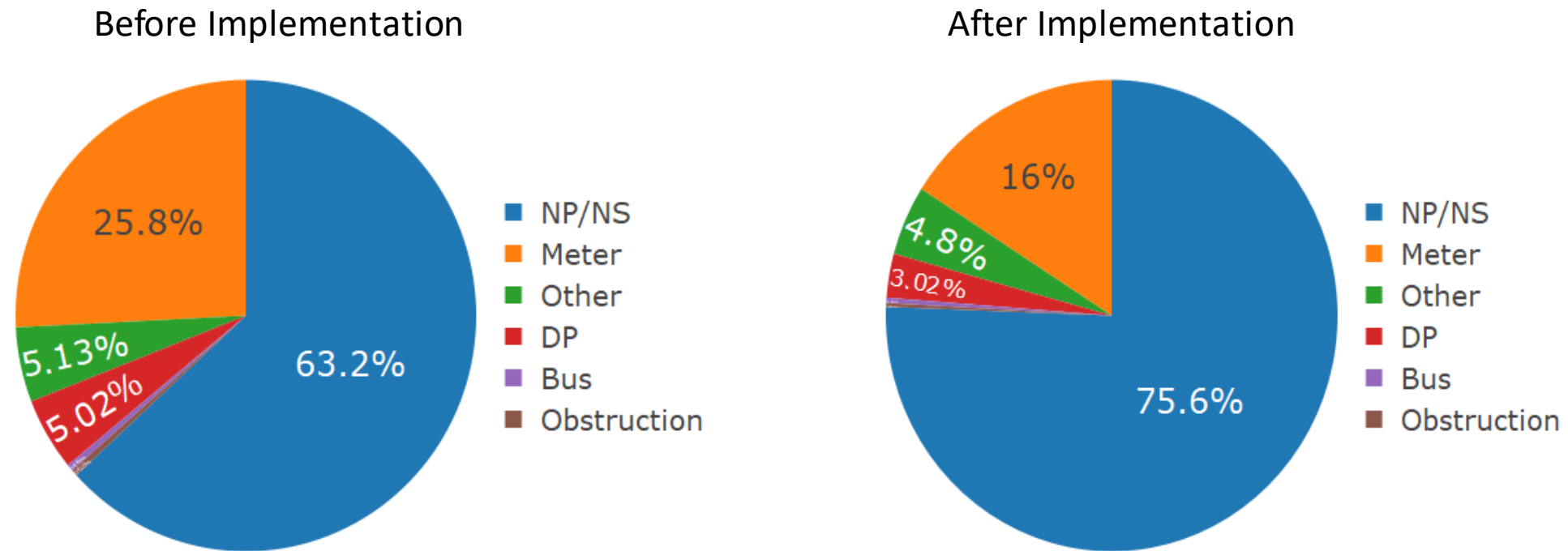
$d^{j,p}$ = monthly violation density occurring on block j in period p , per 100 feet;

$v^{j,p}$ = number of violations occurring on block j in period p ;

l_j = length of block j , feet.

