

**BEFORE THE FEDERAL AVIATION ADMINISTRATION**

---

**TOWN OF HEMPSTEAD, TOWN OF NORTH HEMPSTEAD AND INDIVIDUAL  
PETITIONERS' ADMINISTRATIVE PETITION FOR RULEMAKING AND  
OTHERWISE FOR ENVIRONMENTAL ASSESSMENT, ENVIRONMENTAL IMPACT  
STATEMENT AND REVISIONS TO ARRIVAL ILS AND RNAV ROUTES AND  
PROCEDURES TO RUNWAYS 22 L/R SERVING JOHN F. KENNEDY  
INTERNATIONAL AIRPORT**

---

July 3, 2024

**RIGANO LLC**

*Attorneys for Petitioners Town of Hempstead, Town of North Hempstead,  
Laurence Quinn, Rich Pallisco, Richard DeMartino and Michael Daloia*

538 Broad Hollow Road  
Suite 301  
Melville, New York 11747  
Telephone: (631) 756-5900

Nicholas C. Rigano, Esq.  
James P. Rigano, Esq.  
Alyse Delle Fave, Esq.

## INTRODUCTION

Town of Hempstead, Town of North Hempstead (together “Towns”), Laurence Quinn (“Quinn”), Rich Pallisco (“Pallisco”), Richard DeMartino (“DeMartino”) and Michael Daloia (“Daloia”, together with Quinn, Pallisco and DeMartino, “Individual Petitioners” and collectively with Towns, “Petitioners”) hereby formally petition the Federal Aviation Administration (“FAA”) and Michael Whitaker in his Official Capacity as Administrator of the Federal Aviation Administration (“Whitaker”) for rulemaking and administrative review to:

1. Conduct an appropriate environmental review documented by an environmental assessment, environmental impact statement or supplemental environmental assessment/supplemental environmental impact statement pursuant to the National Environmental Protection Act, 42 U.S.C. §§4320 *et seq.* and 40 C.F.R. §1500.1a (“NEPA”) due to the undisclosed impacts, significant new circumstances and significant new information caused by the substantial increase in use of arrival flight paths to Runways 22 L/R (the “Flight Paths”) at John F. Kennedy International Airport (“JFK”);
2. Undertake the review of categorical exclusion(s) (“CatEx”) for flight paths associated with arrivals to JFK Runways 22 L/R, and otherwise use of those runways as the primary arrival runways at JFK, as required by Section 341(b) of the National Defense Authorization Act of 2017 and applicable law.
3. Suspend the substantial increase in use of flight paths to JFK Runways 22 L/R until the foregoing analyses are complete by reverting to use of such runways as they existed before FAA issued the applicable CatEx (if any).
4. Continue, accelerate and expand efforts to adjust ILS/RNAV routes to JFK Runways 22 L/R to improve compatibility with neighborhoods. Such measures should include rerouting procedures to minimize impacts over Towns, residential areas, historic sites, parks and other sensitive properties, maximize altitudes with the flight paths, route dispersion of flights more equitably and to implement a glideslope procedure.
5. Update the JFK Part 150 Noise Exposure Maps and Noise Compatibility Program, which were based on 2014 data when approximately 30,000 less aircraft arrived on JFK Runways 22 L/R per year.

The foregoing is necessary to protect the Towns and its one million citizens, including Individual Petitioners and those residing in disadvantaged communities. The Flight Paths saw a 50% increase in flights amounting to over 90,000 arrivals in 2023 since FAA conducted the last known environmental review of New York airspace in 2007. That seventeen-year-old environmental review did not consider using the Flight Paths as currently used. The substantial increase has caused Towns and its residents (including Individual Petitioners) to be regularly bombarded with low-flying planes from Roslyn to JFK at less than 3,000 feet, and throughout the Town of Hempstead at less than 2,000 feet, often in ninety (90) second intervals.

The substantial increase in use of the Flight Paths has contributed to: (i) air pollution in Nassau County, which the United States Environmental Protection Agency (“EPA”) has already

declared to be in severe non-attainment for ozone, a Clean Air Act criteria pollutant created by aircraft emission, (ii) noise impacts resulting in nearly 250,000 noise complaints from December 2022 to December 2023, nearly twice as many complaints submitted in 2018, and (iii) substantial impacts to Towns' properties, including properties of historic significance and parks.

The new information discussed below, including the enclosed Expert Report of Dr. Timothy McAuley, M.S., PhD ("McAuley Report"), which is attached as Exhibit A and fully incorporated herein, presents "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts"<sup>1</sup> requiring FAA to conduct an environmental assessment and/or environmental impact statement.<sup>2</sup> Indeed, Dr. McAuley has opined to a reasonable degree of scientific certainty that:<sup>3</sup>

[U]se of the Runway 22 L/R flight path results in increased exposures to dangerous levels of aircraft emissions for tens of thousands of Towns' residents, which substantially increases their risk and contributes to the health outcomes discussed herein (e.g., asthma and cancer).

Dr. McAuley made this conclusion due to, among other reasons, the 90,000+ planes flying to Runways 22 L/R in 2023 over the densely populated Towns at altitudes of less than 3,000 feet, the EPA designated "mixing height". Indeed, elevated levels of asthma and other diseases (including cancer) exist in communities around JFK and within the Flight Paths. This cannot stand.

Towns respectfully submit that FAA has a mandatory duty to analyze the environmental effects caused by the substantial increase in use of the Flight Paths. To the extent FAA took any NEPA action, it was by CatEx. Proceeding by CatEx is improper due to "extraordinary circumstances" supported by the significant new circumstances and new information discussed herein. Only after conducting a proper environmental review and considering public comments can FAA determine the appropriateness of the Flight Path's current use. Further, the National Defense Authorization Act for Fiscal Year 2017 ("2017 Defense Act") imposes a mandatory duty on FAA to review such CatEx, which has not occurred. FAA must assess the environmental effects of annually directing 90,000 planes at low altitudes over the densely populated Towns.

---

<sup>1</sup> FAA Order 1050.1F, *Environmental Impacts, Policies and Procedures* (2015), p. 9-3, available at [https://www.faa.gov/documentLibrary/media/Order/FAA\\_Order\\_1050\\_1F.pdf](https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf); 40 CFR 1502.9(d)

<sup>2</sup> Even if an environmental assessment or environmental impact statement was conducted (to our knowledge it was not), a supplemental environmental assessment and/or environmental impact statement must be conducted to analyze the substantial new information and change in circumstances discussed herein.

<sup>3</sup> McAuley Report, p. 30.

## **BACKGROUND**

### **I. Petitioners**

Town of Hempstead is municipality within Nassau County New York. According to the United States Census Bureau, the Town's population is 793,409<sup>4</sup> and is the largest Town in the United States.<sup>5</sup> The Flight Paths cause planes to traverse over the Town at low altitudes generally ranging from 500 to 2000 feet. Within the Flight Paths are numerous properties Town owns or operates, including several parks and properties of historical significance (including properties on the National Register of Historic Places). The Town and its applicable properties are located within the confines of the plume illustrated in Figure 7 of the McAuley Report.

Town of North Hempstead is municipality within Nassau County New York. According to the United States Census Bureau, the Town's population is 237,639.<sup>6</sup> The Flight Paths traverse over the Town at low altitudes below 3000 feet. Within the Flight Paths are numerous properties Town owns or operates, including several parks, as well as properties of historical significance (including properties on the National Register of Historic Places). The Town and its applicable properties are located within the confines of the plume illustrated in Figure 7 of the McAuley Report.

Laurence Quinn is an individual who resides at 158 Tanners Pond Road, Garden City, New York. Rich Pallisco is an individual who resides at 604 Stewart Avenue, New Hyde Park, New York 11040. Richard DeMartino is an individual who resides at 47 Laurel Drive New Hyde Park, New York. Michael Daloia is an individual who resides at 42 Lords Way Manhasset Hills, New York. They each reside within and under the Flight Paths that are the subject of this petition. They each have an injury in fact as, among other things, FAA's violations discussed herein have caused low-flying planes to traverse over their homes at all times of day and night with such frequency that devalues their property and disturbs their enjoyment thereof by subjecting them to air pollution and noise while at their residence. They each live within the confines of the plume illustrated in Figure 7 of the McAuley Report.

---

<sup>4</sup> United States Census Bureau, Town of Hempstead, Nassau County, New York, available at [https://data.census.gov/profile/Hempstead\\_town,\\_Nassau\\_County,\\_New\\_York?g=060XX00US3605934000](https://data.census.gov/profile/Hempstead_town,_Nassau_County,_New_York?g=060XX00US3605934000)

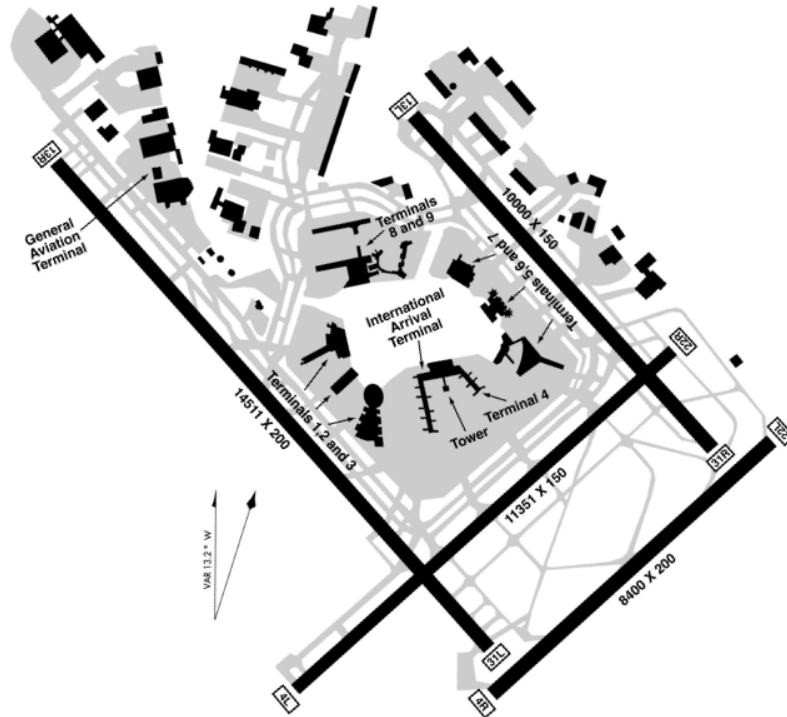
<sup>5</sup> Town of Hempstead, History of the Town, available at <https://hempsteadny.gov/475/History-of-the-Town#:~:text=The%20Town%20of%20Hempstead%20is.population%20of%20approximately%20770%2C000%20people>).

<sup>6</sup> United States Census Bureau, Town of North Hempstead, Nassau County, New York, available at [https://data.census.gov/profile/North\\_Hempstead\\_town,\\_Nassau\\_County,\\_New\\_York?g=060XX00US3605953000](https://data.census.gov/profile/North_Hempstead_town,_Nassau_County,_New_York?g=060XX00US3605953000)

## II. JFK Arrivals

### a. JFK Runway Configuration

The arrival runways of concern are Runway 22L and Runway 22R (together, “Runways 22L/R”). The following picture shows the layout of JFK:



### b. The 22L/R Arrival Flight Paths

During a September 12, 2022 presentation to the JFK Airport Committee, Port Authority of New York/New Jersey (“Port Authority”), the operator of JFK, presented the following slides showing the approach paths to Runways 22 L:

# JFK

6 approach paths to 22L

ILS 22L

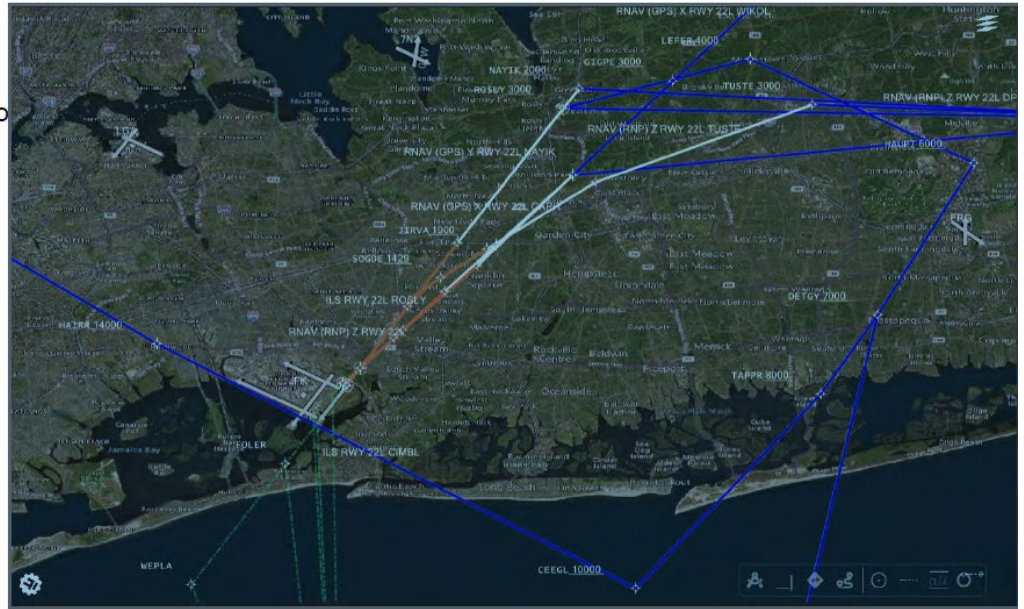
RNAV GPS X 22L

RNAV GPS Y 22L

RNAV GPS Z 22L

Belmont Visual

VOR/DME 22L



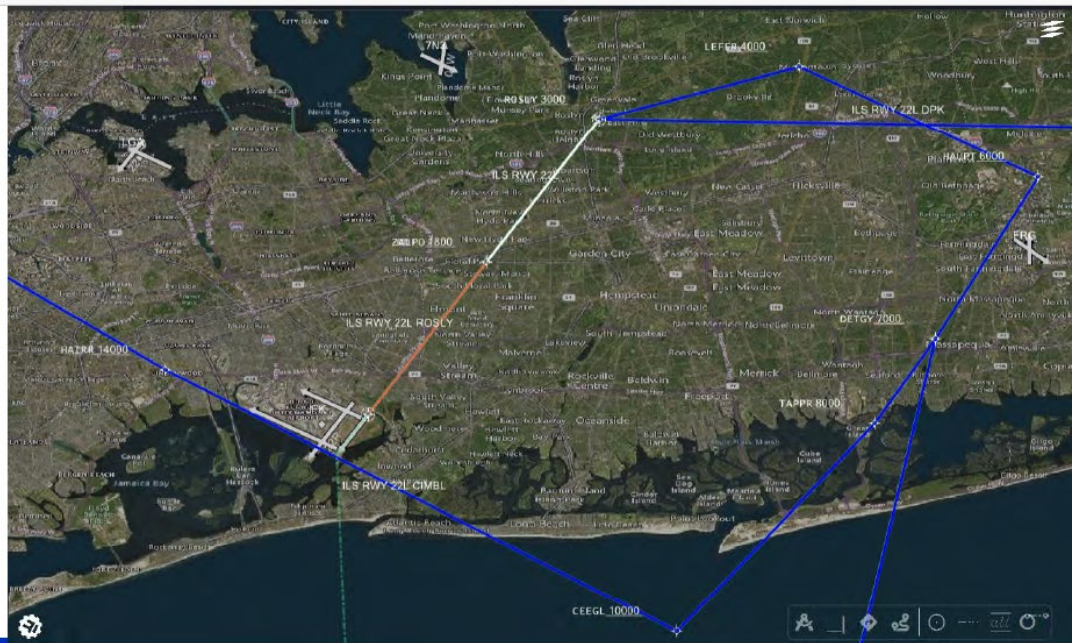
"A World Class Operator of World Class Airports"

**PORT AUTHORITY**  
NY NJ  
AIR LAND RAIL SEA

According to Port Authority, the following is the flight path "used most often":

# JFK

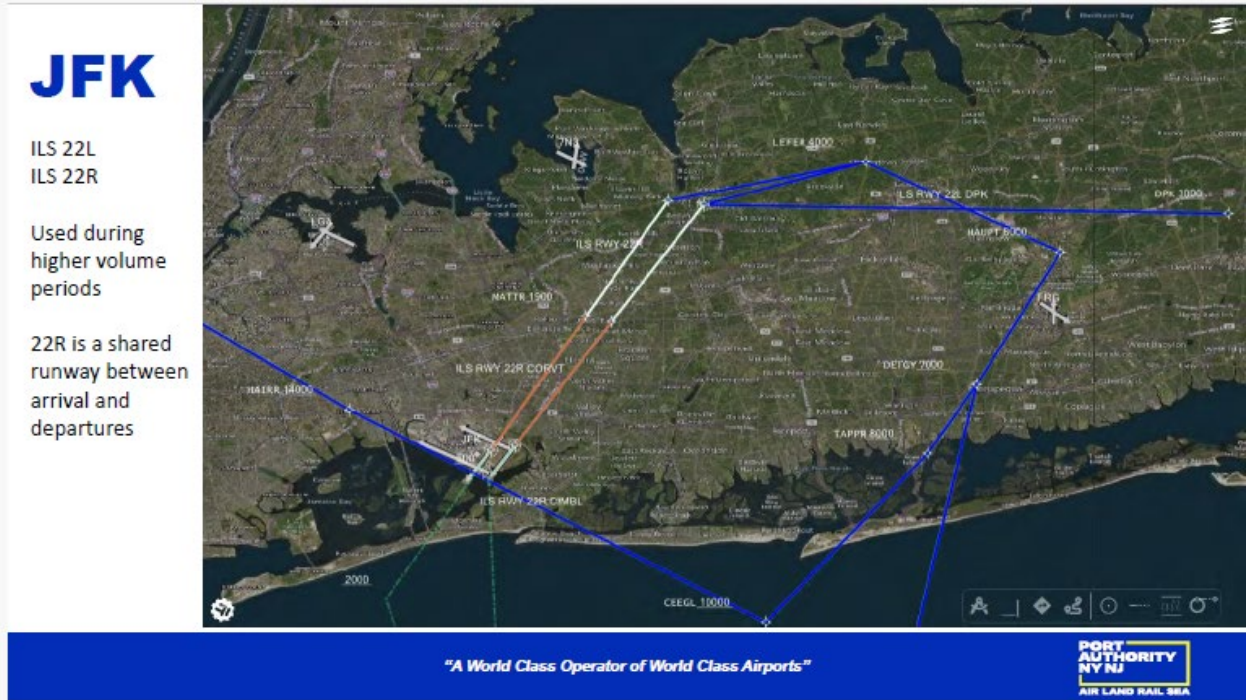
ILS 22L  
approach  
used most  
often



"A World Class Operator of World Class Airports"

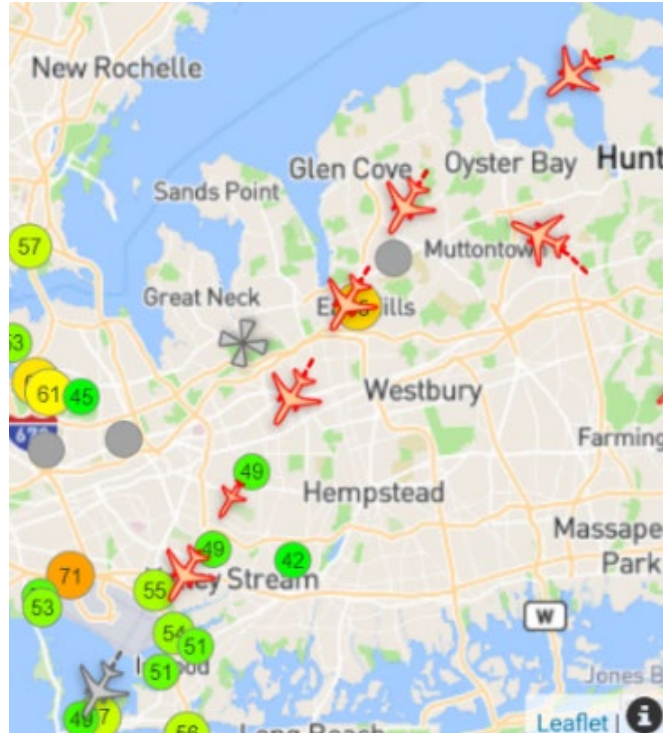
**PORT AUTHORITY**  
NY NJ  
AIR LAND RAIL SEA

According to Port Authority, the following approaches to 22L/R are "[u]sed during higher volume periods":



The foregoing Flight Paths are used during all hours. The following is a screenshot taken at 10:36 pm on November 3, 2023 from Port Authority's Webtrak website showing live aircraft locations:<sup>7</sup>

<sup>7</sup> This picture is a screenshot from the Port Authority Webtrak website, available at <https://webtrak.emsbk.com/panynj4> taken at 10:36 pm on November 3, 2023.



