

Quantifying The Effect of Vision Zero

JR Team

Rafael Garcia & Jirou Xu

Project Progress

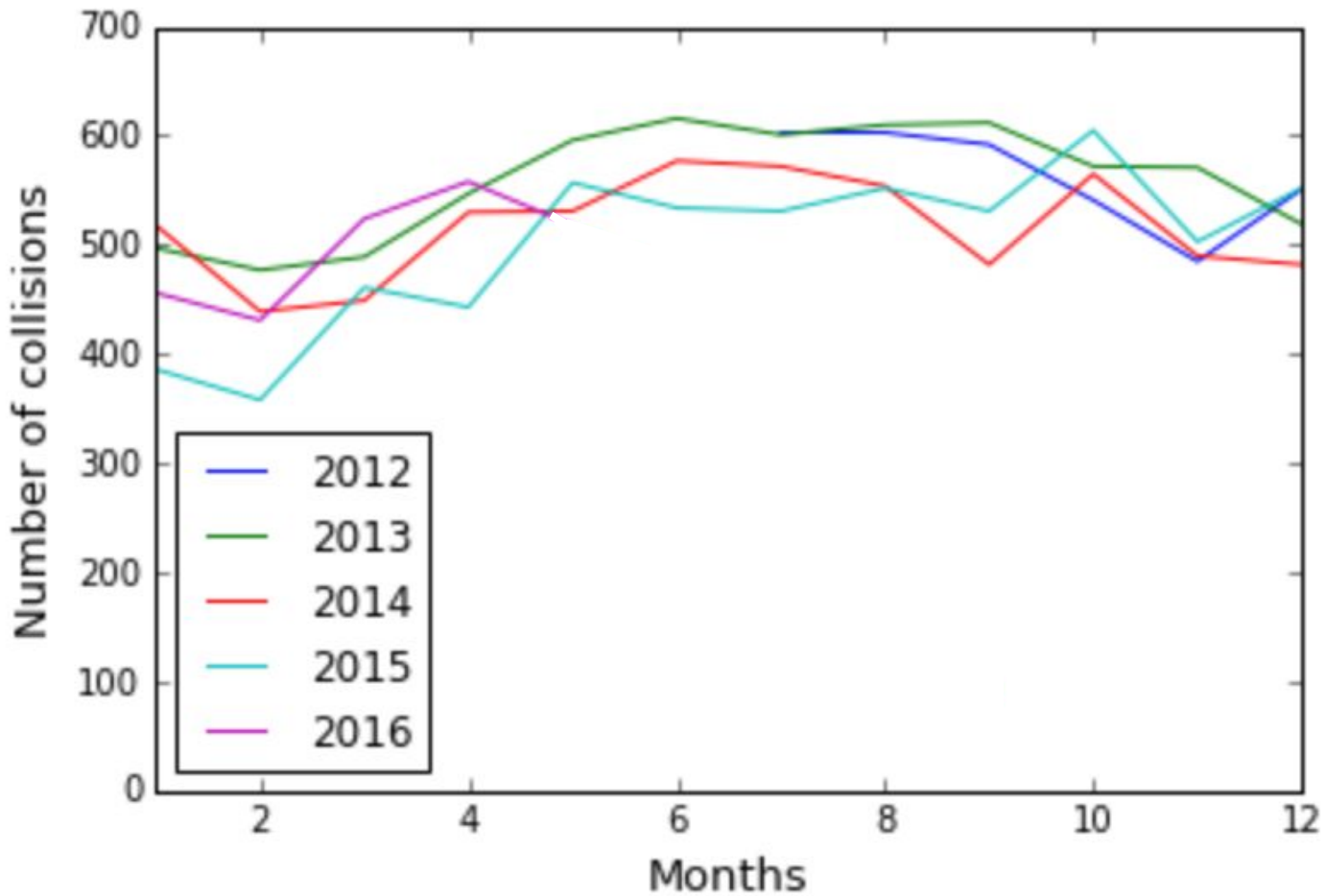
Was Vision Zero Successful?