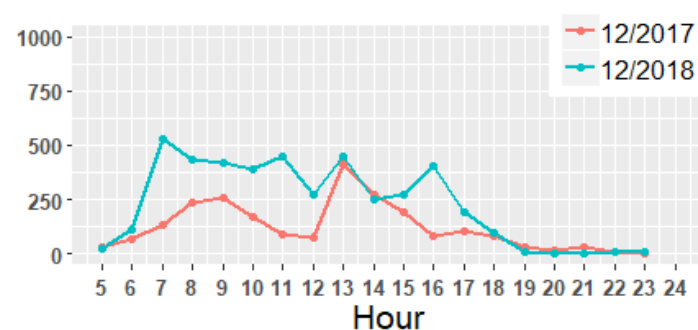
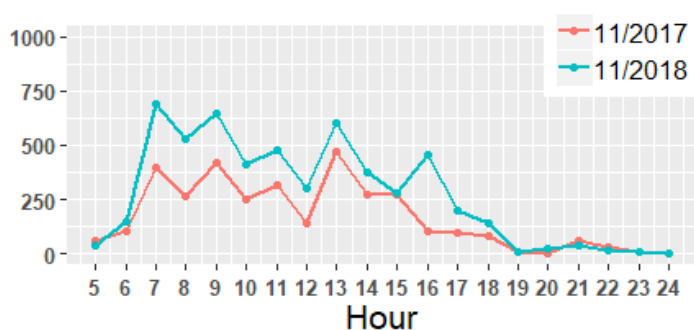
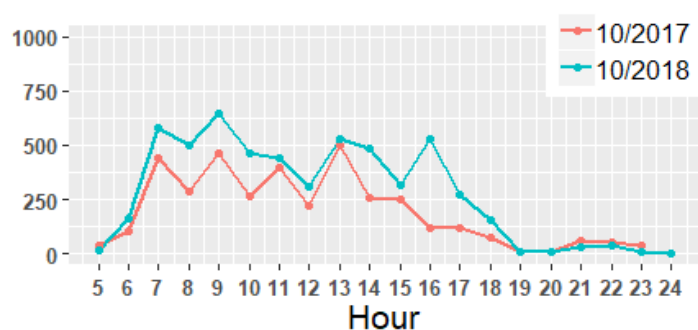
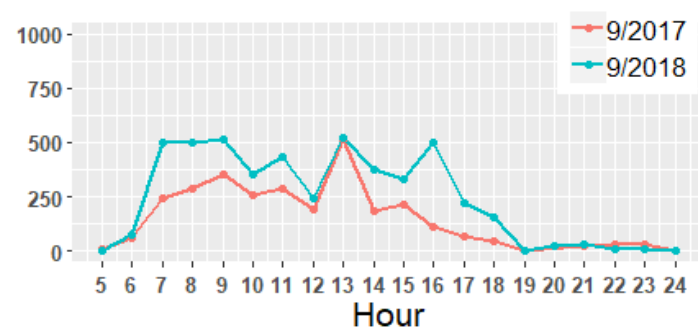
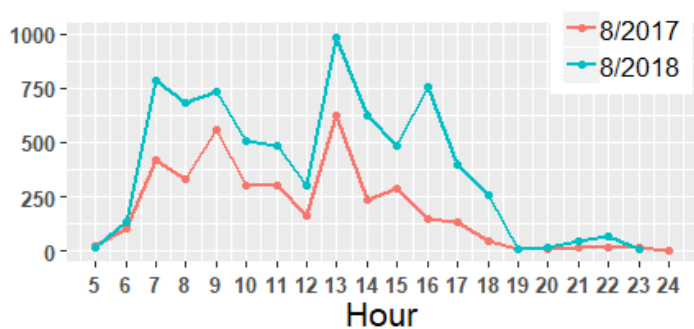
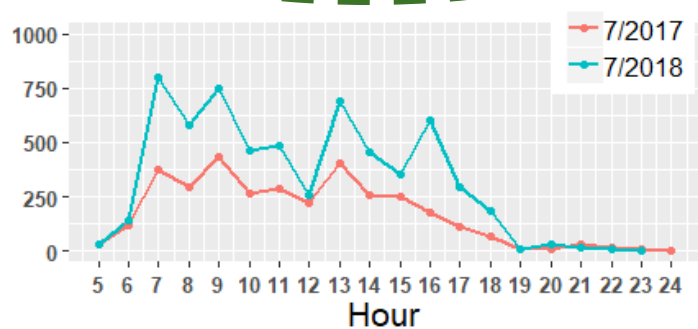
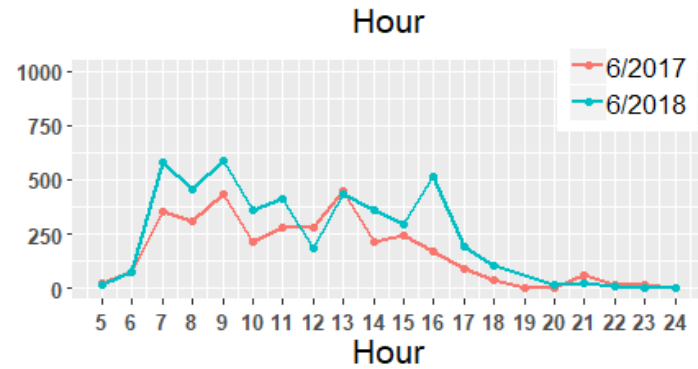
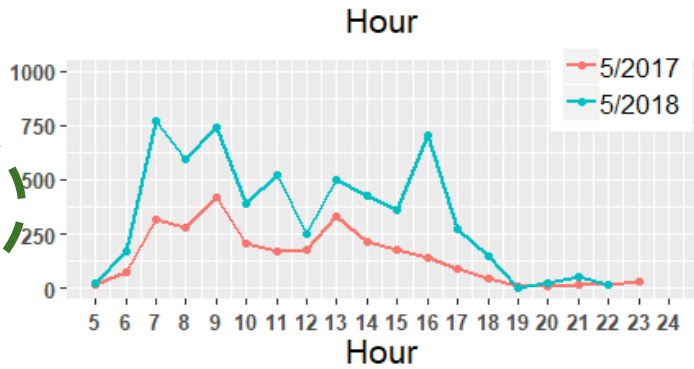
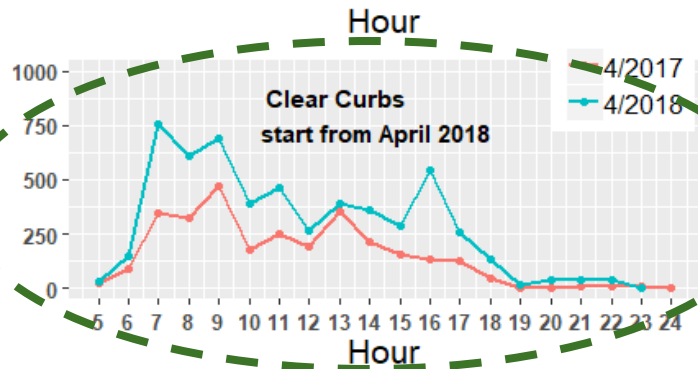
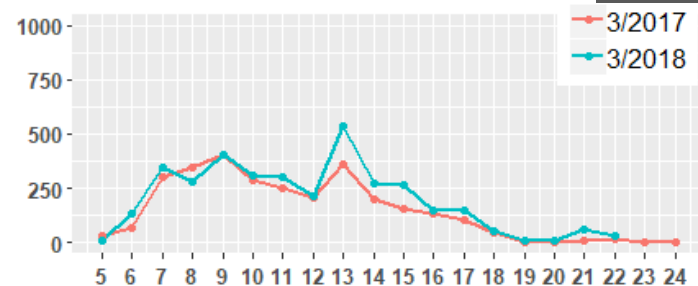
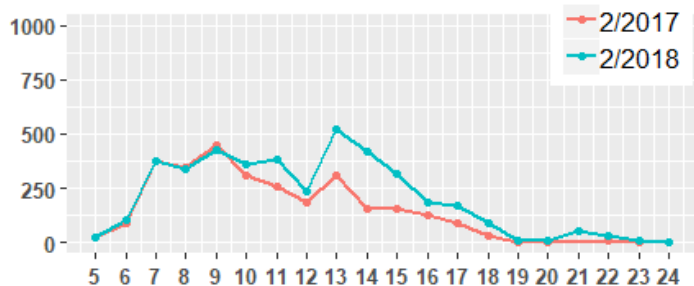
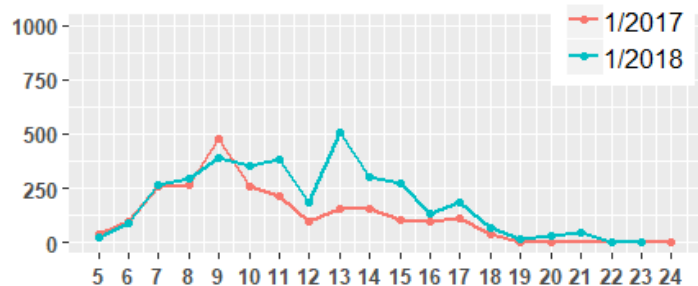