Accordingly, even after 10:30 at night low altitude planes regularly bombard tens of thousands of Towns’ residents, including the Individual Petitioners, and Towns’ properties.

**c. Towns’ Parks and Historic Properties Within the 22L/R Flight Paths**

A map found [here](#) and attached as Exhibit B shows the locations for each of the Towns’ parks and historic properties located within the 22L/R Flight Paths. Each are listed below.

Town of North Hempstead Parks in the Flight Paths

Roslyn Pond Park  
 115 Main Street  
 Roslyn, New York 11576

Gerry Park  
 10 Papermill Road  
 Roslyn, New York 11576

Donald Steet Park  
 199-101 Laurel Street  
 Roslyn Heights, New York

Shepard Lane Playground  
 Shepard Lane  
 Roslyn Heights, New York 11577

Clark Botanic Gardens



193 IU Willets Road  
Albertson, New York 11507

The Albertson Triangle  
I.U. Willets Road and Willis Avenue  
Albertson, New York 11507

John D. Caemmerer Park  
165 Wentworth Avenue  
Albertson, New York 11507

Herricks Road Park  
Garden City Park, New York 11040

Large Park Circle  
Devonshire Drive & Park Circle  
New Hyde Park, New York 11040

Richard Provost Memorial Park  
188 Nassau Boulevard  
New Hyde Park, New York 11040

Michael J. Tully Park  
1801 Evergreen Avenue  
New Hyde Park, New York 11040

Broadway Park  
150 Broadway  
New Hyde Park, New York 11040

Small Park Circle  
153 Sperry Boulevard  
New Hyde Park 11040

Clinton G. Martin Park  
New Hyde Park Rd. & Marcus Ave.  
New Hyde Park, New York 11042

Ridder's Pond Park  
61-87 Meadowfarm Road  
Manhasset Hills, New York 11040

Tudor Park Circle  
49 Tudor Drive  
New Hyde Park 11040

Town of North Hempstead Historic Properties in the Flight Paths

Clark Gardens House<sup>8</sup>  
193 IU Willets Road  
Albertson, New York 11507

The Schumacher House a/k/a Cornell-Van Nostrand House<sup>9</sup>  
New Hyde Park Rd and Marcus Avenue  
New Hyde Park, New York 11042

Town of Hempstead Parks in the Flight Paths

Averill Boulevard Park  
145 Averill Boulevard  
Franklin Square, New York 11010

Rath Park<sup>10</sup>  
849 Fenworth Bouelvard  
Franklin Square, New York 11010

Hendrickson Avenue Park  
Henrickson Avenue & Rouquette Avenue  
Elmont, New York 11003

Dutch Broadway Park  
2161 Dutch Broadway  
Elmont, New York 11003

Elmont Road Park  
755 Elmont Road  
Elmont, New York 11003

Historic Properties in the Flight Paths Landmarked By the Town of Hempstead

St. Paul's Presbyterian Church & Cemetery<sup>11</sup>  
525 Elmont Road  
Elmont, New York 11003

---

<sup>8</sup> This property is owned by the Town of North Hempstead.

<sup>9</sup> This property is owned by the Town of North Hempstead and is on the National Registry of Historic Properties.

<sup>10</sup> This property is owned by the Town of Hempstead.

<sup>11</sup> This property is on the National Registry of Historic Properties.

Schoenlein-Mott House  
94 Madison Ave  
Franklin Square, NY 11010

Peter J. Herman House  
19 Herman Boulevard  
Franklin Square, New York 11010

Franklin Square Movie Theatre  
989 Hempstead Turnpike  
Franklin Square, New York 11010

Franklin National Bank<sup>12</sup>  
925 Hempstead Turnpike  
Franklin Square, New York 11010

Victorian Gazebo at Rath Park<sup>13</sup>  
849 Fenworth Boulevard  
Franklin Square, New York 11010

Curtis Airfield  
101 Green Acres Road  
South Valley Stream, New York 11581

**d. Runway 22L/R Was Not Considered the Primary Arrival Runways or a Candidate to Become the Primary Arrival Runway During FAA’s Prior Environmental Review**

In July 2007, FAA completed an Environmental Impact Statement for the New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign. The July 2007 Environmental Impact Statement states: “JFK arrivals are primarily conducted on Runways 13L/R and 31L/R”<sup>14</sup> and “[t]he primary arrival runways to JFK are 13L and 31L/R.”<sup>15</sup> Indeed, Figure 2.2 of the EIS is titled “Future No Action Airspace Alternative JFK Major Arrival Flows” and shows the primary arrival flight paths to JFK at the time of the EIS as follows:<sup>16</sup>

---

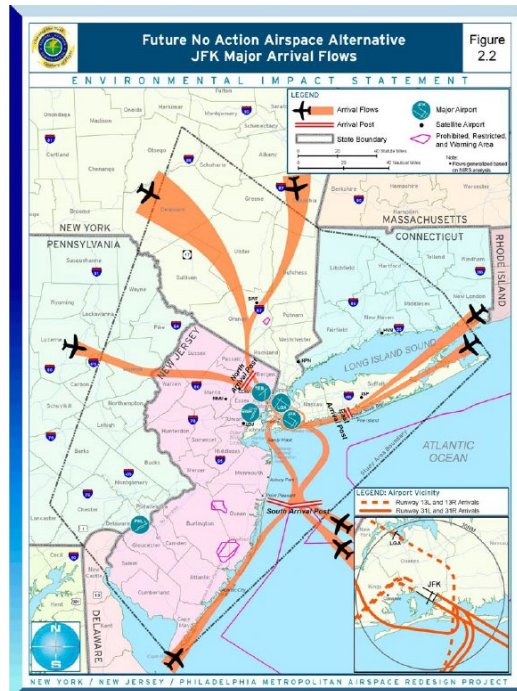
<sup>12</sup> This property is on the National Registry of Historic Properties.

<sup>13</sup> This property is owned and operated by Town of Hempstead.

<sup>14</sup> Final Environmental Impact Statement New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign, dated July 2007, pp. 2-15, available at [https://www.faa.gov/sites/faa.gov/files/air\\_traffic/nas/nynjphl\\_redesign/documentation/FEIS-VolumeOne.pdf](https://www.faa.gov/sites/faa.gov/files/air_traffic/nas/nynjphl_redesign/documentation/FEIS-VolumeOne.pdf)

<sup>15</sup> *Id.*, p. 2-50.

<sup>16</sup> *Id.*, Figure 2.2.



The arrival Flight Paths to Runway 22L/R are not included on this diagram showing that the Flight Paths were not a primary arrival flight path as of 2007.

On September 5, 2007, after considering the above-referenced EIS, FAA issued a Record of Decision (as corrected, the “2007 ROD”).<sup>17</sup> By that 2007 ROD, FAA considered various alternatives to redesign the New York/New Jersey airspace. None of those alternatives considered using Runways 22 L/R as the primary arrival runway, nor did FAA consider using the Flight Paths as primary flight paths.<sup>18</sup> Neither before nor after issuance of the 2007 ROD did FAA conduct an environmental review analyzing the environmental effects of using Runway 22 L/R as primary arrival runways or the current Flight Paths. By the 2007 ROD, FAA selected the implementation of the alternative titled “Integrated Airspace Alternative with ICC”, which according to the EIS maintained “the primary arrival runways to JFK [as] 13L and 31L/R”.<sup>19</sup>

<sup>17</sup> Corrected Record of Decision for New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign, available at [https://www.faa.gov/sites/faa.gov/files/air\\_traffic/nas/nynjphl\\_redesign/documentation/Corrected\\_ROD\\_071005.pdf](https://www.faa.gov/sites/faa.gov/files/air_traffic/nas/nynjphl_redesign/documentation/Corrected_ROD_071005.pdf), pp. 11-22.

<sup>18</sup> Appendix A, Corrected Record of Decision for New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign, available at [https://www.faa.gov/sites/faa.gov/files/air\\_traffic/nas/nynjphl\\_redesign/documentation/NY-NJ-PHL\\_ROD\\_Ap\\_A-Figures.pdf](https://www.faa.gov/sites/faa.gov/files/air_traffic/nas/nynjphl_redesign/documentation/NY-NJ-PHL_ROD_Ap_A-Figures.pdf) (Appx. 2.2, 2.25).

<sup>19</sup> See Final Environmental Impact Statement New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign, dated July 2007, pp. 2-50, available at [https://www.faa.gov/sites/faa.gov/files/air\\_traffic/nas/nynjphl\\_redesign/documentation/FEIS-VolumeOne.pdf](https://www.faa.gov/sites/faa.gov/files/air_traffic/nas/nynjphl_redesign/documentation/FEIS-VolumeOne.pdf), p. 2-50; Corrected Record of Decision, FAA, September 2007, available at [https://www.faa.gov/sites/faa.gov/files/air\\_traffic/nas/nynjphl\\_redesign/documentation/Corrected\\_ROD\\_071005.pdf](https://www.faa.gov/sites/faa.gov/files/air_traffic/nas/nynjphl_redesign/documentation/Corrected_ROD_071005.pdf) ).

**e. Despite No Environmental Review Having Been Conducted, Use of the Flight Paths Has Increased Substantially**

Notwithstanding the foregoing, Runway 22L has been transformed into the primary arrival runway without any environmental review having been conducted. In 2018, there were 63,389 arrivals on Runway 22L out of 222,538 total JFK arrivals or 28.48% of total JFK arrivals.<sup>20</sup> In 2023, that number spiked to 90,379 arrivals on Runway 22L out of 233,666 total JFK arrivals or 38.68% of total JFK arrivals.<sup>21</sup> In other words, there were 26,990 or 42% more arrivals on Runway 22L in 2023 as compared to 2018. Similarly, Runway 22R has been used more frequently for arrivals since 2018 (8,119 arrivals in 2023 compared with 6,281 in 2018).<sup>22</sup>

In 2023, Runway 22L was by far the most frequently used runway for arrivals as 90,379 planes landed on Runway 22L with the next closest runway – runway 4R – only accepting 57,928 arrivals (32,451 less).<sup>23</sup> This has continued in 2024.<sup>24</sup> As discussed above, this is contrary to FAA’s 2007 environmental impact statement and 2007 ROD.<sup>25</sup>

In 2020, FAA revealed that in May 2013 it suspended its 2007 ROD decision due to technological advances in NextGen.<sup>26</sup> NextGen is a satellite-based technology that automates flight paths allowing planes to follow one another at a much shorter distance, thereby increasing the number of planes that travel a flight path within a certain period of time. FAA has used NextGen to transform the Runway 22 L/R arrival Flight Paths, which plague the Towns, to primary use, causing the spike in usage.

---

<sup>20</sup> Port Authority Aircraft Noise, available at <https://aircraftnoise.panynj.gov/reports/>. Undersigned counsel has requested historical arrival information pre-dating 2018 from Port Authority and FAA via Freedom of Information requests, but no response has been received to date. Upon receipt of that information, Petitioners reserve their rights to supplement this Petition and take subsequent action.

<sup>21</sup> *Id.*

<sup>22</sup> *Id.* Town’s requested historical arrival information pre-dating 2018 from Port Authority and FAA via Freedom of Information requests, but no response has been received to date. Petitioners reserve their rights to supplement this petition.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> Final Environmental Impact Statement New York/New Jersey/Philadelphia Metropolitan Area Airspace Redesign, dated July 2007, p. 2-15, available at [https://www.faa.gov/sites/faa.gov/files/air\\_traffic/nas/nynjphl\\_redesign/documentation/FEIS-VolumeOne.pdf](https://www.faa.gov/sites/faa.gov/files/air_traffic/nas/nynjphl_redesign/documentation/FEIS-VolumeOne.pdf)

<sup>26</sup> Written Re-Evaluation and Record of Decision, Dec. 22, 2020, available at [https://www.faa.gov/sites/faa.gov/files/air\\_traffic/nas/nynjphl\\_redesign/documentation/written\\_re-evaluation\\_12-22-20.pdf](https://www.faa.gov/sites/faa.gov/files/air_traffic/nas/nynjphl_redesign/documentation/written_re-evaluation_12-22-20.pdf)

### **III. FAA’s Historical NEPA Review (If Any Was Conducted) Is Invalid and Needs to be Supplemented**

FAA either implemented this change with no compliance under NEPA or relied on a CatEx to avoid environmental review.<sup>27</sup> Both are improper.

FAA is not permitted to rely on a CatEx where “extraordinary circumstances” are present. Specifically, FAA Order 1050.1F provides:<sup>28</sup>

Extraordinary circumstances are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or an EIS . . . An extraordinary circumstance exists if a proposed action involves any of the following circumstances and has the potential for a significant impact:

(1) An adverse effect on cultural resources protected under the National Historic Preservation Act of 1966, as amended, 54 U.S.C. §300101 et seq.;

(2) An impact on properties protected under Section 4(f);

...

(5) A division or disruption of an established community, or a disruption of orderly, planned development, or an inconsistency with plans or goals that have been adopted by the community in which the project is located;

...

(7) An impact on noise levels of noise sensitive areas;

---

<sup>27</sup> Notably, Port Authority responded that “no records responsive to your request have been located” in response to a Freedom of Information Law request from undersigned counsel for documents regarding:

(i) any categorical exclusion issued by the Federal Aviation Administration (FAA) or Port Authority at any time during the period of January 1, 2012 through December 31, 2016 regarding either: (y) use of NextGen technology for arrival flight paths to John F. Kennedy International Airport (JFK) or (z) a procedure to be implemented at JFK that was a material change from procedures in effect at JFK prior to the issuance of such categorical exclusion; and (ii) any and all documents relating to FAA's and/or Port Authority's compliance with National Defense Authorization Act of 2017, Section 341(b)(4) titled "Review of certain categorical exclusions" with respect to any such categorical exclusion(s) referenced in above (i).

<sup>28</sup> FAA Order 1050.1F, pp. 5-1, 5-2; 40 CFR 1501.4

(8) An impact on air quality or violation of Federal, state, tribal, or local air quality standards under the Clean Air Act, 42 U.S.C. §§ 7401-7671q

...

(10) Impacts on the quality of the human environment that are likely to be highly controversial on environmental grounds.

(11) Likelihood to be inconsistent with any Federal, state, tribal, or local law relating to the environmental aspects of the proposed action

....

It does not appear that FAA considered any of the foregoing circumstances, or the new information discussed herein. FAA is required to reanalyze the CatEx and conduct an environmental assessment and/or environmental impact statement.<sup>29</sup> The foregoing extraordinary circumstances exist because FAA has directed over 90,000 low-flying planes to Runways 22 L/R in 2023 (with the same rate continuing in 2024) over densely populated Towns, including over many parks, historic properties and disadvantaged communities, exacerbating air pollution above Clean Air Act attainment standards and causing noise pollution resulting in hundreds of thousands of annual noise complaints. FAA must also evaluate alternatives when evaluating the environmental impacts.

#### **IV. Air Pollution from the Runway 22 L/R Arrival Flight Paths**

According to Petitioners' review, FAA has never conducted an analysis under NEPA of air pollution caused by the Flight Paths. These Flight Paths cause planes to fly at low altitudes (less than 3,000 feet) over densely populated communities within the Towns. According to the McAuley Report, this has caused a material increase in air pollution within the Towns.<sup>30</sup>

##### **a. Air Pollution in Nassau County is in "Severe Non-Attainment" for Ozone**

Air quality in Nassau County (including in the Towns) is in "severe non-attainment" for ozone.<sup>31</sup> Ozone is a criteria air pollutant under the Clean Air Act that is formed by chemical reactions between nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence

---

<sup>29</sup> To the extent FAA conducted an environmental assessment and/or environmental impact statement to substantially increase the use of the Flight Paths or transform Runways 22 L/R into the JFK primary arrival runway, FAA is required to supplement those documents based on the "significant new circumstances/information relevant to environmental concerns and bearing on" the increase in use of the Flight Paths and use of Runway 22L/R as primary runways for the reasons discussed herein. FAA Order 1050.1F, p. 9-3.