- Collisions
- Speed
- Street Redesign

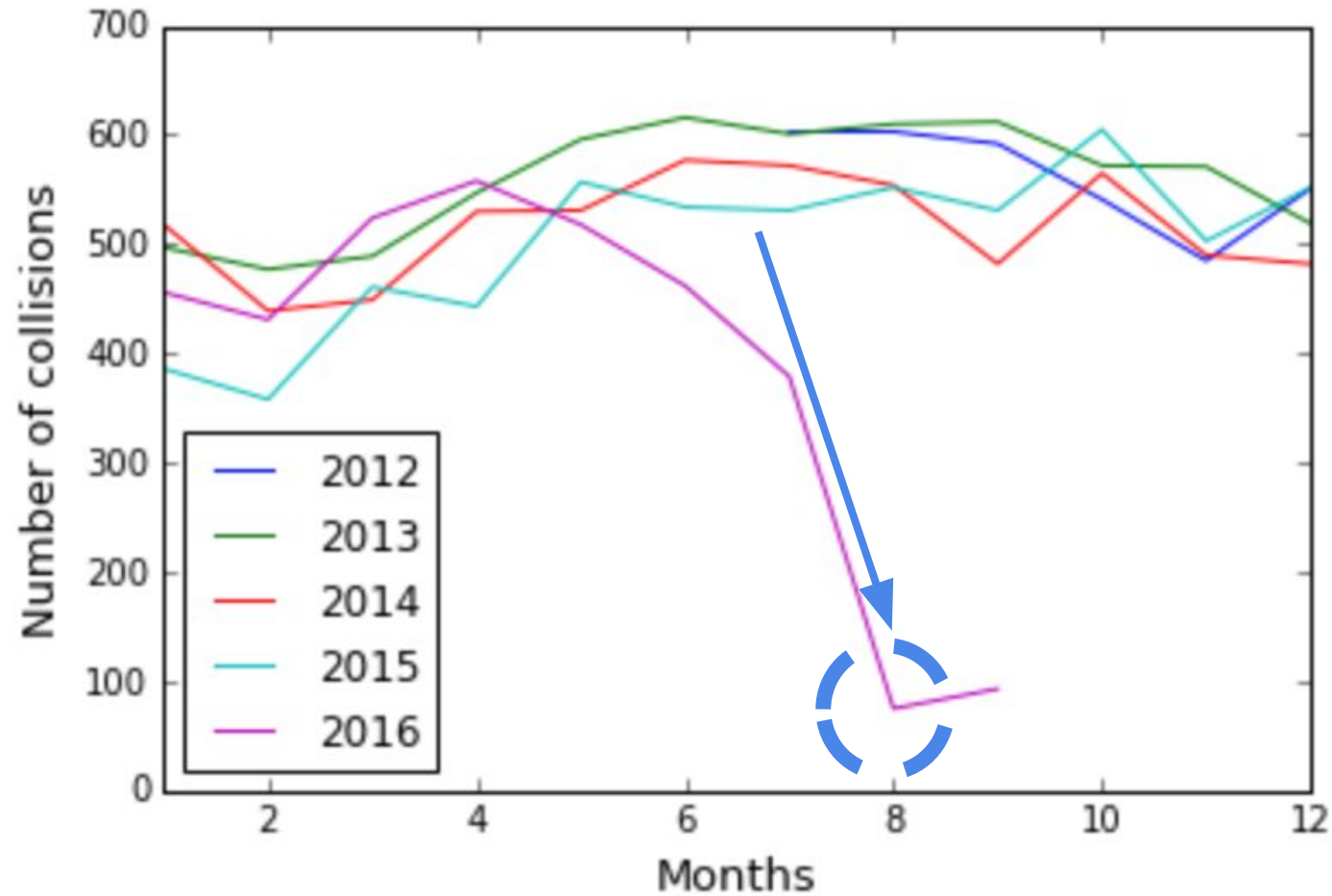
Can Vision Zero Do Better?