Undesignated Parking by Violation Type (Zone 1)



- About **90%** of **violation type** comes from **NP/NS** and **Meter** both before and after the implementation;
- The share of violations issued as **NP/NS** tickets increased by **13%** (from **63%** to **76%**), while **Metered** tickets decreased from **26%** to **16%** and **Double Parking** dropped from **5%** to **3%**;
- From field observations, double parking has dropped off.

Time of day distributions in Zone 1



Frequent Violators

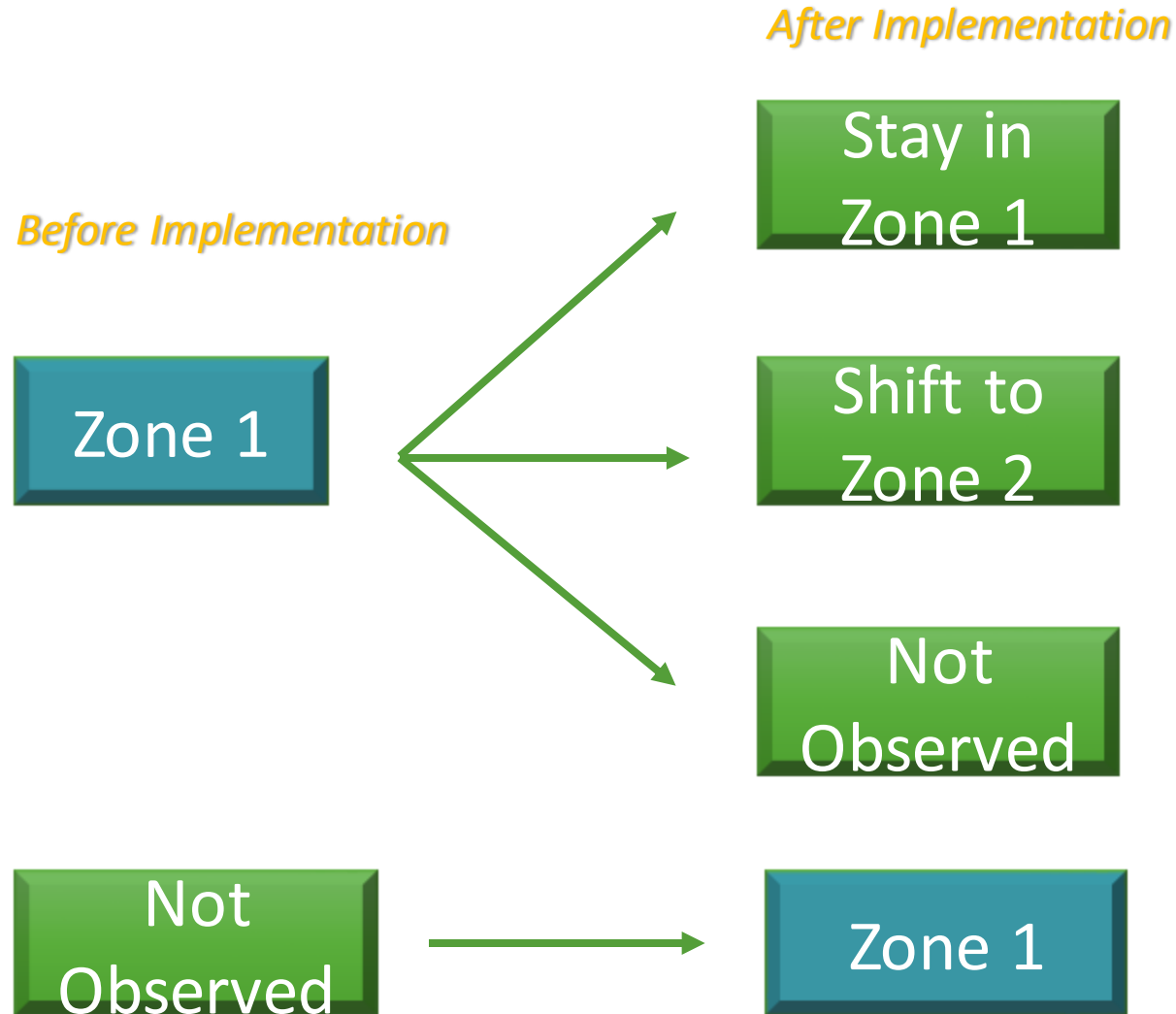
Three groups of frequent violators – those receiving 50+ tickets, 100+ tickets, and 200+ tickets in Zones 1 and 2 over the two-year study period (January 2017 - December 2018) were summarized;

