SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF KINGS

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SENIORS FOR SAFETY, an unincorporated association, by and in the name of its President, Lois Carswell, and NEIGHBORS FOR BETTER BIKE LANES, an unincorporated association, by and in the name of its President, Louise Hainline,

Petitioners,

No. 5210/11
(Bunyan, J.)

For Judgment Pursuant to CPLR Article 78

- against -

NEW YORK CITY DEPARTMENT OF TRANSPORTATION, and JANETTE SADIK-KHAN, COMMISSIONER OF TRANSPORTATION, in her official capacity,

Respondents.

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AFFIDAVIT OF JOSHUA W. BENSON
IN OPPOSITION TO THE AMENDED PETITION

STATE OF NEW YORK)
) SS.
COUNTY OF NEW YORK)

1. **JOSHUA W. BENSON**, AICP, being duly sworn, states as follows under oath: I am the Director of Bicycle and Pedestrian Programs at the New York City Department of Transportation ("DOT"), a position I have held since February 2009. In this position I oversee three offices, the Bicycle Program (which I led from 2006 to 2009), the Pedestrian Projects Group, and School Safety Engineering, with a staff of 50 planners, designers, engineers and project managers. I have worked at DOT since 2000, with a two year break when I obtained a Master of Science degree in Urban Planning from the Columbia University Graduate School of Architecture, Planning and Preservation. I hold a certification from the American Institute of Certified Planners.

2. Since the fall of 2000 I have been involved in the design and installation of the vast majority of new on-street bikeways[1] in the City of New York ("City"), first as a project manager, later overseeing all project managers in the Bicycle Program, and now overseeing the Bicycle Program and two additional units; these projects consist of over 300 miles of lanes, and in the last four years alone I have been involved in over 100 such projects.[2] The project management role in bicycle projects entails project development, community outreach and then collaborating with engineers to develop final designs for implementation and finally construction oversight to ensure the project is installed correctly. Each project requires careful consideration of the potential effect on all roadway users including motorists, bicyclists and pedestrians to develop streets that function well for all. In redesigning hundreds of miles of City streets to better accommodate all users I have developed an intimate knowledge of traffic planning and engineering practices, guidelines and standards as well as installation methodologies. During this time, DOT has expanded the implementation methodologies used in bicycle projects to better meet the specific needs of the City's unique streets.

3. I submit this affidavit in opposition to the amended petition, and to set forth the process that led to the June 2010 installation of the Prospect Park West ("PPW")

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[1] Bikeways include bicycle paths, which are physically separated from traffic lanes (and are sometimes known as Class I bike paths), bicycle lanes, which are directly next to a traffic lane (and are sometimes known as Class II bike lanes), and bicycle routes, which share a motor vehicle lane. See http://www.nyc.gov/html/dcp/pdf/bike/masterpl.pdf.

[2] Since 1997, when DOT and the City's Department of City Planning jointly issued the New York City Bicycle Master Plan ("Bike Master Plan"), DOT has installed 450 miles of bikeways throughout the City, including 20 miles of Class I bike paths. The Bike Master Plan established a commitment by DOT and the City to promote bicycling in the City by, among other things, installing bike lanes and other dedicated bikeways. The Bike Master Plan is attached hereto as DOT Exhibit B.

Bicycle Path and Traffic Calming Project ("PPW Project"). I will also discuss DOT's evaluation of the PPW Project since its installation. I am fully familiar with the facts and circumstances stated herein based on my personal knowledge, my review of documents maintained by DOT and other City agencies as well as conversations with employees of DOT and other City agencies.

PPW BEFORE THE JUNE 2010 INSTALLATION OF THE PPW PROJECT

4. Prior to the installation of the PPW Project, PPW consisted of three traffic lanes (each eleven feet wide) and two parking lanes (each eight feet wide). PPW was widely considered to have excessive motor vehicle speeding. See, e.g., DOT Ex. C[3] (Community Board 6 Letter, dated 7/13/09, to DOT Brooklyn Borough Commissioner: "we have been seeking relief from speeding traffic along the Prospect Park West corridor for some time now"). Specifically, in pre-installation radar readings nearly 75 percent of the vehicles travelling on PPW broke the 30 miles per hour ("mph") speed limit; in contrast, radar readings taken at the same time one block west, on 8th Avenue (which is a two traffic lane roadway), showed that the average vehicle speed was seven and one-half mph less than on PPW. See DOT Ex. D at 7 (PPW Bicycle Path and Traffic Calming Update, Evaluation Summary and Raw Data, January 2011 ("DOT Evaluation")); Am. Pet. Ex. 7, at 2.

5. The excessive speeding on PPW was due in large part to the fact that PPW had excess motor vehicle capacity, namely that a three traffic lane roadway was unnecessary

[3] Exhibits designated "DOT Ex. __" are submitted herewith, either as attachments hereto or in a separate additional volume of exhibits. Exhibits designated "Am. Pet. Ex." are attached to the Affirmation of Jim Walden filed in support of the amended petition.

given the PPW traffic volume.[4] Specifically, it is accepted industry practice that 1900 vehicles per hour per lane is the maximum number of vehicles that can use a traffic lane. See, e.g., Ex. DOT Ex. U (Transportation Research Board, "Highway Capacity Manual," at 16-10).[5] DOT's extensive experience has shown that when the proper adjustments are made to account for urban conditions (such as signalized intersections and dense land use), 600 vehicles per hour per lane is the typical volume of vehicles that can use a traffic lane; yet pre-installation motor vehicle volume on all of the traffic lanes of PPW did not exceed 1,100 vehicles per hour. This under utilization of the PPW traffic lanes permitted vehicles to easily exceed the speed limit, and to also weave through lanes of traffic, neither of which is safe.[6]

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[4] As the 110-year-old Park Slope Civic Council stated: "we believe that the excess capacity on Prospect Park West leads to speeding and creates a dangerous condition for the many users seeking to access [Prospect] park." DOT Ex. E (Park Slope Civic Council Letter, dated 4/20/10, to DOT Brooklyn Borough Commissioner).