- Correlations with Spatial Features

Collisions in Manhattan per Year



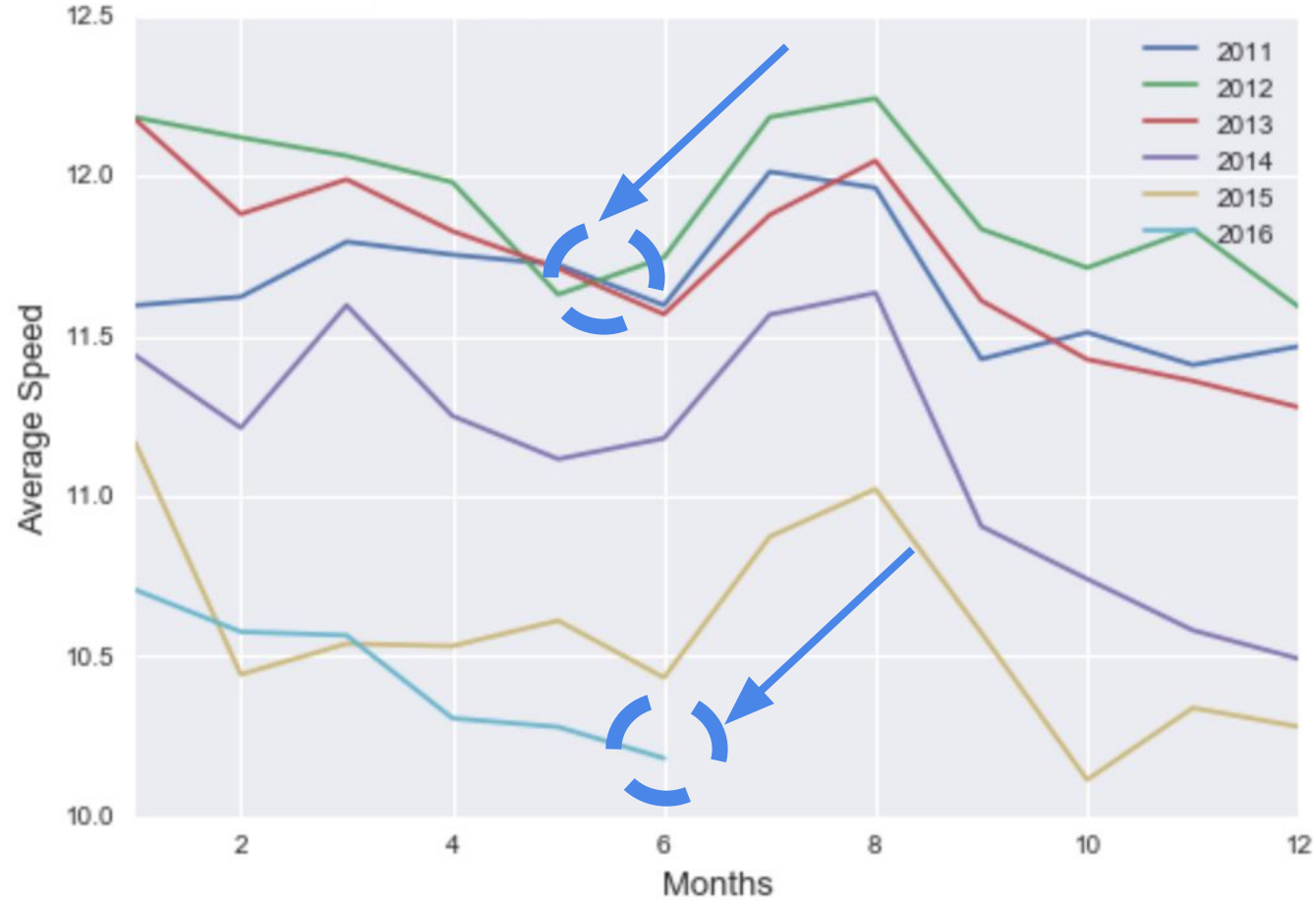
Collisions in Manhattan per Year



Collision Heat Map in Manhattan per Year



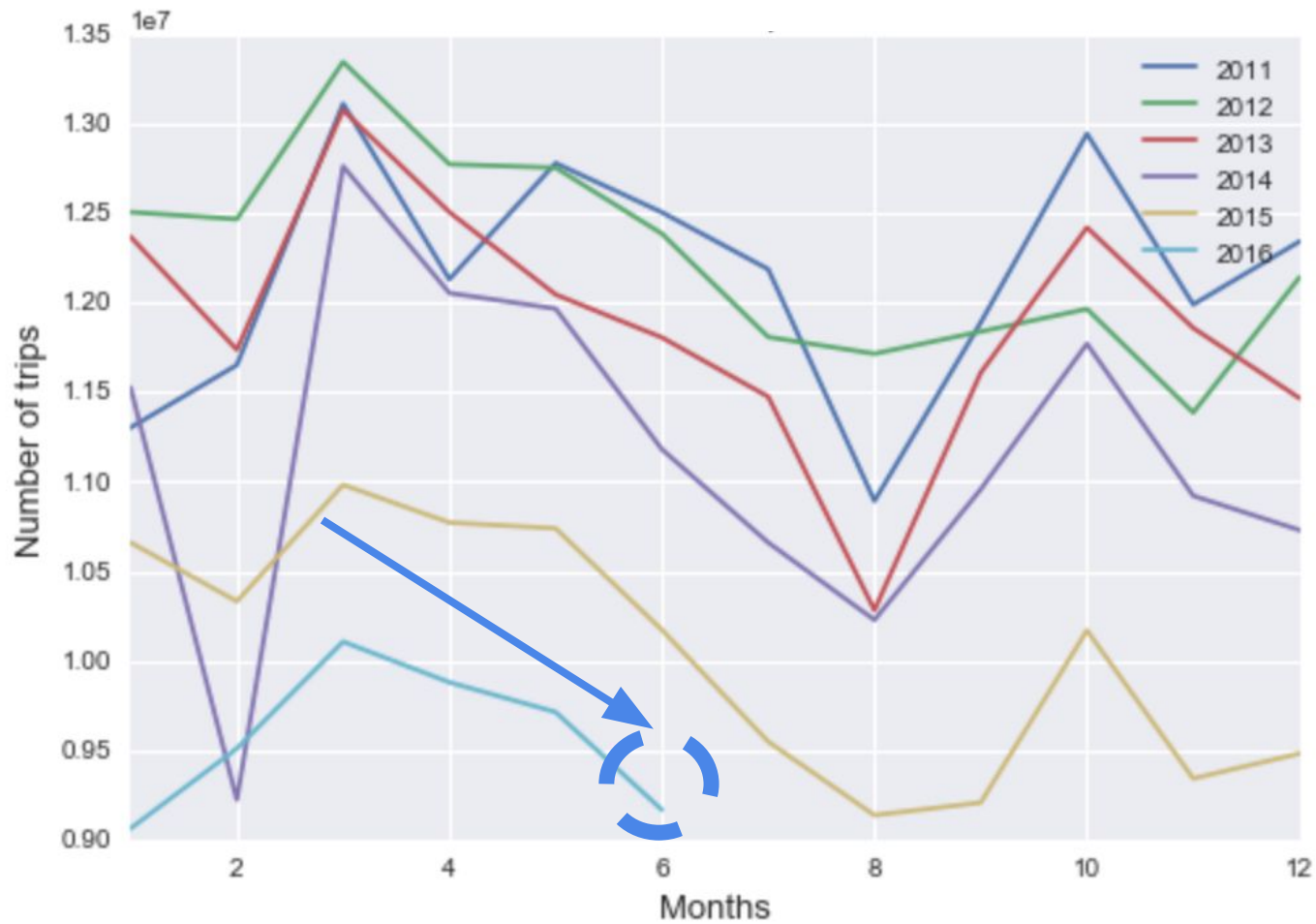
Speed of Yellow Cabs in Manhattan per Year