The **highest** number of tickets observed for a single plate ID was **919 tickets issued in 24 months, about 2 tickets per weekday**

Among the vehicles receiving more than 50 violations, **98% are freight and service-related vehicle body types** (DELV, VAN, REFG, or TRAC); this is a substantially higher share than the 77% observed for all violations

Violation Frequency per Vehicle	No. Unique Vehicles	% of Total Vehicles (76514)	No. Violations	% of Total Violations Issued (309063)
50+	776	0.98%	98,505	32%
100+	305	0.38%	65,395	21%
200+	108	0.14%	38,557	12%

Vehicle Zone Pair



	Zone Before Clear Curbs Implementation	
Zone	1	2
Total Observed Vehicles	142	579
Percent by Response After Implementation		
Stay in Zone	59.2%	78.8%
Observed in Other Zone	26.8%	10.0%
Not Observed	14.1%	11.2%

Case study 1 (Zone Pair 1-1)

Plate ID: 30649MA

Color: White

Vehicle Type: Van

Total tickets: 372

Zone 1:

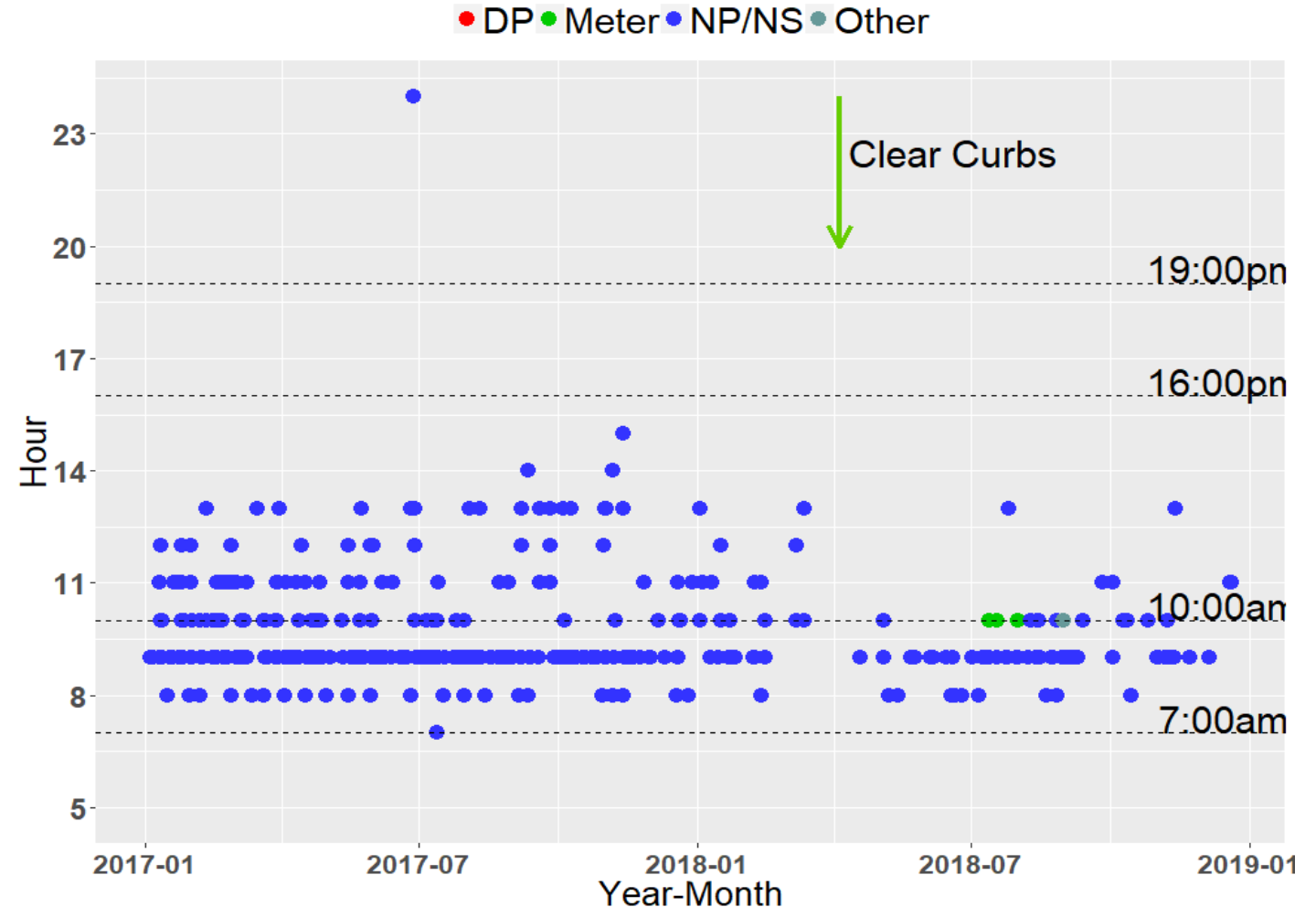
- Before: 18 tickets / month
- After: 7 tickets / month