[5] The Transportation Research Board ("TRB") "is one of six major divisions of the National Research Council -- a private, nonprofit institution that is the principal operating agency of the National Academies in providing services to the government, the public, and the scientific and engineering communities. The National Research Council is jointly administered by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. TRB's varied activities ... annually engage more than 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia .... [TRB] is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation." http://www.trb.org/AboutTRB/Public/MissionandServices.aspx.

[6] In March 2007, DOT adjusted the traffic signals on PPW and 8th Avenue in an attempt to reduce the speed of vehicles on PPW and 8th Avenue. This adjustment was partially successful in reducing vehicle speed on PPW, but the speed reduction was less significant on PPW than on 8th Avenue. Thereafter DOT staff received complaints of vehicles again speeding between traffic signals on PPW and later confirmed the speeding in March 2009 radar speed survey. Compare DOT Ex. D, at 7 (DOT Evaluation) & Am. Pet. Ex. 6 (DOT Eighth Avenue and PPW Signal Modifications March 2007). DOT monitored 8th Avenue at three additional times (in July and November 2007 and September 2008) as part of the development of signal timing schemes for two lane one-way corridors throughout the City.

6. PPW was also used by bicyclists. Although bicyclists older than 13 are not permitted to ride on sidewalks (New York City Administrative Code § 19-176), prior to the installation of the PPW Project an unusually high number of bicyclists nonetheless did so (primarily on the east sidewalk of PPW, the Prospect Park side). During a pre-installation 12-hour count on a weekend day, 20 percent of bicyclists rode on the sidewalk; and during a similar pre-installation count on a weekday, 46 percent of bicyclists rode on the sidewalk. Indeed, I do not recall seeing such high percentages of sidewalk bicyclists in any of the other bikeway projects that I have worked on.[7]

THE COMMUNITY AND DESIGN PROCESS THAT LED TO THE INSTALLATION OF THE PPW PROJECT

7. The installation of the PPW Project stemmed from a 2007 letter request by the local Community Board.[8] In March 2007, DOT proposed a Traffic Calming[9] Plan for 9th

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[7] According to the American Association of State Highway and Transportation Officials' ("AASHTO") Guide for the Development of Bicycle Facilities ("AASHTO Guide"), sidewalk bicycling should be avoided due to the potential conflict between pedestrians and bicyclists, and because of the presence of fixed objects on the sidewalk. DOT Ex. H, at 58 (AASHTO Guide). AASHTO is a nonprofit, nonpartisan association representing local and state transportation departments. AASHTO acts as a liaison between state departments of transportation and the Federal government, and establishes technical standards for all phases of highway system development. http://www.transportation.org/?siteid=37&pageid=310

[8] In 1997, DOT identified PPW as a possible location for a bike lane in its map of Brooklyn in the Bike Master Plan. DOT Ex. B. The 1997 plan did not provide any specifics as to the design of particular bike lanes on particular streets, but rather highlighted streets that would be needed to create a citywide network of routes between major destinations and residential areas. And the plan specifically noted that each potential bike lane needed to be reviewed in detail to develop appropriate design, and also noted the availability of two-way bike path designs. Id. at 10, 42-44 & 61.

[9] The Institute of Transportation Engineers (an association of more than 16,000 transportation professionals) defines traffic calming as: "Traffic calming is the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users." ITE/FHWA, "Traffic Calming: State of the

Continued...

Street in Brooklyn. And in June of 2007, the local Community Board, Community Board 6, voted in favor of this Traffic Calming Plan for 9th Street which included the elimination of one traffic lane in each direction and the addition of a west bound and an east bound bike lane. While the east bound lane facilitated access to Prospect Park, that lane ended at PPW, and bicyclists were then forced to ride on PPW (with its speeding issues), illegally ride (if they were over 13 years of age) on the sidewalk adjacent to PPW, or illegally ride into Prospect Park on its pedestrian walkway at 9th Street.[10]

8. Addressing this conundrum, the Community Board's June 20, 2007 letter of approval requested that DOT evaluate "traffic-calming measures on PPW, including the possible installation of a one-way or two-way Class 1 bicycle path on the eastside of PPW." DOT Ex. F (emphasis added).

9. In accordance with the Community Board's request, DOT began the process of considering modifications to PPW. This process included approximately five formal site visits to PPW; in addition, several of the staff members involved in this project were familiar with the area, and had observed the PPW conditions on repeated occasions. After analyzing PPW and the surrounding area, DOT concluded that reconfiguring PPW by eliminating one traffic lane and adding a two-way bike path would address several community concerns. First, eliminating one lane of traffic would remove the excess capacity on PPW, thereby minimizing the opportunity to speed and weave among three traffic lanes. Second, adding a bike path would

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Practice," at 2 (available at http://www.ite.org/traffic/tcstate.asp). Traffic calming by its definition does not rely on the use of scarce police department resources to engage in enforcement activities.

[10] Besides Union, 3rd Street and Bartel Pritchard Square (where bicyclists can ride into Prospect Park), this conundrum existed for all east bound streets that ended at PPW.

facilitate access to Prospect Park by permitting bicyclists traveling east bound on 9th Street and other side streets to safely and legally ride to or from Prospect Park entrances on Grand Army Plaza, 3rd Street and Bartel-Pritchard Square.[11] (In addition, a bike path would enhance Brooklyn's bike lane system.) And third, it was anticipated that adding a bike path would significantly reduce the incidence of bicyclists riding on the sidewalks adjacent to PPW.