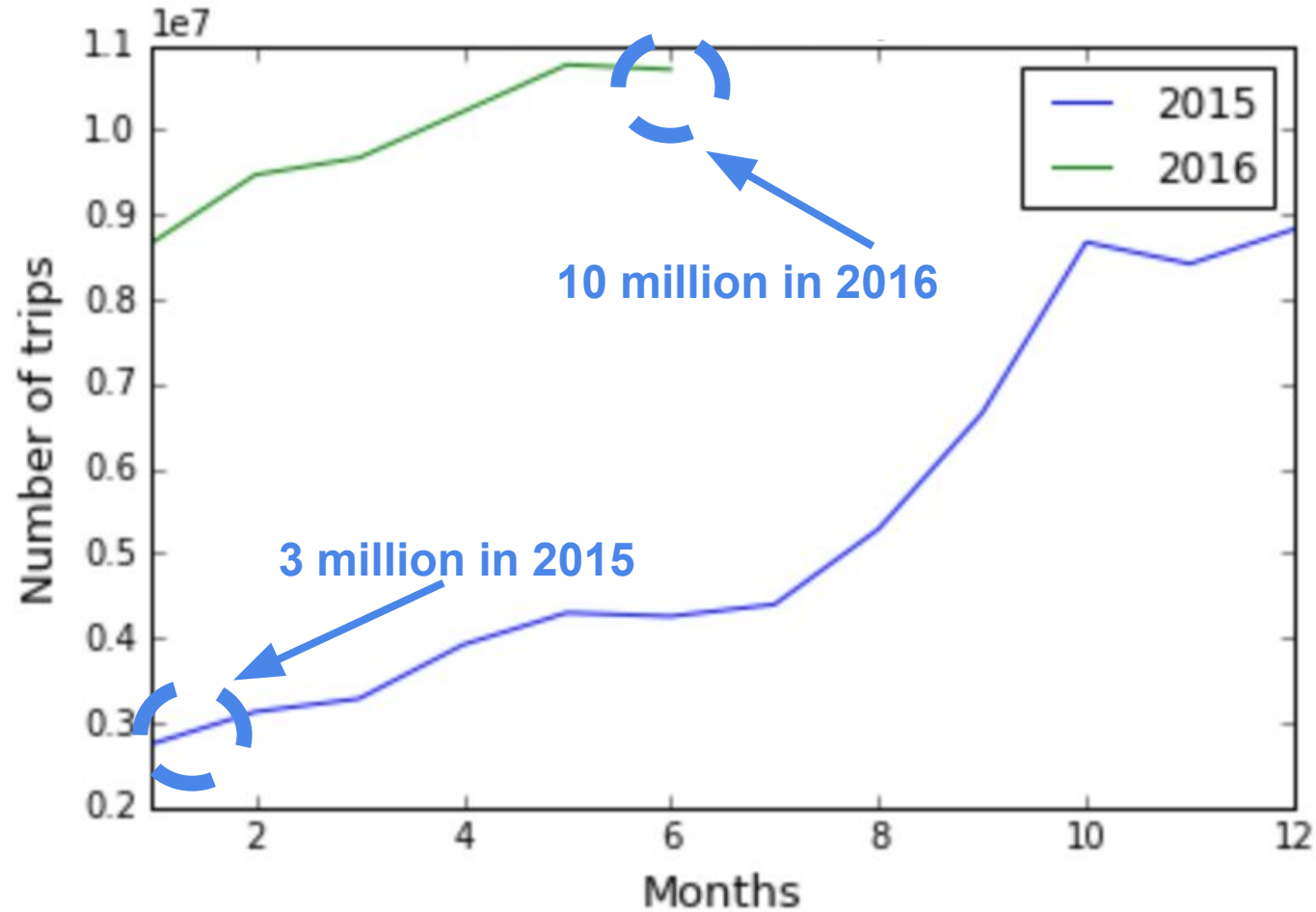
Overspeed Heat Map in Manhattan per Year



