

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NEW YORK

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In the Matter of
**NEW YORK TAXI WORKERS ALLIANCE;
AMARA SANOGO; RICHARD CHOW**

Petitioners,

For a Judgment Pursuant to Article 78
of the Civil Practice Law and Rules

-against-

**DAVID DO, AS COMMISSIONER AND CHAIR OF
THE NEW YORK CITY TAXI & LIMOUSINE
COMMISSION; THE NEW YORK CITY TAXI &
LIMOUSINE COMMISSION; THE CITY OF NEW
YORK**

Respondents.

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**AFFIDAVIT OF
CHARLES
KOMANOFF**

I, Charles Komanoff, being duly sworn, depose and say:

Introduction

1. I submit this affidavit in support of Petitioners' Verified Article 78 Petition and Application for a Temporary Restraining Order and Preliminary Injunction.

2. I am a longtime policy analyst specializing in urban transportation, particularly in New York City and the metropolitan region. In earlier periods in my career I was an air emissions researcher; an electric-power system analyst; an investigator of cost escalation in the U.S. nuclear power industry; an expert witness for staffs of public utility commissions and consumer advocates representing ratepayers in New York, California, Texas, Florida, New Jersey and a dozen other U.S. states; and an organizer, researcher and advocate for urban bicycle transportation.¹

¹ My professional biography is available via https://www.komanoff.net/komanoff_bio.pdf or at [this link](#).

3. Over the past decade-and-a-half I have developed and curated an extensive model, implemented in Microsoft Excel, that reflects the city's and region's key traffic and transportation characteristics including car and truck trips, transit trips, use of for-hire vehicles (both yellow taxis and "ride-hail" vehicles), and the ease or difficulty of "mode shift" between and among these different travel modes.

4. This model, known as the Balanced Transportation Analyzer or BTA, was the primary analytical tool used in 2017-2018 by the NY governor's executive staff to scope possible tolling of bridges, tunnels and roads leading into the Manhattan Central Business District (CBD) as a means of diminishing traffic gridlock and generating revenues to support investment in mass transit. Because of the BTA's prominence in that scoping process, it has become closely identified with the policy known as congestion pricing that was enacted into state legislation in 2019 authorizing the Metropolitan Transportation Authority (MTA) to implement congestion tolls for motor vehicle trips into the CBD.

5. The BTA's versatility, comprehensiveness and ease of use also qualify it to analyze traffic and transportation policies and proposals aside from congestion pricing. One of its many attributes is its ability to translate "exogenous" or other policy-driven changes in traffic volumes into likely changes in traffic-flow speeds at various times and in various parts of the city and region. Another, related attribute of the model is its ability to translate predicted changes in vehicle travel speeds into estimated changes in daily and annual tailpipe and other vehicle emissions, reflecting the propensity of those emissions to rise as travel speeds diminish and stop-and-go driving predominates.

6. I have made use of those model attributes to examine prospective impacts from the recent decision by the New York Taxi and Limousine Commission to relax the cap on the citywide number of permitted ride-hail vehicles, so long as the additional vehicles are electric-propulsion

vehicles (EVs). Specifically, using the BTA I have calculated the extent to which traffic gridlock can be expected to worsen and impose time losses on drivers; I have also estimated the emissions impacts on people living and working within the city and region as a result of the incremental worsening of traffic gridlock.

7. At this writing, roughly 80,000 ride-hail vehicles operate in the five boroughs.² For purposes of this affidavit I have assumed that the TLC cap exemption results in a net increase of 5,000 ride-hail vehicles, all of them EVs, permitted to operate in New York City. I treat this figure as a placeholder — the actual number could be less or more. The negative impacts I have calculated for 5,000 vehicles “scale” linearly, or proportionally, so that, for example, the congestion and environmental harms from 10,000 vehicles would be approximately twice as great as for the 5,000 assumed here.

Summary of Impacts

8. Through detailed modeling using the BTA, I have calculated that permitting an additional 5,000 ride-hail vehicles, all of them electric, will result in the following additional harms (numbered for reference purposes):

- i. Increases in total daily and annual traffic (miles driven) of approximately 1% within the Manhattan CBD and 0.1% in the larger, surrounding metropolitan region excluding the CBD;
- ii. Reductions in average daily and annual vehicular travel speeds of a little over 2% within the CBD and 0.3% across the rest of the metro region;

² The number of licensed for-hire vehicles (FHVs) not in storage in February 2023 was 95,326. (Taxi and Limousine Commission [license-pause report](#), p. 2.) From this figure I have subtracted the 10,275 FHVs that did not complete a trip from May through December 2022 (*Ibid.*), along with the number of livery, black car and luxury limousine vehicles that presumably were included in the 95,326 total, which I estimate at 5,000. The resulting figure, 80,121 vehicles, rounds to 80,000.

