



123 Seventh Avenue, Box 172  
Brooklyn, NY 11215

## **E-BIKE SAFETY SURVEY**

### **SUMMARY**

In response to numerous complaints and reports of crashes and other incidents, the Park Slope Civic Council, joined by Good Neighbors of Park Slope, conducted a survey of traffic-law compliance by human-powered bicycles, electric micromobility vehicles and motorcycles. The survey found a very high degree of traffic violations, including running red lights, riding on sidewalks, riding the wrong way on one-way streets (or against traffic on two-way streets), riding at a dangerously high speed, and illegally riding in bike lanes (mopeds and motorcycles only).

As detailed below, all categories of vehicles violated traffic laws frequently. Violations were higher among mopeds and throttle e-bikes.

The Civic Council recognizes the many advantages of electric micromobility vehicles but is concerned about the safety hazards posed by the frequent traffic violations the survey found.

### **INTRODUCTION**

One of the most noticeable trends in traffic in New York City over the past several years has been the increase in electrically powered, two-wheel vehicles. This increase is due to a combination of factors, including the legalization in 2020 of certain classes of e-bikes, the proliferation of food-delivery companies, the launch of smartphone apps that facilitate fast and reliable service, and the vastly increased volume of food delivery from restaurant to home since the beginning of the pandemic.

This increase has many benefits for the City, including replacing automobile traffic with less polluting electric vehicles and creating jobs and economic opportunity for tens of thousands of New Yorkers.

Regrettably, this increase has also brought about a greatly increased perception on the part of pedestrians that they are at risk of injury from e-bikes. For the Park Slope Civic Council and Good Neighbors of Park Slope, the single largest category of traffic and street-safety complaints over the past two years has concerned e-bikes and the belief that they pose a threat to pedestrians.

Although there are many anecdotes of pedestrians being injured, some seriously, in e-bike collisions, we are not aware of any formal data-collection process or of any professionally designed and implemented survey that would help quantify whether the risk to pedestrians is greater than previously, and what factors might account for an increased risk if there is one.

Recently, proposals have been made to increase the access to e-bikes in Prospect Park, which have generated a significant volume of complaints and comments to our two organizations. In his Electric Micromobility Action Plan, which was released following our survey and while this report was being prepared, the Mayor has ordered the Parks Department to allow e-bikes increased access to the City's parks on a pilot basis.

### **E-BIKE SAFETY SURVEY**

In an effort to explore further the numerous concerns raised with our organizations and to help inform public policy responses to the issue, the Park Slope Civic Council and Good Neighbors of Park Slope partnered to conduct a neighborhood survey. This survey was designed and conducted by Civic Council and Good Neighbors volunteers who are not traffic safety professionals. Nonetheless, we believe the findings are significant and carry important messages for policymakers. We would welcome the opportunity to collaborate with the Department of Transportation and/or the Department of Parks on an official survey, and we hope that our work might be helpful in informing the development of such a survey.

### **SCOPE OF THE SURVEY**

Over the course of several weeks in February and March, 2023, volunteer members observed 21 intersections throughout the neighborhood for 30 minutes at a time, most often with two observers. We surveyed intersections on all of our major avenues—Prospect Park West and 8<sup>th</sup>, 7<sup>th</sup>, 6<sup>th</sup>, 5<sup>th</sup> and 4<sup>th</sup> Avenues—intersecting with a mix of different cross streets from Flatbush Avenue to Bartel-Pritchard Square. [See attached map.] Some of the intersections had bike lanes on both streets, some on just one street, and some had no bike lanes at all. Some intersections had two one-way streets, some had two two-way streets, and some had one of each. All intersections had traffic signals. We did not make observations in Prospect Park.

The 30-minute period chosen was between 5:30 and 6:00 p.m.—light enough for surveyors to clearly identify the type of vehicle, and at a time when commuters on bikes are returning from work and food deliveries are beginning.

Our survey counted every two-wheeled vehicle that passed through the intersections during the survey period and categorized them as regular human-powered bicycles, pedal-assisted e-bikes, throttle e-bikes, mopeds and motorcycles. The significant

differences between pedal-assisted e-bikes and throttle e-bikes are described more fully below.

We were looking to identify and count the following illegal and unsafe behaviors:

- Running red lights;
- Riding on sidewalks;
- Riding the wrong way on a one-way street or against traffic on a two-way street;
- Riding at dangerously high speeds; and
- Illegally riding in bike lanes (mopeds and motorcycles only).