<sup>30</sup> McAuley Report, pp. 30-31

<sup>31</sup> US EPA New York Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants, available at [https://www3.epa.gov/airquality/greenbook/anayo\\_ny.html](https://www3.epa.gov/airquality/greenbook/anayo_ny.html)

of sunlight.<sup>32</sup> NOx and VOCs are known to be emitted by aircraft via engine exhaust.<sup>33</sup> Pollutants emitted during aircraft landing and take-off cycles lead to ozone pollution.<sup>34</sup> Ozone air pollution is harmful to human health and the environment.<sup>35</sup>

Port Authority's own consultant found that JFK aircraft operations (including arrivals) in 2019 resulted in emissions of more than 3,900 metric tons of NOx<sup>36</sup> This amount of NOx exceeds the annual emissions of more than one million cars.<sup>37</sup> Nassau County's poor air quality is being further degraded by an increase in emissions from low-flying planes frequenting the 22 L/R Flight Paths.

### **b. JFK Approach Flight Paths to Runways 22L/R Contribute to Ozone Pollution**

As set forth in the McAuley Report, EPA has determined that an altitude of 3,000 feet or less is the "mixing height", which is the altitude that an aircraft may cause pollution exposure to humans on the ground.<sup>38</sup> FAA concurs.<sup>39</sup> When aircrafts approach JFK on the Flight Paths (which happened over 90,000 times in 2023), such aircrafts are regularly less than 3,000 feet in altitude. Significantly within the Town of Hempstead, aircrafts are generally at an altitude of less than 2,000

---

<sup>32</sup> US EPA, Ground-level Ozone Basics, available at <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>

<sup>33</sup> US EPA Aircraft Contrails Factsheet <https://nepis.epa.gov/Exe/ZyPDF.cgi/00000LVU.PDF?Dockkey=00000LVU.PDF> ("Jet engine exhaust contains, among other emittants, oxides of nitrogen (NOx) and hydrocarbons that contribute to ozone formation").

<sup>34</sup> Xu, et al., *Evidence of aircraft activity impact on local air quality: A study in the context of uncommon airport operation* (2023) available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8900605/>

<sup>35</sup> US EPA Health Effects of Ozone Pollution, available at <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>

<sup>36</sup> Greenhouse Gas And Criteria Air Pollutant Emissions Inventory For The Port Authority Of New York & New Jersey (2019), available at <https://www.transit.dot.gov/sites/fta.dot.gov/files/2022-04/Port-Authority-2019-GHG-and-Criteria-Air-Pollutant-Emissions-Inventory.pdf>, § 8.1.3.

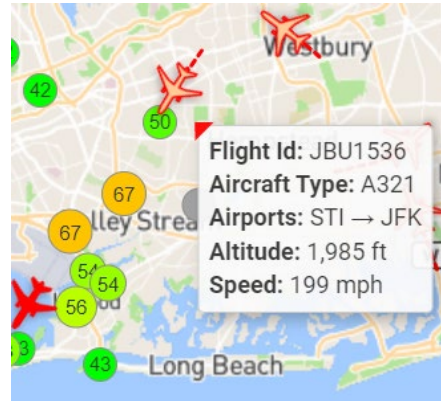
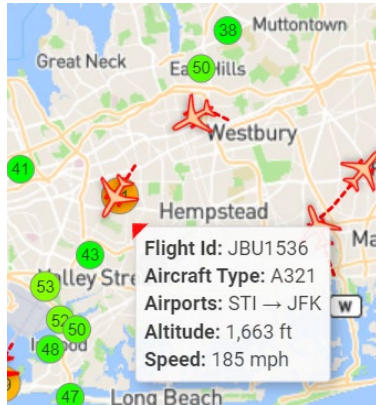
<sup>37</sup> This calculation is based on the average driving distance of a car is 10,573 miles per year and average NOx emissions from light duty cars in 2021. See <https://afdc.energy.gov/data/10309>; <https://www.bts.gov/content/estimated-national-average-vehicle-emissions-rates-vehicle-vehicle-type-using-gasoline-and>.

<sup>38</sup> US EPA, Procedure for Emission Inventory Preparation (1992) [https://www3.epa.gov/ttn/naaqs/aqmguidance/collection/cp2/19921201\\_oaqps\\_epa-420\\_r-92-009\\_ei\\_preparation\\_mobile\\_sources.pdf](https://www3.epa.gov/ttn/naaqs/aqmguidance/collection/cp2/19921201_oaqps_epa-420_r-92-009_ei_preparation_mobile_sources.pdf), § 5.2.2

<sup>39</sup> Consideration of Air Quality Impacts by Airplane Operations at or Above 3000 feet AGL (2000), available at [https://www.faa.gov/sites/fta.gov/files/regulations\\_policies/policy\\_guidance/envir\\_policy/catex.pdf](https://www.faa.gov/sites/fta.gov/files/regulations_policies/policy_guidance/envir_policy/catex.pdf)



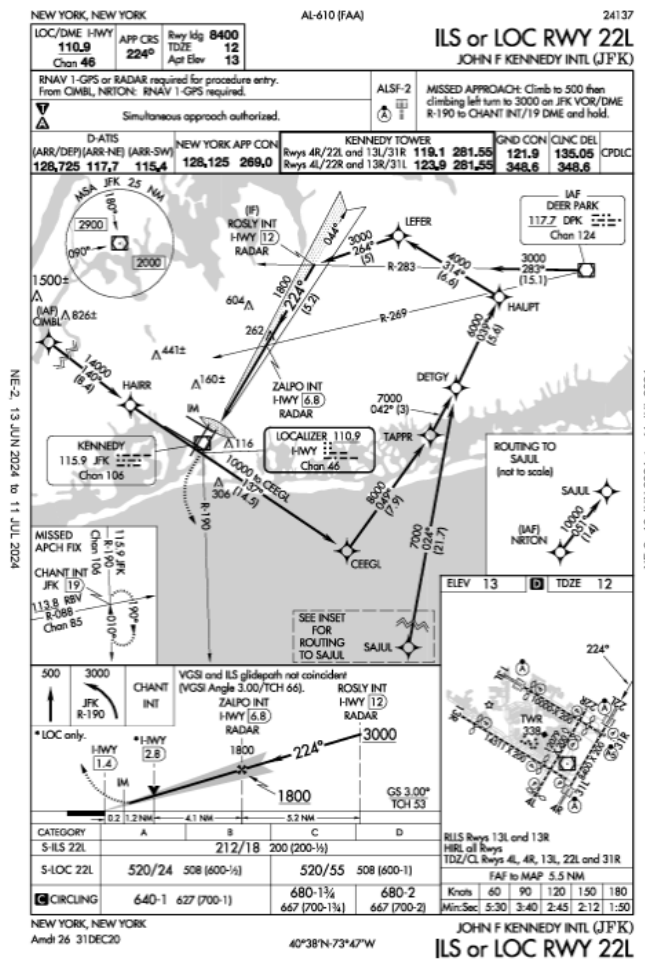
feet. For example, the following are screenshots from Port Authority’s Webtrak website showing altitudes of planes within the Runway 22L/R Flight Path:<sup>40</sup>



FAA’s own Instrument Procedure Charts confirm that the FAA procedure requires planes to fly at an altitude at or less than 3,000 feet from Roslyn all the way to JFK.<sup>41</sup> The altitude at the “ZALPO” waypoints, located in Floral Park, NY, provides for an altitude of 1,800 feet. Accordingly, planes fly below the “mixing height” for the entire distance between Roslyn to JFK.

<sup>40</sup> <https://webtrak.emsbk.com/panynj4> (both pictures are screenshots of the website at 10:26 pm on February 1, 2024). The website shows live aircraft locations and altitudes).

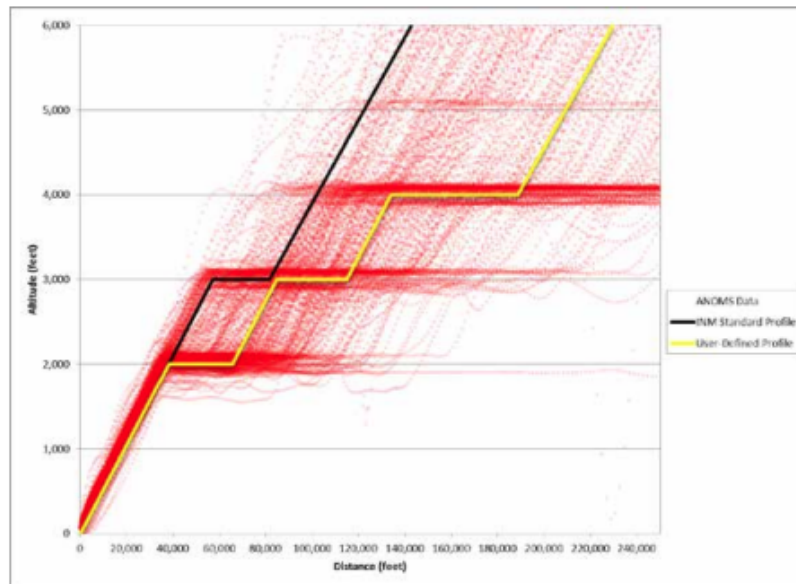
<sup>41</sup> <https://adip.faa.gov/agis/public/#/airportCharts/JFK>



Notably, Port Authority’s consultant found that A320-232 aircrafts, which make up 17% of arrivals, fly below the altitude set forth in FAA’s model.<sup>42</sup> The following figures show FAA’s model in black and actual flying heights in yellow:<sup>43</sup>

<sup>42</sup> See John F. Kennedy International Airport Final Noise Exposure Map Report, dated Apr. 2017 (“NEM Report”), p. 4-19.

<sup>43</sup> See *id.*, Figure 4-6.



NOTE: ANOMS: Airport Noise and Operations Monitoring System. INM: Integrated Noise Model. Altitude is feet above field elevation (AFE). Distance is feet from touchdown point.  
 SOURCE: Environmental Science Associates, 2016.

**Figure 4-6**  
 Altitude vs. Distance for A320-232 Arrivals

Confirming the foregoing, Port Authority’s September 12, 2022 presentation given to the JFK Airport Committee states: “[a]rrivals to 22 L and 22 R are forced to lower altitudes because of airspace shared between LGA and JFK[.] JFK traffic must be at 2000 and 3000”:

**JFK**

Arrivals to 22L and 22R are forced to lower altitudes because of airspace shared between LGA and JFK

JFK traffic must be at 2000 and 3000’

“A World Class Operator of World Class Airports”

PORT AUTHORITY  
 NY NJ  
 AIR LAND RAIL SEA

Indeed, FAA has adopted a “significance threshold” for air quality that serves “as [a] specific indicator[] of significant impact”. That “significance threshold” is “[t]he action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.”<sup>44</sup>

As set forth above, this “significance threshold” is exceeded because: (i) Nassau County’s air quality is in “severe nonattainment” for ozone, a criteria pollutant under the Clean Air Act, (ii) aircraft emissions cause increases in ozone pollution, and (iii) for the entirety of the Flight Paths within the Towns, planes are at an altitude of less than 3,000 feet, the pertinent altitude for air pollution impacts. Dr. McAuley confirms this as he has concluded to a reasonable degree of scientific certainty that:<sup>45</sup>

[T]he emissions related to the flight path for aircraft coming into 22L/R have a significant impact on air quality for all those air toxins mentioned herein this report, including ozone . . . unless the use of the arrival flight path for 22L/R is greatly reduced (or eliminated), air pollution, including Ozone, will likely remain elevated in Nassau County’s jurisdiction and it will be very difficult, if not impossible for air quality in Nassau County (including in Towns) to reach attainment under the Clean Air Act.

Finally, FAA was required to analyze whether the substantially increase of use of the Flight Path conformed to the New York State Implementation Plan under the Clean Air Act.<sup>46</sup> To Towns’ knowledge, FAA conducted no such analysis in violation of its mandatory obligations.

### **c. Human Health Impacts from Air Pollution Caused by the Substantial Increase in Use of the Flight Paths**

Recent peer-reviewed studies cited by Dr. McAuley conclude that human health impacts result from aircraft emissions.<sup>47</sup> According to New York State Department of Health (“NYSDOH”), some of the highest levels of asthma in Queens and Nassau County surround JFK and are within the Flight Paths or likely plume of emissions therefrom, including Village of Hempstead, Valley Stream, Inwood, and West Hempstead.<sup>48</sup> According to NYSDOH, prostate and

---

<sup>44</sup> FAA Order 1050.1F, p. 4.

<sup>45</sup> McAuley Report, pp. 30-31.

<sup>46</sup> FAA Desk Reference Order 1050.1, p. 1-9.

<sup>47</sup> McAuley Report, pp. 10-14.

<sup>48</sup> New York State Department of Health, New York State Asthma Dashboard, available at [https://apps.health.ny.gov/public/tabvis/PHIG\\_Public/asthma/#dataexport](https://apps.health.ny.gov/public/tabvis/PHIG_Public/asthma/#dataexport) (see “Sub-County Data”).

stomach cancers are elevated in areas immediately northeast of JFK (areas in the Flight Paths of concern), including in Valley Stream and Elmont.<sup>49</sup> Each of the foregoing communities are located within the Town of Hempstead.

Recently issued peer reviewed studies have shown positive associations between exposure to aircraft exhaust and asthma,<sup>50</sup> prostate cancer,<sup>51</sup> and gastrointestinal cancers (including stomach cancer).<sup>52</sup> Generally, peer reviewed scientific papers have concluded that aircraft exhaust is a material cause of human health issues.<sup>53</sup>

According to Dr. McAuley, the plume of emissions from the low-flying planes on the 22L/R Flight Paths is conservatively outlined in black in the following figure and covers tens of thousands of Towns' residents, including Individual Petitioners and those within several disadvantaged communities such as Elmont, Valley Stream, Inwood and Village of Hempstead:<sup>54</sup>

---

<sup>49</sup> New York State Department of Health, Environmental Facilities and Cancer Map, available at [https://apps.health.ny.gov/statistics/cancer/environmental\\_facilities/mapping/map/](https://apps.health.ny.gov/statistics/cancer/environmental_facilities/mapping/map/)

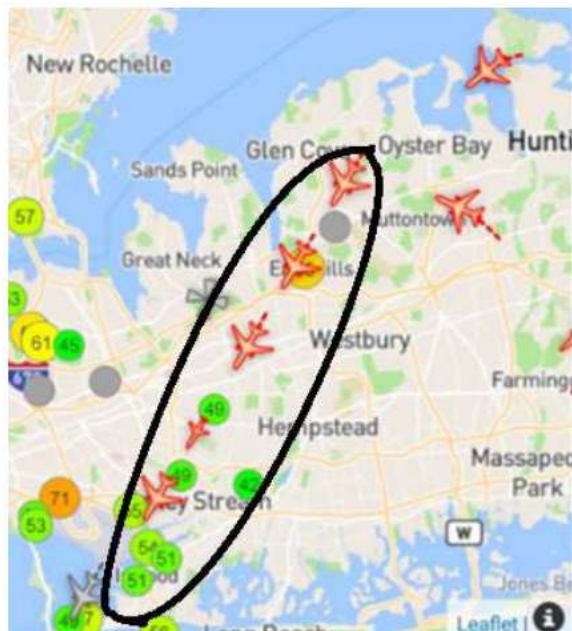
<sup>50</sup> Bendtsen et al., *A Review Of Health Effects Associated With Exposure To Jet Engine Emissions In And Around Airports* (2021) <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-020-00690-y>

<sup>51</sup> Wei et al., *Additive Effects Of 10-Year Exposures To PM<sub>2.5</sub> And NO<sub>2</sub> And Primary Cancer Incidence In American Older Adults* (2023), available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10402937/#:~:text=Exposures%20to%20PM2.5%20and%20NO2%20were%20associated%20with,for%20PM2.5%20remained%20inconclusive>

<sup>52</sup> Nagel et al., *Air Pollution And Incidence Of Cancers Of The Stomach And The Upper Aerodigestive Tract In The European Study Of Cohorts For Air Pollution Effects (ESCAPE)* (2018), available at <https://onlinelibrary.wiley.com/doi/10.1002/ijc.31564>; Guo et al., *Long-Term Exposure To Ambient Fine Particles And Gastrointestinal Cancer Mortality In Taiwan: A Cohort Study* (2020), available at <https://www.sciencedirect.com/science/article/pii/S0160412019340383>.

<sup>53</sup> <https://www.federalregister.gov/documents/2022/02/03/2022-01150/control-of-air-pollution-from-aircraft-engines-emission-standards-and-test-procedures#sectno-reference-87.3> (collecting studies as footnotes 46-67).

<sup>54</sup> McAuley Report, Figure 7.



Dr. McAuley’s expert conclusions “to a reasonable degree of scientific certainty” include:<sup>55</sup>

[U]se of the Runway 22 L/R flight path results in increased exposures to dangerous levels of aircraft emissions for tens of thousands of Towns’ residents, which substantially increases their risk and contributes to the health outcomes discussed herein (e.g., asthma and cancer).

## V. Noise Pollution from Flight Paths

In addition to air pollution caused by overuse of the Flight Paths, noise has impacted Petitioners. The community response to such overuse has resulted hundreds of thousands of annual noise complaints, much greater than noise complaints issued prior to the increase in use.

### a. Part 150 Study

In 2022, Port Authority issued its Final Noise Compatibility Program Report (“Part 150 Study”) regarding the noise impacts associated with JFK generally. That study conducted pursuant to 14 CFR Part 150, included an analysis of communities impacted by noise from the Flight Paths. The Part 150 Study first analyzed noise exposures in particular locations on a daily average basis with a 10-decibel adjustment added to noise events occurring between 10:00 P.M. and 7:00 A.M.<sup>56</sup> The study included an analysis resulting in the creation of Noise Exposure Maps (“NEMs”), which depict aircraft noise on communities. The NEMs show contour lines illustrating properties exposed to noise levels surrounding the airport. The NEMs are created by arbitrarily inputting

<sup>55</sup> McAuley Report, pp. 30-31.

<sup>56</sup> See NEM Report, pp. 1-3, 4-2.

flight data into FAA’s model in existence at the time, not analyzing actual noise data from noise monitoring stations within the community.<sup>57</sup>

For the Part 150 Study, FAA’s pertinent noise threshold is 65 decibels (db). According to FAA, the determination of the areas exposed to an average level of 65 db or higher is important because “FAA considers all uses compatible with noise levels below DNL 65.”<sup>58</sup> In other words, FAA does not consider noise mitigation for properties outside of the 65 db contour, while FAA does consider noise mitigation for properties within the 65 db contour. This on its face is arbitrary due to, among other things, the averaging of decibel levels, particularly when the volume of noise complaints discussed below are considered.

