

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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REBECCA BRAY, THOMAS STEPHANOS,
JUSTIN McSIMOV, DAN FENNESSEY, and
ALLEN REGAR,

Plaintiffs,

-against-

04 CV 8255 (WHP)(RLE)
ECF

THE CITY OF NEW YORK, RAYMOND KELLY,
POLICE COMMISSIONER OF THE NEW YORK
CITY POLICE DEPARTMENT, NEW YORK CITY
POLICE OFFICERS JOHN AND JANE DOE
(names and number of whom are unknown
at present) and other unidentified members of the
NEW YORK CITY POLICE DEPARTMENT,

Defendants.

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I, CHARLES KOMANOFF, declares under penalty of perjury:

1. My qualifications in transportation and traffic policy analysis are set forth in my October 27, 2004 declaration in this proceeding. In that declaration, I asserted that traffic delays to motor vehicles resulting from the monthly Critical Mass bicycle rides in New York City are, in the aggregate, de minimis compared to ordinary delays that motor vehicles in New York City impose upon each other through their routine operation.

2. On November 12, 2004, the City of New York filed a declaration by Michael Primeggia, the Deputy Commissioner of the City Department of Transportation. Mr. Primeggia asserts that my October 27, 2004 declaration understated the traffic delays to motor vehicles from Critical Mass rides.

3. I have carefully reviewed Mr. Primeggia's declaration, and have composed this declaration in response. My main points are as follows:

- Mr. Primeggia's arguments fail to refute my finding that the Critical Mass rides do not impose unduly burdensome traffic delays on motor vehicle users, either in particular cases or on in the aggregate.
- The Critical Mass rides are an outgrowth of, and a constructive response to, dangerous traffic conditions resulting from City officials' chronic and systematic failure to control the volume and behavior of motor vehicle traffic.

4. My declaration takes up these points in the order outlined above. Notwithstanding the length of this statement, the evidence presented here is a mere précis of the City's comprehensive and institutionalized indifference to creating a safe and humane street environment for its citizens. On countless occasions over the years, cyclists and pedestrians have petitioned the City to reduce traffic volumes and restrain the "thugarchy" that operates to the detriment of bicyclists and pedestrians (and many motor vehicle users as well). City officials have consistently turned a deaf ear to their pleas, and the Critical Mass rides are the result. Now the City comes to this Court waving the banner of traffic safety and efficiency to suppress these rides — rides which the City's own culpable neglect has made necessary. I urge the Court to recognize the breathtaking effrontery of this gambit and reject it.

5. Mr. Primeggia's arguments fail to refute my finding that the Critical Mass rides do not impose unduly burdensome traffic delays on motor vehicle users.

6. In my October 27, 2004 declaration, I asserted that a typical motor vehicle traveling across the path of a Critical Mass ride with 2,000 participants experiences an average

delay of 3½ minutes.¹ Mr. Primeggia contends that the actual delay to motor vehicles caused by a ride of that size is “a minimum of ten minutes.” (Primeggia Decl., ¶ 6) Part of the difference between these figures arises from Mr. Primeggia’s specification that an individual bicyclist riding in Critical Mass occupies 20 linear feet of roadway space, vs. my assumption of 15 feet. My figure is based on direct personal observation; Mr. Primeggia does not cite any basis for his figure.

7. Another, smaller factor in the difference appears to arise from a rounding error on Mr. Primeggia’s part. However, most of the difference is caused by Mr. Primeggia’s flawed account of how traffic builds up on the cross-streets while the ride is passing. He evidently assumes that every motor vehicle waiting on the cross-street arrived there simultaneously just as the front of the Critical Mass ride arrived at the same point on the avenue; this assumption leads him to assume that every motor vehicle on the cross-street endures the maximum waiting time.

8. In reality, motor vehicles arrive in the cross-street continuously and randomly; accordingly, for each motor vehicle that arrived at the cross-street “queue” simultaneously with the front of the bicycle ride, and thus suffered the maximum wait, there is another motor vehicle that joined the queue just as the back of the ride cleared the avenue, and thus experienced no waiting time whatsoever. Thus, while the maximum waiting time is 7.1 minutes² (assuming my 15 feet of cyclist “headway”; or 9.5 minutes assuming 20 feet, per Mr. Primeggia), the average

¹ Due to a document conversion error, the same figure of 3½ minutes in my October 27, 2004 declaration apparently became garbled, leading Mr. Primeggia to refer to it in his declaration as “3 [sic] minutes.” For the record, the figure 3.55 minutes appears in my October 27, 2004 appendix, alongside the entry “average delay time per vehicle in the queue, minutes.”