## **FINDINGS**

The total number of two-wheeled vehicles observed during approximately 10½ hours of surveying at these 21 intersection was 1,264. Of these, 283 were human-powered bicycles, 151 were pedal-assisted e-bikes, 402 were throttle e-bikes, 310 were mopeds, and 118 were motorcycles. The largest category was throttle e-bikes, representing nearly one-third of the total.

Of the total 1,264 vehicles observed, 655, or more than half, violated traffic laws in ways that posed risks to pedestrians, strollers, dogs, or other cyclists.

Specifically, we found:

- 410 (65%) ran red lights.
  - o Comment: In order to get a more accurate estimate of how frequently vehicles run red lights, it is necessary to factor out vehicles that arrive at an intersection when the light is green. For purposes of this calculation, we make the assumption that vehicles are confronted with a red signal approximately 50% of the time. Then, of the 1,264 vehicles observed, 632 of them were presumably confronted with a red signal, and 410, or nearly two-thirds, ran it.<sup>12</sup>
- 91 rode on sidewalks.
  - o Comment: We did not count as a violation a bike hopping up on a sidewalk in order to stop directly at a stoop or front door. Therefore, these

---

<sup>1</sup> Our surveyors counted the number of vehicles that ran red lights. However, it was impractical to ask surveyors to count separately the number of vehicles arriving at red vs. green lights and then to count how many of those confronted with red stopped and how many did not. After the survey was concluded, we timed the red/green cycles at multiple different intersections and found that in most cases, avenue traffic is confronted with red for 40% of the cycle and side street traffic for 60%. Because by far the majority of electric vehicle traffic is on avenues, the average for all EV traffic would likely be somewhere in the low 40's. By using the assumption that 50% confronted red, and using that as the denominator in calculating the percentage of violations, we are understating, not overstating, the frequency of violations, consistent with our desire not to exaggerate the extent of the problem.

<sup>2</sup> At intersections that have LPI (leading pedestrian interval) signal timing, human-powered bicycles are allowed to begin crossing with the "walk" light, thereby reducing the percentage confronting a red light, which may mean that red-light violations by regular bicycles are fewer than we report. This does not apply to any category of EV vehicles.

- 91 were instances of sidewalk riding over considerable distances, which definitely poses a serious threat to pedestrians, children, dogs, etc.
- 41 rode the wrong way, against traffic.
    - o Comment: Like riding on sidewalks, riding in the wrong direction on a one-way street or against traffic on a two-way street is a particularly serious violation as both adults and children are naturally much more alert to traffic going in the expected, legal direction. Moreover, e-bikes are typically silent or nearly so, further increasing the risk of a crash.
  - 45 rode at a dangerously high speed.
    - o Comment: This was a judgment call on the part of our surveyors. In general, if a pedal-assisted or throttle e-bike was travelling at the speed of cars, it was deemed to be riding too fast. Mopeds or motorcycles operating in car lanes were only tagged if they were traveling significantly faster than cars.
  - 72 mopeds or motorcycles rode in the bike lane.
    - o Comment: Both pedal-assisted and throttle e-bikes are allowed in bike lanes. Mopeds and motorcycles are not, presumably because their higher speeds and much greater weight pose a serious threat to regular cyclists.

## **ASSESSMENT**

The attached chart shows the distribution of traffic-law violations and unsafe behaviors among the different categories of two-wheeled vehicles surveyed. Mopeds were the most frequent violators. The total of 179 violations by 310 observed mopeds, or 58%, is the highest rate of violations of any vehicle category. More than half of the mopeds observed ran red lights. And nearly 30% rode where they were not allowed, either illegally in bike lanes or on sidewalks or the wrong way against traffic. The 21% found riding in bike lanes is actually an understatement, since many of the surveyed intersections do not have bike lanes. At major intersections with bike lanes, such as Prospect Park West/9th Street or 4<sup>th</sup> Avenue/Carroll St., we found over two-thirds of mopeds riding illegally in the bike lane where they are not allowed.

Another notable finding is the greater risk posed by throttle e-bikes as compared to pedal-assisted e-bikes. The differences in the technology of these two types of vehicles are often overlooked.