10. In reaching its determination to add a bike path on PPW, DOT also considered alternative locations, including 8th Avenue. While 8th Avenue has two northbound traffic lanes within which bicyclists can ride on, the high rate of sidewalk bicyclists on PPW (many of whom were observed traveling northbound) presented a clear demand for a northbound bicycle path on PPW. In addition, 8th Avenue has numerous intersections that increase the potential for conflicts and crashes among motorists and bicyclists, thereby decreasing the desirability and use of 8th Avenue by bicyclists. Moreover, 8th Avenue does not connect directly with Prospect Park entrances, meaning a more circuitous route to and from the park would be required.

11. DOT also considered and rejected Park Drive, which is inside Prospect Park.[12] Park Drive would not provide the connectivity to the street network that a PPW bike path would (since a bicyclist could only access Park Drive in three locations), and it would also be an indirect (and thus inconvenient) route for local trips. Further, Prospect Park is closed to the

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[11] The unique configuration of the east side of PPW made it particularly appealing for a bike path. Specifically, the east side of PPW has only limited vehicle crossings, reducing the chance of potentially dangerous bicycle/vehicle conflict, while at the same time providing numerous access points to streets that were perpendicular to and connected with PPW.

[12] Park Drive is a roadway located within Prospect Park. It is a 3.35 mile loop around the entire park that is open to vehicular traffic during weekday rush hours only.

public from 1 a.m. to 5 a.m. daily, so cyclists wishing to travel during those times must use other routes. See http://www.prospectpark.org/visit/plan/hours. Moreover, Park Drive's two traffic lanes are used by vehicles at certain times, and there is insufficient space to add an unprotected bike lane going against the flow of traffic while at the same time provide for the existing walking/running lane, bike lane and two traffic lanes.

12. Based on DOT observations (and confirmed by subsequently collected bicycle counts), PPW showed a very high rate of sidewalk cycling. DOT determined that providing bike lanes at alternative locations would not address the sidewalk bicycling issue on PPW, would not address the community desire for bike routes to access Prospect Park, and that there was an inherent appeal to PPW based on its directness and lack of full intersections.[13]

13. Also, in reaching its determination regarding the Community Board's request, DOT considered the AASHTO Guide, which was used to inform the design of the PPW Project. Specifically, the AASHTO Guide section relevant to Shared Use Paths is applicable, since the PPW Project is functionally equivalent to such a path. DOT Ex. H, at 33-59. The PPW Project operates as a distinct facility from the roadway, separated by a barrier. There are no full intersections on the corridor, only two driveways and "T" intersections on the opposite side of

[13] As noted above, DOT has developed and installed more than 100 bicycle route projects in the last four years. With each project the design is carefully considered and developed in consultation with the relevant engineering guidelines from AASHTO, Manual of Uniform Traffic Control Devices, DOT's Street Design Manual (http://www.nyc.gov/html/dot/downloads/pdf/sdm_lores.pdf), and DOT's standard marking specifications. While a formal engineering study document is typically not prepared for each project (and none was prepared for the PPW Project), the project design drawings and sign plans reflect the design decisions made as the project develops. When new or unique situations are encountered, DOT's planners and engineers consult the relevant design guidelines to develop a solution for the situation at hand, and that can then be applied to similar situations in the future in a consistent manner.

the street from the bike path. The barrier in this case is the row of parked cars and the buffer area. The AASHTO Guide also recommends a separation between the bike path and roadway of five feet or more and if five feet cannot be provided, then a physical barrier of at least 42 inches in height. In the case of the PPW Project, both the width and height of the separation recommended by AASHTO are met. The separation is over 10 feet wide (the combined width of the parking lane and buffer zone) and the parked cars function as a physical barrier with a typical height of four feet.[14]

14. While AASHTO does list potential issues (DOT Ex. H, at 34 (items 1-9)) associated with shared use paths immediately adjacent to roadways, DOT addressed these potential issues in its design of the PPW Project. The nine potential issues listed in the AASHTO Guide, together with DOT's explanation of why each concern is met in the PPW Project, are as follows:

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[14] Separat e and apart from the PPW Project, at the time that the PPW Project was being developed and installed DOT was also developing a citywide New York City Pedestrian Safety Report and Action Plan ("Pedestrian Safety Action Plan"), which was released in August 2010. See DOT Ex. T. The Pedestrian Safety Action Plan outlines major findings of a study of over 7,000 pedestrian crashes that occurred in New York City and an action plan to reduce crashes and fatalities. The PPW Project is a discrete location-specific project; it is not a citywide pedestrian safety action plan, nor is it intended to be. The PPW Project nevertheless comports with the major components of Pedestrian Safety Action Plan. To start, the Pedestrian Safety Action Plan, at 15, calls for a focus on vulnerable road users including pedestrians, cyclists and motorcyclists. Installation of the PPW Project was a demonstration of DOT focus on enhancing bicyclist and pedestrian safety as well as motorist safety. In addition, the Pedestrian Safety Action Plan found, at 23, that streets with bicycle lanes were forty percent less deadly than other streets, which is obviously addressed by the PPW Project. The Pedestrian Safety Action Plan also found, at 26, that 21 percent of all crashes in which a pedestrian was killed or severely injured ("KSI") involved speed factors and that crashes involving unsafe vehicle speeds were twice as deadly as other crashes. One of the critical components of the PPW Project design was to reduce speeding (which post-installation data indicates has been successful). Finally, the Pedestrian Safety Action Plan found, at 26, that lane changing KSI crashes were twice as deadly as other crashes. The PPW Project was designed to reduce lane changing opportunities by reducing the number of traffic lanes from three to two.