Zone 2:

- Before: 0.6 tickets / month
- After: 2.1 tickets / month

Street Name	Before (15months)	After (9 months)
West 45	1	2
West 46	1	14
West 47	272	45
West 48	2	4
West 49	1	1
West 50	NA	1

85%



Case study 2 (Zone Pair 1-1)

Plate ID: 28568MH

Color: Brown

Vehicle Type: Van

Total Ticket: 481

Zone 1:

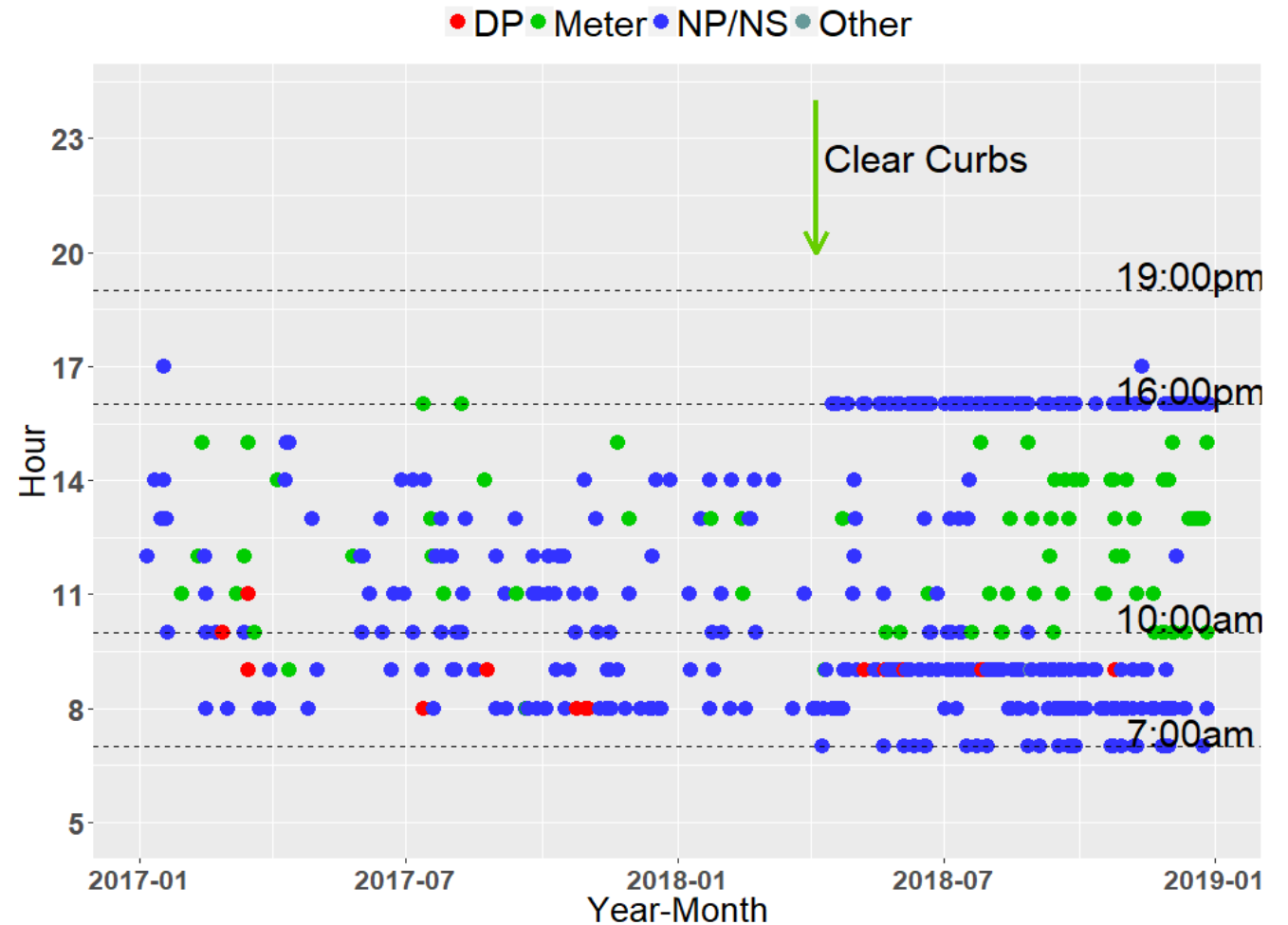
- Before: 10 tickets / month
- After: 35 tickets / month