Yellow Cab Trips in Manhattan per Year



FHV Trips in Manhattan per Year



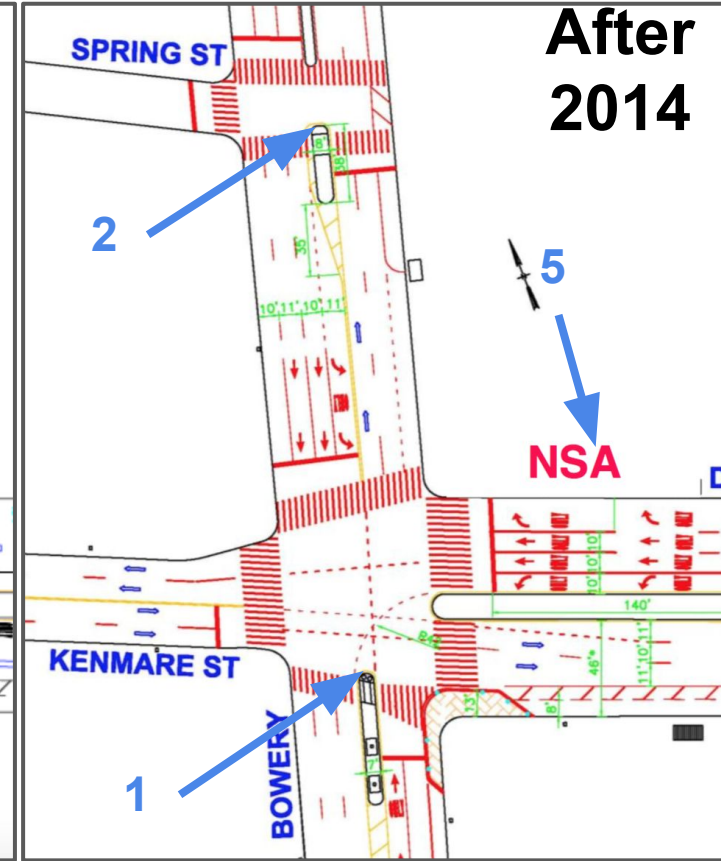
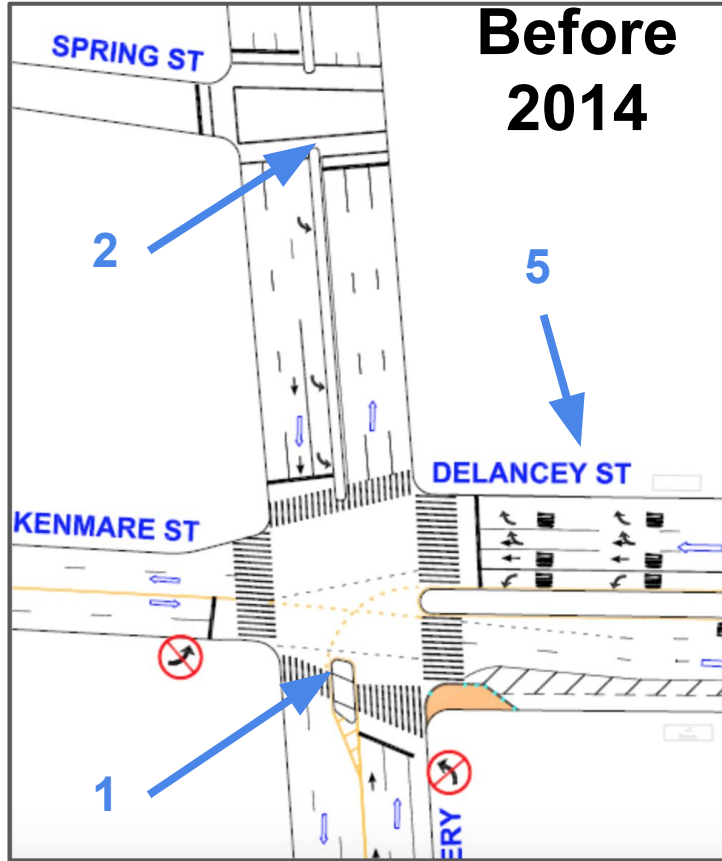
Did Vision Zero Reduce Speeds?

Hypothesis Testing on Avg speed on Sep/2014 and Sep/2015

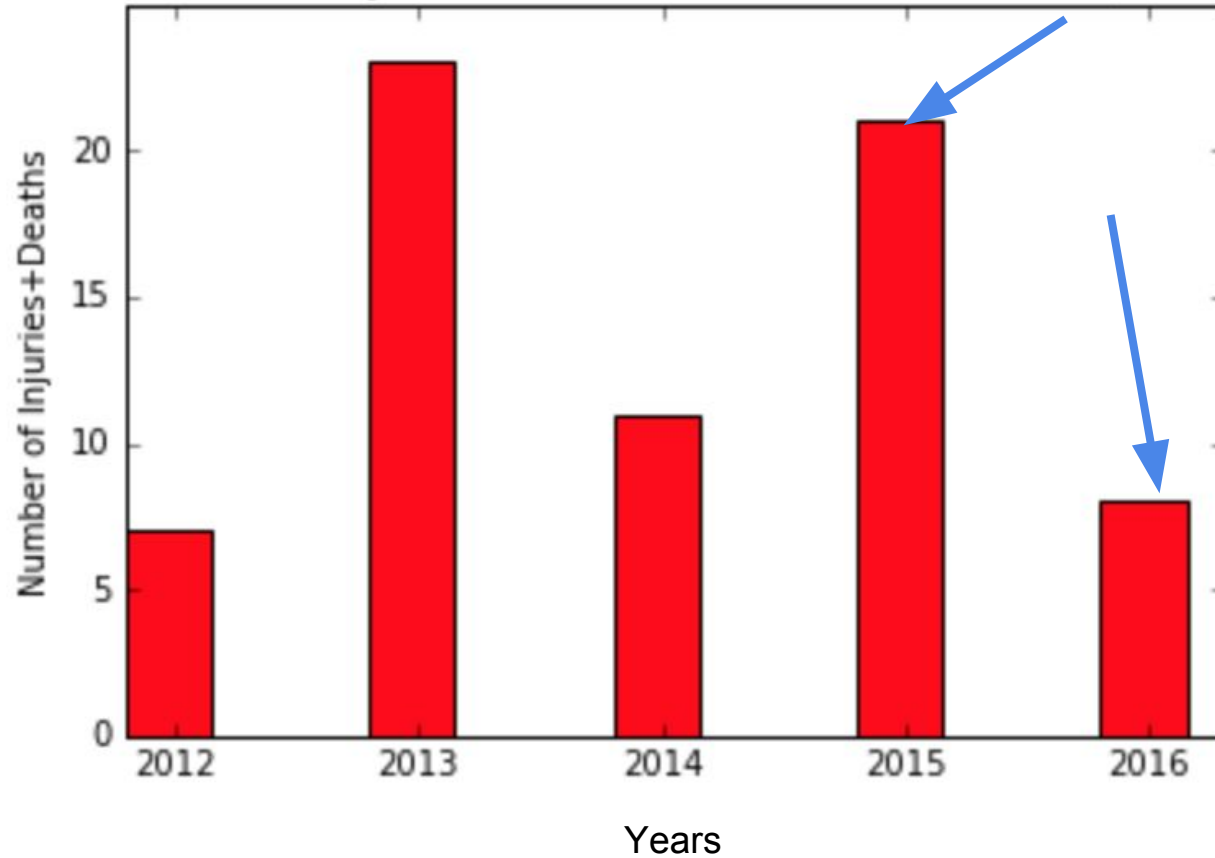
#####	$(\mu_{09_2014} = \mu_{09_2015})?$	H_a
Yellow/Green	Reject	$\mu_{09_2014} > \mu_{09_2015}$