The Part 150 study resulted in Port Authority determining (and FAA approving) the below NEM illustrating in shaded green properties within the 65 db contour. Notably, Port Authority created this NEM based on flight data from 2014, a year when ~30,000 less flights arrived on Runways 22 L/R than 2023.<sup>59</sup> Further, FAA’s model used to establish the contour did not consider aircraft flying at lower altitudes than proscribed by FAA.

---

<sup>57</sup> See NEM Report, p. 4.1.

<sup>58</sup> NEM Report, p. 3-1.

<sup>59</sup> “The JFK Existing Conditions (2016) NEM was developed using an aircraft operations forecast developed by the Port Authority and a consultant (Landrum & Brown) and calendar year 2014 day/night utilization, runway usage, flight tracks, flight profiles, and trip length data from the Port Authority’s Airport . . . To provide a basis for the NEMs, the Port Authority developed a forecast of aviation activity for 2016 and 2021, which was reviewed and approved by the FAA”. See NEM, pp. 1-3, 1-4; see also See NEM Report, pp. 4-23, 5-7 (“The DNL contours for the NEMs for this 14 CFR Part 150 Study were those generated by [FAA’s model]only. 14 CFR Part 150 does not provide for use of noise monitoring data to ‘calibrate’ the [FAA model] . . . The noise monitoring information provided in this report is provided for informational purposes only. Due to the possibility of other ambient noise sources affecting the noise levels at the monitoring sites, 14 CFR Part 150 does not allow noise monitoring data to be used to “calibrate” the [FAA model]. Therefore, noise monitoring data were not used as a [FAA model] input.”).



**b. Noise Complaints Have Nearly Tripled Since 2018**

From December 2022 to December 2023, an eye-popping 246,009 noise complaints for JFK were issued primarily associated with the Runway 22 L/R Flight Paths, nearly double the 142,149 noise complaints made from December 2017 to December 2018.<sup>60</sup> In comparison, only 2,611 noise complaints were submitted with respect to all Newark Liberty International Airport operations for the period of December 2022 to December 2023.<sup>61</sup>

From January to April 2024 there were 75,564 noise complaints, *a substantial 30% increase* of the 57,736 noise complaints submitted from January to April 2023. JFK Noise complaints in 2024 are on pace to exceed 315,000 and shatter the 2023 record.<sup>62</sup> In comparison, only 1,049 noise complaints were submitted for Newark Liberty International Airport from January to April 2024.

The following is a figure from Port Authority’s website, which shows that most noise complaints associated with JFK originate from within the Towns due to the Runway 22L/R arrival Flight Paths:<sup>63</sup>

<sup>60</sup> <https://aircraftnoise.panynj.gov/reports/#noise-complaints-report-2023>

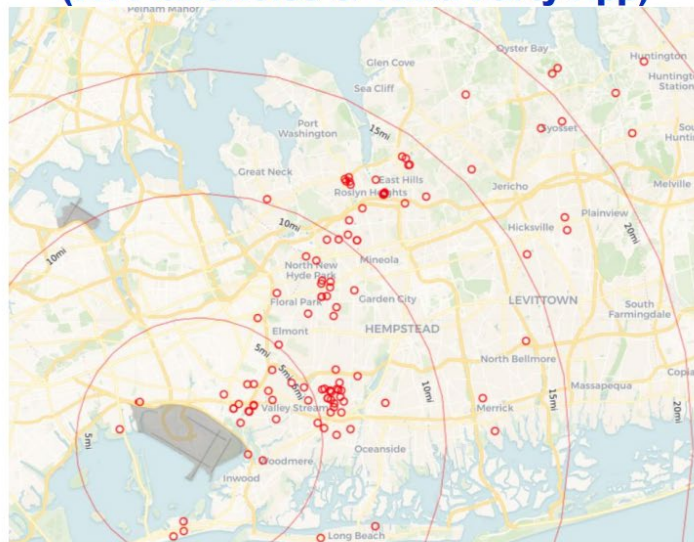
<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> See <https://aircraftnoise.panynj.gov/reports/>



## January 2024 JFK Households Location Map (PA PlaneNoise & Third-Party App)



13

PORT  
AUTHORITY  
NY NJ  
AIR LAND RAIL SEA

The NEMs were developed using decades-old data and should be updated using 2023/2024 data, particularly because the NEMs are created by an average decibel level which by definition substantially increases as approximately 30,000 more planes arrived at Runway 22L/R in 2023 (with the same rate continuing in 2024) as compared to 2014.

### VI. Air and Noise Pollution Impact the Towns' Parks and Historic Properties

The foregoing air pollution and noise issues caused by overuse of the Flight Paths impact Towns' parks and historic properties discussed above. The National Historic Preservation Act ("NHPA") "[s]ection 106 review must be completed prior to making a CATEX determination." "The regulations implementing Section 106 require the FAA to consult with certain parties, such as the SHPO and THPO; require the FAA to invite other parties to participate in consultation, such as representatives of local governments . . ." and "[s]ection 106 contains specific consultation requirements and often requires separate meetings among consulting parties and concurrence letters from the SHPO."<sup>64</sup> To Petitioners' knowledge, FAA did not comply with Section 106 before substantially increasing use of the Flight Paths despite the several historic properties identified above being within the Flight Paths.

Further, FAA did not consider the Towns' various section 4(f) properties in the Flight Path discussed above. "The responsible FAA official **must** consult all appropriate Federal, state, and local officials having jurisdiction over the affected Section 4(f) properties when determining whether project-related impacts would substantially impair the resources. Following consultation

<sup>64</sup> FAA Desk Reference Order 1050.1, p. 8-10.

and assessment of potential impacts, the FAA is solely responsible for Section 4(f) applicability and determinations.”<sup>65</sup>

At no point did FAA consult with Towns, or to Towns’ knowledge, New York’s State Historic Preservation Officer, regarding the impacts to the above-referenced properties. This omission is a violation of FAA’s mandatory duty and a failure to comply with NEPA.<sup>66</sup>

In addition, “[i]f the FAA identifies one or more Section 4(f) properties within the study area (including . . . historic sites . . .) where a quiet setting is a generally recognized purpose and attribute, the FAA will consider use of appropriate supplemental noise analysis . . . in consultation with the officials having jurisdiction over the Section 4(f) properties.”<sup>67</sup> Towns have jurisdiction over the section 4(f) properties discussed above, yet FAA failed to consult with Town officials regarding any supplemental noise analysis. FAA violated this requirement.

To the extent FAA was unaware of the historic properties/parks referenced herein, FAA is required to “avoid, minimize, or mitigate adverse effects, if any, to such properties.”<sup>68</sup> Importantly:<sup>69</sup>

If the FAA has approved a project and construction has begun, and then historic properties or unanticipated effects on the historic properties are discovered, project construction must stop immediately in the vicinity of the discovered resources. The FAA

---

<sup>65</sup> *Id.* (emphasis added).

<sup>66</sup> The air and noise pollution identified above constitute “adverse effects that substantially impair the affected resource’s historical integrity.” *See* FAA Desk Reference 1050.1, p. 8-9. The air and noise pollution also constitutes a “constructive use”, which is considered a “significant impact”. A “constructive use” “occurs when the impacts of a project on a Section 4(f) property are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the Section 4(f) property that contribute to its significance or enjoyment are substantially diminished”. *See* FAA Order 1050.1F, pp. B-11.

“Special consideration needs to be given to noise sensitive areas within Section 4(f) properties (including . . . historic sites) where land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question . . . [T]he part 150 guidelines may not be sufficient to determine the impact of noise on historic properties where a quiet setting is a generally recognized purpose and attribute, such as a historic village preserved specifically to convey the atmosphere of rural life in an earlier era or a traditional cultural property.” *Id.*, pp. B-5, 6.

Further, FAA did not issue a *de minimis* impact determination or otherwise issue a finding of no adverse effect on the referenced properties pursuant to Section 106 of the NHPA. Indeed, “[f]or parks, recreation areas, and wildlife and waterfowl refuges, the officials with jurisdiction over the property must be informed of the FAA’s intent to make a *de minimis* impact determination, after which the FAA must provide an opportunity for public review and comment.” *Id.*, pp. B-12, 13 FAA failed to inform Towns, who have jurisdiction over the properties that it intends to make a *de minimis* impact determination with respect to these properties when it substantially increased the volume of aircraft utilizing the Flight Paths.

<sup>67</sup> FAA Desk Reference Order 1050.1, p. 11-13.

<sup>68</sup> FAA Desk Reference for Order 1050.1, p. 8-23.

<sup>69</sup> *Id.*, p. 8-24.

must determine what actions can be taken to resolve any adverse effects. Within 48 hours of discovery, the FAA must also notify the SHPO/THPO . . . and the ACHP. The notification should describe the actions proposed by the FAA to resolve the adverse effects. The relevant entity and the ACHP will respond within 48 hours of notification and the FAA should take into account their recommendations and carry out appropriate actions. The FAA must also provide a report of the actions when they are completed.

Accordingly, FAA is required to cease the substantial increase in use of the Flight Paths and revert back to pre-CatEx use in the vicinity of the identified historic properties until it complies with the foregoing.

## **VII. Highly Controversial Impacts on the Human Environment**

FAA Order 1050.1F provides:<sup>70</sup>

The term “highly controversial on environmental grounds” means there is a substantial dispute involving reasonable disagreement over the degree, extent, or nature of a proposed action’s environmental impacts or over the action’s risks of causing environmental harm. Mere opposition is not sufficient for a proposed action or its impacts to be considered highly controversial on environmental grounds. Opposition on environmental grounds by a Federal, state, or local government agency or by a tribe or a substantial number of the persons affected by the action should be considered in determining whether or not reasonable disagreement regarding the impacts of a proposed action exists. If in doubt about whether a proposed action is highly controversial on environmental grounds, consult the LOB/SO’s headquarters environmental division, AEE, Regional Counsel, or AGC for assistance.

The substantial increase in use of the current arrival Flight Paths to Runways 22 L/R are “Highly Controversial” because “there is a substantial dispute involving reasonable disagreement over the degree, extent, or nature of the [Flight Paths’] environmental impacts” and risks of causing environmental harm. That is specifically the case because: (i) Towns, which are local governments, object, (ii) Towns comprise of one million residents, (iii) Towns control dozens of Section 4(f) properties and properties on the National Register for Historic Places within the Flight Paths, (iv) hundreds of thousands of noise complaints are submitted annually, (v) the Flight Paths are likely exacerbating ozone pollution in the Towns despite Nassau County air quality being in “severe non-attainment” for ozone under the Clean Air Act, (vi) overuse of the Flight Paths is impacting disadvantaged communities, and (v) there are serious health concerns, including asthma and cancer, associated with the air pollution caused by current overuse of the Flight Paths.

---

<sup>70</sup> FAA Order 1050.1F, p. 5-2.

## **VIII. Environmental Justice**

Factors for determining whether a significant impact to an environmental justice community occurs where “[t]he action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low-income or minority population, due to: [s]ignificant impacts in other environmental impact categories; or [i]mpacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines are unique to the environmental justice population and significant to that population.”<sup>71</sup> As discussed above, there are several environmental justice communities that are impacted by air pollution and noise due to the material increase in use of the Flight Paths, including Elmont, Valley Stream, and Hempstead. Those communities disproportionately bear the air pollution and noise burden of the Flight Paths and have disproportionately higher levels of asthma and cancer resulting from the Flight Paths. This is particularly the case as they are the communities in which aircraft are the lowest in their descent on approach to Runways 22 L/R. This was not considered by FAA prior to substantially increasing the use of the arrival Flight Paths to Runways 22 L/R.

Indeed, FAA failed to engage any public involvement of these communities prior to significantly increasing arrivals to Runways 22 L/R. This is contrary to requirements pursuant to Executive Order 12898, DOT Order 5610.2(a), FAA Order 1050.1F and the Desk Reference in support thereof. Specifically, the Desk Reference provides:<sup>72</sup>

the FAA must provide for meaningful public involvement by minority and low-income populations. In accordance with DOT Order 5610.2(a), this public involvement must provide an opportunity for minority and low income populations to provide input on the analysis, including demographic analysis, which identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.

## **IX. FAA’s Overuse of the Runway 22 L/R Flight Paths Violates the New York State Constitution**

Effective January 1, 2022, the Bill of Rights for the New York State Constitution was amended to state that: “[e]ach person shall have a right to clean air and water, and a healthful environment.”<sup>73</sup> The foregoing noise pollution and air pollution issues violate Individual Petitioners’, Towns’ and Towns residents’ rights to “clean air . . . and a healthful environment.” The adoption of this constitutional amendment is a “significant new circumstance” requiring a new or supplemental NEPA review. Compliance with this state constitutional amendment must be considered by FAA in any NEPA review.<sup>74</sup> This is particularly the case because an “extraordinary

---

<sup>71</sup> *Id.* at pp. 4-9.

<sup>72</sup> FAA Desk Reference Order 1050.1F, p. 12-9.

<sup>73</sup> NYS Const. Art I, § 19.

<sup>74</sup> FAA Order 1050.1(F), p. 4-3.

circumstance” requiring NEPA review is “[l]ikelihood to be inconsistent with any . . . state . . . law relating to the environmental aspects of the proposed action.”<sup>75</sup>

**X. FAA Must Evaluate The Foregoing Issues**

Whether FAA issued a categorical exclusion allowing for the substantial increase in use of the Flight Paths or whether FAA proceeded without any NEPA compliance, FAA must analyze all environmental impacts resulting from the substantial increase in use of the Flight Paths. Further, to the extent FAA conducted any previously compliant environmental review under NEPA with respect to this change, the foregoing constitutes substantial new information requiring FAA to reconsider any prior evaluation of impacts to the Petitioners.<sup>76</sup> FAA must evaluate alternatives as part of its review of environmental impacts.

**XI. FAA’s Violation of the National Defense Authorization Act for Fiscal Year 2017**

Within the 2017 Defense Act, Congress included a mandatory requirement for FAA to review the environmental impact of any post-February 14, 2012 decision whereby FAA granted “a categorical exclusion with respect to a procedure . . . that was a material change from procedures previously in effect at [an] airport to determine if the implementation of the procedure had a significant effect on the human environment in the community in which the airport is located.”<sup>77</sup> As annual arrivals on Runways 22 L/R have increased by ~30,000 flights since 2014, FAA is required to re-analyze its CatEx (if any). FAA has not complied with this mandatory requirement. Towns respectfully petition the FAA to comply.

**XII. Alternatives**

Towns respectfully request that when conducting the NEPA review requested herein, FAA analyzes, among others, the alternatives set forth in the McAuley Report.<sup>78</sup>

**14 C.F.R. § 11.71 Compliance**

**1. Petitioners’ Names and Mailing Addresses**

Response:

Town of Hempstead  
c/o Rigano LLC  
538 Broad Hollow Road  
Suite 301  
Melville, New York 11747

Town of North Hempstead  
c/o Rigano LLC  
538 Broad Hollow Road  
Suite 301  
Melville, New York 11747

---

<sup>75</sup> FAA Order 1050.1(F), p. 5-2.

<sup>76</sup> FAA Order 1050.1F, § 9-3.

<sup>77</sup> Section 341(b) of the National Defense Authorization Act of 2017.

<sup>78</sup> McAuley Report, pp. 25-30.

Laurence Quinn  
c/o Rigano LLC  
538 Broad Hollow Road  
Suite 301  
Melville, New York 11747

Rich Pallisco  
c/o Rigano LLC  
538 Broad Hollow Road  
Suite 301  
Melville, New York 11747

Richard DeMartino  
c/o Rigano LLC  
538 Broad Hollow Road  
Suite 301  
Melville, New York 11747

Michael Daloia  
c/o Rigano LLC  
538 Broad Hollow Road  
Suite 301  
Melville, New York 11747

**2. An explanation of your proposed action and its purpose.**

Response: See above and the enclosed Expert Report of Dr. McAuley.

**3. The language you propose for a new or amended rule, or the language you would remove from a current rule.**

Response: See below Wherefore clause.

**4. An explanation of why your proposed action would be in the public interest.**

Response: See above and the enclosed Expert Report of Dr. McAuley.

**5. Information and arguments that support your proposed action, including relevant technical and scientific data available to you.**

Response: See above and the enclosed Expert Report of Dr. McAuley.

**6. Any specific facts or circumstances that support or demonstrate the need for the action you propose.**

Response: See above and the enclosed Expert Report of Dr. McAuley.

\* \* \*

**WHEREFORE**, Petitioners formally petition FAA to do the following and all other requests set forth above:

1. Conduct an appropriate environmental review documented by an environmental assessment, environmental impact statement or supplemental environmental assessment/supplemental environmental impact statement pursuant to the National Environmental Protection Act, 42 U.S.C. §§4320 *et seq.* and 40 C.F.R. §1500.1a (“NEPA”) due to the undisclosed impacts, significant new circumstances and significant new information caused by the substantial increase in use of arrival flight paths to Runways 22 L/R (the “Flight Paths”) at John F. Kennedy International Airport (“JFK”);

2. Undertake the review of categorical exclusion(s) (“CatEx”) for flight paths associated with arrivals to JFK Runways 22 L/R, and otherwise use of those runways as the primary arrival runways at JFK, as required by Section 341(b) of the National Defense Authorization Act of 2017 and applicable law.
3. Suspend the substantial increase in use of flight paths to JFK Runways 22 L/R until the foregoing analyses are complete by reverting to use of such runways as they existed before FAA issued the applicable CatEx (if any).
4. Continue, accelerate and expand efforts to adjust ILS/RNAV routes to JFK Runways 22 L/R to improve compatibility with neighborhoods. Such measures should include rerouting procedures to minimize impacts over Towns, residential areas, historic sites, parks and other sensitive properties, maximize altitudes with the flight paths, route dispersion of flights more equitably and to implement a glideslope procedure.
5. Update the JFK Part 150 Noise Exposure Maps and Noise Compatibility Program, which were based on 2014 data when approximately 30,000 less aircraft arrived on JFK Runways 22 L/R per year.