Zone 2:

- Before: 0.5 tickets / month
- After: 1.2 tickets / month

Street Name	Before (15 months)	After (9 months)
East 45th	0	1
East 47th	1	0
West 45th	143	310
West 46th	1	3
West 47th	3	0
West 48th	0	1

94%



Case Study 3 (Zone Pair None-1)

Plate ID: 29078ML

Vehicle Type: Van

Color: Brown

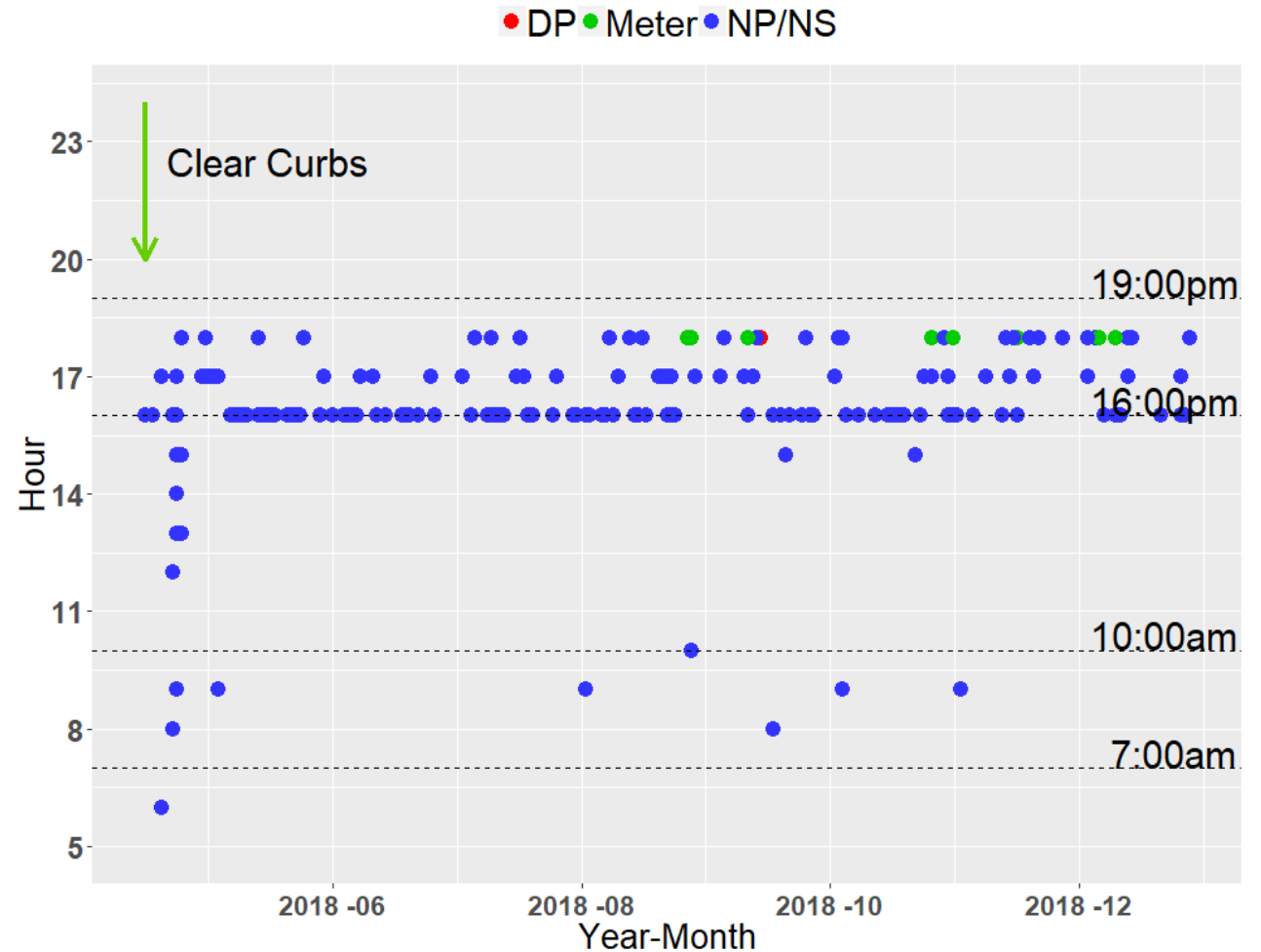
Total tickets: 170

Zone 1:

- Before: 0 tickets / month
- After: 19 tickets / month

Street Name	Before (15 months)	After (9 months)
West 46 th	0	170

100%



Case Study 4 (Zone Pair 1-None)

Plate ID: 83404MG

Vehicle Type: Van

Color: White

Total tickets: 61

Zone 1:

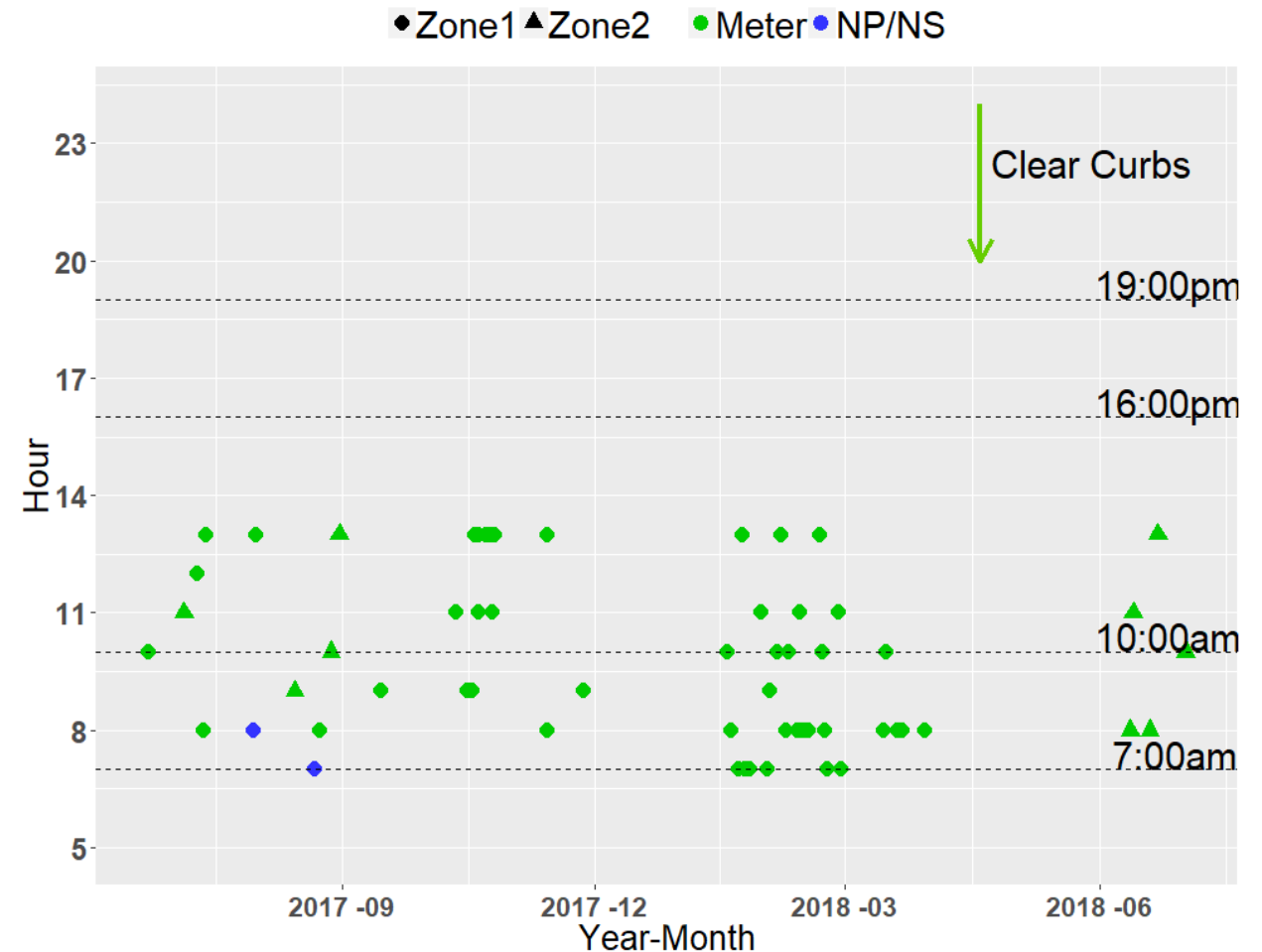
- Before: 3.5 tickets / month
- After: 0 tickets / month

Zone 2:

- Before: 0.3 tickets / month
- After: 0.6 tickets / month

Street Name	Before (15 months)	After (9 months)
East 45 th	4	0
East 47th	34	0
East 49 th	2	0
Madison Ave	3	0
West 47 th	2	0
West 48 th	1	0
West 49 th	6	0

56%



Case Study 5 (Zone Pair 1-2)