- iii. Nearly six million hours per year of additional time spent stuck in traffic by motor vehicle users in the metropolitan region (CBD + surrounding areas);
- iv. A loss of slightly more than \$200 million per year worth of motor vehicle travelers' time associated with those excess hours;
- v. Additional emissions of climate-destabilizing carbon dioxide of 35,000 metric tons per year, the societal cost of which is approximately \$3.5 million per year, based on a mid-range estimated "social cost of carbon" of \$100 per metric ton of CO₂;³
- vi. Additional emissions of human health-damaging fine particulates (PM2.5) of 1,100 kilograms per year, the societal cost of which is approximately \$5 million per year worth of additional illnesses, school absences and ER visits;
- vii. Increases in the expected frequencies of motor vehicle crashes on account of the overall increases in vehicle volumes, with expected injury-related costs of \$40 million per year, from hospitalizations and other medical expenses, lost income and diminished quality of life;
- viii. A panoply of other reductions in the quality of life for people living and working within the city and region, with a cost of \$45 million per year, resulting from increased noise and reduced opportunities to engage in healthful "active transportation" (cycling and walking), owing to worsening traffic volumes.

9. All told, these impacts on the health, safety, life-quality and time budgets of New Yorkers and other people living and working in the surrounding metropolitan counties, which are predicated

³ "[T]he official estimate [of the social cost of carbon per metric ton] from the Biden administration is \$51, but in November 2022, the EPA proposed a nearly fourfold increase to \$190." (Brookings Institution commentary, "[What is the social cost of carbon?](#)," by Elijah Asdourian and David Wessel, March 14, 2023.) I have employed a per-metric-ton of CO₂ cost figure of \$100 for some time in my ongoing climate-policy work.

on permitting 5,000 additional electric ride-hail vehicles for use in the city, amount to approximately \$300 million each year.

Methodology and Assumptions

10. All of the above results were generated using my Balanced Transportation Analyzer (BTA) model, which operates as an Excel spreadsheet. The model is continually updated, both to make sure it reflects current travel conditions and levels and to invest it with new analytical capabilities. The current edition of the model is posted on the internet and available to the public with no paywall or other constraints.⁴

11. The spreadsheet is large, even vast, with nearly 100 “tabs” and 160,000 equations. Navigating it to assess this analysis is not a trivial task. I will be happy to provide the court with a guide or hands-on assistance. Pending that, the following list of assumptions made in the course of this analysis may be helpful:

- i. I have assumed a net increase of 5,000 in the number of ride-hail vehicles. (As noted, my findings and figures may be ratioed to fit any other assumed increase.) All of these vehicles are entirely battery powered and thus have zero tailpipe emissions.
- ii. Each additional vehicle is driven an average of 42.6 miles per weekday, of which 26% (11.2 miles) is traveled within the Manhattan CBD and the remaining 74% (31.4 miles) is traveled outside the CBD. (Analogous mileages on weekends and holidays are 46.8 total, 12.3 CBD and 34.6 outside CBD, with figures not summing due to rounding.) This roughly 1 to 3 split in additional ride-hail miles driven between the CBD and the rest of the city and region is “conservative” in that it refrains from the easy but counterfactual

⁴ Permalink to download the spreadsheet is http://www.nnyn.org/kheelplan/BTA_1.1.xls, or simply click [here](#). The costs itemized above are summarized and derived in the spreadsheet’s **Cost-Benefit** tab.

assumption that most ride-hail driving is done in the Manhattan core, where road congestion is most intense and driving imposes the highest societal costs.

- iii. These additional daily ride-hail miles are distributed into the 24 hours of the day based on hourly breakouts of historical Uber and Lyft ride data. These distributions are noticeably flatter than private car use patterns, and their adoption in my analysis should also be deemed conservative since it leads to lesser congestion and emissions impacts than if the miles were assigned on the basis of private car patterns, which are characterized by sharper peaks and lower off-peak troughs.
- iv. The additional daily ride-hail miles — which happen to sum to around 213,000 miles on weekdays and 234,000 on weekends and holidays, assuming 5,000 vehicles — create incremental traffic congestion which the model converts to reductions in prevailing travel speeds both within and outside the CBD. These reductions are slight for each individual vehicle but consequential in the aggregate, on account of the sheer numbers of drivers and passengers of cars, vans, trucks, buses and for-hire vehicles operating in the city and region. (The model uses one set of figures for within and another set for outside the central business district.)
- v. The reductions in travel speeds convert directly into increases in total travel times for all motor vehicle users in both areas (within and outside the CBD). They also lead to increased per-tailpipe emissions from the other vehicles, on account of the general worsening of emission outcomes as traffic levels rise and stop-and-go conditions become more prevalent. Just like the travel delays, these increases in tailpipe emissions are slight for each vehicle but consequential in the aggregate.