² The figure of 7.1 minutes appears in my October 27 appendix, alongside the entry “maximum delay time experienced by one vehicle (the first in the queue), minutes.” This and other figures in the text pertain to a 2,000-person Critical Mass. All figures may be prorated to different ride sizes.

waiting time is only about half as much, or 3.5 minutes (4.7 minutes assuming 20 feet of headway).

9. To summarize this point: the average delay imposed on a typical cross-street motor vehicle seeking to cross the path of a 2,000-person Critical Mass ride is 3.5 to 4.7 minutes, depending on whether the average linear distance between the bicycle riders is 20 or 15 feet. Mr. Primeggia's assertion that "each motor vehicle intersecting at a cross street will be prevented from moving for a minimum of ten minutes" (Primeggia Decl., ¶ 6) overstates the true average delay by a factor of two to three.

10. Traffic delays can also be expressed as the number of complete traffic-signal "cycles" that elapse before a motor vehicle reaches and proceeds through the next intersection. In the spreadsheet appendix to my October 27, 2004 declaration I estimated that the maximum number of additional signal cycles that a cross-street motor vehicle is expected to experience in a 2000-person Critical Mass ride is 4.8.³ The average number is then half this figure, or 2.4 cycles, on account of the fact just noted that each vehicle experiencing the maximum delay has a counterpart vehicle that experiences no delay, with the result that the maximum delay is twice the average. Mr. Primeggia is thus mistaken in asserting that "motorists [intersecting at a cross street] are prevented from moving for six to seven complete signals" (Primeggia Decl., ¶ 6) for the same reason that his delay time estimates are systematically and grossly overstated.

11. Mr. Primeggia also raises the issue of delays to motor vehicles using the same avenues as the Critical Mass riders. (Primeggia Decl., ¶ 5) In my October 27, 2004 declaration I limited my calculations of vehicular delays to the effects on cross traffic only, so as to address

³ The figure 4.84 appears alongside my October 27, 2004 spreadsheet entry "maximum delay imposed on cross street traffic, # cycles."

the effect of cyclists riding “in a mass” and preventing motor vehicles with green signals from crossing the ride. Thus, I excluded impacts on motor vehicles trailing the riders (i.e., on avenues), since these vehicles would be impeded by the bicycles regardless of whether the bicyclists obey red lights.

12. There is no question that motor vehicles traveling on an avenue will take longer to reach their destinations if they are directly preceded by 2,000 additional vehicles, whether cars or bicycles, traveling on that avenue at the same time. Each vehicle, motor- or human-powered, imposes delays on every other vehicle behind it — that is the ineluctable nature of “traffic.” Each driver wants to his or her vehicle to be the only one on the road, for precisely that reason. But while this wish is only human, it cannot form the basis for public policy. Having to wait behind bicycles may be onerous, but far less so than having to wait behind the same number of motor vehicles. §

13. I therefore urge the Court to reject Mr. Primeggia’s effort to count such waiting times as part of the aggregate delays experienced by motor vehicles as a result of Critical Mass rides. Whatever delays may be caused to drivers behind the ride are caused by the cyclists’ doing precisely what the drivers are doing, namely enjoying their right to use the public roadways. Parenthetically, it should be noted that the delays to road-users behind the Mass would be considerably greater if the Mass riders punctiliously observed traffic lights, as the City elsewhere insists they should.

14. Nevertheless, if delays to trailing motor vehicles on avenues are considered to be part of the traffic costs from Critical Mass, these delays should be estimated without double-counting the number of such vehicles — quadruple-counting, actually — as Mr. Primeggia appears to have done. The aggregate such delay is estimated by calculating the product of the

number of trailing vehicles affected by the ride, times the average delay experienced by each. Assuming that 2,000 cyclists are participating in the ride, the average delay experienced by each trailing vehicle is simply the time required for the ride to pass; as shown in my October 27, 2004 spreadsheet and noted above, this figure is 7.1 minutes. The number of trailing vehicles is approximately half of the number of vehicles on a Manhattan avenue during the duration of a Critical Mass ride. I am willing to accept Mr. Primeggia's estimate that 3,000 vehicles use each avenue in the Manhattan Central Business District on a Friday evening (Primeggia Decl., ¶ 5). The aggregate delay imposed on avenue motor vehicles is then one-half of 3,000 (since on average half of the vehicles on an avenue used by Critical Mass will be in front of the ride and thus unaffected by it), or 1,500, times 7.1 minutes, which equates to roughly 180 hours.⁴

15. In estimating cross-traffic delays in my October 27, 2004 declaration, I incorporated an additional factor of 50% to reflect possible "indirect" traffic impacts. Applying that factor as well to 180 hours of direct avenue-traffic delays increases their aggregate delay to 270 hours, or a little more than half of the delays of 480 hours that I calculated for cross traffic.