*[Remainder of Page Intentionally Left Blank]*

July 3, 2024  
Melville, New York

Respectfully submitted,

By: /s/ Nicholas C. Rigano  
Nicholas C. Rigano, Esq.

**RIGANO** LLC

*Attorneys for Petitioners Town of Hempstead, Town  
of North Hempstead, Laurence Quinn, Rich  
Pallisco, Richard DeMartino and Michael Daloia*

538 Broad Hollow Road, Suite 301

Melville, New York 11747

Tel: (631) 756-5900

[nrigano@riganollc.com](mailto:nrigano@riganollc.com)

– AND –

John Maccarone, Esq.  
Town Attorney  
Town of Hempstead  
One Washington Street  
Hempstead, New York 11550  
(516) 812-3209

– AND –

Richard J. Nicoletto, Esq.  
Town Attorney  
Town of North Hempstead  
220 Plandome Road  
Manhasset, New York 11030  
(516) 869-6311



**EXHIBIT A**



Nicholas C. Rigano, Esq  
Rigano, LLC  
538 Broad Hollow Road, Suite 301  
Melville, NY 11747

July 3, 2024

*Ref: Flight Path and Environmental Air Quality Impacts Related to Air Traffic Trajectories over the Towns of Hempstead & North Hempstead.*

Dear Attorney Nicholas Rigano,

It is my pleasure to submit to you this expert report outlining the air quality impacts discussed herein this report to the Towns of Hempstead & North Hempstead (collectively, “Towns”) in Nassau County related specifically the arrival flight patterns to Runways 22 L/R, which cause aircraft to traverse consistently over the Towns at or less than 3,000 feet during landing and taking offs at John F. Kennedy International Airport (JFK).

Please let me know if you have any questions.

Thank you,

A handwritten signature in black ink, appearing to read "Timothy R. McAuley".

Timothy R. McAuley, MS, PhD  
Multi-Award Winning Renowned Professional Environmental Expert Scientist & Global  
Strategies Leader in Environmental Consulting & Entrepreneurship  
Founder & CEO, CHANGE Environmental, LLC  
Corporate Headquarters  
63 Putnam Street  
Suite 202  
Saratoga Springs, NY 12866  
Email: [mcauleyt@changeenvironmental.com](mailto:mcauleyt@changeenvironmental.com)  
Website: [www.changeenvironmental.com](http://www.changeenvironmental.com)  
Mobile: 978-888-3727



### 1. BACKGROUND

CHANGE Environmental was retained by the Law Office of Rigano, LLC (herein after “Rigano”), which represents the Town of Hempstead and the Town of North Hempstead (collectively, “Towns”) in Nassau County. The Towns have been concerned for some time with the environmental impacts (e.g., air quality issues to the Towns) surrounding John F. Kennedy International Airport (herein after “JFK”), more specifically the arrival flight patterns to Runways 22 L/R, which cause aircraft to traverse consistently over the Towns at or less than 3,000 feet. Arrivals to these runways have recently increased such that over 90,000 planes landed on Runways 22 L/R in 2023 with such frequency continuing in 2024.<sup>1</sup> The following figures 1a and 1e show the primary arrival flight path for Runway 22L/R.

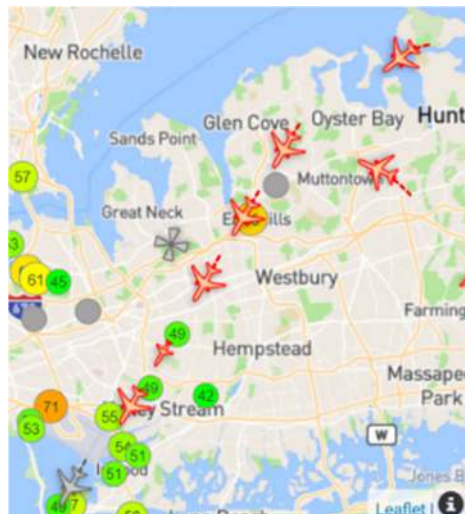


Figure 1a. Screenshot of flightpaths from Port Authority’s webtrack website illustrating typical flightpaths for airplanes coming into JFK 22L/R. Illustration clearly shows flightpath over several communities and Towns discussed herein. Port Authority is the operator of JFK.

<sup>1</sup> <https://aircraftnoise.panynj.gov/reports/>

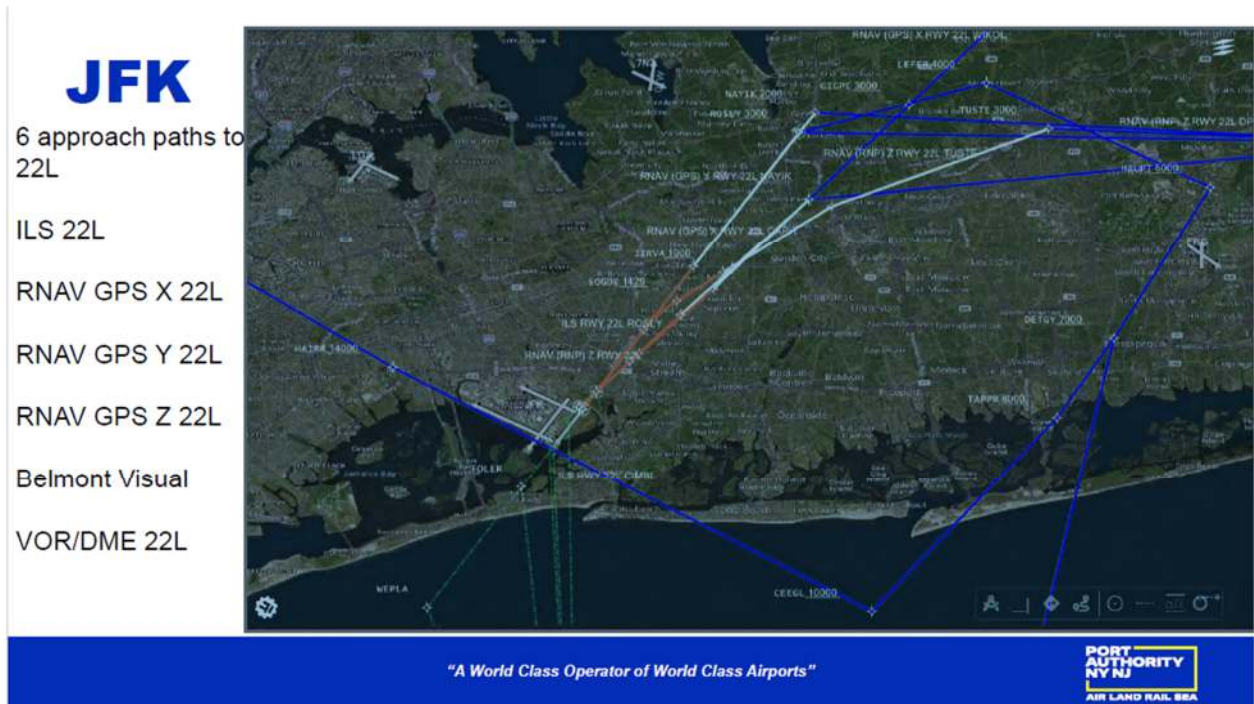


Figure 1b. Slide presented by Port Authority on September 12, 2022, to the JFK Roundtable showing the detailed flight path used to Runways 22 L all flying over Towns' densely populated communities.

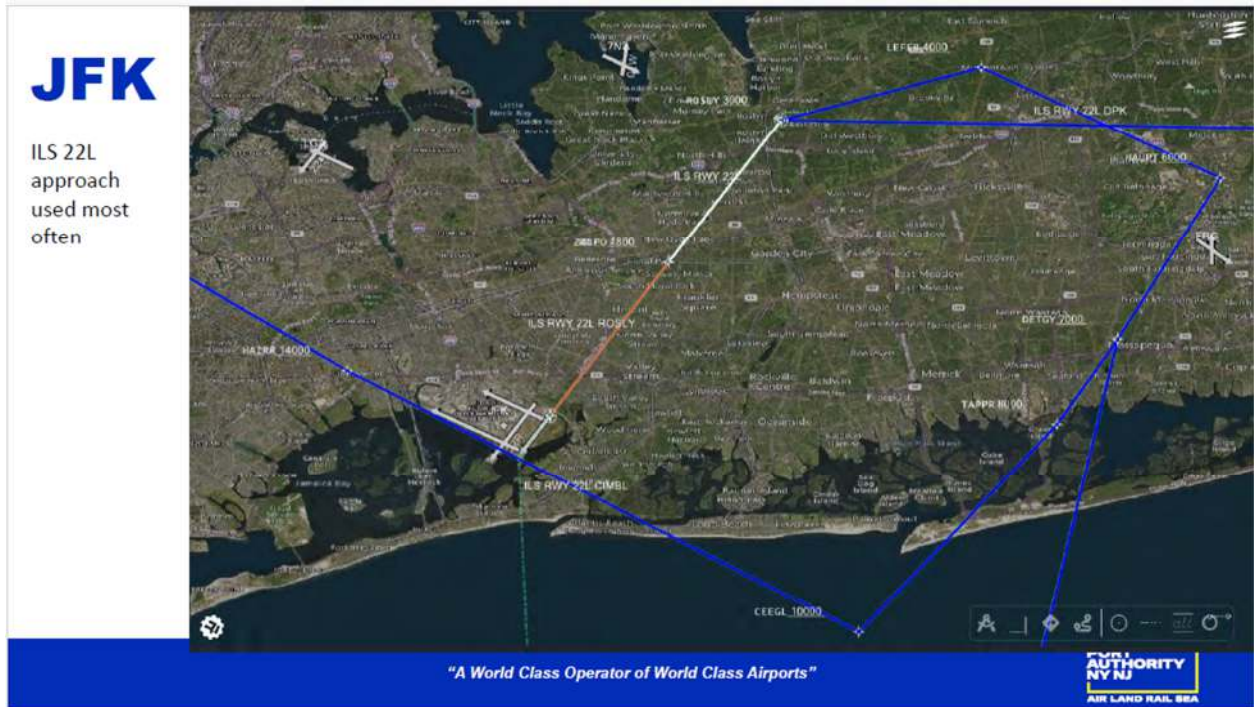


Figure 1c. Slide presented by Port Authority on September 12, 2022, to the JFK Roundtable showing the approach used most often to Runway 22 L, which traverses over the Towns' densely populated communities.

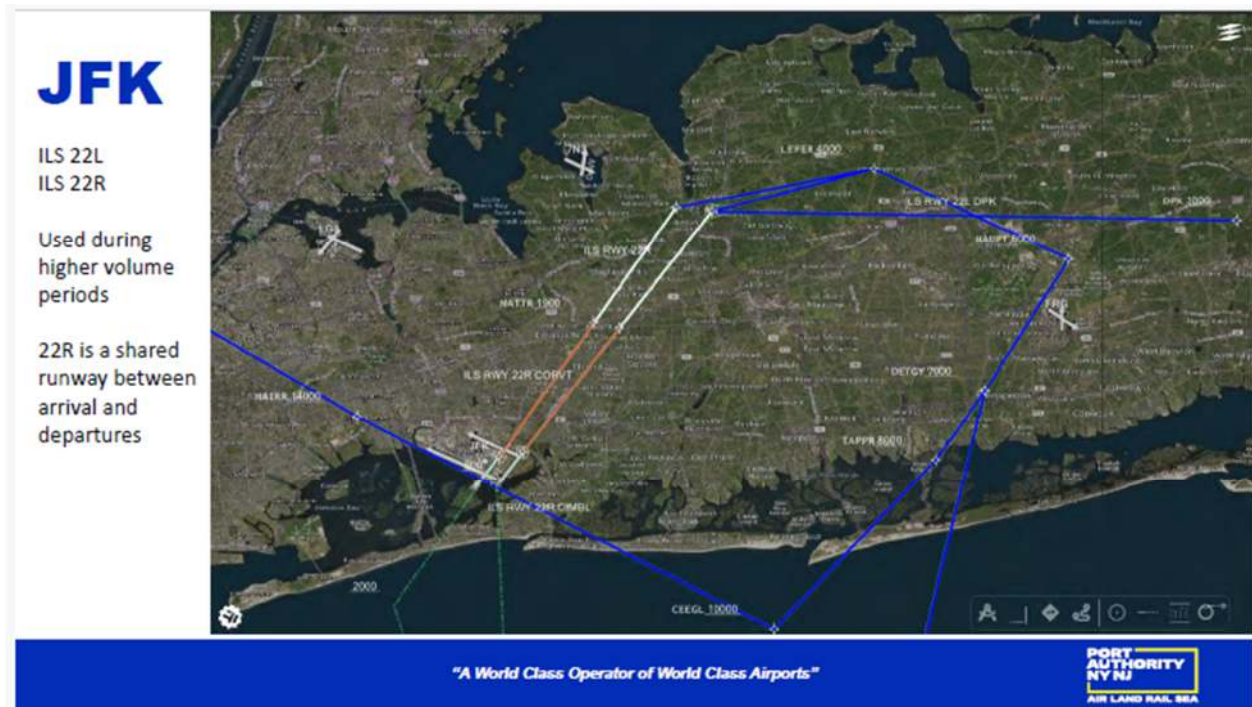


Figure 1c. Slide presented by Port Authority on September 12, 2022, to the JFK Roundtable showing the detailed flight path used to both Runways 22 L/R “during higher volume periods” flying over densely populated communities within the Town.

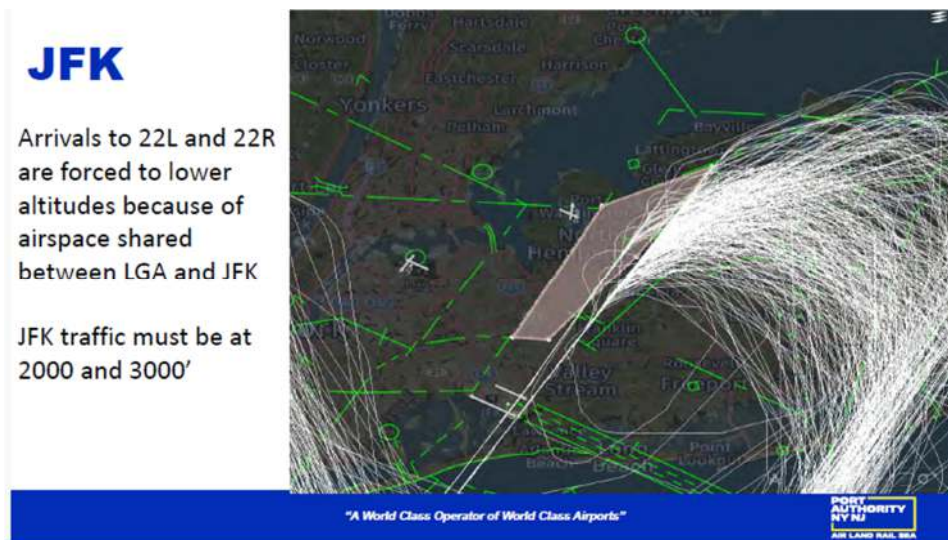


Figure 1d. Slide presented by Port Authority on September 12, 2022, to the JFK Roundtable showing the detailed flight path used to both Runways 22 L/R and stating that “arrivals to 22 L and 22 R are forced to lower altitudes. JFK traffic must be at 2000 to 3000’”, which is below the “mixing height.

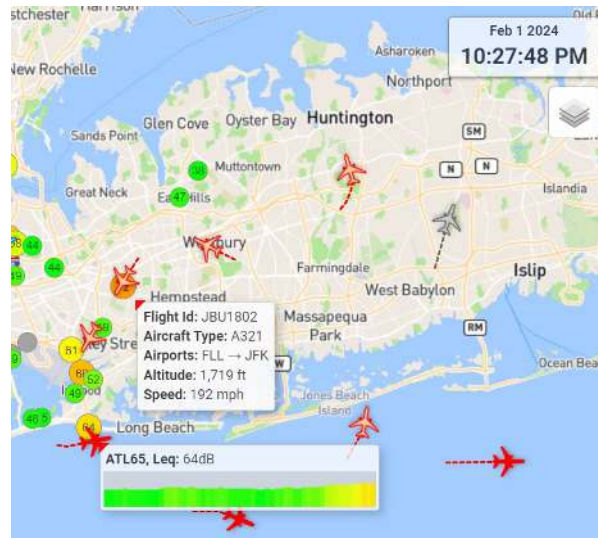


Figure 1e. Screenshot of flightpaths from Port Authority’s webtrack website illustrating planes coming into JFK 22L/R and turning towards intended flightpath of coming into JFK 22L/R. Illustration clearly shows flightpath over several communities and Towns at less than 2,000 feet.

This is concerning as the United States Environmental Protection Agency (“EPA”) has designated the 3,000-foot altitude as the “mixing height” meaning aircraft emissions at less than 3,000 feet may cause air pollution on the ground. The Federal Aviation Administration (“FAA”) has concurred with this. The air pollution impacts from the flight path are particularly problematic because the flight path overlies the densely populated Towns, which are populated by approximately 1 million people.<sup>2</sup> EPA has designated Nassau County as being in “severe non-attainment” for Ozone under the Clean Air Act. Aircraft emissions are known to cause ozone pollution.

2

<https://www.census.gov/quickfacts/fact/table/hempsteadtownnassaucountynewyork,hempsteadvillagenewyork/HSD410219>;  
<https://www.census.gov/quickfacts/fact/table/northhempsteadtownnassaucountynewyork,townncountrycdpflorida,hempsteadtownnassaucountynewyork,hempsteadvillagenewyork/HSD410222>



Given a history of arrival flight trajectories over the Towns there is significant concern that the frequent use of Runways 22L/R does and will continue to have a long-term environmental impact on the Towns with respect to noise and air quality. This report will specifically discuss air quality impacts associated with the Runway 22 L/R arrival flight path as several studies of similar airports have also shown large impacts on communities and health effects from aviation emissions resulting from landing and takeoffs.

A detailed review of the flight patterns in relation to the Towns has been conducted by me, as well as a review of databases maintained in the New York State Department of Health (herein after “DOH”) website. The analysis of the data sorted by area and zip codes clearly indicate a statistically significant increased rate of asthma around JFK and within the Runway 22 L/R flight path that, to a reasonable degree of scientific certainty, is likely related to the air quality impacts caused by aircraft arriving at JFK from within this flight path. Indeed, airports have been shown to be a significant contributor to health effects due to their emissions generated during Landing and Take-off operations (“LTO”). Accordingly, the Runway 22 L/R arrival flight path is a likely material source of air pollution leading to the increased incidence of asthma. Additional data sourced from DOH shows that northeast of JFK and within the 22L/R flight path there is a higher incidence of stomach and prostate cancer, which peer reviewed studies have determined are similarly associated with aircraft exhaust exposure. Known aircraft emissions (e.g., volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and oxides of nitrogen (NOx), etc.) are associated with these disease outcomes.