1. Unless separated, they require one direction of bicycle traffic to ride against motor vehicle traffic, contrary to normal rules of the road.

- Not applicable, path is separated.

2. When the path ends, bicyclists going against traffic will tend to continue to travel on the wrong side of the street. Likewise, bicyclists approaching a shared use path often travel on the wrong sid e of the street in getting to the path. Wrong-way travel by bicyclists is a major cause of bicycle/automobile crashes and should be discouraged at every opportunity.

- Not applicable, both ends of path are traffic circles and accommodate legal flow of bicycles away from path and to the path.

3. At intersections, motorists entering or crossing the roadway often will not notice bicyclists approaching from their right, as they are not expecting contra-flow vehicles. Motorists turning to exit the roadway may likewise fail to notice the bicyclist. Even bicyclists coming from the left often go unnoticed, especially when sight distances are limited.

- There are no full intersections along the PPW corridor, only "T" intersections on the opposite side of the road, which do not intersect the path. There are two driveways for Parks Department facilities with low volumes from a limited pool of regular users who are familiar with the bike path and aware of the direction of bicycle flows.

4. Signs posted for roadway users are backwards for contra-flow bike traffic; therefore these cyclists are unable to read the information without stopping and turning around.

- Existing street name signs are double sided and all new signs were installed facing both directions for bicyclists.

5. When the available right-of-way is too narrow to accommodate all highway and shared use path features, it may be prudent to consider a reduction of the existing or proposed widths of the various highway (and bikeway) cross-sectional elements (i.e., lane and shoulder widths, etc.). However, any reduction to less than AASHTO Green Book 1 (or other applicable) design criteria must be supported by a documented engineering analysis.

- Not applicable, right of way was wide enough to accommodate widths of the necessary features at standard widths.

6. Many bicyclists will use the roadway instead of the shared use path because they have found the roadway to be more convenient, better maintained, or safer. Bicyclists using the roadway may be harassed by some motorists who feel that in all cases bicyclists should be on the adjacent path.

- Weekly sweeping by Sanitation Department ensures path will be passable. Bicycle counts are taken monthly to assess path utilization. Path utilization is near one hundred percent, with only two percent to four percent of bicyclists using the roadway.
  http://www.nyc.gov/html/dot/downloads/pdf/20110120_ppw_data.pdf, at 8-26

7. Although the shared use path should be given the same priority through intersections as the parallel highway, motorists falsely expect bicyclists to stop or yield at all cross-streets and driveways. Efforts to require or encourage bicyclists to yield or stop at each cross-street and driveway are inappropriate and frequently ignored by bicyclists.

- Path has no intersections and only two driveways. Both driveways are treated as minor and vehicles must stop when exiting the park before crossing the bike path. When entering these driveways traffic must make a left turn from southbound PPW into the driveway and the turning traffic must yield to through moving bicycle traffic in the bike path as well as pedestrians on the sidewalk. The bike path is not stopped at the driveways.

8. Stopped cross-street motor vehicle traffic or vehicles exiting side streets or driveways may block the path crossing.

- Vehicles exiting the driveway are infrequent and have the width of the parking lane to stop without blocking the bike path. Blockage was not believed to be an issue due to the low volume driveways and has not been observed to be an issue based on follow up field observations and community consultations.

9. Because of the proximity of motor vehicle traffic to opposing bicycle traffic, barriers are often necessary to keep motor vehicles out of shared use paths and bicyclists out of traffic lanes. These barriers can represent an obstruction to bicyclists and motorists, can complicate maintenance of the facility, and can cause other problems as well.

- A barrier was deemed to be desirable to separate the contra-flow bicycle traffic from the roadway and therefore included in the design. The barrier is the parking lane and buffer zone. The barrier is not an obstruction to bicyclists and motorists because it does not interfere with the dominant north-south flow of traffic and because it has openings at the signalized "T" intersections to provide access to the cross streets. Adequate space was left between the barrier and the curb to ensure that maintenance vehicles could easily service the bike path.

15. While the AASHTO Guide states that "[b]ike lanes should never be placed between the parking lane and curb lane," this is irrelevant to the design of the PPW Project. That sentence falls under the section related to the design of bike lanes, which are distinct from this

facility which is a shared use path, a separate section in the AASHTO Guide. If the bike lane section were considered relevant, the rationale for recommending against a bike lane between a parking lane and the curb are addressed by the design of the PPW Project. The AASHTO Guide subsequently states: "Bike lanes between the curb and parking lane can create obstacles for bicyclists from opening car doors and poor visibility at intersections and driveways and they prohibit bicyclists from making left turns." DOT Ex. H, at 23. The PPW Project design addresses each one of these considerations. As to the danger of opening car doors, the bike path is separated from the parked cars by a three foot buffer zone which provides sufficient space for car doors to open without encroaching into the bike path (the typical width occupied by an open car door is two feet, six inches).[15] As to the danger of poor visibility, the unique characteristic of PPW that makes it well-suited for a protected bicycle path is that there are no full intersections and only two driveways over the entire stretch of the bike path. At the driveways, visibility concerns between the limited traffic entering and exiting two Parks Department facilities and the bicycle path have been addressed by restricting parking on the approach to these driveways. And to create visibility between bicyclists and crossing pedestrians, parking is restricted at all pedestrian crossings. Moreover, bicyclists are required to yield to crossing pedestrians by signs and pavement markings that are highlighted by flashing yellow warning beacons. Pedestrians are also alerted to the bike path and two-way bicycle traffic by signs and pavement markings. As to the danger that stems from making turns, bicyclists may exit the bike path at all signalized

[15] See, e.g., "San Francisco Shared Lane Pavement Markings: Improving Bicycle Safety Final Report," at 6 (available at http://www.sfmta.com/cms/uploadedfiles/dpt/bike/Bike_Plan/Shared%20Lane%20Marking%20Full%20Report-052404.pdf).

intersections and cross using the pedestrian signal, and bicyclists are restricted from leaving the bike path mid-block by the barrier created by the parking lane.