- Pedal-assisted e-bikes require the rider to pedal actively in order to get any electrical assist. They are often used by riders who need the power assist to go uphill on side streets in Park Slope or in hilly terrain such as that found in Prospect Park.
- Throttle e-bikes have pedals, but the cyclist need never use them; instead, power is supplied constantly, and the speed is regulated with a throttle control. Throttle

e-bikes are frequently heavier than pedal-assist bikes, sometimes have more powerful motors, and typically travel at higher speeds of 20-25 miles per hour.<sup>3</sup>

In addition to these greater risks that are inherent in the throttle e-bike technology, we found a greater frequency of safety violations by throttle e-bikes. For example:

- 56% of throttle e-bikes violated traffic laws. 44% of pedal-assisted e-bikes did.
- 15% of throttle e-bikes rode on sidewalks, the wrong way on a one-way street, or against traffic on a two-way street. We consider these to be the most serious violations, because of the particular threat to pedestrians and children of a vehicle coming rapidly and nearly silently from a completely unexpected direction. 8.6%, a significantly smaller percentage, of pedal-assisted e-bikes committed these violations. Moreover, pedal-assisted e-bikes are often lighter and typically travel more slowly, reducing the risk significantly, although any sidewalk riding, even with unpowered regular bikes, is a threat to others on the sidewalk.
- 75% of throttle e-bikes ran red lights, the highest of any category. All categories committed a high percentage of red-light violations, but throttle e-bikes were the worst. This is particularly significant in terms of evaluating the risk of expanding access in Prospect Park, where red-light compliance by vehicles is a crucial safety issue for pedestrians trying to cross park drives in crosswalks.

### **PEDESTRIAN AND BICYCLE SAFETY ISSUES IN PROSPECT PARK**

Cars and other motorized vehicles were banned in Prospect Park in 2018, following decades of citizen advocacy and activism and the accumulation of inarguable evidence that cars posed an unacceptable level of risk. This was a major step forward for safety. However, safety concerns remain to this day, largely involving the simultaneous use of the Park Drive by regular bicycles on the one hand and walkers, runners, wheelchair users, strollers, dog owners, etc. on the other. Indeed, in just the last couple of months, a major study by the consulting firm Sam Schwartz commissioned by the Prospect Park Alliance was released recommending a number of changes in the Park Drive to improve pedestrian/bicycle safety. Moreover, the Parks Department also announced a pilot lane realignment over approximately one-third of the Park Drive, also to address the conflicts between regular bikes and pedestrians.

We have reviewed and are pleased to support many elements of the Mayor's recent announcement of an Electric Micromobility Action Plan. However, in the context of the existing safety concerns in Prospect Park and the experimental efforts to address them, we wish that the e-bike pilot had been rolled out in a phased manner, with pedal-assisted e-bikes allowed initially and throttle e-bikes allowed only if and when careful safety assessment would show that it can likely be done safely.

---

<sup>3</sup> There are two classes of throttle e-bikes, based on their top speed, but it was not possible for surveyors to distinguish between them.

However, we are aware that the decision to allow both pedal-assisted and throttle e-bikes has already been made. In that context, we recommend the following:

1. The design of the e-bike pilot should be integrated with the Parks Department's already announced lane-redesign pilot and should include input from the Sam Schwartz team that prepared the report mentioned above.
2. Park authorities should monitor traffic conditions on the Park Drive more closely than usual in order to understand the impact of the e-bike pilot.
3. Police, EMS and Park authorities should develop robust incident reporting and data collection protocols to ensure that vehicles involved in crashes are accurately identified as to type.
4. Particular attention should be paid to ensure that e-bikes—indeed, all two-wheeled vehicles—are walked, not ridden, on pedestrian-only paths and sidewalks into and inside the park, including entrances leading to the Park Drive. In Park Slope, for example, this includes entrances at Garfield Place, 9<sup>th</sup> Street and 11<sup>th</sup> Street, and there are similar pedestrian-only access points on Prospect Park Southwest, Parkside Avenue, Ocean Avenue and Flatbush Avenue. Clear signage with both visual and multi-lingual messaging should make it clear that two-wheeled vehicles of all types must not be ridden on these pedestrian paths and sidewalks. Such signage should also direct riders to nearby legal and safe access points.
5. We encourage the Department of Transportation to prioritize completing protected bike lanes in all of the streets that border the park. This will give throttle e-bike riders viable alternatives to riding inside the Park on the Park Drive. Currently, the full length of both Prospect Park Southwest (from Bartel-Pritchard Square to Parkside Avenue) and Ocean Ave. (from Parkside to Flatbush) do not have bike lanes.