Plate ID: 53856ME

Vehicle Type: Van

Color: White

Total ticket: 92

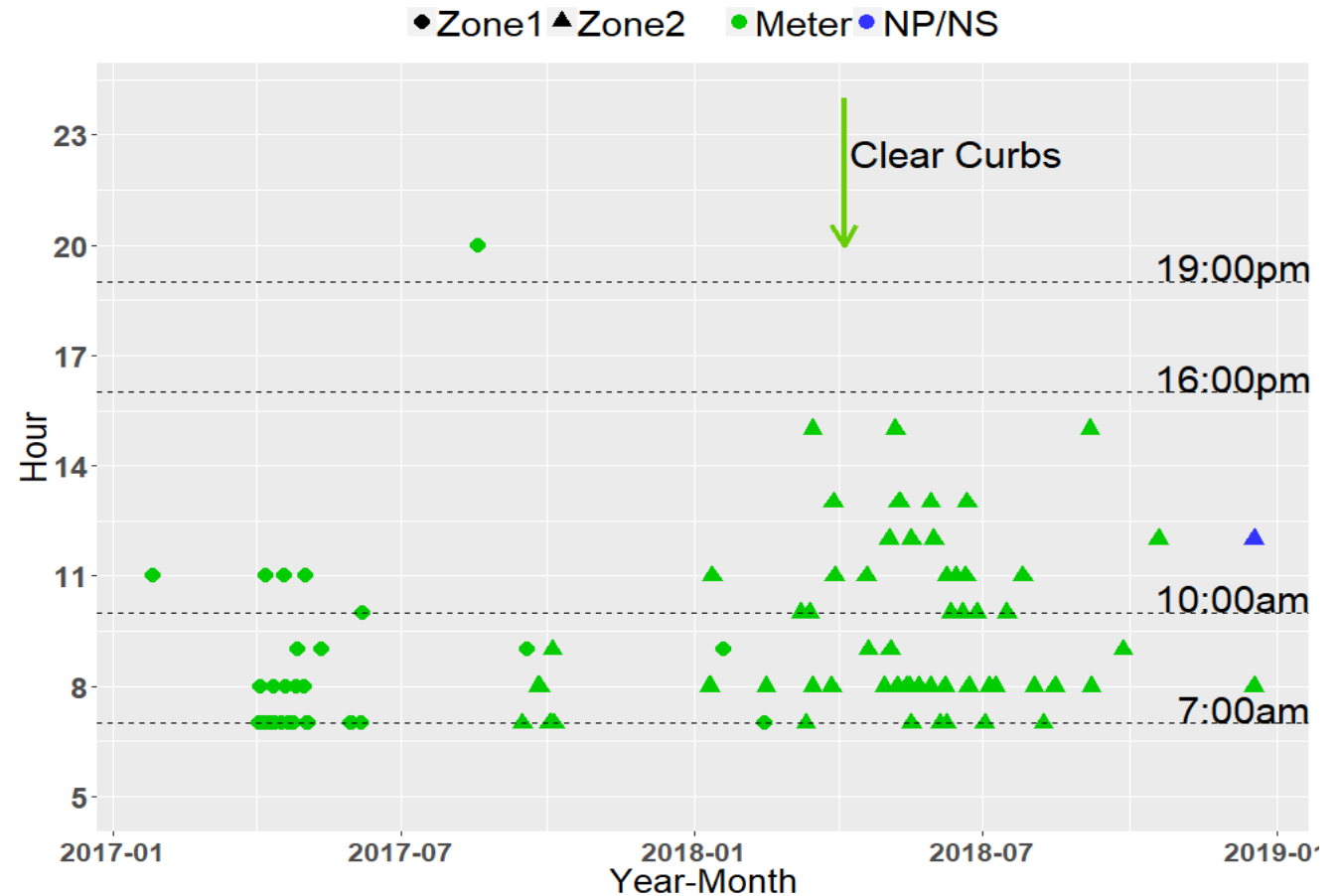
Zone 1:

- Before: 2 tickets / month
- After: 0 tickets / month

Zone 2:

- Before: 1 tickets / month
- After: 5 tickets / month

Street Name	Before (15 months)	After (9 months)
Broadway	6	0
East 43th	0	13
East 46 th	1	0
East 49 th	5	0
East 52 th	0	5
Lexington Ave	0	3
Madison Ave	1	0
West 43 th	0	6
West 44 th	0	2
West 46th	26	0
West 47 th	2	2
West 48 th	1	0
West 49 th	0	2
West 50 th	0	5
West 51 th	0	3
West 52 th	8	1



Conclusions

- As expected, aggregate results reveal a **substantial increase in tickets** issued to vehicles in zone 1 following implementation;
- Zone 1 used to generate **potential revenue** of \$ 325,007 per month (stipulated fine system). Following implementation this number increased by **80.4%** (reaching \$586,377 per month);
- In both zones, throughout the 24 months, 309,063 tickets were issued to 76,514 vehicles. Less than **1% of vehicles received 32% of all parking tickets**. About 0.1% of vehicles (108 out of 76514) received 12% of tickets;
- Vehicles with high **delivery violations** shows **low sensitivity** to regulation change;
- **In future**, given the very small number of operators that account for a very large proportion of violations, follow-up efforts should focus on better understanding this group's customer demands, their operations and costs, their geographic and temporal constraints, and any other factors that influence their parking choices;

Thank you !
Question and Comments?