Street Redesign on Spring/Delancey/Kenmare/Bowery in Manhattan

- 1-Reshape island to allow easier turns
- 2-Add new island at Spring St to improve pedestrian safety
- 3-Shift SB left turn bay and add another through lane with two full time receiving lanes to ease intersection congestion
- 4-Add 11 second leading pedestrian phase
- 5-Expand NSA on north curb of Delancey



Collision on Spring/Delancey/Kenmare/Bowery in Manhattan



Street Redesign on Myrtle/Wyckoff/Palmetto in Queens

1-5 turns were banned (2014) **red**

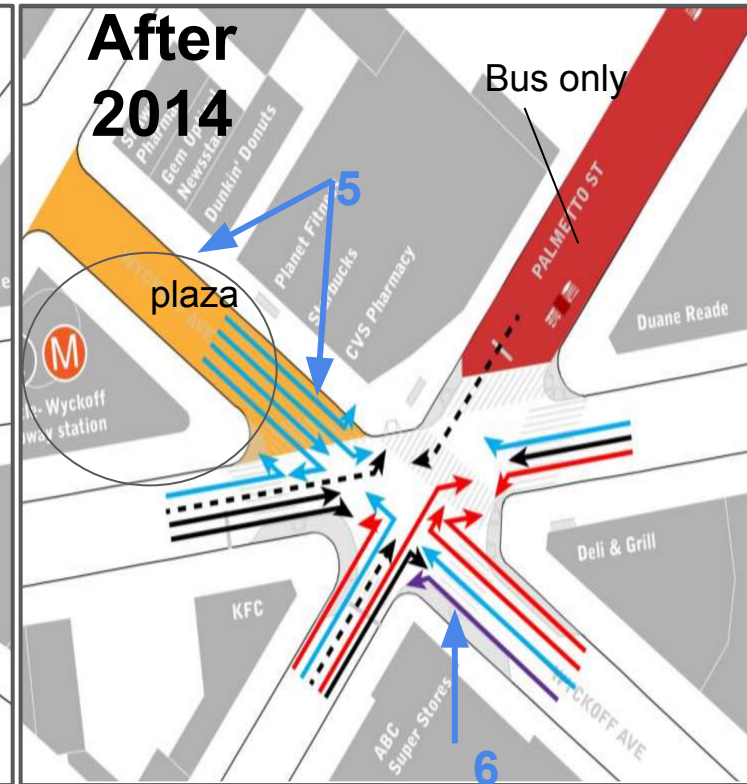
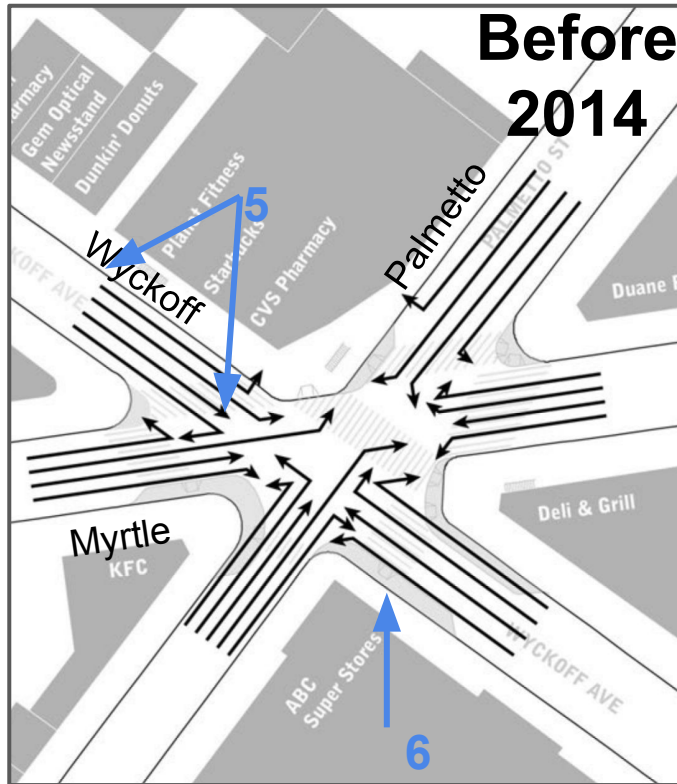
2-20 vehicular movements remain (2014)

3-Pedestrian crossings were shortened (2014)