- vi. I assumed throughout my modeling a “rebound effect” by which increased crowding of New York City and area roadways prompts a sympathetic reduction in other vehicular traffic, as some automobile trips lose utility to their takers on account of increased travel times. While this rebound effect is not 1-for-1, it is not inconsiderable, and qualifies as another conservatism (leading to lesser estimated impacts) in my analysis.
- vii. The calculation of tailpipe emissions under the “new” conditions, with baseline traffic levels augmented by the 5,000 new electric ride-hail vehicles, is adjusted to eliminate all of the miles driven by those vehicles, in order to reflect their zero-emission character.
- viii. Nevertheless, the new ride-hail EVs will generate on-road emissions of particulates, including fine particulate matter (PM2.5), through tire wear and brake wear. These emissions are duly counted in my modeling calculations and numerical findings.
- ix. The new ride-hail EVs will also result in “upstream” emissions of CO₂, PM2.5 and other pollutants through the additional generation of electricity required to recharge them. To estimate these additional CO₂ emissions, I assumed that all of the incremental kilowatt-hours of electricity required for charging these EVs are generated by burning natural (methane) gas, reflecting both the downstate NY grid’s nearly total reliance on fossil fuels (in excess of 90 percent last year, on average⁵) and the sluggish pace of “greening” the grid with renewables or other low-carbon electricity sources. (This and other assumptions are referenced in the **Emissions w/ EV ride-hails** tab of the BTA.) The resulting annual charging-related CO₂ emissions from the grid, 11.2 metric tons, add

⁵ See my Oct. 20, 2023 post for Streetsblog, [Adams’ ‘Green Rides’ Initiative is Bad Transportation AND Climate Policy](#). A graphic in that post, “Downstate New York Electricity Mix Shift Including Rooftop Solar,” drawing on official data compiled by the New York Independent System Operator, reports full-year 2022 electricity generation in the downstate NY grid of 60.0 TWh from fossil fuels vs. just 2.5 TWh from rooftop solar, 1.9 TWh from hydro, and zero from nuclear power, along with 1.6 TWh of “Other.”

nearly 50 percent to the 23.7 metric tons of new tailpipe CO₂ emissions estimated separately from the incremental worsening of travel speeds for the hundreds of thousands of combustion vehicles in the city and region, stemming from the additional 200,000 or more daily miles of travel by the 5,000 new EV ride-hails.

- x. I did not include additional emissions of “local,” health-damaging pollutants such as PM_{2.5} from the electricity smokestacks, on account of the many assumptions that would be required, along with possibly “muddying the waters” by combining smokestack-level impacts with tailpipe ones.

Conclusion

12. The impacts listed on p. 2 were arrived at dispassionately through the use of a comprehensive traffic and travel model that New York state deployed a half-dozen years ago in framing congestion pricing policy and legislation that is currently being actively implemented by the Metropolitan Transportation Authority.⁶

13. The estimated impacts that I believe will be caused by an assumed addition of 5,000 electric ride-hail vehicles are consequential individually and in the aggregate: increased climate- and health-damaging emissions (nearly \$10 million a year); increased crash injuries (\$40 million); heightened noise and other socially hostile vehicular impacts (\$45 million); and, largest of all, in dollar terms and sheer anti-urbanism harms, additional travelers’ time lost in worsened traffic gridlock (more than \$200 million).

14. I have reviewed the Taxi and Limousine Commission’s documents in support of its new policy granting exemptions from the ride-hail cap for electric vehicles. I saw no analysis, modeling

⁶ The BTA model I have employed here was glowingly acknowledged in the appendix to the NY state consultant’s FIX NYC report, which can be downloaded [via this link](#) or perused in the **About** tab of the BTA spreadsheet.

or other material reflecting the considerable impacts I have noted here. Perhaps the commission imagined that the public wouldn't notice, or perhaps it simply assumes that increasing the number of vehicles operating in New York City will be benign so long as the vehicles are powered by electricity rather than petrol.

15. I believe I have demonstrated that the likely — indeed, virtually certain — impacts of such increases will be anything but benign. This is largely on account of chronic vehicular overcrowding of our streets, roads, bridges and tunnels, which causes even seemingly modest influxes of new vehicles to trigger increased delays and, thus, heightened emissions from the combustion vehicles remaining on the roads.

16. In my view, the findings herein constitute conclusive proof that a systemic environmental analysis should be conducted prior to allowing any noticeable relaxation of the city's cap on permitted ride-hail vehicles. Such an analysis must include, at a minimum, fully tracing the impacts of increased traffic levels on travel times, emissions and New Yorkers' health and well-being.

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

Executed: October 27, 2023

CHARLES KOMANOFF

Sworn to before me this th day of
October, 2023

Notary Public