16. Mr. Primeggia's assertion that "there are approximately 58,650 vehicles traveling in the affected areas at the time of the ride" (Primeggia Decl., ¶ 5), whether true or false, is irrelevant. The appropriate metric for gauging the impact of Critical Mass rides on motor vehicles is the aggregate hours (vehicle-hours) of delay. As I have shown, this is approximately 480 hours for cross-street traffic. If impacts on avenue traffic are included as well, those would

⁴ Mr. Primeggia contends that 6,000 vehicles experience delays on avenues. (Primeggia Decl., ¶5). He arrives at this figure by counting all 3,000 vehicles that use a northbound avenue during the full 90 minutes of the Critical Mass ride and all 3,000 vehicles that similarly use a southbound avenue. But this is clearly double-counting, since the northbound and southbound legs of the ride cannot both last for the entire 90-minute period over which Mr. Primeggia's agency counted 3,000 vehicles per avenue. Assuming that Mr. Primeggia's figure of 3,000 motor vehicles per avenue during a 90-minute interval is correct, then that is the number of vehicles potentially affected, to one degree or another, by following the Critical Mass ride — 1,500 for the northbound 45 minutes, plus another 1,500 for the southbound 45. As I note in the text, that 3,000 figure is itself too high by a factor of two because it requires that all of the motor vehicles be behind the ride.

add approximately 270 more hours, resulting in a total of 750 vehicle-hours of delay. (All of these figures pertain to a 2,000-bicycle Critical Mass ride.)

17. In my October 27, 2004 declaration I contrasted my estimate of 480 vehicle-hours of delay per ride to the 730,000 vehicle-hours of delay that motor vehicle drivers experience in New York City on an average day. Mr. Primeggia did not contest the 730,000 figure. Rather he argued that it was not a meaningful base for comparison. (Primeggia Decl., ¶ 5). Tellingly, however, Mr. Primeggia did not indicate what, in his judgment, would be a meaningful baseline against which to evaluate the delays created by Critical Mass rides. Nor did he proffer a delay threshold (expressed either in total hours or in percentage increment to ongoing traffic delays) that, in his view, would constitute an excessive or intolerable infringement upon motor vehicle drivers.

18. Thus, the City has left the Court with no standard by which to determine if any group bicycle ride is ever acceptable from a traffic-impact standpoint. Then again, for the City to propound such a standard would require, for consistency, that it also apply the standard to motor vehicle traffic. This of course would put the City in the untenable position of finding that much of the motor vehicle traffic it permits to operate in midtown Manhattan and other parts of the City violates its own standard.

19. Moreover, if control of traffic is the City's concern with Critical Mass, City officials have ample opportunities to implement traffic-control measures that could easily offset any motor vehicle delays attributable to Critical Mass rides; their failure to do so reveals the hollowness of their contention that the rides are objectionable on traffic-delay grounds.

20. I have shown above that the delays to motor vehicles caused by a 2,000-person Critical Mass ride sum to as few as 480 vehicle-hours and no more than 750 vehicle-hours. In my

October 27, 2004 declaration I demonstrated that these delays are statistically invisible against the backdrop of ordinary traffic delays in Manhattan and New York City. For example, the 480 vehicle-hour figure is a mere 1/1500 (one part in 1,500) as much as overall New York City motor vehicle delay-hours on a typical weekday; it is also just 1/46,000 (one part in 46,000) of the delay-hours sustained by motor vehicle drivers in the course of a month.⁵ (The latter figure is germane because Critical Mass rides take place once a month.)

21. City officials have at their disposal numerous means to regulate traffic volume and flow in order to ameliorate traffic delays, if the amelioration of these delays is in fact a serious goal of public policy.