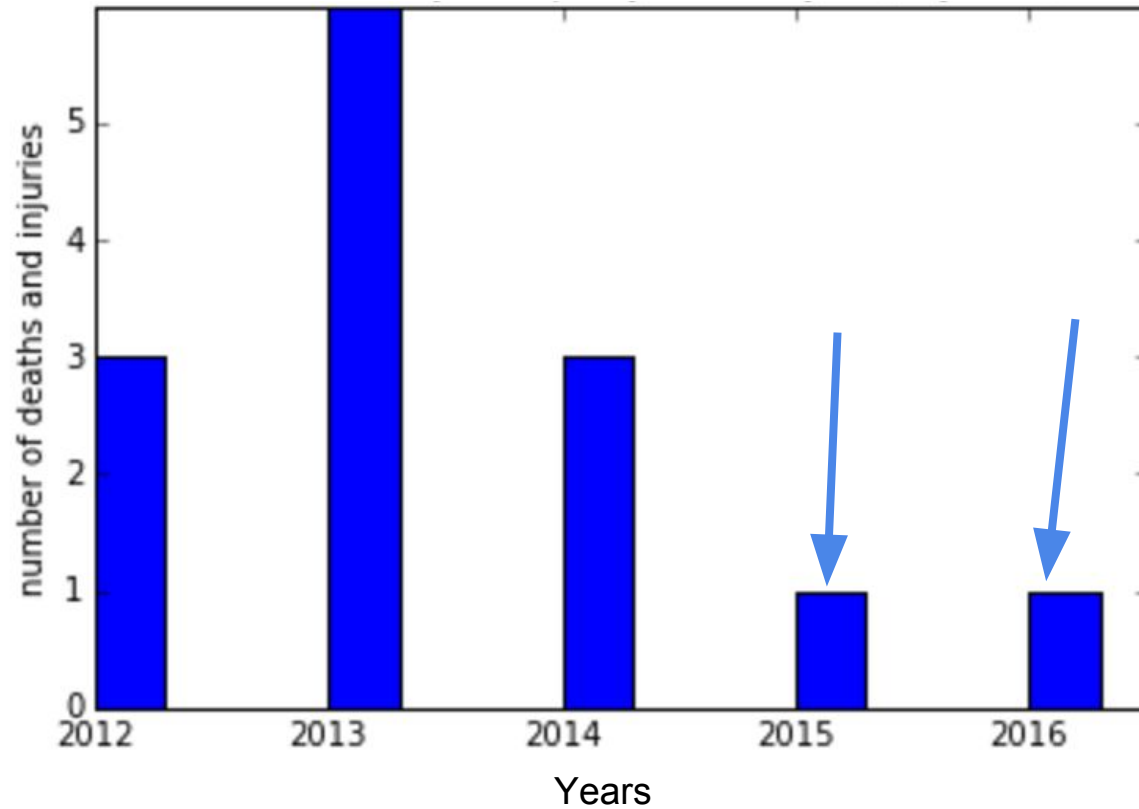
4-work with NYPD for more enforcement (2016)

5-Plaza Conversion +8 additional turns would be eliminated (2016) **blue**

6-Wyckoff one-way Southbound: +1 additional turn eliminated (2016) **purple**



Collision on Myrtle/Wyckoff/Palmetto in Queens

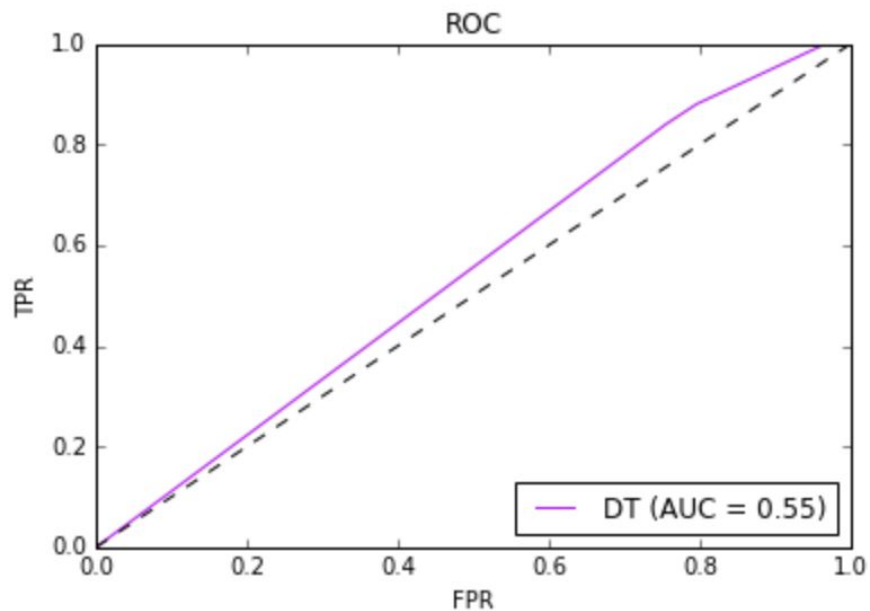


Did Vision Zero Reduce Deaths+Injuries?