This report will focus on the air quality impacts on Towns associated with emissions related to arrivals on Runways 22 L/R at JFK. This will include a detailed multi-year illustration of local meteorological assessments of wind speed and direction across the various seasons. This analysis shows scientifically that the arrival flight path over the Towns to Runways 22L/R cause various air toxins with known human health and environmental impacts, to reach the ground, not only on communities directly under the flight path, but also on neighboring communities within the Towns. This air pollution likely increases the risk of disease for tens of thousands of people and substantially contributes to Nassau County’s “severe” non-attainment status for Ozone.





These findings and assessments presented herein are consistent with the scientific literature discussing the impacts from aircraft and communities that surround airports and within LTO cycles.

*1. TIMOTHY R. MCAULEY, MS, PHD CV SUMMARY BIOGRAPHY*

Dr. Timothy R. McAuley is the Founder & Chief Executive Officer of CHANGE Environmental, LLC, a certified Veteran Owned Business headquartered in Upstate, NY. Dr. McAuley is a leading authority and multi- award-winning global environmental leader and recognized expert in the fields of air quality human health, exposure, and risk assessment. Dr. McAuley has directed, managed, and consulted on numerous innovative domestic and global environmental consulting and research studies in the fields of aviation, traffic and emissions characterization, ambient and indoor air quality exposures, air quality modeling, and hundreds of air quality studies across the world. Overall, Dr. McAuley expertise ranges from aviation emissions, fires and explosions, train derailments, traffic, and industrial emissions. As a result of his work and contributions to the environmental field, Dr. McAuley has given several keynote speeches and has become a global resource for environmental forward thinking and a leader in his field. He is also currently an elected member by his peers to several national committees. Dr. McAuley also provides additional consulting and expert services to dozens of. attorneys and private and public companies across the United States and internationally. Dr. McAuley experience and expertise stretches for over 20 years for various projects including mergers, risk management, environmental due diligence, which include cases supporting attorneys for plaintiffs, defense teams, insurance and investment bank, private firms, community groups, and non-profit and non-governmental organizations.

***PUBLICATIONS (Last 10 years only)***

1. Bhatnagar A et al., *A Policy Statement from the American Heart Association: Electronic Cigarettes, August 24, 2014. Circulation*



2. McAuley et al., Comparison of the effects of e-cigarettes vapor and cigarette smoke on indoor air quality, October 2012, *Inhalation Toxicology*

**TESTIMONIAL HISTORY** (Last 4 years only)

<b>Depo Date</b>	<b>Case Name</b>	<b>Case No.</b>	<b>Court</b>
9/30/2021	<i>Team Car Care, LLC; Team Car Care East, LLC; And Team Car Care West, LLC v. Jiffy Lube International, Inc., and Pennzoil-Quaker State Company D/B/A Sopus Products</i>	CPR File No. G-21-69-S	Arbitration Arbitrator: Hon. A. Howard Matz (Ret.)
01/18/2022	<i>Raquel Rodriguez et al. v. Lake Villa Condominium, et al.</i>	2016-CA-007048-CA	Circuit Court of 11 <sup>th</sup> Judicial Circuit in and for Miami-Dade County, Florida
5/31/2023	<i>Karyn Vandestreek v. Lockheed Martin Corporation et al</i>	6:21-cv-1570-37-DCI	Middle District Court of Florida, Orlando
8/30/2022	<i>Export 220 Volt, Inc vs. Sitco Enterprises, LLC and Mehriar Mark Kaviani and Shelby Group International, Inc d/b/a MCR Safety</i>	2020-46795	District Court of Harris County Texas
8/22/2019	<i>S.T.O.P. Restoration, LLC, Christopher M. "KIT" Smith and Laura B. Smith vs. Builder Services Group, Masco Contractor Services Central, Inc d/b/a Williams Insulation; David Haskins and Duke Aerial</i>	15RY-CV01074	District Court Ray County, Missouri
2/26/2020	<i>Miami Township Board of Township Trustees et al vs. Michael J. Weinle</i>	A1903850	Court of Common Pleas, Hamilton County, Ohio
8/30/2023	<i>Conrad De Los Santos vs. Johnson &amp; Johnson; Johnson &amp; Johnson Consumer, Inc</i>	2:21-cv-01208-USC	United States Court Northern District of Alabama Southern Division
11/17/2022	<i>Mark Geringer; and Stephanie Geringer vs. Install it Direct., Inc, Oldcastle APG West, Inc.</i>	37-2020-00014147-CU-PO-CTL	Superior Court of California County of San Diego
03/05/2024	<i>Brashevitsky et al. v. Covanta Dade Renewable Engery</i>	1:23-CV-20861	United States District Court Southern District of Florida, Miami Division

<b>Trial Date</b>	<b>Case Name</b>	<b>Case No.</b>	<b>Court</b>
11/9/2021	<i>Team Car Care, LLC; Team Car Care East, LLC; And Team Car Care West, LLC v. Jiffy Lube International, Inc., and Pennzoil-Quaker State Company D/B/A Sopus Products</i>	CPR File No. G-21-69-S	Arbitration Arbitrator: Hon. A. Howard Matz (Ret.)
11/28/2023	<i>Town of Marple, PA v. PECO Energy</i>	P-2021-3024238	Commonwealth Court of PA, Marple, PA



Dr. McAuley received his PhD. in Environmental Science and Engineering and his MS in Chemistry Clarkson University along with a BS in Biochemistry from The College of Saint Rose.

### 1. OVERALL AIR QUALITY IMPACTS FROM AVIATION ON COMMUNITIES

It is well understood within the published scientific community that aircraft engines and fuels produce various types of emissions that include *Carbon Dioxide (CO<sub>2</sub>)*, *water vapor (H<sub>2</sub>O)*, *nitrogen oxides (NO<sub>x</sub>)*, *Carbon Monoxide (CO)*, *Volatile Organic Compounds (VOCs)*, *unburned hydrocarbons (UC)*, *sulfur dioxides (SO<sub>x</sub>)*, *particulate matter (PM)*, and other trace compounds. Notably, Ozone, a criteria air pollutant under the Clean Air Act, is formed by reactions of sunlight with NO<sub>x</sub> and VOCs, both of which are known to be contained in aircraft emissions. Those compounds in the italics do not make up most of the aircraft emissions (i.e., CO<sub>2</sub> is the largest), however these pollutants are the most responsible for greatest impacts to air quality and human health impacts and overall public health. The emissions and their impacts of most interest for several years have been the impacts related to LTO cycles. This primarily includes low altitude landings and arrivals (ground level up to 3,000 feet) that are a significant source of ground level air pollutants as discussed below.

A study by <sup>A</sup>Durant et al in (2020) published in Environmental Science and Technology (EST) showed that impacts of aviation emissions on air quality at a residence downwind of Logan International Airport in Boston, MA. The authors conducted daily monitoring of all the key aviation related emissions as discussed prior for a period of one month. The measured emissions included CO, CO<sub>2</sub>, NO, and NO<sub>2</sub> including particles for black carbon, VOCs, PAHs, PM<sub>2.5</sub> and ultrafine particles. The monitoring location was at a residence that was directly in line with the flight trajectory of most of the unitized runway configuration and was downwind of the airport. The residence served as a representative location for the several homes also in the area and results would be expected to be reproducible at other locations. Durant and his team controlled for runway usage and meteorology and their results clearly showed the air quality impacts were highest during overhead landing operations vs. takeoffs on the closest runway to the residence as



the average daily ultrafine particle count was 7.5 times higher during the landings. Infiltration of aviation emissions of ultrafine particles were comparable to ambient concentrations measured locally on nearby roadways and highways. In addition, concentrations of all gaseous pollutants were 1.1-4.8 times higher than upwind measurements taken during the month indicating elevated exposures to several air toxins related to aviation operations.

<sup>A</sup>Durant et al. (2020). *Impacts of Aviation Emissions on Near-Airport Residential Air Quality. Environmental Science and Technology. 54(14):8580-8588.*

A large systematic review of scientific literature was conducted by <sup>B</sup>Riley et al. in (2021). A meta-analysis of over 3,300 articles assessed the state of the science related to commercial airport activities and the impacts on air quality in locations within the vicinity that ranged from 0-12 miles from the airports and in the flight paths of those airports. The results of these studies showed scientifically that several aviation-based pollutants were all elevated on ground level near airports resulting from aviation related impacts. Studies consistently showed ultrafine particles (UFPs) (*i.e.*, that are particles less than 100 nm and most freshly emitted particles from fuel combustion) were elevated in and around zero to several miles from the various airports. Riley et al meta-analysis also showed that PM<sub>2.5</sub>, black carbon, PAHs, NO<sub>x</sub>, VOCs, were elevated as well resulting from analysis of historical flight trajectories at and in communities around those airports. Riley et al also discussed and described various health effects relating to these exposures that included increased rates of premature deaths, pre-term births, decreased lung function, oxidative DNA damage and childhood leukemia. A recent study by <sup>C</sup>Yim et al. (2015) assessed global, regional, and local health impacts of civil aviation emissions, using modeling tools that address environmental impacts at different spatial scales. The study attributed approximately 16,000 premature deaths per year globally to global aviation emissions, with 87% attributable to particulate matter under 2.5 µm in diameter (PM<sub>2.5</sub>). The study concludes that about a third of these mortalities are attributable to PM<sub>2.5</sub> exposures within 20 km of an airport. While there are considerable uncertainties associated with such estimates, these results suggest that in addition to the contributions of PM<sub>2.5</sub> emissions to regional air quality, impacts on public health of these emissions in the vicinity of airports are an important concern.



<sup>B</sup>Riley et al. (2021). *A systematic review of the impact of commercial aircraft activity on air quality near airports. City of Environment Interactions. Vol (11) Num (3). P 1-8.*

<sup>C</sup>Yim et al., (2015). *Global, regional, and local health impacts of civil aviation emissions. Environ Res Letter. Vol (10):3. P 1-12*

The findings of these studies are directly in line with impacts and health outcomes of the Towns as result of the expected and recognized air quality impacts related to JFK and the arrival path to Runway 22 L/R. For example, in direct agreement in the scientific literature, JFK airport operations (including arrivals) in 2019 resulted in emissions of more than 3,900 metric tons of NO<sub>x</sub>, three hundred metric tons of SO<sub>2</sub> and thirty-three metric tons of PM<sub>2.5</sub>. (*Source: Port Authority 2019 GHG and Criteria Air Pollutant Emissions Inventory*). This amount of NO<sub>x</sub> alone exceeds the annual emission of more than one million cars.<sup>3</sup>

In summary, the studies discussed and described herein (including the thousands in the meta-analysis published) all support the conclusion that LTO cycles cause air pollution, and the more aircraft engage in an LTO cycle, the more air pollution is expected, particularly for areas where LTO cycles occur below an altitude of 3,000 feet, as is the case in the Towns for 90,000+ planes arriving at Runways 22 L/R. These impacts are discussed below.

## 2. LANDING and TAKE-OFFs and AIR QUALITY IMPACTS

Landing and takeoffs are the largest producers of various air toxins and emissions because of the acceleration from the airplanes taking off and both acceleration/deceleration during arrival procedures. Both processes (*i.e.*, LTOs) have been shown scientifically through dozens of studies to generate and elevate local air quality impacts to surrounding communities. An illustration is provided below to demonstrate the general LTO process including taxi-in and taxi-out processes from a 2008 paper by EPA presented in Montreal, Quebec.

---

<sup>3</sup> Based on the average driving distance of a car is 10,573 miles per year and average NO<sub>x</sub> emissions from light duty cars in 2021. See <https://afdc.energy.gov/data/10309>; <https://www.bts.gov/content/estimated-national-average-vehicle-emissions-rates-vehicle-vehicle-type-using-gasoline-and>.



*Source: ICAO Annex 16 EPA Volume II-Aircraft Engine Emissions (2008)*

The LTO emissions are defined as emissions between ground level and an altitude of about 3,000 feet. They are composed of emissions during departure operations (from taxi-out movement from gate to runway, aircraft take-off run and climb-out to 3,000 feet), and during arrival operations (emissions from approach at or below 3,000 feet down to landing on the ground and taxi-in from runway to gate). These LTO emissions directly affect the ground level air quality at the vicinity of the airport and also for communities within and near low-altitude flight paths within the local mixing height. Depending on the meteorological conditions, the emissions will be mixed with ambient air down to ground level, dispersed, and transported to areas downwind from the airport with elevated concentration levels. *(Source: EPA, 1992: Procedures for Emission Inventory Preparation—Volume IV: Mobile Sources, EPA420-R-92-009. Available at <https://nepis.epa.gov>)*

A study and meta-analysis by <sup>C</sup>Yunos et al. (2017) published in the American Institute of Physics (AIP) Conference Proceedings in April 2017 showed that the LTO process results in significant aircraft emissions across various communities near airports across the globe due to elevated levels of various air contaminants. Like hundreds of other studies to which examples are outlined herein this report also concluded that LTOs are the largest producers of NO<sub>x</sub> and Particulate Matter (PM) causing impacts to human health. The NO<sub>x</sub> is produced by the high pressure and



elevated temperature combustion when aircraft flies at high thrust setting. The air is combusted and oxidation of the nitrogen at elevated temperature causes the nitrogen to form NO<sub>x</sub>. Particulate matter (ultrafines, PM<sub>2.5</sub>) are formed resulting from the incomplete combustion of the fuel during high thrust and temperatures.

*<sup>D</sup>Yunos et al (2017). Aircraft LTO emissions regulations and implementation at European airports. AIP Conference Proceeding 1831, Malaysia. Published in America Institute of Physics.*

Overall, the LTO processes from ground level to 3,000 feet above sea level, which includes landing from an altitude of 3,000 feet to ground level results in dispersion of various air toxins across communities within and adjacent to the flight path and nearby areas to the runways. This has been a major issue with JFK overlooked by FAA by the overuse of Runways 22L/R and their trajectory paths over the Towns, which are densely populated.

### 3. REGIONAL AIR QUALITY

Air quality in Nassau County is in “severe non-attainment” for ozone.<sup>4</sup> Ozone is a criteria air pollutant under the Clean Air Act that is formed by chemical reactions between nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight.<sup>5</sup> NO<sub>x</sub> and VOCs are known to be emitted by aircraft via engine exhaust.<sup>6</sup> Pollutants emitted during aircraft landing and take-off cycles lead to air quality deterioration.<sup>7</sup> Ozone air pollution is harmful to human health and the environment.<sup>8</sup>

### 4. JFK APPROACH FLIGHT PATH TO RUNWAYS 22L/R CONTRIBUTES TO POLLUTION

---

<sup>4</sup> [https://www3.epa.gov/airquality/greenbook/anayo\\_ny.html](https://www3.epa.gov/airquality/greenbook/anayo_ny.html)

<sup>5</sup> <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>

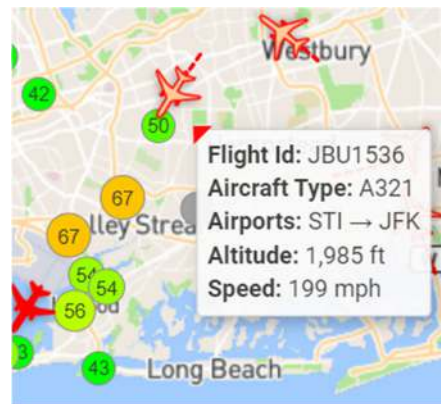
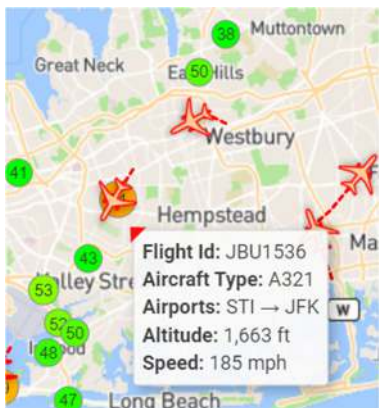
<sup>6</sup> <https://nepis.epa.gov/Exe/ZyPDF.cgi/00000LVU.PDF?Dockey=00000LVU.PDF>

<sup>7</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8900605/>

<sup>8</sup> <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>



As stated above, EPA has determined that an altitude of 3,000 feet or less is the “mixing height”, which is the altitude at which an aircraft may cause pollution exposure to humans on the ground.<sup>9</sup> FAA concurs.<sup>10</sup> When aircrafts approach JFK on the Runway 22 L/R flight path (which happened over 90,000 times in 2023), such aircrafts are regularly less than 3,000 feet. Within the Town of Hempstead, aircraft are generally at an altitude of less than 2,000 feet. For example, the following are screenshots from Port Authority’s website showing altitudes of planes within the Runway 22L/R flight path:<sup>11</sup>



Below are FAA’s own Instrument Procedure Charts, showing that the FAA procedure requires planes to fly at an altitude at or less than 3,000 feet from Roslyn all the way to JFK.<sup>12</sup> Accordingly, planes fly below the “mixing height” for the entire distance between Roslyn to JFK. The altitude at the “ZALPO” waypoints, located in Floral Park, NY, provides for an altitude of 1,800 feet.