16. On April 16, 2009, I attended the DOT presentation of its proposal to the Community Board 6 Transportation Committee. The DOT presentation noted that the volume of traffic on PPW did not warrant three traffic lanes, that vehicles sped and engaged in reckless driving, and that the three traffic lanes resulted in long pedestrian crossings; as noted above, the March 2009 radar speed survey showed excessive vehicle speeding on PPW. The DOT presentation also noted that while the Park Slope neighborhood had a high volume of bicyclists, PPW roadway was an uncomfortable cycling environment, and that bicyclists traveled on the PPW sidewalks. DOT Ex. G (4/16/09 DOT Presentation on PPW Bicycle Path and Traffic Calming).

17. The DOT presentation outlined the proposed changes to PPW: a seven-foot wide parking lane on the west side of PPW, two ten-foot wide traffic lanes, an eight-foot wide parking lane, a four-foot buffer and a ten-foot two-way bike path, together with appropriate signage and road and sidewalk markings. Id. These changes would benefit all users of PPW. Motorists would have fewer opportunities to speed, pedestrians would have fewer bicycles on the sidewalk and reduced crossing distances, and bicyclists would have dedicated lanes with a sufficient space to avoid accidents involving motorists suddenly opening doors.[16] The Transportation Committee unanimously supported the proposal.

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[16] DOT has installed protected bike paths -- utilizing similar implementation methodologies as the one on PPW -- in a number of locations. Indeed, the Institute of Transportation Engineers awarded the City of New York its 2008 Best Program award of its Ninth Avenue Complete Street Project, which included a protected bike path. See http://www.ite.org/awards/PlanningRecipients.pdf.

18. On May 13, 2009, Community Board 6 voted in favor of the DOT proposal, but also asked that installation of the PPW Project be delayed until September 2009 so that DOT could respond to community concerns relating to pedestrian crossings, street cleaning, storm water run off, and loading and unloading issues for those using Prospect Park. DOT Ex. C (7/13/09 Community Board 6 Letter to DOT Brooklyn Borough Commissioner).

19. In response to these community concerns, DOT modified its proposal by adding flashing yellow warning beacons for bicyclists at all marked pedestrian crossings at intersections with traffic signals, adding daytime loading zones at four locations, and deciding to color the bike path green to highlight it for pedestrian crossing and for enhanced legibility of the design to motorists. DOT also modified the widths of the parking, traffic, and buffer lanes and the bike path. Specifically, DOT provided for a wider parking lane (by one foot) on the west side of PPW, wider traffic lanes (by one foot each), a narrower buffer lane (by one foot) and a narrower bike path (by two feet). Thus, the width of each parking lane and each traffic lane was identical to the width of each parking lane and each traffic lane prior to installation of the PPW Project.

20. Prior to installing a new bike path, as a matter of course DOT takes into consideration (and consults with if warranted) the concerns of the City's Fire and Police Departments. Based on prior protected bike path projects, the Fire Department has outlined specific design considerations for protected bike paths in New York City. These design considerations focus primarily on access to buildings that may need to be serviced in the event of a fire and access to fire hydrants; since the PPW Project borders Prospect Park, and there are no fire hydrants on the east side of PPW, these design considerations were not an issue. The Fire Department does seek an adequate width for a bike path so that Fire Department equipment can

use the bike path in an emergency; the bike path's 11-foot width is sufficient to address this issue. With regard to traffic flow and emergency vehicle access, the design of PPW is similar to many streets in New York City, and with the traffic signal timing adjustments DOT was confident that traffic flow would be maintained following installation of the PPW Project (and traffic data collected subsequent to installation of the PPW Project has confirmed that traffic flow was maintained). In addition to taking into account the Fire Department's considerations, the Police Department was consulted before installation: in early April 2010 the Police Department's First Deputy Commissioner was briefed on the project, and thereafter the local precinct, the 78th precinct, was notified about the project and the changes to the PPW parking lane, and sent a representative to join DOT at the community open house meeting on April 12, 2010.

21. On April 12, 2010, DOT presented its revised proposal at a community Open House sponsored by City Council Members Steve Levin and Brad Lander, Community Board 6 and DOT; more than one hundred people attended. See DOT Ex. I. On April 29, 2010, I presented DOT's revised proposal to the Community Board 6 Transportation Committee. See DOT Ex. J. Following my presentation, there were several statements that were made by the members of the committee, members of the public, and by representatives of local legislators. I distinctly recall one of the representatives stating that the PPW Project would be a trial project, and I immediately corrected this publicly by stating that the PPW Project was not a trial project, but that after its installation it would be monitored with adjustments made as deemed appropriate.