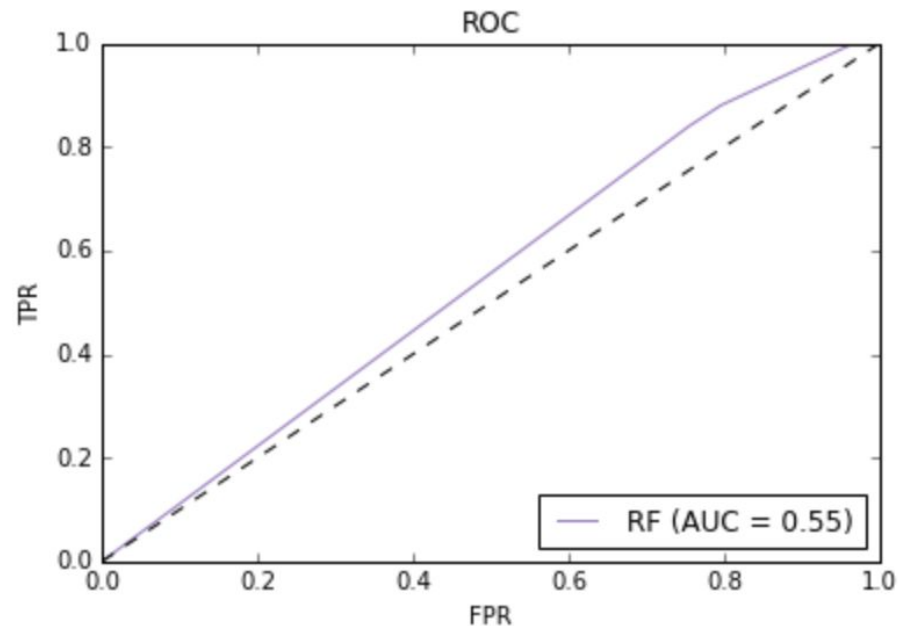
Avg of Deaths+Injuries per Year

#####	Before	After	Decrease
Delancey/Kenmare/Spring/Bowery	23	13.3	42%
Myrtle/Wyckoff/Palmetto	4.5	1.6	64%

Correlation Discovery Through Feature Importance

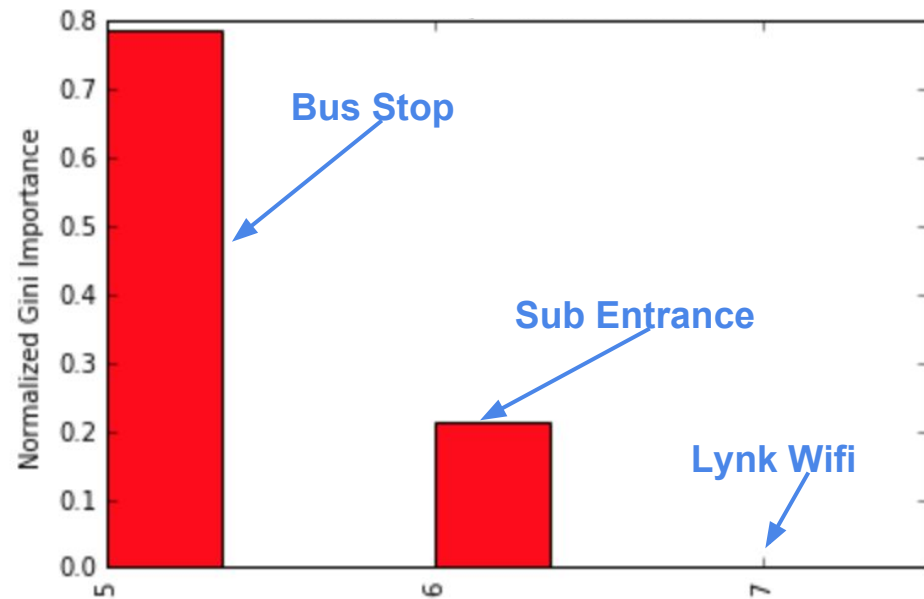


Decision Tree

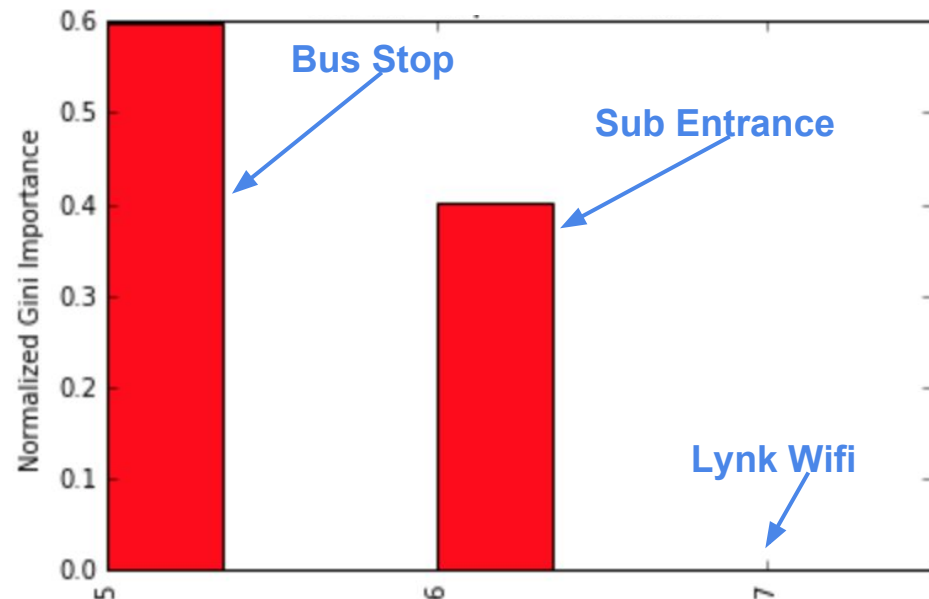


Random Forest

Can Vision Zero Do Better?



Decision Tree



Random Forest

Next Steps

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