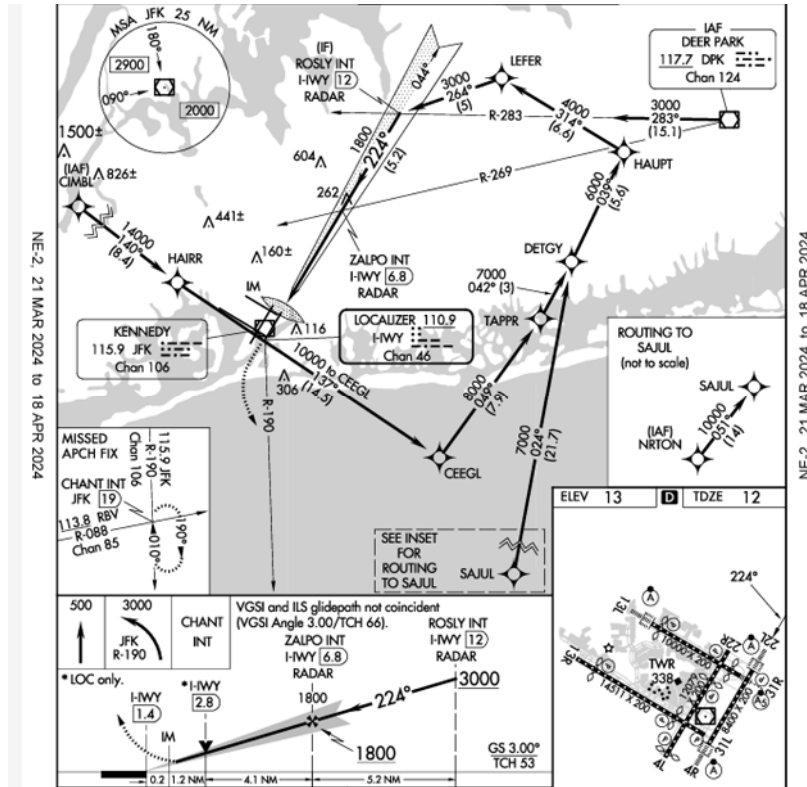
<sup>9</sup> [https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/19921201\\_oaqs\\_epa-420\\_r-92-009\\_ei\\_preparation\\_mobile\\_sources.pdf](https://www3.epa.gov/ttn/naaqs/aqmguide/collection/cp2/19921201_oaqs_epa-420_r-92-009_ei_preparation_mobile_sources.pdf), § 5.2.2

<sup>10</sup> [https://www.faa.gov/sites/faa.gov/files/regulations\\_policies/policy\\_guidance/envir\\_policy/catex.pdf](https://www.faa.gov/sites/faa.gov/files/regulations_policies/policy_guidance/envir_policy/catex.pdf)

<sup>11</sup> <https://webtrak.emsbk.com/panynj4> (both pictures are screenshots of the website at 10:26 pm on February 1, 2024). The website shows live aircraft locations and altitudes).

<sup>12</sup> <https://adip.faa.gov/agis/public/#/airportCharts/JFK>

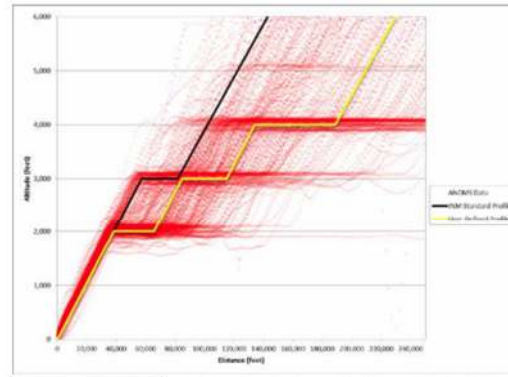




Notably, Port Authority’s consultant found that A320-232 aircrafts, which make up 17% of arrivals, fly below the altitude set forth in FAA’s model.<sup>13</sup> The following figures show FAA’s model in black and actual flying heights in yellow:<sup>14</sup>

<sup>13</sup> See John F. Kennedy International Airport Final Noise Exposure Map Report, dated Apr. 2017 (“NEM Report”), p. 4-19.

<sup>14</sup> See id., Figure 4-6.



NOTE: ANOMS: Airport Noise and Operations Monitoring System, INM: Integrated Noise Model. Altitude is feet above field elevation (AFE). Distance is feet from touchdown point.  
SOURCE: Environmental Science Associates, 2016.

Figure 4-6  
Altitude vs. Distance for A320-232 Arrivals

## 5. METEOROLOGICAL ANALYSIS

To assess air pollution impacts it is important to understand the meteorology of the area. CHANGE Environmental (CHANGE) has evaluated meteorological conditions that exist in and near the Towns. CHANGE analyzed 5 years of meteorological data collected at the John F. Kennedy International Airport's meteorological tower from January 1, 2019, through December 31, 2023. The airport is generally adjacent to the Town of Hempstead, with Inwood to the east and other Town communities in proximity northeast, including Valley Stream, Elmont, Floral Park, Elmont, etc.)

Overall, as further discussed below, the directions from which winds blew varied significantly during the analysis period, but the predominant wind directions were from south, southwest, northwest, and north.



CHANGE accessed meteorological data from the National Oceanic and Atmospheric Administration (NOAA)'s National Centers for Environmental Information from Station ID. 94789 (John F. Kennedy International Airport).<sup>15</sup> The data consisted of hourly measurements of wind speed, wind direction and many other meteorological parameters for the 5-year period beginning on January 1, 2019 and ending on December 31, 2023. We used the WRPLOT View<sup>TM</sup> program (Version 12.0.0)<sup>16</sup> to analyze the data.

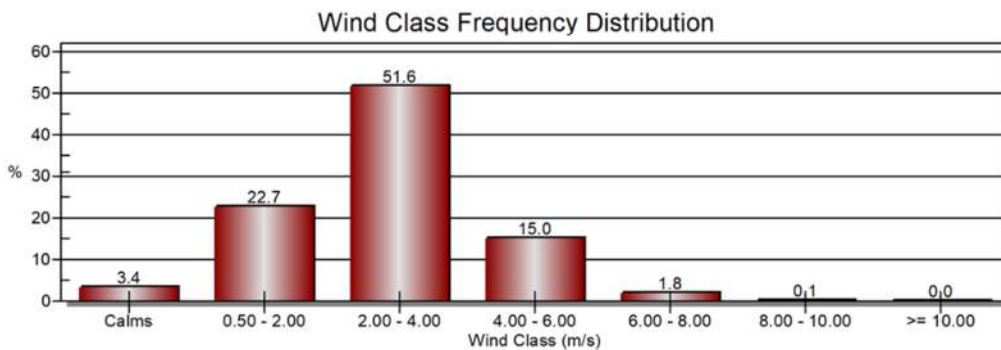
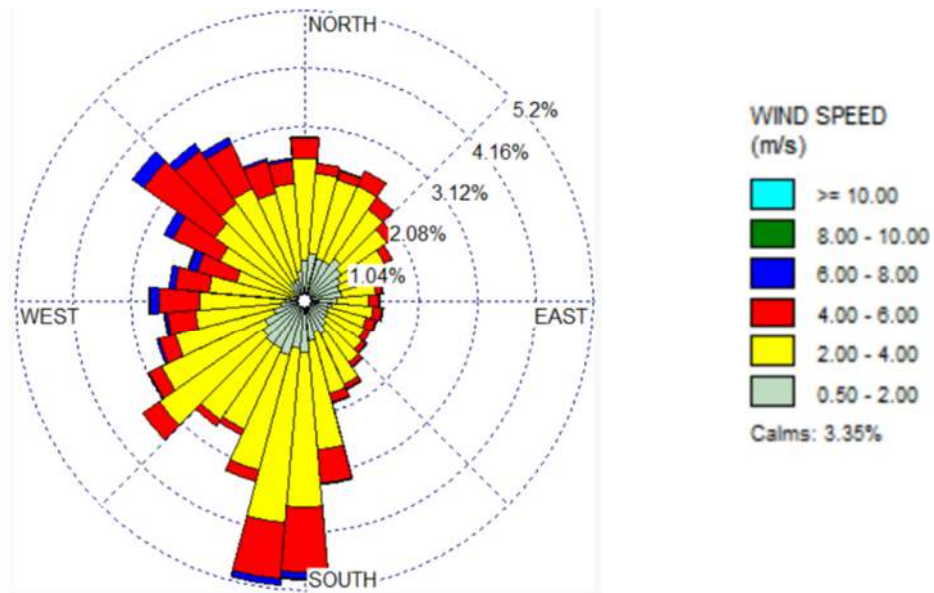
- *Regional Meteorological Profile*

Figure 2 (top) shows wind roses of the wind speeds and direction over the entire measurement period of 2019-2023. A wind rose is a graphical representation of how wind speeds and direction are typically distributed at a particular location. Wind direction is represented as the direction from true north using compass directions (e.g., 360 degrees = true north, 90 degrees = east, 180 degrees = south, 270 degrees = west). The wind rose indicates the frequency of winds blowing *from* particular directions, with the length of each “spoke” around the circle representing the frequency of time that the wind blew *from* that direction. Each concentric circle represents a different frequency, emanating from zero at the center to increasing frequencies at the outer circles. The colors along the spokes indicate the six categories of wind speed evaluated: 0.5-2, 2-4, 4-6, 6-8, 8-10 and  $\geq 10$  m/s. The larger the visible color of the wind speed category on the chart the more prevalent was that wind speed category.

---

<sup>15</sup> <https://www.ncei.noaa.gov>, Local Climatological Data, accessed February 17, 2024.

<sup>16</sup> Lakes Environmental Software, Waterloo, Ontario.



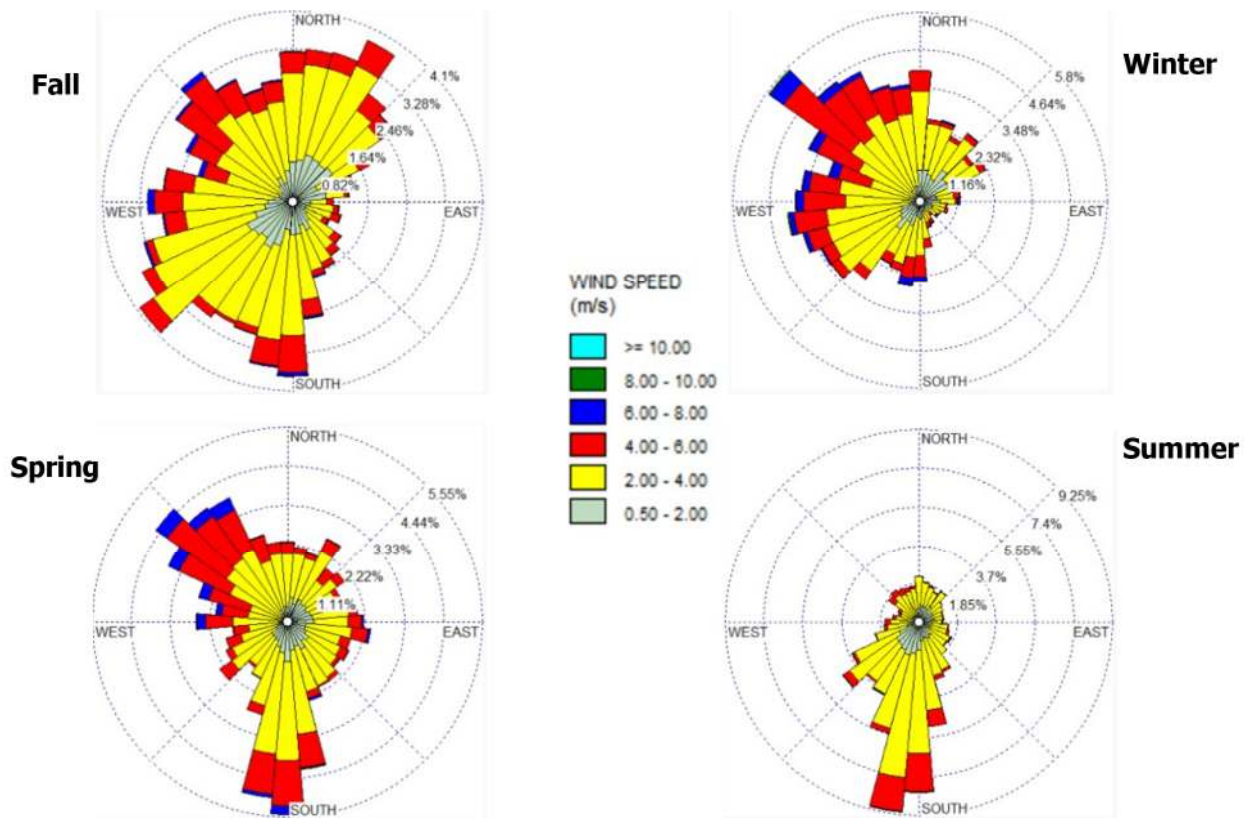
**Figure 1.** Wind Rose and Wind Class Distribution for 2019-2023.

As shown in Figure 2 (top), during the period 2019 through 2023, winds blew from each directional quadrant, although the predominant wind directions were from the south, southwest, northwest, and north directions. The average wind direction during this period was about 190 degrees, and the average wind speed was about eleven miles per hour Figure 2 (bottom) shows the distribution of wind speeds in meters per second (m/s) over the course of 2019-2023. In this regard, wind speeds measuring less than or equal to 4 m/s (9 miles per hour) were the most prevalent, occurring about 75 percent of the time.

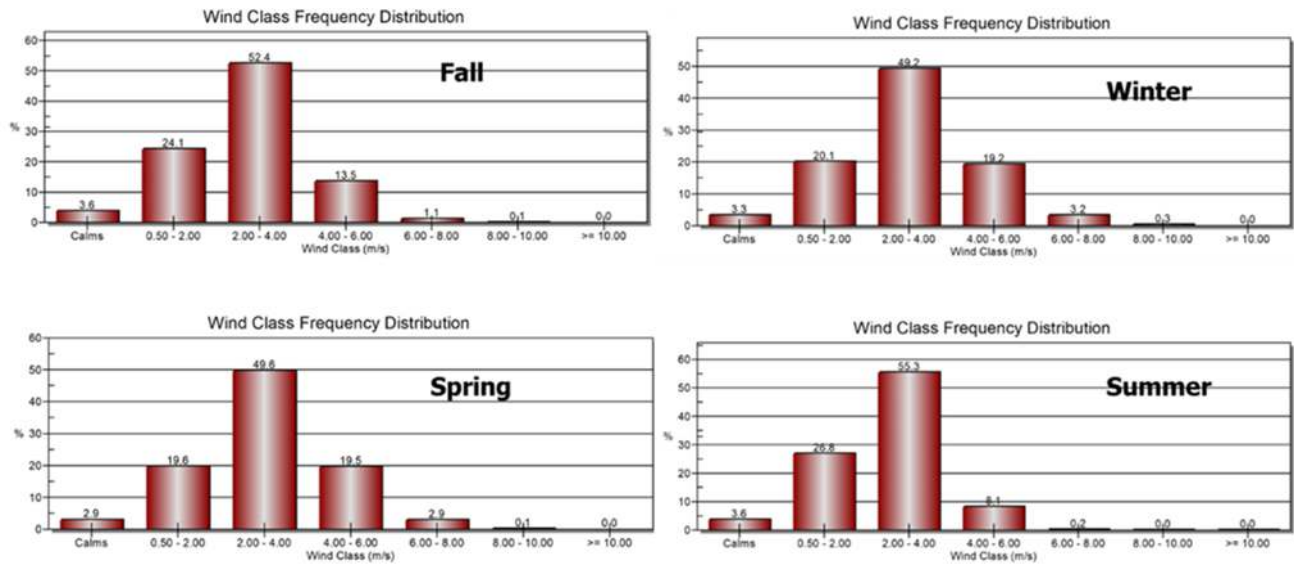


- *Regional Seasonal Meteorological Profiles and Variability*

Figures 3 and 4 show meteorological profiles for winter (December, January, and February), spring (March, April, and May), summer (June, July, and August) and fall (September, October, and November) based on the 2019-2023 data. As shown in Figure 3, there were noticeable seasonal (temporal) differences in the meteorological profiles. For example, all winds blew from the south during the summer, but winters were typically characterized by winds from the southwest and northwest. The northwest and south directions were the predominant wind directions in the spring. Additionally, winds were typically calm (i.e., high frequency of the lowest wind classes) regardless of season as shown in Figure 4.



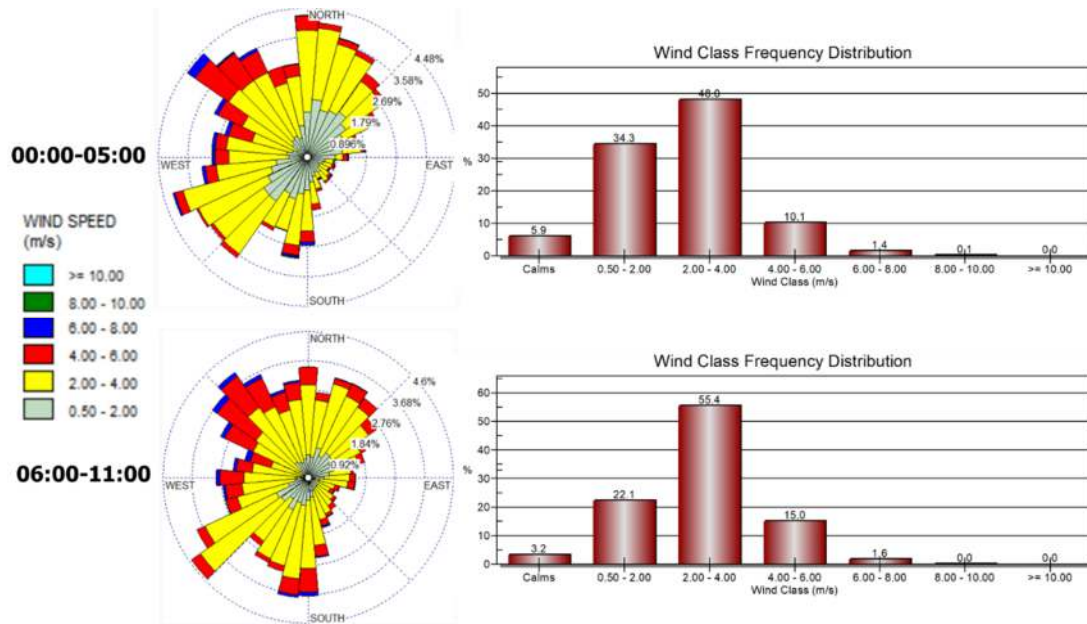
*Figure 2. Seasonal Meteorological Profiles (2019-2023).*



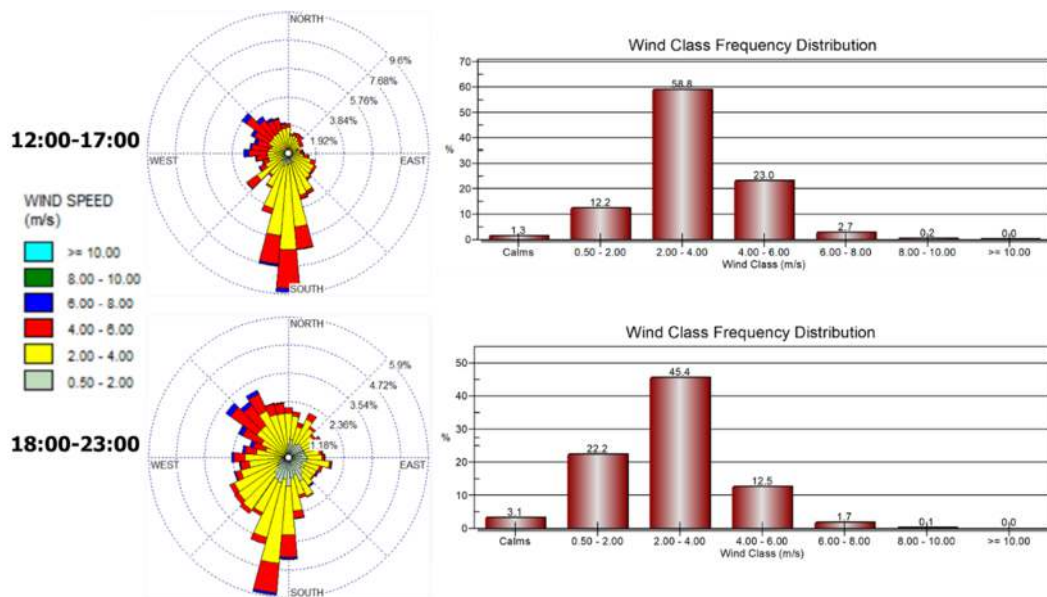
**Figure 3.** Wind Class Distribution by Season (2019-2023)

- *Regional Intraday and Annual Variability*

We investigated whether the area’s meteorology has a diurnal pattern by generating wind profiles for various time blocks. We chose four 6-hour time blocks corresponding to midnight to 5:00 am (inclusive), 6:00 to 11:00 am (inclusive), noon to 5:00 pm (inclusive), and 6:00 to 11:00 pm (inclusive). The resulting wind profiles are shown in Figures 5 and 6. These profiles indicate that winds substantively shifted directions throughout the day and from one day to the next, with most of the winds generally being less than or equal to 9 miles per hour. Overall, the average wind direction substantively shifted to originating from a more southerly and southwestern direction in the afternoon through late evening. Indeed, between noon and 6 pm, the average wind direction was from due south, and some of the strongest winds were from that direction (i.e., those winds measuring over six miles per hour).