22. For example, following are six ways in which the City could offset the traffic impact of Critical Mass:

Offset #1 — Enforce City Traffic Law Prohibiting Operation of “Mobile Billboards”

Offset #2 — Toll New York City’s East River Bridges

Offset #3 — Offer City Employees a Cash Alternative to Free Parking

Offset #4 — Include Critical Mass in DOT Traffic Advisories

Offset #5 — Conduct Regular Friday Evening Ticket “Blitzes” in the Manhattan CBD

Offset #6 — Foster Motor Vehicle Drivers’ Adaptation to the Presence of Critical Mass

23. I have analyzed each of these measures in detail and have estimated that they would individually eliminate, in the Manhattan Central Business District alone, anywhere from the same amount of traffic impact as that caused by Critical Mass (in the case of “Offset #1”), to hundreds of times as much impact as that caused by Critical Mass (Offsets #2 and #3). The

⁵ If avenue delays are also to be counted, then the delays to motor vehicles attributable to Critical Mass rides with 2,000 participants are 1/1,000 as much as ordinary City-wide delays sustained by motor vehicles on the same day, and 1/30,000 as much as the ordinary delays over the course of the month.

City's failure to use these tools, after decades of clogged and chaotic traffic in New York, suggests that its annoyance with Critical Mass derives more from an ideological aversion to the ride itself than from concern over traffic efficiency and safety.

24. The Critical Mass rides are an outgrowth of, and a constructive response to, dangerous traffic conditions resulting from City officials' chronic and systematic failure to control the volume and behavior of motor vehicle traffic.

25. In my October 27, 2004 declaration, I asserted that the Critical Mass rides contribute to an increased "population" of bicycle users in New York City by providing an environment in which novice riders can "get their feet wet" with city cycling and then "graduate" to regular riding. I also made reference to statistical studies that have documented a phenomenon known as safety-in-numbers: cyclists are safer where there are more of them. Since these phenomena are an important part of the popularity and social value of Critical Mass, I wish to elaborate on them for the Court.

26. First, it is incontrovertible that Critical Mass functions as an incubator of city cyclists. While there are no survey data to estimate the effect, I have personally met numerous newcomers to New York City cycling who have attested to being encouraged and emboldened to ride here by participating in Critical Mass rides. During the last half-dozen years, before the sudden and inexplicable "crackdown" in recent months, the relaxed and safe environment afforded by the rides stood in marked contrast to the intimidating gauntlet presented by the usual car-choked city street.⁶ Surrounded by other cyclists, people unaccustomed to the rigors of ordinary, solitary on-street cycling can become comfortable with city riding by participating in

⁶ Weekends once functioned as a cyclist incubator, but no longer, as heavy traffic has become a 7-day-a-week affair. While parks and greenways remain good venues for learning or sharpening cycling skills, Critical Mass is uniquely suited for conveying the feel of on-street cycling.

Critical Mass. As well, more experienced cyclists who may be wearying of maintaining a hyper-vigilant, adrenaline-charged state to ward off the ever-present traffic dangers can “recharge” in the convivial, secure space carved out by Critical Mass.

27. In turn, the more cyclists there are on the street, the safer each of them becomes.⁷ Anecdotal evidence has long suggested that the per-cyclist rate of bicycle collisions with motor vehicles declines as the amount of cycling on a road or in a region increases. This “safety in numbers” effect is thought to occur because as cyclists grow more numerous and come to be an expected part of the road environment, motorists become more mindful of their presence and more respectful of their rights. The implication is that adding more cyclists to the road makes it less likely that a motorist will strike an individual cyclist and cause serious injury. (Conversely, removing cyclists from the traffic stream raises the risk to those who continue to cycle.)

28. Safety-in-numbers offers a plausible explanation for the fact that per-mile cycling fatality rates in Germany and the Netherlands are four times less than in the U.S. while cycling volumes (as a percentage of the population) are more than 10-20 times higher.⁸ (It is also noteworthy that there are no Critical Mass rides in those and other countries where people’s right to cycle safely and comfortably is enshrined in law and culture.) Now, “time-series” estimates of this effect, though preliminary and site-specific, are pointing intriguingly toward a “power law” relationship of approximately 0.6 between cyclist numbers and cyclist safety.

29. According to this relationship, the probability that some motorist will strike an individual cyclist on a particular street or road declines with the 0.6 power of the number of

⁷ I adapted the text in this and the next several paragraphs from my article, “Bicycling,” in *Encyclopedia of Energy* (C.J. Cleveland, ed.), Elsevier Science, San Diego, 2004.

⁸ Pucher, J. and Dijkstra L. (2000) Making Walking and Cycling Safer: Lessons from Europe. *Transportation Quarterly* 54(3), 25-50.

cyclists on that road.⁹ Say the number of cyclists triples. Then, since three raised to the 0.6 power is roughly two, each cyclist would be able to ride twice as much without increasing his or her probability of being struck. (The same phenomenon can be expressed as a one-half reduction in per-cyclist crash risk per tripling in cycling volume, since the reciprocal of two is one-half.)