22. In fact, I do not recall anyone at DOT stating that the PPW Project was a trial or pilot project, unlike other DOT projects that are so identified. See, e.g., DOT Ex. K

(2/9/09 City Press Release "Mayor Bloomberg and Commissioner Sadik-Khan Announce Pilot 'Green Light for Midtown' Program to Reduce Congestion"). Indeed, on DOT's website that describes DOT projects throughout the City, various projects are identified as "pilot" or "trial" projects:

> Downtown Flushing Traffic and Pedestrian Safety Improvements
> DOT will begin a pilot traffic plan in downtown Flushing this July to improve pedestrian safety and improve traffic flow. The pilot plan will add and modify turning restrictions at key intersections in the downtown area .... The pilot plan also includes the widening of the sidewalks to improve pedestrian flow in the downtown area.
>
> Allen/Pike Street Improvements
> In 2009, DOT improved pedestrian safety on Allen and Pike Streets from East Houston Street to the water's edge at South Street; while creating a pilot expansion and enhancement of the malls....
>
> Brooklyn Bridge Access
> ... DOT carried out a six month trial of new traffic patterns at the intersection of Adams and Tillary Streets in downtown Brooklyn....

In stark contrast, the PPW Project is not (and has never been) identified as a "pilot" or "trial" project:

> Prospect Park West Bicycle Path and Traffic Calming
> Prospect Park West runs along the western edge of Prospect Park in Brooklyn. It currently is the site of chronic speeding which sometimes leads to injury inducing crashes. The street is in a high bicycle use area, but does not have a bicycle facility, which can cause conflicts between cyclists, pedestrians and vehicles. This project will improve conditions for all users by installing a parking protected two-way bicycle path, removing one through travel lane and installing flush pedestrian refuge islands. This will enhance safety by creating shorter pedestrian crossings and reducing vehicle speeds. It will improve connectivity, mobility and safety by providing connections to existing bicycle lanes in Park Slope.

DOT Ex. L, at 5, 9 & 14 (emphasis added).

THE JUNE 2010 INSTALLATION OF THE PPW PROJECT

23. In June 2010 the PPW Project was installed. One traffic lane was eliminated, replaced by the east side parking lane. In place of the east side parking lane, an eight-foot wide two-way bicycle path was demarcated with green paint, and next to the bicycle

path a three-foot wide parking lane buffer was demarcated with white-striped thermoplastic pavement markings.[17] To facilitate the flow of vehicle traffic, traffic signals along the corridor were retimed to turn green in a faster progression and the traffic signal splits (the percentage that a traffic signal is green for one axis of an intersection in comparison to the other axis) were modified to provide longer green traffic signals for PPW, at the expense of the side streets. These signal adjustments returned the traffic signal scheme to a more normal scheme, replacing the March 2007 scheme that reduced the green traffic signal time from PPW in an unsuccessful attempt to curtail speeding.[18] At each of the pedestrian or vehicle crossings that had traffic lights, flashing yellow warning beacons directed towards bicyclists were installed.

24. Signs requiring cyclists to yield to pedestrians at each crosswalk were also installed. In addition, pedestrian islands flush with the roadway were designated at each of the pedestrian crossings, and warning signs were designated that alerted pedestrians to "Look both ways before crossing." Pavement markings at each crosswalk were installed for pedestrians with a "Look" word message and double arrow to call attention to the two-way bicycle traffic. Bicycle guide signs were also installed. On the eastern edge of PPW (the park side) new loading zones were designated to reduce the incidence of double parking.

25. Following the June 2010 installation, DOT added flexible delineators at pedestrian islands, white striping to loading zones, and added loading zones in two locations and

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[17] While most protected bike paths are one-way, there are at least six other similar two-way bike paths in New York City, one each on Kent Avenue, Williamsburg Street West, Flushing Avenue, Tillary Street in Brooklyn, one running alongside the West Side Highway and one on South Street in Manhattan. Both the Kent Avenue and West Side Highway bike paths (at 1.6 and 5 miles respectively) are longer than the PPW bike path (which is .9 miles). Like the PPW bike path, both the Kent Avenue and Tillary Street bike paths border parks at points.

[18] These were the first PPW traffic signal adjustments since the March 2007 adjustments.

designated a no-standing zone in one location.[19] These enhancements were completed by October 8, 2010.[20]

THE EVALUATION OF THE PPW PROJECT AFTER THE JUNE 2010 INSTALLATION

26. After the PPW Project was installed in June 2010, DOT conducted an evaluation to ascertain the effectiveness of this project.[21] To that end, DOT performed bicycle counts on PPW on four separate weekdays and four separate weekend days. On two separate days DOT monitored the speed that vehicles were traveling on PPW. DOT also monitored the traffic volume on PPW on six separate days. And DOT also ascertained the time that it took a vehicle to travel the length of PPW, conducting two runs an hour over twelve hours on two separate days. Finally, DOT reviewed crash data maintained by the New York City Police Department ("NYPD"). DOT Ex. D (DOT Evaluation).[22]

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[19] A map that shows the various components of the PPW Project is submitted herewith as DOT Exhibit A.

[20] On April 13, 2011, Community Board 6 unanimously supported DOT's proposed additional enhancements to the PPW Project. These enhancements include, among other things, replacing the gravel that marks the pedestrian zones with raised islands, installing rumble strip markings on the bike path to alert bicyclists of an approaching intersection and narrowing the bike path buffer and thus widening the traffic lanes at the northern end of PPW. DOT Ex. V.

[21] Prior to June 2010, DOT collected pre-installation information relating to bicyclists utilizing PPW and its sidewalk on weekdays and weekend days, the number of such bicyclists on the sidewalk, the speed of vehicles traveling on PPW, the traffic volume on PPW, the amount of time it took to travel the length of PPW, and the number of crashes, the number of crashes involving injuries and the number of injuries.