Finally, based on our observations as well as the significant weight and speed issues, we would oppose any future effort to allow mopeds and motorcycles into Prospect Park or other City parks.

### **ADDITIONAL POLICY RECOMMENDATIONS**

We believe the findings of our survey indicate an unacceptable frequency of traffic violations by all two-wheeled vehicles—particularly the more hazardous throttle e-bikes and mopeds—that pose serious risks to all New Yorkers, whether they be pedestrians, riders of human-powered bicycles or riders of these electric micromobility vehicles themselves. These findings inform the recommendations above concerning e-bikes in the City's parks. There are, however, larger issues beyond the Parks Department e-bike pilot.

The Mayor's Electric Micromobility Action Plan highlights the many environmental, economic and lifestyle advantages of e-bikes. We agree with these advantages, and

we support the recent trend of increased e-bike usage in the City. What concerns us is the safety impacts caused by the frequent violation of traffic laws. Based on our survey, this appears to be a particular problem with throttle e-bikes and mopeds, not only because of their higher percentage of unsafe behavior, their weight and their speed, but also because of their greatly increased numbers in recent years.

The Mayor's Action Plan proposes to address these safety concerns with continuation and expansion of the Department of Transportation's education efforts, continued distribution of free helmets and other safety equipment, continued construction of new bike lanes and continued research into improvements in street design to enhance safety.

We hope these efforts will make a difference, but we question whether they will be sufficient, given the persistence and frequency of traffic violations that we found.

We believe, first of all, that a significant effort should be launched to develop better data collection processes. It is notable that the Action Plan contains considerable data about the risk of fire from e-bike lithium-ion batteries, including data concerning the numbers of fires, injuries and deaths from battery fires over the past three-plus years. However, there is no comparable data about crashes, injuries and deaths occurring on the streets.

The Action Plan says the City is working to develop better data collection, but the stated purpose is "to bridge the existing data gaps in travel patterns, routes, and preferences of micromobility users, and to further develop and test a new generation of street designs and policies." We believe there needs to be a simultaneous effort to develop better data collection of crashes, injuries and deaths.

The Civic Council supports the City's recent legislative initiatives to increase compensation, improve working conditions and address other challenges facing delivery workers. As noted above, we also support the Mayor's expansion of education and training efforts and the other safety measures being implemented. At the same time, we believe policymakers must consider the possibility that more robust measures may be required to protect the public from the risks posed by the proliferation of electric micromobility vehicles. Such actions might include:

- Legislative and/or legal action to hold delivery-app companies accountable for injuries and deaths;
- Tighter regulation of moped sales and rentals to ensure vehicles are properly licensed when sold or rented;
- Some sort of mandatory crash-insurance program to provide health care and compensation for victims;
- Improved signage on bike lanes and in the parks to clarify where various categories of electric micromobility vehicles are and are not allowed; and/or
- More consistent, predictable and non-discriminatory enforcement of traffic violations by electric micromobility vehicles.

The Park Slope Civic Council would welcome the opportunity to work with appropriate City agencies and/or elected officials to continue seeking solutions for the problems identified.



TYPE OF VEHICLE	Regular Bicycles		Pedal-Assisted e-bikes		Throttle e-bikes		Mopeds		Motorcycles		Totals - All types	
	#	%	#	%	#	%	#	%	#	%	#	%
Total number observed	283		151		402		310		118		1264	
Total violations	133	47%	66	44%	224	56%	179	58%	53	45%	655	52%
VIOLATION TYPE												
Red light *	101	72%	49	65%	150	75%	80	52%	27	46%	407	65%
Sidewalk	19	7%	13	9%	42	10%	10	3%	6	5%	90	7%
One-way/ against traffic	11	4%	0	0%	18	4%	10	3%	2	2%	41	3%
High speed	2	1%	4	3%	14	3%	15	5%	10	8%	45	4%
Illegally in bike lane **	NA		NA		NA		64	21%	8	7%	72	17%

\* To calculate the frequency of red-light violations, we assume that 50% of vehicles encounter a red signal. See footnotes 1 and 2 in the text for an explanation of this assumption and how it may affect the data.

\*\* Because only the 428 mopeds & motorcycles can commit this bike-lane violation, the total percentage calculation is 72 divided by 428. Even this understates the actual frequency of violations, since only some of the streets we observed have bike lanes. See report text.

# MAP OF INTERSECTIONS SURVEYED