30. The syllogism couldn't be more clear: Critical Mass adds to the number of cyclists ... the more cyclists there are, the safer each becomes ... ergo, Critical Mass makes cycling safer. Or, as I noted in my October 27, 2004 declaration, my cycling journeys around the city, and similar trips by other cyclists, are safer due to the increased numbers of cyclists engendered by Critical Mass rides.

31. By almost every account, bicycling in New York City has become more widespread in recent years. Estimates of the increase are fuzzy, and no one can say for sure how much of the increase is due to the Critical Mass rides. In San Francisco, where Critical Mass originated in the early 1990s and has flourished since, cycling levels are widely reported to have increased by 200% (i.e., tripled) over the same period. This is significant because, as can be demonstrated through a simple calculation, a 20% increase in cycling levels should engender roughly the same degree of improvement in each individual cyclist's safety as is provided by wearing a helmet.¹⁰ Thus, if it could be documented that just one-tenth of the growth in cycling

⁹ For documentation of this statistical relationship, see Jacobsen, P. (2003). Safety in numbers: more walkers and bicyclists, safer walking and bicycling. *Injury Prevention* 9, 205-209.

¹⁰ Although a 1989 epidemiological study in Seattle associating helmet use with an 85% reduction in brain and head injury has been much quoted in the press, the authors subsequently employed better statistical methods and scaled back their results considerably, to credit helmet-wearing with a mere 10% reduction in severe injuries. (See Rivara F.P., Thompson D.C., and Thompson R.S. (1997). Epidemiology of bicycle injuries and risk factors for serious injury. *Injury Prevention* 3(2), 110-4.) According to the safety-in-numbers relationship noted in the text, an equal 10% reduction in the probability that an individual cyclist will suffer a collision with a motor vehicle (the source of the vast majority of bicycling fatalities and serious injuries) can be achieved by increasing the number of cyclists on the roads by 20%. (This follows mathematically from the fact that 1.2 raised to the negative 0.6 power is approximately 0.9, indicating a 10% drop in the crash-injury probability.)

levels in San Francisco was due to Critical Mass, one could reasonably claim that Critical Mass had added to cycling safety in San Francisco just as much as if every cyclist in that city had changed from bareheaded to helmeted cycling.

32. The City DOT Commissioner, Iris Weinshall, recently told *The New York Times*, “We hope that one day New York will be one of the world’s great bicycling cities.”¹¹ If Commissioner Weinshall really wants that to happen, cycling must be made reasonably safe and comfortable. But in fact City officials have never shown much interest even in making cycling safe, much less promoting it, when doing so might create short-term inconvenience for motor vehicle drivers. And this brings me to the other aspect of Critical Mass.

33. It would be disingenuous to deny that for many, though not necessarily all, its participants, Critical Mass has a political dimension. Critical Mass makes a statement: “We belong.” The law says that cyclists have a right to the road, just as the driver in his SUV has. But unless that right is honored in practice, by the people whose job it is to enforce the law and ensure the public welfare, it might as well be blotted from the statute books. And in practice, the City’s indifferent, if not actively hostile, attitude toward cyclists has had just that effect.

34. The actions and inactions of City officials have effectively denied the cyclist’s right to the road on equal terms with the SUV. It is this denial of cyclists’ rights, more than anything else, that has made Critical Mass necessary.

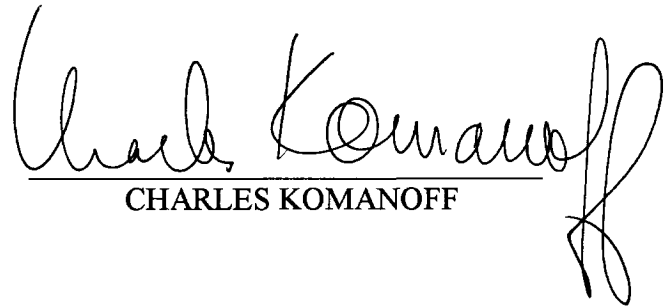
35. The Court will no doubt recollect other instances in recent American history where men and women found it necessary to assemble in the streets, with or without a parade permit, to claim the rights that were theirs in theory but not in practice. If City officials are

¹¹ *The New York Times*, October 3, 2004, “Spin City,” by Lydia Polgreen (lead article in The City Section).

bothered by Critical Mass, their best response would be to address the problems that Critical Mass seeks to rectify.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on November 30, 2004.


CHARLES KOMANOFF