[22] In addition to posting the DOT Evaluation on its website, in October and December 2010 DOT released preliminary results of its evaluation. See DOT Exs. N & O. In addition, on January 20, 2011, DOT appeared before Community Board 6 Transportation Committee to present its evaluation; I attended this presentation, and responded to audience questions. DOT Ex. P.

27. The DOT Evaluation indicates that the installation of the PPW Project was a resounding success. The PPW Project facilitated access to Prospect Park since bicyclists could now legally ride either north or south on PPW to the entrances to Prospect Park. In addition, bicyclists riding on the sidewalk declined significantly. Weekend day bicyclists riding on the sidewalk declined from 20 percent to four percent, and weekday bicycle riding on the sidewalk declined from 46 percent to three percent. As an added benefit, the incidence of bicycling on PPW increased significantly. DOT Ex. D, at 5 & 6.[23]

28. The incidence of speeding also declined precipitously. Previously nearly three of every four vehicles exceeded the speed limit on PPW. In stark contrast, after the PPW Project was installed only one in five vehicles exceeded the speed limit. DOT Ex. D, at 7.

29. DOT's Evaluation presented radar speed surveys taken before the installation of the PPW Project, in March 2009, as well as post-installation radar speed surveys. (DOT does have 2007 radar speed surveys from 2007 that show lower speeds than the 2009 survey, which indicates that the speeding problem had gotten worse on PPW between 2007 and 2009.) Each radar speed survey has 100 observations (i.e. each survey recorded the speed of 100 motor vehicles), and thus the sample size is large enough to stand alone. Indeed, it is accepted industry practice to rely on 100 radar speed readings.[24] And while DOT took radar speed readings at several locations along PPW, the results presented in the DOT Evaluation discussed the radar speed readings on PPW between 5th and 6th Streets. DOT Ex. D, at 7. This location is

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[23] While the before and after counting locations were not in identical spots, that is insignificant since the two locations are right next two each other, and there is no break, such as a park entrance, on the bike lane between 3rd and 5th Streets. DOT Exs. A & D.

[24] See DOT Ex. Q (Institute of Traffic Engineers, "Transportation and Traffic Engineering Handbook," at 421; Roess, "Traffic Engineering," at 207).

almost exactly in the middle of the PPW corridor and provides the best indicator of how the corridor is performing.[25] The 5th - 6th Street location also had the highest recorded speeds from the March 2009 radar readings, and thus the speeding problem at that location was most acute. Am. Pet. Ex. 7. In addition, this location had a complete set of before and after AM, Midday and PM data matches, whereas the other locations did not have a complete set of data matches; it is necessary to compare all three time periods to gain a fuller understanding of how the PPW Project affects speeds. Nevertheless, it is important to note that average vehicle speeds were down between 10 and 27 percent at all locations and at all times for which a comparison could be made.[26]

30. Although the incidence of speeding was reduced dramatically, neither the volume of vehicles using PPW nor the time it took such vehicles to travel the PPW corridor

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[25] In contrast, the other two locations, between 11th and 12th Streets and between Carroll and Garfield Streets, are at opposite ends of the PPW corridor, and thus speeds at those locations are influenced by Grand Army Plaza and Bartel Pritchard Square, which are both complex traffic circles and have different signal timing than PPW. DOT Ex. A.

[26] For example, in 2009 between 11th and 12th Streets in the afternoon survey period, the average speed was 33.5 mph. Am. Pet. Ex. 7. After the PPW Project installation, at the same location during the afternoon, in July 2010 the average speed was 25.4 mph, and in October 2010 the average speed was 27.1 mph. Am. Pet. Exs. 33 & 36. For the same location, in 2009 in the midday survey period the average speed was 33.3 mph; in October 2010 the average speed was 26.8 mph. Am. Pet. Exs. 7 & 35. (For this location, there is no pre-installation morning data and no midday data for July 2010.) At the third location, pre-installation data was gathered between Carroll Street and Garfield Street and post-installation data was gathered between Garfield Street and Montgomery Place (which is between Garfield and Carroll Streets). Here too average speeds decreased after the installation of the PPW Project. In the pre-installation morning survey period the average speed was 31.6 mph, and post-installation, in July 2010 during the same time period, the average speed decreased to 26.5 mph. Am. Pet. Ex. 7; DOT Ex. R. In the pre-installation afternoon survey period the average speed was 28.7 mph, and post-installation the speed decreased to 25.0 mph in July 2010 and 24.5 mph in October 2010. Am. Pet. Ex. 7; DOT Ex. R. (For this location, there was no midday post-installation for this location and no morning data in October 2010.)

declined in any perceptible manner. For instance, the number of vehicles using PPW essentially remained stable after the PPW Project was implemented; during the morning and afternoon rush hour there was a slight increase of vehicles at PPW and Carroll Streets, and a slight decrease of vehicles at PPW and 11th Street. DOT Ex. D, at 8. And the average time required to travel the PPW corridor actually decreased by seven seconds.[27] Moreover, PPW continued to provide the shortest travel time through Park Slope when compared to 6th, 7th and 8th Avenues. DOT Ex. D, at 10.

31. While PPW was not considered a high crash corridor (and thus reducing crashes was not one of the three goals of this traffic calming project), the data on crashes also indicates the success of the traffic calming efforts that resulted from the installation of the PPW Project. Comparing the crash data for the last six months of 2010 with the last six months of the three prior years (thereby accounting for seasonal variations) shows that crashes declined from an average of 29.7 to 25, that the number of injuries from crashes declined from an average of 6.3 to 5, and that the number of crashes involving injuries declined from 5.3 to 2.[28] DOT Ex. D, at 12.

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[27] Illegal speeding as measured by radar speed studies can decline while travel times remain the same or improve due to reductions in the amount of time spent at red lights (which is included in travel time surveys). The time spent at red lights was reduced due to the hastened signal progression and increased green time for PPW.