**Figure 5.** Average Meteorological Profiles for the Hour Blocks of Midnight - 5:00 am (top) and 6:00-11:00 am (bottom) for the 5-year Measurement Period (2019-2023).



**Figure 6.** Average Meteorological Profiles for the Hour Blocks of Noon - 5:00 pm (top) and 6:00-11:00 pm (bottom) for the 5-year Measurement Period (2019-2023).



Overall, as discussed, the meteorological profiles shown herein clearly indicate a strong cross seasonal variability including daily variability surrounding the different time blocks analyzed across all years which is significant in the matters of regional impacts related to landing and takeoff aviation emissions.

#### 6. FLIGHT PATH INTO 22L/R AND AIR QUALITY IMPACTS ON THE TOWNS

From the detailed analysis conducted and discussed herein related to the meteorological data including the fluency of understanding the impacts of aviation emissions via the processes of landing and takeoffs and considering the mixing heights recognized at 3,000 feet and below, there would be emissions resulting in air quality impacts on the Towns & surrounding areas that, consistent with the above-cited literature, likely cause air pollution impacts resulting from this flight path. This directly coincides with my detailed analysis of the various health data collected via DOH. It is important to note that according to the DOH database, there are elevated asthma incidence rates in the areas surrounding JFK and within the flight path including Village of Hempstead, Valley Stream, Inwood, and West Hempstead. Several of these are disadvantaged communities. The DOH website also shows that the entire southwestern border of Nassau County is of “High Concern” and/or “Moderate Concern” with respect to emergency visits for children as a result of asthma. Further, according to DOH, several communities in the 22L/R flight path, including Valley Stream and Elmont where arriving aircraft are at very low altitudes, have elevated levels of stomach and prostate cancer.<sup>17</sup> Peer review studies have concluded that asthma, stomach cancer and prostate cancer are associated with exposure to aircraft emissions.<sup>18</sup>

A detailed review of both New York TRACON/Kennedy Tower Letters of Agreement by and between FAA and Port Authority of New York/New Jersey (the operator of JFK) from November 8, 2021, and September 1, 2000, was conducted as part of this analysis. In 2000, the New York

---

<sup>17</sup> [https://apps.health.ny.gov/statistics/cancer/environmental\\_facilities/mapping/map/](https://apps.health.ny.gov/statistics/cancer/environmental_facilities/mapping/map/)

<sup>18</sup> <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-020-00690-y> (asthma); <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10402937/#:~:text=Exposures%20to%20PM2.5%20and%20NO2%20were%20associated%20with,for%20PM2.5%20remained%20inconclusive> (prostate cancer); <https://onlinelibrary.wiley.com/doi/10.1002/ijc.31564>; <https://www.sciencedirect.com/science/article/pii/S0160412019340383> (stomach cancer)





State Port Authority (herein after “Port Authority”) agreed to use 22L/R on a limited basis for strategy against noise reduction. However, the TRACON November 8, 2021, letter of agreement does not contain such language, allowing for the more frequent use of Runway 22L/R, including throughout the night (2000 TRACON letter of agreement did not support flights from 2300 to 0700). Given these changes and the more frequent use of 22L/R, Towns’ residents are at a higher exposure level likely significantly increasing their risk of negative health outcomes than if 22L/R runways were not used, or even if they were used less frequently.

#### *9. AIR POLLUTION IS WIDESPREAD THROUGHOUT THE TOWNS*

Figure 7 below considering (cross seasonal meteorological variations) conservatively illustrates the areas where air pollution from aircraft emissions in the 22 L/R arrival flight path would be expected to likely cause substantially increased risk of health outcomes.

From review of the various seasonal wind rose plots that illustrate all the different wind directions across the year and the flight path for 22L/R, it is within a strong degree of scientific certainty that aircraft emissions would be readily dispersed and deposited within this plume outline and likely beyond. The level of emissions and impact areas would change based on the season. The fall months would yield a wider area of airplane emissions and dispersion given the number of shifts in wind direction as shown. Winter, summer, and spring would also likely yield dispersion within the plume area (and potentially beyond) due to more defined wind direction.

Overall, figure 7 conservatively depicts to a reasonable degree of scientific certainty the areas for which residents likely have an increased risk of disease due to emissions from the 22L/R Runway arrival flight path. The scientific data reviewed and analyzed as part of this assessment provides evidence that this flight path is likely contributing to the high incidence of rates of disease and exposures for tens of thousands of residents of the Towns.

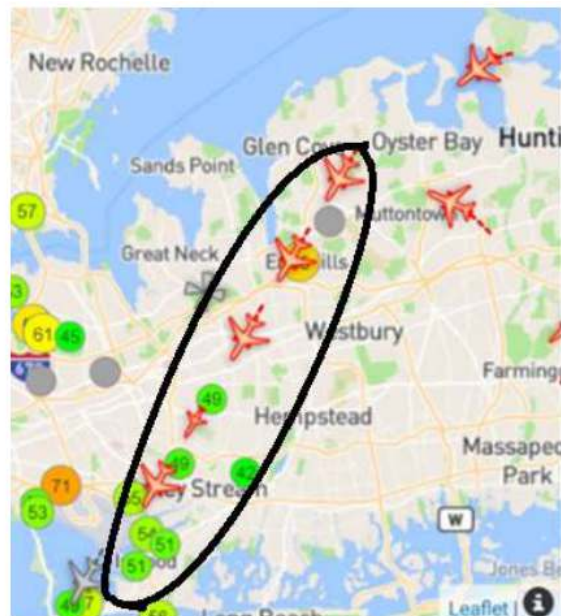


Figure 7. Plume map showing likely impact areas to a reasonable degree of scientific certainty within and around the Towns based on flight path, cross seasonal meteorological wind rose plots. This plume area indicates more annual exposures to various air toxins as discussed herein yielding higher rates of health impacts from poor air quality for tens of thousands of individuals within the flight path shown.

## 7. Alternatives to the Excessive Use of The Runway 22 L/R Flight Path

To show a direct comparison of the flight path and impacts Figure 8 below is an illustration of an alternative flight path taken from the Webtrak program from November 20, 2023, whereby aircraft land on runways 4R and 4L traversing primarily over the ocean. Arrivals to runways 31R/31L present another feasible alternate. Less use of runways 22L/R would have significantly reduced impact as aircraft would not fly for miles over densely populated communities, but instead would primarily be flying over the ocean when below the mixing height. Further, as winds at JFK have been found to be 9 mph or less 75% of the time and generally shift throughout the day, there rarely is a meteorological reason to primarily use the current Runway 22L/R arrival flight path.

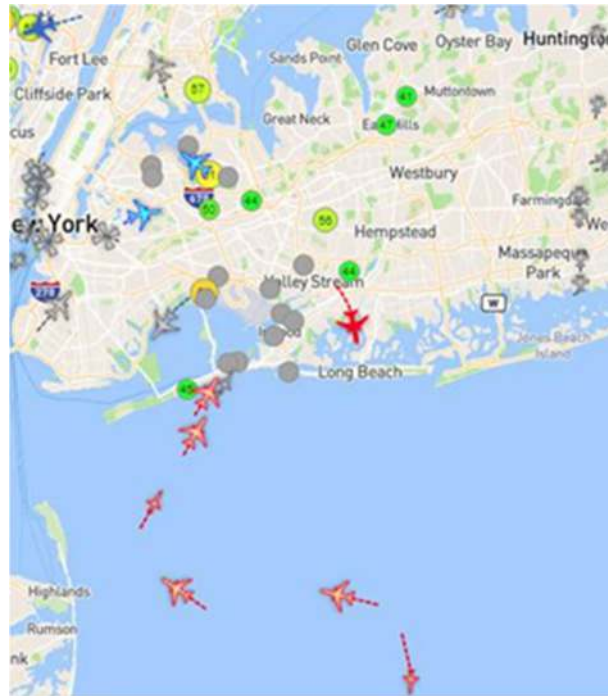


Figure 8. Alternative option of flight path into JFK 22L/R that nearly eliminates all airplanes from flowing over the several areas discussed herein.

Indeed, during Port Authority's September 12, 2022, presentation to JFK Roundtable, Port Authority presented the following slides showing the current use and feasibility of aircraft arriving on Runways 4 L/R and Runways 31 L/R



Figure 8a. Slide presented by Port Authority on September 12, 2022, to JFK Roundtable showing the feasibility and current use of ocean-based arrival flight path to Runways 4L/R.



Figure 8b. Slide presented by Port Authority on September 12, 2022, to JFK Roundtable showing the feasibility and current use of ocean-based arrival flight path to Runways 31L/R.

In summary, Figure 7 as noted above conservatively illustrates the plume resulting from the flight path for aircraft arriving at JFK runways 22L/R, which is currently used as the primary arrival flight path to JFK. This flight path extends over many densely populated areas discussed herein yielding elevated air quality impacts in the plume area and likely beyond. This is particularly problematic because for the entirety of the flight path from Roslyn to JFK, flights are below 3,000 feet which is recognized as a height of concern for ground exposures to various air toxins as discussed herein. In contrast, the alternative routes with arriving flights directed over the ocean, would significantly reduce impacts to densely populated areas and cause minimal, if any, air impact to the Towns' and other residents. This assessment is consistent with the data provided by DOH and elevated levels of disease and asthma rates discussed earlier.



## 8. Other Options Include Implementing an Optimized Profile Descent Procedure

FAA typically requires planes to implement the “step-down” approach for JFK arrivals. By the step-down approach, planes decrease altitude, then thrust forming steps in the air. Due to the thrust, additional noise and air emissions are created.

In contrast, the glideslope method, otherwise known as “Optimized Profile Descent,” as illustrated in Figure 9 is an alternative landing procedure known to reduce noise and emissions. The following diagram shows the difference between the step-down and glideslope procedures:<sup>19</sup>

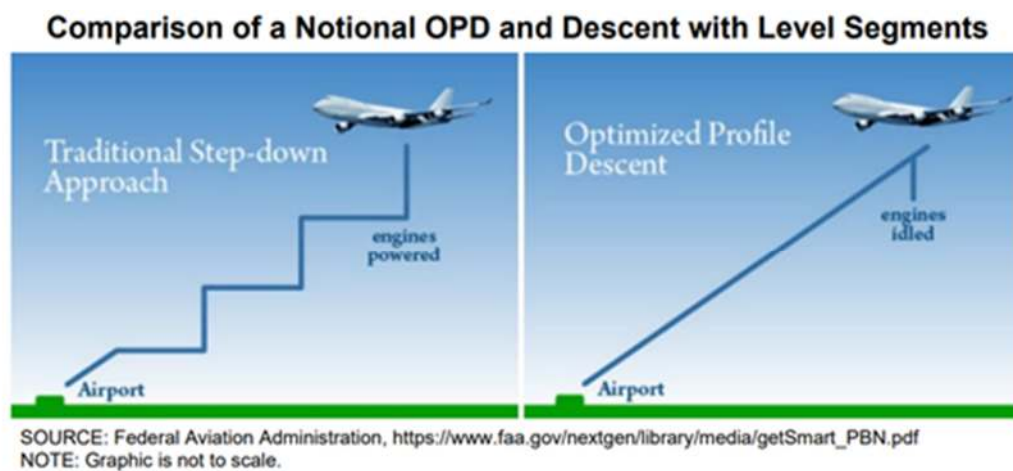


Figure 9. Illustrative comparison of Traditional Step-Down Approach v. Optimized Profile Descent (preferred).

<sup>19</sup> John F. Kennedy International Airport Final Noise Compatibility Program Report, dated Sep. 2022 (“NCP Report”), p. 2-64.



Since 2021, FAA has authorized use of glideslope at various other airports.<sup>20</sup> FAA has not authorized such use at JFK. Use of the glideslope is feasible for arrivals at JFK, particularly for aircraft arrivals at non-peak times.

#### *9. SUMMARY EXPERT OPINIONS/CONCLUSIONS*

- It is my expert opinion to a reasonable degree of scientific certainty that the emissions related to the flight path for aircraft coming into 22L/R have a significant impact on air quality for all those air toxins mentioned herein this report, including ozone.
- It is my expert opinion to a reasonable degree of scientific certainty that there are several densely populated communities within the Towns (which comprise approximately 1 million people) impacted daily by air pollution caused by the Runway 22L/R flight path. See Figure 7.
- It is my expert opinion to a reasonable degree of scientific certainty that the analysis conducted herein strongly supports the flight path plume area estimated in this report considering the seasonal variations in wind direction as shown and frequency of planes (90,000 per year) traversing the flight path at less than 3,000 feet.
- It is my expert opinion to a reasonable degree of scientific certainty that use of the Runway 22 L/R flight path results in increased exposures to dangerous levels of aircraft emissions for tens of thousands of Towns' residents, which substantially increases their risk and contributes to the health outcomes discussed herein (e.g., asthma and cancer).

---

<sup>20</sup> <https://www.faa.gov/newsroom/faa-implements-more-efficient-descent-procedures-reduce-fuel-burn-emissions>



- It is my expert opinion to a reasonable degree of scientific certainty that unless the use of the arrival flight path for 22L/R runways is reduced (or eliminated) there will be a continued and worsening trend of elevated exposures and disease outcomes throughout the Towns and surrounding communities.
- It is my expert opinion to a reasonable degree of scientific certainty that unless the use of the arrival flight path for 22L/R is greatly reduced (or eliminated), air pollution, including Ozone, will likely remain elevated in Nassau County's jurisdiction and it will be very difficult, if not impossible for air quality in Nassau County (including in Towns) to reach attainment under the Clean Air Act.
- It is my expert opinion to a reasonable degree of scientific certainty that additional studies on air quality and modeling related to the flight path of airplanes using 22L/R will show a strong association of elevated air quality impacts that can be coupled with supporting health data by DOH as discussed.
- It is my expert opinion to a reasonable degree of scientific certainty that it is feasible to direct arrivals to JFK to traverse primarily over the ocean and primarily arrive on Runways 4R/L and/or 31R/L.
- It is my expert opinion to a reasonable degree of scientific certainty that the ocean-based route(s), which does not traverse over densely populated areas within the Towns, would cause minimal, if any air pollution impact to the Towns' (and other) residents, including the tens of thousands of Towns' residents that are currently impacted.
- It is my expert opinion to a reasonable degree of scientific certainty that use of the ocean-based route(s): (i) will substantially reduce air pollution impacts within the Towns, (ii) will substantially reduce the risk and negative health outcomes (including asthma and cancer) for tens of thousands of Towns' residents, and (iii) will give Nassau County (and





Towns) a fighting chance at reaching attainment levels for Ozone pollution under the Clean Air Act.

- It is my expert opinion to a reasonable degree of scientific certainty that when use of the current 22 L/R arrival flight path is absolutely necessary, implementation of “Optimized Profile Descent” (a/k/a glide slope) is feasible and should be required to reduce emissions, air pollution and negative health outcomes.

This concludes this report and all information contained herein is provided with the strongest degree of scientific certainty and professional judgement based on years of experience and expertise in similar matters.

Thank you,

A handwritten signature in black ink, appearing to read "Timothy R. McAuley", written in a cursive style.

Timothy R. McAuley, MS, PhD

**EXHIBIT B**

# Properties in Flight Path

## Historic Properties

1

Cornell-Van Nostrand House  
(Schumacher House)

2

Clark Gardens House

3

Peter J. Herman House

4

Franklin National Bank

5

Schoenlein-Mott House

6

Curtis Airfield

7

St. Paul's Presbyterian Church  
& Cemetery

8

Franklin Square Movie Theater

9

Victorian Gazebo - Rath Park

## Parks

1

Tudor Park Circle

2

The Albertson Triangle

3

Averill Boulevard Park

4

Roslyn Pond Park

5

Michael J. Tully Park

6

John D Caemmerer Park



7

Dutch Broadway Park

8

Clark Botanic Gardens

9

Small Park Circle

10

Clinton G. Martin Park

11

Elmont Road Park

12

Hendrickson Avenue Park

13

Broadway Park

14

Gerry Park

15

Shepherd Ln Playground

16

Devonshire Drive & Park Circle

17

Donald Street Park

18

Richard Provost Memorial Park

19

Herricks Road Park

20

Ridder's Pond Park

21

Rath Park

---