[28] There were a limited number of crashes, injuries as a result of crashes, and crashes involving injuries over six month periods (both before and after) along the PPW corridor. Therefore, during our presentation at the January 20, 2011 Community Board 6 Transportation Committee meeting, DOT noted that only preliminary conclusions were possible given that only six months of data was available, and that a more conclusive analysis could only be completed after additional time had passed. Nevertheless, the data available at the conclusion of the six-month period showed no indication that implementation of the project had created a hazardous condition on PPW.

32. DOT's analysis of crash data conformed with the accepted industry practice of using three years worth of data when performing before and after crash comparisons. For instance, Chapter 2 of the Federal Highway Administration's Highway Safety Improvement Program Manual states: "Typically a minimum of three years of crash data is used for analysis." DOT Ex. S, at 2-12. Three years worth of data is preferable since "crash experience can vary at a location from year to year, so it is important that more than one year of data is used for the analysis."[29] Id. For this reason, DOT typically uses three years of before-crash data when evaluating traffic improvements. See, e.g., DOT's January 2010 Green Light for Midtown Evaluation Report ("DOT Midtown Evaluation Report"), at 29-30.[30]

33. In its evaluation of the PPW Project, as in other corridor (such as PPW) evaluations, DOT's standard practice (see, e.g., DOT Midtown Evaluation Report, supra fn 30; DOT Ex. G (4/09 DOT PPW presentation)) is to use "cross street" data so that all crashes at a given intersection are included. In performing these crash evaluations, DOT uses NYPD crash data that codes all crashes with both the street that the accident occurred on (known as the "on" street), as well as the cross street. When an accident occurs at an intersection, the police officer filling out the accident report could indicate either street that forms the intersection as the "on" street and the other street as the cross street. Thus, in analyzing the PPW crash data, DOT used all crashes (both before and after the PPW Project installation) where PPW was identified as the

[29] The data from 2010 contained such a statistical anomaly. While there were only two crashes involving injuries in 2010, one of those crashes resulted in injuries to four individuals. In contrast, for the 100-plus crashes that occurred during the last six months between 2007 and 2010, only three other crashes resulted in more than one injured individual, and each of those three involved two injured individuals. Ex. D, at 63-64 (DOT Evaluation).

[30] Available at:
http://www.nyc.gov/html/dot/downloads/pdf/broadway_report_final2010_web2.pdf.

"on" street as well as all crashes where PPW was identified as the cross street (and a side street was listed as the "on" street). Moreover, DOT reasonably used this "cross street" data since the vast majority of all crashes occur at intersections and therefore including the crashes provides a much more conservative analysis than excluding. If "cross street" crashes were omitted, a crash analysis would leave out crashes that legitimately occurred at the intersection in question.

34. A significant crash data category -- crashes involving injuries -- dropped by 50 percent, between 2009 and 2010 and dropped by 33 percent if "cross street" crashes are omitted. The drop in crashes causing injuries is not surprising given that speeding on PPW dropped dramatically, and that crashes at higher speeds are associated with more severe injuries. See DOT Ex. T, at 26 (Pedestrian Safety Action Plan).

35. Finally, DOT recently conducted a nine month (July to March) before and after review of NYPD's crash data for the PPW corridor. Comparing the crash data for the nine months between July 2010 and March 2011 with the same nine month period for the three years before the PPW Project was installed shows that crashes declined from an average of 43.3 to 34, that the number of injuries from crashes declined from an average of 8.7 to six, and the number of crashes involving injuries declined from an average of 7.3 to three. And a comparison of the data for the July 2009 to March 2010 period also shows declines in all three categories: crashes went from 45 to 34, the number of injuries from crashes declined from nine to six, and the number of crashes involving injuries declined from eight to three. The data that forms the basis for these numbers is attached as DOT Exhibit W, and tables that set forth these numbers are as follows:

Motor Vehicle Crashes
Prospect Park West
President Street to 14th Street

Before: July 1, 2007 to March 31, 2008	45
Before: July 1, 2008 to March 31, 2009	39
Before: July 1, 2009 to March 31, 2010	46
Before: July 1, 2007 to March 31, 2010 - July-March only (3 Years)	130
Before Average for Each 9 Month Period	43.3
After: July 1, 2010 to March 31, 2011	34
Percent Change	-21.5%

Injury Motor Vehicle Crashes
Prospect Park West
President Street to 14th Street

Before: July 1, 2007 to March 31, 2008	7
Before: July 1, 2008 to March 31, 2009	7
Before: July 1, 2009 to March 31, 2010	8
Before: July 1, 2007 to March 31, 2010 - July-March only (3 Years)	22
Before Average for Each 9 Month Period	7.3
After: July 1, 2010 to March 31, 2011	3
Percent Change	-59.1%

Injuries from Motor Vehicle Crashes
Prospect Park West
President Street to 14th Street

Before: July 1, 2007 to March 31, 2008	9
Before: July 1, 2008 to March 31, 2009	8
Before: July 1, 2009 to March 31, 2010	9
Before: July 1, 2007 to March 31, 2010 - July-March only (3 Years)	26
Before Average for Each 9 Month Period	8.7
After: July 1, 2010 to March 31, 2011	6
Percent Change	-30.8%

This analysis confirms yet again the efficacy of the PPW Project.

JOSHUA W. BENSON

Sworn to before me on
June 2, 2011

Notary Public

N. PATRICIA BROWNE
Notary Public, State of New York
No. 02BR6006421
Qualified in Queens County
Commission Expires Dec. 31, 2013